## SIEMENS

## Data sheet

## 6DL1134-6TB00-0HX1



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

Figure similar

General information	
Product type designation	Ex-AI 2xI 2-wire HART
Firmware version	V1.0
FW update possible	Yes
usable BaseUnits	BU type X1
Product function	
• I&M data	Yes; I&M0 to I&M3
Isochronous mode	No
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	STEP 7 V16 or higher with HSP
<ul> <li>STEP 7 configurable/integrated from version</li> </ul>	STEP 7 V5.6 SP2 or higher
<ul> <li>PCS 7 configurable/integrated from version</li> </ul>	V9.1
Operating mode	
• MSI	Yes
Redundancy	
<ul> <li>Redundancy capability</li> </ul>	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	
• 24 V	Yes
Short-circuit protection	Yes; Electronic disconnection in case of short-circuit, current limitation from 27 mA
<ul> <li>Output current per channel, max.</li> </ul>	28 mA
Power loss	
Power loss, typ.	1.2 W
Address area	
Address space per module	
Address space per module, max.	4 byte; + 0/1 byte for QI information
<ul> <li>Address space per module with HART, max.</li> </ul>	24 byte; + 0/1 byte for QI information
<ul> <li>Address space per module with MultiHART, max.</li> </ul>	11 byte; + 0/1 byte for QI information
Hardware configuration	
Automatic encoding	
Mechanical coding element	Yes
Selection of BaseUnit for connection variants	
2-wire connection	BU type X1

Analysis         2. Differential liquids           • For current measurement         2           • O to 20 run         3 ms           Impair finders (and a values), currents         400. 20 run           • I to 20 run         400. 20 run           • I to 20 run         400. 20 run           • I maintersetance (in RA to 20 run)         400. 20 run           • I to 20 run         500 m; Ex characteristic values must be observed           • I to 20 run         500 m; Ex characteristic values must be observed           • I to 20 run         500 m; Ex characteristic values must be observed           • I to 20 run         500 m; Ex characteristic values must be observed           • I to 20 run         500 m; Ex characteristic values must be observed           • I to 20 run         500 m; Ex characteristic values must be observed           • I to 20 run         500 m; Ex characteristic values must be observed           • I to 20 run         500 m; Ex characteristic values must be observed           • I to 20 run         500 m; Ex characteristic values must be observed           • I to 20 run         500 m; Ex characteristic values must be observed           • I to 20 run         500 run         500 run           • Execution         500 run         500 run           • Execution in the observed mustobset         500 ru	Analog inputs	
Pictrament reasurement		2; Differential inputs
Oped term (all channels, min.         3 ms           input ranges (ratio Survey).currents         9 to 2 nA           • 0 to 2 nA         Yes           • 1 nA to 20 mA         Yes           • • Indextance (if mA to 20 mA)         400 (P. A 20 mA input current)           • • Indextance (if mA to 20 mA)         400 (P. A 20 mA input current)           • • • Indextance (if mA to 20 mA)         500 m; Ex chanacteristic values must be observed           • • • • • • • • • • • • • • • • • • •		
input registrand values, currents		
• 4 m h b 2 m AYes• 4 m h b 2 m AYes• Indiado, max.400 0. At 20 mA input current• Indiado, max.300 m. Ex characteristic values must be observed• Indiado, max.300 m. Ex characteristic values must be observed• Indiado, max.300 m. Ex characteristic values must be observed• Indiado, max.100 m. Ex characteristic values must be observed• Indiado, max.100 m. Ex characteristic values must be observed• Indiado conversion functional por channelIntegration and conversion functional por channel• Indiado conversion functional por channel10 kin• Indiado conversion functional por channelYes• Indiado conversion functional por channelYes<		
• An Is 20 mA         Yes: 15 bit + sign           - Imput resistance (4 mA to 20 mA)         400 Cr. At 20 mA input current           Cable length         500 m; Ex characteristic values must be observed           • unable dott, max.         300 m; Ex characteristic values must be observed           • unable dott, max.         300 m; Ex characteristic values must be observed           • Analog value generation for the languts         integrating (Sigma-Deta)           • Resployation and correction innehresolution per charanted         integrating (Sigma-Deta)           • Resployation time, parameterizable         Yes; channel by channel           • Integration time, parameterizable         Yes; channel by channel           • Number of smoothing levels         4, None; 4/0/16 times           • aparameterizable         Yes;           • for current measurement as 2-wire transducer         Yes           • for current measurement as 2-wire transducer         Y		Yes
