

### Expansion module with output contacts

#### Main features

- For safety applications up to SIL CL 3/PL e
- Possibility of control with one or two channels
- Connection of input channels of opposite potentials
- Reduced housing width of 22.5 mm
- Output contacts:
  - 5 NO safety contacts,
  - 1 NC auxiliary contact,
  - 1 NC feedback contact
- Supply voltage: 24 Vac/dc

#### Utilization categories

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

U<sub>e</sub> (V) 230

I<sub>e</sub> (A) 3

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

U<sub>e</sub> (V) 24

I<sub>e</sub> (A) 4

#### Quality marks and certificates:



EC type examination certificate: IMQ CP 432 DM

UL approval: E131787

CCC approval: 2020970305002290

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 355, 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  
(see base module category)

Safety parameters:

Ambient temperature:

see page 417

-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<sub>imp</sub>):

4 kV

Rated insulation voltage (U):

250 V

Overvoltage category:

II

#### Supply

Rated supply voltage (U<sub>n</sub>):

24 Vac/dc; 50...60 Hz

Max. DC residual ripple in DC:

10%

Supply voltage tolerance:

±15% of U<sub>n</sub>

Power consumption AC:

< 5 VA

Power consumption DC:

< 2 W

#### Control circuit

Protection against short circuits:

PTC resistance, I<sub>h</sub>=0.5 A

PTC times:

response time > 100 ms, release time > 3 s

Maximum resistance per input:

≤ 50 Ω

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

< 40 ms

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

< 50 ms

#### 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 n° 14-95

#### Output circuit

Output contacts:

5 NO safety contacts,

1 NC auxiliary contact,

1 NC feedback contact

forcibly guided

gold-plated silver alloy

230/240 Vac; 300 Vdc

Contact type:

Material of the contacts:

Maximum switching voltage:

Max. current per contact:

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

Max. total current Σ I<sub>th</sub><sup>2</sup>:

Minimum current:

Contact resistance:

External protection fuse:

6 A

6 A

72 A<sup>2</sup>

10 mA

≤ 100 mΩ

4 A

### Code structure

## CS ME-01V024

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 <sub>n</sub> ):	24 Vac/dc; 50...60 Hz
Power consumption AC:	< 5 VA
Power consumption DC:	< 2 W
Electrical ratings:	230/240 Vac 6 A general use C300 pilot duty

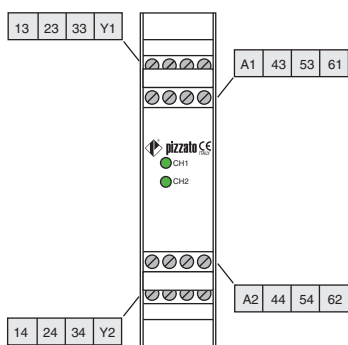
#### Notes:

- 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.

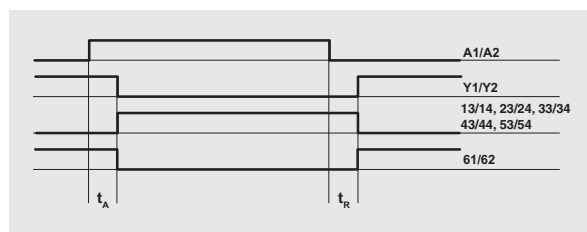


# CS ME-01 expansion module

## Pin assignment

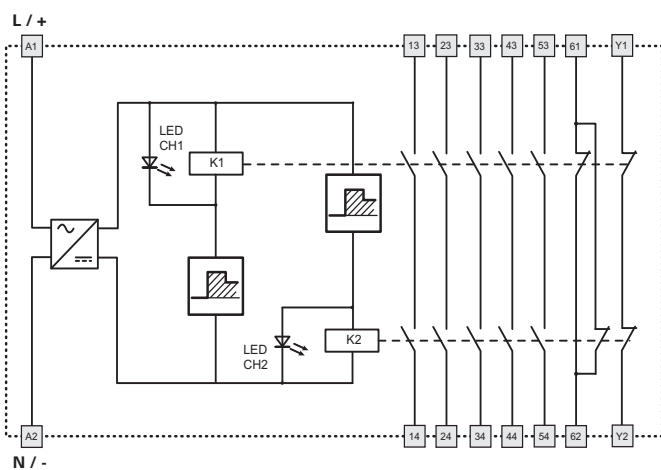


## Function diagram



Legend:  
 $t_A$ : response time  
 $t_R$ : release time in absence of power supply

