

Signal Isolators / Converters / Splitters

SIG-221D
SIG-351D / SIG-352D
SIG-351T / SIG-352T

Process Precision Instruments
 Vasai Road (E), Dist. Palghar - 401210,
 Maharashtra, India
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Salient Features

- Micro-controller Based Design for User Programmable Input Types, Range & Output Types
- High Resolution, High Accuracy Inputs & Outputs
- Compact, Rugged, Industry-Grade Enclosure
- Versions Available for Variety of Input & Output Types
- Scalable Input & Output Range within Specified Limits for Selected Types
- Built-in Isolated 24VDC/30mA Excitation Supply (Models 351D & 352D)
- 1.5KV AC Isolation between Power Supply, Input & Outputs
- Programmable Burnout (Scale Up / Scale Down)
- Programmable Zero Offset for RTD / Thermocouple Inputs (Models 351T & 352T)
- Built-in Lead Resistance Compensation for RTD Inputs & Cold Junction Compensation for Thermocouple Inputs (Models 351T & 352T)
- Front RS485 Communication Port for Parameter Configuration & I/O Calibration Using Free PC Software Tool
- **Supply Voltage :**
 20~265 V AC / DC (Models 351D, 351T, 352D & 352T)
 18~32 V DC (Model 221D)
- **Din-Rail Mounting (mm) :**
 22(W) X 75(H) X 107(D) (Models 221D)
 35(W) X 75(H) X 107(D) (Models 351D, 351T, 352D & 352T)

General Information

Product Type	Signal Isolators / Converters / Splitters
Ordering Code	SIG-221D : Single mA/V Input Single mA/V Output SIG-351D : Single mA/V Input with 24VDC Excitation Voltage Single mA/V Output SIG-352D : Single mA/V Input with 24VDC Excitation Voltage Dual mA/V Output SIG-351T : Single TC/RTD/mV Input Single mA/V Output SIG-352T : Single TC/RTD/mV Input Dual mA/V Output
Quantity	1 Unit
Accessories	(Optional) USB to RS485 Converter

Signal Isolators / Converters / Splitters

Version Selection

	SIG-221D	SIG-351D	SIG-352D	SIG-351T	SIG-352T
Input Scaleable within selected type & range	V : 0-1.25, 0-5, 0-10, 1-5 mA : 0-20, 4-20			TC : J, K, T, R, S, B, N, E RTD : Pt100 mV : 0-80	
Excitation Voltage	NO	24VDC @ 30 mA		NO	
Output 1 Scaleable within selected type & range	V : 0-5, 0-10, 1-5 mA : 0-20, 4-20, 0-10				
Output 2 Scaleable within selected type & range	NO		V : 0-5, 0-10, 1-5 mA : 0-20, 4-20, 0-10	NO	V : 0-5, 0-10, 1-5 mA : 0-20, 4-20, 0-10
Power Supply	18 ~ 32 VDC	Universal : 20 ~ 265 V AC / DC			
DIN-Rail Mounting (mm)	22(W) X 75(H) X 107(D)		35(W) X 75(H) X 107(D)		

Input Specifications

Type / Range	Refer Version Selection Table Thermocouples : J, K, T, R, S, B, N, E RTD : Pt100, 3-Wire DC mV : 0 to 80 mV DC Volts : 0 to 1.25V, 0 to 5V, 0 to 10V, 1 to 5V DC mA : 0 to 20 mA, 4 to 20 mA
Accuracy	Thermocouples Measurement : $\pm 0.25\%$ of Measured Value ± 1 LSC (Excluding CJC Error) Cold Junction : $\pm 2.5^\circ\text{C}$ (Specified over 18 to 37°C Ambient) RTD Pt100 $\pm 0.25\%$ of Measured Value ± 1 LSC (Lead-Resistance compensated up to 5Ω in each Lead) DC mA / mV / V $\pm 0.20\%$ of Measured Value ± 1 LSC
Range	Thermocouple & RTD Pt100 : Refer Table-1 DC Volts / Current : Settable within Limits Specified for the Selected Input Type
Zero Offset	User Adjustable over Full Range
ADC	16 Bit ($\pm 32,768$ Counts), Sigma-Delta ($\Sigma\Delta$)
Sampling Time	200 mS (5 Samples per Second)
Input Resistance	Thermocouple / RTD Pt100 / mV : Greater than $8\text{ M}\Omega$ Voltage : Approx. $47\text{ K}\Omega$ mA : 120Ω Precision Shunt

