Vaisala HydroMet™ System MAWS110

Variety of applications

MAWS110 provides quality controlled data in different applications in the areas of meteorology and hydrology. It is especially designed for unmanned operations at remote sites requiring high reliability and low power consumption with expandability. MAWS110 uses a field-proven and high accuracy Vaisala data logger technology with advanced software. Each system provides the most economical and optimized product for your application.

Ease of use and maintenance

The system architecture is specially designed to support a broad range of analog and serial sensors. In MAWS110 all sensors and telemetry

Features

■ Compact, robust and easy-to-use automatic weather station for meteorological and hydrological applications

■ Easy and economical to install, maintain and upgrade

■ Field-proven reliability and accuracy in harsh environments

■ Low power consumption for extended remote operations

■ Telemetry options include satellite telemetry in addition to landline, wireless, and built-in TCP/IP connectivity

■ Extensive calculation and data logging capacity

■ Low Total-Life-Cycle Cost

devices are connected to the system using high-quality polyurethane cables with IP68 connectors allowing quick and trouble-free installation. Sensor measurements, statistical calculations, data logging and data transmissions are performed according to a user-configured setup made with the user-friendly Vaisala Setup Software Lizard. All LRU modules inside the enclosure are mounted on DIN rails or replaceable units.

Field-proven reliability

MAWS110 enclosures feature IP66 (NEMA4X) protection. All the inputs have transient protection and all mains power and RF inputs are surge protected.

Power supply options

MAWS110 has low power consumption - the average power consumption is only 10 mA. In many cases a solar panel with backup batteries up to 18 Ah is enough for powering a basic MAWS110 system. A mains (AC) power supply is optional to power extended systems with frequently sending (powered) telemetry devices.

Advanced telemetry

The basic system provides interfaces with almost any type of telemetry, terminal, displays as well as smart sensors. With optional plug-in modules the number of serial ports can be enhanced from 2 up to 8 ports, enabling multiple RS-232, RS-485 and SDI-12 connections. MAWS110 can be connected directly

to a LAN network using Ethernet Communication Module DSE101 offering a 10/100Base-T Ethernet. Other options for telemetry include various wireless, landline, and satellite devices.

Expandability

MAWS110 is expandable with, e.g., the Vaisala Sensor Multiplexer QMU101 offering additional 10 differential analog channels. The Vaisala Digital I/O Unit QMI118 adds 8 digital outputs and 8 digital inputs for sensors, power optimizing, and unmanned control functions based on user-defined requirements.

Innovative in installation and maintenance

MAWS110 can be equipped with innovative installation aids that significantly lower installation and maintenance costs. A single maintenance person can easily and safely tilt the Vaisala Tiltable Masts.

Technical data

General

Data Collection Platform	Vaisala Data Logger QML201
with Vaisala Setup Software Lizard	
Temperature	
Operating *)	-50 ...+60 °C (-58 ... 140 °F)
Storage	-50...+70 °C (-58 ... 158 °F)
Humidity	0 ... 100 % RH
EMC	In compliance with EN 61326-1 (2001-12)
Electrical equipment for measurement, control and laboratory use - EMC requirements - for use in industrial locations	
IP rating	NEMA-4X / IP-66
Materials	Stainless steel
	Plastic
Mast**)	Tiltable 2/3/4/6/10 m (6/9/12/24/30 ft) pole mast
Enclosure	400(H) x 300 (W) x 200 (D) mm
Weight	Enclosure approx 10 kg
	Mast with sensors approx 20...200 kg
Maximum wind speed	With one set of guy wires 50 m/s (90 kt)
	With two sets of guy wires 75 m/s (130 kt)
Powering **)	90 ...264 VAC, 45 ...65 Hz
	8 ...14 VDC recommended (30 VDC max.)
Solar panel	11/ 33 W
Internal battery	7 Ah/12 V/18 Ah/12 V
Battery regulator	Charge/recharge control
	Temperature compensation
	Deep discharge protection
	Simultaneous inputs from solar and AC power allowed

Data validation, calculations and reports

Data quality control	Upper / lower climatological limits
	Step change validation
	Sensor status indication
Statistical calculations	Averaging over user set periods
	Minimum / maximum values
	Standard deviation
	Cumulative values
Other calculations	Dew point
	Frost point
	QNH, QFE, QFF
	Gust, Squall, wind chill
	Evapotranspiration
	Sunshine duration

Standard sensor options **)

Weather transmitter	WXT520
Wind speed & direction	WM30, WA15, WA25, WINDSONIC, WMT52, WS425
Atmospheric pressure	PMT16A
	PTB330 with modifications
Air temperature, relative humidity & dew point	QMH102
Rain / precipitation	QMR102, RG13, RG360, VRG101
Global solar radiation	QMS101, SK01-D2, SK08, CMP3, CMP6 CMP11, CMP21, EQ08, EQ08-S
Net solar radiation	QMN101
Albedometers	QMS101(x2), CMP3(x2), CMA6, CMA11, EQ16
UV radiation / PAR	CUV4, UVR1-A, UVR1-B, PAR Lite
Sun duration	CSD3, SD4
Ground / water temperature	QMT103, QMT110
Soil / fuel moisture	EHC20, ML2X, QFM101
Evaporation	255 Series
Leaf wetness	QLW102
Cloud height & sky condition	CL31
Visibility & present weather	PWD10/20/12/22, FD12, FD12P, FS11
Snow depth	IRU-9429S
Water level	PR-36XW/H, PAA-36XW/H, IRU-9429S, QHR102, QSE104, 436BD

Standard communication options **)

Satellite communication	GOES, METEOSAT, Inmarsat-C Argos/SCD, Iridium, Autotrac
Wireless communication	GSM, GPRS, CDMA, UHF, VHF, ISM
Landline communication	RS232, RS485 bus, Fixed line, PSTN, LAN, MODBUS

Data display options

Data displays	DD50, WD30(TU), WD50, Pocket / Laptop / Tabletop PC

*) for further extended range, please contact Vaisala

**) for other data validation, calculation, report, mast, solar powering, sensor and communication options, please contact Vaisala

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