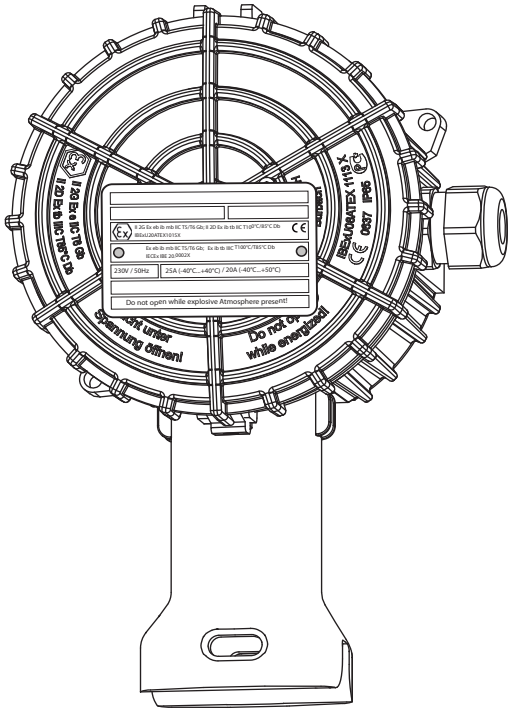
National Petrochemical Company

Petrochemical Research and Technology Co. (Arak Sit)

Reference Data Sheet
No :2024−1

Ex-it-R

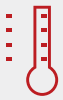
Junction Box for ELSR & PT100



At a glance

Applications

Frost protection



Temperature maintenance

Silos, containers, tanks

Pipelines, valves, pumps

- Building technology
- Water and wastewater systems
- Industrial plants that require frost protection or process temperatures

Advantages

- No mounting bracket required
- No static charging
- Snap lock = close the cover without tool
- Identification plate can be provided by the customer

Suitable connection

- Up to 3 heating cables ELSR,
- Up to 3 heating cables ELKM-AE
- Up to 3 heating cables ELKM-AG
- Up to 2 PT100
- 1 supply line

Approvals

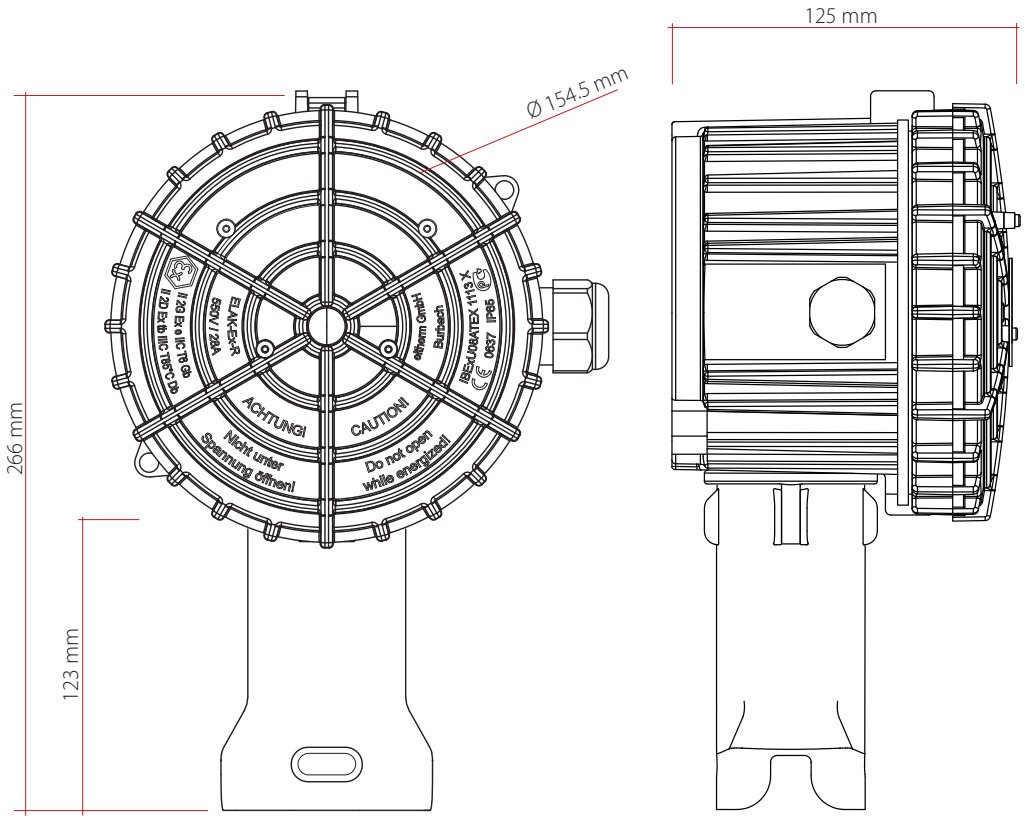
- IBExU 08 ATEX 1113 X
- IECEx IBE 16.0001X
- IBEXU 09 ATEX 1023U

