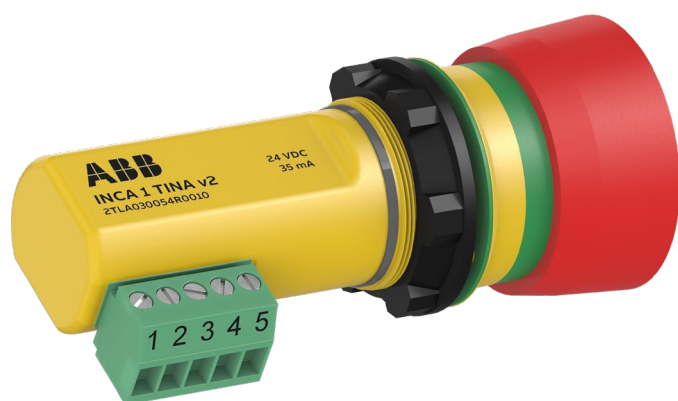


SAFETY PRODUCTS

INCA Tina Emergency stop buttons and INCA Tina Safety stop button Product Manual



Read and understand this document

Please read and understand this document before using the products. Please consult ABB with any questions or comments.

Suitability for use

ABB shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the product. Third party certificates for the products are available at <https://new.abb.com/low-voltage/products/safety-products>. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE ABB PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Descriptions and examples show how the product works and can be used. It does not mean that it fulfills the requirements for all types of machines and processes. The buyer/user is responsible for installing and using the product according to applicable standards and regulations. We reserve the right to make changes to the product and the documentation without prior notice.

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1 Introduction

1.1 Purpose of document

The purpose of this document is to describe the functions and to provide instructions for installation, operation, maintenance and troubleshooting of the product.

1.2 Intended audience

This document is intended for authorized personnel.

1.3 Reading prerequisites

It is assumed that the reader of this document has knowledge of the following:

- Basic knowledge of ABB safety products
- Knowledge of machine safety

1.4 Special notes

Pay attention to special notes in the document:

 **Warning!** Risk of severe personal injury!
An instruction or procedure which, if not carried out correctly, may result in injury to the technician or other personnel.

 **Caution!** Risk of damage to the equipment!
An instruction or procedure which, if not carried out correctly, may damage the equipment.

 **Note!** Important or explanatory information.

2 Safety

2.1 Safety precautions

The safety precautions must be followed during installation, operation, maintenance and troubleshooting.

It is the responsibility of the user to ensure the correct overall functionality.

-  **Warning!** Carefully read through the entire product manual before using the device.
-  **Warning!** The devices shall be installed by authorized personnel following applicable Safety regulations, standards and the Machinery directive.
-  **Warning!** Failure to comply with instructions, operation that is not in accordance with the use prescribed in the instructions, improper installation or handling of the device can affect the safety of people and the plant.
-  **Warning!** For installation and prescribed use of the product, the special notes in the instructions must be carefully observed and the technical standards relevant to the application must be considered.
-  **Warning!** In case of failure to comply with the instructions or standards, especially when tampering with and/or modifying the product, any liability is excluded.

3 Product description

INCA Tina emergency stop button/safety stop button is designed for mounting in a 22.5-mm opening in an enclosure.

INCA Tina is adapted for connection to the DYNlink safety circuit monitored by a safety controller or a safety PLC.

INCA 1 Tina v2 is an emergency stop with a red button.

INCA 1S Tina v2 is a safety stop with a black button.

INCA 1EC Tina is an emergency stop with StatusBus configured for static information output, but it switches to StatusBus configuration when StatusBus communication is detected on the information output.

A LED in the top of the button indicates the present status of the safety circuit.

All INCA Tina models are intended for use in safety circuits in accordance with EN 60204-1.

 **Warning!** The emergency stop/safety stop normally needs to be supplemented with other safety functions such as an interlock switch. Needs according to risk analysis.

