



**Module for emergency stop, gate monitoring, Electro-sensitive protection devices (ESPE) and magnetic safety sensor**

### Main functions

- Single or dual channel input circuit
- Choice between automatic start, manual start or monitored start
- Connectible to ESPE, to electromechanical contacts or to magnetic safety sensor
- Output contacts:
  - 2 NO safety contacts,
- Supply voltages:
  - 24 VAC/DC, 120 VAC, 230 VAC
- Possibility of parallel modules reset

### 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>: 200 ms  
 Operating time t<sub>A</sub>: 150 ms  
 Releasing time t<sub>R1</sub>: 20 ms  
 Releasing time in absence of power supply t<sub>R</sub>: 150 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: 2 NO safety contacts,  
 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-08V024

Kind of connection

|          |                                 |
|----------|---------------------------------|
| <b>V</b> | screw terminals                 |
| <b>M</b> | connector with screw terminals  |
| <b>X</b> | connector with spring terminals |

Supply voltage

|            |           |      |
|------------|-----------|------|
| <b>024</b> | 24 VAC/DC | ±15% |
| <b>120</b> | 120 VAC   | ±15% |
| <b>230</b> | 230 VAC   | ±15% |

### Items available on stock

CS AR-08V024

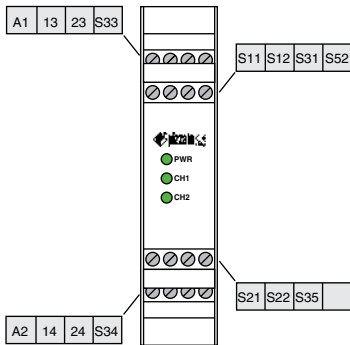
### Data type approved by UL

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

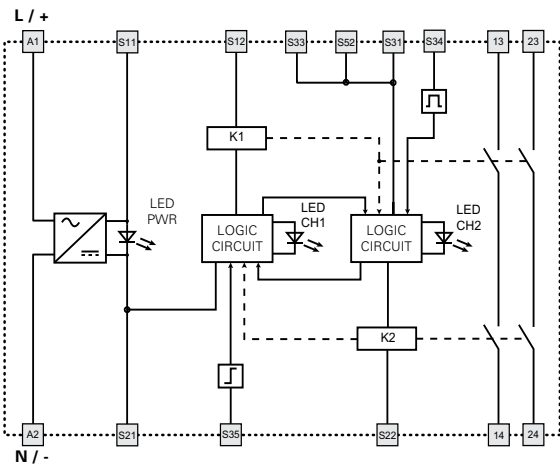
Notes:  
 - Use 60° or 75 °C copper (Cu) conductor and wire size No. 30-12 AWG.  
 - Terminal tightening torque of 5-7 Lb-In.  
 - Only for 24 VAC/DC version, supply from remote class 2 source or limited voltage and limited energy.

