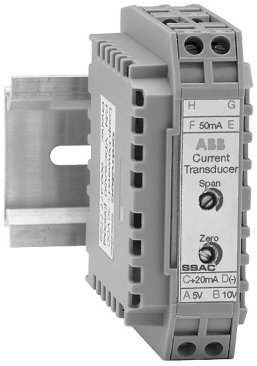


The DCSA Series is a loop-powered, linear output current transducer that provides an output that is directly proportional to the RMS AC current passing through the LCSC10T12 sensor. The DCSA provides either an analog current or voltage: 4 - 20 mA, 1 to 5VDC, or 2 to 10VDC. Each unit is factory calibrated for monitoring (with the LCSC10T12 connected) in one of four ranges; 0 - 5, 0 - 10, 0 - 20, or 0 - 50A. Zero and span adjustments allow field calibration if needed. The DCSA mounts on both DIN 1 and DIN 3 rails.

For more information see:
Appendix B, page 166, Figure 22 for dimensional drawing.
Appendix C, page 169, Figure 21 for connection diagram.

Features:

- Mounts on DIN 1 or DIN 3 rail
- 0 - 50A in 4 ranges using LCSC10T12 sensor
- Loop powered from 10 to 30VDC
- Linear output from 4 - 20mA, 1 - 10VD
- Zero & span adjustments
- Separate sensor & control unit

Approvals:

Auxiliary Products:

- **Current sensor:**
  P/N: LCSC10T12

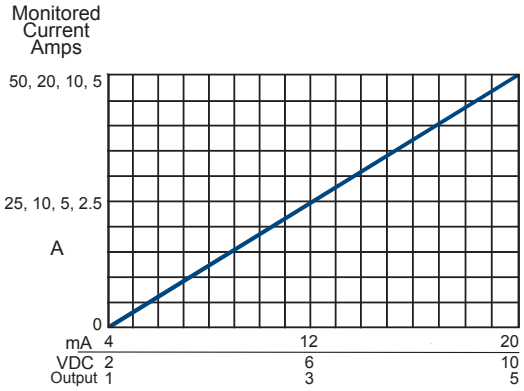
Available Models:

DCSA50
LCSC10T12

If desired part number is not listed, please call us to see if it is technically possible to build.

Operation

The DCSA varies the effective resistance of its output in direct proportion to the current flowing in the conductor monitored by the LCSC10T12. Connecting the power supply to terminals C & D provides a 4 to 20mA DC current. Connect the power supply to terminals C & A to get 1 to 5VDC at terminal D. Connect the power supply to terminals C & B to get 2 to 10VDC at terminal D.



Order Table:

Current Range with LCSC10T12	DCSA Input Range (F to E)	Part Number
0-5A	0-5mA AC	DCSA5
0-10A	0-10mA AC	DCSA10
0-20A	0-20mA AC	DCSA20
0-50A	0-50mA AC	DCSA50
	Toroidal Current Sensor	LCSC10T12

Specifications

Input

Ranges (without LCSC10T12 connected)
4 factory calibrated ranges in mA AC ..... 0 - 5mA, 0 - 10mA, 0 - 20mA, or 0 - 50mA AC
Factory calibration ..... ±0.5% of full scale
Repeat Accuracy ..... ±0.25% of full scale under fixed conditions
Response Time ..... ≅ 300ms
Temperature Coefficient ..... ±0.05%/°C
Input To Output ..... Not isolated

Output

Type Analog ..... Current directly proportional to input current
Range ..... 4 - 20mA, or 1 to 5VDC or 2 to 10VDC
Supply Voltage* ..... 10 to 30VDC
Momentary Voltage ..... 40VDC for 1m
Zero Adjust ..... ≅ 3.75 - 4.25mA
Span Adjust ..... 18mA - 22mA
Adjustment ..... Mini-screw, multi-turn potentiometer

Protection

Dielectric Breakdown ..... ≥ 2500V RMS terminals to mounting surface
Insulation Resistance ..... ≥ 100 MΩ
Polarity ..... Units are reverse polarity protected

Mechanical

Mounting ..... DIN 1 & DIN 3 rail mounting
Termination Wire clamp ..... For 22 - 14AWG (.336 mm² ... 2.5 mm²)

Environmental

Operating / Storage Temperature ..... -30° to 60°C / -40° to 85°C
Humidity ..... 95% relative, non-condensing
Weight ..... ≅ 1.6 oz (45.4 g)