 **Note!** The emergency stop/safety stop shall be used only in cases of emergency and shall **not** be used for a normal stoppage of the machine.

4 Installation

- Mount and fit INCA Tina in the cabinet.
- Attach and tighten the M22 nut.
- See max. tightening torque in chapter “Technical data”.
- Connect the terminal block.

4.1 Installation precautions

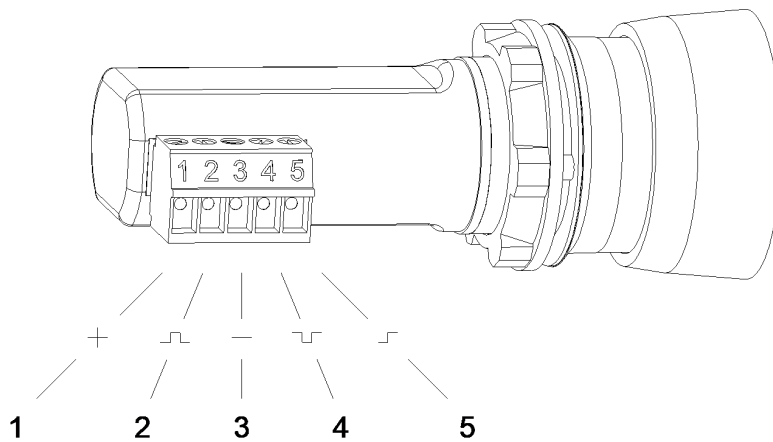
 **Warning!** All safety functions shall be tested before starting up the system.

4.2 Testing safety functions

After each step the status of the input can be read on the monitoring device.

Steps for testing	LED indication	DYNlink signal output
1. Interrupt the DYNlink safety circuit before the unit to be tested	Green/red flashing	Shall go low
2. Close the DYNlink safety circuit	Green	Shall generate a DYNlink signal
3. Interrupt the DYNlink safety circuit (press the button)	Red	Shall go low

5 Connections



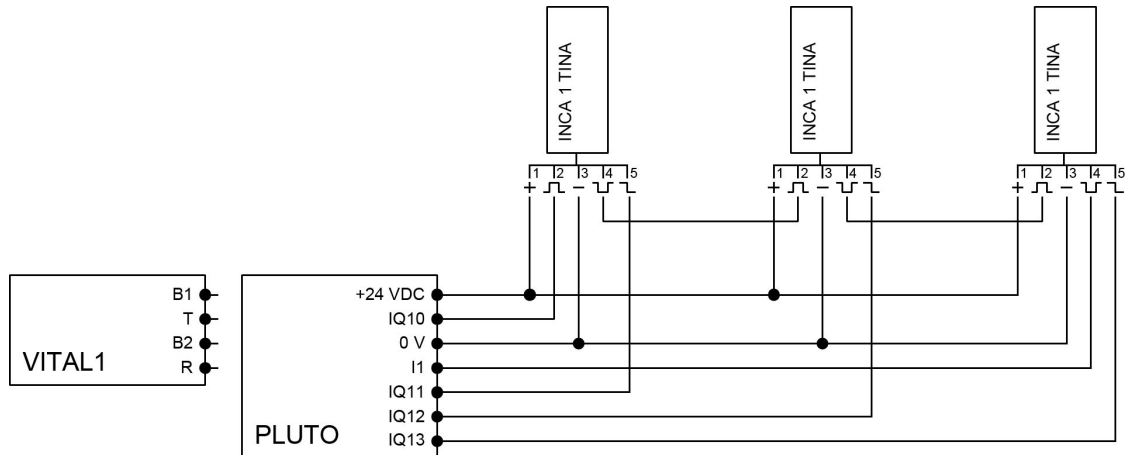
5-pin screw terminal block	
1	+24 VDC
2	DYNlink signal input
3	0 VDC
4	DYNlink signal output
5	Information output *