- Input residence (4 mA to 20 mA)         40.0 2, A1 20 mÅ input current           Gabbe length         500 m.E x characteristic values must be observed           - inhidedde, max.         300 m. Ex characteristic values must be observed           Analog value garactarion for the inputs         Integration for the inputs           Measurement principle         Integration for the inputs           Measurement principle         Ves: channel by channel           - Integration for the inputs         Yes: channel by channel           - Integration for the inputs         Yes: channel by channel           - Integration for the inputs         Yes: channel by channel           - Integration for the inputs         Yes: channel by channel           - Integration for the inputs         Yes: channel by channel           - Integration for the inputs         Yes: channel by channel           - Integration for the inputs         Yes: channel by channel           - Integration for the input trange, info         Yes           - Burden of Savie transmitter, max.         750 0; A12 0m A input current           Erroralizecurste         Yes           - Burden of Savie transmitter, max.         750 0; A12 0m A input current           Erroralizecurste         Yes           - Burden of Savie transmitter, max.         750 0; A12 0m A input current           Erro		
Cable implimentation         Soft m. Excharacteristic values must be observed           • unableded, max.         Soft m. Excharacteristic values must be observed           Analog value generation for he inputs         Integration (Sigma Decision)           Messurement principle         Integration (Sigma Decision)           • Resolution with vorrange (Arin Including sign), max.         16 bit           • Integration inter, parameterizable         Yes, channel by channel           • Number of smoothing levels         4. None, 48/16 times           • parameterizable         Yes           • For ofference values supported and the state of the state of the state state of the state state of the state state of the state state state of the state state state state state of the state sta		-
<ul> <li>sholted, max.</li> <li>500 m. Ex characteristic values must be observed</li> <li>Analog value generation for the Inputs</li> <li>Measurement principle</li> <li>integrating (Sigma-Delta)</li> <li>Measurement principle</li> <li>integrating (Sigma-Delta)</li> <li>Integration and convesion time/resolution per channel</li> <li>Resolution with overange (bit incluing sign), max.</li> <li>16 bit</li> <li>integration and convesion time/resolution per channel</li> <li>Ves channel by channel</li> <li>integration and convesion time/resolution per channel</li> <li>interference values</li> <li< td=""><td></td><td></td></li<></ul>		
analog value generation for the inputs           Analog value generation for the inputs           Measurement principle         Integrating (Sigma-Dotta)           Integration and conversion inmovessulution per channel         Yes, channel by channel           Integration time, parameterizable         Yes, channel by channel           Integration time, parameterizable         Yes, channel by channel           Integration and conversion for interference         Yes, channel by channel           Integration of amosthing levels         4, None; 4,18/16 times           - Number of amosthing levels         4, None; 4,18/16 times           - parameterizable         Yes           Encoder         Yes           Connecticut of signal emociens         Yes           - for currer measurement as 2-wire transducer         Yes           - for currer measurement as 2-wire transducer         Yes           - Burden of 2-wire transmitter, max.         750 D; At 20 mA input current           Encoder         0.05 %/K           Consective to input range), (+/-)         0.05 %/K           Consective to input range, (+/-)         0.05 %/K           Consective to input range, (+/-)         0.2 %           Current, relative to input range, (+/-)         0.2 %           Current, relative to input range, (+/-)         0.2 %		500 m. Ex characteristic values must be observed
Analog value generation for the inputs         integration and convesion time/resolution per channel           Measurement principle         integration and convesion time/resolution per channel           • Resolution with overrange (bit including sign), max.         16 bit           • Introgration and convesion time/resolution per channel         Yes, channel by channel           • Interference voltage suppression for interference         10 / 50 / 60 Hz           • Runcher of smoothing levels         4, None; 48/16 times           • parameterizable         Yes           Connection of signal encoders         Yes           • for current measurement as 2-wire transmitter, max.         750 CA. 420 mA input current           Encoder         Connection of signal encoders           • for current measurement as 2-wire transmitter, max.         750 CA. 420 mA input current           Encoder         005 % WK           Connection of signal encoders         005 % WK           Constable between the inputs, min.         60 dB           Proteotics         005 % WK           Constable between the inputs, min.         60 dB           Proteotics         005 % WK           Convert, inclaive to input maps, (+*)         0.3 %           Basic error limit in overall temperature range         00 / %           Convert, inclaive to input maps, (+*)		
