Rotronic
Product Catalogue

PST
PROCESS SENSING TECHNOLOGIES

rotronic
MEASUREMENT SOLUTIONS
A PST BRAND

2022-V2

RMS – For every application

The Rotronic Monitoring System is a modular system of hardware elements and software. It guarantees maximum flexibility at installation time, and ensures excellent availability of the data during operation. The data loggers record all measurements by Rotronic and third-party sensors and transmit them to the database. It stores all information and makes it available to all users, regardless of whether they access the database by PC, Mac, tablet or smartphone.

Data flow

Input transducers

The data loggers read out Rotronic measuring instruments or other input transducers such as cameras or third-party sensors. In this way the RMS monitors various parameters, both from Rotronic and third-party products.

- Rotronic measuring instruments
- Digital measuring instruments from other suppliers
- Analog instruments from other suppliers

Data logger

The data logger stores all measured data and sends it to the database. Should the connection be lost, the logger stores the data internally to protect data integrity and fills the data gaps when the connection has been restored.

- Automatic internal storage
- Backfilling of data gaps
- Wireless/LAN interface

Software / Database

The database covers the complete monitoring system. It contains all the measured values of the system and saves all actions. The server or cloud software alerts the relevant users in the case of problems and manages the user-specific access rights.

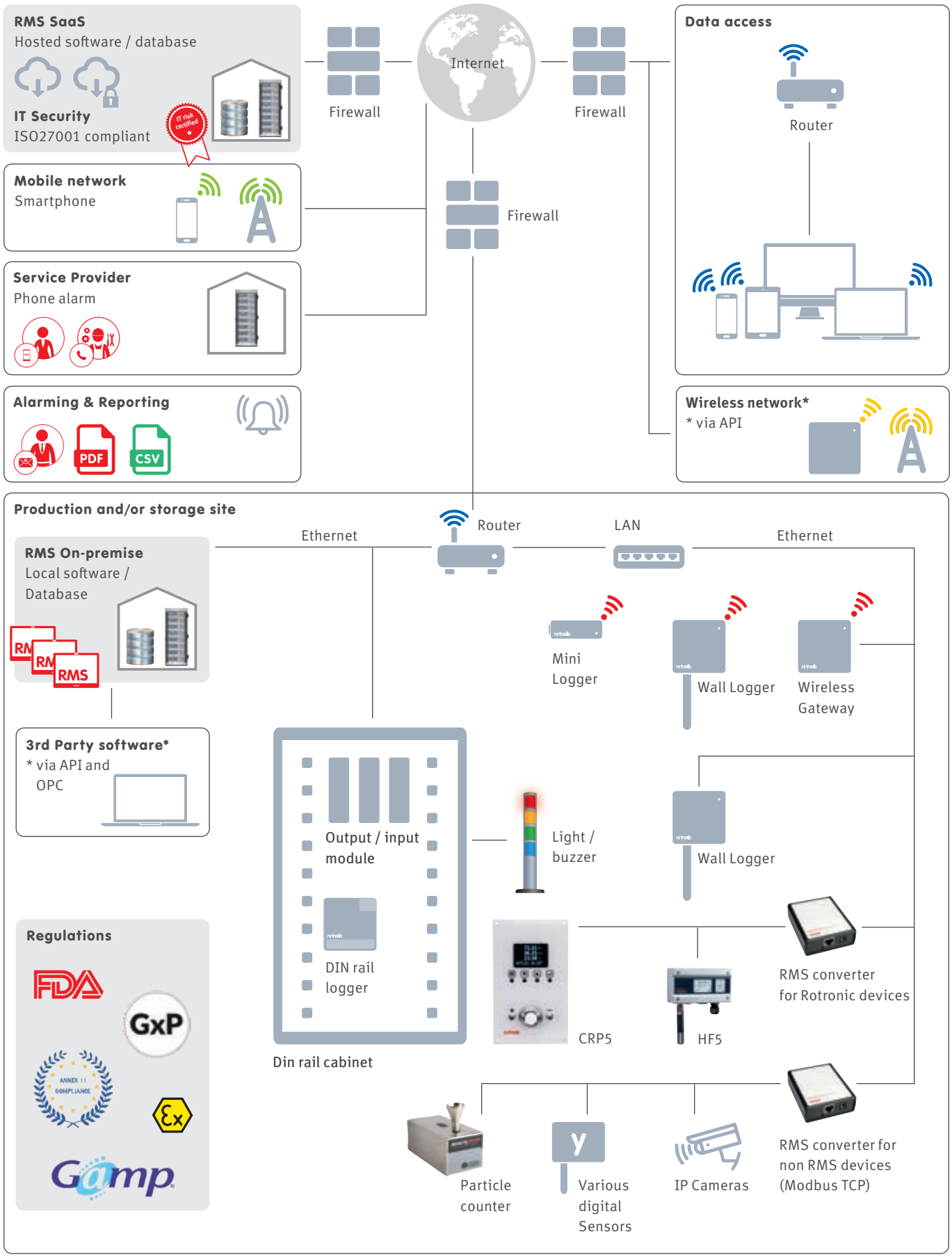
- SQL database
- Cloud solution can be validated
- On-premis/Server solution can be validated

Output size

The database can be accessed with smartphones, tablets and all PCs with a web browser. Visualization and alerting are therefore possible worldwide and on all common platforms.

- Real-time monitoring
- Supports all common browsers

Network environment



WiFi 868/915 MHz Cellular LoRa/Sigfox

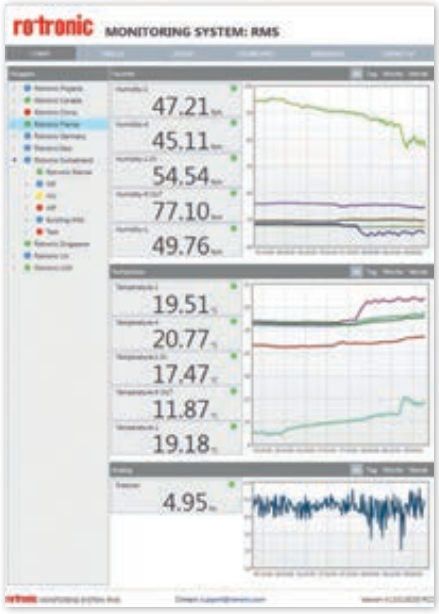
Monitoring software

The RMS Software fulfills all requirements for server-based monitoring. The software is linked to a database that archives all the measured data and actions of the system. The data can be accessed from anywhere in the world via all common platforms as long as an internet connection is available.

Data history always available

The database allows access to all historical data at any time, thereby ensuring traceability according to FDA and GMP. This data can be put together into a complete PDF report quickly, automatically and easily.

