



TRIAX

connecting the future



TRIAX® Cable TV Network

Equipment for all you need to transmit TV and DOCSIS signals





TRIAX



Reliability is our business. It's what we stand for.

For nearly 70 years, TRIAX has strived to be your preferred partner for all your connectivity needs. We're proud to provide reliable solutions for the present, while connecting our customers to the future.

At the forefront of technological trends and developments, we're with you each step of the way, from installing home connections and business critical hospitality solutions, to realising complex, large scale integrations.

Ready for any job at hand, our products are available individually or as part of tailor-made

solutions. From aerials and dishes, to headends, outlets, cables and beyond – we make connectivity easy, ensuring you live up to your own customer promises.

Rest assured that at TRIAX, reliability and innovation run through the core of everything we do, from product development to our friendly, efficient service and support.

So enjoy browsing through this catalogue for an overview of our full product range. And of course, we're always just a phone call away for more inspiration towards your next solution.

Contact TRIAX

To place an order or consult one of our experts, contact us via:

Phone: +45 76 82 22 00

e-mail: triax@triax.com

Or pay us a visit online at www.triax.com, where you'll find a wealth of further material about our products and solutions.

TRIAX[®] HFC Equipment

takes your CATV network to the next level

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TRIAX[®] Cable TV Network Equipment

covers all the equipment to transmit TV and DOCSIS signals.



A choice of active components for your CATV network

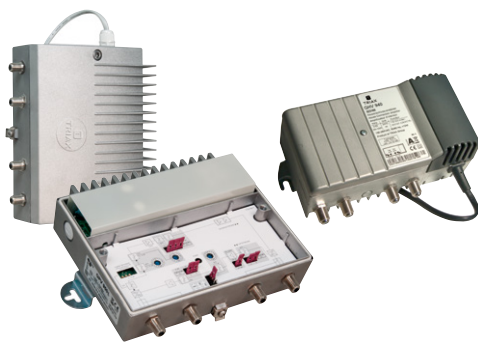
Fibre Coax optical transmitters, receivers & nodes



An Optical Receiver converts the fibre-optic light signal into a traditional RF coax-based Distribution Signal (one-way = Downstream).

Optical Nodes provide a full Return Path channel from coax and back, via fibre-optic to the HeadEnd (two-way = Downstream and Upstream).

Power - & Line Amplifier



Broadband Amplifiers for CATV / SMATV amplify the full signal range of a cable TV network to compensate for the attenuations of the passive distribution components like cable, taps, splitters and subscriber outlets in the network.

The amps are specially designed for transmission of a large number of PAL and QAM channels with low intermodulation and low distortion.

The amplifiers for CATV networks consist of a forward path for the downstream signal, and the option to use a return path for up-streaming of the DOCSIS signal to implement Fast Internet Access.

Apartment Amplifier



Triax booster amplifiers give you the benefit of reliability, long lifetime and quick installation when you need to distribute the signal to more rooms.

TRIAX[®] Optical Fibre Equipment

takes your CATV network to the next level

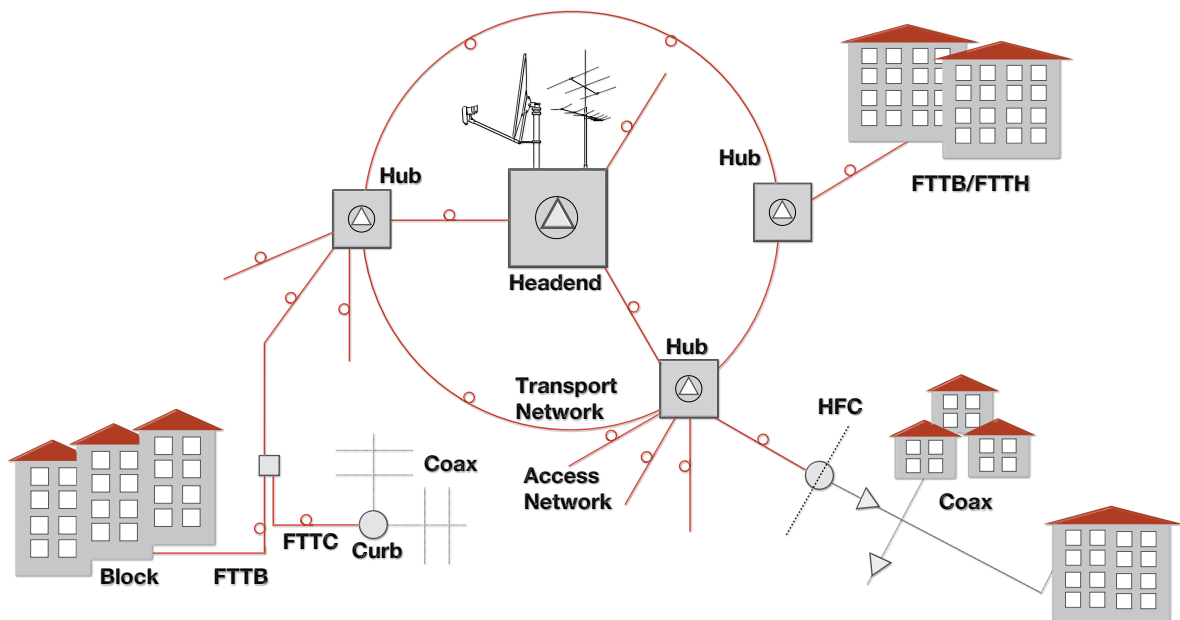
The fibre possibilities

Cable Television Networks (CATV) have a centralized Headend where the signals are processed and then distributed via a fibre optic infrastructure to sub headends. The centralized CATV headend processes the signals from Terrestrial

or Satellite sources converts them to RF and then to an optical output which is then sent out to the network. Internet and return path signals can be added to the fibre network at the main or sub headends. All of the fibre optic cables are

distributed and terminated at the optical receiver or node within the cabinet; this is referred to as fibre to the curb FTTC. The Optical nodes convert the signal from light back to RF so that they can be distributed to the home via coaxial cabling.

The following network structures are now commonplace:



CATV Optics

cover all active equipment to transmit TV broadcast and DOCSIS signals via fibre optic networks. Because of the sensitive high dense TV- QAM signals (QAM 64, 256,...) CATV optical transmitters and receivers need to work very linear with low distortions. The signals are transmitted transparently by amplitude-modulated light in the two optical wave lengths windows around 1310 and 1550 nm.

Optical transmission is used in HFC (Hybrid Fiber Coax) networks in combination with active coaxial parts of the access network or in deep fibre applications like FTTC (Fibre to Curb), FTTB (Fibre to the Building) and FTTH (Fibre to the Home). The devices are mostly designed on Headend site for installing in 19" racks and on subscriber site as compact Fibre Nodes and Fiber Receivers.

Optical Receivers and Nodes

An Optical Receiver converts the Fibre Optical Light signal into a traditional RF coax based Distribution Signal (one-way = Downstream), whereas an Optical Node in addition provides a full Return Path channel from coax and back via the Fibre Optic to the HeadEnd (two-way = Downstream and Upstream).

HFC solution

Situations where HFC (hybrid fibre/coax) is the right choice for you and your customers:

- when you want to distribute CATV
- when you want to keep an internet return path ready should your customers suddenly need one
- when you want to add cable TV to a SAT-IF installation

TRIAX[®] Optical Fibre Equipment

Optical transmitter 1310 nm for HFC networks



Common features

- Directly modulated and cooled high-performance DFB laser.
- Automatic processor-controlled adjustment of the laser drive with regard to level and channel loading of various RF input signals produces the best transmission characteristics in terms of low intermodulation (CTB/CSO) and low noise.
- Multichannel pre-distortion and GaAs amplifier technology also provide the best signal quality with low noise and low distortion.
- Two redundant power supply units.
- 32-bit microprocessor for automatic monitoring and control of the laser ensures constant output level and long service life.
- 19" 1 HE enclosure with 10TBase Ethernet (IEEE802.2) and RS 232 interface for external network monitoring.
- Other output levels available on request.
- RF connectors: F female.
- Fibre optic connectors: SC/APC.