* For INCA 1EC Tina: Information/StatusBus output

 **Warning!** Information output signals shall never be used for safety purpose(s).

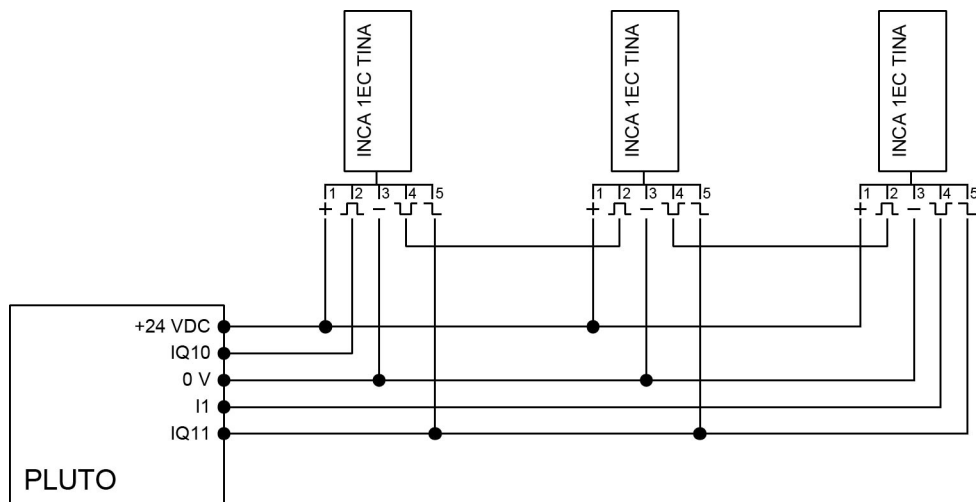
5.1 Connection examples

INCA 1 Tina v2



Three INCA 1 Tina with static information output connected to the DYNlink safety circuit monitored by a safety controller or a safety PLC. When a safety PLC is used the status of each individual INCA unit can be monitored on separate PLC ports.

INCA 1EC Tina



Three INCA 1EC Tina with StatusBus connected to the DYNlink safety circuit monitored by a safety PLC. The status of each individual INCA 1EC Tina unit can be monitored with a single PLC port in a controller having a StatusBus master.

6 Functions

6.1 LED Indications

LED indication	Description	DYNlink state
Green	DYNlink input signal, button released/not pressed	OK
Green/red flashing	DYNlink input open or 0 VDC, button released/not pressed	Interrupted before this unit
Red	Button actuated/pressed	Interrupted in this unit

6.2 LED Indications for StatusBus

LED indication	Description	Status
Double flash, red 0.11/0.2/0.11/0.67 s, on/off/on/off	Device in StatusBus mode, off. "Ready slave" address 0	Device not addressed.
Double flash, green 0.11/0.2/0.11/0.67 s, on/off/on/off	Device in StatusBus mode, on. Address 0	Device not addressed.
Off for 5 sec, then flickering flash 0.07/1.9 s, on/off	The flashing usually lasts for 1-4 seconds during the addressing process.	If the condition lasts for more than 4 seconds: Device failure when addressing, change address.
Scours with stress flash. Scouring cycle: 0.8/0.4 s, on/off Flash frequency: 0.02/0.03 s, on/off	At the command from StatusBus Master	Device identification.

6.3 Information output signal attributes

The information output of the unit is set either high or low according to the following table:

Button status	Information output signal status
Button actuated/pressed	Low
Button released/not pressed	High

The delay for switching the information output signal:

Information output signal switch	High -> Low	Low -> High
Delay	~ 60 ms	~ 10 ms

 **Warning!** Information output signals shall never be used for safety purpose(s).

6.4 Information output signal for StatusBus

The information output on INCA 1EC Tina has two functions:

- Default function and behavior see chapter “Information output signal attributes”.
- StatusBus: The information output from several devices with StatusBus functionality, can be connected to one and the same port on a StatusBus master. Then the StatusBus master can configure the devices to report their status one at a time.