The innovative junction box (ELAK-Ex-R) with mounting base (Ex-it) is suitable for use in areas subject to explosion hazard and offers many advantages. The cable that is led in does not have to be bent sharply thanks to the shape of the box. This protects the cable against damage. Thanks to the integrated mounting base, no mounting bracket is needed. This is especially advantageous with pipe trace heating systems, since the cable can be led in directly through the mounting base. No more screw connections are required for heating conductors and sensors. A safety screw connection with enclosed tool prevents the cover from moving. Additional fastening possibilities for identification plates make it possible to label heating circuits reliably in complex systems complex systems.

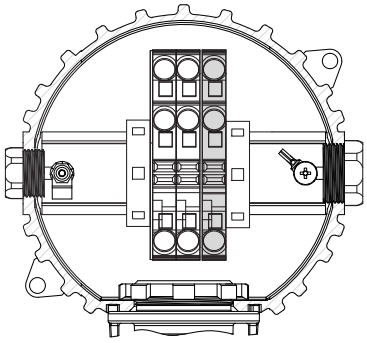
Technical Specifications

Operating voltage (max.)	800 V
Nominal current	Max 32 A per terminal 6 mm^2 (Ex-it-R-ELTf max. 24 A)
Ambient temperature	- 20 °C to +50 °C
Connection cross-section*	Supply line max. 10 mm^2, 9 - 17 mm diameter
Housing material	Polyamide, black
Dimensions	(approx.) Ø 154.5 mm, height 125 mm
Protection	IP 65
Operating temperature of mounting base	max. +200 °C
Material of mounting base	Poly Phenylene Sulfide
Max. insulation thickness	100 mm
Min. pipe diameter	≥ NW3/4" / AD 20 mm
Weight	approx. 0.7 kg

* Connection cross-section (solid or with fine wires without wire end ferrule); terminal heating cable max. 6 mm^2 (AWG12); Terminal temperature sensor max. 2.5 mm^2 (AWG 13)



Scope of Delivery



Ex-It-R-T

Type	Qty.	Clamp range
Blind plug M25x1,5	1	-
Blind plug M20x1,5	1	-
3-wire protective earth terminal	1	10 mm^2
3-wire feed-through terminal	2	10 mm^2

Ordering Information

Type	Suitable connection	Item no.
Ex-it-R-T	Junction box incl. mounting base, for splice or T-connection, up to 3 ELSR-N/ -LS/ -H/ -SH/ -SHH	0X80082

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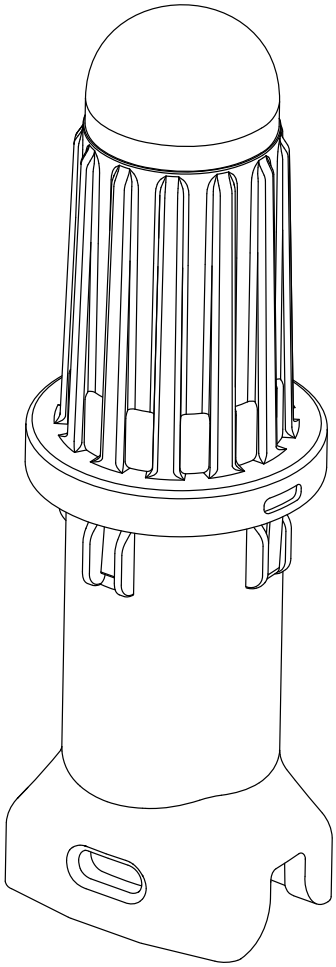
Reference Data Sheet
No :2024−2

Ex-it/L & Ex-it/S

End of line lamp & mounting post



End of line splice and termination device including mounting stand for use with eltherm self-regulating trace heaters ELSR-H, -SH, -SHH -LS or -N. Ex-it/L with end-of-line LED indicator light or Ex-it/S with blind cap instead of LED light.

