






Emergency stops and pilot devices




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Modular and Compact range

Introduction and overview

Selection guide

ABB offers a full range of buttons and pull wires for emergency stop functions, as well as pilot devices for e.g. reset functions.

	Emergency stop buttons	Safety stop buttons	Reset buttons
Name	Smile, Inca, EStrong, Compact	Smile, Inca, Compact	Smile
Image			
Description	Emergency stop buttons for external mounting and panel mounting in different sizes and material	Safety stop buttons for external mounting and panel mounting	Small and easy to install reset button
Applications	Safely stop dangerous machine functions	Safely stop a limited part of a dangerous machine	Pushbutton for resetting safety devices
Advantages	Models with: <ul style="list-style-type: none"> - Compact size - Robust enclosure for harsh environments - Quick installation with M12 connectors - LED indication 	Models with: <ul style="list-style-type: none"> - Compact size - Robust enclosure for harsh environments - Quick installation with M12 connectors - LED indication 	<ul style="list-style-type: none"> - Compact size - Quick installation - M12 connector - LED indication

	Pull wire emergency stop switches	Push button boxes	Pilot devices
Name	LineStrong	Smile 41	Modular range, compact range
Image			
Description	Emergency stop switches in robust enclosures for pull wires of various lengths.	Gathers up to four push buttons, including emergency stop, in a single compact device	Push buttons, selector switches, pilot lights, joysticks and signal towers in a compact and robust design
Applications	Emergency stop line to safely stop conveyor belts and long transportation lines.	Emergency stop and pushbuttons in one device	For control and indication of machines and processes
Advantages	<ul style="list-style-type: none"> - Up to 200 m wire with one switch - Reliable mechanical connection - Robust construction 	<ul style="list-style-type: none"> - Compact size - Quick installation - M12 connector - LED indication - Highly adaptable with several button colors 	<ul style="list-style-type: none"> - Compact size - Up to IP69K - Long life-time thanks to self-cleaning contacts - Quick snap-on design for simple installation without tools

Introduction and overview

Selection orientation

Why an emergency stop is necessary

If a machine breaks down or if someone is in danger, anyone should be able to stop the machine, regardless of their knowledge of the specific application.



When a safety stop could be used

A safety stop (also called machine stop) should be used to safely stop a part of the machine, e.g. as a stop for an individual hazardous motion. It should not be used as an emergency stop and stop the complete machine. Likewise, an emergency stop with red push button must not be used as a safety stop.



In order to separate the safety stop function from the emergency stop function, the safety stop buttons should be colored black.

When a pull wire emergency stop could be used

A pull wire emergency stop is easier to install than a system of several emergency stop buttons along a carriage path which makes it ideal for installations over long distances. LineStrong can handle wires up to 200 m on one single switch and the emergency command can be initiated from any point along the installed wire length.



Introduction and overview

Standards

Important standards to follow when implementing emergency stop functions are e.g. EN ISO 13850 and EN ISO 60204-1.

Stop categories

The following stop categories are defined in the standards:

Stop Category 0	stopping by immediate removal of power to the machine actuators
Stop Category 1	a controlled stop with power available to the machine actuators to achieve the stop and then removal of power when the stop is achieved
Stop Category 2	a controlled stop with power left available to the actuators

Note that these categories should not be confused with the categories used to describe the architecture when calculating PL in EN ISO 13849. The risk assessment should determine which stop category to use, but stop category 2 is normally considered not to be suitable for emergency stops.

Text and symbols

Neither the emergency stop nor its background should be labelled with text or symbols. It has previously been common with white arrows indicating the direction of unlatching, but this is not allowed anymore.

Location and signs

The risk assessment should determine the locations of the emergency stop buttons, but they should in general be placed at operator stations, at locations where man/machine interaction is required and at entry/exit points. Signs to mark the location of emergency stops are not required, but if used they should be green with white markings.

Emergency stop buttons

Smile, INCA, EStrong and Compact

Emergency stop buttons are used to safely stop dangerous machine functions.

