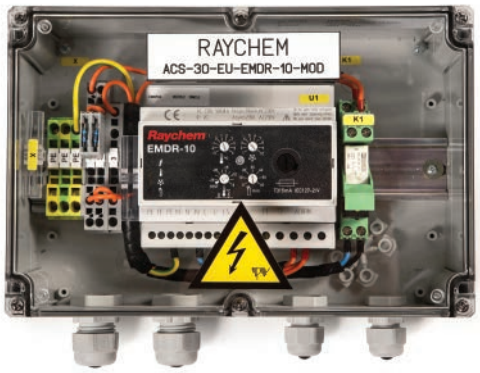
ACS-30-EU-EMDR--10-MOD

Raychem

Multi-application heat tracing control and monitoring in commercial and residential buildings roof & gutter de-icing sensor module

DESCRIPTION



The Raychem ACS-30-EU-EMDR-10-MOD Module for the ACS-30 system provides smart sensor input for roof & gutter de-icing applications. The module provides temperature & moisture sensing input. The module can be positioned near to the heated area and is connected to the PCM module via a 3-wire cable. The module is provided with a 4m external temperature and moisture sensor to be positioned at the heated surface. The sensor cold lead cable can be extended to a maximum length of 100 m (using 3 x 1.5 mm^2 cable.)

The output from the ACS-30-EU-EMDR-10-MOD module enables the switching of the heating circuits within the power & control module (PCM).

TECHNICAL INFORMATION

Approvals	CE Marked.
Module IP rating	IP55 (enclosure with control device)
Ambient operating temperature range	0 to +35°C (enclosure with control device)
Mounting	Wall mounting

ENCLOSURE

Dimensions	332 mm x 262 mm x 132 mm
Enclosure type	Polystyrene box and polypropylene cover
Connections	4 Polyamide Cable Glands (IP68 rated) with stopping plugs

CONTROL DEVICE

Device name	EMDR-10
Supply voltage	230 Vac, +/–10%, 50Hz
Power Consumption	4VA max.
Measuring accuracy	+/–1.5K
Operating differential	+/–0.5K
Moisture Sensor (output)	Imax 1A/230 VAC, SPST potential 230 VAC with fuse 5 X 20 mm T315 mA according to IEC127-2/V
Terminals	2.5 mm^2 (stranded conductors), 4 mm^2 (solid conductors)

chemelex

AMBIENT SENSOR (VIA-DU-A10)

PTC Sensor (IP54). Cable not included. Max length 100 m (2 x 1.5 mm^2).

Ambient operating temperature range	–30°C to +80°C
Terminals	2.5 mm^2
Mounting	Wall mounting

MOISTURE SENSOR (HARD-45)

PTC Sensor. Supplied with 4 m cold lead. Extendable to 100 m (3 x 1.5 mm^2).

Power consumption	9 W to 18 W
Ambient operating temperature range	–30°C to +65°C continuous
Supply voltage	230 VAC, +/–10%, 50Hz (via control device)

1. INSTALLATION AND SAFETY REMARKS

Select a suitable location for the enclosure and mount it on a wall using suitable screws.

Install power cable, moisture and ambient sensor cables, RTD cables (which have to be connected in the ACS-30-EU-PCM2 module) into the enclosure using the glands supplied.

Keep stopping plugs in unused gland entries.

Remarks:

Only for electricians!

Attention: mistakes during connection of the device can cause damage to the control unit. Chemelex is not liable for any damage caused by faulty connections and/or incorrect handling.

- Before working on the device, switch off the power supply!
- The device may only be connected and serviced by authorised, trained electricians.
- Electrical connection must be carried out in accordance with the enclosed connection diagram.
- The wires of the moisture sensor carry mains voltage, those of the temperature sensor and the alarm contact have to be considered as carrying mains voltage in consideration of VDE and the relevant installation regulations must be observed.
- Do not lay sensor cables together with other live wires in order to avoid electromagnetic interference.
- Local standards for electrical connection must be observed.
- If the device does not operate as expected, please check all connections and the mains power supply.

2. INSTALLATION AND DIMENSIONS OF THE TEMPERATURE SENSOR

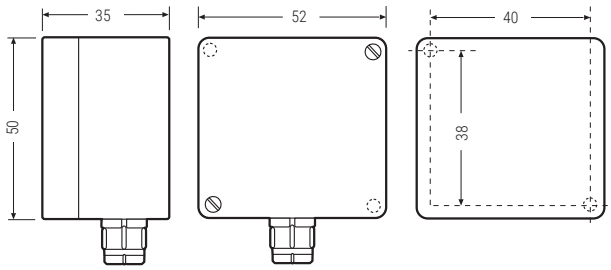
A good positioning of the temperature sensor is crucial for the correct and efficient operation of the snow melting system. The temperature sensor should be placed on the North side of the building, in a position where it will always be away from direct sunlight. Moreover, it must be protected against other influencing factors such as being mounted above doors or windows or close to lamps or floodlights.

