



Vaisala MARWIN[®] Sounding System MW32

The Vaisala MARWIN[®] Sounding System MW32 provides an atmospheric profile of wind, pressure, temperature and humidity from the surface up to the altitudes to be used in the ballistic weather computation. In addition, the data can be used as input into numerical weather models to provide updated observation for more precise predictions. Further, the atmospheric profile is useful for e.g. for aviation, CBRN and naval applications.

With the Vaisala Radiosonde RS41-SGM, encryption and radio silence (patent pending) improve security of defense operations. Radiosonde transmission does not reveal the balloon launch location because the radiosonde transmitter is not switched on until a specified height or time from launch has been reached. Data is recorded also during the radio silence and, when the radio silence ends, transmitted to MW32.

Compact system design

The MW32 system consists of a receiver/processor and antennas to track the radiosonde attached to a free-flying balloon. The integrated display and keyboard unit supports menu driven operation. Side panel connectors enable rack mount installation. The display unit and connector panel have been designed using MIL-STD-1472F as a guideline. The system can be operated, assembled and disassembled wearing gloves or arctic mittens.

Easy operation

The Vaisala MARWIN[®] Sounding System is straightforward to operate using the self-guiding menu. After powering-up, the radiosonde is connected to the system for setting-up using a ground check device, with RS41 radiosonde, or an umbilical cable, with RS92 radiosonde. When done, the system indicates its readiness for launch.

Rugged design for tough military use

The Vaisala MARWIN[®] Sounding System has been designed from conception for demanding use in harsh environments, and rough transportation. A special feature is the conductive cooling. It complies with MIL-STD-810G for low and high temperature, temperature shock, sand and dust, wind driven rain, humidity, salt fog and altitude.

Resistance to shock and vibration

The Vaisala MARWIN[®] Sounding System complies with MIL-STD-810G specifications for vibration, functional shock and transit drop.

Versatile interfaces

The Vaisala MARWIN[®] Sounding System provides one integral LAN port, two USB ports and four serial ports. It also supports the PCSERV protocol of the Vaisala MARWIN[®] Sounding System MW12 legacy so the MW32 can replace the MW12.

Antennas

Several antenna options are available to meet different telemetry range needs. Vaisala offers a portable and fixed antenna set for telemetry and local GPS reception.

Technical data:

HARDWARE AND SOFTWARE

- Processor type COM Express PC, 1.5GHz
- DRAM SO-DIMM, 2 GB
- Flash disk 8 GB
- TFT LCD display 8.4", SVGA, transfective, daylight viewable
- Integral console 5 hardkeys, 5 softkeys, alphanumeric keypad
- Operating system Windows Embedded Standard 2009

I/O PORTS:

- Asynchronous serial RS-232C, 4 lines
- LAN connection 10/100 Mbps Ethernet, 1 line
- USB USB1.1 / USB2.0, 2 lines

OTHER

- Cooling system Conductive cooling, no cooling fans
- Case Cast aluminium
- Connector types MIL-C-26482, MIL-C-38999, MIL-C-5015
- Protection Class IP65
- Environmental tests MIL-STD-810G, see separate list
- Electromagnetic compliance MIL-STD-461F, see separate list
- Dimensions (WxDxH) 430 x 380 x 280 mm
- Weight 22 kg

POWER SUPPLY

- Internal AC Power Unit Input: 90-132 / 180-264 VAC autoranging, 47-63 Hz, 180 W max.
- Internal DC Power Unit Input: 18-33 VDC, 144 W max, MIL-STD-1275B
DC out for external device: 12 V / 0.5 A, 28 V / 1 A
- Internal Battery 2 pcs, Ultralife UBI-2590 Li-Ion, Internal back-up power time: 240 minutes.
Automatic switch-over from AC to external DC to internal battery

Radiosondes and Windfinding Options

Supports Vaisala RS41-SGM, RS41-SGP, RS41-SG, RS92-SGP, RS92-AM* and RS92-D** radiosondes

- Windfinding options: C/A code GPS, P(Y) codeless (MIL-GPS)*
Radio-direction finding (with Vaisala Radiotheodolite RT20A)**

Antennas

- CG31 Portable antenna (UHF and GPS)
- CG32 Vehicle antenna (UHF and GPS)
- RM32 and RM31N, Omnidirectional UHF antennas
- GA31 and GA31N, GPS antennas
- RB31 Directional UHF antenna for fixed installation
- Vaisala Radiotheodolite RT20A**

Telemetry

- Frequency range 400.15 ... 406 MHz, EN 302 054 v1.1.1
**1668.4 ... 1690 MHz EN 302 454 v1.1.1
- Tuning step 10 kHz, user adjustable
- Error detection and correction Reed-Solomon
- Telemetry range (400 MHz) 150 km with portable/vehicle antennas and up to 350 km with directional antenna

Meteorological Messages (Military)

- METCM, STANAG 4082 Standard Artillery Computer
- Meteorological Message
- METB2/METB3, STANAG 4061 Standard Ballistic
- Meteorological Message
- METFM, STANAG 2103 Standard Fallout
- Meteorological Message
- METSR/METSRX, Sound Ranging Meteorological Message
- METTA, STANAG 4140 Standard Target Acquisition
- Meteorological Message
- METEO 11

Meteorological Messages (WMO)

- TEMP FM35-XI, TEMP SHIP FM36-XI, TEMP MOBIL FM38-XI
- PILOT FM32-XI, PILOT SHIP FM33-XI, PILOT MOBIL FM34-XI
- BUFR 3'09'052 (for TEMP data)
- BUFR 3'09'050 and BUFR 3'09'051 (for PILOT data)

Environmental Conditions

- Operating temperature -20 to +50°C
- Operating humidity 0 to 100% RH
- Storage temperature -40 to +71°C
- Storage humidity 5 to 95 % RH

ANTENNAS

- Operating temperature -40 to +55°C
- Operating humidity 0 to 100%
- Operating wind speed 0 to 65 m/s
- Operating precipitation Unlimited
- Storage temperature -50 to +71°C
- Storage humidity 0 to 100% RH

* Rockwell-Collins DAGR, AN/PSN-13A GPS Unit required (DAGR hardware P/N 822-1873-002 (ver. 0010) with software P/N 984-3006-002).

** Required configuration if 1680 MHz band RS92-D is used

Features/Benefits

- Meteorological profile data for artillery ballistic preparation and numerical weather prediction models
- Rugged design to stand harsh environment and transport
- With Vaisala Radiosonde RS41-SGM, improved security thanks to radio silence (patent pending) and encryption
- Straight-forward, menu-driven operation through integrated display and keyboard
- Extensive data quality assurance processes guarantee error free messages in relevant STANAG and WMO formats
- Over 30 calculated meteorological parameters