MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for installation, wiring and maintenance

SIEMENS SIMATIC

6ES7288-2QT16-0AA0

S7-200 SMART EM QT16 DIGITAL OUTPUT MODULE

Selected official Siemens specification and wiring pages follow this Amikon cover with original pagination retained.

REFERENCE PACKAGE

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

OFFICIAL DOCUMENT

A5E03822230-AL

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S7-200 SMART

System Manual

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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

Table A-85 Connector pin locations for EM QT16 Digital 16 x Outputs Transition (6ES7288-2QT16-0AA0)

Pin	X10	X11	X12	X13
1	No connection	1L / 24 V DC	4L / 24 V DC	No connection
2	DQ a.0	1M / 24 V DC	4M / 24 V DC	DQ b.2
3	DQ a.1	Functional Earth	No connection	DQ b.3
4	DQ a.2	2L / 24 V DC	3L / 24 V DC	DQ b.4
5	DQ a.3	2M / 24 V DC	3M / 24 V DC	DQ b.5
6	DQ a.4	DQ a.6	DQ b.0	DQ b.6
7	DQ a.5	DQ a.7	DQ b.1	DQ b.7

A.3.3 EM DT16, EM DR16, EM DT32, and EM DR32 digital input/output specifications

Table A-86 General specifications

Model	**EM Digital 8 x Inputs/ Digital 8 x Outputs (EM DT16)**	**EM Digital 8 x Inputs/ 8 x Relay Outputs (EM DR16)**	**EM Digital 16 x Inputs/ Digital 16 x Outputs (EM DT32)**	**EM Digital 16 x Inputs / 16 x Relay Outputs (EM DR32)**
Article number	6ES7288-2DT16-0AA0	6ES7288-2DR16-0AA0	6ES7288-2DT32-0AA0	6ES7288-2DR32-0AA0
Dimensions W x H x D (mm)	45 x 100 x 81	45 x 100 x 81	70 x 100 x 81	70 x 100 x 81
Weight	179.7g grams	201.9 grams	257.3 grams	295.4 grams
Power dissipation	2.5 W	5.5 W	4.5 W	10 W
Current consumption (SM Bus)	145 mA	145 mA	185 mA	180 mA
Current consumption (24 V DC)	4 mA / Input used 11 mA / Relay coil used	4 mA / Input used 11 mA / Relay coil used	4 mA / Input used	4 mA / Input used

Table A-87 Digital inputs

Model	**EM Digital 8 x Inputs/ Digital 8 x Outputs (EM DT16)**	**EM Digital 8 x Inputs/ 8 x Relay Outputs (EM DR16)**	**EM Digital 16 x Inputs/ Digital 16 x Outputs (EM DT32)**	**EM Digital 16 x Inputs / 16 x Relay Outputs (EM DR32)**
Number of inputs	8	8	16	16
Type	Sink/Source (IEC Type 1 sink)	Sink/Source (IEC Type 1 sink)	Sink/Source (IEC Type 1 sink)	Sink/Source (IEC Type 1 sink)
Rated voltage	24 V DC at 4 mA, nominal	24 V DC at 4 mA, nominal	24 V DC at 4 mA, nominal	24 V DC at 4 mA, nominal
Continuous permissible voltage	30 V DC max.	30 V DC max.	30 V DC max.	30 V DC max.
Surge voltage	35 V DC for 0.5 sec.	35 V DC for 0.5 sec.	35 V DC for 0.5 sec.	35 V DC for 0.5 sec.