GNSS Transmisson over Fiber / GPS over Fiber

Art.-Nr. 3070010

Features:

- Costeffective GNSS signal transmission over long distances with lightweight cable
- Very low time delay and signal loss
- Immunity to EMI and RF Interference due to non-conductive technology
- Very flat frequency response over the entire band
- Perfect for GNSS Timing by NTP and PTP
- Integrated GPS Receiver for status control by LED, display or remote (option)

Description:

This GPS over Fiber Kit is suitable to convert GNSS signals to optical ones and carry them over long distances. The RF over fiber transmitter with Bias-T receives the signal from an active GNSS antenna and converts it to an optical signal. The receiver converts it back and amplifies the signal if required. The attenuator can be adjusted to user requirement e.g. with a direct connection to a GPS Receiver or if used with a Repeater for wireless transmission.

The transmitter (TX) and the receiver (RX) are available in 19“ racks with 1 RU or also in a smaller housing which can be mounted on the wall.

Three integrated LEDs show the status of Power, Transmission and GPS availability.

The GPS status can also be checked within a network by a remote ethernet interface (RJ45).

The system has been designed to work with all kinds of NTP and PTP GNSS timing receivers. It can also be used for telecommunications, satellite, digital radio and broadcast. Due to the low loss and the small time delay it can be used over long distances up to 5 km.

Especially in new buildings which often have fibre cables preinstalled it is an easy way to distribute GNSS signals into all rooms.

The system is configured to transfer a 1:1 signal to one or more GPS devices connected to the RF over fiber receiver. Customer specific link gain is available from – 75 and – 105 dBm @ L1.

Typical applications:

GNSS, GPS, Base stations for 4G, LTE, 5G, Broadcast, BOS, digital radio, SatCom, Iridium, mining

Frequently used definitions for the system are GPSoF (GPS over Fiber), RFoF (RF over Fiber).

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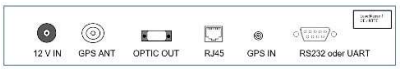
Options for TX	Art.-Nr.	Comment
External GNSS-Timing antenna	G3ANT-3ATR1	Active GNSS antenna for GPS L1 and Glonass G1 with TNC-m
External GNSS-Timing antenna	G5ANT-3ATR1	Active GNSS antenna for GPS, Glonass, Galileo, Beidou, QZSS
Coaxial cable Typ LMR195 with 10 m length TNC-m to N-m	3030011-10	For the connection antenna to transmitter
Coaxial cable Typ LMR195 with 10 m length TNC-m to N-m	3030011-15	For the connection antenna to transmitter
Surge protection for the transmitter	3050012-3	Including an adapter cable with 3 m length and TNC / N connector
Transmitter in a wall mount	1549500	Wall mount housing fort the transmitter (indoor or outdoor)



Options for RX	Art.-Nr.	Comment
ATmega-Controller with 2 lines LCD Display and RS232 interface	3071100	Shows GPS time, date, quality value HDOP and the amount of satellites used in calculation, RS232 for configuration of RF attenuators (starting in September 2020)
Integrated 1 in 4 GNSS splitter	3071101	Passive 1 in 4 GNSS splitter with 4 SMA sockets (DC blocked) on the back side, please check an activated antenna control on your receiver
Webserver with RJ45 interface	3071102	With fixed MAC address for network integration, checking your GPS status over GUI webinterface from every PC or Android device
External GPS antenna socket SMA for integrated GPS Receiver	3071103	Can be used for checking the status of other GNSS antennas
Configuration for wireless GNSS signal transmission	3071104	This configuration is only for use within a GNSS repeater system

Interfaces

> RF over fiber transmitter	
RF IN / Optic OUT	N-f / SC-APC socket
> RF over fiber receiver	
RF OUT / Optic IN	N-f / SC/APC socket
> Interfaces (option)	RS232, RJ45, SMA

Other

> Operating temperature	- 20 to + 70°C
> Storage temperature	- 25 to + 75° C
> Housing	19“ Rack–1 RU
> Weight	1,9 kg per Rack
> Housing material	anodized aluminum
> Dimensions	D: 210 /230 mm (N-f)
	H: 1 RU – 44,5 mm
	W: 483 mm (Installation)

FIBER OPTIC CABLE

> Single mode cable 9/125 um (until 5 km length)

TECHNICAL DATA

> GNSS frequency band	GPS, Glonass, Galileo, Beidou, QZSS, IRNSS
> Frequency range	1150 – 1700 MHz
> Laser wavelength	1310 nm +/- 30 nm
> Laser Class	1
> GPS receiver	ublox M7N with Status LED
> Signal Input / Output	1:1 / 0 dB / +/- 5 dB
> Gain Flatness	1.4 dB
> Output Noise Floor	max. -133 dBm/Hz
> Supply voltage	230 V to 12 V power adapt
> Current consumption	RX: 180 mA / TX: 90 mA
> RF Input min. / max.	- 75 to - 45 dBm (TX)
> P1dB RF input	0 dBm
> RF attenuator	0 -30 dB (RX)
> VSWR	1.8 : 1
> Input/ Output Impedance	50 Ω

For the operation of the system an active GNSS antenna (5 V) with more then 30 dB gain is required.

Additional options

Customer specific configurations for frequencies like Iridium, optical splitters, 200 Ohm loads for antenna control, different link gain for Input / Output, integrated RF filter are available on inquiry!

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