OTXS 06-1 Optical Transmitter

Art. No. 307507

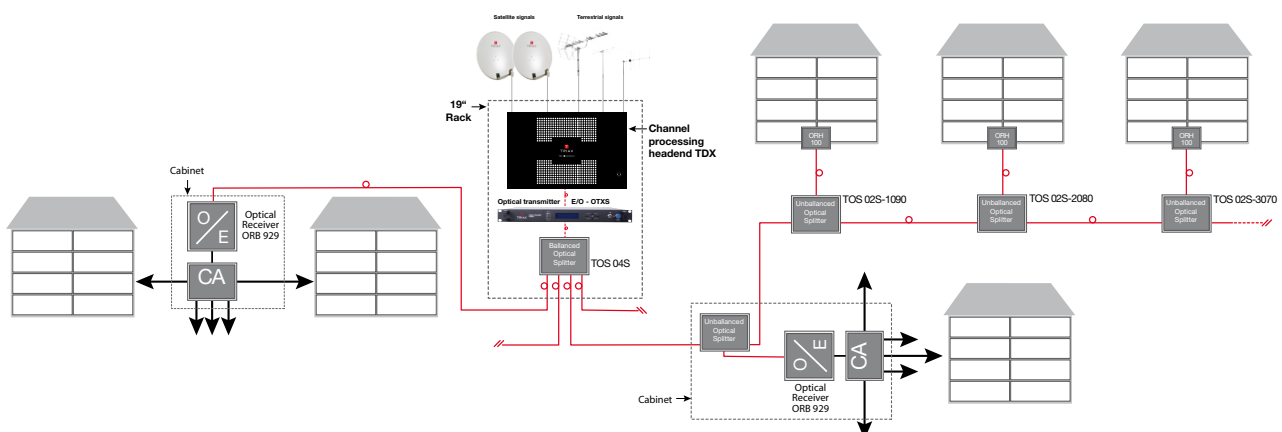
EAN Number
5702663075078



OTXS 20-1 Optical Transmitter

Art. No. 307521

EAN Number
5702663075214



TRIAX® Optical Fibre Equipment

Optical transmitter 1310 nm for HFC networks



| Type: | OTXS 06-1 Optical Transmitter | OTXS20-1 Optical Transmitter |
|---|---------------------------------|---------------------------------|
| Art. no. | 307507 | 307521 |
| OPTICAL CHARACTERISTICS | | |
| Wavelength | 1310nm | 1310nm |
| Optical output power | 8.0 (~6.0mW)dBm | 13.0 (~20.0mW)dBm |
| CHARACTERISTICS | | |
| Carrier to noise (Popt in= -1dBm, 84 ch PAL-D) | > 51.0dB | > 51.0dB |
| CSO - non linear distortion (Popt in= -1dBm, 84 ch PAL-D) | > 60.0dB | > 60.0dB |
| CTB - non linear distortion (Popt in= -1dBm, 84 ch PAL-D) | > 65.0dB | > 65.0dB |
| Laser type | DBF temp contr. | DBF temp contr. |
| RF-input level (@15...84 channels) | 72...88dBμV | 72...88dBμV |
| Test point [F-con] | -20.0dB | -20.0dB |
| FREQUENCY | | |
| Frequency range | 47...862/1003MHz | 47...862/1003MHz |
| GAIN | | |
| Relative intensity noise | ≥ 155.0dBc/Hz | ≥ 155.0dBc/Hz |
| RETURN LOSS | | |
| Return Loss | > 14.0dB | > 14.0dB |
| ELECTRICAL | | |
| Impedance | 75Ω | 75Ω |
| Linearity | ± 0.75dB | ± 0.75dB |
| OPERATIONAL | | |
| Control unit | 3 buttons, LCD 2-lines/16 char. | 3 buttons, LCD 2-lines/16 char. |
| AC Supply voltage | 110...253VAC | 110...253VAC |
| Remote control | RJ45, TCP/IP, SNMP r/o | RJ45, TCP/IP, SNMP r/o |
| Software update | RS232, 9-pin | RS232, 9-pin |
| CONNECTORS | | |
| Input connectors (RF) | F-connector | F-connector |
| Output connectors (for Fibre) | SC/APC | SC/APC |
| MECHANICAL | | |
| Product Depth | 380mm | 380mm |
| Product Width | 480mm | 480mm |
| Product Height | 44mm | 44mm |
| Housing | 19", 1RU | 19", 1RU |
| Packing QTY | 1 | 1 |

TRIAX[®] Optical Fibre Equipment

Optical Headend components and systems



DVB-C
Cable

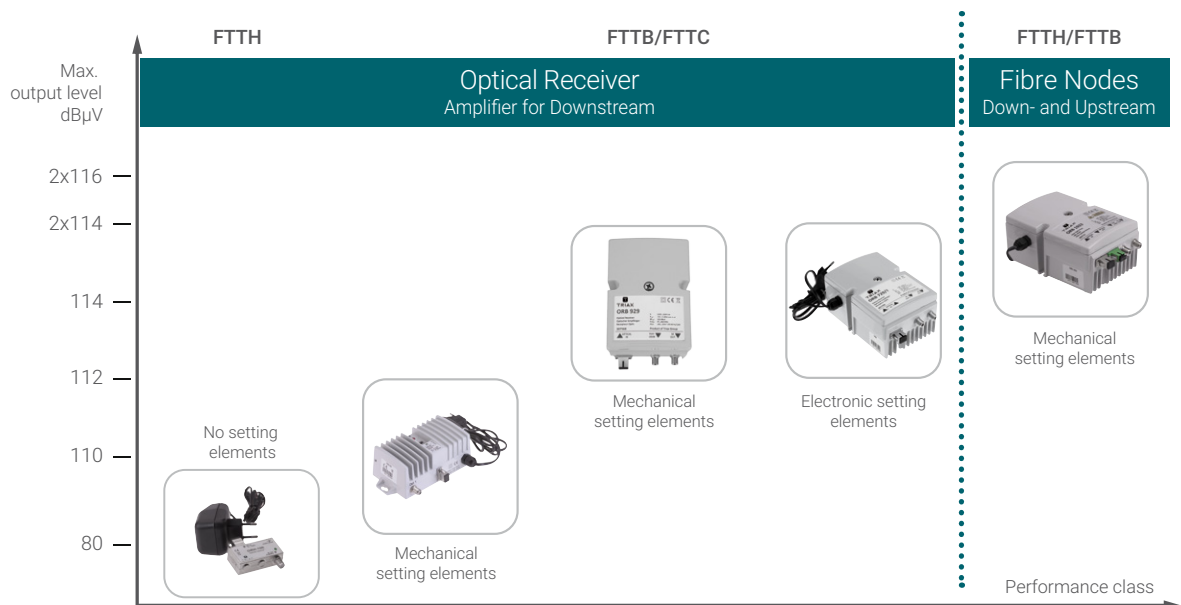
HD
TV

EASY
mounting

Warranty
2 Years

TRIAX supports your HFC projects also with a wide assortment of special Optical Fibre Headend equipment like:

- 1550 nm transmitters for transmission over long distances
- DWDM transmitters for FTTx applications
- Erbium Doped Fibre Amplifiers (EDFA)
- Return path receiver systems
- Combined CATV+SAT-IF transmitters
- The products are ready for DOCSIS 3.1 as well



| Variant Receiver/Fibre Node | | | | | |
|-----------------------------|---------|----------|----------|-----------|---------------------|
| Delivery | * | ** | * | ** | * |
| 1 Optical input, local feed | ORH 100 | ORB 923 | ORB 929 | ORB 729/1 | ORB 1923 |
| Special features/use in | FTTH | FTTB/HFC | FTTB/HFC | FTTB/HFC | Allround fibre node |

* From stock
** Order for projects

Overview

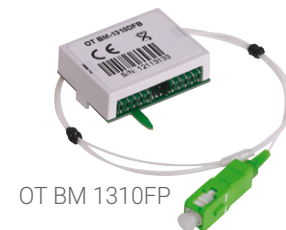
Optical Receivers and Fibre Nodes

Modules

| Variant Receiver/Fibre Node | | | | | |
|--|---------|----------|----------|-----------|---------------------------------|
| Delivery | * | ** | * | ** | * |
| 1 Optical input, local feed | ORH 100 | ORB 923 | ORB 929 | ORB 729/1 | ORB 1923 |
| Special features/use in | FTTH | FTTB/HFC | FTTB/HFC | FTTB/HFC | Allround fibre node |
| Module | | | | | |
| Control + Monitoring locally via HotSwap remote via SNMP | | | | TCM 729 | |
| Sender returnway | - | - | - | - | OTBM... *) |
| Output modules Tap Splitter Bridge | - | - | - | - | - TSTI 01 **) TJMP 01 **) |

*) Optical receiver and transmitter module for fibre nodes

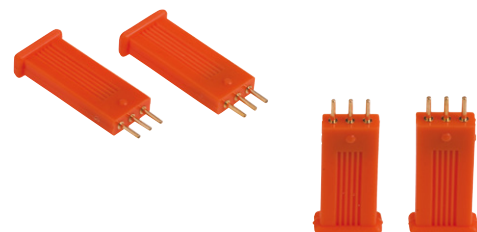
■ OTBMs are return channel modules for use in ORB1923



| Return path transmitter modules for use in ORB 1923 | Wavelength | Unit | Art. No. |
|---|------------|------|----------|
| OTBM 1310nm DFB, 3dBm | 1310 | nm | 307811 |
| OTBM 1610nm DFB, CWDM, 3dBm | 1610 | nm | 307832 |

***) Filter-, Splitter and Taps

- TJMP is a bridge module for use in ORB 1923
- TSTI is a distributor module for use in ORB 1923



| Plug-in modules to configure the RF output (required min 1 x) | RF output 1 Attenuation | RF output 2 Attenuation | Art. No. |
|---|-------------------------|-------------------------|----------|
| TJMP 01, Bridge, Oneway | 0 dB | ∞ | 307710 |
| TSTI 01, 2-Way - Splitter modul | -3.5 dB | -3.5 dB | 307711 |

TRIAX® Fibre Optics

Optical Receiver FTTB for multi-dwelling homes - 1 way



The ORB 923

is an optical receiver in a compact die-cast housing. The relatively high output level enables very cost effective FTTB installations in medium sized residential buildings. Optical level signalling and automatic gain control provide the correct as well as constant RF output level within a wide optical input level window. Settings are made using reliable plug-in pads.

