INSTALLATION INSTRUCTIONS

AC500 Product Family

Table of contents

1 AC522

- AC522

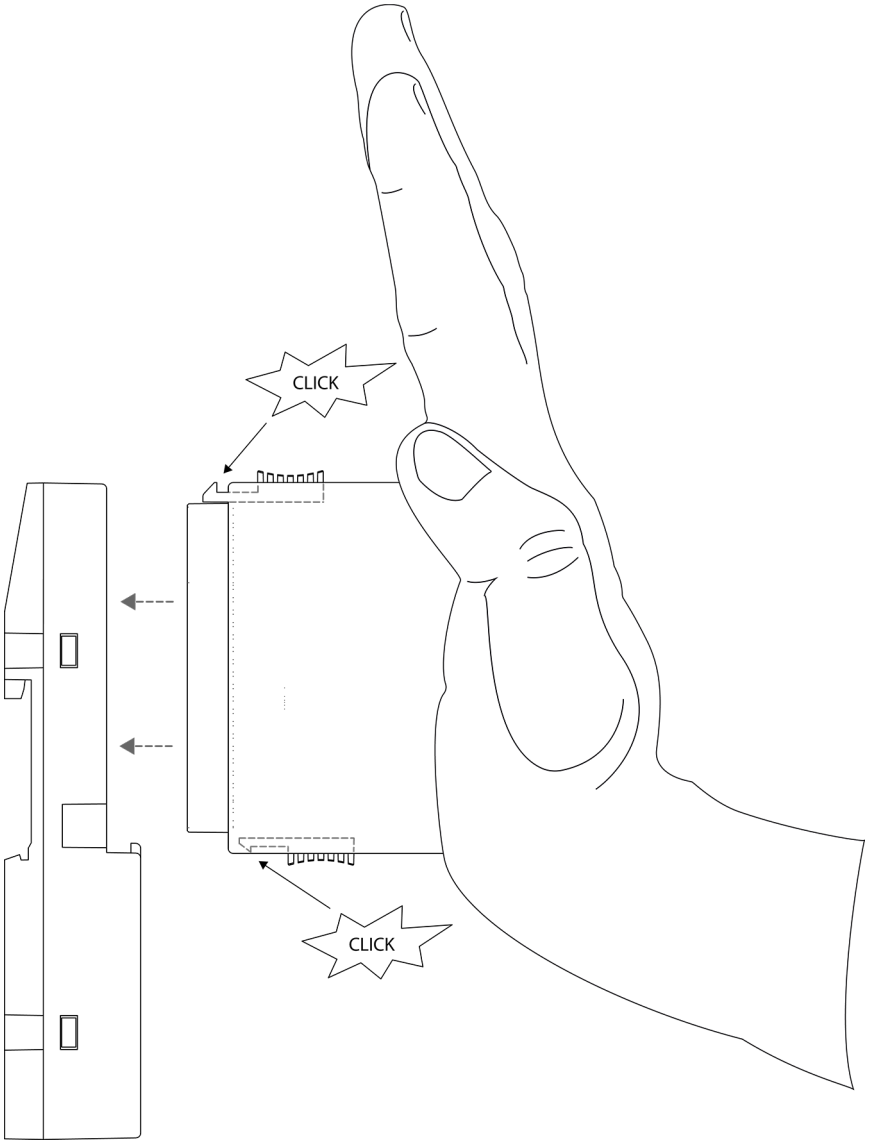
CAUTION!

Risk of injury and damaging the product!

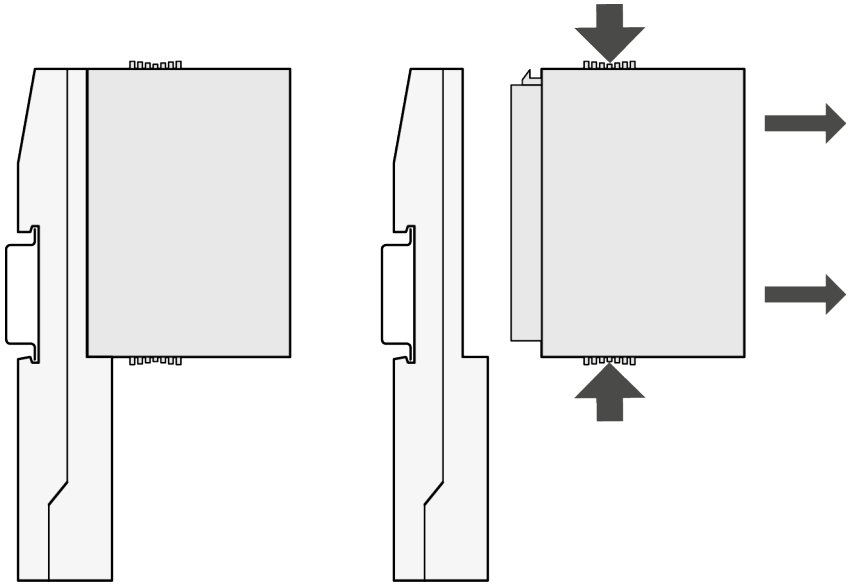
Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

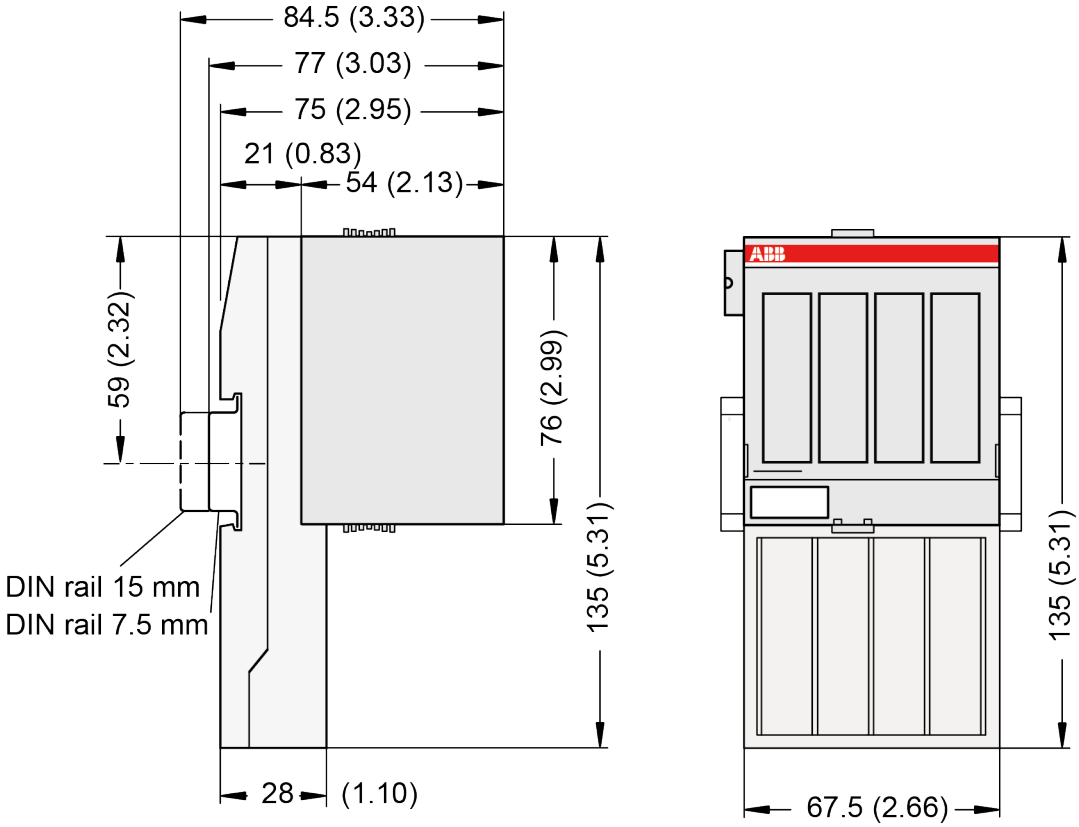
1.1 Assembly



1.2 Disassembly

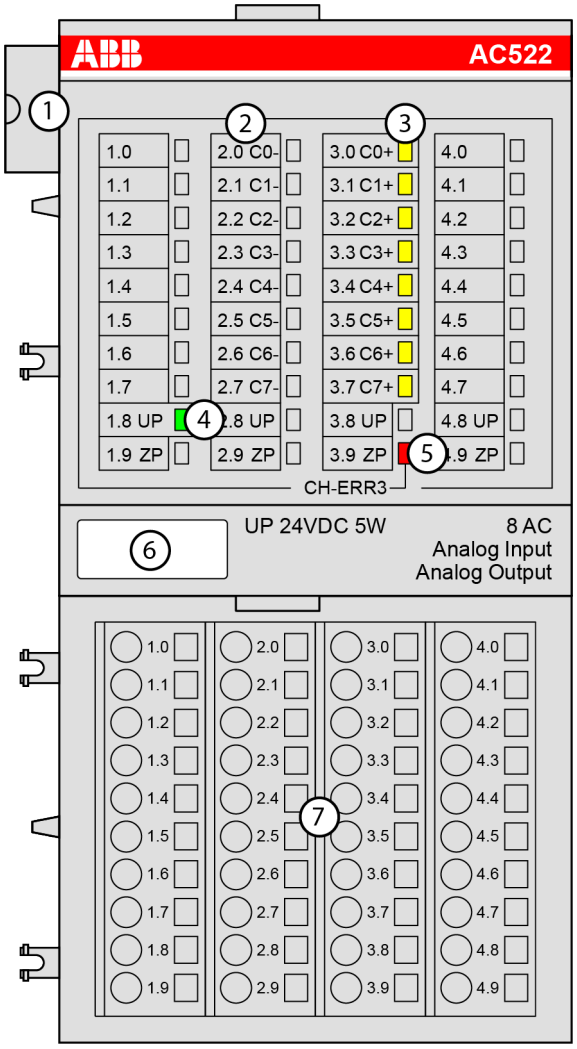


1.3 Dimensions



The dimensions are in mm and in brackets in inch.

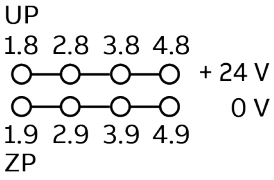
1.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 8 yellow LEDs to display the signal states C0 - C7
4 1 green LED to display the state of the process supply voltage UP
5 1 red LED to display errors
6 Label
7 Terminal unit TU515/TU516

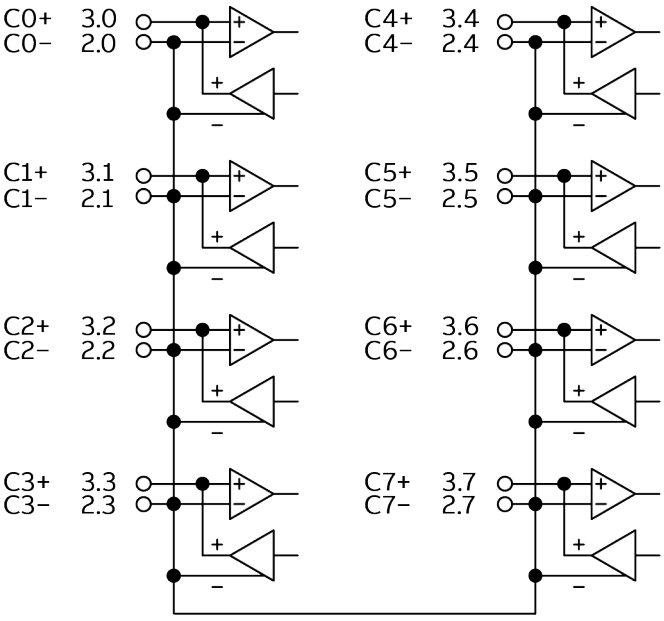
All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

1.4.1 Process Supply Voltage

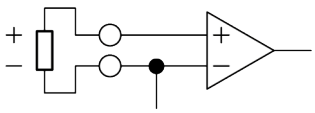


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

1.4.2 Inputs/Outputs

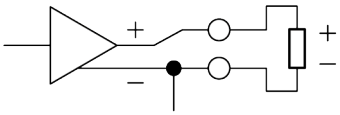


Examples



C0 ... C7
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 1: Example for connection input



C0 ... C3	C4 ... C7
± 10 V	± 10 V
0 mA ... +20 mA	–
+4 mA ... +20 mA	–

Fig. 2: Example for connection output

1.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

1.6 Certification

MSIP-REI-Abb-AC500

en Devices with KCC sign on product sticker and packaging

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

en **Note**
These devices correspond to:

KN61000-6-2 “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는

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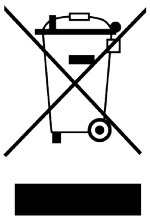
1.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

2 AI523

- AI523
- AI523-XC

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– Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

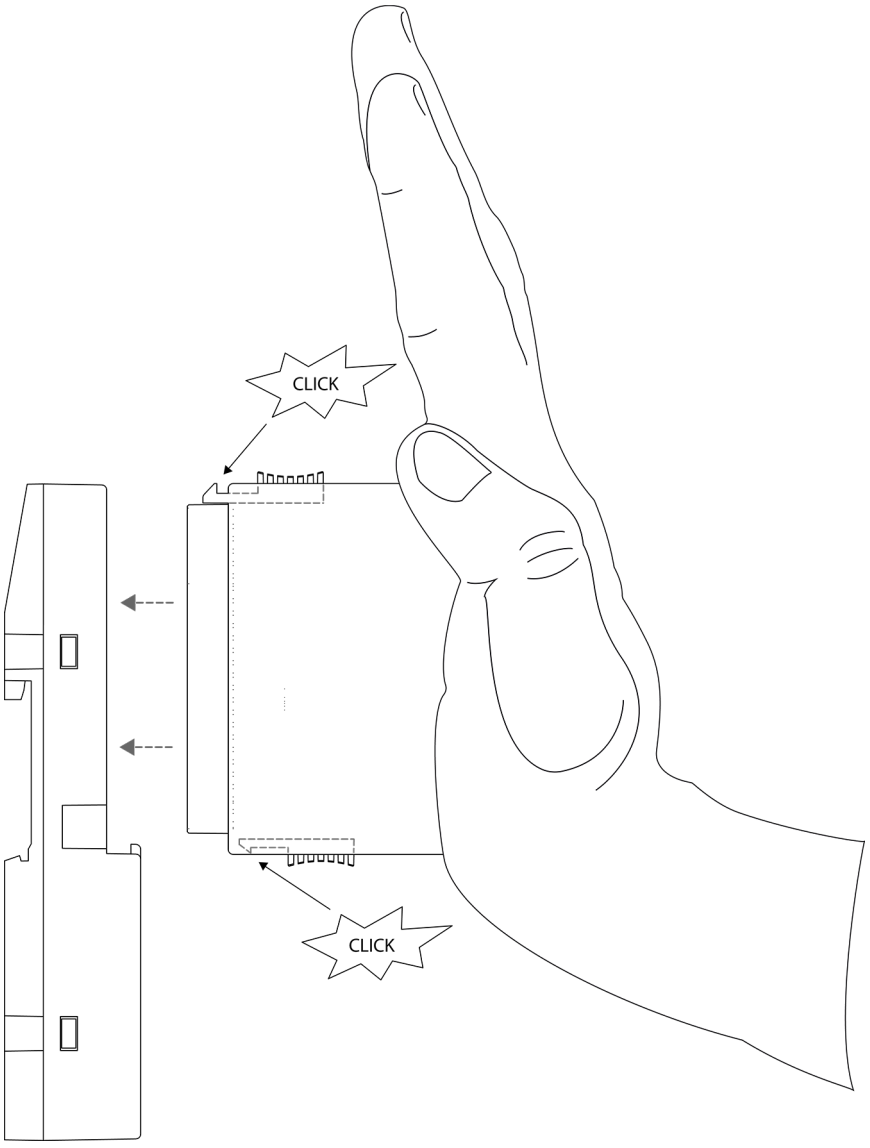
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

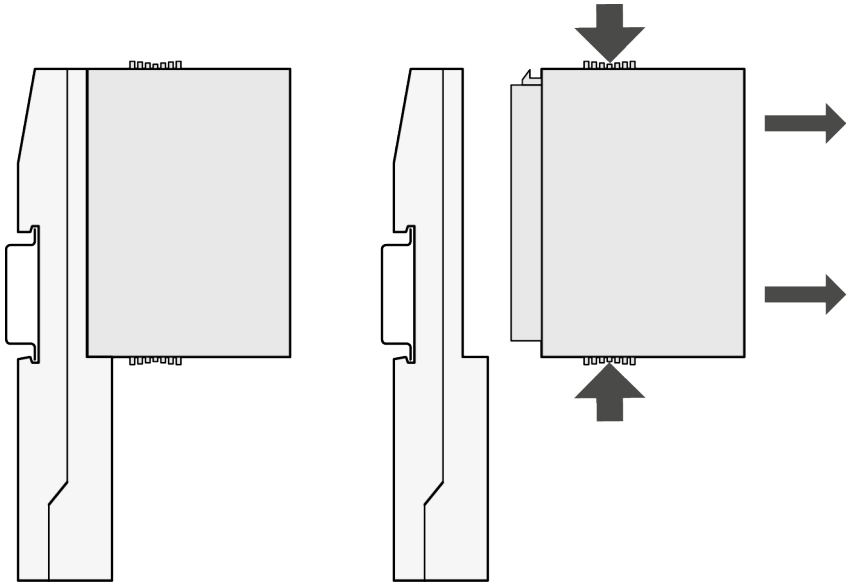
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

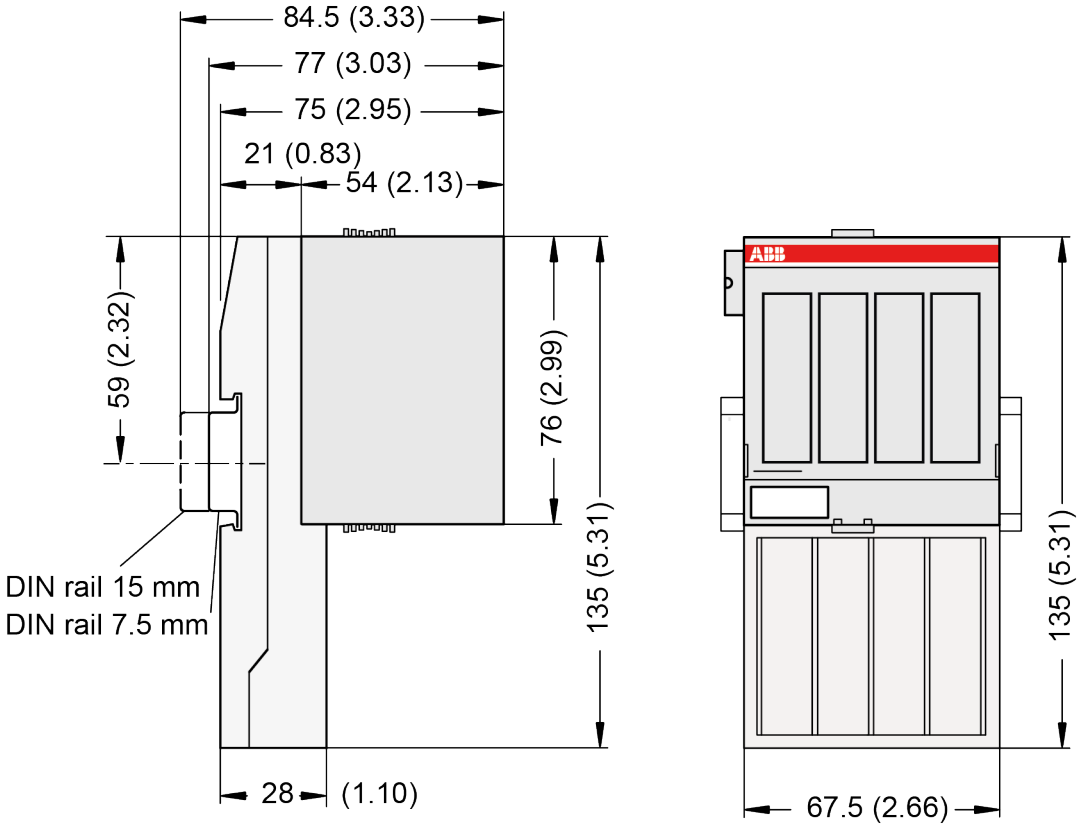
2.1 Assembly



2.2 Disassembly



2.3 Dimensions



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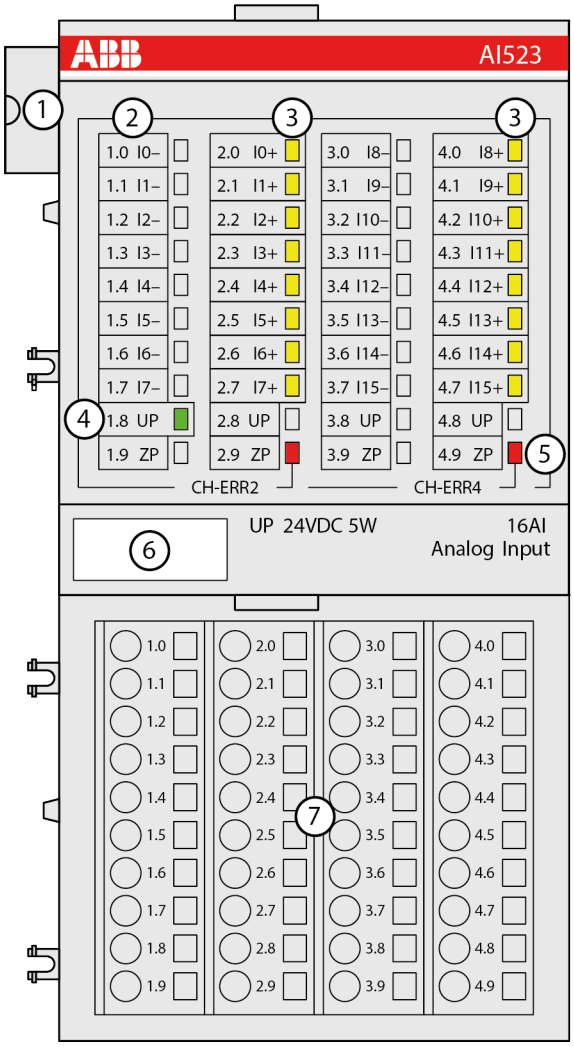
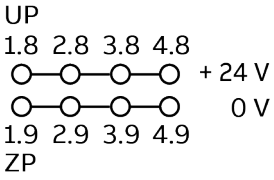


