



SIMATIC ET 200SP HA, ET 200SP, digital ex-i output module, Ex-DQ 2x23,1VDC/20mA suitable for BaseUnit type X1, channel diagnostics

General information	
Product type designation	Ex-DQ 2x23.1VDC/20mA
Firmware version	V1.0
<ul style="list-style-type: none"> <li>FW update possible</li> </ul>	Yes
usable BaseUnits	BU type X1
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> <li>Isochronous mode</li> </ul>	No
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V16
<ul style="list-style-type: none"> <li>PCS 7 configurable/integrated from version</li> </ul>	V9.1
<ul style="list-style-type: none"> <li>PCS neo can be configured/integrated from version</li> </ul>	V3.1
<ul style="list-style-type: none"> <li>PROFINET from GSD version/GSD revision</li> </ul>	GSDML V2.35
Operating mode	
<ul style="list-style-type: none"> <li>DQ</li> </ul>	Yes
<ul style="list-style-type: none"> <li>MSO</li> </ul>	Yes
Redundancy	
<ul style="list-style-type: none"> <li>Redundancy capability</li> </ul>	No
Input current	
Current consumption (rated value)	80 mA; At 20 mA per channel
Current consumption, max.	80 mA; At 20 mA per channel
output voltage / header	
Rated value (DC)	23.1 V; See output characteristic in manual
Power loss	
Power loss, typ.	1.3 W
Address area	
Address space per module	
<ul style="list-style-type: none"> <li>Address space per module, max.</li> </ul>	1 byte; + 1 byte for QI information
Hardware configuration	
Automatic encoding	
<ul style="list-style-type: none"> <li>Mechanical coding element</li> </ul>	Yes
Selection of BaseUnit for connection variants	
<ul style="list-style-type: none"> <li>2-wire connection</li> </ul>	BU type X1
Digital outputs	
Number of digital outputs	2
Current-sinking	No
Current-sourcing	Yes
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes
Open-circuit detection	Yes; capacitive loads can cause wire-break diagnostics when the channel is

	switched off
Overload protection	Yes
Limitation of inductive shutdown voltage to	DQ.n- (-1 V)
<b>Switching capacity of the outputs</b>	
• with resistive load, max.	20 mA; See output characteristic in manual
• with inductive load, max.	20 mA; See output characteristic in manual
<b>Load resistance range</b>	
• lower limit	872 Ω; See output characteristic in manual
• upper limit	10 kΩ; See output characteristic in manual
<b>Output current</b>	
• for signal "1" rated value	20 mA
• for signal "0" residual current, max.	100 μA; 250 μA test current for wire break diagnostics
<b>Output delay with resistive load</b>	
• "0" to "1", typ.	50 μs
• "1" to "0", typ.	100 μs
<b>Parallel switching of two outputs</b>	
• for uprating	No
<b>Switching frequency</b>	
• with resistive load, max.	500 Hz
• with inductive load, max.	500 Hz
<b>Total current of the outputs</b>	
• Current per channel, max.	20 mA
• Current per module, max.	40 mA
<b>Total current of the outputs (per module)</b>	
horizontal installation	
— up to 70 °C, max.	40 mA
vertical installation	
— up to 60 °C, max.	40 mA
<b>Cable length</b>	
• shielded, max.	500 m; Ex characteristic values must be observed
• unshielded, max.	500 m; Ex characteristic values must be observed
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
Substitute values connectable	Yes
<b>Alarms</b>	
• Diagnostic alarm	Yes
• Maintenance interrupt	Yes
<b>Diagnoses</b>	
• Diagnostic information readable	Yes
• Monitoring the supply voltage	Yes
— parameterizable	Yes
• Wire-break	Yes; channel by channel
• Short-circuit	Yes; channel by channel
• Group error	Yes
<b>Diagnostics indication LED</b>	
• MAINT LED	Yes; Yellow LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; red LED
• for module diagnostics	Yes; green/red DIAG LED
<b>Ex(I) characteristics</b>	
maximum values for connecting terminals for gas group IIC	
• Uo (no-load voltage), max.	24.8 V
• Io (short-circuit current), max.	99 mA
• Po (power output), max.	614 mW
• Co (permissible external capacity), max.	100 nF
• Lo (permissible external inductivity), max.	3.5 mH
• Um (voltage at non-intrinsically safe connecting terminals), max.	60 V
<b>Potential separation</b>	
Potential separation channels	

- between the channels
- between the channels and backplane bus
- between the channels and the power supply of the electronics

No  
 Yes  
 Yes; Electrical isolation between the channels and input voltage PME

#### Isolation

Isolation tested with further information on insulation can be found in the "ET 200SP HA / ET 200SP modules for devices in hazardous areas" System Manual

insulation of the field circuits to local ground acc. to IEC/EN 60079-11 tested with 707 V DC (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

##### Altitude during operation relating to sea level

- Installation altitude above sea level, max. 2 000 m

#### Dimensions

Width 20 mm

Height 73 mm

Depth 58 mm

#### Weights

Weight, approx. 55 g

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