



Two-hand control device according to EN ISO 13851: type III C or safety module with synchronism control

Main features

- For safety applications up to SIL CL 3/PL e
- Two-channel inputs for two-hand control device or movable guards
- Connection of input channels of opposite potentials
- Reduced housing width of 22.5 mm
- 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)
 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:



EC type examination certificate: IMQ BP 210 DM
 UL approval: E131787
 CCC approval: 2021000305000107
 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
 Type of two-hand control device: EN ISO 13851: type III C
 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_i): 250 V
 Overvoltage category: II

Supply

Rated supply voltage (U_n): 24 Vac/dc; 50...60 Hz
 120 Vac; 50...60 Hz
 230 Vac; 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: 30 mA (typical)
 Response time t_A: < 50 ms
 Release time t_{R1}: < 20 ms
 Release time in absence of power supply t_{R2}: < 90 ms
 Time range for synchronised actuation
 t_{SN}: < 0.5 s

In compliance with standards:

EN 60204-1, EN ISO 14118, EN ISO 12100, EN ISO 13851, 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_{th}: 6 A
 Max. total current Σ I_{th}²: 64 A²
 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 355-364.

Code structure

CS DM-01V024

Connection type	
V	Screw terminals
M	Connector with screw terminals
X	Connector with spring terminals

Supply voltage	
024	24 Vac/dc
120	120 Vac
230	230 Vac

Features approved by UL

Rated supply voltage (U_n): 24 Vac/dc; 50...60 Hz
 120 Vac; 50...60 Hz
 230 Vac; 50...60 Hz
 Power consumption AC: < 5 VA
 Power consumption DC: < 2 W
 Electrical ratings:
 - NO contacts: 230/240 Vac, 6 A general use, C300 pilot duty
 - NC contacts: 230/240 Vac, 6 A resistive, B300 pilot duty

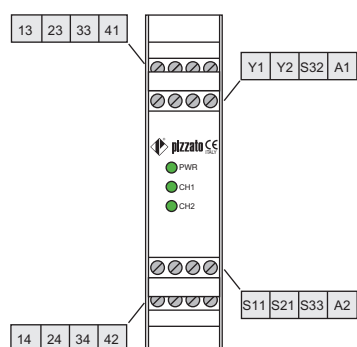
Notes:
 - Use 60 or 75°C copper (Cu) conductor and wire size No. 30-12 AWG, stranded or solid.
 - The terminal tightening torque of 5-7 lb in.
 - Only for 24 Vac/dc versions: supply from remote Class 2 source or limited voltage limited energy.

- Utiliser des conducteurs en cuivre (Cu) 60 ou 75°C rigides ou flexibles de section 30-12 AWG.
 - Couple de serrage des bornes de 5-7 Lb In.
 - Seulement pour les versions 24 Vac/dc, alimenter avec sources de classes 2 ou avec tension limitée et énergie limitée.

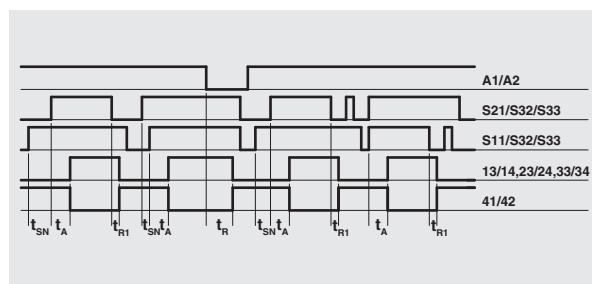


Safety module CS DM-01

Pin assignment



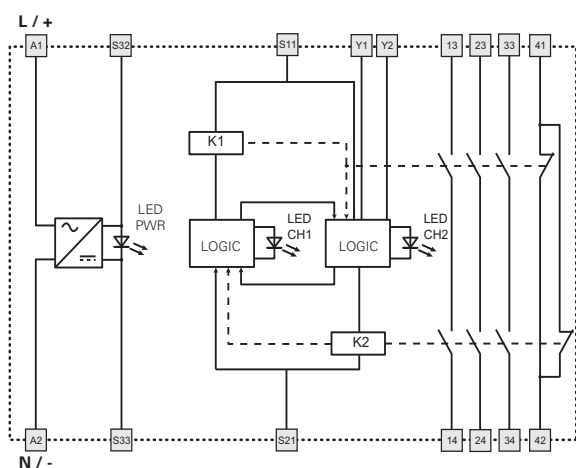
Function diagram



Legend:

- t_{SN} : time range for synchronised actuation
- t_A : response time
- t_R : release time
- $t_{R'}$: release time in absence of power supply

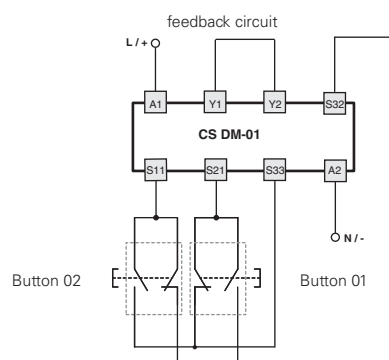
Internal wiring diagram



Application example on page 368.

