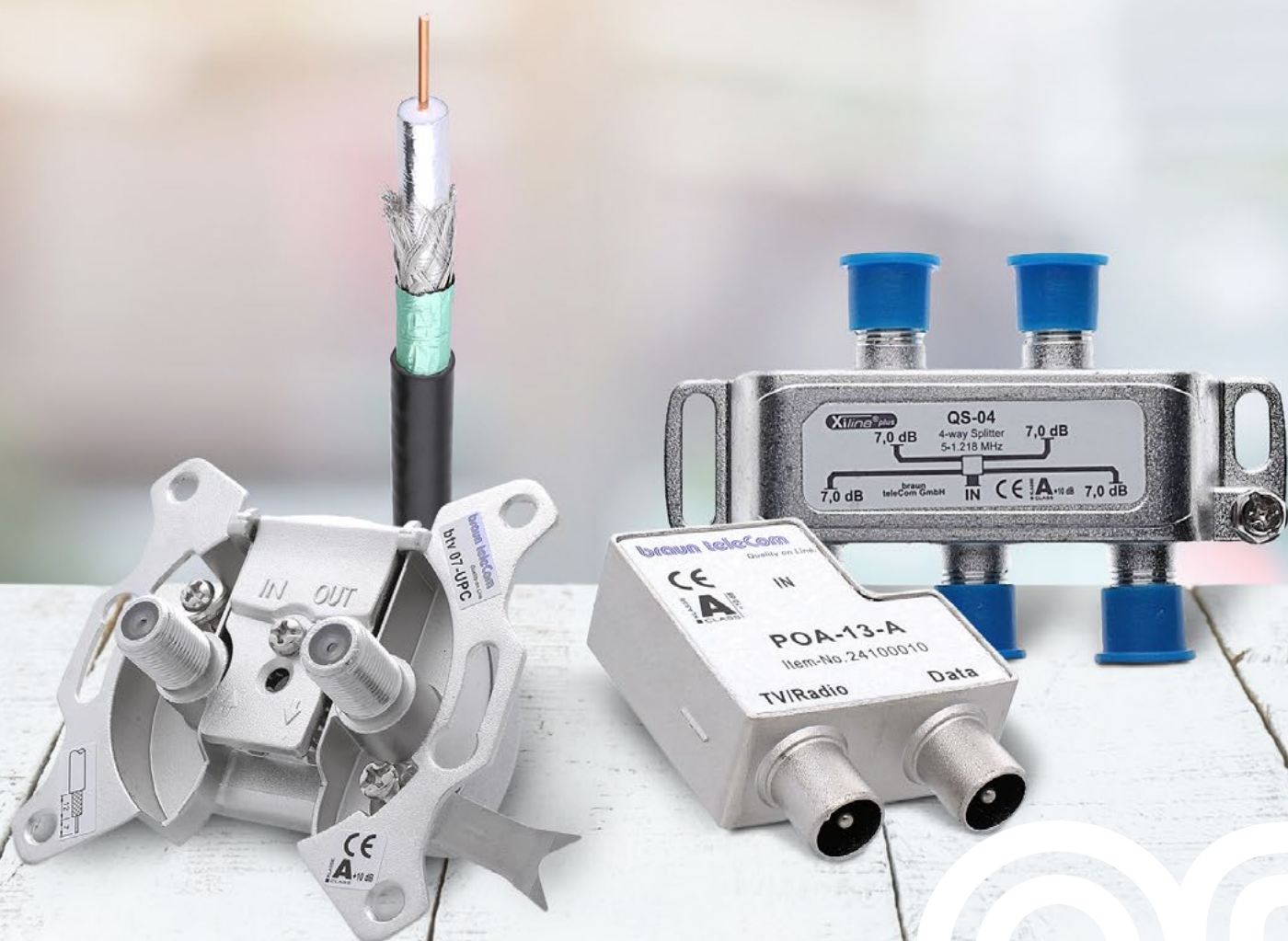


# Coaxial Technology

Distribution equipment, wall outlets and cables



braun teleCom products have stood for competence and continuity for more than 35 years. Extensive experience and constantly growing know-how make the components and systems an integral part of many FTTH and HFC broadband networks.

While, in many areas, our activities focus on the development and production of our own products, we also serve as distributor for selected high-performance partners to achieve best possible customer satisfaction.

braun teleCom is a product brand of Netceed. We are a global leader in distribution, logistics, technical engineering, and product design with over 30 years of expertise and performance supporting the telecommunications and broadband industry.

Netceed is a global leader in distribution, logistics, technical engineering, and product design supporting the telecommunications and broadband industry. We supply and distribute a comprehensive range of passive and active equipment and tooling for network deployment, upgrades, and maintenance, supporting all technologies including FTTH, FTTx, HFC, Wi-Fi, 5G/mobile, and data center.

Netceed's comprehensive portfolio of 90,000+ products from nearly 1,500 industry-leading suppliers, along with their value-added supply chain solutions support carriers' seamless delivery of high-speed Internet, Video, Data, and Voice services to Residential, Business, and Mobile Users.



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# PASSIVE DISTRIBUTION EQUIPMENT

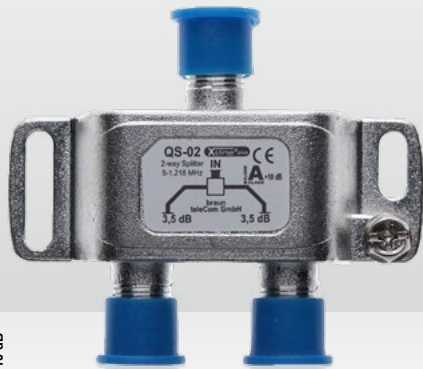
Do you have questions concerning our products or want to place an order?

**We look forward to your call!**  
**+49 511 757086**

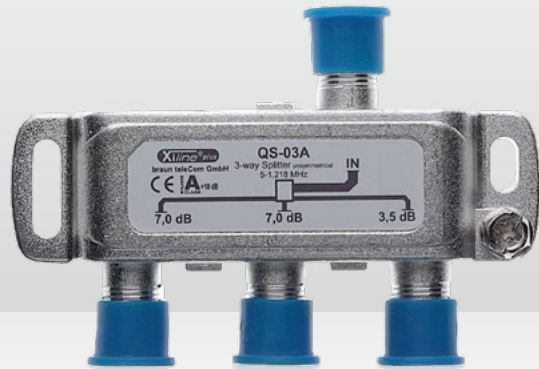
Do you already know, which products you need?  
[shop.brauntelecom.com](https://shop.brauntelecom.com)

# "XiLine plus" taps and splitters

2-way, 3-way, 4-way, 6-way and 8-way splitters



50002001  
QS-02



50003501  
QS-03A

■ KLASSE  
**A**  
CLASS I  
+10 dB

**XiLine plus**

- Frequency range 5 – 1.218 MHz
- High-grade ferrit technology with excellent intermodulation resistance
- 360° gold plated inner conductors, high-grade dielectric inserts for excellent linearity and adaptation
- Housing plated with CuSn white bronze
- Block capacitors at each in- and output port against DC hum modulation
- Compact die-cast housing with grounding connections
- 6-way and 8-way splitters as well as 4-way, 6-way and 8-way taps are mountable in horizontal and vertical positions
- High screening factor ( $\geq 110$  dB) exceeding EN 50083-2 Class A +10 dB
- Return loss > 22 dB at 47 MHz -1,5 dB/Oct. according EN 60728-4 Grade 1

| Parameter                   | Frequency [MHz] | 2-way splitter<br>QS-02 | 3-way splitter<br>QS-03 | 3-way splitter<br>unbalanced<br>QS-03A | 4-way splitter<br>QS-04 |
|-----------------------------|-----------------|-------------------------|-------------------------|--|-------------------------|
| Through loss [dB]           | 5 – 10          | 3,5 ± 0,3               | 5,5 ± 0,3               | 3,5/2 × 7,0 ± 0,3                      | 7,0 ± 0,3               |
|                             | 10 – 65         | 3,5 ± 0,3               | 5,5 ± 0,3               | 3,5/2 × 7,0 ± 0,3                      | 7,0 ± 0,3               |
|                             | 65 – 470        | 3,5 ± 0,3               | 5,5 ± 0,5               | 3,5/2 × 7,0 ± 0,5                      | 7,0 ± 0,5               |
|                             | 470 – 862       | 3,5 ± 0,5               | 5,5 ± 0,8               | 3,5/2 × 7,0 ± 0,8                      | 7,0 ± 0,8               |
|                             | 862 – 1.006     | 3,5 ± 0,8               | 5,5 ± 1,0               | 3,5/2 × 7,0 ± 1,0                      | 7,0 ± 1,0               |
| Isolation [dB typ.]         | 1.006 – 1.218   | 3,5 ± 1,2               | 5,5 ± 1,2               | 3,5/2 × 7,0 ± 1,2                      | 7,0 ± 1,2               |
|                             | 5 – 10          | > 25                    | > 22                    | > 23                                   | > 28                    |
|                             | 10 – 65         | > 30                    | > 30                    | > 30                                   | > 33                    |
|                             | 65 – 470        | > 28                    | > 28                    | > 28                                   | > 28                    |
|                             | 470 – 862       | > 26                    | > 26                    | > 25                                   | > 26                    |
| Dimensions (W x H x D) [mm] | 862 – 1.006     | > 24                    | > 24                    | > 24                                   | > 24                    |
|                             | 1.006 – 1.218   | > 20                    | > 22                    | > 22                                   | > 22                    |
| Order No.                   |                 | 50002001                | 50003001                | 50003501                               | 50004001                |

| Parameter                   | Frequency [MHz] | 6-way splitter<br>QS-06 | 8-way splitter<br>QS-08 |
|-----------------------------|-----------------|-------------------------|-------------------------|
| Through loss [dB]           | 5 – 10          | 9,5 ± 0,3               | 11,0 ± 0,3              |
|                             | 10 – 65         | 9,5 ± 0,3               | 11,0 ± 0,3              |
|                             | 65 – 470        | 9,5 ± 0,5               | 11,0 ± 0,5              |
|                             | 470 – 862       | 9,5 ± 0,8               | 11,0 ± 0,8              |
|                             | 862 – 1.006     | 9,5 ± 1,0               | 11,0 ± 1,0              |
| Isolation [dB typ.]         | 1.006 – 1.218   | 9,5 ± 1,3               | 11,0 ± 1,5              |
|                             | 5 – 10          | > 28                    | > 26                    |
|                             | 10 – 65         | > 33                    | > 30                    |
|                             | 65 – 470        | > 28                    | > 26                    |
|                             | 470 – 862       | > 26                    | > 24                    |
| Dimensions (W x H x D) [mm] | 862 – 1.006     | > 24                    | > 22                    |
|                             | 1.006 – 1.218   | > 22                    | > 20                    |
| Order No.                   |                 | 50006001                | 50008001                |



50003501  
QS-03A



50004001  
QS-04



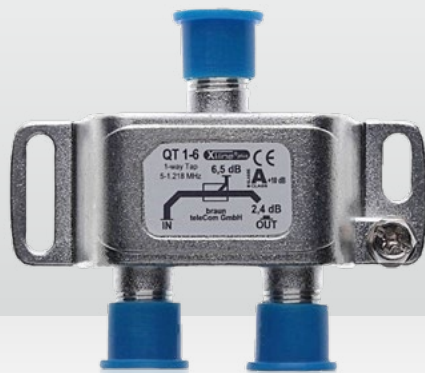
50006001  
QS-06



50008001  
QS-08

Subject to technical changes!

# 1-way, 2-way and 3-way taps



50106001  
QT-1-6



50312001  
QT-3-12

| Parameter                   | Frequency [MHz] | 1-way taps    |           |           |            |            |            |            |
|-----------------------------|-----------------|---------------|-----------|-----------|------------|------------|------------|------------|
|                             |                 | QT-1-6        | QT-1-8    | QT-1-10   | QT-1-12    | QT-1-16    | QT-1-20    |            |
| Through loss [dB]           | IN – OUT        | 5 – 10        | 2,4 ± 0,3 | 1,8 ± 0,3 | 1,2 ± 0,3  | 0,8 ± 0,3  | 0,7 ± 0,3  | 0,5 ± 0,3  |
|                             |                 | 10 – 65       | 2,4 ± 0,3 | 1,8 ± 0,3 | 1,2 ± 0,3  | 0,8 ± 0,3  | 0,7 ± 0,3  | 0,5 ± 0,3  |
|                             |                 | 65 – 470      | 2,4 ± 0,5 | 1,8 ± 0,5 | 1,2 ± 0,5  | 0,8 ± 0,5  | 0,7 ± 0,3  | 0,5 ± 0,3  |
|                             |                 | 470 – 862     | 2,4 ± 0,6 | 1,8 ± 0,6 | 1,2 ± 0,6  | 0,8 ± 0,6  | 0,7 ± 0,5  | 0,5 ± 0,5  |
|                             |                 | 862 – 1.006   | 2,4 ± 0,8 | 1,8 ± 0,8 | 1,2 ± 0,8  | 0,8 ± 0,8  | 0,7 ± 0,5  | 0,5 ± 0,5  |
|                             |                 | 1.006 – 1.218 | 2,4 ± 1,0 | 1,8 ± 1,0 | 1,2 ± 1,0  | 0,8 ± 1,0  | 0,7 ± 0,8  | 0,5 ± 0,8  |
| Tap loss [dB]               | IN – TAP        | 5 – 10        | 6,5 ± 0,8 | 8,5 ± 0,5 | 10,5 ± 0,5 | 12,5 ± 0,5 | 16,0 ± 0,5 | 20,0 ± 0,5 |
|                             |                 | 10 – 65       | 6,5 ± 0,5 | 8,5 ± 0,5 | 10,5 ± 0,5 | 12,5 ± 0,5 | 16,0 ± 0,5 | 20,0 ± 0,5 |
|                             |                 | 65 – 470      | 6,5 ± 0,5 | 8,5 ± 0,5 | 10,5 ± 0,5 | 12,5 ± 0,5 | 16,0 ± 0,5 | 20,0 ± 0,5 |
|                             |                 | 470 – 862     | 6,5 ± 0,8 | 8,5 ± 0,8 | 10,5 ± 0,8 | 12,5 ± 0,8 | 16,0 ± 0,8 | 20,0 ± 0,8 |
|                             |                 | 862 – 1.006   | 6,5 ± 1,0 | 8,5 ± 1,0 | 10,5 ± 1,0 | 12,5 ± 1,0 | 16,0 ± 1,0 | 20,0 ± 1,0 |
|                             |                 | 1.006 – 1.218 | 6,5 ± 1,2 | 8,5 ± 1,2 | 10,5 ± 1,2 | 12,5 ± 1,2 | 16,0 ± 1,2 | 20,0 ± 1,2 |
| Directivity [dB typ.]       | OUT – TAP       | 5 – 10        | > 40      | > 35      | > 40       | > 45       | > 45       | > 45       |
|                             |                 | 10 – 65       | > 40      | > 35      | > 40       | > 45       | > 45       | > 45       |
|                             |                 | 65 – 470      | > 30      | > 30      | > 30       | > 35       | > 35       | > 38       |
|                             |                 | 470 – 862     | > 26      | > 25      | > 25       | > 30       | > 30       | > 32       |
|                             |                 | 862 – 1.006   | > 26      | > 23      | > 23       | > 30       | > 28       | > 30       |
|                             |                 | 1.006 – 1.218 | > 22      | > 22      | > 20       | > 26       | > 26       | > 28       |
| Dimensions (W x H x D) [mm] |                 | 58 x 53 x 18  |           |           |            |            |            |            |
| Order No.                   |                 | 50106001      | 50108001  | 50110001  | 50112001   | 50116001   | 50120001   |            |

| Parameter             | Frequency [MHz] | 2-way taps    |           |            |            |            | 3-way taps |            |            |            |
|-----------------------|-----------------|---------------|-----------|------------|------------|------------|------------|------------|------------|------------|
|                       |                 | QT-2-8        | QT-2-10   | QT-2-12    | QT-2-16    | QT-2-20    | QT-3-12    | QT-3-16    | QT-3-20    |            |
| Through loss [dB]     | IN – OUT        | 5 – 10        | 3,9 ± 0,5 | 2,2 ± 0,5  | 1,3 ± 0,5  | 1,2 ± 0,3  | 0,9 ± 0,3  | 2,8 ± 0,5  | 2,2 ± 0,5  | 1,8 ± 0,5  |
|                       |                 | 10 – 65       | 3,9 ± 0,5 | 2,2 ± 0,5  | 1,3 ± 0,5  | 1,2 ± 0,3  | 0,9 ± 0,3  | 2,8 ± 0,5  | 2,2 ± 0,5  | 1,8 ± 0,5  |
|                       |                 | 65 – 470      | 3,9 ± 0,5 | 2,2 ± 0,5  | 1,3 ± 0,5  | 1,2 ± 0,5  | 0,9 ± 0,3  | 2,8 ± 0,5  | 2,2 ± 0,5  | 1,8 ± 0,5  |
|                       |                 | 470 – 862     | 3,9 ± 0,6 | 2,2 ± 0,6  | 1,3 ± 0,6  | 1,2 ± 0,6  | 0,9 ± 0,5  | 2,8 ± 0,8  | 2,2 ± 0,8  | 1,8 ± 0,8  |
|                       |                 | 862 – 1.006   | 3,9 ± 1,0 | 2,2 ± 1,0  | 1,3 ± 1,0  | 1,2 ± 1,0  | 0,9 ± 0,8  | 2,8 ± 1,0  | 2,2 ± 1,0  | 1,8 ± 1,0  |
|                       |                 | 1.006 – 1.218 | 3,9 ± 1,2 | 2,2 ± 1,5  | 1,3 ± 1,2  | 1,2 ± 1,2  | 0,9 ± 1,2  | 2,8 ± 1,5  | 2,2 ± 1,5  | 1,8 ± 1,5  |
| Tap loss [dB]         | IN – TAP        | 5 – 10        | 8,5 ± 0,5 | 10,5 ± 0,5 | 12,5 ± 0,5 | 16,0 ± 0,5 | 20,0 ± 0,5 | 12,5 ± 0,5 | 16,0 ± 0,5 | 20,0 ± 0,5 |
|                       |                 | 10 – 65       | 8,5 ± 0,5 | 10,5 ± 0,5 | 12,5 ± 0,5 | 16,0 ± 0,5 | 20,0 ± 0,5 | 12,5 ± 0,5 | 16,0 ± 0,5 | 20,0 ± 0,5 |
|                       |                 | 65 – 470      | 8,5 ± 0,5 | 10,5 ± 0,5 | 12,5 ± 0,5 | 16,0 ± 0,5 | 20,0 ± 0,5 | 12,5 ± 0,5 | 16,0 ± 0,5 | 20,0 ± 0,5 |
|                       |                 | 470 – 862     | 8,5 ± 0,8 | 10,5 ± 0,8 | 12,5 ± 0,8 | 16,0 ± 0,8 | 20,0 ± 0,8 | 12,5 ± 0,8 | 16,0 ± 0,8 | 20,0 ± 0,8 |
|                       |                 | 862 – 1.006   | 8,5 ± 1,0 | 10,5 ± 1,0 | 12,5 ± 1,0 | 16,0 ± 1,0 | 20,0 ± 1,0 | 12,5 ± 1,0 | 16,0 ± 1,0 | 20,0 ± 1,0 |
|                       |                 | 1.006 – 1.218 | 8,5 ± 1,2 | 10,5 ± 1,2 | 12,5 ± 1,2 | 16,0 ± 1,2 | 20,0 ± 1,2 | 12,5 ± 1,2 | 16,0 ± 1,2 | 20,0 ± 1,2 |
| Isolation [dB typ.]   | OUT – TAP       | 5 – 10        | > 32      | > 40       | > 45       | > 50       | > 50       | > 36       | > 40       | > 45       |
|                       |                 | 10 – 65       | > 32      | > 40       | > 45       | > 50       | > 50       | > 40       | > 40       | > 45       |
|                       |                 | 65 – 470      | > 28      | > 38       | > 40       | > 42       | > 42       | > 36       | > 40       | > 42       |
|                       |                 | 470 – 862     | > 28      | > 34       | > 34       | > 35       | > 35       | > 34       | > 36       | > 36       |
|                       |                 | 862 – 1.006   | > 28      | > 32       | > 30       | > 33       | > 33       | > 32       | > 32       | > 34       |
|                       |                 | 1.006 – 1.218 | > 28      | > 28       | > 30       | > 32       | > 32       | > 30       | > 32       | > 32       |
| Directivity [dB typ.] | OUT – TAP       | 5 – 10        | > 26      | > 30       | > 32       | > 35       | > 40       | > 26       | > 35       | > 35       |
|                       |                 | 10 – 65       | > 26      | > 30       | > 34       | > 35       | > 40       | > 26       | > 35       | > 35       |
|                       |                 | 65 – 470      | > 23      | > 28       | > 32       | > 32       | > 32       | > 26       | > 30       | > 32       |
|                       |                 | 470 – 862     | > 22      | > 26       | > 25       | > 27       | > 27       | > 22       | > 26       | > 28       |
|                       |                 | 862 – 1.006   | > 22      | > 26       | > 25       | > 25       | > 25       | > 20       | > 26       | > 26       |
|                       |                 | 1.006 – 1.218 | > 22      | > 24       | > 22       | > 23       | > 23       | > 20       | > 22       | > 24       |
| Dimensions [mm]       |                 | 80 x 53 x 18  |           |            |            |            |            |            |            |            |
| Order No.             |                 | 50208001      | 50210001  | 50212001   | 50216001   | 50220001   | 50312001   | 50316001   | 50320001   |            |

Subject to technical changes!

# 4-way, 6-way and 8-way multitaps

50400001  
QMT-4



50600001  
QMT-6



| Parameter                          | Frequency [MHz] | 4-way multitap, staggered tap ports<br>QMT-4 | 4-way multitap, equal tap ports<br>QMT-4S | 6-way multitap, staggered tap ports<br>QMT-6 | 6-way multitap, equal tap ports<br>QMT-6S | 8-way multitap, staggered tap ports<br>QMT-8 | 8-way multitap, equal tap ports<br>QMT-8S |
|------------------------------------|-----------------|--|---|--|---|--|---|
| Through loss [dB]<br>IN – OUT      | 5 – 10          | 3,2 ± 0,5                                    | 4,2 ± 0,7                                 | 6,0 ± 0,5                                    | 5,5 ± 0,5                                 | 8,5 ± 0,5                                    | 7,5 ± 0,5                                 |
|                                    | 10 – 65         | 3,2 ± 0,5                                    | 4,2 ± 0,5                                 | 6,0 ± 0,5                                    | 5,5 ± 0,5                                 | 8,5 ± 0,5                                    | 7,5 ± 0,5                                 |
|                                    | 65 – 470        | 3,2 ± 0,5                                    | 4,2 ± 0,5                                 | 6,0 ± 0,5                                    | 5,5 ± 0,5                                 | 8,5 ± 0,5                                    | 7,5 ± 0,5                                 |
|                                    | 470 – 862       | 3,2 ± 0,8                                    | 4,2 ± 0,6                                 | 6,0 ± 0,8                                    | 5,5 ± 0,8                                 | 8,5 ± 0,8                                    | 7,5 ± 0,8                                 |
|                                    | 862 – 1.006     | 3,2 ± 1,0                                    | 4,2 ± 1,0                                 | 6,0 ± 1,0                                    | 5,5 ± 1,0                                 | 8,5 ± 1,0                                    | 7,5 ± 1,0                                 |
|                                    | 1.006 – 1.218   | 3,2 ± 1,5                                    | 4,2 ± 1,2                                 | 6,0 ± 1,3                                    | 5,5 ± 1,3                                 | 8,5 ± 1,3                                    | 7,5 ± 1,3                                 |
| Tap loss* [dB]<br>IN – TAP         | 5 – 10          |  | 2 x 11,5/2 x 12,5 ± 0,7                   |  | 6 x 15,5 ± 0,5                            |  | 8 x 17,5 ± 0,5                            |
|                                    | 10 – 65         |  | 2 x 11,5/2 x 12,5 ± 0,5                   |  | 6 x 15,5 ± 0,5                            | 12,5/13,5                                    | 8 x 17,5 ± 0,5                            |
|                                    | 65 – 470        | 12,5/13,5                                    | 2 x 11,5/2 x 12,5 ± 0,5                   | 12,5/13,5                                    | 6 x 15,5 ± 0,5                            | 14,5/15,5                                    | 8 x 17,5 ± 0,5                            |
|                                    | 470 – 862       | 14,5/15,5                                    | 2 x 11,5/2 x 12,5 ± 0,6                   | 14,5/15,5                                    | 6 x 15,5 ± 0,8                            | 16,5/17,5                                    | 8 x 17,5 ± 0,8                            |
|                                    | 862 – 1.006     |  | 2 x 11,5/2 x 12,5 ± 1,0                   | 16,5/17,5                                    | 6 x 15,5 ± 1,0                            | 18,5/19,5                                    | 8 x 17,5 ± 1,0                            |
|                                    | 1.006 – 1.218   |  | 2 x 11,5/2 x 12,5 ± 1,2                   |  | 6 x 15,5 ± 1,2                            |  | 8 x 17,5 ± 1,2                            |
| Isolation [dB typ.]                | 5 – 10          | > 42   | > 40                                      | > 42   | > 42                                      | > 42   | > 42                                      |
|                                    | 10 – 65         | > 42   | > 40                                      | > 42   | > 42                                      | > 42   | > 42                                      |
|                                    | 65 – 470        | > 38   | > 36                                      | > 38   | > 38                                      | > 38   | > 38                                      |
|                                    | 470 – 862       | > 36   | > 34                                      | > 36   | > 36                                      | > 36   | > 36                                      |
|                                    | 862 – 1.006     | > 32   | > 32                                      | > 32   | > 32                                      | > 32   | > 32                                      |
|                                    | 1.006 – 1.218   | > 30   | > 30                                      | > 30   | > 30                                      | > 30   |   |
| Directivity [dB typ.]<br>OUT – TAP | 5 – 10          | > 32   | > 30                                      | > 35   | > 32                                      | > 35   | > 35                                      |
|                                    | 10 – 65         | > 32   | > 30                                      | > 35   | > 32                                      | > 35   | > 35                                      |
|                                    | 65 – 470        | > 30   | > 25                                      | > 30   | > 30                                      | > 30   | > 30                                      |
|                                    | 470 – 862       | > 25   | > 25                                      | > 25   | > 26                                      | > 28   | > 26                                      |
|                                    | 862 – 1.006     | > 22   | > 25                                      | > 23   | > 24                                      | > 26   | > 24                                      |
|                                    | 1.006 – 1.218   | > 20   | > 23                                      | > 22   | > 22                                      | > 24   |   |
| Dimensions [mm]                    |                 | 133 x 46,5 x 38                              |   |  |   | 155 x 46,5 x 38                              |   |
| Order No.                          |                 | 50400001                                     | 50405001                                  | 50600001                                     | 50605001                                  | 50800001                                     | 50805001                                  |

\* Tap port tolerances: ± 1,0 dB (5 – 1.006 MHz); ± 1,2 dB (1.006 – 1.218 MHz)



50405001  
QMT-4S



50800001  
QMT-8



50605001  
QMT-6S



50805001  
QMT-8S

# "Signia" taps and splitters

## 1-way and 2-way taps

84020110  
SiT 1-10



84020220  
SiT 2-20



- Frequency range 5 – 1.300 MHz
- Nickel-tin plated brass connectors lead to a minimum failure rate
- Literally maintenance-free, creating a unique OPEX advantage
- Field proven! No lose cable connectors as the Signia connector is temperature- and corrosion-resistant
- Designed for DOCSIS® 3.1

- The Signia product series contains ferrite cores, which are protected against unwanted strong signals and can be driven above their linear range of operation at high power
- Protected against dust & humidity
- Screening factor Class A

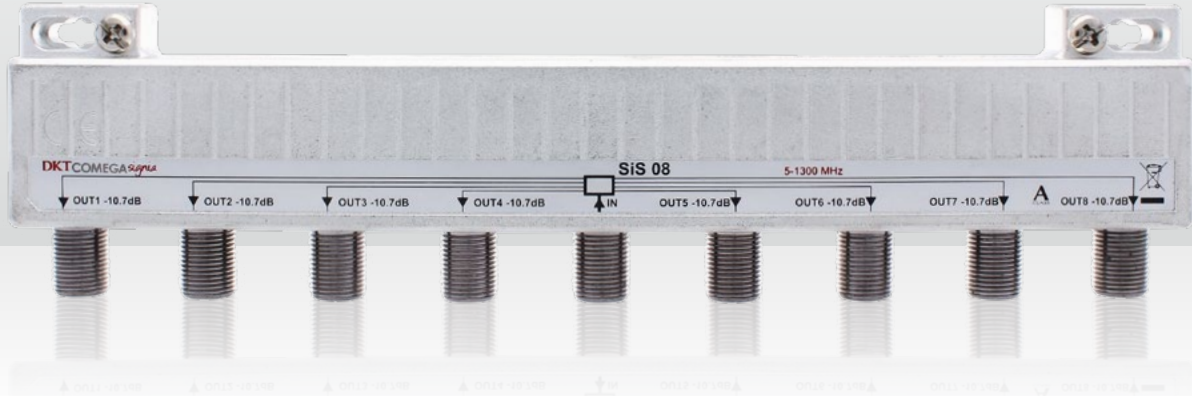
| Parameter                               | Frequency [MHz] | 1-way taps   |             |              |              |              |              |              |              |
|---|-----------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|
|   |                 | SiT-1-6      | SiT-1-8     | SiT-1-10     | SiT-1-12     | SiT-1-16     | SiT-1-20     | SiT-1-24     | SiT-1-30     |
| Tap loss [dB typ.] IN – TAP             | 10 – 1.300      | 6,6 (± 0,6)  | 8,3 (± 0,6) | 10,2 (± 0,6) | 12,1 (± 0,6) | 16,0 (± 0,6) | 20,0 (± 0,6) | 23,9 (± 0,6) | 30,2 (± 0,6) |
| Through loss [dB typ.]<br>IN – OUT      | 10 – 470        | 2,3          | 1,7         | 1,0          | 0,7          | 0,6          | 0,6          | 0,6          | 0,6          |
|   | 470 – 862       | 2,8          | 2,1         | 1,4          | 1,0          | 0,8          | 0,8          | 0,8          | 0,8          |
|   | 862 – 1.006     | 3,0          | 2,4         | 1,8          | 1,2          | 1,0          | 1,0          | 1,0          | 1,0          |
|   | 1.006 – 1.300   | 3,1          | 2,8         | 2,4          | 1,8          | 1,6          | 1,6          | 1,3          | 1,3          |
| Directivity typ./min. [dB]<br>TAP – OUT | 10 – 470        | 27/22        | 27/22       | 33/24        | 30/24        | 36/28        | 36/28        | 36/28        | 40/28        |
|   | 470 – 862       | 22/20        | 23/20       | 29/21        | 29/22        | 30/23        | 32/24        | 35/26        | 38/28        |
|   | 862 – 1.006     | 22/20        | 22/20       | 25/20        | 25/21        | 25/22        | 27/22        | 30/24        | 36/25        |
| 1.006 – 1.300                           | 22/20           | 22/20        | 25/20       | 25/20        | 25/21        | 28/21        | 30/21        | 35/23        |              |
| Dimensions [mm]                         |                 | 65 x 50 x 16 |             |              |              |              |              |              |              |
| Order No.                               |                 | 84020106     | 84020108    | 84020110     | 84020112     | 84020116     | 84020120     | 84020124     | 84020130     |

| Parameter                               | Frequency [MHz] | 2-way taps    |              |              |              |              |              |              |
|---|-----------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
|   |                 | SiT-2-8       | SiT-2-10     | SiT-2-12     | SiT-2-16     | SiT-2-20     | SiT-2-24     | SiT-2-28     |
| Tap loss [dB typ.] IN – TAP             | 10 – 1.300      | 8,5 (± 0,8)   | 10,2 (± 0,8) | 12,4 (± 0,8) | 16,3 (± 0,8) | 20,0 (± 0,8) | 24,0 (± 0,8) | 28,0 (± 0,8) |
| Through loss [dB typ.]<br>IN – OUT      | 10 – 470        | 3,2           | 1,9          | 1,2          | 1,1          | 1,1          | 1,1          | 1,1          |
|   | 470 – 862       | 3,5           | 2,7          | 1,7          | 1,4          | 1,4          | 1,4          | 1,4          |
|   | 862 – 1.006     | 3,7           | 3,2          | 2,1          | 1,6          | 1,6          | 1,6          | 1,6          |
|   | 1.006 – 1.300   | 3,9           | 3,8          | 2,4          | 2,1          | 2,1          | 2,1          | 2,1          |
| Directivity typ./min. [dB]<br>TAP – OUT | 10 – 470        | 35/26         | 35/26        | 36/26        | 38/26        | 42/28        | 44/30        | 44/30        |
|   | 470 – 862       | 30/22         | 30/23        | 30/23        | 30/23        | 35/24        | 37/25        | 37/25        |
|   | 862 – 1.006     | 24/21         | 27/21        | 28/21        | 29/22        | 31/22        | 33/24        | 33/24        |
|   | 1.006 – 1.300   | 24/20         | 27/20        | 27/20        | 27/20        | 27/20        | 29/22        | 29/22        |
| Isolation typ./min. [dB]<br>TAP – TAP   | 10 – 470        | 31/25         | 35/29        | 40/32        | 45/34        | 60/35        | 64/35        | 64/35        |
|   | 470 – 862       | 31/22         | 34/27        | 38/30        | 38/34        | 52/35        | 60/35        | 60/35        |
|   | 862 – 1.006     | 29/21         | 32/26        | 36/28        | 36/32        | 46/33        | 51/35        | 51/35        |
|   | 1.006 – 1.300   | 27/21         | 31/22        | 34/25        | 36/28        | 43/31        | 49/34        | 49/34        |
| Dimensions [mm]                         |                 | 109 x 50 x 16 |              |              |              |              |              |              |
| Order No.                               |                 | 84020208      | 84020210     | 84020212     | 84020216     | 84020220     | 84020224     | 84020228     |



# 3-way to 8-way taps and splitters

84148008  
SiS 08



KLASSE  
**A**  
CLASS

| Parameter                               | Frequency [MHz] | 3-way taps    |              |              |              | 4-way taps    |              |              |  |
|---|-----------------|---------------|--------------|--------------|--------------|---------------|--------------|--------------|--|
|   |                 | SiT-3-16      | SiT-3-20     | SiT-4-12s    | SiT-4-16s    | SiT-4-24s     | SiT-2-24     | SiT-4-28s    |  |
| Tap loss [dB typ.] IN – TAP             | 10 – 1.300      | 16,1 (± 0,8)  | 20,1 (± 0,8) | 12,4 (± 0,8) | 16,2 (± 0,8) | 20,0 (± 0,8)  | 24,0 (± 0,8) | 28,0 (± 0,8) |  |
|   | 10 – 470        | 2,0           | 1,2          | 3,7          | 2,7          | 1,5           | 1,5          | 1,5          |  |
| Through loss [dB typ.]<br>IN – OUT      | 470 – 862       | 1,9           | 1,5          | 3,8          | 2,7          | 1,8           | 1,8          | 1,8          |  |
|   | 862 – 1.006     | 2,2           | 1,7          | 4,3          | 2,9          | 2,1           | 2,1          | 2,1          |  |
|   | 1.006 – 1.300   | 2,7           | 2,3          | 5,1          | 3,7          | 2,7           | 2,7          | 2,7          |  |
| Directivity typ./min. [dB]<br>TAP – OUT | 10 – 470        | 35/24         | 44/28        | 32/24        | 34/24        | 40/24         | 43/25        | 43/25        |  |
|   | 470 – 862       | 32/22         | 33/22        | 31/22        | 31/21        | 33/21         | 40/24        | 40/24        |  |
|   | 862 – 1.006     | 28/21         | 29/21        | 27/20        | 27/21        | 29/21         | 33/22        | 33/22        |  |
|   | 1.006 – 1.300   | 25/20         | 25/20        | 25/20        | 25/20        | 27/20         | 29/20        | 29/20        |  |
| Isolation typ./min. [dB]<br>TAP – TAP   | 10 – 470        | 50/34         | 59/34        | 48/34        | 50/36        | 52/38         | 54/38        | 54/38        |  |
|   | 470 – 862       | 45/32         | 51/32        | 43/32        | 45/34        | 47/36         | 49/36        | 49/36        |  |
|   | 862 – 1.006     | 41/32         | 44/32        | 40/30        | 42/32        | 45/34         | 47/34        | 47/34        |  |
|   | 1.006 – 1.300   | 37/30         | 42/30        | 38/28        | 40/30        | 43/32         | 45/32        | 45/32        |  |
| Dimensions [mm]                         |                 | 109 x 50 x 16 |              |              |              | 131 x 50 x 16 |              |              |  |
| Order No.                               |                 | 84148316      | 84148320     | 84148430     | 84148431     | 84148432      | 84148433     | 84148434     |  |

| Parameter                             | Frequency [MHz] | Internally terminated<br>4-way taps |              | Internally terminated<br>6-way tap | Internally terminated<br>8-way tap |
|---------------------------------------|-----------------|-------------------------------------|--------------|------------------------------------|------------------------------------|
|                                       |                 | SiTT-4-10                           | SiTT-4-12    | SiTT-6-14                          | SiTT-8-15                          |
| Tap loss [dB typ.] IN – TAP           | 10 – 1.300      | 10,2 (± 0,9)                        | 12,3 (± 0,9) | 14,1 (± 0,8)                       | 15,8 (± 1,1)                       |
|                                       | 10 – 470        | 40/30                               | 43/32        | 40/34                              | 42/36                              |
| Isolation typ./min. [dB]<br>TAP – TAP | 470 – 862       | 34/30                               | 36/32        | 40/32                              | 40/32                              |
|                                       | 862 – 1.006     | 32/28                               | 34/30        | 38/30                              | 40/30                              |
|                                       | 1.006 – 1.300   | 30/26                               | 32/28        | 34/28                              | 37/28                              |
| Dimensions [mm]                       |                 | 109 x 50 x 16                       |              | 196 x 50 x 16                      | 196 x 50 x 16                      |
| Order No.                             |                 | 84148410                            | 84148411     | 84148614                           | 84148815                           |

| Parameter                             | Frequency [MHz] | 2-way splitter | 3-way splitter | 3-way splitter,<br>asymmetric | 4-way splitter | 6-way splitter | 8-way splitter |
|---------------------------------------|-----------------|----------------|----------------|-------------------------------|----------------|----------------|----------------|
|                                       |                 | SiS-02         | SiS-03         | SiS-03A                       | SiS-04         | SiS-06         | SiS-08         |
| Through loss [dB typ.]<br>IN – OUT    | 10 – 470        | 3,3            | 5,2            | 3,3/6,6                       | 6,6            | 8,4            | 10,1           |
|                                       | 470 – 862       | 3,5            | 5,6            | 3,7/7,0                       | 7,1            | 9,0            | 10,7           |
|                                       | 862 – 1.006     | 3,7            | 5,8            | 3,8/7,3                       | 7,5            | 9,4            | 11,2           |
|                                       | 1.006 – 1.300   | 4,0            | 6,2            | 4,2/7,8                       | 7,9            | 9,9            | 11,9           |
| Isolation typ./min. [dB]<br>OUT – OUT | 10 – 470        | 34/28          | 32/25          | 32/24                         | 35/24          | 33/23          | 33/24          |
|                                       | 470 – 862       | 30/23          | 30/22          | 30/24                         | 30/22          | 28/20          | 32/22          |
|                                       | 862 – 1.006     | 29/22          | 26/20          | 30/24                         | 30/20          | 28/20          | 31/20          |
|                                       | 1.006 – 1.300   | 24/20          | 23/18          | 28/21                         | 30/20          | 28/18          | 30/20          |
| Dimensions [mm]                       |                 | 65 x 50 x 16   | 109 x 50 x 16  |                               | 109 x 50 x 16  | 196 x 50 x 16  | 196 x 50 x 16  |
| Order No.                             |                 | 84148002       | 84148003       | 84148005                      | 84148004       | 84148006       | 84148008       |

# Outdoor splitters and taps

1,2 GHz power inserter, splitters and couplers



52703000  
SPLRE-03



52710800  
TPLRE-1-8



- Watertight aluminium alloy housing with PU coating (IP68)
- Waterproof condition 15 PSI
- AC current path with jumpers can be switched to all outputs
- High screening factor Class A +10 dB
- All connections are 5/8"-threads

