



SIMATIC ET 200clean, DIQ 16x 24 V DC/0.5 A, 8x M12, double assignment, input type 3 (IEC 61131), sink input (PNP, sinking input), input delay 0.05...20 ms, source output (PNP, switching to P potential), substitute value output, channel diagnostics for: open circuit at input, encoder power supply short-circuit, short-circuit at output, MSI, MSO, MRP, S2 redundancy, I&M0...4, multi-fieldbus, PN IO, Ethernet IP, Modbus TCP, degree of protection IP69K

General information	
HW functional status	FS01
Firmware version	V1.1.x
• FW update possible	Yes
Vendor identification (VendorID)	002AH
Device identifier (DeviceID)	031AH
Manufacturer ID according to ODVA (VendorID)	04E3H
Device ID according to ODVA (Product code)	0FB8H
Product function	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	No
• IRT	Yes
• Prioritized startup	Yes
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	STEP 7 V19 or higher with HSP 0414
• PROFINET from GSD version/GSD revision	GSDML V2.4.x
• Multi Fieldbus Configuration Tool (MFCT)	V1.5.x or higher
Operating mode	
• DI	Yes
• Counter	No
• DQ	Yes
• MSI	Yes
• MSO	Yes
Supply voltage	
power supply according to NEC Class 2 required	No
Load voltage 1L+	
• 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; encoder power supply outputs applied with reversed polarity, loads pick up
Load voltage 2L+	
• 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; encoder power supply outputs applied with reversed polarity, loads pick up

Input current	
Current consumption (rated value)	95 mA; without load
from load voltage 1L+ (unswitched voltage)	12 A; Maximum value
from load voltage 2L+, max.	12 A; Maximum value
Encoder supply	
Number of outputs	8
24 V encoder supply	
• Short-circuit protection	Yes; Group-by-group for 2 channels, electronic
• Output current, max.	100 mA; per output
Power loss	
Power loss, typ.	5.5 W
Address area	
Address space per module	
• Inputs	2 byte; + 4 bytes for QI information
• Outputs	2 byte
Hardware configuration	
Submodules	
• Number of configurable submodules, max.	2
Digital inputs	
Number of digital inputs	16; Parameterizable as DIQ
• in groups of	8
Digital inputs, parameterizable	Yes
Source/sink input	P-reading
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 55 °C, max.	16
Input voltage	
• Rated value (DC)	24 V
• for signal "0"	-3 to +5V
• for signal "1"	+11 to +30V
Input current	
• for signal "1", typ.	2.4 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms
Cable length	
• unshielded, max.	30 m
Digital outputs	
Number of digital outputs	16; Parameterizable as DIQ
• in groups of	8; 2 load groups for 8 outputs each
Current-sourcing	Yes
output type acc. to IEC 61131, type 0.5	Yes
Short-circuit protection	Yes; per channel, electronic
• Response threshold, typ.	1 A
Limitation of inductive shutdown voltage to	typ. L+ (-70 V)
Controlling a digital input	Yes
Switching capacity of the outputs	
• with resistive load, max.	0.5 A
• with inductive load, max.	0.5 A
• on lamp load, max.	5 W
Load resistance range	
• lower limit	48 Ω
• upper limit	4 kΩ
Output voltage	
• for signal "1", min.	1L+ (-0.8 V) / 2L+ (-0.8 V)
Output current	
• for signal "1" rated value	0.5 A

• for signal "1" permissible range, max.	0.5 A
• for signal "0" residual current, max.	0.1 mA
Output delay with resistive load	
• "0" to "1", max.	100 µs; at rated load
• "1" to "0", max.	1L+: 100 µs / 2L+: 3 ms; at rated load
Parallel switching of two outputs	
• for uprating	No
• for redundant control of a load	Yes
Switching frequency	
• with resistive load, max.	100 Hz
• with inductive load, max.	0.5 Hz
• on lamp load, max.	1 Hz
Total current of the outputs	
• Current per group, max.	4 A
• Current per module, max.	8 A
Cable length	
• unshielded, max.	30 m
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	1.5 mA
Interfaces	
Number of PROFINET interfaces	1
1. Interface	
Interface type	PROFINET with 100 Mbit/s full duplex (100BASE-TX)
Interface types	
• M12 port	Yes; 2x M12, 4-pin, D-coded
• Number of ports	2
• integrated switch	Yes
Protocols	
• PROFINET IO Device	Yes
• Open IE communication	Yes
PROFINET IO Device	
Services	
— IRT	Yes; 250 µs to 4 ms in 125 µs frame
— Prioritized startup	Yes
— Shared device	Yes
— Number of IO Controllers with shared device, max.	2
Interface types	
M12 port	
• Autonegotiation	Yes
• Autocrossing	Yes
• Transmission rate, max.	100 Mbit/s
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	No
EtherNet/IP	Yes
Modbus TCP	Yes
Redundancy mode	
• PROFINET system redundancy (S2)	Yes
— on S7-1500R/H	Yes
— on S7-400H	Yes
• PROFINET system redundancy (R1)	No
• H-Sync forwarding	Yes
Media redundancy	
— MRP	Yes
EtherNet/IP	
Services	
— CIP Implicit Messaging	Yes

