



## Module for emergency stop and gate monitoring

### Main functions

- Single or dual channel input circuit
- Choice between automatic start, manual start or monitored start
- Connection of the input channels to opposite potentials
- Small 22,5 mm housing
- Output contacts:  
3 NO safety contacts,  
1 NC auxiliary contact
- Supply voltages:  
24 VAC/DC, 120 VAC, 230 VAC

### Utilization categories

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

Ue (V) 230

Ie (A) 3

Direct current: DC13 (6 operations/minute)

Ue (V) 24

Ie (A) 6

### Markings, quality marks and certificates:



Approval UL: E131787

### Complying with the requirements requested by:

Low Voltage Directive 2006/95/EC,

Machinery Directive 2006/42/EC,

Electromagnetic Compatibility 2004/108/EC

### Technical data

#### Housing

Made of polyamide PA 6.6 self-extinguishing, class V0 (UL94)

Protection degree:

IP40 (housing), IP20 (terminals)

Dimensions:

see page 4/141, shape A

#### General data

Safety category:

category 4 according to EN 954-1

Ambient temperature:

-25°C...+55°C

Mechanical endurance:

>10 millions of operations

Electrical endurance:

>100.000 operations

Pollution degree:

outside 3, inside 2

Rated impulse with stand voltage (Uimp):

4 KV

Rated insulation voltage (Ui):

250 V

Over-voltage category:

III

Weight:

0,3 Kg

#### Power supply

Rated operating voltage (Un):

24 VAC/DC; 50...60 Hz

120 VAC; 50...60 Hz

230 VAC; 50...60 Hz

Max residual ripple in DC:

10%

Supply voltage tolerance:

±15% of Un

Rated power consumption AC:

< 5 VA

Rated power consumption DC:

< 2 W

#### Control circuit

Protection against short circuits:

resistance PTC, I<sub>h</sub>=0,5 A

Operating time of PTC:

intervention > 100 ms, reset > 3 s

Max input resistance:

≤ 50 Ω

Current for each input:

30 mA

Min. period of start impulse t<sub>MIN</sub>:

100 ms

Operating time t<sub>A</sub>:

50 ms

Releasing time t<sub>R1</sub>:

20 ms

Releasing time in absence of power supply t<sub>R</sub>:

70 ms

Simultaneity time t<sub>C</sub>:

infinite

#### In conformity with standards:

IEC 60947-1, EN 60947-1, IEC 60204-1, EN 60204-1, EN ISO 13849-1, EN 999, EN 1037, EN ISO 12100-1, EN ISO 12100-2, EN ISO 13850, IEC 529, EN 60529, EN 61000-6-2, EN 61000-6-3, EN 62326-1, EN 60664-1, UL 508, CSA C22.2 n° 14-95

#### Output circuit

Output contacts:

3 NO safety contacts

1 NC auxiliary contact

Contacts type:

forced guided contacts

Contacts material:

silver alloy, gold plated

Max switching voltage:

230/240 VAC; 300 VDC

Max switching current per contact:

6 A

Conventional free air thermal current I<sub>th</sub>:

6 A

Contacts resistance:

≤ 100 mΩ

Contact protection fuse:

6 A

The number and the load capacity of output contacts can

be increased by using expansion modules or contactors: see page 4/135 - 4/139

### Code structure

## CS AR-04V024

Kind of connection

**V** screw terminals

**M** connector with screw terminals

**X** connector with spring terminals

Supply voltage

**024** 24 VAC/DC ±15%

**120** 120 VAC ±15%

**230** 230 VAC ±15%

### Items available on stock

CS AR-04V024

### Data type approved by UL

Rated operating voltage (Un):

24 VAC/DC; 50...60 Hz

120 VAC; 50...60 Hz

230 VAC; 50...60 Hz

Rated power consumption AC:

< 5 VA

Rated power consumption DC:

< 2 W

Max switching voltage:

230 VAC

Max switching current per contact:

6 A

Utilization category

C300

Notes:

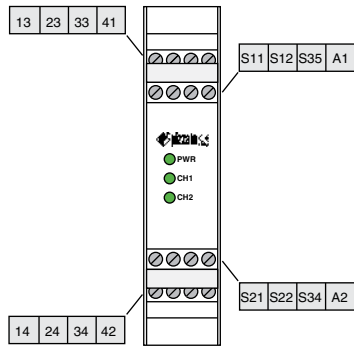
- Use 60° or 75 °C copper (Cu) conductor and wire size No. 30-12 AWG.

- Terminal tightening torque of 5-7 Lb-In.

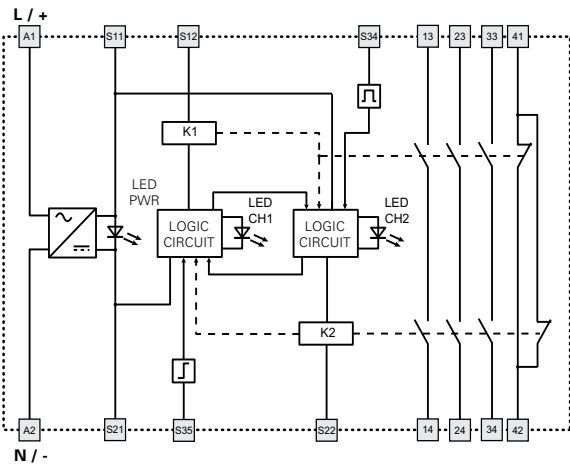
- Only for 24 VAC/DC version, supply from remote class 2 source or limited voltage and limited energy.

