

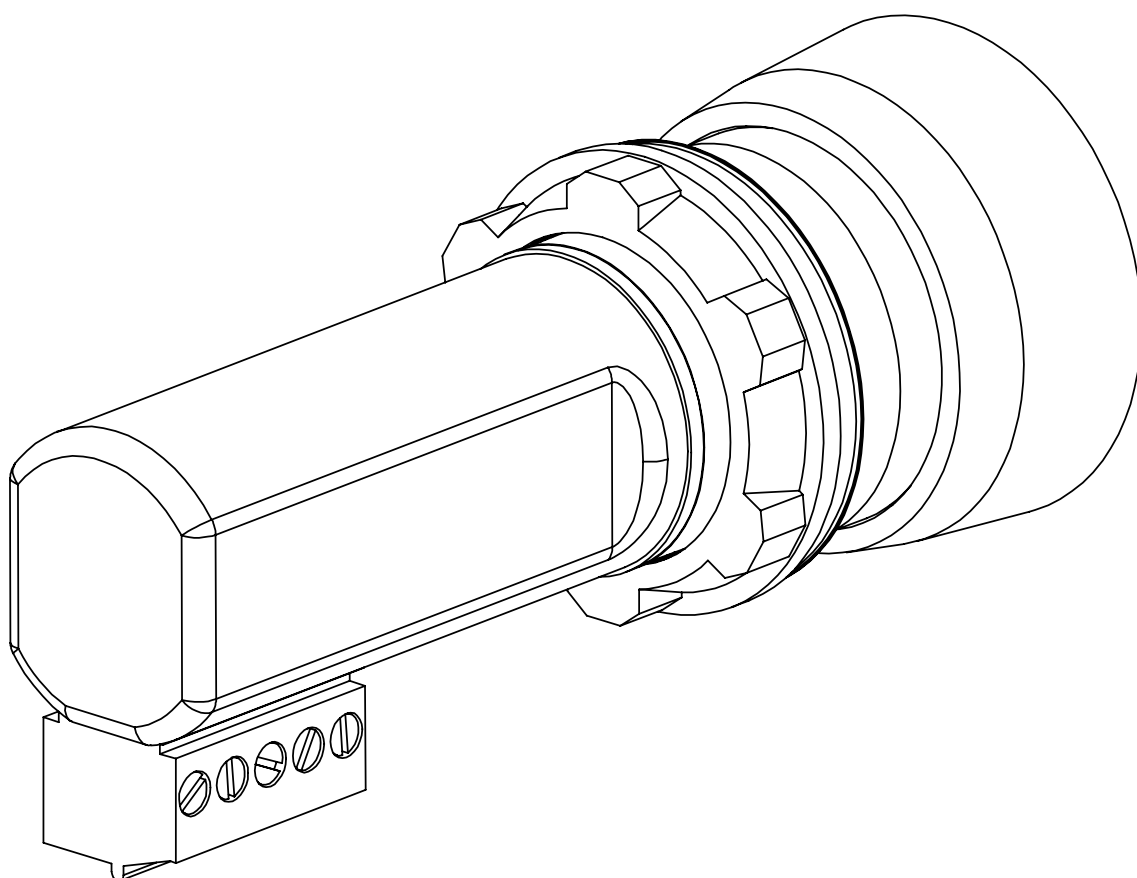
Product manual

INCA-1

Emergency stop for enclosure installation

INCA-1S

Safety stop for enclosure installation



Read and understand this document

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

Suitability for use

ABB Electrification Sweden AB 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.

Table of Contents

1	Introduction	4
	Scope	4
	Audience	4
	Prerequisites	4
	Special notes	4
2	Overview	5
	General description	5
	Safety regulations	5
3	Connections	6
4	Installation and maintenance	7
	Installation precautions	7
	Maintenance	7
5	Operation	8
	LED indication	8
6	Model overview	9
	Accessories	9
7	Technical data	10
	Dimensions	11
8	Declarations of conformity	12

1 Introduction

Scope

The purpose of these instructions is to describe the emergency stop INCA 1 and safety stop INCA-1S, and to provide the necessary information required for installation and operation.