Measurement principle         Integrating (Sigma-Delta)           Integration and conversion with overrange (bit including sign), max.         16 bit           Integration time, parameterizable         Yes, channel by channel           Integration time, parameterizable         Yes, channel by channel           Integration and conversion for interference         10 / 50 / 60 Hz           Integration of smoothing levels         4. None, 48/16 times           - parameterizable         Yes           Connection of signal encoders         Yes           Integration (relative to input range), (+2)         0.01 %           Temperature error (relative to input range), (+2)         0.05 %/K           Consection of signal encoders         0.05 %/K           Consection (relative to input range), (+2)         0.05 %           Operational error limit in onewall temperature ange         0.05 %           • Current, relative to input range, (+2)         0.2 %           Interference (relative to input range, (+2)         0.2 %           Interference (relative to input range, (+2)         0.2 %           Interference (relative to input range, (+2) <td></td> <td></td>		
Integration and conversion time/resolution per channel         16 bit           • Resolution with overange (bit including sign), max.         16 bit           • Integration time, parameterizable         Yes; channel by channel           • Integration is and conversion for interference frequency in hex         10 / 50 / 60 Hz           • Number of smoothing terms         4. None; 4/8/16 times           • parameterizable         Yes           • Or current measurement as 2-wire transducer         Yes           • of current measurement as 2-wire transducer         Yes           • Gornection of signal encoders         Yes           • for current measurement as 2-wire transducer         Yes           • Disposition of version transducer regions         Yes           • Corrent (neasure transducer regions)         0.01 %           • Corrent, relative to input range), (+/-)         0.03 %K           • Corrent, relative to input range, (+/-)         0.03 %K           • Corrent, relative to input range, (+/-)         0.2 %           • Current, relative to input range, (+/-)         0.2 %           • Current, relative to input range, (+/-)         0.2 %           • Current, relative to input range, (+/-)         0.2 %           • Interference valtage suppression for f = n x (f + / 1.8), f1 = interference frequency           • Series more interference (easit		integrating (Sigma-Delta)
• Resolution with overange (bit including sign), max.     16 bit       • Integration time, parameterizable     Yes, channel by channel       • Integration time, parameterizable     Yes, channel by channel       • Rondning of measured values     4. None: 4/8/16 times       • parameterizable     Yes       • parameterizable     Yes       • of concern timesurem of as 2-wire transducer     Yes       • of order timesurem of as 2-wire transducer     Yes       • of order timesurem of as 2-wire transducer     Yes       • of order timesurem of as 2-wire transducer     Yes       • of order timesurem of as 2-wire transducer     Yes       • of order timesurem of as 2-wire transducer     Yes       • of concern timesurem of as 2-wire transducer     Yes       • of concern timesurem of (felditive to input range), (+/-)     0.01 %       Temperture error (felditive to input range), (+/-)     0.05 %       • Concernt, felditive to input range, (+/-)     0.3 %       • Basic error timit in overall temperature range     • Current, felditive to input range, (+/-)       • Operational error limit in overall temperature range     • Current, felditive to input range, (+/-)       • Ourrent, felditive to input range, (+/-)     0.2 %       • Interference (geak value of Interference < 6		
Integration time: parameterizable Yes; channel by channel     Interference voltage suppression for interference     Interference voltage suppression for interference velocity     Ves     Nontoring the supply voltage     Ves     Ves	-	16 bit
• Interference values         10 / 50 / 60 Hz           Smoothing of measured values         4, Noney 4/8/16 times           • Number of smoothing levels         4, Noney 4/8/16 times           • parameterizable         Yes           Encoder         Connection of signal encoders           • for current measurement as 2-wire transtucer         Yes           — Burden of 2-wire transmitter, max.         750 (2.120 mA input current <b>Encoder</b> Only %, At 20 mA input current           — Burden of 2-wire transmitter, max.         750 (2.120 mA input current)           Consections         0.005 %/kt           Consections         0.005 %/kt           Consectional encore (relative to input range), (+/-)         0.005 %/kt           Corrent, relative to input range, (+/-)         0.05 %           • Current, relative to input range, (+/-)         0.3 %           Beaic encori limit (operational limit at 25 °C)         0           • Current, relative to input range, (+/-)         0.2 %           Interference values of input range), min.         00 dB           Protocol         Protocol           Protocol         Yes           ARM protocol         Yes           Interference value of input range), min.         Yes           Protocol         Yes <td></td> <td></td>		