- Power rating max. 15 A, 90 VAC
- Hum modulation distance at 10 A with 70 dB average
- Surge protection 1 kV 1,2/50 µs
- Operating temperature range: -40°C ... +60°C
- Mounting angle not included (Order No. 52999000)

| Parameter             | Frequency [MHz] | Power inserter             | 2-way splitter            | 3-way splitter         |                           | SPLRE-03E |
|-----------------------|-----------------|----------------------------|---------------------------|------------------------|---------------------------|-----------|
|                       |                 | PIRE-01<br>IN – OUT        | SPLRE-02<br>IN – OUT 1; 2 | SPLRE-03<br>IN – OUT 1 | SPLRE-03<br>IN – OUT 2; 3 |           |
| Through loss [dB]     | 5 – 10          | 0,7                        | 4,1                       | 4,1                    | 7,4                       | 7,0       |
|                       | 10 – 65         | 0,7                        | 4,1                       | 4,1                    | 7,4                       | 6,5       |
|                       | 65 – 300        | 0,7                        | 4,3                       | 4,3                    | 7,5                       | 6,5       |
|                       | 300 – 550       | 0,7                        | 4,5                       | 4,5                    | 7,6                       | 7,0       |
|                       | 550 – 750       | 1,0                        | 4,6                       | 4,6                    | 7,7                       | 7,3       |
|                       | 750 – 862       | 1,3                        | 4,7                       | 4,7                    | 7,8                       | 7,5       |
|                       | 862 – 1.006     | 1,3                        | 4,8                       | 4,8                    | 8,0                       | 8,5       |
|                       | 1.006 – 1.218   | 1,4                        | 5,5                       | 6,0                    | 9,5                       | 9,0       |
|                       |                 | Power<br>max. 20 A, 90 VAC |                           |                        |                           |           |
| Return loss [dB min.] | 5 – 10          | 17                         | 16                        |                        | 16                        | 16        |
|                       | 10 – 47         | 18                         | 18                        |                        | 18                        | 16        |
|                       | 47 – 300        | 18*                        | 18*                       |                        | 18*                       | 18*       |
|                       | 300 – 1.218     | 16                         | 16                        |                        | 16                        | 16        |
| Isolation [dB min.]   | 5 – 10          | 75                         | 20                        |                        | 21                        | 18        |
|                       | 10 – 550        | 60                         | 25                        |                        | 22                        | 22        |
|                       | 550 – 750       | 60                         | 25                        |                        | 21                        | 22        |
|                       | 750 – 862       | 50                         | 22                        |                        | 20                        | 21        |
|                       | 862 – 1.006     | 50                         | 20                        |                        | 20                        | 20        |
|                       | 1.006 – 1.218   | 45                         | 18                        |                        | 20                        | 20        |
| Dimensions [mm]       |                 | 138 x 124 x 72             |                           |                        |                           |           |
| Order No.             |                 | 52701000                   | 52702000                  | 52703000               |                           | 52703500  |

| Parameter             | Frequency [MHz] | 1-way directional coupler |            |            |
|-----------------------|-----------------|---------------------------|------------|------------|
|                       |                 | TPLRE-1-8                 | TPLRE-1-12 | TPLRE-1-16 |
| Through loss [dB]     | 5 – 10          | 1,8                       | 1,2        | 1,3        |
|                       | 10 – 65         | 1,6                       | 1,2        | 1,3        |
|                       | 65 – 550        | 2,0                       | 1,5        | 1,3        |
|                       | 550 – 750       | 2,5                       | 1,5        | 1,3        |
|                       | 750 – 862       | 2,9                       | 1,8        | 1,6        |
|                       | 862 – 1.006     | 3,1                       | 2,2        | 1,6        |
| Tap loss [dB max.]    | 1.006 – 1.218   | 3,3                       | 2,7        | 2,2        |
|                       | 5 – 1.006       | 9,5                       | 13,0       | 17,0       |
| Return loss [dB min.] | 1.006 – 1.218   | 10,2                      | 13,5       | 17,5       |
|                       | 5 – 10          | 16                        | 16         | 16         |
|                       | 10 – 47         | 16                        | 18         | 18         |
|                       | 47 – 300        | 18*                       | 18*        | 18*        |
| Directivity [dB min.] | 300 – 1.218     | 16                        | 16         | 16         |
|                       | 5 – 10          | 18                        | 19         | 21         |
|                       | 10 – 65         | 28                        | 23         | 25         |
|                       | 65 – 300        | 28                        | 25         | 30         |
|                       | 300 – 550       | 25                        | 25         | 25         |
|                       | 550 – 750       | 21                        | 20         | 20         |
| 750 – 1.218           | 18              | 18                        | 20         |            |
| Dimensions [mm]       |                 | 138 x 124 x 72            |            |            |
| Order No.             |                 | 52710800                  | 52711200   | 52711600   |

\* At 47 MHz -1,5 dB/Oct



# 1,2 GHz 2-way outdoor taps



52722040  
MTRE-122-4



52722320  
MTRE-122-32

■ KLASSE A +10 dB CLASSI

- Watertight aluminium alloy housing with PU coating (IP65), when connecting waterproof and dustproof F connectors to the F ports (e.g. Cabelcon Hardline F connectors) IP 68
- Waterproof condition 15 PSI
- NiSn65 alloy coated, watersealed F-female connectors
- AC/RF bypass in the loop (IN – OUT) in case of a removed faceplate max. 12 A, 65 VAC

- High screening factor Class A +10 dB
- Terminals: Tap F-female; IN/OUT 5/8"
- Hum modulation distance at 10 A with 70 dB average
- Surge protection 1 kV 1,2/50 µs
- Operating temperature range: -40°C ... +60°C
- Mounting angle not included (Order No. 52999000)
- SA type on request

| Parameter             | Frequency [MHz] | MTRE-122-4 |          | MTRE-122-8 |          | MTRE-122-11 |          | MTRE-122-14 |          | MTRE-122-17 |    |
|-----------------------|-----------------|------------|----------|------------|----------|-------------|----------|-------------|----------|-------------|----|
| Through loss [dB]     | 5 – 65          | –          | –        | 3,6        | –        | 1,6         | –        | 1,1         | –        | 1,1         | –  |
|                       | 65 – 300        | –          | –        | 4,0        | –        | 1,8         | –        | 1,3         | –        | 1,2         | –  |
|                       | 300 – 550       | –          | –        | 4,7        | –        | 2,5         | –        | 1,9         | –        | 1,7         | –  |
|                       | 550 – 750       | –          | –        | 5,0        | –        | 2,7         | –        | 2,1         | –        | 1,8         | –  |
|                       | 750 – 862       | –          | –        | 5,0        | –        | 3,0         | –        | 2,3         | –        | 2,0         | –  |
|                       | 862 – 1.006     | –          | –        | 5,1        | –        | 3,1         | –        | 2,4         | –        | 2,1         | –  |
| 1.006 – 1.218         | –               | –          | 5,3      | –          | 3,3      | –           | 2,6      | –           | 2,3      | –           |    |
| Tap loss [dB max.]    | 5 – 862         | 5,0        | –        | 9,0        | –        | 12,0        | –        | 15,0        | –        | 18          | –  |
|                       | 862 – 1.218     | 5,5        | –        | 9,5        | –        | 12,5        | –        | 15,5        | –        | 18,5        | –  |
| Return loss [dB min.] | 5 – 10          | 16         | –        | 16         | –        | 15          | –        | 16          | –        | 16          | –  |
|                       | 10 – 47         | 18         | –        | 18         | –        | 18          | –        | 18          | –        | 18          | –  |
|                       | 47 – 300        | 18*        | –        | 18*        | –        | 18*         | –        | 18*         | –        | 18*         | –  |
|                       | 300 – 1.006     | 16         | –        | 16         | –        | 16          | –        | 16          | –        | 16          | –  |
|                       | 1.006 – 1.218   | 14         | –        | 14         | –        | 14          | –        | 14          | –        | 14          | –  |
| Isolation [dB min.]   | 5 – 10          | –          | 20       | 18         | 20       | 22          | 20       | 24          | 20       | 27          | 22 |
|                       | 10 – 65         | –          | 26       | 27,5       | 26       | 29          | 26       | 30,5        | 26       | 32          | 26 |
|                       | 65 – 862        | –          | 24       | 25,5       | 24       | 27          | 24       | 28,5        | 24       | 30          | 24 |
|                       | 862 – 1.218     | –          | 22       | 23,5       | 22       | 25          | 22       | 26,5        | 22       | 28          | 22 |
| Dimensions [mm]       | 95 x 98,5 x 76  |            |          |            |          |             |          |             |          |             |    |
| Order No.             | 52722040        |            | 52722080 |            | 52722110 |             | 52722140 |             | 52722170 |             |    |

| Parameter             | Frequency [MHz] | MTRE-122-20 |          | MTRE-122-23 |          | MTRE-122-26 |          | MTRE-122-29 |          | MTRE-122-32 |    |
|-----------------------|-----------------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----|
| Through loss [dB]     | 5 – 65          | 0,8         | –        | 0,8         | –        | 0,7         | –        | 0,7         | –        | 0,7         | –  |
|                       | 65 – 300        | 0,9         | –        | 0,9         | –        | 0,9         | –        | 0,8         | –        | 0,8         | –  |
|                       | 300 – 550       | 1,3         | –        | 1,3         | –        | 1,3         | –        | 1,2         | –        | 1,2         | –  |
|                       | 550 – 750       | 1,5         | –        | 1,5         | –        | 1,4         | –        | 1,3         | –        | 1,3         | –  |
|                       | 750 – 862       | 1,8         | –        | 1,7         | –        | 1,7         | –        | 1,4         | –        | 1,4         | –  |
|                       | 862 – 1.006     | 1,9         | –        | 1,8         | –        | 1,8         | –        | 1,5         | –        | 1,5         | –  |
| 1.006 – 1.218         | 2,1             | –           | 2,0      | –           | 2,0      | –           | 1,7      | –           | 1,7      | –           |    |
| Tap loss [dB max.]    | 5 – 862         | 21          | –        | 24          | –        | 27          | –        | 30          | –        | 33          | –  |
|                       | 862 – 1.218     | 21,5        | –        | 24,5        | –        | 27,5        | –        | 30,5        | –        | 33,5        | –  |
| Return loss [dB min.] | 5 – 10          | 16          | –        | 16          | –        | 16          | –        | 16          | –        | 16          | –  |
|                       | 10 – 47         | 18          | –        | 18          | –        | 18          | –        | 18          | –        | 18          | –  |
|                       | 47 – 300        | 18*         | –        | 18*         | –        | 18*         | –        | 18*         | –        | 18*         | –  |
|                       | 300 – 1.006     | 16          | –        | 16          | –        | 16          | –        | 16          | –        | 16          | –  |
|                       | 1.006 – 1.218   | 14          | –        | 14          | –        | 14          | –        | 14          | –        | 14          | –  |
| Isolation [dB min.]   | 5 – 10          | 30          | 25       | 30          | 25       | 34          | 25       | 38          | 25       | 38          | 25 |
|                       | 10 – 65         | 33,5        | 26       | 35          | 26       | 36,5        | 26       | 38          | 26       | 38          | 26 |
|                       | 65 – 862        | 31,5        | 24       | 33          | 24       | 34,5        | 24       | 36          | 24       | 36          | 24 |
|                       | 862 – 1.218     | 29,5        | 22       | 31          | 22       | 32,5        | 22       | 34          | 22       | 34          | 22 |
| Dimensions [mm]       | 95 x 98,5 x 76  |             |          |             |          |             |          |             |          |             |    |
| Order No.             | 52722200        |             | 52722230 |             | 52722260 |             | 52722290 |             | 52722320 |             |    |

\* At 47 MHz -1,5 dB/Oct

# 1,2 GHz 4-way outdoor taps



52722080  
MTRE-124-8



52724260  
MTRE-124-26

■ KLASSE  
**A**  
+10 dB  
■ CLASS

- Watertight aluminium alloy housing with PU coating (IP65), when connecting waterproof and dustproof F connectors to the F ports (e.g. Cabelcon Hardline F connectors) IP 68
- Waterproof condition 15 PSI
- NiSn65 alloy coated watersealed F-female connectors
- AC/RF bypass in the loop (IN – OUT) in case of a removed faceplate max. 12 A, 65 VAC

- High screening factor Class A +10 dB
- Terminals: Tap F-female; IN/OUT 5/8"
- Hum modulation distance at 10 A with 70 dB average
- Surge protection 1 kV 1,2/50 µs
- Operating temperature range: -40°C ... +60°C
- Mounting angle not included (Order No. 52999000)
- SA type on request

| Parameter             | Frequency [MHz] | MTRE-124-8 |         | MTRE-124-11 |         | MTRE-124-14 |         | MTRE-124-17 |         | MTRE-124-20 |         |
|-----------------------|-----------------|------------|---------|-------------|---------|-------------|---------|-------------|---------|-------------|---------|
| Through loss [dB]     | 5 – 65          | –          | –       | 3,6         | –       | 1,6         | –       | 1,1         | –       | 1,1         | –       |
|                       | 65 – 300        | –          | –       | 4,0         | –       | 1,8         | –       | 1,3         | –       | 1,2         | –       |
|                       | 300 – 550       | –          | –       | 4,7         | –       | 2,5         | –       | 1,9         | –       | 1,7         | –       |
|                       | 550 – 750       | –          | –       | 5,0         | –       | 2,7         | –       | 2,1         | –       | 1,8         | –       |
|                       | 750 – 862       | –          | –       | 5,0         | –       | 3,0         | –       | 2,3         | –       | 2,0         | –       |
|                       | 862 – 1.006     | –          | –       | 5,1         | –       | 3,1         | –       | 2,4         | –       | 2,1         | –       |
| Tap loss [dB max.]    | 1.006 – 1.218   | –          | –       | 5,3         | –       | 3,3         | –       | 2,6         | –       | 1,3         | –       |
|                       | 5 – 862         | 9          | –       | 12          | –       | 15          | –       | 18          | –       | 21          | –       |
| Return loss [dB min.] | 862 – 1.218     | 9,5        | –       | 12,5        | –       | 15,5        | –       | 18,5        | –       | 21,5        | –       |
|                       | 5 – 10          | 16         | –       | 15          | –       | 15          | –       | 15          | –       | 16          | –       |
|                       | 10 – 47         | 18         | –       | 18          | –       | 18          | –       | 18          | –       | 18          | –       |
|                       | 47 – 300        | 18*        | –       | 18*         | –       | 18*         | –       | 18*         | –       | 18*         | –       |
|                       | 300 – 1.006     | 15         | –       | 15          | –       | 15          | –       | 15          | –       | 15          | –       |
| Isolation [dB min.]   | 1.006 – 1.218   | 14         | –       | 14          | –       | 14          | –       | 14          | –       | 14          | –       |
|                       | 5 – 10          | –          | Out-Tap | Tap-Tap     | Out-Tap | Tap-Tap     | Out-Tap | Tap-Tap     | Out-Tap | Tap-Tap     | Out-Tap |
|                       | 10 – 65         | –          | 20      | 20          | 20      | 20          | 21      | 20          | 22      | 20          | 27      |
|                       | 65 – 862        | –          | 26      | 29          | 26      | 26          | 30,5    | 26          | 32      | 26          | 33,5    |
| Dimensions [mm]       | 862 – 1.218     | –          | 24      | 27          | 24      | 24          | 28,5    | 24          | 30      | 24          | 31,5    |
|                       |                 | –          | 22      | 25          | 22      | 22          | 26,5    | 22          | 28      | 22          | 29,5    |
| Order No.             |                 | 52724080   |         | 52724110    |         | 52724140    |         | 52724170    |         | 52724200    |         |

| Parameter             | Frequency [MHz] | MTRE-124-23 |         | MTRE-124-26 |         | MTRE-124-29 |         | MTRE-124-32 |         |
|-----------------------|-----------------|-------------|---------|-------------|---------|-------------|---------|-------------|---------|
| Through loss [dB]     | 5 – 65          | 0,8         | –       | 0,8         | –       | 0,7         | –       | 0,7         | –       |
|                       | 65 – 300        | 0,9         | –       | 0,9         | –       | 0,9         | –       | 0,8         | –       |
|                       | 300 – 550       | 1,3         | –       | 1,3         | –       | 1,3         | –       | 1,2         | –       |
|                       | 550 – 750       | 1,5         | –       | 1,5         | –       | 1,4         | –       | 1,3         | –       |
|                       | 750 – 862       | 1,8         | –       | 1,7         | –       | 1,7         | –       | 1,4         | –       |
|                       | 862 – 1.006     | 1,9         | –       | 1,8         | –       | 1,8         | –       | 1,5         | –       |
| Tap loss [dB max.]    | 1.006 – 1.218   | 2,1         | –       | 2,0         | –       | 2,0         | –       | 1,7         | –       |
|                       | 5 – 862         | 24          | –       | 27          | –       | 30          | –       | 33          | –       |
| Return loss [dB min.] | 862 – 1.218     | 24,5        | –       | 27,5        | –       | 30,5        | –       | 33,5        | –       |
|                       | 5 – 10          | 16          | –       | 16          | –       | 16          | –       | 16          | –       |
|                       | 10 – 47         | 18          | –       | 18          | –       | 18          | –       | 18          | –       |
|                       | 47 – 300        | 18*         | –       | 18*         | –       | 18*         | –       | 18*         | –       |
|                       | 300 – 1.006     | 15          | –       | 15          | –       | 15          | –       | 15          | –       |
| Isolation [dB min.]   | 1.006 – 1.218   | 14          | –       | 14          | –       | 14          | –       | 14          | –       |
|                       | 5 – 10          | 30          | Out-Tap | Tap-Tap     | Out-Tap | Tap-Tap     | Out-Tap | Tap-Tap     | Out-Tap |
|                       | 10 – 65         | 35          | 20      | 20          | 34      | 20          | 35      | 20          | 36      |
|                       | 65 – 862        | 33          | 26      | 26          | 36,5    | 26          | 38      | 26          | 39,5    |
| Dimensions [mm]       | 862 – 1.218     | 33          | 24      | 34,5        | 24      | 36          | 24      | 37,5        | 24      |
|                       |                 | 31          | 22      | 32,5        | 22      | 34          | 22      | 35,5        | 22      |
| Order No.             |                 | 52724230    |         | 52724260    |         | 52724290    |         | 52724320    |         |

\* At 47 MHz -1,5 dB/Oct

Subject to technical changes!

# 1,2 GHz 8-way outdoor taps



52728110  
MTRE-128-11



52728290  
MTRE-128-29

■ KLASSE  
**A**  
+10 dB  
CLASS

- Watertight aluminium alloy housing with PU coating (IP65), when connecting waterproof and dustproof F connectors to the F ports (e.g. Cabelcon Hardline F connectors) IP 68
- Waterproof condition 15 PSI
- NiSn65 alloy coated watersealed F-female connectors
- AC/RF bypass in the loop (IN – OUT) in case of a removed faceplate max. 12 A, 65 VAC

- High screening factor Class A +10 dB
- Terminals: Tap F-female; IN/OUT 5/8"
- Hum modulation distance at 10 A with 70 dB average
- Surge protection 1 kV 1,2/50 µs
- Operating temperature range: -40°C ... +60°C
- Mounting angle not included (Order No. 52999000)
- SA type on request

| Parameter             | Frequency [MHz]    | MTRE-128-11 |          | MTRE-128-14 |          | MTRE-128-17 |          | MTRE-128-20 |         |
|-----------------------|--------------------|-------------|----------|-------------|----------|-------------|----------|-------------|---------|
| Through loss [dB]     | 5 – 65             | –           |          | 3,6         |          | 1,6         |          | 1,1         |         |
|                       | 65 – 300           | –           |          | 4,0         |          | 1,8         |          | 1,3         |         |
|                       | 300 – 550          | –           |          | 4,7         |          | 2,5         |          | 1,9         |         |
|                       | 550 – 750          | –           |          | 5,0         |          | 2,7         |          | 2,1         |         |
|                       | 750 – 862          | –           |          | 5,0         |          | 3,0         |          | 2,3         |         |
|                       | 862 – 1.006        | –           |          | 5,1         |          | 3,1         |          | 2,4         |         |
| Tap loss [dB max.]    | 1.006 – 1.218      | –           |          | 5,3         |          | 3,6         |          | 2,6         |         |
|                       | 5 – 862            | 12          |          | 15          |          | 18          |          | 21          |         |
| Return loss [dB min.] | 862 – 1.218        | 12,5        |          | 15,5        |          | 18,5        |          | 21,5        |         |
|                       | 5 – 10             | 16          |          | 16          |          | 16          |          | 16          |         |
|                       | 10 – 47            | 18          |          | 18          |          | 18          |          | 18          |         |
|                       | 47 – 300           | 18*         |          | 18*         |          | 18*         |          | 18*         |         |
|                       | 300 – 1.006        | 16          |          | 16          |          | 16          |          | 16          |         |
|                       | 1.006 – 1.218      | 14          |          | 14          |          | 14          |          | 14          |         |
| Isolation [dB min.]   | 5 – 10             | Out-Tap     | Tap-Tap  | Out-Tap     | Tap-Tap  | Out-Tap     | Tap-Tap  | Out-Tap     | Tap-Tap |
|                       | 10 – 65            | –           | 22       | 22          | 22       | 22          | 22       | 26          | 22      |
|                       | 65 – 862           | –           | 26       | 30,5        | 26       | 32          | 26       | 33,5        | 26      |
|                       | 862 – 1.006        | –           | 24       | 28,5        | 24       | 30          | 24       | 31,5        | 24      |
|                       | 1.006 – 1.218      | –           | 22       | 26,5        | 22       | 28          | 22       | 29,5        | 22      |
|                       | 1.006 – 1.218      | –           | 20       | 24,5        | 20       | 26          | 20       | 27,5        | 20      |
| Dimensions [mm]       | 117,5 x 145,5 x 78 |             |          |             |          |             |          |             |         |
| Order No.             | 52728110           |             | 52728140 |             | 52728170 |             | 52728200 |             |         |

| Parameter             | Frequency [MHz]    | MTRE-128-23 |          | MTRE-128-26 |          | MTRE-128-29 |          | MTRE-128-32 |         |
|-----------------------|--------------------|-------------|----------|-------------|----------|-------------|----------|-------------|---------|
| Through loss [dB]     | 5 – 65             | 1,1         |          | 0,8         |          | 0,8         |          | 0,7         |         |
|                       | 65 – 300           | 1,2         |          | 0,9         |          | 0,9         |          | 0,9         |         |
|                       | 300 – 550          | 1,7         |          | 1,3         |          | 1,3         |          | 1,3         |         |
|                       | 550 – 750          | 1,8         |          | 1,5         |          | 1,5         |          | 1,4         |         |
|                       | 750 – 862          | 2,0         |          | 1,8         |          | 1,7         |          | 1,7         |         |
|                       | 862 – 1.006        | 2,1         |          | 1,9         |          | 1,8         |          | 1,8         |         |
| Tap loss [dB max.]    | 1.006 – 1.218      | 2,3         |          | 2,1         |          | 2,0         |          | 2,0         |         |
|                       | 5 – 862            | 24          |          | 27          |          | 30          |          | 33          |         |
| Return loss [dB min.] | 862 – 1.218        | 24,5        |          | 27,5        |          | 30,5        |          | 33,5        |         |
|                       | 5 – 10             | 16          |          | 16          |          | 16          |          | 16          |         |
|                       | 10 – 47            | 18          |          | 18          |          | 18          |          | 18          |         |
|                       | 47 – 300           | 18*         |          | 18*         |          | 18*         |          | 18*         |         |
|                       | 300 – 1.006        | 16          |          | 16          |          | 16          |          | 16          |         |
|                       | 1.006 – 1.218      | 14          |          | 14          |          | 14          |          | 14          |         |
| Isolation [dB min.]   | 5 – 10             | Out-Tap     | Tap-Tap  | Out-Tap     | Tap-Tap  | Out-Tap     | Tap-Tap  | Out-Tap     | Tap-Tap |
|                       | 10 – 65            | 33          | 22       | 35          | 22       | 40          | 22       | 40          | 22      |
|                       | 65 – 862           | 35          | 26       | 36,5        | 26       | 38          | 26       | 39,5        | 26      |
|                       | 862 – 1.006        | 33          | 24       | 34,5        | 24       | 36          | 24       | 37,5        | 24      |
|                       | 1.006 – 1.218      | 31          | 22       | 32,5        | 22       | 34          | 22       | 35,5        | 22      |
|                       | 1.006 – 1.218      | 29          | 20       | 30,5        | 20       | 32          | 20       | 33,5        | 20      |
| Dimensions [mm]       | 117,5 x 145,5 x 78 |             |          |             |          |             |          |             |         |
| Order No.             | 52728230           |             | 52728260 |             | 52728290 |             | 52728320 |             |         |

\* At 47 MHz -1,5 dB/Oct

# Remote power filters and equalizers

Remote power rating high pass filters in modular concept



- Flexible configuration of high pass filter via plug-in modules DCM-HFxx
- AC/RF bypass switch in the loop for uninterrupted service in case of a removed faceplate, e.g. to change the plug-in module
- Power passing to the loop (IN – OUT) by 12 A at 65/90 VAC
- Hum modulation distance at 10 A/90 VAC -60 dB average
- Surge protection 6 kV 1,2/50  $\mu$ s

- Watertight aluminium alloy housing with PU coating (IP65)
- Waterproof condition 15 PSI
- All connections are 5/8" threads
- 100 dB min. RFI isolation
- Mounting angle not included (Order No. 52999000)

| Parameter         | Plug-in module high pass filter DCM-HF30 | Plug-in module high pass filter DCM-HF85 |
|-------------------|--|--|
| Pass band [MHz]   | 30 – 1.000                               | 84 – 1.000                               |
| Through loss [dB] | $\leq 1,5 \pm 0,5$                       | $\leq 1,5 \pm 0,5$                       |
| Stop band [MHz]   | 5 – 25                                   | 5 – 65                                   |
| Rejection [dB]    | > 50                                     | > 50                                     |
| Return loss [dB]  | > 16                                     | > 16                                     |
| Dimensions [mm]   | 144 x 118 x 75                           |  |
| Order No.         | 57863000                                 | 57868500                                 |

## Assembling of tap modules into the FSP housing



1. Remove the cover from the housing (Order No. 57860000).



2. Insert the DCM module as shown into the plug-in socket. The direction of the modules is guided by a guide rail on the plug-in socket.



3. Mount the cover onto the housing and paste the matching sticker for identification of the high pass filter onto the label.

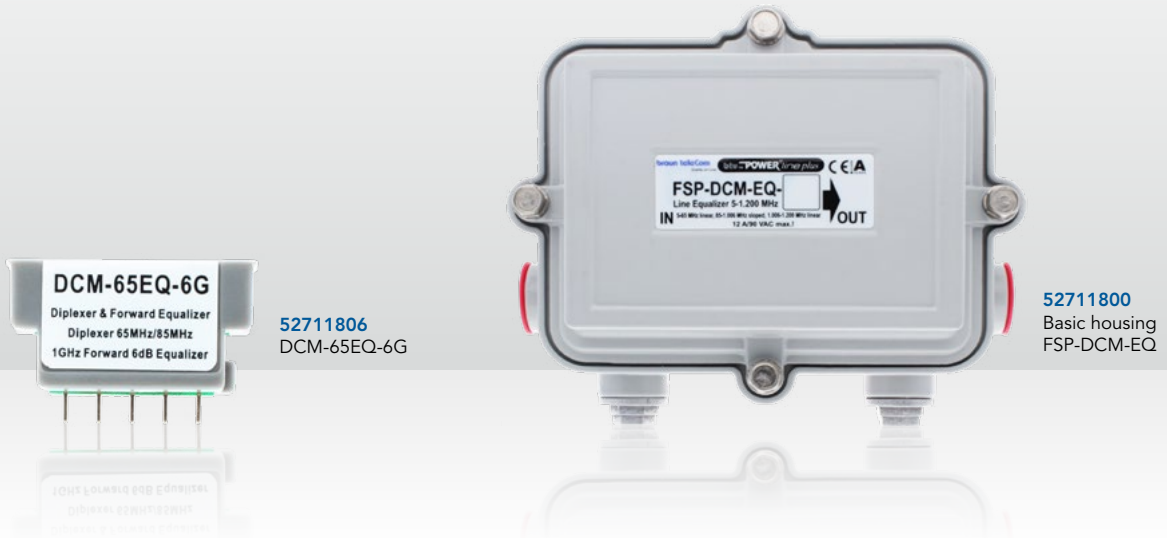
## Uninterrupted AC & RF transmission in the loop



An integrated power passing bar between in- and output provides an uninterrupted AC and RF signal forwarding to the downstream network.



# Remote power rating line equalizer in modular concept



KLASSE **A** CLASS

52711806  
DCM-65EQ-6G

52711800  
Basic housing  
FSP-DCM-EQ

- Flexible configuration of the equalizer via plug-in modules DCM-65EQ-xx
- AC/RF bypass switch in the loop for uninterrupted service in case of a removed faceplate, e.g. to change the plug-in module
- Power passing to the loop (IN – OUT) by 12 A at 65/90 VAC
- Hum modulation distance at 10 A/90 VAC -70 dB average
- Surge protection 6 kV 1,2/50  $\mu$ s
- Watertight aluminium alloy housing with PU coating (IP68)
- Waterproof condition 15 PSI
- All connections are 5/8" threads
- 100 dB min. RFI isolation
- Mounting angle not included (Order No. 52999000)

| Parameter         | Frequency [MHz] | DCM-65EQ-3G                 | DCM-65EQ-6G                 | DCM-65EQ-9G                  | DCM-65EQ-12G                   |
|-------------------|-----------------|-----------------------------|-----------------------------|------------------------------|--------------------------------|
| Through loss [dB] | 5 – 60          | 0,9 $\pm$ 0,6               | 0,9 $\pm$ 0,6               | 0,9 $\pm$ 0,6                | 0,9 $\pm$ 0,6                  |
|                   | 60 – 65         | 1,8 $\pm$ 0,7               | 1,8 $\pm$ 0,7               | 1,8 $\pm$ 0,7                | 1,8 $\pm$ 0,7                  |
|                   | 85 – 1.006      | 5 $\pm$ 0,75 - 2 $\pm$ 0,75 | 8 $\pm$ 0,75 - 2 $\pm$ 0,75 | 11 $\pm$ 0,75 - 2 $\pm$ 0,75 | 14,5 $\pm$ 0,75 - 2 $\pm$ 0,75 |
|                   | 1.006 – 1.218   | 2 $\pm$ 0,75 - 1,8 $\pm$ 1  | 2 $\pm$ 0,75 - 1,8 $\pm$ 1  | 2 $\pm$ 0,75 - 1,8 $\pm$ 1   | 2 $\pm$ 0,75 - 1,8 $\pm$ 1     |
| Return loss [dB]  |                 | > 16                        | > 16                        | > 16                         | > 16                           |
| Order No.         |                 | 52711803                    | 52711806                    | 52711809                     | 52711812                       |

| Parameter                                     | Frequency [MHz] | FSP-DCM-EQ     |
|---|-----------------|----------------|
| Through loss with removed faceplate [dB max.] | 5 – 1.006       | 0,5            |
|   | 1.006 – 1.218   | 1              |
| Dimensions [mm]                               |                 | 144 x 118 x 75 |
| Order No.                                     |                 | 52711800       |

## Assembling of tap modules into the FSP housing



1. Remove the cover from the housing (Order No. 57860000).

2. Insert the DCM module as shown into the plug-in socket. The direction of the modules is guided by a guide rail on the plug-in socket.

3. Mount the cover onto the housing and paste the matching sticker for identification of the high pass filter onto the label.

## Uninterrupted AC & RF transmission in the loop



An integrated power passing bar between in- and output provides an uninterrupted AC and RF signal forwarding to the downstream network.

# Shrink sleeves

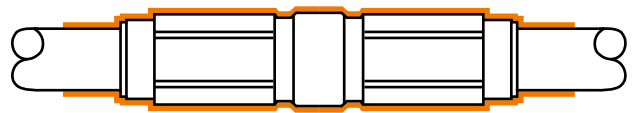
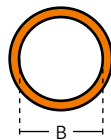
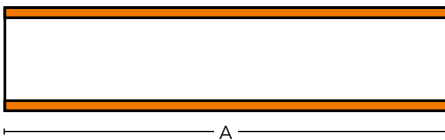
Shrink sleeves, repair gaskets and house leading-in shrink sleeves

42455000  
SHE 14-8/800 (MD 1)



## Shrink sleeves

| Parameter   | BK-CS 25-7/170   | BK-CS 34-7/130 | BK-CS 32-8/210 | BK-CS 28-6/1000 | BK-CS 38-10/1000 |
|---|------------------|----------------|----------------|-----------------|------------------|
| Length A [mm]   | 170              | 130            | 210            | 1.000           | 1.000            |
| Inner diameter B [mm]                                 | Before shrinking | 25             | 34             | 28              | 38               |
|   | After shrinking  | 7              | 7              | 8               | 6                |
| Cleaning cloth and flame protection winding included? | Yes              | No             | Yes            | No              | No               |
| Order No.   | 43027000         | 43030000       | 43032000       | 43023500        | 43024000         |



## Repair gaskets

For a simple, safe, and fast repair of defective sheathing of plastic-insulated cables and wires.

|                           |   |
|---------------------------|---|
| Suited for                | Outdoor, underground and indoor cabling   |
| Internal pressure density | Up to 0,15 Mpa (1,5 bar)  |
| Wall thickness (shrunk)   | 2,3 mm  |
| Correct length of gasket  | At least twice the cable or wire diameter, to ensure sufficient overlap on both sides of the damaged part |

| Parameter             | RM 47-13/250     |    |
|-----------------------|------------------|----|
| Length A [mm]         | 200              |    |
| Cable diameter [mm]   | Minimum          | 15 |
|                       | Maximum          | 46 |
| Inner diameter B [mm] | Before shrinking | 47 |
|                       | After shrinking  | 13 |
| Order No.             | 43026000         |    |



## House leading-in shrink sleeves

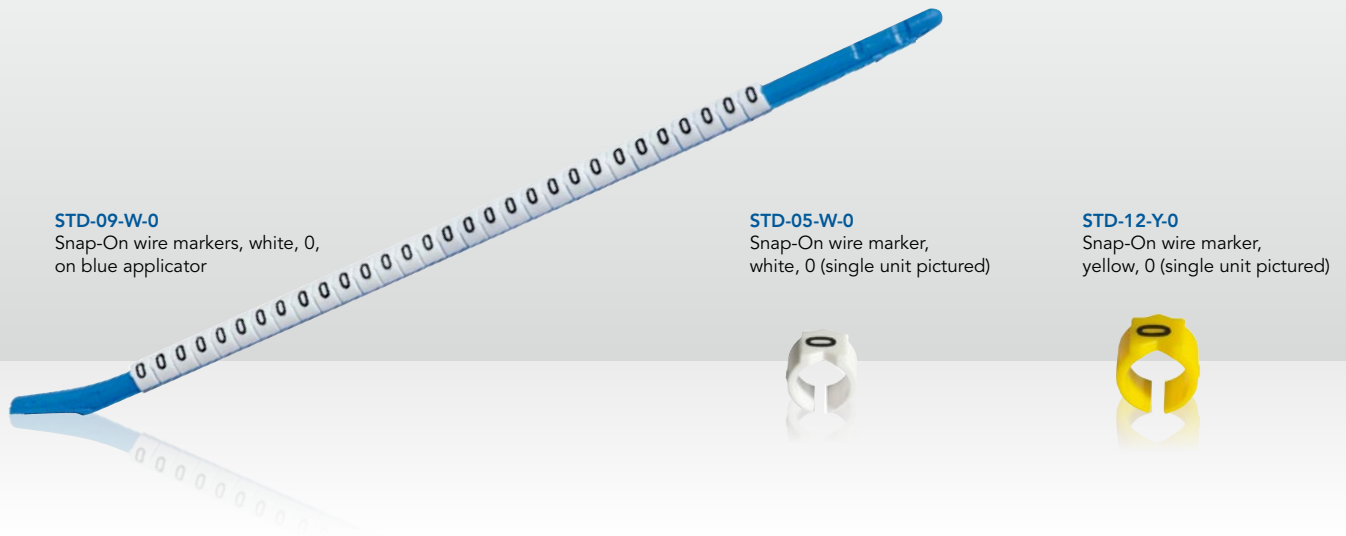
For a professional cable lead-in into buildings. Cables led through walls of up to 500 mm wall thickness can be effectively sealed by house lead-in shrink sleeves.

Tested and field-proven according DBP TL-Nr. 736 840 TV 2 standards. Waterproof up to 1 bar; gasproof up to 0,2 bar.

| Parameter                     | SHE 14-8/800 (MD 1) | SHE 26-12/800 (MD 2) |
|-------------------------------|---------------------|----------------------|
| Length [mm]                   | 800                 | 800                  |
| Cable diameter [mm]           | Minimum             | 8                    |
|                               | Maximum             | 14                   |
| Wall thickness [mm]           | Maximum             | 500                  |
| Diameter of drilled hole [mm] | Minimum             | 40                   |
|                               |                     | 55                   |
| Order No.                     | 42455000            | 42465000             |

# Snap-On wire markers

## STD Snap-On wire markers and STD/STB applicators



**STD-09-W-0**  
Snap-On wire markers, white, 0,  
on blue applicator

**STD-05-W-0**  
Snap-On wire marker,  
white, 0 (single unit pictured)

**STD-12-Y-0**  
Snap-On wire marker,  
yellow, 0 (single unit pictured)

### STD Snap-On wire markers

For simple and permanent marking or assignment of cables, wires, leads and cores after their installation.

Easy installation: The "wand" applicator is pushed over the marking line and the marker with your thumb over it. The marker opens and firmly grips the cable. Due to the particularly high material tension, the markers are non-slip.

#### Features and benefits

- Made of high-quality, extremely elastic polyoxymethylene
- Resistant against oil, cleaning agents, fuels and alkaline solutions
- Guarantees strength, dimensional stability, low moisture absorption and resistance to chemicals
- Halogen-free
- No stress crack generation
- Highest resilience
- Good sliding behaviour
- Operating temperature range -40°C ... +106°C

### Snap-On wire markers

| Description | Color code              | Color of applicator | Amount                        | Suitable for cable outer diameter |
|-------------|-------------------------|---------------------|-------------------------------|-----------------------------------|
| STD-01      | Y (yellow) or W (white) | green               | 300 markers on 10 applicators | 1,00 – 1,40 mm                    |
| STD-03      | Y (yellow) or W (white) | green               | 300 markers on 10 applicators | 1,90 – 2,65 mm                    |
| STD-05      | Y (yellow) or W (white) | natural             | 300 markers on 10 applicators | 2,30 – 3,00 mm                    |
| STD-06      | Y (yellow) or W (white) | red                 | 300 markers on 10 applicators | 2,60 – 3,50 mm                    |
| STD-09      | Y (yellow) or W (white) | blue                | 300 markers on 10 applicators | 3,25 – 4,50 mm                    |
| STD-12      | Y (yellow) or W (white) | yellow              | 300 markers on 10 applicators | 4,50 – 6,00 mm                    |
| STD-15      | Y (yellow) or W (white) | –                   | 50 markers without applicator | 5,80 – 8,00 mm                    |

### Applicators

| Description       | Color of applicator | Use        | Packaging unit |
|-------------------|---------------------|------------|----------------|
| STD 15 applicator | orange              | for STD-15 | 5 applicators  |
| STD 17 applicator | orange              | for STD-17 | 5 applicators  |
| STD 21 applicator | grey                | for STD-21 | 2 applicators  |
| STD 24 applicator | grey                | for STD-24 | 2 applicators  |

### Composition of the article name

Example for an order:

|                      |   |      |   |                |   |                   |
|----------------------|---|------|---|----------------|---|-------------------|
| STD                  | - | 06   | - | W              | - | 4                 |
|                      |   |      |   |                |   |                   |
| Snap-On wire markers |   | Size |   | Color (W or Y) |   | Imprint (digit 4) |

We do not have the perfect Snap-On wire markers in our product portfolio yet?

