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INTRODUCTION

The Linearized RTD/TC module is flexible for DIN rail mounting and is easily installable. The module has wide input & output ranges, which are field selectable & factory settable as per customer requirement respectively.

SAFETY AND WARNING NOTES

To minimize potential shock, turn off power to module installed in the base before inserting or removing a module.

In order to make safe operation of the device and to be able to make use of all the functions, please read these instructions thoroughly!

The device may only be installed and put into operation by qualified personnel.

SPECIFICATIONS

Input:
No. of Channel : 8
Input (Field Side)* : **RTD**: PT 100 3-wire (0.1 °C)
(Automatic 3 wire Compensation)
TC: E, J, K, T, B, R, S, N (ANSI Standard).
Input Range : Refer Table2
Input Impedance : >1M
Input Resolution : 16 Bits
Burnout Current
for TC : <1uA
CJC Error : +/-2.0Deg.
RTD Excitation
current : 0.3048 mA
Minimum Spans : **TC:** 5 mV
PT100: 50°C
LED Indication : Green Color: Healthy Signal Presence
: Blinking LED: sensor OPEN Indication

Output:
O/P : Voltage / Current
(Module Side) **
O/P range** : Voltage: 0 to 5 V
0 to 10 V
1 to 5 V
Current: 4 to 20 mA
0 to 20 mA
Sensor break o/p* : Upscale / Downscale
Output direction* : Direct / reverse
Response Time : ≤ 500 mili second at full load
Drift : 0.2% per Year
O/P connection ** : MKDS or D type connector.
Load Resistance : ≤750 Ω (for Current)
≥4.7K Ω (for Voltage)
Accuracy : 0.25% Full Span ±1 Degree
O/P Resolution : 0.005% of full span

Power supply:
Power : 24VDC ±10%
Fuse Rating : 2Amp (Fast Blown)
LED Indication : Green LED – Healthy Status
Red LED – Fault Status
Isolation : 1.5KV AC
Input to Power, Input to Input, Output to Power

Environmental:
Operating Temp. : Operating at 0 to 50°C
Tempco : ≤ 150 PPM
Humidity : 30 to 95% RH non- condense
Environmental
Protection : Conformal Coating on PCB
CMRR : >120dB
NMRR : >40dB

Terminal:
Terminal Block : 2.5mm² conductor size

Calibration:
1) Zero and Span calibration through mTRAN
2) CJC for TC type input and 3-wire compensation for RTD sensor is automatic.
3) Instrument Warm up time approx. 30 min

Mechanical:
Size: 225mm x 90mm x 91.3mm
* Selectable through mTRAN configuration software.
**Factory settable as per customer requirement.

Input Type	Input Range
E	-200 to 1000°C
J	-200 to 1200°C
K	-200 to 1370°C
T	-200 to 400°C
B	450 to 1820°C
R	0 to 1750°C
S	0 to 1750°C
N	-200 to 1300 °C
PT100	-200 to 850 °C

Table 2: Input (Field Side)

PRODUCT ORDER CODE

For Input: Pt-100 and Output: 4-20mA with D-Type connector at output side.

Model: MAS-AI-U-08-D-9-1-1

Model	Input Type & Range		Output Type & Range		Output Connection	
MAS-AI-U-08-D	X		X		X	
	1	E	1	4-20mA	0	PCB Terminal Block
	2	J	2	0-20mA	1	D Type Connector
	3	K	3	1-5VDC		
	4	T	4	0-5VDC		
	5	B	5	0-10VDC		
	6	R				
	7	S				
	8	N				
	9	Pt-100				

Table1: Product Ordering Code

At the time of ordering, specify the input range within the ranges as per reference Table 2

CABLE ORDERING CODE		
Model		**Input Type & Range**
m-PC-D25F-LG	XX	
	C	2.5 Meter
	D	3.0 Meter
	E	3.5 Meter
	F	5.0 Meter
	G	7.0 Meter
	S	Special

Note: 20 Core 0.14mm²2 with DB 25 Female connector at one end and lug at another end.

INSTALLATION GUIDELINES

⚠️ This Module is suitable for mounting on 35mm DIN Rail. Note the polarity when connect field wire.

The (horizontal) mounting arrangements shown here, allows good vertical air circulation. It is also recommended to keep adequate gap between two modules.
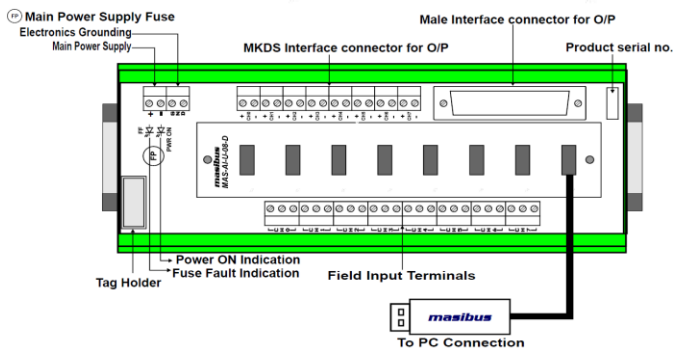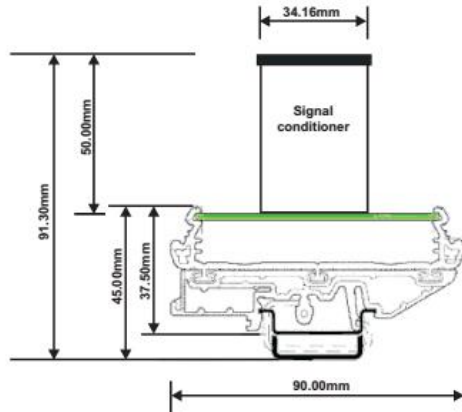
Size: 225.00mm X 90.00mm
Figure1: Mechanical & Mounting with Nomenclature

