Data sheet



SIMATIC ET 200SP, Digital output module, DQ 8x 24V DC/0,5A Standard, Source output (PNP,P-switching) Packing unit: 1 piece, fits to BU-type A0, Colour Code CC02, substitute value output, module diagnostics for: short-circuit to L+ and ground, wire break, supply voltage

General information	
Product type designation	DQ 8x24VDC/0.5A ST
HW functional status	From FS02
Firmware version	V0.0
 FW update possible 	No
usable BaseUnits	BU type A0
Color code for module-specific color identification	CC02
plate	
Product function	
● I&M data	Yes; I&M0 to I&M3
Engineering with	
 STEP 7 TIA Portal configurable/integrated as of version 	V14
 STEP 7 configurable/integrated as of version 	V5.5 SP3 or higher
 PCS 7 configurable/integrated as of version 	V8.1 SP1
 PROFIBUS as of GSD version/GSD revision 	One GSD file each, Revision 3 and 5 and higher
 PROFINET as of 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
Complexed	
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
reverse polarity protestion	100
Input current	
Current consumption, max.	35 mA; without load
Output voltage	
Rated value (DC)	24 V
Power loss	4.94
Power loss, typ.	1 W
Address area	
Address space per module	
Address space per module, max.	1 byte; + 1 byte for QI information
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	8
Current-sourcing	Yes
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes
• Response threshold, typ.	1 A
Limitation of inductive shutdown voltage to	Typ. L+ (-50 V)
Controlling a digital input	Yes
Switching capacity of the outputs	
with resistive load, max.	0.5 A
• on lamp load, max.	5 W
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• lower limit 12 kΩ • for signal "1", min. L+ (-0.8 V) Output current • for signal "1" rated value 0.5 A • for signal "0" residual current, max. 0.5 A • for signal "0" residual current, max. 0.1 mA Output delay with resistive load • 0° to "1", max. 50 μs; at rated load • "0" to "1", max. 100 μs; at rated load • "1" to "0", max. 100 μs; at rated load Parallel switching of two outputs • (or uprating) No • for redundant control of a load Yes Switching frequency • with inductive load, max. 2 Hz • with inductive load, max. 10 Hz • on lamp load, max. 10 Hz • Current per condule, max. 4 A • Current of the outputs (per module) • Current of the outputs (per module) horizontal installation 4 A — up to 40 °C, max. 4 A — up to 50 °C, max.	Load resistance range	
Output voltage • for signal "1", min. L+ (-0.8 V) Output current • for signal "1" rated value • for signal "1" permissible range, max. • for signal "0" residual current, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max. • for uprating • for uprating • for uprating • for redundant control of a load Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • Current per module, max. • Current per module, max. • Current per module, max. - up to 30 "C, max. - up to 40 "C, max. - up to 40 "C, max. - up to 50 "C, max. - up to 40 "C, max. - up to 50 "C, max. - u	• lower limit	48 Ω
• for signal "1", min. Output current • for signal "1" permissible range, max. • for signal "1" permissible range, max. • for signal "1" permissible range, max. • for signal "0" residual current, max. Output delay with resistive load • "0" to "1", max. • 50 μs; at rated load • "1" to "0", max. 100 μs; at rated load • rarelle load for redundant control of a load • for uprating • for uprating • for uprating • for uprating • with resistive load, max. • uith inductive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • current per module, max. • Qurrent of the outputs (per module) horizontal installation — up to 30 "C, max. — up to 60 "C, max. — up to 60 "C, max. — up to 60 "C, max. — up to 50	• upper limit	12 kΩ
Output current • for signal "1" rated value • for signal "1" permissible range, max. • for signal "1" permissible range, max. • for signal "0" residual current, max. • 100 the delay with resistive load • "0" to "1", max. • "1" to "0", max. • for uprating • for uprating • for uprating • for uprating • with resistive load, max. • with inductive load, max. • with inductive load, max. • on lamp load, max. • corrent per channel, max. • Current per channel, max. • Current per module, max. • Current per module, max. • La A - up to 30 "C, max up to 40 "C, max up to 60 "C, max up to 60 "C, max up to 50 "C, max.	Output voltage	