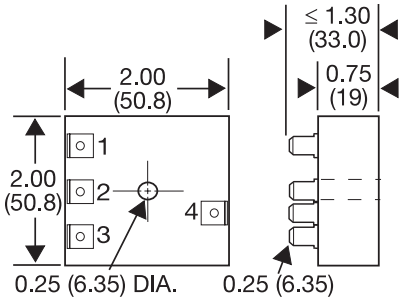
Accessory - LCSC10T12 Toroidal Sensor

Number of Turns 1000
Nominal Output Current Full Range ..... 0 - 50 mA
Maximum Allowable Current ..... Steady 50A turns
Inrush 300A turns for 10s
Burden ..... ≤ 0.5 VA
Frequency 0 - 20A / 21 - 50A ..... 20/100 Hz / 30/100 Hz
Sensor Hole ..... 0.36 in. (9.14 mm) for up to #4 AWG (21.1 mm²) THHN wire
Weight ..... ≅ 1 oz (28.3 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.

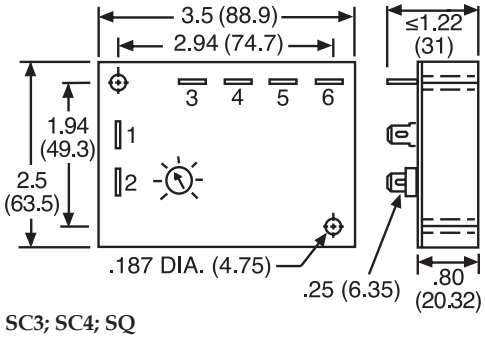
Appendix B - Dimensional Drawings

FIGURE 13



AF

FIGURE 14



SC3; SC4; SQ

FIGURE 15

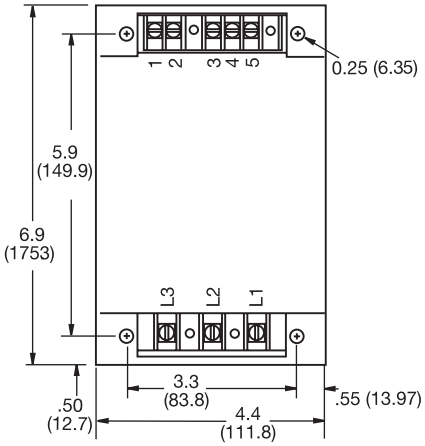
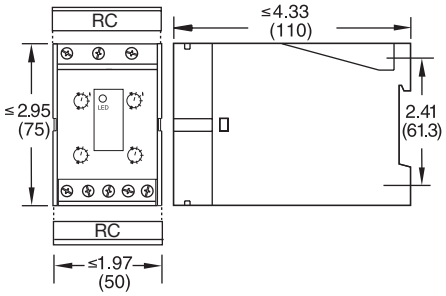
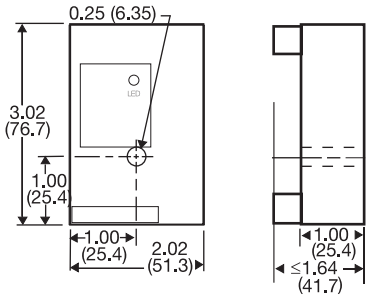


