



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
• FW update possible	Yes
usable BaseUnits	BU type X1
Product function	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	No
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	V16
• PCS 7 configurable/integrated from version	V9.1
• PCS neo can be configured/integrated from version	V3.1
• PROFINET from GSD version/GSD revision	GSDML V2.35
Operating mode	
• DQ	Yes
• MSO	Yes
Redundancy	
• Redundancy capability	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	
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	
• Address space per module, max.	1 byte; + 1 byte for QI information
Hardware configuration	
Automatic encoding	
• Mechanical coding element	Yes
Selection of BaseUnit for connection variants	
• 2-wire connection	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)
Switching capacity of the outputs	
• with resistive load, max.	20 mA; See output characteristic in manual
• with inductive load, max.	20 mA; See output characteristic in manual
Load resistance range	
• lower limit	872 Ω; See output characteristic in manual
• upper limit	10 kΩ; See output characteristic in manual
Output current	
• for signal "1" rated value	20 mA
• for signal "0" residual current, max.	100 µA; 250 µA test current for wire break diagnostics
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
Switching frequency	
• with resistive load, max.	500 Hz
• with inductive load, max.	500 Hz
Total current of the outputs	
• Current per channel, max.	20 mA
• Current per module, max.	40 mA
Total current of the outputs (per module)	
horizontal installation	
— up to 70 °C, max.	40 mA
vertical installation	
— up to 60 °C, max.	40 mA
Cable length	
• shielded, max.	500 m; Ex characteristic values must be observed
• unshielded, max.	500 m; Ex characteristic values must be observed
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Substitute values connectable	Yes
Alarms	
• Diagnostic alarm	Yes
• Maintenance interrupt	Yes
Diagnoses	
• 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
Diagnostics indication LED	
• 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
Ex(i) characteristics	
maximum values for connecting terminals for gas group IIC	
• U _o (no-load voltage), max.	24.8 V
• I _o (short-circuit current), max.	99 mA
• P _o (power output), max.	614 mW
• C _o (permissible external capacity), max.	100 nF
• L _o (permissible external inductivity), max.	3.5 mH
• U _m (voltage at non-intrinsically safe connecting	60 V

terminals), max.

Potential separation

Potential separation channels	
• between the channels	No
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	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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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



[KC](#)



For use in hazardous locations

Maritime application



[Miscellaneous](#)



Maritime application



[NK / Nippon Kaiji Kyokai](#)



[CCS \(China Classification Society\)](#)

Environment

Siemens
EcoTech



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