

MANUFACTURER DOCUMENT PACKAGE

# Manufacturer's Manual

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SIEMENS SIMATIC S7

## 6DL1134-6TH00-0PH1

ET 200SP HA HART ANALOG INPUT MODULE

Applicable product family: SIMATIC ET 200SP HA distributed I/O

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6DL1134-6TH00-0PH1.pdf

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SIMATIC ET 200SP HA, analog HART input module, AI 16xI 2-wire HART HA, suitable for terminal block H1, M1, color code CC01, channel diagnostics, 16-bit, +/-0.1%,



| General information                                                                                      |                          |
|----------------------------------------------------------------------------------------------------------|--------------------------|
| Product type designation                                                                                 | AI 16 x I 2-wire mA HART |
| Firmware version                                                                                         | V1.0                     |
| <ul style="list-style-type: none"> <li>FW update possible</li> </ul>                                     | Yes                      |
| Usable terminal block                                                                                    | TB type H1, M1 and N0    |
| Color code for module-specific color identification plate                                                | CC01                     |
| Product function                                                                                         |                          |
| <ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>                                           | Yes; I&M0 to I&M3        |
| Engineering with                                                                                         |                          |
| <ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul> | V16                      |
| <ul style="list-style-type: none"> <li>STEP 7 configurable/integrated from version</li> </ul>            | V5.6                     |
| <ul style="list-style-type: none"> <li>PCS 7 configurable/integrated from version</li> </ul>             | V9.0                     |
| <ul style="list-style-type: none"> <li>PCS neo can be configured/integrated from version</li> </ul>      | V3.0                     |
| <ul style="list-style-type: none"> <li>PROFINET from GSD version/GSD revision</li> </ul>                 | GSDML V2.3               |
| Redundancy                                                                                               |                          |
| <ul style="list-style-type: none"> <li>Redundancy capability</li> </ul>                                  | Yes; With TB type M1     |

## CiR - Configuration in RUN

|                                    |     |
|------------------------------------|-----|
| Reparameterization possible in RUN | Yes |
|------------------------------------|-----|

## Supply voltage

|                                     |        |
|-------------------------------------|--------|
| Rated value (DC)                    | 24 V   |
| permissible range, lower limit (DC) | 19.2 V |
| permissible range, upper limit (DC) | 28.8 V |
| Reverse polarity protection         | Yes    |

## Input current

|                                   |                              |
|-----------------------------------|------------------------------|
| Current consumption (rated value) | 80 mA; without sensor supply |
| Current consumption, max.         | 90 mA; without sensor supply |

## Encoder supply

|                                    |                                                     |
|------------------------------------|-----------------------------------------------------|
| 24 V encoder supply                |                                                     |
| • 24 V                             | Yes                                                 |
| • Short-circuit protection         | Yes; Electronic (response threshold 0.7 A to 1.5 A) |
| • Output current per channel, max. | 0.5 A                                               |
| • Output current per module, max.  | 2 A                                                 |

## Power loss

|                  |                              |
|------------------|------------------------------|
| Power loss, typ. | 4.5 W; without sensor supply |
|------------------|------------------------------|

## Address area

|                                                 |                                                                                                                                  |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Address space per module                        |                                                                                                                                  |
| • Address space per module, max.                | 34 byte; 32-byte inputs and 2 bytes for QI information                                                                           |
| • Address space per module with HART, max.      | 74 byte; 32-byte inputs and 2 bytes for QI information, 40-byte inputs for HART                                                  |
| • Address space per module with MultiHART, max. | 41 byte; 32-byte inputs for HART and 2 bytes for QI information, 6-byte inputs for HART, and 1-byte output for MultiHART command |

## Analog inputs

|                                                                       |                        |
|-----------------------------------------------------------------------|------------------------|
| Number of analog inputs                                               | 16                     |
| permissible input current for current input (destruction limit), max. | 30 mA                  |
| Input ranges (rated values), currents                                 |                        |
| • 0 to 20 mA                                                          | Yes; 16 bit incl. sign |
| — Input resistance (0 to 20 mA)                                       | 250 $\Omega$           |
| • 4 mA to 20 mA                                                       | Yes; 16 bit incl. sign |
| — Input resistance (4 mA to 20 mA)                                    | 250 $\Omega$           |

## Cable length

|                  |                                                                                                                   |
|------------------|-------------------------------------------------------------------------------------------------------------------|
| • shielded, max. | 800 m; with unshielded cables up to 800 m, remember that (external) EMC loads can cause incorrect measured values |
|------------------|-------------------------------------------------------------------------------------------------------------------|

## 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; 15 bit at 0 ... 10 mA and 60 Hz interference suppression                                            |
| • Integration time, parameterizable                                       | Yes; channel by channel                                                                                     |
| Smoothing of measured values                                              |                                                                                                             |
| • parameterizable                                                         | Yes; none, weak, medium, strong, channel-by-channel                                                         |
| Encoder                                                                   |                                                                                                             |
| Connection of signal encoders                                             |                                                                                                             |
| • for current measurement as 2-wire transducer                            | Yes                                                                                                         |
| 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, (+/-)                                 | 0.5 %                                                                                                       |
| Basic error limit (operational limit at 25 °C)                            |                                                                                                             |
| • Current, relative to input range, (+/-)                                 | 0.1 %                                                                                                       |
| Interrupts/diagnostics/status information                                 |                                                                                                             |
| Diagnostics function                                                      | Yes                                                                                                         |
| Alarms                                                                    |                                                                                                             |
| • Diagnostic alarm                                                        | Yes                                                                                                         |
| • Limit value alarm                                                       | Yes; two upper and two lower limit values in each case                                                      |
| Diagnoses                                                                 |                                                                                                             |
| • Monitoring the supply voltage                                           | Yes                                                                                                         |
| • Wire-break                                                              | Yes; channel by channel                                                                                     |
| • Short-circuit                                                           | Yes; Channel-by-channel, short-circuit of the encoder supply to ground or of an input to the encoder supply |
| • 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                                                                                     |
| Potential separation                                                      |                                                                                                             |
| Potential separation channels                                             |                                                                                                             |
| • between the channels                                                    | No                                                                                                          |
| • between the channels and backplane bus                                  | Yes                                                                                                         |
| • Between the channels and load voltage L+                                | No                                                                                                          |

|                                      |                                                                                              |
|--------------------------------------|----------------------------------------------------------------------------------------------|
| Isolation                            |                                                                                              |
| Isolation tested with                | 1 500 V DC/1 min, type test                                                                  |
| Ambient conditions                   |                                                                                              |
| Ambient temperature during operation |                                                                                              |
| • horizontal installation, min.      | -40 °C                                                                                       |
| • horizontal installation, max.      | 70 °C; Observe derating                                                                      |
| • vertical installation, min.        | -40 °C                                                                                       |
| • vertical installation, max.        | 60 °C; Observe derating                                                                      |
| Dimensions                           |                                                                                              |
| Width                                | 22.5 mm                                                                                      |
| Height                               | 115 mm                                                                                       |
| Depth                                | 138 mm                                                                                       |
| Weights                              |                                                                                              |
| Weight, approx.                      | 148 g                                                                                        |
| <b>last modified:</b>                | 12/09/2020  |