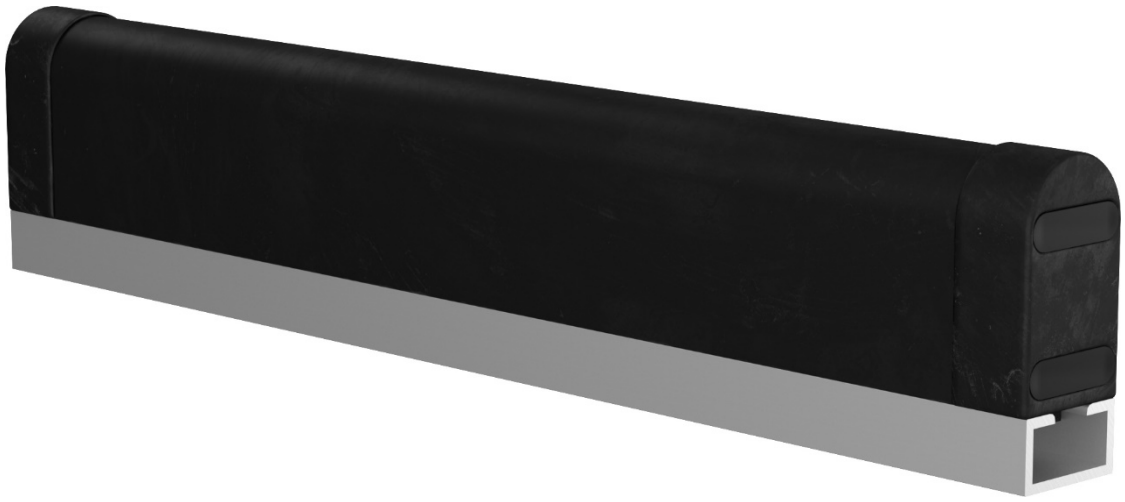
SAFETY PRODUCTS

TT-Series
Product manual Safety Edge
Product Manual



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.

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1 Introductions

1.1 Scope

The purpose of these instructions is to describe the safety edge and to provide the necessary information required for installation and use.

1.2 Audience

This document is intended for authorized installation personnel.

1.3 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 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.
Note!	Important or explanatory information.

2 Overview

2.1 General description

Safety edges are used as protection against crushing injuries in for example moving machine parts or automatic doors.

A safety edge consists of a rubber profile with a cast-in contact strip that is fitted on an aluminum profile. The rubber profile is made of TPE (thermoplastic elastomer).

2.2 Safety regulation

⚠ **Warning!** Carefully read through the entire manual before using the device.

⚠ **Warning!** The devices shall be installed by a trained electrician following the Safety regulations, standards and the Machinery directive.

⚠ **Warning!** 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.

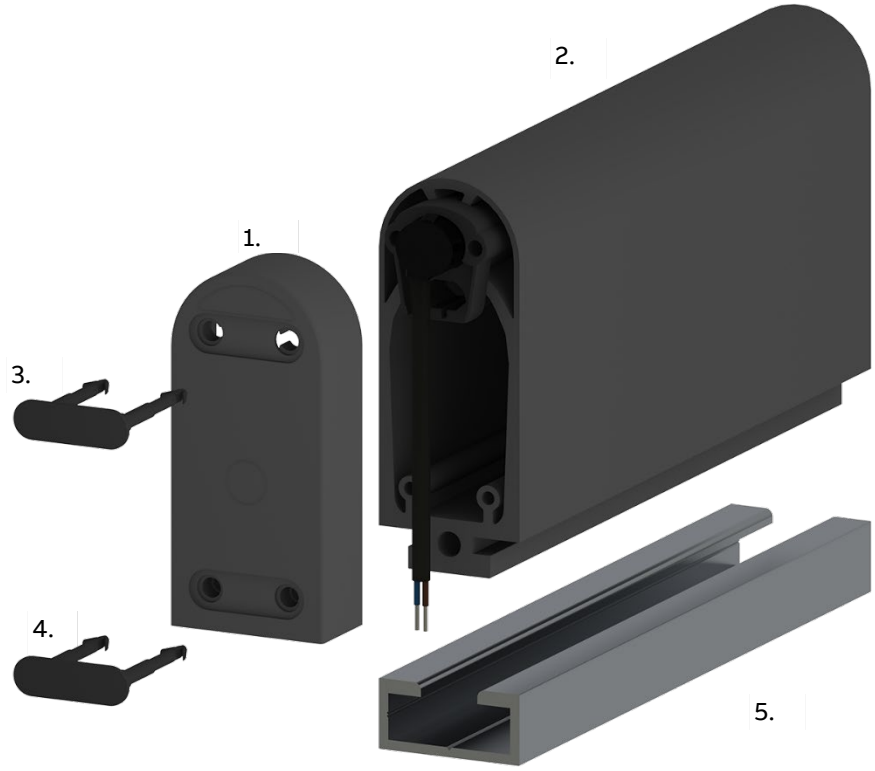
⚠ **Warning!** For installation and prescribed use of the product, the special notes in the instructions must be carefully observed and the technical standards relevant to the application must be considered.

