

Measure and Control Technology

# Heating current and circuit monitoring module

# **HCC 11**





The heating circuit monitoring module HCC-11 is designed to monitor electric circuits from 1.25A to 40A which are switched by solid-state relays (SSR). The HCC-11 is designed to control heating circuits with certain heating elements. The failure of a single heating element is reliably monitored. The module detects over- and undercurrents in the heating circuit beyond ±15% nominal current. Blown fuses, failed and interrupted SSR as well as those in half-wave operation are announced. An adjustable alarm response delay (2 to 40 secs) avoids fault messages generated by voltage drops.

Malfunctions are indicated by a red light-emitting diode (LED) on the HCC-11 and are localized systematically.

The alarm output allows up to 100 HCC-11 modules to be connected to a collective alarm (load ≤ 2 kOhm).

The module is designed for direct installation on the SSR. A DIN-rail mounting set is available.

A plastic enclosure ensures contact protection according to VBG 4.

# Technical Datas

# Power supply

DC 24 V ± 25% (reverse battery protection integrated) AC 24 V ± 20%

#### Power consumption

typically 25 mA (without alarm load)

# Main frequency (for load)

50/60 Hz

# Current ranges

prescalation with DIP switch 1.25 A to 5 A; 2.5 A to 10 A; 5 A to 20 A; 10 A to 40 A isolated from power supply

#### Monitoring setpoint

to be set by trimmer

# Monitoring range

± 15 % referred to set current value

#### Adjustment range

±2% referred to set current value

#### Alarm response delay

2 to 40 secs (to be set by trimmer)

#### Function range

Current monitoring 4 to 100 % duty cycle Heating circuit monitoring 5 to 95 % duty cycle

#### Cvcle time

> 1 sec

#### Bistable control input

isolated from power supply reverse battery protection integrated

#### Power-up level

DC 4 to 35 V max 4.7 mA

#### Power off level

 $\leq$  DC 1 V

#### Alarm output

power supply typically DC 20 V max. 100 mA, sustained short circuit proof transistor output, if alarm = HIGH (SW6 = OFF) outputs can be connected in parallel.

#### Indicator element LED 1 - green

lights in time with control signal; power supply must be present

#### Indicator element LED 2 - yellow

for current setpoint check, comes on within range of ± 2% referred to nominal current

#### Indicator element LED 3 - red

comes on after delay when current deviates from nominal value by more then ± 15%, comes on straight away in the event of heating circuit interruption and SSR malfunctions.

# Storage temperature

-20 to +80°C

#### Operating temperature

0 to +60°C

#### Protection class

DIN 40050 - IP20

### Application class

DIN 40040 - KUF, ≤ 75% rel. humidity, no dew load

#### **EMC**

CE - marked

#### Electrical terminals

srew terminals 2.5mm2 fine wire

#### Housina

Noryl black, fire resistance class UL 94 V-0

#### Dimensions

67mm x 85mm 35mm

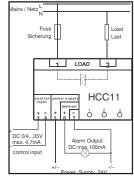
#### Weight

120g

# Mounting

Thread connection on solid-state relay (SSR) (DIN-rail EN 500222 mounting kit on request)

# Connection diagramm





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