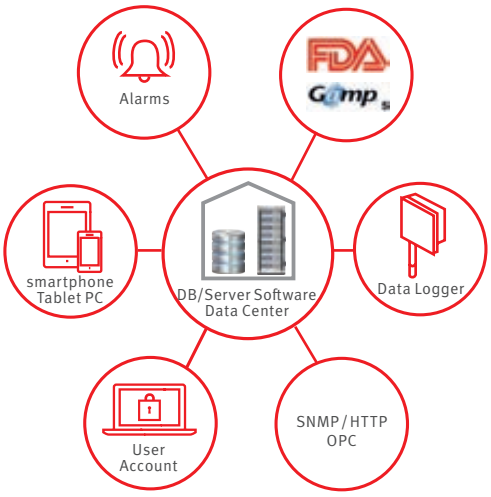
- Chart
- Table
- Layout
- Dashboard
- Events (audit trail)
- Analysis
- Reporting (PDF & CSV)



Alarms

Whether by voice call, email, SMS or switching of an alarm relay: the RMS offers clear alarm functions and records all events in the database:

- Errors
- Warnings
- System messages
- Reminders
- Alarms



Validation at the touch of a button

RMS enables validation at the touch of a button. The system checks data integrity automatically by self-test in that it switches all input modules into their various states and checks the alarms that are meant to be triggered. The software then generates a validation report on the complete system.

- The validation documents comply with GAMP5 requirements
  (see Rotronic Validation Guide on the Rotronic website)

Easy user management

The intelligent user management function makes it possible to assign different rights to every user on the basis of data groups. For example, the same user can have only read rights in data group A, while he also has write rights in data group B.

Data analysis

To analyze your data, you can generate reports at any time. These reports can be visualized and formatted at will.

- Charts and tables (PDF or CSV)
- Statistical data (min./max./average/standard deviation)
- MKT: mean kinetic temperature
- Audit trail

RMS software products

The RMS software was developed on the basis of FDA and GAMP5 guidelines.

Type	**RMS On-premise**			**RMS Cloud/SaaS (SaaS – Software as a Service)**					
Version	**Basic**	**Professional**	**Enterprise**	**Free**	**Ind**	**Small**	**Professional**	**Enterprise**	**Exclusive**
Chart & table view	✓	✓	✓	✓	✓	✓	✓	✓	✓
Layout view		✓	✓				✓	✓	✓
Dashboard view		✓	✓				✓	✓	✓
Data archiving			✓					✓	✓
Audit trail		✓	✓				✓	✓	✓
Calibration/Adjustment	✓	✓	✓			✓	✓	✓	✓
Validation			✓						✓
Alarm scheme		∞	∞				40	200	200
Users (freely extendable)	2	5	10	1	20	2	5	10	10
Devices or measuring points (freely extendable)	10	40	100	2	∞	10	40	100	100
Storage (freely extendable)	∞	∞	∞			12 months	12 months	12 months	∞

RMS-HCD

This digital probe is characterized by its high performance. Very low current consumption, the highest degree of accuracy and measurement results within 50 ms are its main features. This is enabled by the new AirChip4000, which together with the HYGROMER® HT-1 sensor forms a powerful combination.

RMS-HCD-S

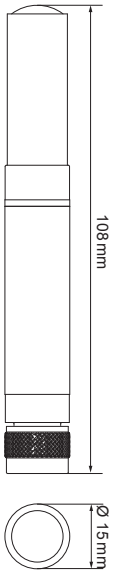
RMS-HCD-IC102

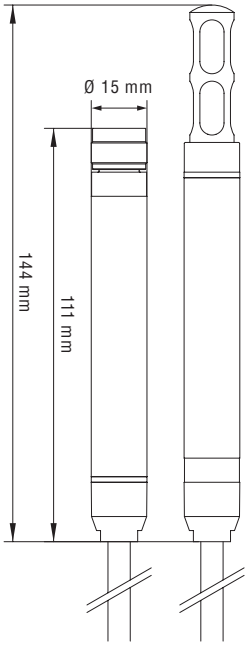
FEATURES

- Measures relative humidity and temperature
- Outstanding accuracy, repeatability and long-term stability
- Advanced probe housing and construction
- Compatible with RMS data loggers and RMS software
- Low power consumption

General specifications		
Order code	RMS-HCD-S (black) RMS-HCD-S3 (white)	RMS-HCD-IC102 (Industrial probe, 2 m cable)
Humidity sensor	HYGROMER HT-1	
Temperature sensor	PT1000, Class 1/3 B	PT 100, Class 1/3 B
Operating humidity	0...100 %rh	
Operating temperature	-40...+85 °C	-40...+85 °C (Electronics) -100...200 °C [1] (Sensor head)
Accuracy @ 23 °C	±0.8 %rh ±0.1 K	
Long-term stability	1 %rh / year	
Startup time	50 ms	90 ms
Measurement interval	500 ms	
Response time sensor	τ63: <15 s without filter, (temperature and humidity)	
Maximum wind velocity	3.5 m/s without filter	
Supply voltage	2.8...5.5 VDC	3.3...5.5 VDC
Current consumption	0.5 mA	<3 mA
Digital interface	UART	
Protocol	Modbus RTU	
Standards		
Compliance	FDA 21 CFR Part 11 / GAMP5	
Housing / Mechanical parts		
Material	PC, PPS, stainless steel 1.4301	
Protection rating	IP65 (except sensor area)	
Weight	10 g	230 g

[1] Peak load: 100 h. Maximum permissible continuous load: 190 °C





Compatible

- RMS-LOG-L / RMS-LOG-868 / RMS-LOG-915
- AC3001

Delivery package

- HygroClip DIGITAL
- Short instruction manual
- Calibration certificate

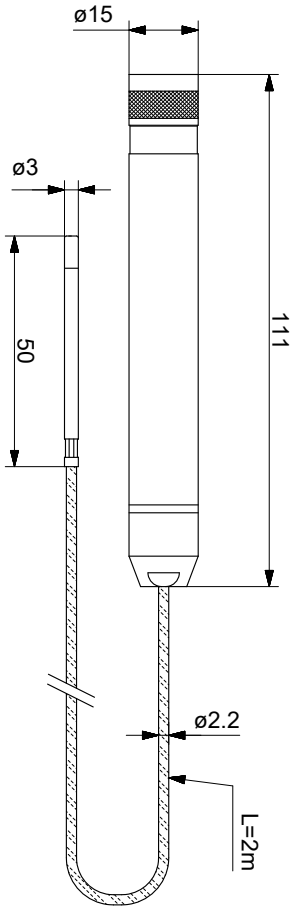
RMS-TCD-S-001

The RMS-TCD-S-0001 digital probe was designed for all temperature applications where accuracy and interchangeability are crucial. The temperature probe is attached to a 2m cable to ensure flexibility and ease of use during calibration.

