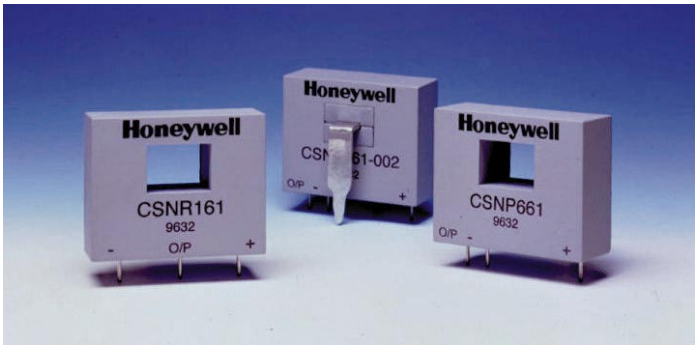


FEATURES

- Current sensing up to 1200 amps
- Measures AC, DC and impulse currents
- Lowest cost/performance ratio
- Rapid response, no overshoot
- High overload capacity
- High level of electrical isolation between primary and secondary circuits
- Small size and weight

CLOSED LOOP SENSORS

Closed loop current sensors measure AC, DC and impulse currents over 0-25, 0-50, 0-100, 0-600 and 0-1200 Amp ranges. The CSN Series is based on the principles of the Hall effect and the null balance or zero magnetic flux method (feedback system). The magnetic flux in the sensor core is constantly controlled at zero. The amount of current required to balance zero flux is the measure of the primary current flowing through the conductor, multiplied by the ratio of the primary to secondary windings. This closed loop current is the output from the device and presents an image of the primary current reduced by the number of secondary turns at any time. This current can be expressed as a voltage by passing it through a resistor.

CATALOG NUMBER SYSTEM

PLEASE NOTE: This matrix is intended **only** to aid you in identifying sensor catalog listings. It is not all-inclusive, and **must not be used** to form new listings.

Example: CSNA111

CSN Closed Loop Current Sensor

Current Range (Peak/RMS nom.)

A ±70 A/50 A rms nom.
B ±100 A/50 A rms nom.
C ±90 A/50 A rms nom.
D ±22 A/15 A rms nom.
E ±36 A/25 A rms nom.
F ±150 A/100 A rms nom.
J ±600 A/300 A rms nom.
K ±1200 A/500 A rms nom.
L ±600 A/300 A rms nom.
M ±1200 A/500 A rms nom.
P ±90 A/50 A rms nom.
R ±200 A/125 A rms nom.
T ±150 A/50 A rms nom.

Supply Voltage

1 ±15 V
2 ±13 V
3 ±5 V
4 ±12 V to 18 V
5 ±15 V to 24 V
6 ±12 V to 15 V

Coil Characteristics

1 1:1000 turns/90 Ω @ 70°C
2 1:2000 turns/160 Ω @ 70°C
3 1:2000 turns/130 Ω @ 70°C
4 1:1000 turns/50 Ω @ 70°C
5 1:1000 turns/110 Ω @ 70°C
6 1:1000 turns/30 Ω @ 70°C
7 1:2000 turns/80 Ω @ 70°C
8 1:2000 turns/25 Ω @ 70°C
9 1:5000 turns/50 Ω @ 85°C

