

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
Switching capacity of contacts	
— 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
Cable length	
● shielded, max.	500 m
● unshielded, max.	150 m
Interrupts/diagnostics/status information	
Diagnostics indication LED	
● for status of the inputs	Yes
● for status of the outputs	Yes
Potential separation	
Potential separation digital inputs	
● between the channels	Yes; Optocoupler
Potential separation digital outputs	
● between the channels	Yes; Relay, dry contact
Isolation	
Isolation tested with	500 V AC for 1 minute for input isolation; 1500 V AC for 1 minute for output isolation
EMC	
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
— 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)
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
● 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; With upstream protective element
● asymmetric interference	
— Test voltage on supply cables	2 kV
— Test voltage on signal cables >30m	2 kV
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
● 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
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
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
Ambient conditions	
Relative humidity	

• Operation at 25 °C without condensation, max.

95 %

Dimensions

Width	45 mm
Height	100 mm
Depth	81 mm

Weights

Weight, approx.	201.9 g
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