At a glance

Applications

Silos, containers, tanks

Pipelines, valves, pumps

- Chemistry and petrochemistry
- Automotive
- Oil & gas
- Power plants
- Process technology

Advantages

- Optical control day & night thanks to high intensity LED
- Fast assembly: pipe-mounted fitting, heater grommet and cable strain relief in one device
- Easy maintenance

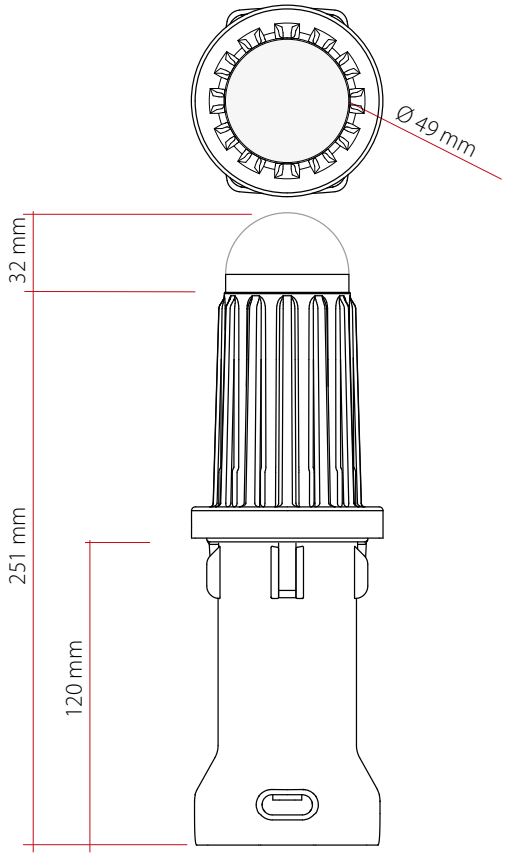
Suitable connection

Approvals

- II 2D Ex op is tb IIIC T85°C Db
- IBExU 18 ATEX 1083 X
- IECEx IBE 18.0015 X
- CML 21 UKEX 3817 X

Technical Specifications

Operating voltage (max.)	100 – 277 V
Nominal power	4 W
Ambient temperature	-20 °C – +55 °C
Max. operating temperature of mounting stand	200 °C
Min. installation temperature	- 60 °C
Protection	IP 65
Max. width tension band	15 mm
Material of mounting base	Heavy duty carbonate
Max. insulation thickness	100 mm
Min. pipe diameter	19.05 mm (¾")
Weight	0,4 kg



Ordering Information

Type	Suitable connection
Ex-it/L	End-of-line splice and termination device with indicator safety light for ELSR-H, -SH, -LS, -N

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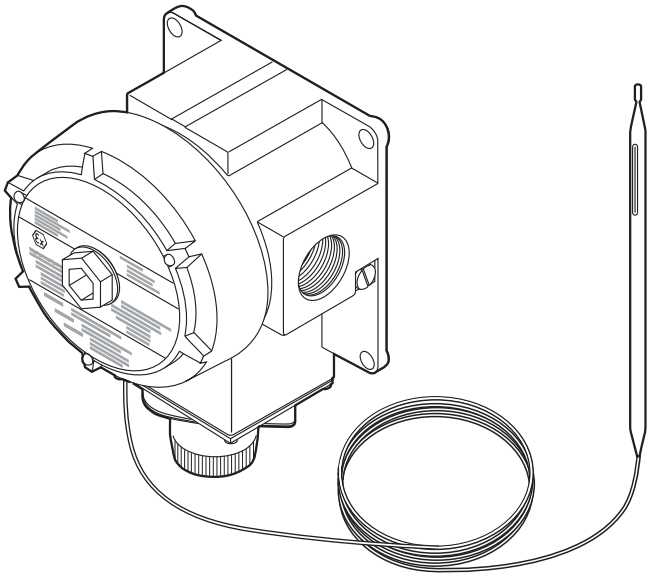
Reference Data Sheet
No :2024–3

SURFACE SENSING MECHANICAL THERMOSTAT



This EEx d approved surface sensing thermostat provides temperature control for all Raychem BTV, QTVR, KTV, VPL and XTV heating cables in hazardous areas. The switching temperature range is –4°C to +163°C and is adjustable externally to the Ex enclosure by a dial mounted under a bolted-on cover and seal.

The switching current capacity is 22 A. It has a single pole change-over switch with volt-free contacts.

