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Data sheet 6ES7655-5PX31-1XX0

SIMATIC Compact Field Unit DIQ edition with 16x freely configurable DIQ installation (DI 24 V DC; DQ 24 V DC 0.5 A; counter) installation up to hazardous zone 2 channel diagnostics PROFINET interface, use of PROFINET BusAdapter Configuration in Run (CiR) media redundancy (MRP) PROFINET system redundancy (S2) temperature range -40 to +70 °C conformal coating mounting on 35 mm DIN rail



General information	
Product type designation	CFU DIQ
HW functional status	FS01
Firmware version	V2.0
● FW update possible	Yes
Vendor identification (VendorID)	002AH
Device identifier (DeviceID)	060FH
Number of channels	16
Product function	
● I&M data	Yes; I&M0 to I&M3
● Isochronous mode	No
● The user can configure digital channels as input/output as required	Yes
● Digital channels can be parameterized	Yes
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	V19 Update 2
● STEP 7 configurable/integrated from version	STEP 7 V5.7.1.4
● PCS 7 configurable/integrated from version	V9.1 SP2 UC7
● PROFIBUS from GSD version/GSD revision	- / -
● PROFINET from GSD version/GSD revision	GSDML V2.43 2024.02.08
Operating mode	
● DI	Yes
● Counter	Yes
● DQ	Yes
CiR - Configuration in RUN	
Reparameterization possible in RUN	Yes
Installation type/mounting	
Mounting	on 35 mm DIN rail, 2 spacing units wide
Mounting position	Horizontal, vertical
Supply voltage	
Type of supply voltage	24 V DC
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
Short-circuit protection	Yes
Redundant power supply	Yes
Mains buffering	
● Mains/voltage failure stored energy time	5 ms; For communication

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Input current	
Current consumption (rated value)	5.12 A
Current consumption, max.	5.13 A
Inrush current, max.	4.8 A
I^2t	0.073 $A^2 \cdot s$
Encoder supply	
Number of outputs	16
Output voltage, min.	18.2 V
Short-circuit protection	Yes; Electronic
Output current	
● up to 60 °C, max.	5 A
● up to 70 °C, max.	4 A
Power loss	
Power loss, typ.	2.88 W; Depending on the type of BusAdapter used (typ. RJ45)
Address area	
Address space per station	
● Address space per station, max.	1 440 byte; Dependent on configuration
Digital inputs	
Number of digital inputs	16
Digital inputs, parameterizable	Yes
Source/sink input	Yes; P-reading
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Input characteristic curve in accordance with IEC 61131, type 2	No
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Pulse extension	No
Number of simultaneously controllable inputs	
horizontal installation	
— up to 60 °C, max.	16; Total current must be observed, see DQ
— up to 70 °C, max.	16; Total current must be observed, see DQ
vertical installation	
— up to 60 °C, max.	16; Total current must be observed, see DQ
Digital input functions, parameterizable	
● Counter	Yes
— Number, max.	2
— Counting frequency, max.	1 kHz
— Counting width	32 bit
— Counting direction up/down	Yes; Up
Input voltage	
● Rated value (DC)	24 V
● for signal "0"	-30 to +5 V
● for signal "1"	+11 to +30V
Input current	
● for signal "1", typ.	2.5 mA; Typical
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	No
— at "0" to "1", max.	3.2 ms; for counter function 0,1 ms
— at "1" to "0", max.	3.2 ms; for counter function 0,1 ms
Cable length	
● shielded, max.	1 000 m
● unshielded, max.	600 m
Digital outputs	
Type of digital output	Transistor
Number of digital outputs	16
Current-sinking	No
Current-sourcing	Yes
Short-circuit protection	Yes
● Response threshold, typ.	0.7 to 1.3 A
Open-circuit detection	Yes

