

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
• 24 V DC	Yes; -15 / +20 %
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
Isolation	
Isolation tested with	1500 V AC for 1 minute
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</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 acc. to IEC 61000-4-4, 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; 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)</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, 10 kHz to 80 MHz (acc. to IEC 61000-4-6)</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>
Degree and class of protection	
Degree of protection acc. to EN 60529	IP20
<ul style="list-style-type: none"> • IP20 	Yes
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	

- 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.	176 g
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last modified: 03/19/2020