

GLACIÄR RM - Datasheet

Product Description

The Glaciar-RM is a single point, infra-red based, refrigerant leak detector for use in air conditioning and refrigeration applications.

Specification

General	Operating Temp. Range.....0°C to +60°C Storage Temp. Range.....-40°C to +85°C Operating Humidity Range.....0-99% RH non-condensing Size.....H86xW86xD32/38mm (behind cover plate) IP Rating.....IP21 Enclosure Options.....White plastic cover plate
Electrical	Power Supply.....12-24V AC/DC 3W max. Alarm and Fault relays.....2 x SPDT1A @ 24VDC contact rating Terminal sizes.....16>28AWG/1.5mm ²
Measurement	Method.....NDIR Target Gases.....R32 or R410a* Measurement units.....%LFL / %VOL Measurement range (FS).....R32 = 50%LFL**R410a = 7%VOL** Warmup time.....60 seconds Accuracy.....+/- 10% Response time T90.....<= 30s
I/O and Indicators	Digital Outputs.....2 x RelaysSelectable as Warning / Alarm or Fault Status LED.....Red, Green, Blue status LED RS485 LED.....Green, Orange RX/TX data LED Sounder.....Internal Alarm Buzzer 85dB @ 10cm
Communications	RS485.....Modbus RS485 (9600bps, 8N1 default) Wi-Fi (service hotspot only).....HTML

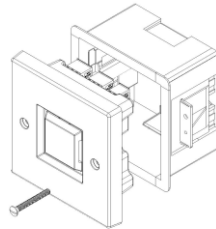
* The target gas must be specified when ordering, other gases available soon.
** Readings <3% (R32) <4% (R410a) of measurement range will be clamped to zero.

Mounting

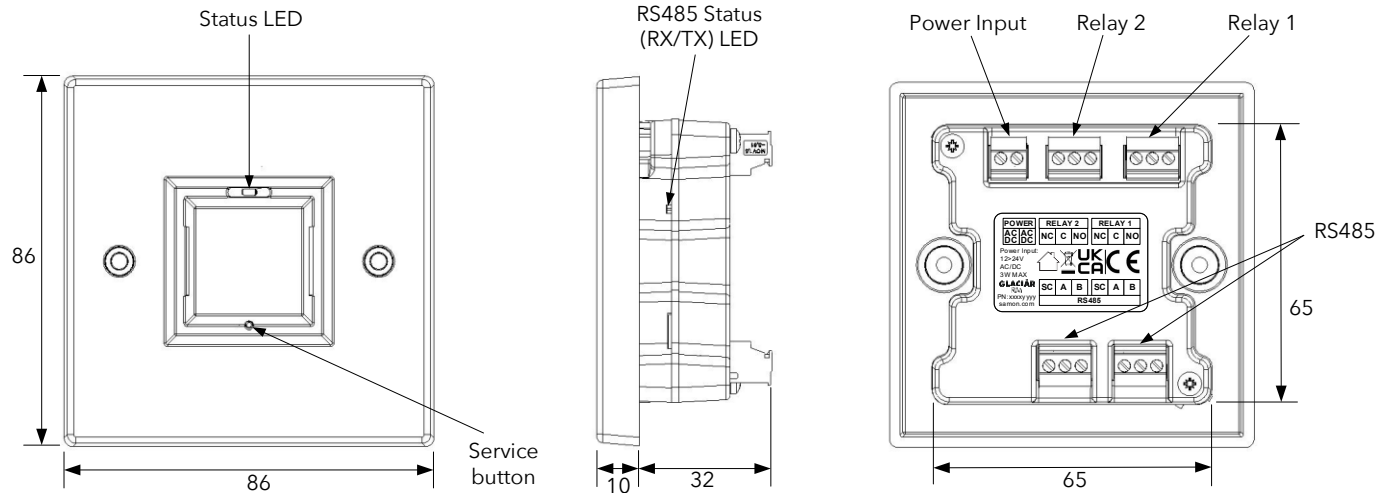
The detector is intended to be mounted within a single gang back box, wall box or dry-lining box. A standard box depth of 47mm is required.