**We are happy to produce Snap-On wire markers according to your requirements, even in small quantities!**



# Connectors

## CX3 compression connectors



| Parameter                         | GF-UE-6 (5,1) ULTRAEASE        | 5/8MU-RG11-CX3 7,5   | 3,5/12m-RG11-CX3-7,5                 |
|-----------------------------------|--------------------------------|--|--------------------------------------|
| For cable type                    | e.g. Oren HD-113               | e.g. Oren HD-163, PRG-11-Cu and PRG-11-DB+   | e.g. Belden PRG-11-Cu and PRG-11-DB+ |
| Connector type                    | F connection                   | 5/8 connection   |                                      |
| Installation                      | Mounting without special tools | Mounting only with compression tool, please find further information concerning compression tools within our tools catalogue |                                      |
| Frequency range [MHz]             |                                | 0,3 – 3.000  |                                      |
| Screening factor [dB]             |                                | > 120  |                                      |
| Transfer impedance [mΩ/connector] |                                | < 0,1  |                                      |
| Impedance [Ω]                     |                                | 75   |                                      |
| Temperature range [°C]            |                                | -40 ... +100   |                                      |
| Return loss [dB]                  |                                | > 30   |                                      |
| Order No.                         | 54271000                       | 54269702   | 54269300                             |

| Parameter                         | Frequency [MHz] | FM-RG11-CX3 7,5                              | IECF-56-CX3 4,9                   | IECF-56-CX3 5,1 | IECM-56-CX3 4,9                   | IECM-6-TD-5,1 |
|-----------------------------------|-----------------|--|-----------------------------------|-----------------|-----------------------------------|---------------|
| For cable type                    |                 | Oren HD-163 and Belden PRG-11-DB+, PRG-11-Cu | Oren HD-103 and Belden H-126-T-00 | Oren HD-113     | Oren HD-103 and Belden H-126-T-00 | Oren HD-113   |
| Connector type                    |                 | RG11   | IEC-Female                        | IEC-Female      | IEC-Male                          | IEC-Male      |
| Installation                      |                 |  |                                   |                 |                                   |               |
| Length [mm]                       |                 | 44,0   | 33,5                              | 33,5            | 33,5                              | 33,5          |
| Connector F-nut                   |                 | HEX 14                                       |                                   |                 |                                   |               |
| Frequency range [MHz]             |                 |  |                                   | 0,3 – 3.000     |                                   |               |
| Screening factor [dB]             | 30 – 1.000      | > 100  | > 90                              | > 90            | > 90                              | > 85          |
| Transfer impedance [mΩ/connector] |                 | < 2,0  | < 0,2                             | < 0,2           | < 0,2                             | < 2,5         |
| Impedance [Ω]                     |                 |  |                                   | 75              |                                   |               |
| Temperature range [°C]            |                 |  |                                   | -40 ... +100    |                                   |               |
| Return loss [dB]                  | 0,3 – 1.000     | > 30   | > 20                              | > 20            | > 20                              | > 17          |
| Order No.                         |                 | 54266000                                     | 54269000                          | 54269200        | 54268000                          | 54280186      |

### Accessories

#### Grounding ring RG11/220

Include the RG11-CX3 compression connectors into the local potential equalization, suitable for the compression connectors FM-RG11-CX3 7,5; 3,5/12M-RG11-CX3 7,5; 5/8MU-RG11-CX3 7,5 and IEC14M-RG11-CX3 7,5

Order No.. **60300900**

# TrueDrop connectors



Less signal noise, more user-friendliness and better overall reliability thanks to our proprietary, self-centering, conical connector interface, make TrueDrop connectors very adaptable

to a variety of connection conditions, offer a uniform 360-degree contact, eliminate air gaps, reduce damage to the O-ring and counteract the rotation of the sleeve.

| Parameter                        | Frequency [MHz] | F-59-TD SELF INSTALL 3,9 NI            | F-6-TD SELF INSTALL 4,9 NI             | F-6-TD SELF INSTALL 5,1 NI |
|----------------------------------|-----------------|--|--|----------------------------|
| For cable type                   |                 | e.g. Oren HD-083 and Belden H-121-T-00 | e.g. Oren HD-103 and Belden H-126-T-00 | e.g. Oren HD-113           |
| Type                             |                 | Self-Install                           |  |                            |
| Installation                     |                 | Mounting without special tools         |  |                            |
| Frequency range [MHz]            |                 | 0,3 – 3.000 MHz                        |  |                            |
| Screening [dB]                   | 30 – 1.000      | > 105, Class A++                       |  |                            |
| Transfer impedance/item [mΩ]     | 5 – 30          | < 0,53                                 | < 0,18                                 | < 0,53                     |
| Impedance [Ω]                    |                 | 75                                     |  |                            |
| Operating temperature range [°C] |                 | -40 – +70                              |  |                            |
| Return loss [dB]                 | 0,3 – 1.000     | > 37                                   | > 35                                   | > 36                       |
| Order No.                        |                 | 54280121                               | 54280131                               | 54280136                   |

| Parameter                        | Frequency [MHz] | FM-MINI-TD QM 3,1 W/O O-RING   | FM-MINI-TD QM 4,0 W/O O-RING        | F-MINI-TD QM 4,0 SHORT              | FM-MINI-TD QM 4,5 W/O O-RING | F-MINI-TD QM 4,5 SHORT | FM-MINI-TD QM 5,0 W/O O-RING | F-MINI-TD QM 5,0 SHORT |
|----------------------------------|-----------------|--|-------------------------------------|-------------------------------------|------------------------------|------------------------|------------------------------|------------------------|
| For cable type                   |                 | e.g. Telass 40   | e.g. Oren HD-063 and Belden H-123-B | e.g. Oren HD-063 and Belden H-123-B | e.g. Belden H-123            | e.g. Belden H-123      | e.g. Belden H-121-T          | e.g. Belden H-121-T    |
| Type                             |                 | Quick Mount™   |                                     |                                     |                              |                        |                              |                        |
| Installation                     |                 | Mounting only with compression tool, please find further information concerning compression tools in our tools catalogue |                                     |                                     |                              |                        |                              |                        |
| Frequency range [MHz]            |                 | 0,3 – 3.000 MHz  |                                     |                                     |                              |                        |                              |                        |
| Screening* [dB]                  | 30 – 1.000      | > 93 Class A   | > 85 Class A                        | > 105 Class A++                     | > 75 Class A                 | > 85 Class A           | > 85 Class A                 | > 105 Class A++        |
| Transfer impedance/item [mΩ]     | 5 – 30          | < 0,39   | < 0,27                              | < 0,11                              | < 0,14                       | < 0,11                 | < 0,39                       | < 0,05                 |
| Impedance [Ω]                    |                 | 75   |                                     |                                     |                              |                        |                              |                        |
| Operating temperature range [°C] |                 | -40 – +70  |                                     |                                     |                              |                        |                              |                        |
| Return loss [dB]                 | 0,3 – 1.000     | > 37   | > 31                                | > 25                                | > 28                         | > 33                   | > 32                         | > 28                   |
| Order No.                        |                 | 54280201   | 54280202                            | 54280204                            | 54280206                     | 54280208               | 54280210                     | 54280212               |

\* Please note that the specified screening depends on the cable used. With high-quality coaxial cables, it is often possible to achieve better values than specified. You can find information on high-quality coaxial cables in our corresponding product category.

**54280214**  
F-59-TD QM  
6,0 SHORT

**54280220**  
F-6-TD  
QM 7,0

**54280221**  
F-6-TD QM  
7,0 W/O  
O-RING

**54280222**  
F-6-TD QM  
7,0 SHORT  
W/O O-RING

**54280316**  
F-59-TD 3,7

**54280321**  
F-59-TD 3,9

**54280335**  
F-59-TD  
3,9 HEC

**54280341**  
F-6-TD 4,9

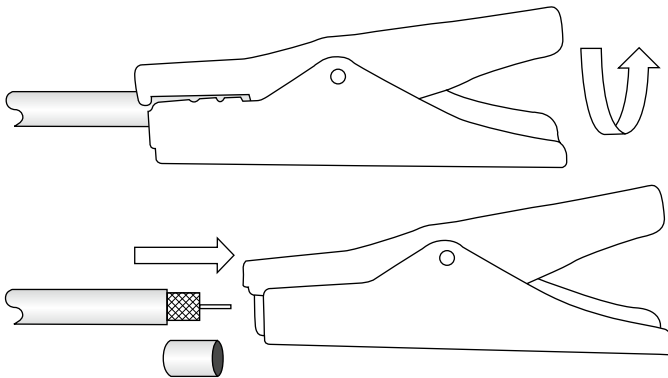
**54280346**  
F-6-TD 5,1



| Parameter                        | Frequency [MHz] | F-59-TD QM 6,0  | F-6-TD QM 7,0               | F-6-TD QM 7,0 W/O O-RING    | F-6-TD QM 7,0 SHORT W/O O-RING |
|----------------------------------|-----------------|---|-----------------------------|-----------------------------|--------------------------------|
| For cable type                   |                 | e.g. Oren HD-083  | e.g. Oren HD-103 and HD-113 | e.g. Oren HD-103 and HD-113 | e.g. BKS1,1/4,8-90, BKS2050/30 |
| Type                             |                 | Quick Mount™  |                             |                             |                                |
| Installation                     |                 | Mounting only with compression tool,<br>please find further information concerning compression tools in our tools catalogue |                             |                             |                                |
| Frequency range [MHz]            |                 | 0,3 – 3.000 MHz   |                             |                             |                                |
| Screening [dB]                   | 30 – 1.000      | > 105<br>Class A++  | > 130<br>Class A++          | > 130<br>Class A++          | > 105<br>Class A++             |
| Transfer impedance/item [mΩ]     | 5 – 30          | < 0,07  | < 0,09                      | < 0,09                      | < 0,14                         |
| Impedance [Ω]                    |                 | 75  |                             |                             |                                |
| Operating temperature range [°C] |                 | -40 – +70   |                             |                             |                                |
| Return loss [dB]                 | 0,3 – 1.000     | > 26  | > 29                        | > 29                        | > 29                           |
| Order No.                        |                 | <b>54280214</b>   | <b>54280220</b>             | <b>54280221</b>             | <b>54280222</b>                |

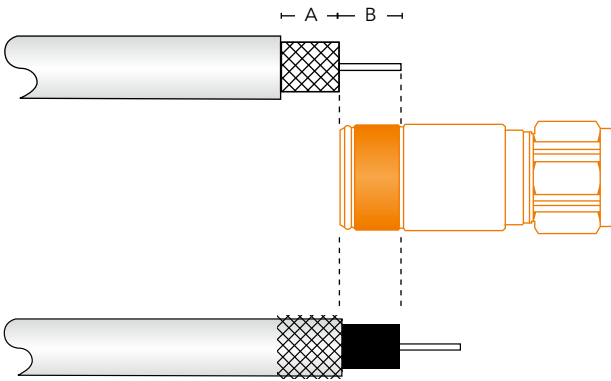
| Parameter                        | Frequency [MHz] | F-59-TD 3,7   | F-59-TD 3,9                            | F-59-TD 3,9 HEC                  | F-6-TD 4,9         | F-6-TD 5,1                     |
|----------------------------------|-----------------|---|--|----------------------------------|--------------------|--------------------------------|
| For cable type                   |                 | e.g. Belden H-121-T   | e.g. Oren HD-083 and Belden H-121-T-00 | CommScope Kabel e.g. F59 HEC-2VV | e.g. Oren HD-103   | e.g. BKS1,1/4,8-90, BKS2050/30 |
| Type                             |                 | Compression   |  |                                  |                    |                                |
| Installation                     |                 | Mounting only with compression tool,<br>please find further information concerning compression tools in our tools catalogue |  |                                  |                    |                                |
| Frequency range [MHz]            |                 | 0,3 – 3.000 MHz   |  |                                  |                    |                                |
| Screening [dB]                   | 30 – 1.000      | > 105<br>Class A++  | > 105<br>Class A++                     | > 105<br>Class A++               | > 105<br>Class A++ | > 105<br>Class A++             |
| Transfer impedance/item [mΩ]     | 5 – 30          | < 0,68  | < 0,68                                 | < 0,1                            | < 0,09             | < 0,68                         |
| Impedance [Ω]                    |                 | 75  |  |                                  |                    |                                |
| Operating temperature range [°C] |                 | -40 – +70   |  |                                  |                    |                                |
| Return loss [dB]                 | 0,3 – 1.000     | > 32  | > 39                                   | > 30                             | > 39               | > 35                           |
| Order No.                        |                 | <b>54280316</b>   | <b>54280321</b>                        | <b>54280335</b>                  | <b>54280341</b>    | <b>54280346</b>                |

# Mounting instructions for F-TrueDrop connectors



## Step 1

Strip the cable.  
Cut and remove the outer braid and foil. Leave only the first layer of braid (if needed, adjust cable stripper accordingly). Clean the cable inner and outer conductor with a conductor cleaner or any other appropriate equipment.  
For your safety and best results Corning Cabelcon's pre-adjusted Cable Stripper is recommended. Please find further information concerning these tools within our tools catalogue. Don't forget – read the enclosed user instruction before using the tool.

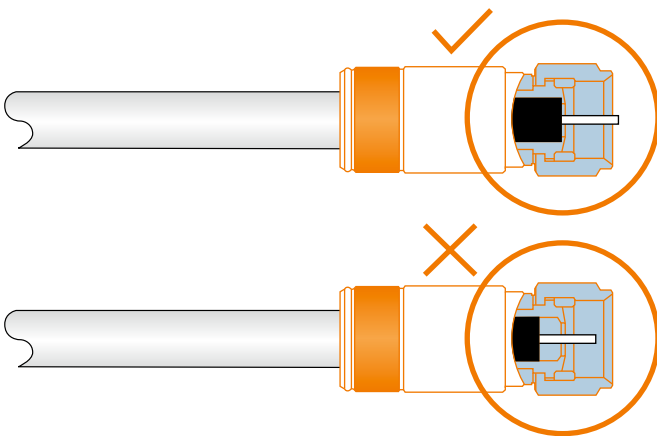


## Step 2

Verify stripped dimensions by using the cutting guide on the connector.  
A = 6,5 mm (outer conductor)  
B = 6,5 – 8,0 mm (inner conductor)

## Step 3

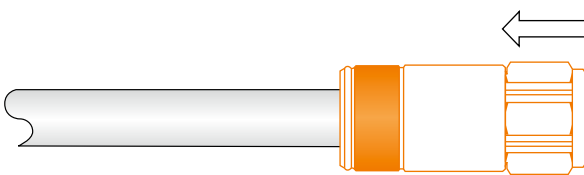
Brush/fold exposed braid back over jacket by using a stripping tool brush (if available) or any other nonmetallic brush.



## Step 4

Push the connector over the foil, allow the support sleeve to slide between the foil and braid. Press and turn until the dielectric is flush with the support mandrel face.

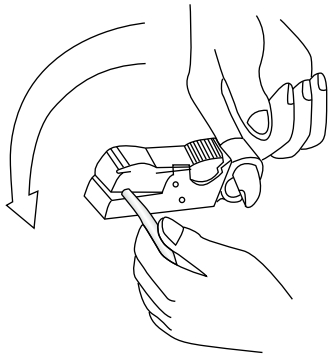
For better connector and cable grip, a connector mounting and cable rubber grip tool can be used. Please find further information in our tools catalogue.



## Step 5

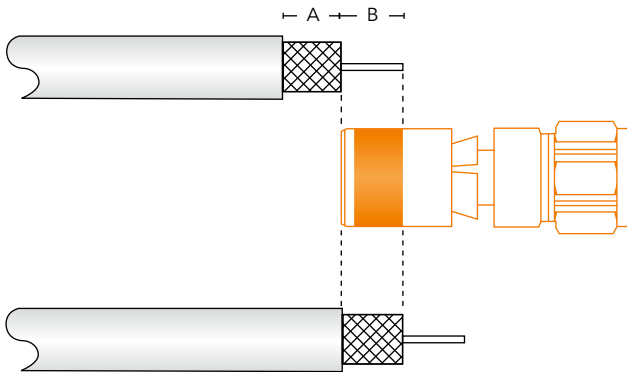
Compress the connector by using the recommended compression tool.  
Please find further information on compression tools in our tools catalogue.

# Mounting instructions for FM QM-TrueDrop connectors



## Step 1

Strip the cable.  
Cut and remove the outer braid and foil. Leave only the first layer of braid (if needed, adjust cable stripper accordingly). Clean the cable inner and outer conductor with a conductor cleaner or any other appropriate equipment. For your safety and best results Corning Cabelcon's pre-adjusted Cable Stripper is recommended. Please find further information concerning these tools within our tools catalogue.  
Don't forget - read the enclosed user instruction before using the tool.

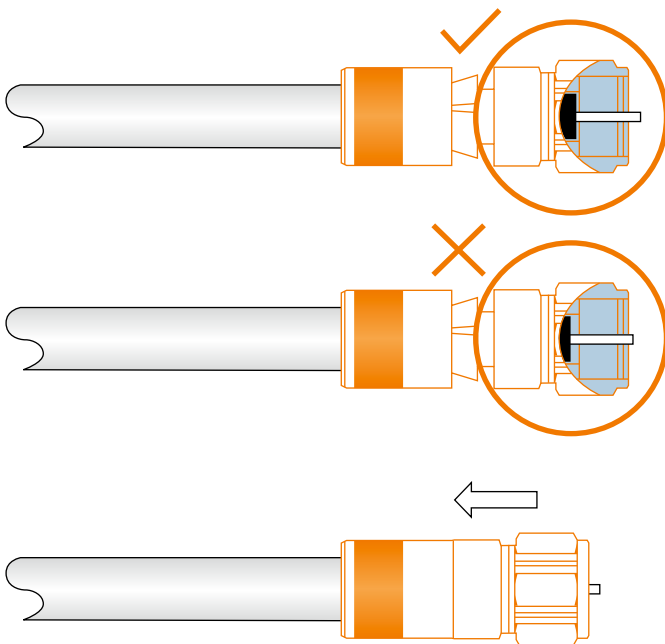


## Step 2

Verify stripped dimensions by using the cutting guide on the connector.  
A = 6,5 mm (outer conductor)  
B = 6,5 - 8,0 mm (inner conductor)

## Step 3

DO NOT FOLD BACK THE BRAID.



## Step 4

Slide the connector gently on the cable until the PushPin™ is visible as shown left to indicate proper installation of the cable. Do not twist the connector during this operation. Make sure that the braid goes nicely into the connector. Do not bend the braid back.

## Step 5

Compress the connector by using the recommended compression tool. Please find further information on compression tools in our tools catalogue.

# CX3 Quick Mount™, SpringConnect and Self-install connectors

|   |   |   |   |  |   |  |  |   |   |
|---|---|---|---|--|---|--|--|---|---|
| <b>54266002</b><br>FM-RG11-CX3<br>QM 10,5 | <b>54269304</b><br>3,5/12m-RG11-<br>CX3 QM 10,5 | <b>54263903</b><br>F SC-59-CX3<br>3,9 Short | <b>54264903</b><br>F SC 56-CX3<br>4,9 Short | <b>54280153</b><br>F-SC-6-TD-<br>5,1-Short | <b>54265122</b><br>F-56 4,9 W -<br>Self Install +<br>O-Ring | <b>54265133</b><br>IECM-56 5,1 -<br>Self Install | <b>54265134</b><br>IECF-56 5,1 -<br>Self Install | <b>54265135</b><br>90-IECM-56 5,1 -<br>Self Install | <b>54265136</b><br>90-IECF-56 5,1 -<br>Self Install |
|---|---|---|---|--|---|--|--|---|---|



## Quick Mount connectors

| Item   | Order No.       |
|--|-----------------|
| <b>FM-RG11-CX3 QM 10,5</b><br>Compression F-connector QUICK-MOUNT, waterproof, suitable for a wide range of cables with an outer diameter of approx. 10,5 mm, e.g. Oren HD-163   | <b>54266002</b> |
| <b>3,5/12m-RG11-CX3 QM 10,5</b><br>Suitable for a wide range of cables with an outer diameter of approx. 10,5 mm, e.g. Oren HD-163, mounting with compression tool (Order No. 55415700), please find further information concerning compression tools within our tools catalogue | <b>54269304</b> |

## SpringConnect connectors

| Item   | Order No.       |
|--|-----------------|
| <b>F-SC-59-CX3-3,9-Short</b><br>Compression F-connector SpringConnect for Oren HD-083, Belden 121-T-00, F 59 TSV and RG 59-cable types, suitable as quick-connection for every F-female without screwing | <b>54263903</b> |
| <b>F-SC-56-CX3-4,9-Short</b><br>Compression F-connector SpringConnect for Oren HD-103 suitable as quick-connection for every F-female without screwing   | <b>54264903</b> |
| <b>F-SC-6-TD-5,1-Short</b><br>Compression F-connector SpringConnect for Oren HD-113, suitable as quick-connection for every F-female without screwing  | <b>54280153</b> |

## Self-install connectors

| Item   | Order No.       |
|--|-----------------|
| <b>F-56 4,9 W - Self Install + O-Ring</b><br>Compression F-connector with sealing ring for Belden H-126-T-00 and Oren HD-103, mounting without special tools | <b>54265122</b> |
| <b>IECM-56 5,1 - Self Install</b><br>IEC-connector for e.g. Oren HD-113, mounting without special tools  | <b>54265133</b> |
| <b>IECF-56 5,1 - Self Install</b><br>IEC-female for e.g. Oren HD-113, mounting without special tools   | <b>54265134</b> |
| <b>90-IECM-56 5,1 - Self Install</b><br>IEC-angled-connector for e.g. Oren HD-113, mounting without special tools  | <b>54265135</b> |
| <b>90-IECF-56 5,1 - Self Install</b><br>IEC-angled-female for e.g. Oren HD-113, mounting without special tools   | <b>54265136</b> |

# Crimp connectors

**54246100**  
F-59-ALM 3,7/6,4



**54248500**  
F-56-ALM 5,1/8,4



**54253000**  
F-56-ALM 4,9/8,4



**54249000**  
FM-RG11-  
ALM 7,6/11,7



- All connector F-nuts are HEX 11
- Designed for very high strain relief
- Optimal fitting to the corresponding cable type
- High unalloyed brass as base material, NITIN surface



| Parameter                        | F-59-ALM 3,7/6,4              | F-56-ALM 5,1/8,4                   | F-56-ALM 4,9/8,4                     | FM-RG11-ALM 7,6/11,7                     |
|----------------------------------|-------------------------------|------------------------------------|--------------------------------------|--|
| For cable type                   | Belden H-121-T-00,<br>H-121-B | Belden H-125-CH and<br>Ören HD-113 | Belden H-126-T-00<br>and Ören HD-103 | PRG 11 Cu, PRG 11 DB+<br>and Ören HD-163 |
| Length [mm]                      | 20,5                          | 20,5                               | 20,5                                 | 35,2                                     |
| Frequency range [MHz]            | 5 – 2.500                     |                                    |                                      |  |
| Screening factor [dB]            | > 90                          |                                    |                                      |  |
| Impedance [Ω]                    | 75                            |                                    |                                      |  |
| Operating temperature range [°C] | -37 ... +70                   |                                    |                                      |  |
| Return loss [dB]                 | > 30                          |                                    |                                      |  |
| Order No.                        | 54246100                      | 54248500                           | 54253000                             | 54249000                                 |

## Crimp your connectors here for:

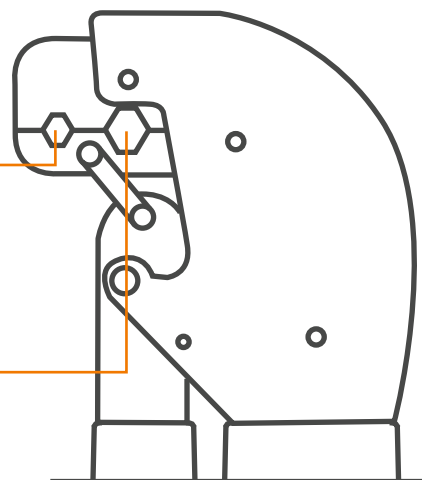
- H-121,
- H-121-B,
- MKL 0,8/3,5,
- BTC 1000/26,
- H125 CH,
- BKS 2050/30,
- BTC 1000/20 Cu,
- WKL 1,0/4,6 und
- WKL 1,0/4,8 CH.

## Crimp your connectors here for:

- PRG 11 Cu,
- PRG 11 DB+ and
- KKL 1,6/7,2.

**Please use only the recommended crimp tool with Order No. 55230000!**

Please find further information within our tools catalogue.



CRP 106F - .324" + .475"



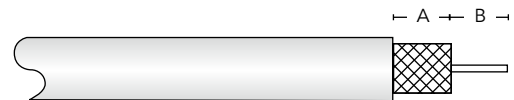
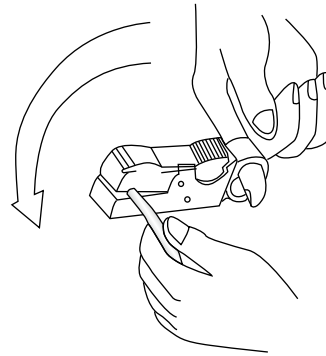
# Splicing instructions for compression connectors

## Step 1: Strip the cable

We strongly recommend the use of our pre-adjusted Rotary Cable Stripper for RG 6, RG 59, H 121 B and H 123 B (Order No. 55294000) especially the cable stripper RG 11 (Order No. 55295000) for proper preparation of the cable. You can find further information concerning cable strippers within our tools catalogue. Please read the instructions supplied with the tool. Make sure not to damage the braid or foil during the stripping process. After completing the operation, the braid and foil must be smooth and the prepared.

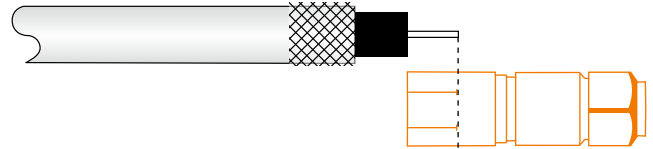
Cable dimensions: A = 6,5 mm; B = 6,5 mm

**Do not cut off the braid or cut into the foil or center conductor!**



## Step 2: Prepare the cable

Fold exposed braid back over the jacket. **This does not apply for FM-CX3 Mini and QuickMount connectors.** For "Quad shield", "Tri shield" and "Super shield" cables: Remove the outer braid and foil only. Fold back the inner braid. Leave the inner foil attached to the dielectric. Make sure that the foil is undamaged and smooth. If the inner conductor is too long, you may cut it down to a length of 6,5 mm. Check the length to fit the guide as shown.

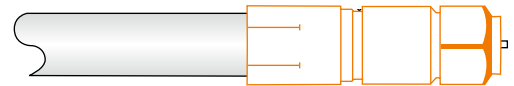


## Step 3: Mount the connector

Press the front part of the connector (with the built-in "tool") against the cable and turn it slowly to prepare the foil entering the connector (not for FM-RG11-CX3, FM CX3 Mini, QuickMount and IEC-connectors).

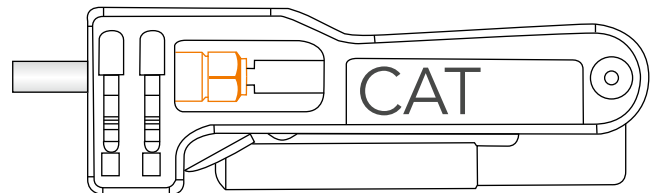
Push the connector over the foil and allow the support mandrel to slide between the foil and the braid. A crimp handle (Order No. 55240000, only for F-connectors) and a rubber tool for cable support can be used to keep better grip on the connector and the cable during this operation. Please find further information within our tools catalogue.

Press-on the connector and turn until the dielectric is flush with the support mandrel face. At the FM-RG11-CX3 push the connector against the cable until the moveable pin is pushed forward and becomes visible as shown.



## Step 4: Compress the connector

Use the compression crimp tool CAT-AS-IEC/F-FX (Order No. 55410100). Release the tool handle, insert the connector with mounted cable and close the tool handle completely as shown. Release the tool handle and remove the compressed connector. You can use the compression tool CX3 (Order No. 55415500) alternatively. Please find further information concerning compression tools within our tools catalogue.



## ATTENTION!

**When mounting the connector into the tap, please make sure to tighten the nut with a torque of 3,4 – 5,6 Nm to avoid a decreased of performance within your network. You can find a corresponding torque wrench in our tools catalogue.**

# Splicing instructions for F-crimp connectors

## Step 1

We strongly recommend the use of the Rotary Cable Stripper for RG 6, RG 59, H 121 B and H 123 B (Order No. 55294000) for proper preparation of the cable. You can find further information concerning cable strippers within our tools catalogue.

Stripping dimensions:

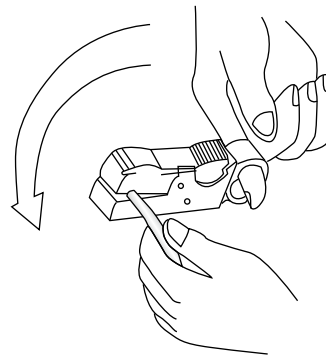
A = 6,5 mm (4 mm for EPA short).

B = 6,5 mm at IEC 169-24 (Europe) (8 mm for EPA short).

B = 8,0 mm at SCTE SP 401-199x (USA) (9,5 mm for EPA short).

However, a "B-dimension" of 6,5 mm (8,0 mm for EPA short) will be sufficient in most cases.

**Do not cut off the braid or cut into the foil or center conductor!**



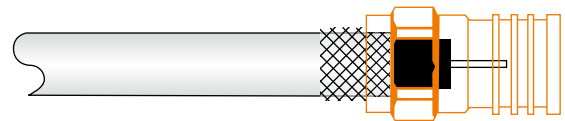
## Step 2

Fold exposed braid back over jacket. For "Quad shield", "Tri shield" and "Super shield" cables: Remove the outer braid and foil only. Fold back the inner braid. Leave the inner foil attached to dielectric. Make sure that the foil is undamaged and smooth.



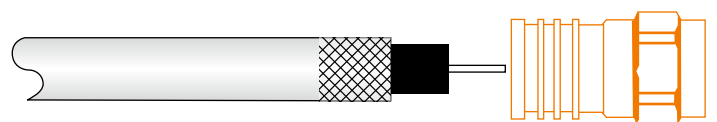
## Step 3

Press the front part of the connector (with the built-in "tool") against the cable and turn it slowly to prepare the foil entering the connector (not EPA).



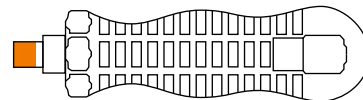
## Step 4

Push the connector over the foil and allow the support mandrel to slide between the foil and braid.



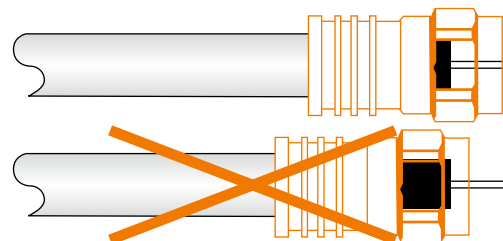
## Step 5

A crimp handle can be used to keep a better grip on the connector during installation. Please find further information within our tools catalogue.



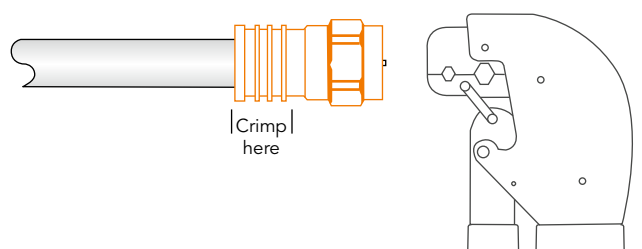
## Step 6

Press and turn until the dielectric is flush with the support mandrel face.



## Step 7

Crimp the connector using the proper crimp tool dimension: MINI = .262", ALM = .324", UNIV = .360", EPA = .360" (for cables of type RG 11: ALM = .475", EPA = .475").



## ATTENTION!

**When mounting the connector into the tap, please make sure to tighten the nut with a torque of 3,4 – 5,6 Nm to avoid a decreased of performance within your network. You can find a corresponding torque wrench in our tools catalogue.**

# Cable fittings

For connecting coaxial cables and cables on in-ground tap-offs



## Instruction how to chose the correct connector

1. Select the cable you are using from the table below.
2. Chose the fitting connector from the following page.

3. Replace the "- XX" with the braun teleCom type number.
4. Now you are able to order your desired connectors with the given name.

## Übersicht der Koaxialkabel mit der entsprechenden Typ-Nummer

| Parameter              | Frequency [MHz] | Applies to all connectors named below |
|------------------------|-----------------|---------------------------------------|
| Frequency range [MHz]  |                 | 5 – 3.000                             |
| Max. line power [A]    |                 | 12                                    |
| Screening factor [dB]  |                 | > 94                                  |
| Temperature range [°C] |                 | -37 ... +70                           |
| Through loss [dB]      |                 | < 0,1                                 |
| Return loss [dB]       | 5 – 500         | > 35,25                               |
|                        | 500 – 1.000     | > 32,50                               |
|                        | 1.000 – 2.150   | > 25,30                               |

| Coaxial cable    | Inner conductor [mm] | Dielectric [mm] | Outer conductor [mm] | Outer sheath [mm] | Type No. |
|------------------|----------------------|-----------------|----------------------|-------------------|----------|
| HD-083           | 0,81                 | 3,66            | –                    | 5,80              | -TL 111  |
| H126 Txx         | 1,02                 | 4,57            | 5,50                 | 7,00              | -TL 101  |
| HD-103           | 1,02                 | 4,60            | –                    | 6,80              | -TL 101  |
| HD-113           | 1,01                 | 4,80            | –                    | 6,80              | -TL 101  |
| 75 D 1,7/7,0 ikx | 1,63                 | 6,9             | 7,5                  | 10,5              | -TL 202  |
| FB 11, COAX 6    | 1,61                 | 7,55            | 8,2                  | 11,1              | -TL 212  |
| HD-163           | 1,63                 | 7,20            | –                    | 10,00             | -TL 232  |
| PRG 11 Cu        | 1,55                 | 7,25            | 7,90                 | 10,20             | -TL 232  |
| PRG 11 DB+       | 1,55                 | 7,25            | 8,10                 | 10,20             | -TL 232  |
| A-2YK2Y 1 ikx    | 1,10                 | 7,30            | 7,80                 | 11,00             | -TL 243  |
| KJ 1108          | 1,1                  | 7,25            | 7,5                  | 10,2              | -TL 244  |
| RG7 CU           | 1,25                 | 5,7             | 6,3                  | 8,1               | -TL 245  |
| A-2Y0K2Y 1 nkx   | 2,20                 | 8,80            | 9,30                 | 12,50             | -TL 303  |
| LCM 15           | 1,75                 | 11,2            | 11,8                 | 14,5              | -TL 404  |
| HD-223           | 2,20                 | 10,20           | –                    | 13,80             | -TL 413  |
| COAX 4 FFB 14    | 2,20                 | 10,20           | 11,00                | 13,80             | -TL 413  |
| COAX 3 FFB 20    | 3,40                 | 14,90           | 15,80                | 19,80             | -TL 646  |
| A-2Y0K2Y 1 qkx   | 3,30                 | 13,40           | 14,00                | 17,00             | -TL 525  |
| A-2Y0K2Y 1 skx   | 4,90                 | 19,30           | 20,00                | 24,50             | -TL 717  |

## Grounding rings

| Item                  | For the connectors ...  | Order No. |
|-----------------------|---|-----------|
| Grounding ring type 2 | -TL202, -TL205, -TL212, -TL 232, -TL240, -TL 243, -TL244, -TL245, -TL246, -TL202FI, -TL220STI, -TL250TI, -02, -12, -22, -32, -42, -203, -206, -210, -230, -240, -243, -244, -245, -246, -C202, -C212, -C220, -C232, -C243, -C250, -C263                             | 60300200  |
| Grounding ring type 3 | -TL303, -TL306FI, -TL309, -TL310STI, -TL313, -TL319TI, -TL326, -TL343TI, -TL363, -TL383STI, -13, -63, -83, -303, -304, -309, -310, -319, -C303, -C314, -C319  | 60300300  |
| Grounding ring type 4 | -TL404, -TL406, -TL412, -TL413, -TL417STI, -TL418, -TL419TI, -TL424, -TL427, -TL414, -TL434TI, -TL414TI, -TL441TI, -TL444, -TL470TI, -TL494STI, -04, -14, -24, -34, -43, -44, -54, -64, -83, -84, -94, -341, -402, -405, -412, -413, -418, -419, -427, -C419, -C470 | 60300400  |
| Grounding ring type 5 | -TL501, -TL502, -TL505, -TL505TI, -TL506TI, -TL515, -TL517STI, -TL525, -TL530TI, -TL540TI, -05, -15, -25, -75, -502, 526, -530, -C525, -C540, -C553   | 60300500  |
| Grounding ring type 6 | -TL606, TL-609TI, -TL610TI, -TL611STI, -TL616, -TL619TI, -TL626, -TL636, -TL646, -TL655, -TL666TI, -TL676, -TL696STI, -06, -16, -36, -46, -55, -56, -66, -76, -96, -609, -610, -611, -C610, -C611, -C619  | 60300600  |

## 3,5/12f-C418 for connecting cable on in-ground tap-offs

Specially designed 3,5/12f connector for supplementary mounting to in-ground tap-offs with KES contact bush. Return loss > 44 dB at 1 GHz, impedance 75 Ω, waterproof, corrosion-resistant, max. tensile strength of 1.000 N.

Order No. 60152995

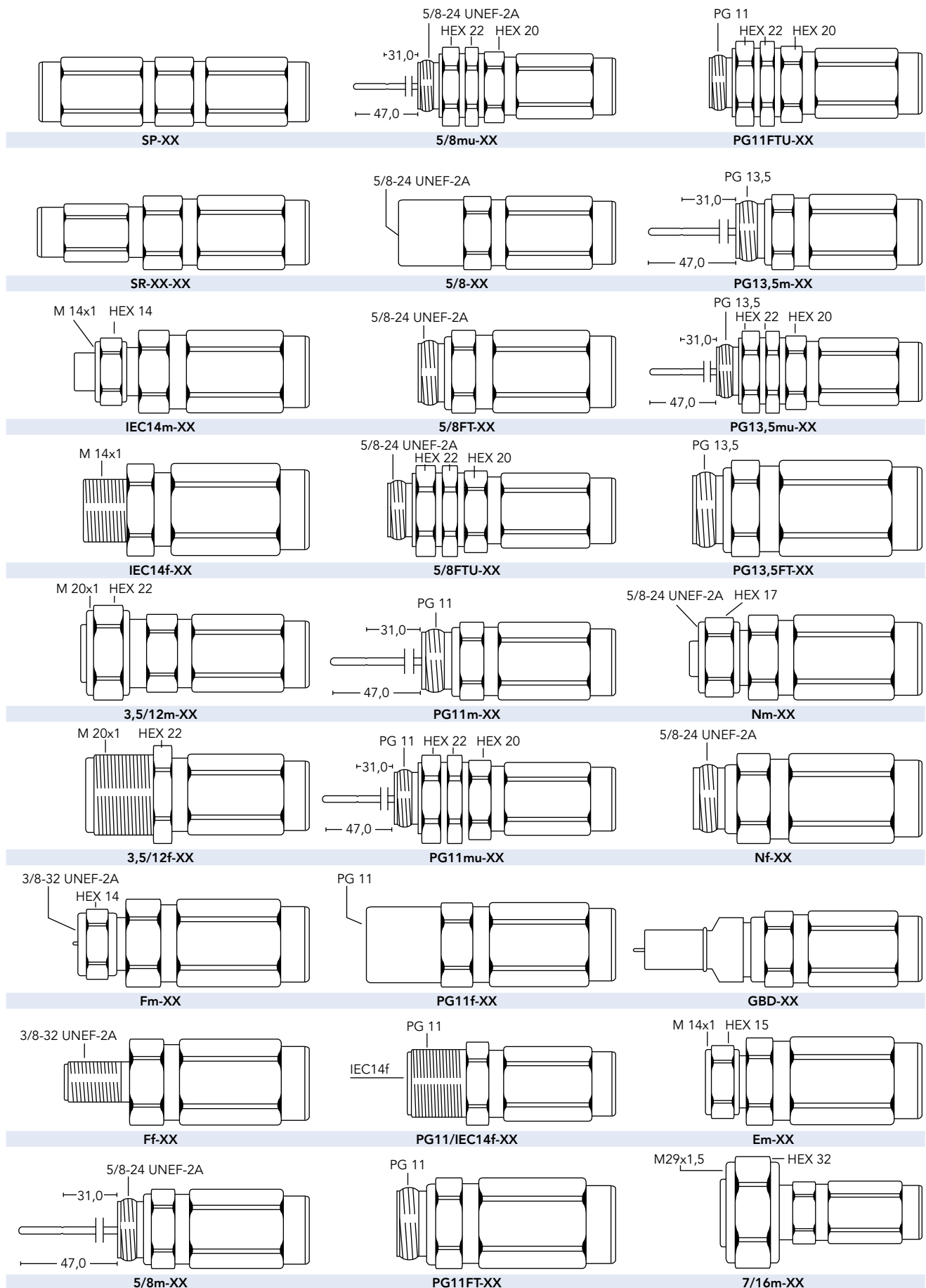
### Mounting Instructions

Cut off the KES-contact bush, strip the cable with a special dual-strip tool, screw on the backnut to the corrugated copper tube, insert the inner conductor of the cable into the connector body and screw the backnut together with the body.