1 I/O bus
2 Allocation between terminal number and signal name
3 16 yellow LEDs to display the signal states at the analog inputs (I0 - I15)
4 1 green LED to display the state of the process supply voltage UP
5 2 red LEDs to display errors
6 Label
7 Terminal unit
❄ Sign for XC version

All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

2.4.1 Process Supply Voltage



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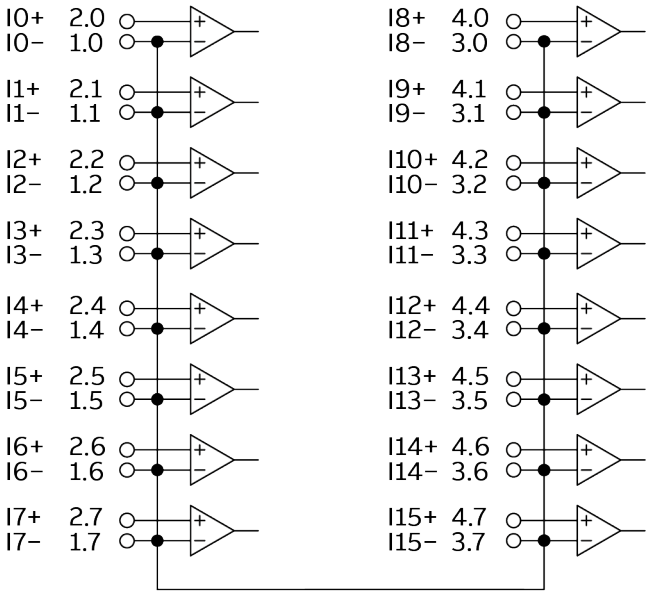
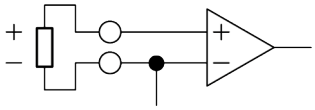
2.4.2 Inputs



Example



I0 ... I15
0 V ... +10 V
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Pt100 / Pt1000
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Fig. 3: Example for connection input

2.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

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MSIP-REI-Abb-AC500

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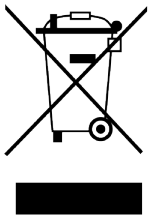

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3 AI531

- AI531
- AI531-XC

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DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
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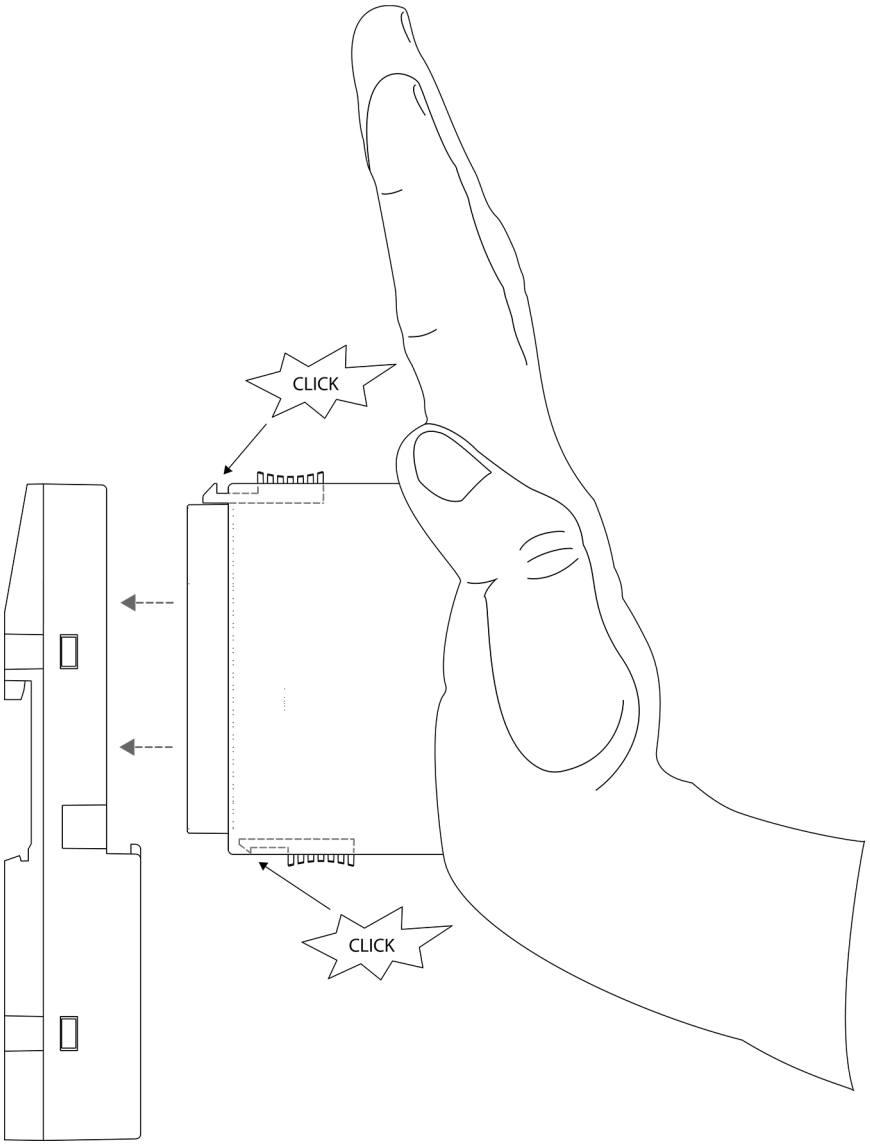
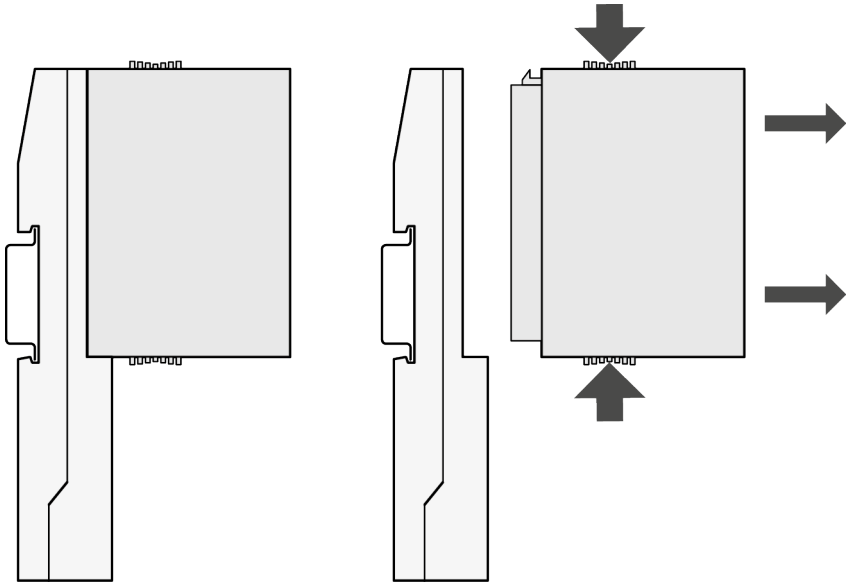
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

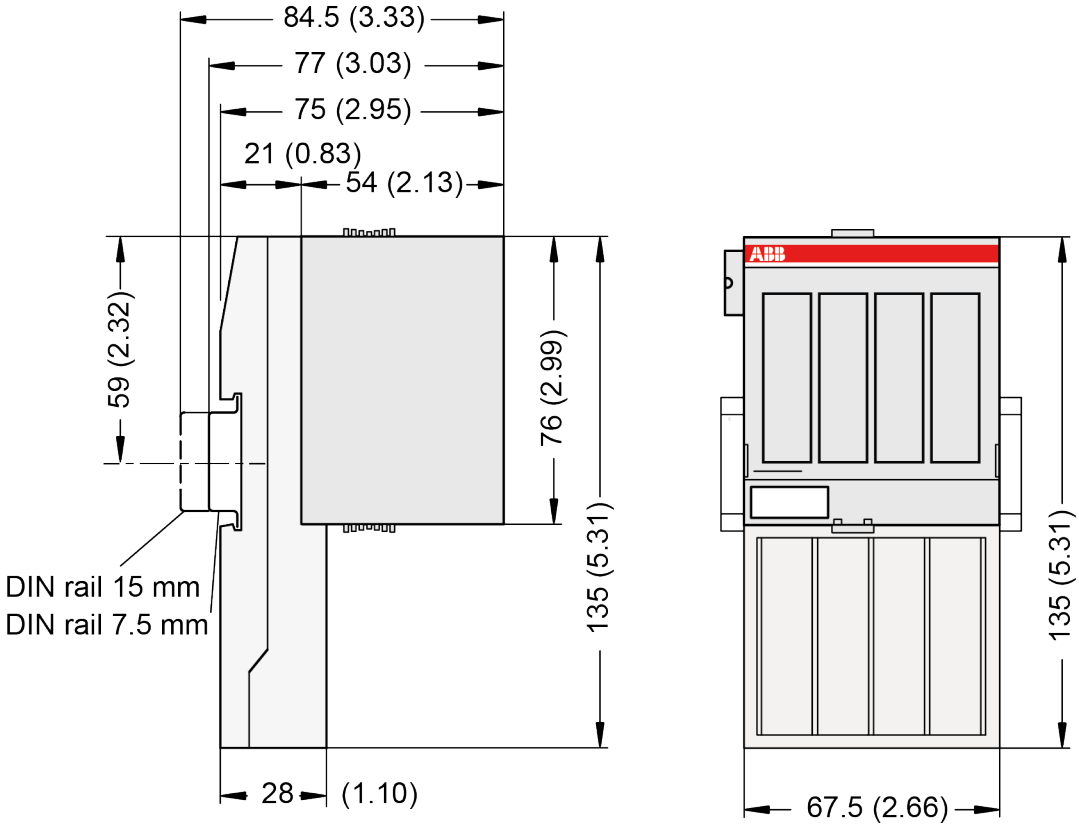
3.1 Assembly



3.2 Disassembly



3.3 Dimensions



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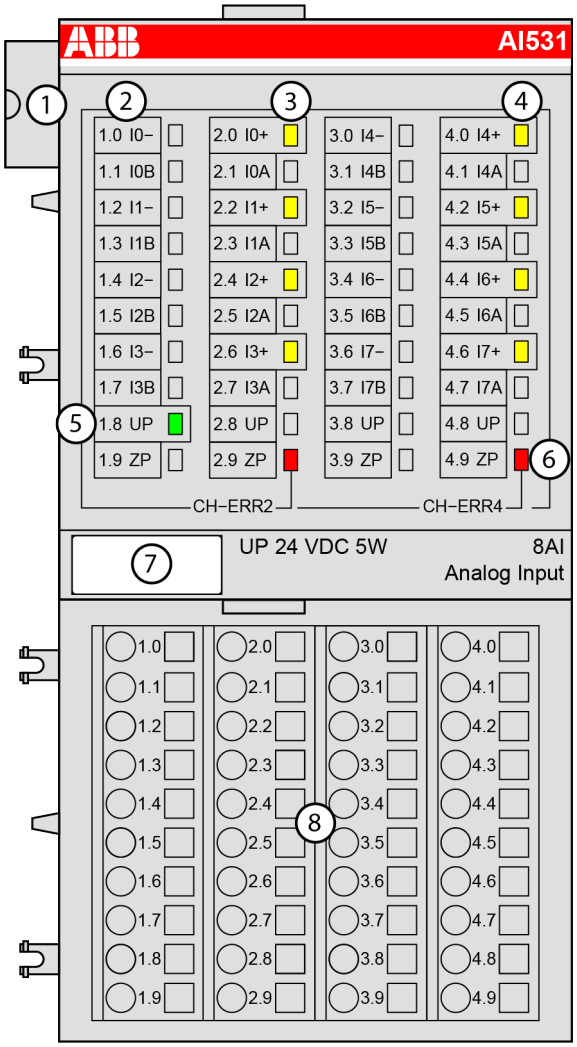
3.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 4 yellow LEDs to display the states at the inputs (I0 - I3)
4 4 yellow LEDs to display the states at the inputs (I4 - I7)
5 1 green LED to display the state of the process supply voltage UP
6 2 red LEDs to display errors
7 Label
8 Terminal unit
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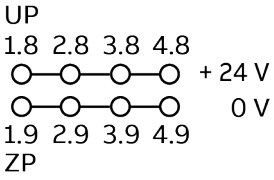
> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.*

3.4.1 Process Supply Voltage



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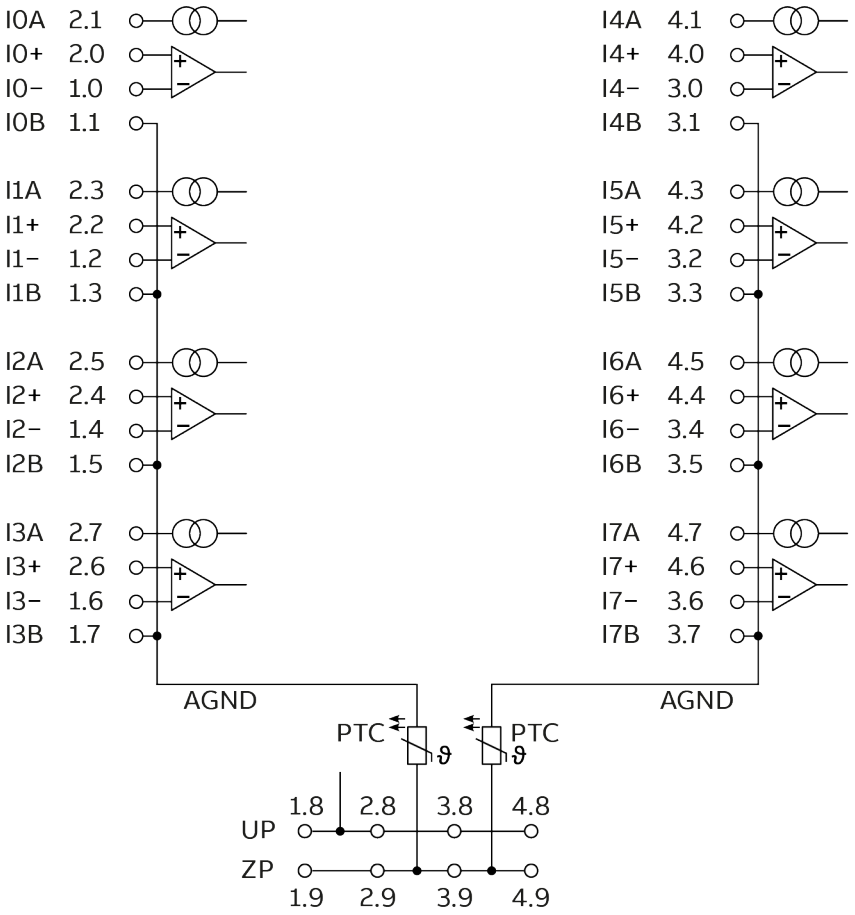
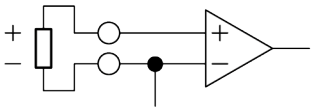


Example



I0 ... I7
-50 mV... +50 mV
-500 mV ... +500 mV
-1 V ... +1 V
-5 V ... +5 V
-10 V... +10 V
0 V ... +5 V
0 V ... +10 V
0 mA ... +20 mA
+4 mA ... +20 mA
0 Ω ... 50 kΩ
Pt100 / Pt1000
Ni1000
Cu50
Thermo J, K, T, N, S
Digital Input

Fig. 4: Example for connection input

3.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

3.6 Certification

MSIP-REI-Abb-AC500

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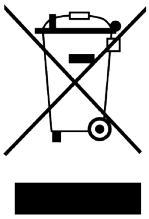

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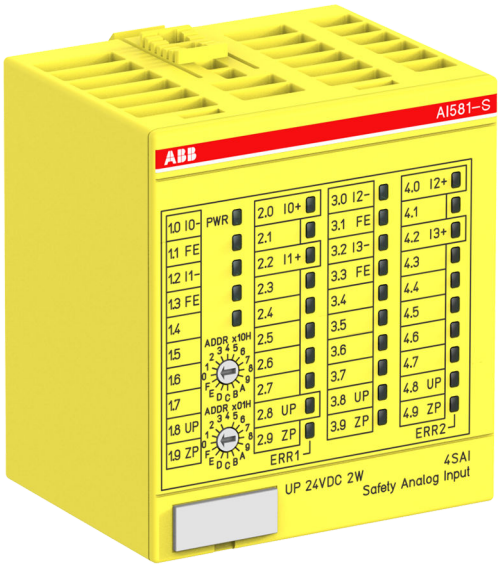
4 AI581-S

- AI581-S
- AI581-S-XC



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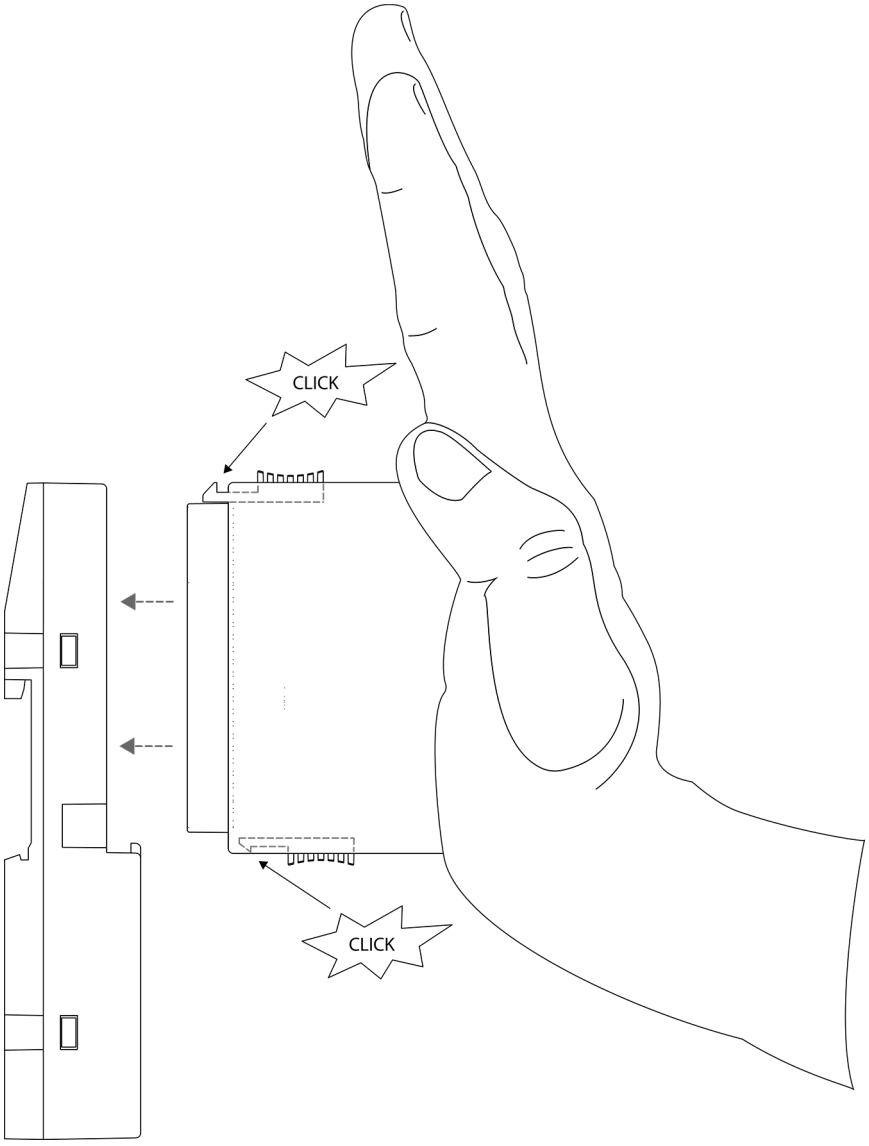
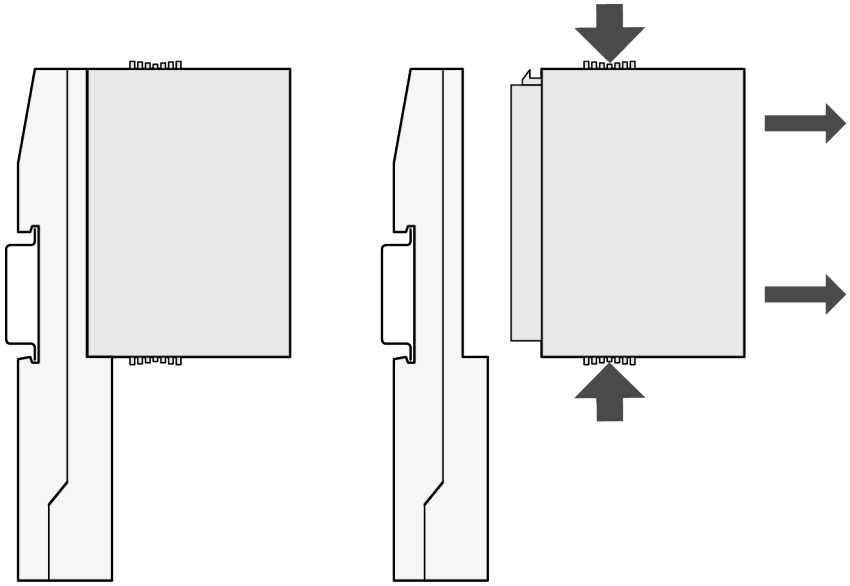
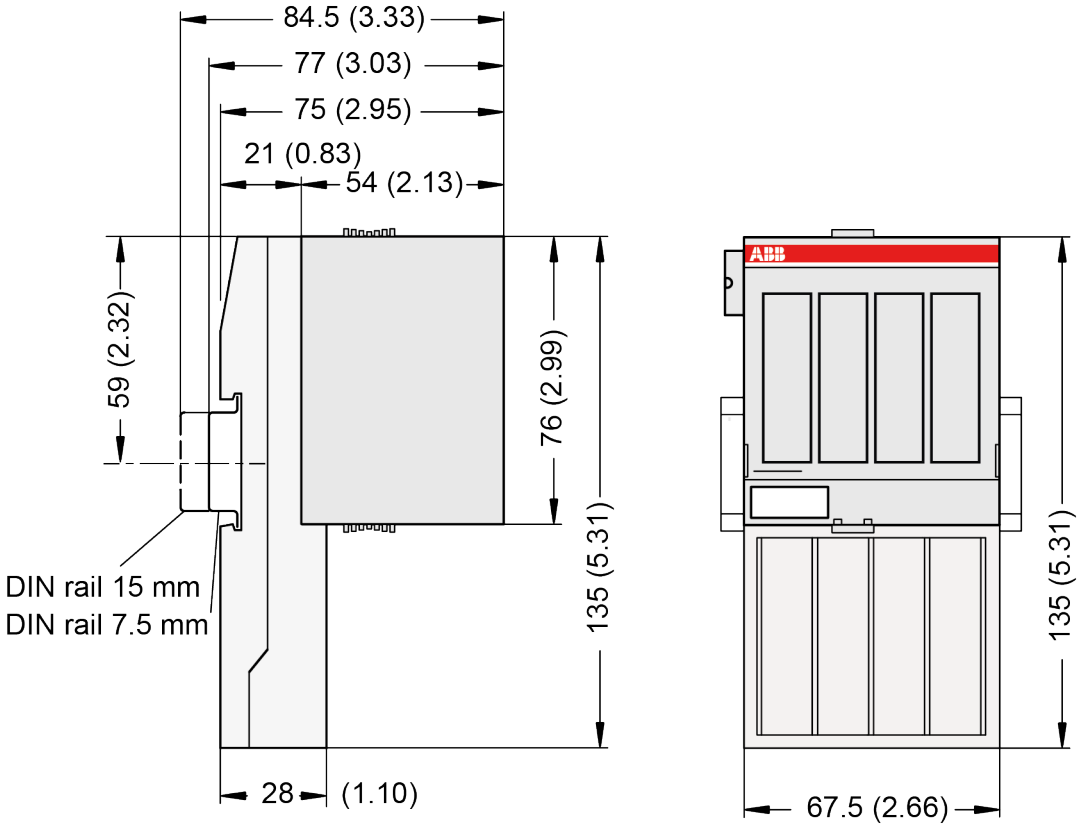
4.1 Assembly