FEATURES

- Measures temperature
- Outstanding accuracy, repeatability and long-term stability
- Advanced probe housing and construction
- Compatible with RMS data loggers and RMS software
- Low power consumption
- Digital communication
- Hot swap possibility, ensuring little to no downtime
- Automatic serial number replacement documented within the RMS audit trail

General specifications	
Order code	RMS-TCD-S-001
Measurement range	-200...200 °C
Accuracy	±0.25 °C at -50...85 °C
Long term stability	±0.5 °C/year
T63	90 s
Electronics details	
Temperature range	-40...85 °C
Relative humidity range	0...100 %rh
Housing details	
Material	Polycarbonate
Housing potting	Yes
Diameter	Ø15 mm
Length	110 mm
IP Rating	IP65
Connector	Standard Rotronic 7-pin connector
Sensor details	
Temperature sensor	4 wire PT100 Class A (DIN EN 60751)
Material	Stainless steel – austenitic – 1.4571 (316Ti) bar
Sensor potting	Yes
Diameter	Ø3 mm
Length	50 mm
IP Rating	IP68
Battery lifetime	RMS-LOG-868/915/L: @60 s 240 d RMS-LOG-L-D: @60s 18 d
Cable details	
Material	Perfluoroalkoxy alkanes (PFA)
Diameter	Ø2.2 mm
Length	2 m
Temperature range	-190...200°C
Technical details	
Communication	MODBUS RTU
Output signal	UART
Power supply	3.3...5 V
Current consumption	~3.8 mA
Adjustment option 1	2 point user adjustment possible
Adjustment option 2	A, B and C coefficients
Accessories	
Hardware	AC3001, RMS-LOG-L, RMS-LOG-868/915, RMS-LOG-L-D
Software	RMS-CONFIG; Rotronic Monitoring System



Compatible

- RMS-TD-0001
- AC3001
- RMS-LOG-L/868/915

Delivery package

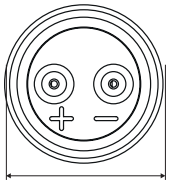
- RMS-TCD-S-001
- Calibration Certificate

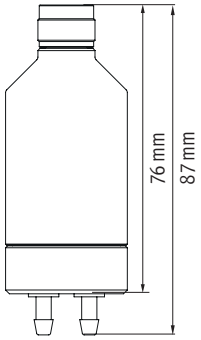
RMS-PCD-S-XXX

The Rotronic differential pressure probes are ideal for clean rooms, operating theaters and applications where even minor differences in pressure can have a big effect. Thanks to our two different measurement methods (thermal mass flow measurement and diaphragm measurement), we offer the perfect solution for every requirement. Together with other measurement parameters, these probes can be integrated in RMS perfectly.

FEATURES

- High-precision measurement and long-term stability
- With ambient pressure compensation
- Large overload range





General specifications		
Sensor type	Thermal Mass Flow	Membrane
Accuracy[1] at 23 °C ±3 K	±1% FS	±1% FS [2]
Long-term stability [3]	±0.1% FSS/year	±2% FSS/year for ±25Pa probe ±1% FSS/year for ±50Pa probe ±0.5% FSS/year for ±100Pa probe ±0.25% FSS/year for ±250Pa and ±500Pa probes
Zero point compensation [4]	Automatic, 1x per measurement interval	Manual, with external tube; via RMS software [1]
Medium	Air	Air & non-aggressive gases
Ambient pressure compensation	Automatic	Not necessary
Adjustment and calibration	Factory adjustment/calibration: 5 points Customer adjustment: max. 9 points	
Measurement range	-25...+25Pa/-50...+50Pa/-100...+100Pa/-250...+250Pa/-500...+500Pa	
Burst pressure	5 bar	0.7 bar
Leak rate	<180 µl/min.	0 µl/min.
Startup time	<0.5 s	
Measurement interval	1 s probe / ≥10s RMS / 1s Modbus	
Response time τ63	<1 s	
Range of application	-20...+80°C (0...+70°C temp.-comp.) 0...95 %rh non-condensing	
Voltage	3.3 – 5.5 V	
Current consumption	30 mA (avg.)	12 mA (avg.)
Battery life LOG-868/915	350d @ 60s interval	650d @ 60s interval
Battery life LOG-L	395d @ 60s interval	840d @ 60s interval
Protocols	Modbus RTU	
Standards		
Compliance	FDA 21 CFR Part 11 / GAMP5	
Housing / Mechanical parts		
Housing material	Polycarbonate (housing) Stainless steel DIN 1.4305 (nuts, connectors)	
Fire protection class	Corresponds to UL94-HB	
Dimensions	Ø 32 mm x 87 mm	
Pressure connections	Tubing connector internal Ø 4 mm x 10 mm	
Weight	60 g	
IP protection class	IP65	

1 Please see the device manual for detailed considerations.
2 For maximum accuracy, Rotronic recommends strongly to perform a zero point compensation after the installation and initial operation and to repeat it annually. For aggressive environments / gas media, a more frequent zero point compensation is advised. Please see the device manual for detailed considerations.
3 Highly reducible by a zero point compensation of the RMS-PCD-S-Mxx (membrane sensor).
4 A zero point adjustment is recommended for every installation or position change.

Compatible

- RMS-LOG Wireless ≥V1.5/LAN data loggers ≥V1.4

Delivery package

- Differential pressure probe
- Calibration certificate
- Short instruction manual
- Wall-mounted holder
- Short pressure tube internal Ø 4mm x 10cm (PCD-S-Mxx only)

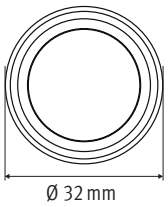
CCA-S-20X-SET

The CCA-S-20X is an analog probe with NDIR technology for measurement of carbon dioxide (CO_2). Developed with a pyroelectric infrared detector with dual temperature compensation and an integrated semiconductor temperature sensor to maximize accuracy and minimize drift. The signal is converted to 4...20 mA by the converter with power supply (CCA-S-20X-SET).

FEATURES

- Measures from 0 to 20 %CO_2
- Suitable for incubators: 37 °C, 95...98 %rh and 5 %CO_2
- Interchangeable probes
- ±0.1 °C accuracy in measurement range

General specifications	
Measurement principle	Infrared (NDIR)
Measured parameter	Carbon dioxide concentration (%)
Accuracy	±10 % of measured value
Medium	Air & non-aggressive gases
Long-term stability	±0.24 %CO_2/year
Temperature dependence	±10 % of measured value
Pressure dependence	±0.15 % of measured value/hPa
Measurement range	0...20 %CO_2
Application range	-20...50 °C / 0...100 %rh, 700...1200 hPa
Storage conditions	-20...30 °C / 0...95 %rh
Startup time	60 s
Power supply	CCA-S-20X: 3...5 VDC / 80 mA CCA-S-20X-Set: 24 VDC / 150 mA
AC adapter requirements	100...240 VAC / 50...60 Hz / 0.3 A
Output signal	4...20 mA (CCA-S-20X-SET) 0.4...2.0 V (CCA-S-20X only sensor)
Conformity with Standards	
FDA / GAMP directives	FDA CFR21 Part 11 / GAMP 5
Housing / Mechanical parts	
Enclosure material	Polycarbonate (housing) Stainless steel DIN 1.4305 (nut)
Fire protection class	Corresponds to UL94-HB
Dimensions	Sensor: 32 mm x 87 mm Converter box: 100 mm x 77 mm x 40 mm (LxWxH)
IP protection class	IP40
Weight	55 g sensor 200 g converter box



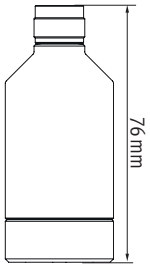


Fig.: CCA-S-20X-SET

Compatible

• Analog Input	RMS-MADC-868/915-A RMS-ADC-L-R
• CO_2 Sensor	CCA-S-20X
• RMS On-Premise	RMS-WEB
• RMS SaaS solutions	RMS-CLD

Delivery package

- CCA-S-20X
- Power supply
- Converter box
- E2-01XX

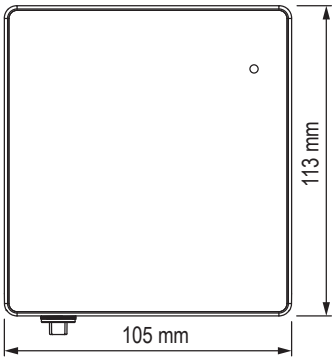
RMS Wall Data Logger

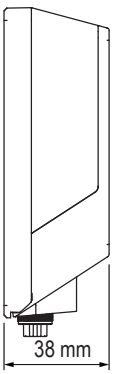
The data logger is the flexible component between the probe and the database in the Rotronic Monitoring System. It stores 44,000 pairs of measured values and transmits them to the RMS database via LAN or wireless link. It guarantees absolute data protection, even if power supply and communications should break down temporarily.