Housing Material

1 Polycarbonate/ABS blend

Solid State Sensors
Closed Loop Current Sensors

CSNA, CSNB, CSNE SERIES ORDER GUIDE

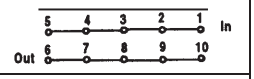
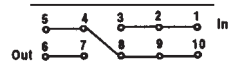
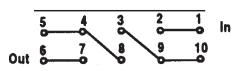
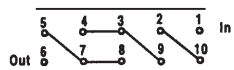
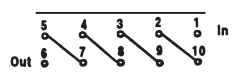
Catalog Listing	Current Range Amps	Supply Voltage VDC ±5%	Coil Characteristics		Meas. Currents Nom.	Meas. Resist (@ I_{nom})
			Turns	Resistance		
CSNA111	±70	±15	1000	90Ω @ 70°C	50 mA for 50 A	40 to 130Ω
CSNB121	±100	±15	2000	160Ω @ 70°C	25 mA for 50 A	40 to 270Ω
CSNB131	±100	±15	2000	130Ω @ 70°C	25 mA for 50 A	40 to 300Ω
CSNE151	±5-36	±15	1000	110Ω @ 70°C	25 mA for 25 A	100 to 320Ω
CSNE381*	±5-36	±5V	1000	66Ω @ 70°C	25 mA for 25 A	0 to 84Ω
CSNH151*	±4-43	±15V	1000	110Ω @ 70°C	25 mA for 25 A	100 to 320Ω

NOTE: Extended temperature range and potting also available.
* Contact the 800 number for more information.

SPECIFICATIONS

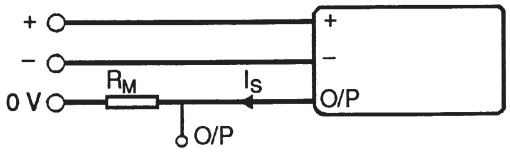
Catalog Listing	CSNA111	CSNB121	CSNB131	CSNE151
Offset Current @ 25°C, mA max.	±0.20	±0.10	±0.10	±0.10
Temperature Drift, 0 to 70°C, mA	±0.35 typ. ±0.60 max.	±0.20 typ. ±0.30 max.	±0.20 typ. ±0.30 max.	±0.17 typ. ±0.60 max.
Linearity	0.1%	0.1%	0.1%	0.2%
Supply Voltage	±15V	±15V	±15V	±15V
Galvanic Isolation @ 50 Hz/1 min.	2.5 kV rms			5 kV rms
Accuracy	±0.5% of I_N (nominal Current) at 25°C			
Response Time	<1 μs			
Bandwidth	DC to 150 kHz			
Temperature	Operating: 0 to 70°C (32 to 150°F)		Storage: −25 to 85°C (−13 to 185°F)	
Primary Circuit Connection	Thru-hole	Thru-hole	Thru-hole	Invasive on 10 pins
Secondary Circuit Connection	3 Pins	3 Pins	3 Pins	3 Pins
Current Drain	10 mA (no load current) + output current (secondary current)			
''In-Out'' Sense Signal	To obtain positive measuring current on O/P terminal, current must flow in direction of arrow			
Mounting	PCB, 3 pins, hole size 0.95 mm			PCB, 13 pins

PRIMARY PIN CONNECTIONS FOR CSNE151

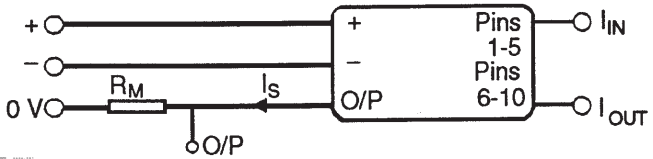
Primary Turns	Primary Current		Output Current (mA)	Primary Resistance (mΩ)	Primary Pin Connections
	Nom. I_{DN} (A)	Max. I_D (A)			
1	24	36	25	0.3	
2	12	18	24	1.1	
3	8	12	24	2.5	
4	6	9	24	4.4	
5	5	7	25	6.3	

