SIEMENS

Industrial Controls

SIRIUS
Signaling columns and integrated signal lamps

Configuration Manual

11/2018
A5E43902271002A/RS-AB/002

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

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Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Siemens AG
Division Digital Factory
Postfach 48 48
90026 NÜRNBERG
GERMANY

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Table of contents

Introduction

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1.1 Purpose of this documentation

This manual describes the possible uses of SIRIUS command and signaling devices.

In order to provide users with the information they need to operate the system safely, this manual provides a general explanation of operating principles, selection and installation of signaling columns and integrated signal lamps.

1.2 Target group

This documentation contains information for the following target groups:

- Decision makers
- Technologists
- Project planning engineers
- Commissioning engineers

1.3 Required knowledge

A general knowledge of the following areas is needed in order to understand this documentation:

- Low-voltage controls
- Digital circuit logic
- Automation systems
- AS-Interface
- Safety and security systems

1.4 Siemens Industry Online Support

Information and service

At Siemens Industry Online Support you can obtain up-to-date information from our global support database quickly and simply. To accompany our products and systems, we offer a wealth of information and services that provide support in every phase of the lifecycle of your machine or plant – from planning and implementation and commissioning, right through to maintenance and modernization:

- Product support
- Application examples
- Services
- Forum
- mySupport

Link: Siemens Industry Online Support (https://support.industry.siemens.com/cs/de/en)

Product support

Here you will find all the information and comprehensive know-how for your product:

- **FAQs**

  Our replies to frequently asked questions.
- **Manuals/operating instructions**

  Read online or download, available as PDF or individually configurable.
- **Certificates**

  Clearly sorted according to approving authority, type and country.
- **Characteristics**

  For support in planning and configuring your system.
- **Product announcements**

  The latest information and news concerning our products.
- **Downloads**

  Here you will find updates, service packs, HSPs and much more for your product.
- **Application examples**

  Function blocks, background and system descriptions, performance statements, demonstration systems, and application examples, clearly explained and represented.
- **Technical data**

  Technical product data for support in planning and implementing your project.

Link: Product support (https://support.industry.siemens.com/cs/ww/en/ps)

mySupport

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The following functions are now available:

- **Personal Messages**

  Your personal mailbox for exchanging information and managing your contacts

- **Requests**

  Use our online form for specific solution suggestions, or send your technical inquiry directly to a specialist in Technical Support

- **Notifications**

  Make sure you always have the latest information - individually tailored to your needs

- **Filter**

  Simple management and re-use of your filter settings from Product Support and the Technical Forum

- **Favorites / Tagging**

  Create your own knowledge database by assigning "Favorites" and "Tags" to documents – simply and efficiently

- **Entries last viewed**

  Clear presentation of your last viewed entries

- **Documentation**

  Configure your individual documentation from different manuals – quickly and without complications

- **Personal data**

  Change personal data and contact information here

- **CAx data**

  Simple access to thousands of items of CAx data such as 3D models, 2D dimension drawings, EPLAN macros, and much more

1.5 Siemens Industry Online Support app

Siemens Industry Online Support app

You can use the Siemens Industry Online Support app to access all the device-specific information available on the Siemens Industry Online Support portal for a particular article number, including operating instructions, manuals, datasheets, FAQs etc.
The Siemens Industry Online Support app is available for iOS, Android or Windows Phone devices. You can download the app from the following links:

Link for Android

Link for iOS

Link for Windows Phone

1.6 Support Request

Using the Support Request form in Online Support you can send your query directly to our Technical Assistance. After describing your query in a few guided steps, you will immediately be provided with possible suggestions for solving the problem.

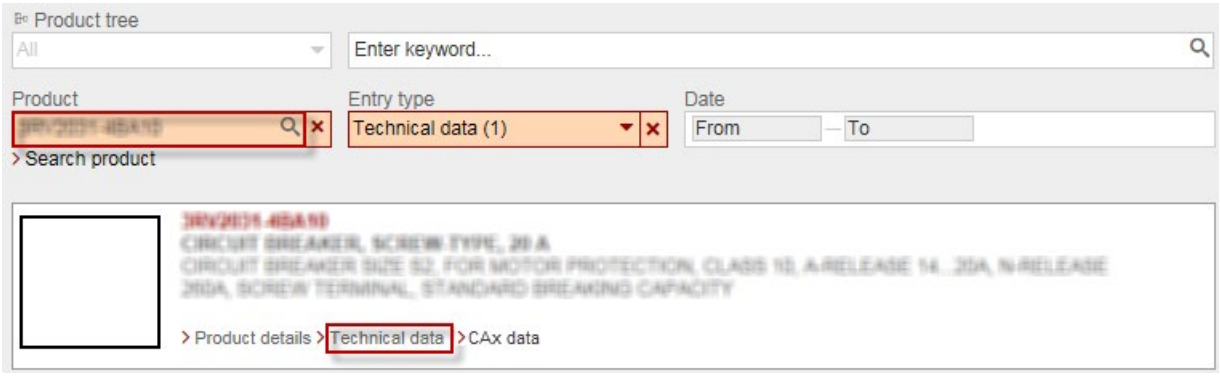
Support Request:	Internet (https://support.industry.siemens.com/My/ww/en/requests)

1.7 Technical data in Siemens Industry Online Support

Technical data sheet

You can also find the technical data of the product at Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/16444/td).

1. Enter the full article number of the desired device in the "Product" field, and confirm with the Enter key.
2. Click the "Technical data link.



1.8 Overview tables

Overview tables technical data

You will find overview tables with technical data in the "Product information" tab in our online ordering system (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10143170?tree=CatalogTree#Technische Daten).

Safety instructions 2

2.1 Important notes

The products described here have been developed to perform safety-related functions as part of an overall system or machine. A complete safety-oriented system generally features sensors, evaluation units, signaling units, and reliable shutdown concepts. It is the responsibility of the manufacturer to ensure that a system or machine is functioning properly as a whole. Siemens AG, its regional offices, and associated companies (hereinafter referred to as "Siemens") cannot guarantee all the properties of an overall installation or machine that has not been designed by Siemens. Nor can Siemens assume liability for recommendations that appear or are implied in the following description. No new guarantee, warranty, or liability claims beyond the scope of the Siemens general terms of supply are to be derived or inferred from the following description.

2.2 Before commencing work: Isolating the equipment from the supply system and ensuring that it cannot be reconnected.

⚠ DANGER

Hazardous voltage Will cause death or serious injury.

- Disconnect the system and all devices from the power supply before starting work.
- Secure against switching on again.
- Verify that the equipment is not live.
- Ground and short-circuit.
- Erect barriers around or cover adjacent live parts.

⚠ DANGER

Hazardous voltage Will cause death or serious injury.

Qualified Personnel.

The equipment / system may only be commissioned and operated by qualified personnel. For the purpose of the safety information in these operating instructions, a "qualified person" is someone who is authorized to energize, ground, and tag equipment, systems, and circuits in accordance with established safety procedures.

2.3 Recycling and disposal

For environmentally friendly recycling and disposal of your old device, please contact a company certified for the disposal of old electrical and/or electronic devices and dispose of the device in accordance with the regulations in your country.

2.4 Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

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To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under
https://www.siemens.com/industrialsecurity.

8WD4 signaling columns

3

3.1 Application areas

Signaling columns are used at machines or in automated processes in order to monitor complex processes or to output alarms in emergency situations.

The following are potential application areas:

- Manufacturing plants
- Injection molding machines
- Conveyors
- Assembly systems for electronic components

Note

Lamps and LED modules are designed solely for use with SIRIUS command and signaling devices. They are not suitable for use in domestic lighting systems.

3.2 Description

8WD42 / 8WD44

Signaling columns consist of cylindrical signaling elements of various colors arranged in a vertical column. By installing signaling columns locally at individual machines, it is possible to monitor manufacturing stations from a long distance. SIRIUS 8WD signaling columns and integrated signal lamps are designed to allow reliable monitoring of complex, high-speed processes. These modular units are flexible in application and are equipped with visual and acoustic alarm devices such as continuous lights, blinklights, flashlights, rotating lights, LEDs as well as siren or buzzer elements.

8WD signaling columns are designed with a high degree of protection and have full communications capability via AS-Interface.

An IO-Link module can be used to integrate the signaling column into an IO-Link system.

3.3 Overview

The 8WD4 signaling columns are modular in design and can be freely combined. They are available in two different diameters 50 mm and 70 mm.

Two device series are available:

- 8WD42
  - Thermoplastic enclosure, diameter 50 mm
  - Screw terminals
  - IP54 degree of protection
  - Up to 4 elements can be mounted
- 8WD44
  - Thermoplastic enclosure, diameter 70 mm
  - Enhanced illumination
  - Screw or spring-type connection
  - Integrated degree of protection IP65
  - Up to 5 elements can be mounted

Figure 3-1 Signaling columns, mounting example

Complete unit signaling columns

Signaling columns are available as complete units in the following combinations:

- Article number 8WD4421-0GA05-0AG0
  - Design from bottom to top: Foot, pipe 400 mm, connection element
- Article number 8WD4423-5AK05-0AE0
  - Design from bottom to top: Foot, pipe 250 mm, connection element, green continuous light, blue continuous light, yellow continuous light
- Article number 8WD4423-5AK05-0AF0
  - Design from bottom to top: Foot, pipe 250 mm, connection element, clear flashlight, green continuous light, blue continuous light

8WD42 / 8WD44 with AS-Interface

They are connected to AS-Interface by means of an AS-Interface element on which up to four light elements can be mounted. Conditions are diagnosed on the basis of an LED status indication.

- A/B technology
- Addressing socket
- LED status indications for diagnostics
- Manual switchover to external auxiliary voltage

8WD44 with IO-Link

They are integrated into an IO-Link system by means of an IO-Link module on which up to five light elements can be mounted.

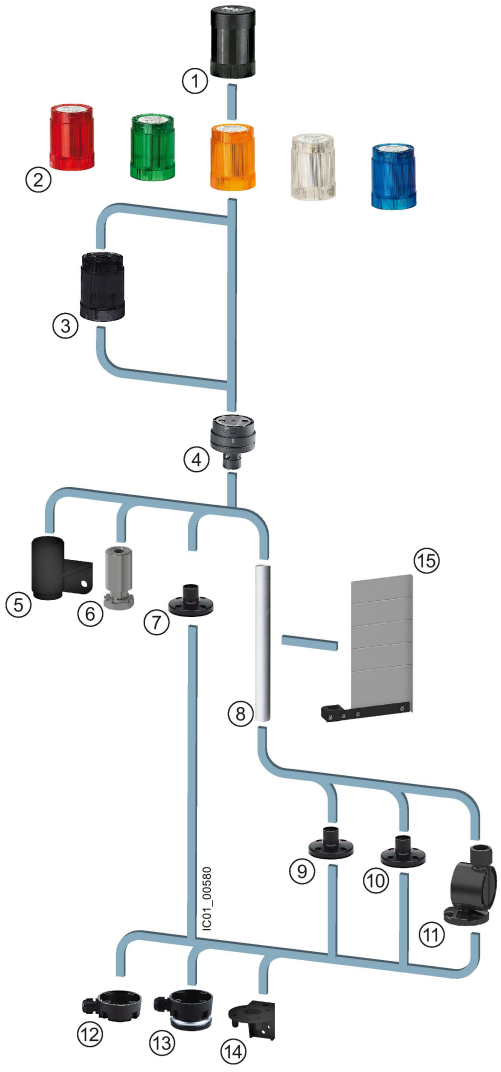
You will find information on IO-Link in Chapter IO-Link (Page 48).

3.3.1 Signaling elements

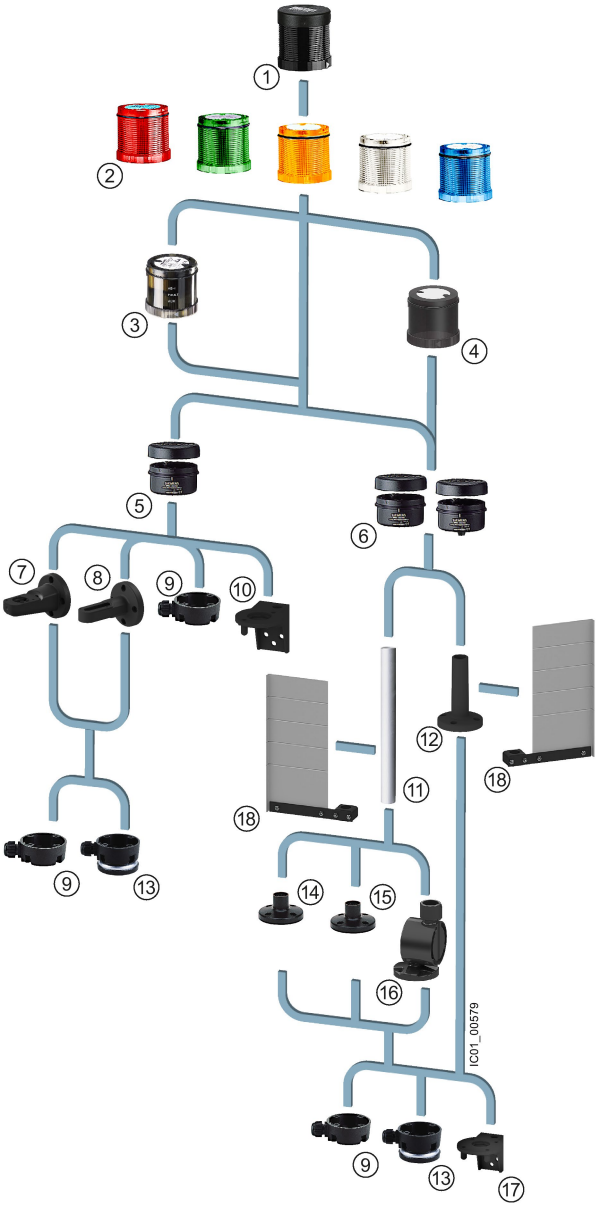
The following versions of signaling elements are available:

- Continuous light element (incandescent lamp, LED)
- Flashing light element (incandescent lamp, LED)
- Flashlight element
- Rotating light element (LED)
- Buzzer element
- Siren element

3.3.2 Schematic overview of 8WD42 signaling columns

8WD42 signaling column (diameter 50 mm) with up to 4 elements		
	①	Acoustic element 8WD42 .0-0FA
	②	Light element 8WD42
	③	AS-Interface adapter element 8WD4228-0BB
	④	Connection element 8WD4208-0AA
	⑤	Bracket for wall mounting 8WD4208-0CD
	⑥	Adapter for single-hole mounting 8WD4208-0EH
	⑦	Foot for floor mounting 8WD4208-0DE
	⑧	Pipe 8WD42 08-0EF/8WD4308-0E.
	⑨	Foot for pipe mounting 8WD4308-0DB
	⑩	Foot for pipe mounting (> 400 mm) 8WD4308-0DC
	⑪	Adjustable-angle foot for pipe mounting 8WD4408-0DF
	⑫	Socket 8WD4308-0DD
	⑬	Socket (magnetic fixing) 8WD4308-0DE
	⑭	Bracket for foot mounting 8WD4408-0CC
	⑮	Optional 8WD4408-0FA labeling panel

3.3.3 Schematic overview of 8WD44 signaling columns

8WD44 signaling columns (diameter 70 mm) with up to 5 elements		
	①	Acoustic element 8WD44
	②	Light element 8WD44
	③	AS-Interface adapter element 8WD4428-0BD/-0BE
	④	IO-Link module 8WD4428-0BF
	⑤	Connection element for bracket, base and floor mounting 8WD4408-0AB/-0AE
	⑥	Connection element for pipe mounting 8WD4408-0A.
	⑦	Bracket for wall mounting 8WD4308-0CA
	⑧	Bracket for wall mounting (2-sided) 8WD4308-0CB
	⑨	Socket 8WD4308-0DD
	⑩	Bracket for base mounting 8WD4408-0CD
	⑪	Pipe 8WD4208-0EF/8WD4308-0E.
	⑫	Foot with pipe 8WD4308-0DA
	⑬	Socket (magnetic fixing) 8WD4308-0DE
	⑭	Foot for pipe mounting 8WD4308-0DB
	⑮	Foot for pipe mounting (> 400 mm) 8WD4308-0DC
	⑯	Adjustable-angle foot for pipe mounting 8WD4408-0DF
	⑰	Bracket for foot mounting 8WD4408-0CC
	⑱	Optional 8WD4408-0FA labeling panel

3.3.4 Complete unit signaling columns

Design

The complete unit signaling column 8WD4421-0GA05-0AG0 consists of a foot, pipe and connection element. Any light elements can be added to it.

8WD4421-0GA05-0AG0	Individual article number	Element
	8WD4408-0AD	Connection element
	8WD4308-0EA	Pipe
	8WD4308-0DB	Foot

The complete unit signaling columns 8WD4423-5AK05-0AE0 and 8WD4423-5AK05-0AF0 consist, as seen from bottom to top, of a foot, pipe, connector element and the following light elements:

8WD4423-5AK05-0AE0	Individual article number	Element	Position
	8WD4420-5AD	Continuous light, yellow	Top
	8WD4420-5AF	Continuous light, blue	Center
	8WD4420-5AC	Continuous light, green	Bottom
	8WD4408-0AD	Connection element	
	8WD4308-0EA	Pipe	
	8WD4308-0DB	Foot	

8WD4423-5AK05-0AF0	Individual article number	Element	Position
	8WD4420-5AF	Continuous light, blue	Top
	8WD4420-5AC	Continuous light, green	Center
	8WD4420-0CE	Flashing light, clear	Bottom
	8WD4408-0AD	Connection element	
	8WD4308-0EA	Pipe	
	8WD4308-0DB	Foot	

3.3.5 Color assignment for signaling columns

Color	Explanation	Application example
Red	Dangerous condition	Malfunction on an important system component
Yellow	Critical condition is imminent	A protective device of an auxiliary unit has tripped
Green	Normal state	Release for startup, display of normal operating conditions
Blue	Display of a condition that requires action	Instructions to the operator to set preselected values
White / clear	Any meaning; may be used if there is any doubt with regard to the colors red, yellow, green and blue	Instructions to the operator to set preselected values

3.4 Mounting

3.4.1 Fixing options

The following fixing options can be used for signaling elements:

- Floor mounting
- Pipe mounting
- Bracket mounting
- Magnetic fixing

With the 8WD44 signaling column, a maximum of 5 signaling elements can be mounted on a connection element (or 4 signaling elements with the 8WD42). Using the bracket for two-sided mounting, it is possible to install two connection elements and thus up to 10 signaling elements at one location for 8WD44 signaling columns.

Signal emission is powerful and uniform in intensity over a 360-degree arc. The LED elements have a service life of 50000 operating hours.

The accessories for both series are standardized.

Note

The connection element with cover is an essential part for assembling the signaling column.

The cover is supplied with the connection element and must be removed before the light elements can be fitted.

The cover is mounted on top of the uppermost light element.

Individual modules are mechanically and electrically joined by means of a bayonet lock. There is no need to interrupt operation in order to replace a lamp; the affected element can be simply removed without tools.

IO-Link module

When using the IO-Link module, it is possible to mount 5 more signal elements on the IO-Link module.

If the M12 connection element is used, only pipe mounting is possible. Bracket mounting is possible when other connection elements are used.

3.4.2 Base mounting

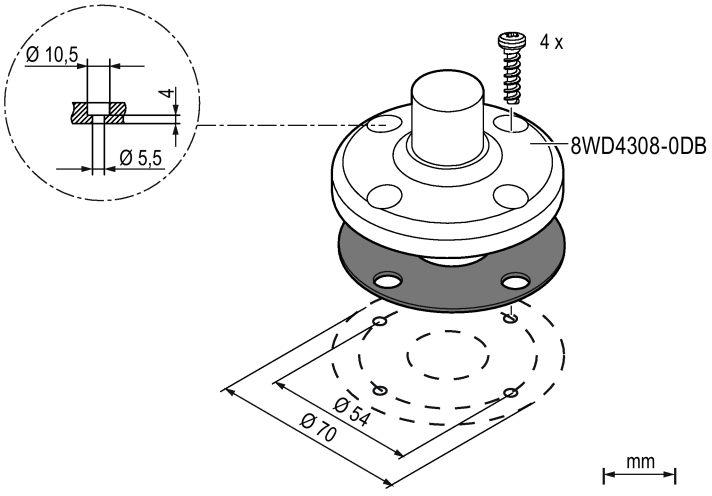
Pipe mounting

Pipes of various lengths from 150 mm to 1000 mm are available. Use of a special cast foot to provide stability is recommended for pipe lengths of 500 mm or higher.

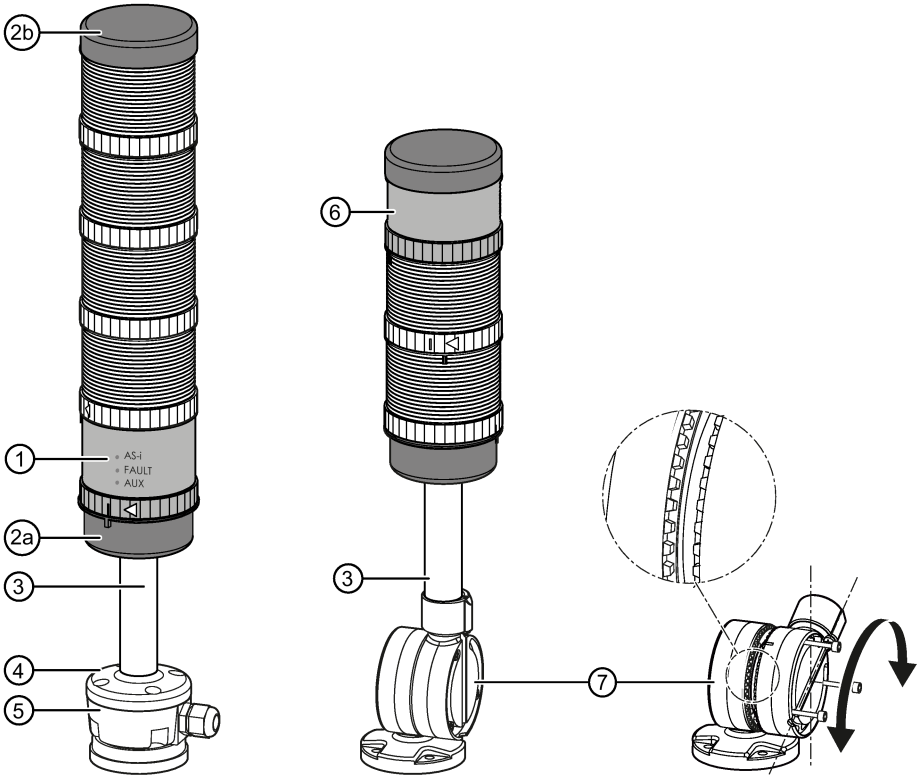
The 8WD42 signaling columns are mounted on the base/floor with a 8WD4208-0DE plastic foot.

Signaling columns

8WD44 signaling columns can be screwed directly to the connection element for floor mounting.



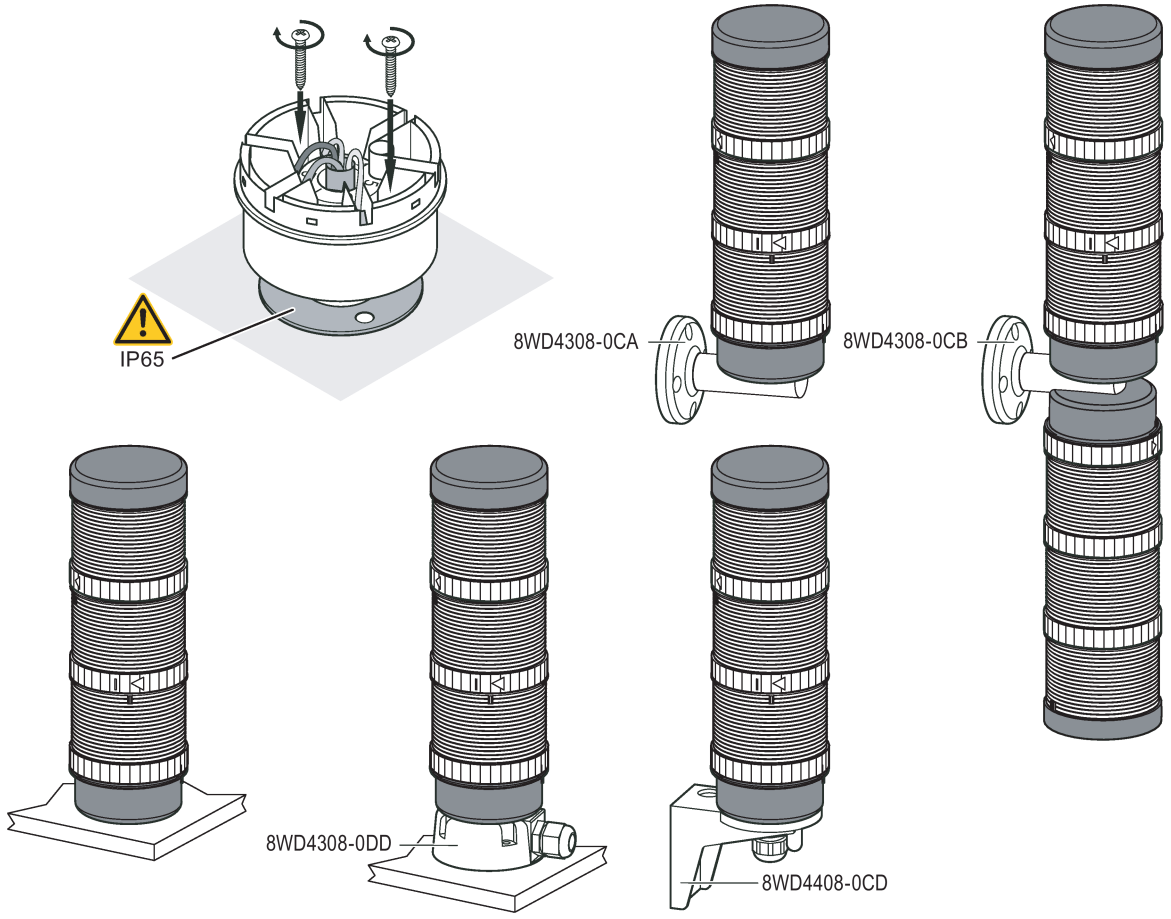
8WD4308-0DB Foot, single, plastic, for pipe mounting



① 8WD4428-0B. = AS-Interface adapter element
②a 8WD4408-0AB = Connection element
②b 8WD4408-0AB = Cover of connection element
③ 8WD4208-0EF = Pipe, 100 mm in length, accessory for signaling columns of 50 mm and 70 mm diameter
④ 8WD4308-0DA = Pipe with foot, 100 mm in length, accessory for signaling columns of 70 mm diameter
⑤ 8WD4308-0DE = Socket for foot, cable exit at side, with magnetic fixing, accessory for signaling columns of 50 mm and 70 mm diameter
⑥ 8WD44.0-0.A. = Siren element, multi-tone, diameter 70 mm
⑦ 8WD4408-0DF = Adjustable-angle foot, plastic for pipe mounting with rubber seal, accessory for signaling columns of 50 mm and 70 mm diameter

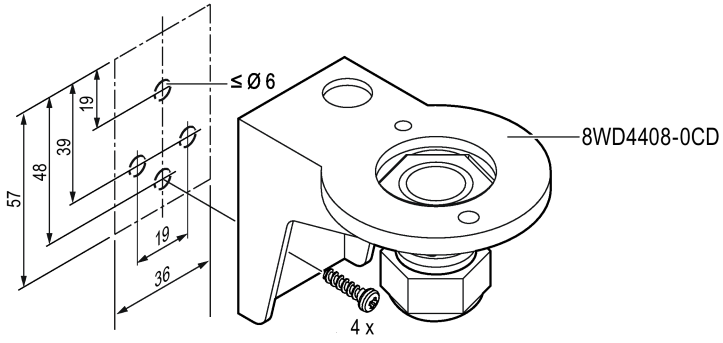
3.4.3 Bracket mounting

The accessory for mounting a signaling column at right angles, e.g. on walls, is attached directly to the connection element. 8WD44 signaling columns require a special connection element for bracket mounting.

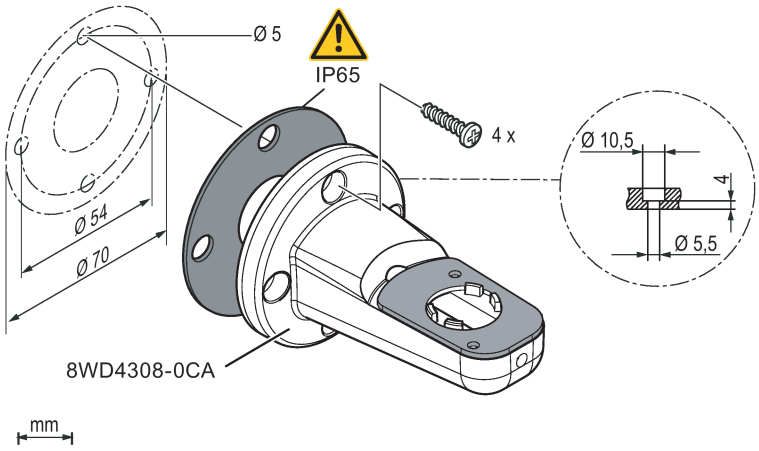


3.4.4 Drilling pattern for accessories

Drilling pattern bracket for base mounting



Drilling pattern bracket for wall mounting

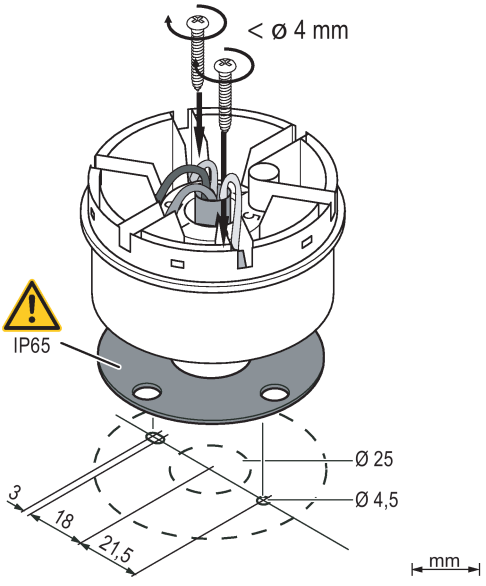


Note

Degree of protection IP65

Degree of protection IP65 is only reached when using the seals provided.

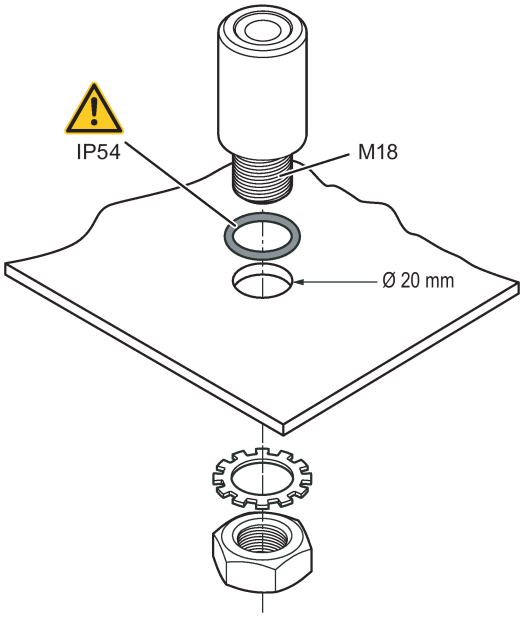
3.4.5 Drilling pattern for connection element



3.4.6 Single-hole mounting

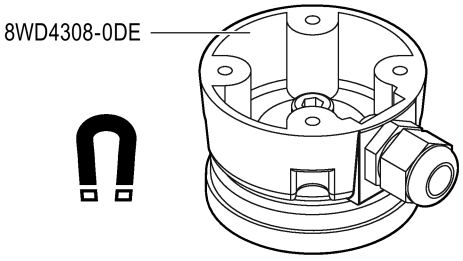
Adapter for single-hole mounting 8WD4208-0EH

An adapter is available for single-hole mounting of 8WD42 signaling columns. The adapter is screwed in place from below.



3.4.7 Magnetic fixing

Socket for magnetic foot (8WD42 and 8WD44)

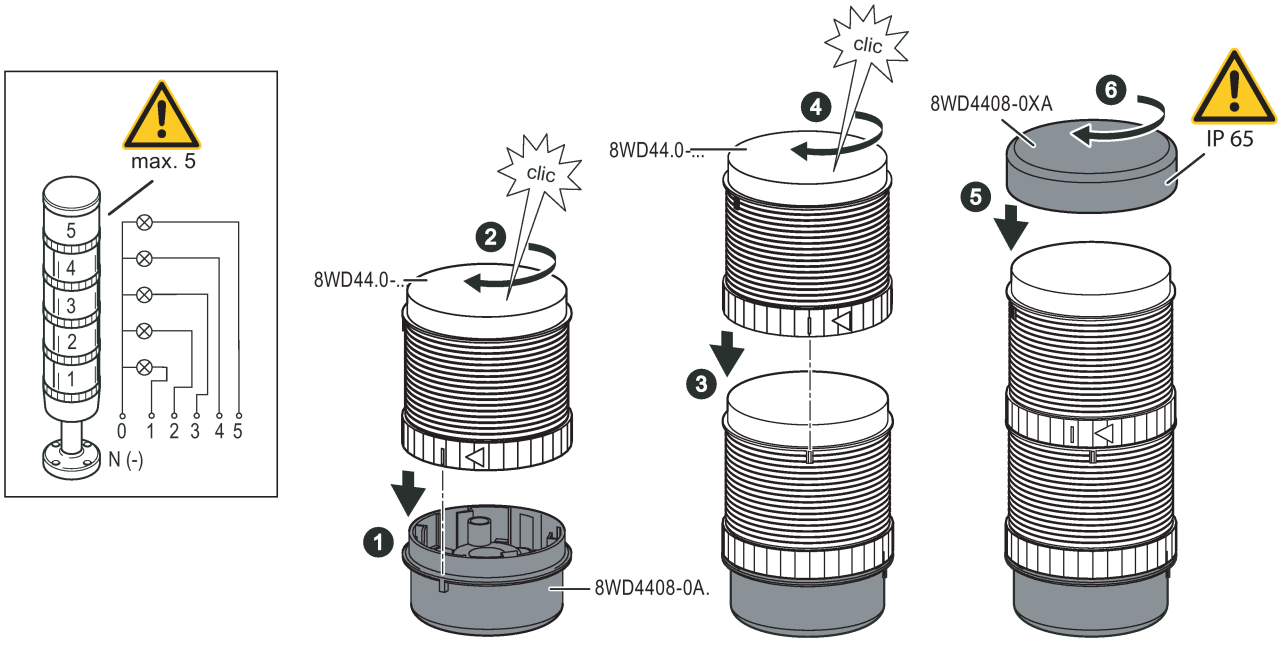


The adapter with the cable outlet at the side is also available in a special version with magnet fixing. This offers a simple, flexible and extremely shock-resistant method of fixing signaling columns to metal plates or panels.

3.4.8 Mounting the signaling column elements

Mounting example for 8WD44 signaling columns

The mounting method for 8WD44 and 8WD42 signaling columns is identical.



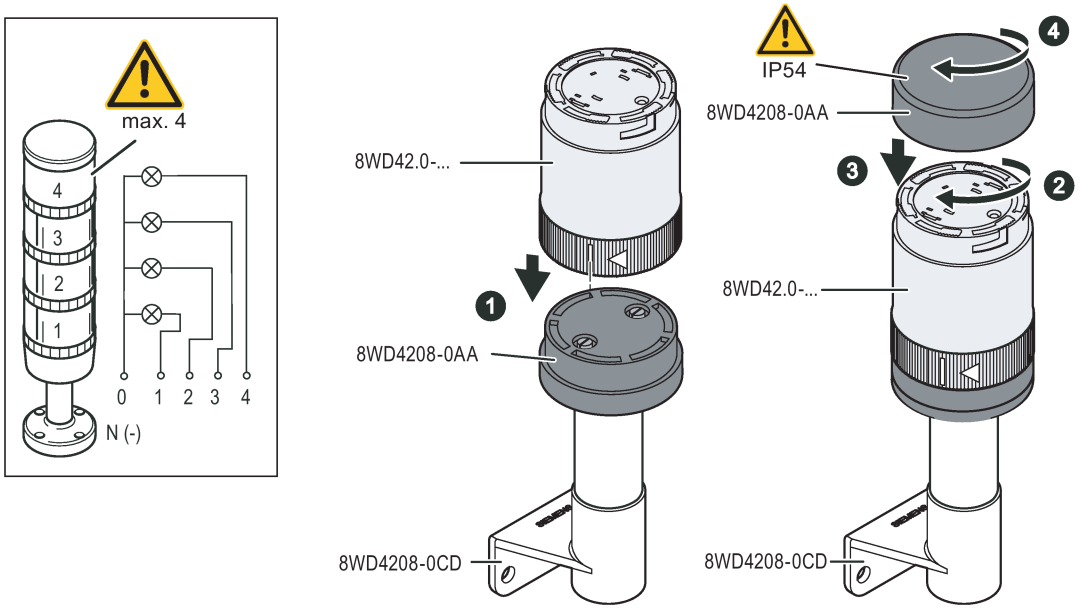
1. Remove the cover from the connection element.
2. Place the signaling element on the connection element.
3. Turn the signaling element clockwise until it audibly engages.
4. Use the same method to assemble additional signaling elements.
5. Up to 4 signaling elements can be arranged in a vertical column on 8WD42 signaling columns.
   Up to 5 signaling elements can be arranged in a vertical column on 8WD44 signaling columns.
6. Mount the connection element cover on the uppermost signaling element by turning it clockwise.

Note

Light source for 8WD4400-1A.

No light source is included in the scope of supply for the 8WD4400-1A. light elements. Prior to mounting the signaling column, either install a lamp or an LED into the light element (see Installing the light source (Page 29)).

Mounting example for 8WD42 signaling columns

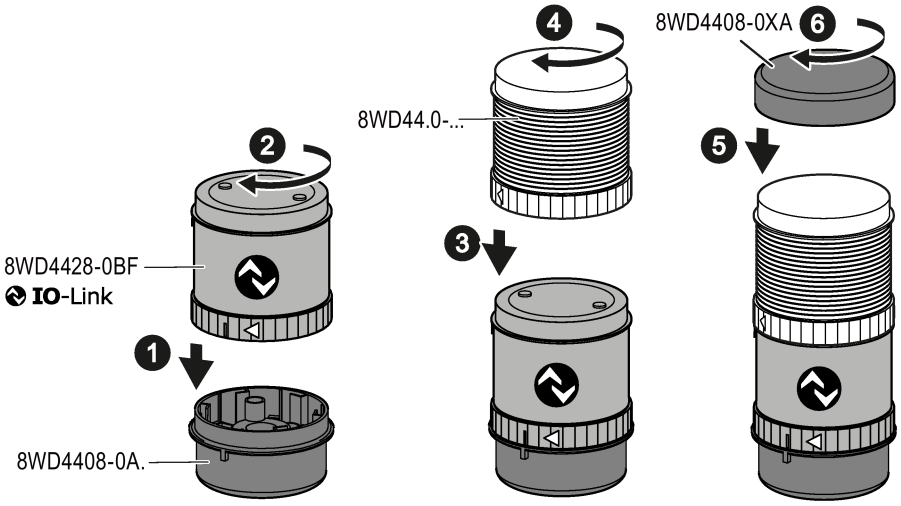


3.4.9 Mounting with IO-Link module for 8WD44

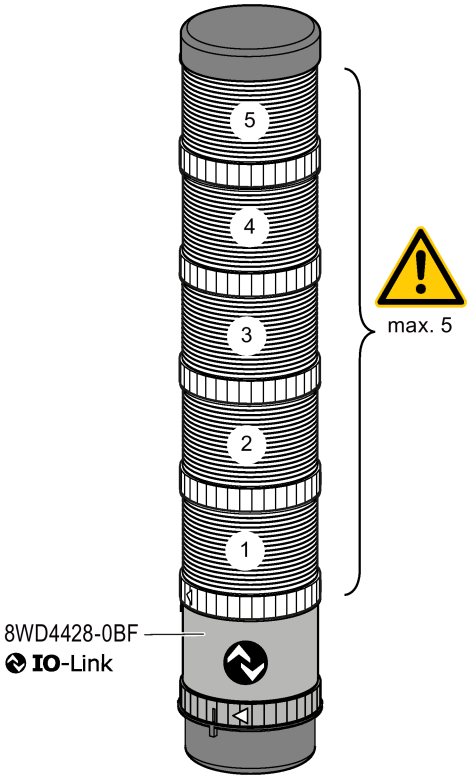
An IO-Link module can be used for the 8WD44 signaling columns.

The IO-Link module 8WD4428-0BF is always placed directly onto the connection element.

This procedure essentially represents Mounting the signaling column elements (Page 25).



A maximum of 5 more signaling column elements can be additionally mounted.

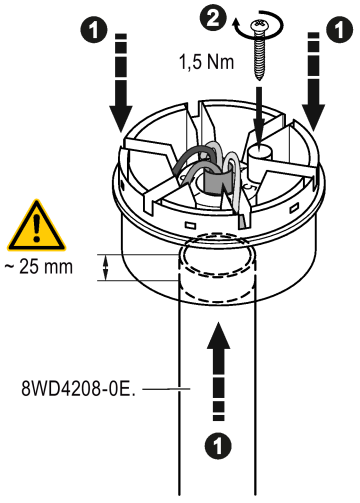


3.4.10 Mounting with M12 connection element for IO-Link

M12 connection element 8WD4408-0AF

When using the 8WD4408-0AF M12 connection element, the connection is via an M12 plug element.

Pipe mounting is the only possible mounting variant.

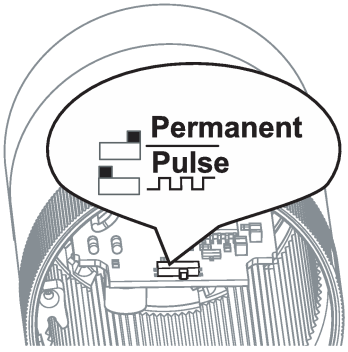


3.4.11 Acoustic elements

One acoustic element can be mounted per signaling column.

NOTICE
Arrangement of acoustic elements Note that acoustic elements such as siren elements or buzzer elements can only ever be used as the uppermost element on a signaling column.

8WD4220-0FA buzzer element

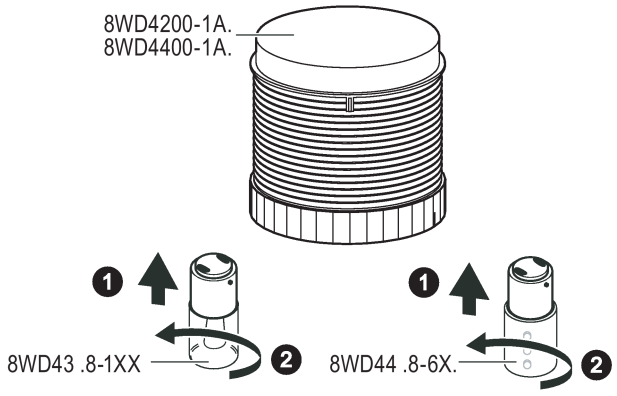


With the 8WD4220-0FA buzzer element, you change the signal tone from continuous to pulsating by moving the switch on the inside.

3.4.12 Installing the light source

8WD4.00-1A. continuous light element

The lamp is not included in the scope of supply of the 8WD4200-1A. / 8WD4400-1A. continuous light element and must be ordered separately.



8WD4200-1A. / 8WD4400-1A.	Continuous light element
8WD43.8-1XX	Incandescent lamp with base
8WD44.8-6X.	LED with base

1. Insert the incandescent lamp or LED from below into the spherical cap.
2. Turn the lamp counter-clockwise until the bayonet lock audibly engages.

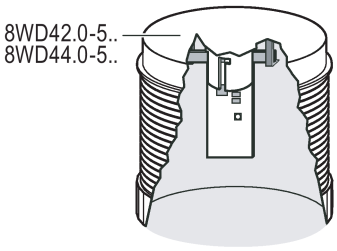
8WD44.0-0C light element with integrated flash lamp

The lamp is firmly installed on the 8WD44.0-0C light elements with integrated flash lamp and cannot be exchanged.

Light element with integrated LED

The light elements with integrated LED are available in the following variants:

- Continuous light element (8WD44.0-5A. / 8WD44.0-5A.)
- Blinklight element (8WD42.0-5B / 8WD44.0-5B.)
- Rotating light element (8WD4420-5D.)



Note

LED is permanently integrated

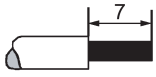
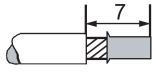
The lamp is firmly installed on the light elements with integrated LED and cannot be exchanged.

3.5 Connecting

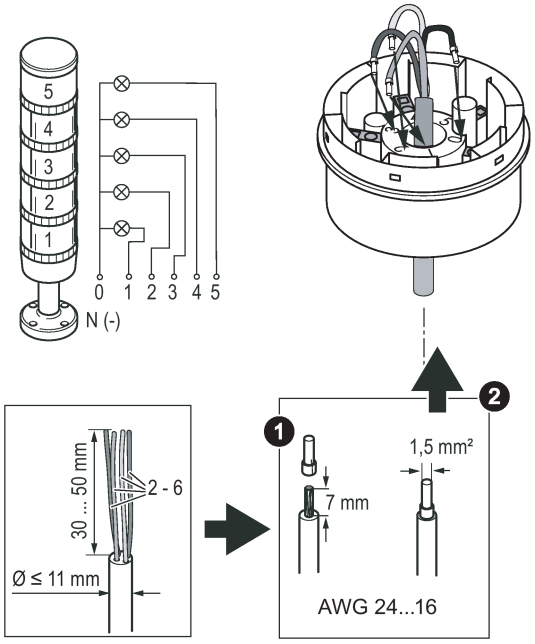
The signaling elements are wired using terminals in the connection element, screw terminals for 8WD42 and screw or spring-type terminals for 8WD44.

Conductor cross-sections for 8WD42 and 8WD44 signaling columns

The following conductor cross-sections apply to 8WD42 and 8WD44 signaling columns:

	8WD4208-0AA **8WD4408-0AB** **8WD4408-0AA**	**8WD4408-0AE** **8WD4408-0AD**
 ISO 2380-2 B 0.8 x 4	 0.4 Nm	
	1 x (0.5 ... 1.5) mm²	1 x (0.5 ... 1.5) mm²
AWG	1 x 20 to 16	1 x 20 to 16
	1 x (0.25 ... 1.5) mm²	1 x (0.25 ... 1.5) mm²
AWG	1 x 24 to 16	1 x 24 to 16

Cable entry



The connecting cables can be guided downward via the connection element. With 8WD42 signaling columns, the cables can be guided via an adapter for single-hole mounting.

This makes wiring easier if there is no access from below.

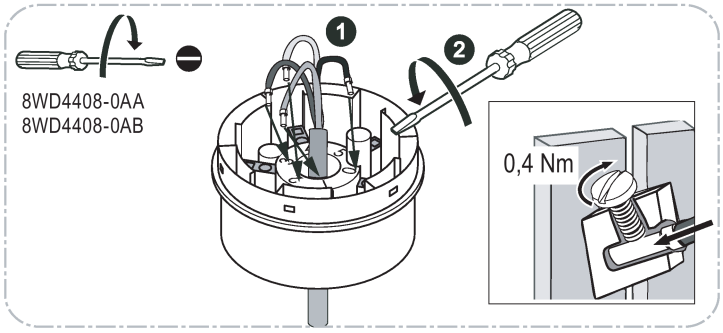
Note

Number of cables used

Up to 5 signaling elements can be arranged in a vertical column on 8WD44 signaling columns. The number of cables is limited to a maximum of 6.

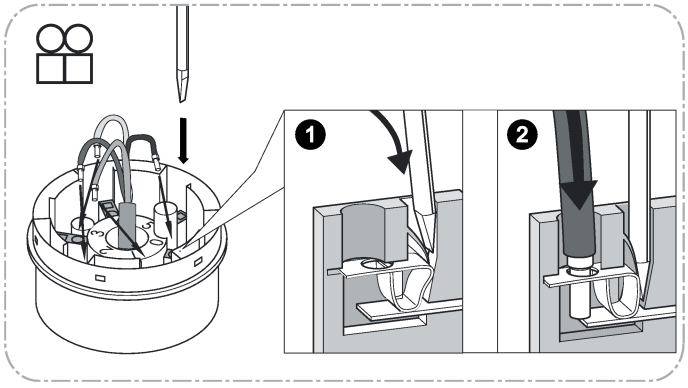
Up to 4 signaling elements can be arranged in a vertical column on 8WD42 signaling columns. The number of cables is limited to a maximum of 5.

Cable entry with screw terminals



1. Remove the cover from the connection element (8WD4408-0A..). After the signaling column has been assembled, place the cover on top of the column.
2. Push the cable from below through the cable opening.
3. Place the stripped ends of the cables into the screw terminals and insert a flathead screwdriver from the side to tighten the terminals.

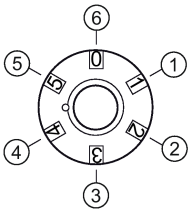
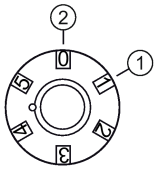
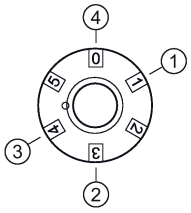
Cable entry with spring-type terminals



1. Remove the cover from the connection element (8WD4408-0A..). After the signaling column has been assembled, place the cover on top of the column.
2. Push the cable from below through the cable opening.
3. Push a flathead screwdriver into a terminal opening (1) in order to open the spring-type terminal.
4. Insert a stripped cable from above into the cable opening (2).
5. Remove the screwdriver in order to lock the cable in the terminal.

3.5.1 Terminal assignment in the connection elements

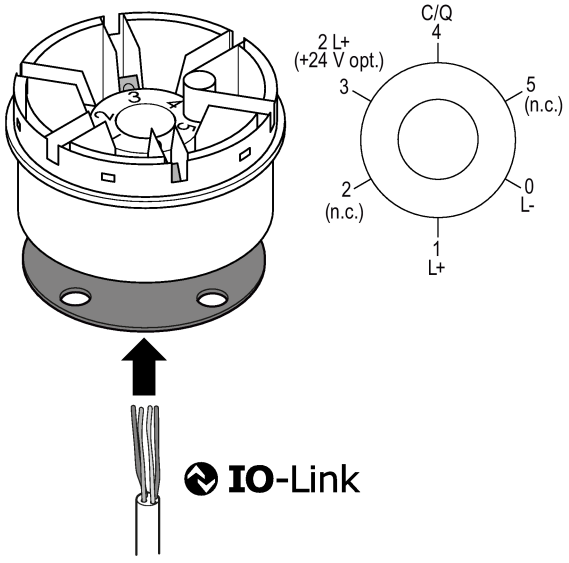
Connection elements

		
Conventional connection	Connection with AS-Interface, without external auxiliary voltage	Connection with AS-Interface, with external auxiliary voltage
① Signaling element 1	① AS-Interface plus	① AS-Interface plus
② Signaling element 2	② AS-Interface minus	② $U_{external}$, minus
③ Signaling element 3		③ $U_{external,}$ plus
④ Signaling element 4		④ AS-Interface minus
⑤ Signaling element 5		
⑥ Common conductor		

3.5.2 Terminal assignment for IO-Link modules

Connection element for screw terminals / spring-type terminals

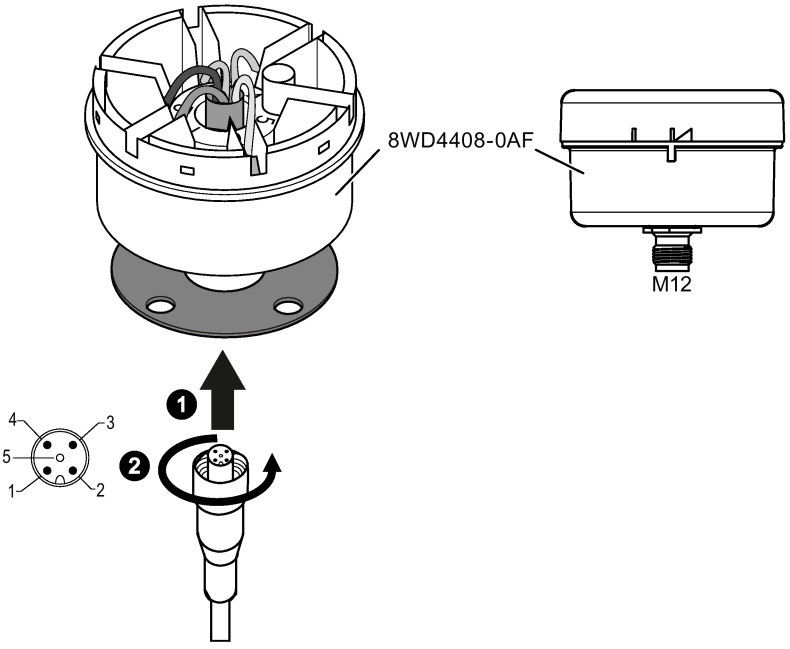
The connection is made via a 4-pole connection terminal with the following assignment:



*) n.c. = not connected

Connection element for M12 plug

When using the 8WD4408-0AF M12 connection element, the connection is via an M12 plug element.



M12 pin assignment	Wire color M12 cable (acc. to IEC 60947-5-2)	IO-Link function	Terminal assignment in connection element 8WD4408-0AF
1	brown	L+	1
2	white	2L+	3
3	blue	L-	0
4	black	C/Q	4
5	gray	--	2

IO-Link type/Class A: In the case of current consumption > 200 mA, some IO-Link masters require an external auxiliary voltage supply (2L+).

3.5.3 Connection elements for IO-Link modules

IO-Link masters have 5-pole sockets.

The following connection elements are available for the connection of an IO-Link module:

Screw terminals	Spring terminals	M12 connector
8WD4408-0AA	8WD4408-0AD	8WD4408-0AF
8WD4408-0AB	8WD4408-0AE	

3.5.4 Status LED

The functional status of the signaling column is indicated by an LED.

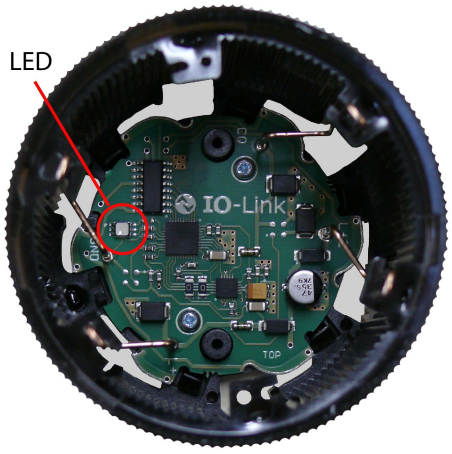
24 V			
LED			
IO-Link			

Red: Supply voltage connected, no IO-Link communication

Green: Supply voltage connected, IO-Link communication working normally

If neither LEDs light up, check the power supply and power supply cable.

The status LED can be found on the electronics in the IO-Link element of the signal lamp.



3.5.5 Connection to AS-Interface

Communication capability

The 8WD4 signaling columns can be directly connected to the AS-Interface bus system through an adapter element that can be integrated in the column. Wiring outlay is reduced as the result.

Connection

The signaling elements are wired using terminals in the connection element.

	Screw terminals	Spring-type terminals
8WD42	✓	—
8WD44	✓	✓

Cable version

The connecting cables can be guided either downwards or sideways through the cable gland using an adapter that can be screwed under the foot. This makes wiring easier if there is no access from below.

8WD4228-0BB:

The two-wire bus cable is fixed to the screw terminals in the connection element. The AS-Interface element must be the first module to be placed on the connection element. A maximum of 4 signaling elements can then be mounted on it.

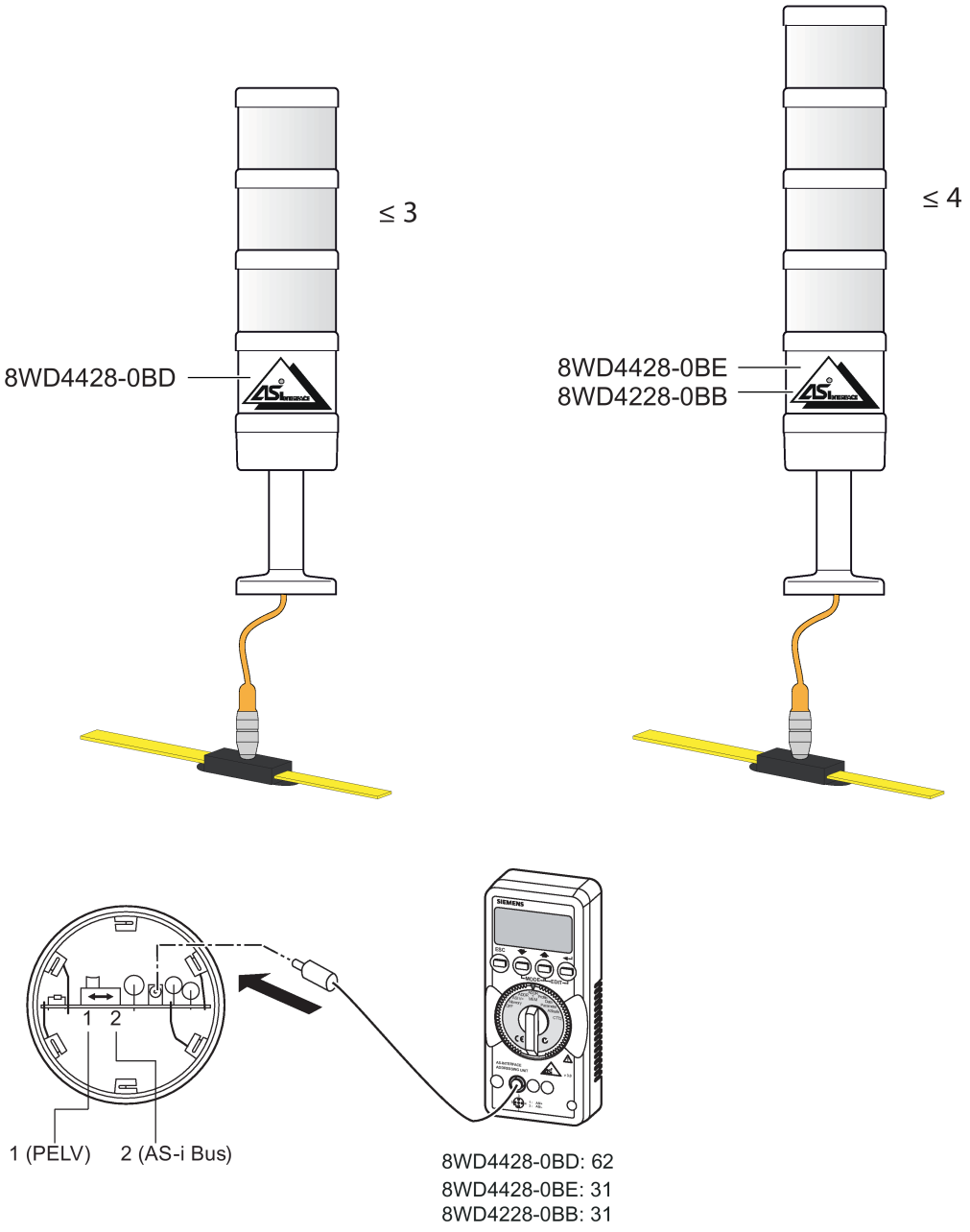
The 8WD4228-0BB AS-Interface element is a standard slave. It enables the connection of up to 31 nodes on one AS-Interface system.

8WD4428-0BD / 8WD4428-0BE:

The two-wire bus cable is fixed to the screw or spring-type terminals in the connection element. The AS-Interface element must be the first module to be placed on the connection element. The signaling elements can then be mounted on it.

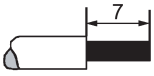
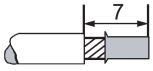
The 8WD4428-0BE AS-Interface element is a standard slave. A maximum of 4 signaling elements can be mounted on it.

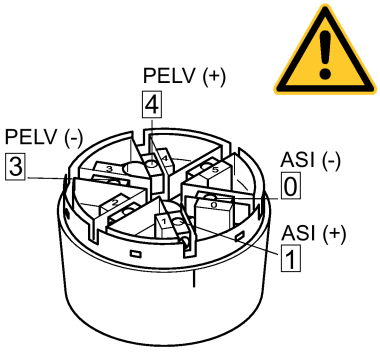
The 8WD4428-0BD AS-Interface element with A/B technology enables the connection of up to 62 nodes on one AS-Interface system. The addressing socket provides user-friendly parameterization of the AS-Interface elements. A maximum of 3 signaling elements can be mounted on it. The AS-Interface element enables the connection of up to 31 nodes on one AS-Interface system.


≤ 3
8WD4428-0BD
≤ 4
8WD4428-0BE
8WD4228-0BB
1 2
1 (PELV)
2 (AS-i Bus)
8WD4428-0BD: 62
8WD4428-0BE: 31
8WD4228-0BB: 31

Conductor cross-sections for AS-Interface elements for 8WD42 and 8WD44 signaling columns

The following conductor cross-sections apply to the 8WD4228-0B. AS-Interface elements for 8WD42 signaling columns and 8WD4428-0B. AS-Interface elements for 8WD44 signaling columns:

	8WD4228-0BB **8WD4428-0B.**	**8WD4428-0B.**
 ISO 2380-2 B 0.8 x 4	 0.4 Nm	
	1 x (0.5 ... 1.5) mm²	1 x (0.5 ... 1.5) mm²
AWG	1 x 20 to 16	1 x 20 to 16
	1 x (0.25 ... 1.5) mm²	1 x (0.25 ... 1.5) mm²
AWG	1 x 24 to 16	1 x 24 to 16



Information on terminal assignment can be found in Chapter Terminal assignment in the connection elements (Page 33).

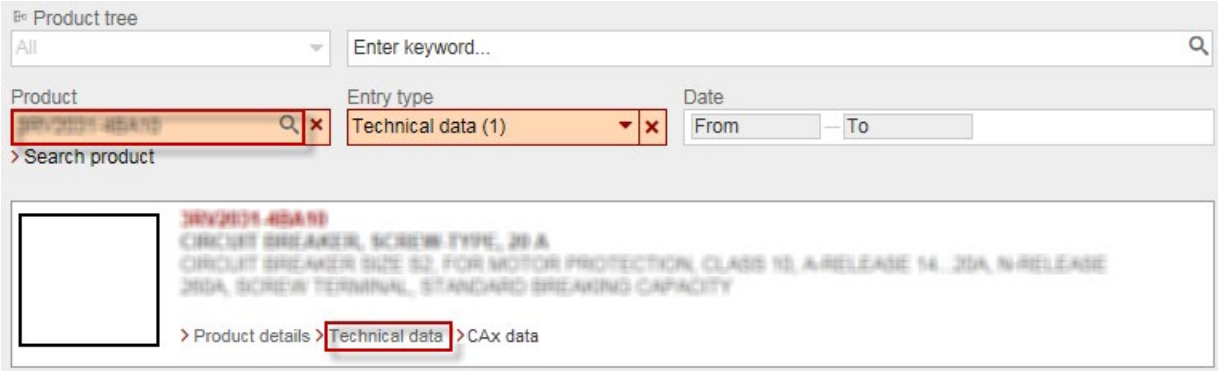
3.6 Technical data

3.6.1 Technical data in Siemens Industry Online Support

Technical data sheet

You can also find the technical data of the product at Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/16444/td).

1. Enter the full article number of the desired device in the "Product" field, and confirm with the Enter key.
2. Click the "Technical data link.

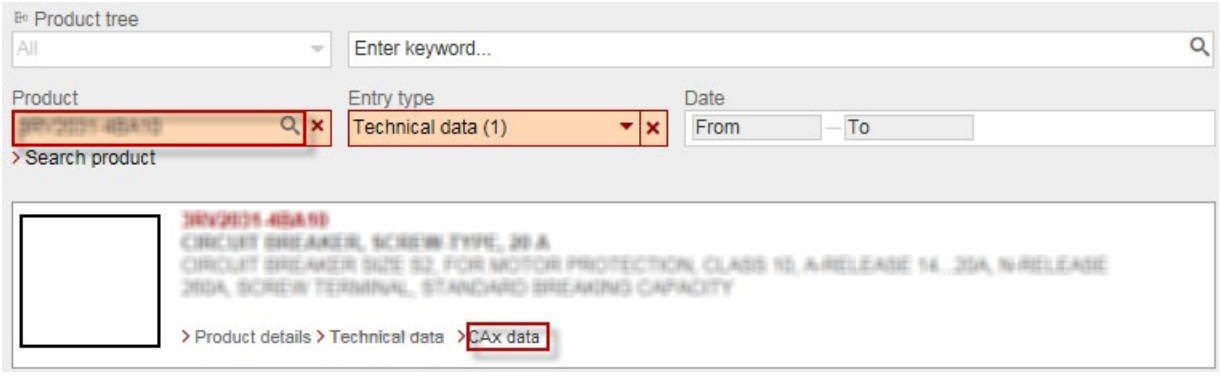


3.7 Dimension drawings

3.7.1 CAx data

You can find the CAx data in the Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/).

1. Enter the full article number of the desired device in the "Product" field, and confirm with the Enter key.
2. Click the "CAx data link.

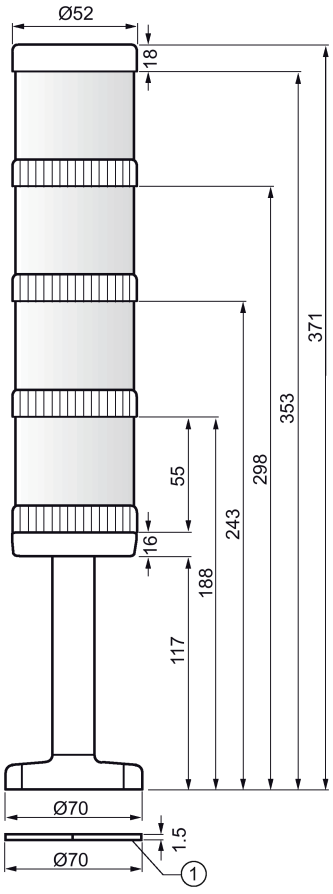


3.7.2 8WD42 signaling columns, 50 mm diameter

Note

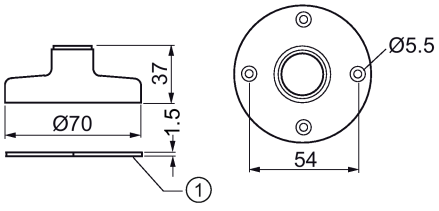
All dimensions specified in mm.

8WD42 signaling column (max. 4 light elements)



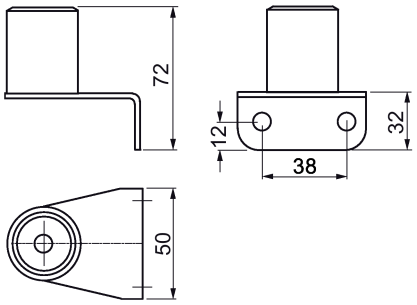
① Flat seal

Foot

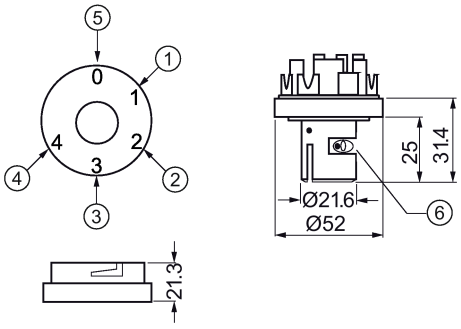


① Seal

Bracket for wall mounting

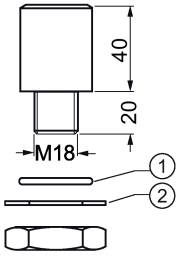


Connection element



① Signaling element 1
② Signaling element 2
③ Signaling element 3
④ Signaling element 4
⑤ Connection diagram for common conductor
⑥ Strain relief

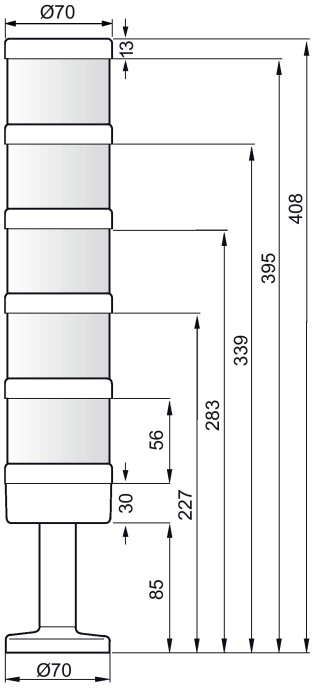
Adapter for single-hole mounting



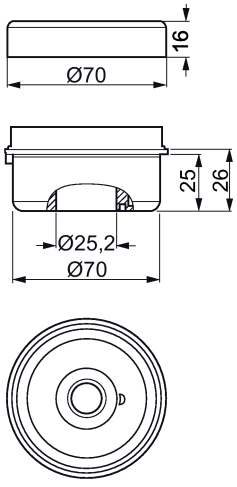
① O-ring seal
② Lock washer
Only 1 element is recommended for horizontal mounting.

3.7.3 8WD44 signaling columns, 70 mm diameter

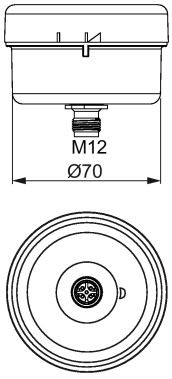
8WD44 signaling column (max. 5 light elements)



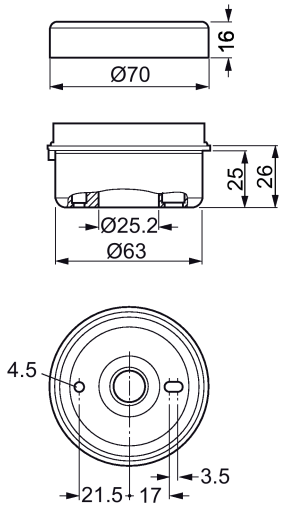
Connection element with cover for pipe mounting



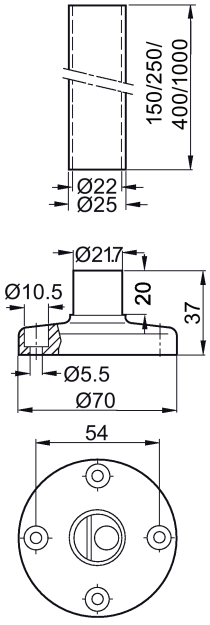
Connection element for M12 plug for pipe mounting with IO-Link



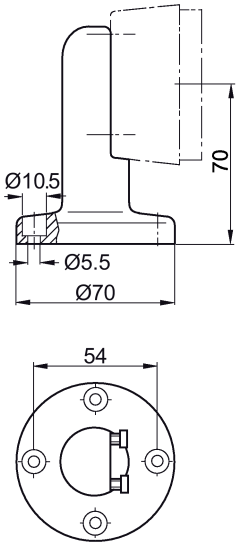
Connection element with cover for base/bracket mounting



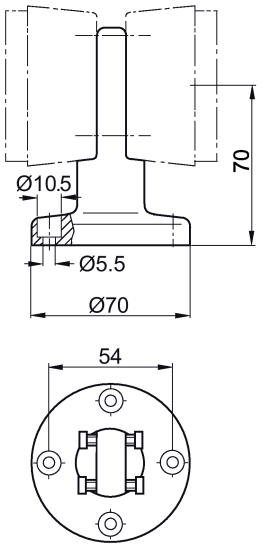
Foot with pipe



Bracket for single-sided mounting



Bracket for double-sided mounting

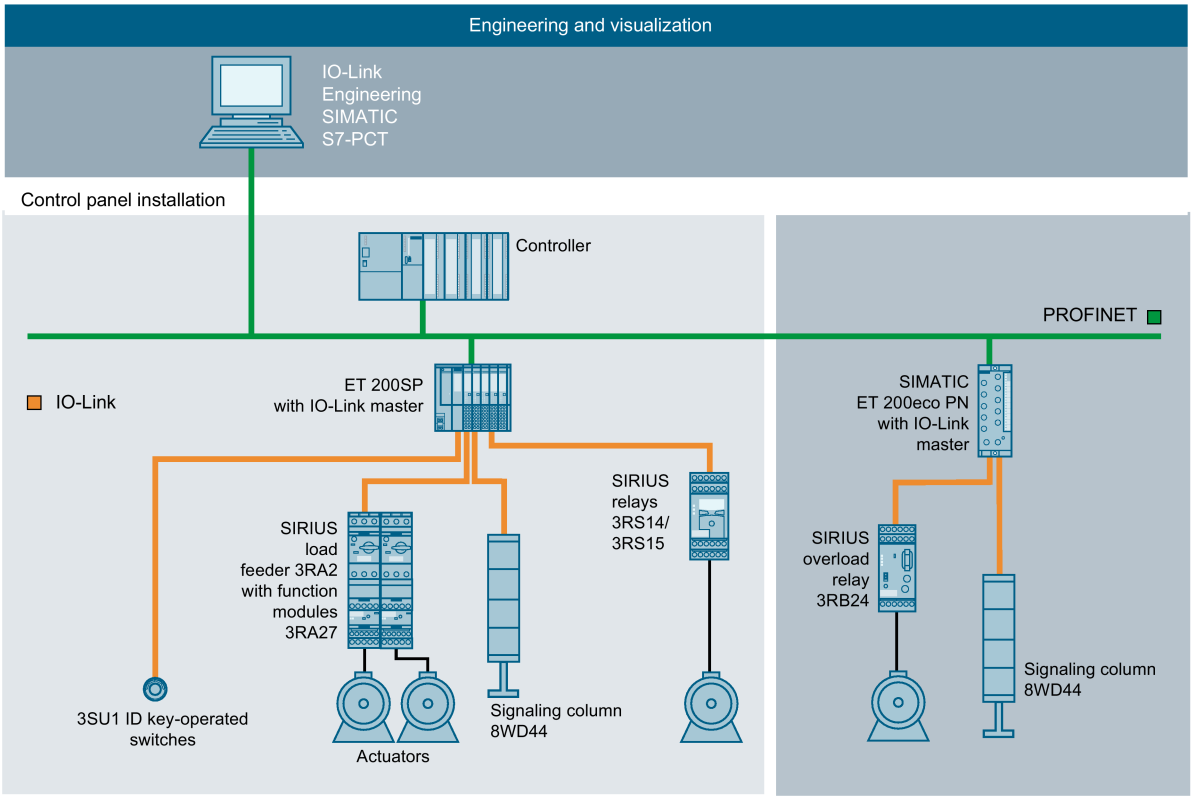


3.8 IO-Link

3.8.1 What is IO-Link?

IO-Link is a concept for the uniform connection of switching devices and sensors to the control level by means of point-to-point connections.

The following illustration shows an example of the integration of signaling columns into an IO-Link system:



Advantages of IO-Link

As an open interface, IO-Link can be integrated into all standard fieldbus and automation systems.

- Reduced engineering times
- Standardized, open system for greater flexibility (non-Siemens IO-Link devices can be integrated in engineering)
- Uniform, transparent configuring and programming through integrated engineering (SIMATIC STEP 7)

3.8.2 Overview

To implement communication, a system installation has the following main components:

- an IO-Link master
- one or more IO-Link devices, such as sensors, actuators or combinations thereof (e.g. I/O modules, signal devices)
- a standard 3-wire sensor/actuator cable
- an engineering tool for configuring and parameterizing IO-Link

Further information about IO-Link can be found in the IO-Link system description at www.io-link.com (http://www.io-link.com/en/).

3.8.3 Importing the IODD

IO Device Description (IODD)

The IO Device Description (IODD) has been defined to provide a full, transparent description of system characteristics as far as the IO-Link device. The IODD contains information on communication characteristics, device parameters, identification, process and diagnostics data, and is supplied by the manufacturer. The design of the IODD is the same for all devices from all manufacturers, and is always presented in the same way by the IODD Interpreter Tools. This therefore ensures that the handling is the same for all IO-Link devices, whatever the manufacturer.

The IODD is available at IO-Link Device Definition (https://support.industry.siemens.com/cs/ww/en/view/109761427).

3.8.4 Configuring with STEP 7 and the S7-PCT Port Configuration Tool

3.8.4.1 Basic procedure and prerequisites

Procedure when configuring IO-Link master and IO-Link devices

Configuration takes place in two steps with STEP 7, V5.4 SP5 or STEP 7 TIA Portal, V12.0 or higher:

1. Configuring the IO-Link master in *HW Config*. You will find IO-Link masters on the Internet (https://w3.siemens.com/mcms/automation/en/industrial-communications/io-link/master/Pages/default.aspx) under "Automation" > "Industrial communication" > "IO-Link" > "Master".
2. With the Port Configuraton Tool *S7-PCT*, you configure the connected IO-Link devices.

Note

You will find an application example of how to read and write process data and parameterization data of IO-Link devices on the Internet (https://support.industry.siemens.com/cs/ww/en/view/82981502).

Requirements

- STEP 7 V5.4 SP5 or higher (you can download Service Pack 5 from the Internet (http://support.automation.siemens.com/WW/view/en/36184684)) or STEP 7 TIA Portal V12.0 or higher.
- The Port Configuration Tool *S7-PCT* is installed on the PG/PC.
  You can either install *S7-PCT* together with STEP 7, or you can download it from the Internet (https://support.industry.siemens.com/cs/ww/en/view/32469496).
- IO-Link IODD (IO Device Description) files are installed in the *S7-PCT hardware catalog*.
  You can download all current IODD files for the SIRIUS devices from the Internet (http://support.automation.siemens.com/WW/view/en/29801139/133100).
  IODD files for V1.0 and V1.1 are available for the combination of an IO-Link master and an IO-Link device according to the IO-Link communication specification V1.1. You may need IODD files according to the IO-Link communication specification V1.0 when replacing devices in existing installations.
- The GSD files of the IO-Link masters are already installed in *STEP 7 HW Config*. You can download all current GSD files for the Siemens IO-Link masters from the Internet (https://support.industry.siemens.com/cs/start?lc=en-WW).
- Optional: Install the IO_LINK_MASTER and IO_LINK_DEVICE function blocks for backing up / restoring IO-Link master parameters, IO-Link device parameters, parameterizing IO-Link devices during operation, and reading out IO-Link port functions.
  You can find the function blocks on the Internet (https://support.industry.siemens.com/cs/de/en/view/82981502).

3.8.4.2 Configuration

Configuring the IO-Link master in *HW Config*

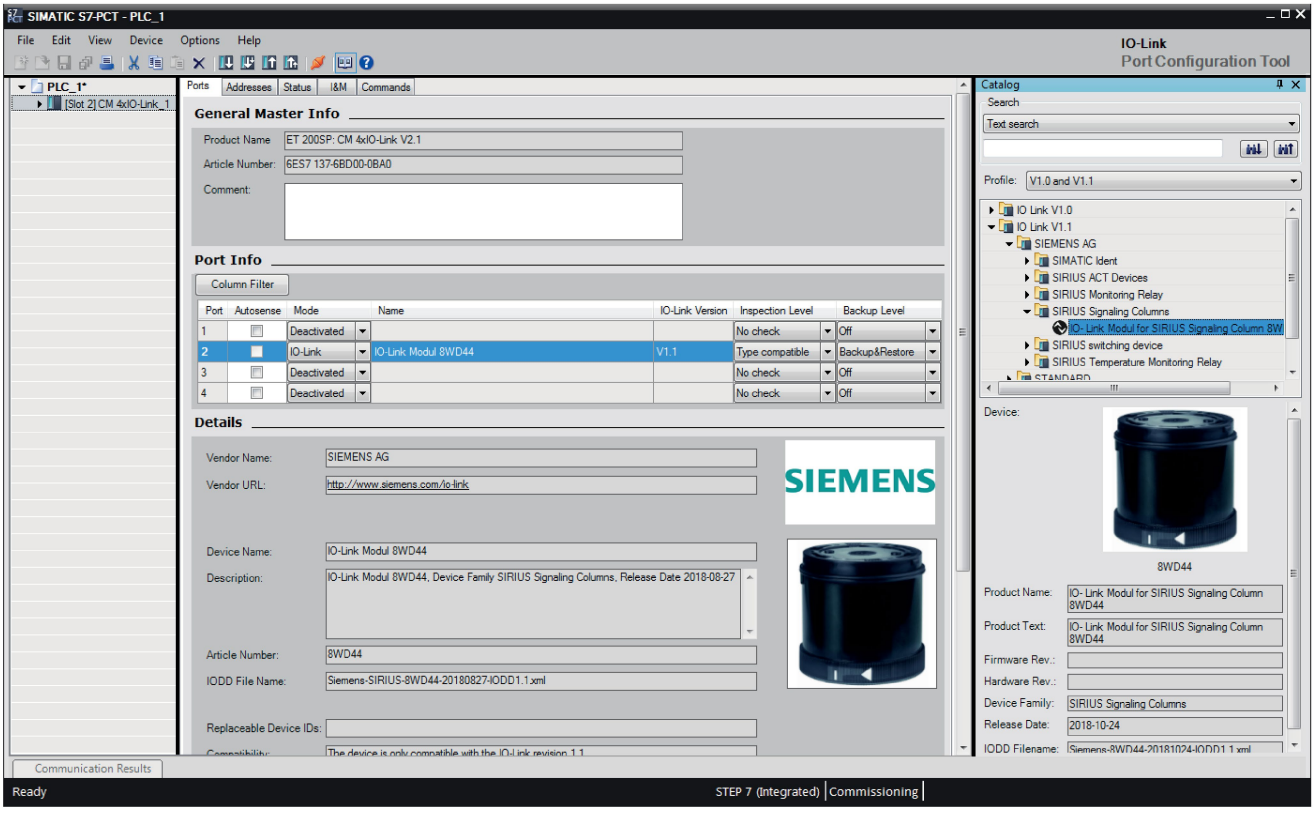
1. Start the SIMATIC Manager (*STEP 7*) or the TIA Portal and configure the project as described in the *STEP 7* online help.
2. Select the IO-Link master in the hardware catalog of *HW Config*.
3. Drag and drop the IO-Link master from the hardware catalog to the configuration table.
4. Select the IO-Link master in the configuration table (*STEP 7*) / device view (TIA Portal).
5. Press the right mouse button and select "Object Properties" from the shortcut menu.

   Result: The "Properties" window of the IO-Link master opens.
6. Check the settings of the addresses.
   Every IO-Link master port needs a corresponding overall address range depending on the IO-Link device used.

Configuring the IO-Link device with the S7-PCT port configuration tool

1. Select the configured IO-Link master.
2. Press the right mouse button and select "Start device tool" (*STEP 7* or TIA Portal)/"Configure IO-Link" (*STEP 7* or TIA Portal) from the shortcut menu depending on the configuration tool used.
3. Select the IO-Link device in the component catalog of the S7-PCT port configuration tool.
4. Drag the IO-Link device out of the component catalog to the required port of the IO-Link master.
5. Start by parameterizing the IO-Link device.

   Additional information is available in the *S7-PCT* online help.


SIMATIC S7-PCT - PLC_1
File Edit View Device Options Help
IO-Link
Port Configuration Tool
PLC_1*
[Slot 2] CM 4xIO-Link_1
Ports Addresses Status I&M Commands
General Master Info
Product Name ET 200SP: CM 4xIO-Link V2.1
Article Number: 6ES7 137-6BD00-0BA0
Comment:
Port Info
Column Filter
Port Autosense Mode Name IO-Link Version Inspection Level Backup Level
1 Deactivated No check Off
2 IO-Link IO-Link Modul 8WD44 V1.1 Type compatible Backup&Restore
3 Deactivated No check Off
4 Deactivated No check Off
Details
Vendor Name: SIEMENS AG
Vendor URL: http://www.siemens.com/io-link
Device Name: IO-Link Modul 8WD44
Description: IO-Link Modul 8WD44, Device Family SIRIUS Signaling Columns, Release Date 2018-08-27
Article Number: 8WD44
IODD File Name: Siemens-SIRIUS-8WD44-20180827-IODD1.1.xml
Replaceable Device IDs:
SIEMENS
Catalog
Search
Text search
Profile: V1.0 and V1.1
IO Link V1.0
IO Link V1.1
SIEMENS AG
SIMATIC Ident
SIRIUS ACT Devices
SIRIUS Monitoring Relay
SIRIUS Signaling Columns
IO- Link Modul for SIRIUS Signaling Column 8W
SIRIUS switching device
SIRIUS Temperature Monitoring Relay
Device:
8WD44
Product Name: IO- Link Modul for SIRIUS Signaling Column 8WD44
Product Text: IO- Link Modul for SIRIUS Signaling Column 8WD44
Firmware Rev.:
Hardware Rev.:
Device Family: SIRIUS Signaling Columns
Release Date: 2018-10-24
IODD Filename: Siemens-8WD44-20181024-IODD1.1.xml
Communication Results
Ready
STEP 7 (Integrated) Commissioning

3.8.5 Configuring with the S7-PCT port configuration tool (stand-alone)

3.8.5.1 Application

Configuration is always done with the S7-PCT port configuration tool whenever no SIMATIC CPU is available.

3.8.5.2 Basic procedure and prerequisites

Basic procedure when configuring IO-Link master and IO-Link devices with the S7-PCT port configuration tool (stand-alone)

1. You configure the connected IO-Link devices with the *S7-PCT V2.0* port configuration tool.

Requirements

- The *S7-PCT* port configuration tool is installed on the PG/PC.

  You can either install *S7-PCT* together with STEP 7 V5.4 SP5 or higher or STEP 7 TIA Portal V12.0 or higher, or you can download it from the Internet (https://support.industry.siemens.com/cs/ww/en/view/32469496).
- IO-Link IODD files (IO Device Description) are installed in the *S7-PCT* hardware catalog. All current IODD files of the SIRIUS devices are available on the Internet (http://support.automation.siemens.com/WW/view/en/29801139/133100).
  IODD files for V1.0 and V1.1 are available for the combination of an IO-Link master and an IO-Link device according to the IO-Link communication specification V1.1. You may need IODD files according to the communication specification V1.0 when replacing devices in existing installations.

Note

Configuring with S7-PCT stand-alone is not possible for the CPU versions of the ET 200.

3.8.5.3 Configuration

Configuring the IO-Link device with the S7-PCT port configuration tool

1. Start the *S7-PCT* port configuration tool.
2. Create a new project or open an existing project as described in the online help.
3. Select a bus category (PROFIBUS DP/PROFINET IO).
4. Select an IO-Link master.
5. Select the IO-Link device in the component catalog of the *S7-PCT* port configuration tool.
6. Drag the IO-Link device out of the component catalog to the required port of the IO-Link master.

7. Load the configuration into the IO-Link master before parameterizing the IO-Link device.
8. Start by parameterizing the IO-Link device.

Additional information is available in the *S7-PCT* online help.

Note

To be able to access the IO-Link master or an IO-Link device online, communication between the ET 200 and the higher-level controller must be active (BF-LED on ET 200 interface module is off).

3.8.6 Basic configuration with STEP 7 (without Port Configuration Tool)

3.8.6.1 Basic procedure and prerequisites

Procedure when configuring IO-Link master and IO-Link devices

Configuration is performed with STEP 7, V5.6 or higher, or STEP 7 TIA Portal, V15 or higher, as follows:

Configuring the IO-Link master in HW Config. You will find IO-Link masters on the Internet (https://w3.siemens.com/mcms/automation/en/industrial-communications/io-link/master/Pages/default.aspx) under "Automation" > "Industrial communication" > "IO-Link" > "Master".

Note

ET200SP and ET200AL IO-Link master

In such cases, port configuration can be carried out using GSD files or with the integrated engineering feature in STEP 7 (HSP0231 V4.1 for ET200SP and HSP0260 V3.1 for ET200AL) / TIA Portal (from V15 onward) and thus without S7-PCT for the ET200SP (CM 4 X IO-LINK ST from V2.2 onward) and ET200AL (CM 4 X IO-LINK, 4XM12 from V1.1 onward) IO-Link masters.

Requirements

- STEP 7, V5.6 or higher, or STEP 7 TIA Portal, V15 or higher.
- The GSD files of the IO-Link masters are already installed in STEP 7 HW Config. You can download all current GSD files for the Siemens IO-Link masters from the Internet.

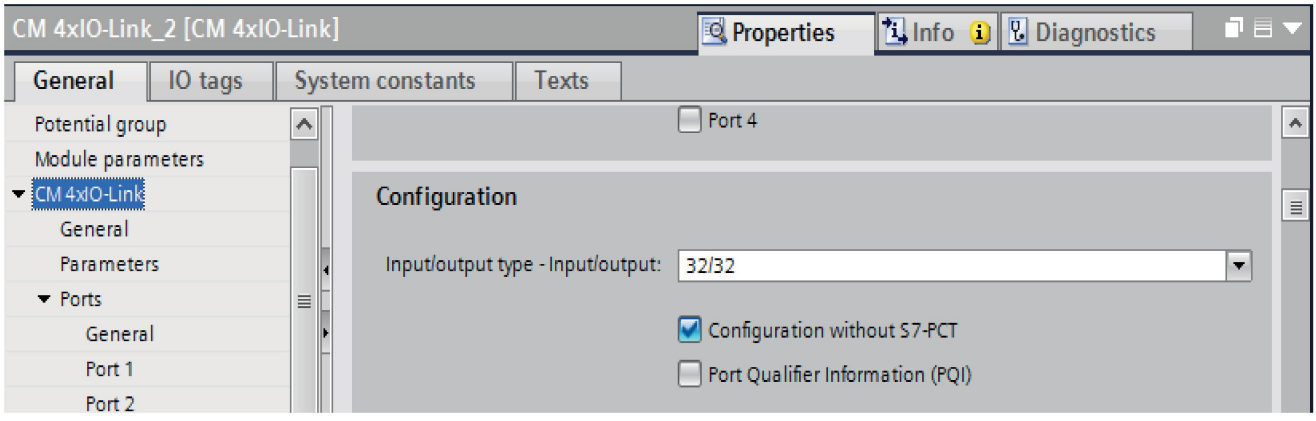
The exact requirements for the masters can be found here:

- ET 200AL and ET 200SP (https://support.industry.siemens.com/cs/ww/en/view/109750001)
- ET 200ecoPN and ET 200pro (https://support.industry.siemens.com/cs/ww/en/view/109756595)
- S7-1200 IO-Link master (https://support.industry.siemens.com/cs/ww/en/view/109758399)

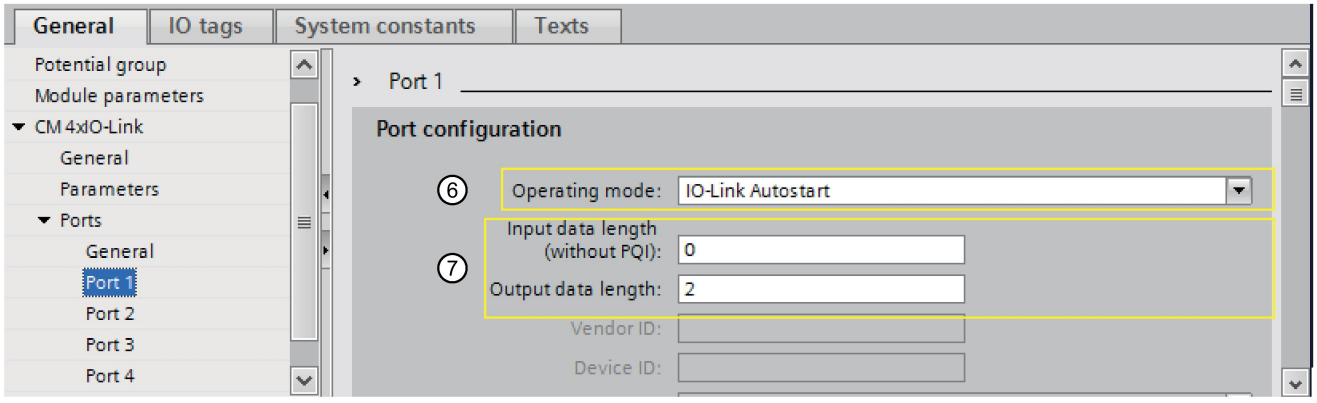
3.8.6.2 Configuration

Configuring the IO-Link master in HW Config

1. Start the SIMATIC Manager (STEP 7) or the TIA Portal and configure the project as described in the STEP 7 online help.
2. Select the IO-Link master in the hardware catalog of HW Config.
3. Drag and drop the IO-Link master from the hardware catalog to the configuration table.
4. Select the IO-Link master in the configuration table (STEP 7) / device view (TIA Portal).
5. Select "Configuration without S7-PCT" in the properties.



6. Select the operating mode for the port.
7. The length of input and initial data must be adjusted for the corresponding port. Every IO-Link master port needs a corresponding address range depending on the IO-Link device used.



3.8.7 Acyclic data exchange with the IO_LINK_MASTER function block

For acyclic data exchange, the IO_LINK_MASTER function block is available as a download for controllers of the S7 families.

With the help of this block, you can back up or restore the device parameters and settings of an IO-Link communication module (e.g. ET 200SP CM 4xIO-Link) via the S7 program.

Requirement

- Install the "IO_LINK_MASTER" function block.
  You can download the IO_LINK_DEVICE function block and the description from the Internet (https://support.industry.siemens.com/cs/ww/en/view/82981502).

Procedure when using the IO_LINK_MASTER function block

1. Copy the IO_LINK_MASTER function block (including data block DB10) to a STEP 7 project.
2. Use the IO_LINK_MASTER function block as described in the documentation.
3. You can find an application example of how to use the IO-Link masters with the IO_LINK_MASTER function block on the Internet (https://support.industry.siemens.com/cs/ww/en/view/82981502).