FEATURES

- 44,000 data point memory
- Fail-safe, thanks to internal battery
- Wireless or LAN interface

General specifications			
Measured parameters	Humidity & temperature, CO_2, differential pressure, LDP		
Range of application	-40..70 °C / 0..100 %rh		
Storage conditions	-40..30 °C / 0..95 %rh		
Maximum altitude	2000 m ASL		
Power supply	24 VDC ±10 % / <100 mA / Battery: RMS-BAT (2xAA, LiSocl2) / PoE: 802.3af-2003, Class 1		
AC adapter requirements	24 VDC ±10 % / 4 W nominal / <15 W power-limited		
Battery life	3 years (at 23 °C, measurement interval 1 min., HCD-S probe)		
Device data			
Measurement interval	10 s to 15 min.		
Startup time	< 10 s		
Order code	RMS-LOG-L	RMS-LOG-868	RMS-LOG-915
Interfaces	Ethernet	ISM 868 MHz	ISM 915 MHz
Indoor wireless range	-	20..50 meters	15..25 meters
Protocols	HTTP / MODBUS TCP		
Ethernet cable requirement	Min. Cat. 5, SFTP, max. 30 m		
Conformity with standards			
FDA / GAMP directives	FDA CFR21 Part 11 / GAMP 5		
Housing / Mechanics			
Housing material	ABS		
Fire protection class	UL94 –V2		
Dimensions	105 x 113 x 38 mm		
IP protection class	IP65		
Weight	200 g		





Compatible

• HygroClip DIGITAL	HCD/PCD/CCD
• RMS Gateway	RMS-GW-868/915
• RMS On-premises software	RMS-WEB
• RMS SaaS solutions	RMS-CLD

Delivery package

- Data logger
- 2 batteries
- Wall bracket
- Short instruction manual
- 2 screws & 2 plugs

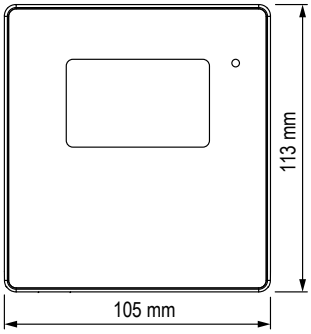
RMS Data Logger with Display

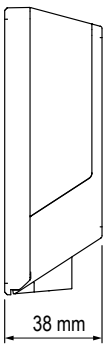
The RMS-LOG-L-D stores up to 44,000 pairs of measured values and transmits them to the RMS database via LAN link. Thanks to its autonomous operation, the logger can display current readings as well as visual and audible alarms even if the power supply and communication should fail temporarily.

FEATURES

- 44,000 data point memory
- Visual and audible alarms
- Autonomous operation on failure
- Redundant power supply

General specifications	
Measurement interval	10 s to 300 s
Startup time	< 10 s
Software compatibility	≥ V1.3.0, from V2.1 all functions
Application range	-20…70 °C, non-condensing
Storage conditions	-20…30 °C, non-condensing
Maximum altitude	2000 m ASL
Power supply	24 VDC ±10% / Battery: RMS-BAT (2xAA, LiSocl2)
Current consumption max.	50 mA
AC adapter requirements	24 VDC ±10%, 4 W minimum, > 5 W Limited Power Source
PoE	802.3af-2003, Class 1
Device data	
Order code	RMS-LOG-L-D
Ethernet cable requirement	Min. Cat 5, SFTP, max. 30 m
Interface	Ethernet
Protocols	HTTP / Modbus TCP
Number of measuring points	2
Battery life (@60 s and 600 s interval)	HCD-S / HCD-IC: 7 d
	CCD-S-XXX: 2.4 d
	PCD-S-XXX: 15 d
HCD-S / HCD-IC	7 d
CCD-S-XXX	2.4 d
PCD-S-XXX	15 d
Storage capacity	44,000 data points
Conformity with standards	
Soldering material	Lead free / RoHS conformity
FDA/GAMP directives	FDA CFR21 Part 11 / GAMP 5
Housing / Mechanics	
Enclosure material	PC. ABS
Dimensions	105 x 113 x 38 mm
IP protection class	IP65
Fire protection class	UL94-V2
Weight	240 g





Compatible

- HygroClip DIGITAL HCD/PCD/CCD
- RMS On-premises software RMS-WEB
- RMS SaaS solutions RMS-CLD
- Autonomous operation and audible alarms from V2.1

Delivery package

- Data logger, with clamps
- Short instruction manual
- 2 batteries
- Certificate
- Velcro strips

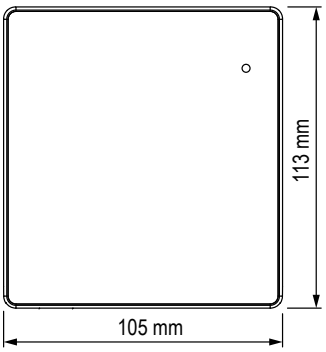
RMS-LOG-T30-L/868/915

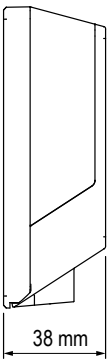
The RMS-LOG-T30 is a data logger with two integrated analog-to-digital converters, to which two PT100 sensors can be connected for high-precision temperature measurement. The measuring accuracy of the data logger with PT100 can be improved by a 1- or 2-point adjustment. The data logger stores 44,000 pairs of measured values and sends them to the RMS database via LAN or wireless interface.