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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
Load resistance range	
● lower limit	48 Ω
● upper limit	12 kΩ
Output voltage	
● Type of output voltage	DC
● for signal "1", min.	Ue minus 1 V
Output current	
● for signal "1" rated value	0.5 A
● for signal "0" residual current, max.	0.1 mA
Output delay with resistive load	
● "0" to "1", max.	50 µs
● "1" to "0", max.	100 µs
Parallel switching of two outputs	
● for uprating	No
● for redundant control of a load	No
Switching frequency	
● with resistive load, max.	100 Hz
● with inductive load, max.	2 Hz
● on lamp load, max.	10 Hz
Total current of the outputs	
● Current per channel, max.	0.5 A
horizontal installation	
— up to 60 °C, max.	5 A
— up to 70 °C, max.	4 A
vertical installation	
— up to 60 °C, max.	5 A
Cable length	
● shielded, max.	1 000 m
● unshielded, max.	600 m
Encoder	
Connectable encoders	
● 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	1.5 mA
Interfaces	
Number of PROFINET interfaces	1
Number of PROFIBUS interfaces	0
1. Interface	
Interface type	PROFINET
Isolated	Yes
Interface types	
● Number of ports	2; via BusAdapter
● integrated switch	Yes
● BusAdapter (PROFINET)	Yes
Protocols	
● PROFINET IO Device	Yes
● PROFIBUS DP device	No
● Media redundancy	Yes; as MRP client
Interface types	
RJ 45 (Ethernet)	
● 100 Mbps	Yes
● Autonegotiation	Yes
● Autocrossing	Yes
Protocols	
Supports protocol for PROFINET IO	Yes

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PROFINET IO Device	
Services	
— Shared device	No
Redundancy mode	
● PROFINET system redundancy (S2)	Yes; Type S2
Media redundancy	
— MRP	Yes
Open IE communication	
● LLDP	Yes
Interrupts/diagnostics/status information	
Status indicator	Yes
Alarms	Yes
Diagnostics function	Yes
Alarms	
● Diagnostic alarm	Yes
● Maintenance interrupt	Yes
● Limit value alarm	Yes
● Hardware interrupt	Yes
Diagnoses	
● Monitoring the supply voltage	Yes
● Wire-break	Yes
● Short-circuit	Yes
Diagnostics indication LED	
● RUN LED	Yes; green LED
● ERROR LED	Yes; red LED
● MAINT LED	Yes; Yellow LED
● Monitoring of the supply voltage (PWR-LED)	Yes; green/red LED
● Channel status display	Yes; green/red LED
● Status indicator digital input (green)	Yes
● Status indicator digital output (green)	Yes
● Connection display LINK TX/RX	Yes; 2x green LEDs on BusAdapter
Potential separation	
between the channels and PROFINET	Yes
Potential separation digital inputs	
● between the channels	No
● between the channels and the power supply of the electronics	No
Potential separation digital outputs	
● between the channels	No
● between the channels and the power supply of the electronics	No
Isolation	
Isolation tested with	1 500 V AC between PROFINET and other electronics
Degree and class of protection	
IP degree of protection	IP20
Ambient conditions	
Ambient temperature during operation	
● min.	-40 °C
● max.	70 °C
● horizontal installation, min.	-40 °C
● horizontal installation, max.	70 °C; Observe derating
● vertical installation, min.	-40 °C
● vertical installation, max.	60 °C; Observe derating
Ambient temperature during storage/transportation	
● min.	-40 °C
● max.	70 °C
Relative humidity	
● Operation, max.	95 %
Connection method	

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Design of electrical connection	Connection plug
Dimensions	
Width	329 mm
Height	123 mm
Depth	74 mm
Weights	
Weight, approx.	610 g

Classifications

	Version	Classification
eClass	14	27-24-26-90
eClass	12	27-24-26-90
eClass	9.1	27-24-26-90
eClass	9	27-24-26-90
eClass	8	27-24-92-90
eClass	7.1	27-24-92-90
eClass	6	27-24-92-90
ETIM	10	EC002584
ETIM	9	EC002584
ETIM	8	EC002584
ETIM	7	EC002584

Approvals / Certificates

General Product Approval

Miscellaneous

EMV

For use in hazardous locations

Type Examination Certificate

FM

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