

Snow melting and de-icing power distribution and control panel for single-phase heating cables

The DigiTrace SMPG1 is a three-phase power distribution panel for single-phase heating cables that includes ground-fault protection, monitoring and control for snow melting or roof & gutter de-icing systems. The ETI® EUR-5A snow melting and gutter de-icing controller is included with the SMPG. When used with one or more compatible sensors, the EUR-5A automatically controls surface snow melting and roof and gutter de-icing heating cables for minimum energy costs. Applications include pavement, sidewalk, loading dock, roof, gutter, and down spout snow/ice melting in commercial and industrial environments.

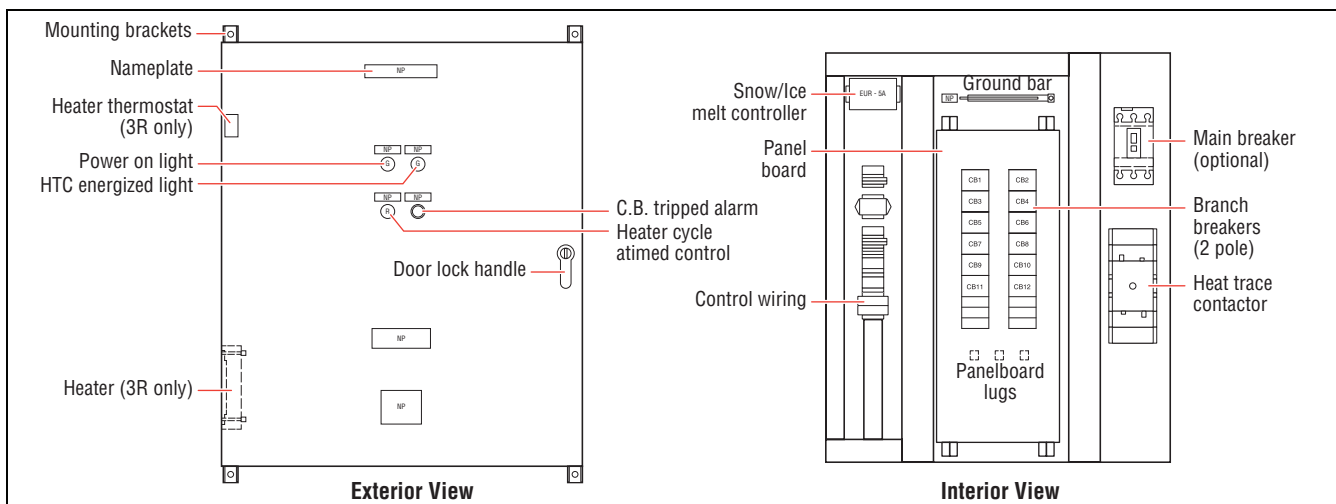
The adjustable hold-on timer continues heater operation for up to 10 hours after snow stops to ensure complete melting.

The calibrated 40°F to 90°F (4°C to 32°C) high limit slab sensor prevents excessive temperatures when using constant wattage and MI heating cables. It also permits safe testing at outdoor temperatures too high for continuous heater operation. The temperature sensor is included.

The EUR-5A provides a complete interface for use in environments supervised by an energy management computer (EMC). This feature can also be used for general pur-

pose remote control and annunciation. All sensor and communications wiring is NEC Class 2. This simplifies installation while enhancing fire and shock safety. Multiple sensors provide superior performance by better matching the controller to site performance requirements. The EUR-5A can interface up to eight sensors.

For three-phase heating cable configurations, refer to the SMPG3 data sheet (H57814). For additional information on single-phase snow melting designs, contact your Tyco Thermal Controls representative.



