Analog To Resistance v2 ATR167

DESCRIPTION

The ATR167 can convert most process signals into a simulated resistance output along with 3-way galvanic isolation up to 2000V rms between input signal, resistance output and power supply. The conversion technique is analogue thus providing infinite resolution. Typical application include:

- Convert a thermocouple to RTD signal to match dissimilar existing equipment
- Automatic gain control.

The output signal level is indicated by a green LED on the front of the module, giving a clear indication of module function, signal presence and loop condition for current outputs. Various power supply choices are available ranging from 240Vac down to 8Vdc. All provide power isolation and surge protection.

General Specifications

|	
Size:	52 W x 70 H x 110 D (mm).
Housing material:	ABS.
Mounting:	DIN-Rail, gear plate.
Termination:	Screw terminals on front Terminal covers standard.
Protection class:	IP40.
Weight:	0.370 kg.
Accuracy:	0.15% of span.
Front 'OFFS' adjust:	±20% typical
Front 'SPAN' adjust:	±20% typical
Linearity:	0.2% of span.
Repeatability:	0.1% of span.
Response time (input/output):	0.5 sec for T90 standard 0.06 seconds selectable 10 milliseconds selectable.
Output response time:	$\cong$ 10mS (This is how quickly the output circuit can simulate resistance in response to changes to excitation in the customer equipment).
Standard Input Impedance:	51Ω (20mA/10mA range). 1kΩ (1mA range). 2M7Ω (10V/5V range). 560kΩ (2V/1V range).
Temperature effect:	0.025% per °C.
Operating temp. range:	-10...-60°C.
Storage temp. range:	-20...+70°C.
Input/output isolation:	>2kVrms.
Power requirements:	3W.
Electromagnetic compatibility:	Complies with AS/NZS 4251.1 (EN 50081.1)
Minimum output resistance:	$\cong$1% of range.
Resolution:	Continuous.
Maximum applied voltage:	5V peak (dc – 100Hz).

Maximum current: $= \dfrac{5V}{max\_resistance\_of\_range}$ not exceeding 5mA

Minimum current: $= \dfrac{50mV}{max\_resistance\_of\_range}$ for reasonable stability.

Maximum and minimum current sinking depends on range ordered, typical values are:

Range	Max Current	Min Current
1MΩ	5µA	50nA
100kΩ	50µA	500nA
10kΩ	500µA	5µA
5kΩ	1mA	10µA
1kΩ	5mA	50µA
100Ω	5mA	500µA

Block Diagram
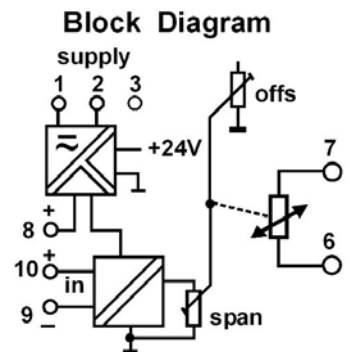
The output resistance range cannot be zero based. Output minimum should not be smaller than 1% of output maximum. eg 10….1000Ω.

Output can simulate Pt100 RTD e.g. 100.0-138.5Ω equates to 0-100°C.

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A.P.C.S.

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TYPE NO. DESIGNATION

Power Supply:

  1 = 90-280Vac 50/60Hz (65-280Vdc).   *) 6 = 8 - 60Vdc.
*) 3 = 16-48Vac 50/60Hz (10-60Vdc)   *) 9 = Other specify.

Input:

  01 = Process link table 1.
*) 02 = Millivolt link table 2.
*) 03 = RTD.
*) 04 = Thermocouple.
*) 05 = Frequency. Calibration range 0 - 10Hz...0 - 5kHz   (Sine, Triangle)
         Sensitivity: 200mVpp. (70mV rms) min. 22Vpp. max (Square, Pulse).
*) 06 = Pulse input from NAMUR proximity sensor or passive device (contact, open collector).
         Auxiliary supply of 8Vdc at terminal 8, other data as option 05.
*) 07 = Bipolar / millivolt. (±0.5mV to ±2kV bipolar) (1mV to 2kV unipolar).
         It may be more cost effective to use an alternate range.
*) 08 = Resistance (constant current excitation).
*) 09 = Potentiometer 3W voltage excited.
*) 99 = Other specify.

> Specify type of sensor and calibration details.

Output:

  1 = Resistor specify.

Options:

  00 = None.
*) 08 = Customised response time.
*) 99 = Other specify.

*) = Price Extra.

Process link table 1 SW1

Input	1	2	3	4	5	6	7	8
4-20mA		X	X	X				X
0-1mA	X		X	X			X	
0-10mA		X	X	X	X		X	
0-20mA		X	X	X			X	
0-1V			X	X			X	
0-2V			X				X	
0-5V				X			X	
1-5V				X				X
0-10V							X	

Millivolt link table 2 SW1

Input	1	2	3	4	5	6	7	8
0-20mV			X	X	X	X	X	
0-40mV			X	X	X			
0-50mV			X	X	X		X	
0-60mV			X	X		X		
0-75mV			X	X		X	X	
0-100mV			X	X			X	
0-150mV			X		X		X	
0-200mV			X				X	
0-250mV				X	X		X	
0-500mV				X			X	
0-750mV					X		X	
0-1000mV							X	

Response Time Table 3   SW1

Response time	9	10
10msec		
60msec	X	
500msec		X

To change ranges:

1) Disconnect power to unit.
2) Unclip housing lid and withdraw unit from housing.
3) Set the coding plugs as required.
4) Reassemble unit and connect power.
5) Adjust "span" and "offs" pots to recalibrate.
6) Change the label information to the new input/output values.

1-10   SW1 INPUTS
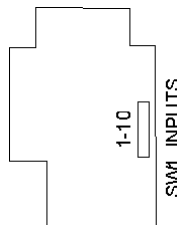
Factory default range: 4-20mA input 0.5 sec Response.