- AGC for constant RF output level
- 3-colour LED for rapid indication of the correct optical input level
- Level control and equalizer adjusted via JXP plug-in pads *)
- High output level 110 dB μ V
- Low power consumption

*) Model ORB 823 with potentiometer available on request

The ORB 929

is a very compact high-performance optical receiver for cable TV systems without a return path. Its high degree of control enables it to be used as an optical network unit in both FTTC and FTTB constellations as well as in HFC networks with subsequent coaxial amplifiers on the line. Easy indication of optical input level via LED display. Reliable long-term operation by use of JXP pads to make adjustments as well as regulation of optical level fluctuation via AGC.

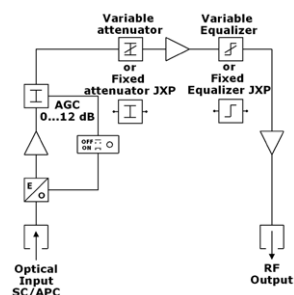
- LED display (2-digit, 7-segment) for accurate indication of optical input level
- Level control and equalizer adjusted via JXP attenuator pad*)
- Level control 0...20 dB
- Equalizer 0...20 dB
- External test point for output level
- High output level 114 dB μ V

ORB 923 - optical receiver

Art. No. 307563
EAN Number
5702663075634



ORB 923
block diagram

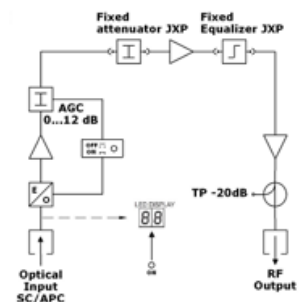


ORB 929 - optical receiver

Art. No. 307568
EAN Number
5702663075689



ORB 929
block diagram



TRIAX® Fibre Optics

Optical Receiver FTTB for larger buildings and HFC networks



ORH 100 - optical FTTH receiver

Art. No. 307565

EAN Number
5702663075658



ORH 100 optical receiver

is a highly cost effective optical network termination for an individual residence. The receiver's output is directly connected to outlets via passive coaxial distribution. Simple setting up and stable operation via AGC and LED display. Receiver is supplied in a plastic hood with a plug-in power supply.

- AGC for constant RF output level
- 3-colour LED for rapid indication of the correct optical input level
- Compact and space saving
- Low power consumption
- Includes 9V power supply
- SC/APC connection at optical input
- RF output level 80 dBμV

| Type: | ORB 923 optical receiver | ORB 929 optical receiver | ORH 100 optical FTTH receiver |
|--|--|------------------------------|--|
| Art. no. | 307563 | 307568 | 307565 |
| OPTICAL CHARACTERISTICS | | | |
| Optical return loss | >40.0dB | >40.0dB | >40.0dB |
| Eq. Input Noise Current | pA/√Hz | 8.0pA/√Hz | 6.5pA/√Hz |
| Optical input power | -8.0 ... +1.0dBm | -10.0...+1.0/max. +3.0dBm | -10.0 ... +1.0dBm |
| Reception wavelength | 1100...1650nm | 1100...1650nm | 1100...1650nm |
| CHARACTERISTICS | | | |
| RF-output level (DIN 45004 B) | 123.0dB | 129.0dB | |
| RF-output level @42 ch CENELEC CTB <60 dBc | 110.0dB | 114.0dB | 80.0dB |
| 9 dB slope 3.5% CSO <60 dBc | 110.0dB | 114.0dB | 80.0dB |
| AGC (Automatic Gain Control) | -6.0...0dB | -6.0...0dB | -6.0...0dB |
| Test point | | -20dB | |
| FREQUENCY | | | |
| Frequency range | 47...862MHz | 47...862MHz | 47...862MHz |
| GAIN | | | |
| Gain flatness | ± 0.75dB | ± 0.75dB | ± 1.0dB |
| LOSS | | | |
| Attenuator/Equalization | JXP plug-in 0...20 | JXP plug-in 0...20 | |
| RETURN LOSS | | | |
| Return Loss | > 18dB | > 18dB | > 18dB |
| ELECTRICAL | | | |
| Number of receivers | 1 | 1 | 1 |
| OPERATIONAL | | | |
| DC Operating voltage | | | 9VDC |
| DC Current consumption (typ.) | | | 150mA |
| External PSU | | | Included |
| Operating temperature range | -20 ... +55°C | -20 ... +55°C | -20 ... +55°C |
| AC Supply voltage | 180...253 / 50...60HzVAC | | |
| Power Consumption (typ.) | 5.5W | 13.0W | < 1.0W |
| CONNECTORS | | | |
| Connector Optical | Optical - SC/APC | Optical - SC/APC | Optical - SC/APC |
| Input connectors (from transmitter) | SC/APC | SC/APC | SC/APC |
| Output connectors (for RF) | F-female type | F-female type | F-female type |
| MECHANICAL | | | |
| Product Depth | 56mm | 75mm | 20mm |
| Product Width | 96mm | 155mm | 60mm |
| Product Height | 155mm | 107mm | 50mm |
| IP Housing protection class | IP 40 | IP 64 | IP 40 |
| Packing QTY | 1 | 1 | 1 |
| Weight | 0.76kg | 1.1kg | 0.1kg |
| Optical power in indication LED | Orange: Pin <-6.0 Green : -6.0 <Pin < 0 Red : Pin >0 | | Optical power indicator: Orange: Pin <-6.0 Green : -6.0 <Pin < 0 Red : Pin >0 |

TRIAX® Fibre Optics

Fibre Node FTTB - 1 and 2 way



ORB 729 Fibre Node

Optical receivers of the ORB 7-series are very compact high-performance optical network units for FTTB-/FTTC and HFC cable TV systems without a return path.

Uninterruptible, electronic settings and monitoring of device parameters either on the device or via Ethernet interface.

Professional operating and monitoring features:

- Locally on the device - hot-swap module TCM 729 via keyboard
- Electronic level control and equalizer by using control module TCM 729 with 3 digit LED display and 3 cursor button
- Second RF output, configurable via plug-in module TST1
- Monitoring parameters: optical input- path and level, input signal switching hysteresis, output level, temperature, attenuation, equalizer and more
- Output level 114 dB μ V

ORB 1923

is a very compact high-performance optical network unit for two fibre way networks with a return path. Its high degree of control and free selection of the return path laser modules enables it to be used as an optical network unit in both FTTC and FTTB constellations as well as in HFC networks with subsequent coaxial amplifiers down the line. Reliable long-term operation by using JXP pads to make settings as well as regulation of optical level fluctuations via AGC.