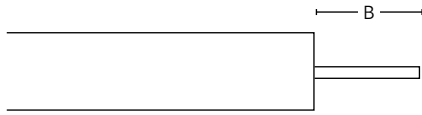


60152995  
3,5/12f-C418

# Connector types for cable fittings



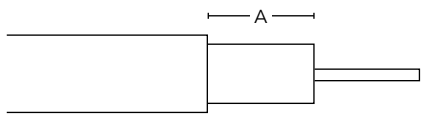
# Splicing instructions for cable fittings, here: type-46, COAX 3FFB20



Remove the sheath, the outer conductor and the dielectric in length of:

B = 16 mm

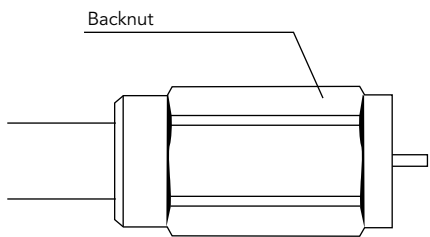
For splicereducers (SR) please see the corresponding instructions.



Remove the sheath in length of:

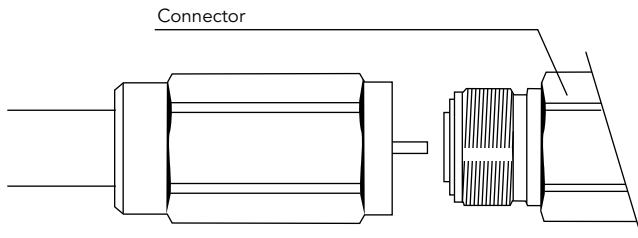
A = 14 mm

For splicereducers (SR) please see the corresponding instructions.



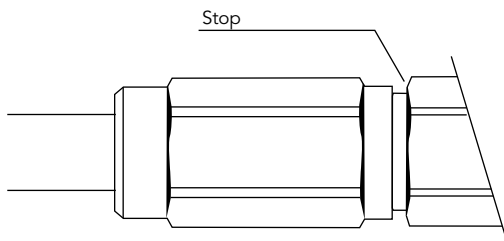
Pull the backnut over the cable as far as possible.

For couplings (SP) and cable transitions (SR), the opposite set side mounted in a similar manner.

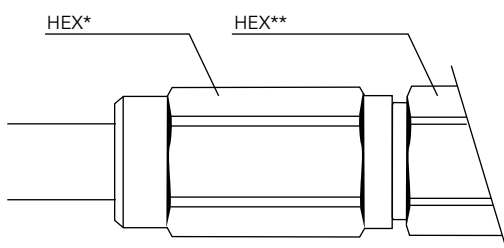


Pull the connector body over the cable's inner conductor and screw the nut tightly onto the connector body.

For couplings (SP) and cable transitions (SR), the opposite set side mounted in a similar manner.



Please use two open-end wrenches. The nut is turned onto the connector body until it stops (metal against metal). Always hold the connector body while screwing the nut! Please find further information concerning wrenches within our tools catalogue



HEX\* = 27 mm , HEX\*\* = 27 mm

For cable transitions (SR), the largest nut must be tightened first.

**Please note:**  
The connectors are waterproof, but must be shielded by a shrinksleeve when buried!

# Jumper cables



|  |  |   |  |  |  |  |  |
|--|--|---|--|--|--|--|--|
| <b>60400721</b><br>FM-CXJ6A+-<br>FM/TD/B/0,2 | <b>60400731</b><br>FM-CXJ6A+-<br>FM/TD/B/0,3 | <b>60400737</b><br>FM-CXJ6A+-<br>FM/TD/B/0,35 | <b>60400741</b><br>FM-CXJ6A+-<br>FM/TD/B/0,4 | <b>60400751</b><br>FM-CXJ6A+-<br>FM/TD/B/0,5 | <b>60400761</b><br>FM-CXJ6A+-<br>FM/TD/B/0,6 | <b>60400781</b><br>FM-CXJ6A+-<br>FM/TD/B/0,8 | <b>60400795</b><br>FM-CXJ6A+-<br>FM/TD/B/1,0 |
|--|--|---|--|--|--|--|--|

| Parameter                                 | FM-CXJ6A+-FM/<br>TD/B/0,3 KDG | FM-CXJ6A+-FM/<br>TD/B/0,4 KDG | FM-CXJ6A+-FM/<br>TD/B/0,5 KDG | FM-CXJ6A+-FM/<br>TD/B/0,6 KDG | FM-CXJ6A+-FM/<br>TD/B/0,8 KDG |
|---|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Description                               | Mini jumper F-Male to F-Male  |                               |                               |                               |                               |
| Length [m]                                | 0,3                           | 0,4                           | 0,5                           | 0,6                           | 0,8                           |
| Screening [dB]                            | > 95                          | > 95                          | > 95                          | > 95                          | > 95                          |
| Return loss [dB]                          | > 34                          | > 32                          | > 35                          | > 34                          | > 34                          |
| Waterproof                                | Yes                           |                               |                               |                               |                               |
| Compliant with<br>EN 60966-2-6 Class A    | Yes, A+                       |                               |                               |                               |                               |
| Connector type                            | TrueDrop                      |                               |                               |                               |                               |
| Approved by Vodafone<br>Kabel Deutschland | Yes                           |                               |                               |                               |                               |
| Imprint „KDG 1 TS 151“                    | Yes                           |                               |                               |                               |                               |
| Order No.                                 | 60400732                      | 60400742                      | 60400752                      | 60400762                      | 60400782                      |



| Parameter                              | FM-CXJ6A+-<br>FM/TD/B/0,2    | FM-CXJ6A+-<br>FM/TD/B/0,3 | FM-CXJ6A+-<br>FM/TD/B/0,35 | FM-CXJ6A+-<br>FM/TD/B/0,4 | FM-CXJ6A+-<br>FM/TD/B/0,5 | FM-CXJ6A+-<br>FM/TD/B/0,6 | FM-CXJ6A+-<br>FM/TD/B/0,8 | FM-CXJ6A+-<br>FM/TD/B/1,0 |
|--|------------------------------|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Description                            | Mini jumper F-Male to F-Male |                           |                            |                           |                           |                           |                           |                           |
| Length [m]                             | 0,2                          | 0,3                       | 0,35                       | 0,4                       | 0,5                       | 0,6                       | 0,8                       | 1,0                       |
| Screening [dB]                         | > 95                         | > 95                      | > 95                       | > 95                      | > 95                      | > 95                      | > 95                      | > 95                      |
| Return loss [dB]                       | > 34                         | > 34                      | > 34                       | > 34                      | > 34                      | > 34                      | > 34                      | > 34                      |
| Waterproof                             | Yes                          |                           |                            |                           |                           |                           |                           |                           |
| Compliant with<br>EN 60966-2-6 Class A | Yes, A+                      |                           |                            |                           |                           |                           |                           |                           |
| Connector type                         | TrueDrop                     |                           |                            |                           |                           |                           |                           |                           |
| Order No.                              | 60400721                     | 60400731                  | 60400737                   | 60400741                  | 60400751                  | 60400761                  | 60400781                  | 60400795                  |



We do not have the perfect jumper cable in our product portfolio yet?

**We are happy to produce jumper cables according to your requirements, even in small quantities!**

# Adapters and terminators

|   | Artikel                   | Beschreibung  | Bestell-Nr. |
|---|---------------------------|---|-------------|
|    | PG 11M - IEC 14f          | Adapter PG 11-male to IEC-female with M 14 thread                             | 60280100    |
|    | PG 11M - 3,5/12f          | Adapter PG 11-male to 3,5/12-female   | 60280301    |
|    | Fm - 3,5/12f              | Adapter F-male to 3,5/12-female   | 60280406    |
|    | PG 11M - Ff               | Adapter PG 11-male to F-female  | 60280600    |
|    | 90 - Fm - Ff HQ           | Angled adapter F-male to F-female   | 60280811    |
|    | IEC 14f - IEC 14f         | Adapter IEC-female to IEC-female  | 60280900    |
|    | IEC 14f - Ff              | Adapter IEC-female to F-female  | 60280905    |
|    | IEC 14f - CHASSIS Ff      | Adapter IEC-female to F-female as chassis connector                           | 60280910    |
|   | 3,5/12M - IEC 14f         | Adapter 3,5/12-male to IEC-female with M 14 thread                            | 60281005    |
|  | 3,5/12M - Ff              | Adapter 3,5/12-male to F-female   | 60281010    |
|  | 3,5/12M - 3,5/12M         | Adapter 3,5/12-male to 3,5/12-male  | 60281011    |
|  | 3,5/12f - 3,5/12f CHASSIS | Adapter 3,5/12-female to 3,5/12-female as chassis connector with PG 11 thread | 60281000    |
|  | 3,5/12f CHASSIS - Ff      | Adapter 3,5/12-female to 3,5/12-female as chassis connector with PG 11 thread | 60281020    |
|  | BNCf 75 Ohm - Fm          | Adapter BNC-female to F-female 75 Ohm   | 60281710    |
|  | BNCf 75 Ohm - IECf        | Adapter BNC-female to IEC-female  | 60281750    |
|  | 5/8M - IEC 14f            | Adapter 5/8-male to IEC-female with M 14 thread                               | 60280210    |
|  | 5/8M - Ff                 | Adapter 5/8-male to F-female  | 60280500    |
|  | 5/8M - 3,5/12f            | Adapter 5/8-male to 3,5/12-female   | 60280550    |
|  | 5/8 - PG 11               | Adapter ring 5/8-male to 3,5/12-female  | 60280565    |
|  | PG 11M-R 75 AC Blocking   | PG 11-male as 75 Ω terminator with AC blocking                                | 60260100    |
|  | IEC 14M-R 75 AC Blocking  | IEC-male with M 14 cap nut as 75 Ω terminator with AC blocking                | 60260200    |
|  | 3,5/12M-R 75 AC Blocking  | 3,5/12-male as 75 Ω terminator with AC blocking                               | 60260300    |
|  | 5/8m-R 75 AC Blocking     | 5/8-male as 75 Ω terminator with AC blocking                                  | 60260500    |





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| Artikel                              | Beschreibung  | Bestell-Nr. |
|--------------------------------------|---|-------------|
| PG 11M - AC                          | PG 11-male as power feed-in for remote power  | 60290401    |
| 5/8M - AC                            | 5/8-male as power feed-in for remote power  | 60290501    |
| 3,5/12M - AC                         | 3,5/12-male as power feed-in for remote power   | 60290601    |
| Double splice FM-FM                  | Double splice – F-male to F-male adapter, 27 mm length, nickel plated brass   | 54210000    |
| F-plug-in adapter Ff-Fm/P            | F-plug-in adapter for measures, fits on every F-female without screwing   | 54220000    |
| F-Schnellstecker Ff-Fm/P HQ          | F-plug-in adapter HQ for measures, fits on every F-female without screwing  | 54220100    |
| F-Adapter FM-IECMP                   | F-adapter – F-male to IEC-male  | 56020000    |
| F-Adapter FF-IECMP                   | F-adapter – F-female to IEC-male  | 56030000    |
| F-Adapter FF-IECMP HQ                | F-adapter HQ – F-female to IEC-male   | 56030500    |
| F-Adapter FM-IECFP                   | F-adapter – F-male to IEC-female  | 56070000    |
| F-Adapter FF-IECFP                   | F-adapter – F-female to IEC-female  | 56080000    |
| F-Adapter FF-BNCM                    | F-adapter – F-female to BNC-male  | 56040000    |
| F-Adapter FF-BNCM HQ                 | F-adapter HQ – F-female to BNC-male   | 56040001    |
| TR-59-1/4-HQ                         | F-terminal resistor 75 Ω – nickel plated brass  | 54420000    |
| CC-LT-R-75-ST with F-thread, long    | Tamper-proof terminal resistor – 75 Ω F-terminator for unused outputs, to avoid signal-theft or interference ingress, only to open with LTT-75 (please find further information within our tools catalogue), with F-thread (26 mm)      | 54431000    |
| CC-LT-R-75-S without F-thread, short | Tamper-proof terminal resistor – 75 Ω F-terminator for not used outputs, to avoid signal-theft or interference ingress, only to open with LTT-75 (please find further information within our tools catalogue), without F-thread (20 mm) | 54432000    |
| CC-Security Shield                   | In order to secure F-connections against manipulation and unauthorized disassembly, diameter 20 mm, only mountable/removable with specialty tool (Order No. 55445000), please find further information within our tools catalogue       | 54440000    |
| 180-FF-FF-HQ/180-FF-FF-HQ            | F-female to F-female adapter with NITIN surface in U-style, gold-plated pins, through loss < 0,2 dB, return loss > 30 dB, screening > 100 dB, transfer impedance < 0,3 mΩ/connector   | 54510000    |
| F-81-HQ-1 F-splice prof.             | F-female to F-female adapter, nickel plated brass, 26 mm length, screening > 96 dB, return loss > 30 dB   | 54500000    |
| F-NUT + WAL                          | F-nut and wal for F-81-HQ   | 54391000    |
| Double splice female                 | F-female to F-female adapter with high return loss  | 54200000    |
| F-angle adapter                      | F-male to F-female adapter with soldered inner pin, nickel plated brass   | 54190000    |

Subject to technical changes!

# CATV accessories

## Attenuators



53051012  
ATS-12-3G



53051110  
AT-10-1G



### Fixed-value attenuators in F-technique, 1,3 GHz

- Frequency range: 5 – 1.300 MHz
- F-female/F-male connectors according to IEC/EN 61169-24
- Housing with fixed HEX 11 nut at the F-male connector
- Very high screening factor according to EN 50083-2 Class A +10 dB
- Dimensions: Ø 11 mm, length 30 mm
- All fixed-value attenuators with 50 V DC blocking
- Net weight: 9 g
- Operating temperature range: -20°C – +65°C

| Parameter             | Frequency [MHz] | AT-2-1G   | AT-3-1G   | AT-4-1G   | AT-6-1G   | AT-8-1G   | AT-10-1G   |
|-----------------------|-----------------|-----------|-----------|-----------|-----------|-----------|------------|
| Frequency range [MHz] |                 | 5 – 1.300 |           |           |           |           |            |
| Impedance [Ω]         |                 | 75        |           |           |           |           |            |
| Insertion loss [dB]   | 5 – 1.006       | 2 (± 0,3) | 3 (± 0,3) | 4 (± 0,3) | 6 (± 0,3) | 8 (± 0,3) | 10 (± 0,3) |
|                       | 1.006 – 1.300   | 2 (± 0,5) | 3 (± 0,5) | 4 (± 0,5) | 6 (± 0,5) | 8 (± 0,5) | 10 (± 0,5) |
| Return loss [dB]      | 5 – 470         | > 20      |           |           |           |           |            |
|                       | 470 – 1.006     | > 16      |           |           |           |           |            |
|                       | 1.006 – 1.300   | > 14      |           |           |           |           |            |
| Order No.             |                 | 53051102  | 53051103  | 53051104  | 53051106  | 53051108  | 53051110   |

| Parameter             | Frequency [MHz] | AT-12-1G   | AT-14-1G   | AT-16-1G   | AT-18-1G   | AT-20-1G   |
|-----------------------|-----------------|------------|------------|------------|------------|------------|
| Frequency range [MHz] |                 | 5 – 1.300  |            |            |            |            |
| Impedance [Ω]         |                 | 75         |            |            |            |            |
| Insertion loss [dB]   | 5 – 1.006       | 12 (± 0,3) | 14 (± 0,3) | 16 (± 0,3) | 18 (± 0,3) | 20 (± 0,3) |
|                       | 1.006 – 1.300   | 12 (± 0,5) | 14 (± 0,5) | 16 (± 0,5) | 18 (± 0,5) | 20 (± 0,5) |
| Return loss [dB]      | 5 – 470         | > 20       |            |            |            |            |
|                       | 470 – 1.006     | > 16       |            |            |            |            |
|                       | 1.006 – 1.300   | > 14       |            |            |            |            |
| Order No.             |                 | 53051112   | 53051114   | 53051116   | 53051118   | 53051120   |

### Fixed-value attenuators in F-technique, 5 – 3.000 MHz

- Frequency range 5 – 3.000 MHz
- F-female/F-male connectors according to IEC/EN 61169-24
- Housing with 2 Hex 11 nuts: 1 rotatable nut at F-male and 1 lock nut at housing body
- Very high screening factor according EN 50083-2 Class A +10 dB
- Dimensions: Ø 11 mm, length 31 mm
- All fixed-value attenuators with 50 V DC blocking
- Net weight: 11 g
- Operating temperature range: -20°C – +65°C

| Parameter             | Frequency [MHz] | ATS-2-3G    | ATS-3-3G    | ATS-4-3G    | ATS-6-3G    | ATS-8-3G    | ATS-9-3G    | ATS-10-3G    | ATS-12-3G    | ATS-15-3G    | ATS-18-3G    |
|-----------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|
| Frequency range [MHz] |                 | 5 – 3.000   |             |             |             |             |             |              |              |              |              |
| Impedance [Ω]         |                 | 75          |             |             |             |             |             |              |              |              |              |
| Attenuation [dB]      | 5 – 1.006       | 2 (± 0,3)   | 3 (± 0,3)   | 4 (± 0,3)   | 6 (± 0,3)   | 8 (± 0,3)   | 9 (± 0,3)   | 10 (± 0,3)   | 12 (± 0,3)   | 15 (± 0,3)   | 18 (± 0,3)   |
|                       | 1.006 – 1.800   | 2 (± 0,5)   | 3 (± 0,5)   | 4 (± 0,5)   | 6 (± 0,5)   | 8 (± 0,5)   | 9 (± 0,5)   | 10 (± 0,5)   | 12 (± 0,5)   | 15 (± 0,5)   | 18 (± 0,5)   |
|                       | 1.800 – 2.400   | 2 (± 0,6)   | 3 (± 0,6)   | 4 (± 0,6)   | 6 (± 0,6)   | 8 (± 0,6)   | 9 (± 0,6)   | 10 (± 0,6)   | 12 (± 0,6)   | 15 (± 0,6)   | 18 (± 0,6)   |
| Return loss [dB]      | 2.400 – 3.000   | 2,5 (± 0,9) | 3,5 (± 0,9) | 4,5 (± 0,9) | 6,5 (± 0,9) | 8,5 (± 0,9) | 9,5 (± 0,9) | 10,5 (± 0,9) | 12,5 (± 0,9) | 15,5 (± 0,9) | 18,5 (± 0,9) |
|                       | 5 – 470         | > 20        |             |             |             |             |             |              |              |              |              |
|                       | 470 – 1.000     | > 20        |             |             |             |             |             |              |              |              |              |
|                       | 1.000 – 1.800   | > 18        |             |             |             |             |             |              |              |              |              |
| Order No.             | 1.800 – 2.400   | > 15        |             |             |             |             |             |              |              |              |              |
|                       | 2.400 – 3.000   | > 12        |             |             |             |             |             |              |              |              |              |
|                       |                 | 53051002    | 53051003    | 53051004    | 53051006    | 53051008    | 53051009    | 53051010     | 53051012     | 53051015     | 53051018     |

# Return path attenuators 5 – 65 MHz



**5300900**  
RW-AT-9-65



**53101501**  
RW-AT-15-65-2

## 5 – 65 MHz return path attenuators in F-technique, 1.000 MHz

- Designed for a symmetrical adjustment of the reverse path loss of each subscriber connection within a house distribution network
- Fixed values of attenuation in the reverse band 5 – 65 MHz, very low through loss inside the forward band 85 – 1.000 MHz
- F-male and F-female connectors for direct mounting onto the passive distribution equipment, diameter 13 mm, length 41 mm
- Very high screening factor according to EN 50083-2 Class A

| Parameter             |              | Frequency [MHz]         | RW-AT-3-65             | RW-AT-6-65             | RW-AT-9-65             | RW-AT-12-65            |
|-----------------------|--------------|-------------------------|------------------------|------------------------|------------------------|------------------------|
| Through loss [dB]     | Reverse path | 5 – 65                  | 3,0 ± 0,5              | 6,0 ± 0,5              | 9,0 ± 0,5              | 12,0 ± 0,5             |
|                       | Forward path | 85 – 100<br>100 – 1.000 | 1,5 ± 0,5<br>0,5 ± 0,7 | 1,7 ± 0,7<br>0,5 ± 0,7 | 2,6 ± 0,7<br>0,5 ± 0,7 | 2,7 ± 0,7<br>0,5 ± 0,7 |
| Return loss [dB typ.] | Reverse path | 5 – 55                  | 18                     | 18                     | 18                     | 18                     |
|                       |              | 55 – 65                 | 16                     | 16                     | 16                     | 16                     |
|                       | Forward path | 85 – 100<br>100 – 1.000 | 16<br>18               | 16<br>18               | 16<br>18               | 16<br>18               |
| Order No.             |              |                         | 53100300               | 53100600               | 53100900               | 53101200               |



## 5 – 65 MHz return path attenuators in F-technique, 1.800 MHz

- F-male and F-female connectors for direct mounting onto the passive distribution equipment
- Designed for a symmetrical adjustment of the reverse path loss of each subscriber connection within a house distribution network
- Fixed values of attenuation in the reverse band 5 – 65 MHz, very low through loss inside the forward band 85 – 1.800 MHz
- Very high screening factor according to EN 50083-2 Class A +10 dB
- Housing: Copper tube with nickel plating
- 3/8"-32UNEF connector screw threads
- Dimensions: Ø 13 mm, length 41 mm
- Net weight 15,5 g
- Operating temperature range: -20°C – +65°C

| Parameter             | Frequency [MHz] | RW-AT-3-65-2                     | RW-AT-6-65-2                     | RW-AT-9-65-2                      | RW-AT-12-65-2                       | RW-AT-15-65-2                       |
|-----------------------|-----------------|----------------------------------|----------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|
| Frequency range [MHz] |                 | 5 – 1.800                        |                                  |                                   |                                     |                                     |
| Impedance [Ω]         |                 | 75                               |                                  |                                   |                                     |                                     |
| Insertion loss [dB]   | 5 – 65          | 2,0 min.<br>3,0 typ.<br>4,0 max. | 5,0 min.<br>6,0 typ.<br>7,0 max. | 8,0 min.<br>9,0 typ.<br>10,0 max. | 11,0 min.<br>12,0 typ.<br>13,0 max. | 14,0 min.<br>15,0 typ.<br>16,0 max. |
|                       |                 | 85 – 100                         | 1,5 typ.<br>2,0 max.             | 2,0 typ.<br>2,5 max.              | 2,6 typ.<br>3,0 max.                | 2,8 typ.<br>3,2 max.                |
|                       | 101 – 1.800     | 0,5 typ.<br>1,5 max.             | 0,5 typ.<br>1,5 max.             | 0,5 typ.<br>1,5 max.              | 0,5 typ.<br>1,5 max.                | 0,5 typ.<br>1,5 max.                |
| Return loss [dB]      | 5 – 55          | 14 min.<br>18 typ.               | 14 min.<br>18 typ.               | 14 min.<br>18 typ.                | 14 min.<br>18 typ.                  | 14 min.<br>18 typ.                  |
|                       | 56 – 65         | 10 min.<br>14 typ.               | 10 min.<br>14 typ.               | 10 min.<br>14 typ.                | 10 min.<br>14 typ.                  | 10 min.<br>14 typ.                  |
|                       | 85 – 100        | 10 min.<br>12 typ.               | 10 min.<br>12 typ.               | 10 min.<br>12 typ.                | 10 min.<br>12 typ.                  | 10 min.<br>12 typ.                  |
|                       |                 | 101 – 1.218                      | 12 min.<br>14 typ.               | 12 min.<br>14 typ.                | 12 min.<br>14 typ.                  | 12 min.<br>14 typ.                  |
|                       | 1.219 – 1.800   | 10 min.<br>12 typ.               | 10 min.<br>12 typ.               | 10 min.<br>12 typ.                | 10 min.<br>12 typ.                  | 10 min.<br>12 typ.                  |
| Order No.             |                 | 53100301                         | 53100601                         | 53100901                          | 53101201                            | 53101501                            |



# Return path attenuators 5 – 204 MHz & 5 – 85 MHz



**53101204**  
RW-AT-12-204-2



**53100905**  
RW-AT-9-85



- F-male and F-female connectors for direct mounting onto the passive distribution equipment
- Designed for a symmetrical adjustment of the reverse path loss of each subscriber connection within a house distribution network
- Very high screening factor according EN 50083-2 Class A +10 dB
- Fixed values of attenuation in the reverse band: 5 – 204 MHz for RW-AT-X-204-2 and 5 – 85 MHz for RW-AT-X-85
- Very low through loss inside the forward band: 258 – 1.800 MHz for RW-AT-X-204-2 and 85 – 1.800 MHz for RW-AT-X-85
- Housing: Copper tube with nickel plating
- 3/8" -32UNEF connector screw threads
- Dimensions: Ø 13 mm, length 41 mm
- Net weight 15,5 g
- Operating temperature range: -20°C – +65°C

| Parameter                    | Frequency [MHz] | RW-AT-3-204-2                    | RW-AT-6-204-2                    | RW-AT-9-204-2                     | RW-AT-12-204-2                      | RW-AT-15-204-2                      |
|------------------------------|-----------------|----------------------------------|----------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|
| <b>Frequency range [MHz]</b> |                 | 5 – 1.800                        |                                  |                                   |                                     |                                     |
| <b>Impedance [Ω]</b>         |                 | 75                               |                                  |                                   |                                     |                                     |
| <b>Insertion loss [dB]</b>   | 5 – 204         | 2,0 min.<br>3,0 typ.<br>4,0 max. | 5,0 min.<br>6,0 typ.<br>7,0 max. | 8,0 min.<br>9,0 typ.<br>10,0 max. | 11,0 min.<br>12,0 typ.<br>13,0 max. | 14,0 min.<br>15,0 typ.<br>16,0 max. |
|                              | 258 – 330       | 1,5 typ.<br>2,0 max.             | 1,7 typ.<br>2,4 max.             | 2,4 typ.<br>3,0 max.              | 2,8 typ.<br>3,2 max.                | 3,0 typ.<br>3,5 max.                |
|                              | 331 – 1.800     | 0,5 typ.<br>1,2 max.             | 0,5 typ.<br>1,5 max.             | 0,5 typ.<br>1,5 max.              | 0,5 typ.<br>1,5 max.                | 0,5 typ.<br>1,5 max.                |
| <b>Return loss [dB]</b>      | 5 – 174         | 14 min.<br>18 typ.               | 14 min.<br>18 typ.               | 14 min.<br>18 typ.                | 14 min.<br>18 typ.                  | 14 min.<br>18 typ.                  |
|                              | 175 – 204       | 10 min.<br>14 typ.               | 10 min.<br>14 typ.               | 10 min.<br>14 typ.                | 10 min.<br>14 typ.                  | 10 min.<br>14 typ.                  |
|                              | 258 – 330       | 12 min.<br>16 typ.               | 12 min.<br>16 typ.               | 12 min.<br>16 typ.                | 10 min.<br>16 typ.                  | 10 min.<br>16 typ.                  |
|                              | 331 – 860       | 14 min.<br>16 typ.               | 14 min.<br>16 typ.               | 14 min.<br>16 typ.                | 14 min.<br>16 typ.                  | 14 min.<br>16 typ.                  |
|                              | 861 – 1.800     | 10 min.<br>12 typ.               | 10 min.<br>12 typ.               | 10 min.<br>12 typ.                | 10 min.<br>12 typ.                  | 10 min.<br>12 typ.                  |
| <b>Order No.</b>             |                 | <b>53100304</b>                  | <b>53100604</b>                  | <b>53100904</b>                   | <b>53101204</b>                     | <b>53101504</b>                     |

| Parameter                    | Frequency [MHz] | RW-AT-3-85                       | RW-AT-6-85                       | RW-AT-9-85                        | RW-AT-12-85                         | RW-AT-15-85                         |
|------------------------------|-----------------|----------------------------------|----------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|
| <b>Frequency range [MHz]</b> |                 | 5 – 1.800                        |                                  |                                   |                                     |                                     |
| <b>Impedance [Ω]</b>         |                 | 75                               |                                  |                                   |                                     |                                     |
| <b>Insertion loss [dB]</b>   | 5 – 85          | 2,0 min.<br>3,0 typ.<br>4,0 max. | 5,0 min.<br>6,0 typ.<br>7,0 max. | 8,0 min.<br>9,0 typ.<br>10,0 max. | 11,0 min.<br>12,0 typ.<br>13,0 max. | 14,0 min.<br>15,0 typ.<br>16,0 max. |
|                              | 105 – 120       | 1,5 typ.<br>2,0 max.             | 2,0 typ.<br>2,5 max.             | 2,6 typ.<br>3,0 max.              | 2,8 typ.<br>3,2 max.                | 3,0 typ.<br>3,5 max.                |
|                              | 121 – 1.800     | 0,5 typ.<br>1,5 max.             | 0,5 typ.<br>1,5 max.             | 0,5 typ.<br>1,5 max.*             | 0,5 typ.<br>1,5 max.*               | 0,5 typ.<br>1,5 max.*               |
| <b>Return loss [dB]</b>      | 5 – 75          | 14 min.<br>18 typ.               | 14 min.<br>18 typ.               | 14 min.<br>18 typ.                | 14 min.<br>18 typ.                  | 14 min.<br>18 typ.                  |
|                              | 76 – 85         | 10 min.<br>14 typ.               | 10 min.<br>14 typ.               | 10 min.<br>14 typ.                | 10 min.<br>14 typ.                  | 10 min.<br>14 typ.                  |
|                              | 105 – 120       | 10 min.<br>12 typ.               | 10 min.<br>12 typ.               | 10 min.<br>12 typ.                | 10 min.<br>12 typ.                  | 10 min.<br>12 typ.                  |
|                              | 121 – 1.218     | 12 min.<br>14 typ.               | 12 min.<br>14 typ.               | 12 min.<br>14 typ.                | 12 min.<br>14 typ.                  | 12 min.<br>14 typ.                  |
|                              | 1.219 – 1.800   | 10 min.<br>12 typ.               | 10 min.<br>12 typ.               | 10 min.<br>12 typ.                | 10 min.<br>12 typ.                  | 10 min.<br>12 typ.                  |
| <b>Order No.</b>             |                 | <b>53100305</b>                  | <b>53100605</b>                  | <b>53100905</b>                   | <b>53101205</b>                     | <b>53101505</b>                     |

\* At cross band 121 – 130 MHz with additional 0,5 dB max. (RW-AT-15-85 with additional 1,0 dB max.)

# Coax termination boxes



**43060200**  
HÜP 862 MA

## HÜP 862 MA coax termination box for VF-KDG

- 5 – 1.000 MHz
- Coax termination box with testpoint at output (IEC)
- Capacitor isolated output
- Protection class IP 54
- Housing sealable
- Surge absorber (ÜsAg) retrofit
- Default delivery status contains HMA1 and HMD1

**Order No. 43060200**

## HÜP 1.218 NA coax termination box for Unitymedia

- Coax termination box with testpoint at input and output (IEC)
- With shiftable highpass (87,5 MHz)
- With shiftable equalizer 3 dB or 6 dB
- Surge absorber (ÜsAg) retrofit
- Capacitor isolated output
- Protection class IP 54
- Housing sealable

**Order No. 43060601**

## Accessories for HÜP 862 MA

| Item   | Order No.       |
|--|-----------------|
| HMH1 high pass filter 85 MHz                 | <b>43060203</b> |
| HMH2 high pass filter 47 MHz                 | <b>43060204</b> |
| HMT1 low pass filter 518 MHz                 | <b>43060205</b> |
| HME1 equalizer module for HÜP 862MA          | <b>43060206</b> |
| HMM1 meter module                            | <b>43060207</b> |
| Pull-through seal, orange – BP 570, L 175 mm | <b>43060198</b> |

# Fixed-value equalizer with or without linear return path



53110300  
RW-EQ-862/3



53120300  
EQ-862/3



53110903  
RW-EQ-1218-9

## Fixed-value equalizer with linear reverse path in F-technique

- For compensation of the frequency-dependent cable slope, only in the forward way
- Frequency range 5 – 65 MHz linear and 85 – 862 MHz as equalizer
- F-male and F-female connectors
- Small, round metal housing with integrated HEX 11 nut
- Very high return loss

| Parameter                                | Frequency [MHz] | RW-EQ-862/3             | RW-EQ-862/6             | RW-EQ-862/9             | RW-EQ-862/12            |
|--|-----------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Through loss [dB]<br>5 ... 50 ... 65 MHz |                 | 0 ... 0,8 ... 1,5 ± 0,5 | 0 ... 0,8 ... 1,5 ± 0,5 | 0 ... 0,8 ... 2,0 ± 0,5 | 0 ... 0,8 ... 2,0 ± 0,5 |
| Slope progression [dB]<br>85 ... 862 MHz |                 | 3,0 ... 1,0 ± 0,5       | 6,0 ... 1,0 ± 0,5       | 9,0 ... 1,0 ± 0,5       | 12,0 ... 1,0 ± 0,5      |
| Return loss [dB typ.]                    | 5 – 65          | > 18*                   | > 18*                   | > 18*                   | > 18*                   |
|  | 85 – 862        | > 18**                  | > 18**                  | > 18**                  | > 18**                  |
| Diameter [mm]                            |                 | 13                      | 13                      | 13                      | 13                      |
| Length [mm]                              |                 | 46                      | 46                      | 46                      | 46                      |
| Order No.                                |                 | 53110300                | 53110600                | 53110900                | 53111200                |

\* f = 5 – 50 MHz, between 51 – 65 MHz > 16 dB typ.

\*\* f = 101 – 862 MHz, between 85 – 100 MHz > 16 dB typ.



## Fixed-value equalizer 5 – 1.000 MHz in F-technique

Properties as stated above, but without linear reverse path frequency range (equalizer range from 5 – 862/1.000 MHz)

| Parameter   | EQ-862/3                  | EQ-862/6                  | EQ-862/9                  | EQ-862/12                  |
|---|---------------------------|---------------------------|---------------------------|----------------------------|
| Slope progression [dB]<br>5 ... 862 ... 1.000 MHz | 3,0 ... 0,5 ... 0,3 ± 0,5 | 6,0 ... 0,5 ... 0,3 ± 0,5 | 9,0 ... 0,5 ... 0,3 ± 0,5 | 12,0 ... 0,5 ... 0,3 ± 0,5 |
| Return loss [dB typ.]                             | > 20                      | > 20                      | > 20                      | > 20                       |
| Return loss [dB min.]                             | > 18                      | > 18                      | > 18                      | > 18                       |
| Diameter [mm]                                     | 13                        | 13                        | 13                        | 13                         |
| Length [mm]                                       | 46                        | 46                        | 46                        | 46                         |
| Order No.   | 53120300                  | 53120600                  | 53120900                  | 53121200                   |



## Fixed-value equalizers 258 – 1.218 MHz with linear return path 5 – 204 MHz in F-technique

- Used to compensate the frequency-dependent cable slope only in the forward path
- Frequency range 5 – 204 MHz linear and 258 – 1218 MHz with slope progression
- F female / F male connectors acc. to IEC/EN 61169-24
- NiTin coated housing with fixed HEX 11 nut at the F male connector
- Dimensions: Ø 11 mm, length 39,3 mm
- IPX8 tightness (when connected with the appropriate counterpart and correct tightening torque)
- Environmental temperature range: -40°C – +60°C
- Very high screening acc. to EN 50083-2 Class A +10 dB
- Net weight: 12 g

| Parameter               | Frequency [MHz]   | RW-EQ-1218-3                      | RW-EQ-1218-6                      | RW-EQ-1218-9                      |
|-------------------------|-------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Through loss [dB]       | 5 ... 184 ... 204 | 0 ... 0,7 ... 1,2 ± 0,3           | 0 ... 0,7 ... 1,2 ± 0,3           | 0 ... 0,7 ... 1,2 ± 0,3           |
| Slope progressions [dB] | 258 ... 1218      | 3,0 ... 1,0 ± 0,3                 | 6,0 ... 1,0 ± 0,3                 | 9,0 ... 1,0 ± 0,3                 |
| Return loss [dB]        | 5 – 204           | acc. to DIN EN 60728-4<br>Grade 2 | acc. to DIN EN 60728-4<br>Grade 1 | acc. to DIN EN 60728-4<br>Grade 1 |
|                         | 258 – 1.218       | Grade 1                           | Grade 1                           | Grade 1                           |
| Order No.               |                   | 53110303                          | 53110603                          | 53110903                          |



# Fixed-value cable simulators



53130300  
KS-862/3



53131204  
KS-1800-12

## Fixed-value cable simulators 5 – 1.000 MHz in F-technique

- For emulation of a frequency-dependent cable slope in the forward way (balancing of a preemphasis)
- Cable simulator range from 5 – 862/1.000 MHz, non-linearity at all items in the reverse path  $5 - 65 \text{ MHz} \leq 0,5 \text{ dB}$
- F-male and F-female connectors
- Small, round metal housing with integrated HEX 11 nut
- Very high return loss

| Parameter  | KS-862/3                | KS-862/6                | KS-862/9                | KS-862/12                 |
|--|-------------------------|-------------------------|-------------------------|---------------------------|
| Cable simulation progression [dB]<br>5 ... 862 ... 1.000 MHz | 0 ... 3,0 ... 3,5 ± 0,5 | 0 ... 6,0 ... 6,5 ± 0,5 | 0 ... 9,0 ... 9,5 ± 0,5 | 0 ... 12,0 ... 12,7 ± 0,5 |
| Return loss [dB typ.]  | > 20                    | > 20                    | > 20                    | > 20                      |
| Return loss [dB min.]  | > 18                    | > 18                    | > 18                    | > 18                      |
| Diameter [mm]  | 13                      | 13                      | 13                      | 13                        |
| Length [mm]  | 46                      | 46                      | 46                      | 46                        |
| Order No.  | 53130300                | 53130600                | 53130900                | 53131200                  |



## Fixed-value cable simulators 5 – 1.800 MHz in F-technique

- F-male and F-female connectors for direct mounting onto the passive distribution equipment
- For emulation of a frequency-dependent cable slope in the forward way (balancing of a preemphasis)
- Cable simulator range from 5 – 1.800 MHz, non-linearity at all items in the reverse path  $5 - 204 \text{ MHz} \leq 0,5 \text{ dB typ.}$
- Very high screening factor according EN 50083-2 Class A +10 dB
- Housing: Copper tube with nickel plating
- 3/8"-32UNEF connector screw threads
- Dimensions: Ø 13 mm, length 41 mm, with integrated HEX 11 nut
- Net weight 16,5 g
- Operating temperature range: -20°C – +65°C

| Parameter             | Frequency [MHz]    | KS-1800-3                        | KS-1800-6                        | KS-1800-9                        | KS-1800-12                          | KS-1800-15                          | KS-1800-18                          |
|-----------------------|--------------------|----------------------------------|----------------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Frequency range [MHz] |                    | 5 – 1.800                        |                                  |                                  |                                     |                                     |                                     |
| Impedance [Ω]         |                    | 75                               |                                  |                                  |                                     |                                     |                                     |
| Insertion loss [dB]   | 5                  | 0,2 typ.<br>0,8 max.             | 0,2 typ.<br>0,8 max.             | 0,2 typ.<br>0,8 max.             | 0,2 typ.<br>0,8 max.                | 0,2 typ.<br>0,8 max.                | 0,2 typ.<br>0,8 max.                |
|                       | 1.800              | 2,5 min.<br>3,0 typ.<br>3,5 max. | 5,5 min.<br>6,0 typ.<br>6,5 max. | 8,5 min.<br>9,0 typ.<br>9,5 max. | 11,0 min.<br>12,0 typ.<br>13,0 max. | 14,0 min.<br>15,0 typ.<br>16,0 max. | 17,0 min.<br>18,0 typ.<br>19,0 max. |
|                       |                    | Return loss [dB]                 | 5 – 1.218                        | 16 min.<br>18 typ.               | 14 min.<br>16 typ.                  | 14 min.<br>16 typ.                  | 12 min.<br>16 typ.                  |
| 1.219 – 1.800         | 14 min.<br>16 typ. |                                  | 12 min.<br>14 typ.               | 12 min.<br>14 typ.               | 10 min.<br>14 typ.                  | 10 min.<br>14 typ.                  | 10 min.<br>14 typ.                  |
| Order No.             |                    | 53130304                         | 53130604                         | 53130904                         | 53131204                            | 53131504                            | 53131804                            |



# UHF de-emphasis equalizers



## UHF de-emphasis equalizer 551 – 1.218 MHz in F-technique

- UHF deemphasis equalizers acc. to VF TS 4003
- Used to compensate the UHF preemphasis of new 1.218 MHz C-Line amplifiers in 862 MHz mode
- Linear frequency range 5 – 550 MHz with low attenuation and 551 – 1.218 MHz with linear deemphasis progression
- F female / F male connectors acc. to IEC/EN 61169-24
- NiTin coated housing with fixed HEX 11 nut at the F male connector
- Dimensions: Ø 11 mm, length 39,3 mm
- IPX8 tightness (when connected with the appropriate counterpart and correct tightening torque)
- Environmental temperature range: -40°C – +60°C
- Very high screening acc. to EN 50083-2 Class A +10 dB
- Net weight: 13 g

| Parameter        | Frequency [MHz] | UHF-EQ-4003-3 |           | UHF-EQ-4003-6 |           | UHF-EQ-4003-9 |           |
|------------------|-----------------|---------------|-----------|---------------|-----------|---------------|-----------|
|                  |                 | Attenuation   | Tolerance | Attenuation   | Tolerance | Attenuation   | Tolerance |
| Attenuation [dB] | 5               | 0,3           | ± 0,3     | 0,2           | ± 0,3     | 0,2           | ± 0,3     |
|                  | 65              | 0,3           | ± 0,3     | 0,2           | ± 0,3     | 0,2           | ± 0,3     |
|                  | 100             | 0,3           | ± 0,3     | 0,2           | ± 0,3     | 0,2           | ± 0,3     |
|                  | 200             | 0,3           | ± 0,3     | 0,4           | ± 0,3     | 0,4           | ± 0,3     |
|                  | 300             | 0,4           | ± 0,3     | 0,4           | ± 0,3     | 0,5           | ± 0,3     |
|                  | 400             | 0,4           | ± 0,3     | 0,5           | ± 0,3     | 0,6           | ± 0,3     |
|                  | 500             | 0,5           | ± 0,3     | 0,6           | ± 0,3     | 0,7           | ± 0,3     |
|                  | 549             | 0,5           | ± 0,3     | 0,6           | ± 0,3     | 0,7           | ± 0,3     |
|                  | 551             | 0,5           | ± 0,4     | 0,6           | ± 0,4     | 0,7           | ± 0,4     |
|                  | 600             | 1,0           | ± 0,4     | 1,6           | ± 0,4     | 2,2           | ± 0,4     |
|                  | 700             | 2,0           | ± 0,4     | 3,6           | ± 0,4     | 5,2           | ± 0,4     |
|                  | 800             | 3,0           | ± 0,4     | 5,6           | ± 0,4     | 8,1           | ± 0,4     |
|                  | 862             | 3,6           | ± 0,5     | 6,8           | ± 0,5     | 10,0          | ± 0,5     |
|                  | 1.000           | 5,0           | ± 0,5     | 9,6           | ± 0,5     | 14,1          | ± 0,5     |
| 1.100            | 6,0             | ± 0,8         | 11,6      | ± 0,8         | 17,1      | ± 0,8         |           |
| 1.218            | 7,2             | ± 0,8         | 13,9      | ± 0,8         | 20,6      | ± 0,8         |           |
| Return loss [dB] | 12 – 30         | ≥ 22          |           |               |           |               |           |
|                  | 30 – 300        | ≥ 20          |           |               |           |               |           |
|                  | 300 – 470       | ≥ 20          |           |               |           |               |           |
|                  | 470 – 1.006     | ≥ 18          |           |               |           |               |           |
|                  | 1.006 – 1.218   | ≥ 14          |           |               |           |               |           |
| Order No.        |                 | 53123030      |           | 53123060      |           | 53123090      |           |

## UHF de-emphasis equalizer 450 – 862 MHz in F-technique

- For compensation of the UHF pre-emphasis of C-amplifiers in 862 MHz CATV-networks
- Frequency range DC – 450 MHz almost linear and 450 – 862 MHz with de-emphasis characteristics
- F-male and F-female connectors
- Small, round metal housing with integrated HEX 11 nut
- With DC power pass 50 VDC/300 mA
- Very high return loss

| Parameter                                 | UHF-EQ-862/5      | UHF-EQ-862/8      | UHF-EQ-862/10      | UHF-EQ-862/13      | UHF-EQ-862/16      | UHF-EQ-862/19      |
|---|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| Through loss [dB]<br>DC ... 450 MHz       | 0 ... 1,5 ± 0,5   | 0 ... 1,5 ± 0,5   | 0 ... 1,5 ± 0,5    | 0 ... 1,5 ± 0,5    | 0 ... 1,5 ± 0,5    | 0 ... 1,5 ± 0,5    |
| Slope progression [dB]<br>450 ... 862 MHz | 1,5 ... 5,0 ± 0,5 | 1,5 ... 8,0 ± 0,5 | 1,5 ... 10,0 ± 0,5 | 1,5 ... 13,0 ± 0,5 | 1,5 ... 16,0 ± 0,5 | 1,5 ... 19,0 ± 0,5 |
| Return loss [dB typ.]                     | > 20*             | > 20*             | > 20*              | > 20*              | > 20*              | > 20*              |
| Diameter [mm]                             | 13                | 13                | 13                 | 13                 | 13                 | 13                 |
| Length [mm]                               | 41                | 41                | 41                 | 41                 | 41                 | 41                 |
| Order No.                                 | 53120500          | 53120800          | 53121000           | 53121300           | 53121600           | 53121900           |

\* f = 40 MHz -1,5 dB/Oct. (> 14 dB min.)