4.2 Disassembly

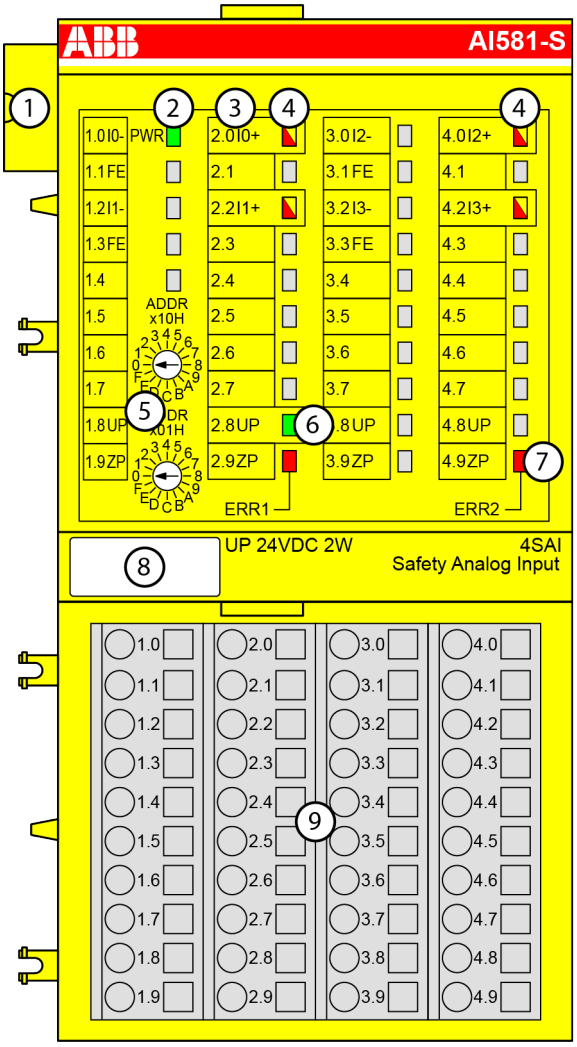


4.3 Dimensions



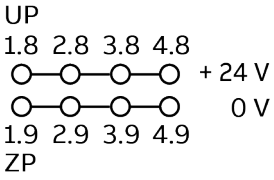
The dimensions are in mm and in brackets in inch.

4.4 Connection



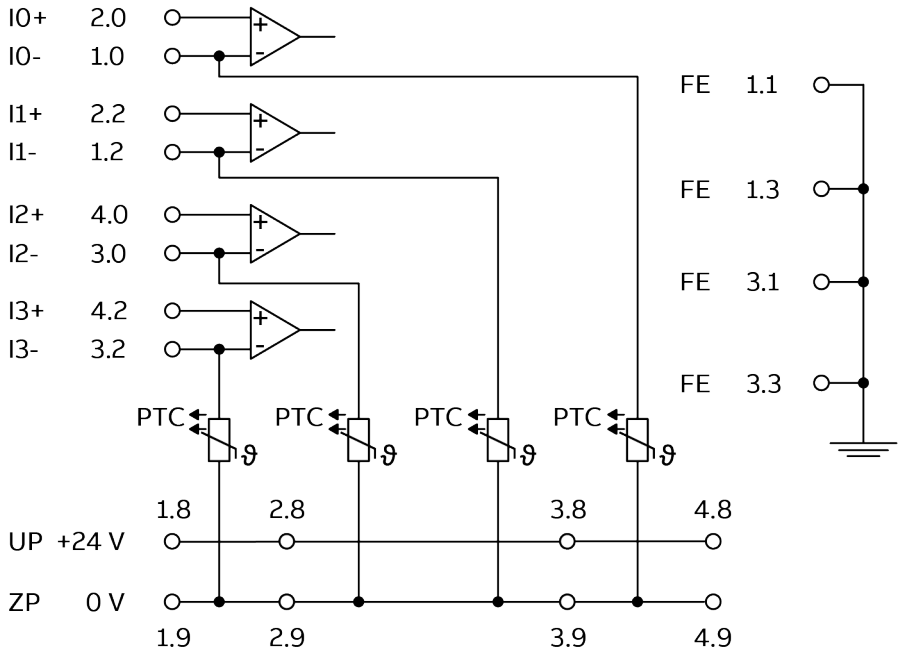
1 I/O bus
2 System LED
3 Allocation between terminal number and signal name
4 4 yellow/red LEDs to display the signal states of the analog inputs
5 2 rotary switches for setting the PROFIsafe address
6 1 green LED to display the state of the process supply voltage UP
7 2 red LEDs to display errors
8 Label
9 Terminal unit TU582-S(-XC)
❄ Sign for XC version

4.4.1 Process Supply Voltage

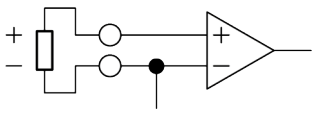


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

4.4.2 Inputs



Example



I0 ... I3
0 mA ... +20 mA
+4 mA ... +20 mA

Fig. 5: Example for connection input

AC500-S Safety User Manual
For a detailed description of the electrical connection of the module, please refer to the "AC500-S Safety User Manual".

4.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

4.6 Certification

MSIP-REI-Abb-AC500

en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

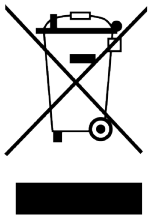
en **Note**
These devices correspond to:

KN61000-6-2 “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는

KN61000-6-2 “산업 환경에 대한 내성**”,**
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

4.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

5 AO523

- AO523
- AO523-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

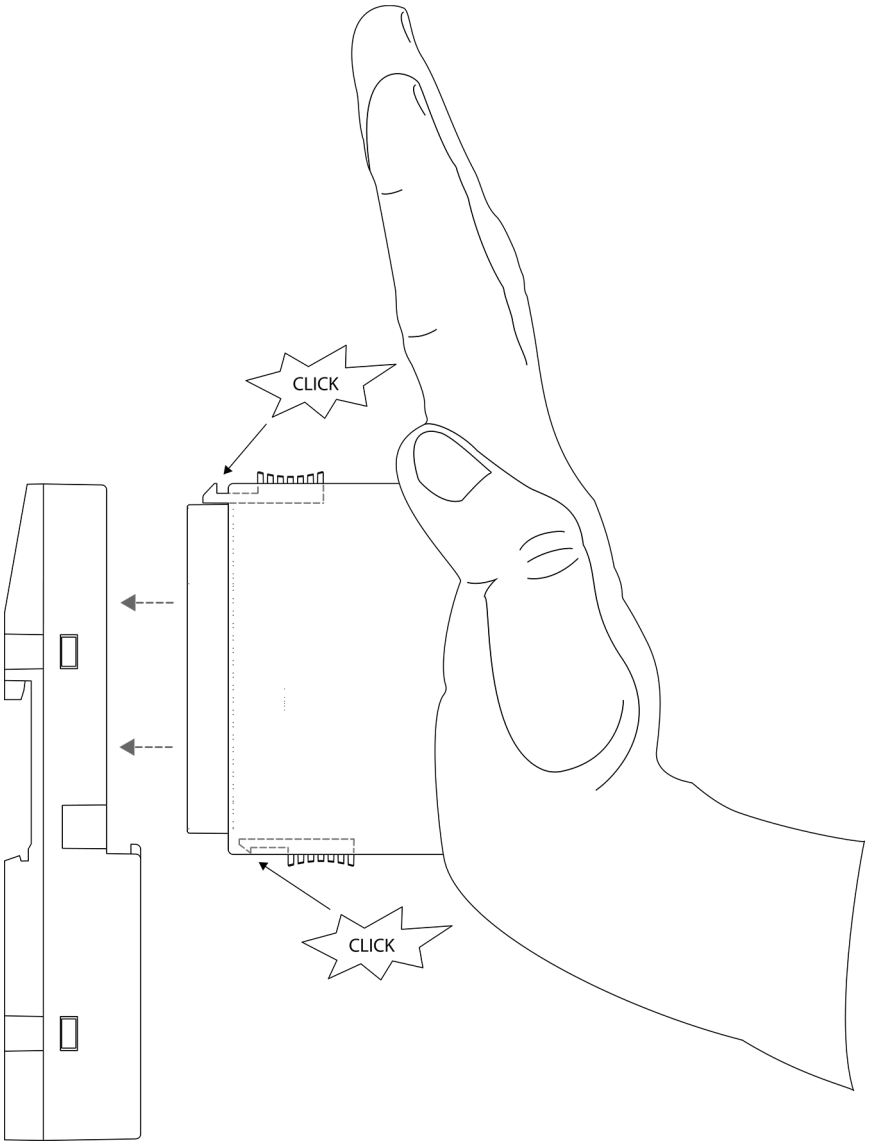
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

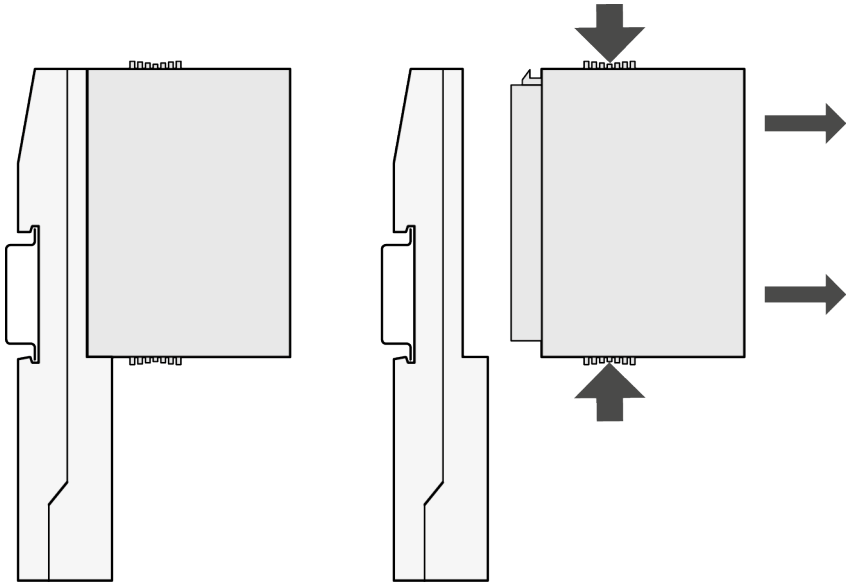
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

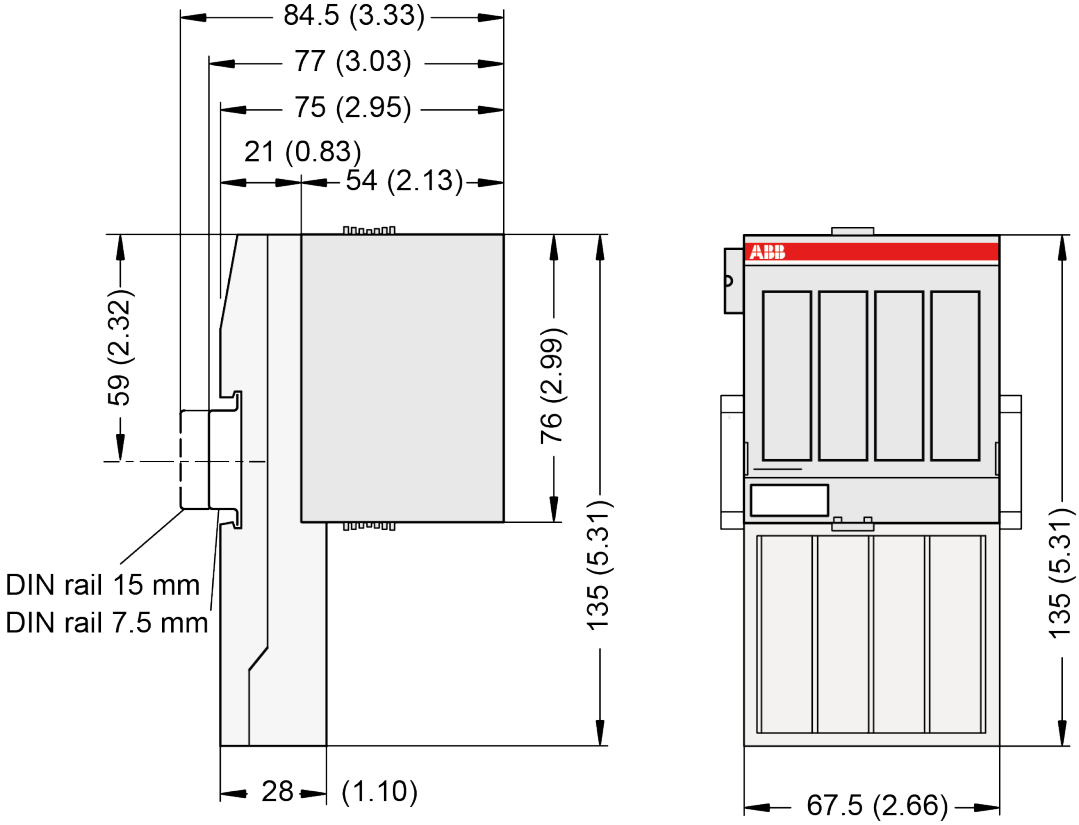
5.1 Assembly



5.2 Disassembly

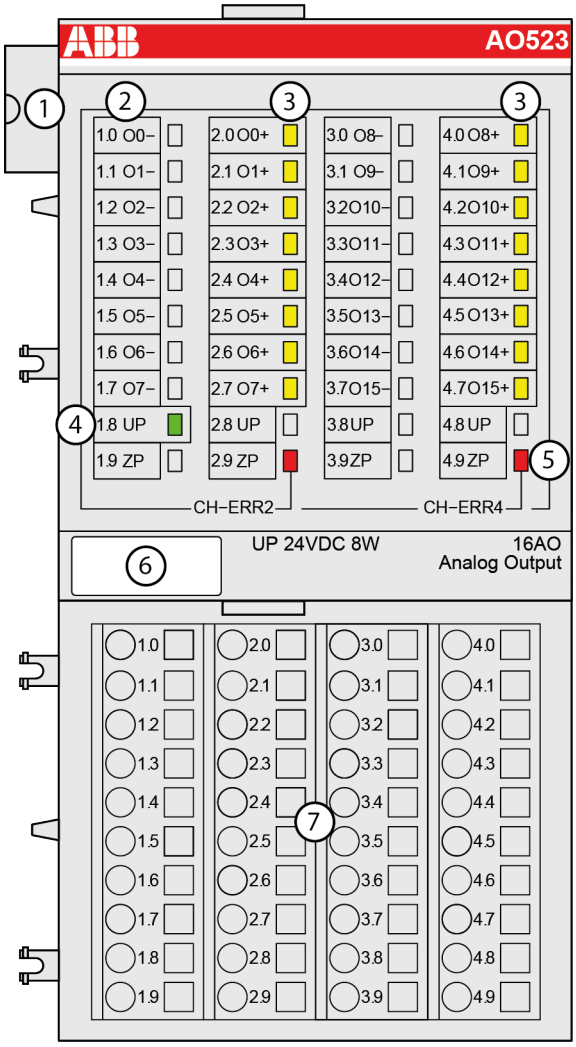


5.3 Dimensions



The dimensions are in mm and in brackets in inch.