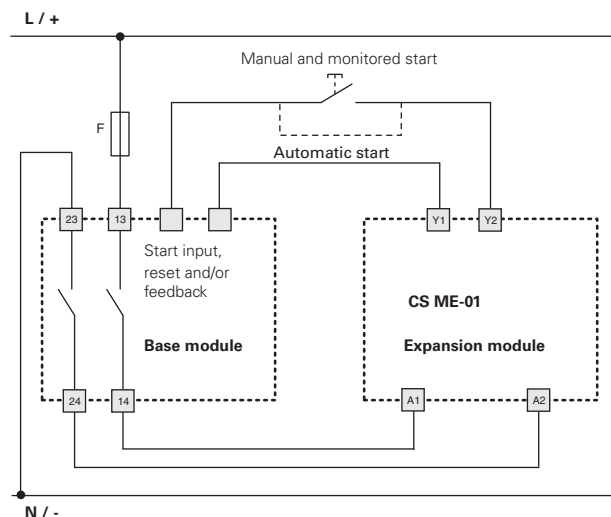
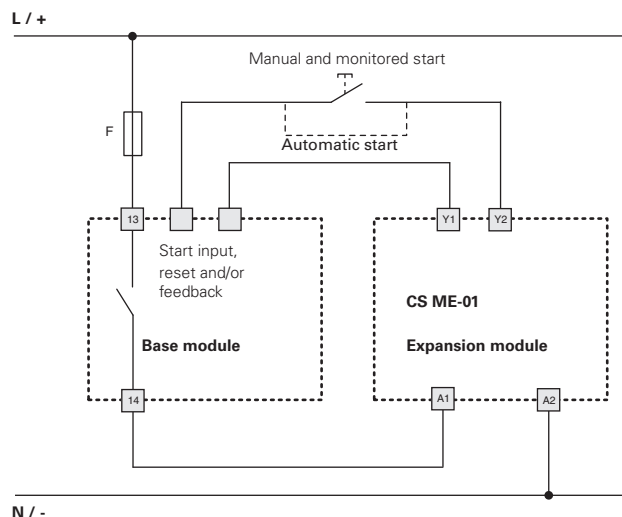
## Internal block diagram



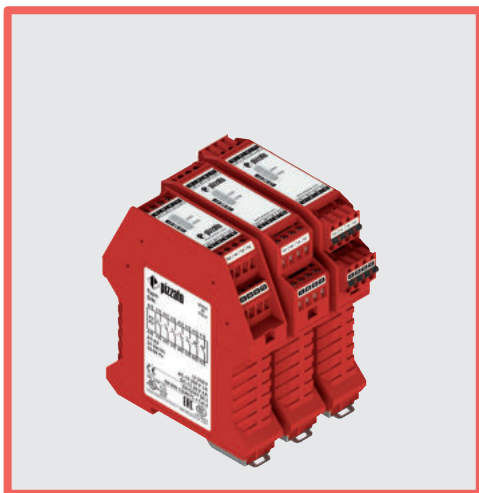
## Input configuration

### Single channel control

### Double channel control



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



### Expansion module with output contacts

#### Main features

- For safety applications up to SIL CL 3/PL e
- Possibility of control with one or two channels
- Connection of input channels of opposite potentials
- Reduced housing width of 22.5 mm
- Output contacts:
  - 4 NO safety contacts,
  - 2 NC auxiliary contacts,
  - 1 NC feedback contact
- Supply voltage: 24 Vdc

#### Utilization categories

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

U<sub>e</sub> (V) 230

I<sub>e</sub> (A) 3

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

U<sub>e</sub> (V) 24

I<sub>e</sub> (A) 4

#### Quality marks:



EC type examination certificate: IMQ CP 432 DM

UL approval: E131787

CCC approval: 2020970305002290

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 355, 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  
(see base module category)

Safety parameters:

see page 417

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<sub>imp</sub>):

4 kV

Rated insulation voltage (U<sub>i</sub>):

250 V

Overvoltage category:

II

#### Supply

Rated supply voltage (U<sub>n</sub>):

