MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Selected official pages for procurement and maintenance review

PRODUCT BRAND

Siemens

PRODUCT MODEL

6ES7288-2QR16-0AA0

EM QR16 Relay Output Module. Relevant section pages: 891, 892. Adjacent model text on shared pages is outside this product reference.

OFFICIAL SOURCE

S7-200 SMART System Manual; V2.8, 08/2023

Siemens original documentation and product reference

Siemens S7-200 SMART V2.8 excerpt: use only the EM QR16 column. Adjacent models remain as original context. This is not complete installation guidance.

AMIKON PRODUCT SUPPORT

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Amikon Limited prepared this independent reference package. Selected manufacturer pages follow with their original content and pagination visible.

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ WARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Pin	X10	X11	X12	X13
3	1M	2M	3M	4M
4	DI a.0	DI a.4	DI b.0	DI b.4
5	DI a.1	DI a.5	DI b.1	DI b.5
6	DI a.2	DI a.6	DI b.2	DI b.6
7	DI a.3	DI a.7	DI b.3	DI b.7

A.3.2 EM DT08, EM DR08, EM QR16, and EM QT16 digital output specifications

Table A-78 General specifications

Model	EM Digital 8 x Outputs (EM DT08)	EM Digital 8 x Outputs Relay (EM DR08)	EM Digital 16 x Outputs Relay (EM QR16)	EM Digital 16 x Outputs Transistor (EM QT16)
Article number	6ES7288-2DT08-0AA0	6ES7288-2DR08-0AA0	6ES7288-2QR16-0AA0	6ES7288-2QT16-0AA0
Dimensions W x H x D (mm)	45 x 100 x 81	45 x 100 x 81	45 x 100 x 81	45 x 100 x 81
Weight	147 grams	166.3 grams	221 grams	186 grams
Power dissipation	1.5 W	4.5 W	4.5 W	1.7 W
Current consumption (SM Bus)	120 mA	120 mA	110 mA, SM bus	120 mA, SM bus
Current consumption (24 V DC)	--	11 mA / relay coil used	150 mA, all relay are on	50 mA

Table A-79 Digital outputs

Model	EM Digital 8 x Outputs (EM DT08)	EM Digital 8 x Outputs Relay (EM DR08)	EM Digital 16 x Outputs Relay (EM QR16)	EM Digital 16 x Outputs Transistor (EM QT16)
Number of outputs	8	8	16	16
Type	Solid state - MOSFET (sourcing)	Relay, dry contact	Relay, dry contact	Solid state - MOSFET (sourcing)
Voltage range	20.4 to 28.8 V DC	5 to 30 V DC or 5 to 250 V AC	5 to 30 V DC or 5 to 250 V AC	20.4 to 28.8 V DC
Logic 1 signal at max. current	20 V DC	-	-	20 V DC
Logic 0 signal with 10 K Ω load	0.1 V DC	-	-	0.1 V DC
Rated current per point (max.)	0.75 A	2.0 A	2.0 A	0.75 A
Rated current per common (max.)	3 A	8 A	8 A	3 A
Lamp load	5 W DC	30 W DC / 200 W AC	30 W DC/200 W AC	5 W
ON state contact resistance	0.6 Ω	0.2 Ω max. when new	0.2 Ω max. when new	0.6 Ω max.
Leakage current per point	10 µA	--	--	10 µA
Surge current	8 A for 100 ms max.	7 A with contacts closed	7 A with contacts closed	8 A for 100 ms max.
Overload protection	No	No	No	No

Model	**EM Digital 8 x Outputs (EM DT08)**	**EM Digital 8 x Outputs Relay (EM DR08)**	**EM Digital 16 x Outputs Relay (EM QR16)**	**EM Digital 16 x Outputs Transistor (EM QT16)**
Isolation (field side to logic)	Optical, 500 V AC for 1 minute	1500 V AC for 1 minute (coil to contact) None (coil to logic)	1500 V AC for 1 minute (coil to contact) None (coil to logic)	500 V AC for 1 minute
Isolation resistance	-	100 M Ω min. when new	100 M Ω min. when new	-
Isolation between open contacts	-	750 V AC for 1 minute	750 V AC for 1 minute	-
Isolation groups	2	2	4	4
Inductive clamp voltage	Minus 48 V DC, 1 W dissipation	-	-	L+ minus 48 V, 1 W dissipation
Switching delay	Switch on less than 50 µs and switch off less than 200 µS	10 ms max.	10 ms max.	Switch on less than 50 µs and switch off less than 200 µS
Lifetime mechanical (no load)	--	10,000,000 open/close cycles	10,000,000 open/close cycles	-
Lifetime contacts at rated load	--	100,000 open/close cycles	100,000 open/close cycles	-
Output behavior in STOP	Last value or substitute value (default value 0)	Last value or substitute value (default value 0)	Last value or substitute value (default value 0)	Last value or substitute value (default value 0)
Number of outputs on simultaneously	8	8	16	16
Cable length (max.), in meters	Shielded: 500 m Unshielded: 150 m	Shielded: 500 m Unshielded: 150 m	Shielded: 500 m Unshielded: 150 m	Shielded: 500 m Unshielded: 150 m