



SIMATIC S7-200 SMART, Digital I/O SM DR32, 16DI/16DO, 16 DI 24 V DC, Sink/Source, 16 DO, relay 2 A

General information	
Product type designation	SM DR32, DI 16x24 V DC, DQ 16x relay/2A
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. from backplane bus 5 V DC, typ.	165 mA; Current for 24 V DC input power 165 mA; For 5 V DC from CPU module
Digital inputs	
Number of digital inputs	16
• 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.	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 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	16
Short-circuit protection	No
Output current	

<ul style="list-style-type: none"> • for signal "1" rated value 	2 A
Output delay with resistive load	
<ul style="list-style-type: none"> • "0" to "1", max. 	10 ms
<ul style="list-style-type: none"> • "1" to "0", max. 	10 ms
Relay outputs	
<ul style="list-style-type: none"> • Number of relay outputs 	16
<ul style="list-style-type: none"> • Rated supply voltage of relay coil L+ (DC) <ul style="list-style-type: none"> — Reverse polarity protection 	24 V Yes
<ul style="list-style-type: none"> • Current consumption of relays (coil current of all relays), max. 	165 mA
Switching capacity of contacts	
<ul style="list-style-type: none"> — with inductive load, max. 	2 A
<ul style="list-style-type: none"> — on lamp load, max. 	30 W; 30 W with DC, 200 W with AC
<ul style="list-style-type: none"> — with resistive load, up to 50 °C, max. 	2 A
<ul style="list-style-type: none"> — with resistive load, up to 60 °C, max. 	2 A
<ul style="list-style-type: none"> — with resistive load, max. 	2 A
<ul style="list-style-type: none"> — Thermal continuous current, max. 	2 A
Cable length	
<ul style="list-style-type: none"> • shielded, max. 	500 m
<ul style="list-style-type: none"> • unshielded, max. 	150 m
Interrupts/diagnostics/status information	
Diagnostics indication LED	
<ul style="list-style-type: none"> • for status of the inputs 	Yes
<ul style="list-style-type: none"> • for status of the outputs 	Yes
Potential separation	
Potential separation digital inputs	
<ul style="list-style-type: none"> • between the channels 	Yes; Optocoupler
Potential separation digital outputs	
<ul style="list-style-type: none"> • 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 	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) 8 kV 4 kV
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 	Yes 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	
<ul style="list-style-type: none"> • Interference immunity on supply lines acc. to IEC 61000-4-4 	Yes; 2 kV acc. to IEC 61000-4-4, burst
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • Interference immunity on supply lines acc. to IEC 61000-4-5 	Yes; With upstream protective element
<ul style="list-style-type: none"> • asymmetric interference <ul style="list-style-type: none"> — Test voltage on supply cables — Test voltage on signal cables >30m 	2 kV 2 kV
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 	Yes
<ul style="list-style-type: none"> • 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 	Yes; 10 V/m, with 80% amplitude modulation at 1 kHz 10 V
Emission of radio interference acc. to EN 55 011	
<ul style="list-style-type: none"> • 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

Dimensions

Width

70 mm

Height

100 mm

Depth

81 mm

Weights

Weight, approx.

295.4 g

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3/12/2021 