

current sensor

CSN Series / Closed Loop Linear



characteristic :

Maximum measurable current 1200 amperes
Measurable alternating current, direct current, pulse current

The highest price performance ratio

Quick response, no breakdown phenomenon

High overload capacity

Primary and secondary circuits are highly isolated

Compact size

The price of competitiveness

Closed-loop sensors

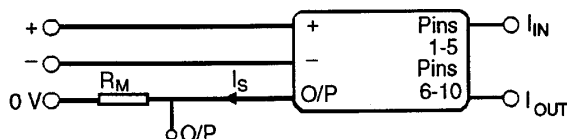
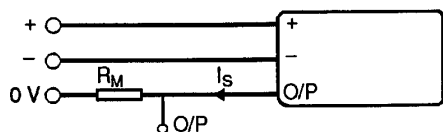
The CSN series current sensors measure electrical currents using the Hall effect and zero-field balance principle (feedback system). The internal magnetic field is maintained at zero through a proportional coefficient applied to the primary current flowing through the conductor. This closed-loop current serves as the sensor's output, reflecting how the primary current decreases in the secondary coil at any given moment. The current output can be converted into voltage output via an external resistor.

Ordering Guide

model	current (A) rms/peak	Power supply voltage VDC ±5%	Wire characteristics		Input / Output Current Ratio	Measure the minimum/maximum resistance value ohms*	Shell materials	Primary coil connection	Secondary coil connection	working temperature
			number of turns	Resistance @ 70 °C						
CSNA111	50/70	±15	1000	90Ω	50mA /50A	40/100	1	bore a hole	3 needle	0 — 70
CSNB121	50/100	±15	2000	160Ω	25mA /50A	40/100	1	bore a hole	3 needle	0 — 70
CSNB131	50/100	±15	2000	130Ω	25mA /50A	40/100	1	bore a hole	3 needle	0 — 70
CSNC241	50/90	±13	1000	50Ω	50mA /50A	40/100	1	bore a hole	3 needle	0 — 70
CSNE151	25/36	±15	1000	110Ω	25mA /25A	100/320	1	10 needle	3 needle	0 — 70
CSNE151-100	25/50	±12~15	1000	66Ω	25mA /25A	54/360	1	8 needle	3 needle	-40 — 85
CSNF163	100/150	±15	1000	30Ω	100mA /100A	30/85	3	bore a hole	3 needle	0 — 70
CSNF173	100/150	±15	2000	80Ω	50mA /100A	20/150	3	bore a hole	3 needle	0 — 70
CSNP661	50/90	±12~15	1000	30Ω	50mA /50A	70/100	1	bore a hole	3 needle	-25 — 85
CSNP661-002	50/90	±12~15	1000	30Ω	50mA /50A	70/100	1	Diversion of waters	3 needle	-25 — 85
CSNT651	50/150	±12~15	2000	100Ω	25mA /50A	40/50	1	bore a hole	3 needle	-25 — 85
CSNT651-001	50/150	±12~15	2000	100Ω	25mA /50A	40/50	1	Diversion of waters	3 needle	-25 — 85
CSNF161	100/150	±12~15	1000	30Ω	100mA /100A	30/40	1	bore a hole	3 needle	-40 — 85
CSNF161-002	100/150	±12~15	1000	30Ω	100mA /100A	30/40	1	Diversion of waters	3 needle	-40 — 85
CSNF151	100/180	±12~15	2000	100Ω	50mA /100A	10/25	1	bore a hole	3 needle	-40 — 85
CSNF151-001	100/180	±12~15	2000	100Ω	50mA /100A	10/25	1	Diversion of waters	3 needle	-40 — 85
CSNR161	125/200	±12~15	1000	30Ω	125mA /125A	30/35	1	bore a hole	3 needle	-40 — 85
CSNR161-002	125/200	±12~15	1000	30Ω	125mA /125A	30/35	1	Diversion of waters	3 needle	-40 — 85
CSNR151	125/200	±12~15	2000	100Ω	62.5mA /125A	10/30	1	bore a hole	3 needle	-40 — 85
CSNJ481	300/600	±12~18	2000	25Ω	150mA /300A	20/25	1	bore a hole	Flat plug	-40 — 85
CSNJ481-001	300/600	±12~18	2000	25Ω	150mA /300A	20/25	1	Diversion of waters	Flat plug	-40 — 85
CSNJ481-002	300/600	±12~18	2000	25Ω	150mA /300A	20/25	1	bore a hole	Flat plug	0 — 70
CSNJ481-003	300/600	±12~18	2000	25Ω	150mA /300A	20/25	1	Diversion of waters	Flat plug	0 — 70
CSNK591	500/1200	±12~24	5000	50Ω	100mA /500A	10/25	1	bore a hole	Flat plug	-40 — 85
CSNK591-001	500/1200	±12~24	5000	50Ω	100mA /500A	10/25	1	Diversion of waters	Flat plug	-40 — 85
CSNK591-002	500/1200	±12~24	5000	50Ω	100mA /500A	10/25	1	bore a hole	Flat plug	0 — 70
CSNK591-003	500/1200	±12~24	5000	50Ω	100mA /500A	10/25	1	Diversion of waters	Flat plug	0 — 70

