

SDI108

Safety Digital Input Module

SDI108 is a functional safe digital input module designed for safety applications up to SIL 3 and PL e. Its high channel density enables particularly cost-efficient implementation of safety functions while reducing overall hardware requirements. Configurable input filters provide excellent immunity to electrical noise, ensuring reliable operation even in demanding industrial environments. Thanks to the wide range of compatible sensors available on the market, the SDI108 offers exceptional flexibility for a broad spectrum of safety applications.

Features

- 16 inputs SIL 2 / PL d / Cat. 3
- SIL 3 / PL e / Cat. 4 through channel pairing
- Singe-wire connection technology
- Test pulses configurable from 100 µs to 500 ms
- Sensor supply up to 600 mA per channel
- Measurement of voltage and current of the sensor supply
- Safety-rated signal preprocessing: equivalence, antivalence
- Configurable digital input filters

Part type designation	Part number
SDI108	00037602-00
SDI108 EC	On request

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Common properties	
Basic function	16x safety digital input 24 V DC type 1/3 Standard sink 8x equivalence/antivalence 16x pulse extension 16x test pulses
System	Bachmann system M100
Fail safe digital inputs – 24 V	
Number of digital inputs	16
Signal standard	IEC 61131-2 type 1 / type 3 sink (P-reading)
Voltage category, nominal	24 V DC
Signals per supply group	8 (2 groups)
Connections per input	1 (plus 4 clock signals and 4 GND connections per module)
Signal supply voltage range	18 V DC to 32 V DC
Operating voltage range (high/on)	11 V DC to 32 V DC
Off-state voltage (low/off)	-32 V DC to +5 V DC
Overvoltage protection	-40 V DC to +40 V DC
Input current, on-state, nominal	2 mA
Input current, off-state, max.	0.5 mA
Signal on delay, max.	20 µs + digital pulse filter setting time
Signal off delay, max.	20 µs + digital pulse filter setting time
Digital spike filter	0. 200 µs, 500 µs, 1 ms, 2 ms, 5 ms, 10 ms, 20 ms, 50 ms, 100 ms, 1 s, 2 s, 5 s
Internal scan rate, max.	500 µs
Maximum input frequency	< 1 kHz
Impulse extension	Yes
Time stamps	No
Signal state indication	Yes, green numeric LED per channel
Signal cable length, shielded, max.	1000 m
Signal cable length, unshielded, max.	600 m
Signal supply monitoring	Yes
Sensor supply 24 V DC	
Test Pulses on Sensor Supply	Yes, configurable
Number of supply points 24 V DC	4
Output current per channel, nominal, continuous	800 mA
Short-circuit protected, supply	Yes
Overvoltage protection	-40 V to + 40 V
Sensor supply GND	
Number of supply points GND	4
Module-to-module communication	
Signal propagation to neighbour	No
Signal receiver from neighbor modules	No
Module bus interface	
System	M100
Slot type	IO (1/E, 2, 3, 4, ...31)
Synchronization/clocks	
Field bus cycle time, min.	500 µs

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Diagnostics	
Electronic type plate	Yes (application interface and in the engineering tool)
Machine readable type plate	Yes (QR code with type and part information and internet link)
Environmental conditions sensor	Integrated (temperature)
Operational indications	LED "MOD" (red/green) module status LED "CH" (red/green) channel status summary LED "SAF" (red/green) safety status Numeric LED per channel (green) digital level of the channel
Powerfail, logic supply	Yes
Powerfail, signal supply	Yes
Overload/short-circuit	On sensor supply
Open circuit	No
Energy supply	
Power dissipation, typ./max.	< 2.5 W
Product safety	
Galvanic isolation	850 V AC
Galvanic isolation between supply groups	No
Degree of protection acc. IEC 60529	IP40, terminal block IP30
Protection class acc. IEC 61010-1, IEC 61010-2-201	III
Overvoltage category acc. IEC 61010-1	II
Rated impulse withstand voltage acc. IEC 61000-4-5	Supply DC: • 500 V DM • 1000 V CM
Keying of terminal block	Yes (6-fold per 4 contacts)
Environmental conditions	
Temperature range, operating	-30 °C to +70 °C
Temperature range, transport and storage	-40 °C to +85 °C
Installation altitude, max.	Up to 2000 m without temperature derating 2000 m to 4500 m: Reduction of the max. ambient temperature by 0.1 °C per 100 m elevation
Pollution degree acc. IEC 61010-1	Standard: 2, noncondensing Extended Climate: 2
Vibration	6 g (14.1 Hz to 500 Hz) 7.5 mm amplitude (2 Hz to 14.1 Hz) Test duration: 15 h
Shock	45 g max. (test scope 18 shocks) 20 g permanently (test scope 6000 shocks)
Approvals/certificates	
Product safety	CE, UKCA: in preparation cULus (NRAQ, NRAQ7): in preparation
Functional safety	Yes: IEC 61508, IEC 62061, IEC 61131, ISO 13849 (SIL 3/ PLe/ Cat.4)

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Accessories

Part type designation	Part number	Description
BPR1nn	00039235-nn	Backplane for DIN-rail mounting Active backplane system M100: BPR1nn with nn = 04 to 16 slots in increments of 1, as well as 20, 24, 28, 32 slots, for DIN-rail mounting; delivery without backplane slot covers and without mounting rail
BPR1nn EC	00039236-nn	Like BPR1nn; Extended Climate Range
BPS1nn	00039237-nn	Backplane for direct screw mounting Active backplane system M100: BPS1nn with nn = 04 to 16 slots in increments of 1, as well as 20, 24, 28, 32 slots, for direct screw mounting; delivery without backplane slot covers and without screws
BPS1nn EC	00039238-nn	Like BPS1nn; Extended Climate Range
TPI100_W24_P5.0_Cgy_L1to24		Signal terminal block Completely removable terminal block, push-in spring connector for system M100, 24-way/contacts, pitch 5.0 mm, female, conductors flexible 0.2 mm² to 2.5 mm² (24 to 14 AWG), solid 0.2 mm² to 1.5 mm² (24 to 16 AWG), with wire end ferrules 0.25 mm² to 1.5 mm² (24 to 16 AWG), stripping length: 10 mm, rating: 300 V / 8 A per contact, connector color: gray, push-release: yellow, labeling: 1 to 24
TPI100_W4_P5.0_Cgy_Lsup		Supply terminal block Completely removable terminal block, push-in spring connector for system M100, 4-way/contacts, pitch 5.0 mm, female, conductors flexible 0.2 mm² to 2.5 mm² (24 to 14 AWG), solid 0.2 mm² to 1.5 mm² (24 to 16 AWG), with wire end ferrules 0.25 mm² to 1.5 mm² (24 to 16 AWG), stripping length: 10 mm, rating: 300 V / 8 A per contact, connector color: gray, push-release: yellow, labeling: 1+/1-/2+/2-
TKP106		Keying element Keying element for signal terminal blocks and supply terminal blocks TPI100 for system M100, plastic ring with 6 keying elements
TPI100_W24_W4_Set [1)]	00042412-00	Terminal block set for M100 standard modules: • 1x TPI100_W24_P5.0_Cgy_L1to24 • 1x TPI100_W4_P5.0_Cgy_Lsup • 2x TKP106

[1)] *All components of the set are also available in bulk packages.*

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