

SIMATIC ET 200SP, digital output module, DQ 4x 24 V DC/2A High Speed, Pack quantity: 1 unit suitable for BU type A0, Color code CC00, 3 alternative operating modes: DQ, Oversampling, PWM
Module diagnostics



General information	
Product type designation	DQ 4x24 V DC/2 A HS
HW functional status	From FS05
Firmware version	
<ul style="list-style-type: none"> FW update possible 	Yes
usable BaseUnits	BU type A0
Color code for module-specific color identification plate	CC00
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> Isochronous mode 	Yes; Operating modes DQ and OVS only
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated as of version 	STEP 7 V15.1 or higher
<ul style="list-style-type: none"> STEP 7 configurable/integrated as of version 	Via GSD as of V5.6 HF4
<ul style="list-style-type: none"> PROFIBUS as of GSD version/GSD revision 	One GSD file each, Revision 3 and 5 and higher
<ul style="list-style-type: none"> PROFINET as of GSD version/GSD revision 	GSDML V2.33
Operating mode	
<ul style="list-style-type: none"> DQ 	Yes

• DQ with energy-saving function	Yes; Valve control
• PWM	Yes
• Cam control (switching at comparison values)	Yes; Via MtM (module-to-module communication)
• Oversampling	Yes
• MSO	No

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, max.	50 mA; without load
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Output voltage

Rated value (DC)	24 V
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Power loss

Power loss, typ.	2.5 W; at 24 V, 25 °C, DQ mode, 2 A per channel
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Address area

Address space per module	
• Inputs	1 byte; Max. 14 bytes in the cam control operating mode
• Outputs	1 byte; Max. 16 bytes in the oversampling operating mode

Hardware configuration

Automatic encoding	Yes
• Mechanical coding element	Yes
Selection of BaseUnit for connection variants	
• 1-wire connection	BU type A0
• 2-wire connection	BU type A0
• 3-wire connection	BU type A0 with AUX terminals or potential distributor module
• 4-wire connection	BU type A0 + Potential isolation module

Digital outputs

Type of digital output	Source output (PNP, current-sourcing)
Number of digital outputs	4
Current-sinking	No
Current-sourcing	Yes; Push-pull output
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes
• Response threshold, typ.	6 A
Limitation of inductive shutdown voltage to	M (-1 V)
Controlling a digital input	No
Digital output functions, parameterizable	
• Switching tripped by comparison values	Yes

— Number of cam tracks, max.	4
— Number of cams per module, max.	16
— Number of cams per track, max.	16
— Supported axis types	Linear axes and rotary axes with modulo function
— Hysteresis	Yes
— Pulsed cam output	Yes
— Range of values for comparison values, max.	-2,147,483,648 to 2,147,483,647 (user-specific within this range)
• Freely usable digital output	Yes
• PWM output	Yes
— Number, max.	4
— Cycle duration, parameterizable	Yes; 0 ms, 0.2 ms, 0.4 ms, 0.93 ms, 1.33 ms, 4.27 ms, 10.67 ms, 21.33 ms, 34.13 ms, 59.73 ms
— Resolution of the duty cycle	0.1 %
• Digital output with oversampling	Yes
— Number, max.	4
— Values per cycle, max.	32
— Resolution, min.	100 µs
Switching capacity of the outputs	
• with resistive load, max.	2 A
• on lamp load, max.	10 W
Load resistance range	
• lower limit	12 Ω
• upper limit	3 400 Ω
Output current	
• for signal "1" rated value	2 A
• for signal "0" residual current, max.	0.1 mA
Output delay with resistive load	
• "0" to "1", max.	1 µs
• "1" to "0", max.	1 µs
Parallel switching of two outputs	
• for uprating	No
Switching frequency	
• with resistive load, max.	5 kHz
• with inductive load, max.	5 kHz
• on lamp load, max.	5 kHz
Total current of the outputs	
• Current per channel, max.	2 A
• Current per module, max.	8 A
Total current of the outputs (per module)	
horizontal installation	
— up to 30 °C, max.	8 A; DQ mode

— up to 40 °C, max.	6.9 A; DQ mode
— up to 50 °C, max.	4.7 A; DQ mode
— up to 60 °C, max.	2.5 A; DQ mode
vertical installation	
— up to 30 °C, max.	7.2 A; DQ mode
— up to 40 °C, max.	5.6 A; DQ mode
— up to 50 °C, max.	4 A; DQ mode
Cable length	
• shielded, max.	50 m
• unshielded, max.	50 m
Isochronous mode	
Execution and activation time (TCO), min.	40 µs
Bus cycle time (TDP), min.	125 µs
Jitter, max.	1 µs
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Substitute values connectable	Yes
Alarms	
• Diagnostic alarm	Yes
Diagnostic messages	
• Diagnostic information readable	Yes
• Monitoring the supply voltage	Yes
• Wire-break	No
• Short-circuit	Yes; Module-wise
• Group error	Yes
Diagnostics indication LED	
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
• Channel status display	Yes; green LED
• for channel diagnostics	No
• for module diagnostics	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	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	No
Suitable for safety-related tripping of standard modules	No

Ambient conditions

Ambient temperature during operation

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|---------------------------------|--------|
| • horizontal installation, min. | -30 °C |
| • horizontal installation, max. | 60 °C |
| • vertical installation, min. | -30 °C |
| • vertical installation, max. | 50 °C |

Altitude during operation relating to sea level

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| • Installation altitude above sea level, max. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
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Dimensions

Width	15 mm
Height	73 mm
Depth	58 mm

Weights

Weight, approx.	31 g
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last modified: 05/09/2020