SIEMENS

Data sheet 6ES7288-2DR08-0AA0

	SIMATIC S7-200 SMART, Digital output SM DR08, 8 DO, relay 2 A
General information	
Product type designation	SM DR08, DQ 8x relay
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.	80 mA; Current for 24 V DC input power
from backplane bus 5 V DC, typ.	90 mA; For 5 V DC from CPU module
Digital inputs	
Number of digital inputs	0
Digital outputs	
Number of digital outputs	8
Short-circuit protection	No
Output delay with resistive load	
● "0" to "1", max.	10 ms
● "1" to "0", max.	10 ms
Relay outputs	
● Number of relay outputs	8
● Rated supply voltage of relay coil L+ (DC)	24 V
— Reverse polarity protection	Yes
● Current consumption of relays (coil current of all relays), max.	80 mA
Switching capacity of contacts	
— with inductive load, max.	2 A
— on lamp load, max.	30 W; 30 W with DC, 200 W with AC
— with resistive load, up to 50 °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	1 500 V AC for 1 minute
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
Dimensions	
Width	45 mm
Height	100 mm
Depth	81 mm
Weights	
Weight, approx.	166.3 g
last modified:	3/12/2024

SIEMENS

Data sheet 6ES7288-2DT08-0AA0

	SIMATIC S7-200 SMART, Digital output SM DT08, 8 DO, 24 V DC, Transistor 0.75A
General information	
Product type designation	SM DT08, DQ 8x24 V DC/0.75 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	
from backplane bus 5 V DC, typ.	95 mA; For 5 V DC from CPU module
Digital inputs	
Number of digital inputs	0
Digital outputs	
Number of digital outputs	8
● in groups of	2
Current-sinking	No
Current-sourcing	Yes
Short-circuit protection	No
Controlling a digital input	Yes
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 DC
Output current	
● for signal "1" rated value	0.75 A
● for signal "1" permissible range, max.	0.75 A
● for signal "1" permissible range for 0 to 40 °C, max.	750 mA
● for signal "0" residual current, max.	10 µA
Output delay with resistive load	
● "0" to "1", max.	50 µs
● "1" to "0", max.	200 µs
Parallel switching of two outputs	
● for logic links	Yes
● for uprating	Yes
● for redundant control of a load	Yes
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	
— up to 40 °C, max.	3 A
all other mounting positions	
— up to 40 °C, max.	3 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; Optocoupler
Isolation	
Isolation tested with	500V AC for 1 minute
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
Dimensions	
Width	45 mm
Height	100 mm
Depth	81 mm
Weights	
Weight, approx.	147 g

last modified: 3/12/2024

SIEMENS

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
— Test voltage on supply cables	2 kV
— Test voltage on signal cables >30m	2 kV
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

last modified: 3/12/2024

SIEMENS

Data sheet 6ES7288-2QT16-0AA0

	SIMATIC S7-200 SMART, Digital output EM DT16 16 DO, 24 VDC, Transistor 0.75A
General information	
Product type designation	SM DT16, DQ 16x24 V DC/0.75 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	
from backplane bus 5 V DC, typ.	135 mA
Digital inputs	
Number of digital inputs	0
Digital outputs	
Number of digital outputs	16
● in groups of	4
Current-sinking	No
Current-sourcing	Yes
Short-circuit protection	No
Controlling a digital input	Yes
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 DC
Output current	
● for signal "1" rated value	0.75 A
● for signal "1" permissible range, max.	0.75 A
● for signal "1" permissible range for 0 to 40 °C, max.	750 mA
● for signal "0" residual current, max.	10 µA
Output delay with resistive load	
● "0" to "1", max.	50 µs
● "1" to "0", max.	200 µs
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; Optocoupler
Isolation	
Isolation tested with	500V AC for 1 minute
EMC	
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.	186 g

last modified: 3/12/2024