# Galvanic isolators

## DGIS-1-SET

22380023  
DGIS-1-SET, isolator



22380023  
DGIS-1-SET, cover



- Protection of subscribers premise network equipment against electrical hazards caused by power surges, lightnings and variabilities in local currents
- 5 – 1.800 MHz bandwidth
- Double galvanic isolation acc. to IEC/EN 60728-11:2019-02 point 10
- Surge immunity according to IEC 61000-4-5 level 2
- Intermodulation resistance acc. to EN 60728-4 and UM TS 414
- Screening according to EN 50083-2 Class A +10 dB (30 – 1.800 MHz)
- All mounting holes with hole spacing Nx5 mm

- Housings with 12,5 mm distance between the axis of F-connector and the metal plate surface plus clearance of 7,5 mm for cable management underneath the body
- 1 GND block with screw for 6 mm<sup>2</sup> GND wire
- Compact housing design with CuSn white bronze plating, F-female connectors acc. to IEC/EN 61169-24 (Ø 9,45 ± 0,05 mm)
- DGIS-1-SET including plastic protection cover, material ABS, color RAL9010, dimensions 140 x 60 x 36 mm (H x W x D)

| Parameter  | Frequency [MHz] | DGIS-1-SET  |
|--|-----------------|---|
| Insertion loss [dB max.]   | 5 – 10          | 0,2 + 0,2   |
|  | 10 – 40         | 0,2 + 0,2   |
|  | 40 – 204        | 0,2 + 0,2   |
|  | 204 – 258       | 0,2 + 0,2   |
|  | 258 – 470       | 0,2 + 0,2   |
|  | 470 – 862       | 0,3 + 0,2   |
|  | 862 – 1.006     | 0,3 + 0,2   |
|  | 1.006 – 1.218   | 0,4 + 0,2   |
|  | 1.218 – 1.800   | 0,5 + 0,3   |
| Return loss [dB min.]  | All ports       |   |
|  | 5 – 10          | 16  |
|  | 10 – 47         | 18  |
|  | 47 – 1.800      | 18*   |
| Intermodulation distortion, <sup>(1)</sup> all ports<br>(acc. to EN 60728-4 and UM TS 414)<br>After 25 VDC surge (1,2/500µs)<br>After 1 kV surge (1,2/50µs)<br>After 150 VDC surge |                 | 0 dBµV / -120 dBc   |
|  |                 | 0 dBµV / -120 dBc   |
|  |                 | 0 dBµV / -120 dBc   |
|  |                 | 0 dBµV / -120 dBc   |
| Galvanic isolation <sup>(2)</sup>  | 2120 V DC       | ≤ 0,7 mA during 1 minute<br>(inner conductor input port to inner conductor output port)   |
|  | 2120 V DC       | ≤ 0,7 mA during 1 minute<br>(outer conductor input port to outer conductor output port)   |
|  | 230 V AC        | 50 Hz / 60 Hz: ≤ 2,0 mA RMS<br>(inner conductor input port to inner conductor output port)  |
|  | 230 V AC        | 50 Hz: ≤ 2,3 mA typ. / ≤ 3,2 mA max.<br>60 Hz: ≤ 2,8 mA typ. / ≤ 3,8 mA max.<br>(outer conductor input port to outer conductor output port) |
| Operation temperature [°C]   |                 | -25 ... +60   |
| Order No.  |                 | 22380023  |

\* From 94 MHz with -1,5 dB/oct., but min. 12 dB

<sup>(1)</sup> Test setup: 2 combined test signals applied at one output port @ 120 dBµV

Test 1: with 2 signals f1 @55,25 MHz + f2 @61,25 MHz - IM harmonics measured at 2xf1 + f1+f2 + 2xf2

Test 2: with 2 signals f1 @193,25 MHz + f2 @199,25 MHz - IM harmonics measured at 2xf1 + f1+f2 + 2xf2

<sup>(2)</sup> According to EN 60728-11:2019-02 point 10: at 2120 VDC ≥ 1 minute, leakage current ≤ 0,7 mA;  
at 230 VAC 50/60 Hz, Leakage current ≤ 8,0 mA RMS (inner to inner conductor and outer to outer conductor),  
test environmental temperature 0°C – 25°C

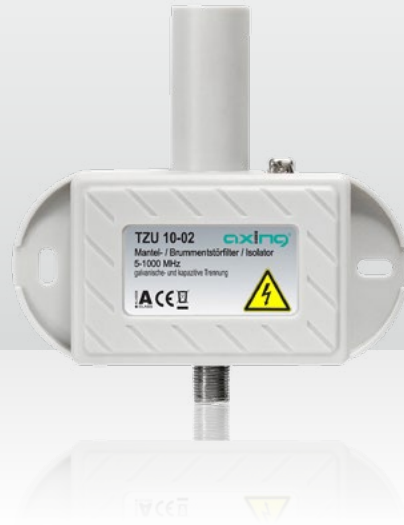


Mounting position  
of the DGIS-1-SET  
(transparency only for illustration)

# TRIS-1002/AEN and TZU-10-02



22380010  
TRIS-1002/AEN



22380015  
TZU-10-02



## TRIS-1002/AEN

- Galvanic isolation of inner and outer conductor of home installation cables
- Prevention of equipotential bonding currents (DC) between protective grounding of the 230 V network and grounding of the CATV network (connection of these two points when connecting a PC with TV card or a cable modem via outer conductor of the CATV cable)
- Preventing the drain of leakage currents (AC) via the outer conductor of the CATV cable to the CATV grounding point in the absence of protective grounding of the 220 V socket (leakage currents are created by screen filters in power converter PSUs of PCs, with transients to ground – the PC chassis – and subsequently to be discharged via the mains voltage protective conductor to earth)
- A housing for TRIS-1002/AEN, plastic, color: ivory, is available separately with Order No. 22380011.

| Parameter   | Frequency [MHz] | TRIS-1002/AEN   |           |
|---|-----------------|---|-----------|
| Through loss [dB]   | IN – OUT        | 5 – 40  | 0,2 ± 0,3 |
|   |                 | 40 – 470  | 0,2 ± 0,3 |
|   |                 | 470 – 1.000   | 0,4 ± 0,3 |
|   |                 | 1.000 – 1.006   | 0,4 ± 0,3 |
| Return loss [dB typ.]   | IN              | 5 – 40  | > 20      |
|   |                 | 40 – 470  | > 18      |
|   |                 | 470 – 1.000   | > 18      |
|   |                 | 1.000 – 1.006   | > 18      |
|   | OUT             | 5 – 40  | > 20      |
|   |                 | 40 – 470  | > 18      |
|   |                 | 470 – 1.000   | > 18      |
|   |                 | 1.000 – 1.006   | > 18      |
| Galvanic Isolation  |                 | According to EN 50083-1/A1§9  |           |
| Inner conductor IN to inner conductor OUT & outer conductor IN to outer conductor OUT |                 | 2.120 VDC for at least 1 minute not exceeding 0,2 mA leakage current, 230 V RMS 50/60 Hz not exceeding 2,0 mA RMS – surge protection at input |           |
| Order No.   |                 | 22380010  |           |

## TZU-10-02

The sheath current filter with isolating transformer TZU-10-02 prevents faults that can arise due to sheath currents or unfavorable grounding conditions.

| Parameter             | TZU-10-02         |
|-----------------------|-------------------|
| Frequency range [MHz] | 5 – 1.006         |
| Through loss [dB]     | < 0,5             |
| Return loss [dB]      | > 20, -1,5 dB/OCT |
| Impedance [Ω]         | 75                |
| Connections           | F-Female          |
| Order No.             | 22380015          |

# Block filters

## Block filters for star distribution of CATV networks



57225500  
M-HPF-85



57011000  
HPF-111



57011025  
HPF-258-2-N

- Block filters to lock out some channels or channel groups in CATV star distribution networks
- F-male and F-female connectors for direct mounting onto the passive F-distribution network

- Small, round metal housing with integrated HEX 11 nut (WHPF-xx with HEX 15 nut)
- Very low crossing band width, very high rejection and low through loss
- Very high return loss, screening according EN 50083-2 Class A

| Parameter            | Reverse path block filters |  | High pass filter (FM-block filter)                | Three band block filter   |
|----------------------|----------------------------|--|---|---|
|                      | WHPF-47E                   | M-HPF-85                                 | HPF-111   | TBF 5-108/174-230/518-1.000   |
| Pass band [MHz]      | 47 – 1.000                 | 84 – 1.000                               | 111 – 1.000 (S 2 – K 69)                          | 5 – 108<br>174 – 230<br>518 – 1.000   |
| Through loss [dB]    | ≤ 1,0                      | ≤ 1,5 <sup>1)</sup> /≤ 0,5 <sup>2)</sup> | ≤ 3,5 (111 – 130 MHz),<br>≤ 1,0 (130 – 1.000 MHz) | 2,0 (5 – 108 MHz)<br>2,5 (174 – 230 MHz)<br>2,5 (518 – 1.000 MHz)                   |
| Stop band [MHz]      | 0 – 30                     | 0 – 64                                   | 0 – 108 (0 – UKW)                                 | 125 – 160<br>248 – 1.000  |
| Rejection [dB]       | > 50                       | > 60                                     | > 50 (0 – 100 MHz)<br>> 12 (100 – 108 MHz)        | > 45  |
| Cross channels [MHz] | –                          | –  | –   | –   |
| Return loss [dB]     | > 18*                      | > 20*                                    | > 16 (111 – 130 MHz),<br>> 18 (130 – 1.000 MHz)   | 16 dB typ (5 – 108 MHz)<br>16 dB typ (174 – 230 MHz)<br>16 dB typ (518 – 1.000 MHz) |
| Diameter [mm]        | ca. 17                     | 13                                       | 21  | 21  |
| Length [mm]          | 48,2                       | 39,5                                     | 45/57 (with/without F-female)                     | 77/89 (with/without F-female)   |
| Order No.            | 57215000                   | 57225500                                 | 57011000  | 57180108  |

\* f = 85 MHz -1,5 dB/Oct. (> 16 dB min.)    <sup>1)</sup> 85 – 108 MHz    <sup>2)</sup> 108 – 1.000 MHz

### HPF-258-2-N for CATV multimedia networks

- High pass filter for blocking the return path frequency range 5 – 204 MHz in modern CATV multimedia networks
- F female / F male connectors acc. to IEC/EN 61169-24
- NiTin coated housing with fixed HEX 11 nut at the F male connector
- Very high screening acc. to EN 50083-2 Class A +10 dB

- Dimensions: Ø 11 mm, length 33 mm
- IPX8 tightness (when connected with the appropriate counterpart and correct tightening torque)
- Environmental temperature range: -40°C – +60°C
- Net weight: 11 g

| Parameter             | Frequency [MHz] | HPF-258-2-N                    |          |
|-----------------------|-----------------|--------------------------------|----------|
| Frequency range [MHz] |                 | 5 – 1.800                      |          |
| Impedance [Ω]         |                 | 75                             |          |
| Pass band [MHz]       |                 | 258 – 1.800                    |          |
| Insertion loss [dB]   | 258 – 1.218     | 1,0 typ.                       | 1,5 max. |
|                       | 1.219 – 1.800   | 0,8 typ.                       | 1,0 max. |
| Return loss [dB]      |                 | acc. to DIN EN 60728-4 Grade 1 |          |
| Stop band [MHz]       |                 | 5 – 204                        |          |
| Rejection [dB]        | 5 – 204         | 50 typ.                        | 45 min.  |
| Order No.             |                 | 57011025                       |          |

We do not have the perfect block filter in our product portfolio yet?

**We are happy to produce block filters according to your requirements, even in small quantities!**

# Block filters for star distribution CATV networks and return path block filter for operations in SAT-IF-distribution networks



KLASSE  
**A**  
CLASS

## Block filters for star distribution CATV networks

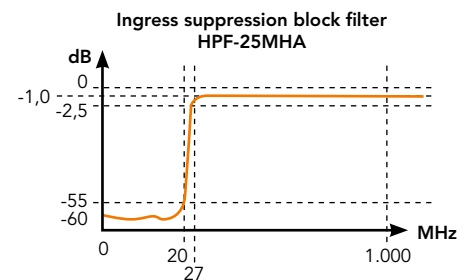
| Parameter         | Ingress suppression block filters |                     |                     |
|-------------------|-----------------------------------|---------------------|---------------------|
|                   | HPF-12MH                          | HPF-15MH            | HPF-25MHA           |
| Pass band [MHz]   | 12 – 1.006                        | 15 – 1.006          | 25 – 1.006          |
| Through loss [dB] | ≤ 1,0 <sup>1)</sup>               | ≤ 1,0 <sup>2)</sup> | ≤ 1,0 <sup>3)</sup> |
| Stop band [MHz]   | 0 – 7                             | 0 – 9               | 0 – 18              |
| Rejection [dB]    | > 55                              | > 55                | > 55                |
| Cross channels    | –                                 | –                   | –                   |
| Return loss [dB]  | > 18*                             | > 18*               | > 18*               |
| Diameter [mm]     | approx. 13                        | approx. 13          | approx. 13          |
| Length [mm]       | 41                                | 41                  | 41                  |
| Order No.         | 57021200                          | 57021500            | 57022500            |

<sup>1)</sup> between 12 – 15 MHz ≤ 2,5 dB max.

<sup>2)</sup> between 15 – 18 MHz ≤ 2,5 dB max.

<sup>3)</sup> between 25 – 30 MHz ≤ 2,5 dB max.

\* f = 85 MHz -1,5 dB/Oct. (> 16 dB min.)

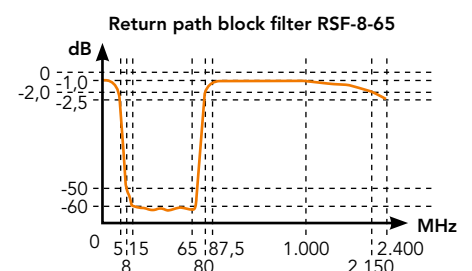


## Return path block filter for operations in SAT-IF-distribution networks

- Block filter for blocking the return path frequency range in SAT-IF star-distribution networks in combination with multimedia applications
- Admission of the switching DC voltage and the 22 kHz and DiSEqC signals
- Very low crossing band width, very high rejection and low through loss
- Small rounded metal housing with integrated HEX 11 nut, F-male and F-female connectors
- High return loss, screening according EN 50083-2 Class A

| Parameter         | Frequency [MHz] | RSF-8-65    |
|-------------------|-----------------|-------------|
| Pass band [MHz]   |                 | DC – 5      |
|                   |                 | 80 – 2.400  |
| Through loss [dB] | DC – 5          | ≤ 2,0       |
|                   | 80 – 87,5       | ≤ 2,0       |
|                   | 87,5 – 1.000    | ≤ 1,0       |
|                   | 1.000 – 2.150   | ≤ 2,0       |
|                   | 2.150 – 2.400   | ≤ 2,5       |
| Stop band [MHz]   |                 | 8 – 65      |
| Rejection [dB]    |                 | > 50        |
| Cross channels    |                 | –           |
| Return loss [dB]  |                 | > 16*       |
| DC passing max.   |                 | 30 V/500 mA |
| Diameter [mm]     |                 | 21          |
| Length [mm]       |                 | 67          |
| Order No.         |                 | 57226000    |

\* f = DC – 5 MHz & 80 MHz -1,5 dB/Oct. (> 12 dB min.)



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# LTE block filters with F-male/F-female connectors, short

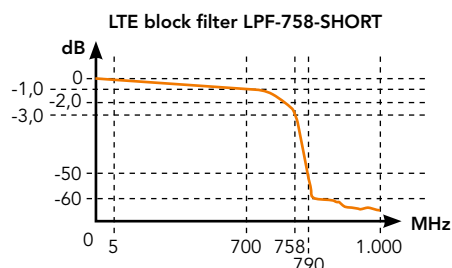
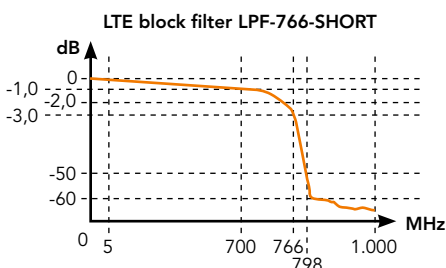
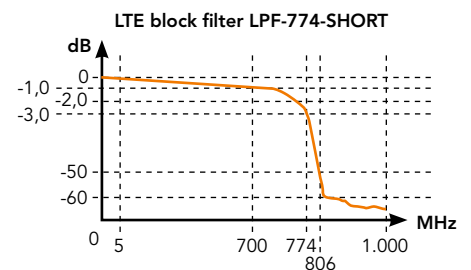
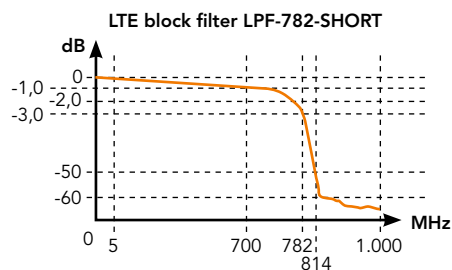
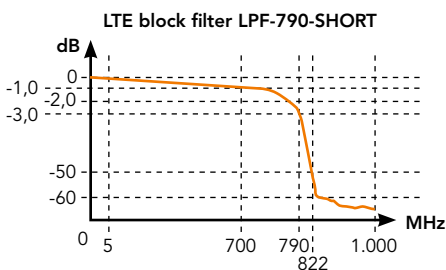


57142790  
LPF-790-SHORT



- Block filters for elimination of the impact of harmful interferences from LTE/MFCN base stations at DVB-T devices (Digital Dividend)
- Short, round metal housing, F-male and F-female connectors
- Very low crossing band width, very high rejection and low through loss
- High return loss, screening according to EN 50083-2 Class A

| Parameter            | LPF-790-SHORT                                | LPF-782-SHORT                                | LPF-774-SHORT                                | LPF-766-SHORT                                | LPF-758-SHORT                                |
|----------------------|--|--|--|--|--|
| Pass band [MHz]      | 0,3 – 790<br>(0,3 – channel 60)              | 0,3 – 782<br>(0,3 – channel 59)              | 0,3 – 774<br>(0,3 – channel 58)              | 0,3 – 766<br>(0,3 – channel 57)              | 0,3 – 758<br>(0,3 – channel 56)              |
| Through loss [dB]    | ≤ 1,0 (5 – 700 MHz)<br>≤ 3,0 (700 – 790 MHz) | ≤ 1,0 (5 – 700 MHz)<br>≤ 3,0 (700 – 782 MHz) | ≤ 1,0 (5 – 700 MHz)<br>≤ 3,0 (700 – 774 MHz) | ≤ 1,0 (5 – 700 MHz)<br>≤ 3,0 (700 – 766 MHz) | ≤ 1,0 (5 – 700 MHz)<br>≤ 3,0 (700 – 758 MHz) |
| Stop band [MHz]      | 822 – 1.000                                  | 814 – 1.000                                  | 806 – 1.000                                  | 798 – 1.000                                  | 790 – 1.000                                  |
| Rejection [dB]       | > 50   | > 50   | > 50   | > 50   | > 50   |
| Cross channels [MHz] | 790 – 822<br>(K 61 – K 64)                   | 782 – 814<br>(K 60 – K 63)                   | 774 – 806<br>(K 59 – K 62)                   | 766 – 798<br>(K 58 – K 61)                   | 758 – 790<br>(K 57 – K 60)                   |
| Return loss [dB]     | > 16 (f = 5 – 790 MHz)                       | > 16 (f = 5 – 782 MHz)                       | > 16 (f = 5 – 774 MHz)                       | > 16 (f = 5 – 766 MHz)                       | > 16 (f = 5 – 758 MHz)                       |
| DC passing max.      | 30 V/500 mA                                  | 30 V/500 mA                                  | 30 V/500 mA                                  | 30 V/500 mA                                  | 30 V/500 mA                                  |
| Diameter [mm]        | 21   | 21   | 21   | 21   | 21   |
| Length [mm]          | 57   | 57   | 57   | 57   | 57   |
| Order No.            | 57142790                                     | 57142782                                     | 57142774                                     | 57142766                                     | 57142758                                     |



We do not have the perfect block filter in our product portfolio yet?

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Subject to technical changes!

# DPX-1 duplex filters in F-technique & 90° angled block filters



57005700  
DPX-1-65/85



57011026  
90-HPF-258-IEC



## DPX-1 duplex filters in F-technique

- Duplex filters for combining or splitting of different frequency bands in CATV and SMATV broadband networks
- Compact die-cast housing with grounding connections
- F-female connectors, all connectors are facing in the same direction
- Very low crossing band width, very high rejection and isolation, very high return loss

| Parameter             |        | DPX-1-65/85                                 | DPX-1-85/108-1800                                  | DPX-1-204/258-1800                                 | DPX-1-862/950                            |
|-----------------------|--------|---|--|--|--|
| Frequency range [MHz] | Port 1 | 5 – 65                                      | 5 – 85   | 5 – 204  | 5 – 862                                  |
|                       | Port 2 | 85 – 1.006                                  | 108 – 1.800  | 258 – 1.800  | 950 – 2.400                              |
| Tap loss [dB]         | Port 1 | 0,7 ± 0,8<br>> 55 typ.                      | 1,0 typ.<br>1,5 max.                               | 1,0 typ.<br>1,5 max.                               | 1,5 ± 0,8<br>> 45 typ.                   |
|                       | Port 2 | 0,5 ± 0,8<br>> 55 typ.                      | 1,0 typ.<br>1,5 max.                               | 1,0 typ.<br>1,5 max.                               | 1,5 ± 0,8<br>> 42 typ.                   |
| Isolation [dB]        |        | ≥ 60 (5 – 1.000 MHz)                        | ≥ 45 (5 – 1.800 MHz)                               | ≥ 45 (5 – 1.800 MHz)                               | ≥ 42 (5 – 2.400 MHz)                     |
| Return loss [dB]      | Port 1 | > 20 (5 – 60 MHz)<br>> 18 (60 – 65 MHz)     | 16 min.<br>18 typ.                                 | 16 min.<br>18 typ.                                 | > 20 (5 – 65 MHz)<br>> 16 (65 – 862 MHz) |
|                       | Port 2 | > 16 (85 – 90 MHz)<br>> 20 (90 – 1.000 MHz) | > 16 (108 – 1.300 MHz)<br>> 12 (1.300 – 1.800 MHz) | > 16 (258 – 1.300 MHz)<br>> 12 (1.300 – 1.800 MHz) | > 14 (950 – 2.400 MHz)                   |
| DC passing max.       | Port 1 | –   | –  | –  | –  |
|                       | Port 2 | –   | –  | –  | 24 VDC/1 A (incl. DiSEqC and 22 kHz)     |
| Dimensions [mm]       |        | 74,5 x 33 x 18                              | 74,5 x 33 x 18                                     | 74,5 x 33 x 18                                     | 74,5 x 33 x 18                           |
| Order No.             |        | 57005700                                    | 57005710   | 57005715   | 57006500                                 |

## 90° angled block filter, 258 – 1.218 MHz

| Parameter                        | Frequency [MHz] | 90-HPF-258-IEC  |          |
|----------------------------------|-----------------|---|----------|
| Frequency range                  |                 | 5 – 1.218   |          |
| Impedance [Ω]                    |                 | 75  |          |
| Pass band [MHz]                  |                 | 258 – 1.218   |          |
| Insertion loss [dB]              | 258 – 500       | 0,5 typ.  | 1,2 max. |
|                                  | 500 – 1.218     | 0,4 typ.  | 0,8 max. |
| Return loss [dB]                 | 258 – 500       | 12 min.   | 16 typ.  |
|                                  | 500 – 1.218     | 10 min.   | 14 typ.  |
| Stop band [MHz]                  |                 | 5 – 204   |          |
|                                  | Rejection [dB]  | 5 – 204   | 45 min.  |
| Connectors                       |                 | IEC-Stecker & IEC-Buchse, Federkorb der IEC-Buchse aus CuBe |          |
| Housing material                 |                 | Messing   |          |
| Operating temperature range [°C] |                 | -20 – +65   |          |
| Order No.                        |                 | 57011026  |          |



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# Broadband antenna outlets up to 2 GHz

1-port double galvanic isolated antenna outlets up to 2 GHz



**24000005**  
btv-1IEC-NL



**24100701**  
SAD-03



- TV-port broadband 5 – 2.000 MHz
- Intermodulation resistant according to EN 60728-4
- High screening according to Class A +10 dB
- Surface coated with CuSn white bronze plating, thereby corrosion resistant
- Available as IEC-version (double galvanic isolated IEC-male for TV) and as F-Version (double galvanic isolated F-female for TV)
- Cover plate SAD-03, color Pure white RAL 9010, with removable blind cap at the radio-port (Order No. 24100701)
- Surface-mount frame SAD-165, 80 x 80 x 33 mm, color Pure white RAL 9010, for multimedia outlets (Order No. 22080800)

| Parameter                                 | Frequency [MHz] | btv-1IEC-NL  |
|---|-----------------|--|
| Tap loss [dB]                             | IN – PORT 1     |  |
|   | 5 – 12          | 0,5 ± 0,4  |
|   | 12 – 470        | 0,5 ± 0,4  |
|   | 470 – 1.006     | 0,5 ± 0,4  |
| Return loss [dB]                          | ALL             |  |
|   | 1.006 – 1.700   | 0,7 ± 0,5  |
|   | 1.700 – 2.000   | 0,9 ± 0,5  |
|   | 5 – 12          | ≥16  |
|   | 12 – 300        | ≥20  |
|   | 300 – 800       | ≥18  |
| Intermodulation <sup>(1)</sup> [dBμV min] | 800 – 1.006     | ≥16,5  |
|   | 1.006 – 1.700   | ≥14  |
|   | 1.700 – 2.000   | ≥12  |
|   |                 | 115  |
| Galvanic Isolation                        |                 | ≤ 8 mA, 230V AC 50/60 Hz; ≤ 0,7 mA, 2.120 VDC (1 minute) |
| Surge protection                          |                 | 1 kV 1,2/50 μs   |
| Order No.                                 |                 | <b>24000005</b>  |

<sup>(1)</sup> With test signals P = 60 MHz, Q = 65 MHz applied at DATA, TV OUT respectively, intermodulation distortion level is ≤ 15 dBμV at 2 P = 120 MHz, at P + Q = 125 MHz, at 2 Q = 130 MHz

## Also available as a bundle!

The btv-1-IEC-NL-SET includes, in addition to the 1-port double galvanic isolated antenna outlet btv-1-IEC-NL, a matching surface-mount frame, a cover plate and 2,0 m Cu grounding cable!  
Order No. **24000007**

## Accessories

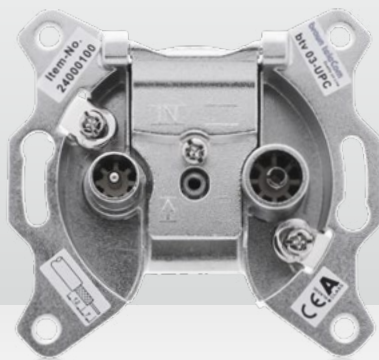
Double galvanic isolated connection box, 5 – 2.000 MHz, Input: F-male with ground connector, tap loss typ. 1 x 0,5 dB, intermodulation resistant according to DIN EN 60728-4, high screening according to Class A +10 dB, as bundle incl. ABS isolated plastic frame, Pure white RAL 9010 & 2,0 m Cu grounding wire  
btv-DGIB-1-SET: Output 1x IEC-male  
Order No. **24000008**



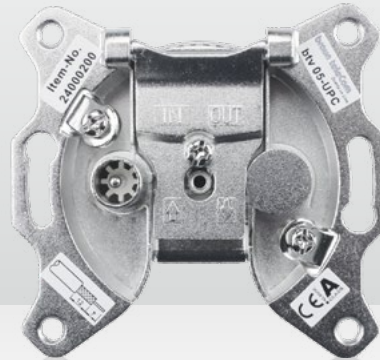
**24000008**  
btv-DGIB-1-SET,  
front and back view



# 1-port and 2-port broadband antenna outlets up to 2 GHz



**24000100**  
btv-03-UPC



**24000200**  
btv-05-UPC



- All outlets with broadband ports 5 – 2.000 MHz
- Intermodulation resistant according to EN 60728-4
- High screening according to Class A +10 dB
- Clamp technology for inner conductor with diameter 0,4 – 1,2 mm
- Surface coated with CuSn white bronze plating, thereby corrosion resistant
- Suitable for coax cables with diameter 4,1 – 7,2 mm

- 7 versions with 1-port and 2-port as well as with IEC- and F-connections available
- Cover plate SAD-03, color Pure white RAL 9010, with removable blind cap at the radio-port (Order No. 24100701)
- Surface-mount frame SAD-165, 80 x 80 x 33 mm, color Pure white RAL 9010, for multimedia outlets (Order No. 22080800)

| Parameter                                      | Frequency [MHz] | Terminal type |            |           | Loop-through type |            |            |            |
|--|-----------------|---------------|------------|-----------|-------------------|------------|------------|------------|
|  |                 | btv-01-UPC    | btv-03-UPC | btv-04-A  | btv-05-UPC        | btv-06-UPC | btv-07-UPC |            |
| Through loss [dB]                              | IN – OUT        | 5 – 12        | –          | –         | –                 | 4,0 ± 0,3  | 4,0 ± 0,3  | 4,0 ± 0,3  |
|  |                 | 12 – 470      | –          | –         | –                 | 3,7 ± 0,4  | 3,7 ± 0,4  | 3,7 ± 0,4  |
|  |                 | 470 – 1.006   | –          | –         | –                 | 4,0 ± 0,4  | 4,0 ± 0,4  | 4,0 ± 0,4  |
|  |                 | 1.006 – 1.700 | –          | –         | –                 | 4,6 ± 0,5  | 4,6 ± 0,5  | 4,6 ± 0,5  |
|  |                 | 1.700 – 2.000 | –          | –         | –                 | 5,2 ± 0,8  | 5,2 ± 0,8  | 5,2 ± 0,8  |
| Tap loss [dB] <sup>(3)</sup>                   | IN – PORT 1     | 5 – 12        | 0,2 ± 0,2  | 4,0 ± 0,3 | 4,0 ± 0,3         | 4,0 ± 0,3  | 7,4 ± 0,8  | 7,4 ± 0,8  |
|  |                 | 12 – 470      | 0,2 ± 0,2  | 3,7 ± 0,4 | 3,7 ± 0,4         | 3,7 ± 0,4  | 7,3 ± 0,8  | 7,3 ± 0,8  |
|  |                 | 470 – 1.006   | 0,2 ± 0,2  | 4,0 ± 0,4 | 4,0 ± 0,4         | 4,0 ± 0,4  | 8,0 ± 0,8  | 8,0 ± 0,8  |
|  |                 | 1.006 – 1.700 | 0,4 ± 0,2  | 4,6 ± 0,5 | 4,6 ± 0,5         | 4,6 ± 0,5  | 9,0 ± 1,0  | 9,0 ± 1,0  |
|  |                 | 1.700 – 2.000 | 0,5 ± 0,3  | 5,2 ± 0,8 | 5,2 ± 0,8         | 5,2 ± 0,8  | 10,0 ± 1,5 | 10,0 ± 1,5 |
|  | IN – PORT 2     | 5 – 12        | –          | 4,0 ± 0,3 | 4,0 ± 0,3         | –          | 7,4 ± 0,8  | 7,4 ± 0,8  |
|  |                 | 12 – 470      | –          | 3,7 ± 0,4 | 3,7 ± 0,4         | –          | 7,3 ± 0,8  | 7,3 ± 0,8  |
|  |                 | 470 – 1.006   | –          | 4,0 ± 0,4 | 4,0 ± 0,4         | –          | 8,0 ± 0,8  | 8,0 ± 0,8  |
|  |                 | 1.006 – 1.700 | –          | 4,6 ± 0,5 | 4,6 ± 0,5         | –          | 9,0 ± 1,0  | 9,0 ± 1,0  |
|  |                 | 1.700 – 2.000 | –          | 5,2 ± 0,8 | 5,2 ± 0,8         | –          | 10,0 ± 1,5 | 10,0 ± 1,5 |
| Isolation [dB] <sup>(4)</sup>                  | PORT – PORT     | 5 – 12        | –          | 25        | 25                | –          | 25         | 25         |
|  |                 | 12 – 470      | –          | 30        | 30                | –          | 30         | 30         |
|  |                 | 470 – 1.006   | –          | 25        | 25                | –          | 25         | 25         |
|  |                 | 1.006 – 1.700 | –          | 20        | 20                | –          | 20         | 20         |
|  |                 | 1.700 – 2.000 | –          | 15        | 15                | –          | 15         | 15         |
|  | OUT – PORT      | 5 – 12        | –          | –         | –                 | 25         | 25         | 25         |
|  |                 | 12 – 470      | –          | –         | –                 | 30         | 30         | 30         |
|  |                 | 470 – 1.006   | –          | –         | –                 | 25         | 25         | 25         |
|  |                 | 1.006 – 1.700 | –          | –         | –                 | 20         | 20         | 20         |
|  |                 | 1.700 – 2.000 | –          | –         | –                 | 15         | 15         | 15         |
| Return loss [dB]                               | ALL             | 5 – 12        | ≥ 16       | ≥ 14      | ≥ 14              | ≥ 14       | ≥ 14       | ≥ 14       |
|  |                 | 12 – 300      | ≥ 20       | ≥ 16      | ≥ 16              | ≥ 16       | ≥ 16       | ≥ 16       |
|  |                 | 300 – 1.006   | ≥ 18       | ≥ 16      | ≥ 16              | ≥ 16       | ≥ 16       | ≥ 16       |
|  |                 | 1.006 – 1.700 | ≥ 14       | ≥ 14      | ≥ 14              | ≥ 14       | ≥ 14       | ≥ 14       |
|  |                 | 1.700 – 2.000 | ≥ 12       | ≥ 12      | ≥ 12              | ≥ 12       | ≥ 12       | ≥ 12       |
| MoCA reduces isolation <sup>(1)</sup> (dB max) | 1.200 – 1.625   | –             | 20         | 20        | 22                | 22         | 22         |            |
| Intermodulation <sup>(2)</sup> (dBμV min)      |                 | 115           | 115        | 115       | 115               | 115        | 115        |            |
| IEC-male TV                                    |                 | Yes           | Yes        | –         | Yes               | Yes        | –          |            |
| IEC-female radio                               |                 | –             | Yes        | –         | –                 | Yes        | –          |            |
| Amount F-females                               |                 | –             | –          | 2         | –                 | –          | 2          |            |
| Order No.                                      |                 | 24000000      | 24000100   | 24000152  | 24000200          | 24000250   | 24000260   |            |

<sup>(1)</sup> With open input (accordant POE-Filter)

<sup>(2)</sup> With test signals P = 60 MHz, Q = 65 MHz applied at DATA, TV OUT respectively, intermodulation distortion level is ≤ 15 dBuV at 2 P = 120 MHz, at P + Q = 125 MHz, at 2 Q = 130 MHz

<sup>(3)</sup> These specifications are typical values, the IN-Port attenuation at the cross bands of each mentioned frequency band can exceed or fall below by 0,3 dB max. in mass production.

