

Mp82710H HART® Protocol Microprocessor Based Temperature Transmitter with Optional 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
- ▶ Optional 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



SPI-MP (IF700-USB) Programming Interface and PC Based Software



INFORMATION & SPECIFICATIONS DATA SHEET

TEMPERATURE & PROCESS INSTRUMENTS INC

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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
Thermocouple Type						
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
RTD Types						
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
Process Signals Types						
mV	0	1000	10			
Ohm	0	10000	100			

The Mp82710H can be programmed in the field with the optional PC based software and SPI-MP (IF-700-USB) 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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ATEX parameters KEMA 03ATEX 1419 X

Mp82710		CE 0344 Ex II 1 G EEx ia IIC T4...T6	
Maximum Ambient Temperature		Temperature Class	
+ 60 °C		T6	
+ 75 °C		T5	
+ 85 °C		T4	
* Supply circuit	KL5 and KL6	Input circuit	KL1...KL4
Ui =	30 V	Uo =	7.2 V
Ii =	100 mA	Io =	58 mA
Pi =	750 mW	Po =	103 mW
Li =	0 mH	Lo =	10 mH
Ci =	0 nF	Co =	13.5 µF

HART® Communication

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

Part Number	Description
MP82710H	Microprocessor Based Universal transmitter Un-calibrated.
Accessories	Description
SPI-MP	Factory Configuration provide Sensor Type, Min.Max Temperature and temperature Scale PC Based Interface and Software for field programming
MP82-DISPLAY	Plug-In Loop-Powered LCD Readout)
DANW	Dome Connection Head with Glass Window

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

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