ABB offers a wide range of emergency stop buttons for external mounting or panel mounting, with plastic or metal housing and for different types of connections.



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Easy to install

Compact size

Models with a compact and appealing housing saves space and makes it easy to place.

Quick installation

Quick and easy installation of models with features such as centered mounting holes, removable terminal blocks and M12 connectors.

Serial connection

Tina models save cable length and installation time with serial connection.



Optimum interface

Highly adaptable

Several models to choose between depending on position, installation and function.

Reliable in extreme conditions

Robust models and models in stainless steel for use in demanding environments.



Continuous operation

LED diagnostics

Models with integrated LED diagnostics reduce downtime when troubleshooting.

Models and application

Emergency stop buttons

Models for external mounting

Smile

Smile is a small and easy to install emergency stop button. Its size allows mounting in reduced spaces, and its centered mounting holes makes it especially easy to mount on aluminum extrusions (e.g. Quick-Guard fencing system). Smile is available with M12 connectors or cable.

Smile has an integrated LED in the button that shows the status and simplifies error tracking.

The standard models of Smile have 2 contacts and can be used with safety controllers from all brands. Smile Tina models belong to the ABB DYNlink solution, with the advantages of serial connection using only one channel and still reaching Cat. 4/PL e.



Compact

Compact emergency stop buttons offer a robust enclosure with a high IP rating that fulfill the demands in severe and humid environments, such as food and beverage industry. Compact can be fitted with a Tina adapter for use in a DYNlink solution (Tina 2A, Tina 2B or Tina 3A).



EStrong

EStrong is an emergency stop button designed to provide a robust unit in exposed and severe environments. The unit has a stainless steel enclosure with IP69K rating that withstands high pressure and high temperature wash-down. It is therefore ideally suited for industries with special demands, such as food processing or chemical industry.



Models for panel mounting

INCA

INCA is an emergency stop button for panel mounting, designed for installation in 22.5 mm holes. Its removable terminal block facilitates connection and exchange.

INCA has an integrated LED in the button that shows the status and simplifies error tracking.

The standard model of INCA has 2 contacts and can be used with safety controllers from all brands. INCA Tina models belongs to the ABB DYNlink solution, with the advantages of serial connection using only one channel and still reaching Cat. 4/PL e.



Smile Reverse

Smile Reverse is identical to the regular Smile emergency stop button besides from being reversed in order to be mounted on the back side of a panel. Smile Reverse has an IP65 housing that makes it suitable in panels where moisture and dust may occur.

Smile Reverse has an integrated LED in the button that shows the status and simplifies error tracking.

The standard model of Smile Reverse has 2 contacts and can be used with safety controllers from all brands. The Smile Reverse Tina model belongs to the ABB DYNlink solution, with the advantages of serial connection using only one channel and still reaching Cat. 4/PL e.



Application

Emergency stop buttons are used to safely stop a dangerous machine function in order to prevent an accident, or minimize the consequences of an accident. An emergency stop should be a complement to other safety devices, and not a replacement for them.



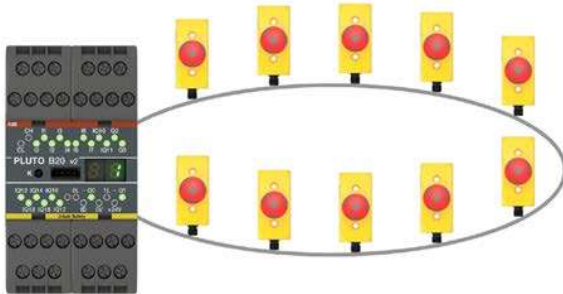
Features

Emergency stop buttons

Communication features

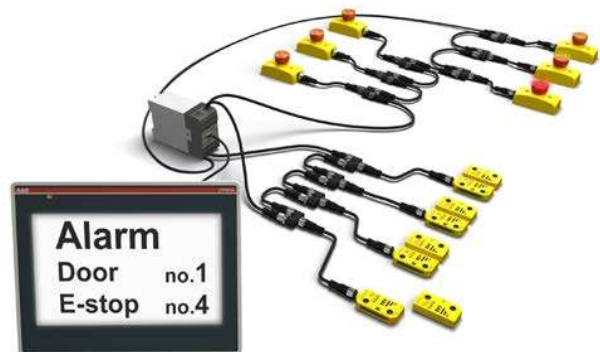
DYNlink

Emergency stop buttons with Tina in their name belong to the DYNlink solution, which enables serial connection using only one channel and still reaching Cat. 4/PL e. DYNlink devices must be used with Vital safety controller or Pluto programmable safety controller. Up to 30 DYNlink devices can be connected in series to Vital and up to 10 can be connected to each input on Pluto.