WIRING DIAGRAMS

CSNA111/CSNB121/CSNB131



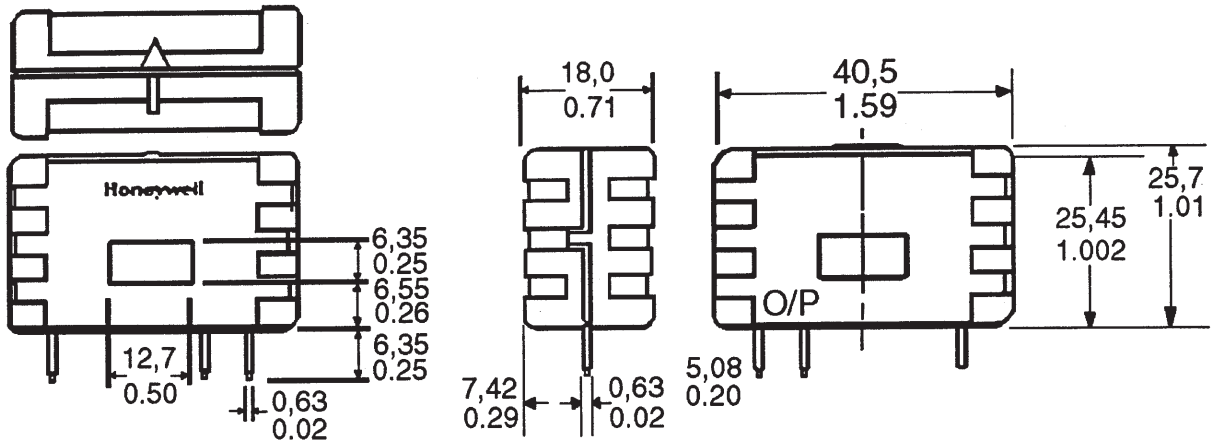
CSNE151



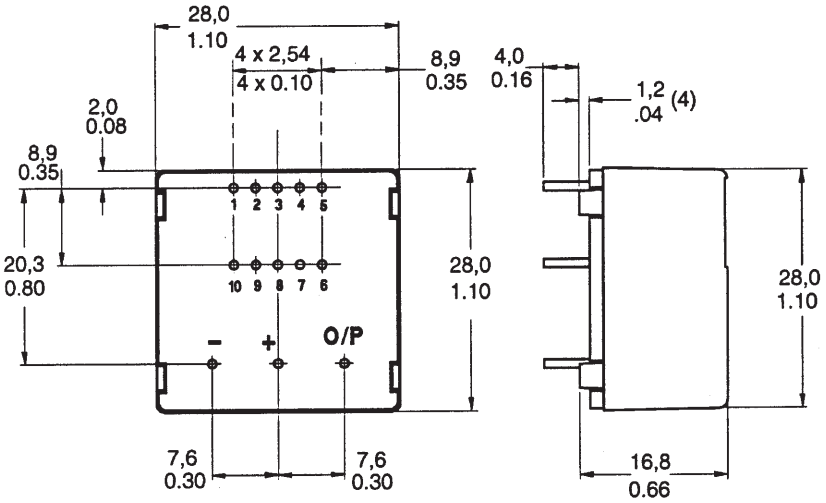
Current

MOUNTING DIMENSIONS (for reference only)

