



## Meinberg Radio Clocks

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## FO CONVERTER: Fiber Optic Converter

The MEINBERG fiber optic modules convert an electrical input signal (TTL or RS-422) into one or more FO (fiber optical) output signals or an FO input signal in one or more electrical output signals.

The FO modules are suitable to spread signals like IRIG (AM / DCLS), PPS or RS-232 over wide distances.

### Key Features

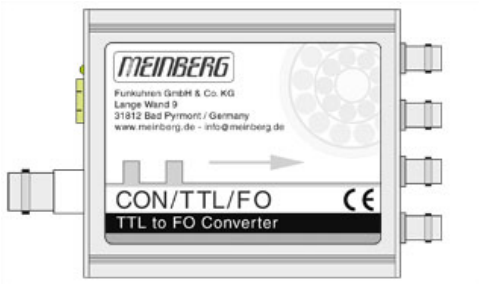
- for distances of up to 2,000 m (Multimode) or 10,000 m (Singlemode)
- for IRIG Time Codes (AM / DCLS), PPS, 10 MHz, RS-232 serial interface
- interference immunity of the FO connection

### Description

#### Multimode Converter

The following fiber optic converters have been designed for the distribution of electrical signals over distances of up to 2,000 mtrs. The optical ST connectors are linked via an optical GI50/125  $\mu\text{m}$  or GI62.5/125  $\mu\text{m}$  multimode fiber (wave length: 850 nm). The launchable optical output power is typ. 20  $\mu\text{W}$  per output, the minimum optical input level is 3  $\mu\text{W}$ . The electrical inputs and outputs are provided via female BNC connectors or 9pin SubD connectors. If necessary, the output signals of the digital modules can be inverted against the respective input signal by a jumper inside the aluminium profile housing (71 mm x 84 mm x 24 mm / width x depth x height).

The voltage supply (20 - 60 V DC) is provided by a plug-in power supply unit (100 - 240 V ACIN; 24 V DCOUT) included in the scope of delivery. All converter variants are equipped with a fixing clamp for 35 mm DIN mounting rails.



### CON/TTL/FO

The fiber optic module CON/TTL/FO converts an TTL input signal into one or more FO (fiber optical) output signals.

Standard variants (PPS, PPM, 10 MHz, IRIG-B DCLS, TxD):

CON/TTL/FO: TTL In (BNC) to 1 x FO Out

Option: up to 4 x FO Out CON/.../FO-x /Output

Infosheet FO Converter CON/TTL/FO



### CON/FO/TTL

The fiber optic module CON/FO/TTL converts a FO (fiber optical) input signal into one or more electrical output signals (TTL or RS-422).

Standard variants (PPS, PPM, IRIG-B DCLS, TxD):

CON/FO/TTL: FO In to 2 x TTL Out (BNC)

CON/FO/422: FO In to 1 x RS-422 Out (DB9 female)

CON/FO/TTL/422: FO In to 1 x RS-422 and 1 x TTL Out

Infosheet FO Converter CON/FO/TTL



### CON/FO/FO

The fiber optic converter CON/FO/FO distributes a single optical input signal to multiple optical outputs.

Variants up to 10 MHz:

CON/FO/FO/10M: single ST input via FO receiver (e.g. IRIG-B DCLS / 10 MHz)

Option:

CON/FO/FO-x/10M: FO In into 4 x FO Out

up to 4 x 850 nm Multimode FO outputs via ST connectors.

Infosheet LWL Converter CON/TTL/FO



### CON/232/FO

The fiber optic module CON/232/FO converts a RS-232 signal (TxD and RxD) into optical signals.

Standard variants (for RxD and TxD):

CON/232/FO: RS-232 (DB9 male connector) to 1 x FO In and 1 x FO Out

Optional up to 4 x FO Out: CON/.../FO-x /Output

Infosheet FO Converter CON/232/FO



### CON/422/FO

This Fiber Optic device converts an RS-422 signal into an optical signal.

Standard Variant:

CON/422/FO: RS-422 (DB9 male connector) to 1 x FO Out

Option: Up to 4 X FO outputs

Infosheet LWL Converter CON/422/FO



### CON/TCM/FO and CON/FO/TCM

These fiber optic modules carry an amplitude modulated Time Code AM signal over an optical fiber.

