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CREATIVE & UNIQUE

MICROWAVE

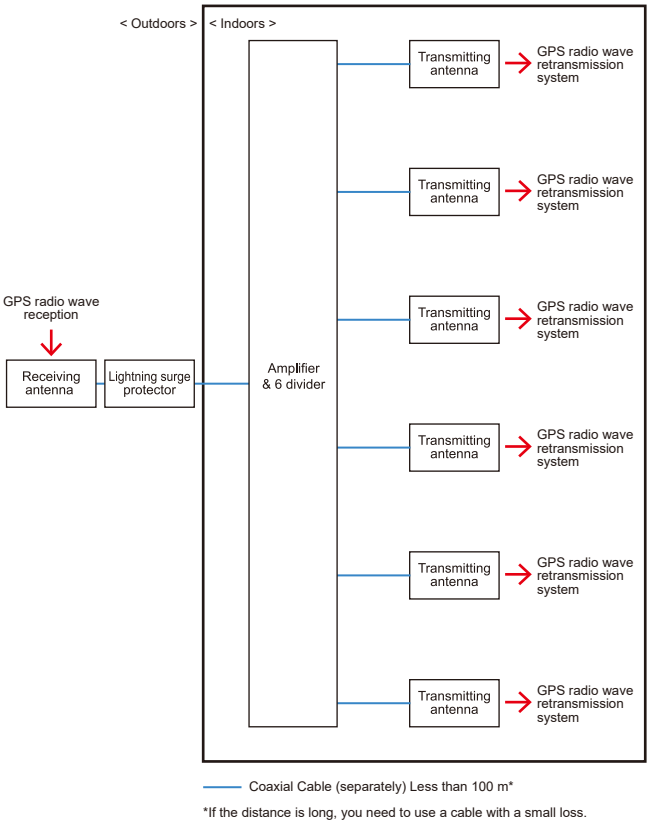
GPS radio wave retransmission system
MN1600

The MN1600 is a retransmission system that receives GPS radio wave with a receiving antenna installed outdoors, amplifies it and then radiates again with an indoor transmitting antenna.
By using this system, GPS signal can be received even in buildings where GPS radio wave doesn't reach.
It is effective when setting on-board equipment such as car navigation system and drive recorder using GPS signal indoors.

- **Basic system: Receiving antenna × 1, Transmitting antenna × 6, Amplifier & 6 divider × 1**
- **Amplifier & 6 divider is for space-saving because of a wall mounted type.**
- **Optionally, GPS signal pseudo transmission system with GPS simulator can be constructed. Provide an environment not related to the weather.**

(Note1) Frequency is L1(1575.42MHz) only. (Note2) Position information means a position of receiving antenna.

System configuration



Coaxial Cable (separately) Less than 100 m*

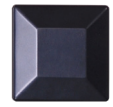
*If the distance is long, you need to use a cable with a small loss.

Standard specification

■ Receiving antenna
This is an active antenna for receiving GPS radio wave and should be installed outdoors and in a place with wide view.
- Gain : 38dBi
- Polarization : Right hand circular polarization
- Connectors : N(J)
- Outside dimensions : φ90×98.4mm(excluding projections)