Audience

This document is intended for authorized personnel.


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.

Special notes

Pay attention to the following special notes in the document:

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


NB: Notes are used to provide important or explanatory information.

2 Overview

General description

INCA 1 is an emergency stop device designed for installation in a 22.5 mm slot in an apparatus enclosure.

There is an INCA-1S with black stop button, which is intended for use as a safety stop.

 **Warning!** The emergency stop INCA normally needs to be complemented with other safety functions such as interlocking guards etc. Refer to risk analysis.

NB: The emergency stop (INCA-1) should **not** be used as normal stop of the machine, only in case of emergency.

Safety regulations

 **Warning!**

Carefully read through this entire manual before using the device.

The devices shall be installed by a trained electrician following the Safety regulations, standards and the Machine directive.

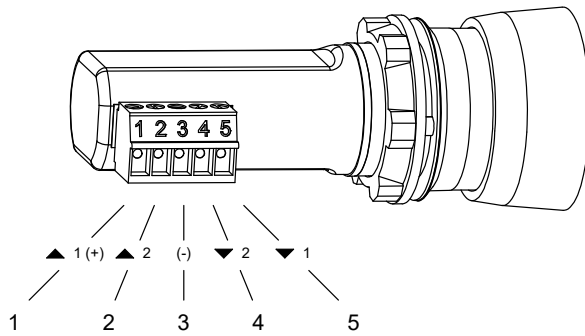
Failure to comply with instructions, operation that is not in accordance with the use prescribed in these instructions, improper installation or handling of the device can affect the safety of people and the plant.

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.

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 Connections

Electrical connections - INCA



INCA

5-pin connection block

- 1) Input 1 (+24 VDC for LED function)
- 2) Input 2
- 3) 0 VDC (for LED function)
- 4) Output 2
- 5) Output 1

Caution!


When connected to an ABB safety relay (such as SENTRY SSR10) and voltage (+) is supplied from the output T1 or T2, a maximum of three INCA units may be connected in series. This must be done with caution (especially in warm environments) as this affects the heat generation within the safety relay.

If more than three units are connected in series, voltage (+) should be supplied from another source (e.g. A1).

4 Installation and maintenance

Installation precautions

First mount INCA in the apparatus enclosure slot and then attach and fasten the M22 nut. Finally, attach the connection block.

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

Maintenance

 **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.

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.

5 Operation

LED indication

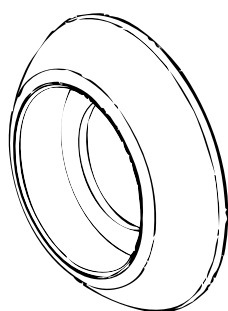
LED	Indication	Description
LED on button	Green	Safety device OK. Safety circuit closed.
	OFF	Safety circuit interrupted (when an emergency stop actuator is pressed down, all following units in the safety circuit lose the LED function).
	Red	Safety device actuator pressed down. Safety circuit interrupted.

6 Model overview

Type	Article number	Description
INCA 1	2TLA030054R0100	Emergency stop, red button, 5-pin connection block
INCA 1S	2TLA030054R0300	Safety stop, black button, 5-pin connection block

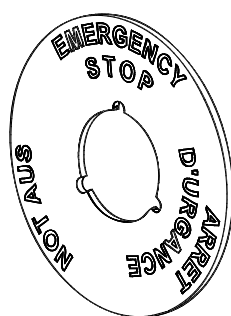
Accessories

Type	Article number	Description
Yellow surround	2TLA030054R0400	Yellow surround for emergency stop button.
Emergency stop sign	2TLA030054R0500	Ø22.5 mm, Swedish, Danish, Finnish
Emergency stop sign	2TLA030054R0600	Ø22.5 mm, English, French, German



