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DATASHEET

RWS200

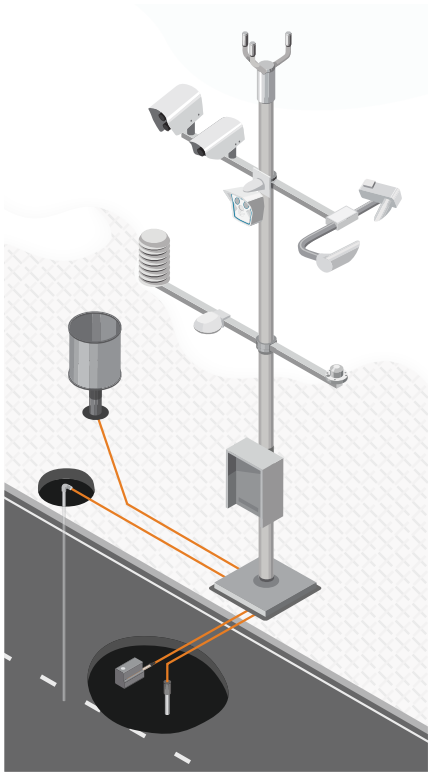
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Road Weather Station RWS200



Vaisala Road Weather Station RWS200 is designed for the future of road weather systems and Intelligent Transportation Systems (ITS). RWS200 provides a complete road weather solution to improve road, rail, or runway winter maintenance activities in your organization.

Features

- Reliable and quality data for educated decision making
- Increased system reliability through centralized power management
- Local database for data storage
- Battery backup
- Fast return of investment through operational savings
- Built-in web user interface
- On-site wireless network access to ease annual maintenance
- Easy upgrade and sensor retrofit from previous versions

Reliable data

The primary requirement of a road weather station is that data is reliable and it flows from the station continuously. Road maintenance decision makers must be able to trust the information every time they make a critical decision.

RWS200 contains a local database which greatly improves data reliability by storing observation data. The data is not lost even if the external communication network is down for a long period of time.

Ethernet and cellular communication options add reliability to the entire system and ensure continuous data flow to external systems. These options also allow remote access to the weather station for monitoring and maintenance.

Advanced algorithms

In addition to road weather sensors, the standard sensor options for RWS200 include a number of atmospheric sensors. Atmospheric observations greatly increase the accuracy of road weather observations, especially for embedded road sensors.

Data Management Unit DMU703 contains the algorithms that further calculate the observations, such as the road surface state. DMU703 also handles the storage, analysis, and reporting of observation data.

Power and charging control

Power Management Unit PMU701 makes sure that the sensors receive continuous and steady power. PMU701 also protects the sensors from power surges and switches on sensor heating power when needed.

To extend station operating time, PMU701 switches off sensor heating power if mains power is lost and the station is running on backup battery power. The intelligent battery management detects if the battery is faulty and stops charging it.

Cost-effective maintenance

Timely and routine maintenance is important to the health of your road weather network and to the safety of the road users.

Some maintenance tasks, such as sensor cleaning, you cannot perform without visiting the site. For other tasks that can be performed remotely, RWS200 offers a web user interface. In addition to maintenance tasks, such as software updates, you can use the web user interface to view the observation data and the station setup.

Looking ahead

The flexible, modular design of RWS200 means that a unit purchased today can be updated either remotely or in the field to support new features and functions as they are designed by Vaisala. Vaisala continuously develops RWS200 based on customer feedback.

Integration to Vaisala-hosted information services expands the possibilities to profit from the current data view of your road weather network, the winter index, and forecast services, among others.

Technical data

Operating environment

Operating environment	Outdoor use
Use in wet location	Yes
Operating temperature	
With 28 Ah backup battery or without battery [1]	−40 … +60 °C (−40 … +140 °F)
With 24 Ah backup battery [2]	−40 … +50 °C (−40 … +122 °F)
Storage temperature [3]	−60 … +80 °C (−76 … +176 °F)
Operating humidity [4]	5–100 %RH
Pollution degree	2
Maximum operating altitude	3000 m (approx. 9800 ft)

1) *Excluding cellular router, DRD11A, RG13H, WAA151, WAV151, R.M. Young Wind Monitor, SR50A, and AXIS PTZ camera. See the manufacturer documentation.*
2) *Excluding cellular router, DRD11A, RG13H, and AXIS PTZ camera. See the manufacturer documentation.*
3) *Excluding backup battery, cellular router, sensors, and cameras. See the manufacturer documentation.*
4) *Excluding cellular router. See the manufacturer documentation.*