StatusBus

StatusBus is a simple and cost effective way to collect the status information of emergency stops and safety sensors. The StatusBus functionality is available with some DYNlink devices and allows to collect the status of each individual safety device, even when connected in series. A Pluto programmable safety controller must be used to read the StatusBus information, and a single input on Pluto can collect the status of up to 30 safety devices. The devices are connected using standard cable and M12-5 connectors. No specific bus cable or extra communication module is necessary.



Ordering information

Emergency stop buttons



2TLCT28683F0201

Smile 10 EA Tina



2TLCT2859F0201

Smile 11 EC Tina



2TLCT2878F0201

Smile 12 EA



ABB Compact emergency stop shroud



2TLCT2869F0201

EStrongZ and EStrongZ LED



2TLCT2868F0201

Smile 11 EAR



2TLCT2868F0201

INCA 1

External mounting

Description	Type of safety signal	Connection type	Feature	Type	Order code
Compact size Plastic housing IP65	DYNlink	1 m cable from bottom	Status LED	Smile 10 EA Tina	2TLA030050R0400
		1 x M12-5 male	Status LED	Smile 11 EA Tina	2TLA030050R0000
		1 x M12-5 male	Status LED, StatusBus	Smile 11 EC Tina	2TLA030050R0900
		2 x M12-5 male	Status LED	Smile 12 EA Tina	2TLA030050R0200
2 NC	2 NC	1 m cable from bottom	Status LED	Smile 10 EA	2TLA030051R0400
		1 m leads from bottom	-	Smile 10 EK	2TLA030051R0600
		1 x M12-5 male	Status LED	Smile 11 EA	2TLA030051R0000
		2 x M12-5 male	Status LED	Smile 12 EA	2TLA030051R0200
Plastic housing IP66, IP67 and IP69K	2 NC*	2 x M20 conduits	-	CEPY1-1002 (Compact)	1SFA619821R1002
			With shroud	CEPY1-2002 (Compact)	1SFA619821R2002
Metal housing IP67 and IP69K	2 NO + 2 NC	3 x M20 conduits	Status LED	EStrongZ LED	2TLA050220R0222
			-	EStrongZ	2TLA050220R0020

* Can be adapted to DYNlink with Tina

Panel mounting

IP rating	Depth	Connection type	Type of safety signal	Feature	Type	Order code
IP65	26 mm	1 x M12-5 male	DYNlink	Status LED	Smile 11 EAR Tina	2TLA030050R0100
			2 NC	Status LED	Smile 11 EAR	2TLA030051R0100
Button IP65, connector IP20	53 mm	Removable terminal block	DYNlink	Status LED	INCA 1 Tina	2TLA030054R0000
				Status LED, StatusBus	INCA 1 EC Tina	2TLA030054R1400
				Status LED	INCA 1	2TLA030054R0100

Accessories

Emergency stop buttons



M12-3S

2TLC172034V0201



Tina 8A

2TLC172441F0201



E-sign 22.5

2TLC172906F0201

Connection accessories

Description	Type	Order code
Connection accessories		
M12 Y-connector for serial connection of device with StatusBus functionality.	M12-3S	2TLA020055R0600
M12 Y-connector for serial connection of devices without StatusBus functionality.	M12-3A	2TLA020055R0000
Connection block for the serial connection of up to 4 DYNlink devices with 12-5 connectors.	Tina 4A	2TLA020054R0300
Connection block for the serial connection of up to 8 DYNlink devices with 12-5 connectors.	Tina 8A	2TLA020054R0500
Adaptation unit for DYNlink solution with M20 fitting. For e.g. Compact.	Tina 2A*	2TLA020054R0100
Adaptation unit for DYNlink solution, internal assembly. For e.g. Compact.	Tina 2B*	2TLA020054R1100
Adaptation unit for DYNlink solution with M20 fitting and M12 connector. For e.g. connecting Compact to Pluto/Vital.	Tina 3A*	2TLA020054R0200
Termination for Smile 12	JST2	2TLA030051R1300

