



SIMATIC ET 200SP HA, digital input module, DI 16x24VDC HA, suitable for terminal block H1, M1, color code CC01, channel diagnostics

| General information  |  |
|--|--|
| Product type designation   | DI 16x24VDC HA   |
| 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   |
| Operating mode   |  |
| <ul style="list-style-type: none"> <li>DI</li> </ul>   | Yes  |
| <ul style="list-style-type: none"> <li>Counter</li> </ul>  | No   |
| <ul style="list-style-type: none"> <li>Oversampling</li> </ul>   | No   |
| <ul style="list-style-type: none"> <li>MSI</li> </ul>  | No   |
| Redundancy   |  |
| <ul style="list-style-type: none"> <li>Redundancy capability</li> </ul>                                  | Yes; With TB type M1   |
| 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)  | 60 mA; without sensor supply   |
| Current consumption, max.  | 120 mA; without sensor supply  |
| Encoder supply   |  |
| Number of outputs  | 16   |
| Output voltage, min.   | 18.2 V; L+ (-1 V)  |
| Short-circuit protection   | Yes; electronic (response threshold 0.7 A to 1.3 A; for IO redundancy up to 2.6 A) Ensure sufficient low-resistance cable routing to the sensor/actuator in order to attain the response threshold. Depending on the cable cross-section used, there may be constraints regarding the usable length of cable |
| Output current   |  |
| <ul style="list-style-type: none"> <li>up to 60 °C, max.</li> </ul>                                      | 2 A; 1 A when mounted vertically; see derating information in Equipment Manual   |
| <ul style="list-style-type: none"> <li>up to 70 °C, max.</li> </ul>                                      | 1 A; See derating information in Equipment Manual  |
| 24 V encoder supply  |  |

|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• 24 V</li> <li>• Short-circuit protection</li> </ul>  | <p>Yes</p> <p>Yes; electronic (response threshold 0.7 A to 1.3 A; for IO redundancy up to 2.6 A) Ensure sufficient low-resistance cable routing to the sensor/actuator in order to attain the response threshold. Depending on the cable cross-section used, there may be constraints regarding the usable length of cable</p> |
| <ul style="list-style-type: none"> <li>• Output current per channel, max.</li> <li>• Output current per module, max.</li> </ul>   | <p>0.5 A</p> <p>2 A</p>  |
| <b>Power</b>  |  |
| Power available from the backplane bus  | 80 mW  |
| <b>Power loss</b>   |  |
| Power loss, typ.  | 3.6 W; Maximum value (taking the max. encoder current and the max. operating voltage into account)   |
| <b>Address area</b>   |  |
| Address space per module  |  |
| <ul style="list-style-type: none"> <li>• Address space per module, max.</li> </ul>  | 2 byte; + 2 bytes for QI information (additional 18 bytes when using high-precision time stamping)   |
| <b>Hardware configuration</b>   |  |
| Automatic encoding  |  |
| <ul style="list-style-type: none"> <li>• Mechanical coding element</li> </ul>   | Yes  |
| <b>Digital inputs</b>   |  |
| Number of digital inputs  | 16   |
| Digital inputs, parameterizable   | Yes  |
| Source/sink input   | Yes; P-reading   |
| Input characteristic curve in accordance with IEC 61131, type 1   | Yes  |
| Input characteristic curve in accordance with IEC 61131, type 2   | No   |
| Input characteristic curve in accordance with IEC 61131, type 3   | Yes  |
| Pulse extension   | Yes  |
| <ul style="list-style-type: none"> <li>• Length</li> </ul>  | off, 50 ms, 100 ms, 200 ms, 500 ms, 1 s, 2 s   |
| Time stamping   | Yes; Resolution 10 ms  |
| Time stamp (with precision of 1 ms)   | Yes; Resolution 1ms  |
| Edge evaluation   | Yes; rising edge, falling edge, edge change  |
| <b>Input voltage</b>  |  |
| <ul style="list-style-type: none"> <li>• Rated value (DC)</li> <li>• for signal "0"</li> <li>• for signal "1"</li> </ul>  | <p>24 V</p> <p>-30 to +5 V</p> <p>+11 to +30V</p>  |
| <b>Input current</b>  |  |
| <ul style="list-style-type: none"> <li>• for signal "1", typ.</li> </ul>  | 2.5 mA   |
| <b>Input delay (for rated value of input voltage)</b>   |  |
| for standard inputs   |  |
| — parameterizable   | Yes; none / 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms  |
| <b>Cable length</b>   |  |
| <ul style="list-style-type: none"> <li>• shielded, max.</li> <li>• unshielded, max.</li> </ul>  | <p>1 000 m</p> <p>600 m</p>  |
| <b>Encoder</b>  |  |
| Connectable encoders  |  |
| <ul style="list-style-type: none"> <li>• 2-wire sensor</li> <li>— permissible quiescent current (2-wire sensor), max.</li> </ul>  | <p>Yes</p> <p>1.5 mA</p>   |
| <b>Interrupts/diagnostics/status information</b>  |  |
| Diagnostics function  | Yes  |
| <b>Alarms</b>   |  |
| <ul style="list-style-type: none"> <li>• Diagnostic alarm</li> <li>• Hardware interrupt</li> </ul>  | <p>Yes; channel by channel</p> <p>Yes; channel by channel</p>  |
| <b>Diagnoses</b>  |  |
| <ul style="list-style-type: none"> <li>• Diagnostic information readable</li> <li>• Monitoring the supply voltage</li> <li>— parameterizable</li> <li>• Monitoring of encoder power supply</li> <li>• Wire-break</li> <li>• Short-circuit to M</li> </ul> | <p>Yes</p> <p>Yes; Module-wise</p> <p>Yes</p> <p>Yes</p> <p>Yes; Channel-by-channel, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 15 kOhm to 18 kOhm</p> <p>Yes; Encoder supply to M, channel by channel</p>  |
| <b>Diagnostics indication LED</b>   |  |
| <ul style="list-style-type: none"> <li>• MAINT LED</li> </ul>   | 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 LED |

#### 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 | 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  |
| • vertical installation, min.   | -40 °C |
| • vertical installation, max.   | 60 °C  |

#### Dimensions

|        |         |
|--------|---------|
| Width  | 22.5 mm |
| Height | 115 mm  |
| Depth  | 138 mm  |

#### Weights

|                 |       |
|-----------------|-------|
| Weight, approx. | 135 g |
|-----------------|-------|

**last modified:** 11/2/2021 