# GROUND RECEIVER SYSTEM RD-18
## w/ Sounding Software MGPS2



GPS Radiosonde Ground Receiver System efficiently responds to the operator's requirements for upper air sounding operation. The simple system is allows easier installation.

**Inside equipment** consists of PC with sounding software MGPS2, sonde checker, PoE injector, GPS re-radiator.

**MGPS2** is easy to use sounding software even for non-trained operator supporting preparation, sonde check, launch, data collection, analysis and various meteorological messages through interactive interface. In addition to fundamental charts, various applications are provided such as Emagram, Skew-T, Hodograph and so on. MGPS2 can also display the status of RD-18 receiver (the receiver frequency, signal strength and real time spectrum etc.). MGP2 can operate in any time zone (LST or UTC) and receives time information from the sonde synchronized with the GPS time and synchronizes the its time.

## Features

▼ Easy installation (1 pole for outside equipment. 1 Ethernet cable between inside and outside)
＊Except for a coaxial cable for GPS re-radiator

▼ Three (3) steps to facilitate sounding operation

▼ Quick five (5) minutes preparation
＊The time to display the corrected data depends on the setting of the filter

**Outside equipment** consists of 400 MHz antennas (maximum 4) for radiosonde, RD-18 receiver and GPS antenna.

**RD-18 receiver** is installed beneath the antenna. RD-18 receives signal of the radiosonde, demodulates the signal, sends measured data to indoor PC by a Ethernet cable. RD-18 consumes less power and it is powered from PoE injector by the Ethernet cable. By selecting the PoE injector compatible with each country's power supply, it can be used in any power supply environment. RD-18 has backup capacitor inside, so it keeps working against momentary power failure. RD-18 also sends HK data (lock status, inside temperature and the status of power supply) to PC. RD-18 has other basic functions, such as antenna switcher, narrow 8ch band pass filter, AFC/MFC and real time spectrum measurement. RD-18 can receive the signal from radiosonde more than 250km away with Yagi antenna. Under low-temperature environment less than -40°C, it is possible to correspond up to -60°C by an optional external power supply and a heater.



**Meisei Electric Co., Ltd.**

# Technical Data

## RD-18 Receiver

| | | | | | |
|---|---|---|---|---|---|
| **Receiver** | Frequency Range | 400 to 406 MHz | **Environmental condition** | Temperature | -40〜50℃ |
| | Channel step | 100 kHz (60ch) | | | -60〜50℃ with optional heater |
| | Sensitivity | 〈-107[dBm] | | Humidity | 0〜100%RH |
| | Function | AFC, AGC | | Wind speed | Up to 65m/s(Instantaneous) |
| **Demodulator** | Modulation type | PCM-FM BiΦ | | Precipitation | Unlimited |
| | Deviation | 〈3.75kHz | | Lightning | RF : SMA type |
| | Speed | 1200bps | | | DC discharge starting >DC120V |
| | Band width | 〈15kHz | | | Voltage protection level <700V |
| | Error correction | BCH, 1bit error correction | | | Impulse durability 10kA(8/20us) |
| **Port** | Antenna | 4ch, N-Jack | | | LAN : RJ-45 type |
| | Data & Power | RJ-45 | | | DC discharge starting >DC60V |
| | Heater | 2 pin connector | | | Voltage protection level <500V |
| **Preamp & Fileter** | Gain | 〉20dB | | | Impulse durability 5kA(8/20us) |
| | Filter | 8ch BPF | **Case** | Water/Dust proof | IP65 |
| | | Band width: about 1MHz | | Material | Aluminum diecast |
| **Communication** | to PC | LAN(10/100BASE-T) | | Size | W240 x H 360 x D 120 |
| **Power** | Voltage | 48V DC | | Weight | 〈7kg |
| | | by PoE injector | **Other functions** | Antenna switch | Max 4ch |
| | Consumption | 〈30W | | Spectrum search | Real time |
| | | Option: 100W heater | **Yagi antenna** | | |
| | | in cold area | **Gain** | | 〉6.8[dBi] |
| | Extra | 24V DC for optional heater | **Directionality** | Vertical | ±35° |
| | Backup | 1sec by backup capacitor | | Horizontal | ±45° |
| **Indicator** | Blue | Signal LOCK | **Frequency** | center | 403MHz |
| | Green | Power On | **Impedance** | Input | 50ohm |
| | Red | HK Warning | **Range** | | 〉250km |

## Sounding software "MGPS2"

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|---|---|
| **Display** | PTU chart, Tracking chart, Ascent chart, Raw data, List table, Adiabatic diagrams (Emagram, Skew-T, Tephigram, Stuve diagram), Hodograph, Te significant point editor, Wind significant point editor, WMO Messages monitor, GPS status monitor, Radio frequency setting, Real-time spectrum |
| **Meteorological Data (Range & resolution)** | Temperature: –90 〜+60$^o$C, 0.01$^o$C<br>Humidity: 0 … 100%RH, 0.1$^o$C<br>Pressure: 1050.0hPa … 3.0hPa, 0.1hPa<br>Geopotential height: -500.0m … 40000.0m, 0.1m<br>Wind direction: 0.00$^o$ … 359.99$^o$, 0.01$^o$<br>Wind speed: 0.00m/s … 200.00m/s, 0.01m/s |
| **Meteorological Messages (WMO)** | FM35 TEMP,FM36 TEMP SHIP, FM38 TEMP MOBILE, FM32 PILOT, FM75 CLIMAT TEMP<br>BUFR 3'09'052 (for TEMP data ), BUFR 3'09'050 and BUFR 3'09'051 ( for PILOT data)<br>BUFR 3'09'056 (for descent data), BUFR 3'09'057 ( for high resolution) |
| **Meteorological Messages (Military)** | METCM, METB, METFM, METSR, METTA, METEO 11 |
| **Language** | English, Spanish, Turkish and Japanese |

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