

SIGMA 312 VOLTAGE, RESISTANCE, PT100, STRAIN GAUGE MODULE

Sigma 312



- 10 input channels
- 4 poles per channel
- DC voltage, resistance, PT100 probe and full bridge strain gauge inputs
- Screw terminal connections with cable glands

SPECIFICATION

Full signal conditioning is provided in the Sigma 312 module, enabling any of the following parameters to be connected to any of the 10 channels.

Number of channels : 10
 Poles per channel : 4
 Input connections : Screw terminals with cable glands
 Measurement modes : DC Volts, resistance, PT100 probes and full bridge strain gauge.

DC Voltage

Range : ±10V	Sensitivity : 0.2mV
± 1.5V	25µV
± 180mV	3µV
± 23mV	0.35µV
Accuracy (@23°C) :	±0.015% rdg + 0.1% rng + 6µV
Temp coefficient :	0.0025% rdg + 0.1µV/°C
Additional error :	0.05% rng at 200/sec

PT100

Configuration : 2, 3 or 4 wire
 Accuracy : -50 to 400°C - ±0.2°C
 150 to 600°C - ±0.4°C

Resistance

Configuration : 2 or 4 wire
 Measurement ranges : 2000 , 256 and 23
 Accuracy : 0.03% rdg + 0.015% rng +3m
 Sensing current : 0.75mA pulsed

Strain Gauge

350 bridges
 Accuracy full bridge: 5µE
 Sensitivity at 18 bits 0.2µE (1 active gauge GF=2)
 Energisation : 5mA pulsed

120 bridges
 Accuracy full bridge: 10µE
 Sensitivity at 18 bits 0.6µE (1 active gauge GF=2)
 Energisation : 5mA pulsed

A-D Converter

Resolution	Channels per second	SMR
19 bits	10	>60dB
18 bits	20	>60dB
17 bits	40	>60dB
15 bits	100	0dB
13 bits	200	0dB

Interference rejection

AC common mode rejection ratio (channel group) : >140dB
 AC single channel common mode rejection ratio : >120dB
 DC channel common mode rejection ratio : >108dB
 AC series mode rejection ratio 50 or 60Hz (±0.05%): >60dB

Maximum operating voltages

Max voltage between any + and all - inputs :	12V
Max voltage between any two - inputs :	11V
Max voltage between any two terminals :	22V
Channel overload protection (continuous) :	50V
Isolation between channel group and RS485 :	1500V

Power requirements

Operating voltage :	12 to 28V
Power consumption :	3W

Note: The DC voltage for this module is provided by the Sigma 381 interface and is supplied over the communication cable. No local power supply is required.

System architecture

Communication interface :	RS485
Maximum Baud rate :	153kB
Max number of Sigma modules on network :	99
Maximum length of network :	1Km

General

Connection for comms and power in :	5 pin connector
Connection for comms and power out :	5 pin connector
Connection for local display :	5 pin connector
Status lights :	Power & comms

Operating Conditions

Temperature range :	-20 to +70°C
Relative humidity (0 to 40°C) :	<90%
Vibration (0 to 400Hz) :	3g in 3 planes

Mechanical

Casing :	Aluminium sealed to IP55
Size (w x d x h) :	250 x 215 x 68mm
Weight :	1.8 Kg

Accessories

Cable plug for communications and power in
 Cable plug for communications and power out
 Dust cap for local display socket