Integration of the intra- secondary       Yes         Something of measured values       Yes         • Number of smoothing levels       4; None; 4/8/16 times         • parameterizable       Yes         Connection of signal encoders       Yes         • for current measured values       Yes         - Burden of 2-wite transducer       Yes         - Burden of 2-wite transducer       Yes         - Burden of 2-wite transducer       0.01 %         Consection of negative transple, (+/-)       0.005 % (K         Corosala to thy targe), (+/-)       0.05 %         Operational error (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 valtage suppression for f = n x (f1 +/- 1 %), f1 = interference fequency       •         • Series mode interference (peak value of interference < relative to input range), imit.	•	
Number of smoothing levels         Parameterizable         Parameterizable         Yes         Foroclar         Connection of signal encoders         Purden of z-wire transducer         Purden of input range, (+/-)         0.05 %         Purden of input range, (+/-)         0.2 %         Interference valtage suppression for f = n x (f = z-1 %), f1 = interference frequency         Series mode interference (peak value of interference < frequency         Series mode interference (peak value of interference < frequency         Ves         Purdenod         Purden		107.007.00112
Number of smoothing levels         Parameterizable         Parameterizable         Yes         Foroclar         Connection of signal encoders         Purden of z-wire transducer         Purden of input range, (+/-)         0.05 %         Purden of input range, (+/-)         0.2 %         Interference valtage suppression for f = n x (f = z-1 %), f1 = interference frequency         Series mode interference (peak value of interference < frequency         Series mode interference (peak value of interference < frequency         Ves         Purdenod         Purden	Smoothing of measured values	
Parameterizable		4; None; 4/8/16 times
Connection of signal encoders     Yes       - Burden of 2-write transmitter, max.     750 Q; At 20 mA input current       Errors/accuracies     0.01 %       Linearty error (relative to input range), (+/-)     0.01 %       Crosstalk between the inputs, min.     60 dB       Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)     0.05 %       Crosstalk between the inputs, min.     60 dB       Perperature addy state at 25 °C (relative to input range), (+/-)     0.05 %       Current, relative to input range, (+/-)     0.3 %       Basic error limit (operational inimit at 25 °C)     0.2 %       • Current, relative to input range, (+/-)     0.2 %       Interference values using suppression for t = n.x (t) ++ 1 %). (t) = timetference frequency     60 dB       Potocol     Yes       HART protocol     Yes       Interrupts/dilagnostics/status information     Yes       Diagnostic function     Yes       Alarms     Yes       • Diagnostic status     Yes (schannel by channel       • Diagnostic function     Yes; Yes       • Wirk-brack     Yes; (schannel by channel       • Ordonowinderflow     Yes; (schannel by channel       • Diagnostic function     Yes; Yes (wull LED       • Monitoring the supply voltage     Yes; (schannel by channel       • Ordonowinderflow     Yes; yes (schannel b	-	
• for current measurement as 2-wire transducer Yes     —Burden of 2-wire transmitter, max.     70 02, At 20 mA input current     Forosfaccuracies     Linearly error (relative to input range), (/-)     Loop 5%K     Cosstak between the inputs, min.     60 dB     Repeat accuracy in steady state at 25 °C (relative to input     range), (/-)     Coss %K     Cosstak between the inputs, min.     60 dB     Repeat accuracy in steady state at 25 °C (relative to input     range), (/-)     Coss %K     Cosstak between the inputs, min.     60 dB     Repeat accuracy in steady state at 25 °C (relative to input     range), (/-)     Coss %K     Cosstak between the inputs, min.     60 dB     Repeat accuracy in steady state at 25 °C (relative to input     range), (/-)     0.3 %     Basic error limit in overall temperature range     • Current, relative to input range, (/-)     0.2 %     Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency     • Series mode interference (peak value of input range, f4/-)     Diagnostics function     Yes     HART protocol     Yes     Interrupts//diagnostics/status information     Diagnostic alarm     · Diagnostic alarm     · Diagnostic alarm     Yes     · Umit value alarm     Yes     Diagnostic alarm     · Ves     · Umit value alarm     Yes     · Vire-break     Yes; channel by channel     · Stort-circuit     · Yes (hannel by channel     · Stort-circuit     · Yes; channel by channel     · Stort-circuit     · Yes; Yellow LED     · Monitoring of the supply voltage (PWR-LED)     · Yes; Yellow LED     · Monitoring of the supply voltage (PWR-LED)     · Yes; green PWR LED     · Monitoring of the supply voltage (PWR-LED)     · Yes; green PWR LED     · Yes; green PWR LED		