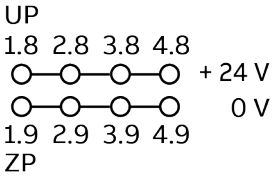
5.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 16 yellow LEDs to display the signal states at the analog outputs (O0 - O15)
4 1 green LED to display the state of the process supply voltage UP
5 2 red LEDs to display errors
6 Label
7 Terminal unit
❄ Sign for XC version

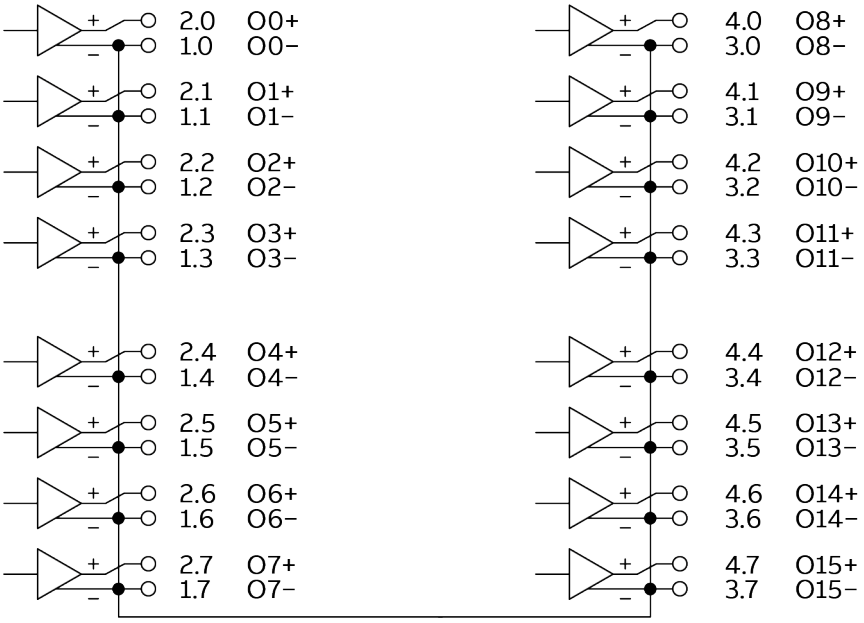
> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.*

5.4.1 Process Supply Voltage

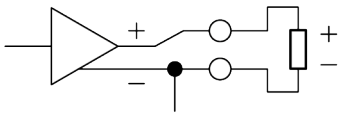


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

5.4.2 Outputs



Example



O0 ... O3	O4 ... O7
O8 ... O11	O12 ... O15
± 10 V	± 10 V
0 mA ... +20 mA	–
+4 mA ... +20 mA	–

Fig. 6: Example for connection output

5.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

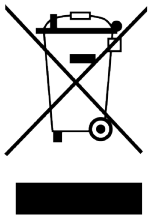
5.6 Certification

MSIP-REI-Abb-AC500

en	**Devices with KCC sign on product sticker and packaging**
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”
ko	참고 이러한 기기는	**KN61000-6-2 “**산업 환경에 대한 내성**”,** **KN61000-6-4 “**산업 환경 누출 기준**”**에 적합함

5.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

6 AX521

- AX521
- AX521-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

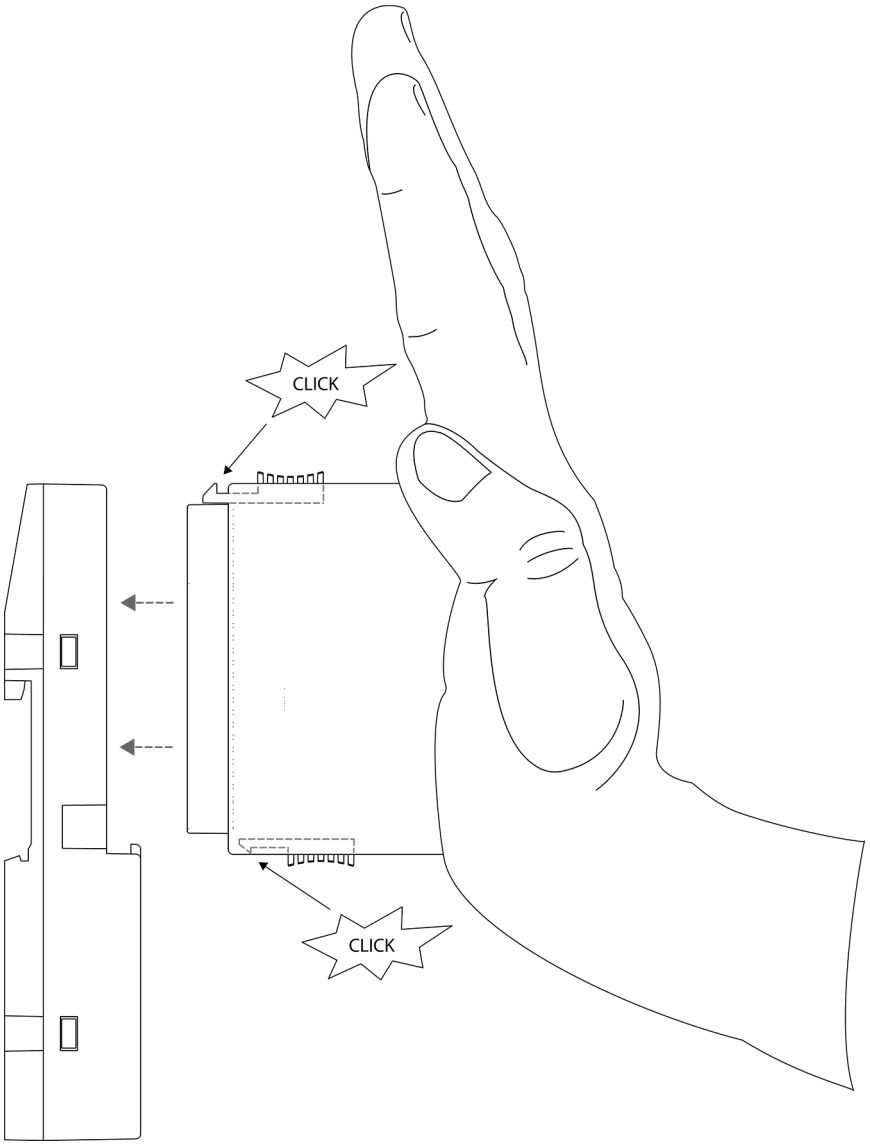
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

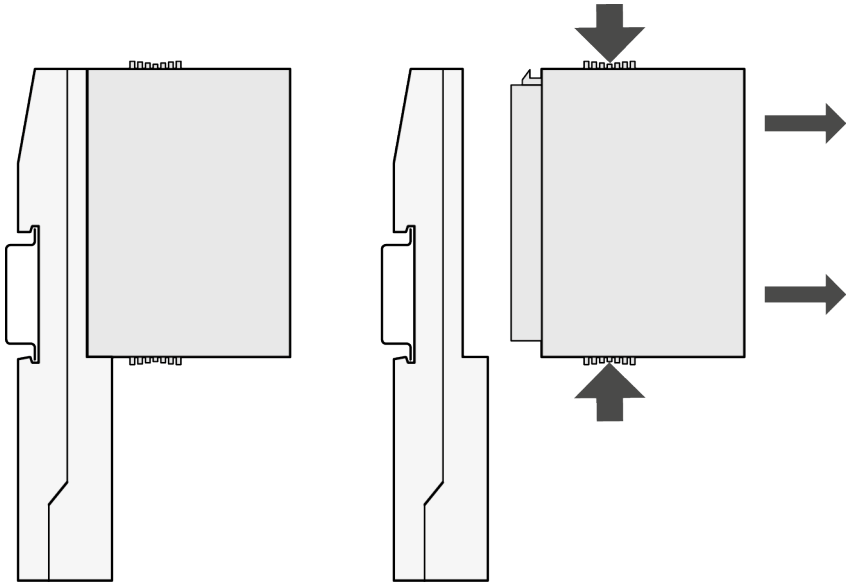
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

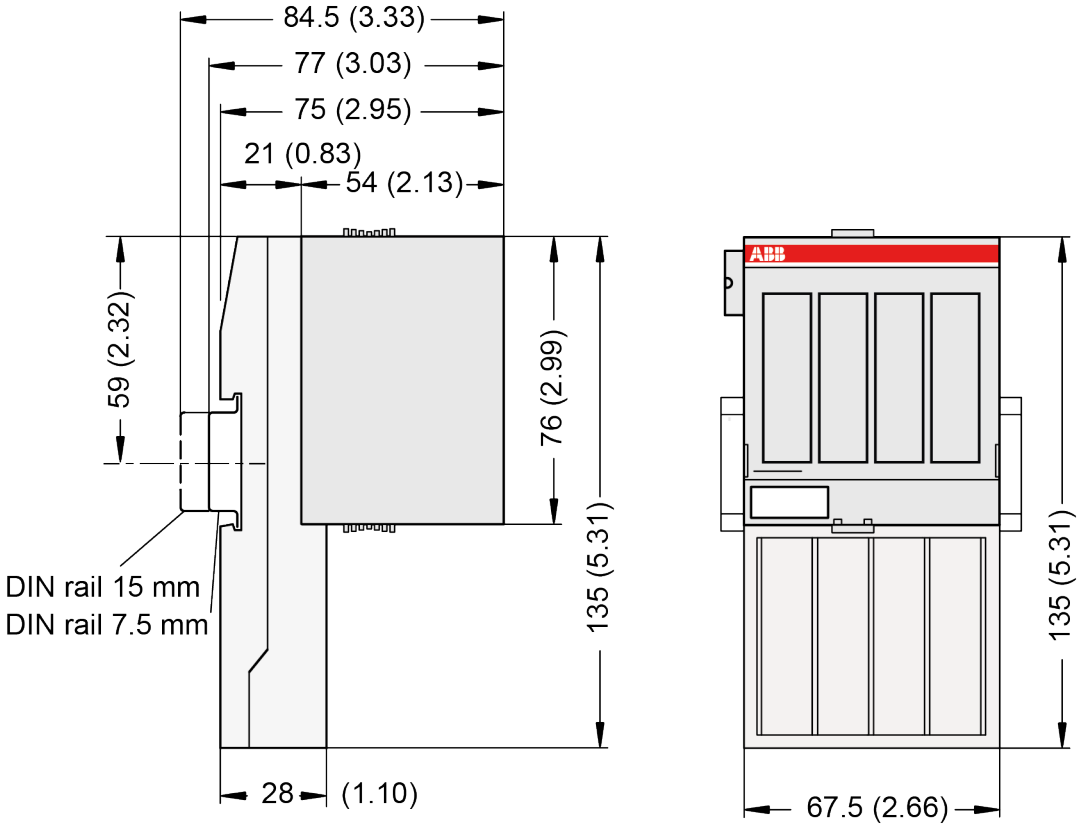
6.1 Assembly



6.2 Disassembly

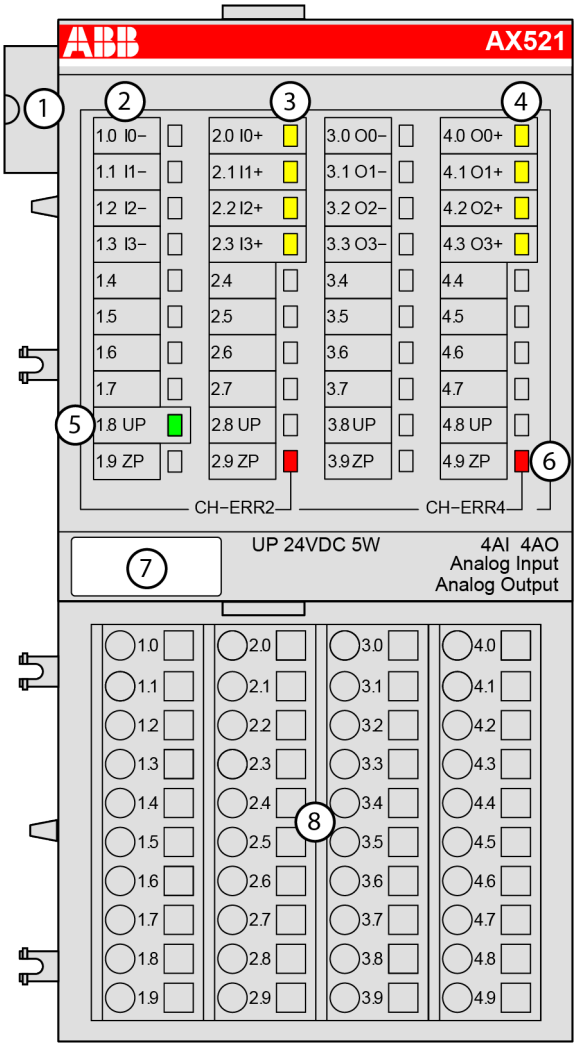


6.3 Dimensions



The dimensions are in mm and in brackets in inch.

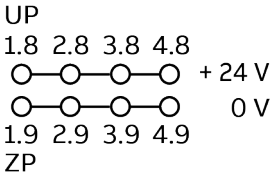
6.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 4 yellow LEDs to display the signal states at the analog inputs (I0 - I3)
4 4 yellow LEDs to display the signal states at the analog outputs (O0 - O3)
5 1 green LED to display the state of the process supply voltage UP
6 2 red LEDs to display errors
7 Label
8 Terminal unit
❄ Sign for XC version

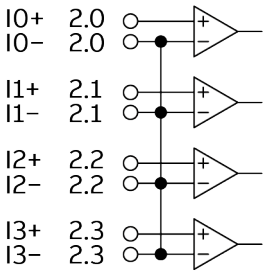
All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

6.4.1 Process Supply Voltage

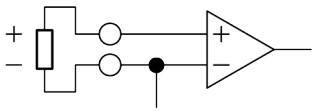


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

6.4.2 Inputs



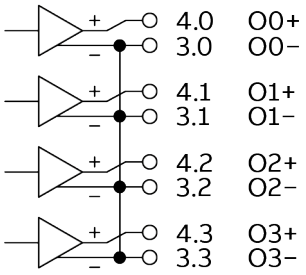
Example



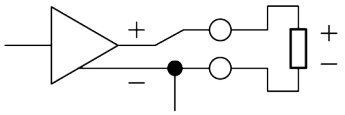
I0 ... I3
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 7: Example for connection input

6.4.3 Outputs



Example



O0 ... O3
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA

Fig. 8: Example for connection output

6.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

6.6 Certification

MSIP-REI-Abb-AC500

en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

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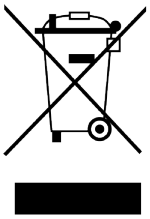
이러한 기기는

KN61000-6-2 “산업 환경에 대한 내성**”,**
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

6.7 Recycling



Disposal and recycling information

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The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

7 AX522

- AX522
- AX522-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

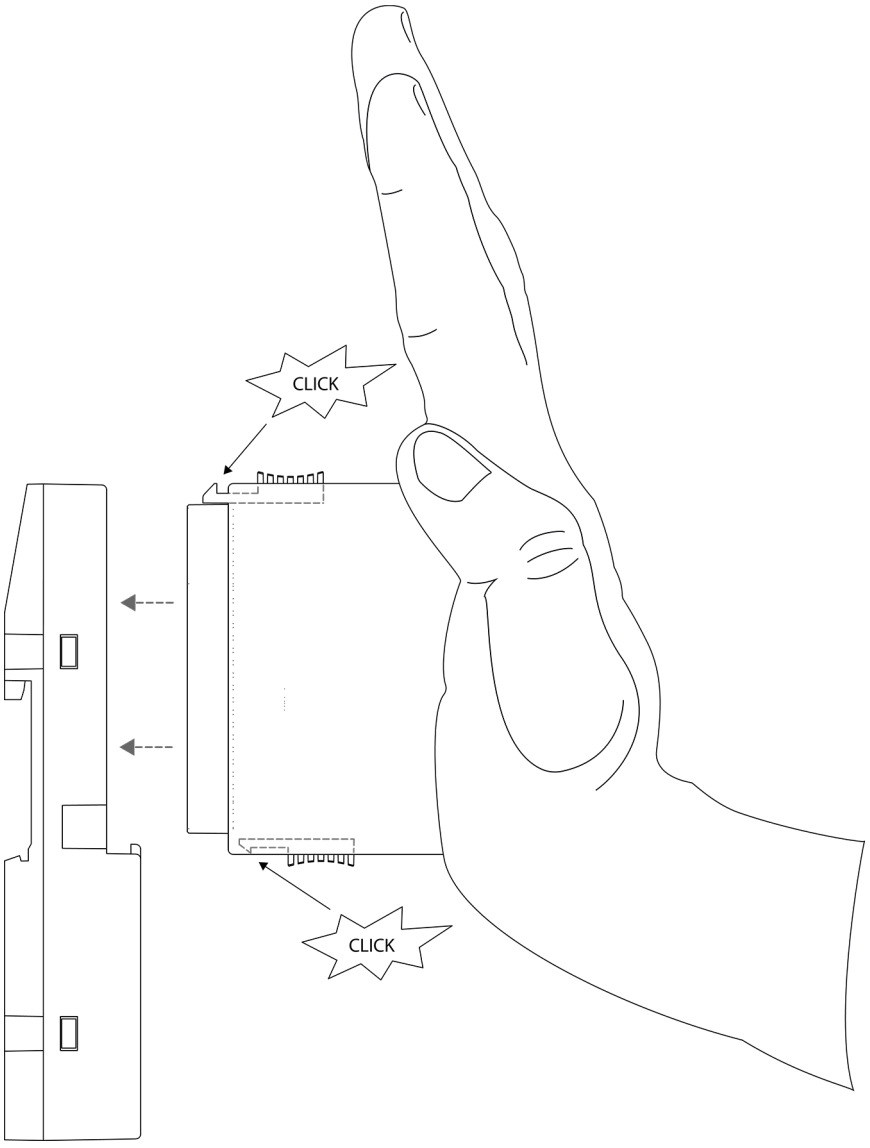
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

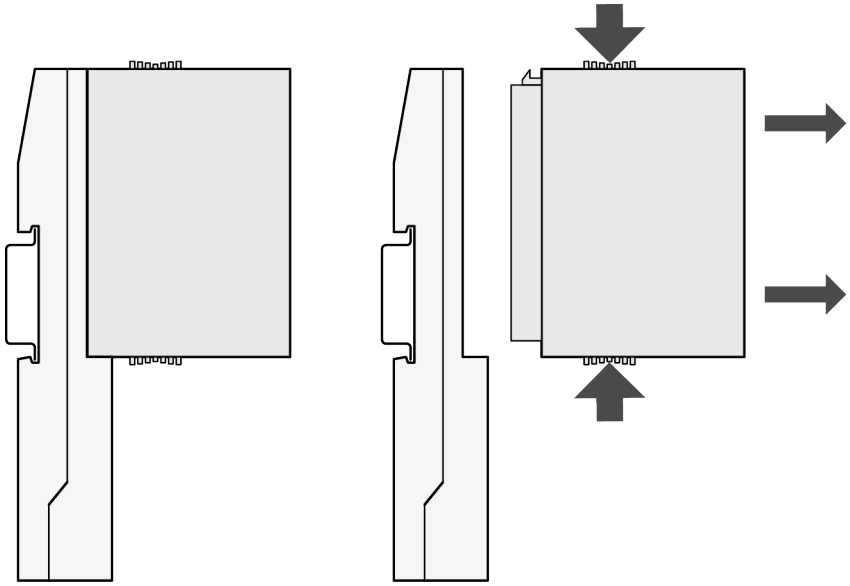
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

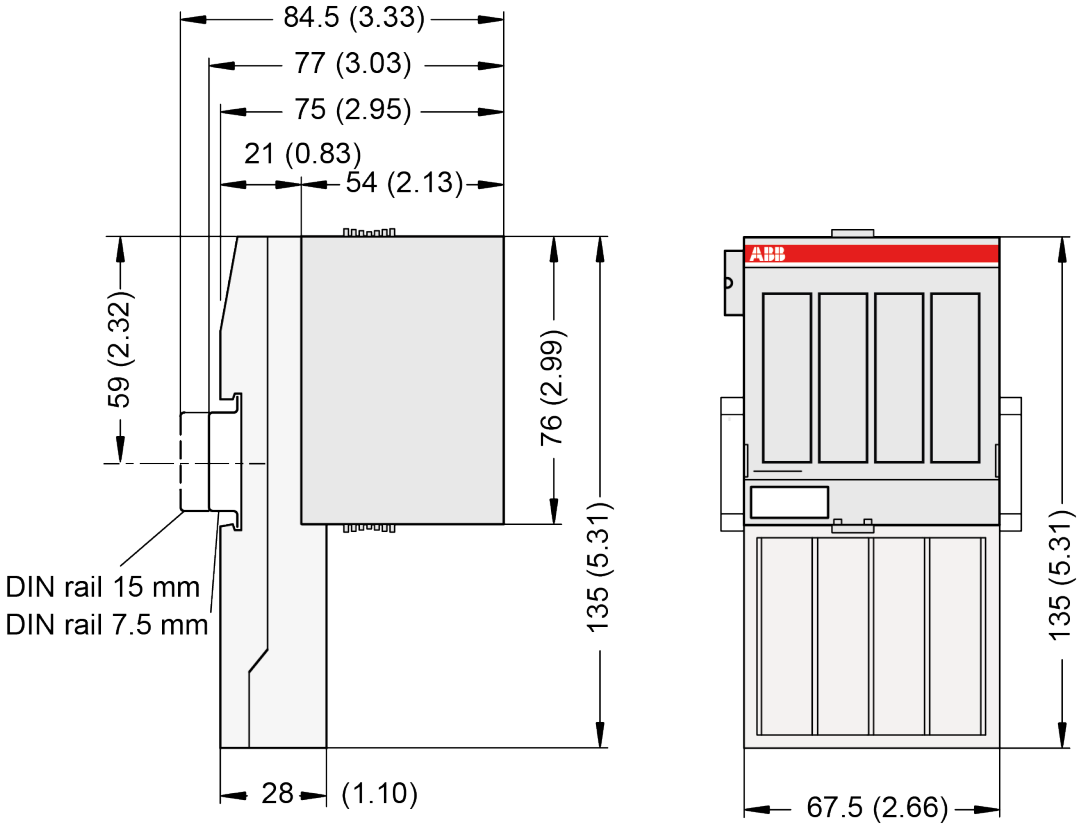
7.1 Assembly



7.2 Disassembly

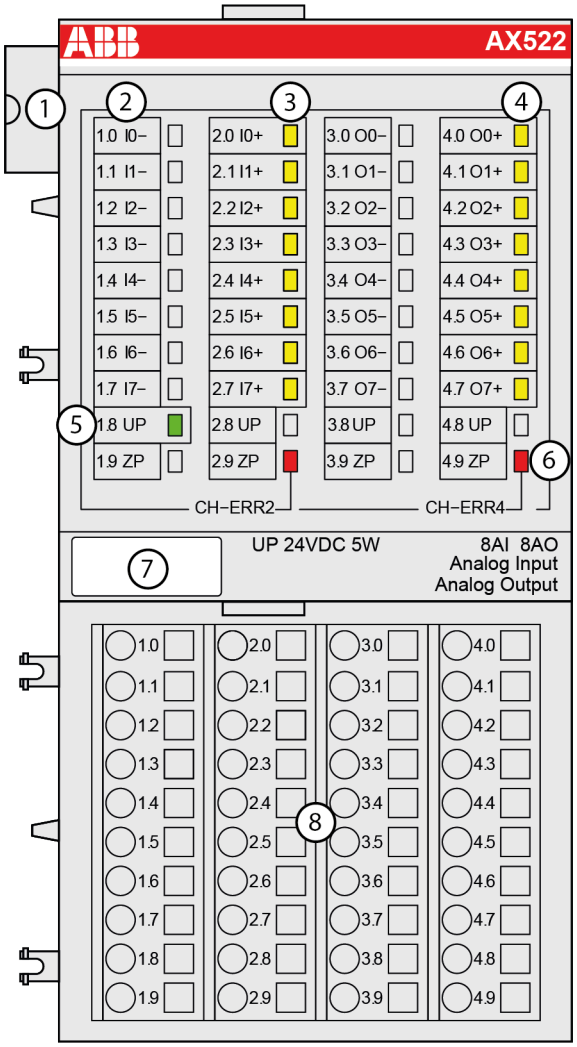


7.3 Dimensions



The dimensions are in mm and in brackets in inch.

