

FEATURES

- ✦ Microcontroller based design
- ✦ Configurable through configurator
- ✦ One model for both T/Cs & RTDs
- ✦ Linearisation of T/C and RTD inputs
- ✦ Realistic Cold Junction Compensation
- ✦ Input to output isolation
- ✦ IP-65 weather proof enclosure



About MCP3-TT

Model MCP3-TT is a microcontroller based programmable 2-wire temperature transmitter. The transmitter features universal input capability making it suitable for a variety of thermocouples and RTDs. The programmability and configurability of the transmitter eases calibration and ranging of the instrument for different applications reducing the inventory to one model. The transmitter comes with a configuration socket at the terminal compartment through which a configurator can be linked in order to access/modify the transmitter parameters. The transmitter has an optional LCD display for local indication (Model MCP3-TTI).

Model MCP3-TT transmitter has a rugged design that enhances the operational reliability of the instrument. The transmitter employs a 16-bit A/D converter to accurately process the thermocouple or RTD signals. **MCP3-TT** employs ingenious cold junction compensation technique by sandwiching a semiconductor temperature sensor between the terminals. Hence real terminal temperature of the transmitter is sensed to provide a realistic cold junction compensation. The input and output electronics of the transmitter are optically isolated to offer the best performance for signals from earthed Thermocouples and RTDs.

GENERAL SPECIFICATIONS

Power Supply : 12 - 50V DC,
Two wire Loop power supply.

Operating Temp. : 0 to 70 °C.

Storage Temp. : 0 to 85 °C.

Humidity : 0-95% (Non Condensing).

Housing : Cast aluminium.

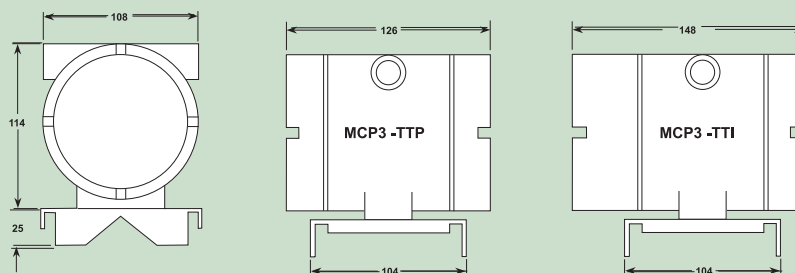
Mounting : Field mountable on 2" pipe.

Connection : Threaded Gland hole

Protection : IP 65.

Ex-Proof : CMRI Certified for Group I, IIA, IIB.

DIMENSIONS : In mm



INPUT

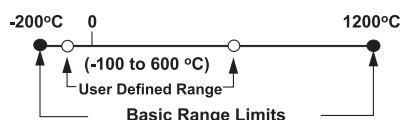
Types and Accuracy

Input ¹	Basic Range ²	Accuracy ³	
		Below 0°C	Above 0°C
T/C-J	-200 to 700 °C	±0.4°C	±0.20°C
T/C-K	-200 to 1200 °C	±0.5°C	±0.25°C
T/C-E	0 to 800 °C		±0.15°C
T/C-T	-200 to 400 °C	±0.2°C	±0.15°C
T/C-R	0 to 1700 °C		±0.60°C
T/C-S	0 to 1700 °C		±0.60°C
T/C-B	200 to 800 °C		±4.0°C
	800 to 1800 °C		±2.0°C
T/C-C	0 to 2320 °C		±1.0°C
T/C-N	-270 to 1300 °C	±0.8°C	±0.30°C
Pt100 (α 385) ⁴	-200 to 850 °C	±0.15°C	±0.15°C
Pt100 (α 392)	-100 to 450 °C	±0.15°C	±0.15°C
Ni-120	-80 to 260 °C	±0.15°C	±0.15°C
Ohms	0 to 400 Ω		±0.06Ω
mV	-10 to 75 mV		±15 μV

Note 1: All T/Cs as per NIST Monograph 125. Range of temperature indicated refers to the working temperature range of respective thermocouple.

Note 2: MCP3-TT output can be made to represent any range defined by the user confined within the basic range in the table.

Example: For Type-K Input the trr can be ranged to any value in between -200°C to 1200°C.



Note 3: Total Accuracy = ADC accuracy + DAC accuracy + CJC error.

Note 4: Pt100 (α 385) conforms to DIN 43760

For Thermocouple and RTD input types not listed in the table, please contact Factory.

INPUT (Continued ...)

Impedance : 10MΩ for mV inputs.
Excitation : 400μA for resistance inputs.
Sensor break : Configurable as Up scale / Down scale.
Filter : Programmable Digital Filter.
Linearisation : Inbuilt thro' software for T/C & Pt-100.
C J C : By sensor embedded in terminals.
C J C error : ± 0.3°C
Temp. drift : ± 100ppm / °C on span.
 ± 100ppm / °C on zero.

OUTPUT

Type : Two wire type 4-20mA.
Limits : 3.8mA and 21mA.
Accuracy : ±0.03% of FS (DAC accuracy only).
Load : 600Ω (max.) at 24V Loop supply.
 1900Ω (max.) at 50V Loop supply.

ISOLATION

Type : Galvanic Isolation by Opto couplers.
Voltage : 600 V DC or AC peak.

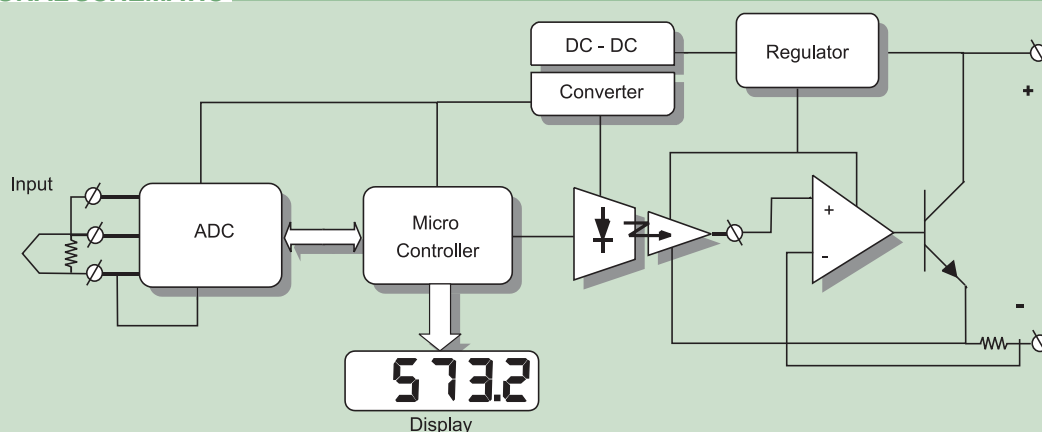
INDICATION (Available in Model MCP3-TTI only)

Type : 3½ digit LCD.

CONFIGURABLE PARAMETERS (THROUGH EASYCON)

Input type : any of the 9 T/Cs, 3 RTDs, mV or Ohms.
Input range : any range within basic range limits.
Input Filter : Time const. configurable up to 10 secs.
Sensor break : Up scale / Down scale.
Calibration : Password protected, Calibration through Configurator. No trimpot adjustments required.

FUNCTIONAL SCHEMATIC



ORDERING INFORMATION

Temperature Transmitter without Indication - Model : MCP3-TTP - E
 Temperature Transmitter with Local Indication - Model : MCP3-TTI - E
 Configurator - Model : Easycon-TT

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Specifications are subject to change without any notice due to continuous development.