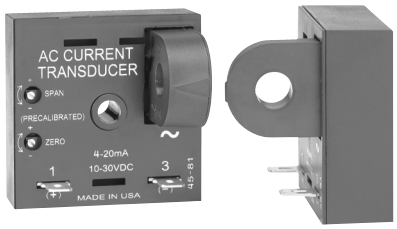


The TCSA Series is a loop-powered, linear output current transducer that provides an output that is directly proportional to the RMS AC current passing through the onboard toroid. The TCSA provides a 4 - 20mA output over a power supply range of 10 - 30VDC. Each unit is factory calibrated for monitoring in one of four ranges; 0-5, 0-10, 0-20, or 0-50A. The 0 - 5A range allows the use of external current transformers so loads up to 1200AC amps can be monitored.

For more information see:
Appendix B, page 166, Figure 21 for dimensional drawing.
Appendix C, page 169, Figure 20 for connection diagram.

Features:

- Monitors 0 - 50A in 4 ranges
- Loop powered from 10 to 30VDC
- Linear output from 4 - 20mA
- Zero & span adjustments
- Complete isolation between sensed current & control circuit

Approvals:

Auxilary Products:

- **Female quick connect:** P/N: P1015-64 (AWG 14/16)
- **Quick connect to screw adaptor:** P/N: P1015-18
- **Mounting bracket:** P/N: P1023-6
- **DIN rail:** P/N: C103PM
- **DIN rail adaptor:** P/N: P1023-20

Available Models:

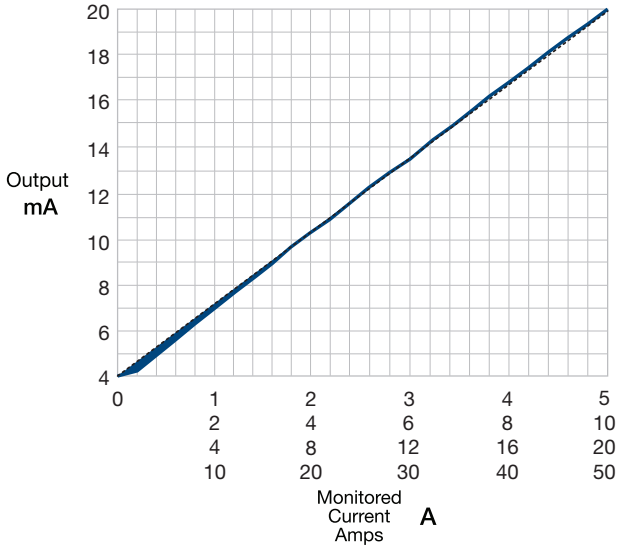
TCSA5
TCSA10
TCSA20
TCSA50

Operation

The TCSA varies the effective resistance of its output in direct proportion to the current flowing in the monitored conductor. The unit is factory calibrated so that 0 amps provides a 4mA output and full span provides a 20mA output. Zero and span adjustments are provided for minor calibration adjustments in the field (if required).

Using an External Current Transformer (CT)

Select a 2VA, 0 to 5A output CT, rated for the current to be monitored. Select TCSA5. Pass one of the CT's secondary wire leads through the TCSA's toroid. Connect the CT's secondary leads together.



Order Table:

Current Range	Part Number
0-5A	TCSA5
0-10A	TCSA10
0-20A	TCSA20
0-50A	TCSA50

Specifications

Sensor

Type	Toroid, through hole wiring, alternating current, monitored conductor must be properly insulated
Monitored AC Current	0 - 50A
Ranges	
4 factory calibrated ranges	0 - 5A, 0 - 10A, 0 - 20A, or 0 - 50A
Factory calibration	≤±2% of full scale
Maximum Allowable Current	Steady – 50A turns; Inrush – 300A turns for 10s
Repeat Accuracy	≤±0.25% of full scale under fixed conditions
Response Time	≅ 300ms
Burden	≤ 0.5VA
AC Line Frequency 0 - 20A / 21 - 50A	20 - 100Hz / 30 - 100Hz
Temperature Coefficient	±0.05%/°C

Output

Type: Series Connection	Current directly proportional to monitored current
Range	4 - 20mA
Sensor Supply Voltage*	10 to 30VDC
Momentary Voltage	40VDC for 1m
Zero Adjust	≅ 3.75 - 4.25mA
Span Adjust	18mA - 22mA
Adjustment	Mini-screw, 25-turn potentiometer