Note: If a fire barrier is required - it is recommend to use metal back box containing heat activated expanding foam sheets.

Careful consideration needs to be given to the cable entry point into the backbox. Bringing cables into the back box on the sides of the box and as near to the rear of the box as possible, or through the rear of the box will avoid cables clashing with the detector. Using a cable gland may foul the detector casing.



Dimensions & Features



Typical Installation

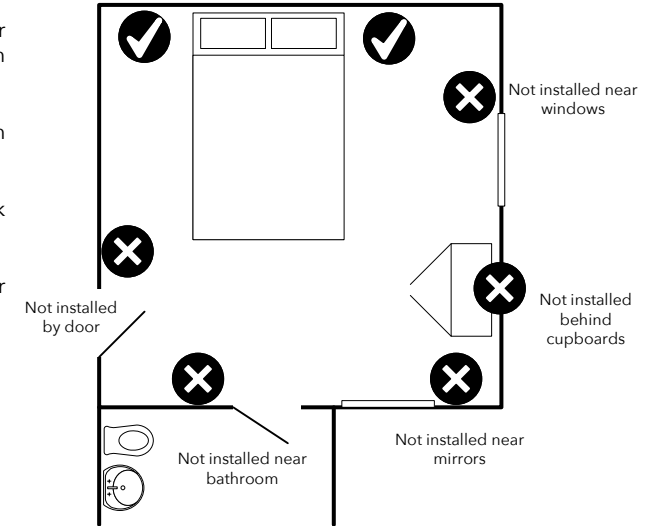
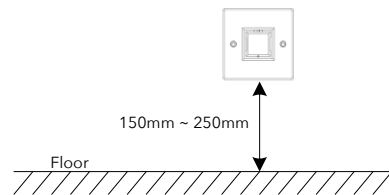
The main considerations when deciding where to locate the detector are:-

Low Level - As HFC and HFO refrigerants are heavier than air, the detector should be mounted as close as practical to floor level (150mm ~ 250mm above floor level), preferably directly below the air conditioning unit.

Accessible for Maintenance - The detector should be mounted in a position where it can be easily accessed for maintenance and repairs.

Minimize Damage - Mount the detector in a position that minimizes the risk of mechanical damage to the unit.

Ensure leaks can be detected - Do not mount the detector next to doors or windows, where fresh air may influence readings.



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GLACIAR_RM_01v1.0 - Glaciar RM product datasheet
STM32 (MCU) v1.1.61 - ESP32 (Wi-Fi) v1.1.76

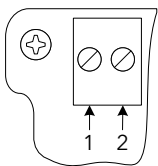


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Power Input connections

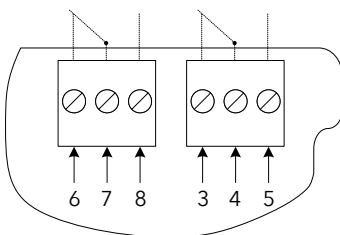
1	12-24V AC or DC
2	12-24V AC or DC

IMPORTANT
1. Do not connect either side of the supply voltage to earth.
 2. When using a DC supply - the power input is not polarised.



Relays 1 & 2 connections

3	Relay 1 - Normally closed
4	Relay 1 - Common
5	Relay 1 - Normally open
6	Relay 2 - Normally closed
7	Relay 2 - Common
8	Relay 2 - Normally open

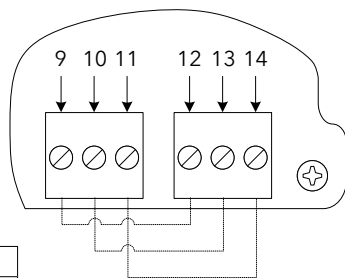


RS485 connections and LED's

9	RS485 Screen (0V)
10	RS485 A
11	RS485 B
12	RS485 Screen (0V)
13	RS485 A
14	RS485 B

There is a single bi-colour LED (ORANGE & GREEN) located on the side of the enclosure. This is used to indicate RS485 activity.