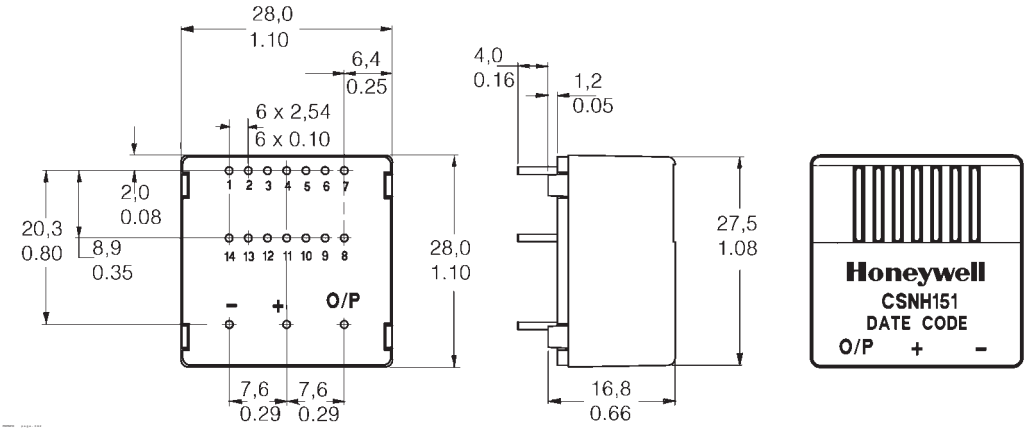
CSNA111, CSNB121, CSNB131



CSNE151/CSNE381



CSNH151



Closed Loop Current Sensors

CSNJ, CSNK SERIES ORDER GUIDE

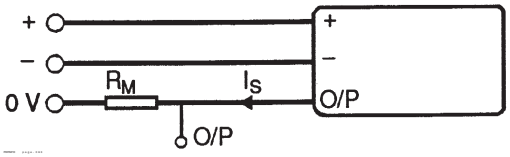
Catalog Listings	Current Range Amps	Supply Voltage VDC ± 5%	Coil Characteristics		Meas. Currents Nom.	Meas. Resist (@ I_{nom})
			Turns	Resistance		
CSNJ481	±600	±12 to 18	2000	25Ω @ 70°C	150 mA for 300 A	0 to 70Ω
CSNJ481-001*	±600	±12 to 18	2000	25Ω @ 70°C	150 mA for 300 A	0 to 70Ω
CSNJ481-002	±600	±12 to 18	2000	25Ω @ 70°C	150 mA for 300 A	0 to 70Ω
CSNJ481-003*	±600	±12 to 18	2000	25Ω @ 70°C	150 mA for 300 A	0 to 70Ω
CSNK591	±1200	±15 to 24	5000	50Ω @ 70°C	100 mA for 500 A	0 to 130Ω
CSNK591-001*	±1200	±15 to 24	5000	50Ω @ 70°C	100 mA for 500 A	0 to 130Ω
CSNK591-002	±1200	±15 to 24	5000	50Ω @ 70°C	100 mA for 500 A	0 to 130Ω
CSNK591-003*	±1200	±15 to 24	5000	50Ω @ 70°C	100 mA for 500 A	0 to 130Ω

*Fitted with busbar

SPECIFICATIONS

Catalog Listings	CSNJ481 CSNJ481-001	CSNJ481-002 CSNJ481-003	CSNK591 CSNK591-001	CSNK591-002 CSNK591-003
Offset Current @ 25°C, mA max.	±0.30	±0.30	±0.20	±0.20
Temperature Drift, 0 to 70°C, mA	±0.30 typ. ±0.50 max.	±0.30 typ. ±0.50 max.	±0.20 typ. ±0.30 max.	±0.20 typ. ±0.30 max.
Linearity	±0.1%	±0.1%	±0.1%	±0.1%
Supply Voltage	±12 to ±18V	±12 to ±18V	±15 to ±24V	±15 to ±24V
Galvanic Isolation @ 50 Hz/1 min.	7.5 kV rms	7.5 kV rms	6 kV rms	6 kV rms
Accuracy	±0.5% of I_N (nominal Current) at 25°C			
Response Time	<1 μs			
Bandwidth	DC to 150 kHz			
Operating Temperature	−40 to 85°C (−40 to 185°F)	0 to 70°C (32 to 158°F	−40 to 85°C (−40 to 185°F)	0 to 70°C (32 to 158°F)
Storage Temperature	−40 to 90°C (−40 to 194°F)	−25 to 85°C (−13 to 85°F	−40 to 90°C (−40 to 194°F)	−25 to 85°C (−13 to 85°F)
Primary Circuit Connection	Thru-hole or busbar	Thru-hole or busbar	Thru-hole or busbar	Thru-hole or busbar
Secondary Circuit Connection	3 pins	3 pins	3 pins	3 pins
Current Drain	14 mA (no load current) + output current		22 mA (24 V) + output current	
''In-Out'' Sense Signal	To obtain positive measuring current on O/P terminal, current must flow in direction of arrow			
Mounting	Faston, 3 pins		Push-on (spade), 3 terminals	

