



MANUAL

GOAL V2

GPS Optical Antenna Link

4th February 2013

Meinberg Radio Clocks GmbH & Co. KG

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1 Impressum

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2 Features of GOAL

GOAL is a GPS Optical Antenna Link set for connecting a Meinberg GPS antenna to a Meinberg GPS receiver via one optical multimode fiber. The module GOAL/R is to connect to the receiver's antenna input via a patch cable and can be assembled somewhere around. The module GOAL/A is to mount indoor, connected to the Meinberg antenna via a coaxial cable.

Both modules are linked to each other via a single GL50/125 μ m or GL62,5/125 μ m multimode gradient fiber.



This kind of connection provides several advantages:

- large antenna cable distances (up to 2000 mtrs.)
- no destructive overvoltage via the antenna cable
- no unintentional monitoring via optical fiber

The receiver-side module GOAL/R is supplied with power via the antenna input connector of the GPS receiver, therefore no external power supply is necessary. The module GOAL/A needs an external supply for operating and feeding the GPS antenna. Whenever the antenna is not connected, or a short circuit occurs on the antenna cable, this is shown by a status LED in the front panel. A second status LED shows that the 10MHz reference clock, coming from the GOAL/R, is received within a sufficient signal strength and therefore the FO link is working.

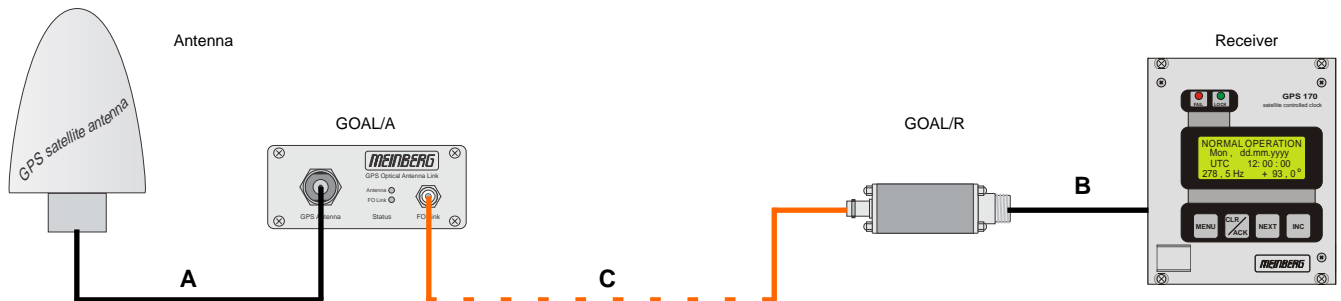
The GOAL system is suitable for all Meinberg GPS receivers (except GPS166!), also for the later extension of existing systems. When using the GOAL system together with the GPS signal converter GPSGEN1575 it is to be noted that operation of connected GPS receivers from third-party manufacturers can not be guaranteed!

Physical Dimensions:

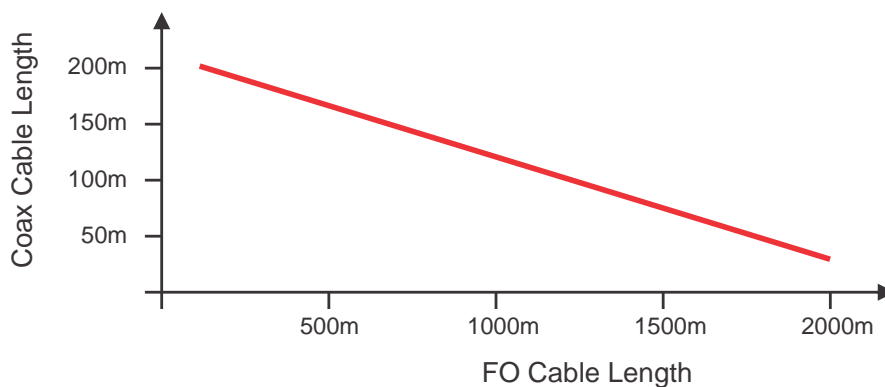
GOAL/A: 44mm x 105mm x 165mm (height x width x depth)

GOAL/R: 25mm x 25mm x 95mm (height x width x depth)

3 Installation



The maximum cable length of the fiber optical connection (C) comes up to 2000 mtrs. However, this distance can be achieved only if the link is continuously, with no additional and attenuating FO connectors, and with the most short coax cable connection to the antenna (A) and to the receiver (B). The longer the coax cable connection is, the shorter is the maximum possible optical fiber length. With the maximum coax cable length (200 mtrs), the possible optical fiber length is minimal (<100 mtrs). With a minimum of coax cable (A+B < 50m), the maximum optical fiber length of 2000 mtrs is possible. It does not matter how the coax cable length is divided in A and B.



The group delay caused by the antenna line can be compensated by the GPS receiver (please refer to the receivers manual). The received time frame is delayed by approx. 5ns per mtr antenna cable. This delay is valid for both the coax cable (A+B) and the optical fiber (C). The receiver is able to correct this delay if the exact total cable length (A+B+C) is given. When GOAL is used, a value of 20 mtrs should be added to the total cable length in order to compensate the fixed delay caused by the GOAL system.

Warning messages like "Antenna Faulty" or "Antenna Short-Circuit", generated by the GPS receiver, appear when the failure occurs on the coax cable line B, only. Failures on the lines A or C can be recognized by the decrease of the number of received satellites, only. The receiver is changing into the operation mode "Warm Boot" then.

4 Technical Specifications

Achtung:



Die optischen Sender/Empfänger des GOAL sind empfindliche Bausteine!

Nur die angegebenen Kabel- und Steckverbinder verwenden. Die optischen Bausteine nicht mit ungeeigneten Mitteln oder Geräten reinigen sondern bei Nichtbenutzung bzw. Transport mit der beiliegenden Staubschutzhülle abdecken.

