## **SIEMENS**

## **Data sheet**

## 6ES7288-2DT16-0AA0

SIMATIC S7-200 SMART, Digital I/O SM DT16, 8DI/8DO, 8 DI 24 V DC, Sink/Source, 8 DO, Transistor 0.75A

General information	
Product type designation	SM DT16, DI 8x24 V DC, DQ 8x24 V DC/0.75 A
Supply voltage	5 5 5, 51 O/E 1 7 5 5, 5 4 O/E 1 7 5 5/0.10 /1
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, lower limit (DC)	28.8 V
Input current	
from backplane bus 5 V DC, typ.	115 mA; For 5 V DC from CPU module
Digital inputs	113 find, 1 of 3 v Bo from of a module
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	100
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
• in groups of	2
Current-sinking	No
Current-sourcing	Yes
Short-circuit protection	No
Switching capacity of the outputs	
with resistive load, max.	0.75 A
• on lamp load, max.	5 W
Output voltage	
Rated value (DC)	24 V
• for signal "0", max.	0.1 V
• for signal "1", min.	20 V
• for signal "1", max.	28.8 V; max. value is equal to feed L+
Output current	
• for signal "1" rated value	0.75 A

Output delay with resistive load	
•	50 ue
• "0" to "1", max.	50 µs
• "1" to "0", max.	200 μs
Parallel switching of two outputs	V 1 1 1 1 1 1
• for logic links	Yes; only outputs of the same group
• for uprating	Yes; possible (only outputs of the same group)
• for redundant control of a load	Yes; only outputs of the same group
Total current of the outputs (per group)	
all mounting positions	
— up to 40 °C, max.	3 A
horizontal installation	
— up to 50 °C, max.	3 A
vertical installation	0.4
— up to 40 °C, max.	3 A
all other mounting positions	
— up to 40 °C, max.	3 A
Interrupts/diagnostics/status information	
Diagnostics indication LED	V
• for status of the inputs	Yes
• for status of the outputs	Yes
Potential separation	
Potential separation digital inputs	Vesi Onte equaler
between the channels  Petantial apparation digital outputs	Yes; Optocoupler
Potential separation digital outputs	V 0 1
between the channels	Yes; Optocoupler
Isolation	
Isolation tested with	500 V AC for 1 minute
EMC	
Interference immunity against discharge of static electricity	V
<ul> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> </ul>	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	S
, , , , , ,	
<ul> <li>Interference immunity against high-frequency radiation</li> </ul>	Yes
<ul> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-3</li> </ul>	Yes
	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)
acc. to IEC 61000-4-3	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:
acc. 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:
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-	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: $3\text{V/m}$ )
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-	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 )  Yes; 2 kV acc. to IEC 61000-4-4, burst
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-4-5	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-4-5	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance inductions of the property 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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element ced by high-frequency fields
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induce  • 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  — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element  ced by high-frequency fields  Yes
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induce  • 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  — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz  Emission of radio interference acc. to EN 55 011	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element  ced by high-frequency fields  Yes  Yes; 10 V/m, with 80% amplitude modulation at 1 kHz
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induce • 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  — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element  ced by high-frequency fields  Yes  Yes; 10 V/m, with 80% amplitude modulation at 1 kHz
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induce  • 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  — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz  Emission of radio interference acc. to EN 55 011  • Emission of radio interference  • Limit class A, for use in industrial areas	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element  ced by high-frequency fields  Yes  Yes; 10 V/m, with 80% amplitude modulation at 1 kHz
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induce  • 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  — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz  Emission of radio interference acc. to EN 55 011  • Emission of radio interference	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element  ced by high-frequency fields  Yes  Yes; 10 V/m, with 80% amplitude modulation at 1 kHz  10 V  Interference emission to EN 50081-2, testing to EN 55011, Class A, Group 1
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induce  • 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  — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz  Emission of radio interference acc. to EN 55 011  • Emission of radio interference  • Limit class A, for use in industrial areas	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element  ced by high-frequency fields  Yes  Yes; 10 V/m, with 80% amplitude modulation at 1 kHz  10 V  Interference emission to EN 50081-2, testing to EN 55011, Class A, Group 1
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induce • 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  — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz  Emission of radio interference acc. to EN 55 011  • Emission of radio interference • Limit class A, for use in industrial areas  Degree and class of protection	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element  ced by high-frequency fields  Yes  Yes; 10 V/m, with 80% amplitude modulation at 1 kHz  10 V  Interference emission to EN 50081-2, testing to EN 55011, Class A, Group 1  Yes
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induce • 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  — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz  Emission of radio interference acc. to EN 55 011  • Emission of radio interference • Limit class A, for use in industrial areas  Degree and class of protection  IP degree of protection	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; ±2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element  ced by high-frequency fields  Yes  Yes; 10 V/m, with 80% amplitude modulation at 1 kHz  10 V  Interference emission to EN 50081-2, testing to EN 55011, Class A, Group 1  Yes
acc. to IEC 61000-4-3  — Frequency range of the RF radiation  Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity and supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induce • 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  — Test voltage at 80% amplitude modulation with 1kHz in the range 9 kHz to 80 MHz  Emission of radio interference acc. to EN 55 011  • Emission of radio interference • Limit class A, for use in industrial areas  Degree and class of protection  IP degree of protection  Dimensions	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)  Yes; 2 kV acc. to IEC 61000-4-4, burst  Yes; #2 kV acc. to IEC 61000-4-4, Burst  Yes; With upstream protective element  ced by high-frequency fields  Yes  Yes; 10 V/m, with 80% amplitude modulation at 1 kHz  10 V  Interference emission to EN 50081-2, testing to EN 55011, Class A, Group 1  Yes

Weights 179.7 g Weight, approx. Version Classification 14 27-24-22-04 eClass 12 27-24-22-04 eClass eClass 9.1 27-24-22-04 9 27-24-22-04 eClass 8 27-24-22-04 eClass 27-24-22-04 eClass 7.1 27-24-22-04 eClass 6 ETIM 9 EC001419 ETIM 8 EC001419 ETIM EC001419 7 IDEA 4 3566 UNSPSC 32-15-17-05 15

Approvals / Certificates

**General Product Approval** 





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