⚠ **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 Installation and maintenance

3.1 Safety edge TT – General

Inside the safety edge there is a cast-in contact strip. It consists of two conductive surfaces on the inside and one insulation shell. The cast-in contact strip is protected against damage by the surrounding rubber profile. The cast end plugs ensure a permanent contact from the conductive surfaces in the contact strip. A special flexible adhesive is used to make the connector ring watertight. Because of the contact points, the safety edge has approximately 20 mm of inactive length at each end.



1. Terminal cap
2. Rubber profile with integrated contact strip
3. Fixation clip
4. Fixation clip
5. C-profile

Figure 1: Safety edge assembly

3.2 Assembly instructions

1. To facilitate installation of the safety edge, the aluminum C-profile may only be attached to even surfaces. If the safety edge is mounted in a bend, the radius must not be less than the specified minimum, see section ‘Technical data’ for more information.

Figure 2: C-profile

2. The aluminum C-profile must be fitted with countersunk screws or rivets. A diameter of 4 mm is sufficient. The holes of 4.5 mm must be evenly distributed over the entire length of the C-profile, with distances between them not exceeding 300 mm. They shall be countersunk according to the screwhead size.

Figure 3: C-profile mounting

3. Pan- or round-head screws shall not be used. Otherwise the connecting wire in the aluminum C-profile could be damaged.

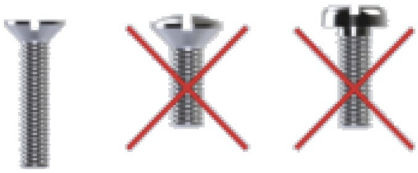


Figure 4: Screw shape

4. To lead the connecting wire through the C-profile, an 8 mm hole has to be drilled in the appropriate place. Carefully remove the burr from both sides.

Figure 5: Wire installation preparation

5. Insert the connection wire through the drilled hole in the aluminum C-profile.

Figure 6: Wire installation

6. To make fitting of the safety edge easier, the aluminum C-profile and the safety edge should be sprayed with soapy water. Once the soapy water has evaporated the safety edge is firmly fitted in the C-profile.

Note! To prevent a subsequent slipping of the safety edge, talcum powder, oils or similarly durable lubricants may not be used!

Figure 7: Soapy water

7. Safety edge with a T-base has to be pushed into the aluminum C-profile.

Figure 8: Safety edge mounting

Note! Any other methods of fastenings are only permitted on prior agreement with the manufacturer!

3.3 Electrical connections

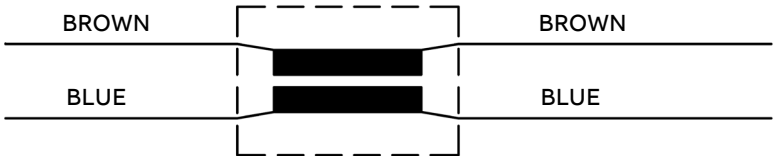


Figure 9: Safety edge electrical view

Safety edges shall be connected to an ABB Sentry safety relay (USR10, USR22) or Pluto safety-PLC (A20, B20, S20, D20, B22, D45, B46, S46, AS-i, B42 AS-i, O2) which monitors the functionality of the safety edge and detects any disconnections or short-circuits in the lines. Several safety edges can be connected in series with Pluto while still retaining the same level of safety.

