



# INFORMATION & SPECIFICATIONS DATA SHEET

TEMPERATURE & PROCESS INSTRUMENTS INC

## Mp82710H HART® Protocol Microprocessor Based Temperature Transmitter with ATEX IS Approval

### 2-Wire Microprocessor Based Head-Mount Transmitter with Thermocouple, RTD, mV and Ohms Input

The Mp82710H is a 2-wire 4 to 20mA head-mounting microprocessor based transmitter with HART® Protocol. Able to fit in a small, standard connection head, it is easily programmed in the field to your exact requirements via the 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 Mp82710H 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 8 RTDs and 12 Thermocouple Types; as well as accepting Millivolt and Resistance inputs. Features include: self-diagnostics; small minimum spans, complete isolation (500 VDC); selectable On/Off linearization; wide power supply capability (10-36 VDC); selectable upscale/downscale; total RFI-immunity (DC to 1 GHz.). It even has an optional plugin loop-powered readout and connection head with window.

You no longer have to stock several different transmitters when a single, low-cost, high accuracy unit can meet all of your requirements. The Mp82710H can easily be programmed in the field with the optional field programming module and PC based "Point 'n Click" software program in less than one minute, the Mp82710H can be used for all your different sensor and range requirements. A DIN-Rail Mount adapter is also available.



### Features

- ▶ Microprocessor-Based, HART® Protocol
- ▶ Universal Input Thermocouples, RTD, millivolts and Ohms
- ▶ Now with ATEX Ex II 1 G Ex ia IIC T4...T6 Ga Approval Standard
- ▶ 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 Plug-In Display and Protection Head



IF700-USB Programming Interface and PC Based Software



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### Specifications

**RTD Input Types:** Pt100, Pt500, Pt1000, Ni100, Ni500, Ni1000, Cu10, Cu100  
**Thermocouple Input Types:** K, J, L, T, U, E, R, S, B, C, D, N  
**Temperature Ranges:** See Table below  
**Minimum Temperature Span:** See Table below  
**Input:** V  
**Input:** Ohm  
**Minimum Span:** See Table Below  
**Output:** 4 to 20mA or 20 to 4mA  
**Linearization:** On/Off  
**Power Supply \*\*:** 10..40 VDC, Polarity Protected  
**Supply Effect:** 0.001%/V  
**Max. Ripple:** 10 V PP. Min Vbat=10 Vdc  
**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:** 0.1 mA  
**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  
**Load Capability:** Vbat-10V/20 mA  
**Response Time:** < 3 sec.  
**Startup Time:** 20 sec.  
**Warmup Time:** 5 Min.  
**Isolation:** 500 VDC/1500 VAC  
**Ambient Operating Temp.:** -40 to + 85°C  
**Storage Temperature:** -40.to +100°C  
**Ingress Protection:** IP30  
**Housing Material:** Zinc Alloy (ZAMAK 5) epoxy coated  
**Housing Dimension:** 43mm Dia. x 27mm H.  
**Housing Dimension with Read-Out:** 43mm Dia. x 36mm H.

Sensor Type	Temp. Min. °C	Temp. Max. °C	Span Min. °C	Temp. Min. °F	Temp. Max. °F	Span Min. °F
<b>Thermocouple Type</b>						
J (Fe-CuNi)	-150	1200	50	-238	2192	90
K (NiCr-NiAl)	-200	1370	50	-328	2498	90
T (Cu-CuNi)	-200	400	50	-328	752	90
E (NiCr-CuNi)	-270	1000	50	-454	1832	90
N (Nicrosil-NiSil)	0	1300	50	32	2372	90
S (Pt10%Rh-Pt)	0	1765	250	32	3209	450
R (Pt13%Rh-Pt)	0	1765	250	32	3209	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)	-100	600	50	-148	1112	90
L (DIN Fe-CuNi)	-150	900	50	-238	1652	90
<b>RTD Types</b>						
Pt100 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
<b>Process Signals Types</b>						
mV	0	1000	10			
Ohm	0	10000	100			

The Mp82710H 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.