FEATURES

- Saving of up to 44,000 data points
- 2 x PT100 sensor connections
- 2-, 3- or 4-wire connection
- ±0.1 °C accuracy in measurement range

General specifications			
Measured parameters	2-, 3- and 4-wire RTD measurement		
Number of measuring points	2 x PT100 probes		
Accuracy[1] (@23 °C, without PT100)	±0.1 °C (-100 °C to 200 °C)		
	±0.2 °C (-200 °C to 850 °C)		
Application range	-40...70 °C 0...100 %rh		
Storage conditions	-20...30 °C 0...95 %rh		
Power	24 VDC ±10 % / <100 mA / PoE: 802.3 af-2003, Class 1		
AC adapter requirements	24 VDC ±10 % / >4 W / power-limited		
Device data			
Measurement interval	10 s to 15 min.		
Order code RMS-LOG-T30-xxx	T30-L	T30-868	T30-915
Battery life (23 °C, 60 s interval)	3 years	2.4 years	2.4 years
Interfaces	Ethernet	ISM 868 MHz	ISM 915 MHz
Indoor wireless range	-	20...50 meters	15...25 meters
Compatibility with RMS-GW-xxx Firmware	-	V2.1	V2.1
Compatibility with Software	≥ V1.3.0		
Protocols	HTTP / MODBUS TCP (T30-L)		
Ethernet cable requirement	Min. Cat 5, SFTP, max. 30 m		
Conformity with standards			
FDA / GAMP directives	FDA CFR21 Part 11 / GAMP 5		
Housing / Mechanics			
Housing material	PC, ABS		
Fire protection class	UL94-V2		
Dimensions	105 x 113 x 38 mm		
IP protection class	IP65		
Weight	240 g		





[1] In order to improve the measurement accuracy when using the data logger and the PT100, it is possible to carry out a 1-point or 2-point adjustment. To calculate the total accuracy of the RMS-LOG-T30, all variables must be added.

Compatible

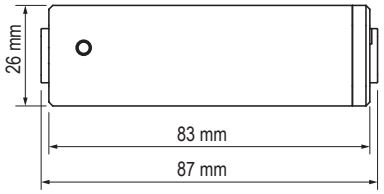
• RMS Gateway	RMS-GW
• RMS On-premises software	RMS-WEB
• RMS SaaS solutions	RMS-CLD
• PT100 probe	T30-000X

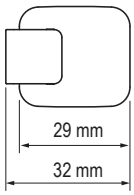
Delivery package

- Data logger
- 2 batteries
- Wall bracket
- Short instruction manual
- 2 cable glands M12 x 1.5

RMS Mini Logger

The wireless mini data logger is the low-cost data logger in the Rotronic Monitoring System. Its small housing and wireless interface make it a really flexible data logger. The mini logger is available in various sensor variants: internal temperature sensor (NTC), external temperature sensor (NTC), light, voltage measurement, current measurement or digital switch contact. With this versatility, it can monitor refrigerators and incubators, as well as door contacts and OEM analog devices.





FEATURES

- Stores 10,000 measured values
- Fail-safe, thanks to internal battery
- Battery life up to 2.5 years
- Depending on the version, it measures temperature, current, voltage or light, or monitors a digital switch input
- ISM band 868 MHz / 915 MHz

General specifications		
Device type	MS-MLOG-XXX-XXX RMS-MDI-XXX RMS-MADC-XXX-X	RMS-MLOG-BT-XXX RMS-MLOG-B-XXX
Memory size	10,000 measured values	13,000 data points
Range of application (electronics)	-30...85 °C / 0...100 %rh	-40...85 °C / 0...100 %rh
Battery life @23°C, 1 minute interval	2.2 years	2.5 years
IP protection class	IP65	IP30 (B), IP65 (BT)
Working range pressure	300...1100 hPa	
Storage conditions	-30...30 °C / 0...95 %rh	
Battery	1x RMS-BAT	
Measurement interval	10 s to 15 min (software dependant)	
Wireless specifications		
Wireless interface	ISM 868 MHz	ISM 915 MHz
Indoor wireless range	20...50 meters	15...25 meters
Conformity with standards		
FDA / GAMP directives	FDA 21 CFR Part 11 / GAMP5	
Housing / Mechanics		
Housing material	ABS	
Dimensions	83 x 29 x 29 mm	
Fire protection class	UL94-V2	

Measured parameters

RMS-MLOG-B-XXX	Temperature & humidity
RMS-MLOG-BT-XXX	Temperature & barometric pressure
RMS-MLOG-T--XXX	Temperature
RMS-MLOG-T10-XXX	Temperature with external probe (NTC)
RMS-MADC-XXX-V (0...10 V)	Power
RMS-MADC-XXX-A (0...20 mA)	Power input
RMS-MDI-XXX	Digital input
RMS-MLOG-LGT-XXX	Illumination

Compatible

- Temperature probe T10-xxxxx
- RMS Gateway RMS-GW-868
- RMS On-premise RMS-WEB
- RMS SaaS solutions RMS-CLD

Delivery package

- Data logger
- Battery
- Wall bracket
- Short instruction manual
- 2 screws & 2 plugs

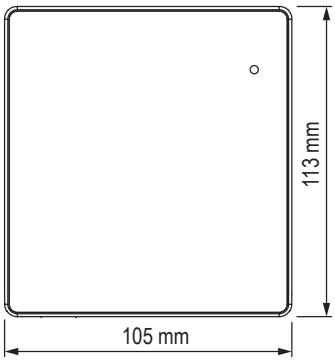
RMS Gateway

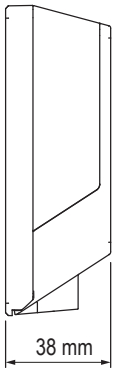
The gateway is the interface between the wireless data logger and the server software. It can manage up to 60 data loggers simultaneously, collecting all wireless-logger measurement data, and passing them on to the server software. When several gateways are used in the same network, they are configured redundantly. If one gateway should fail, the measurement values are automatically sent to the server software via another gateway.

FEATURES

- Connects 60 wireless data loggers simultaneously
- 5 wireless channels for parallel and redundant operation

General specifications		
Range of application	-40..70 °C, 0..100 %rh	
Storage conditions	-40..30 °C, 0..95 %rh	
Maximum altitude	2000 m ASL	
Power supply	24 VDC ±10 % / <100 mA / PoE: 802.3 af-2003, Class 1	
AC adapter requirements	24 VDC ±10 % / 4 W nominal / <15 W power-limited	
Device data		
Measurement interval	10 s to 15 min.	
Startup time	< 10 s	
Order code	RMS-GW-868	RMS-GW-915
Interfaces	Ethernet & ISM868 MHz	Ethernet & ISM 915 MHz
Indoor wireless range	20..50 meters	15..25 meters
Protocols	HTTP	
Ethernet cable requirement	Min. Cat. 5, SFTP, max. 30 m	
Conformity with standards		
FDA / GAMP directives	FDA CFR21 Part 11 / GAMP 5	
Housing / Mechanics		
Housing material	ABS	
Fire protection class	UL94 –V2	
Dimensions	105 x 113 x 38 mm	
IP protection class	IP65	
Weight	200 g	





Compatible

- RMS Data Logger — RMS-LOG
- RMS Mini Logger — RMS-MLOG
- RMS Display — RMS-D
- RMS On-premises software — RMS-WEB
- RMS SaaS solutions — RMS-CLD

Delivery package

- Gateway
- Wall bracket
- Short instruction manual
- 2 screws & 2 plugs

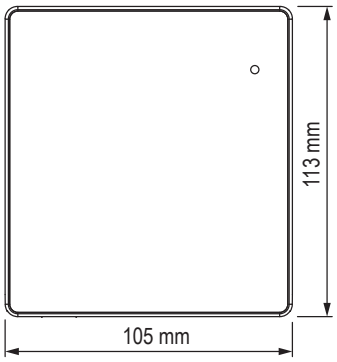
RMS Display

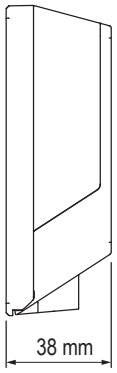
The LAN display is a freely configurable display. As a remote display, it can be placed optimally where it suits the viewer best. It is able to show the measured values, states and alarms of RMS products. The display shows up to four measured values. Two measured values are shown at a time. If more than 2 measured values have been selected, the display alternates between the values that are to be displayed every 5 seconds.