Protection

Dielectric Breakdown	≥ 2000V RMS terminals to mounting surface
Insulation Resistance	≥ 100 MΩ
Polarity	Units are reverse polarity protected

Mechanical

Mounting	Surface mount with one #10 (M5 x 0.8) screw
Dimensions	2 x 2 x 1.75 in. (50.8 x 50.8 x 44.5 mm)
Termination	0.25 in. (6.35 mm) male quick connect terminals
Sensor Hole	0.36 in. (9.14 mm) for up to #4 AWG (21.1 mm^2) THHN wire

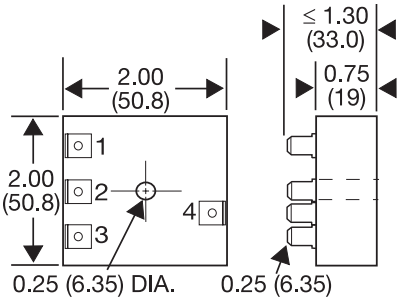
Environmental

Operating / Storage Temperature	-30° to 60°C/-40° to 85°C
Humidity	95% relative, non-condensing
Weight	≅ 2.4 oz (68 g)

*Minimum loop-power supply voltage equals the minimum sensor voltage 10VDC plus the voltage drop developed across all the other loop devices at 20mA.

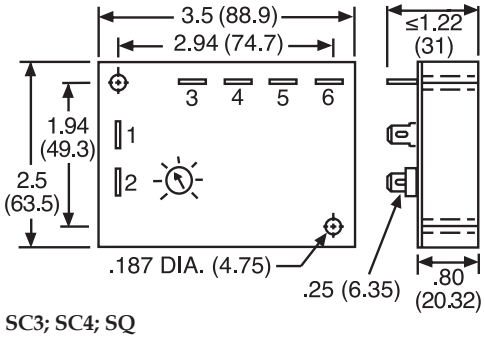
Appendix B - Dimensional Drawings

FIGURE 13



AF

FIGURE 14



SC3; SC4; SQ

FIGURE 15

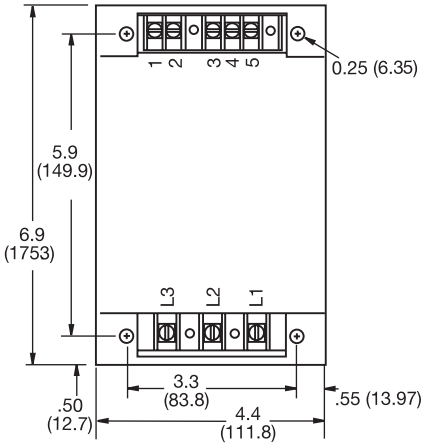
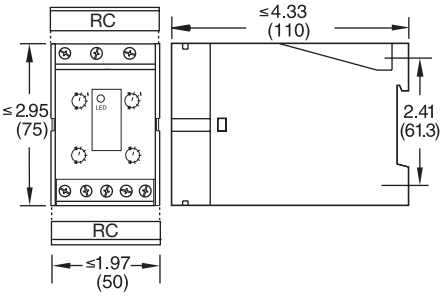
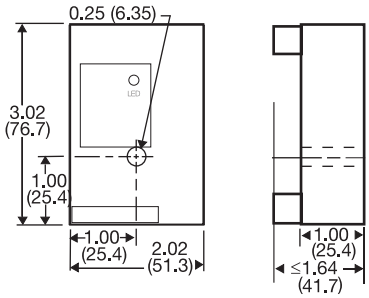


