

UA 1000 F Compact Universal Extended Broadband Amplifier production G02

Description

Universal amplifier UA 1000 F can be used for broadband distribution of RF signals in CATV systems in the frequency range 85 - 1000 MHz.

The final stage of the amplifier is designed in GaAs technology. This provides an optimum relation between power consumption and channel load.

The amplifier is suitable for distribution of the return path. The use of the return path (5-65 MHz) can be configured by jumpers.

Input and RF output 1 are provided with test sockets (RF output 2 upon request).

Attenuation, equalization and other functions can be activated by means of plug-in modules. This guarantees a stable setting during a long period.

The remote power supply is protected by a self recovering fuse.

Housing is made of die-cast aluminium and offers protection according to IP54. This type of housing guarantees optimal heat dissipation and perfect protection of the electronic components.



For optimal HF contact, the connectors are Cabelcon IEC 14F-FF (at the input) and F-61-HQ-1-01 (at both outputs). The connectors are mounted with sunken rubber O ring and soldered inner conductor.

Features

- Output splitter included for symmetrical outputs. No additional logistics are needed. Single output selectable by means of shifting the module one pin to the right.
- The plug-in modules (PIM ..) for attenuation and equalization can be changed without service interruption.
- No power consumption in returnpath amplifier when disabled.
- Ultra-high efficiency switch mode power supply (> 88%).
- Indicator for DC and AC supply voltages enabling fast diagnosis.
- Power factor corrector which reduces power loss in feeding-net by 75% (I²R).
- Ceramic capacitors in switch mode power supply secondary site, significantly improving lifetime, reliability and EMI.
- Only electrolytic capacitor on input site, stress protected by PFC.

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General data

| | | |
|--|---|--|
| Dimensions HxWxD | : | 115x190x85 mm |
| AC connection | : | AMP 6.3 mm |
| RF cable inlet | : | IEC/M14 |
| Test sockets | : | IEC 169-2 |
| RF outputs | : | F |
| Earthing connection | : | AMP 6.3 mm |
| Nominal temperature range | : | -20...+55°C |
| Maximum temperature range | : | -20...+70°C |
| Transient AC power port protection | : | 1 kV, EN 500083-2 4-7, EN 61000 4-4 |
| ESD | : | 4 kV, EN 50083-2 4-6, EN61000 4-2 ESD incl. |
| EMC | : | EN 50083-2 |
| Overvoltage protection acc. EN 61000 4-5 | : | 2 kV, 1.2µs/50µs surge to RF ports, every port |
| Hum modulation, at maximum current 2,5 A, according EN 50083-3 | : | ≥ 65 dB (10-65 MHz), ≥ 70 dB (85-862 MHz) |
| Screening | : | ≥ 85 dB |
| Ordering type | : | UA 1000 F, artnr: 695.004.464 |

Technical data *

| | | |
|---------------------------------------|---|---|
| Frequency range | : | |
| Forward | : | 85...1000 MHz |
| return path | : | 5...65 MHz |
| Gain | : | 2x30 dB ± 0.5 dB (862 MHz) |
| Flatness (90-700 MHz) | : | ≤ ± 0.5 dB |
| Flatness (700-862 MHz) | : | ≥ - 0.5 dB and ≤ + 0.7 dB |
| Variation in gain per °C, -20...+55°C | : | ≤ 0.023 dB |
| Group delay | : | ≤ 2.5 ns (B=4.43 MHz, f _≥ 90 MHz) |
| Return loss | : | ≥ 18 dB at 40 MHz- 1.5 dB/octave to 862 MHz |
| Impedance | : | 75 Ohm |
| Test socket MP RF-in | : | -20 ± 1.5 dB, bidirectional |
| Test socket MP OUT1 | : | -20 ± 1 dB unidirectional; 75 ohm |
| Noise figure (at max. gain) | : | ≤ 5.5 dB max ≤ 6.5 dB |
| Output level (for 2 RF-outputs) | : | |
| acc. to EN 50083-5 (IMA3= 60 dB) | : | ≥ 2x120 dBµV |
| acc. to EN 50083-5 (IMA2= 60 dB) | : | ≥ 2x115 dBµV |
| 42 channels CENELEC (CTB= 60 dB) | : | ≥ 2x105 dBµV |
| 42 channels CENELEC (CSO= 60 dB) | : | ≥ 2x108 dBµV |
| Attenuation, input | : | 0...25 dB, plug-in module PIM, step 1 dB |
| Equalization, input, see table | : | 0...21 dB, plug-in module PIM, step 1 dB |
| Equalization, input | : | 0,12 dB, via jumpers |
| Equalization, interstage | : | 0,8 dB, via jumpers |