Shell material 1: polycarbonate/ABS mixture 2: polyester 3: nylon/ABS mixture, 15% glass fiber

The maximum to minimum load resistance can be ignored without damaging the internal transistor; the shown resistance values are all under maximum supply voltage and peak primary current conditions. Wiring diagram (all models except CSNE151 and CSNE151 - 100) (CSNE151)



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technical specifications

model	CSNA111	CSNB121 CSNB131	CSNC241	CSNE151	CSNF163	CSNF173	CSNP661, -002	CSNT651, -001
Measurement range (RMS/maximum)	50A/±70A	50A/±100A	50A/±90A	25A/±36A	100A/±150A	100A/±150A	50A/±90A	50A/±150A
25 °C Offset current (maximum) in mA	±0.20	±0.10	±0.20	±0.15	±0.20	±0.20	±0.20	±0.10
Wen Piao 0.C-70.C, Bias current (mA)	± 0.35 (typical value) ± 0.60 (maximum)	± 0.20 (typical value) ± 0.30 (maximum)	± 0.35 (typical value) ± 0.60 (maximum)	± 0.17 (typical value) ± 0.60 (maximum)	± 0.35 (typical value) ± 0.60 (maximum)	± 0.35 (typical value) ± 0.60 (maximum)	± 0.3 (typical value) ± 0.5 (maximum)	± 0.15 (representative value) ± 0.25 (crest value)
degree of linearity	0.1%	0.1%	±0.2%	0.2%	0.1%	0.1%	0.1%	0.1%
Voltage isolation @50Hz/1 (min)	2.5KVrms			5KVrms	3KVrms			
Accuracy (25 °C, for rated current)	±0.5%							
reaction time	<1µs						<500ns	
di / dt. Rate of change of precise output (minimum)	50A/µs						100A/µs	
tape width	0-150KHz							
Current consumed	10mA (no-load current) + output current (secondary current)							
EMC	EN50082-2,EN50081-2							
sheathing material	Poly carbonate /ABS composite				Nylon /ABS composite, 15% glass		Poly carbonate /ABS composite	