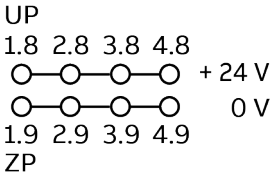
7.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 8 yellow LEDs to display the signal states at the analog inputs (I0 - I7)
4 8 yellow LEDs to display the signal states at the analog outputs (O0 - O7)
5 1 green LED to display the state of the process supply voltage UP
6 2 red LEDs to display errors
7 Label
8 Terminal unit
❄ Sign for XC version

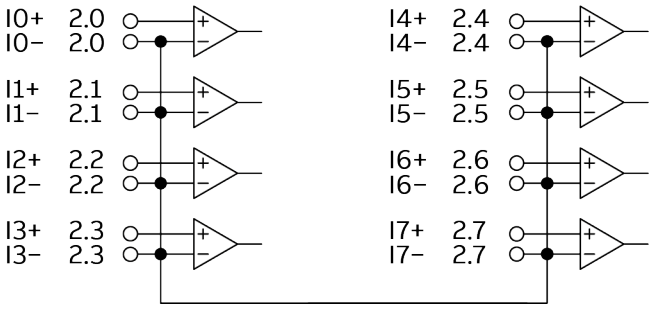
> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.*

7.4.1 Process Supply Voltage

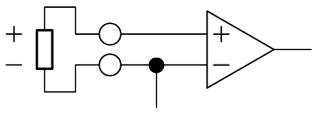


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

7.4.2 Inputs



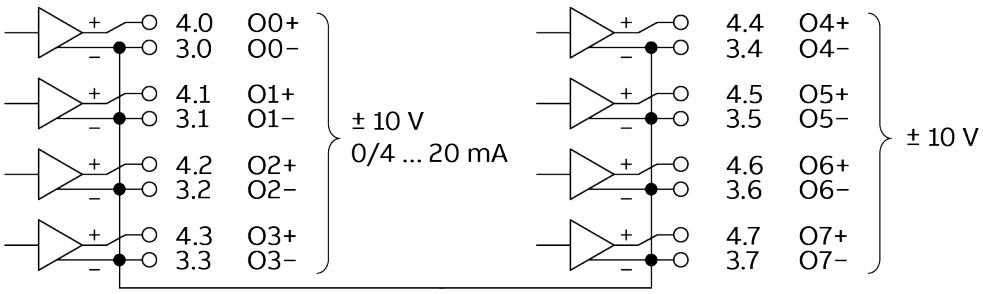
Example



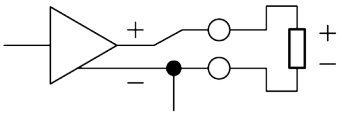
I0 ... I7
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 9: Example for connection input

7.4.3 Outputs



Example



O0 ... O3	O4 ... O7
± 10 V	± 10 V
0 mA ... +20 mA	–
+4 mA ... +20 mA	–

Fig. 10: Example for connection output

7.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

7.6 Certification

MSIP-REI-Abb-AC500

en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

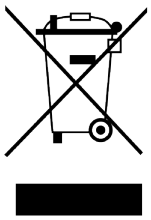
en **Note**
These devices correspond to:

KN61000-6-2 “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는

KN61000-6-2 “산업 환경에 대한 내성**”,**
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

7.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

8 CD522

- CD522
- CD522-XC

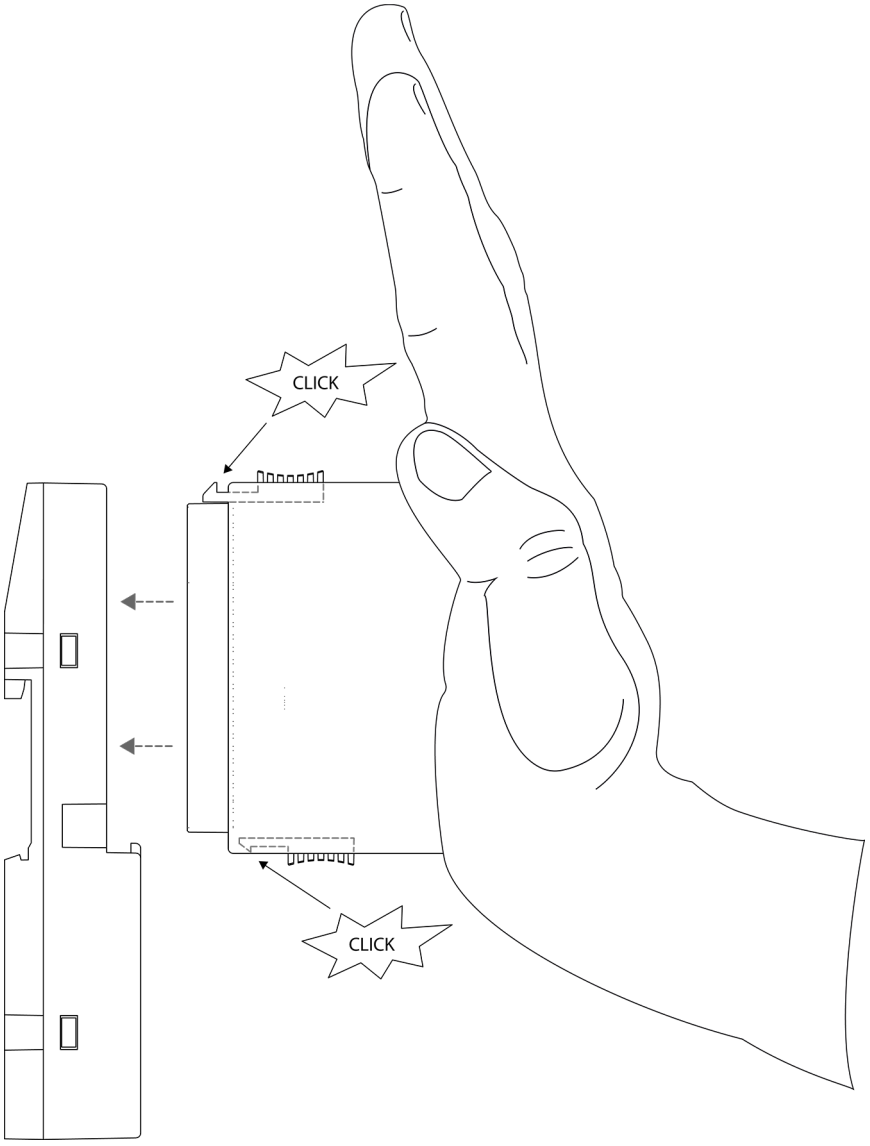
CAUTION!

Risk of injury and damaging the product!

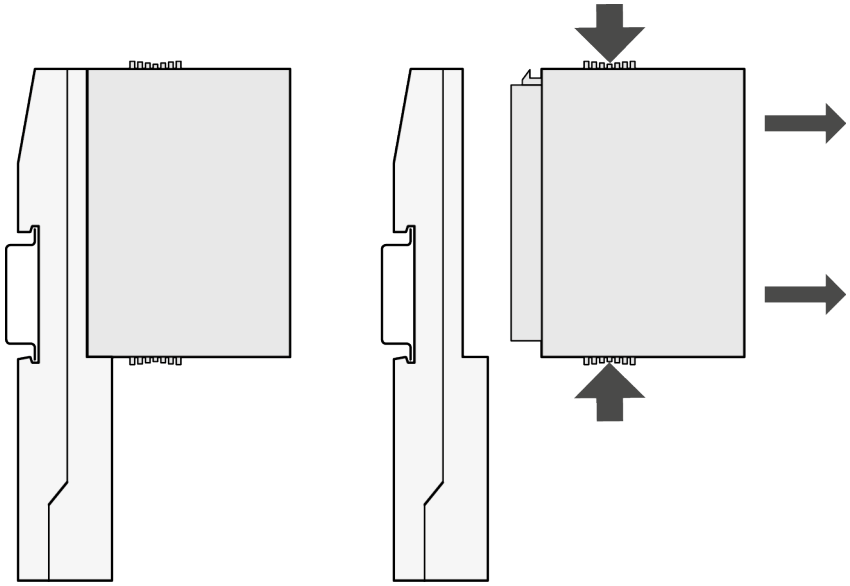
Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

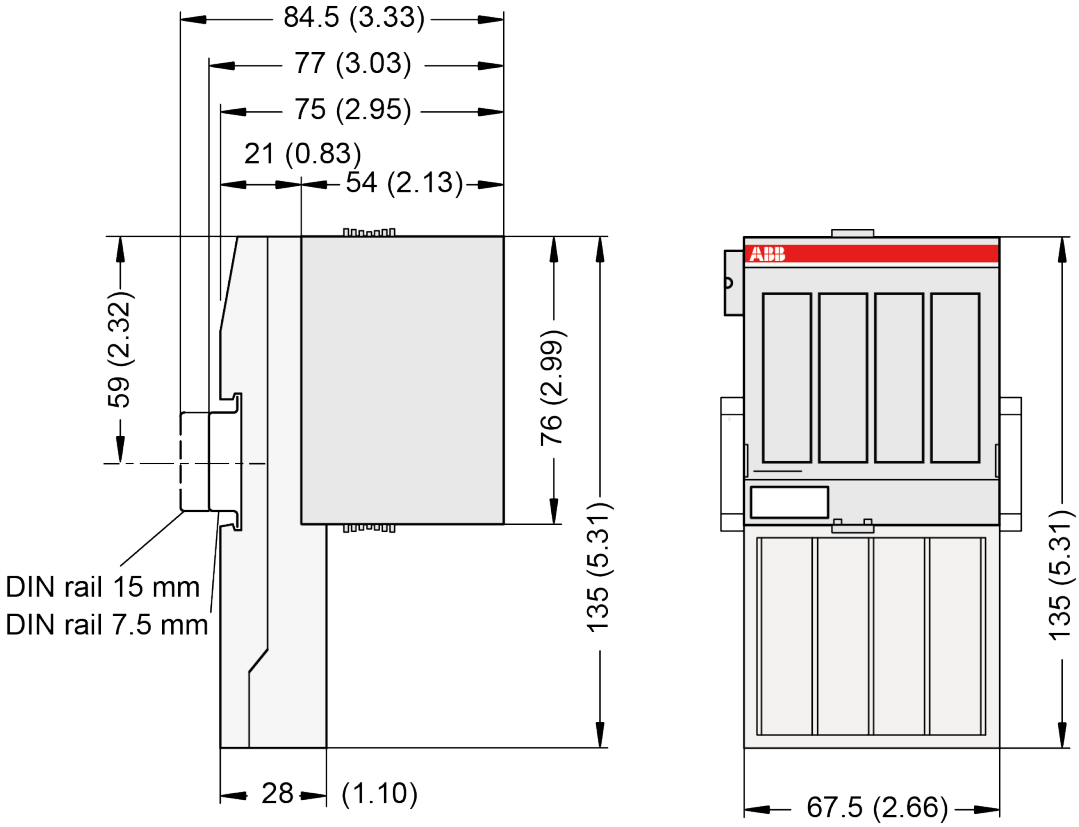
8.1 Assembly



8.2 Disassembly

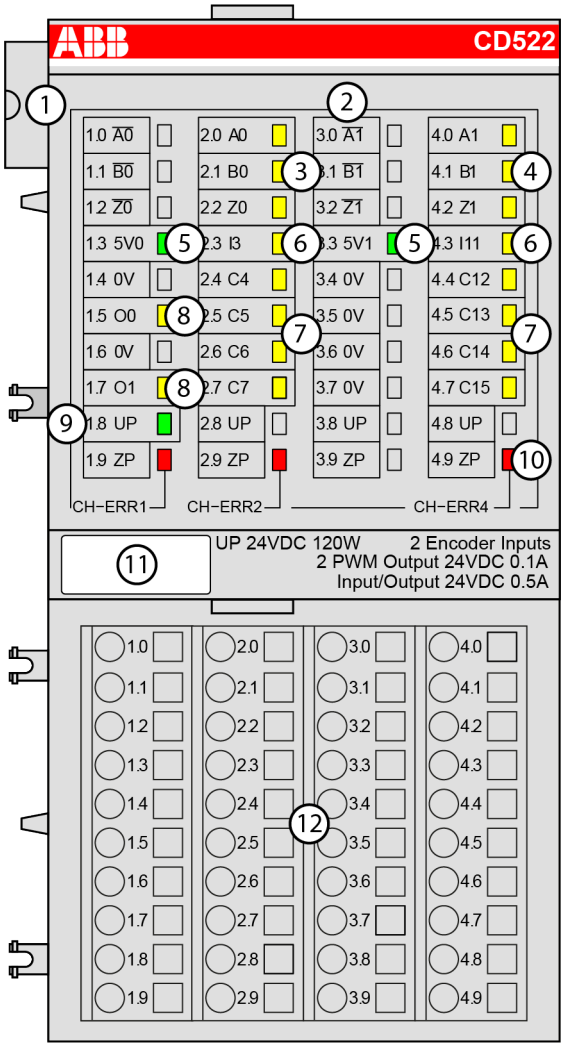


8.3 Dimensions



The dimensions are in mm and in brackets in inch.

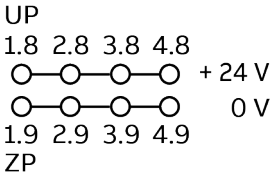
8.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 3 yellow LEDs to display the signal states of the encoder 0 input
4 3 yellow LEDs to display the signal states of the encoder 1 input
5 2 green LEDs to display the 5-V-power-supply states
6 2 yellow LEDs to display the signal state of the digital input I3 and I11
7 8 yellow LEDs to display the input/output signal states
8 2 yellow LEDs to display the signal states of the PWM/pulse outputs
9 1 green LED to display the process supply voltage UP
10 3 red LEDs to display errors
11 Label
12 Terminal unit
❄ Sign for XC version

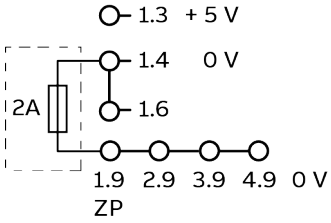
> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.*

8.4.1 Process Supply Voltage

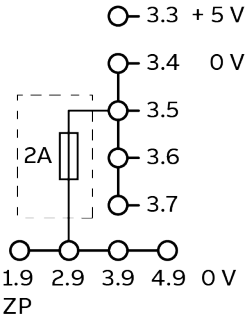


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

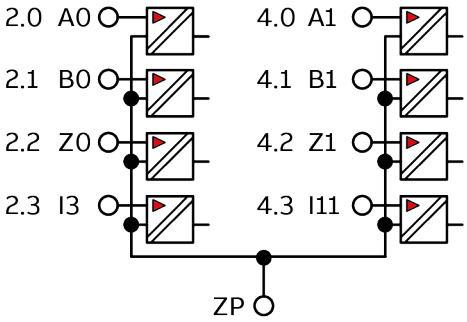
5V0



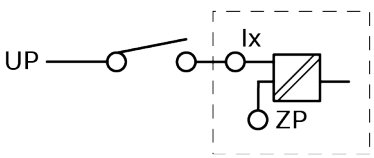
5V1



8.4.2 Inputs

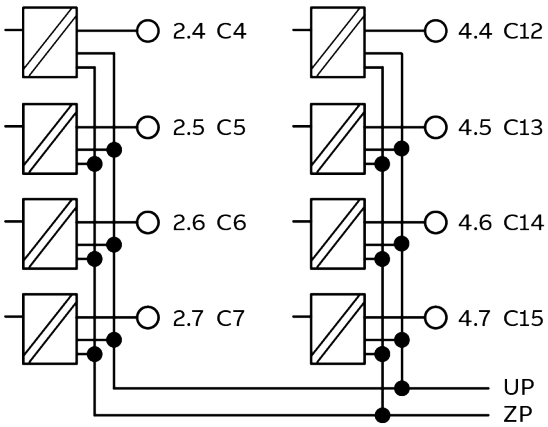


Example

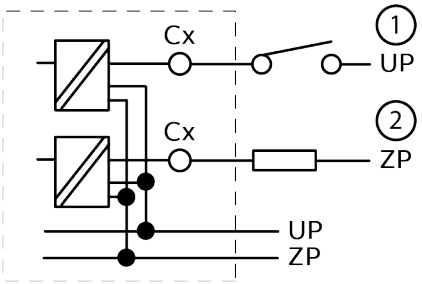


1 Example for connection input Ix

8.4.3 Inputs/Outputs



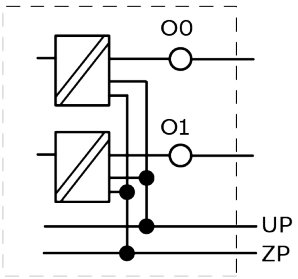
Example



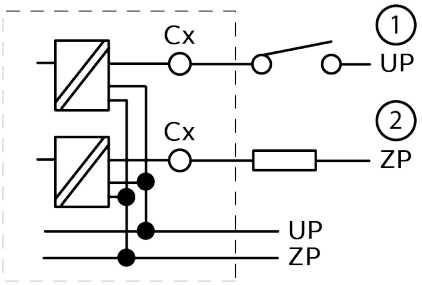
1 Example for connection as an input
2 Example for connection as an output

8.4.4 Outputs

Push-pull outputs



Example



1 Example for connection as output with UP reference
2 Example for connection as output with ZP reference

Examples for connection encoder/sensors, see description CD522.

8.5 Cleaning

Cleaning instruction
Do not use cleaning agent for cleaning the device.
Use a damp cloth instead.

8.6 Certification

MSIP-REI-Abb-AC500

en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

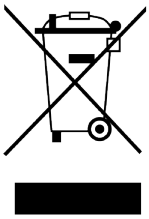
en **Note**
These devices correspond to:

KN61000-6-2 “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는

KN61000-6-2 “산업 환경에 대한 내성**”,**
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

8.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

9 CI541-DP

- CI541-DP
- CI541-DP-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

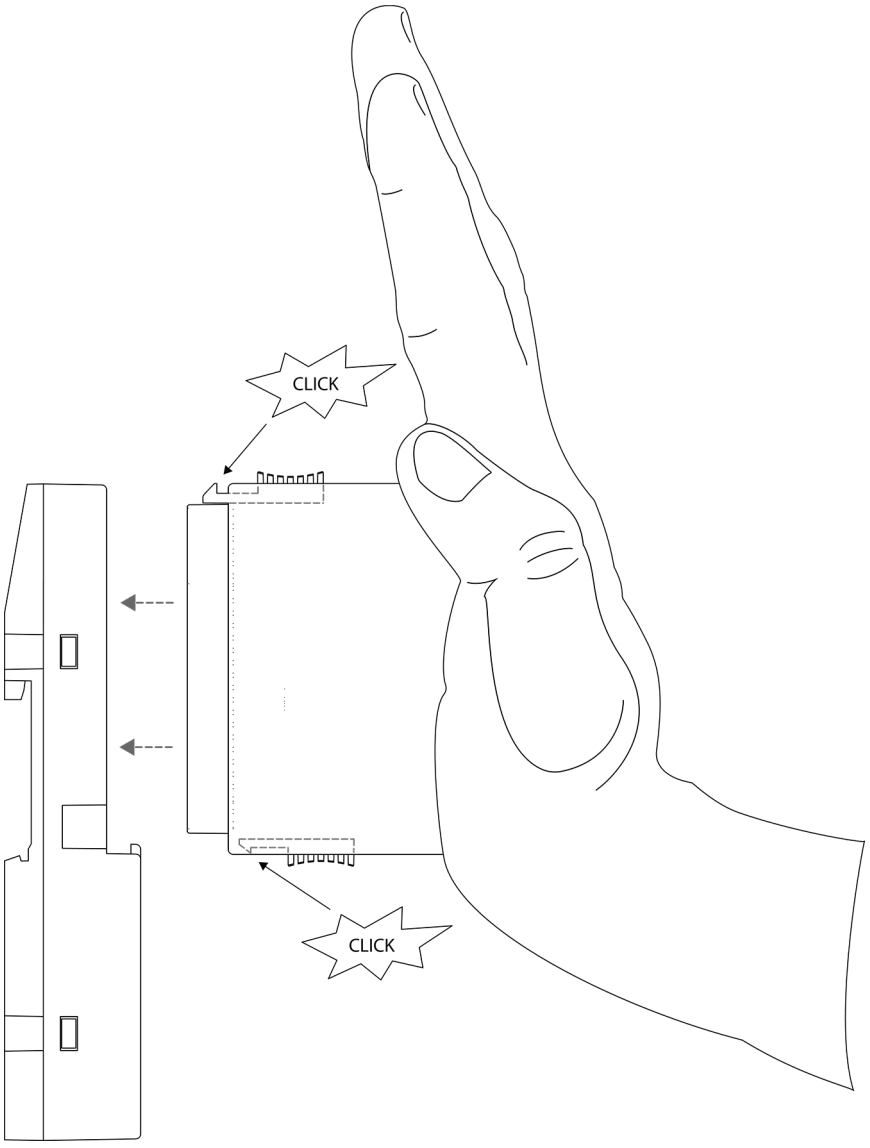
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

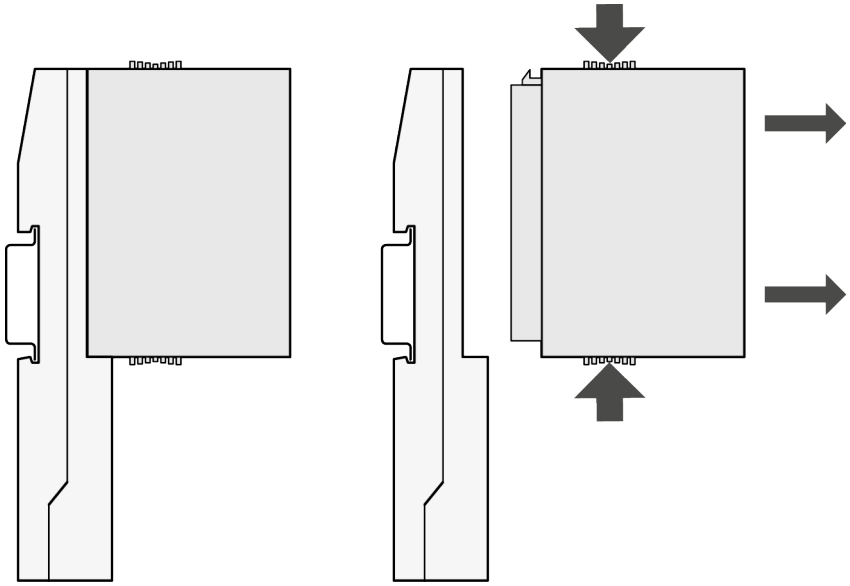
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

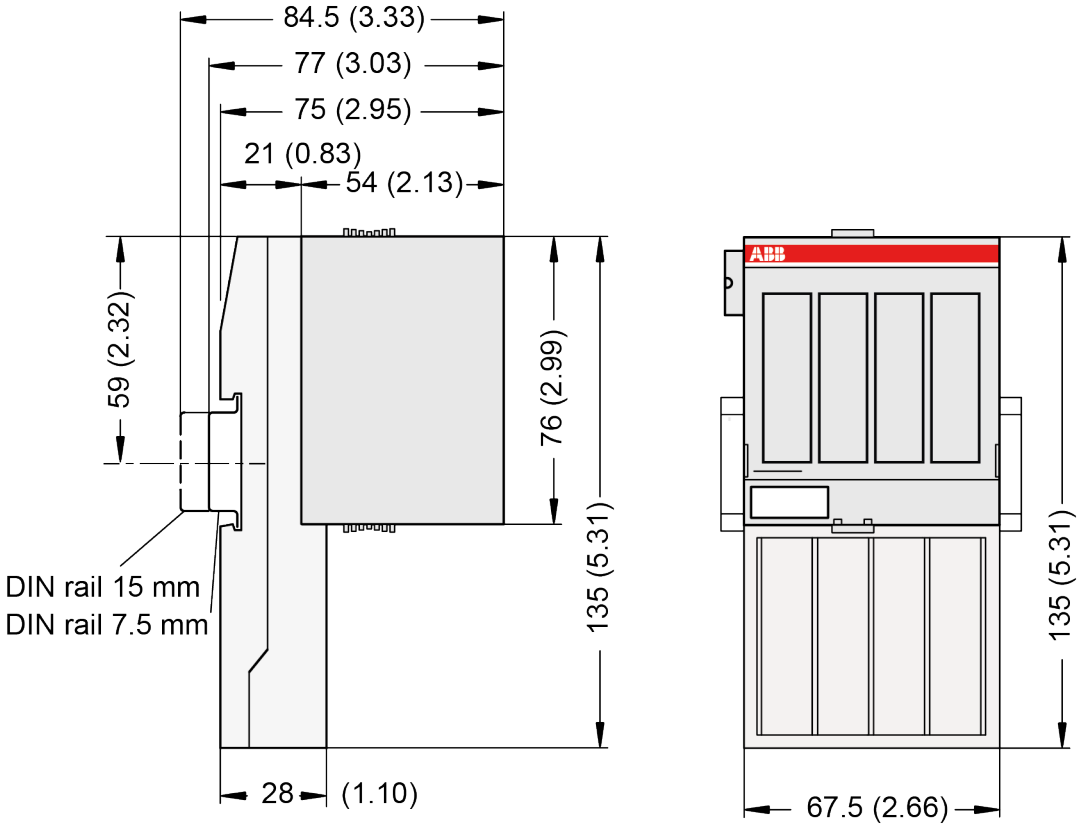
9.1 Assembly



9.2 Disassembly

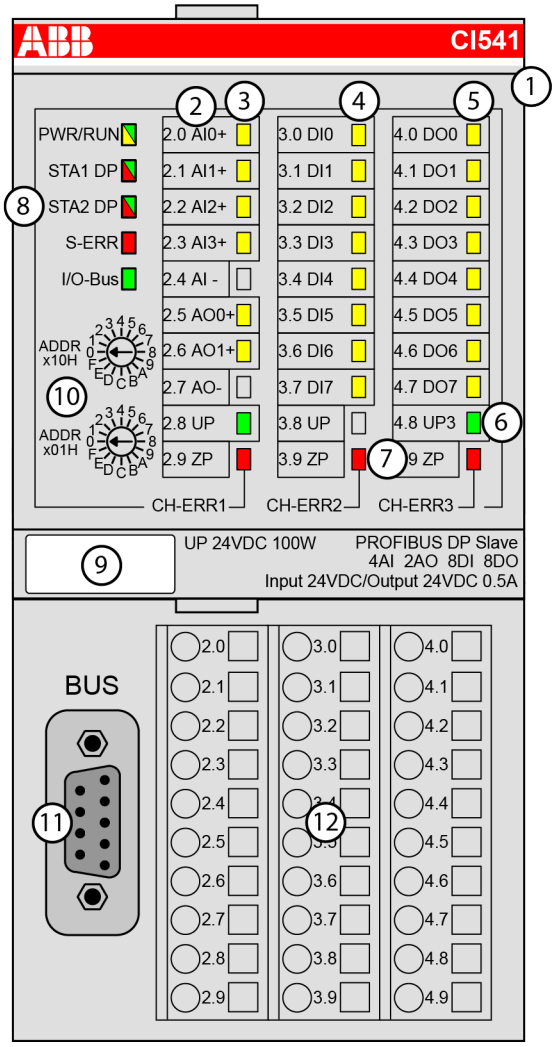


9.3 Dimensions



The dimensions are in mm and in brackets in inch.

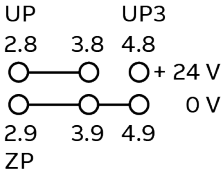
9.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 6 yellow LEDs to display the signal states of the analog inputs/outputs (AI0 - AI3, AO0 - AO1)
4 8 yellow LEDs to display the signal states of the digital inputs (DI0 - DI7)
5 8 yellow LEDs to display the signal states of the digital outputs (DO0 - DO7)
6 2 green LEDs to display the supply voltage UP and UP3
7 3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8 5 system LEDs: PWR/RUN, STA1 DP, STA2 DP, S-ERR, I/O-Bus
9 Label
10 2 rotary switches for setting the PROFIBUS ID
11 Interface for PROFIBUS
12 Terminal unit
❄ Sign for XC version

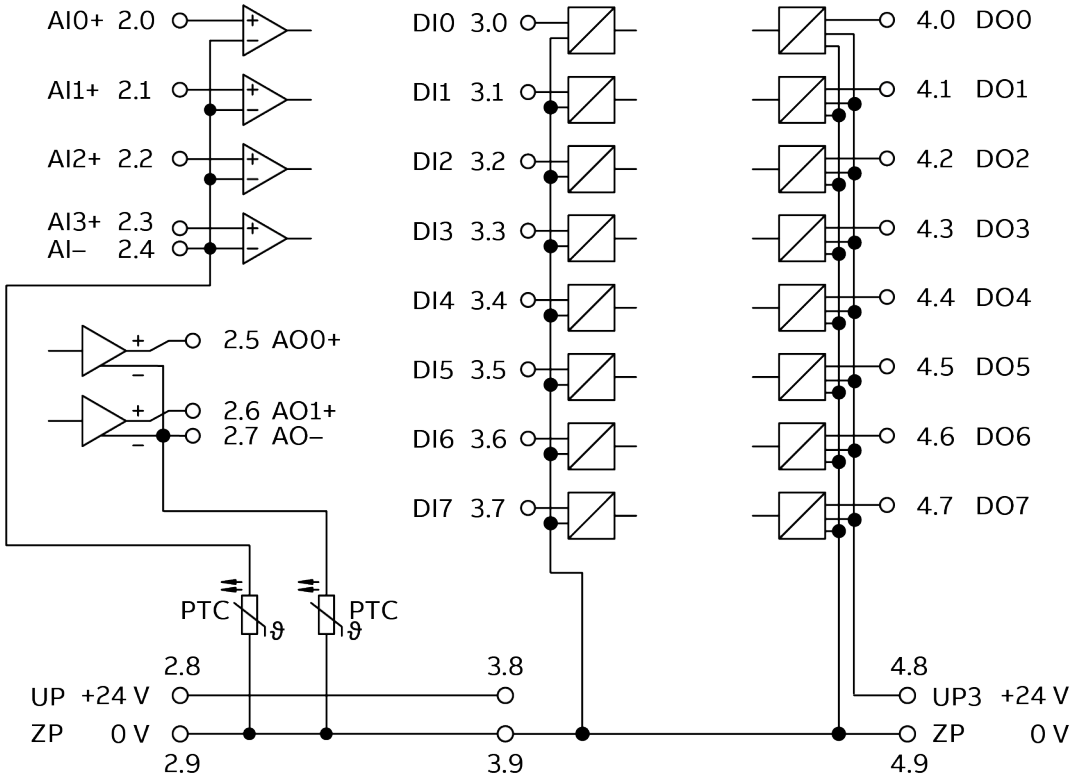
All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

9.4.1 Process Supply Voltage

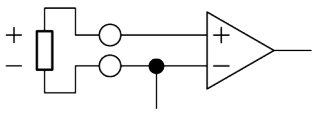


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

9.4.2 Inputs/Outputs



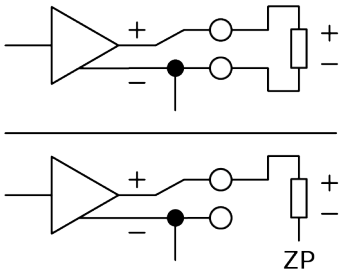
Example Analog Input



AI0 ... AI3
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 11: Example for connection input AIx

Example Analog Output



AO0 ... AO1
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA

Fig. 12: Example for connection output AOx

Example Digital Input

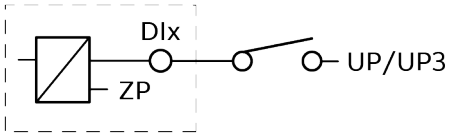


Fig. 13: Example for connection input DIx

Example Digital Output

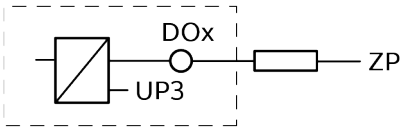


Fig. 14: Example for connection output DOx

9.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

9.6 Certification

MSIP-REI-Abb-AC500

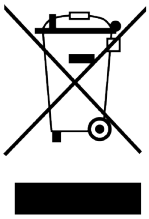
en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

en **Note**
These devices correspond to: **KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”

ko 참고
이러한 기기는 **KN61000-6-2** **“**산업 환경에 대한 내성**”**, **KN61000-6-4** **“**산업 환경 누출 기준**”**에 적합함

9.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

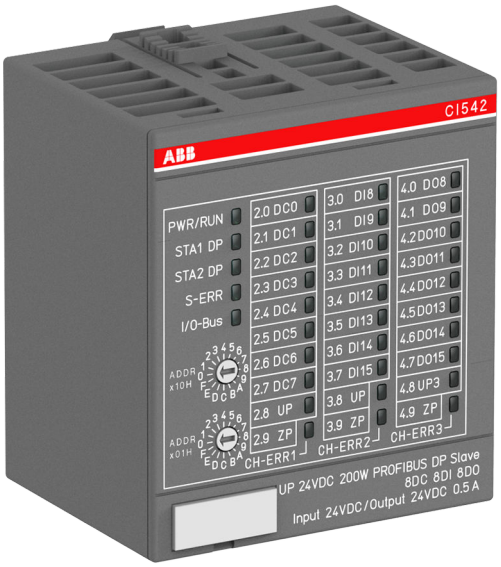
It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

10 CI542-DP

- CI542-DP
- CI542-DP-XC



CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

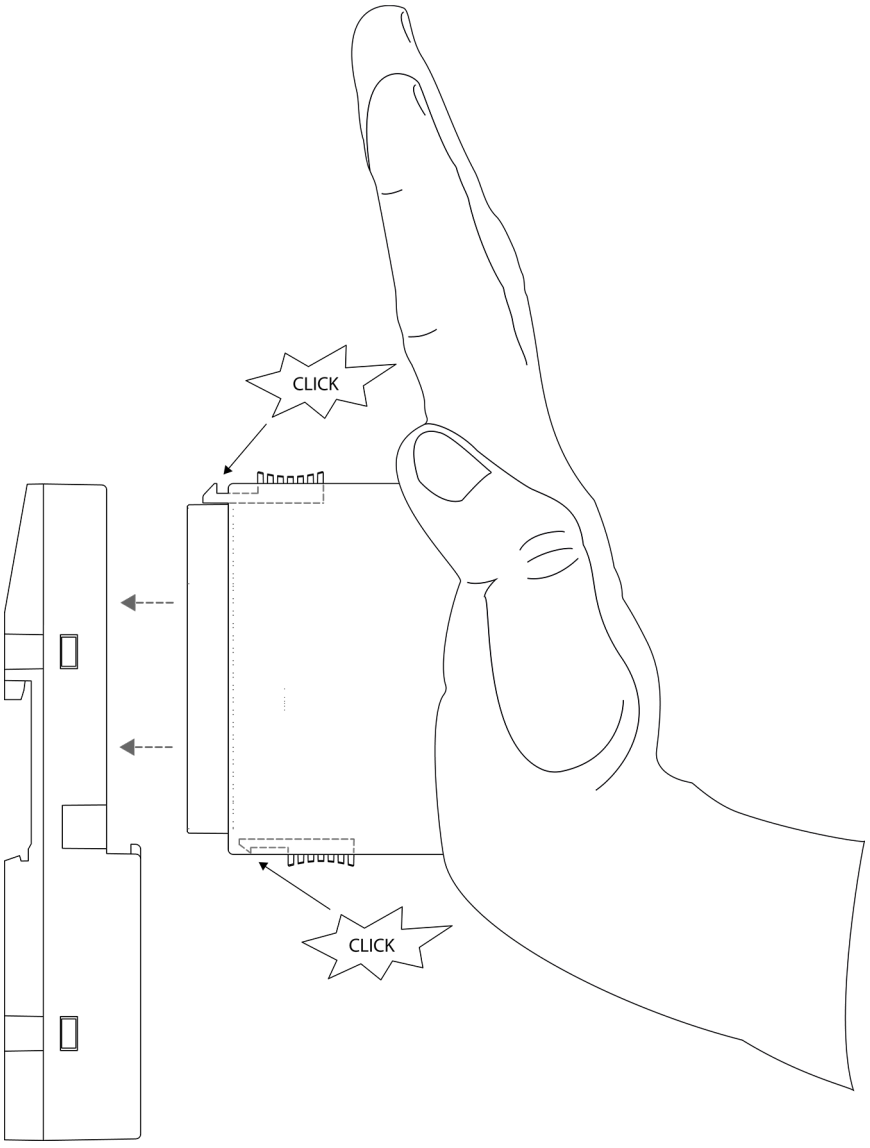
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

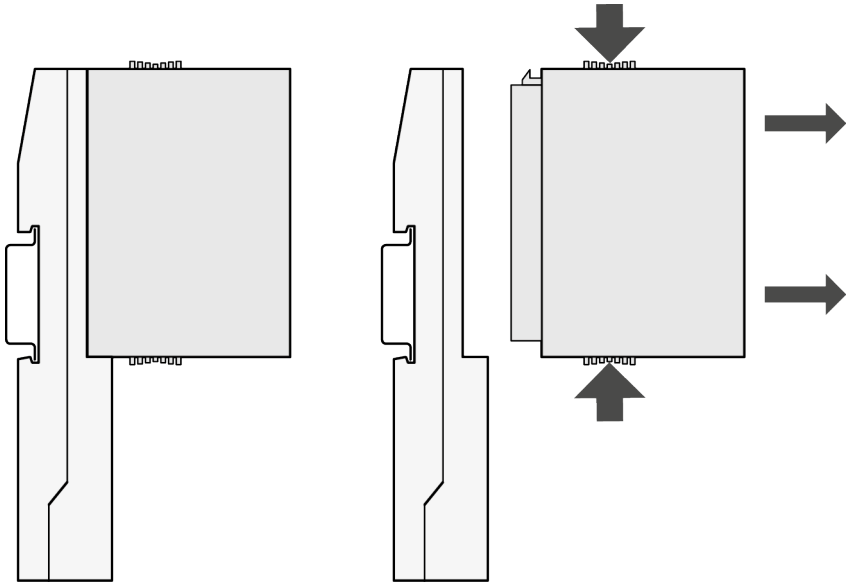
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

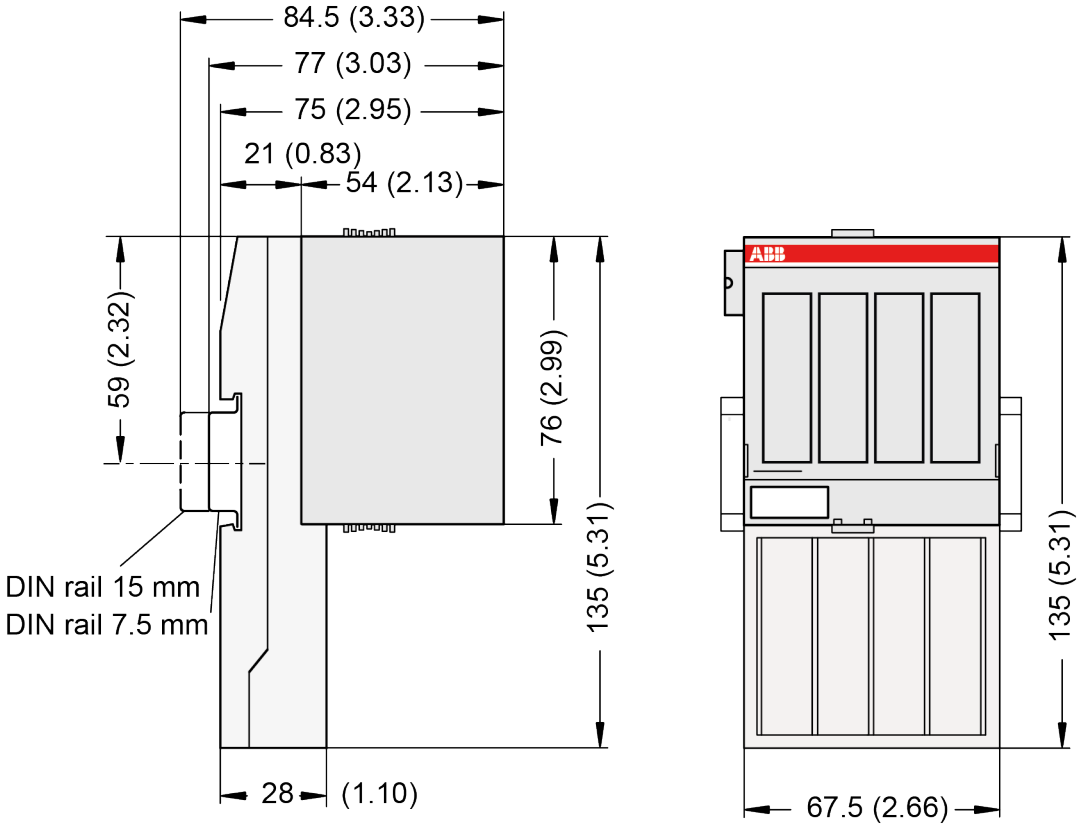
10.1 Assembly



10.2 Disassembly

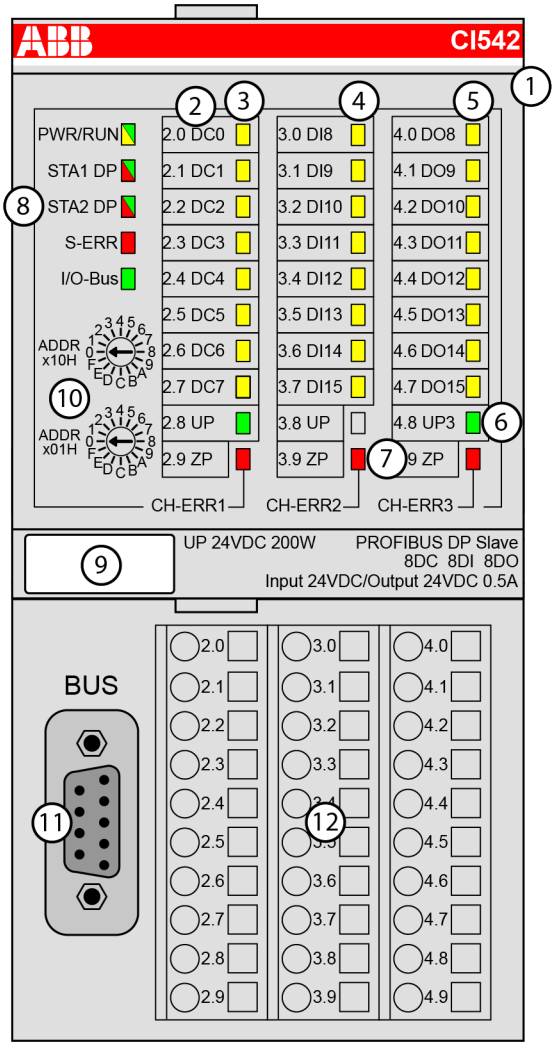


10.3 Dimensions



The dimensions are in mm and in brackets in inch.

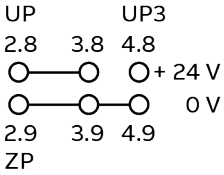
10.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 8 yellow LEDs to display the signal states of the configurable digital inputs/outputs (DC0 - DC7)
4 8 yellow LEDs to display the signal states of the digital inputs (DI8 - DI15)
5 8 yellow LEDs to display the signal states of the digital outputs (DO8 - DO15)
6 2 green LEDs to display the supply voltage UP and UP3
7 3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8 5 system LEDs: PWR/RUN, STA1 DP, STA2 DP, S-ERR, I/O-Bus
9 Label
10 2 rotary switches for setting the PROFIBUS ID
11 Interface for PROFIBUS
12 Terminal unit
❄ Sign for XC version

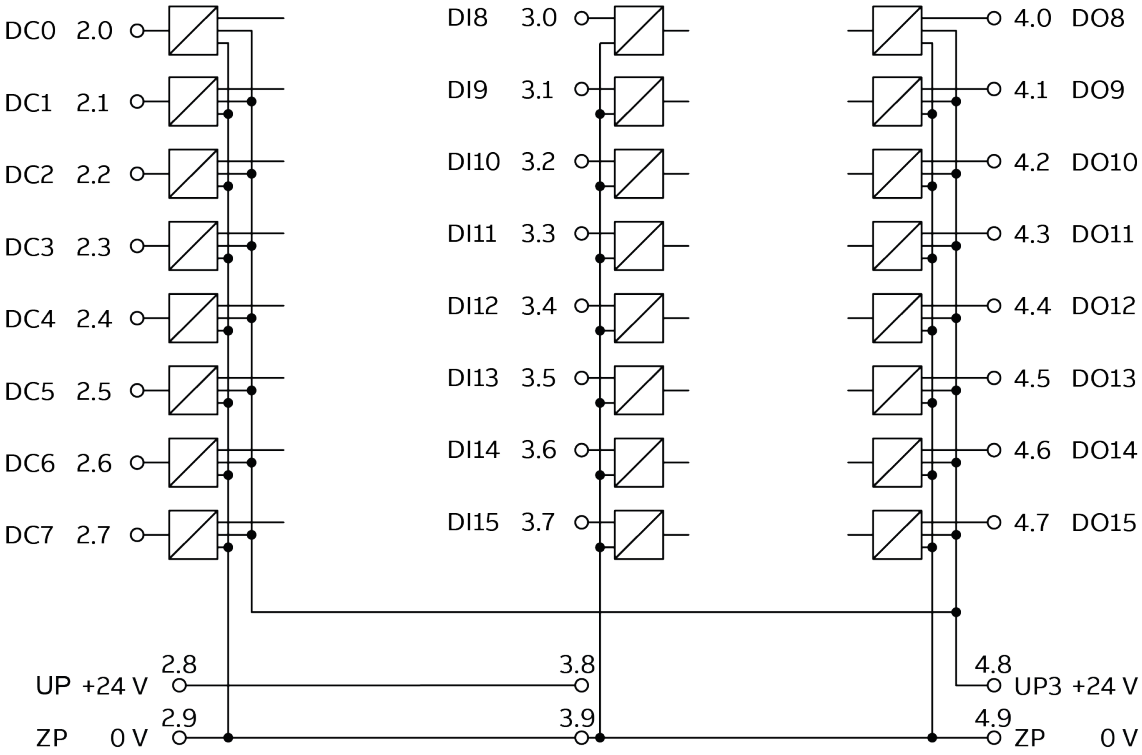
All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

10.4.1 Process Supply Voltage

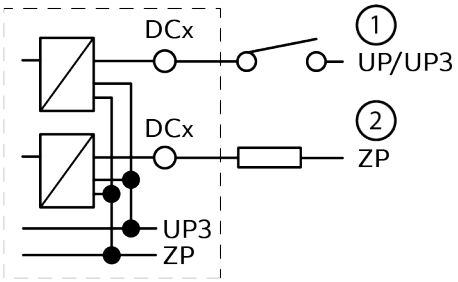


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

10.4.2 Inputs/Outputs



Example Input or Output



1 Example for connection as an input
2 Example for connection as an output

Example Digital Input

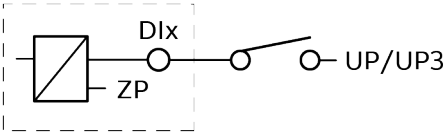


Fig. 15: Example for connection input DIx

Example Digital Output

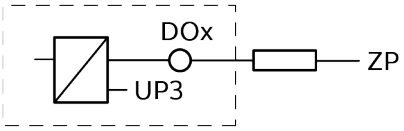


Fig. 16: Example for connection output DOx

10.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

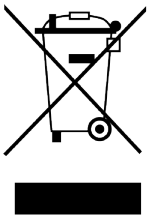
Use a damp cloth instead.

10.6 Certification

MSIP-REI-Abb-AC500

en	**Devices with KCC sign on product sticker and packaging**	
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	
en	**Note** These devices correspond to:	**KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”
ko	참고 이러한 기기는	**KN61000-6-2 “**산업 환경에 대한 내성**”,** **KN61000-6-4 “**산업 환경 누출 기준**”**에 적합함

10.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

11 CI5x1

- CI501-PNIO
- CI501-PNIO-XC
- CI511-ETHCAT
- CI521-MODTCP
- CI521-MODTCP-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

Hot swapping is only allowed for I/O modules.

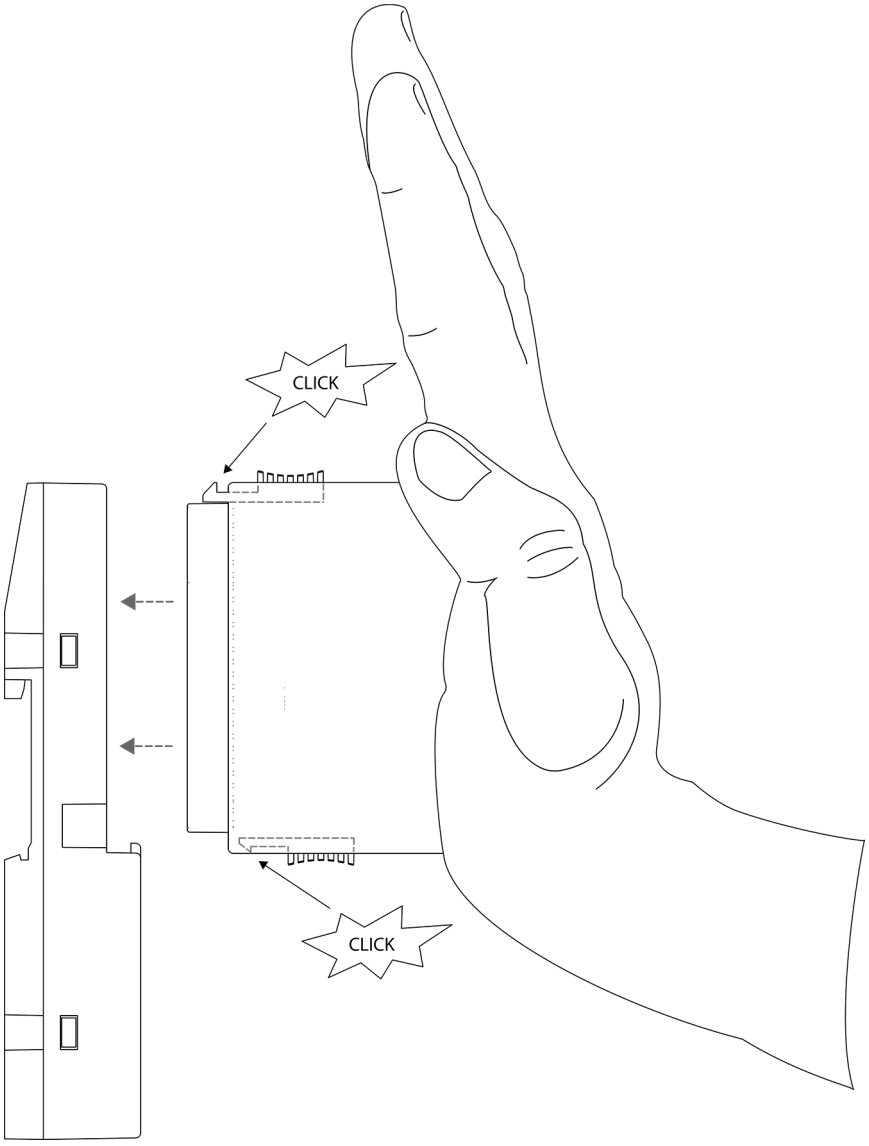
Processor modules and communication interface modules must not be removed or inserted during operation.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3

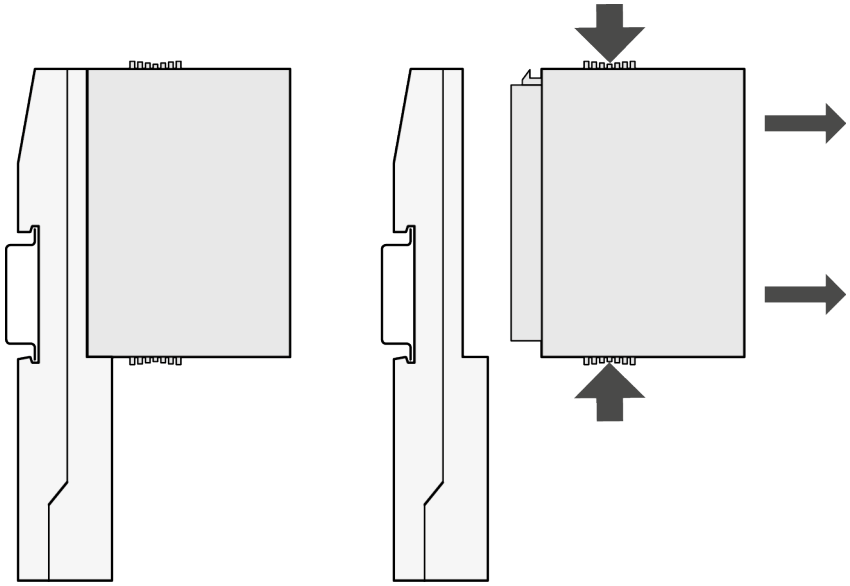
Device	Min. required device index for I/O module as of FW Version 3.0.14
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

NOTICE!
The section "Hot Swap" is only valid for CI501-PNIO(-XC) and CI521-MODTCP(-XC).

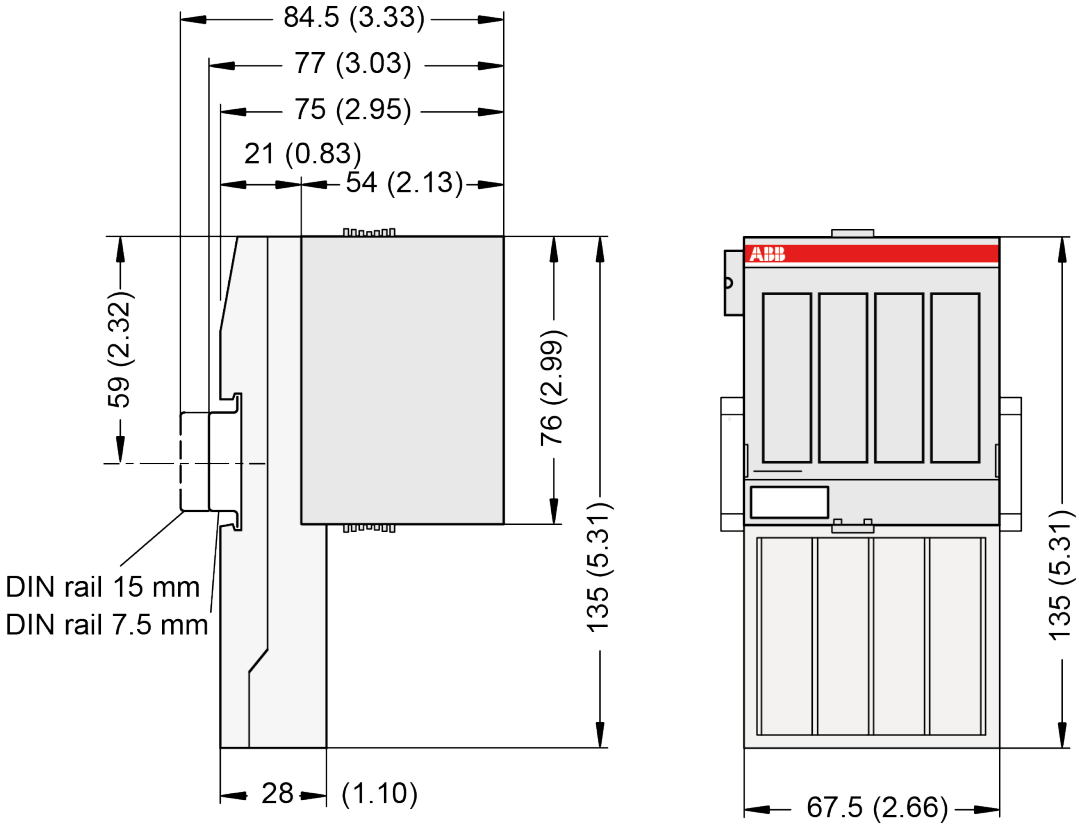
11.1 Assembly



11.2 Disassembly



11.3 Dimensions



The dimensions are in mm and in brackets in inch.

11.4 Connection

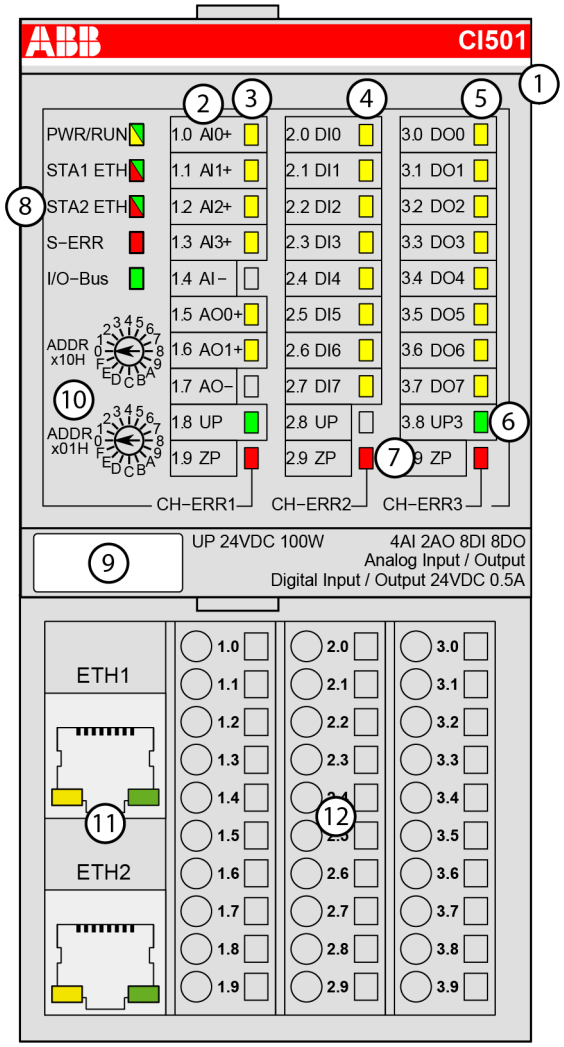
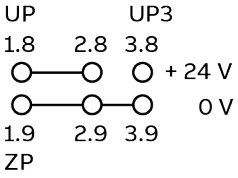


Fig. 17: CI501-PNIO (example)

1 I/O bus
2 Allocation between terminal number and signal name
3 6 yellow LEDs to display the signal states of the analog inputs/outputs (AI0 - AI3, AO0 - AO1)
4 8 yellow LEDs to display the signal states of the digital inputs (DI0 - DI7)
5 8 yellow LEDs to display the signal states of the digital outputs (DO0 - DO7)
6 2 green LEDs to display the supply voltage UP and UP3
7 3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8 5 system LEDs: PWR/RUN, STA1 ETH, STA2 ETH, S-ERR, I/O-Bus
9 Label
10 2 rotary switches for setting the I/O device identifier (CI501-PNIO(-XC), CI521-MODTCP(-XC))
11 Ethernet network interfaces (ETH1, ETH2) on the terminal unit
12 Terminal unit
❄ Sign for XC version

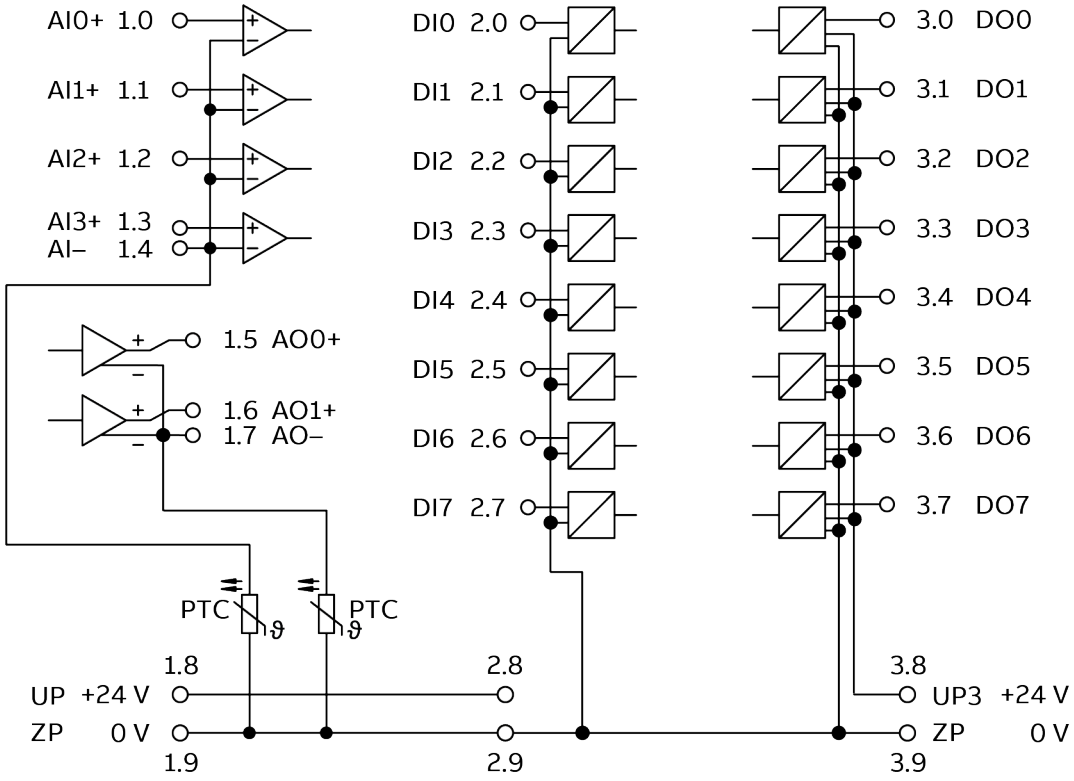
All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

11.4.1 Process Supply Voltage

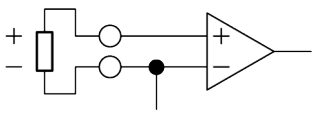


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

11.4.2 Inputs/Outputs



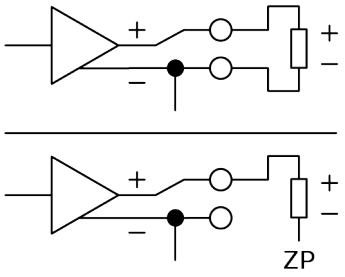
Example Analog Input



AI0 ... AI3
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 18: Example for connection input AIx

Example Analog Output



AO0 ... AO1
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA

Fig. 19: Example for connection output AOx

Example Digital Input

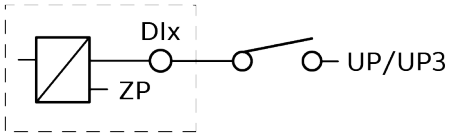


Fig. 20: Example for connection input DIx

Example Digital Output

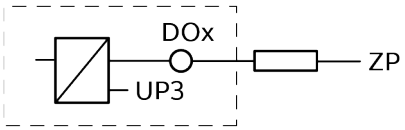


Fig. 21: Example for connection output DOx

11.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

11.6 Certification

MSIP-REI-Abb-AC500

en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

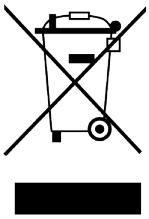
en **Note**
These devices correspond to:

KN61000-6-2 “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는

KN61000-6-2 **“**산업 환경에 대한 내성**”,**
KN61000-6-4 **“**산업 환경 누출 기준**”**에 적합함

11.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

12 CI5x2

- CI502-PNIO
- CI502-PNIO-XC
- CI512-ETHCAT
- CI522-MODTCP
- CI522-MODTCP-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

Hot swapping is only allowed for I/O modules.