- 3-colour LED to indicate the optical input signal level
- Level control and equalizer adjusted via JXP attenuator pad
- External test point for output level
- Large selection of laser modules (order separately)
- High output level 109 dB μ V



ORB 729/1 - fibre nodes

Art. No. 307700

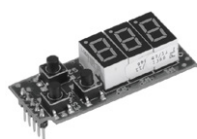
EAN Number
5702663077003



ORB 1923 - Optical node

Art. No. 307717

EAN Number
5702663077171



TCM 729 module

Art. No. 307708

EAN Number
5702663077089



OTBM 1310FP Optical return module for fibre nodes

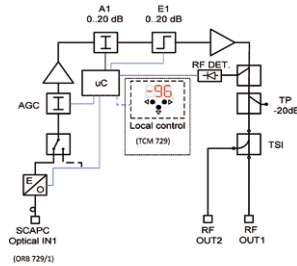
- OTBMs are return channel modules for use in ORB1923



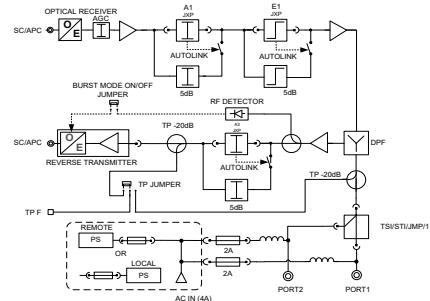
TRIAX® Fibre Optics

Allround Fibre Node FTTB for multiple dwellings and HFC networks

ORB 729/1 block diagram



ORB 1923 block diagram



| Type: | ORB 729/1 optical receiver | ORB 1923 Optical node | TCM 729 Local ctrl. module |
|---|---------------------------------|---|-------------------------------|
| Art. no. | 307700 | 307717 | 307708 |
| OPTICAL CHARACTERISTICS | | | |
| Reception wavelength | 1100...1650nm | 1100...1650nm | |
| Optical return loss | >40.0dB | >40.0dB | |
| Eq. Input Noise Current | 6.5pA/√Hz | <8.0pA/√Hz | |
| Optical input power | -10.0... +1.0 / max. +3.0dBm | -9.0...+1.0 / max. +3.0dBm | |
| CHARACTERISTICS | | | |
| RF-output level (DIN 45004 B CTB <60 dBc) | 114.0dB | 123.0dBμV | |
| 1310 nm @- dBm,9 dB slope 3.5% CSO <60 dBc | 114.0dB | 109.0dBμV | |
| AGC (Automatic Gain Control) | -6.0...0dB | -6.0...0dB | |
| Optical power indicator range accuracy (electronic) | ± 0.1dBm | | |
| Test point | -20dB | -20dB | |
| FREQUENCY | | | |
| Frequency range | 47...862MHz | 87...1006MHz | |
| Frequency return path (depending on modules) | | 5...65MHz | |
| Frequency response | | ± 1.0dB | |
| GAIN | | | |
| Gain flatness | ± 0.75dB | | |
| LOSS | | | |
| Attenuator/Equalization | | JPX plug in, 0...20dB | |
| RETURN LOSS | | | |
| Return Loss | > 18 (40 MHz)-4.5/Octave dB | > 18dB | |
| ELECTRICAL | | | |
| Number of receivers | 1 | 1 | |
| OPERATIONAL | | | |
| Return gain | | Return gain | |
| Level output stability in the AGC mode | ± 1.0dB | | |
| Interstage attenuator/ Interstage equalizer | 0...15, step 1dB | ± 1.0dB | |
| Operating temperature range | -20 ... +55°C | -20 ... +55°C | |
| AC Supply voltage | 180...253 / 50...60HzVAC | 180...253VAC | |
| Power Consumption (typ.) | < 13.5W | 9W | |
| CONNECTORS | | | |
| Connector Optical | Optical - SC/APC | Optical - SC/APC | |
| Input connectors (from transmitter) | SC/APC | | |
| Output connectors (for RF) | 2 x F-female | F-female type | |
| MECHANICAL | | | |
| Product Depth | 75mm | 75mm | |
| Product Width | 155mm | 107mm | |
| Product Height | 107mm | 155mm | |
| IP Housing protection class | IP 64 | IP 64 | |
| Packing QTY | 1 | 1 | |
| Weight | 1.1kg | 1.1kg | |
| Optical power in indication LED | | Orange: Pin <-7.0 Green: -7.0 <Pin < 0 Red: Pin > 0 | |

TRIAX® Coax Amplifiers

Active components for your CATV/SMATV in-door network



The perfect choice for everybody!

The TRIAX GHV/GPV ranges offer great solutions for TV house distribution systems of almost every size. The products boast state-of-the-art technological design, excellent transmission qualities and an exceptionally high adjustability/variability.

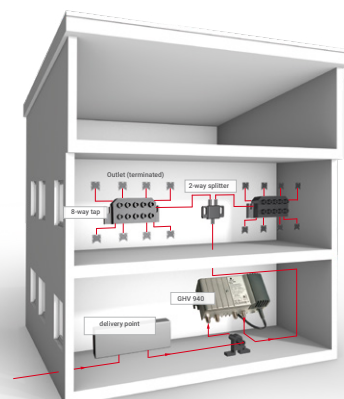
The readable adjusters allow the user to set up values calculated during the planning phase when placing the amplifier into operation. This also helps in case the amplifier should need to be serviced as all adjustments previously made can easily be transferred to a replacement. As calibration of the distribution system thus will be quicker and easier you can save valuable time and money.

No matter which amplifier you choose - you will always profit by the excellent product quality and the good technical service TRIAX is known for.

Finding the right amplifier is easy.

You can choose from two series with different amplifications and corresponding additional characteristics. The GHV 500 series is designed as a low noise coaxial distribution amplifier for use in small headend-based communal installations (MATV/SMATV).

The GHV/GPV 900 series can be used as a house amplifier in cable television distribution networks (CATV) with a multimedia-enabled return path. As the return path can optionally be switched off the amplifiers of the GHV 900 are also perfect for use with VHF band I. In case the network will later be upgraded by adding return path services like internet access the return path can easily be re-activated by replugging the jumpers.



TRIAX[®] Broadband Distribution Amplifier

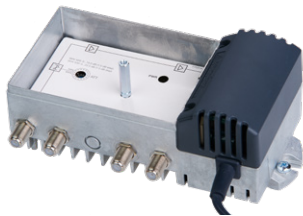
– for all your applications

A selection of the best

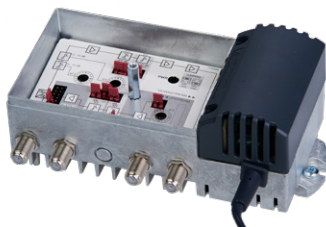
TRIAX GHV 520

| AMPLIFIER TYPE | SERIE | GAIN (in dB) max. Output Level (42 ch CENELEC in dB μ V) | | | | | YOUR DEVICE |
|--|-------|--|-----|-----|-----|-----|---------------|
| | | 20 | 30 | 35 | 40 | 41 | |
| House amplifier Output levels in dB μ V | GHV | 100 | 103 | 105 | 109 | 114 | Type |
| MATV/SMATV - system without return path | 500 | ■ | | | | | TRIAX GHV 520 |
| | 500 | | ■ | | | | TRIAX GHV 530 |
| | 900 | ■ | | | | | TRIAX GHV 920 |
| | 900 | | ■ | | | | TRIAX GHV 930 |
| CATV TV - system with return path | 900 | | | ■ | | | TRIAX GHV 935 |
| | 900 | | | | ■ | | TRIAX GHV 940 |
| | 950 | | | | | ■ | TRIAX GPV 950 |

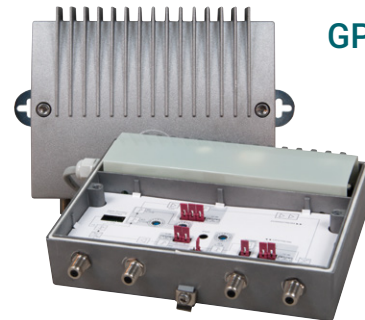
GHV 500



GHV 900



GPV 950



| COMMON FEATURES | 500 SERIE | 900 SERIE | 950 SERIE |
|---|--------------|------------------------|------------------|
| High output level | ■ | ■ | ■ |
| Optimised 1 GHz technology | ■ | ■ | ■ |
| 16 step rotary switch for attenuation | ■ | ■ | ■ |
| 16 step rotary switch for equalization | | ■ | ■ |
| Interstage equalization | ■ (3 dB fix) | ■ (variable) | ■ (variable) |
| VHF-Band I | ■ | ■ (variable) | |
| Selectable return path 5-65 MHz | | ■ (active/passive/off) | ■ |
| Reliable all-on-board return path technology | | ■ | ■ |
| Measurement port -20 dB for input and output | ■ | ■ | ■ |
| Extensive ESD- and surge protection | ■ | ■ | ■ |
| F-connectors (female) | ■ | ■ | ■ |
| Built-in energy-saving mains-fed power supply | ■ | ■ | ■ |
| Remote feeding psu model | | | ■ (via RF input) |
| Functional die-cast housing | ■ | ■ | ■ |

TRIAX[®] Broadband Distribution Amplifier

GHV 500 series - 1 way



GHV 500 Series

The GHV 500 amplifier series is designed as a low noise coaxial distribution amplifier for use in small head-end-based communal installations where no return path is needed. Setting up the amplifier is made easy by the rotary switch and the interstage equalization of 3 dB. Measurement ports at input and output also help to level out the forward path.