24 Vdc

Max. DC residual ripple in DC:

10%

Supply voltage tolerance:

±15% of U<sub>n</sub>

Power consumption DC:

< 2 W

#### Control circuit

Protection against short circuits:

PTC resistance, I<sub>h</sub>=0.5 A

PTC times:

response time > 100 ms, release time > 3 s

Maximum resistance per input:

≤ 50 Ω

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

< 100 ms

Release time in absence of power supply t<sub>r</sub>:

< 60 ms

#### 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 n° 14-95, GB/T14048.5

#### Output circuit

Output contacts:

4 NO safety contacts,  
2 NC auxiliary contacts,  
1 NC feedback contact  
forcibly guided

Contact type:

gold-plated silver alloy

Material of the contacts:

230/240 Vac; 300 Vdc

Maximum switching voltage:

6 A

Max. current per contact:

6 A

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

64 A<sup>2</sup>

Max. total current Σ I<sub>th</sub><sup>2</sup>:

10 mA

Minimum current:

Contact resistance:

≤ 100 mΩ

External protection fuse:

4 A

### Code structure

## CS ME-02VU24

#### Connection type

<b>V</b>	Screw terminals
<b>M</b>	Connector with screw terminals
<b>X</b>	Connector with spring terminals

#### Supply voltage

**U24** 24 Vdc

### Features approved by UL

Rated supply voltage (U <sub>n</sub> ):	24 Vdc
Power consumption DC:	< 2 W
Electrical ratings:	230/240 Vac 6 A general use C300 pilot duty

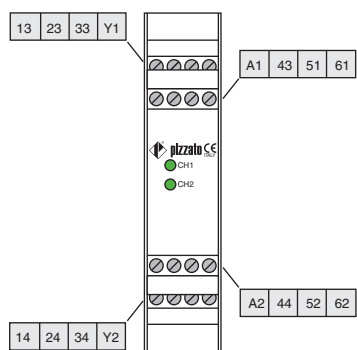
#### Notes:

- 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.

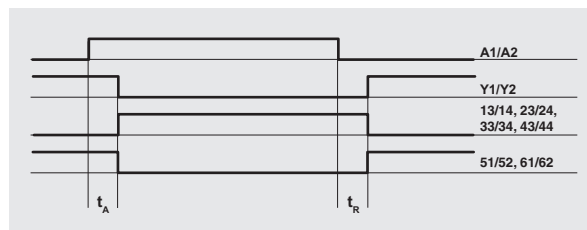


### CS ME-02 expansion module

#### Pin assignment

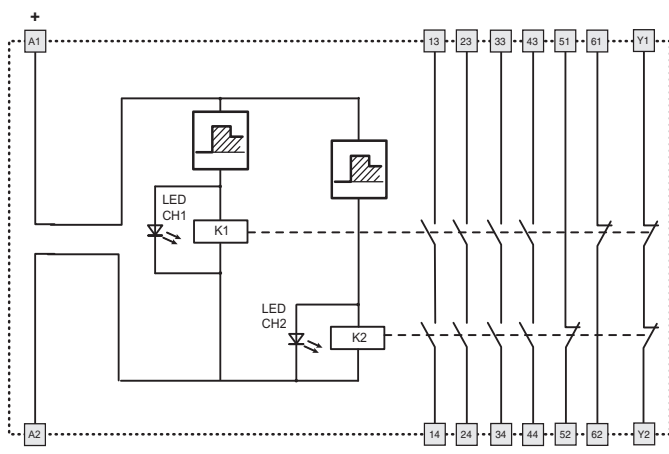


#### Function diagram



Legend:  
 $t_A$ : response time  
 $t_R$ : release time in absence of power supply