FIGURE 16

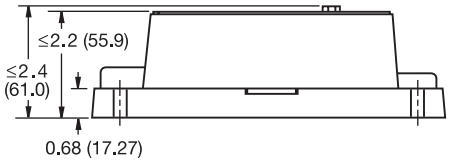


DLMU

FIGURE 17

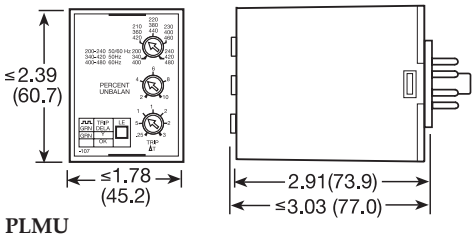


FB9L; HLMU; SCR9L



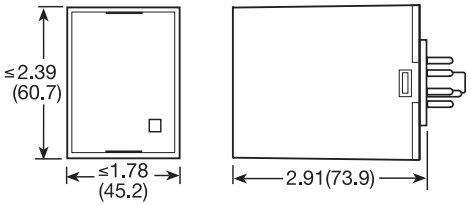
WVM

FIGURE 18



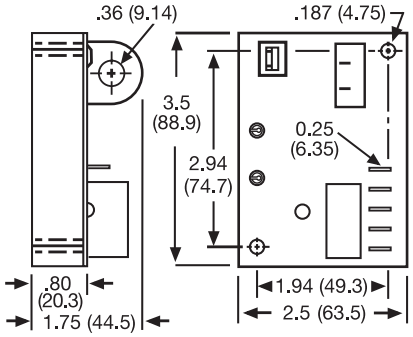
PLMU

FIGURE 19



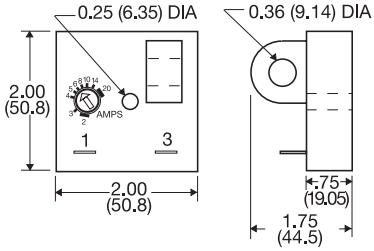
LLC4; LLC6; PLS

FIGURE 20



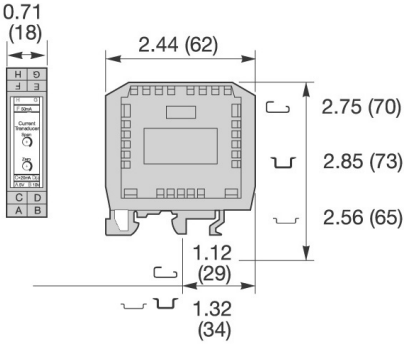
ECS; ECSW (ECS has spade connectors and ECSW has terminal board)

FIGURE 21



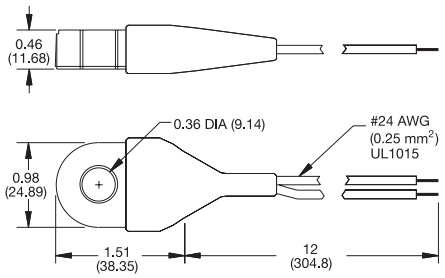
TCS; TCSA

FIGURE 22



DCSA

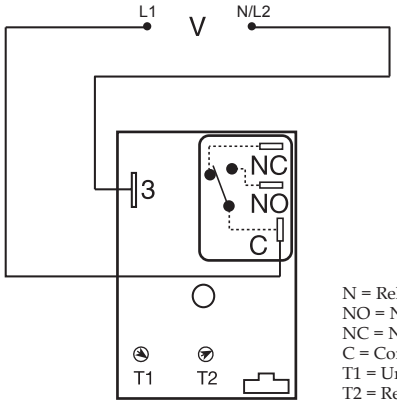
FIGURE 23

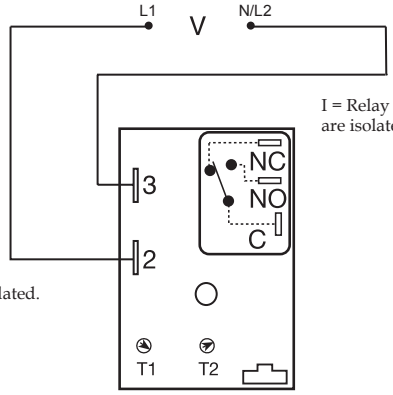


LCS

inches (millimeters)

FIGURE 15 - HLV Series

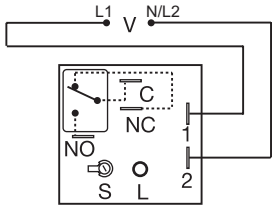




I = Relay contacts are isolated.

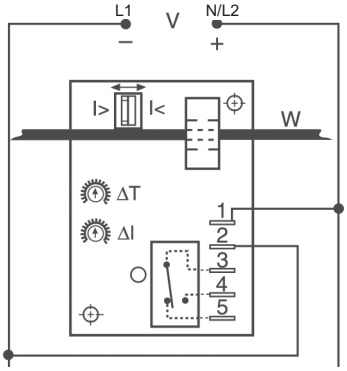
N = Relay contacts are non-isolated.
NO = Normally Open
NC = Normally Closed
C = Common
T1 = Undervoltage Trip Point
T2 = Restart Delay

