



SIMATIC DP, POWER M. F-PM-E PPM PROFIsafe, for ET 200SP; 24 V DC safe shutdown of DQ and F-DQ up to PL D/SIL2 or PL E/SIL3 2 for safe dig. inputs 1 for safe dig. output PPM

| General information                                       |                                                     |
|-----------------------------------------------------------|-----------------------------------------------------|
| Product type designation                                  | F-PM-E 24 V DC/8 A PPM ST                           |
| usable BaseUnits                                          | BU type C0                                          |
| Color code for module-specific color identification plate | CC52                                                |
| Product function                                          |                                                     |
| • I&M data                                                | Yes; I&M0 to I&M3                                   |
| Engineering with                                          |                                                     |
| • STEP 7 TIA Portal configurable/integrated from version  | V12                                                 |
| • STEP 7 configurable/integrated from version             | V5.5 SP3 / -                                        |
| • PROFINET from GSD version/GSD revision                  | V2.31                                               |
| Supply voltage                                            |                                                     |
| Rated value (DC)                                          | 24 V                                                |
| permissible range, lower limit (DC)                       | 20.4 V                                              |
| permissible range, upper limit (DC)                       | 28.8 V                                              |
| Reverse polarity protection                               | Yes                                                 |
| Input current                                             |                                                     |
| Current consumption (rated value)                         | 75 mA; without load                                 |
| Current consumption, max.                                 | 21 mA; From the backplane bus                       |
| output voltage / header                                   |                                                     |
| Rated value (DC)                                          | 24 V                                                |
| Encoder supply                                            |                                                     |
| Number of outputs                                         | 2                                                   |
| Short-circuit protection                                  | Yes; Electronic (response threshold 0.7 A to 2.1 A) |
| Output current                                            |                                                     |
| • up to 60 °C, max.                                       | 0.3 A                                               |
| 24 V encoder supply                                       |                                                     |
| • 24 V                                                    | Yes; min. L+ (-1.5 V)                               |
| • Short-circuit protection                                | Yes                                                 |
| • Output current, max.                                    | 600 mA; Total current of all encoders               |
| Power                                                     |                                                     |
| Power available from the backplane bus                    | 70 mW                                               |
| Power loss                                                |                                                     |
| Power loss, typ.                                          | 5 W                                                 |
| Address area                                              |                                                     |
| Address space per module                                  |                                                     |
| • Inputs                                                  | 7 byte                                              |
| • Outputs                                                 | 5 byte                                              |
| Hardware configuration                                    |                                                     |

