

Application



EM4-CW is a constant wattage heating cable for simple, fast, and effective ramp and accessway heating to prevent snow and ice formation. Simply install the heater over the required area and connect the cold lead to the power junction box and “Smart” control unit.

The EM4-CW heating cable is designed for applications where a 3 phase (400V) supply is available.

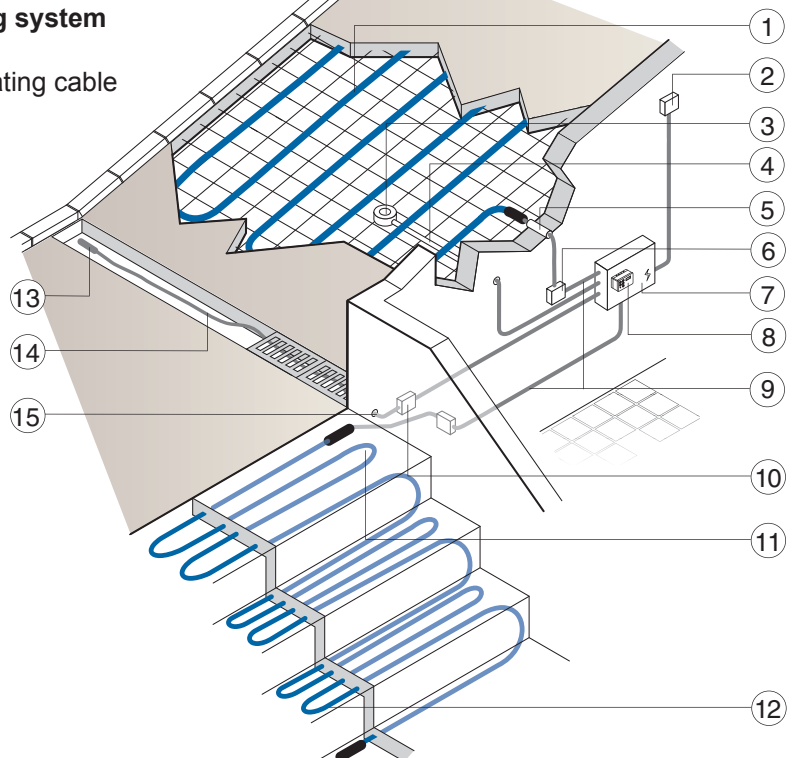
Nominal Power:	25 W/m
Voltage:	400 V AC
Maximum Exposure Temperature:	65°C
Cable Construction:	Twin core, constant wattage heating cable. Pre-terminated with a 4 m 3 core cold lead cable.
Control unit	VIA-DU-20
Certification:	CE, VDE

Determine area to be heated - track heating

1. Ramp heating cable
2. Junction box
3. Temperature + moisture sensor
4. Sensor lead conduit
5. Cold cable conduit
6. Junction box
7. Control panel
8. Smart control unit
9. Supply lead
10. Junction box
11. Cold cable - heating cable connection
12. EM4-CW heating cable