FIGURE 16

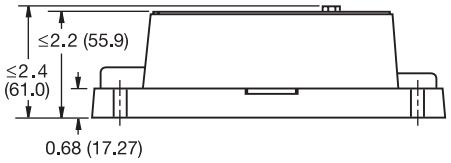


DLMU

FIGURE 17

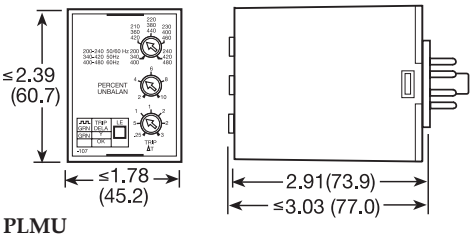


FB9L; HLMU; SCR9L



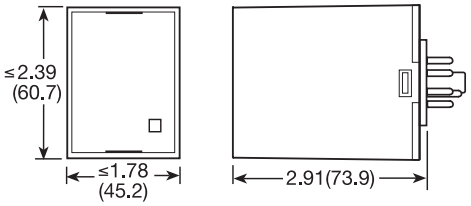
WVM

FIGURE 18



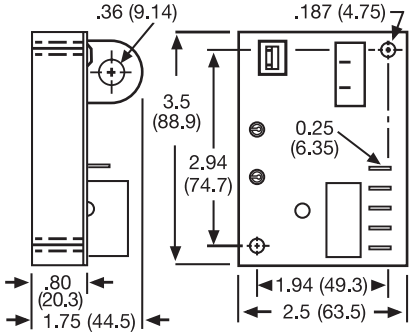
PLMU

FIGURE 19



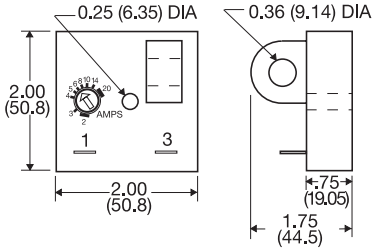
LLC4; LLC6; PLS

FIGURE 20



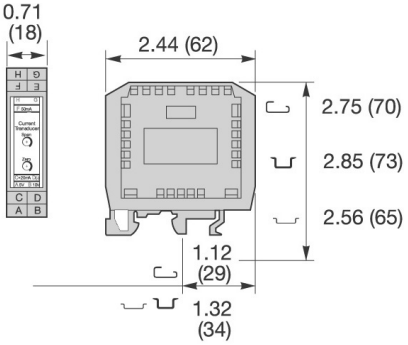
ECS; ECSW (ECS has spade connectors and ECSW has terminal board)

FIGURE 21



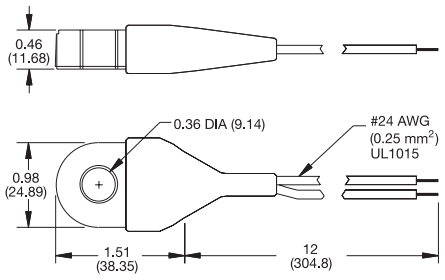
TCS; TCSA

FIGURE 22



DCSA

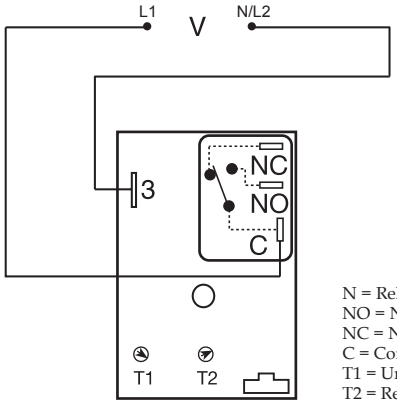
FIGURE 23

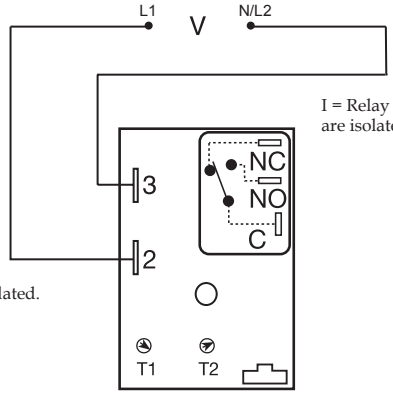


LCS

inches (millimeters)

FIGURE 15 - HLV Series

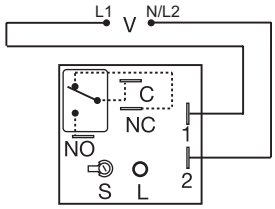




I = Relay contacts are isolated.

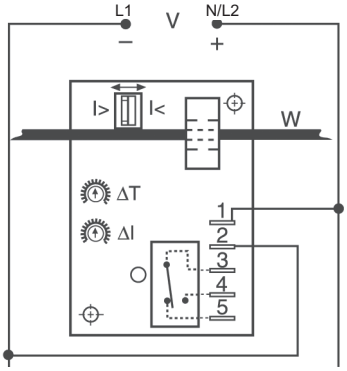
N = Relay contacts are non-isolated.
NO = Normally Open
NC = Normally Closed
C = Common
T1 = Undervoltage Trip Point
T2 = Restart Delay

FIGURE 16 - KVM Series



V = Voltage
L = LED
S = Undervoltage Setpoint
NO = Normally Open
NC = Normally Closed
C = Common, Transfer Contact