|                                                                 |                                                             |
|-----------------------------------------------------------------|-------------------------------------------------------------|
| Automatic encoding                                              | Yes                                                         |
| • Electronic coding element type F                              | Yes                                                         |
| <b>Digital inputs</b>                                           |                                                             |
| Number of digital inputs                                        | 2                                                           |
| Source/sink input                                               | Yes; P-reading                                              |
| Input characteristic curve in accordance with IEC 61131, type 1 | Yes                                                         |
| <b>Input voltage</b>                                            |                                                             |
| • Type of input voltage                                         | DC                                                          |
| • Rated value (DC)                                              | 24 V                                                        |
| • for signal "0"                                                | -30 to +5 V                                                 |
| • for signal "1"                                                | +15 to +30 V                                                |
| <b>Input current</b>                                            |                                                             |
| • for signal "1", typ.                                          | 3.7 mA                                                      |
| <b>Input delay (for rated value of input voltage)</b>           |                                                             |
| for standard inputs                                             |                                                             |
| — parameterizable                                               | Yes                                                         |
| — at "0" to "1", min.                                           | 0.4 ms                                                      |
| — at "0" to "1", max.                                           | 20 ms                                                       |
| — at "1" to "0", min.                                           | 0.4 ms                                                      |
| — at "1" to "0", max.                                           | 20 ms                                                       |
| for technological functions                                     |                                                             |
| — parameterizable                                               | No                                                          |
| <b>Cable length</b>                                             |                                                             |
| • shielded, max.                                                | 1 000 m                                                     |
| • unshielded, max.                                              | 500 m                                                       |
| <b>Digital outputs</b>                                          |                                                             |
| Number of digital outputs                                       | 1                                                           |
| Short-circuit protection                                        | Yes                                                         |
| • Response threshold, typ.                                      | > 14.8 A                                                    |
| Open-circuit detection                                          | Yes                                                         |
| • Response threshold, typ.                                      | 8 mA                                                        |
| Overload protection                                             | Yes                                                         |
| • Response threshold, typ.                                      | 8.8 A                                                       |
| Limitation of inductive shutdown voltage to                     | Max. -1.5 V                                                 |
| <b>Switching capacity of the outputs</b>                        |                                                             |
| • with resistive load, max.                                     | 8 A                                                         |
| • on lamp load, max.                                            | 100 W                                                       |
| <b>Load resistance range</b>                                    |                                                             |
| • lower limit                                                   | 3 $\Omega$                                                  |
| • upper limit                                                   | 2 000 $\Omega$                                              |
| <b>Output voltage</b>                                           |                                                             |
| • for signal "1", min.                                          | 24 V; L+ (-0.5 V)                                           |
| <b>Output current</b>                                           |                                                             |
| • for signal "1" rated value                                    | 8 A                                                         |
| • for signal "0" residual current, max.                         | 1.5 mA; PP-switching: max. 1.5 mA; PM-switching: max. 1 mA  |
| <b>Switching frequency</b>                                      |                                                             |
| • with resistive load, max.                                     | 10 Hz; Symmetrical                                          |
| • with inductive load, max.                                     | 0.1 Hz; according to IEC 60947-5-1, DC-13, symmetrical      |
| • on lamp load, max.                                            | 4 Hz; Symmetrical                                           |
| <b>Total current of the outputs</b>                             |                                                             |
| • Current per channel, max.                                     | 8 A; note derating data in the manual                       |
| • Current per module, max.                                      | 8 A; note derating data in the manual                       |
| <b>Cable length</b>                                             |                                                             |
| • shielded, max.                                                | 1 000 m                                                     |
| • unshielded, max.                                              | 500 m                                                       |
| <b>Interrupts/diagnostics/status information</b>                |                                                             |
| Diagnostics function                                            | Yes; See Chapter "Alarms/diagnostic messages" in the manual |
| Substitute values connectable                                   | No                                                          |
| <b>Alarms</b>                                                   |                                                             |

|                                                                |                         |
|----------------------------------------------------------------|-------------------------|
| • Diagnostic alarm                                             | Yes                     |
| • Hardware interrupt                                           | No                      |
| <b>Diagnostics indication LED</b>                              |                         |
| • RUN LED                                                      | Yes; green LED          |
| • ERROR LED                                                    | Yes; red 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 |
| <b>Potential separation</b>                                    |                         |
| <b>Potential separation channels</b>                           |                         |
| • between the channels                                         | No                      |
| • between the channels and backplane bus                       | Yes                     |
| • between the channels and the power supply of the electronics | No                      |
| <b>Isolation</b>                                               |                         |
| Isolation tested with                                          | 707 V DC (type test)    |
| <b>Standards, approvals, certificates</b>                      |                         |
| Suitable for safety functions                                  | Yes                     |
| <b>Highest safety class achievable in safety mode</b>          |                         |
| • Performance level according to ISO 13849-1                   | PLe                     |
| • SIL acc. to IEC 61508                                        | SIL 3                   |
| <b>Ambient conditions</b>                                      |                         |
| <b>Ambient temperature during operation</b>                    |                         |
| • horizontal installation, min.                                | 0 °C                    |
| • horizontal installation, max.                                | 60 °C                   |
| • vertical installation, min.                                  | 0 °C                    |
| • vertical installation, max.                                  | 50 °C                   |
| <b>Dimensions</b>                                              |                         |
| Width                                                          | 20 mm                   |
| Height                                                         | 73 mm                   |
| Depth                                                          | 55 mm                   |
| <b>Weights</b>                                                 |                         |
| Weight, approx.                                                | 70 g                    |

**last modified:** 1/16/2021 