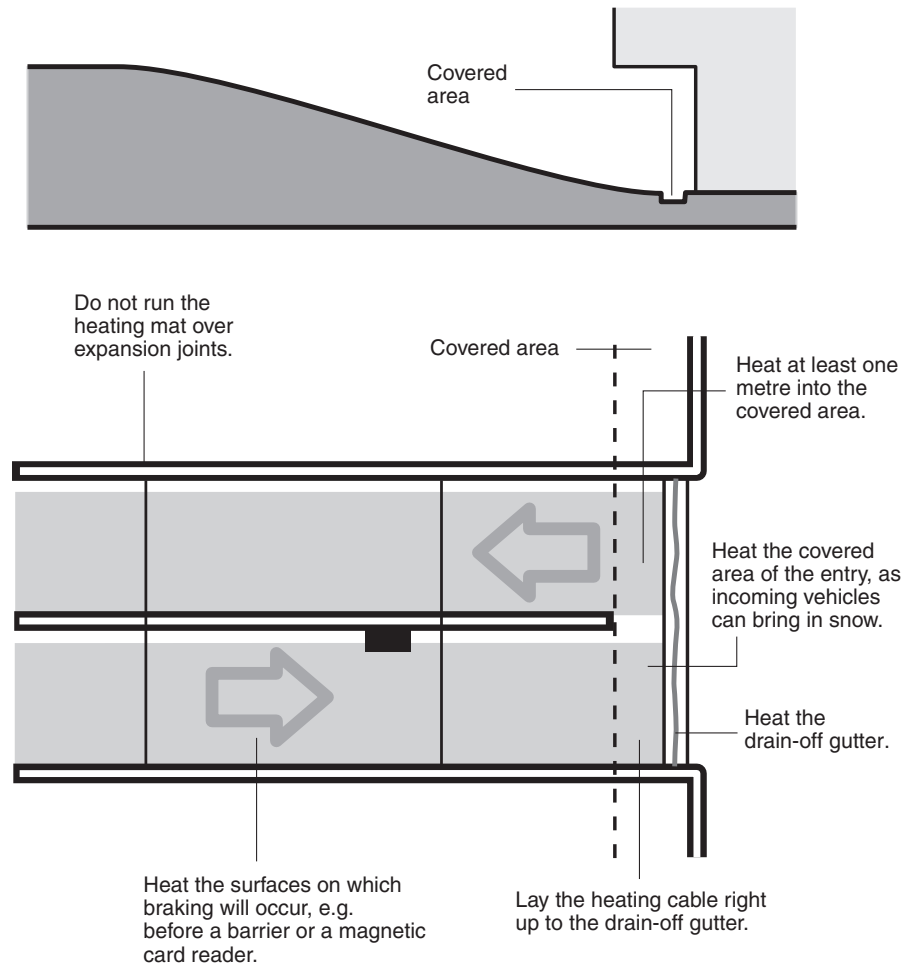
Drain trace heating system

13. End seal
14. 8BTV2-CT heating cable
15. Connection kit

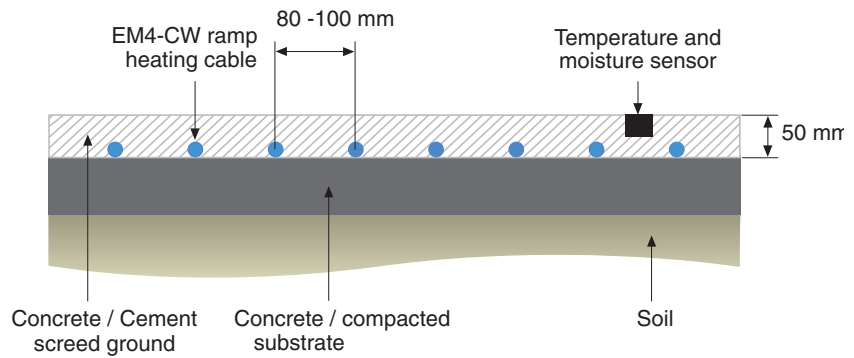


Area to be heated

Determine the exact area to be heated, e.g. wheel tracks. Consider following factors:

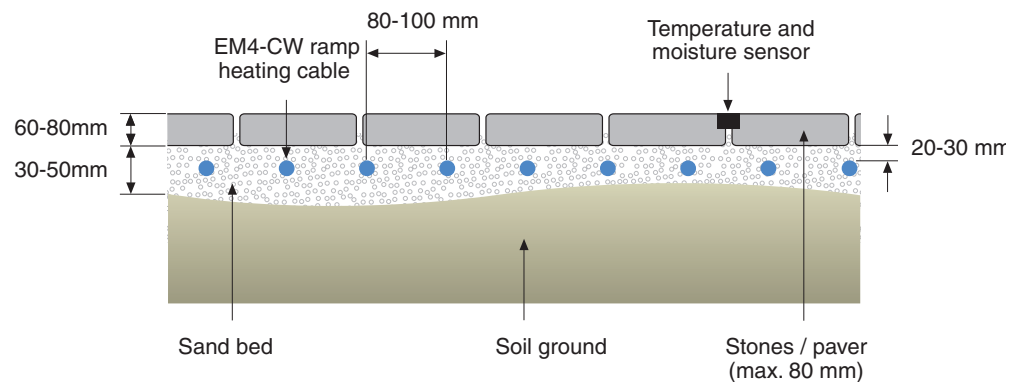


Embedding in screed or concrete

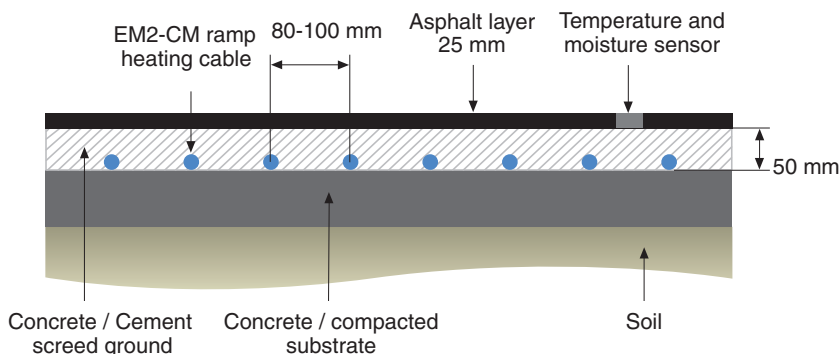


- When laying in concrete with a coating of least 25 mm

Embedding in sand bed/ pavers



Embedding in concrete / cement screed under asphalt layer



- An asphalt layer of min. 25mm can be applied on the concrete surface (max. 300 W/m²)
- The product is unsuitable for direct use in poured asphalt or on reinforcement in concrete