⚠ **Note!** Several safety edges cannot be connected in series with Sentry. Maximum one safety edge can be connected to Sentry. Maximum five safety edges can be connected in series with Pluto.

When pressure is applied, the active surface of the contact area in the safety edge is closed and the safety output on the safety control unit trips.

3.4 Installation precautions

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

3.5 Maintenance

⚠ **Warning!** The safety functions and the mechanics shall be tested regularly.

⚠ **Warning!** In case of breakdown or damage to the product, contact the nearest ABB Service Office or reseller. 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 the user.

⚠ **Caution!** ABB will not accept responsibility for failure of the switch functions if the installation and maintenance requirements shown in this document are not implemented. These requirements form part of the product warranty.

4 Model overview

Order Code	Description
Safety edge TT – Custom sizes	
2TLA076025R3010	Safety edge TT 25-30 TPE. 30 mm high safety edge with 25-14 aluminum rail. Length in m needs to be specified on order.
2TLA076025R4510	Safety edge TT 25-45 TPE. 45 mm high safety edge with 25-14 aluminum rail. Length in m needs to be specified on order.
2TLA076025R8510	Safety edge TT 35-85 TPE. 85 mm high safety edge with 35-14 aluminum rail. Length in m needs to be specified on order.
Production cost and cables	
2TLA076010R0100	Production cost with a 2.5 m cable in each end.
2TLA076010R0500	Production cost with a 5 m cable in each end.
2TLA076010R1000	Production cost with a 10 m cable in each end.

4.1 Ordering details

When ordering a safety edge two articles need to be ordered, one order code for production cost and cables, and one for the length of the safety edge. Length should be specified in meters.

Example:

One piece of 45 mm high safety edge (plus 14 mm high aluminum rail) 0.73 m long with a 5 meter cable in each end:

Ordering example	
2TLA076025R4510	0.73 m
2TLA076010R0500	1 piece

5 Technical data

Manufacturer	
Address	ABB Electrification Sweden AB SE-721 61 Västerås Sweden

Technical data			
Type	**TT 25-30**	**TT 25-45**	**TT 35-85**
Material	TPE	TPE	TPE
Material hardness	68 Shore A	68 Shore A	68 Shore A
Max Delivery length	25 m	25 m	25 m
Weight	0.34 kg/m	0.44 kg/m	1 kg/m
Enclosure	IP 65	IP 65	IP 65
Switching cycles	10 000	10 000	10 000
Switching angle	2 x 45°	2 x 45°	2 x 45°
Actuating resistance	≤ 500 Ω	≤ 500 Ω	≤ 500 Ω
Electrical capacity	24 V 10 mA	24 V 10 mA	24 V 10 mA
Operating temperature	-10 °C to 50 °C	-10 °C to 50 °C	-10 °C to 50 °C
Max temperature range	-25 °C to 75 °C	-25 °C to 75 °C	-25 °C to 75 °C
Inactive end region	30 mm	30 mm	10 mm
Finger safety	Yes, 0 °C to 50 °C	Yes, 0 °C to 50 °C	N/A
Connection cables	LIY11Y 2 x 0.34 mm^2	LIY11Y 2 x 0.34 mm^2	LIY11Y 2 x 0.34 mm^2
Cable material	PUR flat black	PUR flat black	PUR flat black

Standard compliance and approvals	
European Directives	2006/42/EC 2014/30/EU 2011/65/EU 2015/863
Applied harmonized standards, Machinery Directive	EN ISO 13856-2:2013 EN ISO 13849-1:2015, PLd/Cat 4* EN 62061:2005+A1:2013, SIL CL 2

* According to EN ISO 13849-2:2012, Table D.8, a fault exclusion for that the contacts in a pressure sensitive device will not close, can be made. This fault exclusion is limited up to PLd.