RS485 LED - ORANGE	Receive Data
RS485 LED - GREEN	Transmit Data



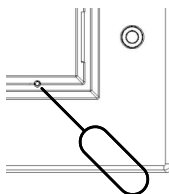
Service Button & Wi-Fi access

The service button is accessible via a "pin hole" in the front of the cover plate.

Push for 1 second = reset an ongoing alarm (if configured for manual reset)

Push for 5 seconds = activates the Wifi service access hotspot

Push for 20 seconds during warmup = performs a factory reset of settings



Once activated the Wi-Fi service access point only remains active for 3 minutes, but will remain active once a device is connected. The Wi-Fi service access point will also be activated from power up for 3 minutes.

Access point name* = GlaciärRM_AP_ "serial number"
Wifi Password = contact Samon
Service Webpage address = 192.168.4.1
Service Webpage password = contact Samon

***Refer to the product labeling for the serial number. All leading 0's in the serial number will be ignored.**

Default Operation

The table below shows the operation of the detector with factory default settings.

State	Status LED	Buzzer	WiFi AP	Relay 2	Relay 1
Power Off	OFF	OFF	OFF		
Warmup (1min)	Flashing Green	OFF	ON		
Normal Operation	Constant Green	OFF	OFF		
Fault	Constant Orange	OFF	OFF		
Warning Concentration > Warning Limit for >10s	Flashing Red	OFF	OFF		
Alarm Concentration > Alarm Limit for >10s	Constant Red	Pulsing	OFF		

Notes

Operating settings

The table below shows the detector factory settings - and other setting options. Settings can be changed using the Wi-Fi access point and web-browser, or via the Modbus RS485 interface.

Name	Factory default setting	Range or other setting options	Description
Warning limit	15%LFL (R32), 0.8%VOL (R410a)	5%(R32) or 7%(R410a) to 90% of measurement range*	The warning limit. A warning can only occur once this limit is exceeded.
Warning debounce	10s	3s to 600s	The delay time before a warning is activated
Warning delay off	3s	3s to 600s	The delay time before a warning is de-activated
Alarm limit	23%LFL (R32), 1.7%VOL (R410a)	5%(R32) or 7%(R410a) to 90% of measurement range*	The Alarm limit. An Alarm can only occur once this limit is exceeded.
Alarm debounce	10s	3s to 600s	The delay time before a Warning is activated
Alarm delay off	3s	3s to 600s	The delay time before a Warning is de-activated
Relay 1 mode	Active on Fault or Warning	Not used, Active on Warning only, Alarm only, Fault only, Alarm or Fault	Which conditions will activate relay 1
Relay 1 logic	Failsafe	Non-failsafe	Relay 1 failsafe or non-failsafe logic
Relay 2 mode	Active on Alarm	Not used, Active on Warning only, Fault only, Warning or Fault, Alarm or Fault	Which conditions will activate relay 2
Relay 2 logic	Failsafe	Non-failsafe	Relay 2 failsafe or non-failsafe logic
Sounder activation	Alarm only	Warning only, Warning or Alarm	Which conditions will activate the sounder
Sounder type	Pulsing when activated (3sON 3sOFF)	Always OFF, Constantly ON when activated	The type of sound produced by the sounder
Status LED mode (Green)	Always ON when normal	Always OFF, Always ON when normal also blinks RS485 LED on comms, Always OFF when normal Wifi active indication only, Active on Alarm, Active on Alarm or Fault.	Which conditions will activate the green aspect of the status LED and RS485 LED.
Modbus address	1	1 to 250	The Modbus RS485 network address
Modbus baud rate	9600bps	19200bps, 38400bps, 57600bps	The Modbus RS485 network speed
Modbus parity	None	Non-failsafe	The Modbus RS485 parity
Modbus stop-bits	1 stop-bit	Warning only, Warning or Alarm	The Modbus RS485 stop-bits

***The alarm limits can only be changed via the Modbus RS485 interface, and with elevated user access. A fixed hysteresis of 3% of the measurement range will be applied below the alarm threshold.**

For R32 100%LFL = 14.4%VOL. Sensor full-scale = 7.2%VOL, default warning limit = 2.16%VOL, default alarm limit = 3.312%VOL. To convert to ppm : %VOL*10000

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