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Transmitter Excitation Voltage Output	(Available in Models 351D & 352D) 24VDC \pm 10% / 30mA (Short Circuit Protected) 1500VAC Isolation between Power Supply, OP1 & OP2
Input Protection	ESD : 8KV EFT : 2KV Surge : 1KV
Input Conditioning	First Order Analog R-C Low-Pass Filter with Settable Digital Low-Pass Filter
Isolation	Isolated from Power, Output-1 & Output-2 1500VAC for 1 second or 250VAC continuous

Output Specifications

Type / Range	Refer Version Selection Table DC Volts : 0 to 5V, 0 to 10V, 1 to 5V DC mA : 0 to 20 mA, 4 to 20 mA, 0 to 10 mA
Accuracy	Better than \pm 0.1% of Span
Resolution	Better than 14 Bit
Response Time (Step Change)	150 mS typical for output signal to reach 98% of final value (Actual response time will change with load type / value)
Output Burden	Current : 700 Ω Maximum Voltage : 1 K Ω Minimum
Isolation	Output-1 Isolated from Power, Input & Output-2 1500VAC for 1 second or 250VAC continuous
Sensor Burnout Protection	Selectable : Upscale (Max. Signal Range) or Downscale (Min. Signal Range)
Signal Min/Max Limits	Max : 10% above Signal High Value Min : 10% below Signal Low Value or 0 (whichever is higher)

Power Supply

Type	Switch Mode (SMPS)
Power Requirement	18~32 V DC (Model 221D) 20~265 V AC / DC (Models 351D, 351T, 352D & 352T)
Consumption	4 VA Max @ 24 VDC

Physical

Mounting	DIN-Rail
Overall Dimensions	22(W) X 75(H) X 107(D), mm (Models 221D) 35(W) X 75(H) X 107(D), mm (Models 351D, 351T, 352D & 352T)
Terminals	Screw Type
Weight	400 gm, Appx.

Environmental

Operating Ambient	0 to 55°C & 5 to 90%RH Non-condensing
Storage Temperature	-10 to +70°C
Atmospheres	Not Suitable for use in Corrosive or Explosive Atmospheres. The Panel in which the Instrument is Mounted must be free of Electrically Conductive Pollution.

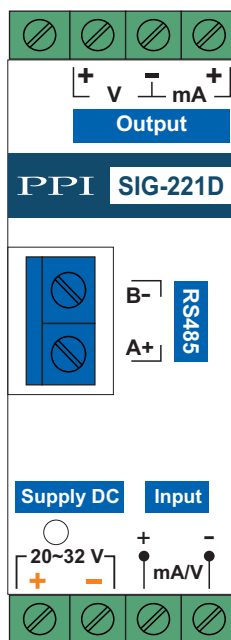
Signal Isolators / Converters / Splitters

