



Figure similar

SIMATIC ET 200SP HA, ET 200SP, analog ex-i HART input module, Ex-AI 2x1 2-Wire HART, suitable for BaseUnit type X1, channel diagnostics, 16bit, +/-0.3%

General information	
Product type designation	Ex-AI 2x1 2-wire HART
Firmware version	V1.0
<ul style="list-style-type: none"> FW update possible 	Yes
usable BaseUnits	BU type X1
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> Isochronous mode 	No
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version 	V16
<ul style="list-style-type: none"> PCS 7 configurable/integrated from version 	V9.1
<ul style="list-style-type: none"> PCS neo can be configured/integrated from version 	V3.1
<ul style="list-style-type: none"> PROFINET from GSD version/GSD revision 	GSDML V2.35
Operating mode	
<ul style="list-style-type: none"> MSI 	Yes
Redundancy	
<ul style="list-style-type: none"> Redundancy capability 	No
CiR - Configuration in RUN	
Reparameterization possible in RUN	Yes
Input current	
Current consumption (rated value)	74 mA
Current consumption, max.	92 mA; Peak load (all channels in short-circuit)
Encoder supply	
24 V encoder supply	
<ul style="list-style-type: none"> 24 V 	Yes
<ul style="list-style-type: none"> Short-circuit protection 	Yes; Electronic disconnection in case of short-circuit, current limitation from 27 mA
<ul style="list-style-type: none"> Output current per channel, max. 	28 mA
Power loss	
Power loss, typ.	1.2 W
Address area	
Address space per module	
<ul style="list-style-type: none"> Address space per module, max. 	4 byte; + 0/1 byte for QI information
<ul style="list-style-type: none"> Address space per module with HART, max. 	24 byte; + 0/1 byte for QI information
<ul style="list-style-type: none"> Address space per module with MultiHART, max. 	11 byte; + 0/1 byte for QI information
Hardware configuration	
Automatic encoding	
<ul style="list-style-type: none"> Mechanical coding element 	Yes
Selection of BaseUnit for connection variants	

• 2-wire connection	BU type X1
Analog inputs	
Number of analog inputs	2; Differential inputs
• For current measurement	2
Cycle time (all channels), min.	3 ms
Input ranges (rated values), currents	
• 0 to 20 mA	Yes
• 4 mA to 20 mA	Yes; 15 bit + sign
— Input resistance (4 mA to 20 mA)	400 Ω; At 20 mA input current
Cable length	
• shielded, max.	500 m; Ex characteristic values must be observed
• unshielded, max.	300 m; Ex characteristic values must be observed
Analog value generation for the inputs	
Measurement principle	integrating (Sigma-Delta)
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit
• Integration time, parameterizable	Yes; channel by channel
• Interference voltage suppression for interference frequency f_1 in Hz	10 / 50 / 60 Hz
Smoothing of measured values	
• Number of smoothing levels	4; None; 4/8/16 times
• parameterizable	Yes
Encoder	
Connection of signal encoders	
• for current measurement as 2-wire transducer	Yes
— Burden of 2-wire transmitter, max.	750 Ω; At 20 mA input current
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.005 %/K
Crosstalk between the inputs, min.	60 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.05 %
Operational error limit in overall temperature range	
• Current, relative to input range, (+/-)	0.3 %
Basic error limit (operational limit at 25 °C)	
• Current, relative to input range, (+/-)	0.2 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, f_1 = interference frequency	
• Series mode interference (peak value of interference < rated value of input range), min.	60 dB
Protocols	
HART protocol	Yes
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	Yes
Diagnoses	
• Monitoring the supply voltage	Yes
• Wire-break	Yes; channel by channel
• Short-circuit	Yes; channel by channel
• Group error	Yes
• Overflow/underflow	Yes; channel by channel
Diagnostics indication LED	
• MAINT LED	Yes; Yellow LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; red LED
• for module diagnostics	Yes; green/red DIAG LED
Ex(i) characteristics	
maximum values for connecting terminals for gas group IIC	
• U_0 (no-load voltage), max.	26 V

• I _o (short-circuit current), max.	93 mA
• P _o (power output), max.	605 mW
• C _o (permissible external capacity), max.	99 nF
• L _o (permissible external inductivity), max.	4 mH
• U _i (intrinsically safe input voltage), max.	10 V
• U _m (voltage at non-intrinsically safe connecting terminals), max.	60 V

Potential separation

Potential separation channels

• between the channels	No
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	Yes; Electrical isolation between the channels and input voltage PME

Isolation

Isolation tested with	further information on insulation can be found in the "ET 200SP HA / ET 200SP modules for devices in hazardous areas" System Manual
insulation of the field circuits to local ground acc. to IEC/EN 60079-11 tested with	707 V DC (type test)

Ambient conditions

Ambient temperature during operation

• horizontal installation, min.	-40 °C
• horizontal installation, max.	70 °C
• vertical installation, min.	-40 °C
• vertical installation, max.	60 °C

Altitude during operation relating to sea level

• Installation altitude above sea level, max.	2 000 m
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Dimensions

Width	20 mm
Height	73 mm
Depth	58 mm

Weights

Weight, approx.	55 g
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last modified: 4/25/2024 