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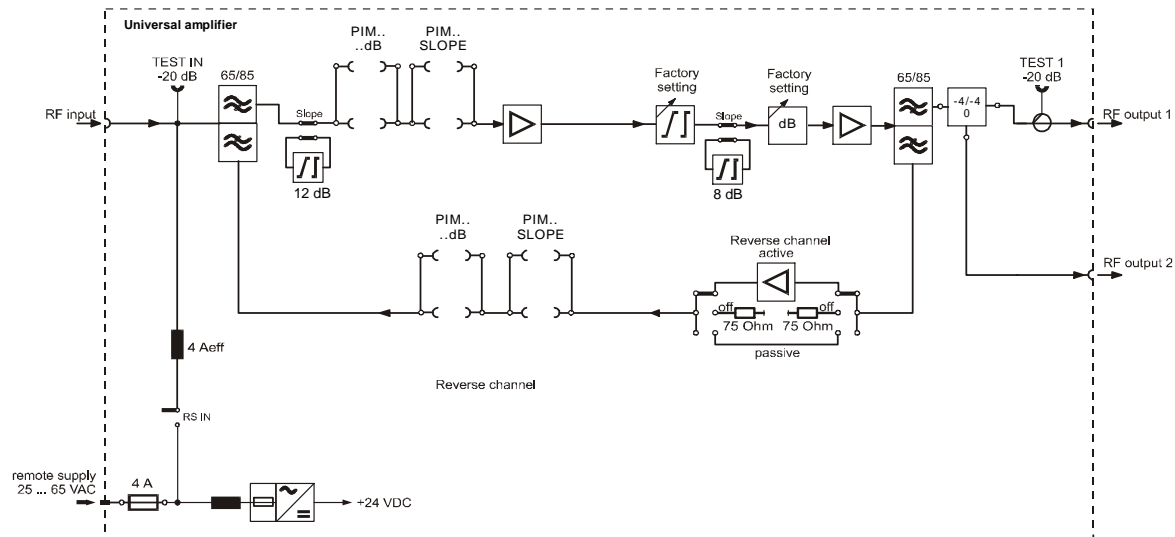
| | |
|-----------------------------------|---------------------------------------|
| Remote power supply | |
| supply voltage | : 25...65 VAC sine, 30...75 VAC block |
| frequency | : 48...62 Hz |
| Power consumption, remote supply | : ≤ 8.5 W (passive return path) |
| (at 50 VAC) | : ≤ 9.5 W (active return path) |
| Max. AC input current RF input | : 3 A |
| Max. AC output current AMP 6.3 mm | : 2.5 A |

Return path

| | |
|--|--|
| Diplexfilter | : 5...65/85...1000 MHz |
| Upstream active | : 2x16 dB ± 2 dB |
| Upstream passive | : 2x-6.5 dB (>60 MHz, <65 MHz) 2x-7.5 dB |
| Upstream set off by jumpers | : 75 Ohm termination resistors |
| Group delay | : ≤ 25 ns (B=3.2 MHz, f= 60 MHz) |
| Noise figure (at max. Gain with splitter) | : ≤ 8.5 dB (>60 MHz, <65 MHz ≤ 10 dB) |
| Output level (max.) | |
| acc. to EN 50083-5 (IMA3= 60 dB) | : ≥ 114.5 dBμV |
| acc. to EN 50083-5 (IMA2= 60 dB) | : ≥ 110 dBμV |
| Attenuation | : 0...25 dB, plug-in module, step 1 dB |
| Equalization, see table | : 0...10 dB, plug-in module, step 1 dB |

*Technical data,
at room temperature range

Block diagram of the Compact Universal Extended Broadband Amplifier UA 1000 F



Remark: Plug-in modules (PIM..) for attenuation and equalization can be changed without service interruption.

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| PIM module | Equalization 85-862 MHz, dB | Loss @ 85 MHz, dB | Loss @ 862 MHz, dB | PIM module | Equalization 5-65 MHz, dB | Loss @ 5 MHz, dB | Loss @ 65 MHz, dB |
|------------|-----------------------------|-------------------|--------------------|------------|---------------------------|------------------|-------------------|
| PIM 00 | 0,0 | 0,0 | 0,0 | PIM 00 | 0,0 | 0,0 | 0,0 |
| PIM 01 | 0,8 | -1,0 | -0,2 | PIM 01 | 1,0 | -1,0 | 0,0 |
| PIM 02 | 1,5 | -1,9 | -0,4 | PIM 02 | 1,9 | -1,9 | 0,0 |
| PIM 03 | 2,3 | -2,9 | -0,6 | PIM 03 | 2,9 | -2,9 | 0,0 |
| PIM 04 | 3,2 | -3,9 | -0,7 | PIM 04 | 3,9 | -3,9 | 0,0 |
| PIM 05 | 4,0 | -4,8 | -0,8 | PIM 05 | 4,8 | -4,8 | 0,0 |
| PIM 06 | 4,9 | -5,8 | -0,9 | PIM 06 | 5,8 | -5,8 | 0,0 |
| PIM 07 | 5,8 | -6,7 | -0,9 | PIM 07 | 6,8 | -6,8 | 0,0 |
| PIM 08 | 6,8 | -7,7 | -0,9 | PIM 08 | 7,7 | -7,8 | -0,1 |
| PIM 09 | 7,7 | -8,6 | -0,9 | PIM 09 | 8,6 | -8,7 | -0,1 |
| PIM 10 | 8,6 | -9,6 | -1,0 | PIM 10 | 9,6 | -9,7 | -0,1 |
| PIM 11 | 9,5 | -10,5 | -1,0 | PIM 11 | 10,5 | -10,6 | -0,1 |
| PIM 12 | 10,5 | -11,5 | -1,0 | PIM 12 | 11,4 | -11,5 | -0,1 |
| PIM 13 | 11,4 | -12,4 | -1,0 | | | | |
| PIM 14 | 12,3 | -13,3 | -1,0 | | | | |
| PIM 15 | 13,1 | -14,1 | -1,0 | | | | |
| PIM 16 | 14,0 | -15,0 | -1,0 | | | | |
| PIM 17 | 14,9 | -15,9 | -1,0 | | | | |
| PIM 18 | 15,7 | -16,7 | -1,0 | | | | |
| PIM 19 | 16,5 | -17,5 | -1,0 | | | | |
| PIM 20 | 17,3 | -18,3 | -1,0 | | | | |
| PIM 21 | 17,9 | -18,9 | -1,0 | | | | |
| PIM 22 | 18,7 | -19,7 | -1,0 | | | | |
| PIM 23 | 19,6 | -20,6 | -1,0 | | | | |
| PIM 24 | 20,0 | -21,0 | -1,0 | | | | |
| PIM 25 | 20,5 | -21,5 | -1,0 | | | | |

