

Emergency stop with LED Smile

Approvals;



Application:

To stop a machine or a process

Features:

Several E-stops in series up to Category 3 according to EN 954-1/EN ISO 13849-1
LED Indication at every E-stop
Robust construction
IP 65



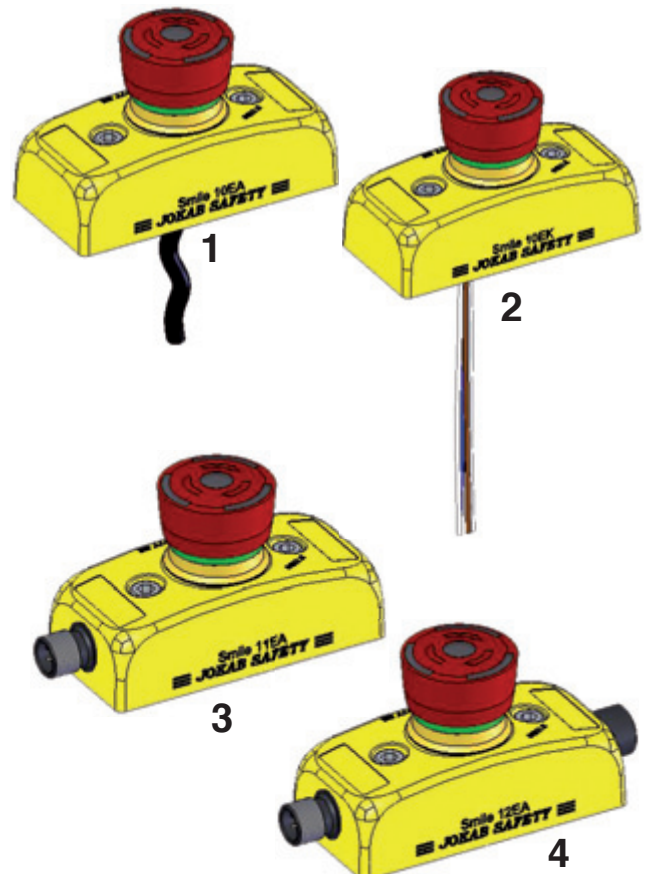
Smile - small and cost effective E-stop

In order to fulfil the need for a small and easy to install E-stop, Smile has been developed. The size of the device makes it possible to be installed wherever you want. With M12 connection/s or cable and centralised mounting holes Smile is very easy to install, especially on aluminium extrusions. Smile is available for E-stops in both dynamic and static safety circuits i.e. for interfacing to Vital/Pluto and Safety relays. Each version is available with either one or two M12 connections or cable. In the top of the Smile E-stop unit, LED's show the actual status:

Green = protection is ok Red = this E-stop has been pressed and if the LED is off an E-stop earlier in the circuit has been pressed.

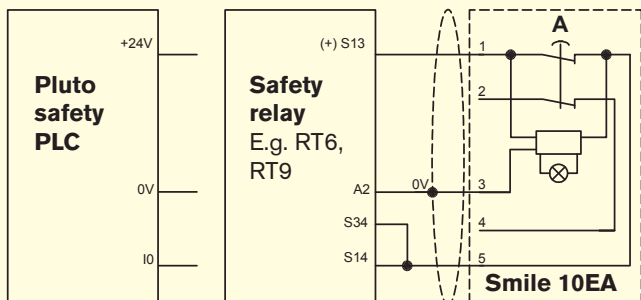
Smile emergency stop has four different variants:

1. Smile 10EA has a 1 m cable connected through the base of the unit.
2. Smile 10EK has four 1 m short connecting leads through the base of the unit. No LED.
3. Smile 11EA has a five-pole M12 connector on one end of the unit.
4. Smile 12EA has two five-pole M12 connectors, one on each end of the unit.

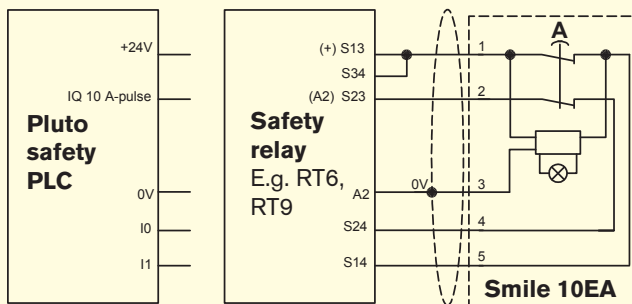


Connection examples – Smile

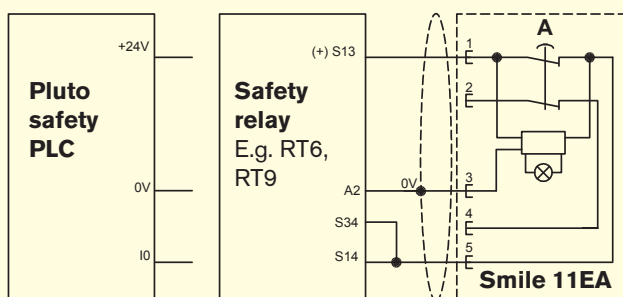
Smile 10EA can be connected to either Pluto or a safety relay. *Single channel* example with LED indication. Safety category 1. The connection cable exits from underneath the unit.