SMPG1

| | | |
|---------------------------------|---|---|
| Ambient operating temperature | Indoor installation (NEMA 1/12): Outdoor installation (NEMA 3R/4): | 14°F (-10°C) to 122°F (50°C) -40°F (-40°C) to 122°F (50°C) (Includes space heater and thermostat) |
| Main contactor | 3-pole | 100 A or 200 A |
| Main circuit breaker (optional) | Square D type HDL (15–150 A) 3-pole Square D type JDL (150–200 A) 3-pole | |
| Operating heating cable voltage | 208 or 277 V, single phase | |
| Branch ground-fault breaker | Square D type QOB-EPD/EDB-EPD | |
| Circuit breaker rating | 15–50 A | |
| Field wire size | #12–8 AWG (15–30 A C.B.), #8–2 AWG (40–50 A C.B.) | |

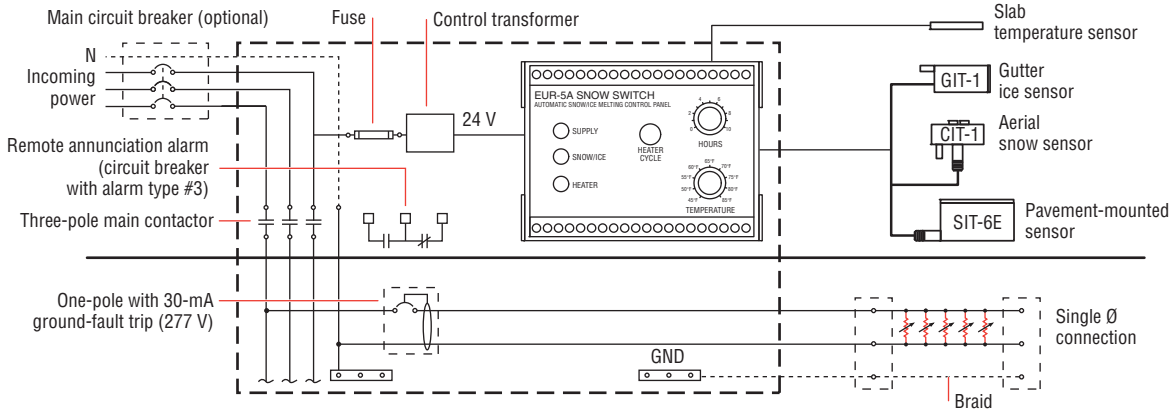
Approvals



Ground-Fault Protection

To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of Tyco Thermal Controls, agency certifications, and national electrical codes, ground-fault equipment protection must be used on each heating cable branch circuit. Arcing may not be stopped by conventional circuit protection. Many DigiTrace control and monitoring systems meet the ground-fault protection requirement.

SMPG1 Snow Melting and Roof and Gutter De-icing Control Schematic



Catalog number

SMPG1 comes in a variety of configurations. The following chart outlines the elements that constitute a configuration and the corresponding catalog number. If standard configurations do not meet your needs, custom SMPG panels are available and processed under the catalog number SMPG-GENERAL, part number P00000763. Please contact your Tyco Thermal Controls representative for a custom SMPG panel quotation. Non-standard configurations will carry ETL Certification, not a UL Listing.

SMPG1 – Voltage – Circuit breaker type – Number of circuit breakers/Number of poles (rating) – Enclosure – Contactor Size

SMPG1 – 277 – 2 – 12/1P (40) – 1 – 200 – Options: (MCB)

Voltage

- 208 V (Single phase)
- 277 V (Single phase)

Circuit breaker type

- 2 = Ground-fault circuit breaker (30-mA trip) without alarm
- 3 = Ground-fault circuit breaker (30-mA trip) with alarm

***Number of circuit breakers/ Number of poles (circuit breaker rating)**

208 V (2 pole)

| # of C.B. | Available C.B. ratings (A) |
|-----------|----------------------------|
| 6 | 15, 20, 25, 30, 40, 50 |
| 12 | 15, 20, 25, 30, 40, 50 |

277 V (1 pole)

| # of C.B. | Available C.B. ratings (A) |
|-----------|----------------------------|
| 6 | 15, 20, 30, 40, 50 |
| 12 | 15, 20, 30, 40, 50 |
| 18 | 15, 20, 30, 40, 50 |