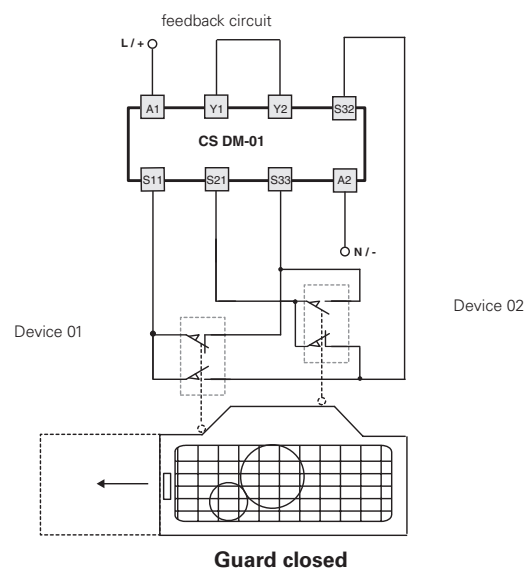
Input configuration

Circuit with two-hand control device type III C according to EN ISO 13851



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

Movable guard monitoring with automatic start and simultaneity between channels < 0.5 s (safety category 4)





Two-hand control device according to EN ISO 13851: type III C or safety module with synchronism control

Main features

- For safety applications up to SIL CL 3/PL e
- Two-channel inputs for two-hand control device or movable guards
- Connection of input channels of opposite potentials
- Reduced housing width of 22.5 mm
- 2 NO safety contacts
- Supply voltage: 24 Vac/dc, 120 Vac, 230 Vac

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:



EC type examination certificate: IMQ BP 210 DM
 UL approval: E131787
 CCC approval: 2021000305000107
 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
 Type of two-hand control device: EN ISO 13851: type III C
 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_i): 250 V
 Overvoltage category: II

Supply

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

Max. DC residual ripple in DC: 10%
 Supply voltage tolerance: $\pm 15\%$ 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: $\leq 50 \Omega$
 Current per input: 30 mA (typical)
 Response time t_A : < 30 ms
 Release time t_R : < 25 ms
 Release time in absence of power supply $t_{R'}$: < 90 ms
 Time range for synchronised actuation
 t_{SN} : < 0.5 s

In compliance with standards:

EN 60204-1, EN ISO 14118, EN ISO 12100, EN ISO 13851, 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: 2 NO safety contacts
 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_{th} : 6 A
 Max. total current ΣI_{th}^2 : 36 A²
 Minimum current: 10 mA
 Contact resistance: ≤ 100 m Ω
 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 355-364.

Code structure

CS DM-02V024

Connection type	
V	Screw terminals
M	Connector with screw terminals
X	Connector with spring terminals

Supply voltage	
024	24 Vac/dc
120	120 Vac
230	230 Vac

Features approved by UL

Rated supply voltage (U_n): 24 Vac/dc; 50...60 Hz
 120 Vac; 50...60 Hz
 230 Vac; 50...60 Hz
 Power consumption AC: < 5 VA
 Power consumption DC: < 2 W
 Electrical ratings:
 - NO contacts: 230/240 Vac, 6 A general use, C300 pilot duty
 - NC contacts: 230/240 Vac, 6 A resistive, B300 pilot duty

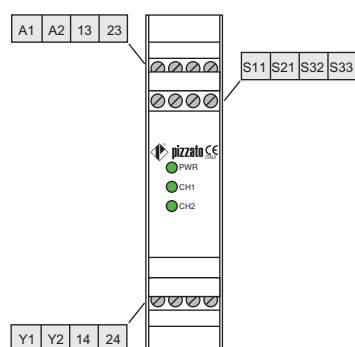
Notes:
 - Use 60 or 75°C copper (Cu) conductor and wire size No. 30-12 AWG, stranded or solid.
 - The terminal tightening torque of 5-7 lb in.
 - Only for 24 Vac/dc versions: supply from remote Class 2 source or limited voltage limited energy.

