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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
Sourcing/sinking 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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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	
Design of electrical connection	Connection plug
Dimensions	
Width	329 mm

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Height	123 mm
Depth	74 mm

Weights

Weight, approx.	610 g

Classifications

	Version	Classification
eClass	16	27-24-26-90
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

Miscellaneous

General Product Approval	EMV	For use in hazardous locations		
Manufacturer Declaration	RCM	ATEX	Type Examination Certificate	FM

IECEx

For use in hazardous locations

CCC

UL

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