Cable entry is through a single 3/4" NPT thread entry. Raychem cable glands are available to suit non-armoured and armoured cable.

The 3 m long stainless steel fluid filled bulb and capillary give freedom to locate the enclosure remote from the bulb. The bulb exposure range is –50°C to +215°C.
The cast aluminium construction with stainless steel fittings gives a lightweight unit which can be pipe mounted using Raychem support brackets or surface mounted.

THERMOSTAT

Area of use	Hazardous area: Zone 1, Zone 2 (Gas), Zone 21, Zone 22 (Dust)
	Ordinary

APPROVALS

	LCIE 08 ATEX 6095 X Ex II 2 G D IECEx LCI 08.0036X Ex d IIC T6 Ex tD A21 IP66 T80°C
	EAC Ex TC RU C-BE.ME92.B.00085 1Ex d II C T6 Gb X Ex td A21 IP66 T80°C

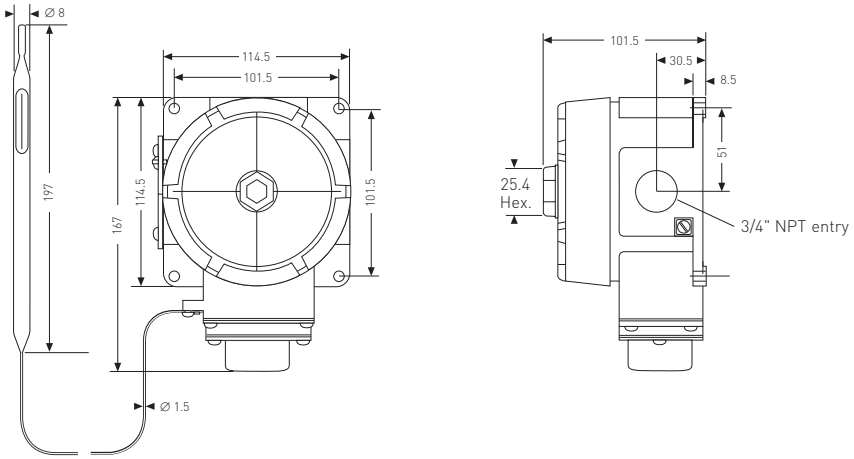
ENCLOSURE

Body and lid	Lacquer coated cast aluminium with stainless steel fittings and nitrile rubber internal lid seal
Protection	IP 65 if installed with Raychem cable glands GL-33 or GL-34
Lid fixing	Screw thread lid locked in place by a 2 mm hexagonal key grub screw
Entry	1 x 3/4" NPT
Ambient operating temperature	–40°C to +60°C

TEMPERATURE SENSING

Type	Fluid filled bulb and capillary
Dimensions	Capillary 3 m long, bulb 197 mm x 8 mm
Material	Stainless steel (Type 55316)
Exposure temperature	–50°C to +215°C
Minimum bend radius	Do not bend bulb, 15 mm for capillary

DIMENSIONS (IN MM)



SWITCHING

Type	Single pole change over volt free contacts (SPDT)
Rating	22 A at 480 Vac, switching (100.000 cycles)

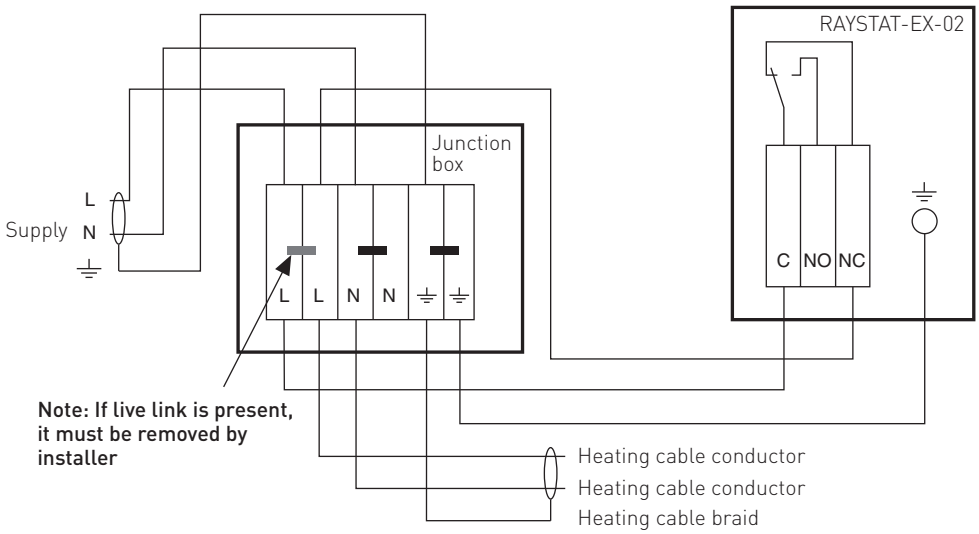
SETTING

Range	–4°C to +163°C
Repeatability	±1.7 K
Differential	5 K
Accuracy (switch on)	±4.5°C at 21°C ambient and 50°C sensor temperature
Method	External knob and dial