Other applied standards	
Electrical safety	EN 60204-1:2006+A1:2009
Electromagnetic compatibility	EN 61326-1:2008

Approvals	
	TÜV Nord c UL us

Information for use in USA/Canada	
Intended use	Applications according to NFPA79

Sentry USR 10 - Test-Speed 10 mm/s
Tested according EN ISO 13856-2, Test Unit round 80 mm, Actuating Point C3, Temp. 20 °C

Type	**TT 25-30**	**TT 25-45**	**TT 35-85**
Actuating force FA	63.4 N	77.3 N	29.8 N
Actuating distance c (A)	5.3 mm	11.4 mm	5.5 mm
Overtravel distance d (B1) at 250 N	11.5 mm	15.0 mm	57.5 mm
Overtravel distance f (B2) at 400 N	13.9 mm	18.2 mm	61.7 mm
Overtravel distance h-c (C) at 600 N	16.1 mm	20.5 mm	64.6 mm

Sentry USR 10 - Test-Speed 100 mm/s
Tested according EN ISO 13856-2, Test Unit round 80 mm, Actuating Point C3, Temp. 20 °C

Type	**TT 25-30**	**TT 25-45**	**TT 35-85**
Actuating force FA	78.7 N	84.9 N	33.2 N
Actuating distance c (A)	5.9 mm	11.2 mm	6.2 mm
Overtravel distance d (B1) at 250 N	10.6 mm	14.8 mm	56.1 mm
Overtravel distance f (B2) at 400 N	13.5 mm	17.9 mm	60.1 mm
Overtravel distance h-c (C) at 600 N	15.3 mm	20.2 mm	63.5 mm

Sentry USR 22 - Test-Speed 10 mm/s
Tested according EN ISO 13856-2, Test Unit round 80 mm, Actuating Point C3, Temp. 20 °C

Type	**TT 25-30**	**TT 25-45**	**TT 35-85**
Actuating force FA	60.0 N	72.8 N	27.8 N
Actuating distance c (A)	5.4 mm	11.1 mm	5.5 mm
Overtravel distance d (B1) at 250 N	11.5 mm	15.3 mm	57.7 mm
Overtravel distance f (B2) at 400 N	13.8 mm	18.1 mm	62.0 mm
Overtravel distance h-c (C) at 600 N	15.8 mm	20.4 mm	64.5 mm

Sentry USR 22 - Test-Speed 100 mm/s
Tested according EN ISO 13856-2, Test Unit round 80 mm, Actuating Point C3, Temp. 20 °C

Type	**TT 25-30**	**TT 25-45**	**TT 35-85**
Actuating force FA	79.3 N	87.9 N	39.2 N
Actuating distance c (A)	5.9 mm	11.2 mm	5.9 mm
Overtravel distance d (B1) at 250 N	10.3 mm	14.5 mm	56.2 mm
Overtravel distance f (B2) at 400 N	13.2 mm	17.7 mm	60.2 mm
Overtravel distance h-c (C) at 600 N	15.5 mm	20.0 mm	63.5 mm

Pluto - Test-Speed 10 mm/s

Tested according EN ISO 13856-2, Test Unit round 80 mm, Actuating Point C3, Temp. 20 °C

Type	TT 25-30	TT 25-45	TT 35-85
Actuating force FA:			
Single Pluto	90.4 N	94.0 N	28.8 N
Pluto including Pluto bus*	98.5 N	94.2 N	30.2 N
Actuating distance c (A):			
Single Pluto	6.1 mm	10.3 mm	5.4 mm
Pluto including Pluto bus*	6.5 mm	10.7 mm	5.8 mm
Overtravel distance d (B1) at 250 N:			
Single Pluto	9.7 mm	13.7 mm	57.7 mm
Pluto including Pluto bus*	9.3 mm	13.3 mm	57.2 mm
Overtravel distance f (B2) at 400 N:			
Single Pluto	13.6 mm	18.3 mm	61.9 mm
Pluto including Pluto bus*	13.2 mm	17.9 mm	61.5 mm
Overtravel distance h-c (C) at 600 N:			
Single Pluto	16.3 mm	21.3 mm	64.7 mm
Pluto including Pluto bus*	15.9 mm	20.9 mm	64.3 mm

*Calculated worst case value

Pluto - Test-Speed 100 mm/s

Tested according EN ISO 13856-2, Test Unit round 80 mm, Actuating Point C3, Temp. 20 °C