model	CSNF161 CSNF161-002	CSNF151 CSNF151-001	CSNF161 CSNF161-002	CSNR151	CSNJ481,-001 -002,-003	CSNK591,-001 -002,-003
Measurement range (RMS/maximum)	125A/±200A	100A/±180A	125A/±200A	25A/±200A	300A/±600A	500A/±120A
25 °C offset current mA (maximum)	±0.20	±0.10	±0.20	±0.101	±0.30	±0.20
Temperature of the heater 0 °C-70 °C, offset current (mA)	±0.3 (typical value) ±0.6 (maximum)	± 0.15 (typical value) ± 0.25 (maximum)	± 0.30 (typical value) ± 0.5 (maximum)	± 0.15 (typical value) ± 0.3 (maximum)	± 0.3 (typical value) ± 0.5 (maximum)	± 0.20 (typical value) ± 0.3 (maximum)
degree of linearity	Good for ± 0.1%					
Voltage isolation @50Hz/1 (min)	3KVrms				7.5 KVrms	
Accuracy (25 °C, for rated current)	±0.5%					
reaction time	<500ns					<1µs
di / dt. Rate of change of precise output (minimum)	100A/µs				50A/µs	
tape width	0~150KHz				0-100KHz	
Current consumed	14mA (no-load current) + output current (secondary current)					22mA(24V) + output current
EMC	EN50082-2,EN50081-2					
sheathing material	Poly carbonate /ABS composite					

CSNE151 Primary pin connections

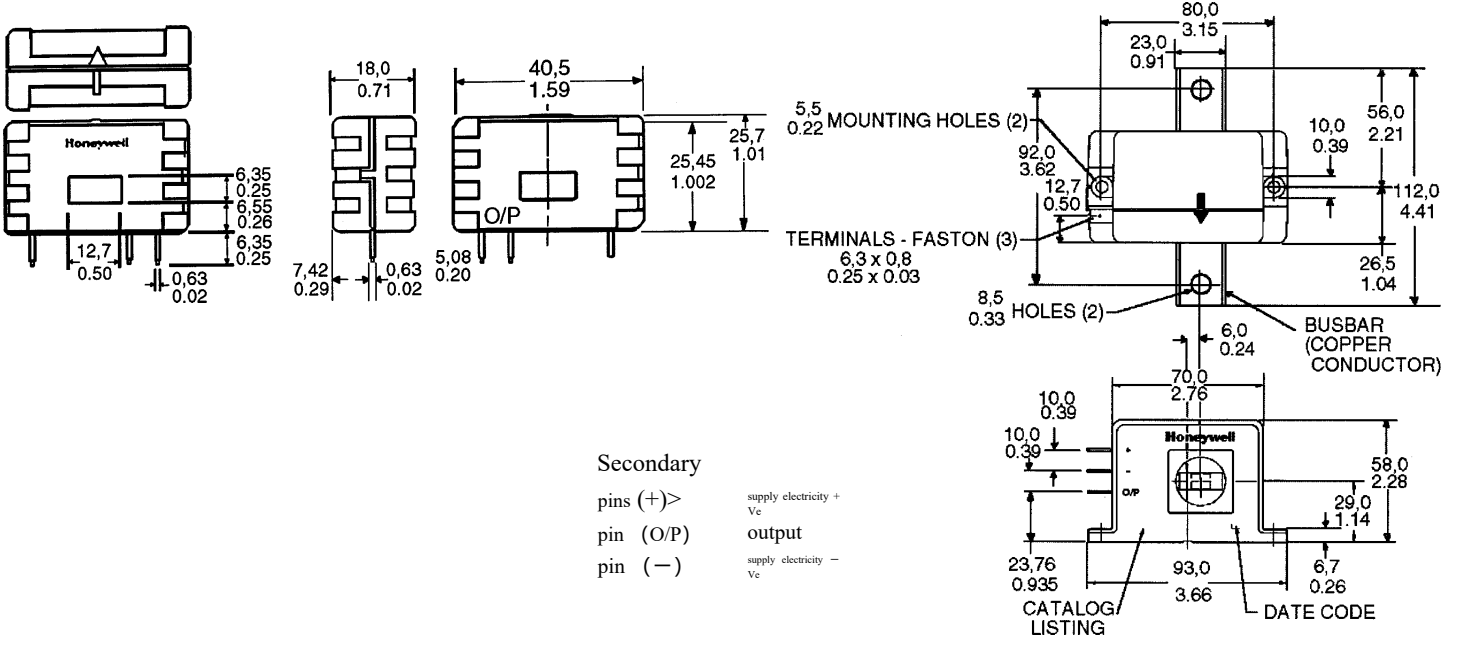
elementary	Primary connection Nom.L.pn	Primary current (maximum) Lp	output (mA)	Primary impedance (mΩ)	Primary pin connections
1	24	36	25	0.3	
2	12	18	24	1.1	
3	8	12	24	2.5	
4	6	9	24	4.4	
5	5	7	25	6.3	