Packaging and ordering references

EM4-CW ramp heating cable is available in the sizes given below.

- Supply voltage 400 V
- a customised pre-terminated kit containing:
 - » heating cable length;
 - » cold lead length;
 - » Installation manual; commissioning report.

Product name	Cable length	Power output	Area	Order reference
EM4-CW-26M	26 m	650 W	2.17 m ²	1244-005182
EM4-CW-35M	35 m	875 W	2.93 m ²	1244-005184
EM4-CW-61M	61 m	1525 W	5.08 m ²	1244-005188
EM4-CW-122M	122 m	3050 W	10.17 m ²	1244-005191
EM4-CW-173M	173 m	4325 W	14.42 m ²	1244-005194
EM4-CW-211M	211 m	5275 W	17.58 m ²	1244-005196
EM4-CW-250M	250 m	6250 W	20.83 m ²	1244-005198

Heating cable lengths

Ramp lanes and footpaths

$$\text{Heating cable length (m)} = \frac{\text{total surface to be heated (m}^2\text{)}}{\text{Heating cable spacing (m)}}$$

Calculate the obstacle free area and select the cable or a combination of cables with a smaller lengths closest in sizes.

Stairs

- Heating cable length per step = 300 W/m² / 25 W/m x width x length
- Total heating cable length = Number of steps X heating cable lengths per step + number of steps X step height

Electrical protection

Product name	Conductor Resistance +/-10%	Rated Power (400 Vac)	Circuit Breaker (400 Vac)
EM4-CW-26M	246 Ω	650 W	10 A
EM4-CW-35M	183 Ω	875 W	10 A
EM4-CW-61M	105 Ω	1525 W	10 A
EM4-CW-122M	52 Ω	3050 W	10 A
EM4-CW-173M	37 Ω	4325 W	16 A
EM4-CW-211M	30 Ω	5275 W	20 A
EM4-CW-250M	26 Ω	6250 W	20 A

Number of circuits

$$\text{Min. number of heating circuits} = \frac{\text{Total heating cable lengths}}{\text{Max. cable length of heating circuit}}$$

Example 1

Requirement is for a 20 m² ramp with 250 W/m² output requirement

Cable Spacing = 250 W / 25 W/m = 10 m of cable per 1 m² = 100mm cable spacing.
10 metres of cable per m² means 10 x 20 m² = 200 m of cable required = 5 kw.

Therefore cables required: 1 x 173 m cable
1 x 26 m cable (or optional 35 m cable)

Total cable length 199 m. (or 208 m if 35 m cable option is taken.)

Example 2

Requirement is for a 15 m² walkway with 300 W/m² output requirement.

Cable Spacing = 300 W / 25 W/m = 12 m of cable per m² of ramp = 80 mm (approx.) cable spacing.

12 m per m² means 12 x 15 m² = 180 m of cable = 4.5 kw.