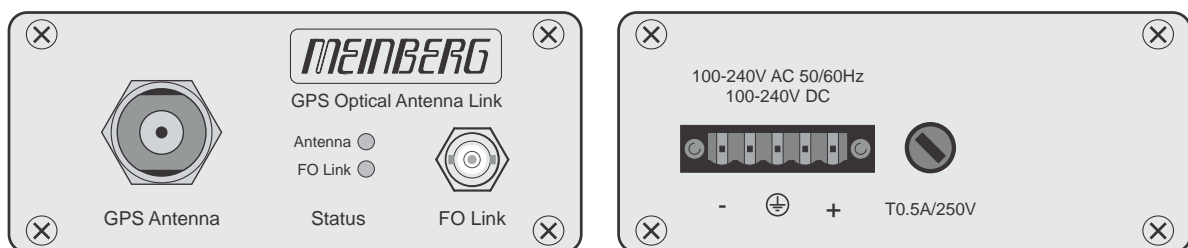
Bei Nichtbeachtung besteht die Gefahr der permanenten Beschädigung!

4.1 GOAL/A

ANTENNA- INPUT:	Antenna circuit 1000 V DC insulated
LOCAL OSCILLATOR TO CONVRTER FREQUENCY:	10 MHz ₁
FIRST IF FREQUENCY:	35.4 MHz ₁
	1) these frequencys are transfered via the antenna coax cable and the optical fiber.
FO LINK:	ST connector for GI 50/125 μ m or GI 62,5/125 μ m gradient fibre Wave length: 1300nm (transmit), 850nm (receive), Launchable optical output power: typ. 15 μ W (into GI 62,5/125 μ m), Optical input level: min. 3 μ W
STATUS LEDs:	Antenna: green: ok red: not connected or short circuit FO Link: green: ok red: no sufficient interconnection to the GOAL/R
CONNECTORS:	ST connector (FO Link) female type-N (Antenna) power supply via 5pin. DFK connector
POWER REQUIREMENTS:	100-240VAC 50/60Hz, 100-240VDC optional: 18-72VDC power consumption: 5W max.

FUSE:	500mA SB / 250V
AMBIENT TEMPERATURE:	-25 ... 65° C
HUMIDITY:	85% max.
HOUSING:	black eloxadized aluminium housing, with aluminium front and rear panel, IP30 protected
PHYSICAL DIMENSIONS:	44mm x 105mm x 165mm (height x width x depth)

Front and Rear View GOAL/A

**CLASS 1 LED PRODUCT****4.2 GOAL/R**

FO LINK: ST connector for GI 50/125 μ m or GI 62,5/125 μ m gradient fibre
 Wave length: 850nm (transmit), 1300nm (receive),
 Launchable optical output power: typ. 15 μ W (into GI 62,5/125 μ m),
 Optical input level: min. 3 μ W

CONNECTORS: ST connector (FO Link)
 female type-N (Receiver)

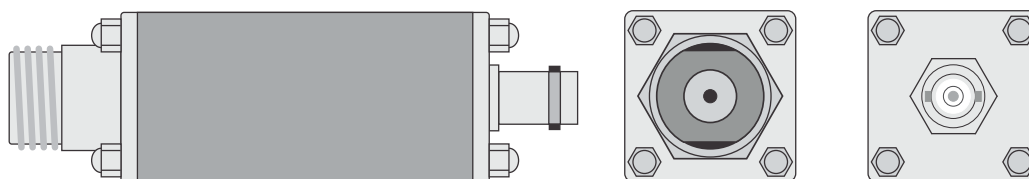
AMBIENT TEMPERATURE: -25 ... 65° C

HUMIDITY: 85% max.

HOUSING: Aluminium HF housing, IP30 protected

PHYSICAL DIMENSIONS: 25mm x 25mm x 95mm (height x width x depth)

Site View, Front and Rear View GOAL/R

**CLASS 1 LED PRODUCT**

4.3 CE Label



This device conforms to the directive 2004/108/EC on the approximation of the laws of the European Community Member States relating to electromagnetic compatibility.

Konformitätserklärung

Declaration of Conformity

Hersteller
Manufacturer

Meinberg Funkuhren GmbH & Co. KG
Lange Wand 9
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erklärt in alleiniger Verantwortung, daß das Produkt
declares under its sole responsibility, that the product

Produktbezeichnung
Product Name

Optical Antenna Link

Modell / Typ
Model Designation

GOAL

auf das sich diese Erklärung bezieht, mit den folgenden Normen übereinstimmt
to which this declaration relates is in conformity with the following standards

EN55022:2010, Class A

Limits and methods of measurement of radio interference
characteristics of information technology equipment

EN55024:2010

Limits and methods of measurement of Immunity
characteristics of information technology equipment

EN 61000-3-2:2006
(+A1:2009 +A2:2009)

Electromagnetic Compatibility (EMC)
Limits for harmonic current emissions

EN 61000-3-3:2008
(+A1:2001 +A2:2005)

Electromagnetic Compatibility (EMC)
Limitation of voltage fluctuation and flicker in low-voltage
supply systems

2011/65/EU

RoHS-directive

gemäß den Richtlinien 2004/108/EG (Elektromagnetische Verträglichkeit), 2006/95/EG
(Niederspannungsrichtlinie) und 93/68/EWG (CE Kennzeichnung) sowie deren Ergänzungen.
following the provisions of the directives 2004/108/EC (electromagnetic compatibility), 2006/95/EC (low voltage directive) and
93/68/EEC (CE marking) and its amendments.

Bad Pyrmont, den 06.11.2012



Günter Meinberg
Managing Director