Safety module CS AR-05 / CS AR-06



Module for emergency stops, end position monitoring for movable guards, OSSD semiconductor outputs and magnetic safety sensors

Main features

- For safety applications up to SIL CL 3/PL e
- Input with 1 or 2 channels
- · Choice between automatic start, manual start (CS AR-05 only) or monitored start (CS AR-06 only)
- Can be connected to OSSD semiconductor outputs, to electromechanical contacts or to magnetic safety sensors
- Output contacts: 3 NO safety contacts, 1 NC auxiliary contact
- Supply voltage: 24 Vac/dc, 120 Vac, 230 Vac

Utilization categories

Alternating current: AC15 (50...60 Hz) Ue (V) 230

le (A)

Direct current: DC13 (6 oper. cycles/min.)

Ue (V) le (A)

Quality marks:



EC type examination certificate: IMQ CP 432 DM

E131787 UL approval:

2021000305000107 CCC approval: EAC approval: RU C-IT.YT03.B.00035/19

Compliance with the requirements of:

Machinery Directive 2006/42/EC, EMC Directive 2014/30/EC, RoHS Directive 2011/65/EU

Technical data

Housing

Polyamide housing PA 66, self-extinguishing V0 acc. to UL 94

Protection degree acc. to EN 60529: IP40 (housing), IP20 (terminal strip)

Dimensions: see page 415, design A

General data

SIL level (SIL CL) up to: SIL CL 3 acc. to EN 62061 Performance Level (PL) up to: PL e acc. to EN ISO 13849-1 Safety category up to: cat. 4 acc. to EN ISO 13849-1

Safety parameters: see page 481 Ambient temperature: -25°C...+55°C

Mechanical endurance: >10 million operating cycles Electrical endurance: >100,000 operating cycles Pollution degree: external 3, internal 2

Rated impulse withstand voltage (U_{imp}): 4 kV Rated insulation voltage (U): 250 V Overvoltage category:

Supply

Rated supply voltage (U_p): 24 Vac/dc; 50...60 Hz 120 Vac; 50...60 Hz

Max. DC residual ripple in DC: 10% Supply voltage tolerance: ±15% of U < 5 VA

Power consumption AC: Power consumption DC: < 2 W

Control circuit

Protection against short circuits: PTC resistance, Ih=0.5 A

response time > 100 ms, release time > 3 s PTC times:

230 Vac; 50...60 Hz

Maximum resistance per input: $< 50 \Omega$ Current per input: < 30 mAMin. duration of start impulse t_{MIN} : $> 250 \, \text{ms}$ Response time t_a: < 300 ms Release time t_{R1}: $< 15 \, \mathrm{ms}$ Release time in absence of power supply tp: < 70 ms Simultaneity time t_c: unlimited

In compliance with standards:

EN 60204-1, EN ISO 13855, EN ISO 14118, EN ISO 12100, EN ISO 13850, EN 60529, EN 61000-6-2, EN 61000-6-3, EN 61326-1, EN 60664-1, EN 60947-1, EN IEC 63000, EN ISO 13849-1, EN ISO 13849-2, EN 62061, UL 508, CSA C22.2 No. 14, GB/T14048.5

Output circuit

Output contacts: 3 NO safety contacts 1 NC auxiliary contact Contact type: forcibly guided

Material of the contacts: gold-plated silver alloy Maximum switching voltage: 230/240 Vac; 300 Vdc

Max. current per contact: 6 A Conventional free air thermal current I,,; 6 A 64 A² Max. total current ΣI_{tb}^2 : 10 mA Minimum current: Contact resistance: $\leq 100 \text{ m}\Omega$ External protection fuse:

The number and the load capacity of output contacts can be increased by using expansion modules or contactors. See pages 355-364.

Code structure

CS AR-05V024

Start mode

05 manual or automatic start

06 monitored start

Connection type

X

Screw terminals

Connector with screw terminals

Connector with spring terminals

Supply voltage

024 24 Vac/dc

120 120 Vac

230 Vac

Features approved by UL

Rated supply voltage (U_): 24 Vac/dc; 50...60 Hz

120 Vac; 50...60 Hz 230 Vac; 50...60 Hz

Power consumption AC: Power consumption DC:

< 5 VA < 4 WElectrical ratings:

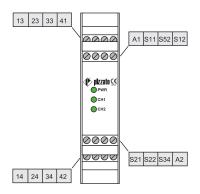
- NO contacts: 230/240 Vac, 6 A general use, C300 pilot duty

- NC contacts: 230/240 Vac, 6 A resistive, B300 pilot duty

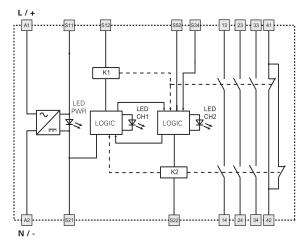
- Use 60 or 75°C copper (Cu) conductor and wire size No. 30-12 AWG, stranded or solid.
- -The terminal tightening torque of 5-7 lb in.
 Only for 24 Vac/dc versions: supply from remote Class 2 source or limited voltage
- Utiliser des conducteurs en cuivre (Cu) 60 ou 75°C rigides ou flexibles de section
- Couple de serrage des bornes de 5-7 Lb In. Seulement pour les versions 24 Vac/dc, alimenter avec sources de classes 2 ou

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Pin assignment

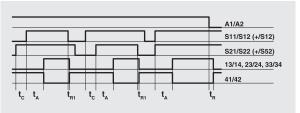


Internal wiring diagram

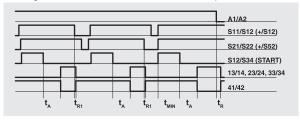


Function diagrams

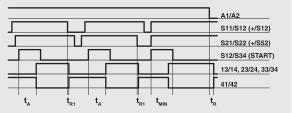
Configuration with automatic start (CS AR-05 only)



Configuration with monitored start (CS AR-06 only)



Configuration with manual start (CS AR-05 only)



Legend:

Min. duration of start impulse

simultaneity time response time

release time

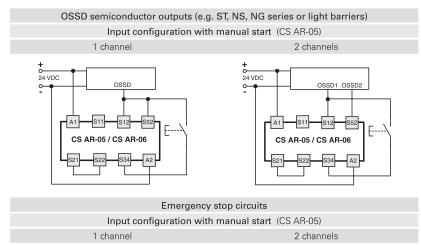
release time in absence of power supply

Notes:

The configurations with one channel are obtained taking into consideration the CH1 input only. In this case it is necessary to consider time $\mathbf{t}_{\mathbf{p}_1}$ referred to input CH1, time $\mathbf{t}_{\mathbf{p}}$ referred to the supply, time $\mathbf{t}_{\mathbf{q}}$ referred to input CH1 and to the start, and time tmin referred to the start.

Input configuration

L/+0



L/+C

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Automatic start (CS AR-05 only)

Bridge the start button between S12 and S34 in order to activate the automatic start module.



Monitored start

Use module CS AR-06 with the circuit diagrams for manual start.

Monitoring of movable guards and magnetic safety sensors

The safety module can monitor emergency stop circuits, control circuits for movable guards as well as magnetic safety sensors. Replace the emergency stop contacts with switch contacts or sensor contacts. The sensors can only be used in 2-channel configuration.





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