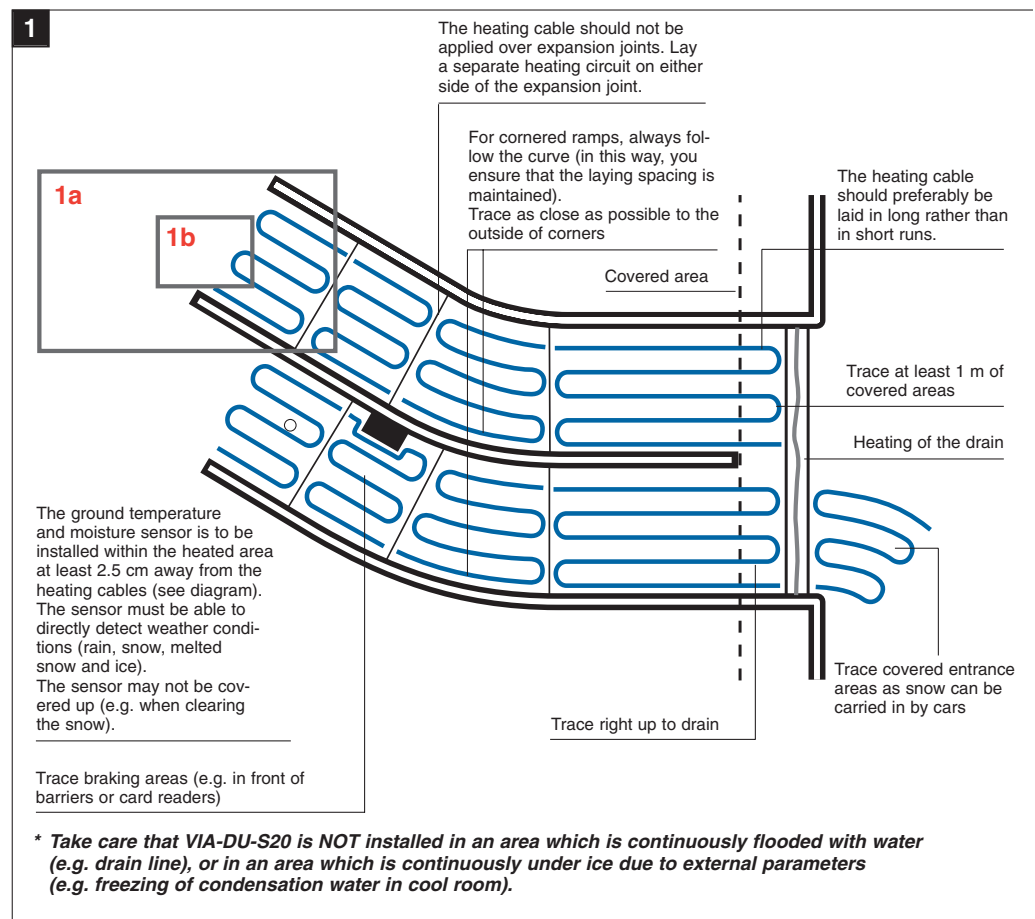
Therefore cables required: 3 x 61 m cable = 183 m.

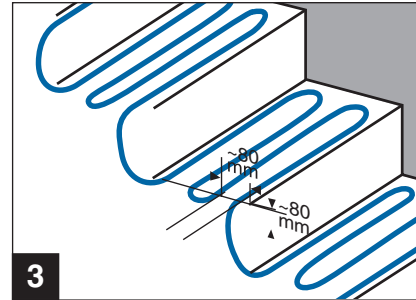
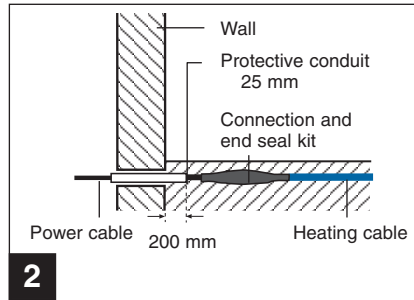
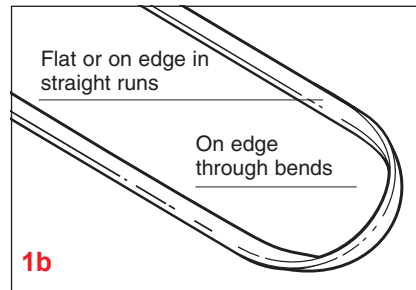
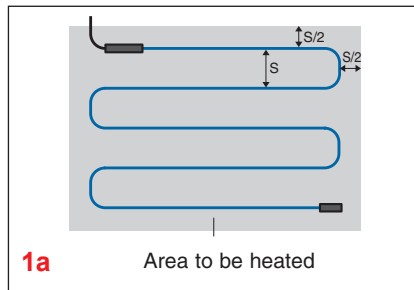
Electrical connection

- According to local standards and electrical regulations.
- The cross-section of the power cable conductors is determined according to the nominal current of the circuit breaker and max. permitted voltage drop.

Installation

Minimum cable spacing is 8 cm. The heating cable must be secured to the underlying surface to prevent movement during the installation. The cold lead cable should be protected in a conduit. The entire length of heating cable should be covered by wet sand-cement mixture, screed, or dry sand depending on the selected top surface.

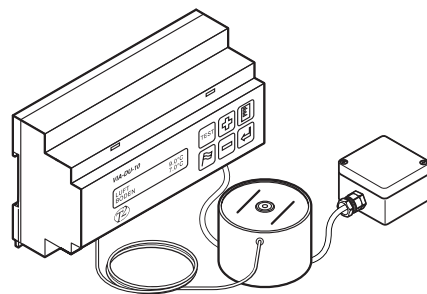




Control units

The electronic control unit ensures that the surface heating only starts when the temperature falls below a certain threshold and moisture is detected on the relevant surfaces, ensuring efficient energy use.