— CIP Explicit Messaging	Yes
— CIP Safety	No
— Shared device	Yes; 2x EtherNet/IP Scanner
— Number of scanners with shared device, max.	2
Updating times	
— Requested Packet Interval (RPI)	2 ms
Redundancy mode	
— DLR (Device Level Ring)	No
Address area	
— Address space per module, max.	20 byte
— LargeForwardOpen (Class3)	No
Modbus TCP	
Services	
— read coils (code=1)	Yes
— read discrete inputs (code=2)	Yes
— Read Holding Registers (Code=3)	Yes
— write single coil (code=5)	Yes
— write multiple coils (code=15)	Yes
— Write Multiple Registers (Code=16)	Yes
— Parameter change by master	No
— Modbus TCP Security Protocol	No
Address space per station	
— Address space per station, max.	20 byte
— Access-consistent address space	2 byte
Updating time	
— I/O request interval	2 ms
Connections	
— number of connections per device	12
Open IE communication	
• TCP/IP	Yes; (only EtherNet/IP or Modbus TCP)
• SNMP	Yes
• LLDP	Yes
• ARP	Yes
Interrupts/diagnostics/status information	
Substitute values connectable	Yes
Alarms	
• Diagnostic alarm	Yes; Parameterizable
• Maintenance interrupt	Yes; Parameterizable
• Hardware interrupt	Yes; Parameterizable
Diagnoses	
• Diagnostic information readable	Yes
• Monitoring the supply voltage	Yes
— parameterizable	Yes
• Wire-break	Yes; DI, input current < 0.3 mA, per channel
• Short-circuit	Yes; Outputs to M and P; channel by channel
• Short-circuit encoder supply	Yes; Per channel group
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
• MAINT LED	Yes; Yellow LED
• NS LED	Yes; green/red LED
• MS LED	Yes; green/red LED
• IO LED	Yes; red/green/yellow LEDs
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; red LED
• For load voltage monitoring	Yes; green LED
• Connection display LINK TX/RX	Yes; green LED, only link
Potential separation	
between the load voltages	Yes

between Ethernet and electronics	Yes		
Potential separation channels			
• between the channels • between the channels, in groups of • between the channels and the power supply of the electronics	Yes 8 8 channels are non-isolated and 8 channels are isolated from supply voltage 1L+		
Isolation			
tested with			
• 24 V DC circuits • Test voltage for interface, rms value [Vrms]	707 V DC (type test) 1 500 V; According to IEEE 802.3		
Degree and class of protection			
IP degree of protection	IP65/67/69K		
Standards, approvals, certificates			
Siemens Eco Profile (SEP)	Siemens EcoTech		
Suitable for safety-related tripping of standard modules	Yes; from FS01		
Ecological footprint			
• environmental product declaration	Yes		
Global warming potential			
— global warming potential, (total) [CO2 eq] — global warming potential, (during production) [CO2 eq] — global warming potential, (during operation) [CO2 eq] — global warming potential, (after end of life cycle) [CO2 eq]	64.3 kg 10.9 kg 53.8 kg -0.521 kg		
Highest safety class achievable for safety-related tripping of standard modules			
• Performance level according to ISO 13849-1 • Category according to ISO 13849-1 • SIL acc. to IEC 62061 • remark on safety-oriented shutdown	PL d Cat. 3 SIL 2 https://support.industry.siemens.com/cs/de/en/view/39198632		
Security			
signed firmware update	Yes		
safely removing data	Yes		
Ambient conditions			
Ambient temperature during operation			
• min. • max.	-30 °C 55 °C		
Altitude during operation relating to sea level			
• Ambient air temperature-barometric pressure-altitude	Up to max. 5 000 m, at installation height > 2 000 m additional restrictions		
Absolute humidity			
• dew point, min.	-60 °C		
Connection method			
Design of electrical connection	4/5-pin M12 circular connectors		
Design of electrical connection for the inputs and outputs	M12, 5-pin, A-coded		
Design of electrical connection for supply voltage	M12, 4-pin, L-coded		
Mechanics/material			
Material	housing: PBT; seal: MVQ (silicone); bushing / metal parts: 1.4404 (stainless steel)		
Dimensions			
Width	80 mm		
Height	205 mm		
Depth	54 mm		
Weights			
Weight, approx.	260 g		
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




[Miscellaneous](#)
[KC](#)
[China RoHS](#)


General Product Approval	EMV	Maritime application
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Maritime application	Food, Pharmaceutical, Medical
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[NK / Nippon Kaiji Kyokai](#)

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


[Miscellaneous](#)
[Special Test Certificate](#)

Environment	Industrial Communication
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last modified: 12/10/2025 