−− Burden of 2-wire transmitter, max.     750 Ω; At 20 mA input current       Errors/accuracies        Linearity error (relative to input range), (+/-)     0.01 %       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 = nx (f1 +/-1 %), f1 = interference frequency     • Series mode interference (pak value of interference <	Connection of signal encoders	
Errors/accuracies       0.01 %         Linearly error (relative to input range), (+/-)       0.005 %.kK         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       0.05 %         • 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 x (ft +/- 1 %), ft = interference frequency       •         • Series mode interference (peak value of interference < fold B		Yes
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 (noverall temperature range       0.05 %         • Current, relative to input range, (+/-)       0.3 %         Basic error limit (operational limit at 25 °C)       0.2 %         Interference voltage suppression for f = n. X (1 +/- 1 %), f1 = interference frequency       60 dB         • Series mode interference (peak value of interference < 60 dB	— Burden of 2-wire transmitter, max.	750 Ω; At 20 mA input current
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     0.05 %       © Current, relative to input range, (+/-)     0.3 %       Basic error limit (operational limit at 25 °C)     0.2 %       © Current, relative to input range, (+/-)     0.2 %       Interference voltage suppression for 1 = nx (ft +/- 1 %), ft = interference frequency     • Series mode interference (peak value of interference < 60 dB	Errors/accuracies	
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     0.05 %       © Current, relative to input range, (+/-)     0.3 %       Basic error limit (operational limit at 25 °C)     0.2 %       © Current, relative to input range, (+/-)     0.2 %       Interference voltage suppression for 1 = nx (ft +/- 1 %), ft = interference frequency     • Series mode interference (peak value of interference < 60 dB	Linearity error (relative to input range), (+/-)	0.01 %
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       0.05 %         • 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 x (ft +/- 1 %), f1 = interference frequency       • Series mode interference (peak value of interference < frequency		
Repeat accuracy in steady state at 25 °C (relative to input range), (+r)       0.05 %         Operational error limit in overall temperature range       • Current, relative to input range, (+r)       0.3 %         Basic error limit (operational limit at 25 °C)       • Current, relative to input range, (+r)       0.2 %         Interference voltage suppression for f = n x (11 +/-1 %), f1 = interference frequency       • Series mode interference (peak value of interference < 60 dB		
range), (+/-)       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, (+/-)         • Current, relative to input range, (+/-)       0.2 %         Interference voltage suppression for f = n x (f1 +/-1 %), f1 = interference frequency       • Series mode interference (peak value of interference < rated value of input range), min.		0.05 %
• Current, relative to input range, (+/-)       0.3 %         Basic error limit (perational limit at 25 °C)       • Current, relative to input range, (+/-)       0.2 %         Interference voltage suppression for f = n x (ft +/- 1 %), ft = interference frequency       • Series mode interference (peak value of interference < 60 dB		
Basic error limit (operational limit at 25 °C)       0.2 %         Interference voltage suppression for 1 = n x (ft +/- 1 %), ft = interference frequency       6.0 dB         • Series mode interference (peak value of interference        60 dB         Protocols       60 dB         HART protocol       Yes         Interrupts/dlagnostics/status information       Yes         Diagnostic function       Yes         Alarms       Yes         • Unitiv value alarm       Yes         • Limit value alarm       Yes         • Monitoring the supply voltage       Yes; channel by channel         • Stort-circuit       Yes; channel by channel         • Group error       Yes; channel by channel         • Overflow/underflow       Yes; yes; channel by channel         Diagnostics indication 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; green LED         • for channel diagnostics       Yes; green /ed DIAG LED         Ex(() characteristics       Yes; green /ed DIAG LED         • for channel diagnostics       Yes; green /ed DIAG LED         • for channel diagnostics       Yes; green /ed DIAG LED	Operational error limit in overall temperature range	
• Current, relative to input range, (+/-)       0.2 %         Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency       60 dB         • Series mode interference (peak value of interference < rated value of input range), min.	<ul> <li>Current, relative to input range, (+/-)</li> </ul>	0.3 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency       60 dB         Series mode interference (peak value of interference < rated value of input range), min.	Basic error limit (operational limit at 25 °C)	