A position on the wall just below a gutter is recommended.

The connection wire of the sensor may be extended to max. 100 m at a lead diameter of 1.5 mm^2.

The wires of the temperature sensor has to be considered as carrying mains voltage according to VDE. The relevant installation regulations must be observed. Connection diagram see paragraph 6.

Dimensions:



3. INSTALLATION AND DIMENSIONS OF THE MOISTURE SENSOR

A good positioning of the moisture sensor is crucial for the correct and efficient operation of the snow melting system.

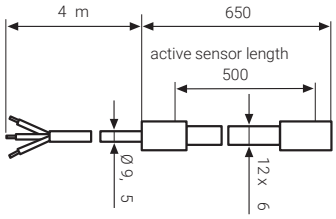
The moisture sensor and heating cable(s) served / controlled by the same control unit should be positioned in the same roof area. The moisture sensor is usually placed in a gutter at the lowest position in the system adjacent to one of the drainpipes. This is usually where water / snow is last cleared from the gutter, hence ensuring that the whole protected area is cleared before the heating system turns off. The exact positioning will depend on the particular building and the prevailing weather conditions. If the system shuts down before snow is removed from a key area, then the sensor should be moved to that area.

For mounting the sensor in the gutter use the fixing brackets (Hard-46) to fix the sensor adjacent and parallel to the heating cable. Ensure that the sensor remains flat and is not in contact with the heating cable.

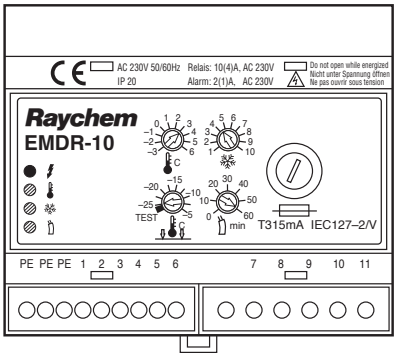
The connection wire of the moisture sensor may be extended to max. 100 m at a lead diameter of 3 x 1.5 mm^2. Connection diagram see paragraph 6.

The wires of the moisture sensor are carrying mains voltage!

Dimensions:



4. FUNCTION



The control unit has four LEDs for indication of the operating conditions and four dials for the adjustment of different parameters.

The air temperature is measured by means of a temperature sensor. When the air temperature falls below the value adjusted at the control unit, then the corresponding yellow LED will light up and after approx. 10 minutes the moisture sensor is activated.

If moisture is present at the sensor then the corresponding yellow LED will light the controller will provide the signal to the PCM to switch ON the heater, as will the red LED. The heating cable remains on until

- the air temperature rises above the set value
- the moisture falls below the set value
- the air temperature falls below the adjusted lower temperature limit and the set post-heating period has elapsed.

4.1 DISPLAY ELEMENTS

The LEDs indicate following operating conditions:

LED green
Device in operation (mains voltage)

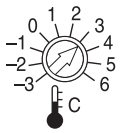
LED yellow
Adjusted air temperature threshold exceeded
LED flashes in case of fault at the air temperature sensor (break or short circuit)

LED yellow
Adjusted moisture threshold exceeded
LED flashes in case of fault at the moisture sensor (break)

LED red
Status of heater ON

4.2 PARAMETER ADJUSTMENTS

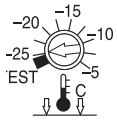
The following parameters can be set by means of the respective dial:



Adjustment of the air temperature threshold.
The moisture sensor is being put into operation below this value.

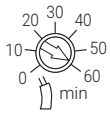


Adjustment of the moisture threshold.
Above this value the heating cable is being energized, if the air temperature is below the setpoint.
1 = max. sensitivity, 10 = min. sensitivity



Adjustment of the lower temperature limit.
Below this value the heating cable will be switched off. At the same time the moisture measurement will be switched off. In addition this dial can be used to test the unit by turning the potentiometer shaft fully to the left. After that the heating cable will be energized for max. 10 minutes. If the shaft is turned to the right again during these 10 minutes then the TEST will be stopped and the unit works in normal operation mode with the adjusted lower temperature limit. If the potentiometer is left in the TEST position then the unit will automatically return to normal operation mode after the test period of 10 minutes and works with a lower temperature limit of –25°C This lower temperature limit can be set to a different value at any time.