**Safety module CS AR-08**

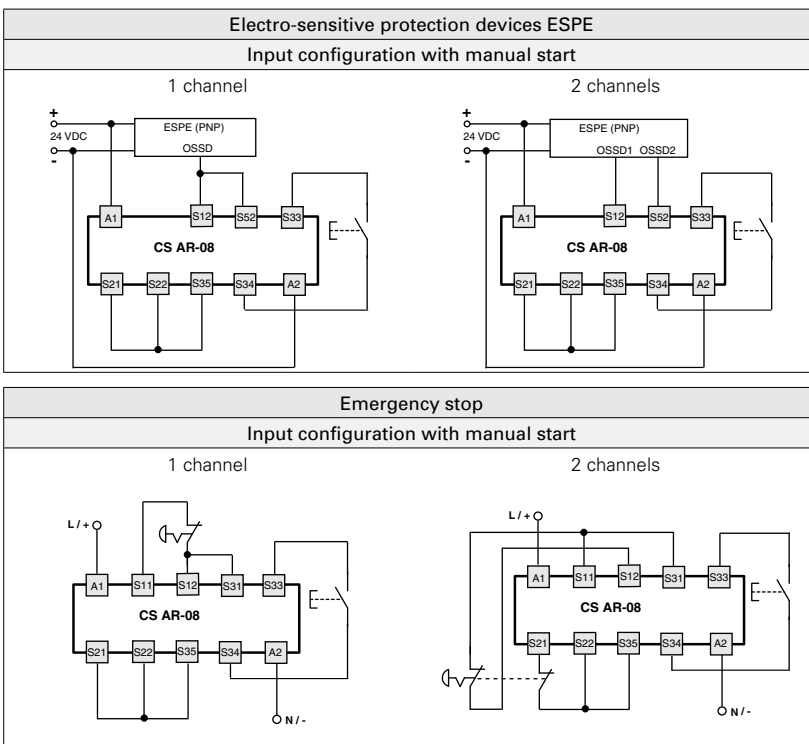
**Terminals layout**



**Internal wiring diagram**



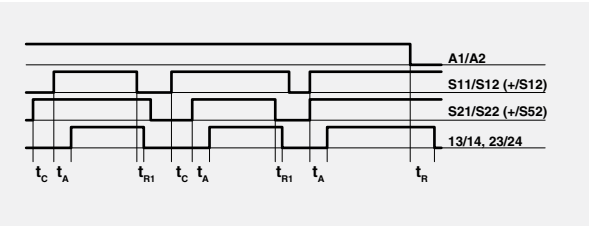
**Inputs configuration**



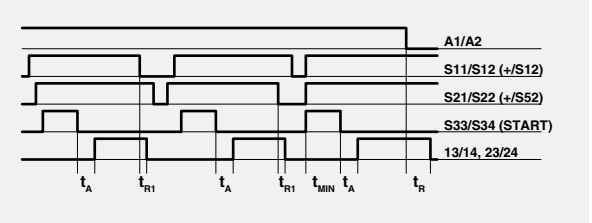
The diagram does not show the exact position of clamps in the product

**Operation diagrams**

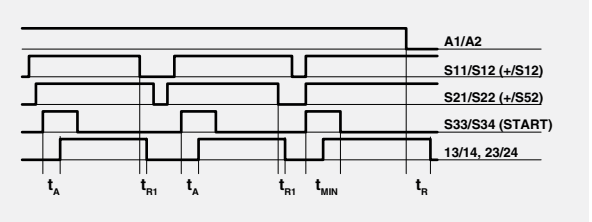
Configuration with automatic start



Configuration with monitored start



Configuration with manual start



Legend:

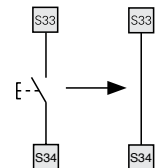
- $t_{MIN}$ : Min. period of start impulse
- $t_{C^*}$ : Simultaneity time
- $t_{A^*}$ : Operating time
- $t_{R1}$ : Releasing time
- $t_{R^*}$ : Releasing time in absence of power supply

Note:

The configurations with one channel are obtained taking into consideration only the CH1 input. In this case it is necessary to consider the  $t_{R1}$  time referred to CH1 input, the  $t_R$  time referred to the supply, the  $t_{A^*}$  time referred to the start, and the  $t_{MIN}$  time referred to the start.

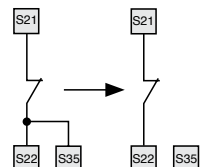
**Automatic start**

As regards the indicated diagrams, in order to activate the module with the automatic start, it is necessary to short the start button between S33 and S34 terminals.



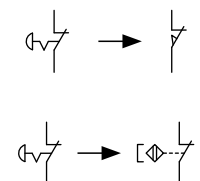
**Monitored start**

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.