Powering specifications

AC (mains) power	100–240 V AC, ±10 % 50/60 Hz 5.6 A maximum (120 V AC)
Mains fuse (nominal)	10 A
Enclosure LED fuse (ENC653 only)	1 A
AC (mains) surge protection	Type 3, 1.5 kV / 3 kA Max. continuous voltage: 264 V AC
Overvoltage category	CAT II
External power	10–32 V DC 15 A maximum
Internal backup battery	24 or 28 Ah / 12 V VRLA gel battery
Average operating power consumption [1]	
Without sensor heating	16 W
At −10 °C (+14 °F) with sensor heating [2]	100 W

1) *With the following configuration: cellular router (3 W), DSC211, DST111, WMT700 , PWD22, two DRS511 sensors, and HMP155E.*
2) *DSC211 lens heating (5 W), WMT700 transducer heating (22 W), and PWD22 lens heating and hood heating (57 W).*

Data reporting

Polled interfaces	Vaisala DTO XML DATEX II NTCIP (1201:2010 v03.15, 1204:v04.26b, 2104:2003 v01.11, 2202:2001 v01.04, 2301:2010 v02.19) Vaisala MES 12, MES 14, MES 16 JPG camera images
Pushed interfaces	Vaisala DTO XML Vaisala MES 14, MES 16 JPG camera images
Station reports	Station summary report Event log
Road surface state	Vaisala classes (EN 15518-3:2023) EN 15518 (EN 15518-3:2011)

Communication options

Standard communication options	2.5G/3G/4G cellular, WLAN, and Ethernet
Customer-provided communication options	Cellular, Ethernet, and serial
User interface	Browser-based Web UI Java POWERED

Compliance

EU directives and regulations	EMC Directive (2014/30/EU) Low Voltage Directive (2014/35/EU) Radio Equipment Directive, RED (2014/53/EU) as amended by 2022/30 RoHS Directive (2011/65/EU) as amended by 2015/863
EMC immunity	EN 61326-1, industrial environment FCC part 15 B, Class B CAN ICES-3(B)/NMB-3(B)
EMC emissions	CISPR 32 / EN 55032, Class B [1]
Safety	RWS200 backplate and RWS200 inside ENC652: IEC/EN/AS/UL/CSA-C22.2 61010-1 RWS200 inside ENC653: EN 61010-1
Cybersecurity	EN 18031-1
Cold	IEC 60068-2-1
Dry heat	IEC 60068-2-2
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
Rough handling	IEC 60068-2-31
Damp heat	IEC 60068-2-78
Corrosion and salt mist	VDA 621-415
Compliance marks	CE, FCC, ICES, RCM, UKCA

1) *AXIS PTZ camera emissions: Class A.*

Standard sensor options

Road state, remote	DSC211
Road temperature, remote	DST111
Road state and temperature, embedded	DRS511
Subsurface temperature	DTS12G
Subsurface temperature multidepth	TPS10
Humidity and temperature	HMP155E
Visibility and present weather	PWD12/PWD22
Rain	DRD11A
Tipping bucket	RG13H
Wind speed and direction (ultrasonic)	WMT700
Wind speed and direction (mechanical)	WA15 (WAC155)
Wind speed and direction (combined/mechanical)	R.M. Young Wind Monitor
Pressure	PTB110
Multiparameter	WXT536
Water level / Snow depth	SR50A
Global radiation	SP Lite2
Fixed camera	Mobotix M ONE
Pan-tilt-zoom (PTZ) camera	Axis Q6325-LE

Enclosure options

ENC652	
IP rating	IP66
UL 50E/NEMA rating	Type 4X
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
Size (H × W × D), incl. mounting frame, radiation shield, and cabling box	787 × 581 × 270 mm (30.98 × 22.87 × 10.62 in)
Lifting weight (enclosure with backplate, without battery)	Approx. 27 kg (60 lb)
ENC653	
IP rating	IP65
Size (H × W × D), incl. mounting frame, radiation shield, and cabling box	796 × 592 × 324 mm (31.34 × 23.31 × 12.76 in)
Lifting weight (enclosure with backplate, without battery)	Approx. 27 kg (60 lb)
BOXALU-US, BOXSS-US (North America only)	
UL 50E/NEMA rating	Type 4X
Size (H × W × D), enclosure only	838 × 610 × 330 mm (33 × 24 × 13 in)
Enclosure weight with mounting plate, backplate, and battery	BOXALU-US: Approx. 37 kg (82 lb) BOXSS-US: Approx. 58 kg (128 lb)
Standard backplate with electronics, no enclosure	
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
Size (H × W × D)	555 × 455 × 42 mm (21.85 × 17.91 × 1.65 in)
Weight	Approx. 12.8 kg (28.2 lb)

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