

## Data sheet

## 6ES7288-2DE16-0AA0

SIMATIC S7-200 SMART, Digital input EM DI16, 16 DI, 24V DC, Sink/Source

| General information   |   |
|---|---|
| Product type designation  | SM DI16, DI 16x24 V DC                      |
| 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.                                       | 4 mA; Current for 24 V DC input per channel |
| Current consumption, max.                                       | 5 mA; Current for 30 V DC input per channel |
| from backplane bus 5 V DC, typ.                                 | 85 mA; For 5 V DC from CPU module           |
| from backplane bus 5 V DC, max.                                 | 105 mA; For 5 V DC from CPU module          |
| Digital inputs  |   |
| Number of digital inputs  | 16  |
| • in groups of  | 4   |
| Parallel switching of inputs                                    | Yes   |
| Input characteristic curve in accordance with IEC 61131, type 1 | Yes   |
| Number of simultaneously controllable inputs                    |   |
| all mounting positions  |   |
| — up to 40 °C, max.   | 16  |
| horizontal installation   |   |
| — up to 50 °C, max.   | 16  |
| vertical installation   |   |
| — up to 40 °C, max.   | 16  |
| 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.  | 5.5 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                                       | 0   |
| Cable length  |   |
| • shielded, max.  | 500 m                                       |
| • unshielded, max.  | 300 m                                       |
| Interrupts/diagnostics/status information                       |   |
| Diagnostics indication LED                                      |   |
| • for status of the inputs                                      | Yes   |
| Potential separation  |   |
| Potential separation digital inputs                             |   |

|   |   |                       |
|---|---|-----------------------|
| • between the channels  | Yes; Optocoupler  |                       |
| • between the channels, in groups of  | 4   |                       |
| <b>Isolation</b>  |   |                       |
| Isolation tested with   | 1 500 V AC for 1 minute   |                       |
| <b>EMC</b>  |   |                       |
| Interference immunity against discharge of static electricity                                 |   |                       |
| • 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  |                       |
| Interference immunity against high-frequency electromagnetic fields                           |   |                       |
| • Interference immunity against high-frequency radiation acc. to IEC 61000-4-3                | Yes; 10 V/m, 80 to 1 000 MHz (to IEC 61000-4-3); 10 V/m, 900 MHz, 1.89 GHz, 50% ED (to IEC 61000-4-3)   |                       |
| — 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  |                       |
| Interference immunity to cable-borne interference   |   |                       |
| • Interference immunity on supply lines acc. to IEC 61000-4-4                                 | Yes; ±2 kV acc. to IEC 61000-4-4, burst; surge measurements with additional protective elements   |                       |
| • Interference immunity on signal cables acc. to IEC 61000-4-4                                | Yes; ±2 kV acc. to IEC 61000-4-4, Burst   |                       |
| Interference immunity against voltage surge   |   |                       |
| • Interference immunity on supply lines acc. to IEC 61000-4-5                                 | Yes; Surge measurements with additional protection elements: ±1 kV (to IEC 61000-4-5; µs pulse / line to line); ±2 kV (to IEC 61000-4-5; µs pulse / line to ground) |                       |
| • asymmetric interference   | ±2 kV acc. to IEC 61000-4-5, surge asymmetric   |                       |
| Interference immunity against conducted variable disturbance induced by high-frequency fields |   |                       |
| • Interference immunity against high frequency current feed acc. to IEC 61000-4-6             | Yes; 10 V, 150 kHz to 80 MHz (to IEC 61000-4-6)   |                       |
| • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6                | Yes; 10 V/m, with 80% amplitude modulation at 1 kHz, 10 kHz to 80 MHz (acc. to IEC 61000-4-6)   |                       |
| — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz             | 10 V  |                       |
| Emission of radio interference acc. to EN 55 011  |   |                       |
| • 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; EN 61000-6-4, interference emission: Intended for use in industrial areas.   |                       |
| <b>Degree and class of protection</b>   |   |                       |
| IP degree of protection   | IP20  |                       |
| <b>Standards, approvals, certificates</b>   |   |                       |
| CE mark   | Yes; CE marking / EC Declaration of Conformity  |                       |
| <b>Ambient conditions</b>   |   |                       |
| Free fall   |   |                       |
| • Fall height, max.   | 0.3 m   |                       |
| Ambient temperature during operation  |   |                       |
| • min.  | 0 °C  |                       |
| • max.  | 55 °C   |                       |
| • horizontal installation, min.   | 0 °C  |                       |
| • horizontal installation, max.   | 55 °C   |                       |
| • vertical installation, min.   | 0 °C  |                       |
| • vertical installation, max.   | 45 °C   |                       |
| Ambient temperature during storage/transportation   |   |                       |
| • min.  | -40 °C  |                       |
| • max.  | 70 °C   |                       |
| Relative humidity   |   |                       |
| • Operation at 25 °C without condensation, max.   | 95 %  |                       |
| <b>Dimensions</b>   |   |                       |
| Width   | 45 mm   |                       |
| Height  | 100 mm  |                       |
| Depth   | 81 mm   |                       |
| <b>Weights</b>  |   |                       |
| Weight, approx.   | 176 g   |                       |
| <b>Classifications</b>  |   |                       |
|   | <b>Version</b>  | <b>Classification</b> |

|        |     |             |
|--------|-----|-------------|
| 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   | 10  | EC001419    |
| ETIM   | 9   | EC001419    |
| ETIM   | 8   | EC001419    |
| ETIM   | 7   | EC001419    |
| IDEA   | 4   | 3566        |
| UNSPSC | 15  | 32-15-17-05 |

Approvals / Certificates

General Product Approval



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