



Application Examples

- Protection for DC Motors against over-current.
- Supervision of 4-20 mA control loops for open circuit.
- Supervision of 4-20 mA control loops for short circuit.
- Supervision of mA outputs from Rhomborg-Bräsler SC320 Relay.
- Load monitoring on DC winders in conjunction with a DC shunt.
- AC Current control interfacing with current-to-voltage transducers.
- DC Current control of electroplating processes.

Features

- Failsafe feature.
- Internal shunt for direct in-line sensing of currents up to 200mA (AC or DC).
- Adjustable response delay of 0,1 to 10 seconds on SP-104.
- Direct interface with DC shunt resistors.
- Trip point adjustable on calibrated scale 0-100%.
- Hysteresis adjustable 5-30%.
- Programmable for overload or underload detection.
- Latching on overload or underload (programmable).
- Start-up delay.
- 10A SPDT relay output.

ORDERING CODE

TYPE	SUPPLY VOLTAGE	AC/DC	RELAY CONTACTS
SP 101	230 V	AC	SPDT

Description of Operation

The SP-101 and SP-104 are precision current monitors for both AC and DC applications. They can be programmed for either overload sensing or underload sensing. The internal shunt facilitates direct connection into a current loop up to 200mA. The units can also be used in conjunction with external DC shunt resistors (60 mV, 150 mV) or current-to-voltage transformers (5V secondary).

AC Monitoring: The units are suitable for direct-in-line sensing of current up to 200mA AC. The unit interfaces readily with current-to-voltage transformers (5V secondary rating) such as CTS.

DC Monitoring: The units are suitable for direct-in-line sensing of DC current. The internal shunt provides sensing up to 200 mA. For higher current, a suitable shunt (60 mV or 150 mV) is to be connected. The units are polarity sensitive and will not respond to current/voltage in the reverse direction.

Start-up Delay: When power is applied to the module, the relay energises immediately, ignoring abnormal load conditions experienced during start-up.

Overload Sensing: When programmed for overload sensing, the relay will de-energise if the current exceeds the set limit. The relay will switch on again if the current drops by a certain percentage below the set overload threshold. This percentage hysteresis is adjustable.

Underload Sensing: When programmed for minimum load sensing, the relay will de-energise if the current drops below the set limit. The relay will switch on again if the current rises by a certain percentage above the set underload threshold. This percentage hysteresis is adjustable.

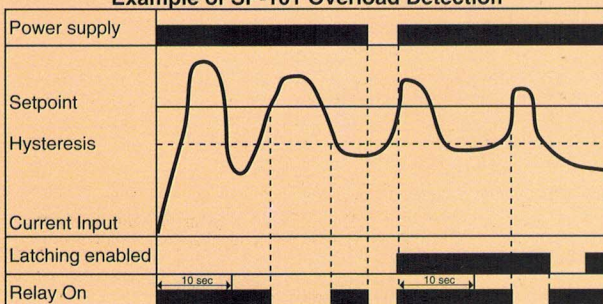
Hysteresis: Hysteresis represents the difference between the tripping point and recovery point of the unit. The hysteresis can be adjusted as a percentage of set point to prevent relay chatter or hunting when the load current fluctuates around the set limit.

Latching: When latching is armed, the relay will not recover from a tripped condition, but will remain de-energised until reset. The unit can be reset by either breaking and re-applying power supply to the unit or by momentarily disabling the latching circuit (eg. push-to-open button). During the start-up delay, the latching circuit is disabled automatically (see wiring and connection diagram).

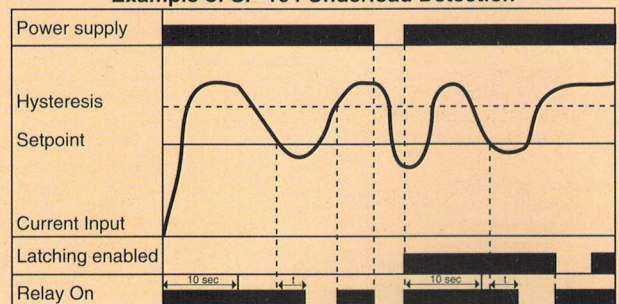
Adjustable Response (SP-104) Response delay can be adjusted from 0,1 to 10 seconds. When a trip condition is detected, the relay will only de-energise after the set response time (a delayed recovery is also available on special order).

Operational Diagrams

Example of SP-101 Overload Detection



Example of SP-104 Underload Detection



t = response delay