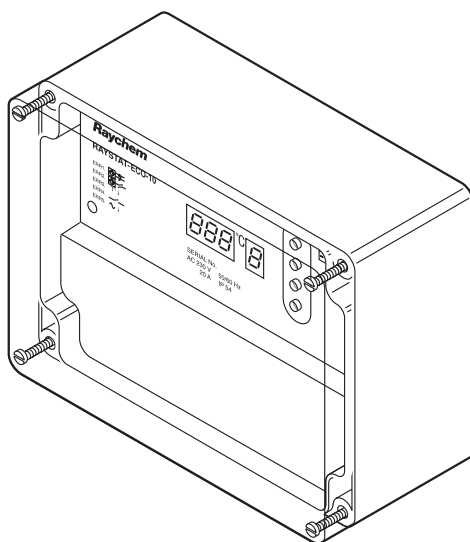


Ambient sensing Energy saving frost protection controller

The DigiTrace ECO-10 temperature controller is designed to control heating cables used for frost protection applications. It continuously adjusts the trace-heating output based on the ambient temperature. Using a proprietary algorithm, the DigiTrace ECO-10 controller measures ambient temperature and determines the appropriate cycle time during which the heating cables will be energised. Since ambient temperatures in winter are often below freezing point,

but well above the minimum designed ambient temperature, significant energy savings are realised. Parameters are displayed and can be set easily. The controller includes a 25A relay which allows direct switching of the heating circuit. The enclosure can easily be installed outdoors. The unit includes a Pt 100 sensor for determining ambient temperature in non-hazardous area.

The DigiTrace ECO-10 controller is designed to provide trouble-free, long term operation. In addition to the display, the controller includes an alarm relay that switches either upon low supply voltage, upon output fault or upon RTD failure thus allowing remote indication of system status.



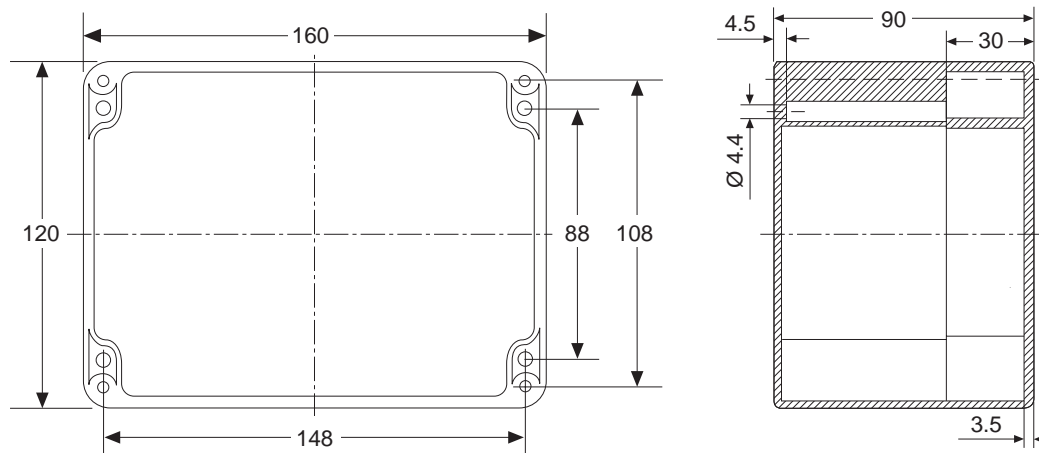
General

Area of use	Non-hazardous area, outdoors
Ambient operating temperature range	-40°C to +40°C
Supply voltage (nominal)	230 Vac, +10% -10%, 50/60 Hz
Internal power consumption	≤ 14 VA

Enclosure

Protection	IP65
Base and lid	Grey polycarbonate base Transparent lid
Lid fixing	4 captive screws
Entries	2 x M25, 1 x M20, 1 x M16 Direct entry of heating cable into unit with M25 connection kit
Gland plug	1 x M20

Dimensions (in mm)



Temperature sensor

Type	3-wire Pt 100 according to IEC Class B
Area of use	Non-hazardous area
Sensor can be extended with a 3-wire shielded cable of 20 Ω max. per conductor. (max. 150 m with a 3 x 1.5 mm ² cable)	

Output parameters

Number of output relays	One control relay, one alarm relay
Control relay	Single pole single throw relay, rating: 25A at 250 Vac
Alarm relay	Single pole double throw relay, rating: 2 A at 250 Vac, voltfree

Parameter settings

Maintain temperature set point	0°C to + 30°C (heating 0% powered)
Minimum ambient temperature	-30°C to 0°C (heating 100% powered)
Heater Operation if Sensor Error	ON (100%) or OFF
Voltage Free Operation	YES or NO
Parameters can be programmed without power supply (internal battery) and parameters are stored in non-volatile memory.	

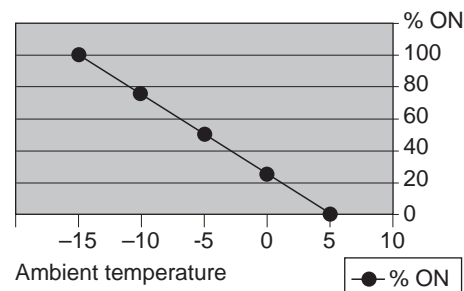
Energy saving with Proportional Ambient Sensing Control (PASC)