CONNECTION TERMINALS

Supply	3 terminals for 1 to 4 mm^2 conductors
Internal earth	Single bolt for 1 to 4 mm^2 conductors
External earth	Single bolt and clamp for 1 to 4 mm^2 conductors

CONNECTION DETAILS AND THERMOSTAT CONTROL SYSTEM



National Petrochemical Company

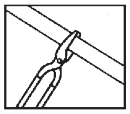
Petrochemical Research and Technology Co. (Arak Sit)

Reference Data Sheet

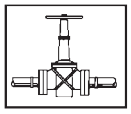
No :2024 - 4

SRM/E

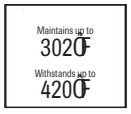
Self-Regulating Medium Temperature



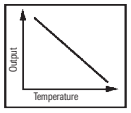
Cut to Length in Field



Can be Overlapped



Medium Temperature



Self Regulating Output

- **Self-Regulating, Energy Efficient**
- **16 AWG Buss Wire**
- **Circuit Lengths to 750 Feet**
- **Process Temperature Maintenance to 149°F (65°C)**

Maximum Continuous Exposure Temperature, Power Off, 176°F 80°C

Industrial Process Maintenance Applications

Industrial Freeze Protection Applications

Single or Dual Monitor Wires Available

Steam Cleanable on Process Equipment Up to 300 PSIG

and 20 W/Ft 15 ,10 ,8 ,5

and 208 - 277 Volt From 120 Stock

Approx. Size 0.47"W x 0.20"H

Minimum Bend Radius 1-1/8

For Use on Metallic Pipes Only

Description

Chromalox SRM/E self-regulating heating cable provides safe, reliable heat tracing for process temperature maintenance and freeze protection of pipes, valves, tanks and similar applications. Constructed of industrial grade 16 AWG buss wire with metal braid and overjacketing, SRM/E ensures operating integrity in most hostile industrial environments. The 420°F (215°C) maximum exposure temperature rating allows steam cleaning of process equipment with up to 300 psig steam.

Features

- Energy efficient, self-regulating SRM/E uses less energy when less heat is required.
- Easy to install, SRM/E can be cut to any length (up to max. circuit length) in the field.
- Field splices can be performed easily in minutes with no scrap or wasted cold sections.
- With lower installed cost than steam tracing, SRM/E features less maintenance expense and downtime.
- SRM/E can be overlapped without burnout, which simplifies heat tracing of in-line process equipment such as valves, elbows and pumps.
- Because SRM/E is self-regulating, overtemperature conditions are minimized.
- Chromalox termination, splice, tee and end seal kits reduce installation time.

Construction

Ⓐ **Twin 16 AWG Copper Buss Wires —** Provide reliable electrical current capability.

Ⓑ **Semiconductive Polymer Core Matrix —** "Self-Regulating" component of the cable, its electrical resistance varies with temperature. As process temperature drops, the core's heat output increases; as process temperature rises, the heat output decreases.

Ⓒ **High Temperature Fluoropolymer Jacket —** Flame retardant, electrically insulates the matrix and provides corrosion resistance.

Ⓓ **Metallic Braid —** Provides additional mechanical protection in any environment and a positive ground path.

Ⓔ **High Temperature Fluoropolymer Overjacket —** Corrosion resistant, flame retardant overjacket is highly effective in hostile, aqueous and chemically active environments. It also protects against abrasion and impact damage.

Approvals

Factory Mutual (FM) Approved, UL Listed, and CSA certified for ordinary areas. ATEX, IECEx, FM, and CSA Approved for hazardous (classified) areas when used with U Series, HL, DL, and EL accessories.