Yellow surround for emergency stop button

Article number:
2TLA030054R0400



Emergency stop sign
Ø22.5 mm

Article number:
S, D, F: 2TLA030054R0500
E, F, G: 2TLA030054R0600

7 Technical data

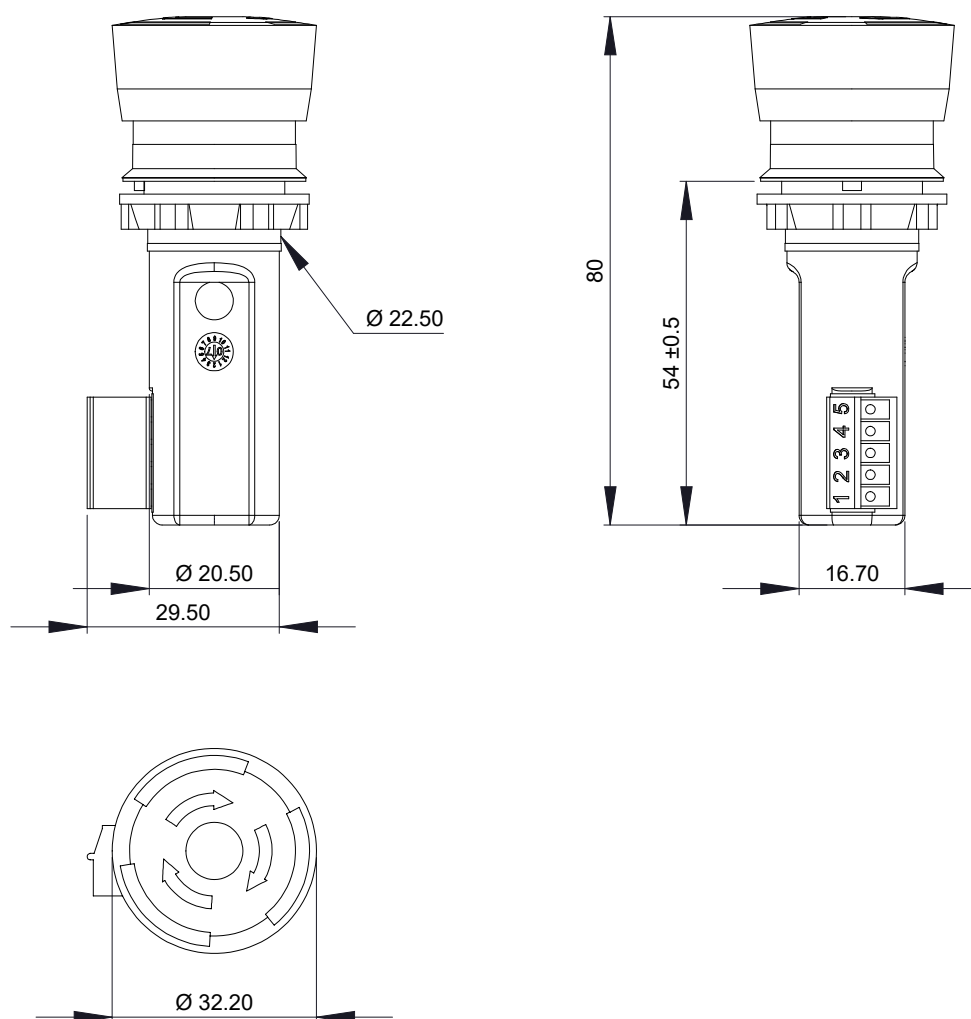
Manufacturer	
Address	ABB Electrification Sweden AB SE-721 61 Västerås Sweden
Power supply	
Operating voltage (LED)	24 VDC ±10%
Current consumption (LED)	35 mA
Minimum current (switches)	10 mA 10 VDC/10 VAC
Maximum current (switches)	2 A 24 VDC
General	
Protection class	IP65, connector IP20
Ambient temperature	Storage: -30...+70°C Operation: -10...+55°C
Housing material	Polyamide PA66, Macromelt, polybutylenterephthalate PBT, Polypropene PP, UL 94 V0
Contact material	Silver alloy, gold plated
Connectors	5-pin connection block
Size	See drawing
Weight	~ 45 g
Colour	Yellow base, red or black button
Actuator force (E-stop button)	22 +/- 4N
Actuator travel	~ 4 mm to latch
Mechanical life	> 50,000 operations
Impact resistance (half sinusoidal)	Max. 150 m/s ² , pulse width 11 ms, 3-axis (as per EN IEC 60068-2-27)
Vibration resistance (half sinusoidal)	Max. 50m/s ² at 10 Hz, 10 cycles, 3-axis (as per EN IEC 60068-2-6)
Climate resistance	
Damp heat, cyclical	96 hours, +25°C / 97%, +55°C / 93% relative humidity, as per EN IEC 60068-2-30
Damp heat, sustained	56 days, +40°C / 93% relative humidity, as per EN IEC 60068-2-78
Dry heat	96 hours, +70°C, as per EN IEC 60068-2-2
Cooling	96 hours, -40°C, as per EN IEC 60068-2-1
Salt mist	96 hours, +35°C in a chemical solution with NaCl as per EN IEC 60068-2-11

