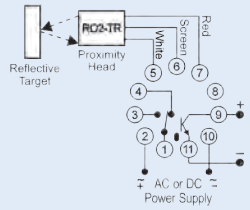
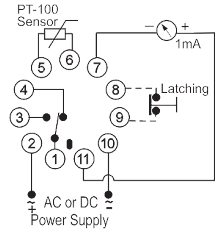
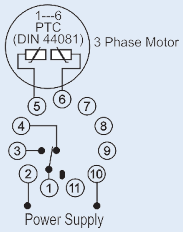
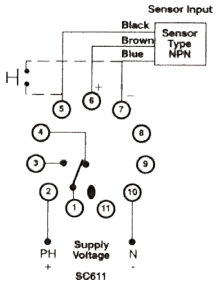
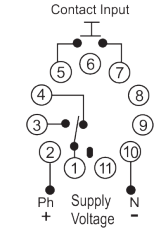
PROCESS CONTROLLERS

Type	Opto-electronic Control Unit	Temperature Control Module	Thermistor Motor Protection Module	Flip Flop Relay with/without Memory
				
Code	**SC410/SC411**	**SC501**	**SC510/SC511**	**SC610/SC611**
Features	• Directly interfaces with the **R02** Detector range of rectangular and tubular opto-electronic sensors • 10 metre sensing distance with the appropriate barrier heads • Programmable for dark or light response • Adjustable on and off response delay of 0-5 seconds • Signal modulated beam to stop foreign light source interference • Adjustable light intensity • High speed solid state (NPN) open collector output • Direct interface with solid state relays • Opto sensor cable fault detection (**SC411** only) • 10A SPDT relay output Note: Solid state O/P not available when DP option selected	• Interfaces with industrial standard PT-100 temperature sensors • Six programmable overlapping temp. ranges between -50 - 300°C • Programmable for over and under temperature • Temperature level adjustment on calibrated scale 0 - 100% • High repetitive accuracy • Programmable inversion of relay output for fail-to-safe operation • 0 to 1mA proportional output for each temperature range • Proportional output is limited to 1,2 mA to protect analogue instruments • Latching on under-temperature or over-temperature (programmable) • 10A SPDT relay output	• Interfaces with PTC sensors as per DIN 44081 • The **SC511** has a fault latching feature, can be reset via external opening contact or via the reset button on the unit • Test button to simulate fault condition on the **SC511** • Sensor or cable fault detection and indication with an automatic relay de-energisation for failsafe operation • 10A SPDT relay output	• Many power supply options • Direct connection of a NPN sensor (**SC611**) • **SC610** - without memory • **SC611** - with memory • 10A SPDT or a 5A DPDT relay
Connection Diagram	 DPDT on request	 DPDT on request. No Latching	 DPDT on request	  DPDT on request (**SC610** Only)
Specifications *Relay contact **SP**= Single Pole **DP**= Double Pole	**POWER SUPPLY** **AC:** Supply voltage: 12, 24, 115, 230, 400, 415, 525V ±15% Isolation (sensor input to power supply): 2kV Power consumption: 3VA, 6VA for 415, 525V (approx) **DC:** Supply voltage: 10-30V, 48, ±15% Isolation: no galvanic isolation (common negative) Power consumption: 100mA (10-30V), 30mA for higher ranges **RESPONSE** ON - Delay = 0.03 - 5 seconds (adjustable) OFF - Delay = 0.03 - 5 seconds (adjustable) **SSR DRIVER OUTPUT (Pin 8 - 9)** Max. output source current: 8mA Open circuit output voltage: 12V DC **TRANSMITTER (Pin 6 - 7)** Current pulse: 1.5A/25 microseconds Maximum wire impedance: 2,5 Ohms (use coaxial cable) Short circuit current: 20 mA (average) **RECEIVER (Pin 5 - 6)** Short circuit current: 3mA Open circuit voltage: 8.2V **OPEN COLLECTOR TRANSISTOR OUTPUT (Pin 9-11)** Type: NPN transistor Output sink current: 100mA Maximum voltage: 30V DC	**POWER SUPPLY** **AC:** Supply voltage: 12, 24, 115, 230, 400, 415, 525V ±15% Isolation (sensor input to power supply): 2kV Power consumption: 3VA, 6VA for 415, 525V (approx) **DC:** Supply voltage: 12, 24V 15% Isolation: no galvanic isolation Power consumption: 100mA **CONNECTION CABLE** 2 - core, unscreened. Resistance of long cables affect temp. accuracy (Approx.1°C per 0.3 ohms) **SENSOR INPUT** Type PT-100 resistive temperature sensor Short-circuit current: 1mA Open-circuit voltage: 220mV **TEMPERATURE SENSING RANGE** - Repetitive accuracy: 1% **ANALOGUE OUTPUT** Rating 0 to 1mA (proportional) 4-20mA available as an order option on any **one** range Maximum voltage between pins 7 and 11 (pin 11 positive): 12V DC Maximum load: 7k Ohm. Current limits at 1.2mA to protect analogue instruments	**POWER SUPPLY** **AC:** Supply voltage: 12, 24, 115, 230, 400, 415, 525V ±15% Power consumption: 3VA, 6VA for 415, 525V (approx) **DC:** Supply voltage: 10-30V, 48, 60, 110V ±15% Isolation: no galvanic isolation Power consumption: 100mA for 10-30V, 30mA for 48V and higher **SENSOR INPUT** Type: PTC sensor as per DIN 44081 Input impedance: 2200 Ohms Open-circuit voltage: <=2.5V Short circuit current: 1mA (max) **MEASURING CHARACTERISTICS OF THE SENSOR** Maximum cold resistance of PTC sensor: 1500ohms (i.e. 1 to 6 sensors can be connected) Triggering threshold: 3100 Ohms ±10% Recovery threshold: 1650 Ohms ±10% Short-circuit detection: < 20ohms Open-circuit detection: 10k ±10% Repetitive accuracy: 0,5% Response Time: 50 milliseconds	**POWER SUPPLY** **AC:** Supply voltage: 12, 24, 115, 230, 400, ±15% Isolation (reset to power supply): 2kV Power consumption: 3VA (approx) **DC:** Supply voltage: 12, 24, 10-30, 48, 60,110V ±15% Isolation: no galvanic isolation Power consumption: 100mA for 12V and 24V, 30mA for 48V and higher **12V DC Output:** Voltage tolerance: 10-15V DC. Source Current: 50mA (max.) **INPUT**

RANGE			S1
-50	to	50 C	1
0	to	100 C	2
50	to	150 C	3
100	to	200 C	4
150	to	250 C	5
200	to	300 C	6

SC-610
Short circuit current: 8.5mA
Open Circuit Voltage: 8.2V
Input reset speed: 20 millisecs.

SC-611
Short circuit current: 1mA
Open Circuit Voltage: 8.2V
Input reset speed: 10 millisecs.

Ordering Code Example	TYPE	MODEL	VOLTAGE	POWER SUPPLY	RELAY CONTACTS
	SC	410 /	230V	AC	— *
	SC	501 /	230V	AC	— *
	SC	510 /	230V	AC	— *
	SC	610 /	230V	AC	— *

See Page 1.36 for Module Dimensions & Accessories