



INFORMATION & SPECIFICATIONS DATA SHEET

TEMPERATURE & PROCESS INSTRUMENTS INC

Mp88700H HART® Protocol 2-wire 4 to 20mA Microprocessor Based Temperature Transmitter

2-Wire Microprocessor Based DIN Rail Mount Transmitter with Thermocouple, RTD, mV and Ohms Input

The Mp88700H is the industry's most advanced 2-wire DIN rail mounting microprocessor based temperature transmitter with HART® Protocol. Less than 23 mm (1") wide and mounting on standard DIN rails, it is easily programmed in the field to your exact requirements via an optional "Point N Click" PC based software and provides a simultaneous analog and digital (HART® Protocol) outputs over a single twisted pair of wires.

The Mp88700H transmitter incorporates highly advanced mathematical functions to provide the highest accuracy in the industry - 0.1% of set span. It is scalable over the entire range of 9 RTDs and 12 Thermocouple Types; as well as accepting Millivolt and Resistance inputs. Features include: self-diagnostics, small minimum spans, complete isolation (500Vdc), selectable On/Off linearization; wide power supply capability (10 to 36Vdc); selectable upscale/downscale; total RFI-immunity (DC to 1 GHz.)

You no longer have to stock several different transmitters when a single high accuracy programmable transmitter can meet all of your requirements. The Mp88700H transmitter can be factory configured or can easily be programmed in the field with the optional IF700 programming module and PC based "Point 'n Click" software program in less than one minute, the Mp88700H can be used for all your different sensor and range requirements.



Features

- ▶ Microprocessor-Based, HART® Protocol
- ▶ Universal Input Thermocouples, RTD, millivolts and Ohms
- ▶ Field Programmable with optional Programming Kit and PC Software
- ▶ Fully-Isolated and Linearized
- ▶ RFI/EMI-Immune
- ▶ High Accuracy 0.1%
- ▶ Small Size 0.89" x 2.92" x 3.9 (22.5 x 75 x 99mm)
- ▶ Fits on Standard DIN Rails
- ▶ Ideal for use in High Density Cabinet Applications



IF700 Programming Interface and PC Based Software



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Mp88700H HART® Protocol Microprocessor Based Temperature Transmitter Specifications

Specifications

RTD Input: Pt100, Pt250, Pt500, Pt1000, Ni100, Ni500, Ni1000, Cu10, Cu100
Thermocouple Input Types: K, J, L, T, U, E, R, S, B, C, D, N
Other Inputs: mV and Ohms
Minimum Span: See Table Below
Output: 4 to 20mA or 20 to 4mA and HART Protocol
Linearization: On/Off
Supply **: 10 to 40Vdc, Polarity Protected
Supply Effect: 0.001%/V
Max. Ripple: 10 V PP. Min. Vbat =10Vdc
Zero Drift: ± 0.01%/°C or ±0.02°C/°C
Span Drift: ± 0.005%/°C or ±0.01°C/°C
Long Term Drift: ± 0.05%/Year
Cold Junction Drift: ± 0.01°C/°C
Excitation Current RTD: 0.1mA

Sensor Lead Resistance RTD: 500 Ohm max.
Sensor Lead Resistance Effect: 0.001°C/Ohm
Sensor Lead Resistance T/C: 10,000 Ohm max.
Open Circuit Detection: Upscale/Downscale Programmable
Load Capability: Vbat-10V/20mA
Response Time: <3 sec.
Startup Time: 20 sec.
Warmup Time: 5 Min.
Isolation: 500Vdc.1500Vac
Ambient Operating Temp.: -40 to + 85°C.(-40 to 185°F)
Storage Temperature: -40 to +100°C (-40 to 212°F)
Ingress Protection: IP30
Housing Material: Makrolon
Housing Dimension: 0.89" x 2.92" x 3.9 (22.5 x 75 x 99mm)