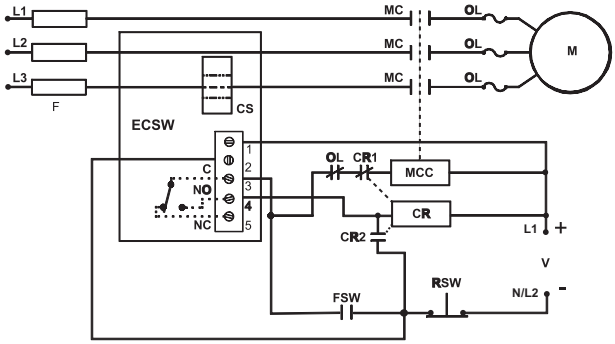
FIGURE 17 - ECS Series



V = Voltage
I> = Overcurrent
I< = Undercurrent

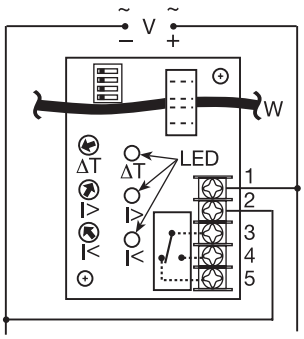
W = Insulated Wire
Carrying Monitored Current
Relay contacts are isolated.

FIGURE 18 - ECSW Series



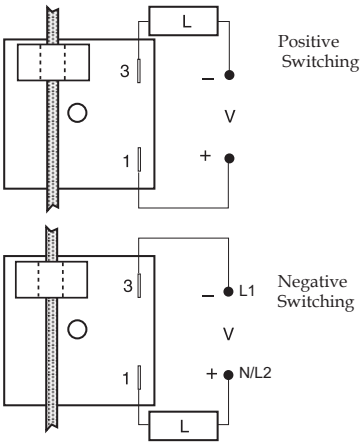
MC = Motor Contactor
M = Motor
F = Fuses
OL = Overload
RSW = Reset Switch

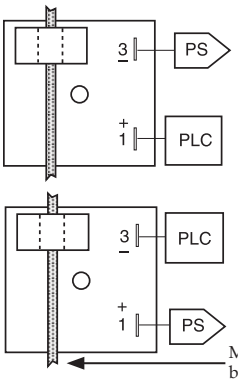
FSW = Fan or Float Contacts
CR = Control Relay
CS = Current Sensor
MCC = Motor Contactor Coil



V = Voltage
I> = Adjustable Overcurrent
I< = Adjustable Undercurrent
W = Monitored Wire
ΔT - Adjustable Trip Delay

FIGURE 19 - TCS Series

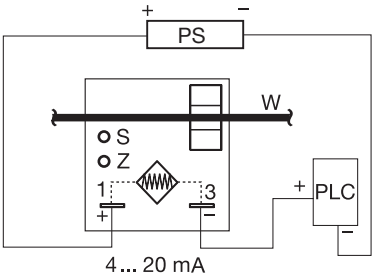




L = Load
V = Voltage
PS = Power Supply
PLC = PLC Digital Input Module

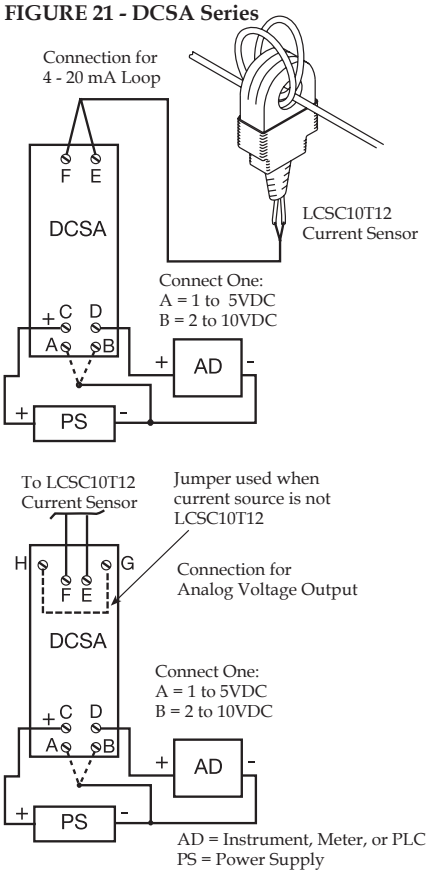
Monitored AC conductor must be insulated.

FIGURE 20 - TCSA Series



PS = Power Supply
Z = Zero Adjust
S = Span Adjust
W = Insulated Wire Carrying Monitored Current
PLC = PLC Analog Input or Meter Input

FIGURE 21 - DCSA Series



AD = Instrument, Meter, or PLC Input
PS = Power Supply