16 Channel PT100/Current Multiplexer   RTM-8

Function: The RTM-8 is a 16 channel multiplexer with 8 channels for 3 wire PT100 sensors and 8 channels for two or four wire transmitter current inputs giving one current output. Each of the PT100 input channels is a complete signal conditioner with a DIP switch array for coarse setting, and, Span and Zero multi-turn potentiometers for fine tuning on each channel. The RTM-8 is designed for multiplexing a number of analogue signals into PLCs and processor based data gathering devices. Channel selection is controlled by a four line address bus and an Enable line. The RTM-8 is an all solid state instrument and transfer time for the selected channel takes less than 20 microseconds.

As noted above, the RTM-8 has an ENABLE control line. When disabled the output is in a High Z state allowing several RTM-8 units to be connected in parallel to the same controller input. The units outputs would be tied together and addressed using the same address bus but with separate ENABLE lines only one of which would be enabled at any one time. The period when the unit is disabled is used for self-testing, according to a self-test procedure which checks the unit's hardware.

SPECIFICATIONS

INPUTS:

RTDs
8 channels of 3 wire PT100 to BS1904

Temperature Range
Zero: −50 to +200ºC
Span: +50 to +750ºC

Current Excitation
Less than 1.1mA

Lead Compensation
Error of ±0.025ºC / 10 ohms lead resistance

Lead Resistance
Maximum 60 ohms (one way)

DC Current
8 channels of two wire or four wire transmitters
0 to 20mA or 4 to 20mA
Maximum input current: 30mA
Reverse polarity protected

Input Impedance
Addition to loop resistance: 350 ohms maximum

OUTPUT:

DC Current
Selected 0 to 20mA or 4 to 20mA

Settling Time
Less than 20 microseconds (resistive load)

Selection
Logic: 4 Address, 1 Enable/Test
Logic Type: True High or True Low (user selectable)
Logic Levels:
 "Low"   < 0.4V
 "High" > 5V <40V

Logic Input Impedance
Greater than 4K ohms

SUPPLY:

Power Supply Voltage
24 Volts DC ±10% (regulated)

Current Consumption
Less than 100mA in operation

Transmitter Current
Limited to 40mA ±2mA

Current Leakage
Unmeasurable when disabled

Fuses
5 x 20mm quick blow
Main Fuse: 150mA

Pilot Light
Yellow LED shows Power ON
Red LED per active current input channel

GENERAL:

Accuracy (including Linearity Hysteresis and Repeatability)
PT100: < ±0.1% of span max
Current: < ±0.1% of span max

Temperature Coefficient
< ±0.1% of span/ △ 10ºC

Operating Temperature Range
0 to +60ºC

Storage Temperature Range
−25 to +85ºC

Operating /Storage Humidity Range
5 to 95% RH non-condensing

Housing
DIN Rail mounting plastic, polycarbonate

Protection Level
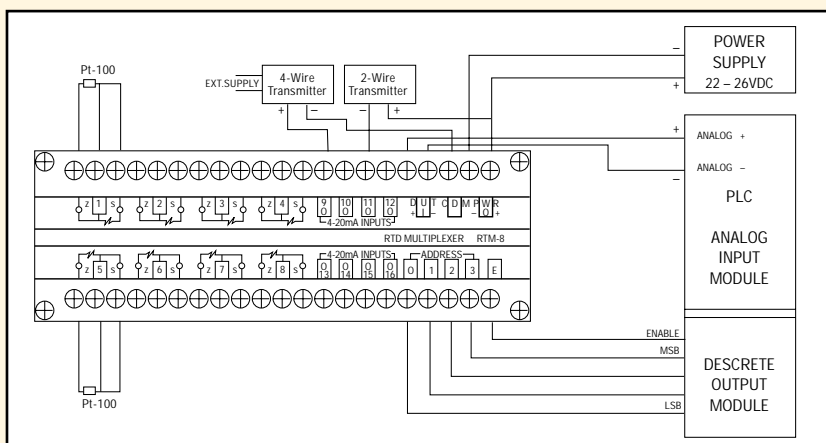Housing: IP50 DIN40050
Terminals: IP20 DIN40050

Weight
850 gms

MECHANICAL DETAILS

For Mechanical Details see page 7.6.

TERMINATION DETAILS

ORDERING DETAILS

(a) Give identification code, i.e. RTM-8
(b) Specify temperature ranges for each of the PT100 channels being used, i.e. Channel 1:
      0 to 200ºC, Channel 2: 0 to 150ºC, etc.