

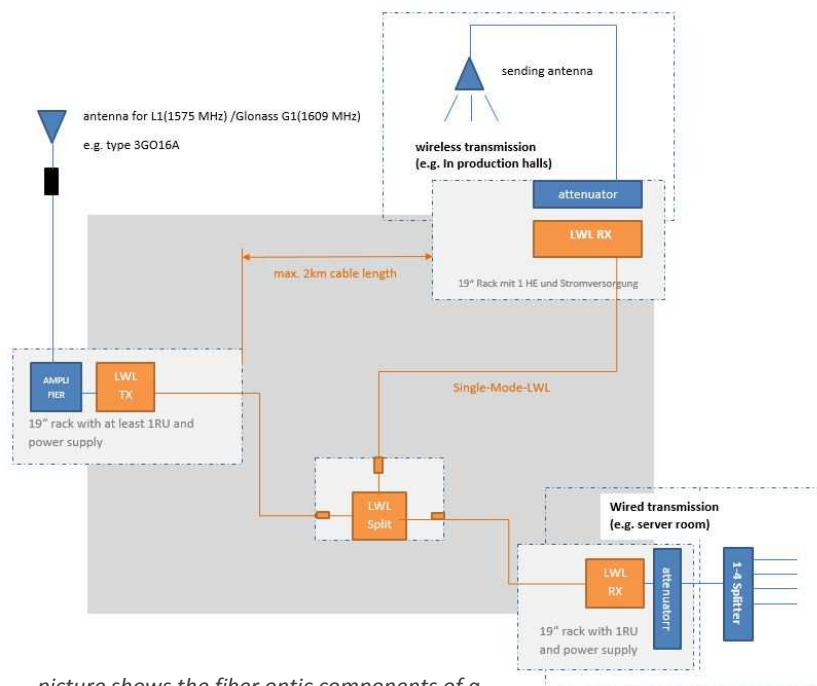
GNSS Fiber signal transmission

Advantages and fields of application

The use of fiber optic cables is becoming increasingly popular in the construction of new buildings due to the high transmission speed with a low cable diameter and virtually any cable length. But fiber optic cables are also ideal for transmitting GNSS signals.

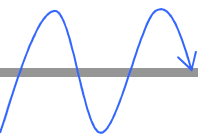
AuCon GmbH offers a GNSS over fiber optic kit, especially for technically complex, time-critical and redundant applications. Transmitters and receivers are specially tuned to GNSS or L-band, and can also be set according to your requirements, depending on whether a useful signal is transmitted over a wireless network or connected to a terminal.

GNSS scheme with fiber optic components



picture shows the fiber optic components of a GPS receiver system set apart in grey

Since the coaxial signal from the GPS antenna is too weak, the GNSS signal level on the transmitter must be increased to ensure pure and constant signal transmission through the optical fiber. At the same time, the noise level received by the antenna is suppressed.



At the other end, at the receiver output, the signal is attenuated in order to protect system components against damage, even when connected directly to terminals, caused by too high levels. Of course, you can specify the output levels required for the application (between -85 and -118 dBm) or, if necessary, adjust them yourself.

The system can be ordered in 19" racks with 1RU or in a wall-mounted enclosure, an optional waterproof version is available for use in harsh environments.

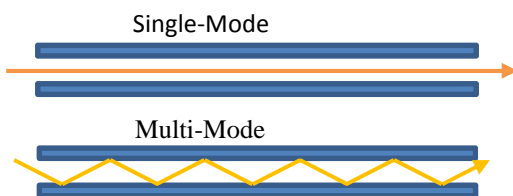


Picture above: conversion of the RF signal into light waves in a wall cabinet housing



Picture left: 19" rack mount signal transmitter kit

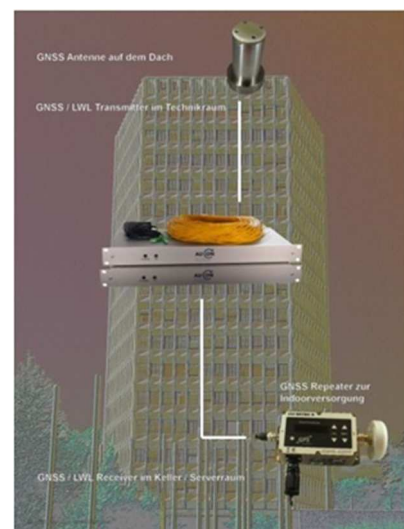
High-quality single-mode fiber-optic cable is used as the transmission medium, since multimode cables do not function sufficiently for weak signals, long distances and high bandwidths.

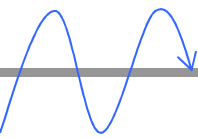


Single-mode vs. Multi-mode



APC-Click connector (m)





A further advantage is the significantly shorter time delay in fiber optic cables, compared to conventional coaxial cables, since signals travelling with the speed of light. This is especially relevant for time-critical applications. The signal propagation times against coaxial cables are reduced by about 40%.

Advantages of fiber optic systems at GNSS:

- low signal loss even with long cable
- fiber optic cable is significantly cheaper than high-quality coaxial cable
- small cable sizes make it easy to lay out e.g. passage through a wall
- 40% faster signal propagation times compared to coaxial cables
- the cable can be up to 5 km or more and can, therefore, also be used in tunnels and mines

Our optical fiber kit can be used anywhere where extremely accurate time signals are important and where conventional coaxial cables reach their limits. Typical application examples are BOS radio, GPS distribution with very long signal paths, indoor positioning or the time-saving connection of server rooms in large, complex buildings.

If You have questions, please don't hesitate to call us.

AuCon GmbH

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