

Data sheet

6ES7288-2QR16-0AA0

SIMATIC S7-200 SMART, Digital output EM DR16 16 DO, relay 2 A

General information	
Product type designation	SM DR16, DQ 16x 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.	110 mA
from backplane bus 5 V DC, typ.	165 mA
Digital inputs	
Number of digital inputs	0
Cable length	
• shielded, max.	500 m
• unshielded, max.	150 m
Digital outputs	
Number of digital outputs	16
• in groups of	4
Short-circuit protection	No
Switching capacity of the outputs	
• with resistive load, max.	2 A
• on lamp load, max.	30 W; 30 W with DC, 200 W with AC
Output current	
• for signal "1" rated value	2 A
• for signal "1" permissible range, max.	2 A
Output delay with resistive load	
• "0" to "1", max.	10 ms
• "1" to "0", max.	10 ms
Total current of the outputs (per group)	
horizontal installation	
— up to 50 °C, max.	10 A
Relay outputs	
• Number of relay outputs	16
• Rated supply voltage of relay coil L+ (DC)	24 V
— Reverse polarity protection	Yes
• Current consumption of relays (coil current of all relays), max.	150 mA
Switching capacity of contacts	
— with inductive load, max.	2 A
— on lamp load, max.	30 W
— 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 outputs	Yes
Potential separation	

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; 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 (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; surge measurements with additional protective elements
• Interference immunity on signal cables acc. to IEC 61000-4-4	Yes; ± 2 kV (to IEC 801-4/IEC 1000-4-4; Burst)
Interference immunity against voltage surge	
• Interference immunity on supply lines acc. to IEC 61000-4-5	Yes
• 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
— 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.
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes; CE marking / EC Declaration of Conformity
Ambient conditions	
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 %
Dimensions	
Width	45 mm
Height	100 mm
Depth	81 mm
Weights	
Weight, approx.	220 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	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

[China RoHS](#)

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