**Safety module CS AR-04**

**Terminals layout**

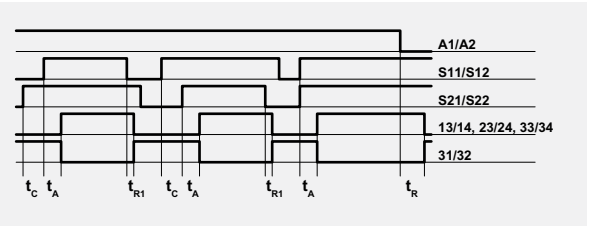


**Internal wiring diagram**

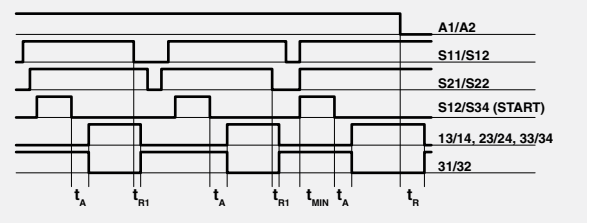


**Operation diagrams**

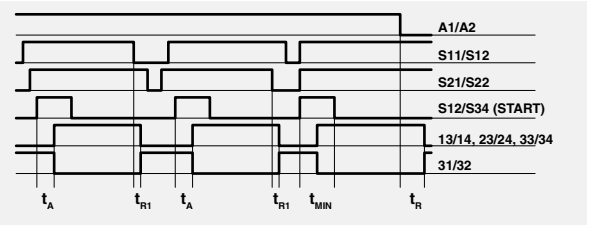
Configuration with automatic start



Configuration with monitored start



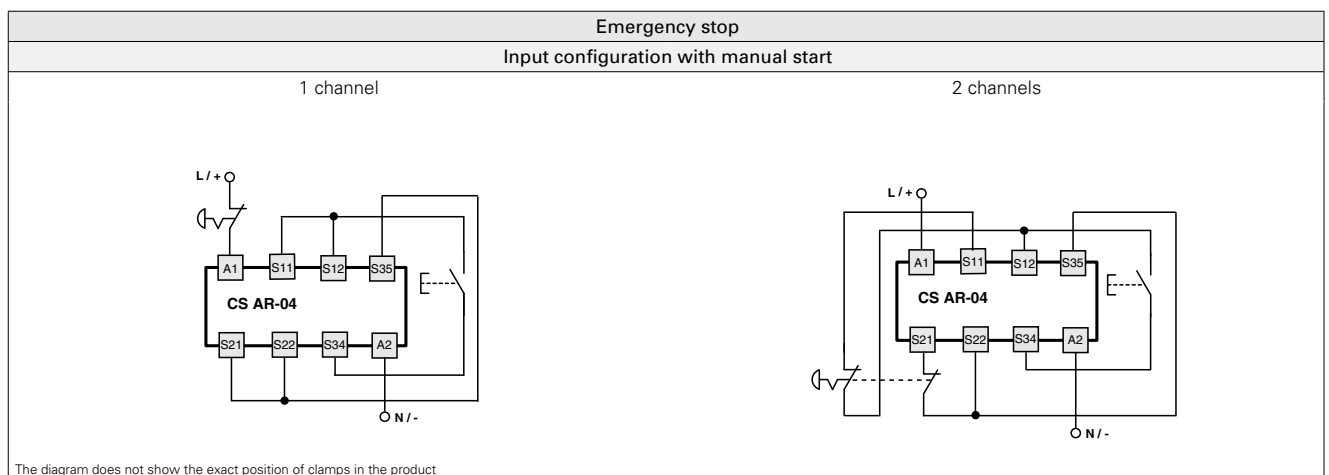
Configuration with manual start



Legend:  
 $t_{MIN}$ : Min. period of start impulse  
 $t_C$ : Simultaneity time  
 $t_A$ : Operating time  
 $t_{R1}$ : Releasing time  
 $t_R$ : Releasing time in absence of power supply

Note:  
 The configurations with one channel are obtained taking into consideration only the S11/S12 input to the supply. In this case it is necessary to consider the  $t_{R1}$  time referred to S11/S12 input, the  $t_R$  time referred to the supply, the  $t_A$  time referred to S11/S12 input, to the start and to the  $t_{MIN}$  time.

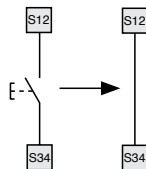
**Inputs configuration**



The diagram does not show the exact position of clamps in the product

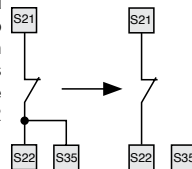
**Automatic start**

As regards the indicated diagrams, in order to activate the module with the automatic start, it is necessary to short the start button between S12 and S34 terminals.



**Monitored start**

As regards the indicated diagrams, in order to activate the module with the monitored start, it is necessary to remove the connection between S22 and S35 terminals.



**Gate monitoring**

The safety module can control both emergency stop circuits and gate monitoring circuits, replacing the emergency stop contacts with switches contacts.