Duty cycle (power to heater ON) depends on the ambient temperature. For example:
If minimum temperature = -15°C and if maintain temperature (set point) = +5°C

ambient t°	% ON
-15	100
-10	75
-5	50
0	25
5	0

Min. Ambient

Set point

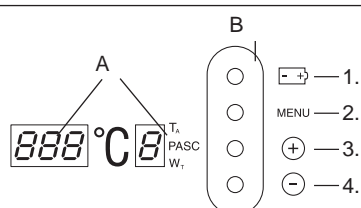


Result: At ambient temperature of -5°C,
50% energy is saved

Diagnosed alarms

Sensor errors	Sensor short / Sensor open circuit
Low temperature	Min. expected ambient temperature reached
Voltage errors	Low supply voltage / Output voltage fault

Display layout

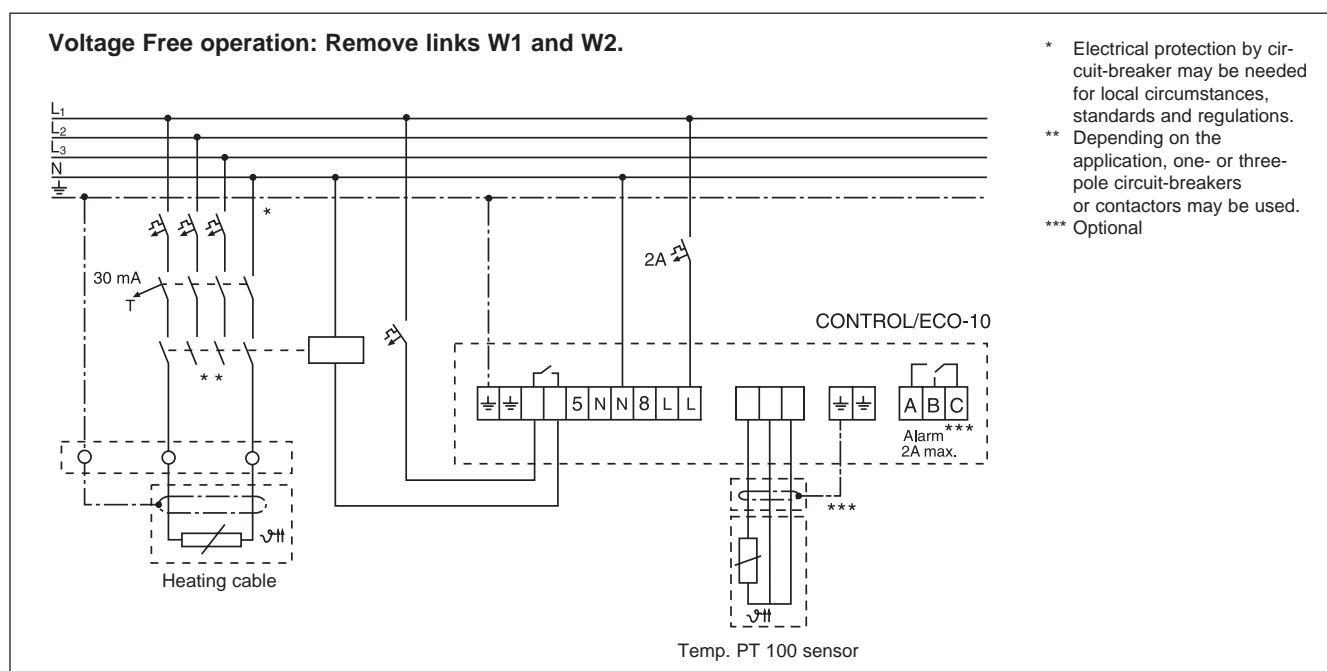
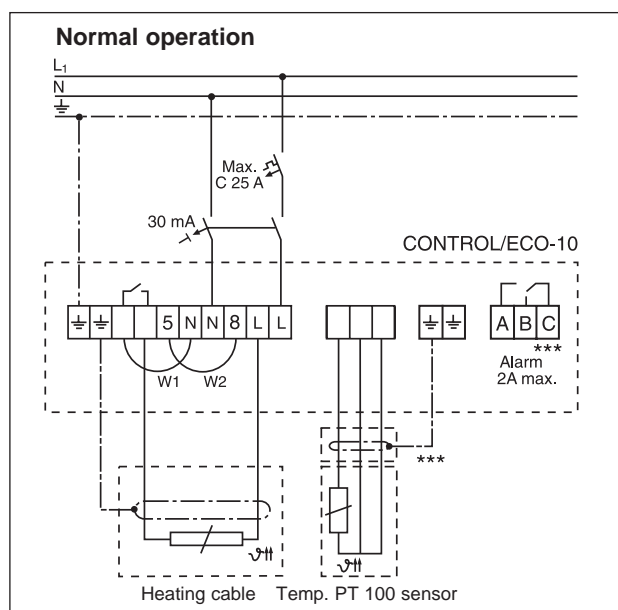


A. LED Display (parameter and error indications)

B. Push buttons

1. Battery activation
2. Parameter selection
3. Increase value
4. Decrease value

Connection details



- * Electrical protection by circuit-breaker may be needed for local circumstances, standards and regulations.
- ** Depending on the application, one- or three-pole circuit-breakers or contactors may be used.
- *** Optional

Connection terminals

Supply	3 terminals for 0,75 mm ² to 4 mm ²
Pt 100 connection	4 terminals for 0,75 mm ² to 2,5 mm ²
Control relay connection	3 terminals for 0,75 mm ² to 4 mm ²
Alarm relay connection	3 terminals for 0,75 mm ² to 2,5 mm ²

Mounting method

Surface mounting with 4 fixing holes on 148 x 108 mm centres, M4 clearance

Ordering details

Part description	ECO-10
RPN & Weight	145232-000 (800 g)

Accessoires

PA Reducer	Reducer-M25/M20-PA M25 male/M20 female	Reducer-M25/M20-PA M25 male/M20 female
RPN	184856-000	184856-000