FEATURES

- Shows up to 4 measured values
- Automatic adjustment of backlight on alarm

General specifications	
Device type	RMS Display
Display of measuring points	Up to 4 measuring points
Range of application	-20...70 °C / 0...100 %rh
Storage conditions	-20...30 °C / 0...95 %rh
Power supply	24 VDC ±10 % / <100 mA / PoE: 802.3 af-2003, Class 1
AC adapter requirements	24 VDC ±10 % / >4 W / power-limited
Measurement interval	10 s
Interface	Ethernet
Protocols	HTTP
Conformity with standards	
FDA / GAMP directives	FDA CFR21 Part 11 / GAMP5
Housing / Mechanical parts	
Housing material	PC, ABS
Fire protection class	UL94-V2
Dimensions	105 x 113 x 38 mm
Display diagonal	2.26 inch
IP protection class	IP65
Weight	206 g





Compatible

- All measuring points
- RMS Gateway — RMS-GW-868
- RMS On-premise — RMS-WEB
- RMS SaaS solutions — RMS-CLD

Delivery package

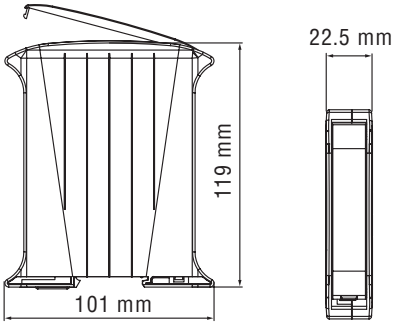
- Display
- Wall bracket
- Short instruction manual
- 2 screws & 2 plugs

RMS-ADC-L-R

The RMS-ADC-L-R is a data logger with two integrated analog-to-digital converters to which two sensors can be connected for high-precision analog measurement. The data logger stores 44,000 pairs of measured values and sends them to the RMS database via LAN.

FEATURES

- 44,000 data point memory
- 2 analog sensor inputs
- Various scaling: 0...1/5/10 V and 0/4...20 mA
- ±0.03 % f.s. measurement range accuracy



General specifications	
Measurement interval	10 s to 15 min
Startup time	< 10 s
Software compatibility	≥ V1.3.0
Protocols	HTTP / MODBUS TCP
Ethernet cable requirement	Min. Cat 5, SFTP, max. 30 m
Application range	-40...70 °C, non-condensing
Storage conditions	-20...30 °C, non-condensing
Sensor power supply (Vex)	24 V / 80 mA max.
Current consumption	< 160 mA
AC adapter requirements	24 VDC ±10 %, 4 W minimum, > 5 W power-limited
PoE	802.3af-2003, Class 1
Conformity with standards	
Soldering material	Lead free / RoHS conformity
FDA/GAMP directives	FDA CFR21 Part 11 / GAMP 5
Device data	
Accuracy	± 0.03 % full-scale
Temperature accuracy	± 0.02 % full-scale / °C
Measuring resistance / Load	25 kΩ at voltage input 250 Ω at current input
Number of measuring points	1 or 2 analog inputs
Measurement ranges	0...1 V, 0...5 V, 0...10 V, 0...20 mA and 4...20 mA
Storage capacity	44,000 data points
Sensor quality	• Detection of sensor interruption (open loop) • Detection of overload • Detection of underload at 4...20 mA
Housing / Mechanics	
Housing material	PC. ABS
Dimensions	110 x 119 x 22.5 mm
IP protection class	IP20
Fire protection class	UL94-V0
Weight	125 g

Compatible

• RMS On-premises software ≥ V1.3.0	RMS-WEB
• RMS SaaS solutions ≥ V1.3.0	RMS-CLD

Delivery package

- Data logger, with clamps
- Short instruction manual
- Certificate

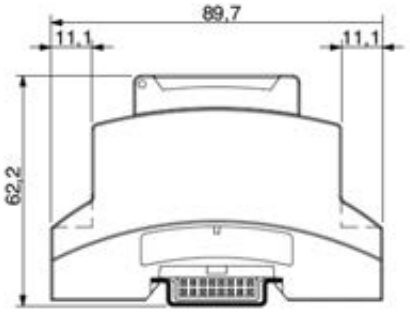
RMS-DI-L-R

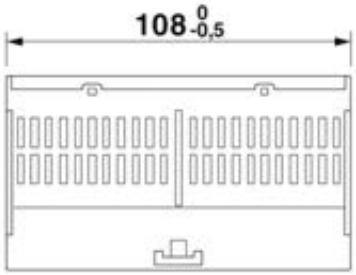
The digital input module stores all measured data on an event basis and sends it to the database via Ethernet. The minimum pulse time is 100 ms. Should the connection be lost, the module stores the data intermediately to protect data integrity and fills up the data gaps when the connection has been restored. The device has a battery so that logging of measured data is also ensured in the event of a failure in the external power supply.

FEATURES

- Two input channels
- Data logging of up to 75,000 measured values

General specifications	
Device type	RMS-DI-L-R
Number of inputs	2 independent digital inputs
Range of application	-40..70 °C / 0..100 %rh non-condensing
Storage conditions	-40..30 °C / 0..95 %rh
Maximum altitude	2000 m ASL
Power supply	24 VDC ±10 % / <100 mA / PoE: 802.3 af-2003, Class 1
AC adapter requirements	24 VDC ±10 % / 4 W nominal /<15 W power-limited
Battery type	RMS-BAT
Battery life	3 years at 23 °C
Device data	
Input frequency	Max. 0.833 Hz or 1.2 s
Pulse recognition	>100 ms (periodically > 1.2 s)
Input circuit	Logic level: 0 V / 5-24 V
	Trigger threshold: ~3.77 V
	Current consumption: <1 mA
Reed circuit	Max. load at input 100 kΩ
Max. cable length at input	<3 m
Measurement interval	Event-based & interval (10 s to 15 min.)
Storage capacity	75,000 data points
Interface	Ethernet
Protocols	HTTP
Conformity with standards	
FDA / GAMP directives	FDA CFR21 Part 11 / GAMP 5
Housing / Mechanical parts	
Housing material	Polycarbonate (PC)
Fire protection class	UL94-V0
Dimensions	89.7 x 62.2 x 108 mm
IP protection class	IP20
Weight	206 g





Compatible

- RMS-Config
- RMS On-premise
- RMS SaaS solutions

RMS-WEB
RMS-CLD

Delivery package

- Digital module
- 2 batteries
- Wall bracket (wall-mounted housing)
- Short instruction manual
- 2 screws & 2 plugs

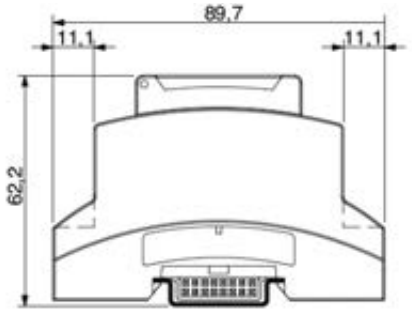
RMS-DO-L-R

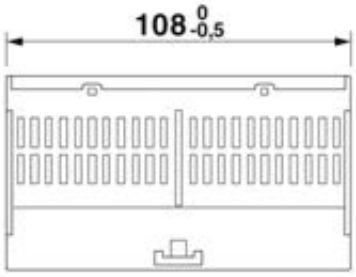
The digital output module serves to display information, issue alarms and control events. The relays can be interrogated or set via Modbus TCP or the RMS software. It is possible to define the conditions in the RMS software and to actuate the outputs on the basis of them.