Recommended model	measuring current (A)
CSNP661	50/90
CSNF151	100/180
CSNR161	125/200
CSNJ481	300/600
CSNS300M	300/600
CSNK591	500/1200

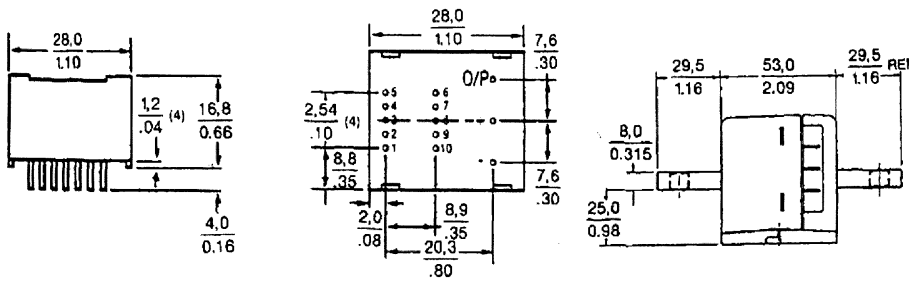
CSN Series / Closed Loop Linear

Installation size (for reference only)

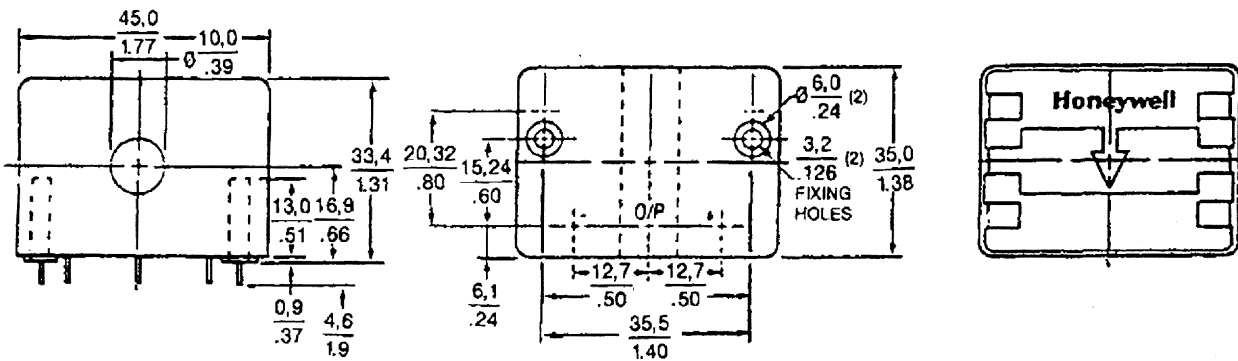
CSNA111 , B121 , B131 , C241



CSNE151



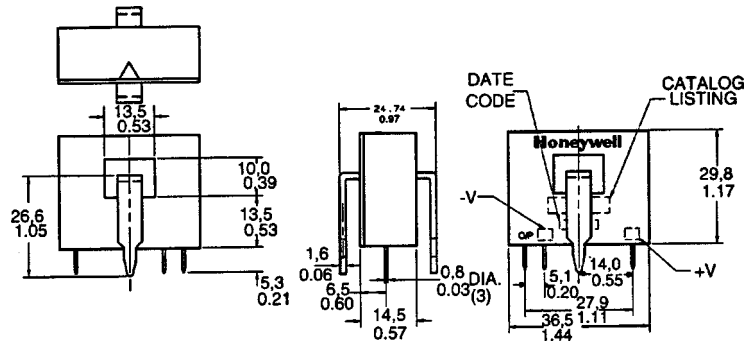
CSNF163/F173