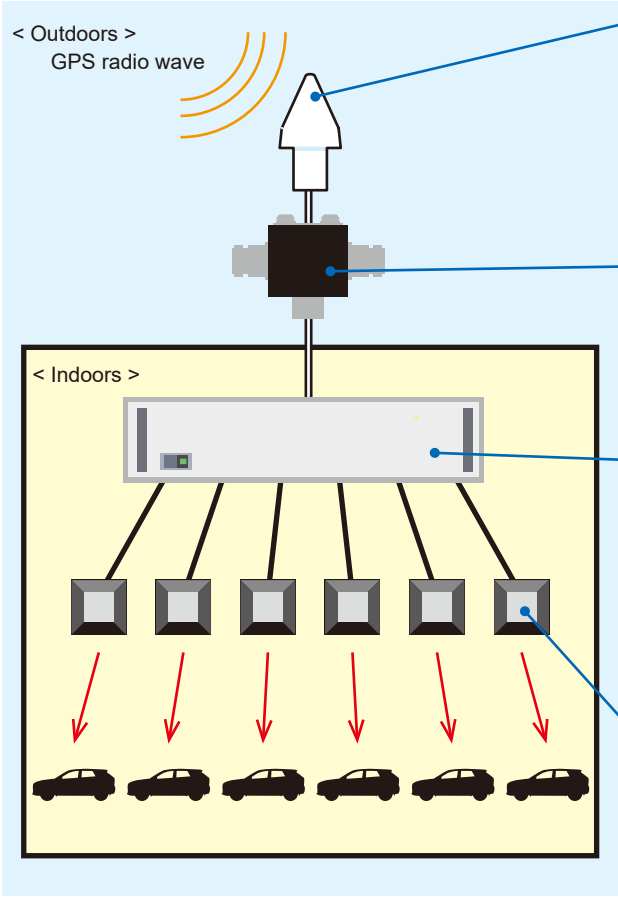
■Lightning surge protector
Protect equipment from lightning surge.
- DC discharge start voltage：230V±20%
- Impulse discharge start voltage：650V
- Impulse discharge current capability：10kA

■Transmitting antenna
This is an antenna retransmitting GPS radio wave for devices using GPS signal indoors.
- Gain : 4dBic
- Polarization : Right hand circular polarization
- Connectors : SMA(J)
- Outside dimensions : 66□×11mm(excluding projections)



■Amplifier & 6 divider
This is an equipment that amplifies the received GPS radio wave and distributes to six.
- Gain : to 40dB(Adjust a gain to match to the loss of coaxial cable.)
- Connectors :SMA(J)
- Power-supply voltage : AC 100V to 240V
- Outside dimensions : 430(W)×150(H)×440(D)mm (excluding projections)

Installation of devices



■ Receiving antenna
Set up a receiving antenna to receive GPS radio wave (L1 band) at any location outdoors. The band-limiting filter and preamplifier are built in, and the power is supplied from coaxial cable in which it's superimposed on signal.
Moreover, since the lightning surge protector is inserted in the transmission line, the damage of equipment will be prevented from overvoltage and overcurrent which occur instantaneously.

■ Lightning surge protector
A gas-filled surge arrester element which discharges when a voltage exceeding the rating occurs between the inner and outer conductors of the coaxial cable is built in.
Also, since it returns at the rating or lower, there is almost no need for replacement under normal conditions.

■ Amplifier & 6 divider
The electric field strength of GPS radio wave the receiving antenna receives from the satellite is roughly -130 dBmeirp. When retransmitting this signal, first, it's necessary to calculate the receiving sensitivity of the target area. In MN1600, after amplifying with the low noise amplifier through SAW filter in order to keep the noise floor low, a highly pure GPS signal is supplied to each transmitting antenna.
Amplification & 6 devider can be installed on the wall, so that a retransmission system with excellent maintenance and space saving will be provided.

■ Transmitting antenna
Install a transmitting antenna (passive type) at any location indoors. The electric field strength radiated to the target area is -78 dBmeirp (standard system). By using a dedicated fixing jig, the antenna can be adjusted to the optimum angle.

Flow to use

Field survey (when requested) → Arrangement of contractor and installation of system → System inspection

After installing the GPS radio wave retransmission system, it will be checked whether the signal is correctly amplified and distributed. In the inspection method, a signal generator is connected instead of the receiving antenna and a signal is input, and the a spectrum analyzer is connected instead of the transmitting antenna and the output level of the signal is measured.

After calculating the loss of the transmission line based on the measurement data, it is judged whether the system is normal or not.

In addition, the reception failure due to bad weather etc. won't be guaranteed. Please be aware in advance.

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