Choose this coax amplifier and enjoy these benefits:

- Place it on a wall inside your house or in a cabinet at the curb
- High output level
- Rotary switch for attenuation
- Interstage equalization fix 3 dB
- F-connectors (female)
- Available versions:
 - GHV 520 with 20dB Gain
 - GHV 530 with 30dB Gain

GHV 520 Broadband Distribution Amplifier, no RC, Gain 20dB, 47...1006MHz

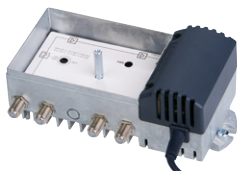


Art. No. 323138

EAN Number
5702663231382



GHV 530 Broadband Distribution Amplifier, no RC, Gain 30dB, 47...1006MHz

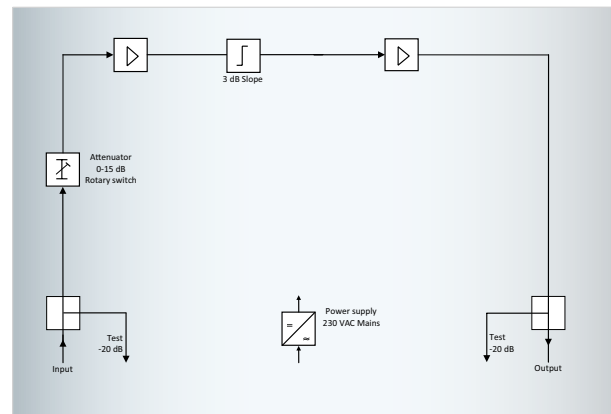


Art. No. 323142

EAN Number
5702663231429

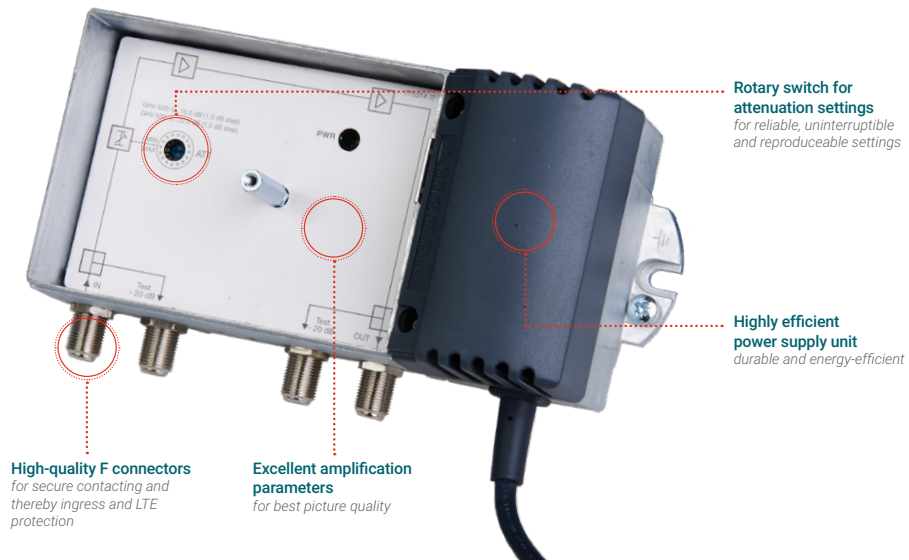


GHV 530 block diagram



TRIAx[®] Broadband Distribution Amplifier

House amplifier for small buildings



| Type: | GHV 520 Amplifier no RC | GHV 530 Amplifier no RC |
|--|---|----------------------------|
| Art. no. | 323138 | 323142 |
| CHARACTERISTICS | | |
| Output level forward - CSO (42ch.@862 MHz) | 101 dB μ V | 102dB μ V |
| Output level forward - CTB (42ch.@862 MHz) | 104 dB μ V | 105dB μ V |
| Test point - input (bi-directional) | | -20 dB |
| Test point - output (uni-directional) | | -20 dB |
| FREQUENCY | | |
| Frequency range | 47...1006MHz | |
| GAIN | | |
| Gain forward (@1006 MHz) | 21 dB | 30 dB |
| Noise figure - forward | 4.5 dB | 5.5 dB |
| LOSS | | |
| Attenuation low/high jumper | 0...15dB | 0...22.5dB |
| Interstage equalizer/slope (jumper) | 3 fixdB | 3 fixdB |
| Return loss @40MHz,-1.5 dB oct.(forward) | > 18.0dB | > 18.0dB |
| ELECTRICAL | | |
| Impedance | 75 Ω | 75 Ω |
| Linearity (@47/87..1006 MHz) jumper | \pm 1.0dB | \pm 1.0dB |
| OPERATIONAL | | |
| Class | II | II |
| Operating temperature range | -25...+55°C | -25...+55°C |
| AC Supply voltage | 190...264VAC | 190...264VAC |
| Power Consumption (typ.) | <3 W | <3 W |
| CONNECTORS | | |
| Connector Type (input/output) - test point | F-female/F-female | F-female/F-female |
| MECHANICAL | | |
| Product W x H x D (mm) | 170 x 90 x 65 mm | 170 x 90 x 65 mm |
| IP Housing protection class | IP 20 | IP 20 |
| Packing QTY | 1 | 1 |
| Weight (kg) | 0.65kg | 0.65kg |
| Reference standards | EN 60728-3 - Class 2 / EN 307728-11 / EN 60065 / EN 50083-2 | |

TRIAx® Broadband Distribution Amplifier

GHV 900 series - 2 way

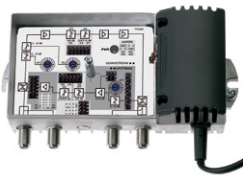


GHV 900 Series

features flexibly configurable return paths. Upon delivery, the implemented return path amplifiers are activated at maximum gain but can be switched to "passive" or "off" via a jumper.

When the return path is switched off the transmission bandwidth in forward path is expanded by VHF band I. Return path basic gains are adjusted to the specific forward path gains of the different types. Additionally, a jumper

in the pre-stage can be used to lowered the return path gain by 6 dB (except with GHV 920) without affecting the excellent transmission performance regarding noise and modulation capability. 16 step rotary switches, far superior to normal spindle controller regarding reliability and log-term stability, and jumpers allow for an easy, uninterrupted and reproduceable setting of attenuation, equalization and cable simulation. Measurement ports at input and output also support an exact leveling of forward and return path.



**GHV 920 Amplifier,
w/RC, Gain 20dB,
47...1006MHz**

Art. No. 323150
EAN Number
5702663231504



**GHV 940 Amplifier,
w/RC, Gain 40dB,
47...1006MHz**

Art. No. 323166
EAN Number
5702663231665



**GHV 930 Amplifier,
w/RC, Gain 30dB,
47...1006MHz**

Art. No. 323158
EAN Number
5702663231580

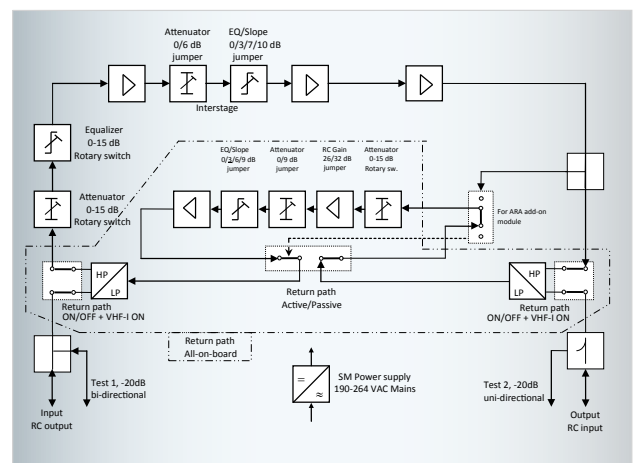


**GHV 935 Amplifier,
w/RC, Gain 35dB,
47...1006MHz**

Art. No. 323162
EAN Number
5702663231627



GHV 930 block diagram

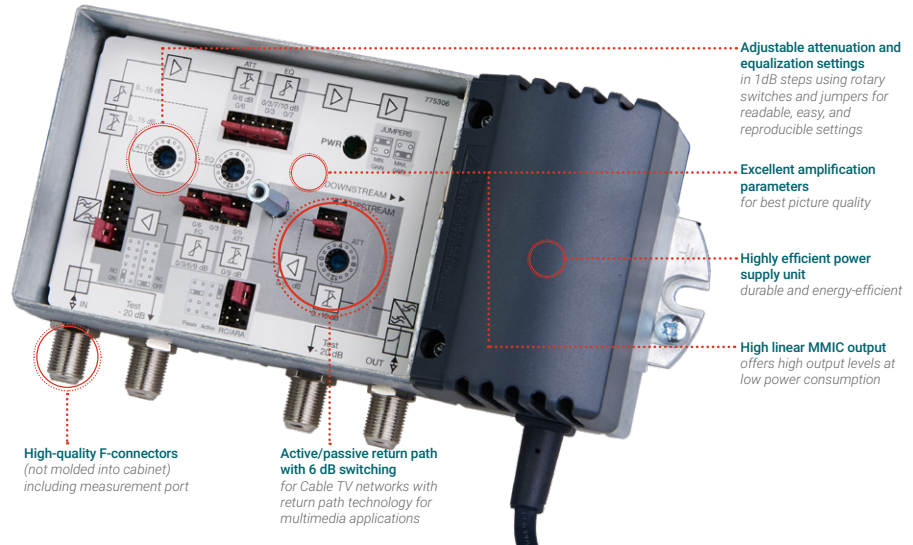


TRIAx[®] Broadband Distribution Amplifier

for small to mid-sized buildings with active/passive return path

Choose this coax amplifier and enjoy these benefits:

- All-on-board: active/passive return path technology for 6 dB switching (GHV 920: 20 dB)
 - no performance loss and no additional modules
- Active return channel
- Optional plug-in module to enable the automatic return path activation
- Available versions:
 - GHV 920 with 20dB
 - GHV 930 with 30dB
 - GHV 935 with 35dB
 - GHV 940 with 40dB



| Type: | GHV 920 Amplifier | GHV 930 Amplifier | GHV 935 Amplifier | GHV 940 Amplifier |
|---|---|-------------------------|-------------------|-------------------|
| Art. no. | with RC 323150 | with RC 323158 | with RC 323162 | with RC 323166 |
| CHARACTERISTICS | | | | |
| Output level forward - CSO (42ch.@862) Slope 0/7 dB | 98/100 dB μ V | 103/105dB μ V | 103/105dB μ V | 107/109dB μ V |
| Output level forward - CTB (42ch.@862) Slope 0/7 dB | 98/100 dB μ V | 103/105dB μ V | 103/105dB μ V | 107/109dB μ V |
| Output level return path- 16 QAM | 120dB μ V | 120dB μ V | 120dB μ V | 120dB μ V |
| Test point - input (bi-directional) | | | -20 dB | |
| Test point - output (uni-directional) | | | -20 dB | |
| FREQUENCY | | | | |
| Frequency range | | 47...1006/ 85...1006MHz | | |
| Frequency range return path | | 5...65MHz | | |
| GAIN | | | | |
| Gain forward (@1006 MHz) | 20 dB | 30 dB | 35 dB | 40 dB |
| Gain return (@60 MHz) jumper | 20 dB | 22/28dB | 24/30dB | 26/32dB |
| Noise figure - forward | 6.5 dB | 6.5 dB | 6.5 dB | 6.5 dB |
| Noise figure - return path | 5.0 dB | 5.0 dB | 5.0 dB | 5.0 dB |
| LOSS | | | | |
| Attenuation low/high jumper | 0...15dB | 0...15dB | 0...15dB | 0...15dB |
| Input attenuator - 1dB step rotary | 0...15dB | 0...15dB | 0...15dB | 0...15dB |
| Input equalizer - 1dB step rotary | 0...15dB | 0...15dB | 0...15dB | 0...15dB |
| Interstage attenuation (jumper) | 0/6 dB | 0/6 dB | 0/6 dB | 0/6 dB |
| Interstage equalizer/slope (jumper) | 0/3/7/10dB | 0/3/7/10dB | 0/3/7/10dB | 0/3/7/10dB |
| Input attenuator (return) - 1dB step rotary | 0...15dB | 0...15dB | 0...15dB | 0...15dB |
| Interstage equalizer/slope (return) jumper | 0/3/6/9dB | 0/3/6/9dB | 0/3/6/9dB | 0/3/6/9dB |
| Return loss @40MHz,-1.5 dB oct.(forward) | > 18.0dB | > 18.0dB | > 18.0dB | > 18.0dB |
| Return loss @40MHz,-1.5 dB oct.(return) | > 18.0dB | > 18.0dB | > 18.0dB | > 18.0dB |
| ELECTRICAL | | | | |
| Impedance | 75 Ω | 75 Ω | 75 Ω | 75 Ω |
| Linearity (@47/87..1006 MHz) jumper | \pm 1.0dB | \pm 1.0dB | \pm 1.0dB | \pm 1.0dB |
| Linearity (@5...65 MHz return) jumper | \pm 1.0dB | \pm 1.0dB | \pm 1.0dB | \pm 1.0dB |
| OPERATIONAL | | | | |
| Class | II | II | II | II |
| Operating temperature range | -25...+55°C | -25...+55°C | -25...+55°C | -25...+55°C |
| AC Supply voltage | 190...264VAC | 190...264VAC | 190...264VAC | 190...264VAC |
| Power Consumption (typ.) | <5W | <7W | <9W | <11W |
| CONNECTORS | | | | |
| Connector Type (input/output) - test point | F-female/F-female | F-female/F-female | F-female/F-female | F-female/F-female |
| MECHANICAL | | | | |
| Product W x H x D (mm) | 170 x 90 x 65 mm | 170 x 90 x 65 mm | 170 x 90 x 65 mm | 170 x 90 x 65 mm |
| Housing protection class | IP 20 | IP 20 | IP 20 | IP 20 |
| Packing QTY | 1 | 1 | 1 | 1 |
| Weight (kg) | 0.65kg | 0.65kg | 0.65kg | 0.75kg |
| Reference standards | EN 60728-3 - Class 2 / EN 307728-11 / EN 60065 / EN 50083-2 | | | |

TRIAX® Broadband Distribution Amplifier

GHV 950 series - 2 way



GPV 950/950L

are high output Distribution Amplifiers for use primarily in CATV distribution networks in multi-dwelling premises. Basic gain switching permits configuration of the amplifiers as line extenders or as cascade amplifiers in a trunk position.

All functional parts and setting elements are implemented on the printed board and additional external accessories are not required to configure and operate these amplifiers.

Choose this coax amplifier and enjoy these benefits:

- One-board technology: all functionality implemented
- Rotary switches in 1 dB steps for precise attenuation/ equalization setting
- Downstream: 85...1006 MHz @ max. output level 112 dB μ V
- Upstream: 5-65 MHz, max. output 120 dB μ V (high load performance for DOCSIS 3.1)
- Basic gain selectable via jumpers
- Integrated cable simulator by Pad*



GPV 950 amplifier w/active RC, 85...1006MHz

Art. No. 323170

EAN Number
5702663231702



GPV 950 L amplifier - Line fed - w/ active RC, 85...1006MHz

Art. No. 323174

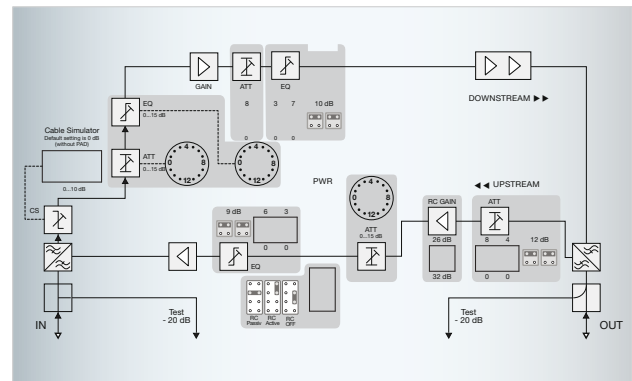
EAN Number
5702663231740



- * Pad JXP-OT, 1-10 dB, is available as option, e.g.
- 4 dB, JXP-OT4, Order No. 322204
- 7 dB, JXP-OT7, Order No. 322207
- 10 dB, JXP-OT10, Order No. 322210.

Further attenuation values available upon by request.