TABLE 1

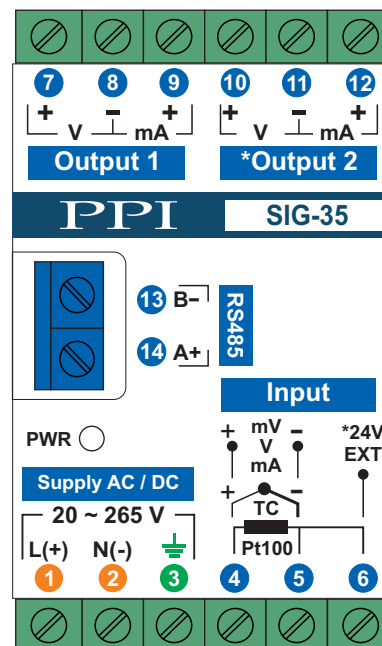
Input Type	Range (Min. to Max.)
2 / 3-wire, RTD Pt100	-199 to +850°C
Type J Thermocouple (Fe-K)	0 to +960°C
Type K Thermocouple (Cr-Al)	-200 to +1376°C
Type T Thermocouple (Cu-Con)	-200 to +387°C
Type R Thermocouple (Pt / Pt-Rh13%)	0 to +1771°C
Type S Thermocouple (Pt / Pt-Rh10%)	0 to +1768°C
Type B Thermocouple (Pt-Rh6% / Pt-Rh30%)	0 to +1826°C
Type N Thermocouple (NiCrSi / NiSi)	0 to +1314°C
Type E Thermocouple (NiCr / Con)	-200 to +1000°C

