

Alpha 911

VOLTAGE AND CURRENT
INPUT MODULE



What is the Alpha 911 Voltage and Current Input Module?

The 911 provides 20 channels of voltage and current measurement at up to 19 bit resolution and 1uV integrity. It can be used to measure standard 4-20mA current loops and has a number of internal current shunts for this purpose. The number of channels committed to current measurement is determined when the module is built. Each channel has independent calibration parameters. Without current shunts fitted, this module provides voltage measurement at lower cost than the 910 with the added convenience of disconnectable screw terminals. External current shunts can be used but accuracy is dependent on the integrity of connection and shunt used. The module is fitted with high quality cage clamp, two part screw terminals for all connections. The module can be programmed to integrate signals to be measured over one or more complete supply cycles (50 - 60 Hz) allowing the 911 to reject large levels of mains borne interference super imposed on microvolt signals. A choice of integration times and a digital filter that can be applied to any channel., together with the high stability circuitry achieve excellent noise performance and rejection.

The 911 supports an automatic range selection facility that enables maximum measurement sensitivity to be maintained for inputs that cross range thresholds. Measurements are made continuously and can be returned in one of several formats most convenient for the user software. Communications data rates up to 153.6KB are supported. All programming is stored in Flash memory.

AUXILIARY INPUT/OUTPUTS

The 911 has three digital outputs and one digital input that can be used by a host for general purpose I/O or internally by firmware for a local function. Example uses include synchronisation to an external signal, local indication of events or status of input signals. Specific function can be easily programmed for custom applications.



Features

Voltage and Current measurements in compact DIN rail module.

20 Channels per Module

13 to 19 bit resolution.

10 to 200 measurements per second

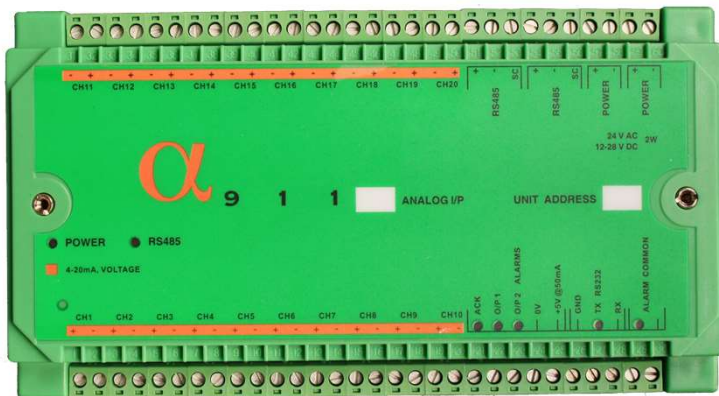
Programmable Measurement Types

Auxiliary I/O

Scaling, alarm levels, filter functions

Second local programming and diagnostic interface.

High speed communications



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Specifications Details

Number of channels / module:	20
Number of poles / channel:	2
Connector type input channel:	Cage clamp two part screw terminal
Measurement modes:	uV DC mV DC current 4-20 mA

A-D Converter

5 Measurement resolutions are supported:	19 bits at 10 measurements/s 18 bits at 20 measurements/s 17 bits at 40 measurements/s 15 bits at 100 measurements/s 13 bits at 200 measurements/s
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In addition a channel filter function can be applied to any channel. This can average the most recent four measurements.

Voltage Measurement

Input voltage ranges	+10V to-10V +1.5V to-1.5V +180mV to-180mV +23mV to-23mV
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Automatic range selection is supported.

DC measurement accuracy	+/- 0.015% of reading + 0.01% of range + 6uV
Temperature coefficients DC voltage	25ppm rdg + 0.1uV/ ° C and ° F
Measurement sensitivity	<0.5uV on +23mV>-23mV range at 17bits

Note: Displayed sensitivity depends on reporting format. Additional error at 200/sec mode of 0.06% of range.

Current Measurement

Ranges:	4-20 mA 0 →/-20mA 0→/-2.5mA
Accuracy:	+/-0.1% (internal shunts)
Resolution:	0.3 uA at 17bit On 20mA range

Interference Rejection

AC Common mode rejection ratio channel group:	<0.1uV/V
AC Single channel common mode rejection ratio:	<1uV/V
DC channel common mode rejection ratio:	<5uV.V
AC series mode rejection ratio 50 or 60 Hz +/- 0.05% (Applies to 17,18,19 bit measurements).	<1 mV/V
Maximum voltages operating:	
Max. voltage between any (+) and (-) inputs:	12V
Max. voltage between any two (-) input terminals:	11V
Max. voltage between any two terminals:	22V

Overload Protection

Channel Overload Protection	Passive 50V continuous 150V for short periods
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Isolation

Isolation test voltage between channel group and power supply or RS485:	Tested at 1500V at normal temperature and humidity
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Auxiliary Channel Specification:

Output switch ratings: Outputs 1,2:	50mA @ 28VDC max Non isolated Suitable for driving small relays with isolated external supply.
Output 3 Relay outputs:	1.0A at 48V AC/DC
Digital input:	Contact closure to 0v External switch must be isolated

Power Requirement

Connector	2-pole screw terminal
Voltage	24V AC 12 to 28V DC
Current	200mA at 12V 120mA at 24V

General

RS485 INTERFACE	Standard specification Baud rates to 153KB supported
RS232 INTERFACE	RS232 Compatible Signals RX TX 0 to 5-volt signal levels 9k6, 19k2, 38.4k Baud 8 bits, even parity, one stop bit 3 pole screw connector
STATUS LED's	7
Function	Power / Fault Communication RS485 Communication RS232 Outputs 1-3 Dig. Input 1
Size	180*100*40mm
Weight	400g
Mounting	DIN rail Stackable
Operating Temperature Range	-20 to 70°C
Relative Humidity (noncondensing)	<90% 0 to 40°C
Vibration	3g 0hz to 400Hz in 3 planes
Programming storage	Secure flash memory

Stated Accuracy's are at 23° C