



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 	STEP 7 V16 or higher with HSP
<ul style="list-style-type: none"> STEP 7 configurable/integrated from version 	STEP 7 V5.6 SP2 or higher
<ul style="list-style-type: none"> PCS 7 configurable/integrated from version 	V9.1
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	
<ul style="list-style-type: none"> 2-wire connection 	BU type X1
Analog inputs	
Number of analog inputs	2; Differential inputs
<ul style="list-style-type: none"> For current measurement 	2
Cycle time (all channels), min.	3 ms
Input ranges (rated values), currents	
<ul style="list-style-type: none"> 0 to 20 mA 	Yes
<ul style="list-style-type: none"> 4 mA to 20 mA — Input resistance (4 mA to 20 mA) 	Yes; 15 bit + sign 400 Ω; At 20 mA input current
Cable length	
<ul style="list-style-type: none"> shielded, max. 	500 m; Ex characteristic values must be observed
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> Resolution with overrange (bit including sign), max. 	16 bit
<ul style="list-style-type: none"> Integration time, parameterizable 	Yes; channel by channel
<ul style="list-style-type: none"> Interference voltage suppression for interference frequency f1 in Hz 	10 / 50 / 60 Hz
Smoothing of measured values	
<ul style="list-style-type: none"> Number of smoothing levels 	4; None; 4/8/16 times
<ul style="list-style-type: none"> parameterizable 	Yes
Encoder	
Connection of signal encoders	
<ul style="list-style-type: none"> for current measurement as 2-wire transducer — Burden of 2-wire transmitter, max. 	Yes 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	
<ul style="list-style-type: none"> Current, relative to input range, (+/-) 	0.3 %
Basic error limit (operational limit at 25 °C)	
<ul style="list-style-type: none"> Current, relative to input range, (+/-) 	0.2 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, $f_1 =$ interference frequency	
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> Diagnostic alarm 	Yes
<ul style="list-style-type: none"> Limit value alarm 	Yes
Diagnoses	
<ul style="list-style-type: none"> Monitoring the supply voltage 	Yes
<ul style="list-style-type: none"> Wire-break 	Yes; channel by channel
<ul style="list-style-type: none"> Short-circuit 	Yes; channel by channel
<ul style="list-style-type: none"> Group error 	Yes
<ul style="list-style-type: none"> Overflow/underflow 	Yes; channel by channel
Diagnostics indication LED	
<ul style="list-style-type: none"> MAINT LED 	Yes; Yellow LED
<ul style="list-style-type: none"> Monitoring of the supply voltage (PWR-LED) 	Yes; green PWR LED
<ul style="list-style-type: none"> Channel status display 	Yes; green LED
<ul style="list-style-type: none"> for channel diagnostics 	Yes; red LED
<ul style="list-style-type: none"> for module diagnostics 	Yes; green/red DIAG LED
Ex(i) characteristics	

maximum values for connecting terminals for gas group IIC	
• U _o (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
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
Dimensions	
Width	20 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	55 g
last modified:	5/20/2021 