GHV 950 block diagram



TRIAx[®] Broadband Distribution Amplifier

High Output Amplifier with active return path

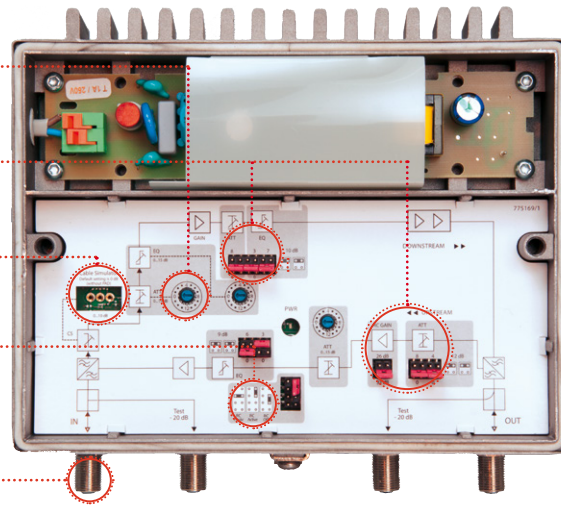
Rotary Switches
for readable, easy and reproducible
attenuation and equalization settings
in 1 dB steps

Versatile configuration options
for optimizing gain settings via jumpers

Integrated Cable simulator
activated by standard PAD (1...10 dB) plug

Low distortion pre- and power stages
without signal quality degradation

High-quality F connectors
Reliable interface protects against noise
interference. Waterproof housing IP 65



| Type: | GPV 950 amplifier with active RC | GPV 950 L amplifier Line fed with active RC |
|---|--|--|
| Art. no. | 323170 | 323174 |
| CHARACTERISTICS | | |
| Output level forward - CSO (42ch.@862 MHz) Slope 0/7 dB | 112/114 dBμV | 112/114 dBμV |
| Output level forward - CTB (42ch.@862 MHz) Slope 0/7 dB | 112/114 dBμV | 112/114 dBμV |
| Output level return path- 16 QAM | 120dBμV | 120dBμV |
| Test point - input (bi-directional) | | -20 dB |
| Test point - output (uni-directional) | | -20 dB |
| FREQUENCY | | |
| Frequency range | 85...1006MHz | |
| Frequency range return path | 5...65MHz | |
| GAIN | | |
| Gain forward (@1006 MHz) | 41/33 dB | 41/33 dB |
| Gain return (@60 MHz) jumper | 20 dB | 32/26dB |
| Noise figure - forward | 6.5 dB | 6.5 dB |
| Noise figure - return path | 5.0 dB | 5.0 dB |
| LOSS | | |
| Cable simulator (Pads, optional) | 1...10dB | 1...10dB |
| Input attenuator - 1dB step rotary | 0...15dB | 0...15dB |
| Input equalizer - 1dB step rotary | 0...15dB | 0...15dB |
| Interstage attenuation (jumper) | 0/8 dB | 0/8 dB |
| Interstage equalizer/slope (jumper) | 0/3/7/10dB | 0/3/7/10dB |
| Input level control return (jumper) | 0/4/8/12dB | 0/4/8/12dB |
| Interstage attenuator (return) - 1dB step rotary | 0...15dB | 0...15dB |
| Interstage equalizer/slope (return) jumper | 0/3/6/9dB | 0/3/6/9dB |
| Return loss @ 40MHz,-1.5 dB oct.(forward) | > 18.0dB | > 18.0dB |
| Return loss @ 40MHz,-1.5 dB oct.(return) | > 18.0dB | > 18.0dB |
| ELECTRICAL | | |
| Impedance | 75Ω | 75Ω |
| Linearity (@ 87..1006 MHz) jumper | ± 1.0dB | ± 1.0dB |
| Linearity (@ 5...65 MHz return) jumper | ± 1.0dB | ± 1.0dB |
| OPERATIONAL | | |
| Class | II | II |
| Operating temperature range | -25...+55°C | -25...+55 °C |
| AC Supply voltage | 190...264VAC | 28...65 VAC (via RF input) |
| Power Consumption (typ.) | <15 W | <15 W |
| CONNECTORS | | |
| Connector Type (input/output) - test point | F-female/F-female | F-female/F-female |
| MECHANICAL | | |
| Product W x H x D (mm) | 180 x 145 x 70 mm | 180 x 145 x 70 mm |
| IP Housing protection class | IP 65 | IP 65 |
| Packing QTY | 1 | 1 |
| Weight (kg) | 1.60kg | 1.60kg |
| Reference standards / ROHS compliant | EN 60728-3 - Class 2 / EN 307728-11 / EN 60065 / EN 50083-2 /Yes | |

TRIAX[®] Apartment Amplifier

IFA series



Indoor amplifier for your apartment

An amplifier for MATV/SMATV low channel density distributes a limited number of powerful cable TV signals to your home.

Choose this coax amplifier and enjoy these benefits:

- Few but powerful TV-signals/channels – which also means elimination of most disturbance and background noise
- Indoor amplifier – always within easy reach inside your house/apartment
- Need to attach another TV set?
- there is an IFA solution for you.



IFA 213 amplifier - 1 output - w/ RC 5...65, Gain 0...20dB

Art. No. 339213

EAN Number
5702663392137



IFA 384, 4-port apartment amp

Art. No. 339384

EAN Number
5702663393844



IFA 219 amplifier - 1 output, Gain 0...20dB

Art. No. 339219

EAN Number
5702663392199



IFA 388, 8-port apartment amp

Art. No. 339388

EAN Number
5702663393882



IFA 220 amplifier - 2 outputs, Gain 0...17dB

Art. No. 339220

EAN Number
5702663392205

TRIAX[®] Apartment Amplifier

IFA series



| Type: | IFA 213 amplifier w/ RC | IFA 219 amplifier | IFA 220 amplifier | IFA 384 4-port apartment amp | IFA 388 8-port apartment amp |
|---|-------------------------------|----------------------|----------------------|---|------------------------------------|
| Art. no. | 339213 | 339219 | 339220 | 339384 | 339388 |
| CHARACTERISTICS | | | | | |
| Input level | | | | 60...78dB μ V | 60...78dB μ V |
| Linearity return | ± 1.0 dB | | | | |
| Max. output level | | | | 93 (IMD3.)dB μ V | 93 (IMD3.)dB μ V |
| Output level CSO @ 60 dB IMD | 96.0dB μ V | 96.0dB μ V | 92.0dB μ V | | |
| Output level CTB @ 60 dB IMD (42 ch) flat | 96.0dB μ V | 96.0dB μ V | 96.0dB μ V | | |
| Output level IMD 2, EN 50083-3 | 104.0dB μ V | 104.0dB μ V | 104.0dB μ V | | |
| Output level IMD 3, EN 50083-5 | 112.0dB μ V | 112.0dB μ V | 108.0dB μ V | | |
| FREQUENCY | | | | | |
| Frequency range | 87...862MHz | 47...862MHz | 47...862MHz | 87...1006MHz | 87...1006MHz |
| Frequency range return path | 5...65MHz | | | | |
| GAIN | | | | | |
| Gain | 0...20dB | 0...20dB | 0...17dB | 12dB | 12dB |
| Noise figure | < 6.0 (typ. 5.5)dB | < 6.0dB | < 6.0dB | <7dB | <7dB |
| LOSS | | | | | |
| Attenuation | 0...18dB | 0...18dB | | 0/6/12 (0dB default)dB | |
| Equalization | | | 0-18 | | |
| Through loss return | 1.0dB | | | | |
| ISOLATION | | | | | |
| Isolation | | | | >40dB | >40dB |
| RETURN LOSS | | | | | |
| Return Loss | | | | >18 (@40...1000MHz) (@40MHz -1.5dB/Oct(min. 10dB))dB | |
| ELECTRICAL | | | | | |
| Impedance | 75 Ω | 75 Ω | 75 Ω | 75 Ω | 75 Ω |
| Linearity | ± 1.5 dB | ± 1.5 dB | ± 1.5 dB | ± 1 dB | ± 1 dB |
| OPERATIONAL | | | | | |
| Certification | CE | CE | CE | | |
| Operating temperature range | 0...+50°C | 0...+50°C | 0...+50°C | -10...+40°C | -10...+40°C |
| AC Supply voltage | 230 \pm 10%VAC | 230 \pm 10%VAC | 230 \pm 10%VAC | 100...264 / 50...60HzVAC | |
| Power Consumption (typ.) | 3.0W | 3.0W | 3.0W | 3,1W | 3,1W |
| CONNECTORS | | | | | |
| Connector Type | F-female | F-female | F-female | F-female | F-female |
| Number of inputs | 1 | 1 | 1 | 1 | 1 |
| Number of outputs | 1 | 1 | 2 | 4 | 8 |
| MECHANICAL | | | | | |
| Product Width | 118mm | 118mm | 118mm | 255mm | 255mm |
| Product Depth | 61mm | 44mm | 61mm | 110mm | 110mm |
| Product Height | 44mm | 61mm | 44mm | 53mm | 53mm |
| Main Material | | | | | |
| Packing QTY | 1 | 1 | 1 | 1 | 1 |
| Weight (kg) | 0.475kg | 0.4kg | 0.4kg | 0.65kg | 0.65kg |

TRIAX[®] catTV system

TV over symmetric data cable



The catTV technique

was developed to transfer over the previously used only for telephone and Internet data network and radio, television and value-added services. Thus, the additional coaxial cabling for television reception is unnecessary. TV reception can be at any point in the data network realized.