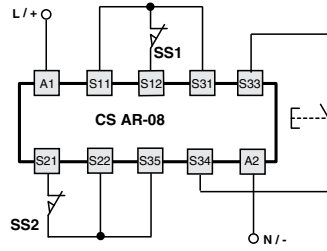
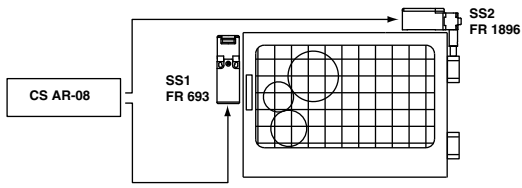


**Gate monitoring and safety magnetic sensors.**

The safety module can control both emergency stop circuits, gate monitoring circuits or safety magnetic sensors. Replace the emergency stop contacts with switches contacts or with the sensors contacts.

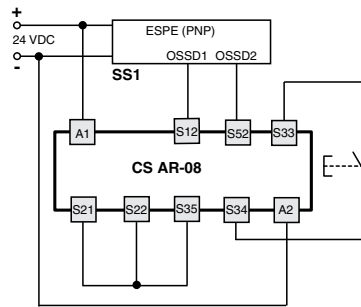
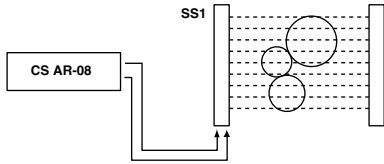


## Application examples: safety gates monitoring, safety category 4



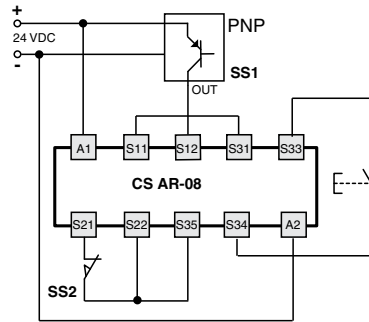
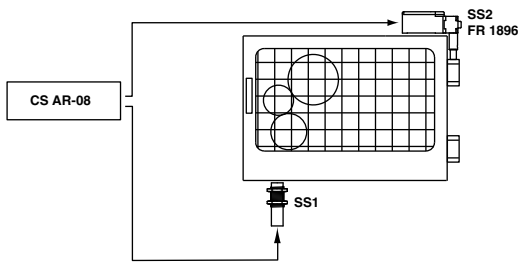
Safety gate monitoring through two switches with different technology. System in safety category 4

## Application examples: light barrier monitoring, safety category 4



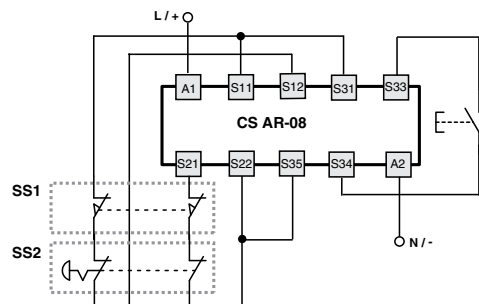
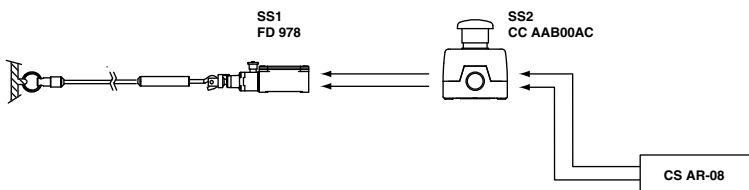
Electro-sensible barrier monitoring (ESPE) with two outputs OSSD. System in safety category 2 or 4 according to the barrier.

## Application examples: guard monitoring in mixed technology, sensor + switch, safety category 4

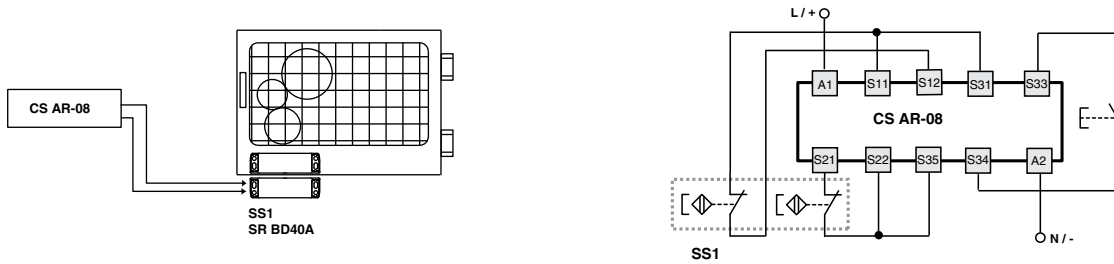


Safety gate monitoring through one switch and one inductive sensor. The positive opening of the switch is required. System in safety category 4.