- Utiliser des conducteurs en cuivre (Cu) 60 ou 75°C rigides ou flexibles de section 30-12 AWG.
 - Couple de serrage des bornes de 5-7 Lb In.
 - Seulement pour les versions 24 Vac/dc, alimenter avec sources de classes 2 ou avec tension limitée et énergie limitée.

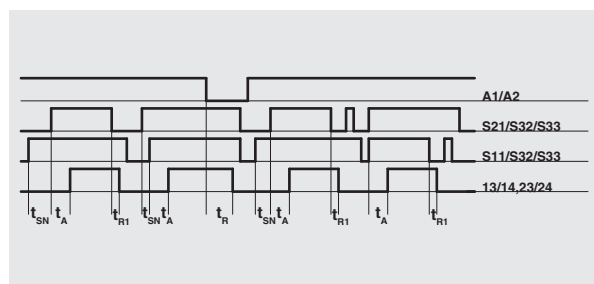


Safety module CS DM-02

Pin assignment



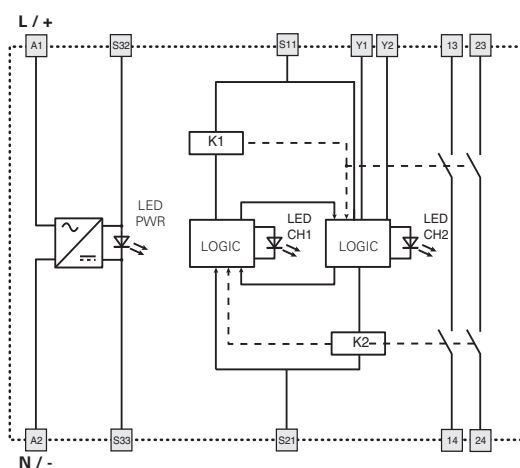
Function diagram



Legend:

- t_{SN} : time range for synchronised actuation
- t_A : response time
- t_R : release time
- $t_{R'}$: release time in absence of power supply

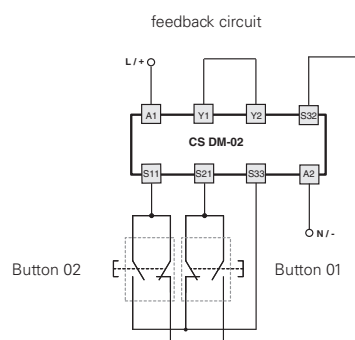
Internal wiring diagram



Application example on page 368.

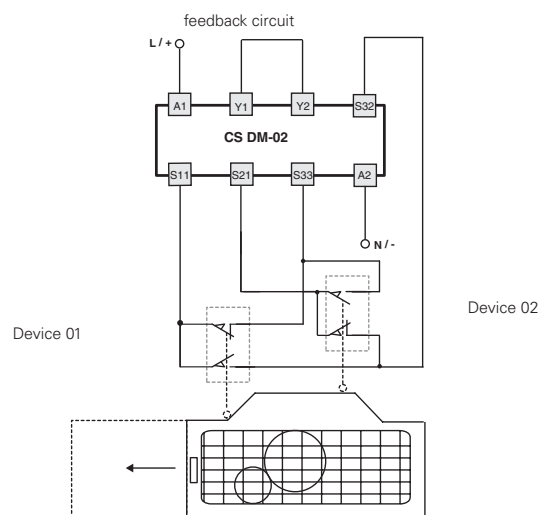
Input configuration

Circuit with two-hand control device type III C according to EN ISO 13851

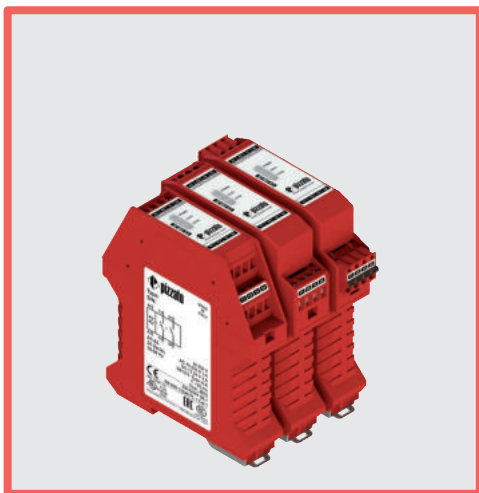


The diagram does not show the exact position of the terminals in the product

Movable guard monitoring with automatic start and simultaneity between channels < 0.5 s (safety category 4)



Guard closed



Two-hand control device according to EN ISO 13851: type III C or safety module with synchronism control

Main features

- For safety applications up to SIL CL 1/PL c
- Two-channel inputs for two-hand control device or movable guards
- Connection of input channels of opposite potentials
- Reduced housing width of 22.5 mm
- 2 NO safety contacts,
- Supply voltage: 24 Vac/dc, 120 Vac, 230 Vac