VIA-DU-20

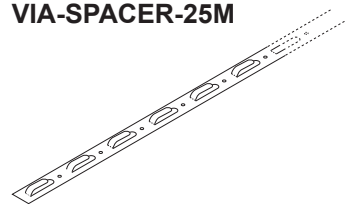


Control unit with combined moisture and temperature sensor and optional ambient temperature sensor.

- DIN-rail mounting
- Sensor cable length: 15m
- Freezing rain precaution
- Optional BMS connection
- Alarm relay contacts

Components and accessories

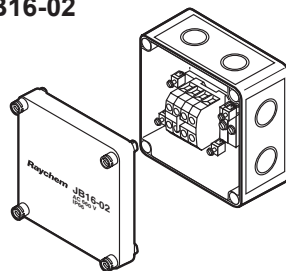
VIA-SPACER-10M VIA-SPACER-25M



Heating cable spacer

- 2 lengths: 10 m and 25 m (2 m/m²)
- Metal band

JB16-02

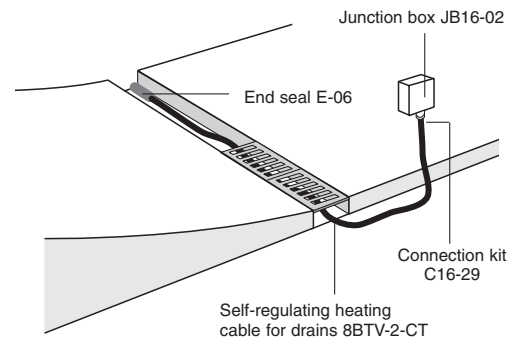
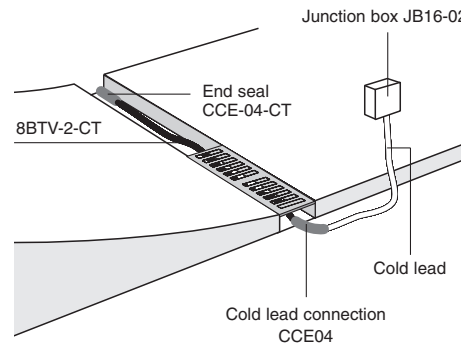


Temperature-resistant junction and connection box

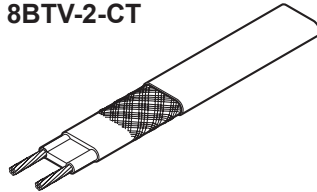
Dimensions: 94 x 94 x 57mm

- IP66
- 6 x 4mm² terminals
- 4 Pg 11/16 and 4 M20/25 knock-out entries

Drain tracing

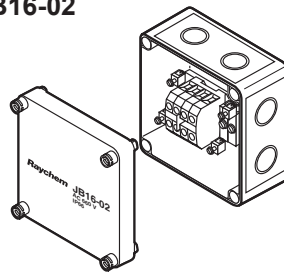


8BTV-2-CT



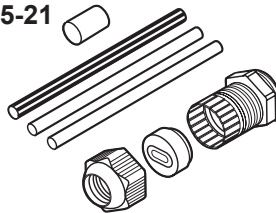
Drain heating cable with oil- and UV-resistant fluoropolymer outer jacket

JB16-02



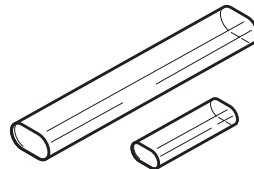
Temperature-resistant junction and connection box
 Dimensions: 94 x 94 x 57 mm
 • IP66
 • 6 x 4mm² terminals
 • 4 Pg 11/16 and 4 M20/25 knock-out entries

C25-21



Connection kit for BTV-CT
 • Heat-shrink system (M25)

E-06



End seal kit for BTV-CT
 • Heat-shrink system

- The drain heating system can be switched via the same control unit as the self-regulating surface heating system.
- Max. 60 m of 8BTV-2-CT can be connected to a 16 A C-type circuit-breaker.
- Residual current device (rcd) 30 mA required.

Installation Instruction

Complete installation instructions are supplied with the product and are available electronically from Tyco Thermal Controls. Please request installation instruction reference: INST-272.

Specification guideline

A product specification guideline is available upon request from Tyco Thermal Controls. It is also available online at:

http://www.tycothermal.com/uk/english/snow_melting/