Main Circuit Breaker

MCB = Optional Main Circuit Breaker Included

Contactor Size

| Contactor size (A) | # of breakers |
|--------------------|---------------|
| 100 | 6 |
| 200 | 12 |
| 200 | 18 |

Enclosure

- 1 = NEMA 1/12 (indoors)
- 3R = NEMA 3R/4 (outdoors) Includes heater

***Warning:** Confirm the total load (A) does not exceed contactor rating.

Main Circuit Breakers

| Installed in Control Panel | | | |
|-----------------------------------|----------------|-----------------------|--------------------|
| MCB rating | Voltage | Catalog number | Part number |
| 50 A | 120–600 V | HDL36050 | T1010097 |
| 100 A | 120–600 V | HDL36100 | T1010101 |
| 110 A | 120–600 V | HDL36110 | T1010102 |
| 125 A | 120–600 V | HDL36125 | T1009792 |
| 150 A | 120–600 V | HDL36150 | T1010087 |
| 175 A | 120–600 V | JDL36175 | T1010053 |
| 200 A | 120–600 V | JDL36200 | T1010103 |
| 225 A | 120–600 V | JDL36225 | T1009945 |
| 250 A | 480 or 600 V | JDL36250 | T1010104 |

EUR-5A

| | |
|---|--|
| Supply Voltage/Max Current | 21 to 28 Vac/2 A |
| Control Transformer | Included |
| Operating temperature | –40°F (–40°C) to 140°F (60°C) |
| Hold on time adjustment | 0 to 10 hours |
| High temperature limit adjustment | 40°F (4°C) to 90°F (32°C) |
| Moisture/temperature sensors | Up to six can be used simultaneously. Members of the CIT-1/GIT-1/SIT-6E family in any combination. Locate up to 2,000 ft (609.6 m) for EUR-5A. |
| Ambient Temperature Sensor | Included |
| Remote interface | RCU-3 Remote Control Unit (can operate up to 500 ft [152 m] from panel) |
| Building/Energy management computer interface | 5 Vdc @ 10 mA |

Accessories

| ETI Sensors | Catalog number | Part number |
|---|-----------------------|--------------------|
| Pavement-mounted sensor | SIT-6E | P000000112 |
| Aerial snow sensor | CIT-1 | 512289 |
| Gutter ice sensor | GIT-1 | 126795 |
| Replacement Controller | | |
| Snow melting and gutter de-icing controller | EUR-5A | T0001527 |

Power Distribution

| Catalog Number | Part Number | Description | Size |
|---|--------------------|--|-------------|
| SMPG1 Snow Melting and De-Icing Power Distribution and Control Panel - NEMA 1/12 | | | |
| 208 V 2-pole NEMA 1 enclosure | | | |
| SMPG1-208-2-6/2P(XX)-1-100 | P000000456 | SMPG with (6) 15–50 A ground-fault breakers, 100 A contactor | 36x36x8 |
| SMPG1-208-2-12/2P(XX)-1-200 | P000000457 | SMPG with (12) 15–50 A ground-fault breakers, 200 A contactor | 46x36x8 |
| SMPG1-208-3-6/2P(XX)-1-100 | P000000458 | SMPG with (6) 15–50 A ground-fault breakers with alarm, 100 A contactor | 36x36x8 |
| SMPG1-208-3-12/2P(XX)-1-200 | P000000459 | SMPG with (12) 15–50 A ground-fault breakers with alarm, 200 A contactor | 42x36x10 |
| 277 V 1-pole NEMA 1 enclosure | | | |
| SMPG1-277-2-6/1P(XX)-1-100 | P000000460 | SMPG with (6) 15–50 A ground-fault breakers, 100 A contactor | 36x36x8 |
| SMPG1-277-2-12/1P(XX)-1-200 | P000000461 | SMPG with (12) 15–50 A ground-fault breakers, 200 A contactor | 42x36x10 |