For more information about the StatusBus see the user manual for the StatusBus master used, e.g. Pluto Programming Manual, found at: new.abb.com/low-voltage/products/safety-products

7 Maintenance

Maintenance shall be done in accordance with a risk assessment for the individual application.

7.1 Maintenance precautions

 **Warning!** The safety functions and the mechanics shall be tested regularly, at least once every year to confirm that all the safety functions are working properly (EN 62061:2005+A1:2013+A2:2015, EN ISO 13849-1:2015).

 **Warning!** In case of breakdown or damage to the product, contact ABB. Do not try to repair the product yourself since it may accidentally cause permanent damage to the product, impairing the safety of the device which in turn could lead to serious injury to personnel.

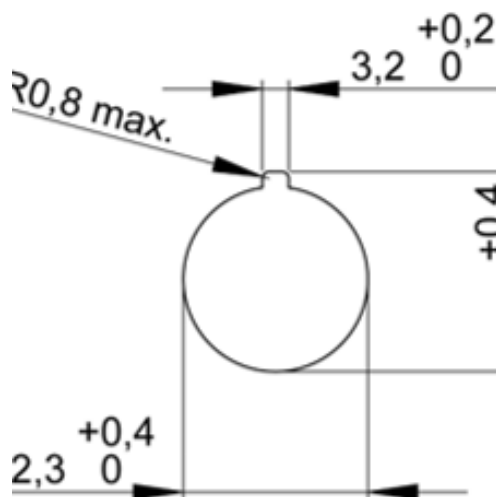
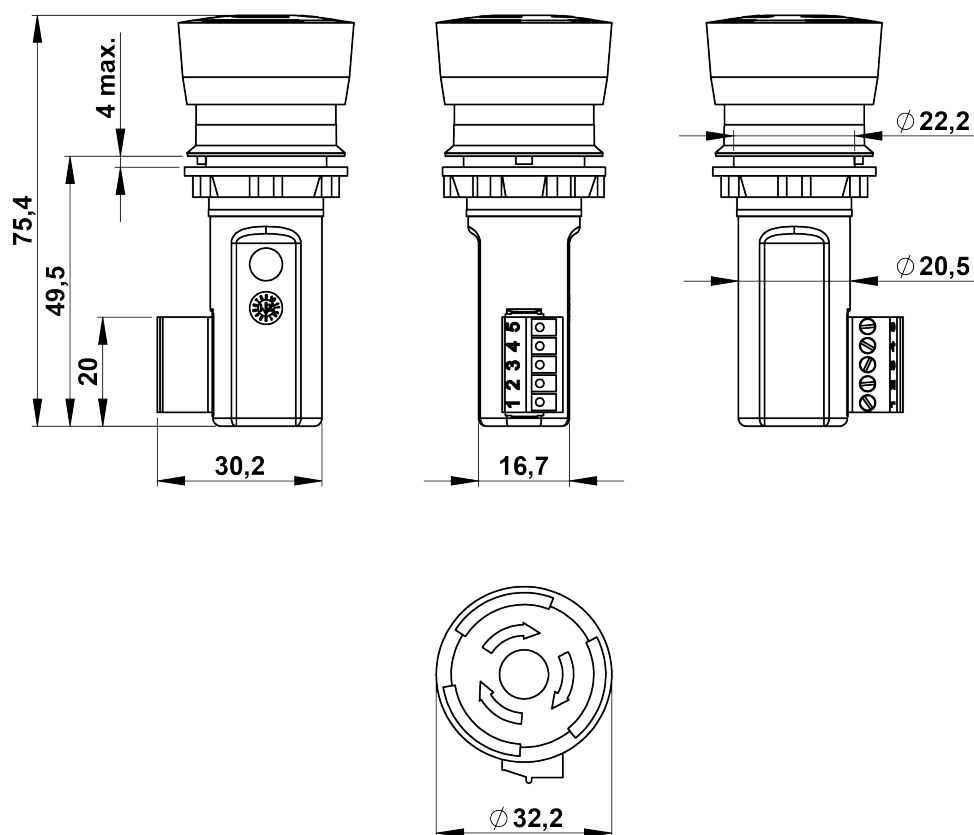
8 Troubleshooting