Accessories

Emergency stop sign, yellow, no text, for INCA (22.5mm)	E-Sign 22.5	2TLA030054R0900
Emergency stop sign, yellow, no text, for Smile (32.5mm)	E-Sign 32.5	2TLA030054R1000
Yellow surround for Inca	Surround for Inca	2TLA030054R0400
Yellow shroud for Compact	CA1-8053	1SFA619920R8053
Stainless steel cable gland, for EStrong	Gland M20x1.5	2TLA050040R0002
Stainless steel conduit plug, for EStrong	Conduit Plug M20x1.5	2TLA050040R0004
LED Green/Red 230 VAC, for EStrong	LED 230	2TLA050211R0003

* For more information about Tina adapter units, please see Pluto and Vital chapters.

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
				M12-C61	2TLA020056R0000
		6 m		M12-C61HE	2TLA020056R8000
			Harsh environment, halogen free	M12-C101	2TLA020056R1000
		10 m		M12-C101HE	2TLA020056R8100
			Harsh environment, halogen free	M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
				M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
				M12-C312	2TLA020056R2100
		3 m		M12-C612	2TLA020056R2200
				M12-C1012	2TLA020056R2300
		6 m		M12-C1012V2	2TLA020056R6700
			Angled female connector	M12-C1612	2TLA020056R5400
Male	6 m		M12-C2012	2TLA020056R2400	
			M12-C62	2TLA020056R0200	
	10 m		M12-C102	2TLA020056R1200	



M12-C61

2TLC172851F0201



M12-C61HE

2TLC010009F0201



2TLC172657F0201

M12-C01

2TLC000039F0201

C5 cable

Separate cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050

Technical data

Emergency stop buttons

Technical data

Approvals

Smile, INCA



Smile Tina, INCA Tina



EStrong



Compact



Conformity

Smile, INCA



2006/42/EC – Machinery
 2011/65/EU - RoHS
 EN ISO 12100:2010, EN ISO 13849-1:2008/AC:2009, EN 60204-1:2006+A1:2008, EN ISO 13850:2008

Smile Tina, INCA Tina



2006/42/EC - Machinery
 2004/108/EC - EMC
 EN ISO 12100:2010, EN ISO 13849-1:2008, EN 62061:2005, EN 60204-1:2006+A1:2009, IEC 60664-1:2007, EN 61000-6-2:2005, EN 61000-6-4:2007, EN 60947-5-5:2005, EN ISO 13850:2006

EStrong



2006/42/EG – Machinery
 2011/65/EU - RoHS
 EN ISO 12100:2010, EN ISO 13850:2015, EN 60204-1:2006+A1:2009+AC:2010, EN 60947-5-5:1997+A1:2017, EN 60947-5-1:2004+A1:2009

Compact



2006/42/EC - Machinery
 2014/30/EU - EMC
 EN 60947-1:2007/A1:2011/A2:2014, EN 60947-5-1:2004/A1:2009, EN 60947-5-5:1997/A1:2005/A11:2013, EN ISO 13850:2008

Functional safety data

EN 61508:2010

Up to SIL3, depending on system architecture

EN 62061:2005

Up to SILCL3, depending on system architecture

EN ISO 13849-1:2008

Up to Cat. 4, PL e, depending on system architecture

Smile, INCA

 $B10_d = 100\ 000$

Smile Tina, INCA Tina

 $PFH_d = 4.66 \times 10^{-9}$

EStrong

 $B10_d = 1\ 500\ 000$

Compact

 $B10_d = 250\ 000$

Technical data

Emergency stop buttons

Technical data

Electrical data

Operating voltage

Smile, INCA 17-27 VDC \pm 10%

Smile Tina, INCA Tina +24 VDC +15% -25%

EStrong 230 VAC / +24 VDC (the LED is +24 VDC originally, but can be replaced with a 230 VAC accessory)

