

Points heater Type SMAC2

Switching module for 230/400 VAC up to 1500W

SMAC2



Points heater Type SMD C1 Switching module for DC 750 V up to max. 3A

Description

The switching module is the switching module of the point heating control of the latest generation. Each switch module controls one heating rod and monitors its function.

The switch module communicates via a Profinet gateway (SMPN1 / 640105) with the higher-level S7-1200 controller (STM1200 / 640130).

The switching module consists of a microprocessor-controlled power and control section

The power section regulates the power of the heating element (0%-100%) and controls the current through the heating rod for overcurrent (overload and short circuit) and undercurrent (line break, heating rod failed).

If inadmissible current values are detected, the heating rod is switched off.

A modern power semiconductor with a dielectric strength of 4kV is used as the switching element.

The control part is based on a microcontroller. It is responsible for the communication with the superordinate control, the power control and for the evaluation of the switching and error states.

The heating power can be controlled continuously by specifying a setpoint from 0-100%.

In case of short circuit or interruption, an error message is generated and transmitted to the higher-level control.

Between 1 and 99 switch modules can be operated at one superordinate control.

Addresses 90-99 are reserved for special functions (e.g. DC 750V control cabinet heating).

With a new heating element (initial commissioning or replacement), the current consumption is taught-in by the switching module. The warning and alarm limits are calculated from the taught-in value and stored in the non-volatile memory of the microprocessor. The connections for auxiliary voltage and data bus are located at the bottom of the housing and are connected via a connector system.

The high voltage connections are located on the upper part of the housing and are designed as screw terminals.

This design ensures that the necessary safety distances are maintained.



Technical data

Dimensions	WxHxD 45x99x117 mm
Housing material	Polyamide 6.6, class V0 in accordance with UL94
Installation	Top hat rail in accordance with DIN EN 50022
IP type of protection	Housing: IP 40; connections IP: 10
Ambient temperature	-20°C to +40°C (rel. humidity 5-95%)
Connections	
Supply voltage	DC 24 V +/-10%, 50 mA, residual ripple <100 mVss
Nominal values	
Switching rated voltage	230 V AC
Max. switching current	max. 7A
Power range	<1500 W (< 7 A)
Address range	can be set by 2 rotary switches 1 - 99 (89)
Limiting values	the following values should not be exceeded
Max. overvoltage	600 V (transients)
Max. overcurrent	4500 A (transients), t<30 µs
Max. energy	150 J (transients), t<2 ms)
Displays	LED displays for 1 green LED (PWR) supply voltage 1 yellow LED (SWT) switching state 1 red LED (ERR) error display
Fusing	16 A slow-blow
Electric strength	4 kV _{eff.}

Ordering information

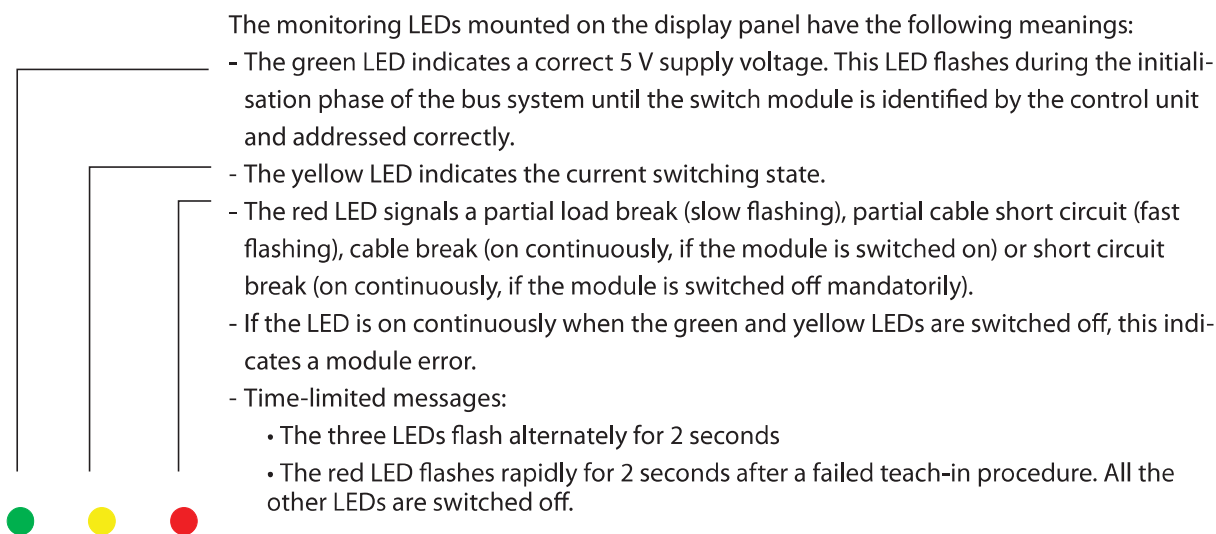
Type	Part No.
SMAC2 (230 V AC)	640108

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SMD C1

Status display of the switching modules

6.1 Monitoring LEDs



green LED	yellow LED	red LED	Load current (heating current) I_s related to I_{snom}	State
On*)	Off	Off	Not specified (n.a.)	Module switched off
On*)	On	On	< 12,5%	Module switched on, cable break
On	On	Flashing slowly (1,2Hz)	12,5%–50%	Module switched on, partial cable break
On*)	On	Off	50%–125%	Module switched on Normal operation
On*)	On	Flashing rapidly (5Hz)	125%–150%	Module switched on Partial overload
On*)	Off	On	> 150%	Module should be switched on but is switched off for self-protection since there is an overload / short circuit
Off	Off	On	Not specified (n.a.)	Module error
Alternately individually on / off for 2 seconds			Not specified (n.a.)	Message: teach-in procedure successful.
Off (2s)	Off (2s)	Flashing rapidly (2s)	Not specified (n.a.)	Message: teach-in procedure failed.

*) The green LED is only on when there is functioning communication with the PLC control unit if the latter is not in „manual“ operating mode. The green LED flashes (slow flashing) in „manual“ operating mode or if there is no communication.

6.2 Address setting

There are two decimal coding switches on the display panel to set the address of the switching module. The switch module is addressed and parameterised with this address by the control unit. The control unit addresses two addressing areas separately when doing this (standard setting).

- Address area 1: Addresses 1 to 69
- Address area 2: Addresses 70 to 79