• Series mode interference (peak value of interference < 60 dB	• Current, relative to input range, (+/-)	0.2 %
rated value of input range), min.         Protocols         HART protocol       Yes         Interrupts/diagnostics/status information       Yes         Diagnostic function       Yes         Alarms       Yes         • Diagnostic alarm       Yes         • Limit value alarm       Yes         Diagnoses       Yes         • Monitoring the supply voltage       Yes; channel by channel         • Short-circuit       Yes; channel by channel         • Group error       Yes; channel by channel         • Overflow/underflow       Yes; channel by channel         Diagnostics indication LED       Yes; yellow LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green PWR LED         • Channel status display       Yes; green LED         • for or module diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED         • for module diagnostics       Yes; green //ed DIAG LED         Ex(i) characteristics       Yes; green //ed DIAG LED         • Limit values for connecting terminals for gas group IIC       Vuo (no-load voltage), max.	Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interfe	rence frequency
Protocols         HART protocol       Yes         Interrupts/diagnostics/status information       Yes         Diagnostic function       Yes         Alarms       •         • Diagnostic alarm       Yes         • Limit value alarm       Yes         Diagnoses       •         • Monitoring the supply voltage       Yes; channel by channel         • Short-circuit       Yes; channel by channel         • Group error       Yes; channel by channel         • 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; rest LED         • for channel diagnostics       Yes; green LED         • for module diagnostics       Yes; green ret LED         • for module diagnostics       Yes; green/red DIAG LED         Ex(i) characteristics       Yes; green/red DIAG LED         maximum values for connecting terminals for gas group IIC       • Uo (no-load voltage), max.		60 dB
HART protocol       Yes         Interrupts/diagnostics/status information       Diagnostics function         Diagnostics function       Yes         Alarms       • Diagnostic alarm         • Diagnostic alarm       Yes         • Limit value alarm       Yes         Diagnoses       Yes         • Monitoring the supply voltage       Yes; channel by channel         • Short-circuit       Yes; channel by channel         • Group error       Yes         • Overflow/underflow       Yes; channel by channel         Diagnostics indication LED       Yes; Yellow 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 channel diagnostics       Yes; green/red DIAG LED         Ex(I) characteristics       Yes; green/red DIAG LED         maximum values for connecting terminals for gas group IIC       • Uo (no-load voltage), max.		
Interrupts/diagnostics/status information         Diagnostics function       Yes         Alarms       • Diagnostic alarm         • Diagnostic alarm       Yes         • Limit value alarm       Yes         Diagnoses       Yes         • Monitoring the supply voltage       Yes         • Monitoring the supply voltage       Yes; channel by channel         • Short-circuit       Yes; channel by channel         • Group error       Yes; channel by channel         • Overflow/underflow       Yes; channel by channel         Diagnostics indication LED       Yes; yes; channel by channel         • Monitoring of the supply voltage (PWR-LED)       Yes; green PWR LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • for channel diagnostics       Yes; red LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; green //red DIAG LED         Ex(i) characteristics       Yes; green/red DIAG LED         maximum values for connecting terminals for gas group IIC       Uo (no-load voltage), max.		
Diagnostics function       Yes         Alarms       • Diagnostic alarm       Yes         • Limit value 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; channel by channel         • Overflow/underflow       Yes; channel by channel         Diagnostics indication LED       Yes; yellow LED         • MAINT LED       Yes; green PWR LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • for channel diagnostics       Yes; red LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; green/red DIAG LED         Ex(i) characteristics       Yes; green/red DIAG LED         maximum values for connecting terminals for gas group IIC       Uo (no-load voltage), max.	·	Yes
Alarms       Yes <ul> <li>Diagnostic alarm</li> <li>Limit value alarm</li> <li>Yes</li> <li>Diagnoses</li> <li>Monitoring the supply voltage</li> <li>Yes; channel by channel</li> <li>Short-circuit</li> <li>Short-circuit</li> <li>Yes; channel by channel</li> <li>Group error</li> <li>Yes</li> <li>Overflow/underflow</li> <li>Yes; channel by channel</li> <li>Diagnostics indication LED</li> <li>MAINT LED</li> <li>Yes; Yellow LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Yes; green PWR LED</li> <li>Channel status display</li> <li>Yes; green LED</li> <li>for channel diagnostics</li> <li>Yes; red LED</li> <li>for module diagnostics</li> <li>Yes; green IED</li> <li>Ex(i) characteristics</li> <li>Texationum values for connecting terminals for gas group IIC</li> <li>Uo (no-load voltage), max.</li> <li>26 V</li> </ul>		