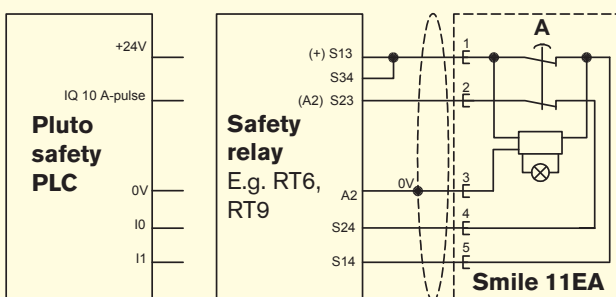
Smile 10EA can be connected to either Pluto or a safety relay. *Two channel* example with LED indication. Safety circuit category 4.



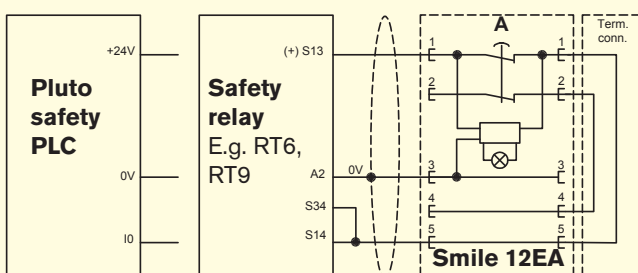
Smile 11EA can be connected to either Pluto or a safety relay. *Single channel* example with LED indication. Safety category 1. Connection via M12 connector.



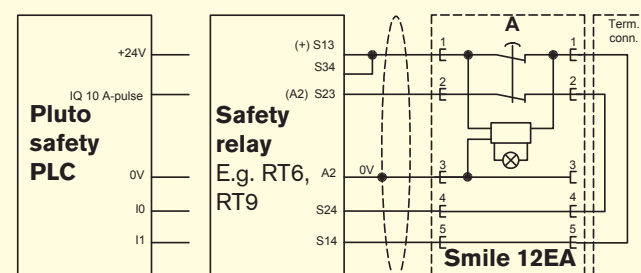
Smile 11EA can be connected to either Pluto or a safety relay. *Two channel* example with LED indication. Safety circuit category 4. Connection via M12 connector.



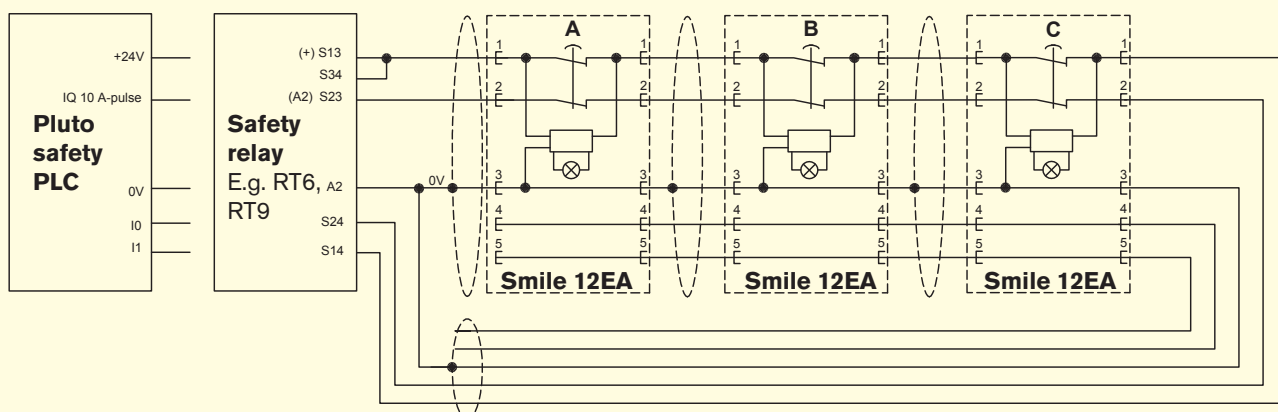
Smile 12EA can be connected to either Pluto or a safety relay. *Single channel* example with LED indication. Safety category 1. Connection via M12 connector + termination connector.



Smile 12EA can be connected to either Pluto or a safety relay. *Two channel* example with LED indication. Safety circuit category 4. Connection via M12 connector + termination connector.