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| Table with 12 dB equalization at input activated | | | |
|--|-----------------------------|-------------------|--------------------|
| PIM module | Equalization 85-862 MHz, dB | Loss @ 85 MHz, dB | Loss @ 862 MHz, dB |
| PIM 00 | 10,8 | -12,2 | -1,4 |
| PIM 01 | 11,6 | -13,2 | -1,6 |
| PIM 02 | 12,3 | -14,1 | -1,8 |
| PIM 03 | 13,2 | -15,1 | -1,9 |
| PIM 04 | 14,0 | -16,1 | -2,1 |
| PIM 05 | 15,0 | -17,1 | -2,1 |
| PIM 06 | 15,8 | -18,0 | -2,2 |
| PIM 07 | 16,6 | -18,9 | -2,3 |
| PIM 08 | 17,6 | -19,9 | -2,3 |
| PIM 09 | 18,5 | -20,8 | -2,3 |
| PIM 10 | 19,5 | -21,8 | -2,3 |
| PIM 11 | 20,4 | -22,7 | -2,3 |
| PIM 12 | 21,3 | -23,7 | -2,4 |
| PIM 13 | 22,2 | -24,6 | -2,4 |
| PIM 14 | 23,2 | -25,5 | -2,3 |
| PIM 15 | 24,0 | -26,4 | -2,4 |
| PIM 16 | 24,9 | -27,3 | -2,4 |
| PIM 17 | 25,7 | -28,1 | -2,4 |
| PIM 18 | 26,5 | -28,9 | -2,4 |
| PIM 19 | 27,3 | -29,7 | -2,4 |
| PIM 20 | 28,1 | -30,5 | -2,4 |

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| Plug-in modules | art. nr. |
|-----------------------------------|-------------|
| PIM 00, passive pl-in mod., 0 dB | 695.004.400 |
| PIM 01, passive pl-in mod., 1 dB | 695.004.401 |
| PIM 02, passive pl-in mod., 2 dB | 695.004.402 |
| PIM 03, passive pl-in mod., 3 dB | 695.004.403 |
| PIM 04, passive pl-in mod., 4 dB | 695.004.404 |
| PIM 05, passive pl-in mod., 5 dB | 695.004.405 |
| PIM 06, passive pl-in mod., 6 dB | 695.004.406 |
| PIM 07, passive pl-in mod., 7 dB | 695.004.407 |
| PIM 08, passive pl-in mod., 8 dB | 695.004.408 |
| PIM 09, passive pl-in mod., 9 dB | 695.004.409 |
| PIM 10, passive pl-in mod., 10 dB | 695.004.410 |
| PIM 11, passive pl-in mod., 11 dB | 695.004.411 |
| PIM 12, passive pl-in mod., 12 dB | 695.004.412 |
| PIM 13, passive pl-in mod., 13 dB | 695.004.413 |
| PIM 14, passive pl-in mod., 14 dB | 695.004.414 |
| PIM 15, passive pl-in mod., 15 dB | 695.004.415 |
| PIM 16, passive pl-in mod., 16 dB | 695.004.416 |
| PIM 17, passive pl-in mod., 17 dB | 695.004.417 |
| PIM 18, passive pl-in mod., 18 dB | 695.004.418 |
| PIM 19, passive pl-in mod., 19 dB | 695.004.419 |
| PIM 20, passive pl-in mod., 20 dB | 695.004.420 |
| PIM 21, passive pl-in mod., 21 dB | 695.004.421 |
| PIM 22, passive pl-in mod., 22 dB | 695.004.422 |
| PIM 23, passive pl-in mod., 23 dB | 695.004.423 |
| PIM 24, passive pl-in mod., 24 dB | 695.004.424 |
| PIM 25, passive pl-in mod., 25 dB | 695.004.425 |

Output(s):

Two outputs: Splitter 2x 4 dB module (included).

One output: Shifting the above module one pin to the right.

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