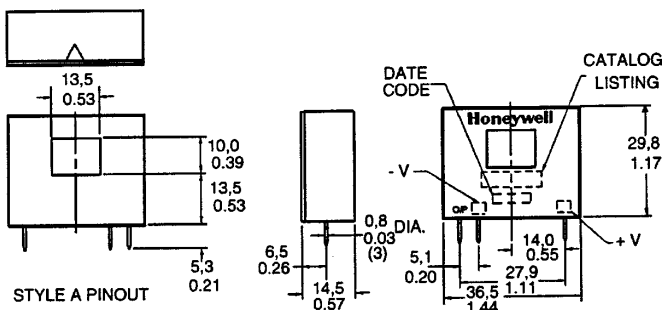
current sensor

CSN series / closed loop, linear

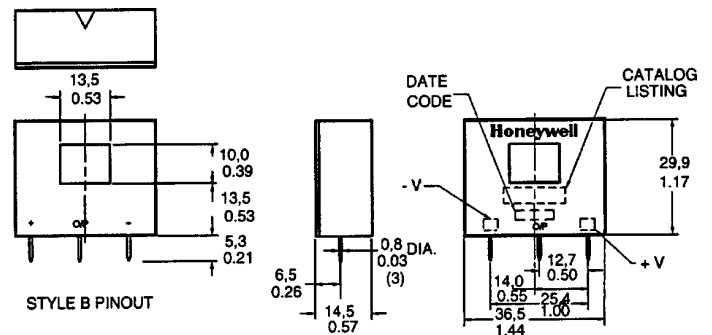
CSNP661 , T651
F161 , F151 , R
161 , R151



CSNP661-002 , CSNT651-002

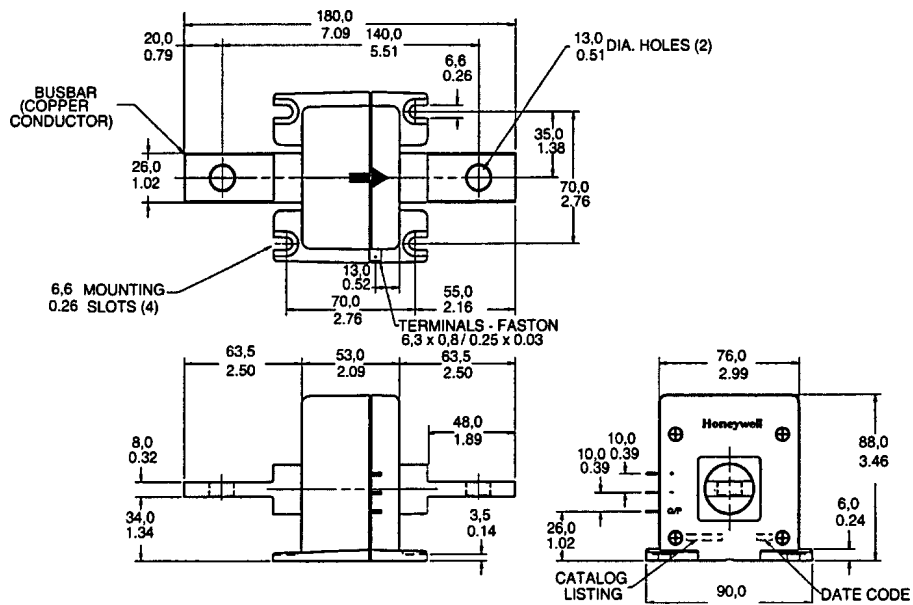


CSNP661/CSNT651



CSNF161/CSNF151/CSNR161/CSNR151
CSNR161-002, CSNF161-002

CSNK591



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