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SIMATIC ET 200SP HA, digital output module, DQ 16X24VDC/0.5A HA, suitable for terminal block, H1, M1, color code CC02, channel diagnostics

General information	
Product type designation	DQ 16x24VDC/0.5A HA
Firmware version	V1.0
• FW update possible	Yes
Usable terminal block	type H1, M1, N0, H0, M0 (for details see the system manual)
Color code for module-specific color-coded label	CC02
Product function	
• I&M data	Yes; I&M0 to I&M3
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	V16
• STEP 7 configurable/integrated from version	V5.6
• PCS 7 configurable/integrated from version	V9.0
• PCS neo can be configured/integrated from version	V3.0
• PROFINET from GSD version/GSD revision	GSDML V2.3
Operating mode	
• DQ	Yes
• DQ with energy-saving function	No
• PWM	No
• Oversampling	No
• MSO	No
Redundancy	
• Redundancy capability	Yes; With TB type M1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Input current	
Current consumption (rated value)	60 mA; without load
Current consumption, max.	70 mA; without load
Output voltage	
Rated value (DC)	24 V
Power loss	
Power loss, typ.	1.2 W; minimum - typ. specification not possible because load-dependent
Address area	
Address space per module	

• Address space per module, max.	2 byte; + 2 bytes for QI information
Digital outputs	
Number of digital outputs	16
Current-sinking	No
Current-sourcing	Yes
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes; Ensure sufficient low-resistance cable routing to the sensor/actuator in order to attain the response threshold. Depending on the cable cross-section used, there may be constraints regarding the usable length of cable.
• Response threshold, typ.	0.7 A to 1.3 A (for IO redundancy up to max 2.6 A)
Open-circuit detection	Yes; 0.7 mA test current for wire-break diagnostics; this value is doubled in the case of IO redundancy
Overload protection	Yes
Limitation of inductive shutdown voltage to	L+ -(37 to 41V)
Controlling a digital input	Yes
Switching capacity of the outputs	
• with resistive load, max.	0.5 A
• on lamp load, max.	5 W
Load resistance range	
• lower limit	48 Ω
• upper limit	12 kΩ
Output current	
• for signal "1" rated value	0.5 A
• for signal "0" residual current, max.	0.7 mA; Test current for wire-break diagnostics; this value is doubled in the case of IO redundancy
Output delay with resistive load	
• "0" to "1", typ.	50 μs
• "1" to "0", typ.	100 μs
Parallel switching of two outputs	
• for uprating	No
• for redundant control of a load	Yes
Switching frequency	
• with resistive load, max.	100 Hz
• with inductive load, max.	2 Hz
• on lamp load, max.	10 Hz
Total current of the outputs	
• Current per channel, max.	0.5 A
• Current per module, max.	8 A
Total current of the outputs (per module)	
horizontal installation	
— up to 30 °C, max.	8 A
— up to 40 °C, max.	8 A
— up to 50 °C, max.	8 A
— up to 60 °C, max.	5.5 A
— up to 70 °C, max.	3 A
vertical installation	
— up to 30 °C, max.	8 A
— up to 40 °C, max.	6.33 A
— up to 50 °C, max.	4.67 A
— up to 60 °C, max.	3 A
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Substitute values connectable	Yes
Alarms	
• Diagnostic alarm	Yes
Diagnoses	
• Monitoring the supply voltage	Yes

• Wire break • Short-circuit to ground • Short-circuit to L+ • Group error	Yes; channel by channel		
	Yes; channel by channel		
	Yes; channel by channel		
	Yes		
Diagnostics indication LED			
• MAINT LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics	Yes; Yellow LED		
	Yes; green PWR LED		
	Yes; green LED		
	Yes; red LED		
	Yes; green/red DIAG LED		
Potential separation			
Potential separation channels			
• between the channels	No		
• between the channels and backplane bus	Yes		
Isolation			
Isolation tested with	1 500 V DC/1 min, type test		
Ambient conditions			
Ambient temperature during operation			
• horizontal installation, min.	-40 °C		
• horizontal installation, max.	70 °C		
• vertical installation, min.	-40 °C		
• vertical installation, max.	60 °C		
Dimensions			
Width	22.5 mm		
Height	115 mm		
Depth	138 mm		
Weights			
Weight, approx.	137 g		
Classifications			
		Version	Classification
	eClass	14	27-24-26-04
	eClass	12	27-24-26-04
	eClass	9.1	27-24-26-04
	eClass	9	27-24-26-04
	eClass	8	27-24-26-04
	eClass	7.1	27-24-26-04
	eClass	6	27-24-26-04
	ETIM	10	EC001599
	ETIM	9	EC001599
	ETIM	8	EC001599
	ETIM	7	EC001599

Approvals / Certificates

General Product Approval



EG-Konf.

[Miscellaneous](#)



[Declaration of Con-
formity](#)



General Product Approval



[China RoHS](#)



EG-Konf.

[Manufacturer Declara-
tion](#)

[Miscellaneous](#)



For use in hazardous locations



IECEEx

[Declaration of Con-
formity](#)



CCC



UL



ATEX



IECEEx

For use in hazard- ous locations	Maritime application
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[Miscellaneous](#)



ABS



BUREAU
VERITAS



DNV



LRS

[NK / Nippon Kaiji Ky-
okai](#)

Maritime application	other	Environment
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RINA

[CCS \(China Classifica-
tion Society\)](#)

[Miscellaneous](#)



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