



SDO204 Safety digital output module

The SDO204 module adds an additional 4 output channels to the SLC284 safety processor module. A homogeneous total system is created through independent and safe integration in the M200 controller. Through the free choice of the slot – either directly beside the safety processor module, through bus expansion, or several hundred meters away through the FASTBUS – the safety system can be optimally adapted to the distributed requirements and existing infrastructure of the system.

The SDO204 safety digital input module is approved in accordance with the latest safety standard, IEC 61508. The module can be easily integrated in the safety application, comparable with a standard I/O module – as the proven SolutionCenter development platform offers the easiest configuration, most flexible type of programming, and a safe simulation via easily combinable PLCopen function blocks. All variables, and states of the SDO204 safety digital input module are accessible in all other machine program languages (PLC, C/C++); visualization is also available and makes cumbersome parallel wiring unnecessary. The output current of 2 A per channel allows direct control of hydraulic valves.

Part type designation	Part number
SDO204	00014545-00
SDO204 CC	00017462-00

Features

- 8 digital outputs – can be used redundantly in pairs (PL e/SIL3/Cat 4)
- Each output with emergency delay is configurable in the event of communication lost
- Safe monitoring of the outputs with redundant 32-bit microcontrollers
- Several SDO204 modules per controller possible
- All safety I/O states can be used by M200 controller
- Safety programming via SolutionCenter
- Galvanic isolation between the groups
- Galvanic isolation from the system
- Operating status indication "SAFE"
- Status indication for each channel via LED

SDO204

Digital outputs	
Number	8 digital outputs – can be used redundantly in pairs (PL e / SIL 3 / Cat 4)
Output voltage range	18 V DC to 34 V DC
Output current per channel	2 A nominal
Total current per group (max.)	8 A ¹⁾
0 to 1 delay	Max. 35 µs at full load
1 to 0 delay	Max. 155 µs at full load
Output groups	2, electronic fuse
Status indication (LED)	Green
Switching frequency (max., resistive load)	500 Hz
Error monitoring	Short-circuit, overload, undervoltage/overvoltage of the power supply
Time-delayed emergency shut-off	Each output individual from 0 s to 1800 s configurable (resolution 100 ms); emergency shut-off is enabled in the event of communication lost e.g. failure in the supply voltage

¹⁾ Derating from 40 °C ambient temperature

Internal power supply	
Galvanic isolation from the system	500 V
Galvanic isolation between groups	500 V
Internal power supply	Backplanes BS2xx
Internal current consumption	5 V / 250 mA via backplane

External power supply	
Reverse polarity protection	Yes
Input voltage	24 V DC (18 V to 34 V)
Voltage range	18 V DC to 34 V DC
Current consumption	Typically 70 mA at +24 V DC + Σ current consumption of actuators

Connection technology	
I/O connection	RM 3.5 connector with flange
Power supply	RM 5.08 connector with flange
Connection technology	Screw or spring terminal Connector can be coded and labeled

Standards and approvals	
Machine safety	EN 61508:2010: Functional safety of E/E/PE safety-related systems
Approved for	EN ISO 13849-1:2015: Safety of machinery EN 62061:2005/A2:2015: Functional safety machine-related E/E/PE systems EN 61511-1:2017 & IEC 61511-1:2016: Functional safety equipment and process industry
Product standard	EN 61131-2:2007 & EN 61131-6:2012 UL 61010-1 & UL 61010-2-201

Additional features	
Status indication via LEDs	

Approvals/Certificates	Standard	ColdClimate (❄️)
General	CE, UKCA, cULus	
Marine	ABS, BV, DNV, LR	ABS, BV, DNV, KR, LR, NK, RINA

Environmental conditions	Standard	ColdClimate (❄️)
Operating temperature	-30 °C to +60 °C fanless	
Relative humidity, operation	5 % to 95 % noncondensing	5 % to 95 % with condensation

Environmental conditions	Standard	ColdClimate (❄)
Storage temperature	-40 °C to +85 °C	
Relative humidity, storage	5 % to 95 % noncondensing	5 % to 95 % with condensation
Maximum altitude ¹⁾	4500 m above sea level	
Pollution degree (IEC 60664-1)	2 (noncondensing)	2
Protection class	3	

¹⁾ For operation at an altitude of 2000 m above sea level, a derating of -0.5 Kelvin per 100 m to a maximum altitude of 4500 m above sea level must be taken into account.

Order data

Part type designation	Part number	Description
SDO204	00014545-00	Safety digital output module; SIL3/PL e: 4x DO 24 V / 2 A; (SIL2/PL d: 8x DO); can be connected in parallel
SDO204 CC	00017462-00	Like SDO204; ColdClimate (❄)

Accessories

Part type designation	Part number	Description
KZ-SDO204 B+C	00014772-50	Terminal set Phoenix cage clamp (1x KZ 51/05; 2x KZ 35/08) with labeling strips + keying elements