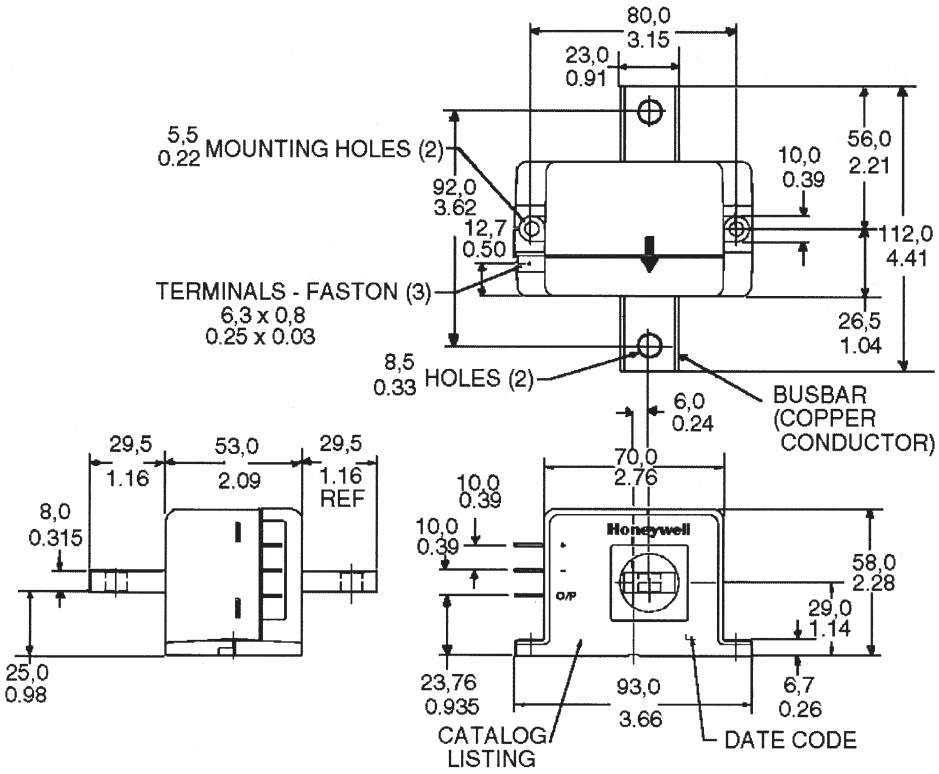
WIRING DIAGRAM



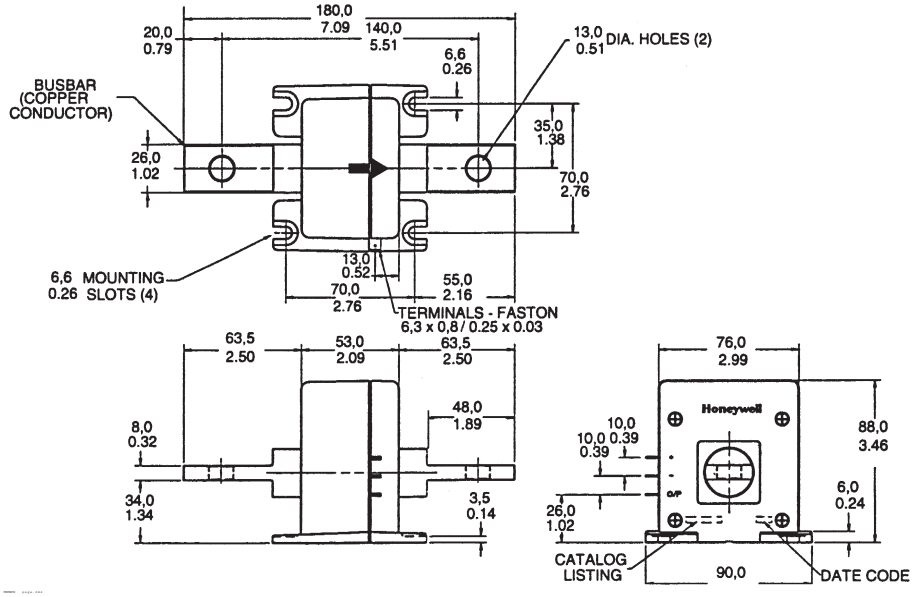
Current

MOUNTING DIMENSIONS (for reference only)

CSNJ481



CSNK591



Closed Loop Current Sensors

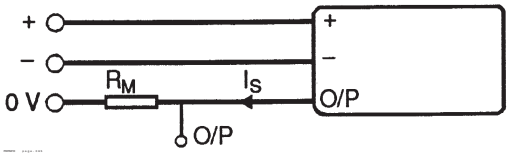
CSNL, CSNM SERIES ORDER GUIDE

Catalog Listings	Peak Current Range Amps	Supply Voltage VDC ± 5%	Coil Characteristics		Meas. Currents Nom.	Meas. Resist (@ I_{nom})
			Turns	Resistance		
CSNL181	±600	±12 to 18	2000	25Ω @ 70°C	150 mA for 300 A	0 to 70Ω
CSNM191	±1000	±12 to 18	5000	50Ω @ 70°C	100 mA for 500 A	0 to 120Ω

SPECIFICATIONS

Catalog Listings	CSNL181	CSNM191
Offset Current @ 25°C, mA max.	±0.30	±0.20
Temperature Drift, 0 to 70°C, mA	±0.30 typ. ±0.50 max.	±0.20 typ. ±0.30 max.
Linearity	±0.1%	±0.1%
Supply Voltage	±12 to ±18V	±12 to ±18V
Galvanic Isolation @ 50 Hz/1 min.	7.5 kV rms	7.5 kV rms
Accuracy	±0.5% of I_N (nominal Current) at 25°C	
Response Time	500 ns	<1 μs
Bandwidth	DC to 150 kHz	
Operating Temperature	−40 to 85°C (−40 to 185°F)	
Storage Temperature	−40 to 90°C (−40 to 194°F)	
Primary Circuit Connection	Thru-hole	Thru-hole
Secondary Circuit Connection	3 pins	3 pins
Current Drain	14 mA (no load current) + output current	
''In-Out'' Sense Signal	To obtain positive measuring current on O/P terminal, current must flow in direction of arrow	
Mounting	Faston, 3 pins	