- catTV technology from TRIAX was developed to enable transmission of radio, television, and value-added services via the data network that formerly was used only for telephone and Internet. Thus additional coax cabling can be dispensed with for television reception. Television reception can then be implemented at any point of the data network.
- Multimedia application (radio, TV) directly via the existing 100 Ohm application-neutral building cabling = "structured cabling" (symmetric cabling in accordance with category 6/7)

- With the double-active catTV systems (distribution panel and Balun) link attenuation of up to 50 dB can be compensated. This also means that the maximum structured cabling length of (90 m) can be bridged.
- The service can be fed individually to each subscriber via star-shaped "structured cabling"
- Cost-effective extensions and supplemental integration of additional subscribers are possible without installation expenses - additional calibration is not required
- Installation of an additional coax network is not required for the TV multimedia application
- All TV channels offered from 45 (85) to 862 MHz can be transmitted
- Return channel enabled, optionally available with active or passive return channel (5-65 MHz)
- Plug and play system. Adjustment of attenuation and slope to the existing cable length merely requires a changeover switch (in 3 steps) on the balun.

NPN 3412 CatTV panel

Art. No. 350663

EAN Number
5702663506633



NPN catTV panels for television and radio reception at any point in the data network without additional installation of coaxial cable.

The panel with electric NPN input (coaxial/75 ohms), converts the input signal into a balanced signal (sym./100 ohms) to it via the patch (patch panel) of the building wiring intrude subscriber line.

- Super low noise push-pull technology
- Attenuator + equaliser on the input

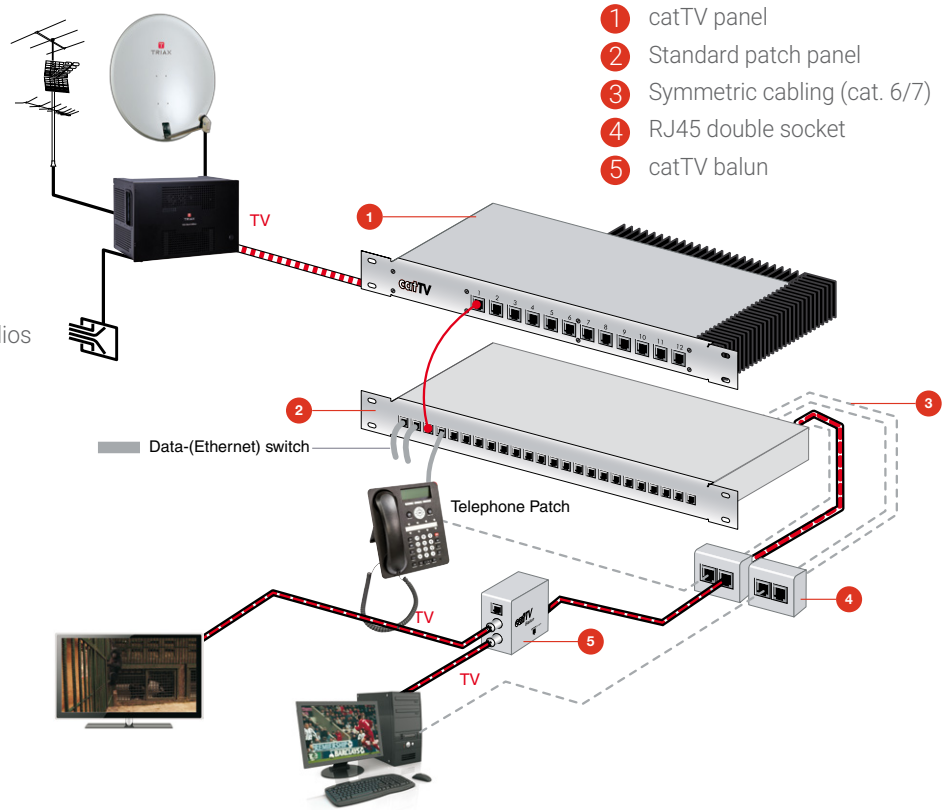
- Input measuring socket
- Amplification through GaAs- hybrids
- Conversion of 75 W(coaxial) to 100 W(symmetrical), RJ 45
- Paired cable configuration (HF 1,2; remote feed/RC 7, 8)
- TV signals are only actively switched when balun is connected
- Standard RC module active and passive can be retrofitted
- Static switch-off of individual ports is possible
- External power supply

TRIAX® catTV system

catTV-Panel NPN

Applications in / to

- Office and industrial buildings
- Clinics and hospitals
- Rehabilitation centres
- Banks, savings institutions
- Stock exchange workstations
- Brokerage firms
- Insurance buildings
- Airports
- TV stations and television studios
- Munciple buildings
- Hotels, vacation resorts
- Housing estates
- Athletic arenas
- Correspondent workstations



| | |
|---|-----------------------------------|
| Type: | NPN 3412 CatTV panel 350663 |
| Art. no. | |
| CHARACTERISTICS | |
| Output level CSO @ 60 dB IMD | 94 (104) @ 15 dB SlopedB μ V |
| Output level CTB @ 60 dB IMD | 94 (104) @ 15 dB SlopedB μ V |
| FREQUENCY | |
| Frequency range | 45..862MHz |
| GAIN | |
| Gain | 34dB |
| Noise figure | 7dB |
| LOSS | |
| Attenuation - adjustable | 0-20dB |
| Equalization | 0...18 dB |
| ELECTRICAL | |
| Impedance | 75 (IN), 100 (OUT) Ω |
| OPERATIONAL | |
| DC Operating voltage | 28VDC |
| DC Current consumption (typ.) | 930mA |
| External PSU | Included |
| LED indicator | green LED for Power on |
| Operating temperature range | 0...+50°C |
| Power Consumption (typ.) | 26W |
| CONNECTORS | |
| Connector Type | RJ45 female / F-female |
| Number of inputs | 1 |
| Number of outputs | 12 |
| RF connector - Test point input: bi-directional | -20dB |
| MECHANICAL | |
| Dimension (H x D x W) | 42 x 180 x 483 mm (19 inch, 1 RU) |

TRIAX® catTV system

catTV Balun



The balun (balanced - unbalanced)

converts the panel from catTV transmitted over the generic cabling symmetrical signal (100 ohms) to be processed in one of the devices (eg TV and radio) coaxial signal (75 ohm).

- The catTV balun is plugged in via a patch cable to the RJ45 socket participants.
- Phone input signals via RJ 45
- Back conversion of 100 W into 75 W

- Amplification of the HF signal
- Allocation of the signals to the outputs
- 2 variants, one without Return Path and one with Return Path 5-65 MHz
- Slope and attenuation of max. 50 dB are compensated
- Plug and play, 3 switch settings for easy adjustment to different cable lengths



NBL 0200 CatTV-Balun

Art. No. 350661

EAN Number
5702663506619



NBL 0265 CatTV-Balun

Art. No. 350662

EAN Number
5702663506626

| Type: | NBL 0200 CatTV-Balun | NBL 0265 CatTV-Balun |
|-------------------------------|---------------------------|---------------------------|
| Art. no. | 350661 | 350662 |
| CHARACTERISTICS | | |
| Max. input level | 54-90dBuV | 54-90dBuV |
| Output level | 60-77dBuV | 60-77dBuV |
| FREQUENCY | | |
| Frequency range | 45...862MHz | 80...862MHz |
| Frequency range return path | | 5...65MHz |
| Gain | | |
| Gain | 6/-7/-20 dB | 6/-7/-20 dB |
| Pre-emphasis | 18/10/0 dB | 18/10/0 dB |
| ELECTRICAL | | |
| Impedance | 75 (RF OUT), 100 (RF IN)Ω | 75 (RF OUT), 100 (RF IN)Ω |
| OPERATIONAL | | |
| DC Operating voltage | 10VDC | 10VDC |
| DC Current consumption (typ.) | 70mA | 70mA |
| Operating temperature range | 0...+50°C | 0...+50°C |
| CONNECTORS | | |
| Connector type - input | RJ 45-Buchse, 8-polig | RJ 45-Buchse, 8-polig |
| Connector type - output | IEC-male/IEC-female/RJ 45 | F-female/IEC-male/RJ 45 |
| Number of inputs | 1 | 1 |
| Number of outputs | 3 | 3 |
| MECHANICAL | | |
| Colour | White | White |
| Product W x H x D (mm) | 81 x 59 x 35 mm | 81 x 59 x 35 mm |
| Packing QTY | 1 | 1 |
| Weight (kg) | 0.112kg | 0.112kg |



TRIAX

connecting the future

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TRIAX is a global supplier of reliable, innovative products and solutions for the reception and distribution of video, audio and data signals.

Our Products are used in homes, businesses and operator networks by broadcasters, satellite, cable and telecom operators.

Our Solutions combine our hardware and software expertise to deliver value to hospitality and related markets, through a partner network of system integrators, large installers and operators.

TRIAX's headquarters, production and R&D base is in Denmark. With 9 international sales subsidiaries we operate in more than 60 distributor countries.

The TRIAX team consists of 300 employees and is owned by Polaris Private Equity.

See www.triax.com for further info.

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