A new test period can be activated by turning the shaft from fully left position to the right and then back again to the left stop.



Adjustment of the post-heating period.
The correct adjustment of the post-heating period is dependent on the local weather conditions, the location, and the requested heating power. The conditions have to match the requirements for an economical operation. Minimum time over which the heating cable stays activated when the conditions of temperature and humidity are no longer met e.g. temperature increases above set level or moisture is lower than set level.

Use the following table as a guide:

Description	Suggested setting
Air temperature threshold	+2°C
Moisture threshold	5
Lower temperature limit	–15°C
Post-heating period	60 minutes

Periodic inspection: It is recommended to inspect and test the control unit as well as the heating cable circuits annually.

4.3 MOISTURE SENSOR FUSE

The control unit is equipped with a fuse in the output for the moisture sensor which protects this output against overload and short circuit. In case this fuse requires replacement you may exclusively use a fuse (5 x 20 mm) type T315mA according to IEC127-2/V. Other fuse types are not permissible and may lead to damage of the unit.

5. FAULT MESSAGES AND TROUBLE SHOOTING

The following faults are being detected by the control unit:

Fault	Reaction
Break or short circuit of the temperature sensor	LED “temperature“ flashes, alarm relay and load relay switch off
Break of the moisture sensor Short circuit of the moisture sensor	LED “humidity” flashes, alarm relay and load relay switch off Additionally, under short circuit conditions, Moisture sensor fuse will rupture.
Power failure	Alarm relay and load relay switch off

Notice:

- A short circuit at the moisture sensor leads to the triggering of the fuse.

In case of a fault at the moisture sensor the moisture measuring circuit will be switched off. The LED “moisture” will continue to flash. After repair of the moisture sensor the fault signal has to be cleared by activating the TEST mode (turn the potentiometer for the lower temperature limit to the left stop and shortly after that back again to the requested lower temperature limit). When the air temperature falls below the value adjusted at the control unit, then the moisture sensor is activated and tested again after approx.
10 minutes.

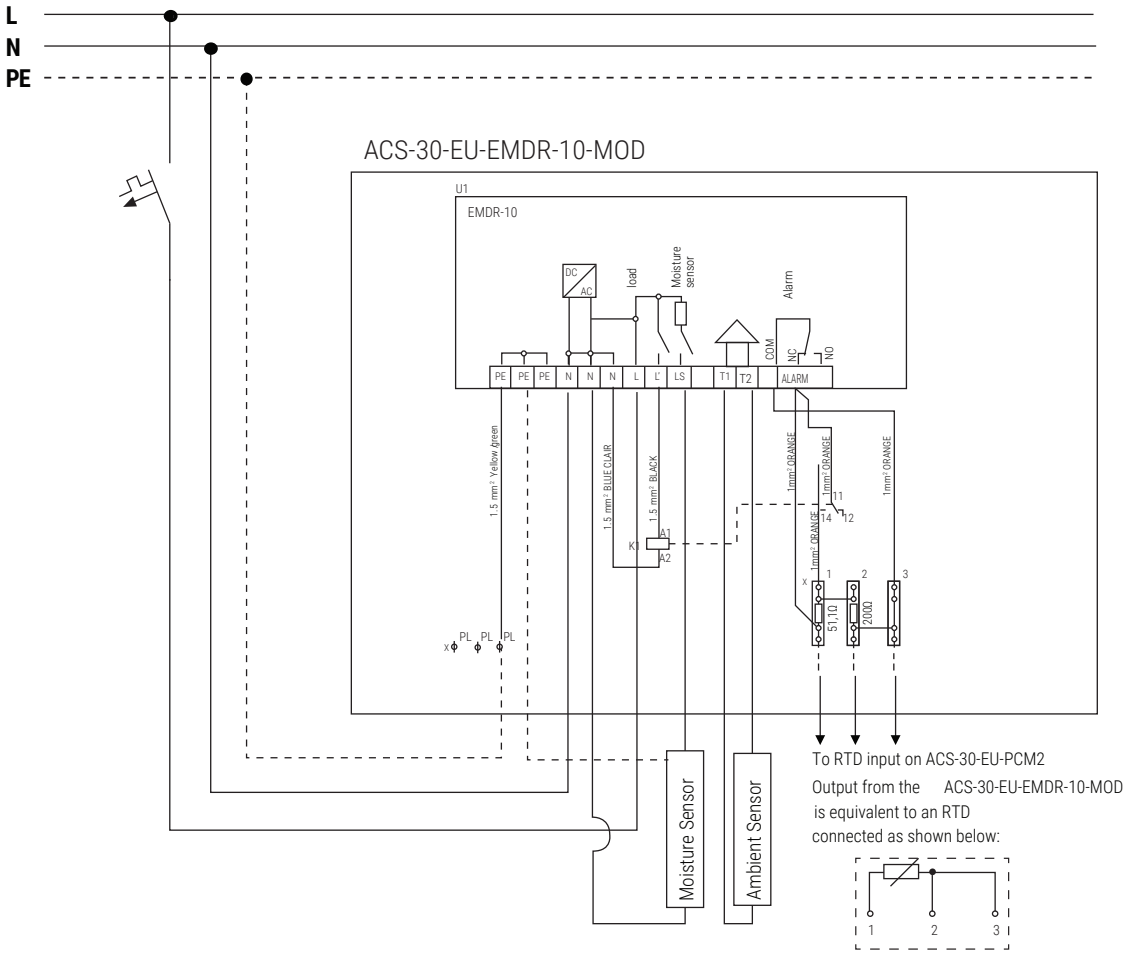
TROUBLE SHOOTING:

Symptoms	Probable causes	Correction
Status of heater OFF active (snow is not melting)	Moisture sensor not positioned correctly (e.g. not flat in the gutter) Sensor” section of this manual	Re-position following the instructions in the “Assembly of the Moisture
	Temperature sensor located in direct sunlight	Re-position following the instructions in the “Assembly of the Temperature Sensor” section of this manual
Temperature below set point, but status of heater OFF active	Moisture not detected	This is normal operation: low temperature AND moisture must be detected before the heating cable is energized
	Less than 10 minutes have elapsed since the temperature fell below the setpoint below the setpoint	The moisture sensor is not checked for the presence of moisture until 10 minutes after the temperature falls
Snow present, but status of heater OFF active	Moisture dial set too high	Set the moisture dial to a lower value
	Poor positioning of the moisture sensor	Re-position following the instructions in the “Assembly of the Moisture Sensor” section of this manual
Snow begins to clear, but the status of the heater turns off too soon	Poor positioning of the moisture	Re-position following the instructions in the “Assembly of the Moisture Sensor” section of this manual
	Moisture dial set too low	Set the moisture dial to a higher value
	Temperature has fallen below minimum temperature setpoint	This is normal operation

6. WIRING DIAGRAM

6.1 EMDR-10 with directly connected Heating Cable

Attention: max. heating cable length 40 m, circuit breaker max. 10A (C-characteristic)



PART NUMBERING AND ORDERING DESCRIPTION

PCN	Product Name	Description	EAN Code
1244-012865	ACS-30-EU-EMDR-10-MOD	Roof & Gutter de-icing sensor for ACS-30	5414506014310

RELATED PRODUCTS

PCN	Product Name	Description	EAN Code
1244-012864	ACS-30-EU-UIT2	User Interface module for the ACS-30 Control and Monitoring System	5414506014303
1244-012866	ACS-30-EU-VIA-DU-20-MOD	Snow melting and surface de-icing sensor module for the ACS-30 Control and Monitoring System	5414506014327
1244-012867	ACS-30-EU-Moni-RMM2-E	Remote monitoring module for the ACS-30 Control and Monitoring System	5414506014334
1244-012868	ACS-30-EU-PCM2-5-20A	Power Control Module for ACS-30 (5 circuit module with 20 Amp electrical protection per circuit)	5414506014341
1244-012869	ACS-30-EU-PCM2-10-20A	Power Control Module for ACS-30 (10 circuit module with 20 Amp electrical protection per circuit)	5414506014358
1244-012870	ACS-30-EU-PCM2-15-20A	Power Control Module for ACS-30 (15 circuit module with 20 Amp electrical protection per circuit)	5414506014365
1244-012871	ACS-30-EU-PCM2-5-32A	Power Control Module for ACS-30 (5 circuit module with 32 Amp electrical protection per circuit)	5414506014372
1244-012872	ACS-30-EU-PCM2-10-32A	Power Control Module for ACS-30 (10 circuit module with 32 Amp electrical protection per circuit)	5414506014389
1244-012873	ACS-30-EU-PCM2-15-32A	Power Control Module for ACS-30 (15 circuit module with 32 Amp electrical protection per circuit)	5414506014396

UK / Ireland

Tel 0800 969 013

SalesUK@chemelex.com

©2025 Chemelex. All Chemelex marks and logos are owned or licensed by Chemelex Europe GmbH or its affiliates. All other trademarks are the property of their respective owners. Chemelex reserves the right to change specifications without notice.