Type	TT 25-30	TT 25-45	TT 35-85
Actuating force FA:			
Single Pluto	86.5 N	89.6 N	34.6 N
Pluto including Pluto bus*	119.2 N	152.7 N	53.1 N
Actuating distance c (A):			
Single Pluto	6.5 mm	11.8 mm	6.1 mm
Pluto including Pluto bus*	10.5 mm	15.8 mm	10.1 mm
Overtravel distance d (B1) at 250 N:			
Single Pluto	9.9 mm	14.3 mm	56.1 mm
Pluto including Pluto bus*	5.9 mm	10.3 mm	52.1 mm
Overtravel distance f (B2) at 400 N:			
Single Pluto	12.8 mm	17.8 mm	60.0 mm
Pluto including Pluto bus*	8.8 mm	13.8 mm	56.1 mm
Overtravel distance h-c (C) at 600 N:			
Single Pluto	14.9 mm	20.2 mm	63.5 mm
Pluto including Pluto bus*	10.9 mm	16.2 mm	59.5 mm

*Calculated worst case value

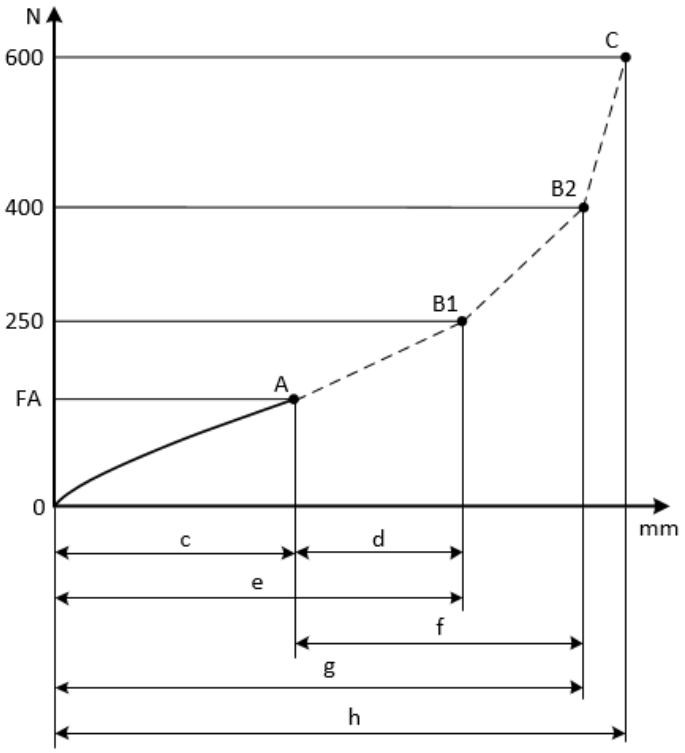


Figure 10: Diagram of force – travel relationship

Mounting		
Cabinet	The safety control unit shall be mounted in a cabinet with IP rating of at least IP54	
Max total length of safety edge	Sentry	25 m
	Pluto	100 m
Max no. of safety edges	Sentry	1
	Pluto	5

Material properties

General:	
Tear strength	3
Ultimate tensile strength	3
Rebound elasticity at 20 °C	2
Resistance against permanent deformation	3
Abrasion	3
Elongation @ tear	3
Cold flexibility	2
Heat stability	2
Oxidation stability	1
UV-stability	1
Weather resistance	1
Flame resistance	6
Ozone (50 ppm)	1

1 = very good to 6 = insufficient

Chemical resistance:	
Water (distilled)	1
Dilutes acid	1
Dilutes base	1
Non-oxidizing acids	2
Oxidizing acids	2
ASTM oil No. 3	6
Mineral oil	2
Brake fluid	2-3
Antifreezing admixture	1
Gasoline	5
Diesel	2-3
Alcohol	1

1 = no effect	Permanent contact
2 = few effect	Some contact
3 = medium effect	Some contact
4 = noticeable effects	Reduced contact
5 = severe effects	Very brief contact
6 = extreme effects	Avoid contact

Note! The information given is based on data obtained from the respective material suppliers. Although all efforts have been made, unforeseen factors can have a considerable effect on the generally applied indications during practical use, therefore this information must be used as a general guide only.