Electrical Wiring

SIG-221D

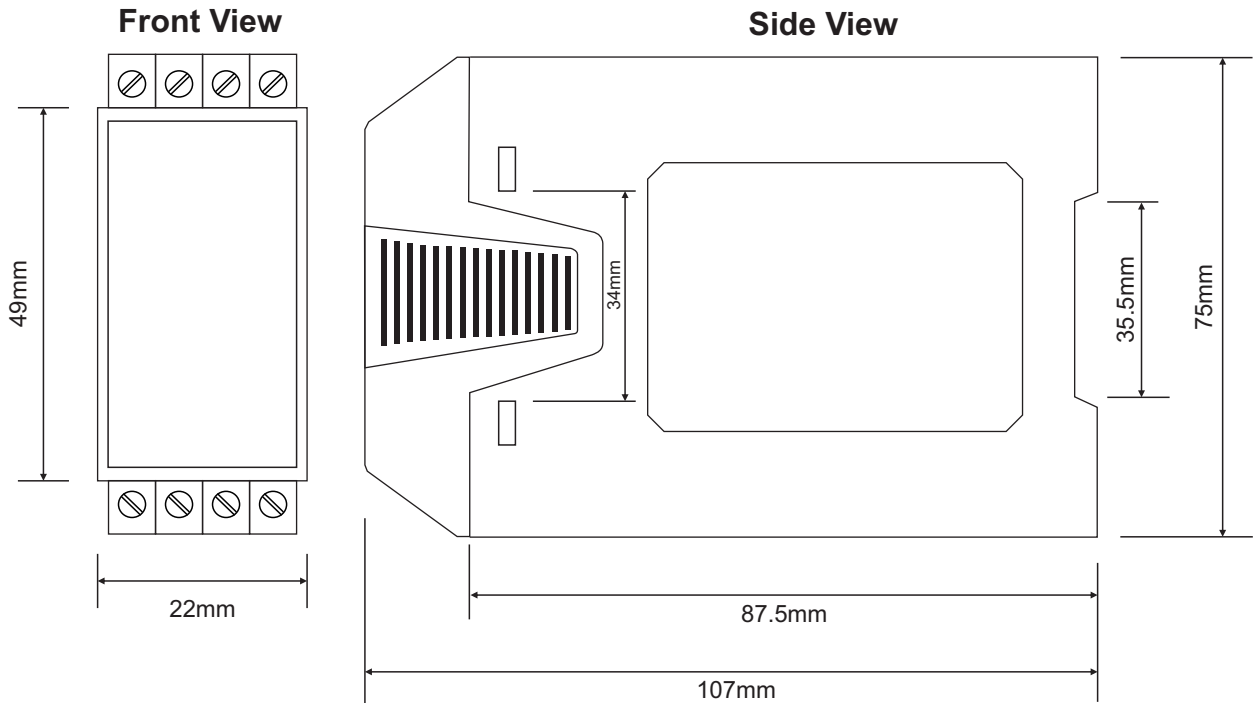


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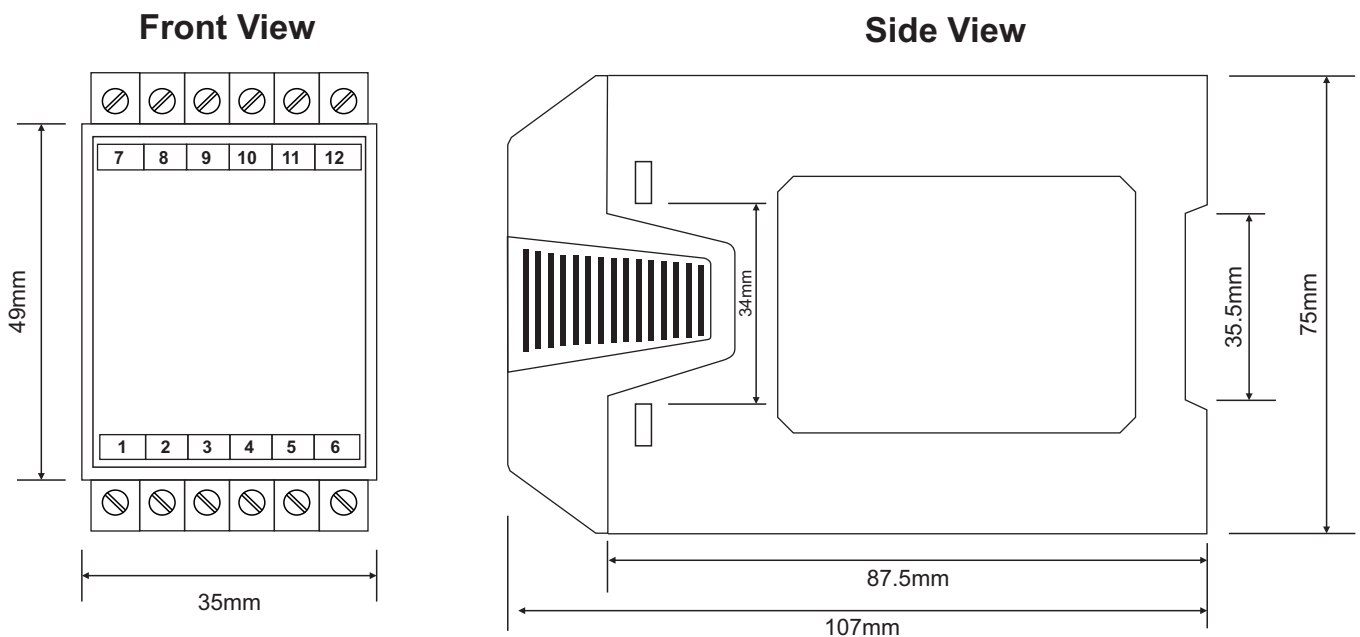
Mechanical Dimensions

SIG-221D



Overall Dimensions : 22(W) X 75(H) X 107(D), mm

SIG-351D / 352D SIG-351T / 352T



Overall Dimensions : 35(W) X 75(H) X 107(D), mm

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PC Configuration Tool

Configurable Parameters

- Input Type with Range Low / Range High
- Input Temperature Range for RTD Pt100 / Thermocouple Inputs
- Zero-Offset for RTD Pt100 / Thermocouple Inputs
- Output 1 & Output 2 Types with Low / High Scaling
- Upscale / Downscale Burnout Setting
- Password Protected User Calibration



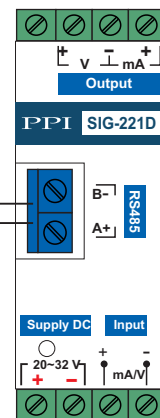
Configuration Tool



USB to RS485 Converter



SIG-221D



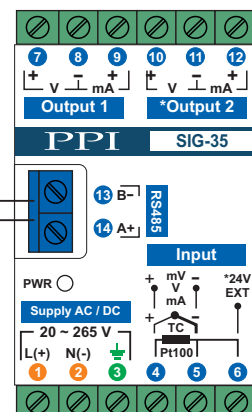
Configuration Tool



USB to RS485 Converter



SIG-351D / 352D SIG-351T / 352T



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