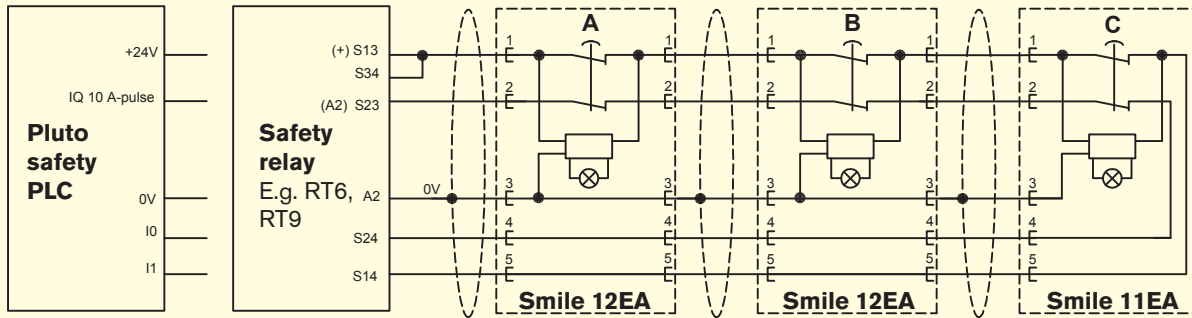


Smile 12EA can be connected to either Pluto or a safety relay. *Two channel* serial connection example with LED indication. Safety circuit category 3. Connection via M12 connectors. Note that there is no termination connector for the Smile 12EA (C), this unit being connected back to the Pluto/safety relay via a separate cable.



Connection examples – Smile

Smile 12EA and 11EA can be connected to either Pluto or safety relay. *Two channel* example with LED indication. Safety circuit category 3. Connection via M12 connectors. Note that there is no termination connector as the Smile 11EA (C) completes the circuit without the need for a termination connector or return cable.



E-Stop Button status LED Indication

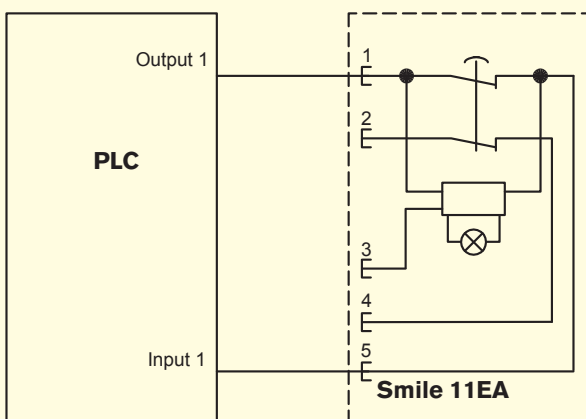
A	B	C		A	B	C
R	R	R	↔	G	G	G
R	R	D	↔	G	G	Rd
R	D	R	↔	G	Rd	B
R	D	D	↔	G	Rd	B
D	R	R	↔	Rd	B	B
D	R	D	↔	Rd	B	B
D	D	R	↔	Rd	B	B
D	D	D	↔	Rd	B	B

The table shows the LED indication status of the E-Stop buttons from the example shown in above example.

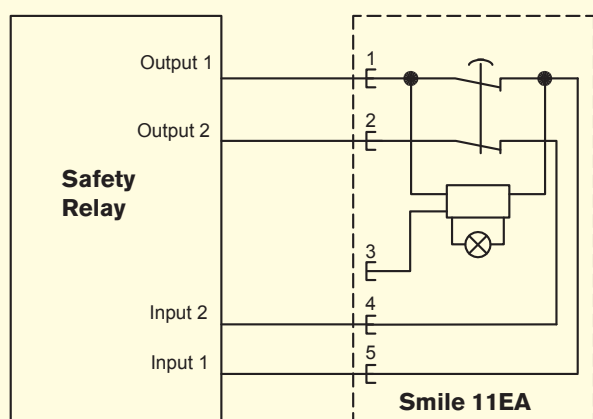
A = Smile 12EA
 B = Smile 12EA
 C = Smile 11EA
 R = Released
 D = Depressed
 G = Green light from the top of the button
 Rd = Red light from the top of the button
 B = Blank, no light

Smile 10EA/11EA/12EA are like any other emergency stops when 0V to the LED indication is not connected. This means that any suitable Safety PLC or safety relay can be used. If the LED indication is used, the voltage between Pin 1 (+) and Pin 3 (-) should be between 19.2 – 28.8 VDC. The following examples show connections to Safety PLC and Safety relay.