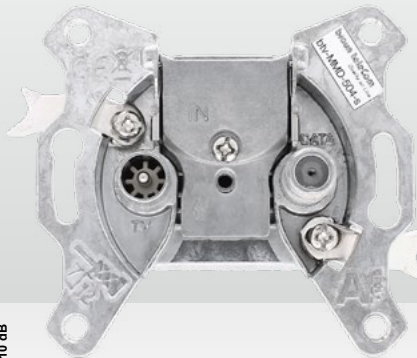
<sup>(4)</sup> These specifications are typical values, the Port-Port isolation at the cross bands of each mentioned frequency band can fall below by 1 dB max. in mass production.

**Accessory:** btv-01-SET: btv 01-UPC incl. SAD 03 (neutral) as bundle

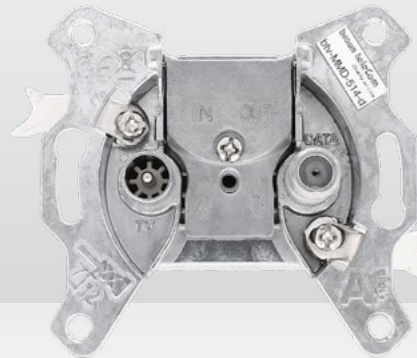
**Order No. 24000002**

# 2-port multimedia broadband antenna outlets

with DATA-port (5 – 1.800 MHz) and TV-port (258 – 1.800 MHz)



21932504  
btv-MMD-504-s



21932514  
btv-MMD-514-d



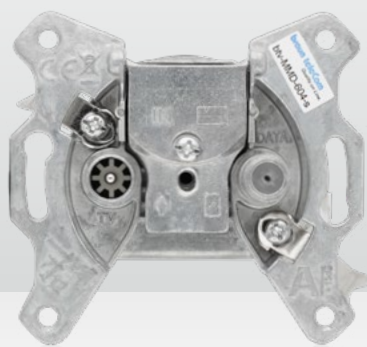
- Dimensions according to DIN 45330
- Quick and comfortable installation thanks to push-pin clamp technology
- High protection against any LTE ingress (LTE safe)
- Zinc die-cast housing with polished finishing
- Clamp technology for inner conductors with a diameter of 0,4 – 1,2 mm
- Suitable for coaxial cables with a diameter of 4,1 – 7,2 mm
- Surge immunity 1 kV according to IEC 61000-4-5 level 2
- Broadband DATA-port 5 – 1.800 MHz, selective TV-port 258 – 1.800 MHz
- Ready for DOCSIS® 3.1
- Cover plate SAD-122, white RAL 9010, is not included and needs to be ordered separately (Order No. 22080122)
- High screening according to Class A +10 dB following DIN EN 50083-2

| Parameter                  | Frequency [MHz]                  | btv-MMD-504-s                          | btv-MMD-510-T                           | btv-MMD-511-d             | btv-MMD-514-d             | btv-MMD-517-d             | btv-MMD-520-d             |                 |
|----------------------------|----------------------------------|--|---|---------------------------|---------------------------|---------------------------|---------------------------|-----------------|
| Insertion loss [dB]        | IN – OUT                         | 5 – 470                                | –                                       | –                         | 3 ± 0,5 max.              | 2 ± 0,5                   | 1 ± 0,5                   | 0,5 ± 0,5       |
|                            |                                  | 470 – 1.218                            | –                                       | –                         | 3 ± 1 max.                | 2 ± 1                     | 1 ± 1                     | 0,5 ± 1         |
|                            | IN – DATA                        | 1.218 – 1.800                          | –                                       | –                         | 3 ± 1,5 max.              | 2 ± 1,5                   | 1 ± 1,5                   | 0,5 ± 1,5       |
|                            |                                  | 5 – 1.218                              | 4 ± 1                                   | 10 ± 1                    | 11 ± 1                    | 14 ± 1                    | 17 ± 1                    | 20 ± 1          |
|                            | IN – TV                          | 1.218 – 1.800                          | 4 ± 1,5                                 | 10 ± 1,5                  | 11 ± 1,5                  | 14 ± 1,5                  | 17 ± 1,5                  | 20 ± 1,5        |
|                            |                                  | 5 – 65                                 | 50 min.                                 | 50 min.                   | 50 min.                   | 50 min.                   | 50 min.                   | 50 min.         |
| 65 – 204                   |                                  | 40 min.                                | 40 min.                                 | 40 min.                   | 40 min.                   | 40 min.                   | 40 min.                   |                 |
| 258 – 1.218                |                                  | 4,5 ± 1 <sup>(1)</sup>                 | 10,5 ± 1 <sup>(1)</sup>                 | 11,5 ± 1 <sup>(1)</sup>   | 14,5 ± 1 <sup>(1)</sup>   | 17,5 ± 1 <sup>(1)</sup>   | 20,5 ± 1 <sup>(1)</sup>   |                 |
| Isolation [dB min.]        | 1.218 – 1.800                    | 4,5 ± 1,5 <sup>(2)</sup>               | 10,5 ± 1,5 <sup>(2)</sup>               | 11,5 ± 1,5 <sup>(2)</sup> | 14,5 ± 1,5 <sup>(2)</sup> | 17,5 ± 1,5 <sup>(2)</sup> | 20,5 ± 1,5 <sup>(2)</sup> |                 |
|                            | TV – DATA                        | 5 – 65                                 | 70 typ. 60 min.                         | 70 typ. 60 min.           | 70 typ. 60 min.           | 70 typ. 60 min.           | 70 typ. 60 min.           | 70 typ. 60 min. |
| 65 – 204                   |                                  | 60 typ. 55 min.                        | 60 typ. 55 min.                         | 60 typ. 55 min.           | 60 typ. 55 min.           | 60 typ. 55 min.           | 60 typ. 55 min.           |                 |
| 204 – 258                  |                                  | 55 – 26                                | 55 – 26                                 | 55 – 26                   | 55 – 26                   | 55 – 26                   | 55 – 26                   |                 |
| 258 – 862                  |                                  | 30 typ. 26 min.                        | 30 typ. 26 min.                         | 30 typ. 26 min.           | 30 typ. 26 min.           | 30 typ. 26 min.           | 30 typ. 26 min.           |                 |
| 862 – 1.006                |                                  | 30 typ. 24 min.                        | 30 typ. 24 min.                         | 30 typ. 24 min.           | 30 typ. 24 min.           | 30 typ. 24 min.           | 30 typ. 24 min.           |                 |
| 1.006 – 1.500              |                                  | 25 typ. 20 min.                        | 25 typ. 20 min.                         | 25 typ. 20 min.           | 25 typ. 20 min.           | 25 typ. 20 min.           | 25 typ. 20 min.           |                 |
| OUT – TV                   | 1.500 – 1.800                    | 20 typ. 15 min.                        | 20 typ. 15 min.                         | 20 typ. 15 min.           | 20 typ. 15 min.           | 20 typ. 15 min.           | 20 typ. 15 min.           |                 |
|                            | 5 – 65                           | –                                      | –                                       | 70 typ. 60 min.           | 70 typ. 60 min.           | 70 typ. 60 min.           | 70 typ. 60 min.           |                 |
|                            | 65 – 204                         | –                                      | –                                       | 56 typ. 50 min.           | 60 typ. 55 min.           | 60 typ. 55 min.           | 60 typ. 55 min.           |                 |
|                            | 204 – 258                        | –                                      | –                                       | 50 – 25                   | 55 – 28                   | 55 – 28                   | 55 – 28                   |                 |
|                            | 258 – 862                        | –                                      | –                                       | 30 typ. 25 min.           | 35 typ. 28 min.           | 35 typ. 28 min.           | 35 typ. 28 min.           |                 |
|                            | 862 – 1.006                      | –                                      | –                                       | 30 typ. 25 min.           | 30 typ. 26 min.           | 30 typ. 26 min.           | 30 typ. 26 min.           |                 |
| OUT – DATA                 | 1.006 – 1.800                    | –                                      | –                                       | 30 typ. 25 min.           | 30 typ. 25 min.           | 30 typ. 25 min.           | 30 typ. 25 min.           |                 |
|                            | 5 – 65                           | –                                      | –                                       | 35 min.                   | 35 min.                   | 35 min.                   | 35 min.                   |                 |
|                            | 65 – 204                         | –                                      | –                                       | 30 min.                   | 30 min.                   | 30 min.                   | 30 min.                   |                 |
|                            | 204 – 258                        | –                                      | –                                       | 25 min.                   | 28 min.                   | 28 min.                   | 28 min.                   |                 |
|                            | 258 – 862                        | –                                      | –                                       | 25 min.                   | 26 min.                   | 26 min.                   | 26 min.                   |                 |
|                            | 862 – 1.006                      | –                                      | –                                       | 25 min.                   | 25 min.                   | 25 min.                   | 25 min.                   |                 |
| Return loss [dB min.]      | IN & OUT                         | 5 – 47                                 | 16                                      |                           |                           |                           |                           |                 |
|                            | TV                               | 47 – 1.800                             | 16 (at 47 MHz -1,5 dB/Oct. 10 dB min.)  |                           |                           |                           |                           |                 |
|                            |                                  | 258 – 1.800                            | 14 (at 258 MHz -1,5 dB/Oct. 10 dB min.) |                           |                           |                           |                           |                 |
|                            | DATA                             | 5 – 10                                 | 14                                      |                           |                           |                           |                           |                 |
| 10 – 47                    |                                  | 18                                     |   |                           |                           |                           |                           |                 |
| Impedance [Ω]              | 47 – 1.800                       | 18 (at 47 MHz -1,5 dB/Oct. 10 dB min.) |   |                           |                           |                           |                           |                 |
|                            | Operating temperature range [°C] | 75                                     |   |                           |                           |                           |                           |                 |
| Harmonic distortion [dBμV] | before surge                     | 0 – 55                                 |   |                           |                           |                           |                           |                 |
|                            | after 25 VDC surge               | < 2                                    |   |                           |                           |                           |                           |                 |
| Order No.                  | 5 – 10                           | < 15                                   |   |                           |                           |                           |                           |                 |
|                            | 47 – 1.800                       | 21932504                               | 21932510                                | 21932511                  | 21932514                  | 21932517                  | 21932520                  |                 |

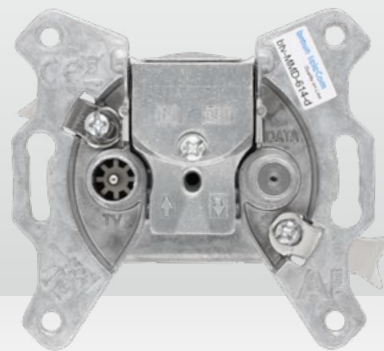
<sup>(1)</sup> In frequency range 258 – 266 MHz with additional 0,5 dB attenuation  
<sup>(2)</sup> In frequency range 1.700 – 1.800 MHz with additional 0,5 dB attenuation

<sup>(3)</sup> With 2 x 120 dBμV test signals combined and applied to DATA-Port:  
 Test 1: f1 = 60 MHz, f2 = 65 MHz, IM2 = 2 x f1 + f1+f2 + 2 x f2  
 Test 2: f1 = 199 MHz, f2 = 204 MHz, IM2 = 2 x f1 + f1+f2 + 2 x f2

# 2-port multimedia broadband antenna outlets with DATA-port (5 – 1.800 MHz) and TV-port (258 – 862 MHz)



21926040  
btv-MMD-604-s



21926140  
btv-MMD-614-d



| Parameter   | Frequency [MHz]   | btv-MMD-604-s         | btv-MMD-609-T               | btv-MMD-611-d | btv-MMD-614-d | btv-MMD-617-d | btv-MMD-620-d |
|---|---|-----------------------|-----------------------------|---------------|---------------|---------------|---------------|
| Insertion loss [dB]   | IN – OUT <sup>(1)</sup>   |                       |                             |               |               |               |               |
|   | 5 – 10  | –                     | –                           | 2,7 ± 0,5     | 1,5 ± 0,3     | 1,3 ± 0,3     | 0,8 ± 0,2     |
|   | 200   | –                     | –                           | 2,4 ± 0,5     | 1,3 ± 0,3     | 1,1 ± 0,2     | 0,7 ± 0,2     |
|   | 400   | –                     | –                           | 2,5 ± 0,5     | 1,4 ± 0,3     | 1,1 ± 0,2     | 0,8 ± 0,2     |
|   | 600   | –                     | –                           | 2,6 ± 0,5     | 1,6 ± 0,3     | 1,2 ± 0,2     | 0,9 ± 0,2     |
|   | 800   | –                     | –                           | 2,8 ± 0,6     | 1,8 ± 0,4     | 1,4 ± 0,3     | 1,1 ± 0,2     |
|   | 1.000   | –                     | –                           | 3,1 ± 0,6     | 2,0 ± 0,4     | 1,5 ± 0,3     | 1,2 ± 0,2     |
|   | 1.200   | –                     | –                           | 3,2 ± 0,6     | 2,2 ± 0,4     | 1,6 ± 0,3     | 1,4 ± 0,3     |
|   | 1.400   | –                     | –                           | 3,5 ± 0,7     | 2,5 ± 0,5     | 1,8 ± 0,4     | 1,6 ± 0,3     |
|   | 1.600   | –                     | –                           | 3,7 ± 0,7     | 2,8 ± 0,6     | 2,0 ± 0,4     | 1,8 ± 0,4     |
| 1.800   | –   | –                     | 4,1 ± 0,8                   | 3,3 ± 0,7     | 2,2 ± 0,4     | 2,1 ± 0,4     |               |
| IN – DATA   | 5 – 10  | 4,0 ± 1,0             | 9,0 ± 1,0                   | 11,0 ± 1,0    | 14,0 ± 1,0    | 17,0 ± 1,0    | 20,0 ± 1,0    |
|   | 10 – 1.800  | 4,0 ± 1,0             | 9,0 ± 1,0                   | 11,0 ± 1,0    | 14,0 ± 1,0    | 17,0 ± 1,0    | 20,0 ± 1,0    |
| IN – TV <sup>(2)</sup>  | 5 – 65  | 54 typ.               | 59 typ.                     | 61 typ.       | 64 typ.       | 67 typ.       | 70 typ.       |
|   | 65 – 204  | 44 typ.               | 49 typ.                     | 51 typ.       | 54 typ.       | 57 typ.       | 60 typ.       |
|   | 258 – 862   | 4,5 ± 1,0             | 9,5 ± 1,0                   | 11,5 ± 1,0    | 14,5 ± 1,0    | 17,5 ± 1,0    | 20,5 ± 1,0    |
| Isolation <sup>(3)</sup> [dB min.]  | TV – DATA   | 5 – 65                | 60 min.                     |               |               |               |               |
|   |   | 65 – 204              | 60 typ., 55 min.            |               |               |               |               |
|   |   | 204 – 258             | 55 – 24                     |               |               |               |               |
|   |   | 258 – 1.800           | 24 min.                     |               |               |               |               |
| OUT – TV  |   | 5 – 65                | –                           | –             | 60 min.       |               |               |
|   |   | 65 – 204              | –                           | –             | 60 min.       |               |               |
|   |   | 204 – 258             | –                           | –             | 60 – 24       |               |               |
|   |   | 258 – 862             | –                           | –             | 24 min.       |               |               |
| OUT – DATA  |   | 862 – 1.800           | –                           | –             | 22 min.       |               |               |
|   |   | 5 – 204               | –                           | –             | 35 min.       |               |               |
|   |   | 204 – 862             | –                           | –             | 24 min.       |               |               |
|   |   | 862 – 1.800           | –                           | –             | 22 min.       |               |               |
| Return loss <sup>(3)</sup> [dB min.]  | IN & OUT  | 5 – 94                | 16                          |               |               |               |               |
|   |   | 94 – 752              | 16 (at 94 MHz -1,5 dB/Oct.) |               |               |               |               |
|   |   | 752 – 1.800           | 10 min.                     |               |               |               |               |
|   | TV  | 258 – 862             | 12,5                        |               |               |               |               |
| DATA  |   | 5 – 94                | 18                          |               |               |               |               |
|   |   | 94 – 1.800            | 18 (at 94 MHz -1,5 dB/Oct.) |               |               |               |               |
| Harmonic distortion [dBμV]  | before surge  | < 2 dBμV (< -118 dBc) |                             |               |               |               |               |
|   | after 25 VDC surge (1,2/500 μs) at all ports                          | < 5 dBμV (< -115 dBc) |                             |               |               |               |               |
|   | after 150 VDC surge at DATA & TV ports                                | < 5 dBμV (< -115 dBc) |                             |               |               |               |               |
| Galvanic Isolation (acc. to IEC/EN 60728-11: 2019-02 Point 10) Semi isolated inner to inner conductor | ≤ 2 mA, 230 VAC RMS 50/60 Hz;<br>≤ 0,7 mA, 2120 VDC (during 1 minute) |                       |                             |               |               |               |               |
| Surge Immunity (acc. to IEC 61000-4-5 level 2)  | 1 kV (1,2/50 μs, internal resistance = 42 Ω)w                         |                       |                             |               |               |               |               |
| Order No.   | 21926040   21926090   21926110   21926140   21926170   21926200       |                       |                             |               |               |               |               |

- Outlets compliant with VF TS 142 June 2021 V1.2
- Dimensions according to DIN 45330
- Zinc die-cast housing with polished finishing (CuSn whitebronze plating available on request)
- Quick and comfortable installation thanks to push-pinclamp technology for inner conductors with a diameter of 0,4 – 1,2 mm
- Suitable for coaxial cables with a diameter of 4,1 – 7,2 mm
- DATA-port as F-female acc. to IEC/EN 61169-24 with Ø 9,45 ± 0,05 mm, TV port as IEC-male acc. to IEC/EN 61169-2
- High screening Class A +10 dB acc. to DIN EN 50083-2
- High protection against any LTE ingress (LTE safe)
- DATA port 5 – 1.800 MHz, selective TV port 258 – 862 MHz
- Intermodulation resistance acc. to EN 60728-4 and UM TS 414
- Surge immunity 1 kV acc. to IEC 61000-4-5 level 2
- Galvanic isolation acc. to DIN EN 60728-11: 2019-02 Point 10; semi isolated inner to inner conductor
- Ready for DOCSIS® 3.1 and DOCSIS® 4.0
- Impedance 75 Ω
- Operating temperature range 0 – 55°C
- Cover plate SAD-122, white RAL 9010, not included and needs to be ordered separately (Order No. 22080122)

<sup>(1)</sup> Tolerances are typical values, with additional 0,3 dB max. tolerances in mass production

<sup>(2)</sup> On the duplex filter edges 258 – 274 MHz and 800 – 862 MHz with additional 0,5 dB tolerances in mass production; in frequency range 188 – 204 MHz with max. 3 dB reduced rejection in mass production

<sup>(3)</sup> On the duplex filter edges 188 – 204 MHz and 258 – 274 MHz as well as in frequency range 5 – 10 MHz with max. 3 dB reduced return loss and isolation

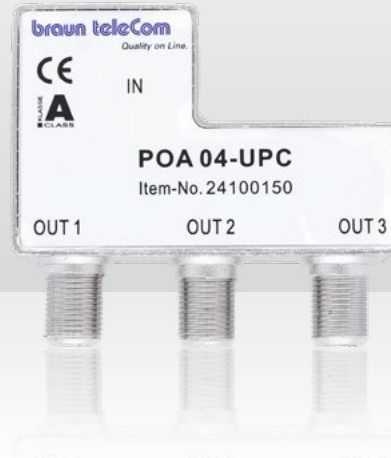
<sup>(4)</sup> With 2 x 120 dBμV test signals combined and applied to each port:  
Test 1: f1 = 55,25 MHz, f2 = 61,25 MHz, IM2 = 2 x f1 + f1+f2 + 2 x f2  
Test 2: f1 = 193,25 MHz, f2 = 199,25 MHz, IM2 = 2 x f1 + f1+f2 + 2 x f2

# Broadband push on adapters

2-port and 3-port broadband push on adapters up to 2 GHz



24100002  
POA-01-A



24100150  
POA-04-UPC



- All connections with broadband ports 5 – 2.000 MHz
- Intermodulation resistant according to EN 60728-4
- High screening according to Class A +10 dB
- Suitable for mounting onto the TV-port of antenna outlets
- Surface coated with CuSn white bronze plating, thereby corrosion resistant
- Supplied with a protection plastic cap
- Versions with 2-port and 3-port as well as with IEC- and F-connections available
- POA-01-B: RF performance acc. to Kabelkeur PVE 5.0 Keurmerk

| Parameter  | Frequency [MHz] | POA-01-A      | POA-01-B            | POA-02-UPC       | POA-03-UPC | POA-04-UPC |           |
|--|-----------------|---------------|---------------------|------------------|------------|------------|-----------|
| Through loss [dB]  | IN – PORT       | 5 – 12        | 4,0 ± 0,3           | 3,7 ± 0,3        | 4,0 ± 0,3  | 6,0 ± 0,5  | 6,0 ± 0,5 |
|  |                 | 12 – 470      | 3,8 ± 0,5           | 3,7 ± 0,3        | 3,8 ± 0,5  | 5,7 ± 0,3  | 5,7 ± 0,3 |
|  |                 | 470 – 860     | 4,0 ± 0,4           | 3,7 ± 0,3        | 4,0 ± 0,4  | 6,0 ± 0,5  | 6,0 ± 0,5 |
|  |                 | 860 – 1.006   | 4,0 ± 0,4           | 4,0 ± 0,4        | 4,0 ± 0,4  | 6,0 ± 0,5  | 6,0 ± 0,5 |
|  |                 | 1.006 – 1.218 | 4,6 ± 0,5           | 4,4 ± 0,5        | 4,6 ± 0,5  | 7,4 ± 0,5  | 7,4 ± 0,5 |
|  |                 | 1.218 – 1.700 | 4,6 ± 0,5           | 4,6 ± 0,5        | 4,6 ± 0,5  | 7,4 ± 0,5  | 7,4 ± 0,5 |
| Isolation [dB]   | PORT – PORT     | 5 – 15        | ≥ 25                | ≥ 20             | ≥ 25       | ≥ 25       | ≥ 25      |
|  |                 | 15 – 30       | ≥ 25                | ≥ 26             | ≥ 25       | ≥ 25       | ≥ 25      |
|  |                 | 30 – 470      | ≥ 30                | ≥ 26 -1,5 dB/Oct | ≥ 30       | ≥ 25       | ≥ 25      |
|  |                 | 470 – 1.006   | ≥ 25                | ≥ 26 -1,5 dB/Oct | ≥ 25       | ≥ 25       | ≥ 25      |
|  |                 | 1.006 – 1.218 | ≥ 20                | ≥ 26 -1,5 dB/Oct | ≥ 20       | ≥ 20       | ≥ 20      |
|  |                 | 1.218 – 1.700 | ≥ 20                | ≥ 20             | ≥ 20       | ≥ 20       | ≥ 20      |
| Return loss [dB]   | ALL             | 5 – 12        | ≥ 14                | ≥ 13             | ≥ 14       | ≥ 14       | ≥ 14      |
|  |                 | 12 – 40       | ≥ 16                | ≥ 20             | ≥ 16       | ≥ 16       | ≥ 16      |
|  |                 | 40 – 1.006    | ≥ 16                | ≥ 20 -1,5 dB/Oct | ≥ 16       | ≥ 16       | ≥ 16      |
|  |                 | 1.006 – 1.218 | ≥ 14                | ≥ 20 -1,5 dB/Oct | ≥ 14       | ≥ 14       | ≥ 14      |
|  |                 | 1.218 – 1.700 | ≥ 14                | ≥ 14             | ≥ 14       | ≥ 14       | ≥ 14      |
|  |                 | 1.700 – 2.000 | ≥ 12                | ≥ 12             | ≥ 12       | ≥ 12       | ≥ 12      |
| MoCA reduced isolation <sup>(1)</sup> [dB max]                                   | 1.200 – 1.650   | 20            | 20                  | 20               | 20         | 20         |           |
| Intermodulation resistance [dBμV min]<br>(acc. to IEC/EN 60728-4) <sup>(2)</sup> |                 | > 15          | > 10 <sup>(3)</sup> | > 15             | > 15       | > 15       |           |
| Number of output ports   |                 | 2             | 2                   | 2                | 3          | 3          |           |
| Connector type input   |                 | IEC-female    | IEC-female          | F-quickfix       | IEC-female | F-quickfix |           |
| Connector type outputs   |                 | IEC-male      | IEC-male            | F-female         | IEC-male   | F-female   |           |
| Integrated height adjustment<br>of the protection plastic cap                    |                 | No            | No                  | Yes              | Yes        | Yes        |           |
| Order No.  |                 | 24100002      | 24100003            | 24100050         | 24100100   | 24100150   |           |

<sup>(1)</sup> With open input (accordant POE-Filter)

<sup>(2)</sup> With 2 x 120 dBμV test signals f1 = 60 MHz and f2 = 65 MHz at all ports, IM2 = 2 x f1 + f1 + f2 + 2 x f2

<sup>(3)</sup> With 2 x 115 dBμV test signals and after 1 kV pulse acc. to Kabelkeur PVE 5.0 Keurmerk



## 2-port push on adapter with band pass filter at TV port (85 – 862 MHz) and broadband DATA port



- Suitable for mounting onto antenna outlets with IEC-male at TV-port
- 1 input IEC-female at rear side
- 2 outputs, each one IEC-male and F-female
- Intermodulation resistant according to EN 60728-4 and after 1kV pulse applied at each port

- High screening according to EN 50083-2 Class A +10 dB
- Surface coated with CuSn white bronze plating, thereby corrosion resistant
- Supplied with a protection plastic cap (Pure white RAL 9010)
- TV/Radio-port (IEC-male) with band pass filter (specifications below)
- Data-port (F-female) broadband 5 – 2.000 MHz

| Parameter                                   | Frequency [MHz]  | POA-085       |                                |
|---|------------------|---------------|--------------------------------|
| Insertion Loss [dB]                         | IN – TV/Radio    | 5 – 65        | 55 min. <sup>(3)</sup>         |
|   |                  | 85 – 862      | 4,7 + 0,3 <sup>(2)</sup>       |
|   |                  | 950 – 2.000   | 55 min. <sup>(4)</sup>         |
|   | IN – Data        | 5 – 862       | 3,7 + 0,3                      |
|   |                  | 862 – 1.006   | 4,0 + 0,4                      |
|   |                  | 1.006 – 1.218 | 4,4 + 0,5                      |
| 1.218 – 1.700                               |                  | 4,8 + 0,8     |                                |
| Return Loss [dB]                            | IN               | 1.700 – 2.000 | 5,5 + 1,0                      |
|   |                  | 5 – 12        | 13 min.                        |
|   |                  | 12 – 65       | 20 min.                        |
|   |                  | 85 – 862      | 20 <sup>(1)</sup>              |
|   |                  | 950 – 1.218   | 14 min.                        |
|   | TV/Radio         | 1.218 – 2.000 | 14 typ., 12 min.               |
|   |                  | 85 – 862      | 20 <sup>(1) (5)</sup>          |
|   | Data             | 5 – 12        | 13 min.                        |
|   |                  | 12 – 1.218    | 20 <sup>(1)</sup>              |
|   |                  | 1.218 – 2.000 | 12 min.                        |
| Isolation [dB]                              | TV/Radio – Data  | 5 – 65        | 55 min. <sup>(3)</sup>         |
|   |                  | 85 – 862      | 35 typ. 30 min. <sup>(6)</sup> |
|   |                  | 950 – 2.000   | 55 min. <sup>(4)</sup>         |
| Intermodulation [dB $\mu$ V] <sup>(7)</sup> | after 25 V surge | $\leq 10$     |                                |
|   | after 1 KV surge | $\leq 10$     |                                |
| Order No.                                   |                  | 24100012      |                                |

<sup>(1)</sup> At 40 MHz -1.5 dB/Oct.

<sup>(2)</sup> In frequency range 85 – 125 MHz with additional 0,5 dB loss; means 5,5 dB max.

In frequency range 750 – 800 MHz with additional 0,5 dB loss; means 5,5 dB max.

In frequency range 800 – 862 MHz with additional 2,0 dB loss; means 7,0 dB max.

<sup>(3)</sup> In frequency range 50 – 65 MHz with additional 2,0 dB tolerances in mass production

<sup>(4)</sup> In frequency range 950 – 1000 MHz with additional 2,0 dB tolerances in mass production

<sup>(5)</sup> In frequency range 85 – 100 MHz with additional 2,0 dB tolerances in mass production

<sup>(6)</sup> In frequency range 470 – 862 MHz with additional 2,0 dB tolerances in mass production

<sup>(7)</sup> With 2 signals f1 at 60 MHz & f2 at 65 MHz (115 dB $\mu$ V each) applied at OUT – OUT ports, according to EN 60728-4 and after 1 kV surge pulse at each port, IM harmonics measured at 2x f1 & f1+f2 & 2x f2

# 2-port push on adapter with band pass filter at TV port (254 – 862 MHz) and broadband DATA port



24100015  
POA-254



- Suitable for mounting onto antenna outlets with IEC-male at TV-port
- 1 input IEC-female at rear side
- 2 outputs, each one IEC-male and F-female
- Intermodulation resistant according to EN 60728-4 and after 1kV pulse applied at each port
- High screening according to EN 50083-2 Class A +10 dB
- Surface coated with CuSn white bronze plating, thereby corrosion resistant
- Supplied with a protection plastic cap (Pure white RAL 9010)
- TV/Radio-port (IEC-male) with band pass filter (specifications below)
- Data-port (F-Female) broadband 5 – 2.000 MHz

| Parameter                             | Frequency [MHz]  | POA-254       |                                     |
|---------------------------------------|------------------|---------------|-------------------------------------|
| Insertion Loss [dB]                   | IN – TV/Radio    | 5 – 65        | 60 typ., 55 min.                    |
|                                       |                  | 65 – 204      | 60 typ., 50 min.                    |
|                                       |                  | 254 – 862     | 4,7 + 0,3 <sup>(2)</sup>            |
|                                       |                  | 950 – 2.000   | 55 min. <sup>(3)</sup>              |
| Insertion Loss [dB]                   | IN – Data        | 5 – 862       | 3,7 + 0,3                           |
|                                       |                  | 862 – 1.006   | 4,0 + 0,4                           |
|                                       |                  | 1.006 – 1.218 | 4,4 + 0,5                           |
|                                       |                  | 1.218 – 1.700 | 4,8 + 0,8                           |
| Insertion Loss [dB]                   | IN – Data        | 1.700 – 2.000 | 5,5 + 1,3                           |
|                                       |                  | 5 – 12        | 13 min.                             |
|                                       |                  | 12 – 65       | 20 min.                             |
|                                       |                  | 65 – 204      | 20 <sup>(1)</sup>                   |
| Return Loss [dB]                      | IN               | 254 – 862     | 20 <sup>(1)</sup>                   |
|                                       |                  | 950 – 1.218   | 14 min.                             |
|                                       |                  | 1.218 – 2.000 | 14 dB., 12 min.                     |
|                                       |                  | TV/Radio      | 20 dB <sup>(1)</sup> <sup>(4)</sup> |
| Return Loss [dB]                      | Data             | 5 – 12        | 13 min.                             |
|                                       |                  | 12 – 1.218    | 20 <sup>(1)</sup>                   |
|                                       |                  | 1.218 – 2.000 | 12 min.                             |
| Isolation [dB]                        | TV/Radio – Data  | 5 – 65        | 60 typ., 55 min.                    |
|                                       |                  | 65 – 204      | 60 typ., 55 min. <sup>(6)</sup>     |
|                                       |                  | 254 – 862     | 35 typ. 30 min. <sup>(5)</sup>      |
|                                       |                  | 950 – 2.000   | 55 min. <sup>(3)</sup>              |
| Intermodulation [dBμV] <sup>(7)</sup> | after 25 V surge | ≤ 10          |                                     |
|                                       | after 1 KV surge | ≤ 10          |                                     |
| Order No.                             |                  | 24100015      |                                     |

<sup>(1)</sup> At 40 MHz -1.5 dB/Oct.

<sup>(2)</sup> In frequency range 254 – 260 MHz with additional 0,5 dB loss; means 5,5 dB max.

In frequency range 750 – 800 MHz with additional 0,5 dB loss; means 5,5 dB max.

In frequency range 800 – 862 MHz with additional 2,3 dB loss; means 7,3 dB max.

<sup>(3)</sup> In frequency range 950 – 1000 MHz with additional 5,0 dB tolerances in mass production

<sup>(4)</sup> In frequency range 254 – 260 MHz with additional 2,0 dB tolerances in mass production

<sup>(5)</sup> In frequency range 470 – 862 MHz with additional 2,0 dB tolerances in mass production

<sup>(6)</sup> In frequency range 198 – 204 MHz with additional 2,0 dB tolerances in mass production

<sup>(7)</sup> With 2 signals f1 at 60 MHz & f2 at 65 MHz (115 dBμV each) applied at OUT – OUT ports, according to EN 60728-4 and after 1 kV surge pulse at each port, IM harmonics measured at 2x f1 & f1+f2 & 2x f2

## 2-port push on adapter with band pass filter at TV port (254 – 580 MHz) and broadband DATA port



24100020  
POA-550



- Suitable for mounting onto antenna outlets with IEC-male at TV-port
- 1 input IEC-female at rear side
- 2 outputs, each one IEC-male and F-female
- Intermodulation resistant according to EN 60728-4 and after 1kV pulse applied at each port
- High screening according to EN 50083-2 Class A +10 dB
- Surface coated with CuSn white bronze plating, thereby corrosion resistant
- Supplied with a protection plastic cap (Pure white RAL 9010)
- TV/Radio-port (IEC-male) with band pass filter (specifications below)
- Data-port (F-female) broadband 5 – 2.000 MHz

| Parameter                             | Frequency [MHz]                      | POA-550       |                                 |
|---------------------------------------|--------------------------------------|---------------|---------------------------------|
| Insertion loss [dB]                   | IN – TV/Radio                        | 5 – 65        | 60 typ., 55 min.                |
|                                       |                                      | 65 – 204      | 60 typ., 50 min.                |
|                                       |                                      | 254 – 260     | 4,7 + 0,8                       |
|                                       |                                      | 260 – 520     | 4,7 + 0,3                       |
|                                       |                                      | 520 – 550     | 4,7 + 0,8                       |
|                                       |                                      | 550 – 580     | 5,5 + 1,8                       |
|                                       |                                      | 640 – 2.000   | 55 typ., 50 min.                |
| Return loss [dB]                      | IN                                   | 5 – 862       | 3,7 + 0,3                       |
|                                       |                                      | 862 – 1.006   | 4,0 + 0,4                       |
|                                       |                                      | 1.006 – 1.218 | 4,4 + 0,5                       |
|                                       |                                      | 1.218 – 1.700 | 4,8 + 0,8                       |
|                                       |                                      | 1.700 – 2.000 | 5,5 + 1,3                       |
|                                       |                                      | TV/Radio      | 254 – 580                       |
| Isolation [dB]                        | TV/Radio – DATA                      | 5 – 12        | 13 min.                         |
|                                       |                                      | 12 – 65       | 20 min.                         |
|                                       |                                      | 65 – 204      | 20 <sup>(1)</sup>               |
|                                       |                                      | 254 – 580     | 20 <sup>(1)</sup>               |
|                                       |                                      | 640 – 1.218   | 14 typ., 12 min.                |
|                                       |                                      | 1.218 – 2.000 | 14 typ., 12 min.                |
|                                       |                                      | DATA          | 254 – 580                       |
| Intermodulation <sup>(4)</sup> [dBμV] | after 25 V surge<br>after 1 kV surge | 5 – 65        | 60 typ., 55 min.                |
|                                       |                                      | 65 – 204      | 60 typ., 55 min. <sup>(2)</sup> |
|                                       |                                      | 254 – 580     | 35 typ., 30 min.                |
|                                       |                                      | 640 – 2.000   | 55 typ., 50 min.                |
| Order No.                             |                                      | 24100020      |                                 |

<sup>(1)</sup> At 40 MHz -1.5 dB/Oct.