Signal delay: 60  $\mu$ s

Variant to convert a Time Code AM signal to FO:

CON/TCM/FO: Time Code In (BNC) to 2 x FO Out

Variant to back-convert the FO signal to Time Code AM:

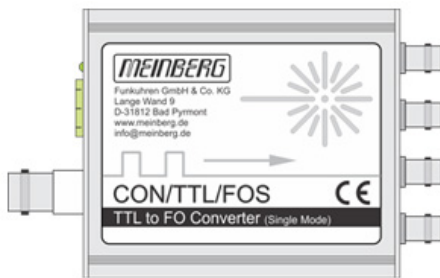
CON/FO/TCM: FO In to 2 x Time Code Out (BNC)

Infosheet FO Converter CON/TCM/FO

Infosheet FO Converter CON/FO/TCM

Singlemode Converter Multimode converters are unsuitable to bridge distances over 2,000 m. The following singlemode converters were developed to distribute electrical signals over distances of up to 10 kilometers. The optical ST plug connectors are wired via an E9/125  $\mu\text{m}$  mono-mode fiber (wave-length: 1310 nm). The optical output power is typ. 15  $\mu\text{W}$  (-18 dBm) per output and the optical input has a susceptibility of -30 dBm. The electrical in- and outputs are led out via a BNC socket or a D-Sub9 connector.

Even with these modules, the output signal can be inverted against the input signal, if necessary.



### CON/TTL/FOS

The fiber optic converter module CON/TTL/FOS for singlemode fibers converts an input signal (TTL, RS-422 or FO) into one or more fiber optical output signals.

The following options are possible:

#### CON/TTL/FOS-x:

TTL input (BNC) to one or -x (2 - 4) FOS outputs

#### CON/422/FOS-x:

RS-422 input (DSub9) to one or -x (2 - 4) FOS outputs

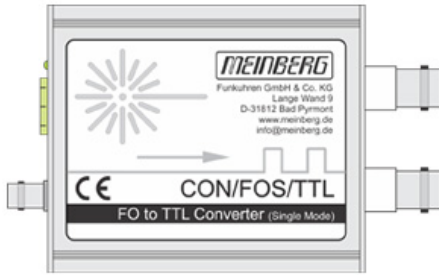
#### CON/FOS/FOS-x:

FOS input (ST) to one or -x (2 - 4) FOS outputs

#### CON/FO/FOS-x:

FO (multimode) input (ST) to one or -x (2 - 4) FOS outputs

Infosheet FO Converter CON/TTL/FOS



## CON/FOS/TTL

The fiber optic converter module CON/FOS/TTL for singlemode fibers converts an optical input signal into one or more electrical output signals (TTL or RS-422).

The following options are possible:

**CON/FOS/TTL:** two TTL outputs via BNC female connectors

**CON/FOS/422:** one RS-422 output via D-Sub9 female connector

Infosheet FO Converter CON/FOS/TTL

## Characteristics

### Optical Outputs

#### Multimode

FO outputs via ST connectors (for GI 50/125  $\mu\text{m}$  or GI 62,5/125  $\mu\text{m}$  gradient fiber)  
 For signals up to 10 MHz  
 Launchable optical output power: typ. 15  $\mu\text{W}$  per output (into GI 62,5/125  $\mu\text{m}$  fiber)  
 wave length: 850 nm

#### Singlemode

FOS outputs via ST connectors for E9/125

### Optical Inputs

One **multimode FO input** via ST connector (for GI 50/125  $\mu\text{m}$  or GI 62,5/125  $\mu\text{m}$  gradient fiber), for signals up to 10 MHz, optical input level: min. 3  $\mu\text{W}$ , wave length: 850 nm

One **FOS singlemode FO signal** via ST connector (for E9/125)

### Electrical Connectors

TTL signal via female BNC connector or  
 RS-232 Signal via male 9pin DSub connector (Pin 2: TxD IN, Pin 3: RxD OUT, Pin 5: GND)  
 RS-422 signal via male 9pin DSub connector (Pin 8: +IN, Pin 7: -IN)  
 Time Code AM signal via BNC female connector  
 Supply voltage via 3-pin. DFK connector

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<b>Operating Voltage</b>	The required supply voltage (20 - 60 V DC) is provided by a power adapter (VIN: 100 - 240 V AC; VOUT: 24 V DC) which is included in the scope of supply.
<b>Physical Dimensions</b>	Aluminium profile case, 84mm x 71mm x 24mm
<b>Supported Temperature</b>	Operational: 0 - 50 °C (32 - 122 °F) Storage: -20 - 70 °C (-4 - 158 °F)
<b>Supported Humidity</b>	Max. 85 % (non-condensing) at 40 °C
<b>Warranty</b>	Three-year warranty
<b>RoHS Status of Product</b>	This product is fully RoHS-compliant.
<b>WEEE Status of Product</b>	This product is handled as a B2B (Business to Business) category product. To ensure that the product is disposed of in a WEEE-compliant fashion, it can be returned to the manufacturer. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will bear the costs for the waste disposal itself.

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#### Manual

There is no online manual available for this product.: [1][Contact us](#)

#### Links:

[1] <mailto:info@meinberg.de>