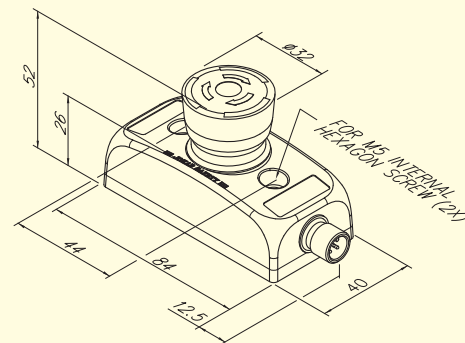
Single channel PLC connection



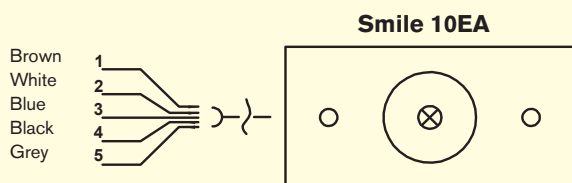
Two channel Safety relay connection



Technical data - Smile	
Manufacturer:	JOKAB SAFETY AB, Sweden
Article number/ordering data:	30-051-04 Smile 10EA with 1 m cable 30-051-06 Smile 10EK with short connecting leads (No LED connection) 30-051-00 Smile 11EA with M12 male connector 30-051-02 Smile 12EA with male and female M12 connectors 30-051-01 Smile 11EAR 30-051-03 Smile 12EAR Note. There are versions for dynamic technology (with Tina).
Safety category:	Safety circuit up to Cat. 4 acc. To EN 954-1/EN ISO 13849-1, together with appropriate control unit.
Colour:	Yellow and red
Weight:	Approx. 65 grams
Size:	Length: 84 mm + M12 contact(s) (12.5 mm each) Width: 40 mm Height: 52 mm
Material:	Polypropylene (Box) Polyamide (E-stop button)
Ambient temperature:	-10°C to +55°C (operation), -30°C to +70°C (stock)
Protection class:	IP 65
Mounting:	Two M5 recessed hexagon head screws, L ≥25 mm. Hole cc: 44 mm
LED on E-Stop:	Green: Safety device ok, Safety circuit closed Off: Safety circuit broken (When an E-Stop is depressed all following units in the circuit lose the LED function). Red: Safety device actuator depressed and Safety circuit broken.
Input voltage (LED):	17-27 VDC ripple ±10% (LED supply voltage)
Current consumption (LED):	15 mA
E-Stop button Actuating force:	22±4 N
Actuator travel:	Approx. 4 mm to latch
Material:	Polyamide (PA66) as per UL94 V0
Material, contacts:	Silver alloy gold plated
Life, mechanical:	> 50 000 operations
Standards:	EN ISO 13850, EN 60204, EN 60947-5-1 & -5
Min current:	10 mA 10 VDC/10 VAC

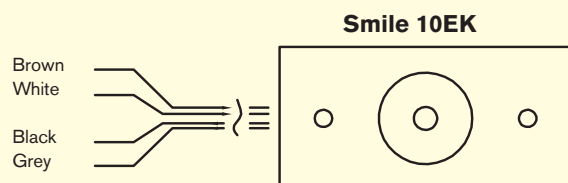


Connection examples - Smile



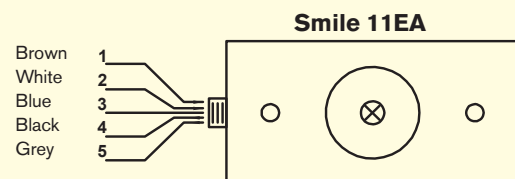
The cable is connected to Smile 10EA via the lid at the back.

1. Input 1
2. Input 2
3. 0 VDC (to be connected only if LED indication is required)
4. Output 2
5. Output 1

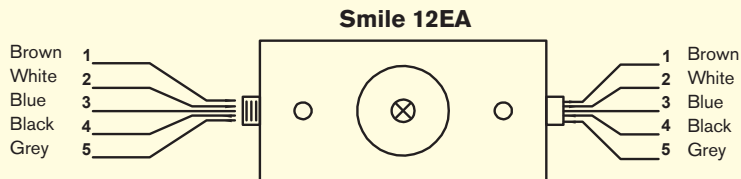


The leads are connected to Smile 10EK via the lid at the back. No LED connection.

- | | |
|-------|----------|
| Brown | Input 1 |
| White | Input 2 |
| Black | Output 2 |
| Grey | Output 1 |



1. Input 1
2. Input 2
3. 0 VDC (to be connected only if LED indication is required)
4. Output 2
5. Output 1



1. Input 1
2. Input 2
3. 0 VDC (to be connected only if LED indication is required)
4. Output 2, feedback
5. Output 1, feedback

1. Output 1
2. Output 2
3. 0 VDC
4. Input 2, feedback
5. Input 1, feedback