• for signal "1" rated value • for signal "1" permissible range, max. • for signal "0" residual current, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Parallel switching of two outputs • for uprating • for uprating • for uprating • for redundant control of a load Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • Current per channel, max. • Current per module, max. • Current per module, ger module) horizontal installation — up to 30 °C, max. — up to 60 °C, max. — up to 60 °C, max. — up to 60 °C, max. — up to 50 °C, max. — No Sectoronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function	● for signal "1", min.	L+ (-0.8 V)
• for signal "1" permissible range, max. • for signal "0" residual current, max. Output delay with resistive load • "0" to "1", max. 50 µs; at rated load • "1" to "0", max. 100 µs; at rated load Parallel switching of two outputs • for uprating • for redundant control of a load Switching frequency • with resistive load, max. 100 Hz • with inductive load, max. 10 Hz Total current of the outputs • Current per channel, max. 2 Hz • Current per module, max. 4 A Total current of the outputs (per module) horizontal installation — up to 30 "C, max. — up to 40 "C, max. — up to 50 "C, max. — up to	Output current	
• for signal "0" residual current, max. Output delay with resistive load • "0" to "t", max. • "1" to "0", max. • "1" to "0", max. • "1" to "0", max. • for uprating • for redundant control of a load • with resistive load, max. • with inductive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • Current per channel, max. • Current per module, max. • Current per module, max. • Unitsulation the outputs (per module) horizontal installation - up to 30 "C, max. - up to 40 "C, max. - up to 60 "C, max. - up to 50 "C, max. - up to 40 "C, max. - up to 50 "C, max.	• for signal "1" rated value	0.5 A
Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Parallel switching of two outputs • for uprating • for redundant control of a load • with resistive load, max. • with inductive load, max. • with inductive load, max. • on lamp load, max. • Outrent per channel, max. • Current per module, max. • Current per module, max. • Current fen outputs (per module) horizontal installation - up to 30 °C, max up to 40 °C, max up to 60 °C, max up to 50 °C, max	• for signal "1" permissible range, max.	0.5 A
• "0" to "1", max. • "1" to "0", max. 100 µs; at rated load Parallel switching of two outputs • for uprating • for redundant control of a load 9es Switching frequency • with resistive load, max. • with inductive load, max. • with inductive load, max. • on lamp load, max. • load current of the outputs • Current per channel, max. • Current per module, max. 100 FA Total current of the outputs (per module) horizontal installation - up to 30 °C, max up to 40 °C, max up to 60 °C, max. - up to 50 °C, max up to 60 °C, max up to 50 °C, max NA - Up to 50 °C, max NA - NA	• for signal "0" residual current, max.	0.1 mA
• "1" to "0", max. Parallel switching of two outputs • for uprating • for redundant control of a load Yes Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • Current per channel, max. • Current per module, max. • Current per module, max. - up to 30 °C, max. - up to 40 °C, max. - up to 60 °C, max. - up to 60 °C, max. - up to 40 °C, max. - up to 40 °C, max. - up to 40 °C, max. - up to 50 °C, max. - up to 50 °C, max. - up to 50 °C, max. - up to 40 °C, max. - up to 40 °C, max. - up to 40 °C, max. - up to 50 °C, max. - up to 50 °C, max. - up to 40 °C, max. - up to 40 °C, max. - up to 50 °C, max. - No Possibleded, max. Scable length Isochronous operation (application synchronized up to terminal) No Isochronous mode Isochronous operation (application synchronized up to terminal)	Output delay with resistive load	
Parallel switching of two outputs • for uprating • for redundant control of a load Yes Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • Current of the outputs • Current per module, max. • Current per module, max. - Up to 30 °C, max up to 40 °C, max up to 50 °C, max up to 60 °C, max up to 40 °C, max up to 40 °C, max up to 50 °C, m	• "0" to "1", max.	50 μs; at rated load
for uprating for redundant control of a load Yes Switching frequency with resistive load, max. with inductive load, max. on lamp load, max. 10 Hz Total current of the outputs Current per channel, max. 4 A Total current of the outputs (per module) horizontal installation	• "1" to "0", max.	100 μs; at rated load
• for redundant control of a load Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • Current of the outputs • Current per channel, max. • Current per module, max. • Current of the outputs (per module) horizontal installation — up to 30 °C, max. — up to 40 °C, max. — up to 60 °C, max. — up to 60 °C, max. — up to 40 °C, max. — up to 40 °C, max. — up to 40 °C, max. — up to 50 °C, max. — New Yerical installation • shielded, max. • unshielded, max.	Parallel switching of two outputs	
Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • Current per channel, max. • Current per module, max. • Current per module, max. • Current of the outputs (per module) horizontal installation — up to 30 °C, max. — up to 40 °C, max. — up to 60 °C, max. — up to 60 °C, max. — up to 40 °C, max. — up to 40 °C, max. — up to 50 °C, max. — New Yerical installation Schronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	for uprating	No
 with resistive load, max. with inductive load, max. 10 Hz with inductive load, max. 10 Hz Total current of the outputs Current per channel, max. Current per module, max. 4 A Total current of the outputs (per module) horizontal installation up to 30 °C, max. up to 40 °C, max. up to 50 °C, max. up to 60 °C, max. up to 60 °C, max. up to 30 °C, max. 4 A vertical installation up to 30 °C, max. 4 A vertical installation Vertical installation up to 30 °C, max. 4 A vertical installation Vertical installation up to 50 °C, max. 4 A Vertical installation up to 50 °C, max. 4 A Cable length shielded, max. unshielded, max. unshielded, max. foom m Isochronous mode Isochronous operation (application synchronized up to terminal) No Interrupts/diagnostics/status information Diagnostics function Yes 	 for redundant control of a load 	Yes
with inductive load, max. on lamp load, max. Current per channel, max. Current per module, max. Current per module, max. Current of the outputs (Per module) horizontal installation - up to 30 °C, max up to 40 °C, max up to 50 °C, max up to 60 °C, max up to 60 °C, max up to 30 °C, max up to 50 °C, max NA Westical installation Sochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	Switching frequency	
on lamp load, max. Total current of the outputs Current per channel, max. Current per module, max. Current per module, max. Current of the outputs (per module) horizontal installation	with resistive load, max.	100 Hz
Total current of the outputs • Current per channel, max. • Current per module, max. • Current per module, max. • Current per module, max. • Current of the outputs (per module) horizontal installation — up to 30 °C, max. — up to 40 °C, max. — up to 50 °C, max. — up to 60 °C, max. — up to 60 °C, max. — up to 30 °C, max. — up to 30 °C, max. — up to 40 °C, max. — up to 50 °C, max. • shielded, max. • unshielded, max.	 with inductive load, max. 	2 Hz
• Current per channel, max. • Current per module, max. • Current of the outputs (per module) horizontal installation — up to 30 °C, max. — up to 40 °C, max. — up to 50 °C, max. — up to 60 °C, max. — up to 30 °C, max. — up to 30 °C, max. — up to 30 °C, max. — up to 50 °C, max. — No Cable length • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • Unstallation Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	● on lamp load, max.	10 Hz
Current per module, max. Fotal current of the outputs (per module) horizontal installation - up to 30 °C, max. - up to 40 °C, max. - up to 50 °C, max. - up to 60 °C, max. - up to 30 °C, max. 4 A vertical installation - up to 30 °C, max. 4 A - up to 40 °C, max. 4 A Vertical linstallation - up to 50 °C, max. 4 A - up to 50 °C, max. 4 A Cable length • shielded, max. • unshielded, max.	Total current of the outputs	
Total current of the outputs (per module) horizontal installation — up to 30 °C, max.	Current per channel, max.	0.5 A
horizontal installation - up to 30 °C, max.	 Current per module, max. 	4 A
- up to 30 °C, max. - up to 40 °C, max. - up to 50 °C, max. - up to 60 °C, max. 4 A vertical installation - up to 30 °C, max. 4 A - up to 40 °C, max. 4 A - up to 40 °C, max. 4 A - up to 50 °C, max. 4 A Cable length • shielded, max. • unshielded, max. 1 000 m Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	Total current of the outputs (per module)	
- up to 40 °C, max. 4 A - up to 50 °C, max. 4 A - up to 60 °C, max. 4 A - up to 60 °C, max. 4 A vertical installation - up to 30 °C, max. 4 A - up to 40 °C, max. 4 A - up to 50 °C, max. 4 A - up to 50 °C, max. 4 A Cable length • shielded, max. 1 000 m • unshielded, max. 600 m Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	horizontal installation	
- up to 50 °C, max. - up to 60 °C, max. 4 A vertical installation - up to 30 °C, max. 4 A - up to 40 °C, max. 4 A - up to 50 °C, max. 4 A Cable length • shielded, max. • unshielded, max. • unshielded, max. 1 000 m Sochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	— up to 30 °C, max.	4 A