3.8.8 Replacing an IO-Link device

To replace 8WD44 signaling columns, the devices must be isolated from communication and disconnected from the power supply. After removal of the connections, the relevant signaling column can then be replaced. After that, the connection can be reestablished. The signaling column is functional again.

3.8.9 Communication parameters

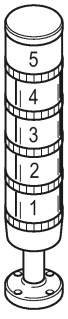
The following communication parameters are used:

IO-Link revision	V1.1
Bit rate	COM2 38400 Bps
Min. cycle time	5 ms
SIO mode	No
Block parameterization	Yes
Data storage	Yes

In the event of communication problems, check the settings and correct them if necessary.

3.8.10 Description of the process data

8WD44



Byte	1								0							
Bit	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
Description												Level 5	Level 4	Stage 3	Level 2	Level 1

3.8.11 Description of parameters

Index	Parameters	Access	Byte length	Value	
02	System command	wo	1	130	Reset factory settings
16	Vendor name	ro	48	SIEMENS AG	
17	Vendor text	ro	48	www.siemens.com	
18	Product name	ro	32	IO-Link module for signaling columns	
19	Product ID	ro	16	8WD4428-0BF	
20	Product text	ro	64	8WD44	
21	Serial number	ro	16		
22	Hardware Revision	ro	16		
23	Firmware version	ro	16		
24	Application text	rw	32		
74	Operating hours	ro	4		

8WD5 integrated signal lamps

4

4.1 Application areas

SIRIUS 8WD53 integrated signal lamps can be used as visual signaling devices in harsh ambient conditions and in outdoor installations.

Visual signaling devices for indicating operating conditions can be used for the following applications:

- Manufacturing plants
- Injection molding machines
- Conveyors
- Assembly systems for electronic components

Note

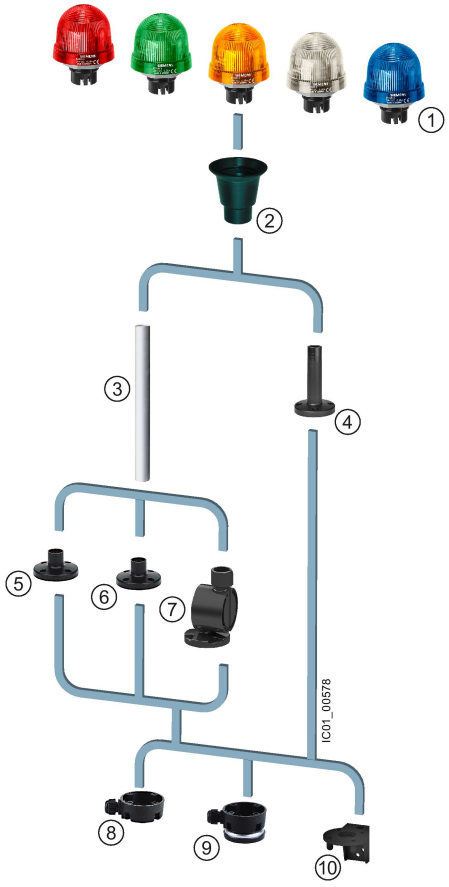
Lamps and LED modules are designed solely for use with SIRIUS command and signaling devices. They are not suitable for use in domestic lighting systems.

4.2 Description

8WD5

- Degree of protection IP65
- Thermoplastic enclosure
- Diameter: 70 mm
- Continuous light (incandescent lamp version and single-flash light) is available in the colors red, green, yellow, clear and blue.
- The special shape of the integrated signal lamps means that the light is emitted optimally in every direction (to the sides and upwards).
- LED versions of the integrated signal lamps offer a considerably longer endurance than the incandescent lamp versions.
- Available in continuous light, blinklight, flashing light or rotating light versions
- Rated voltage 24 V, 115 V, 230 V AC/DC
- Ambient temperature for versions with LED -20 °C to +50 °C, for versions with incandescent lamp -20 °C to 60 °C

4.3 Schematic overview of 8WD5 integrated signal lamps

8WD5 integrated signal lamps		
	①	8WD53 integrated signal lamp
	②	Pipe adapter 8WD5308-0EG
	③	Pipe 8WD4208-0EF/8WD4308-0E.
	④	Foot with pipe 8WD4308-0DA
	⑤	Foot for pipe mounting 8WD4308-0DB
	⑥	Foot for pipe mounting (> 400 mm) 8WD4308-0DC
	⑦	Adjustable-angle foot for pipe mounting 8WD4408-0DF
	⑧	Socket 8WD4308-0DD
	⑨	Socket (magnetic fixing) 8WD4308-0DE
	⑩	Bracket for foot mounting 8WD4408-0CC

4.4 Mounting

8WD53 integrated signal lamps can be mounted directly at any point of the machine for the purpose of giving visual signals. They are mounted by means of a Pg 29 screw base with nut.

⚠ WARNING

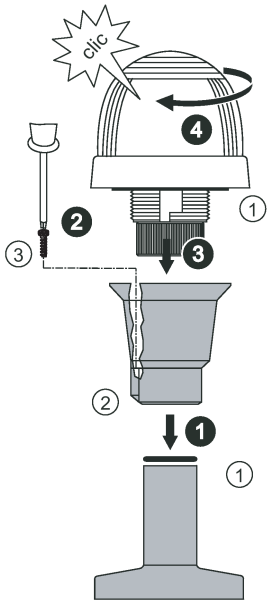
Grounding is required for voltages higher than safety extra-low voltage!

⚠ WARNING

Risk of serious injury or damage to property.

Failure to follow the proper procedures for disassembling components can result in serious physical injury.

4.4.1 Base mounting



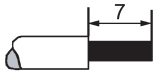
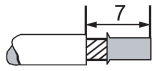
① Seal
② Anti-twist protection
③ Screw

1. Place the seal ① on the pipe or the supporting foot and then mount the pipe adapter.
2. Insert the screw ③ into the anti-twist protection ②.
3. Place the integrated signal lamp on the pipe adapter.
4. Turn the integrated signal lamp clockwise until it engages.

4.5 Connecting

Conductor cross-sections for 8WD53 integrated signal lamps

The following conductor cross-sections apply to 8WD53 integrated signal lamps:

	8WD53
 ISO 2380-2 B 0.8 x 4	 0.4 Nm
	1 x (0.5 ... 1.5) mm²
AWG	1 x 20 to 16
	1 x (0.25 ... 1.5) mm²
AWG	1 x 24 to 16

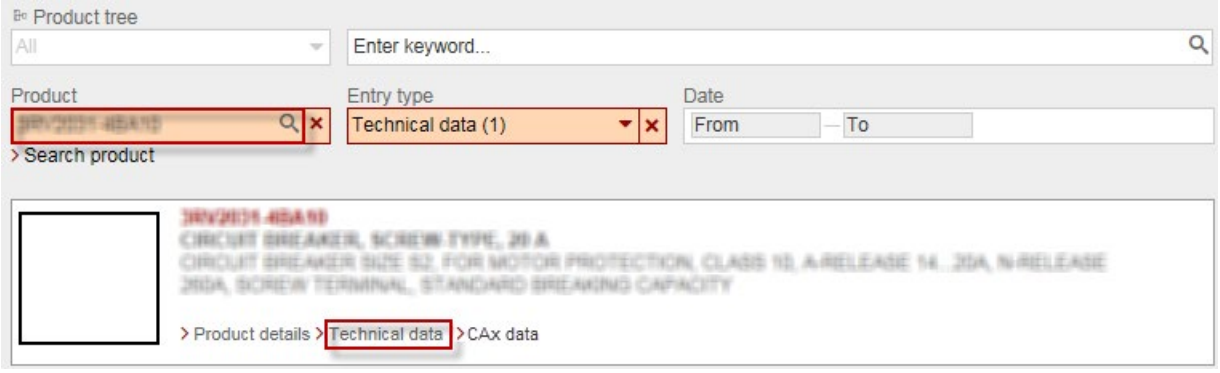
4.6 Technical data

4.6.1 Technical data in Siemens Industry Online Support

Technical data sheet

You can also find the technical data of the product at Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/16444/td).

1. Enter the full article number of the desired device in the "Product" field, and confirm with the Enter key.
2. Click the "Technical data link.

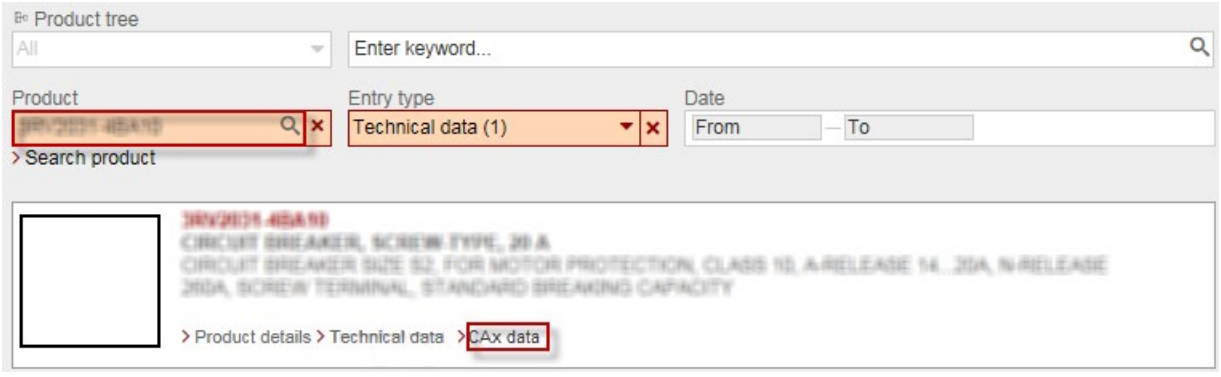


4.7 Dimension drawings

4.7.1 CAx data

You can find the CAx data in the Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/).

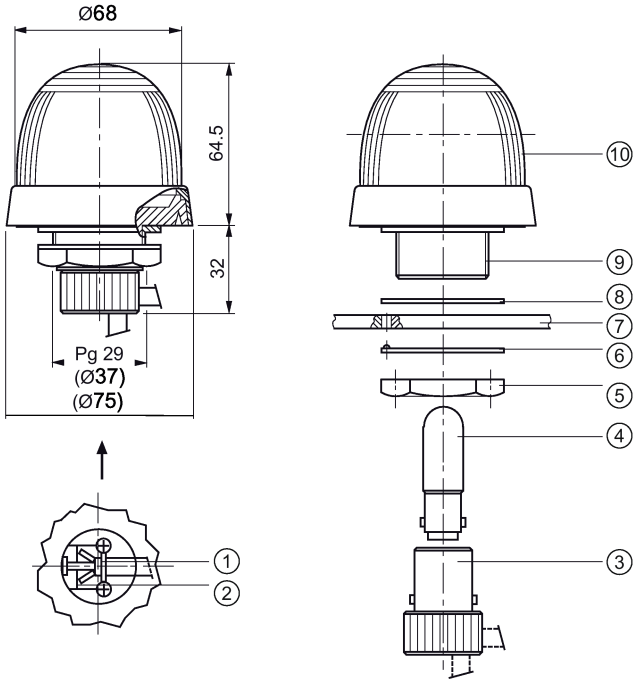
1. Enter the full article number of the desired device in the "Product" field, and confirm with the Enter key.
2. Click the "CAx data link.



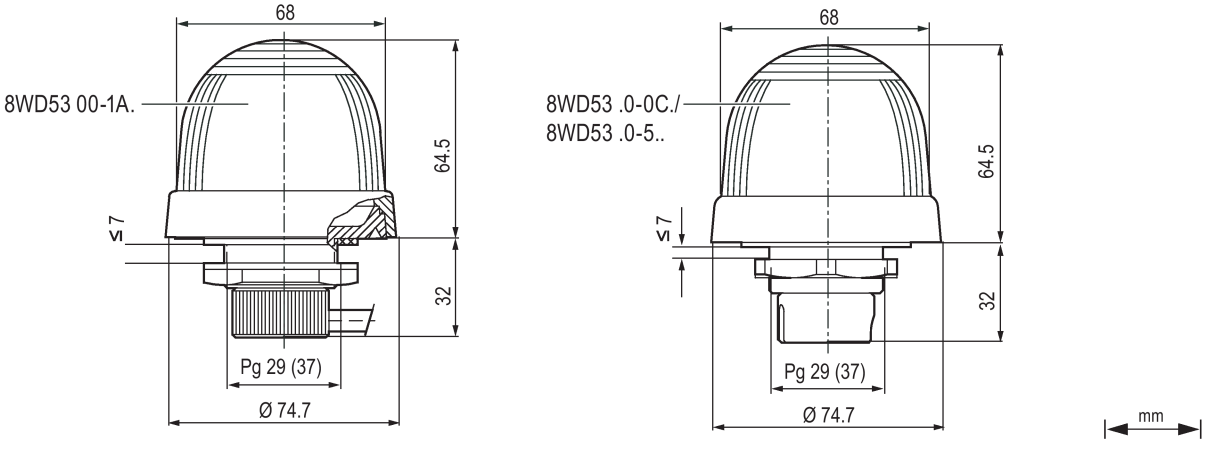
4.7.2 Dimensional drawings

Note

All dimensions specified in mm.



① Strain relief
② M3 screw terminals
③ Lampholder with bayonet lock
④ Incandescent lamp BA 15d
⑤ Hexagon nut
⑥ Anti-twist protection
⑦ Enclosure wall, max. 7 mm
⑧ Rubber seal
⑨ Thread Pg 29 (diameter 37)
⑩ Spherical cap



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