8.1 LED indications

LED indication	Probable cause	Action
Red	Button actuated/pressed	Turn the button clockwise and pull it up.
	+24 VDC connected to DYNlink signal input	Check if there is +24 VDC on DYNlink signal input. If yes, check cable connections or the unit before.
No LED light	Loss of power supply	Check +24 VDC / 0 VDC power supply.
Green (but no DYNlink output detected)	Defective DYNlink signal input to unit	Check the DYNlink input or the unit before.
Weak lights	Unit is defective	Replace the unit.

9 Dimensions

All dimensions are in mm.



Mounting cut-out

10 Technical data

Further information about the product and accessories is found at:

new.abb.com/low-voltage/products/safety-products

Stated technical data apply when power supply voltage is +24 VDC and ambient temperature is +25 °C, unless stated otherwise.

Manufacturer	
Address	ABB Electrification Sweden AB SE-721 61 Västerås Sweden
Order code/Ordering data	2TLA030054R0010: INCA 1 Tina v2 Emergency stop button, red button, 5-pin screw terminal block 2TLA030054R0210: INCA 1S Tina v2 Safety stop button, black button, 5-pin screw terminal block 2TLA030054R1400: INCA 1EC Tina Emergency stop button, red button, 5-pin screw terminal block, StatusBus
Power supply	
Required power supply type	PELV/SELV, not intended to be connected to a DC distribution network. Note: A DC distribution network is defined in IEC 61326-3-1:2017 as “Local DC electricity supply network in the infrastructure of a certain site or building intended for connection of any type of equipment”.
Operating voltage	+24 VDC +15 %, -25 %
Total current consumption	Maximum: 35 mA _{RMS}
Note: Total current consumption is the internal supply current when there is no information output current. Valid over the operating voltage and ambient temperature range.	
DYNlink signal	
DYNlink Input signal voltage	Minimum: 8 V _{RMS} Maximum: 15 V _{RMS}
DYNlink Output signal voltage	Minimum: 8 V _{RMS} Maximum: 15 V _{RMS}
Note: The purpose of stating the voltage in RMS is to facilitate the measurement of the square-wave DYNlink signal with a multimeter.	
Time delay between DYNlink input and output signal (T _{DELAY})	Maximum: 70 µs
Information output	
Output voltage high low	Nominal: Operating voltage - 2 VDC Maximum: 2 VDC
Output current	Maximum: 10 mA
General	
Protection class	IP65, connection terminal IP20
Ambient temperature	Operation: -10 to +55 °C Storage: -30 to +70 °C

Humidity range	35 to 85 % (with no icing or condensation)
Housing material	Polyamide PA66, Macromelt, thermoplastic polyester PBT, Polypropylene PP, UL 94 V0
Connectors	5-pin screw terminal block Conductor cross section area: 0.25 – 1 mm ² (AWG 16-24) Wire stripping length: 7 mm
Tightening torque	5-pin screw terminal block: 0.25 Nm M22 nut: 0.8 Nm
Size (L x W x H)	75.4 x 30.2 x 16.7 mm
Weight	~ 45 g
Color	Yellow base, red or black button
Actuating force (Emergency stop button)	17 +/- 4 N
Actuating travel	~ 5 mm
Mechanical lifetime	> 250 000 cycles
Note! The maximum number of operations (cycles) for INCA Tina emergency stop is 6050 to reach PL e and the given PFH _D value.	
Directives / Harmonized standards	
Conformity	European Machinery Directive 2006/42/EC EN ISO 12100:2010 EN 62061:2005+Cor.:2010+A1:2013+A2:2015 EN ISO 13849-1:2015 EN 60204-1:2018
IEC/EN 61508-1...7	SIL3, PFH _D = 4.66·10 ⁻⁹
EN 62061	SIL3
EN ISO 13849-1	PL e, category 4
Certificates	TÜV Nord, cCSAus
Information for use in USA/Canada	
Pollution degree	2
Altitude	2000 m (max)
Humidity	80% max for temperatures up to 31 °C
Indoor use statement	For indoor use only