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: 2021000305000107

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 1 acc. to EN 62061

Performance Level (PL) up to:

PL c acc. to EN ISO 13849-1

Type of two-hand control device:

EN ISO 13851: type III A

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_i):

250 V

Overvoltage category:

II

Supply

Rated supply voltage (U_n):

24 Vac/dc; 50...60 Hz

120 Vac; 50...60 Hz

230 Vac; 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:

≤ 100 Ω

Current per input:

32 mA (typical)

Response time t_A:

< 20 ms

Release time t_R:

< 20 ms

Release time in absence of power supply t_R:

< 250 ms

Time range for synchronised actuation

t_{SN}:

< 0.5 s

In compliance with standards:

EN 60204-1, EN ISO 14118, EN ISO 12100, EN ISO 13851, 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:

2 NO safety contacts

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_{th}:

6 A

Max. total current Σ I_{th}²:

36 A²

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 355-364.

Code structure

CS DM-20V024

Connection type	
V	Screw terminals
M	Connector with screw terminals
X	Connector with spring terminals

Supply voltage	
024	24 Vac/dc
120	120 Vac
230	230 Vac

Features approved by UL

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

Power consumption AC:

< 5 VA

Power consumption DC:

< 2 W

Electrical ratings:

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

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

Notes:

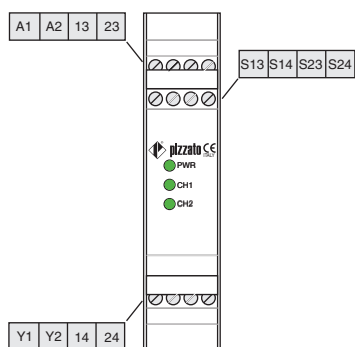
- Use 60 or 75°C copper (Cu) conductor and wire size No. 30-12 AWG, stranded or solid.
- The terminal tightening torque of 5-7 lb in.
- Only for 24 Vac/dc versions: supply from remote Class 2 source or limited voltage limited energy.

- Utiliser des conducteurs en cuivre (Cu) 60 ou 75°C rigides ou flexibles de section 30-12 AWG.
- Couple de serrage des bornes de 5-7 Lb In.
- Seulement pour les versions 24 Vac/dc, alimenter avec sources de classes 2 ou avec tension limitée et énergie limitée.

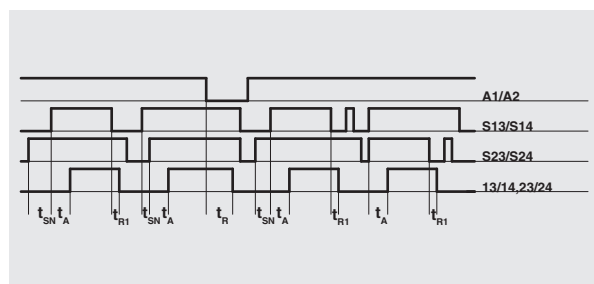


Safety module CS DM-20

Pin assignment



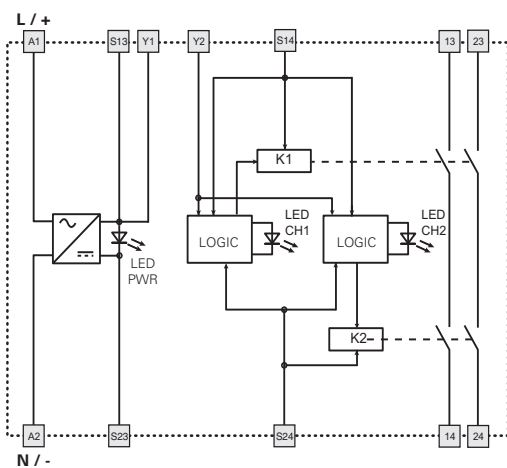
Function diagram



Legend:

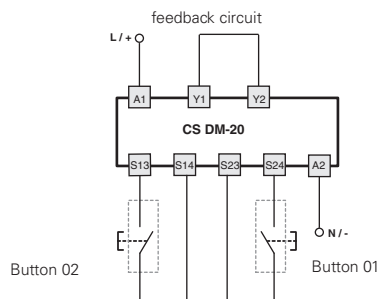
- t_{SN} : time range for synchronised actuation
- t_A : response time
- t_R : release time
- $t_{R'}$: release time in absence of power supply

Internal wiring diagram



Input configuration

Circuit with two-hand control device type III A according to EN ISO 13851



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

Movable guard monitoring with automatic start and simultaneity between channels < 0.5 s