| Sensor Type | Temp. Min. °C | Temp. Max. °C | Span Min. °C | Temp. Min. °F | Temp. Max. °F | Span Min. °F |
|------------------------------|------------------|------------------|-----------------|------------------|------------------|-----------------|
| Thermocouple Type | | | | | | |
| J (Fe-CuNi) | -200 | 1200 | 50 | -328 | 2192 | 90 |
| K (NiCr-NiAl) | -270 | 1370 | 50 | -454 | 2498 | 90 |
| T (Cu-CuNi) | -270 | 400 | 50 | -454 | 752 | 90 |
| E (NiCr-CuNi) | -270 | 1000 | 50 | -454 | 1832 | 90 |
| N (Nicrosil-NiSil) | -270 | 1300 | 50 | -454 | 2372 | 90 |
| S (Pt10%Rh-Pt) | -60 | 1760 | 250 | -76 | 3200 | 450 |
| R (Pt13%Rh-Pt) | -60 | 1760 | 250 | -76 | 3200 | 450 |
| B (Pt30%Rh-Pt6%Rh) | 0 | 1820 | 600 | 32 | 3308 | 1080 |
| C (W5%Re-W26%Re) | 0 | 2300 | 150 | 32 | 4172 | 270 |
| D (W3%Re-W25%Re) | 0 | 2300 | 150 | 32 | 4172 | 270 |
| U (DIN Cu-CuNi) | -200 | 600 | 50 | -328 | 1112 | 90 |
| L (DIN Fe-CuNi) | -200 | 900 | 50 | -328 | 1652 | 90 |
| RTD Types | | | | | | |
| Pt100 IEC751 | -200 | 850 | 25 | -328 | 1562 | 45 |
| Pt250 IEC751 | -200 | 850 | 25 | -328 | 1562 | 45 |
| Pt500 IEC751 | -200 | 850 | 25 | -328 | 1562 | 45 |
| Pt1000 IEC751 | -200 | 850 | 25 | -328 | 1562 | 45 |
| Ni100 IEC751 | -60 | 250 | 25 | -76 | 482 | 45 |
| Ni500 IEC751 | -60 | 250 | 25 | -76 | 482 | 45 |
| Ni1000 IEC751 | -60 | 250 | 25 | -76 | 482 | 45 |
| Cu10 | -200 | 250 | 25 | -328 | 482 | 45 |
| Cu100 | -200 | 250 | 25 | -328 | 482 | 45 |
| Process Signals Types | | | | | | |
| mV | 0 | 1000 | 10 | | | |
| Ohm | 0 | 10000 | 100 | | | |

The Mp88700H can be programmed in the field with the optional PC based software and IF-700 Configuration Interface, or can be supplied factory configured. For factory configuration please provide Sensor type, Minimum temperature, Maximum temperature and temperature scale.



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Mp82700H HART® Protocol Microprocessor Based Temperature Transmitter

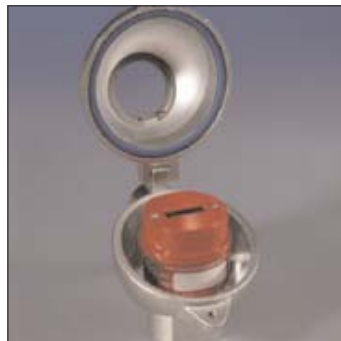
HART® Protocol Commands

| Universal Commands | |
|--------------------------|--|
| 0 | Read unique identifier |
| 1 | Read primary variable (PV) |
| 2 | Read Current and Percent of Range |
| 3 | Read Current and 4 dynamic variables 2 used: input val, CJ |
| 6 | Write polling address |
| 11 | Read unique identifier associated with tag |
| 12 | Read message |
| 13 | Read tag, descriptor, date |
| 14 | Read PV sensor information |
| 15 | Read output information |
| 16 | Read final assembly number |
| 17 | Write message |
| 18 | Write tag, descriptor, date |
| 19 | Write final assembly number |
| Common-Practice Commands | |
| 34 | Write damping value |
| 35 | Write range values |
| 40 | Enter/exit fixed current mode |
| 49 | Write PV sensor serial number |
| 59 | Write number of response preambles |
| Device-Specific Commands | |
| none | |

| Order Information | | List Price |
|-------------------|--|------------|
| Part Number | Description | |
| MP88700H | Microprocessor Based Universal transmitter Un-calibrated. | \$315.00 |
| Accessories | Description | |
| | Factory Configuration provide Sensor Type, Min.Max Temperature and temperature Scale | \$15.00 |
| IF700 | PC Based Interface and Software for field programming | \$80.00 |

* Price Subject to change without notice, please visit our web site for the latest pricing and specifications. All prices Shown in US Dollars.

Companion Mp82700H HART® Protocol Microprocessor Based Head Mounted Temperature Transmitter



Mp82700H Shown with optional DANW connection head and 'D' display.

Features

- ▶ Microprocessor-Based, HART® Protocol
- ▶ Universal Input Thermocouples, RTD, millivolts and Ohms
- ▶ Field Programmable with optional Programming Kit and PC Software
- ▶ Fully-Isolated and Linearized
- ▶ RFI/EMI-Immune
- ▶ High Accuracy 0.1%
- ▶ Small Size (1.7" dia. x 1.1"H)
- ▶ Optional FM or ATEX Approvals
- ▶ Optional Plug-In Display and Protection Head

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<http://www.tnp-instruments.com>

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