11 Declaration of conformity

EC Declaration of conformity



EC Declaration of conformity

(according to 2006/42/EC, Annex 2A)

We ABB Electrification Sweden AB
SE-721 61 Västerås
Sweden declare that the safety components of ABB Electrification
Sweden AB make with type designations and safety
functions as listed below, is in conformity with the
Directives

2006/42/EC – Machinery
2014/30/EG – EMC
2011/65/EU – RoHS2 + 2015/863

Authorised to compile the technical file ABB Electrification Sweden AB
SE-721 61 Västerås
Sweden

Product

Emergency stop devices
INCA 1 EC Tina, INCA 1 Tina v2,
Smile 10 EA Tina, Smile 11 EA Tina,
Smile 11 EAR Tina, Smile 11 EC Tina,
Smile 12 EA Tina

Certificate

44 799 13145203

Certification body TÜV Nord Cert GmbH
Am TÜV 1
45307 Essen
Germany

Used harmonized standards EN ISO 12100:2010, EN ISO 13849-1:2015,
EN 62061:2005+Cor.:2010+A1:2013+A2:2015,
EN 60204-1:2018, EN ISO 13850:2015,
EN 61000-6-2:2005, EN 61000-6-4:2007
EN 60947-5-5:1997+A1:2005+A11:2013+A2:2017

Other used standards EN 61508:2010

Magnus Backman
R&D Manager
Västerås 2022-05-25

abb.com/lowvoltage

Original



EC Declaration of conformity

(according to 2006/42/EC, Annex2A)

We ABB Electrification Sweden AB
SE-721 61 Västerås
Sweden declare that the safety components of ABB Electrification
Sweden AB make with type designations and safety
functions as listed below, is in conformity with the Directives

2014/30/EU – EMC
2011/65/EU – RoHS2 + 2015/863

Product

Stop button
Smile 11 SA
Smile 11 SA Tina
INCA 1S
INCA 1S Tina

Viktoria Sakar
R&D team lead Electronics and Software
Västerås 2022-11-09

abb.com/lowvoltage

Original

UK Declaration of conformity



Declaration of conformity

(according to 2008 No 1597)

We ABB Electrification
Sweden AB
SE-721 61 Västerås
Sweden

declare that the safety components of ABB AB make with type designations and safety functions as listed below, is in conformity with UK Statutory Instruments (and their amendments)

2008 No 1597 – Supply of Machinery (Safety) Regulations (MD)
2016 No. 1091 – Electromagnetic Compatibility Regulations (EMC)
2012 No 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations (RoHS)

Authorised to compile
the technical file

ABB Ltd. Tower Court
Coventry CV6 5NX
United Kingdom

Product

Emergency stop devices
INCA 1 Tina v2
INCA 1S Tina v2
INCA 1EC Tina

Used designated
standards

EN ISO 12100:2010, EN ISO 13849-1:2015, EN ISO 13849-2:2012,
EN 62061:2005+A1:2013+A2:2015, EN 60204-1:2006+A1:2009,
EN 60664-1:2007, EN 61000-6-2:2005, EN 61000-6-4:2007

Other used standards

EN 61508:2010

A handwritten signature in blue ink, reading 'Magnus Backman'.

Magnus Backman
R&D Manager
Västerås 2021-04-09

<https://new.abb.com/low-voltage/products/safety-products>

Original