<sup>(2)</sup> In frequency range 198 – 204 MHz with additional 2,0 dB tolerances in mass production

<sup>(3)</sup> In frequency range 254 – 260 MHz & 570 - 580 MHz with additional 2,0 dB tolerances in mass production

<sup>(4)</sup> With 2 signals f1 at 60 MHz & f2 at 65 MHz (115 dBμV each) applied at OUT – OUT ports, according to EN 60728-4 and after 1 kV surge pulse at each port, IM harmonics measured at 2x f1 & f1+f2 & 2x f2

## 2-port and 3-port push on adapters up to 2 GHz with selective radio-port



24100005  
POA-1-IEC-NL



24100105  
POA-3-IEC-NL



- Intermodulation resistant according to EN 60728-4
- High screening according to Class A +10 dB
- Suitable for mounting onto antenna outlets with IEC-male at TV-port
- Surface coated with CuSn white bronze plating, thereby corrosion resistant

- Supplied with a protection plastic cap
- TV and DATA-ports with FM filter, therefore transmission range 5 – 65 & 120 – 2.000 MHz (no FM, S 2 and S 3)

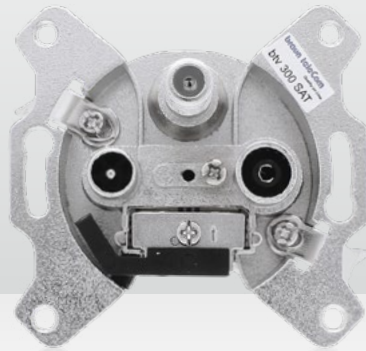
| Parameter                                 | Frequency [MHz] | POA-1-IEC-NL                                | POA-3-IEC-NL                                |        |
|---|-----------------|---|---|--------|
| Through loss [dB]                         | 5 – 65          | 0,7 ± 0,5                                   | 4,6 ± 0,5                                   |        |
|   | 65 – 120        | > 20 typ.                                   | > 20 typ.                                   |        |
|   | 120 – 1.218     | 0,7 ± 0,5                                   | 4,6 ± 0,5                                   |        |
|   | 1.218 – 1.700   | 1,3 ± 0,5                                   | 6,2 ± 0,5                                   |        |
|   | 1.700 – 2.000   | 1,7 ± 0,5                                   | 7,2 ± 0,5                                   |        |
| IN – FM                                   | 87,5 – 108      | 2,0 ± 0,5                                   | 2,0 ± 0,5                                   |        |
| Isolation [dB]                            | 5 – 65          | ≥ 25  | ≥ 32  |        |
|   | 65 – 120        | –   | –   |        |
|   | 120 – 470       | ≥ 20  | ≥ 20  |        |
|   | 470 – 1.218     | ≥ 25  | ≥ 25  |        |
|   | 1.218 – 1.700   | ≥ 22  | ≥ 25  |        |
|   | 1.700 – 2.000   | ≥ 20  | ≥ 25  |        |
|   | (TV – DATA)     | 5 – 15                                      | –   | ≥ 20   |
|   |                 | 15 – 65                                     | –   | ≥ 30   |
|   |                 | 65 – 120                                    | –   | –      |
|   |                 | 120 – 1.218                                 | –   | ≥ 20   |
| 1.218 – 1.700                             |                 | –   | ≥ 16  |        |
| 1.700 – 2.000                             | –               | ≥ 14  |   |        |
| Return loss [dB]                          | 5 – 12          | ≥ 14  | ≥ 18  |        |
|   | 12 – 65         | ≥ 16  | ≥ 18  |        |
|   | 87,5 – 108      | ≥ 16  | ≥ 15  |        |
|   | 108 – 1.006     | ≥ 16  | ≥ 18*                                       |        |
|   | 1.006 – 2.000   | 14 typ.                                     | ≥ 18*                                       |        |
|   | TV (DATA)       | 5 – 12                                      | ≥ 14  | ≥ 18   |
|   |                 | 12 – 65                                     | ≥ 16  | ≥ 18   |
|   |                 | 120 – 1.006                                 | ≥ 16  | ≥ 18*  |
|   |                 | 1.006 – 2.000                               | 14 typ                                      | ≥ 18*  |
|   | FM              | 87,5 – 108                                  | 15 typ                                      | 15 typ |
| Intermodulation <sup>(1)</sup> (dBμV min) |                 | 115   | 115   |        |
| Amount ports                              |                 | 2   | 3   |        |
| TV-port                                   |                 | 5 – 65 MHz<br>120 – 2.000 MHz<br>(IEC-male) | 5 – 65 MHz<br>120 – 2.000 MHz<br>(IEC-male) |        |
| Radio-port (selective)                    |                 | 87 – 108 MHz<br>(IEC-female)                | 87 – 108 MHz<br>(IEC-female)                |        |
| DATA-port                                 |                 | –   | 5 – 65 MHz<br>120 – 2.000 MHz<br>(F-female) |        |
| Order No.                                 |                 | 24100005                                    | 24100105                                    |        |

<sup>(1)</sup> With test signals P = 60 MHz, Q = 65 MHz applied at DATA, TV OUT respectively, intermodulation distortion level is ≤15 dBμV at 2 P = 120 MHz, at P + Q = 125 MHz, at 2 Q = 130 MHz

\* f > 40 MHz -1,5 dB/Oct, min. > 12 dB

# 3-port SAT antenna outlet

SMATV antenna outlet with frequency range 4 – 2.400 MHz



**21030000**  
btv-300-SAT

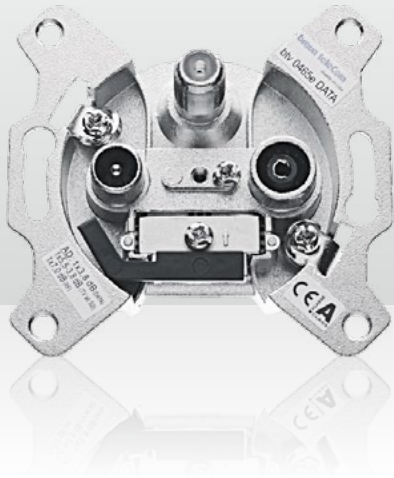


- Special satellite TV-port (F-female) for the separate connection of a satellite receiver
- Qualified for digital transmission and for a combined transmission of satellite, terrestrial and/or cable TV signals (also S2 and S3)
- Qualified for reverse path transmission, via TV- or RF-port
- TV- and RF-ports designed as broadband ports with equal tap loss on TV and RF
- DC-Powerpass via SAT-port for LNB-powering (incl. 22 kHz- and DiSEqC-signal)
- Very high isolation between TV/RF-port and SAT-port
- Galvanic isolation of the inner conductors at TV- and RF-Port against hum modulation and leakage currents
- Screening according EN 50083-2 Class A:
  - > 84 dB (30 – 300 MHz)
  - > 80 dB (300 – 470 MHz)
  - > 75 dB (470 – 1.000 MHz)
  - > 55 dB (1.000 – 2.400 MHz)
- Cover plate SAD-155, 80 x 80 mm, color Pure white RAL 9010, will be delivered together with the outlet (Order No. 22080600)
- Surface-mount frame SAD-165, 80 x 80 x 33 mm, color Pure white RAL 9010 (Order No. 22080800)

| Parameter      | Frequency [MHz] | btv-300-SAT                              |                                     |
|----------------|-----------------|--|-------------------------------------|
| Tap loss [dB]  | TV              | 4 – 40                                   | 4,0 ± 1,0                           |
|                |                 | 40 – 470                                 | 3,5 ± 1,0                           |
|                |                 | 470 – 862                                | 4,5 ± 1,0                           |
|                | RF              | 4 – 40                                   | 4,0 ± 1,0                           |
|                |                 | 40 – 470                                 | 3,5 ± 1,0                           |
|                |                 | 470 – 862                                | 4,5 ± 1,0                           |
| SAT            | 950 – 2.150     | 1,5 ± 1,0                                |                                     |
|                | 2.150 – 2.400   | 2,5 ± 1,0                                |                                     |
| Isolation [dB] | TV – RF         | 4 – 862                                  | > 20 typ.                           |
|                | TV – SAT        | 4 – 862                                  | > 20 typ.                           |
|                |                 | 950 – 2.400                              | > 20 typ.                           |
|                | RF – SAT        | 4 – 862                                  | > 20 typ.                           |
|                |                 | 950 – 2.400                              | > 20 typ.                           |
|                | Return loss     | TV                                       | > 14 dB -1,5 dB/oct. (> 10 dB min.) |
| RF             |                 | > 14 dB -1,5 dB/oct. (> 10 dB min.)      |                                     |
| SAT            |                 | > 10 dB<br>decreasing linearly to 7,2 dB |                                     |
| Order No.      |                 | <b>21030000</b>                          |                                     |

# 3-port multimedia antenna outlets

Selective multimedia outlet with 5 – 65 MHz reverse path



221500000  
btv-0465e DATA



22080600  
SAD-155



- Special DATA-port (F-female) for the separate connection of a cable modem
- Selective separation of TV and radio frequency ranges by high rejection filters on TV- and RF-port
- Very high isolation between TV and DATA-port to avoid influences of TV-IF frequency by ingress of reverse signals
- Galvanic isolation protection against hum modulation and leakage currents (only inner conductors)
- **Transmission of channels S2 and S3!**
- Screening according EN 50083-2 Class A:
  - > 85 dB (30 – 300 MHz),
  - > 80 dB (300 – 470 MHz),
  - > 75 dB (470 – 862 MHz)
- Cover plate SAD-155, 80 x 80 mm, color Pure white RAL 9010, will be delivered together with the multimedia outlets (Order No. 22080600)
- Surface-mount frame SAD-165, 80 x 80 x 33 mm, color Pure white RAL 9010, for multimedia outlets (Order No. 22080800)

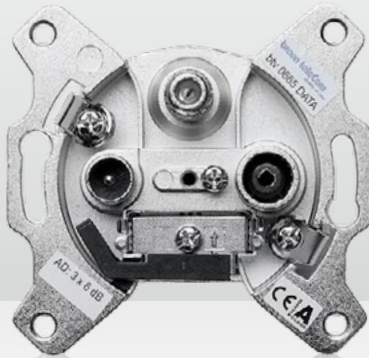
| Parameter      |             | Frequency [MHz]         | btv-0465e DATA |                       |
|----------------|-------------|-------------------------|----------------|-----------------------|
| Tap loss [dB]  | DATA        | 5 – 862                 | 3,8 ± 0,5      |                       |
|                |             | 862 – 1.000             | 3,8 ± 0,8      |                       |
|                | TV          | 5 – 65                  | > 60 typ.      |                       |
|                |             | 87,5 – 108              | > 10 typ.      |                       |
|                |             | 109 <sup>1)</sup> – 125 | 5,4 ± 1,0      |                       |
|                |             | 125 – 1.000             | 3,8 ± 0,5      |                       |
| RF             | 5 – 65      | > 35 typ.               |                |                       |
|                | 87,5 – 108  | 7,5 ± 1,0 <sup>2)</sup> |                |                       |
|                | 109 – 125   | > 12 typ.               |                |                       |
|                | 125 – 1.000 | > 25 typ.               |                |                       |
| Isolation [dB] | DATA – TV   | 5 – 65                  | > 70           |                       |
|                |             | 65 – 300                | > 30           |                       |
|                |             | 300 – 1.000             | > 25           |                       |
|                | DATA – RF   | 5 – 65                  | > 60           |                       |
|                |             | 65 – 300                | > 30           |                       |
|                |             | 300 – 1.000             | > 28           |                       |
|                | TV – RF     | 87,5 – 108              | > 12           |                       |
|                |             | 111 – 125               | > 12           |                       |
|                |             | 125 – 300               | > 35           |                       |
|                |             | 300 – 1.000             | > 25           |                       |
|                | Return loss | DATA                    |                | > 18 dB -1,5 dB/oct.  |
|                |             | TV                      |                | > 12,5 dB f = 111 MHz |
| RF             |             |                         | > 10 dB        |                       |
| Order No.      |             |                         | 21500000       |                       |

<sup>1)</sup> Additionally 2,0 dB at 109 MHz

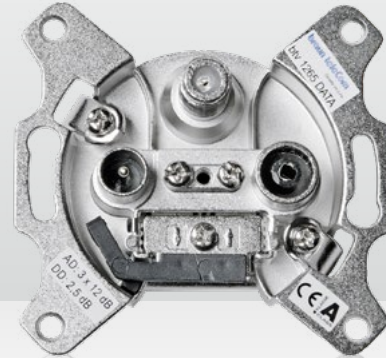
<sup>2)</sup> Additionally 0,5 dB at the filter edges possible



# Multimedia antenna outlets with 5 – 65 MHz return path



**21900000**  
btv-0665-DATA



**21920001**  
btv-1265-DATA-IM



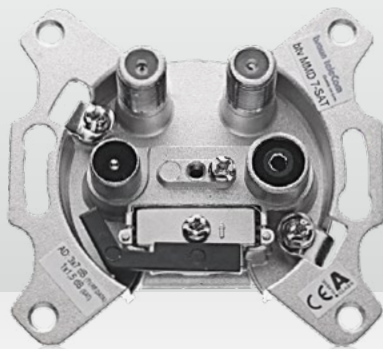
| Parameter         | Frequency [MHz] | End outlet<br>btv-0665-<br>DATA | Loop-through outlets |                      |                   |                   |                   |                   |                 |
|-------------------|-----------------|---------------------------------|----------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-----------------|
|                   |                 |                                 | btv-1165-<br>DATA-IM | btv-1265-<br>DATA-IM | btv-1465-<br>DATA | btv-1565-<br>DATA | btv-1765-<br>DATA | btv-1965-<br>DATA |                 |
| IN –<br>OUT       | 5 – 65          | –                               | 3,8 ± 0,8            | 2,5 ± 0,8            | 1,8 ± 0,8         | 2,0 ± 0,8         | 1,5 ± 0,8         | 1,0 ± 0,8         |                 |
|                   | 87,5 – 108      | –                               | 3,8 ± 0,8            | 2,5 ± 0,8            | 1,8 ± 0,8         | 2,0 ± 0,8         | 1,5 ± 0,8         | 1,0 ± 0,8         |                 |
|                   | 109 – 1.006     | –                               | 3,8 ± 0,8            | 2,5 ± 0,8            | 1,8 ± 0,8         | 2,0 ± 0,8         | 1,5 ± 0,8         | 1,0 ± 0,8         |                 |
| Tap loss [dB]     | TV              | 5 – 65                          | 60 typ.              | 60,0 typ.            | 60,0 typ.         | 60,0 typ.         | 60,0 typ.         | 60,0 typ.         | 60,0 typ.       |
|                   |                 | 87,5 – 108                      | 6,0 ± 1,0            | 10,0 ± 1,0           | 12,0 ± 1,0        | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0      |
|                   |                 | 109 – 1.006                     | 6,0 ± 1,0            | 10,0 ± 1,0           | 12,0 ± 1,0        | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0      |
|                   | Radio           | 5 – 65                          | 60 typ.              | 60,0 typ.            | 60,0 typ.         | 60,0 typ.         | 60,0 typ.         | 60,0 typ.         | 60,0 typ.       |
|                   |                 | 87,5 – 108                      | 6,0 ± 1,0            | 10,0 ± 1,0           | 12,0 ± 1,0        | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0      |
|                   |                 | 109 – 1.006                     | 6,0 ± 1,0            | 10,0 ± 1,0           | 12,0 ± 1,0        | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0      |
| DATA              | 5 – 65          | 6,5 ± 1,0                       | 10,0 ± 1,0           | 12,0 ± 1,0           | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0        |                 |
|                   | 87,5 – 108      | 6,5 ± 1,0                       | 10,0 ± 1,0           | 12,0 ± 1,0           | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0        |                 |
|                   | 109 – 1.006     | 6,5 ± 1,0                       | 10,0 ± 1,0           | 12,0 ± 1,0           | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0        |                 |
| Through loss [dB] | IN –<br>OUT     | 5 – 65                          | –                    | 3,8 ± 0,8            | 2,5 ± 0,8         | 1,8 ± 0,8         | 2,0 ± 0,8         | 1,5 ± 0,8         | 1,0 ± 0,8       |
|                   |                 | 84 – 470                        | –                    | 3,8 ± 0,8            | 2,5 ± 0,8         | 1,8 ± 0,8         | 2,0 ± 0,8         | 1,5 ± 0,8         | 1,0 ± 0,8       |
|                   |                 | 470 – 1.006                     | –                    | 3,8 ± 0,8            | 2,5 ± 0,8         | 1,8 ± 0,8         | 2,0 ± 0,8         | 1,5 ± 0,8         | 1,0 ± 0,8       |
|                   | IN –<br>DATA    | 5 – 65                          | 6,5 ± 1,0            | 10,0 ± 1,0           | 12,0 ± 1,0        | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0      |
|                   |                 | 84 – 470                        | 6,5 ± 1,0            | 10,0 ± 1,0           | 12,0 ± 1,0        | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0      |
|                   |                 | 470 – 1.006                     | 6,5 ± 1,0            | 10,0 ± 1,0           | 12,0 ± 1,0        | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0      |
|                   | IN – TV         | 5 – 65                          | 60 typ.              | 60 typ.              | 60 typ.           | 60 typ.           | 60 typ.           | 60 typ.           | 60 typ.         |
|                   |                 | 84 – 470                        | 6,0 ± 1,0            | 10,0 ± 1,0           | 12,0 ± 1,0        | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0      |
|                   |                 | 470 – 1.006                     | 6,0 ± 1,0            | 10,0 ± 1,0           | 12,0 ± 1,0        | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0      |
|                   | IN –<br>Radio   | 5 – 65                          | 60 typ.              | 60 typ.              | 60 typ.           | 60 typ.           | 60 typ.           | 60 typ.           | 60 typ.         |
|                   |                 | 84 – 470                        | 6,0 ± 1,0            | 10,0 ± 1,0           | 12,0 ± 1,0        | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0      |
|                   |                 | 470 – 1.006                     | 6,0 ± 1,0            | 10,0 ± 1,0           | 12,0 ± 1,0        | 14,0 ± 1,0        | 15,5 ± 1,0        | 17,0 ± 1,0        | 19,0 ± 1,0      |
| Isolation [dB]    | DATA –<br>TV    | 5 – 65                          | > 70                 | ≥ 70                 | ≥ 70              | ≥ 70              | ≥ 70              | ≥ 70              | ≥ 70            |
|                   |                 | 84 – 300                        | ≥ 30                 | ≥ 36                 | ≥ 42              | ≥ 42              | ≥ 42              | ≥ 42              | ≥ 42            |
|                   |                 | 300 – 862                       | ≥ 36                 | ≥ 36                 | ≥ 36              | ≥ 36              | ≥ 36              | ≥ 36              | ≥ 36            |
|                   | DATA –<br>Radio | 5 – 65                          | > 30                 | ≥ 36                 | ≥ 42              | ≥ 42              | ≥ 42              | ≥ 42              | ≥ 42            |
|                   |                 | 84 – 862                        | > 30                 | ≥ 36                 | ≥ 42              | ≥ 42              | ≥ 42              | ≥ 42              | ≥ 42            |
|                   |                 | 300 – 862                       | ≥ 36                 | ≥ 36                 | ≥ 36              | ≥ 36              | ≥ 36              | ≥ 36              | ≥ 36            |
|                   | TV –<br>Radio   | 5 – 65                          | > 30                 | ≥ 36                 | ≥ 42              | ≥ 42              | ≥ 42              | ≥ 42              | ≥ 42            |
|                   |                 | 84 – 862                        | > 30                 | ≥ 36                 | ≥ 42              | ≥ 42              | ≥ 42              | ≥ 42              | ≥ 42            |
|                   |                 | 862 – 1.006                     | ≥ 30                 | ≥ 26                 | ≥ 30              | ≥ 30              | ≥ 30              | ≥ 30              | ≥ 30            |
|                   | OUT –<br>DATA   | 5 – 65                          | –                    | ≥ 35                 | ≥ 30              | ≥ 35              | ≥ 40              | ≥ 40              | ≥ 40            |
|                   |                 | 84 – 300                        | –                    | ≥ 30                 | ≥ 30              | ≥ 30              | ≥ 32              | ≥ 32              | ≥ 32            |
|                   |                 | 300 – 862                       | –                    | ≥ 26                 | ≥ 30              | ≥ 30              | ≥ 26              | ≥ 30              | ≥ 30            |
| 862 – 1.006       |                 | –                               | ≥ 26                 | ≥ 26                 | ≥ 26              | ≥ 26              | ≥ 26              | ≥ 26              |                 |
| 5 – 65            |                 | –                               | ≥ 65                 | ≥ 65                 | ≥ 65              | ≥ 65              | ≥ 65              | ≥ 65              |                 |
| 84 – 862          |                 | –                               | ≥ 30                 | ≥ 30                 | ≥ 30              | ≥ 32              | ≥ 32              | ≥ 32              |                 |
| OUT –<br>TV       | 5 – 65          | –                               | ≥ 70                 | ≥ 70                 | ≥ 70              | ≥ 70              | ≥ 70              | ≥ 70              |                 |
|                   | 84 – 862        | –                               | ≥ 30                 | ≥ 30                 | ≥ 30              | ≥ 30              | ≥ 30              | ≥ 30              |                 |
|                   | 862 – 1.006     | –                               | ≥ 25                 | ≥ 30                 | ≥ 30              | ≥ 32              | ≥ 32              | ≥ 32              |                 |
| OUT –<br>Radio    | 5 – 65          | –                               | ≥ 70                 | ≥ 70                 | ≥ 70              | ≥ 70              | ≥ 70              | ≥ 70              |                 |
|                   | 84 – 862        | –                               | ≥ 30                 | ≥ 30                 | ≥ 30              | ≥ 30              | ≥ 30              | ≥ 30              |                 |
|                   | 862 – 1.006     | –                               | ≥ 25                 | ≥ 30                 | ≥ 30              | ≥ 30              | ≥ 30              | ≥ 30              |                 |
| Return loss [dB]  | IN,<br>OUT      | 5 – 10                          | ≥ 14                 | ≥ 14                 | ≥ 14              | ≥ 14              | ≥ 14              | ≥ 14              |                 |
|                   | DATA            | 5 – 1.006                       | > 18*                | > 18*                | > 18*             | > 18*             | > 18*             | > 18*             |                 |
|                   | TV              | 84 – 1.006                      | > 14,0**             | > 14,0**             | > 14,0**          | > 14,0**          | > 14,0**          | > 14,0**          |                 |
|                   | Radio           | 84 – 1.006                      | > 10,0               | > 10                 | > 10              | > 10              | > 14,0**          | > 14,0**          |                 |
|                   | Order No.       |                                 | <b>21900000</b>      | <b>21910001</b>      | <b>21920001</b>   | <b>21930000</b>   | <b>21930015</b>   | <b>21930017</b>   | <b>21930019</b> |

- Special DATA-port (F-female) for the separate connection of a cable modem
- TV- and RF-ports designed as broadband ports with equal through loss on TV and RF
- Very high isolation between TV and DATA to avoid influences of TV-IF frequency by ingress of reverse signals
- Galvanic isolation protection against hum modulation and leakage currents (inner conductors only)
- Screening according EN 50083-2 Class A: > 85 dB (5 – 300 MHz), > 80 dB (300 – 470 MHz), > 75 dB (470 – 862 MHz)
- Cover plate SAD-155, 80 x 80 mm, color Pure white RAL 9010, will be delivered together with the multimedia outlets (Order No. 22080600)
- Surface-mount frame SAD 165, 80 x 80 x 33 mm, color Pure white RAL 9010, for multimedia outlets (Order No. 22080800)

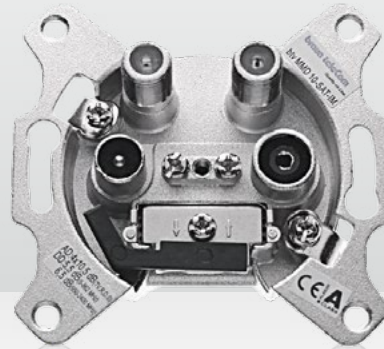
\* f = 40 MHz -1,5 dB/Oct.  
\*\* f = 109 MHz -1,5 dB/Oct.

# 4-port multimedia/SAT antenna outlets

with an additional SAT-port, 5 – 65 MHz reverse path



**21940700**  
btv-MMD-7-SAT



**21940711**  
btv-MMD-10-SAT-IM

KLASSE  
**A**  
CLASS

- Specially designed for operations in satellite IF distribution networks in combination with multimedia applications
- Special SAT-port (F-female) 950 – 2.400 MHz for the separate connection of a satellite receiver
- DC Powerpass SAT to IN for LNB powering 500 mA max. including 22 kHz and DiSEqC signals
- Special DATA-port (F-female) for the separate connection of a cable modem
- TV- and RF-ports designed as broadband ports with equal tap loss on TV and RF
- Very high isolation between TV/RF and DATA-port to avoid influences of TV-IF frequency by ingress of reverse signals
- Galvanic isolation protection of TV-, RF- and DATA-port against hum modulation and leakage currents (inner conductors only)
- Intermodulation resistant according to DIN EN 60728-4
- Screening according EN 50083-2 Class A:
  - > 85 dB (30 – 300 MHz),
  - > 80 dB (300 – 470 MHz),
  - > 75 dB (470 – 862 MHz)
- Cover plate SAD-401, 80 x 80 mm, color Pure white RAL 9010, will be delivered together with the multimedia outlets (Order No. 22090401)
- Surface-mount frame SAD-165, 80 x 80 x 33 mm, color Pure white RAL 9010, for multimedia outlets (Order No. 22080800)

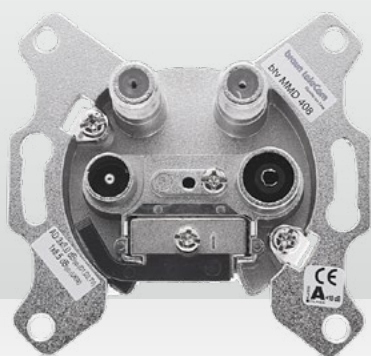
| Parameter         | Frequency [MHz]       | End outlet                            | Loop-through outlets           |                   |                   |                 |
|-------------------|-----------------------|---------------------------------------|--------------------------------|-------------------|-------------------|-----------------|
|                   |                       | btv-MMD-7-SAT                         | btv-MMD-10-SAT-IM              | btv-MMD-14-SAT-IM | btv-MMD-19-SAT-IM |                 |
| Through loss [dB] | IN – OUT              | 5 – 862                               | –                              | 5,5 ± 1           | 3,5 ± 1           | 2 ± 1           |
|                   |                       | 950 – 2150                            | –                              | 6,5 ± 1           | 4,8 ± 1           | 2,7 ± 1         |
|                   |                       | 2.150 – 2.400                         | –                              | 9,5 max.          | 7,5 max.          | 4,7 max.        |
| Tap loss [dB]     | IN – SAT              | 950 – 970                             | 1,5 ± 1                        | 10,5 ± 1,5        | 14,5 ± 1,5        | 19,5 ± 1,5      |
|                   |                       | 970 – 2.150                           | 1,5 ± 1                        | 10,5 ± 1          | 14,5 ± 1          | 19,5 ± 1        |
|                   |                       | 2.150 – 2.400                         | 1,5 ± 1                        | 12,5 max.         | 16 max.           | 21 max.         |
|                   | IN – DATA             | 5 – 862                               | 7 ± 1                          | 10,5 ± 1          | 14 ± 1            | 19,5 ± 1        |
|                   | IN – TV               | 5 – 65                                | 55 typ. 50 min.                | 60 typ. 50 min.   | 60 typ. 50 min.   | 60 typ. 50 min. |
|                   |                       | 84 – 470                              | 7,0 ± 1                        | 10,5 ± 1          | 14 ± 1            | 20 ± 1          |
| IN – R            |                       | 470 – 862                             | 7,0 ± 1,5                      | 10,5 ± 1          | 14 ± 1            | 20 ± 1          |
|                   |                       | 5 – 15                                | –                              | 22 min.           | 22 min.           | 28 min.         |
| Isolation [dB]    | OUT – DATA            | 15 – 65                               | –                              | 28 min.           | 27 min.           | 32 min.         |
|                   |                       | 84 – 862                              | –                              | 22 min.           | 26 min.           | 26 min.         |
|                   |                       | 5 – 65                                | –                              | 55 min.           | 55 min.           | 55 min.         |
|                   | OUT – TV              | 84 – 470                              | –                              | 30 min.           | 23 min.           | 25 min.         |
|                   |                       | 470 – 862                             | –                              | 22 min.           | 22 min.           | 22 min.         |
|                   |                       | 950 – 2.400                           | –                              | 18 min.           | 18 min.           | 18 min.         |
| TV – Radio        | 84 – 862              | 20 min.                               | 20 min.                        | 20 min.           | 20 min.           |                 |
|                   | 5 – 65                | 70 typ. 60 min.                       | 70 typ. 60 min.                | 70 typ. 60 min.   | 70 typ. 60 min.   |                 |
|                   | TV/R – DATA           | 84 – 470                              | 25 min.                        | 40 min.           | 35 min.           | 40 min.         |
|                   |                       | 470 – 862                             | 25 min.                        | 25 min.           | 28 min.           | 30 min.         |
|                   |                       | 5 – 65                                | 65 typ. 50 min.                | 65 typ. 50 min.   | 65 typ. 50 min.   | 65 typ. 50 min. |
|                   | DATA/TV/R – SAT       | 84 – 470                              | 30 min.                        | 30 min.           | 30 min.           | 30 min.         |
| 470 – 862         |                       | 15 min.                               | 15 min.                        | 15 min.           | 15 min.           |                 |
| 950 – 2.400       |                       | 10 min.                               | 10 min.                        | 10 min.           | 10 min.           |                 |
| 5 – 15            |                       | 14 min.                               | 12 min.                        | 14 min.           | 14 min.           |                 |
| Return loss [dB]  | IN                    | 15 – 65                               | 16 min.                        | 14 min.           | 16 min.           | 16 min.         |
|                   |                       | 84 – 862                              | 18*                            | 18*               | 18*               | 18*             |
|                   |                       | 950 – 2.400                           | 10, decreasing linearly to 7,2 |                   |                   |                 |
|                   | SAT                   | 950 – 2.400                           | 10, decreasing linearly to 7,2 |                   |                   |                 |
|                   |                       | 5 – 10                                | 18*                            | 10 min.           | 18 min.           | 18 min.         |
|                   |                       | 10 – 65                               | 18*                            | 10 min.           | 18*               | 18*             |
| DATA              | 84 – 120              | 18*                                   | 12 min.                        | 18*               | 18*               |                 |
|                   | 120 – 160             | 18*                                   | 14 min.                        | 18*               | 18*               |                 |
|                   | 160 – 862             | 18*                                   | 18*                            | 18*               | 18*               |                 |
|                   | 84 – 862              | 14**, but > 10                        | 14**, but > 10                 | 14**, but > 10    | 14**, but > 10    |                 |
| DC pass           | SAT → IN,<br>OUT ↔ IN | 24 VDC, 500 mA max. + 22 KHz + DiSEqC |                                |                   |                   |                 |
| Order No.         |                       | <b>21940700</b>                       | <b>21940711</b>                | <b>21940715</b>   | <b>21940720</b>   |                 |

\* f = 40 MHz -1,5 dB/oct.

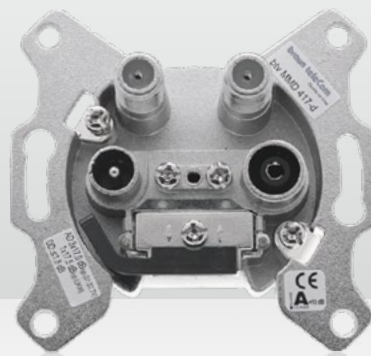
\*\* f = 109 MHz -1,5 dB/oct.

# 4-port multimedia antenna outlets

with 2 separate DATA-ports and 5 – 65 MHz reverse path



21933408  
btv-MMD-408



21933417  
btv-MMD-417-d



| Parameter           | Frequency [MHz]         | Termination/end outlet |              | Loop-through outlets |               |                 |               |               |           |
|---------------------|-------------------------|------------------------|--------------|----------------------|---------------|-----------------|---------------|---------------|-----------|
|                     |                         | btv-MMD-408            | btv-MMD-412T | btv-MMD-412-d        | btv-MMD-415-d | btv-MMD-415-HPF | btv-MMD-417-d | btv-MMD-420-d |           |
| Insertion loss [dB] | IN – OUT                | 5 – 65                 | –            | –                    | 3 ± 1         | 1,7 ± 0,8       | 45 min.       | 1,1 ± 0,5     | 0,9 ± 0,5 |
|                     |                         | 65 – 470               | –            | –                    | 3 ± 1         | 1,7 ± 0,8       | 2 ± 1         | 1,1 ± 0,5     | 0,9 ± 0,5 |
|                     |                         | 470 – 862              | –            | –                    | 3 ± 1         | 1,7 ± 0,8       | 2 ± 1         | 1,1 ± 0,5     | 0,9 ± 0,5 |
|                     |                         | 862 – 1.006            | –            | –                    | 3,5 ± 1       | 1,8 ± 1         | 2,2 ± 1       | 1,1 ± 0,7     | 0,9 ± 0,7 |
|                     |                         | 1.006 – 1.218          | –            | –                    | 4 ± 1         | 2,5 ± 1         | 2,6 ± 1       | 1,4 ± 1       | 1,1 ± 1   |
| Tap loss [dB]       | DATA                    | 5 – 470                | 8 ± 1        | 12 ± 1               | 12 ± 1        | 15 ± 1          | 15 ± 1        | 17 ± 1        | 20 ± 1    |
|                     |                         | 470 – 862              | 8 ± 1        | 12 ± 1               | 12 ± 1        | 15 ± 1          | 15 ± 1        | 17 ± 1        | 20 ± 1    |
|                     |                         | 862 – 1.006            | 8 ± 1        | 12 ± 1               | 12 ± 1        | 15 ± 1          | 15 ± 1        | 17 ± 1        | 20 ± 1    |
|                     |                         | 1.006 – 1.218          | 8,5 ± 1      | 12 ± 1               | 12 ± 1        | 15 ± 1          | 15,5 ± 1      | 17 ± 1        | 20 ± 1    |
|                     |                         | 5 – 65                 | 52 min.      | 52 min.              | 52 min.       | 52 min.         | 52 min.       | 52 min.       | 52 min.   |
|                     | TV                      | 109 – 470              | 8 ± 1        | 12 ± 1               | 12 ± 1        | 15 ± 1          | 15 ± 1        | 17 ± 1        | 20 ± 1    |
|                     |                         | 470 – 862              | 8 ± 1        | 12 ± 1               | 12 ± 1        | 15 ± 1          | 15 ± 1        | 17 ± 1        | 20 ± 1    |
|                     |                         | 862 – 1.006            | 8 ± 1        | 12 ± 1               | 12 ± 1        | 15 ± 1          | 15 ± 1        | 17 ± 1        | 20 ± 1    |
|                     |                         | 1.006 – 1.218          | 9 ± 1        | 12,5 ± 1             | 12,5 ± 1      | 15,5 ± 1        | 15 ± 1        | 17 ± 1        | 20 ± 1    |
|                     |                         | 5 – 65                 | 52 min.      | 52 min.              | 52 min.       | 52 min.         | 52 min.       | 52 min.       | 52 min.   |
|                     | Radio                   | 87,5 – 108             | 8,5 ± 1      | 12,5 ± 1             | 12,5 ± 1      | 15,5 ± 1        | 15,5 ± 1      | 17,5 ± 1      | 20,5 ± 1  |
|                     |                         | 126 – 140              | 24 min.      | 24 min.              | 24 min.       | 24 min.         | 24 min.       | 28 min.       | 30 min.   |
|                     |                         | 140 – 862              | 35 min.      | 35 min.              | 35 min.       | 35 min.         | 35 min.       | 35 min.       | 35 min.   |
|                     |                         | 1.006 – 1.218          | 35 min.      | 35 min.              | 35 min.       | 35 min.         | 35 min.       | 35 min.       | 35 min.   |
|                     |                         | 5 – 65                 | 60 min.      | 60 min.              | 60 min.       | 60 min.         | 60 min.       | 60 min.       | 60 min.   |
| Isolation [dB]      | TV – DATA, Radio – DATA | 5 – 65                 | 60 min.      | 60 min.              | 60 min.       | 60 min.         | 60 min.       | 60 min.       | 60 min.   |
|                     |                         | 65 – 1.218             | 30 min.      | 30 min.              | 30 min.       | 30 min.         | 30 min.       | 30 min.       | 30 min.   |
|                     | OUT – DATA              | 5 – 65                 | –            | –                    | 30 min.       | 32 min.         | 35 min.       | 32 min.       | 32 min.   |
|                     |                         | 87,5 – 862             | –            | –                    | 26 min.       | 26 min.         | 26 min.       | 26 min.       | 26 min.   |
|                     |                         | 862 – 1.006            | –            | –                    | 24 min.       | 24 min.         | 26 min.       | 26 min.       | 26 min.   |
|                     |                         | 1.006 – 1.218          | –            | –                    | 22 min.       | 22 min.         | 26 min.       | 26 min.       | 24 min.   |
|                     | OUT – TV, OUT – RADIO   | 5 – 65                 | –            | –                    | 55 min.       | 55 min.         | 55 min.       | 55 min.       | 55 min.   |
|                     |                         | 87,5 – 470             | –            | –                    | 24 min.       | 26 min.         | 30 min.       | 26 min.       | 26 min.   |
|                     |                         | 470 – 862              | –            | –                    | 24 min.       | 26 min.         | 24 min.       | 26 min.       | 26 min.   |
|                     |                         | 862 – 1.006            | –            | –                    | 22 min.       | 24 min.         | 22 min.       | 24 min.       | 24 min.   |
|                     |                         | 1.006 – 1.218          | –            | –                    | 20 min.       | 20 min.         | 20 min.       | 22 min.       | 22 min.   |
|                     | DATA – DATA             | 5 – 15                 | 35 min.      | 35 min.              | 35 min.       | 35 min.         | 32 min.       | 35 min.       | 35 min.   |
|                     |                         | 15 – 80                | 35 min.      | 35 min.              | 35 min.       | 35 min.         | 35 min.       | 35 min.       | 35 min.   |
|                     |                         | 80 – 160               | 33,5 min.    | 33,5 min.            | 33,5 min.     | 33,5 min.       | 33 min.       | 33,5 min.     | 33,5 min. |
|                     |                         | 160 – 320              | 32 min.      | 32 min.              | 32 min.       | 32 min.         | 32 min.       | 32 min.       | 32 min.   |
| 320 – 640           |                         | 30,5 min.              | 30,5 min.    | 30,5 min.            | 30,5 min.     | 30 min.         | 30,5 min.     | 30,5 min.     |           |
| 640 – 862           |                         | 28 min.                | 28 min.      | 28 min.              | 28 min.       | 28 min.         | 28 min.       | 28 min.       |           |
| 862 – 1.006         |                         | 28 min.                | 28 min.      | 28 min.              | 28 min.       | 28 min.         | 28 min.       | 28 min.       |           |
| 1.006 – 1.218       | 20 min.                 | 20 min.                | 20 min.      | 20 min.              | 20 min.       | 20 min.         | 20 min.       |               |           |
| Return loss [dB]    | IN                      | 5 – 60                 | ≥ 14*        | ≥ 14*                | ≥ 18*         | ≥ 18*           | ≥ 18*         | ≥ 18*         | ≥ 18*     |
|                     |                         | 60 – 65                | ≥ 14*        | ≥ 14*                | ≥ 18*         | ≥ 18*           | 16,5          | ≥ 18*         | ≥ 18*     |
|                     |                         | 87,5 – 1.218           | ≥ 14*        | ≥ 14*                | ≥ 18*         | ≥ 18*           | ≥ 18*         | ≥ 18*         | ≥ 18*     |
|                     | OUT                     | 87,5 – 1.218           | –            | –                    | ≥ 18*         | ≥ 18*           | 16,5**        | ≥ 18*         | ≥ 18*     |
|                     |                         | DATA                   | 5 – 1.218    | ≥ 18*                | ≥ 18*         | ≥ 18*           | ≥ 18*         | ≥ 18*         | ≥ 18*     |
|                     |                         | TV                     | 109 – 1.218  | ≥ 14**               | ≥ 14**        | ≥ 14**          | ≥ 14**        | ≥ 14**        | ≥ 14**    |
|                     |                         | Radio                  | 87,5 – 108   | ≥ 10                 | ≥ 10          | ≥ 10            | ≥ 10          | ≥ 10          | ≥ 10      |
| Order No.           |                         | 21933408               | 21933411     | 21933412             | 21933415      | 21933414        | 21933417      | 21933420      |           |

- 2 separate DATA-ports (F-females) for the direct connection of an interactive Set-Top-Box respectively PVR and a cable modem
- Very high isolation between TV/RF and the DATA-ports to avoid influences of TV-IF frequency by ingress of reverse signals, very high isolation between the DATA-ports in the reverse path range
- Galvanic isolation protection of TV-, RF- and DATA-ports against hum modulation and leakage currents (inner conductors only)
- Increased intermodulation resistance at 150 VDC/ 115 VAC/50 Hz surge in compliance with EN 60828-4
- Max. IM2 products ≤ 15 dBμV before and after surge hit (two return path signals 60 MHz and 65 MHz with 120 dBμV each)
- Screening according EN 50083-2 Class A +10 dB
- Cover plate SAD-400, 80 x 80 mm, color Pure white RAL 9010, will be delivered together with the multimedia outlets (Order No. 22090400)
- Surface-mount frame SAD-165, 80 x 80 x 33 mm, color Pure white RAL 9010, for multimedia outlets not included (Order No. 22080800)

\* f = 40 MHz -1,5 dB/Oct.  
\*\* f = 80 MHz -1,5 dB/Oct.

# Accessories

Cover plates, surface-mount frames and terminal resistors



22080600  
SAD-155



22090300  
SAD-300



22030000  
SAW-75

## Cover plates 1-piece for antenna wall outlets

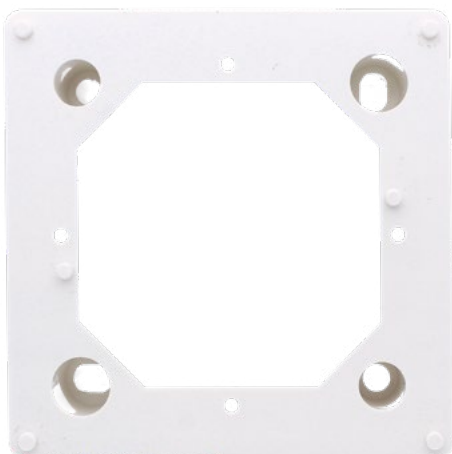
| Parameter                        | SAD-122                                      | SAD-155                                 | SAD-157                                      | SAD-158                               |
|----------------------------------|--|---|--|---------------------------------------|
| Suitable for outlet              | 2-port multimedia outlets btv-MMD-5xx & -6xx | 3-port multimedia outlets btv-xxxx-DATA | 4-port multimedia SAT outlets btv-MMD-xx-SAT | 4-port multimedia outlets btv-MMD-xxx |
| Imprint                          | TV/DATA                                      | TV/R/DATA                               | TV/R/DATA/SAT                                | TV/R/DATA/DATA                        |
| Suitable for surface-mount frame | SAD-165                                      |   |  |                                       |
| Color                            | Pure white RAL 9010                          |   |  |                                       |
| Dimensions [mm]                  | 80 x 80                                      |   |  |                                       |
| Order No.                        | 22080122                                     | 22080600                                | 22080700                                     | 22080701                              |

## Cover plates 2-piece for antenna wall outlets

| Parameter                        | SAD-202                                      | SAD-300                                 | SAD-303                                | SAD-400                               | SAD-401                                  |
|----------------------------------|--|---|--|---------------------------------------|--|
| Suitable for outlet              | 2-port multimedia outlets btv-MMD-5xx & -6xx | 3-port multimedia outlets btv-xxxx-DATA | 3-port multimedia outlets btv-3xx-y-HQ | 4-port multimedia outlets btv-MMD-xxx | 4-port multimedia outlets btv-MMD-xx-SAT |
| Imprint                          | TV/DATA                                      | TV/R/DATA                               | TV/R/DATA                              | TV/R/DATA/DATA                        | TV/R/DATA/SAT                            |
| Suitable for surface-mount frame | SAD-165                                      |   |  |                                       |  |
| Color                            | Pure white RAL 9010                          |   |  |                                       |  |
| Dimensions [mm]                  | 80 x 80                                      |   |  |                                       |  |
| Faceplate dimensions [mm]        | 50 x 50                                      |   |  |                                       |  |
| Order No.                        | 22090202                                     | 22090300                                | 22090303                               | 22090400                              | 22090401                                 |

## Surface-mount frame

SAD-165, 80 x 80 x 33 mm, color Pure white RAL 9010



Order No. 22080800

## Terminal resistors 75 Ω for antenna wall outlets

### SAW-75

Diameter approximately 5 mm

Order No. 22030000

### SAX-75

Diameter approximately 4 mm

Order No. 22030100

# Subscriber connection cables

Connection cables with IEC and F-male connectors



## IEC subscriber cables

Receiver leads for CATV house distribution with IEC male and IEC female connectors. To secure the measured screening in practice the receiver leads must have a bending radius of min. 10 cm to avoid a permanent damage of the screen and a worsening of the screening!

| Item         | Connectors          | Length [m] | Color | Compliant with KDG 1 TS 152 | Order No. |
|--------------|---------------------|------------|-------|-----------------------------|-----------|
| FK-2-1.5-H   | IEC-male and female | 1,5        | White | Yes                         | 22210115  |
| FK-2-2.0-H   | IEC-male and female | 2,0        | White | Yes                         | 22210120  |
| TAK-1,5-IEC  | IEC-male and female | 1,5        | White | No                          | 22210130  |
| TAK-2,5-IEC  | IEC-male and female | 2,5        | White | No                          | 22210131  |
| TAK-3,5-IEC  | IEC-male and female | 3,5        | White | No                          | 22210132  |
| TAK-5,0-IEC  | IEC-male and female | 5,0        | White | No                          | 22210133  |
| TAK-7,5-IEC  | IEC-male and female | 7,0        | White | No                          | 22210134  |
| TAK-10,0-IEC | IEC-male and female | 10,0       | White | No                          | 22210136  |

## Fm/Fm modem subscriber cables

Modem subscriber cable with F-male connectors to connect a cable modem on the DATA-port of a multimedia antenna outlet. To secure the measured screening in practice the receiver leads must have a bending radius of min. 10 cm to avoid a permanent damage of the screen and a worsening of the screening!

