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DATASHEET

MW32

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MARWIN Sounding System MW32



Features

- Meteorological profile data for artillery ballistic preparation, naval applications, fire weather, 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 EP2689279, Method for launching and a radiosonde) 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

Vaisala MARWIN® Sounding System MW32 is a fully rugged sounding system designed and specified for tough military use. Different configurations include a portable system, vehicle installation, and naval installation.

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. The data can be used as input into numerical weather models to provide updated observation for more precise predictions.
The atmospheric profile is useful, for example, for fire weather, aviation, CBRN, and naval applications.

With Vaisala Radiosonde RS41-SGM, encryption and radio silence (patent EP2689279, Method for launching and a radiosonde) 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 freeflying 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 MW32 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. When done, the system indicates its readiness for launch.

Rugged design for tough military use

The MW32 system has been designed from conception for demanding use in harsh environments, and rough transportation. A special feature is the conductive cooling. MW32 complies with MIL-STD-810G for vibration, functional shock and transit drop, low and high temperature, temperature shock, sand and dust, wind driven rain, humidity, salt fog, and altitude.

Versatile interfaces

The MW32 system provides 1 integral LAN port, 2 USB ports, and 4 serial ports. It also supports the PCSERV protocol of the Vaisala MARWIN® Sounding System MW12 legacy so the MW32 can replace the MW12.

Technical data

Hardware and software

Processor type	COM Express PC, 1.5 GHz
DRAM	SO-DIMM, 2 GB
Flash disk	8 GB
TFT LCD display	8.4 in, SVGA, transflective, 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 aluminum
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 (H × W × D)	280 × 430 × 380 mm (11.02 × 16.93 × 14.96 in)
Weight	22 kg (48.50 lb)
Overvoltage category	II
Pollution degree	2
Maximum operating altitude	3000 m (approx. 9800 ft)

Power supply

Internal AC power unit	Input: 90-132 / 180-264 V AC autoranging, 47-63 Hz, 180 W max.
Internal DC power unit	Input: 18-33 V DC, 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 UBBL02-01 Li-Ion Internal back-up power time: 240 min. Battery pack capacity: 2 × 250 Wh Automatic switch-over from AC to external DC to internal battery

Operating environment

Operating temperature	−20 … +50 °C (−4 … +122 °F)
Operating humidity	0–100 %RH
Automatically limited battery charging temperature	−20 … +50 °C (−4 … +122 °F)
Storage temperature (without batteries)	−40 … +71 °C (−40 … +159.8 °F)
Storage humidity	5–95 %RH
Antennas	
Operating temperature	−40 … +55 °C (−40 … +131 °F)
Operating humidity	0–100 %
Operating wind speed	0–65 m/s (0–145 mph)
Operating precipitation	Unlimited
Storage temperature	−50 … +71 °C (−58 … +159.8 °F)
Storage humidity	0–100 %RH

Radiosondes and windfinding options

Supported Vaisala radiosondes	RS41-SGM, RS41-SGP, RS41-SG, RS41-D
Windfinding options	C/A code GPS Multi-GNSS (GPS, Galileo, Beidou) Radio-direction finding (with Vaisala Radiotheodolite RT20A) [1]

1) Required configuration if 1680 MHz band RS41-D is used

Antennas

CG31 Portable antenna (UHF and GNSS)
CG32 Vehicle antenna (UHF and GNSS)
RM32 and RM31N, Omnidirectional UHF antennas
GA31 and GA31N, GNSS antennas
RB31 Directional UHF antenna for fixed installation
Vaisala Radiotheodolite RT20A [1]

1) Required configuration if 1680 MHz band RS41-D is used

Telemetry

Frequency range	400.15–406 MHz, EN 302 054 v1.1.1 1668.4 [1]– 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 (93.2 mi) with portable/ vehicle antennas and up to 350 km (217.5 mi) with directional antenna

1) Required configuration if 1680 MHz band RS41-D is used

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 09 050, BUFR 3 09 051 for PILOT data, BUFR 3 09 052 for TEMP data, and BUFR 3 09 053 for a descending sounding with RS41 series GNSS radiosondes

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