Safety / Harmonized Standards

Conformity	European Machinery Directive 2006/42/EC EN ISO 12100:2010, EN ISO 13849-1:2023, EN 60204-1:2018, EN ISO 13850:2015
EN ISO 13849-1	Performance level: Up to PL e, category 4 B10d: 100 000
Certificates	KIWA Inspecta AB

NB: A safety function with an emergency stop INCA 1 can achieve Cat. 4/PL e according to EN ISO 13849-1 only when a single INCA unit is connected to the control unit (safety-PLC or safety relay) in a dual channel configuration.

Dimensions



NB: All measurements in millimetres.

8 Declarations of conformity



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

2006/42/EC – Machinery
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
Smile 10EA, 10EK, 11EA, 12EA,
11EAR, 41
INCA1

Certificate

19-GBG-CM-0101

Certification body
KIWA Inspecta AB
Box 7178
SE-170 07 Solna
Sweden

Used harmonized standards
EN ISO 12100:2010, EN ISO 13849-1:2015,
EN 60204-1:2018, EN ISO 13850:2015,
EN 60947-5-5:1997+A1:2005+A11:2013+A2:2017

Alessandro Pelandi
R&D Manager
Västerås 2024-05-03



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 Electrification Sweden 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)
2012 No 3032 – Restriction of the Use of Certain Hazardous
Substances in Electrical and Electronic Equipment Regulations
(RoHS)

Authorized representative ABB Limited
Tower Court
Coventry
CV6 5NX
United Kingdom

Authorised to compile the technical file ABB Limited
Tower Court
Coventry
CV6 5NX
United Kingdom

Products

Emergency stop devices
INCA 1

Smile versions 10EA, 10EK, 11EA,
11EAR, 12EA

Used designated standards EN ISO 12100:2010, EN ISO 13849-1:2015, EN ISO 13850:2015
EN 60204-1:2018, EN 60947-5-5:1997+A1:2005+A2:2017



Alessandro Pelandi
R&D Manager
Västerås 2024-05-03

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 v2



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

abb.com/lowvoltage

Original



Declaration of conformity

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

SE-721 61 Västerås
Sweden

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)

Authorized representative

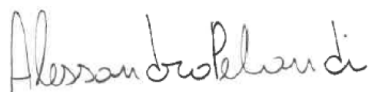
ABB Limited
Tower Court
Coventry
CV6 5NX
United Kingdom

Authorised to compile the technical file

ABB Limited
Tower Court
Coventry
CV6 5NX
United Kingdom

Product

Stop button
Smile 11SA
Smile 11SA Tina
INCA 1S
INCA 1S Tina v2



Alessandro Pelandi
R&D Manager
Västerås 2023-09-11

abb.com/lowvoltage

Original