Buckling angle and bending radius							
TT Safety edge	**AL-profile**	**Buckling angle (max)**			**Bending radius (min)**		
		A	**B**	**C**	**1**	**2**	**3**
TT 25-30	AL 25-14	15°	10°	10°	300 mm	700 mm	400 mm
TT 25-45	AL 25-14	15°	10°	5°	500 mm	900 mm	500 mm
TT 35-85	AL 35-14	5°	5°	5°	1500 mm	N/A	1200 mm

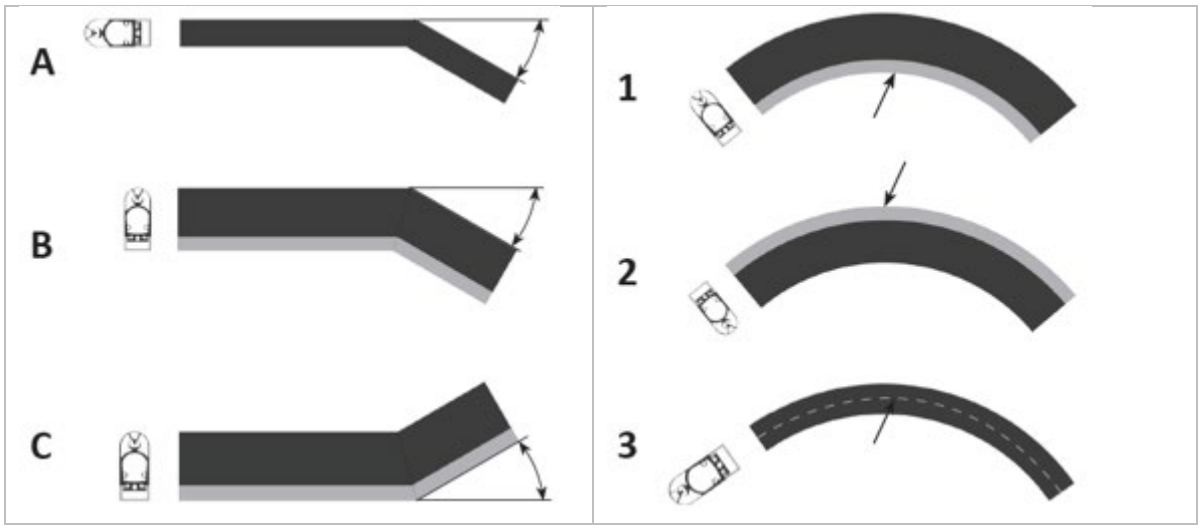


Figure 11: Buckling angle and bending radius

The aluminum C-profile has to be prepared at the factory if it has to be bent. Optical and switching characteristics can differ from the values illustrated in the datasheets. An application test is mandatory.

6 Declarations of conformity

6.1 Sentry

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 manufacture with type designations and safety functions as listed below, is in conformity with the Directives 2006/42/EC – Machinery 2014/30/EU – EMC 2011/65/EU – RoHS II + 2015/863
Authorised to compile the technical file		ABB Electrification Sweden AB SE-721 61 Västerås Sweden
Product		**EC type-examination certificate**
Safety edge TT 25-30 TPE, TT25-45 TPE together with Safety relay Sentry USR10, USR22		44 205 16135517
Notified Body		TÜV Nord CERT GmbH Langemarckstrasse 20 45141 Essen Germany Notified Body No. 0044
Used harmonized standards		EN ISO 12100:2010, EN ISO 13856-2:2013, EN ISO 13849-1:2015, EN 62061:2005+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

Alessandro Pelandi
R&D Manager
Västerås 2023-10-18

EC Declaration of conformity

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

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Authorised to compile the technical file		ABB Electrification Sweden AB SE-721 61 Västerås Sweden
Product		**EC type-examination certificate**
Safety edge TT 35-85 TPE together with Safety relay Sentry USR10, USR22		44 205 16 135527
Notified Body		TÜV Nord CERT GmbH Langemarckstrasse 20 45141 Essen Germany Notified Body No. 0044
Used harmonized standards		EN ISO 12100:2010, EN ISO 13856-2:2013, EN ISO 13849-1:2015, EN 62061:2005+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