⚠️ Before wiring, verify the label for correct model no. and options.
Wiring must be suitable for voltage, Current and Temp. rating of the system.
Verify that the ratings of the o/p & i/p as specified.
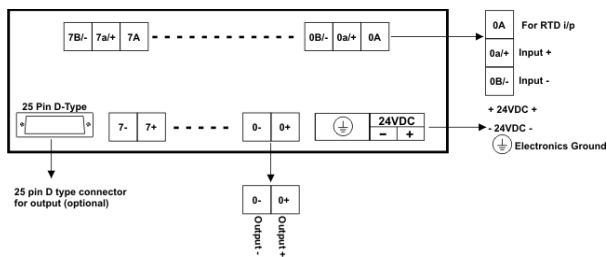
Figure2: Connection Details

CONFIGURATION AND TERMINAL CONNECTION DETAIL

CONFIGURATION

Linearized RTD/TC module is configurable through configuration software "mTRAN".

Configuration and calibration should be done in non hazardous area. Once configuration is done, parameters are changed.

Guidelines for Configuration Software mTRAN version 1.0.1.1

Before making a configuration of module you need to do following:

1. Install the drivers for the USB Interface.
2. Install the PC configuration software mTRAN in your PC.
   Please refer to configuration software manual "m10/om/202" for software and USB driver installation. All software and manuals are included with module, and can also be downloaded from the web site.

Configuration procedure:

1. Connect the module to the PC via the USB Interface.
2. In configuration software four modes are available.

   - Run mode
   - Configuration mode
   - Calibration mode
   - About us

3. Run Mode displays process values, Input Types, Range High, Range Low, Ambient Temperature, Start and stop communication buttons are available in the screen. And User Can Start/Stop communication and select the COM Port from any window.
4. In configuration mode user can read /write IP type, Zero, span, Output Type, Output Sensor and Digital Filter.
5. In calibration mode user can read /write C-Zero, C-Span, Ambient Calibration, output-Zero Calibration and output-Span Calibration.
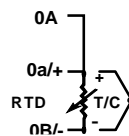6. About us mode shows about software version.

TERMINAL CONNECTION DETAIL
Power Supply:

24 DC+: Positive Terminal Connection
24 DC −: Negative Terminal Connection
⏚ **:** Electronic Ground

Input Connections:

Input terminal connection for Channel 0

Terminal 0A, 0a/+ & 0B/-: For RTD input
Terminal 0a/+ & 0B/- : For TC input

Output Connections:

TERMINAL 0+: OUTPUT +
TERMINAL 0- : OUTPUT −

PC communication is through configuration cable as shown in figure.

**Connection detail for 25 pin D Type connector for output**

Pin No.	Description
1	Output0+
2	Output0-
3	Output1+
4	Output1-
5	Output2+
6	Output2-
7	Output3+
8	Output3-
9	Output4+
10	Output4-
11	Output5+
12	Output5-
13	Output6+
14	Output6-
15	Output7+
16	Output7-

List of accessories (optional)

Sr. No	Description of Accessories	Part No.	Qty
1	Configuration cable	TT7SCC	1
2	mTRAN configuration software CD		1

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BLOCK DIAGRAM & APPLICATION AREA
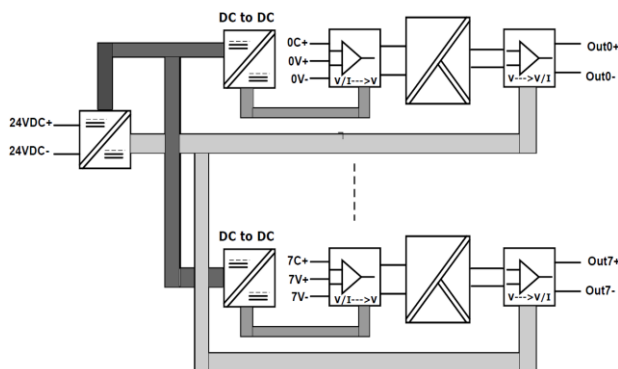
Figure3: Block Diagram

The 8 Channel RTD/TC modules are used in applications like industrial process control, Factory automation, SCADA and DAS.

TROUBLE SHOOTING

Unit not turning on

⚠️ If **RED** LED on the module is ON then problem can be bad connection or due to incorrect rating of power, fuse blows.

If **GREEN** LED on the module is ON, it indicates the module is in healthy condition.

Unstable reading

Check for loose connections.

First verify that all conventional instrumentation norms have been followed for wiring. Make noise away from the module. Check for ripple on power supplies of Input & Output section sections.

Output not matching with the expected value.

Kindly make sure that the output is really incorrect with respect to input signal, before attempting any re-calibration.