

Vaisala RWS200 Power Management Unit PMU701



Benefits of RWS200 PMU701

- Surge protection increases reliability
- Handles analog, serial, and Ethernet sensors
- Easy to configure and wire sensors
- Able to cycle power for individual sensors
- Optimizes charging voltage according to temperature

RWS200 Power Management Unit

Vaisala Power Management Unit PMU701 manages power and sensor communication within Vaisala Road Weather Station RWS200.

PMU701 handles the specific power requirements of the sensors, ensuring that each sensor receives steady and suitable power at all times.

PMU701 is also responsible for charging the internal backup battery supply inside the RWS200 enclosure. In case an external DC power supply is used with the road weather station, the power is routed through PMU701.

In total, PMU701 provides one external DC input, two solar panel inputs, four inputs for analog sensor communications, and fourteen inputs for serial communication, eight of which can also be Ethernet.

Surge Protection

All sensor communication lines and DC power lines route through PMU701 to provide surge protection between the station, the DC power supply, and the individual sensors attached to the weather station.

As the RWS200 weather station enclosure is typically mounted to a pole or a metal lattice tower, lightning strikes are a real danger for the weather station. Proper power protection ensures that power disruptions are kept to a minimum, which increases the overall reliability of the system.

Simplified Configuration

PMU701 is designed for simplified configuration and wiring during initial setup or when adding new sensors. Grounding each sensor cable shield is simple and easy, and a quick reference card is provided to ensure that each sensor is connected correctly; once again, to add system reliability.

Simplified Maintenance

PMU701 has the ability to control and cycle the power of each sensor remotely, making it possible to perform some technical services remotely, such as powering down and restarting individual sensors.

Technical Data

General

Operating temperature range	-40 ... +60 °C (-40 ... 140 °F)
Storage temperature range	-60 ... +80 °C (-58 ... 176 °F)
Operating humidity range	5 ... 93 %RH non-condensing

MATERIALS

Screws, washers, DIN rail locking piece	Stainless steel AISI 316
Grounding rail clamps	Stainless steel AISI 304
Frame profile	Aluminum EN AW-6060 T6
Cooling plate	Aluminum EN AW-6082 T6
Side plates	Plastic PC/ABS
Grounding rail	Tin-plated copper (Cu)
Size (H x W x D)	126 x 224 x 142 mm (5.0 x 8.8 x 5.6 in)
Weight	1.4 kg (3.1 lb)

Power

Powering	24 VDC (10 ... 32 VDC max.)
Backup battery	2 separately controlled 12 V lead acid batteries
Temperature compensation	Yes
Deep discharge protection	Yes
Solar panel input (requires PMP701)	10 ... 32 VDC
External DC power (requires PMP701)	12 ... 28 V (max. range 10 ... 32 VDC)
Total output power	12 V at 3 A and 24 V at 7 A
LEDs	12 V and 24 V Power, Status, and Battery

Connectors

DC input	23 ... 32 V at 10 A
Connector	Phoenix Contact MVSTBR 2,5HC/2-ST-5.08
Backup battery	Max. 2 pcs
Max. charging current	4 A / total
Charging voltage	13.5 V at 25 °C (77 °F)
Connectors	Phoenix Contact MVSTBR 2,5HC/2-ST-5.08
Service port	RS-232
Connector	Phoenix Contact DFMC 1,5/5-ST-3,5-LR
Power out C	12 V out at 1.4 A, 24 V out at 2.8 A
Connector	Phoenix Contact DFMC 1,5/5-ST-3,5-LR
DMU	Serial and I/O
Connector	Molex 90130-3250
Ethernet	10/100 Mbps
Connectors	2 x RJ45
Telecom	RS-232/RS-485, DC output
Connector	Phoenix Contact DFMC 1,5/10-ST-3,5-LR

Test Method Standards

Vibration	IEC 60068-2-6
Rough handling	IEC 60068-2-31
Shock	IEC 60068-2-27
Dry heat	IEC 60068-2-2
Damp heat	IEC 60068-2-78
Corrosion and salt mist	VDA 621-415
EMC (industrial environment)	EN/IEC 61326-1
Conducted emissions	CISPR22/EN55022/Class B
Radiated emissions	CISPR22/EN55022/Class B
Electrical safety	EN/UL/IEC 60950-1/-2

Plug-in Modules

Module slots available	10 pcs
PMP701	Max. 1 pc
PMA701	Max. 2 pcs
PMS701	Max. 7 pcs ¹
PME701	Max. 4 pcs ¹

PMP701

External DC/Solar Panel Input Module

Surge protection	IEC 61000-4-5: external DC input up to 6 kV (line to GND) / 6 kV (line to line)
Reverse voltage protection	Yes
Solar panel input	Max. 10 ... 32 VDC at 4 A / port Max. 10 ... 32 VDC at 15 A
External DC input	3 x Phoenix Contact MVSTBR 2,5/-ST-5,08 Green for each input

PMA701

Analog Input/Output Module

Surge protection	IEC 61000-4-5
Sensor power	12 V at max. 2 A/connector
Sensor power	24 V at max. 3 A/connector
Digital I/O and differential	See Analog Inputs in DMU703 data sheet
Connectors	2 x Phoenix Contact DFMC 1,5/5-ST-3,5-LR
Status LED	Green/Red

PMS701

2-Channel Serial Input/Output Module

Surge protection	IEC 61000-4-5
Sensor power	12 V at max. 2 A/connector
Sensor power	24 V at max. 3 A/connector
Heat output	24 V at max. 5 A/connector
Supports	RS-232 2-/4-wire RS-485 Isolated 2-/4-wire RS-485
Connectors	2 x Phoenix Contact DFMC 1,5/5-ST-3,5-LR
Status LED	Green/Orange

PME701

2-Channel Power over Ethernet/Ethernet Module

Surge protection	IEC 61000-4-5
Supported PoE classes	1 x PoE class 0 (0.44 ... 12.94 W) device or 1 x PoE class 3 (6.49 ... 12.95 W) device or 2 x PoE class 1 (0.44 ... 3.84 W) device or 2 x PoE class 2 (3.84 ... 6.49 W) device
Connectors	2 x RJ45
Status LED	Ethernet link and speed built into connectors

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PME701 and PMS701 share four of the same slots.

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