FEATURES

- Two output channels

General specifications	
Device type	RMS-DO-L-R
Number of outputs	2, polarity-independent
Range of application	-40..70 °C / 0..100 %rh non-condensing
Storage conditions	-40..30 °C / 0..95 %rh
Maximum altitude	2000 m ASL
Power supply	24 VDC ±10 % / <100 mA / PoE: 802.3 af-2003, Class 1
AC adapter requirements	24 VDC ±10 % / 4 W nominal /<15 W power-limited
Device data	
Interface	Digital signal / galvanically isolated
Relay switching capacity	50 VAC (peak) 1 A / 50 VDC/1 A, polarity-independent
Voltage output (VEX)	24 VDC (Note: The maximum current available depends on the external power supply connected)
Max. cable length at input	<3 m
Measurement interval	>=10 s
Interface	Ethernet
Protocols	HTTP
Conformity with standards	
FDA / GAMP directives	FDA CFR21 Part 11 / GAMP 5
Housing / Mechanical parts	
Housing material	Polycarbonate (PC)
Fire protection class	UL94-V0
Dimensions	89.7 x 62.2 x 108 mm
IP protection class	IP20
Weight	155 g





Compatible

- RMS-Config
- RMS On-premise — RMS-WEB
- RMS SaaS solutions — RMS-CLD

Delivery package

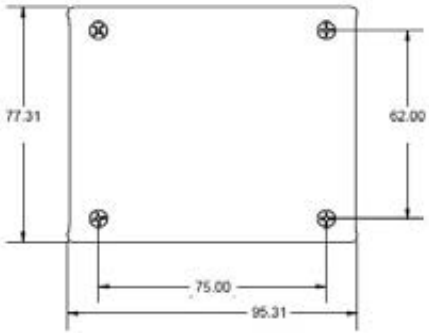
- Digital module
- Wall bracket (wall-mounted housing)
- Short instruction manual
- 2 screws & 2 plugs

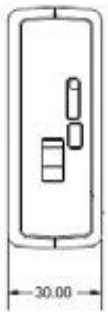
RMS Converter

The RMS Converter allows you to easily integrate existing devices and networks into RMS. The RMS Converter acts as an interface, gathering the data from digital devices and sending them to the RMS server software/MS SQL database. In addition, third party digital devices can be integrated if the communication protocol is MODBUS TCP. However, this function requires support from the Rotronic R&D. Where ever possible Rotronic would recommend replacing previous networks with RMS devices in the long term.

FEATURES

- Integrates digital devices seamlessly into RMS
- Integrates Rotronic digital devices into RMS
- No loss of accuracy due to A/D converters, show up to 5 decimal values





General specifications	
Device type	RMS Converter
Number of measuring points	Integration of up to 100
Range of application	-0 .. 50 °C / 0 .. 95 %rh
Storage conditions	-0 .. 50 °C / 0 .. 95 %rh
Electrical Supply	5 VDC (universal mains adapter included)
Measurement interval	10 s to 15 min
Interface	Ethernet
Protocols	Modbus TCP RoASCII HTTP SNMP Customer-specific enhancements
Supported webcams	D-Link DCS-2121
Conformity with Standards	
FDA / GAMP directives	FDA 21 CFR Part 11 / GAMP5
Housing / Mechanical parts	
Dimensions	94 x 78 x 30 mm
IP protection class	IP20

Compatible

• Transmitter	HF4..HF8 (Ethernet)
• Transmitter	PF4/5 (Ethernet)
• RMS On-Premise	RMS-WEB
• RMS SaaS solutions	RMS-CLD
• Clean room panel	CRP5
• Analogue to digital converter	RMS-8ADC-L-R-A/V
• RTD to digital converter	RMS-4RTD-L-R
• Particle counter	All with Modbus TCP interface

Delivery package

- Converter
- Short instruction manual
- AC adapter
- Ethernet cable
- USB cable

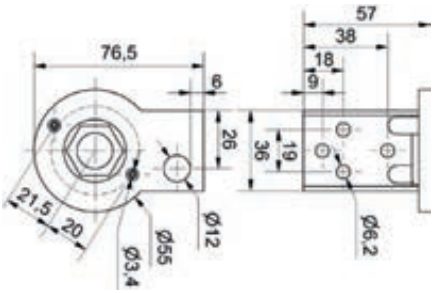
AD-0001

The AD-0001 will warn users both visually and aurally of any alarms that are setup within the Rotronic monitoring system. Alarms can be setup via the alarm scheme as well as via the script function (IF/OR/AMD/THEN) and then triggered from the actions settings.

FEATURES

- Direct visual or sound alarming
- Alarming via thresholds or scripts (IF/OR/AND/THEN)
- Permanent or blinking red LED
- Permanent or pulsing buzzer

General specifications	
Device type	AD-0001
Range of application	-20...50 °C / 0...95 %rh
Storage conditions	-0...50 °C / 0...95 %rh
Electrical supply	24 VDC (power can be supplied via the RMS-DO-L-R)
Light	Red LED
Sound	< 85 dB
Housing / Mechanical parts	
Height	154.5 mm without mounting bracket
Diameter	70 mm
IP protection class	IP65
Housing material	PA and PC



Sound pressure level dB (A)

Distance in m												
1	**2**	**3**	**5**	**10**	**20**	**30**	**50**	**100**	**200**	**300**	**500**	**1000**
100	94	90	86	80	74	70	66	60	54	50	46	40
90	84	80	76	70	64	60	56	50	44	40		
85	79	75	71	65	59	55	51	45	39			
70	64	60	56	50	44	40	36					

Compatible

- RMS-DO-L-R

Delivery package

- Device

RMS-TD-0001

Strict guidelines require high temperature stability in many areas and only allow the smallest fluctuations. However, there are unavoidable fluctuations fridge temperature when the door opens, which must be buffered to ensure that the probe temperature measurement is representative of the product temperature. As of such, the monitored temperature is more stable and meaningful. The sensor holder is traceable end-to-end and meets all FDA and GxP environments.

