

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
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Cable length

- | | |
|--|---------------------------|
| <ul style="list-style-type: none"> shielded, max. unshielded, max. | <p>500 m</p> <p>150 m</p> |
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Digital outputs

Number of digital outputs	16
<ul style="list-style-type: none"> 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	

<ul style="list-style-type: none"> • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 <ul style="list-style-type: none"> — Test voltage at air discharge — Test voltage at contact discharge 	<p>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)</p> <p>8 kV</p> <p>4 kV</p>
Interference immunity against high-frequency electromagnetic fields	
<ul style="list-style-type: none"> • Interference immunity against high-frequency radiation acc. to IEC 61000-4-3 <ul style="list-style-type: none"> — Frequency range of the RF radiation 	<p>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)</p> <p>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)</p>
Interference immunity to cable-borne interference	
<ul style="list-style-type: none"> • Interference immunity on supply lines acc. to IEC 61000-4-4 • Interference immunity on signal cables acc. to IEC 61000-4-4 	<p>Yes; ± 2 kV acc. to IEC 61000-4-4, burst; surge measurements with additional protective elements</p> <p>Yes; ± 2 kV (to IEC 801-4/IEC 1000-4-4; Burst)</p>
Interference immunity against voltage surge	
<ul style="list-style-type: none"> • Interference immunity on supply lines acc. to IEC 61000-4-5 • asymmetric interference <ul style="list-style-type: none"> — Test voltage on supply cables — Test voltage on signal cables >30m 	<p>Yes</p> <p>± 2 kV acc. to IEC 61000-4-5, surge asymmetric</p> <p>2 kV</p> <p>2 kV</p>
Interference immunity against conducted variable disturbance induced by high-frequency fields	
<ul style="list-style-type: none"> • Interference immunity against high frequency current feed acc. to IEC 61000-4-6 • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 <ul style="list-style-type: none"> — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz 	<p>Yes; 10 V, 150 kHz to 80 MHz (to IEC 61000-4-6)</p> <p>Yes; 10 V/m, with 80% amplitude modulation at 1 kHz</p> <p>10 V</p>
Emission of radio interference acc. to EN 55 011	
<ul style="list-style-type: none"> • Emission of radio interference • Limit class A, for use in industrial areas 	<p>Interference emission to EN 50081-2, testing to EN 55011, Class A, Group 1</p> <p>Yes; EN 61000-6-4, interference emission: Intended for use in industrial areas.</p>
Standards, approvals, certificates	
CE mark	Yes; CE marking / EC Declaration of Conformity
Ambient conditions	
Free fall	
<ul style="list-style-type: none"> • Fall height, max. 	0.3 m
Ambient temperature during operation	
<ul style="list-style-type: none"> • min. • max. • horizontal installation, min. • horizontal installation, max. 	<p>0 °C</p> <p>55 °C</p> <p>0 °C</p> <p>55 °C</p>

• 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
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