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Data sheet 6DL1136-6BA00-0PH1

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SIMATIC ET 200SP HA, digital input module, safety-oriented F-DI 16X24VDC HA, SIL3 (IEC 61508), up to PL E (ISO 13849-1) suitable for terminal block H1, M1, color code CC01, channel diagnostics

General information	
Product type designation	F-DI 16x24VDC HA
Firmware version	V1.0
● FW update possible	Yes
Usable terminal block	type H1, M1, N0, H0, M0 (for details see the system manual)
Color code for module-specific color-coded label	CC01
Product function	
● I&M data	Yes; I&M0 to I&M3
Engineering with	
● STEP 7 configurable/integrated from version	V5.6 SP2 V9.0 SP3 (with S7 F Systems V6.3)
● PCS 7 configurable/integrated from version	V9.0 SP3 (with S7 F Systems V6.3)
● PROFINET from GSD version/GSD revision	GSDML V2.42 2023.01
Operating mode	
● DI	Yes
Redundancy	
● Redundancy capability	Yes; With TB type M1
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
Input current	
Current consumption (rated value)	80 mA
Current consumption, max.	150 mA
Encoder supply	
Number of outputs	16
24 V encoder supply	
● 24 V	Yes; Min. L+ (-1 V)
● Short-circuit protection	Yes; electronic (response threshold 0.7 A to 1.5 A; for IO redundancy up to 3 A). Ensure sufficient cable cross-section to attain the response threshold. Depending on the cable cross-section used, there may be constraints regarding the usable length of cable
● Output current per channel, max.	0.5 A
● Output current per module, max.	8 A
Power	
Power consumption from the backplane bus	90 mW
Power loss	

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Power loss, typ.	3.2 W; All channels equipped with internal encoder supply and switch contacts, at rated voltage and ambient temperature
Address area	
Address space per module	
● Inputs	9 byte
● Outputs	5 byte
Hardware configuration	
Automatic encoding	Yes
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	No
Pulse extension	Yes
● Length	off, 50 ms, 100 ms, 200 ms, 500 ms, 1 s, 2 s
Time stamp	Yes; Resolution 10 ms
Signal change flutter	Yes
Flutter observation window	Yes
Input voltage	
● Rated value (DC)	24 V
● for signal "0"	-30 to +5 V
● for signal "1"	+15 to +30 V
Input current	
● for signal "1", typ.	2.5 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes
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
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
● Diagnostic alarm	Yes
● Maintenance interrupt	Yes
Diagnoses	
● Diagnostic information readable	Yes
● Monitoring the supply voltage	Yes; Module-wise
— parameterizable	Yes
● Monitoring of encoder power supply	Yes; channel by channel
● Wire-break	Yes; channel by channel, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 18 kOhm to 30 kOhm, typical 26 kOhm
● Short-circuit to M	Yes; Encoder supply to M, channel by channel
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 LED
Potential separation	
Potential separation channels	
● between the channels	No

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● between the channels and backplane bus	Yes
● between the channels and the power supply of the electronics	No
Isolation	
Isolation tested with	1 500 V DC/1 min, type test
Standards, approvals, certificates	
Highest safety class achievable in safety mode	
● Performance level according to ISO 13849-1	Up to PLe
● Category according to ISO 13849-1	Cat. 4
● SIL acc. to IEC 61508	SIL 3
Probability of failure (for service life of 20 years and repair time of 100 hours)	
— Low demand mode: PFDavg in accordance with SIL3	< 3.00E-05
— High demand/continuous mode: PFH in accordance with SIL3	< 2.00E-09 1/h
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
Dimensions	
Width	22.5 mm
Height	115 mm
Depth	138 mm
Weights	
Weight, approx.	210 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

China RoHS

General Product Approval | **For use in hazardous locations**

Declaration of Conformity

For use in hazardous locations | **Functional Saftey** | **Maritime application**

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Miscellaneous	TUEV	Type Examination Certificate	TUEV	ABS	BUREAU VERITAS

Maritime application					Environment
DNV	LRS	NK / Nippon Kaiji Kyokai	RINA	CCS (China Classification Society)	Siemens EcoTech

Environment	Industrial Communication
EPD	PROFIsafe

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