## Application examples: switch and emergency push button monitoring, safety category 3

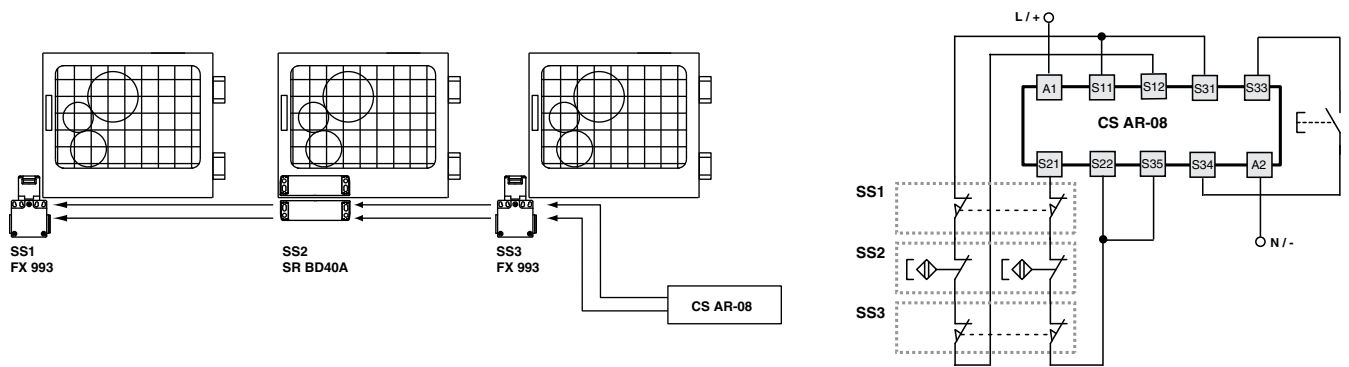


**Application examples: safety magnetic sensors monitoring, safety category 4**



Safety gate monitoring through one coded magnetic sensor. System in safety category 4.

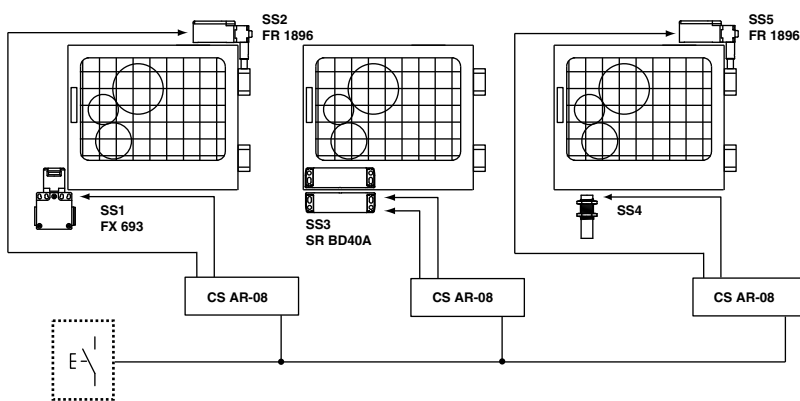
**Application examples: series of switches and magnetic sensors monitoring, safety category 3**



Control of more guards through switches and magnetic sensors. System in category 3.

- The use of one single switch for guard requires that in the risk analysis stage it would be possible to exclude the mechanical breaking of same.
- The sensor must have double coded channel.
- Verify possible requirements of the type C standard concerning own machinery.

**Application examples: possibility of parallel modules reset, safety category 4**



Control of more guards through different technologies. System in safety category 4. In the example is pointed out the possibility of reset contemporaneously more modules through one single button contact.