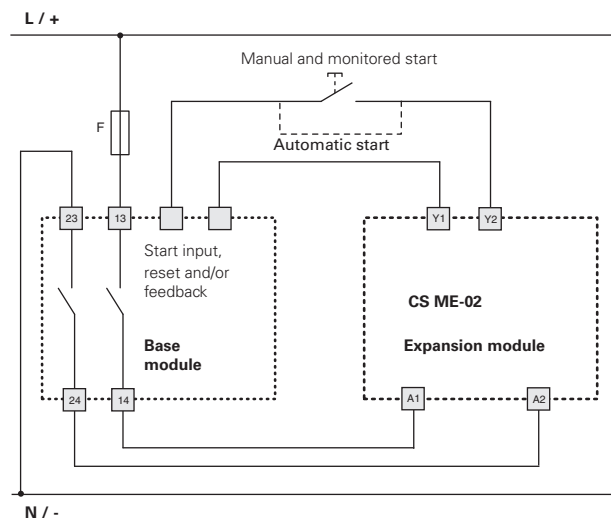
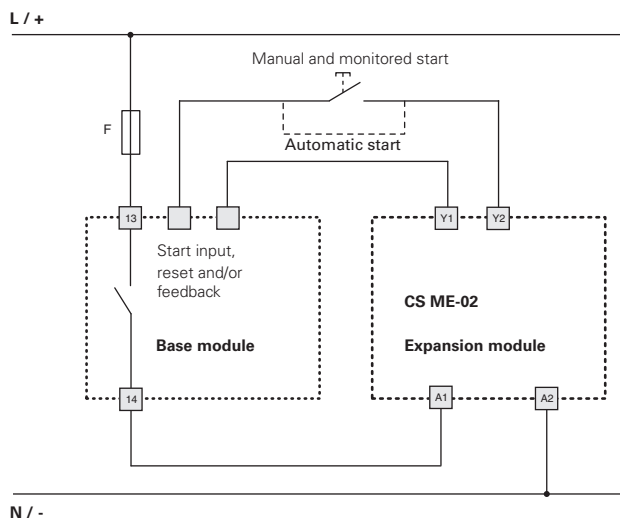
#### Internal block diagram



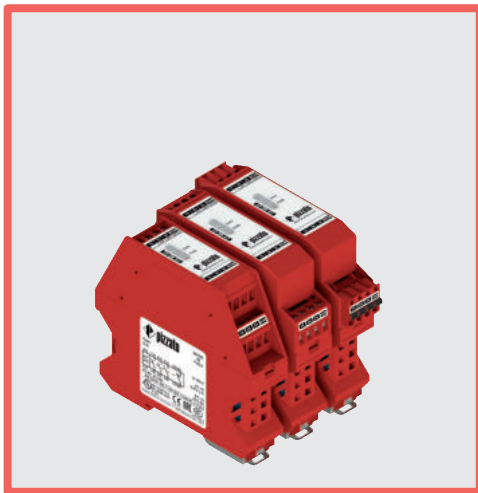
#### Input configuration

##### Single channel control

##### Double channel control



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



### Expansion module with output contacts

#### Main features

- For safety applications up to SIL CL 3/PL e
- Module for OSSD semiconductor outputs
- 2 OSSD inputs
- Reduced housing width of 22.5 mm
- Output contacts:  
3 NO safety contacts,  
1 NC feedback contact/EDM
- Supply voltage: 24 Vdc

#### Utilization categories

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

U<sub>e</sub> (V) 230

I<sub>e</sub> (A) 3

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

U<sub>e</sub> (V) 24

I<sub>e</sub> (A) 4

#### Quality marks:



EC type examination certificate: IMQ CP 432 DM

UL approval: E131787

CCC approval: 2020970305002290

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 355, design D

#### 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  
(dependent on semiconductor outputs)

Safety parameters:

see page 417

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<sub>imp</sub>):

4 kV

Rated insulation voltage (U<sub>i</sub>):

250 V

Overvoltage category:

II

#### Supply

Rated supply voltage (U<sub>n</sub>):

24 Vdc

Max. DC residual ripple in DC:

10%

Supply voltage tolerance:

±15% of U<sub>n</sub>

Power consumption DC:

< 2 W

Consumption at start:

< 3 W

#### Control circuit

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

< 40 ms

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

< 20 ms

#### 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 n° 14-95, GB/T14048.5

#### Output circuit

Output contacts:

3 NO safety contacts,  
1 NC feedback contact  
forcibly guided

Contact type:

gold-plated silver alloy

Material of the contacts:

230/240 Vac; 300 Vdc

Maximum switching voltage:

6 A

Max. current per contact:

6 A

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

36 A<sup>2</sup>

Max. total current Σ I<sub>th</sub><sup>2</sup>:

10 mA

Minimum current:

≤ 100 mΩ

Contact resistance:

4 A

External protection fuse:

### Code structure

## CS ME-03VU24

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

Supply voltage	
U24	24 Vdc

### Features approved by UL

Rated supply voltage (U <sub>n</sub> ):	24 Vdc
Power consumption DC:	< 2 W
Electrical ratings:	230/240 Vac 6 A general use C300 pilot duty

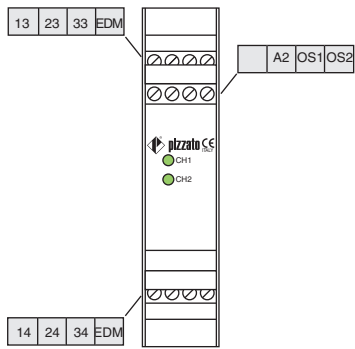
#### Notes:

- 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.

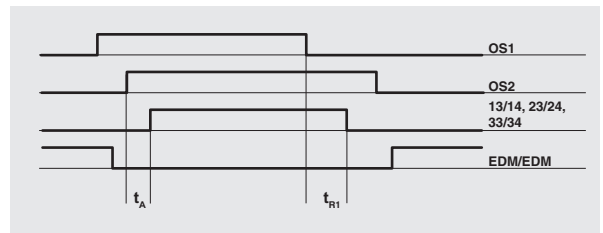


### CS ME-03 expansion module

#### Pin assignment

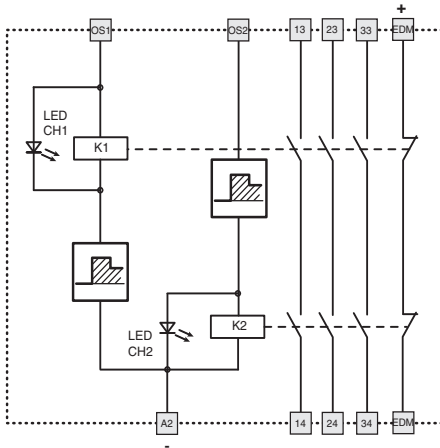


#### Function diagram



Legend:  
 $t_A$ : response time  
 $t_{R1}$ : release time

#### Internal block diagram

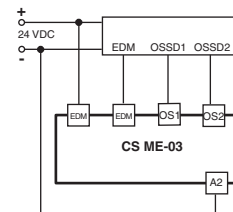
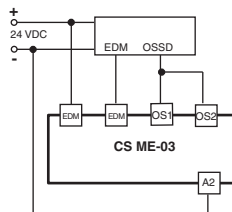


Application example on page 307.

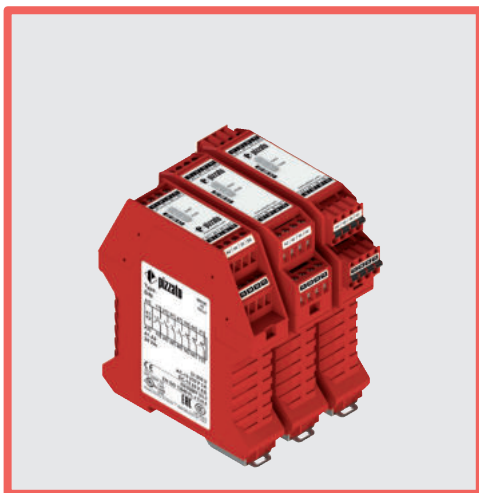
#### Input configuration

OSSD semiconductor outputs (e.g. ST, NS, NG series or light barriers)

1 channel 2 channels



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



### Expansion module with delayed output contacts at de-energizing

#### Main features

- For safety applications up to SIL CL 3/PL e
- Possibility of control with one or two channels
- 4 delay times 0.5 - 1 - 2 and 3 s
- Reduced housing width of 22.5 mm
- Output contacts:
  - 4 NO safety contacts,
  - 2 NC auxiliary contacts,
  - 1 NC feedback contact
- Supply voltage: 24 Vdc

#### Utilization categories

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

U<sub>e</sub> (V) 230

I<sub>e</sub> (A) 3

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

U<sub>e</sub> (V) 24

I<sub>e</sub> (A) 4

#### Quality marks:



EC type examination certificate: IMQ CP 432 DM

UL approval: E131787

CCC approval: 2020970305002290

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 355, 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

(see base module category)

