

Module for emergency stop, end position monitoring for movable guards, and magnetic safety sensors and devices

Main features

- For safety applications up to SIL CL 1/PL c
- Reduced housing width of 22.5 mm
- 1 NO safety contact
- Supply voltage: 24 Vac/dc

Utilization categories

Alternating current: AC15 (50...60 Hz)

U_e (V) 230

I_e (A) 3

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

U_e (V) 24

I_e (A) 4

Quality marks:



UL approval: E131787

CCC approval: 2013010305640211

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 317, design D

General data

SIL level (SIL CL) up to:

SIL CL 1 acc. to EN 62061

Performance Level (PL) up to:

PL c acc. to EN ISO 13849-1

Safety category up to:

cat. 1 acc. to EN ISO 13849-1

Safety parameters:

see page 375

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_i):

250 V

Overvoltage category:

II

Supply

Rated supply voltage (U_n):

24 Vac/dc; 50...60 Hz

Max. DC residual ripple in DC:

10%

Supply voltage tolerance:

±15% of U_n

Power consumption AC:

< 5 VA

Power consumption DC:

< 2 W

Control circuit

Protection against short circuits:

PTC resistance, I_h=0.5 A

PTC times:

Response time > 100 ms, release time > 3 s

Maximum resistance per input:

≤ 50 Ω

Current per input:

20 mA (typical)

Response time t_A:

< 15 ms

Release time t_{R1}:

< 20 ms

Release time in absence of power supply t_R:

< 100 ms

Simultaneity time t_C:

unlimited

In compliance with standards:

EN 60204-1, EN ISO 13855, EN 1037, 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 50581, EN ISO 13849-1, EN ISO 13849-2, EN 62061, UL 508, CSA C22.2 n° 14-95, GB/T14048.5-2017

Output circuit

Output contacts:

1 NO safety contact

Material of the contacts:

silver alloy

Maximum switching voltage:

230/240 Vac; 300 Vdc

Max. current per contact:

6 A

Conventional free air thermal current I_{th}:

6 A

Minimum current:

10 mA

Contact resistance:

≤ 100 mΩ

External protection fuse:

4 A

The number and the load capacity of output contacts can be increased by using expansion modules or contactors. See pages 263-272.

Code structure

CS AR-46V024

Connection type

V Screw terminals

M Connector with screw terminals

X Connector with spring terminals

Supply voltage

024 24 Vac/dc

Features approved by UL

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

Power consumption AC: < 5 VA

Power consumption DC: < 4 W

Electrical ratings: 230/240 Vac

6 A general use

C300 pilot duty

Notes:

- Use 60 or 75°C copper (Cu) conductor and wire size No. 30-12 AWG, stranded or solid.

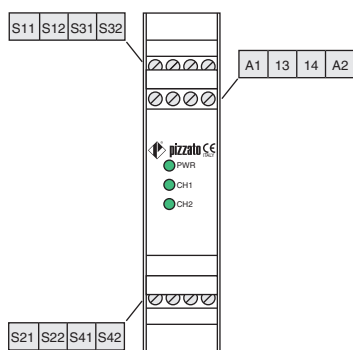
- The terminal tightening torque of 5-7 lb.in.

- Only for 24 Vac/dc versions: supply from remote Class 2 source or limited voltage limited energy.

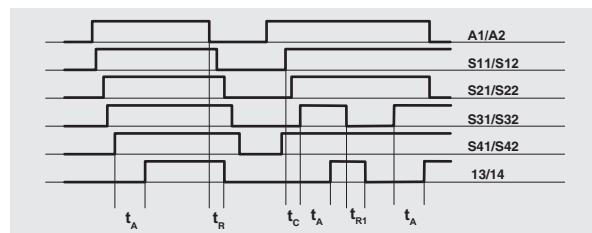


Safety module CS AR-46

Pin assignment

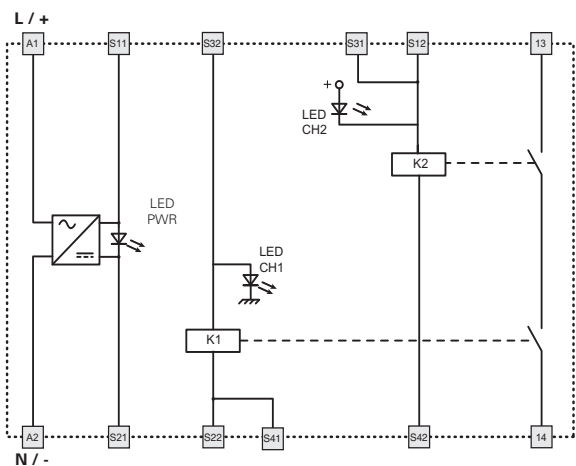


Function diagrams



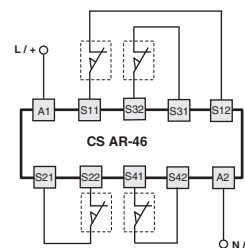
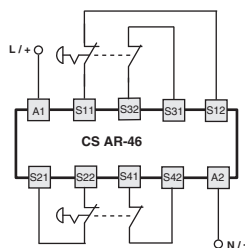
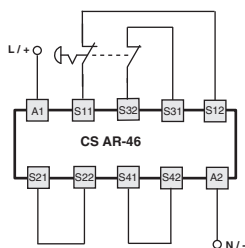
Legend:
 t_C : simultaneity time
 t_A : response time
 t_{R1} : release time
 t_A'' : release time in absence of power supply

Internal block diagram



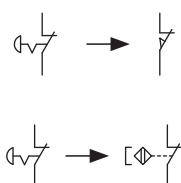
Input configuration

Emergency stop circuits		
Input configuration with automatic start		
2 channels and 1 emergency button	2 channels and 2 emergency buttons	2 channels and 4 switches



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.



1 channel and 1 emergency button

