

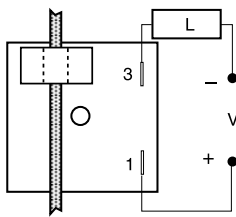
# TCS SERIES

## Current Sensor

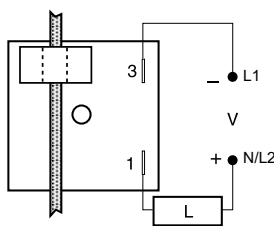


### Wiring Diagram

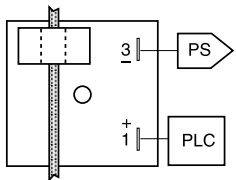
#### POSITIVE SWITCHING



#### NEGATIVE SWITCHING

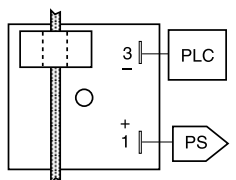


#### SINKING



L = Load  
V = Voltage  
PS = Power Supply  
PLC = PLC Digital Input Module

#### SOURCING



Monitored AC conductor must be insulated.

### Description

The TCS Series is a low cost method of go/no go current detection. It includes a solid-state output to sink or source current when connected directly to a standard PLC digital input module. Its normally open or normally closed output can also be used to control relays, lamps, valves, and small heaters rated up to 1A steady, 10A inrush. The TCS is self-powered (no external power required to operate the unit) and available with an adjustable actuation range of 2 - 20A or factory fixed actuation points from 2 - 45A.

#### Operation

**Normally Open:** When a current equal to or greater than the actuate current is passed through the toroidal sensor, the output closes. When the current is reduced to 95% of the actuate current or less, the output opens.

**Normally Closed:** When the current through the toroid is equal to or greater than the actuate current, the output opens. When the current is reduced below 95% of the actuate current, the output closes. To increase sensitivity, multiple turns may be made through the TCS's toroidal sensor. The trip point range is divided by the number of turns through the toroidal sensor to create a new range. When using an external CT, select a 2VA, 0-20A output CT rated for the current to be monitored. Select TCS adjustment range 0. Pass one secondary wire lead through the TCS' toroid and connect the secondary leads together.

### Features & Benefits

FEATURES	BENEFITS
<b>Self powered</b>	No control voltage is required to operate the unit
<b>Totally solid state and encapsulated</b>	No moving parts to arc and wear out over time and encapsulated to protect against shock, vibration, and humidity
<b>Can connect directly to PLC</b>	Solid state output to sink or source current can be connected directly to a standard PLC digital input module
<b>1A steady, 10A inrush solid-state output</b>	Provides 100 million operations in typical conditions
<b>Complete isolation between sensed current and control circuit</b>	Allows you to monitor a load in a separate electrical system

### Ordering Information

MODEL	OUTPUT VOLTAGE	ACTUATE CURRENT	OUTPUT FORM	MODEL	OUTPUT VOLTAGE	ACTUATE CURRENT	OUTPUT FORM
TCSG2A	3 to 50VDC	Fixed, 2A	Normally open	TCSH2B	24 to 240VAC	Fixed, 2A	Normally closed
TCSGAA	3 to 50VDC	2-20A adjustable	Normally open	TCSH5B	24 to 240VAC	Fixed, 5A	Normally closed
TCSGAB	3 to 50VDC	2-20A adjustable	Normally closed	TCSHAA	24 to 240VAC	2-20A adjustable	Normally open
TCSH2A	24 to 240VAC	Fixed, 2A	Normally open	TCSHAB	24 to 240VAC	2-20A adjustable	Normally closed

If you don't find the part you need, call us for a custom product 800-843-8848

## TCS SERIES

### Accessories



**P1023-6 Mounting bracket**  
The 90° orientation of mounting slots makes installation/removal of modules quick and easy.



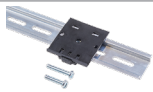
**P1015-64 (AWG 14/16) Female Quick Connect**  
These 0.25 in. (6.35 mm) female terminals are constructed with an insulator barrel to provide strain relief.



**P1015-18 Quick Connect to Screw Adapter**  
Screw adapter terminal designed for use with all modules with 0.25 in. (6.35 mm) male quick connect terminals.

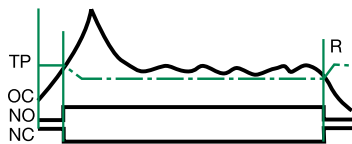


**C103PM (AL) DIN Rail**  
35 mm aluminum DIN rail available in a 36 in. (91.4 cm) length.



**P1023-20 DIN Rail Adapter**  
Allows module to be mounted on a 35 mm DIN type rail with two #10 screws.

### Function Diagram



TP = Trip Point  
OC = Monitored Current  
NO = Normally Open Output  
NC = Normally Closed Output  
R = Reset

### Specifications

<b>Sensor Type</b>	Toroid, through hole wiring, alternating current, monitored wire must be properly insulated
<b>Current to Actuate</b>	Adjustable: - 2 - 20A, guaranteed range Fixed: - 2 - 45A, +0/-20%
<b>Reset Current</b>	≅ 95% of the actuate current
<b>Maximum Allowable Current</b>	Steady - 50A turns Inrush - 300A turns for 10s
<b>Actuate Current vs. Temp. &amp; Voltage</b>	≤ ±5%
<b>Response Times</b>	Overcurrent - ≤ 200ms Undercurrent - ≤ 1s < 0.5VA
<b>Burden Output Type</b>	Solid state
<b>Form</b>	NO or NC
<b>Rating</b>	1A steady, 10A inrush
<b>Voltage</b>	AC - 24 to 240VAC +10/-20% DC - 3 to 50VDC
<b>Voltage Drop</b>	AC NO & NC - ≅ 2.5V DC NO & NC - ≅ 1.2V
<b>Protection Circuitry</b>	Encapsulated
<b>Dielectric Breakdown</b>	≥ 2000V RMS terminals to mounting surface
<b>Insulation Resistance</b>	≥ 100 MΩ
<b>Mechanical Mounting Dimensions</b>	Surface mount with one #10 (M5 x 0.8) screw <b>H</b> 50.8 mm (2"); <b>W</b> 50.8 mm (2"); <b>D</b> 44.5 mm (1.75")
<b>Termination</b>	0.25 in. (6.35 mm) male quick connect terminals (2)
<b>Sensor Hole</b>	0.36 in. (9.14 mm) for up to #4 AWG (21.1 mm <sup>2</sup> ) THHN wire
<b>Environmental Operating/Storage Temperature</b>	-20° to 60°C / -40° to 85°C
<b>Humidity</b>	95% relative, non-condensing
<b>Weight</b>	≅ 2.6 oz (74 g)