Safety parameters: see page 417

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<sub>imp</sub>):

4 kV

Rated insulation voltage (U<sub>i</sub>):

250 V

Overtoltage category:

II

#### Supply

Rated supply voltage (U<sub>n</sub>): 24 Vdc

Max. DC residual ripple in DC: 10%

Supply voltage tolerance: ±15% of U<sub>n</sub>

Power consumption DC: < 2 W

#### Control circuit

Maximum resistance per input: ≤ 50 Ω

Response time t<sub>A</sub>: < 120 ms

Release time in absence of power supply t<sub>R</sub>: see Code structure

#### 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 n° 14-95, GB/T14048.5

#### Output circuit

Output contacts: 4 NO safety contacts,  
2 NC auxiliary contacts,  
1 NC feedback 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<sub>th</sub>: 6 A

Max. total current Σ I<sub>th</sub><sup>2</sup>: 64 A<sup>2</sup>

Minimum current: 10 mA

Contact resistance: ≤ 100 mΩ

External protection fuse: 4 A

### Code structure

article options  
**CS ME-20VU24-TF1**

#### Connection type

<b>V</b>	Screw terminals
<b>M</b>	Connector with screw terminals
<b>X</b>	Connector with spring terminals

#### Release time in absence of power supply (t<sub>R</sub>)

<b>TF0.5</b>	0.5 s fixed time
<b>TF1</b>	1 s fixed time
<b>TF2</b>	2 s fixed time
<b>TF3</b>	3 s fixed time

### Features approved by UL

Rated supply voltage (U <sub>n</sub> ):	24 Vdc
Power consumption DC:	< 2 W
Electrical ratings:	230/240 Vac 6 A general use C300 pilot duty

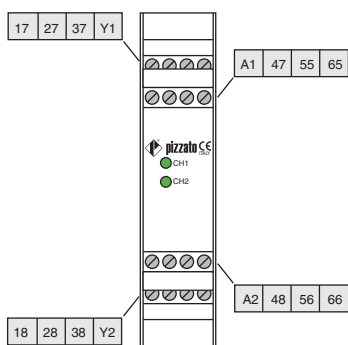
#### Notes:

- 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.

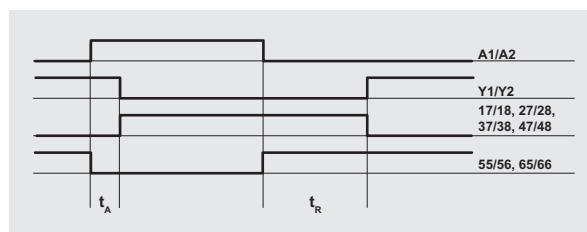


### CS ME-20 expansion module

#### Pin assignment

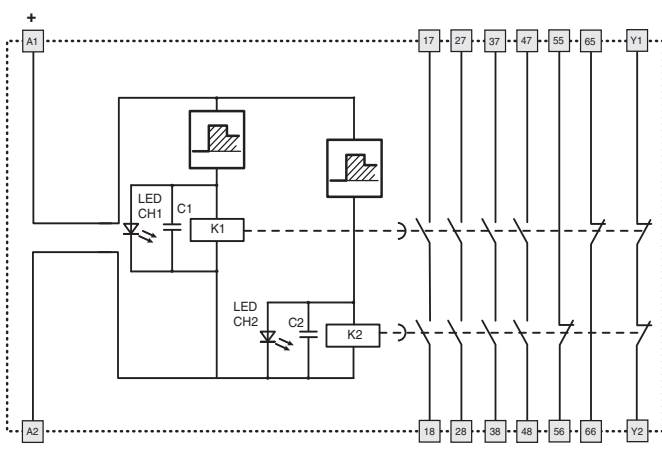


#### Function diagram



Legend:  
 $t_A$ : response time  
 $t_R$ : release time in absence of power supply (see "Code structure")