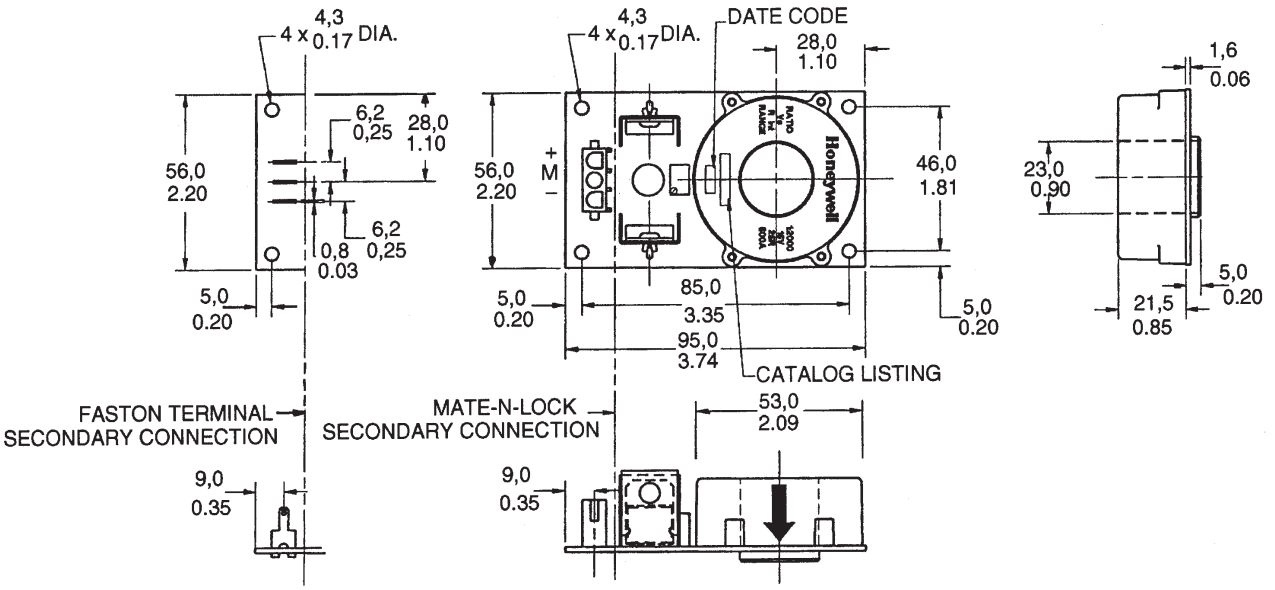
WIRING DIAGRAM



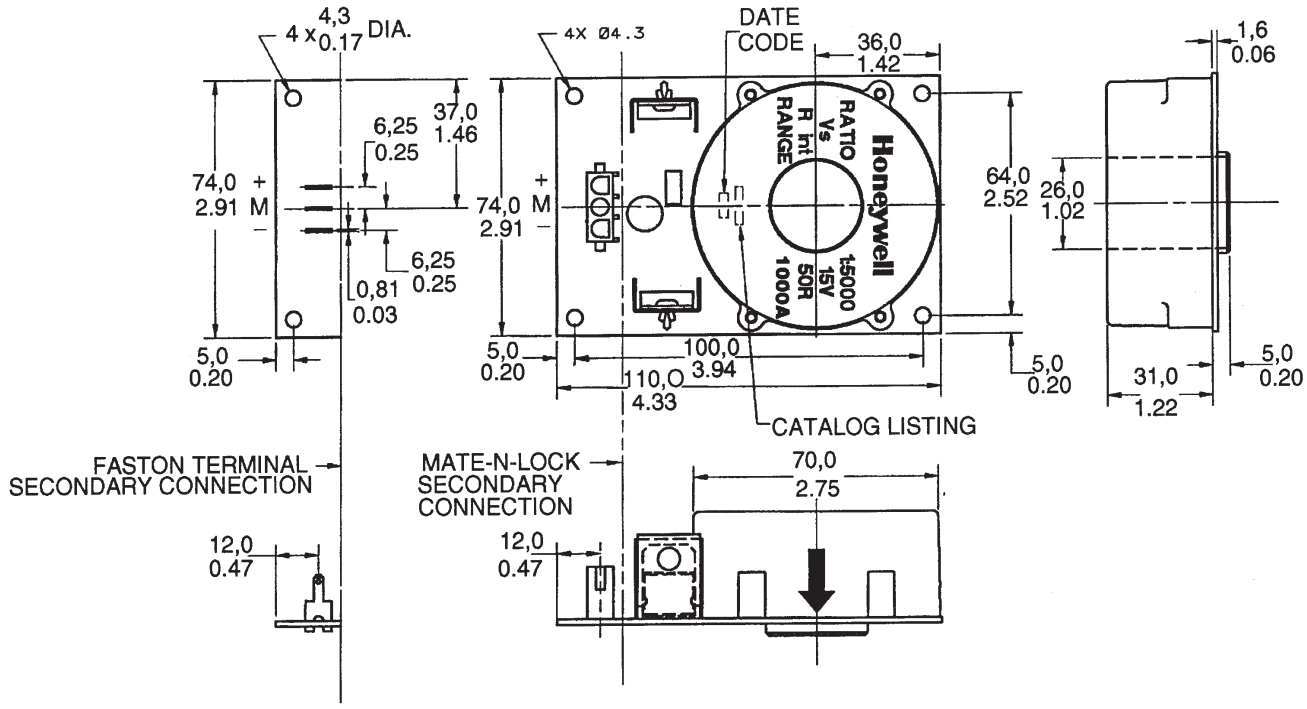
Current

MOUNTING DIMENSIONS (for reference only)

CSNL181



CSNM191



Closed Loop Current Sensors

CSNF, CSNR, CSNP, CSNT SERIES ORDER GUIDE

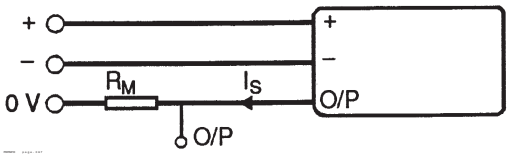
Catalog Listings	Peak Current Range Amps	Supply Voltage VDC ± 5%	Coil Characteristics		Meas. Currents Nom.	Meas. Resist (@ I_{nom})
			Turns	Resistance		
CSNP661	±90	±12 to 15	1000	30Ω @ 70°C	50 mA for 50 A	50 to 100Ω
CSNT651	±150	±12 to 15	2000	100Ω @ 70°C	25 mA for 50 A	40 to 75Ω
CSNF161	±150	±12 to 15	1000	30Ω @ 70°C	100 mA for 100 A	10 to 40Ω
CSNF151	±180	±12 to 15	2000	100Ω @ 70°C	50 mA for 100 A	10 to 75Ω
CSNR161	±200	±12 to 15	1000	30Ω @ 70°C	125 mA for 125 A	30 to 40Ω
CSNR151	±200	±12 to 15	2000	100Ω @ 70°C	62.5 mA for 125 A	10 to 40Ω

NOTE: Busbar options available.

SPECIFICATIONS

Catalog Listings	CSNP661	CSNT651	CSNF161	CSNF151	CSNR161	CSNR151
Offset Current @ 25°C, mA max.	±0.20	±0.10	±0.20	±0.10	±0.20	±0.10