• Diagnostic alarmYes• Limit value alarmYesDiagnoses• Monitoring the supply voltageYes• Wire-breakYes; channel by channel• Short-circuitYes; channel by channel• Group errorYes• Overflow/underflowYes; channel by channelDiagnostics indication LEDYes; Yellow LED• MAINT LEDYes; Yellow LED• Monitoring of the supply voltage (PWR-LED)Yes; green PWR LED• Channel status displayYes; green LED• for channel diagnosticsYes; red LED• for channel diagnosticsYes; green //ed DIAG LEDEx(i) characteristicsYes; green //ed DIAG LEDmaximum values for connecting terminals for gas group IIC26 V		Yes
• Limit value alarm       Yes         Diagnoses       Yes         • Monitoring the supply voltage       Yes; channel by channel         • Wire-break       Yes; channel by channel         • Short-circuit       Yes; channel by channel         • Group error       Yes         • Overflow/underflow       Yes; channel by channel         Diagnostics indication LED       Yes; Yellow 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; green LED         • for module diagnostics       Yes; green LED         • for module diagnostics       Yes; green LED         • for nondule diagnostics       Yes; green LED         • for nondule diagnostics       Yes; green LED         • for nondule diagnostics       Yes; green/red DIAG LED <b>Ex(i) characteristics</b> Yes; green/red DIAG LED         • Uo (no-load voltage), max.       26 V		
Diagnoses       Yes         Monitoring the supply voltage       Yes         Wire-break       Yes; channel by channel         Short-circuit       Yes; channel by channel         Group error       Yes; channel by channel         Overflow/underflow       Yes; channel by channel         Diagnostics indication LED       Yes; channel by channel         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       Yes; green JUAG LED         maximum values for connecting terminals for gas group IIC       Uo (no-load voltage), max.	-	
<ul> <li>Monitoring the supply voltage</li> <li>Wire-break</li> <li>Short-circuit</li> <li>Short-circuit</li> <li>Group error</li> <li>Overflow/underflow</li> <li>Yes; channel by channel</li> <li>Overflow/underflow</li> <li>Yes; channel by channel</li> <li>Diagnostics indication LED</li> <li>MAINT LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Yes; green PWR LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Yes; green LED</li> <li>for channel diagnostics</li> <li>Yes; red LED</li> <li>for module diagnostics</li> <li>Yes; green/red DIAG LED</li> </ul> Ex(i) characteristics           maximum values for connecting terminals for gas group IIC         26 V		Yes
<ul> <li>Wire-break</li> <li>Wire-break</li> <li>Short-circuit</li> <li>Short-circuit</li> <li>Group error</li> <li>Overflow/underflow</li> <li>Yes; channel by channel</li> <li>Overflow/underflow</li> <li>Yes; channel by channel</li> <li>Diagnostics indication LED</li> <li>MAINT LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Yes; green PWR LED</li> <li>Channel status display</li> <li>Yes; green LED</li> <li>for channel diagnostics</li> <li>Yes; red LED</li> <li>the supply to the su</li></ul>	5	
• Short-circuitYes; channel by channel• Group errorYes; channel by channel• Overflow/underflowYes; channel by channelDiagnostics indication LEDYes; Yellow LED• MAINT LEDYes; Yellow LED• Monitoring of the supply voltage (PWR-LED)Yes; green PWR LED• Channel status displayYes; green LED• for channel diagnosticsYes; red LED• for module diagnosticsYes; green/red DIAG LED• for module diagnosticsYes; green/red DIAG LED• for module diagnosticsYes; green/red DIAG LED• for ondule diagnosticsYes; for ondule diagnostics• for ondule diagnosticsYes; for ondule diagnostics </td <td></td> <td></td>		
• Group errorYes• Overflow/underflowYes; channel by channelDiagnostics indication LED• MAINT LEDYes; Yellow LED• Monitoring of the supply voltage (PWR-LED)Yes; green PWR LED• Channel status displayYes; green LED• for channel diagnosticsYes; red LED• for module diagnosticsYes; green/red DIAG LED• for module diagnosticsYes; green/red DIAG LED• for ondule diagnosticsYes; green/red DIAG LED• Uo (no-load voltage), max.26 V		· ·
• Overflow/underflowYes; channel by channelDiagnostics indication LED• MAINT LEDYes; Yellow LED• Monitoring of the supply voltage (PWR-LED)Yes; green PWR LED• Channel status displayYes; green LED• for channel diagnosticsYes; green LED• for module diagnosticsYes; green/red DIAG LEDEx(i) characteristicsYes; green/red DIAG LED• Uo (no-load voltage), max.26 V	Short-circuit	· ·
Diagnostics indication LED       Ves; Yellow 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         • Uo (no-load voltage), max.       26 V	•	
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     Uo (no-load voltage), max.     26 V		Yes; channel by channel
• Monitoring of the supply voltage (PWR-LED)Yes; green PWR LED• Channel status displayYes; green LED• for channel diagnosticsYes; red LED• for module diagnosticsYes; green/red DIAG LED• Ex(i) characteristicsYes; green/red DIAG LED• Maximum values for connecting terminals for gas group IIC26 V	Ŭ.	