CSA and FM Approved:

- Class I, Div. 1* & 2 Groups A*, B, C, D (gases, vapors)
- Class II, Div. 1*& 2 Groups E*, F, G (combustible dust)
- Class III, Div. 2 (easily ignitable fibers and fillings)
- 5 and 8 Watt Rated T3 Temperature Class
- 10, 15, and 20 Watt Rated T2D Temperature Class

*CSA Only
*-CT overjacket only

ATEX Approved:

- CE 2903 IIG Ex e IIC T* Gb Ta -60˚C to 195˚C

IECEx Approved:

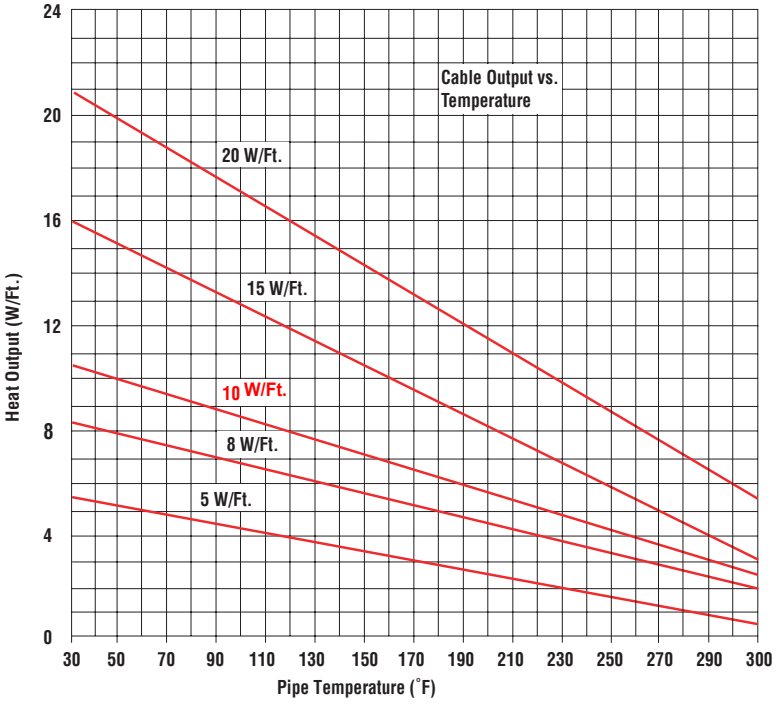
- ITS 07.0018X Ex e IIC T3 Gb Ta -60˚C to 195˚C

Note 1 Exception — Cable Surface Temperature shall not exceed 190°C in Class II, Div. 2, Group F; 165°C in Class II, Div. 2 Group G.

SRM/E

Self-Regulating Medium Temperature *(cont'd.)*

Thermal Output Ratings on Insulated Metal Pipe[1]



Note 1 — Thermal output is determined per IEEE 515-2011 Standard for testing, design installation, and maintenance of electrical resistance heat tracing section 4.1.11 Method C.

Output Wattage at Alternate Voltages (W/Ft.)

Model	208V	% Change In Output	220V	% Change In Output	277V	% Change In Output
SRM/E 10	8.3	-17	8.80	-12	12.50	+20

Circuit Breaker Selection (Max. Circuit Lengths in Ft.)

Cable Rating	50°F Start-Up (Ft.)					0°F Start-Up (Ft.)					-20°F Start-Up (Ft.)				
	15A	20A	30A	40A	50A	15A	20A	30A	40A	50A	15A	20A	30A	40A	50A
SRM/E 10-2	190	255	385	490	NR	165	225	345	490	NR	155	215	330	470	490

SRM/E
Self-Regulating Medium Temperature *(cont'd.)*

Ordering Information

Output (W/Ft.)	Volts	Model	Stock	PCN	Wt./1000' (Lbs.)
50°F @ 10	208 - 277	**SRM/E 10-2CT**	**S**	**388244**	100

To Order — Specify length, model, PCN and installation accessories.

Ordering Information

To Order — *Complete the Model Number using the Matrix provided.*

Model	Self-Regulating Medium Temperature				
SRM/E	Self-Regulating, Medium Temperature Enhanced Heating Cable				
	Code	**Output (W/Ft.)**			
	5	Five			
	8	Eight			
	10	Ten			
	15	Fifteen			
	20	Twenty			
		Code	**Voltage**		
		1	120		
		2	208 - 277		
			Code	**Overjacket Options**	
			CT	Fluoropolymer corrosion resistant overjacket over braid for hostile/ corrosive environments	
SRM/E	**10**	**-**	**2**	**CT**	**Typical Model Number**