Compact 230 VAC / +24 VDC

Mechanical data

Mechanical life >50 000 operations

Operating temperature

Smile, INCA -10...+55 °C

EStrong -25...+80 °C

Compact -25...+70 °C

Protection class

Smile, INCA IP65

EStrong IP67, IP69K

Compact IP66, IP67, IP69K

Weight

Smile 65 g

INCA 45 g

EStrong 820 g

Compact 108 g, 124 g (with shroud)

Material

Smile Polyamide PA66, Macromelt, polybutylterephthalate PBT, Polypropene PP, UL 94 V0

INCA Polyamide PA66, Macromelt, polybutylterephthalate PBT, Polypropene PP, UL 94 V0

EStrong Stainless steel 316 housing

Compact Polycarbonate

More information

For more information, e.g. the complete technical information, see product manual for:

Smile [2TLC172097M0201](#)

INCA [2TLC172163M0201](#)

EStrong [2TLC172247M0201](#)

Compact [1SFC151005C0201](#)

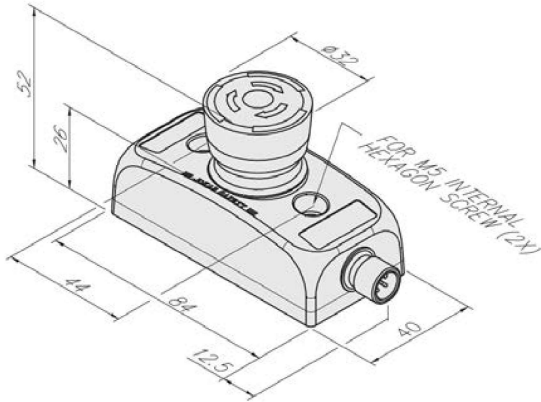
Connection diagrams

For connection diagrams of emergency stop buttons please see <https://library.abb.com/>

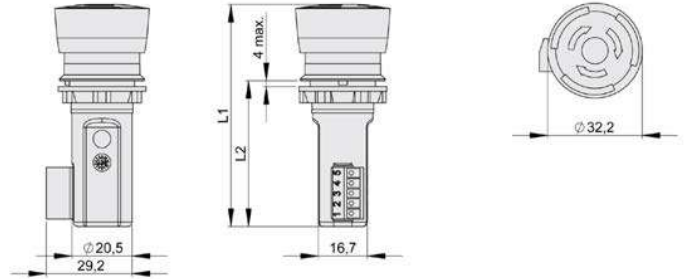
Dimension drawings

Emergency stop buttons

Smile

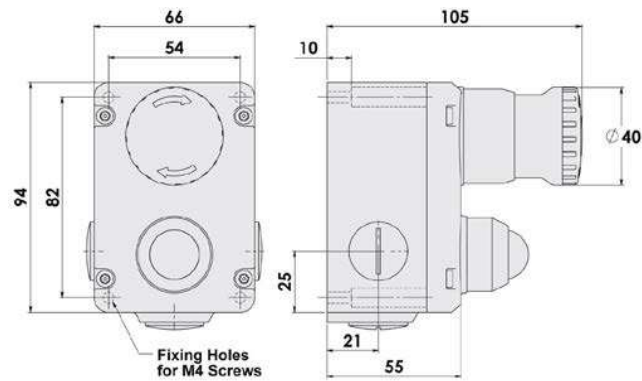


INCA

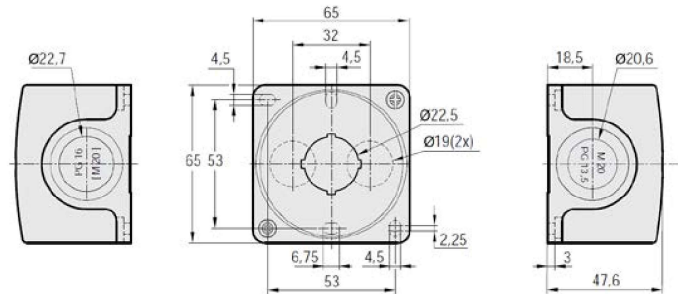


Type	L1 mm	L2 mm
INCA 1 EC Tina	75.5	49.5 ± 0.5
INCA 1	80	54 ± 0.5
INCA 1 Tina	80	54 ± 0.5

EStrong



Compact (housing only)



All dimensions in mm

Safety stop buttons

Smile, INCA and Compact

Safety stop buttons are used to safely stop a certain part of a dangerous machine.

ABB offers safety stop buttons to suit different needs of connection and communication. Models are available for e.g. external mounting or panel mounting, in compact size or robust design, adapted for the DYNlink solution or with 2 NC contacts.



6



Easy to install

Compact size

Models with a compact and appealing housing saves space and makes it easy to place.

Quick installation

Quick and easy installation of models with features such as centered mounting holes, removable terminal blocks and M12 connectors.

Serial connection

Tina models save cable length and installation time with serial connection.



Optimum interface

Highly adaptable

Several models to choose between depending on position, installation and function.

Reliable in extreme conditions

Robust models for use in demanding environments.



Continuous operation

LED diagnostics

Models with integrated LED diagnostics reduce downtime when troubleshooting.

Applications and features

Safety stop buttons

Applications

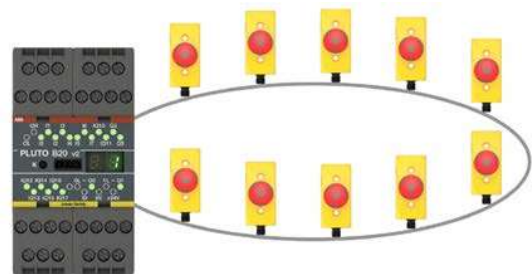
A safety stop (also called machine stop) can be used to safely stop a part of the machine, e.g. as a stop for an individual hazardous machine function. It may not be used as an emergency stop and stop the complete machine or production line. Likewise, an emergency stop with red push button should not be used as a safety stop. In order to separate the safety stop function from the emergency stop function, the safety stop buttons should be colored black.



Features

DYNlink

Safety stop buttons with Tina in their name belong to the DYNlink solution, which enables serial connection using only one channel and still reaching Cat. 4/PL e. DYNlink devices must be used with Vital safety controller or Pluto programmable safety controller. Up to 30 DYNlink devices can be connected in series to Vital and up to 10 can be connected to each input on Pluto.



Models

Safety stop buttons

Safety stop buttons for external mounting

Smile

Smile is a small and easy to install safety stop button. Its size allows mounting in reduced spaces, and its centered mounting holes makes it especially easy to mount on aluminum extrusions (e.g. Quick-Guard fencing system).

Smile has an integrated LED in the button that shows the status and simplifies error tracking.

The standard model of Smile has 2 contacts and can be used with safety controllers from all brands. The Smile Tina model belongs to the ABB DYNlink solution, with the advantages of serial connection using only one channel and still reaching Cat. 4/PL e.

Smile safety stops are identical to the corresponding Smile emergency stops apart from the color of the button.



Compact

The Compact safety stop button offers a robust enclosure with a high IP rating that fulfills the demands in severe and humid environments, such as food and beverage industry. Compact can be fitted with a Tina adapter for use in a DYNlink solution (Tina 2A, Tina 2B or Tina 3A).

Compact safety stop is identical to Compact emergency stop apart from the color of the button.



Safety stops for panel mounting

INCA

INCA is a safety stop button for panel mounting, designed for installation in 22.5 mm holes. Its removable terminal block facilitates connection and exchange.

INCA has an integrated LED in the button that shows the status and simplifies error tracking.

The standard model of INCA has 2 contacts and can be used with safety controllers from all brands. INCA Tina belongs to the ABB DYNlink solution, with the advantages of serial connection using only one channel and still reaching Cat. 4/PL e.

INCA safety stop is identical to INCA emergency stop apart from the color of the button.



Ordering information

Safety stop buttons



2TLC17298F0201

Smile 11 SA Tina



CEP1-1002



2TLC17286F0201

INCA 1S



2TLC17247F0201

Tina 8A

Safety stop buttons

Mounting	Type of safety signal	Connection type	Feature	Type	Order code
External	DYNlink	1 m cable from bottom	Status LED	Smile 11 SA Tina	2TLA030050R0500
	2 NC	1 x M12-5	Status LED	Smile 11 SA	2TLA030051R0900
	1 NO + 1 NC*	2 x M20 conduits	-	CEP1-1002 (Compact)	1SFA619811R1002
			With shroud	CEP1-2002 (Compact)	1SFA619811R2002
Panel	DYNlink	5 pole terminal block	Status LED	INCA 1S Tina	2TLA030054R0200
	2 NC	5 pole terminal block	Status LED	INCA 1S	2TLA030054R0300

* Can be adapted to DYNlink with Tina

Accessories

Description	Type	Order code
M12 Y-connector for serial connection of devices without StatusBus functionality.	M12-3A	2TLA020055R0000
Connection block for the serial connection of up to 4 DYNlink devices with 12-5 connectors.	Tina 4A	2TLA020054R0300
Connection block for the serial connection of up to 8 DYNlink devices with 12-5 connectors.	Tina 8A	2TLA020054R0500
Grey shroud for Compact	CA1-8054	1SFA619920R8054
Adaptation unit for DYNlink solution with M20 fitting. For e.g. Compact.	Tina 2A *	2TLA020054R0100
Adaptation unit for DYNlink solution, internal assembly. For e.g. Compact.	Tina 2B *	2TLA020054R1100
Adaptation unit for DYNlink solution with M20 fitting and M12 connector. For e.g. connecting Compact to Pluto/Vital.	Tina 3A *	2TLA020054R0200

* For more information about Tina adapter units, please see Pluto and Vital chapters.

Cable and connectors

Safety stop buttons



M12-C61

2TLC172953F0201



M12-C61HE

2TLC010003F0201

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
		6 m		M12-C61	2TLA020056R0000
		10 m	Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
	Female + male	10 m	Harsh environment, halogen free	M12-C101	2TLA020056R1000
		20 m		M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
Female + male	0.3 m		M12-C0312	2TLA020056R5800	
	0.06 m		M12-C00612	2TLA020056R6300	
	1 m		M12-C112	2TLA020056R2000	
	3 m		M12-C312	2TLA020056R2100	
	6 m		M12-C612	2TLA020056R2200	
	10 m		M12-C1012	2TLA020056R2300	
	16 m	Angled female connector	M12-C1012V2	2TLA020056R6700	
	16 m		M12-C1612	2TLA020056R5400	
	20 m		M12-C2012	2TLA020056R2400	
	Male	6 m		M12-C62	2TLA020056R0200
10 m			M12-C102	2TLA020056R1200	

Separate cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050



M12-C01

2TLC172657F0001



C5 cable

2TLC010089F0001

Technical data

Safety stop buttons

Technical data

Approvals

Smile, INCA



Smile Tina, INCA Tina



Compact



Conformity

Smile, INCA



2006/42/EC – Machinery
2011/65/EU – RoHS
EN ISO 12100:2010, EN ISO 13849-1:2008/AC:2009, EN 60204-1:2006+A1:2008, EN ISO 13850:2008

Smile Tina, INCA Tina



2006/42/EC - Machinery
2004/108/EC - EMC
EN ISO 12100:2010, EN ISO 13849-1:2008, EN 62061:2005, EN 60204-1:2006+A1:2009, IEC 60664-1:2007,
EN 61000-6-2:2005, EN 61000-6-4:2007, EN 60947-5-5:2005, EN ISO 13850:2006

Compact



2006/42/EC - Machinery
2014/30/EU - EMC
EN 60947-1:2007/A1:2011/A2:2014, EN 60947-5-1:2004/A1:2009, EN 60947-5-5:1997/A1:2005/A11:2013, EN ISO 13850:2008

Functional safety data

EN 61508:2010

Up to SIL3, depending on system architecture

EN 62061:2005

Up to SILCL3, depending on system architecture

EN ISO 13849-1:2008

Up to Cat. 4, PL e, depending on system architecture

Smile, INCA

 $B10_d = 100\ 000$

Smile Tina, INCA Tina

 $PFH_D = 4.66 \times 10^{-9}$

Compact

 $B10_d = 50\ 000$

Electrical data

Operating voltage

Smile, INCA

17-27 VDC \pm 10%

Smile Tina, INCA Tina

+24 VDC +15% -25%

Compact

230 VAC / +24 VDC

Mechanical data

Mechanical life

>50 000 operations

Operating temperature

Smile, INCA

-10...+55 °C

Compact

-25...+70 °C

Protection class

Smile, INCA

IP65

Compact

IP66, IP67, IP69K

Weight

Smile

65 g

INCA

45 g

Compact

108 g, 124 g (with shroud)

Material

Smile

Polyamide PA66, Macromelt, polybutylenterephthalate PBT, Polypropene PP, UL 94 V0

INCA

Polyamide PA66, Macromelt, polybutylenterephthalate PBT, Polypropene PP, UL 94 V0

Compact

Polycarbonate

More information

For more information, e.g. the complete technical information, see product manual for:

Smile [2TLC172097M0201](#)

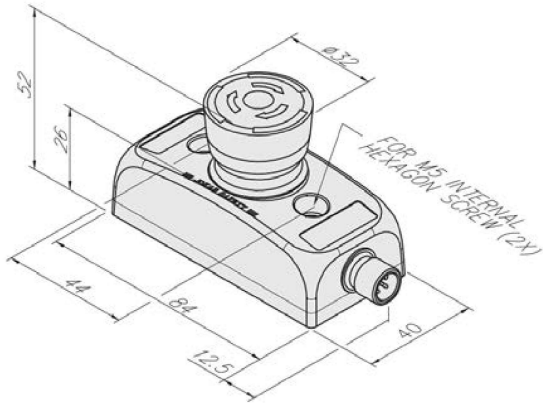
INCA [2TLC172163M0201](#)

Compact [1SFC151005C0201](#)

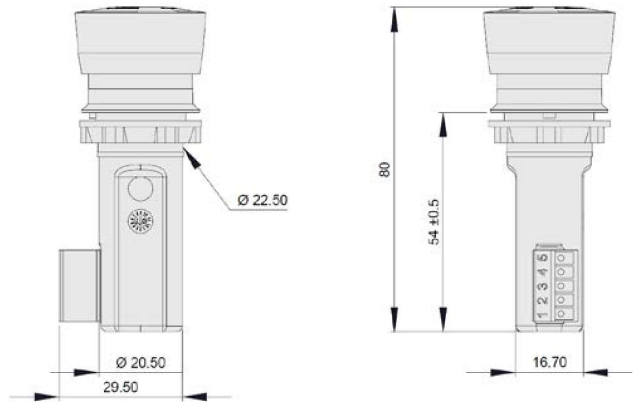
Dimension drawings

Safety stop buttons

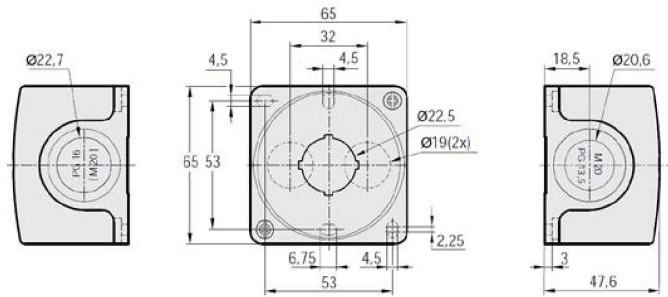
Smile



INCA



Compact (housing only)



All dimensions in mm