FEATURES

- Ensure that the temperature measurement is representative of the product temperature with this temperature buffer
- Easy installation of temperature probes in fridges and freezers

General specifications	
Order code	RMS-TD-0001
Temperature range	-196...40 °C
PET bottle	Polyethylene terephthalate (PET)
Mounting bracket	Polylactide (PLA)
Sand	Biloxit (certified)
Dimensions	34 x 110 mm

Delivery package

- PET bottle
- Lid with seal
- Sand (weighed for the bottle)
- Two centering sleeves (suitable for 6 mm diameter probes only)
- Mounting bracket
- Cable ties

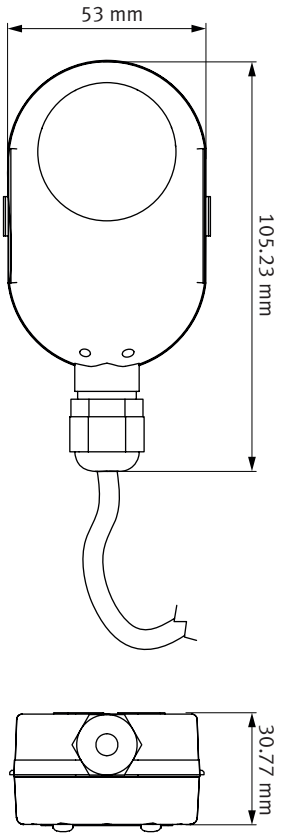
WB-0001

The WB-0001 detects the presence of water or conductive fluids once it reaches a level that bridges the two conductive strips on the bottom of the housing. Once the strips are bridged, audible and visual alerts as well as an internal switch are triggered. The sensing hight can be adjusted from 0.08 mm to 13.5 mm using the included adjustable mounting bracket (that can be attached to any flat surface by either using the attached adhesive strips or mounting screws).

FEATURES

- Detect leaks as soon as they occur
- Visual and audible alarm
- Battery powered
- Adjustable sensing hight
- Relay output

General specifications	
Parameters	Water or conductive fluids
Range of application	0...50 °C
Power supply	3V CR2450 lithium metal battery
Battery lifetime	5 years steady state / 48 hours during alarm condition
Power consumption	0.9 mA steady state / 3.0 mA during alarm condition
Dimensions	53 x 105.23 x 30.77 mm
Housing	ABS and polycarbonate
Cable length	1.5 m
IP protection class	Water tight up to 3/4 of the body hight
Weight	137.5 g
Technical Information / Functions	
Switch type	SPST NO SSR
Audible alarm	At least 85dB @30 cm distance
Visual alarm	Red LED for water level, Yellow LED for low battery



Compatible

- RMS-MDI-868/915
- RMS-DI-L-R

Delivery package

- 1 CR2450 lithium metal battery
- Short instruction manual

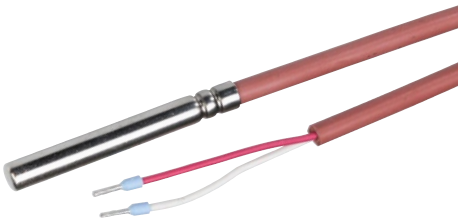
Temperature probes

The RMS temperature portfolio will cover a various array of applications, from the coldest such as liquid nitrogen tanks and cryogenic freezers to freezers, refrigerators and cold rooms to hotter ones such as water baths, incubators, ovens and autoclaves. Certain probes are also designed for specific applications for monitoring legionella within water pipes and monitoring room temperature.

T10-0001

- Applications: liquid nitrogen, cyrogenics...
- Application range: -196...-90 °C
- Cable length: 2 m
- Probe diameter: 6-6.15 mm
- Probe length: 50 mm
- IP65
- Select NTC T10-0001 within RMS
- Sensor: NTC

T10-0002



- Applications: Dry ice, freezers...
- Application range: -80...150 °C
- Cable length: 2 m
- Probe diameter: 6-6.15 mm
- Probe length: 50 mm
- IP65
- Select NTC T10-0002/0006 within RMS
- Sensor: NTC

T10-0003/T10-0013/T10-0113

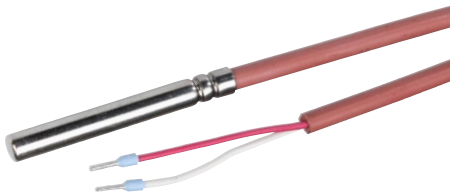
- Applications: freezers, fridges, cold rooms, water baths, incubators, ovens...
- Application range: -50...120 °C
- Cable length: 2 m
- Probe diameter: 6-6.15 mm
- Probe length: 50 mm
- IP65
- Select NTC T10-0003/4 within RMS
- Sensor: NTC

Temperature probes

T10-0005

- Applications: Dry ice, freezers...
- Application range: -90...0 °C
- Cable length: 4 m
- Probe diameter: 6-6.15 mm
- Probe length: 50 mm
- IP68
- Select NTC T10-0005 within RMS
- Sensor: NTC

T10-0006

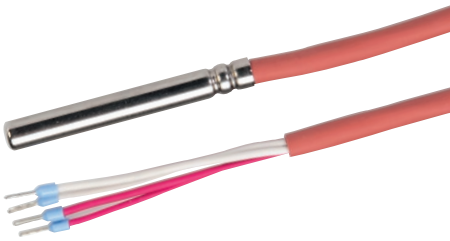


- Applications: freezers, fridges, cold rooms, water baths, incubators, ovens...
- Application range: -80...150 °C
- Cable length: 4 m
- Probe diameter: 6-6.15 mm
- Probe length: 50 mm
- IP65
- Select NTC T10-0002/0006 within RMS
- Sensor: NTC

T30-0001

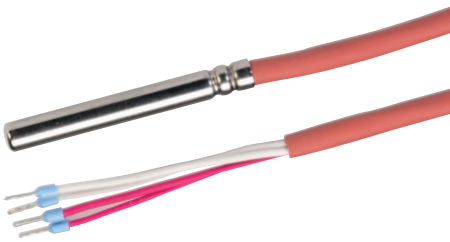
- Applications: Cryotechnology, dry ice
- Application range: -196...260 °C
- Cable length: 2000 mm
- Probe diameter: 6-6.15 mm
- Probe length: 50 mm
- IP68
- Sensor: 4 wire Pt100

T30-0003



- Applications: Standard
- Application range: -50...200 °C
- Cable length: 2000 mm
- Probe diameter: 6 mm
- Probe length: 50 mm
- IP65
- Sensor: 4 wire Pt100

T30-0006



- Applications: Standard
- Application range: -50...200 °C
- Cable length: 4000 mm
- Probe diameter: 6 mm
- Probe length: 50 mm
- IP65
- Sensor: 4 wire Pt100

Temperature probes

T30-0010

- Application range: -190...200 °C
- Cable length: 4000 mm
- Probe diameter: 3.6 mm
- Probe length: 50 mm
- IP65
- Sensor: 4 wire Pt100

T30-0012

- Application range: -190...260 °C
- Cable length: 2000 mm
- Probe diameter: 3 mm
- Probe length: 50 mm
- IP68
- Sensor: 4 wire Pt100

T30-0013

- Applications: Doors
- Application range: -50...200 °C
- Cable length: 2000 mm
- Probe diameter: 6 mm
- Probe length: 50 mm
- IP65
- Sensor: 4 wire Pt100