Alessandro Pelandi
R&D Manager
Västerås 2023-10-23

Original

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 manufacture 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)
Authorized representative		ABB Limited Tower Court Coventry CV6 5NX United Kingdom
Authorised to compile the technical file		ABB Ltd. Tower Court Coventry CV6 5NX United Kingdom

Product

Safety edge
TT 25-30 TPE, TT 25-45 TPE
together with
Safety relay Sentry
USR10, USR22

Used designated standards	EN ISO 12100:2010, EN ISO 13856-2:2013, EN ISO 13849-1:2015, EN 62061:2005+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

Magnus Backman
R&D Manager
Västerås 2021-09-20

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Product

Safety edge
TT 35-85 TPE
together with
Safety relay Sentry
USR10, USR22

Used designated standards	EN ISO 12100:2010, EN ISO 13856-2:2013, EN ISO 13849-1:2015, EN 62061:2005+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

Magnus Backman
R&D Manager
Västerås 2021-09-20

6.2 Pluto

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 manufacture with type designations and safety functions as listed below, is in conformity with the Directives 2006/42/EG – Machinery 2014/30/EU – EMC 2011/65/EU – RoHS II + 2015/863
Authorised to compile the technical file		ABB Electrification Sweden AB SE-721 61 Västerås Sweden
Product		**EC type-examination certificate**
Safety edge TT 25-30 TPE, TT25-45 TPE together with Safety PLC Pluto A20, B20, S20, D20, B22, D45, B46,S46, AS-i, B42 AS-i, O2		44 205 16135520
Notified Body		TÜV Nord CERT GmbH Langemarckstrasse 20 45141 Essen Germany Notified Body No. 0044
Used harmonized standards		EN ISO 12100:2010, EN ISO 13856-2:2013, EN ISO 13849-1:2015, EN 62061:2005+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

Alessandro Pelandi
R&D Manager
Västerås 2023-10-18

Original

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 manufacture with type designations and safety functions as listed below, is in conformity with the Directives 2006/42/EC – Machinery 2014/30/EU – EMC 2011/65/EU – RoHS II + 2015/863
Authorised to compile the technical file		ABB Electrification Sweden AB SE-721 61 Västerås Sweden
Product		**EC type-examination certificate**
Safety edge TT 35-85 TPE together with Safety PLC Pluto A20, B20, S20, D20, B22, D45, B46,S46, AS-i, B42 AS-i, O2		44 205 16 135526
Notified Body		TÜV Nord CERT GmbH Langemarckstrasse 20 45141 Essen Germany Notified Body No. 0044
Used harmonized standards		EN ISO 12100:2010, EN ISO 13856-2:2013, EN ISO 13849-1:2015, EN 62061:2005+A2:2015, EN 60204-1:2006+A1:2009, EN 60664-1:2007, EN 61000-6-2:2005, EN 61000-6-4:2007
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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 manufacture 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)
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

Safety edge
TT 25-30 TPE, TT25-45 TPE
together with
Safety PLC Pluto
A20, B20, S20, D20, B22, D45, B46, S46, AS-i, B42 AS-i, O2

Used designated standards	EN ISO 12100:2010, EN ISO 13856-2:2013, EN ISO 13849-1:2015, EN 62061:2005+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

Magnus Backman
R&D Manager
Västerås 2021-09-17

Declaration of conformity

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We	ABB Electrification Sweden AB SE-721 61 Västerås Sweden	declare that the safety components of ABB Electrification Sweden AB manufacture 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)
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

Safety edge
TT 35-85 TPE
together with
Safety PLC Pluto
A20, B20, S20, D20, B22, D45, B46, S46, AS-i, B42 AS-i, O2

Used designated standards	EN ISO 12100:2010, EN ISO 13856-2:2013, EN ISO 13849-1:2015, EN 62061:2005+A2:2015, EN 60204-1:2006+A1:2009, EN 60664-1:2007, EN 61000-6-2:2005, EN 61000-6-4:2007
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Magnus Backman
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