Power Distribution

| Catalog Number | Part Number | Description | Size |
|-----------------------------|-------------|--|----------|
| SMPG1-277-2-18/1P(XX)-1-200 | P000000462 | SMPG with (18) 15–50 A ground-fault breakers, 200 A contactor | 48x36x10 |
| SMPG1-277-3-6/1P(XX)-1-100 | P000000463 | SMPG with (6) 15–50 A ground-fault breakers with alarm, 100 A contactor | 36x36x8 |
| SMPG1-277-3-12/1P(XX)-1-200 | P000000464 | SMPG with (12) 15–50 A ground-fault breakers with alarm, 200 A contactor | 42x36x10 |
| SMPG1-277-3-18/1P(XX)-1-200 | P000000465 | SMPG with (18) 15–50 A ground-fault breakers with alarm, 200 A contactor | 48x36x10 |

SMPG1 Snow Melting and De-Icing Power Distribution and Control Panel - NEMA 3R/4**208 V 2-pole NEMA 3R enclosure**

| | | | |
|------------------------------|------------|--|----------|
| SMPG1-208-2-6/2P(XX)-3R-100 | P000000466 | SMPG with (6) 15–50 A ground-fault breakers, 100 A contactor | 36x36x10 |
| SMPG1-208-2-12/2P(XX)-3R-200 | P000000467 | SMPG with (12) 15–50 A ground-fault breakers, 200 A contactor | 46x36x10 |
| SMPG1-208-3-6/2P(XX)-3R-100 | P000000468 | SMPG with (6) 15–50 A ground-fault breakers with alarm, 100 A contactor | 36x36x10 |
| SMPG1-208-3-12/2P(XX)-3R-200 | P000000469 | SMPG with (12) 15–50 A ground-fault breakers with alarm, 200 A contactor | 42x36x10 |

277 V 1-pole NEMA 3R enclosure

| | | | |
|------------------------------|------------|--|----------|
| SMPG1-277-2-6/1P(XX)-3R-100 | P000000470 | SMPG with (6) 15–50 A ground-fault breakers, 100 A contactor | 36x36x8 |
| SMPG1-277-2-12/1P(XX)-3R-200 | P000000471 | SMPG with (12) 15–50 A ground-fault breakers, 200 A contactor | 42x36x10 |
| SMPG1-277-2-18/1P(XX)-3R-200 | P000000472 | SMPG with (18) 15–50 A ground-fault breakers, 200 A contactor | 48x36x10 |
| SMPG1-277-3-6/1P(XX)-3R-100 | P000000473 | SMPG with (6) 15–50 A ground-fault breakers with alarm, 100 A contactor | 36x36x8 |
| SMPG1-277-3-12/1P(XX)-3R-200 | P000000474 | SMPG with (12) 15–50 A ground-fault breakers with alarm, 200 A contactor | 42x36x10 |
| SMPG1-277-3-18/1P(XX)-3R-200 | P000000475 | SMPG with (18) 15–50 A ground-fault breakers with alarm, 200 A contactor | 48x36x10 |

**Worldwide Headquarters
Tyco Thermal Controls**

7433 Harwin Drive
Houston, TX 77036
USA
Tel: 800-545-6258
Tel: 650-216-1526
Fax: 800-527-5703
Fax: 650-474-7711
info@tycothermal.com
www.tycothermal.com

**Canada
Tyco Thermal Controls**

250 West St.
Trenton, Ontario
Canada K8V 5S2
Tel: 800-545-6258
Fax: 800-527-5703

**Europe, Middle East, Africa (EMEA)
Tyco Thermal Controls**

Romeinse Straat 14
3001 Leuven
België / Belgique
Tel: +32 16 213 511
Fax: +32 16 213 603

**Latin America
Tyco Thermal Controls**

7433 Harwin Drive
Houston, TX 77036
United States
Tel: 713-868-4800
Tel: 713-735-8645
Fax: 713-868-2333

**Asia Pacific
Tyco Thermal Controls**

20F, Innovation Building,
1009 Yi Shan Rd,
Shanghai 200233,
P.R.China
Tel: +86 21 2412 1688
Fax: +86 21 5426 2937 / 5426 3167

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