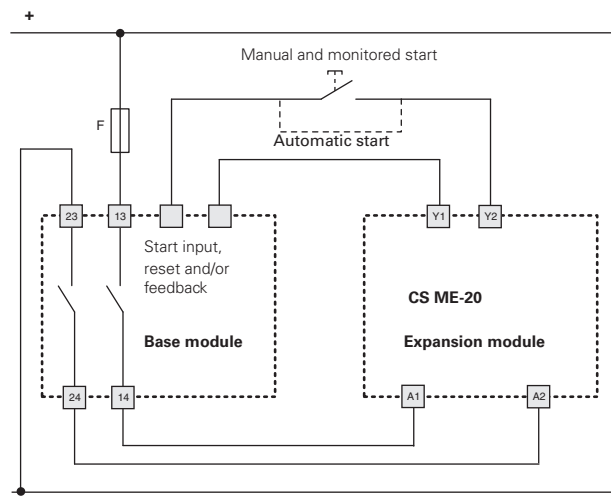
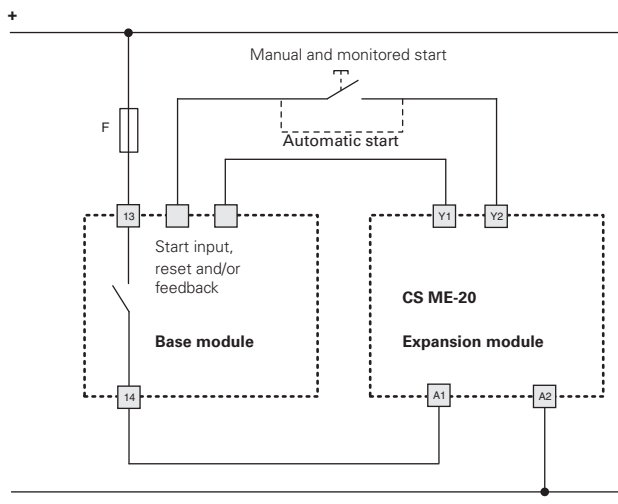
#### Internal block diagram



#### Input configuration

##### Single channel control

##### Double channel control



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





### Expansion module with delayed output contacts at de-energizing

#### Main features

- For safety applications up to SIL CL 3/PL e
- Possibility of control with one or two channels
- Adjustable delay time
- 45 mm housing
- Output contacts:
  - 4 NO safety contacts,
  - 2 NC auxiliary contacts,
  - 1 NC feedback contact
- Supply voltage: 24 Vdc

#### Utilization categories

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

U<sub>e</sub> (V) 230

I<sub>e</sub> (A) 3

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

U<sub>e</sub> (V) 24

I<sub>e</sub> (A) 4

#### Quality marks:



EC type examination certificate: IMQ CP 432 DM

UL approval: E131787

CCC approval: 2020970305002290

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 355, design C

#### 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

(see base module category)

Safety parameters: see page 417

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<sub>imp</sub>):

4 kV

Rated insulation voltage (U):

250 V

Overvoltage category:

II

#### Supply

Rated supply voltage (U<sub>n</sub>): 24 Vdc

Max. DC residual ripple in DC:

10%

Supply voltage tolerance:

±15% of U<sub>n</sub>

Power consumption DC:

< 2 W

#### Control circuit

Maximum resistance per input: ≤ 50 Ω

Response time t<sub>A</sub>: < 200 ms

Release time in absence of power supply t<sub>R</sub>: see Code structure

#### 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 n° 14-95, GB/T14048.5

#### Output circuit

Output contacts: 4 NO safety contacts,  
2 NC auxiliary contacts,  
1 NC feedback 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<sub>th</sub>: 6 A

Max. total current Σ I<sub>th</sub><sup>2</sup>: 64 A<sup>2</sup>

Minimum current: 10 mA

Contact resistance: ≤ 100 mΩ

External protection fuse: 4 A

### Code structure

# CS ME-31VU24-TS12

#### Connection type

**V** Screw terminals

**M** Connector with screw terminals

**X** Connector with spring terminals

Release time in absence of power supply (t<sub>R</sub>)

**TS12** Adjustable time, 1 ... 12 s, 1 s steps

### Features approved by UL

Rated supply voltage (U<sub>n</sub>): 24 Vdc

Power consumption DC: < 2 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.

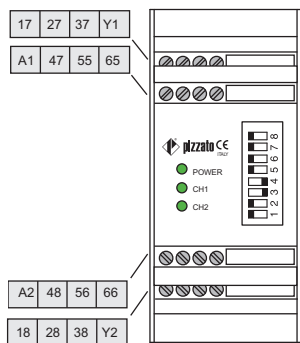
- The terminal tightening torque of 5-7 lb in.