FIGURE 16 - KVM Series



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

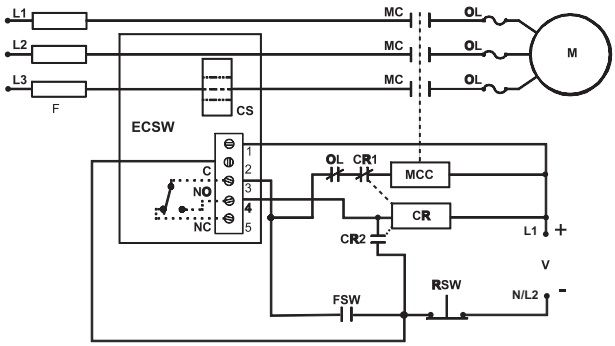
FIGURE 17 - ECS Series



V = Voltage
I> = Overcurrent
I< = Undercurrent

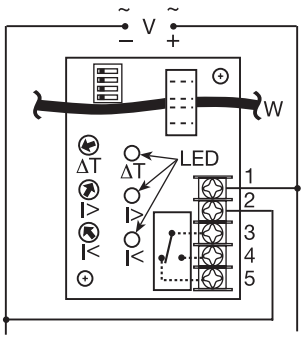
W = Insulated Wire
Carrying Monitored Current
Relay contacts are isolated.

FIGURE 18 - ECSW Series



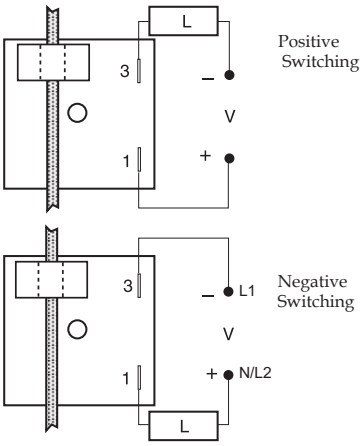
MC = Motor Contactor
M = Motor
F = Fuses
OL = Overload
RSW = Reset Switch

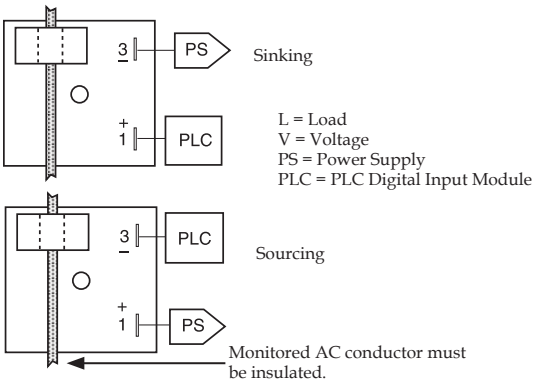
FSW = Fan or Float Contacts
CR = Control Relay
CS = Current Sensor
MCC = Motor Contactor Coil



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

FIGURE 19 - TCS Series

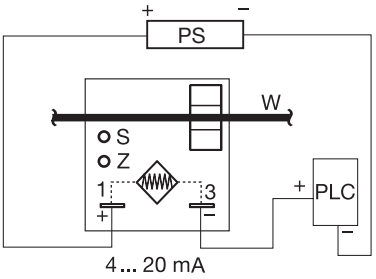




L = Load
V = Voltage
PS = Power Supply
PLC = PLC Digital Input Module

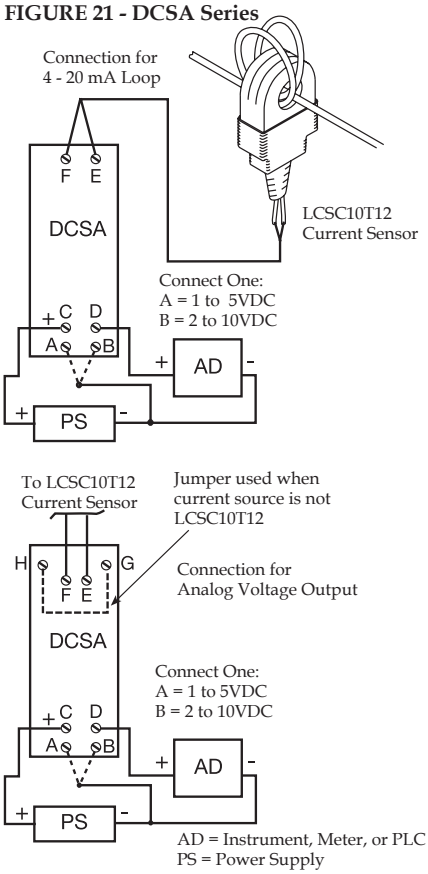
Monitored AC conductor must be insulated.

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