

SIMATIC S7-200 SMART, Digital I/O SM DR16, 8DI/8DO, 8 DI 24 V DC, Sink/Source, 8 DO, relay 2 A

| General information   |  |
|---|--|
| Product type designation  | SM DR16, DI 8x24 V DC, DQ 8x relay/2 A |
| Supply voltage  |  |
| Rated value (DC)  | 24 V                                   |
| permissible range, lower limit (DC)                             | 20.4 V                                 |
| permissible range, upper limit (DC)                             | 28.8 V                                 |
| Input current   |  |
| Current consumption, typ.                                       | 80 mA; Current for 24 V DC input power |
| from backplane bus 5 V DC, typ.                                 | 115 mA; For 5 V DC from CPU module     |
| Digital inputs  |  |
| Number of digital inputs  | 8                                      |
| • in groups of  | 2                                      |
| Parallel switching of inputs                                    | Yes                                    |
| Input characteristic curve in accordance with IEC 61131, type 1 | Yes                                    |
| Number of simultaneously controllable inputs                    |  |
| horizontal installation   |  |
| — up to 50 °C, max.   | 8                                      |
| vertical installation   |  |
| — up to 40 °C, max.   | 8                                      |
| Input voltage   |  |
| • Type of input voltage   | DC                                     |
| • Rated value (DC)  | 24 V                                   |
| • for signal "0"  | < 5 V DC                               |
| • for signal "1"  | +15 to +30 V                           |
| Input current   |  |
| • for signal "0", max. (permissible quiescent current)          | 1 mA                                   |
| • for signal "1", min.  | 2.5 mA                                 |
| • for signal "1", max.  | 5 mA                                   |
| • for signal "1", typ.  | 4 mA                                   |
| Input delay (for rated value of input voltage)                  |  |
| for standard inputs   |  |
| — at "0" to "1", max.   | 200 µs                                 |
| — at "1" to "0", max.   | 200 µs                                 |
| Cable length  |  |
| • shielded, max.  | 500 m                                  |
| • unshielded, max.  | 300 m                                  |
| Digital outputs   |  |
| Number of digital outputs                                       | 8                                      |
| Short-circuit protection  | No                                     |
| Output current  |  |
| • for signal "1" rated value                                    | 2 A                                    |
| Output delay with resistive load                                |  |
| • "0" to "1", max.  | 10 ms                                  |
| • "1" to "0", max.  | 10 ms                                  |
| Parallel switching of two outputs                               |  |
| • for logic links   | No                                     |
| • for uprating  | No                                     |
| • for redundant control of a load                               | No                                     |
| Relay outputs   |  |
| • Number of relay outputs                                       | 8                                      |
| • Rated supply voltage of relay coil L+ (DC)                    | 24 V                                   |

|  |   |
|--|---|
| — Reverse polarity protection  | Yes   |
| • Current consumption of relays (coil current of all relays), max.                                   | 80 mA   |
| <b>Switching capacity of contacts</b>  |   |
| — with inductive load, max.  | 2 A   |
| — on lamp load, max.   | 30 W; 30 W with DC, 200 W with AC   |
| — with resistive load, up to 50 °C, max.   | 2 A   |
| — with resistive load, up to 60 °C, max.   | 2 A   |
| — with resistive load, max.  | 2 A   |
| — Thermal continuous current, max.   | 2 A   |
| <b>Cable length</b>  |   |
| • shielded, max.   | 500 m   |
| • unshielded, max.   | 150 m   |
| <b>Interrupts/diagnostics/status information</b>   |   |
| <b>Diagnostics indication LED</b>  |   |
| • for status of the inputs   | Yes   |
| • for status of the outputs  | Yes   |
| <b>Potential separation</b>  |   |
| <b>Potential separation digital inputs</b>   |   |
| • between the channels   | Yes; Optocoupler  |
| <b>Potential separation digital outputs</b>  |   |
| • between the channels   | Yes; Relay, dry contact   |
| <b>Isolation</b>   |   |
| Isolation tested with  | 500 V AC for 1 minute for input isolation; 1500 V AC for 1 minute for output isolation  |
| <b>EMC</b>   |   |
| <b>Interference immunity against discharge of static electricity</b>                                 |   |
| • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2                | Yes; ±4 kV contact discharge (to IEC 801-2/IEC 1000-4-2; ESD), ±8 kV air discharge (to IEC 801-2/IEC 1000-4-2; ESD)                                       |
| — Test voltage at air discharge  | 8 kV  |
| — Test voltage at contact discharge  | 4 kV  |
| <b>Interference immunity against high-frequency electromagnetic fields</b>                           |   |
| • Interference immunity against high-frequency radiation acc. to IEC 61000-4-3                       | Yes   |
| — Frequency range of the RF radiation  | 80 to 1000 MHz, 10 V/m, 1.4 to 2.0 GHz, 3 V/m, 2.0 to 2.7 GHz, 1 V/m(In the range of 87 MHz to 187 MHz, 174 MHz to 230 MHz and 470 MHz to 790 MHz: 3V/m ) |
| <b>Interference immunity to cable-borne interference</b>   |   |
| • Interference immunity on supply lines acc. to IEC 61000-4-4  | Yes; 2 kV acc. to IEC 61000-4-4, burst  |
| • Interference immunity on signal cables acc. to IEC 61000-4-4                                       | Yes; ±2 kV acc. to IEC 61000-4-4, Burst   |
| <b>Interference immunity against voltage surge</b>   |   |
| • Interference immunity on supply lines acc. to IEC 61000-4-5  | Yes; With upstream protective element   |
| <b>Interference immunity against conducted variable disturbance induced by high-frequency fields</b> |   |
| • Interference immunity against high frequency current feed acc. to IEC 61000-4-6                    | Yes   |
| • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6                       | Yes; 10 V/m, with 80% amplitude modulation at 1 kHz   |
| — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz                    | 10 V  |
| <b>Emission of radio interference acc. to EN 55 011</b>  |   |
| • Emission of radio interference   | Interference emission to EN 50081-2, testing to EN 55011, Class A, Group 1  |
| • Limit class A, for use in industrial areas   | Yes   |
| <b>Degree and class of protection</b>  |   |
| IP degree of protection  | IP20  |
| <b>Standards, approvals, certificates</b>  |   |
| CE mark  | Yes   |
| <b>Ambient conditions</b>  |   |
| <b>Relative humidity</b>   |   |
| • Operation at 25 °C without condensation, max.  | 95 %  |
| <b>Dimensions</b>  |   |
| Width  | 45 mm   |

|                 |         |         |                |
|-----------------|---------|---------|----------------|
| Height          | 100 mm  |         |                |
| Depth           | 81 mm   |         |                |
| Weights         |         |         |                |
| Weight, approx. | 201.9 g |         |                |
| Classifications |         |         |                |
|                 |         | Version | Classification |
|                 | eClass  | 14      | 27-24-22-04    |
|                 | eClass  | 12      | 27-24-22-04    |
|                 | eClass  | 9.1     | 27-24-22-04    |
|                 | eClass  | 9       | 27-24-22-04    |
|                 | eClass  | 8       | 27-24-22-04    |
|                 | eClass  | 7.1     | 27-24-22-04    |
|                 | eClass  | 6       | 27-24-22-04    |
|                 | ETIM    | 9       | EC001419       |
|                 | ETIM    | 8       | EC001419       |
|                 | ETIM    | 7       | EC001419       |
|                 | IDEA    | 4       | 3566           |
|                 | UNSPSC  | 15      | 32-15-17-05    |

Approvals / Certificates

General Product Approval



last modified:

12/8/2024