

SIMATIC ET 200AL, DIQ 4+DQ 4x 24 V DC/0.5 A, 4x M12, Degree of protection IP67



General information	
Product type designation	DIQ 4+DQ 4x24VDC/0.5A
HW functional status	FS03
Firmware version	V1.0.x
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated as of version</li> </ul>	STEP 7 V13 SP1 or higher
<ul style="list-style-type: none"> <li>STEP 7 configurable/integrated as of version</li> </ul>	V5.5 SP4 Hotfix 7 or higher
<ul style="list-style-type: none"> <li>PROFIBUS as of GSD version/GSD revision</li> </ul>	GSD as of Revision 5
<ul style="list-style-type: none"> <li>PROFINET as of GSD version/GSD revision</li> </ul>	GSDML V2.3.1
Supply voltage	
Load voltage 1L+	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> </ul>	24 V
<ul style="list-style-type: none"> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
<ul style="list-style-type: none"> <li>permissible range, upper limit (DC)</li> </ul>	28.8 V

• Reverse polarity protection	Yes; Against destruction; encoder power supply outputs applied with reversed polarity, loads pick up
<b>Load voltage 2L+</b>	
• Rated value (DC)	24 V
• permissible range, lower limit (DC)	20.4 V
• permissible range, upper limit (DC)	28.8 V
• Reverse polarity protection	Yes; against destruction; load increasing
<b>Input current</b>	
Current consumption (rated value)	40 mA; without load
from load voltage 1L+ (unswitched voltage)	4 A; Maximum value
from load voltage 2L+, max.	4 A; Maximum value
<b>Encoder supply</b>	
Number of outputs	4
<b>24 V encoder supply</b>	
• Short-circuit protection	Yes; per module, electronic
• Output current, max.	0.7 A; Total current of all encoders
<b>Power loss</b>	
Power loss, typ.	2.5 W
<b>Digital inputs</b>	
Number of digital inputs	4; Parameterizable as DIQ
Input characteristic curve in accordance with IEC 61131, type 3	Yes
<b>Number of simultaneously controllable inputs</b>	
all mounting positions	
— up to 55 °C, max.	4
<b>Input voltage</b>	
• Rated value (DC)	24 V
• for signal "0"	-3 to +5V
• for signal "1"	+11 to +30V
<b>Input current</b>	
• for signal "1", typ.	3.2 mA
<b>Input delay (for rated value of input voltage)</b>	
for standard inputs	
— at "0" to "1", min.	1.2 ms
— at "0" to "1", max.	4.8 ms
— at "1" to "0", min.	1.2 ms
— at "1" to "0", max.	4.8 ms
<b>Cable length</b>	
• unshielded, max.	30 m
<b>Digital outputs</b>	

Number of digital outputs	8; 4 DQ fixed, 4 DIQ parameterizable
<ul style="list-style-type: none"> <li>• in groups of</li> </ul>	4; 2 load groups for 4 outputs each
Short-circuit protection	Yes; per channel, electronic
<ul style="list-style-type: none"> <li>• Response threshold, typ.</li> </ul>	0.7 A
Limitation of inductive shutdown voltage to	2L+ (-47 V)
<b>Switching capacity of the outputs</b>	
<ul style="list-style-type: none"> <li>• on lamp load, max.</li> </ul>	5 W
<b>Load resistance range</b>	
<ul style="list-style-type: none"> <li>• lower limit</li> </ul>	48 Ω
<ul style="list-style-type: none"> <li>• upper limit</li> </ul>	4 kΩ
<b>Output voltage</b>	
<ul style="list-style-type: none"> <li>• for signal "1", min.</li> </ul>	L+ (-0.8 V)
<b>Output current</b>	
<ul style="list-style-type: none"> <li>• for signal "1" rated value</li> </ul>	0.5 A
<ul style="list-style-type: none"> <li>• for signal "0" residual current, max.</li> </ul>	0.5 mA
<b>Switching frequency</b>	
<ul style="list-style-type: none"> <li>• with resistive load, max.</li> </ul>	100 Hz
<ul style="list-style-type: none"> <li>• with inductive load, max.</li> </ul>	0.5 Hz
<ul style="list-style-type: none"> <li>• on lamp load, max.</li> </ul>	1 Hz
<b>Total current of the outputs</b>	
<ul style="list-style-type: none"> <li>• Current per group, max.</li> </ul>	2 A
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• unshielded, max.</li> </ul>	30 m
<b>Encoder</b>	
<b>Connectable encoders</b>	
<ul style="list-style-type: none"> <li>• 2-wire sensor</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— permissible quiescent current (2-wire sensor), max.</li> </ul>	1.5 mA
<b>Interrupts/diagnostics/status information</b>	
Substitute values connectable	Yes; channel by channel, parameterizable
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> </ul>	Yes; Parameterizable
<b>Diagnostic messages</b>	
<ul style="list-style-type: none"> <li>• Short-circuit</li> </ul>	Yes; Outputs to M; encoder supply to M; module by module
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• Channel status display</li> </ul>	Yes; green LED
<ul style="list-style-type: none"> <li>• for module diagnostics</li> </ul>	Yes; green/red LED
<ul style="list-style-type: none"> <li>• For load voltage monitoring</li> </ul>	Yes; green LED
<b>Potential separation</b>	
between the load voltages	Yes
<b>Potential separation channels</b>	

- between the channels, in groups of
- between the channels and backplane bus
- between the channels and the power supply of the electronics

4; DIQ channels are isolated from DQ channels

Yes

No; DIQ channels are non-isolated and DQ channels are isolated from supply voltage 1L+

## Isolation

Isolation tested with 707 V DC (type test)

## Degree and class of protection

IP degree of protection IP65/67

## Standards, approvals, certificates

Suitable for safety-related tripping of standard modules Yes; From FS01

Highest safety class achievable for safety-related tripping of standard modules

- Performance level according to ISO 13849-1 PL d
- Category according to ISO 13849-1 Cat. 3
- SILCL according to IEC 62061 SILCL 2

## Ambient conditions

Ambient temperature during operation

- min. -30 °C
- max. 55 °C

## Connection method

Design of electrical connection for the inputs and outputs M12, 5-pole

Design of electrical connection for supply voltage M8, 4-pole

ET-Connection

- ET-Connection M8, 4-pin, shielded

## Dimensions

Width 30 mm

Height 159 mm

Depth 40 mm

## Weights

Weight, approx. 145 g

**last modified:** 02/24/2020