The subscriber connection cables MAK-XXX-90 are composed of two EX 6-49/83 connectors (brand PPC) and an Oren HD-103 coaxial cable.

| Item       | Connectors           | Length [m] | Color | Order No. |
|------------|----------------------|------------|-------|-----------|
| MAK-1,5-FM | 2 x screwable F-male | 1,5        | White | 22210216  |
| MAK-2,5-FM | 2 x screwable F-male | 2,5        | White | 22210226  |
| MAK-150-90 | 2 x screwable F-male | 1,5        | White | 22280704  |
| MAK-250-90 | 2 x screwable F-male | 2,5        | White | 22280705  |
| MAK-350-90 | 2 x screwable F-male | 3,5        | White | 22280706  |
| MAK-500-90 | 2 x screwable F-male | 5,0        | White | 22280707  |

We do not have the perfect connection cable in our product portfolio yet?

**We are happy to produce connection cables according to your requirements, even in small quantities!**

# Connection cables with F-Quickfix-male



**85030180**  
EAK-301-80

**85090180**  
EAK-901-80

■ **KLASSE A** +20 dB  
■ **CLASS**

- For the connection of terminal devices on multimedia outlets
- According to VF TS 5001
- Screening according to EN 60966-2-7, Class A +20 dB
- 4-way screened; 4G/5G-protected
- DOCSIS 4.0 ready
- White, in a polybag with SB-sealing card
- Color coded
- Vodafone listed

| Parameter                 | Frequency [MHz] | EAK-151-80                                      | EAK-201-80 | EAK-251-80 | EAK-301-80 | EAK-501-80 | EAK-601-80 | EAK-901-80 |
|---------------------------|-----------------|---|------------|------------|------------|------------|------------|------------|
| Impedance [Ω]             |                 | 75  |            |            |            |            |            |            |
| Frequency range [MHz]     |                 | 0 – 1.800                                       |            |            |            |            |            |            |
| Attenuation [dB]          | 100             | < 0,14  | < 0,17     | < 0,21     | < 0,25     | < 0,40     | < 0,50     | < 0,70     |
|                           | 500             | < 0,38  | < 0,40     | < 0,56     | < 0,65     | < 1,00     | < 1,20     | < 1,76     |
|                           | 862             | < 0,54  | < 0,60     | < 0,79     | < 0,91     | < 1,40     | < 1,64     | < 2,38     |
|                           | 1.000           | < 0,60  | < 0,70     | < 0,87     | < 1,01     | < 1,55     | < 1,82     | < 2,62     |
|                           | 1.500           | < 0,80  | < 0,80     | < 1,13     | < 1,29     | < 1,95     | < 2,28     | < 3,28     |
|                           | 1.800           | < 0,91  | < 0,90     | < 1,28     | < 1,46     | < 2,20     | < 2,56     | < 3,66     |
| Return loss [dB]          | 5 – 1.000       | ≥ 20  |            |            |            |            |            |            |
|                           | 1.000 – 1.800   | ≥ 18  |            |            |            |            |            |            |
| Screening [dB]            | 30 – 1.000      | ≥ 105   |            |            |            |            |            |            |
|                           | 1.000 – 1.800   | ≥ 95  |            |            |            |            |            |            |
| Transfer impedance [mΩ/m] | 5 – 30          | < 0,9   |            |            |            |            |            |            |
| connector 1               |                 | F-Quickfix-male (straight) acc. to IEC 61169-47 |            |            |            |            |            |            |
| connector 2               |                 | F-Quickfix-male (straight) acc. to IEC 61169-47 |            |            |            |            |            |            |
| design                    |                 | with bend protection covers                     |            |            |            |            |            |            |
| Length [m]                |                 | 1,5   | 2          | 2,5        | 3          | 5          | 6          | 9          |
| Order-No.                 |                 | 85015180  | 85020180   | 85025180   | 85030180   | 85050180   | 85060180   | 85090180   |

# COAXIAL CABLES

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| Parameter                                       | Frequency [MHz] | HD-063    | HD-083          | HD-103          | HD-113           | HD-113-Hydra    | HD-163          | HD-223          |
|---|-----------------|-----------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|
| <b>Micro Duct : Diameter (inner/outer) [mm]</b> |                 | -         | -               | -               | -                | 3,5/5,0         | -               | -               |
| <b>Structure</b>                                |                 |           |                 |                 |                  |                 |                 |                 |
| Inner conductor [mm]                            |                 | 0,6 Cu    | 0,81 Cu         | 1,02 Cu         | 1,13 CU          | 1,13 CU         | 1,63 Cu         | 2,2 CU          |
| Isolation [mm]                                  |                 | 2,7 FPE   | 3,6 FPE         | 4,6 FPE         | 4,8 FPE          | 4,8 FPE         | 7,2 FPE         | 10,2 FPE        |
| Braid coverage CSnB                             |                 | 65 %      | 63 %            | 62 %            | 60 %             | 60 %            | 55 %            | 60 %            |
| Foil  |                 | Trishield | Trishield Foil  | Trishield       | Trishield Foil   | Trishield       | Trishield       | Trishield       |
| Sheath [mm]                                     |                 | 4,3       | 5,8             | 6,8             | 6,8              | 6,8 x 14        | 10,0            | 13,8            |
| <b>Loss at 20°C [dB]</b>                        |                 |           |                 |                 |                  |                 |                 |                 |
|   | 5               | 2,8       | 2,1             | 1,5             | 1,4              | 1,4             | 1,2             | 0,6             |
|   | 50              | 7,8       | 5,7             | 4,3             | 4,1              | 4,1             | 2,8             | 2,1             |
|   | 100             | 10,9      | 8,1             | 5,9             | 5,7              | 5,7             | 4,1             | 2,9             |
|   | 230             | 16,8      | 11,9            | 8,5             | 8,2              | 8,2             | 6,1             | 4,7             |
|   | 470             | 24,2      | 17,7            | 13,6            | 12,3             | 12,3            | 8,9             | 7,1             |
|   | 860             | 33,2      | 23,9            | 18,6            | 16,9             | 16,9            | 12,6            | 9,8             |
|   | 1.006           | 35,9      | 25,7            | 20,1            | 19,2             | 19,2            | 13,9            | 10,9            |
|   | 1.750           | 45,8      | 35,1            | 27,1            | 25,7             | 25,7            | 18,6            | 14,9            |
|   | 2.150           | 53,9      | 38,6            | 30,5            | 28,9             | 28,9            | 20,7            | 16,8            |
|   | 2.400           | 56,9      | 41,2            | 33,1            | 30,6             | 30,6            | 22,1            | 18,2            |
| <b>Return loss [min. dB]</b>                    |                 |           |                 |                 |                  |                 |                 |                 |
|   | 5 - 470         | > 26      | > 26            | > 26            | > 26             | > 26            | > 26            | > 26            |
|   | 470 - 862       | > 23      | > 23            | > 23            | > 23             | > 23            | > 23            | > 23            |
|   | 862 - 2.150     | > 18      | > 18            | > 18            | > 18             | > 18            | > 18            | > 18            |
| <b>Electrical features</b>                      |                 |           |                 |                 |                  |                 |                 |                 |
| Impedance [Ω]                                   |                 | 75 ± 2    | 75 ± 2          | 75 ± 2          | 75 ± 2           | 75 ± 2          | 75 ± 2          | 75 ± 2          |
| Capacity approx. [pF]                           |                 | 53        | 53              | 53              | 53               | 53              | 53              | 53              |
| Shortening factor                               |                 | 0,82      | 0,82            | 0,84            | 0,84             | 0,84            | 0,84            | 0,83            |
| <b>DC resistance at 20°C</b>                    |                 |           |                 |                 |                  |                 |                 |                 |
| Inner conductor [Ω/100 m max.]                  |                 | 6,19      | 3,45            | 2,21            | 1,78             | 1,78            | 0,85            | 0,47            |
| <b>Screening Class</b>                          |                 |           |                 |                 |                  |                 |                 |                 |
| Transfer impedance [mΩ/m]                       | 5 - 30          | < 2,5     | < 2,5           | < 2,5           | < 1,5            | < 1,5           | < 1,5           | < 2,5           |
| Screening [dB]                                  | 30 - 1.000      | > 100     | > 110           | > 110           | > 110            | > 110           | > 110           | > 95            |
| <b>Mechanical features</b>                      |                 |           |                 |                 |                  |                 |                 |                 |
| Min. setting radius [mm] once                   |                 | 25        | 30              | 35              | 35               | 50              | 75              | 150             |
| Max. tensile strength [N]                       |                 | 30        | 50              | 110             | 110              | 110             | 225             | 400             |
| Weight [approx. kg/km]                          |                 | 25        | 39              | 50              | 50               | 105             | 85              | 155             |
| Standard package [m]                            |                 | 250       | 100/300/500     | 100/250/500     | 100/250/500      | 500             | 100/250/500     | 100/500         |
| <b>Fire behavior PVC</b>                        |                 | Eca       | Eca             | Eca             | Eca              | Eca             | Eca             | Eca             |
| <b>Fire behavior PE</b>                         |                 | Fca       | Fca             | Fca             | Fca              | Fca             | Fca             | Fca             |
| <b>Fire behavior LSNH</b>                       |                 | Fca       | Dca, s2, d1, a1 | Dca, s2, d1, a1 | Dca, s1a, d2, a1 | Dca, s2, d1, a1 | Dca, s2, d1, a1 | Dca, s2, d1, a1 |
| <b>UV-resistant (all sheaths)</b>               |                 | Yes       | Yes             | Yes             | Yes              | Yes             | Yes             | Yes             |
| <b>Order No.</b>                                |                 |           |                 |                 |                  |                 |                 |                 |
| Type 1) PVC sheath                              |                 | 6550630x  | 6550830x        | 6551030x        | 6551130x         | a. A.           | 6551632x        | a. A.           |
| Type 2) PE sheath                               |                 | a. A.     | a. A.           | a. A.           | a. A.            | a. A.           | 6551630x        | 6552230x        |
| Type 3) LSNH/FRNC white                         |                 | 6550631x  | 6550831x        | 6551031x        | 6551130x         | 65511321        | a. A.           | a. A.           |
| Type 4) LSNH/ FRNC black                        |                 | a. A.     | a. A.           | a. A.           | a. A.            | 65511320        | 6551631x        | 6552231x        |

Cu = copper; S CU = copper clad steel; FPE = physical foam; PE = polyethylene; PVC = polyvinyl chloride; Cu FB = copper foil and copper braid; Al FF = double aluminum-laminated polyester foil (Al-Duofoil); Al B = aluminum braid with coverage in %; CSnB = tin-plated copper braid with coverage in %

# Belden

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| Parameter                      | Frequency [MHz] | H121T00        | H126T00        | PRG11DB+PVC   | PRG11DB+PE    |
|--------------------------------|-----------------|----------------|----------------|---------------|---------------|
| Type 1) screening > 95 dB      |                 | H121T00        | H126T00        | PRG11DB+PVC   | PRG11DB+PE    |
| Type 2) with FRNC sheath       |                 | -              | -              | PRG11DB+LSNH  | -             |
| <b>Structure</b>               |                 |                |                |               |               |
| Inner conductor [mm]           |                 | 0,8 Cu         | 1,0 Cu         | 1,55 Cu       | 1,55 Cu       |
| Isolation [mm]                 |                 | 3,5 FPE        | 4,57 FPE       | 7,25 FPE      | 7,25 FPE      |
| Outer conductor [mm]           |                 | 4,1 Al PET     | 5,1 Al PET     | 8,1 DB II     | 8,1 DB II     |
| Braid coverage                 |                 | 75 % CSnB      | 60 % CSnB      | 70 % CSnB     | 70 % CSnB     |
| Foil                           |                 | Trishield Foil | Trishield Foil | DB+           | DB+           |
| Cheath [mm]                    |                 | 5,0 PVC        | 6,9 PVC        | 10,1 PVC      | 10,1 PE       |
| Color PVC type/FRNC type       |                 | white/white*   | white/white*   | black/black*  | black/-*      |
| Loss at 20°C [dB]              | 5               | 2,3            | 1,8            | 0,9           | 0,9           |
|                                | 50              | 5,9            | 4,7            | 2,8           | 2,8           |
|                                | 100             | 8,1            | 6,5            | 3,9           | 3,9           |
|                                | 230             | 12,1           | 9,8            | 6,1           | 6,1           |
|                                | 400             | 15,9           | 13,0           | 8,2           | 8,2           |
|                                | 860             | 23,6           | 19,5           | 12,5          | 12,5          |
|                                | 1.000           | 25,6           | 21,1           | 13,6          | 13,6          |
|                                | 1.750           | 34,5           | 28,8           | 18,7          | 18,7          |
|                                | 2.150           | 38,6           | 32,3           | 21,1          | 21,1          |
| 2.400                          | 41,0            | 34,4           | 22,5           | 22,5          |               |
| Return loss [min. dB]          | 5 – 470         | > 20           | > 20           | > 23          | > 23          |
|                                | 470 – 862       | > 18           | > 18           | > 20          | > 20          |
|                                | 862 – 2.150     | > 16           | > 16           | > 18          | > 18          |
| <b>Electrical features</b>     |                 |                |                |               |               |
| Impedance [Ω]                  |                 | 75 ± 3         | 75 ± 3         | 75 ± 3        | 75 ± 3        |
| Capacity approx. [pF]          |                 | 53             | 54             | 55            | 55            |
| Shortening factor              |                 | 0,84           | 0,82           | 0,81          | 0,81          |
| <b>DC resistance at 20°C</b>   |                 |                |                |               |               |
| Inner conductor [Ω/100 m max.] |                 | 3,5            | 2,3            | 1,0           | 0,87          |
| <b>Screening Class</b>         |                 |                |                |               |               |
| Transfer impedance [mΩ/m]      | 5 – 30          | < 2,5          | < 2,5          | < 1,9         | < 1,9         |
| Screening [dB]                 | 30 – 1.000      | > 95           | > 95           | > 105         | > 105         |
| <b>Mechanical features</b>     |                 |                |                |               |               |
| Min. setting radius [mm] once  |                 | 25             | 35             | 100           | 100           |
| Max. tensile strength [N]      |                 | 44             | 55             | 132           | 132           |
| Weight [approx. kg/km]         |                 | 29             | 52             | 98            | 85            |
| Standard package [m]           |                 | 100/300/500    | 100/250/500    | 250/500/1.000 | 250/500/1.000 |
| <b>Order No.</b>               |                 |                |                |               |               |
| Type 1) screening > 95 dB      |                 | 65110x00       | 65170xx0       | 65191xx1      | 65191xx0      |
| Type 2) with FRNC sheath       |                 | -              | -              | 65191xx3      | -             |

**Cu** = copper; **S CU** = copper clad steel; **FPE** = physical foam; **PE** = polyethylene; **PVC** = polyvinyl chloride; **Cu FB** = copper foil and copper braid; **Al FF** = double aluminum-laminated polyester foil (Al-Duofoil); **Al B** = aluminum braid with coverage in %; **CSnB** = tin-plated copper braid with coverage in %; **DB II** = double aluminum-laminated polyester foil, bonded on the dielectric; **CG** = Core Guard: protective core under DUOBOND foil made of fireproof gel with moisture protection; **DB+** = Patented DUOBOND PLUS system: Metal to metal plated aluminum foil with insulating layer glued under the outer sheath to achieve a screening of > 100 dB from 10 MHz upwards (the screening for the H 126 DB+ is > 95 dB); **AL PET** = Aluminium film, glued with a PET film (Polyester)

Min. installation temperature: -5°C  
Operating & storage temperature: PE/PVC: -40 – +80°C, LSNH: -30 – +70°C

\* Further colors are available on request.

Subject to technical changes!

# Trunk cables



| Parameter                      | Frequency [MHz] |                      |                      |          |          |          |          |
|--------------------------------|-----------------|----------------------|----------------------|----------|----------|----------|----------|
| Type 1) screening > 100 dB     |                 | COAX 4 FFB14         | COAX 3 FFB20         | IKX      | NKX      | QKX      | SKX      |
| Type 2) with FRNC sheath       |                 | COAX 4 FFB14<br>LSNH | COAX 3 FFB20<br>LSNH | -        | -        | -        | -        |
| <b>Structure</b>               |                 |                      |                      |          |          |          |          |
| Inner conductor [mm]           |                 | 2,2 Cu               | 3,4 Cu               | 1,1 Cu   | 2,2 Cu   | 3,3 Cu   | 4,9 Cu   |
| Isolation [mm]                 |                 | 10,2 FPE             | 14,9 FPE             | 7,3      | 8,8      | 13,4     | 19,4     |
| Outer conductor [mm]           |                 | 11,0 CuFB            | 15,8 CuFB            | 7,8      | 9,3      | 14,0     | 20,0     |
| Braid coverage                 |                 | 60 %                 | 55 %                 |          |          |          |          |
| Sheath [mm]                    |                 | 13,8 PE              | 19,8 PE              | 11,0 PE  | 12,5 PE  | 17,0 PE  | 24,5 PE  |
| Color PVC-Type/FRNC-Type       |                 | black/grey           | black/grey           | black/-  | black/-  | black/-  | black/-  |
| <b>Loss at 20°C [dB]</b>       |                 |                      |                      |          |          |          |          |
|                                | 10              | 0,9                  | 0,6                  |          |          |          |          |
|                                | 50              | 1,9                  | 1,3                  | 3,7      | 2,0      | 1,3      | 0,9      |
|                                | 100             | 2,8                  | 1,8                  | 5,4      | 2,8      | 1,9      | 1,3      |
|                                | 230             | 4,4                  | 2,9                  | 8,6      | 4,3      | 2,9      | 2,0      |
|                                | 300             | 5,1                  | 3,3                  | 9,8      | 5,0      | 3,3      | 2,3      |
|                                | 470             | 6,5                  | 4,2                  | 12,3     | 6,3      | 4,2      | 3,0      |
|                                | 860             | 9,2                  | 5,9                  | 17,7     | 8,7      | 5,9      | 4,2      |
|                                | 1.000           | 10,0                 | 6,5                  | 19,2     | 9,5      | 6,4      | 4,5      |
|                                | 1.750           | 13,9                 | 9,0                  | -        | -        | -        | -        |
|                                | 2.150           | 15,7                 | 10,2                 | -        | -        | -        | -        |
| <b>Return loss [min. dB]</b>   |                 |                      |                      |          |          |          |          |
|                                | 5 – 470         | > 26                 | > 26                 | -        | > 23     | > 25     | > 25     |
|                                | 470 – 862       | > 23                 | > 23                 | -        | > 21     | > 23     | > 23     |
|                                | 862 – 2.150     | > 18                 | > 18                 | -        | -        | -        | -        |
| <b>Electrical features</b>     |                 |                      |                      |          |          |          |          |
| Impedance [Ω]                  |                 | 75 ± 3               | 75 ± 3               | 75 ± 2   | 75 ± 1,5 | 75 ± 1,5 | 75 ± 1,5 |
| Capacity approx. [pF]          |                 | 54                   | 54                   | 65       | 51       | 51       | 50       |
| Shortening factor              |                 | 0,82                 | 0,84                 | 0,68     | 0,88     | 0,88     | 0,89     |
| <b>DC resistance at 20°C</b>   |                 |                      |                      |          |          |          |          |
| Inner conductor [Ω/100 m max.] |                 | 0,45                 | 0,19                 | 2,2      | 0,56     | 0,25     | 0,10     |
| <b>Screening Class</b>         |                 |                      |                      |          |          |          |          |
| Transfer impedance [mΩ/m]      | 5 – 30          | < 1,9                | < 1,1                | < 0,1    | < 0,1    | < 0,1    | < 0,1    |
| Screening [dB]                 | 30 – 1.000      | > 100                | > 100                | > 110    | > 120    | > 120    | > 120    |
| <b>Mechanical features</b>     |                 |                      |                      |          |          |          |          |
| Min. setting radius [mm] once  |                 | 150                  | 200                  | 160      | 200      | 300      | 400      |
| Max. tensile strength [N]      |                 | 400                  | 1.200                | 140      | 350      | 550      | 3.000    |
| Weight [approx. kg/km]         |                 | 170                  | 400                  | 300      | 185      | 350      | 560      |
| Standard package [m]           |                 | 500/1.000            | 700/1.050            | 1.000    | 1.000    | 1.000    | 1.000    |
| <b>Order No.</b>               |                 |                      |                      |          |          |          |          |
| Type 1) screening > 100 dB     |                 | 65440x00             | 65480x00             | 65050000 | 65060000 | 65070000 | 65079000 |
| Type 2) with FRNC sheath       |                 | 65449x00             | 65489x00             | -        | -        | -        | -        |

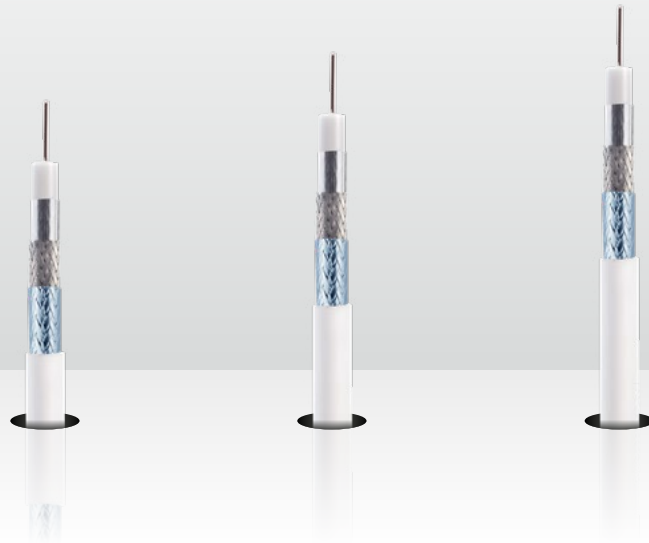
Cu = copper; S CU = copper clad steel; FPE = physical foam; PE = polyethylene; PVC = polyvinyl chloride; Cu FB = copper foil and copper braid; AI FF = double aluminum-laminated polyester foil (Al-Duofoil); AI B = aluminum braid with coverage in %; CSnB = tin-plated copper braid with coverage in %; DB II = double aluminum-laminated polyester foil, bonded on the dielectric

Min. installation temperature: -5°C

Operating & storage temperature: PE: -40 – +70°C, LSNH: -30 – +70°C

# Fireproof cables

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| Parameter                              | Frequency [MHz] | LCD 130A+ 100m                         | LCD 130A+ 250m                              | LCD 130A+ 500m                        |
|--|-----------------|--|---|---------------------------------------|
| <b>Structure</b>                       |                 |  |   |                                       |
| Inner conductor [mm]                   |                 | 1,13 Cu                                | 1,13 Cu                                     | 1,13 Cu                               |
| Isolation [mm]                         |                 | 4,8 PE                                 | 4,8 PE                                      | 4,8 PE                                |
| Outer conductor                        |                 | 2 x Al/pet foil,<br>1 x CuSn braid     | 2 x Al/pet foil,<br>1 x CuSn braid          | 2 x Al/pet foil,<br>1 x CuSn braid    |
| Sheath [mm]                            |                 | 6,9 HFFR                               | 6,9 HFFR                                    | 6,9 HFFR                              |
| Color PVC-Type                         |                 | white                                  | white                                       | white                                 |
| <b>Loss at 20°C [dB]</b>               |                 |  |   |                                       |
|  | 5               | 1                                      | 1   | 1                                     |
|  | 50              | 4,1                                    | 4,1   | 4,1                                   |
|  | 100             | 5,7                                    | 5,7   | 5,7                                   |
|  | 450             | 12                                     | 12  | 12                                    |
|  | 860             | 17,1                                   | 17,1  | 17,1                                  |
|  | 1.000           | 18,5                                   | 18,5  | 18,5                                  |
|  | 2.150           | 28,4                                   | 28,4  | 28,4                                  |
|  | 2.400           | 29,9                                   | 29,9  | 29,9                                  |
| <b>Return loss [min. dB]</b>           |                 |  |   |                                       |
|  | 5 – 470         | 26                                     | 26  | 26                                    |
|  | 470 – 862       | 25                                     | 25  | 25                                    |
|  | 862 – 1.000     | 23                                     | 23  | 23                                    |
|  | 1.000 – 2.150   | 20                                     | 20  | 20                                    |
| <b>Electrical features</b>             |                 |  |   |                                       |
| Shortening factor typ.                 |                 | 0,85                                   | 0,85  | 0,85                                  |
| <b>DC resistance at 20°C</b>           |                 |  |   |                                       |
| Inner conductor [ $\Omega/100$ m max.] |                 | 3                                      | 3   | 3                                     |
| <b>Screening Class</b>                 |                 |  |   |                                       |
| Transfer impedance [ $m\Omega/m$ ]     | 5 – 30          | < 0,9                                  | < 0,9                                       | < 0,9                                 |
| Screening [dB typ.]                    | 30 – 3.000      | 130                                    | 130   | 130                                   |
| <b>Mechanical features</b>             |                 |  |   |                                       |
| Min. setting radius [mm] once          |                 | 35                                     | 35  | 35                                    |
| Max. tensile strength [N]              |                 | 120                                    | 120   | 120                                   |
| Ambient temperature range [°C]         |                 | -25 – +70                              | -25 – +70                                   | -25 – +70                             |
| Weight [approx. kg/km]                 |                 | 5,1                                    | 5,1   | 5,1                                   |
| Standard package [m]                   |                 | 100                                    | 250   | 500                                   |
| <b>Package type</b>                    |                 |  |   |                                       |
| Fire class acc. BauPVO EN 50575        |                 | Non-returnable spool<br>B2ca s1a d0 a1 | Roll-off carton packaging<br>B2ca s1a d0 a1 | Non-returnable drum<br>B2ca s1a d0 a1 |
| Order No.                              |                 | <b>82215139</b>                        | <b>82215142</b>                             | <b>82215141</b>                       |

Cu = copper; PE = polyethylene; PVC = polyvinyl chloride; Al/pet = metallised PET film, evaporated with aluminium in high vacuum; CuSn = tin-plated copper braid with coverage in %; HFFR = Halogen Free Flame Retardant



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81217352  
HVB-31



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| Item           | Description  | Order No. |
|----------------|--|-----------|
| HVF-V44-G-PG11 | Amplifier 40/32 dB, switchable, remote powering, VF-KDG class D4.4   | 81217405  |
| HVD-44         | Amplifier 40/32 dB, switchable, local powering, VF-KDG class D4.4, with equalizer and level control  | 81217368  |
| HVF-44-G-Ff    | Amplifier 40/32 dB, switchable, remote powering, VF-KDG class D4.4, with equalizer and level control   | 81217415  |
| HVB-21         | Amplifier 25 dB, VF-KDG class B2.1, permanently installed adjustable attenuator and equalizer, precorrection of the outgoing cable lines through interstage slope possible | 81217351  |
| HVB-22         | Amplifier 25 dB, VF-KDG class B2.2, permanently installed adjustable attenuator and equalizer, precorrection of the outgoing cable lines through interstage slope possible | 81217369  |
| HVB-31         | Amplifier 31 dB, VF-KDG class B3.1, permanently installed adjustable attenuator and equalizer, precorrection of the outgoing cable lines through interstage slope possible | 81217352  |
| HVB-32         | Amplifier 32 dB, VF-KDG class B3.2, permanently installed adjustable attenuator and equalizer, precorrection of the outgoing cable lines through interstage slope possible | 81217353  |
| HVC-32         | Amplifier 30 dB, VF-KDG class C3.2, permanently installed adjustable attenuator and equalizer, precorrection of the outgoing cable lines through interstage slope possible | 81217354  |
| HVC-42         | Amplifier 40 dB, VF-KDG class C4.2, permanently installed adjustable attenuator and equalizer, precorrection of the outgoing cable lines through interstage slope possible | 81217355  |
| HVC-43         | Amplifier 40 dB, VF-KDG class C4.3, permanently installed adjustable attenuator and equalizer, precorrection of the outgoing cable lines through interstage slope possible | 81217356  |
| HV-12-V3       | Broadband CATV amplifier 20 dB, VF-KDG class D1.1  | 81217026  |
| MÜP-1-F        | Remotely powered distribution amplifier, VF-KDG class D1.2   | 81217018  |
| MÜP-1-O        | Locally powered distribution amplifier, VF-KDG class D1.2  | 81217020  |

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| Item       | Description  | Order No. |
|------------|--|-----------|
| BVS 12-69N | Amplifier 20 dB, class according to VF-KDG 1TS140 B1.1, B1.2 | 86401270  |
| BVS 13-69N | Amplifier 30 dB, class according to VF-KDG 1TS140 B3.2       | 86401370  |
| BVS 15-68  | Amplifier 38 dB, class according to VF-KDG 1TS140 C4.2       | 86401568  |
| BVS-20-69N | Amplifier 38 dB, class according to VF-KDG 1TS140 D4.3       | 86402070  |
| BVS-14-69N | Amplifier 40 dB, class according to VF-KDG 1TS140 D4.4       | 86401472  |

Subject to technical changes!



# Delta Electronics, Kathrein and Teleste



11572409  
BKE 33 PS-KDG



82209504  
VOS 138/RA 2.0

KLASSE  
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CLASS



| Item           | Description   | Order No. |
|----------------|---|-----------|
| BKD 40 SF      | House amplifier 41 dB, VF-KDG class B4.3; C4.3 KDG 1TS140, incl. return path amplifier RV65-32F   | 11572327  |
| BKE 22 PS-KDG  | House amplifier 20 dB, VF-KDG class B1.1, B1.2, KDG 1TS140, equipped with equalizer and level control   | 11572408  |
| BKE 33 PS-KDG  | House amplifier 33 dB, VF-KDG class B3.1 KDG 1TS140, equipped with equalizer and level control  | 11572409  |
| BKE 36 PS-KDG  | House amplifier 35 dB, VF-KDG class C3.2 & B3.2 KDG 1TS140, equipped with equalizer and level control   | 11572410  |
| BKE 36 BPS-KDG | House amplifier 35 dB, VF-KDG class B3.2 KDG 1TS140, equipped with equalizer and level control  | 11574307  |
| BKE 39 PS-KDG  | House amplifier 39 dB, VF-KDG class C4.2 KDG 1TS140, equipped with equalizer and level control  | 11572411  |
| BKD 40 PS      | House amplifier 40 dB, VF-KDG class C4.3 KDG 1TS140, equipped with equalizer and level control, flexible return path amplifier, with Ingress Detection Switch, compatible with FROSTA-F   | 11574318  |
| LHE-1040-P     | House amplifier 40 dB, VF-KDG class D4.4 KDG 1TS140, input equalization as well as input and output attenuation adjustable with PADs 0 dB ... 20 dB, local powering, connections 3.5/12 adapters (further adapters on request)  | 11573569  |
| LHE-1040-RP-65 | House amplifier 40 dB, VF-KDG class D4.4 KDG 1TS140, input equalization as well as input and output attenuation adjustable with PADs 0 dB ... 20 dB, remote powering, connections 3.5/12 adapters (further adapters on request) | 11573912  |

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| Item             | Description   | Order No. |
|------------------|---|-----------|
| VOS 137/RA 2.0   | Amplifier 40/34/30 dB local powering, class according to VF-KDG 1TS140 D4.4, variable interstage gain using bridging plugs 40/34/30 dB (delivery status: 34 dB), housing with F-connections   | 82209503  |
| VOS 138/RA 2.0   | Amplifier 40/34/30 dB remote powering RF, class according to VF-KDG 1TS140 D4.4, variable interstage gain using bridging plugs 40/34/30 dB (delivery status: 34 dB), housing with F-connections                                       | 82209504  |
| VOS 139/RA 2.0   | Amplifier 40/34/30 dB remote powering, class according to VF-KDG 1TS140 D4.4, variable interstage gain using bridging plugs 40/34/30 dB (delivery status: 34 dB), housing with PG 11 connections, the cable fittings are not included | 82209129  |
| VOS 43/RA        | Amplifier 34/40 dB, local powering, class according to VF-KDG 1TS140 C4.3, variable interstage gain using bridging plugs 34/40 dB, housing with F-connections   | 82209130  |
| VOS 20/RA-1G     | Amplifier 20 dB local powering, class according to VF-KDG 1TS140 B1.1, housing with F-connections   | 82209131  |
| VOS 29/RA-1G 2.0 | Amplifier 30 dB local powering, class according to VF-KDG 1TS140 B3.1, housing with F-connections   | 82209506  |
| VOS 32/RA-1G     | Amplifier 26/32 dB, local powering, class according to VF-KDG 1TS140 C3.2, variable interstage gain using bridging plugs 26/32 dB, housing with F-connections   | 82209133  |
| VGO 939-1G       | Amplifier, class according to VF-KDG 1TS140 D4.4 (local powering)   | 82244165  |

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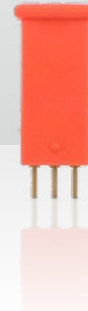


| Item            | Description   | Order No. |
|-----------------|---|-----------|
| DH-5669         | Amplifier 31 dB, local powering, class according to VF-KDG 1TS140 B3.1, 0 ... 18 dB variable attenuator | 86380000  |
| DH-1660         | Amplifier 31 dB, local powering, class according to VF-KDG 1TS140 B3.2                                  | 86380005  |
| DH-6768-VA      | Amplifier 36 dB, local powering, class according to VF-KDG 1TS140 C3.2, 0 ... 18 dB variable attenuator | 86380010  |
| DH-6868-VA      | Amplifier 39 dB, local powering, class according to VF-KDG 1TS140 C4.2, 0 ... 18 dB variable attenuator | 86380015  |
| DH-6908-VA      | Amplifier 41 dB, local powering, class according to VF-KDG 1TS140 C4.3, configuration with gain control | 86380020  |
| DH-4030-R065    | Amplifier 40 dB, local powering, class according to VF-KDG 1TS140 D4.4                                  | 86380030  |
| DH-4030-R065-AC | Amplifier 40 dB, remote powering, class according to VF-KDG 1TS140 D4.4                                 | 86380032  |

# Triax and fixed-value attenuator pads



81323266  
GHV 140 CD



10320600  
Amini 6



| Item       | Description   | Order No. |
|------------|---|-----------|
| GHV 120 B  | Amplifier 20 dB, class according to VF-KDG 1TS140 B1.1                  | 81323252  |
| GHV 130 B  | Amplifier 30 dB, class according to VF-KDG 1TS140 B3.2                  | 81323259  |
| GHV 135 C  | Amplifier 35 dB, class according to VF-KDG 1TS140 C3.2                  | 81323262  |
| GHV 138 C  | Amplifier 38 dB, class according to VF-KDG 1TS140 C4.2                  | 81323263  |
| GHV 140 CD | Amplifier 40 dB, class according to VF-KDG 1TS140 D4.3                  | 81323266  |
| GPV 150 D  | Amplifier 41 dB, class according to VF-KDG 1TS140 D4.4                  | 81323270  |
| GPV 150 DL | Amplifier 41 dB, class according to VF-KDG 1TS140 D4.4, remote powering | 81323274  |



## 1.218 MHz fixed value attenuator pads ("Aminis")

Highest quality fixed-value attenuator pads with gold-plated pins for adjustment of attenuation, equalization and cable simulation

| Item     | Value as attenuator | Value as equalizer | Order No. |
|----------|---------------------|--------------------|-----------|
| Amini 0  | 0 dB                | 0 dB               | 10320000  |
| Amini 1  | 1,0 dB              | 1,0 dB             | 10320100  |
| Amini 2  | 2,0 dB              | 2,0 dB             | 10320200  |
| Amini 3  | 3,0 dB              | 3,0 dB             | 10320300  |
| Amini 4  | 4,0 dB              | 4,0 dB             | 10320400  |
| Amini 5  | 5,0 dB              | 5,0 dB             | 10320500  |
| Amini 6  | 6,0 dB              | 6,0 dB             | 10320600  |
| Amini 7  | 7,0 dB              | 7,0 dB             | 10320700  |
| Amini 8  | 8,0 dB              | 8,0 dB             | 10320800  |
| Amini 9  | 9,0 dB              | 9,0 dB             | 10320900  |
| Amini 10 | 10,0 dB             | 10,0 dB            | 10321000  |
| Amini 11 | 11,0 dB             | 11,0 dB            | 10321100  |
| Amini 12 | 12,0 dB             | 12,0 dB            | 10321200  |
| Amini 13 | 13,0 dB             | 13,0 dB            | 10321300  |
| Amini 14 | 14,0 dB             | 14,0 dB            | 10321400  |
| Amini 15 | 15,0 dB             | 15,0 dB            | 10321500  |
| Amini 16 | 16,0 dB             | 16,0 dB            | 10321600  |
| Amini 17 | 17,0 dB             | 17,0 dB            | 10321700  |
| Amini 18 | 18,0 dB             | 18,0 dB            | 10321800  |
| Amini 19 | 19,0 dB             | 19,0 dB            | 10321900  |
| Amini 20 | 20,0 dB             | 20,0 dB            | 10322000  |



## Amini Set in a practical case in 1 dB steps

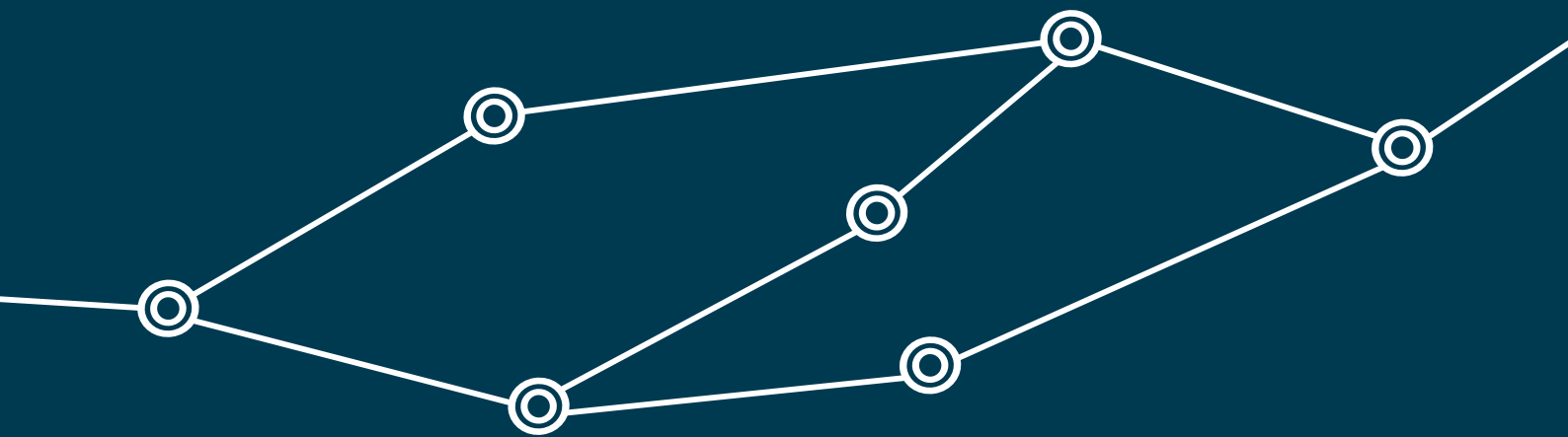
Small 10 pcs of each 1 – 10 dB Order No. 10322300  
 Large 10 pcs of each 1 – 20 dB Order No. 10322301

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