Temperature Drift, 0 to 70°C, mA	±0.30 typ. ±0.50 max.	±0.15 typ. ±0.25 max.	±0.30 typ. ±0.50 max.	±0.15 typ. ±0.25 max.	±0.30 typ. ±0.60 max.	±0.15 typ. ±0.30 max.
Linearity	±0.1%	±0.1%	±0.1%	±0.1%	±0.1%	±0.1%
Supply Voltage	±12 to 15V	±12 to 15V	±12 to 15V	±12 to 15V	±12 to 15V	±12 to 15V
Galvanic Isolation @ 50 Hz/1 min.	3 kV rms	3 kV rms	3 kV rms	3 kV rms	3 kV rms	3 kV rms
Accuracy	±0.5% of I_N (nominal Current) at 25°C					
Response Time	<500 ns					
Bandwidth	DC to 150 kHz					
Operating Temperature	−40 to 85°C (−40 to 185°F)		−40 to 85°C (−40 to 185°F)			
Storage Temperature	−40 to 90°C (−40 to 194°F)		−40 to 90°C (−40 to 194°F)			
Primary Circuit Connection	Thru-hole					
Secondary Circuit Connection	3 pins					
Current Drain	10 mA (no load current) + output current		14 mA (no load current) + output current			
''In-Out'' Sense Signal	To obtain positive measuring current on O/P terminal, current must flow in direction of arrow					
Mounting	3 pins					
Pin Style	A	A	B	B	B	B

WIRING DIAGRAM



Current

MOUNTING DIMENSIONS (for reference only)