- up to 60 °C, max. Vertical installation - up to 30 °C, max. - up to 40 °C, max. - up to 50 °C, max. - up to 50 °C, max. 4 A Cable length • shielded, max. • unshielded, max. 1 000 m 600 m Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	— up to 40 °C, max.	4 A
vertical installation — up to 30 °C, max. — up to 40 °C, max. — up to 50 °C, max. 4 A — up to 50 °C, max. 4 A Cable length • shielded, max. • unshielded, max. 1 000 m 600 m Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	— up to 50 °C, max.	4 A
- up to 30 °C, max. - up to 40 °C, max. - up to 50 °C, max. 4 A Cable length • shielded, max. • unshielded, max. 1 000 m 600 m Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	— up to 60 °C, max.	4 A
- up to 40 °C, max up to 50 °C, max. 4 A Cable length • shielded, max. • unshielded, max. 1 000 m 600 m Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	vertical installation	
— up to 50 °C, max. Cable length • shielded, max. • unshielded, max. 1 000 m 600 m Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	— up to 30 °C, max.	4 A
Cable length • shielded, max. • unshielded, max. 1 000 m 600 m Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	— up to 40 °C, max.	4 A
shielded, max. unshielded, max. 600 m Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	— up to 50 °C, max.	4 A
• unshielded, max. Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	Cable length	
Isochronous mode Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	• shielded, max.	1 000 m
Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	• unshielded, max.	600 m
Isochronous operation (application synchronized up to terminal) Interrupts/diagnostics/status information Diagnostics function Yes	Isochronous mode	
Interrupts/diagnostics/status information Diagnostics function Yes		No
Diagnostics function Yes		
Diagnostics function Yes	Interrupts/diagnostics/status information	
Substitute values connectable Yes		Yes
	Substitute values connectable	Yes

Alarms	
Diagnostic alarm	Yes
Diagnostic messages	
Monitoring the supply voltage	Yes
Wire-break	Yes; Module-wise
• Short-circuit to M	Yes; Module-wise
• Short-circuit to L+	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
• between the channels and the power supply of	No
the electronics	
Isolation	
130lation	
Isolation tested with	707 V DC (type test)
	707 V DC (type test)
Isolation tested with	707 V DC (type test) No
Isolation tested with Standards, approvals, certificates	
Isolation tested with Standards, approvals, certificates Suitable for safety functions	No
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard	No Yes; From FS01
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules	No
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode	No Yes; From FS01
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode • Performance level according to ISO 13849-1	No Yes; From FS01
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508	No Yes; From FS01 PL d SIL 2
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 Ambient conditions	No Yes; From FS01
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 Ambient conditions Ambient temperature during operation	No Yes; From FS01 PL d SIL 2
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 Ambient conditions Ambient temperature during operation • horizontal installation, min.	No Yes; From FS01 PL d SIL 2 -30 °C
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max.	No Yes; From FS01 PL d SIL 2 -30 °C 60 °C
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min.	No Yes; From FS01 PL d SIL 2 -30 °C 60 °C -30 °C
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max.	No Yes; From FS01 PL d SIL 2 -30 °C 60 °C -30 °C
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. Altitude during operation relating to sea level	No Yes; From FS01 PL d SIL 2 -30 °C 60 °C -30 °C 50 °C
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. Altitude during operation relating to sea level • Installation altitude above sea level, max.	No Yes; From FS01 PL d SIL 2 -30 °C 60 °C -30 °C 50 °C
Isolation tested with Standards, approvals, certificates Suitable for safety functions Suitable for safety-related tripping of standard modules Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. Altitude during operation relating to sea level • Installation altitude above sea level, max. Dimensions	No Yes; From FS01 PL d SIL 2 -30 °C 60 °C -30 °C 50 °C 2 000 m; On request: Installation altitudes greater than 2 000 m

Weights Weight, approx. 30 g 01/22/2020 last modified: