

SIMATIC DP, Electronics module for ET 200S, 1 count 5 V/500 kHz connection of RS422 incremental encoders, operating modes: Measure, Count, 30 mm installation width, 1-channel with clock synchronization



Figure similar

### Supply voltage

#### Load voltage L+

|                                       |        |
|---------------------------------------|--------|
| • 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

|   |       |
|---|-------|
| from load voltage L+ (without load), max. | 45 mA |
| from backplane bus 3.3 V DC, max.         | 10 mA |

### Encoder supply

#### 24 V encoder supply

|                            |                  |
|----------------------------|------------------|
| • 24 V                     | Yes; L+ (-0.8 V) |
| • Short-circuit protection | Yes              |
| • Output current, max.     | 500 mA           |

### Power loss

|                  |     |
|------------------|-----|
| Power loss, typ. | 2 W |
|------------------|-----|

| Hardware configuration  |   |
|---|---|
| <b>Module exchange</b>  |   |
| • Module exchange during operation of the IM-DP                 | Yes   |
| • Module exchange under process voltage                         | Yes   |
| Digital inputs  |   |
| Number of digital inputs  | 1   |
| Functions   | Gate control, synchronization, latch function |
| Input characteristic curve in accordance with IEC 61131, type 2 | Yes   |
| <b>Input voltage</b>  |   |
| • Rated value (DC)  | 24 V  |
| • for signal "0"  | -30 to +5 V                                   |
| • for signal "1"  | +11 to +30V                                   |
| <b>Input current</b>  |   |
| • for signal "0", max. (permissible quiescent current)          | 2 mA  |
| • for signal "1", typ.  | 9 mA  |
| <b>Input delay (for rated value of input voltage)</b>           |   |
| for standard inputs   |   |
| — at "0" to "1", max.   | 2.5 µs  |
| <b>Cable length</b>   |   |
| • shielded, max.  | 50 m  |
| Digital outputs   |   |
| Number of digital outputs                                       | 2   |
| Short-circuit protection  | Yes   |
| • Response threshold, typ.                                      | 2.6 A to 4 A                                  |
| Limitation of inductive shutdown voltage to                     | L+ (-50 to -60 V)                             |
| Controlling a digital input                                     | Yes   |
| <b>Switching capacity of the outputs</b>                        |   |
| • on lamp load, max.  | 10 W  |
| <b>Output voltage</b>   |   |
| • Rated value (DC)  | 24 V  |
| • for signal "0", max.  | 3 V   |
| • for signal "1", min.  | L+ (-1 V)                                     |
| <b>Output current</b>   |   |
| • for signal "1" rated value                                    | 2 A   |
| • for signal "1" permissible range for 0 to 60 °C, min.         | 5 mA  |
| • for signal "1" permissible range for 0 to 60 °C, max.         | 2.4 A   |
| • for signal "0" residual current, max.                         | 0.5 mA  |

|   |   |
|---|---|
| <b>Output delay with resistive load</b>                   |   |
| • "0" to "1", max.  | 100 µs                                  |
| <b>Switching frequency</b>                                |   |
| • with resistive load, max.                               | 100 Hz                                  |
| • with inductive load, max.                               | 2 Hz                                    |
| • on lamp load, max.                                      | 10 Hz                                   |
| <b>Cable length</b>                                       |   |
| • shielded, max.  | 1 000 m                                 |
| • unshielded, max.  | 600 m                                   |
| <b>Encoder</b>  |   |
| Number of connectable encoders, max.                      | 1                                       |
| <b>Connectable encoders</b>                               |   |
| • Incremental encoder (symmetrical)                       | Yes                                     |
| <b>Encoder signals, incremental encoder (symmetrical)</b> |   |
| • Trace mark signals                                      | A, notA, B, notB, A and B offset by 90° |
| • Zero mark signal  | N, notN                                 |
| <b>Encoder signal 5 V</b>                                 |   |
| — Signal level  | to RS-422                               |
| — Terminating resistor                                    | 330 Ω                                   |
| — Differential input voltage, min.                        | 1 V                                     |
| — Input frequency, max.                                   | 650 kHz                                 |
| — Cable length, shielded, max.                            | 50 m; > 500 kHz: 30 m                   |
| <b>Interrupts/diagnostics/status information</b>          |   |
| Diagnostics function                                      | Yes                                     |
| <b>Diagnostics indication LED</b>                         |   |
| • Group error SF (red)                                    | Yes                                     |
| • Status indicator digital input (green)                  | Yes                                     |
| • Status indicator digital output (green)                 | Yes                                     |
| • Status indicator forward counting (green)               | Yes                                     |
| • Status indicator backward counting (green)              | Yes                                     |
| • Synchronization SYN (green)                             | Yes                                     |
| <b>Integrated Functions</b>                               |   |
| <b>Measuring functions</b>                                |   |
| <b>Measuring range</b>                                    |   |
| — Frequency measurement, min.                             | 0.1 Hz                                  |
| — Frequency measurement, max.                             | 500 kHz                                 |
| — Cycle duration measurement, min.                        | 10 µs                                   |
| — Cycle duration measurement, max.                        | 120 s                                   |
| — Speed measurement, min.                                 | 1 1/min                                 |
| — Speed measurement, max.                                 | 25 000 1/min                            |

| Counter  |                             |
|--|-----------------------------|
| Number of counter inputs   | 1; 32 bit                   |
| Parameter  |                             |
| Remark   | 16 byte                     |
| Potential separation   |                             |
| Potential separation digital inputs  |                             |
| <ul style="list-style-type: none"> <li>Potential separation digital inputs</li> </ul>  | No; only opposite shielding |
| Potential separation counter   |                             |
| <ul style="list-style-type: none"> <li>between the channels and backplane bus</li> <li>Between the channels and load voltage L+</li> </ul> | Yes<br>No                   |
| Dimensions   |                             |
| Width  | 30 mm                       |
| Height   | 81 mm                       |
| Depth  | 52 mm                       |
| Weights  |                             |
| Weight, approx.  | 65 g                        |
| <b>last modified:</b>  | 03/02/2020                  |