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

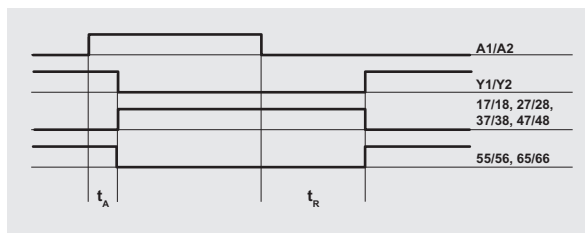


### CS ME-31 expansion module

#### Pin assignment

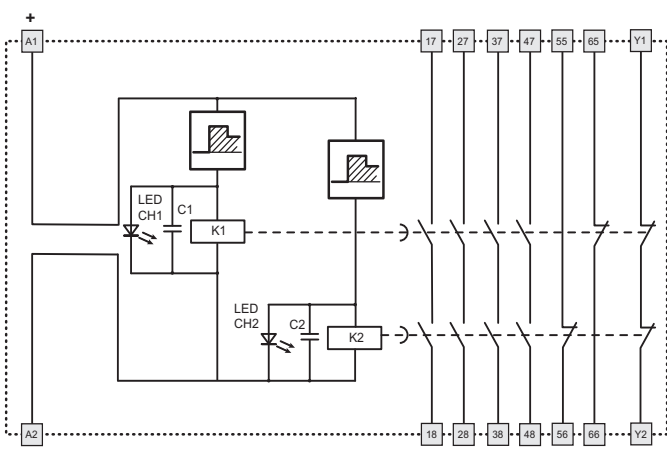


#### Function diagram



Legend:  
 $t_A$ : response time  
 $t_R$ : release time in absence of power supply (see "Code structure")

#### Internal block diagram

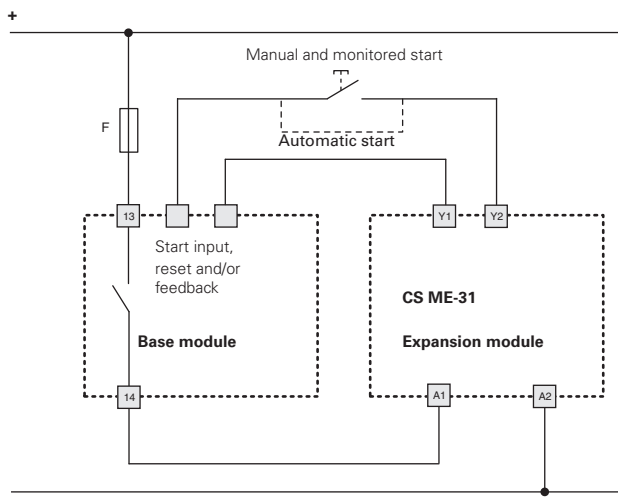


#### Release time selection $t_R$

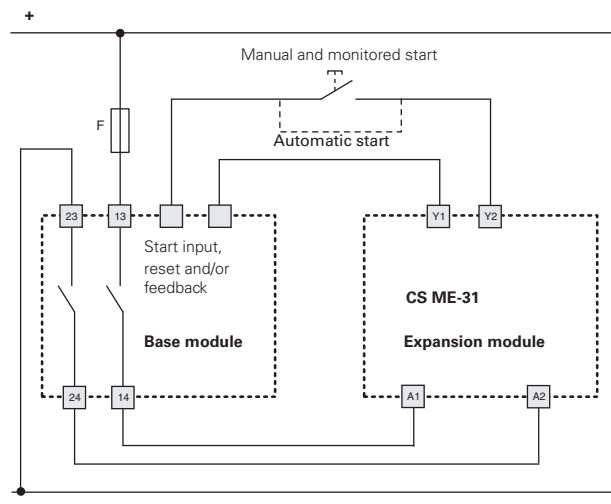
DIP SWITCH		$t_R$ (s)
ON	OFF	1
ON	OFF	2
ON	OFF	3
ON	OFF	4
ON	OFF	5
ON	OFF	6
ON	OFF	7
ON	OFF	8
ON	OFF	9
ON	OFF	10
ON	OFF	11
ON	OFF	12

#### Input configuration

##### Single channel control



##### Double channel control



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