	MAINT LED	
• for channel diagnostics     Yes; red LED       • for module diagnostics     Yes; green/red DIAG LED       Ex(i) characteristics     Imaximum values for connecting terminals for gas group IIC       • Uo (no-load voltage), max.     26 V	<ul> <li>Monitoring of the supply voltage (PWR-LED)</li> </ul>	-
for module diagnostics Yes; green/red DIAG LED  Ex(i) characteristics  maximum values for connecting terminals for gas group IIC     Uo (no-load voltage), max. 26 V		-
Ex(i) characteristics         maximum values for connecting terminals for gas group IIC         • Uo (no-load voltage), max.       26 V	-	
maximum values for connecting terminals for gas group IIC       • Uo (no-load voltage), max.       26 V	-	Yes; green/red DIAG LED
• Uo (no-load voltage), max. 26 V	Ex(i) characteristics	
	maximum values for connecting terminals for gas group IIC	
• Io (short-circuit current), max. 93 mA	<ul> <li>Uo (no-load voltage), max.</li> </ul>	26 V
	<ul> <li>Io (short-circuit current), max.</li> </ul>	93 mA

<ul> <li>Po (power output), max.</li> </ul>	605 mW
<ul> <li>Co (permissible external capacity), max.</li> </ul>	99 nF
<ul> <li>Lo (permissible external inductivity), max.</li> </ul>	4 mH
<ul> <li>Ui (intrinsically safe input voltage), max.</li> </ul>	10 V
<ul> <li>Um (voltage at non-intrinsically safe connecting terminals), max.</li> </ul>	60 V
Potential separation	
Potential separation channels	
between the channels	No
<ul> <li>between the channels and backplane bus</li> </ul>	Yes
<ul> <li>between the channels and the power supply of the electronics</li> </ul>	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 conditions Ambient temperature during operation	
	-40 °C
Ambient temperature during operation	-40 °C 70 °C
Ambient temperature during operation <ul> <li>horizontal installation, min.</li> </ul>	
Ambient temperature during operation <ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> </ul>	70 °C
Ambient temperature during operation <ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> </ul>	70 °C -40 °C
Ambient temperature during operation <ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul>	70 °C -40 °C
Ambient temperature during operation <ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul> Altitude during operation relating to sea level	70 °C -40 °C 60 °C
Ambient temperature during operation <ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul> Altitude during operation relating to sea level <ul> <li>Installation altitude above sea level, max.</li> </ul>	70 °C -40 °C 60 °C
Ambient temperature during operation <ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul> Altitude during operation relating to sea level <ul> <li>Installation altitude above sea level, max.</li> </ul> Dimensions	70 °C -40 °C 60 °C 2 000 m
Ambient temperature during operation         • horizontal installation, min.         • horizontal installation, max.         • vertical installation, min.         • vertical installation, max.         Altitude during operation relating to sea level         • Installation altitude above sea level, max.         Dimensions         Width	70 °C -40 °C 60 °C 2 000 m 20 mm
Ambient temperature during operation         • horizontal installation, min.         • horizontal installation, max.         • vertical installation, min.         • vertical installation, max.         Altitude during operation relating to sea level         • Installation altitude above sea level, max.         Dimensions         Width         Height	70 °C -40 °C 60 °C 2 000 m 
Ambient temperature during operation         • horizontal installation, min.         • horizontal installation, max.         • vertical installation, min.         • vertical installation, max.         Altitude during operation relating to sea level         • Installation altitude above sea level, max.         Dimensions         Width         Height         Depth	70 °C -40 °C 60 °C 2 000 m 