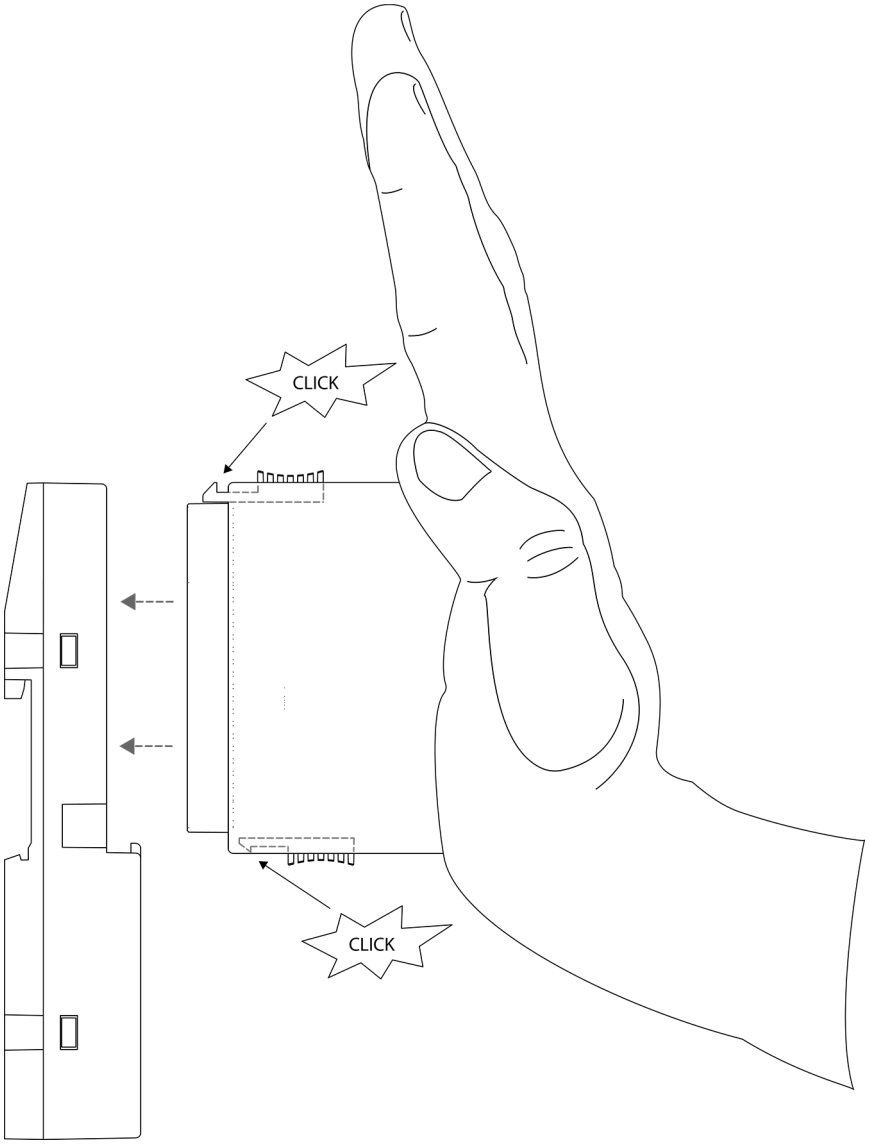
Processor modules and communication interface modules must not be removed or inserted during operation.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3

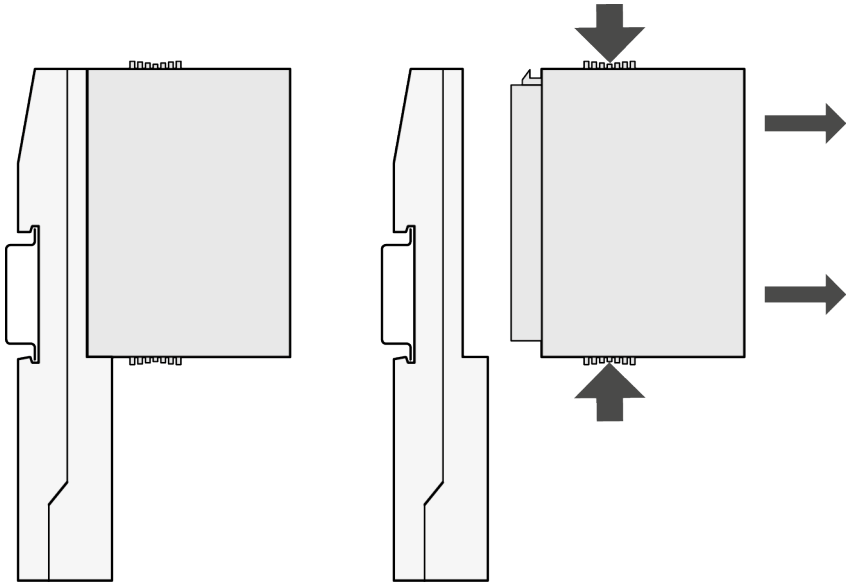
Device	Min. required device index for I/O module as of FW Version 3.0.14
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

NOTICE!
The section "Hot Swap" is only valid for CI502-PNIO(-XC) and CI522-MODTCP(-XC).

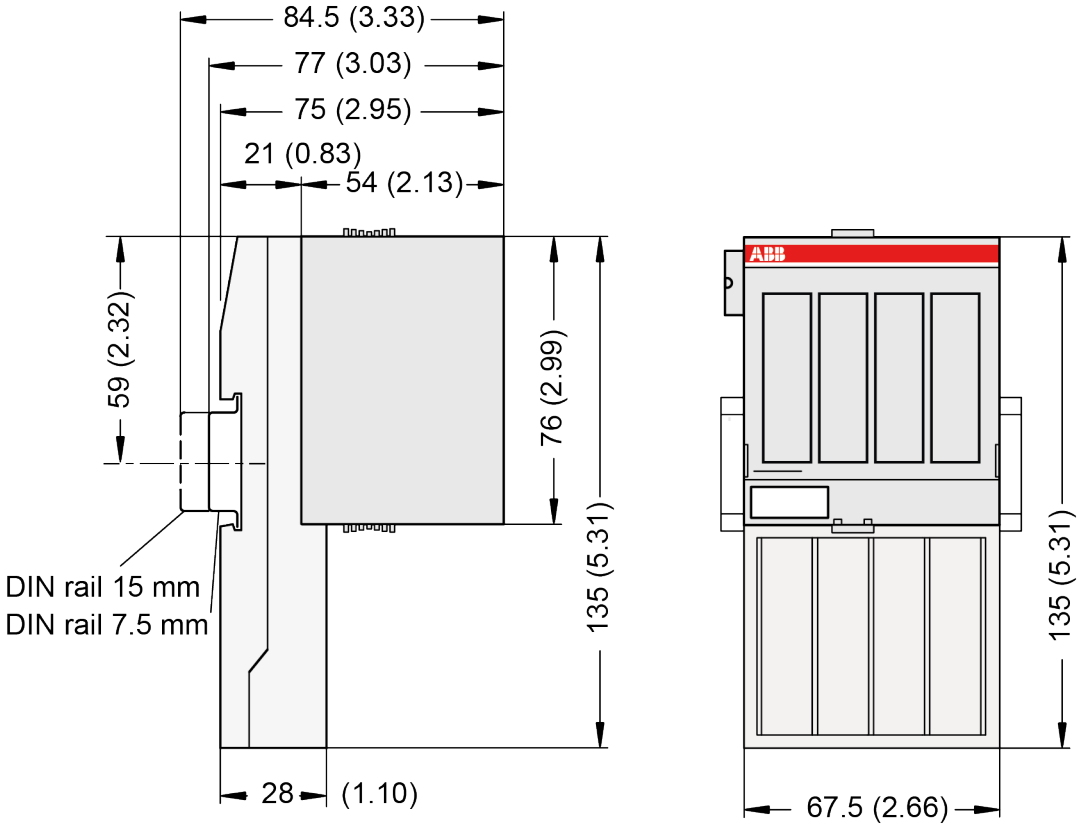
12.1 Assembly



12.2 Disassembly



12.3 Dimensions



The dimensions are in mm and in brackets in inch.

12.4 Connection

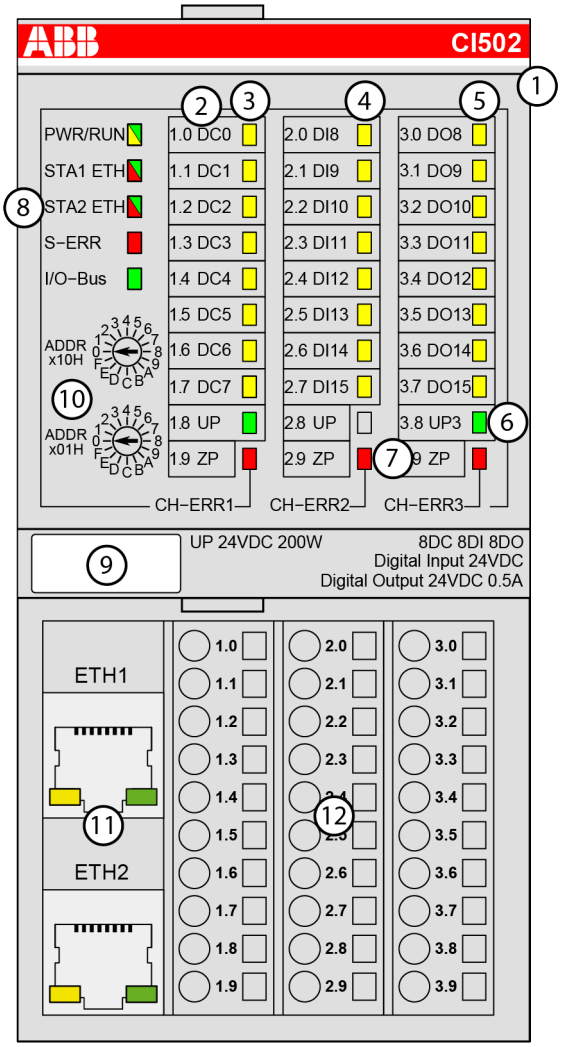
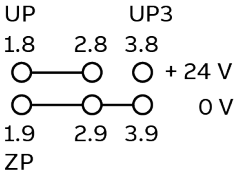


Fig. 22: CI502-PNIO (example)

1 I/O bus
2 Allocation between terminal number and signal name
3 8 yellow LEDs to display the signal states of the configurable digital inputs/outputs (DC0 - DC7)
4 8 yellow LEDs to display the signal states of the digital inputs (DI8 - DI15)
5 8 yellow LEDs to display the signal states of the digital outputs (DO8 - DO15)
6 2 green LEDs to display the supply voltage UP and UP3
7 3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8 5 system LEDs: PWR/RUN, STA1 ETH, STA2 ETH, S-ERR, I/O-Bus
9 Label
10 2 rotary switches for setting the I/O device identifier (CI502-PNIO(-XC), CI522-MODTCP(-XC))
11 Ethernet network interfaces (ETH1, ETH2) on the terminal unit
12 Terminal unit
❄ Sign for XC version

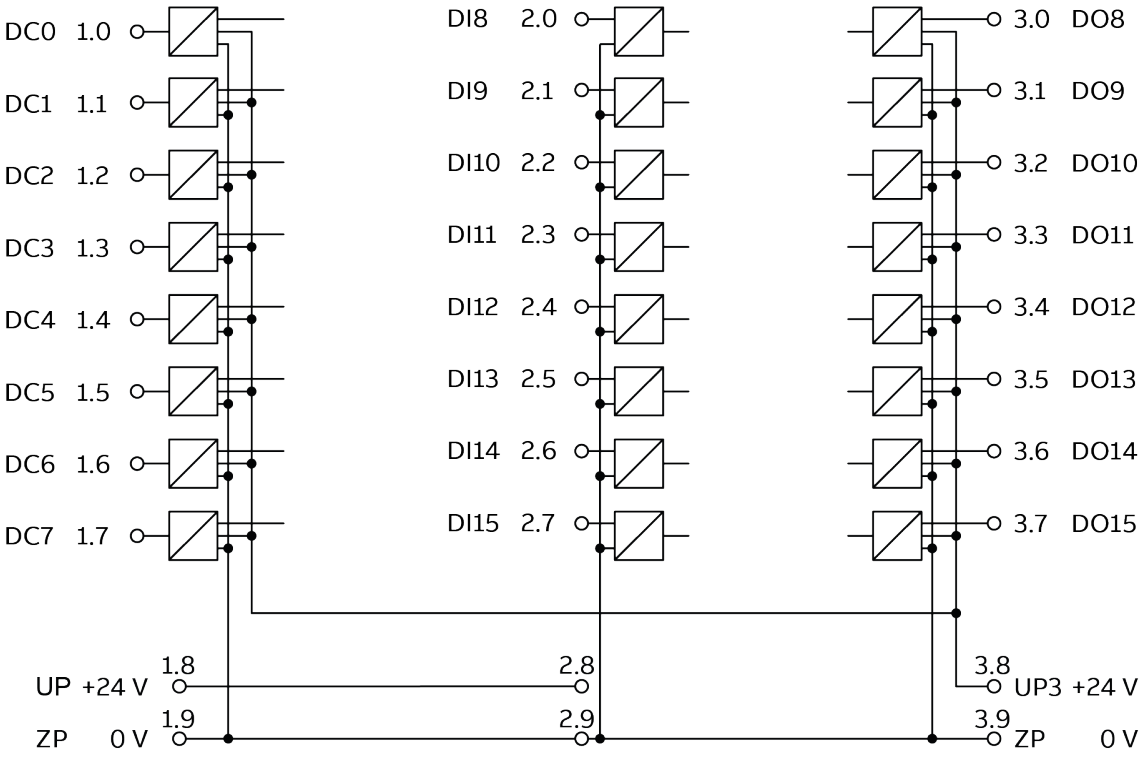
All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

12.4.1 Process Supply Voltage

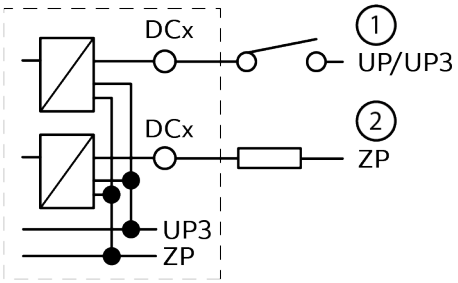


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

12.4.2 Inputs/Outputs



Example Input or Output



1 Example for connection as an input
2 Example for connection as an output

Example Digital Input

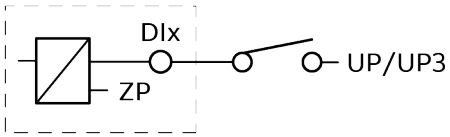


Fig. 23: Example for connection input DIx

Example Digital Output

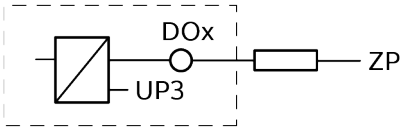


Fig. 24: Example for connection output DOx

12.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

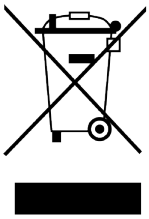
12.6 Certification

MSIP-REI-Abb-AC500

en	**Devices with KCC sign on product sticker and packaging**
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”
ko	참고 이러한 기기는	**KN61000-6-2 “**산업 환경에 대한 내성**”,** **KN61000-6-4 “**산업 환경 누출 기준**”**에 적합함

12.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

13 CM582-DP

- CM582-DP
- CM582-DP-XC

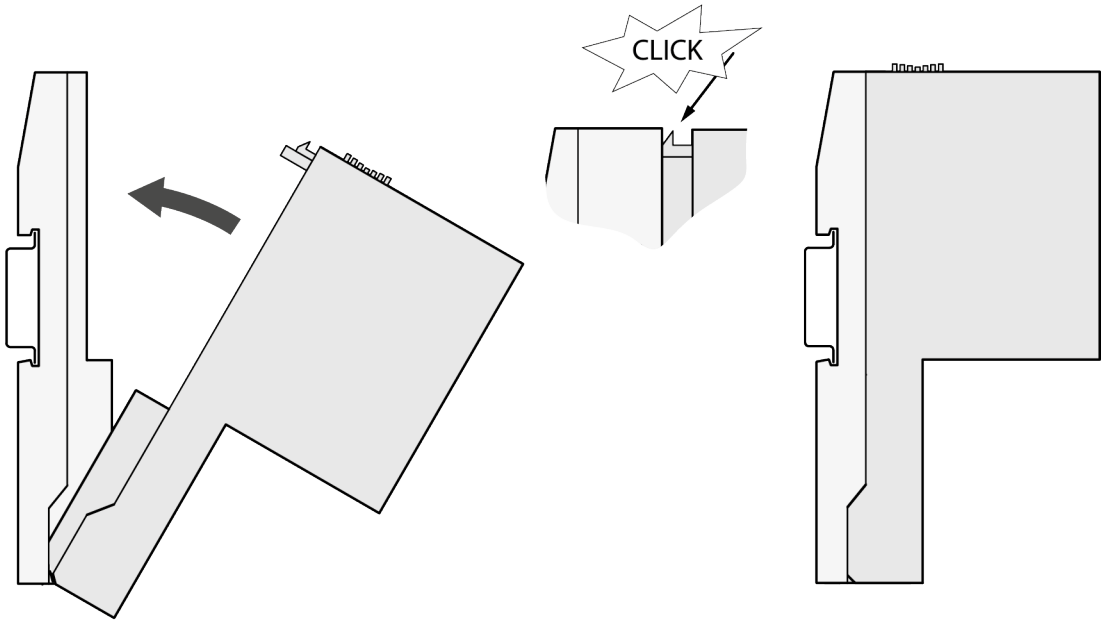
CAUTION!

Risk of injury and damaging the product!

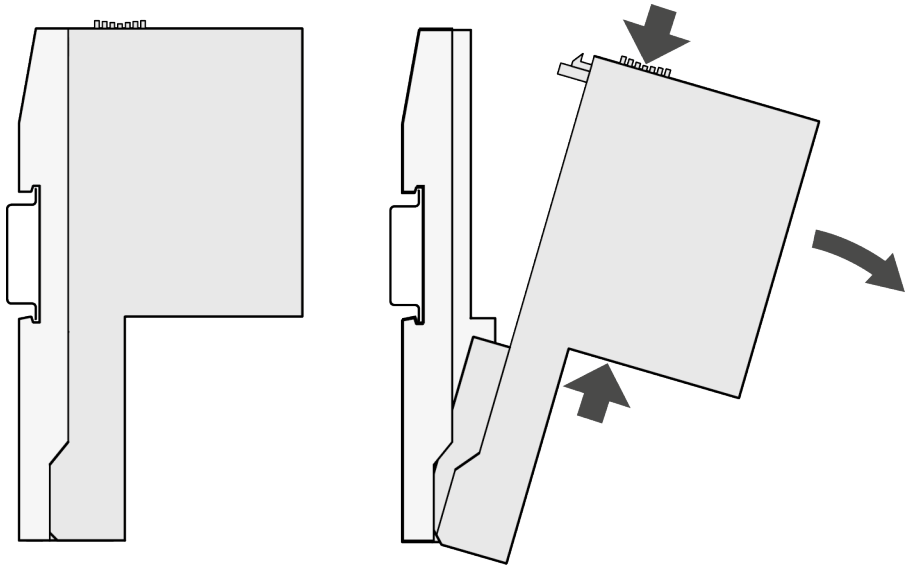
Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

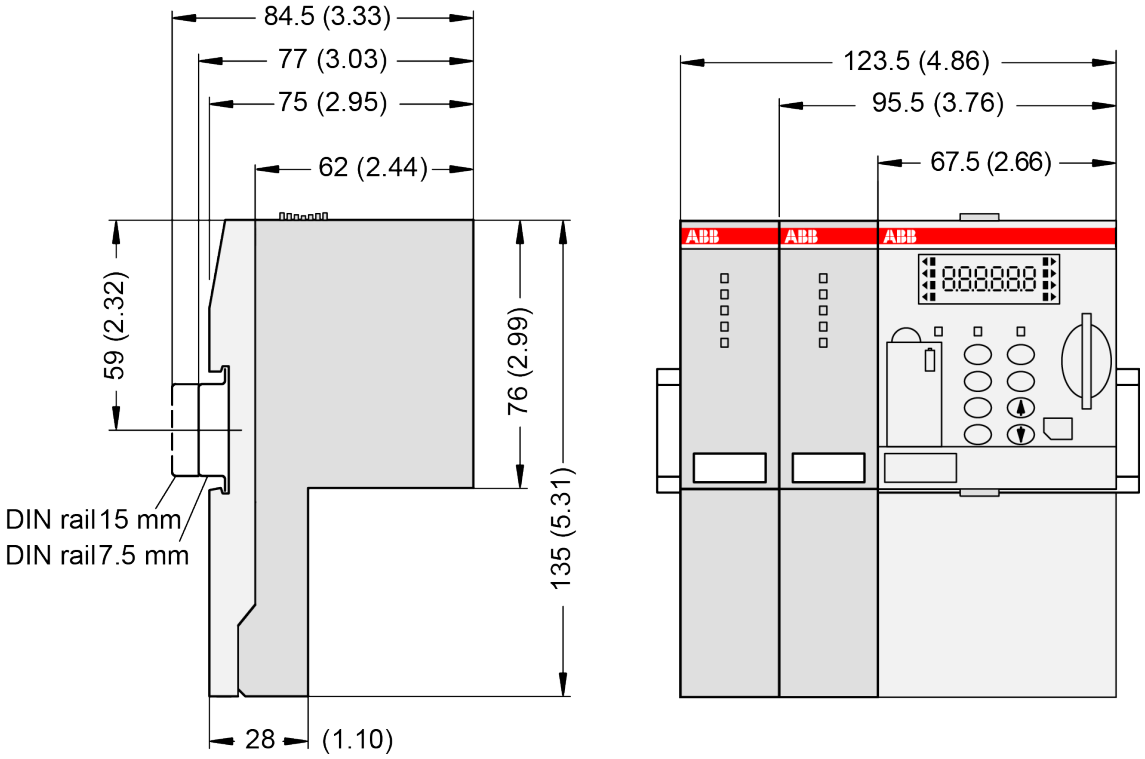
13.1 Assembly



13.2 Disassembly

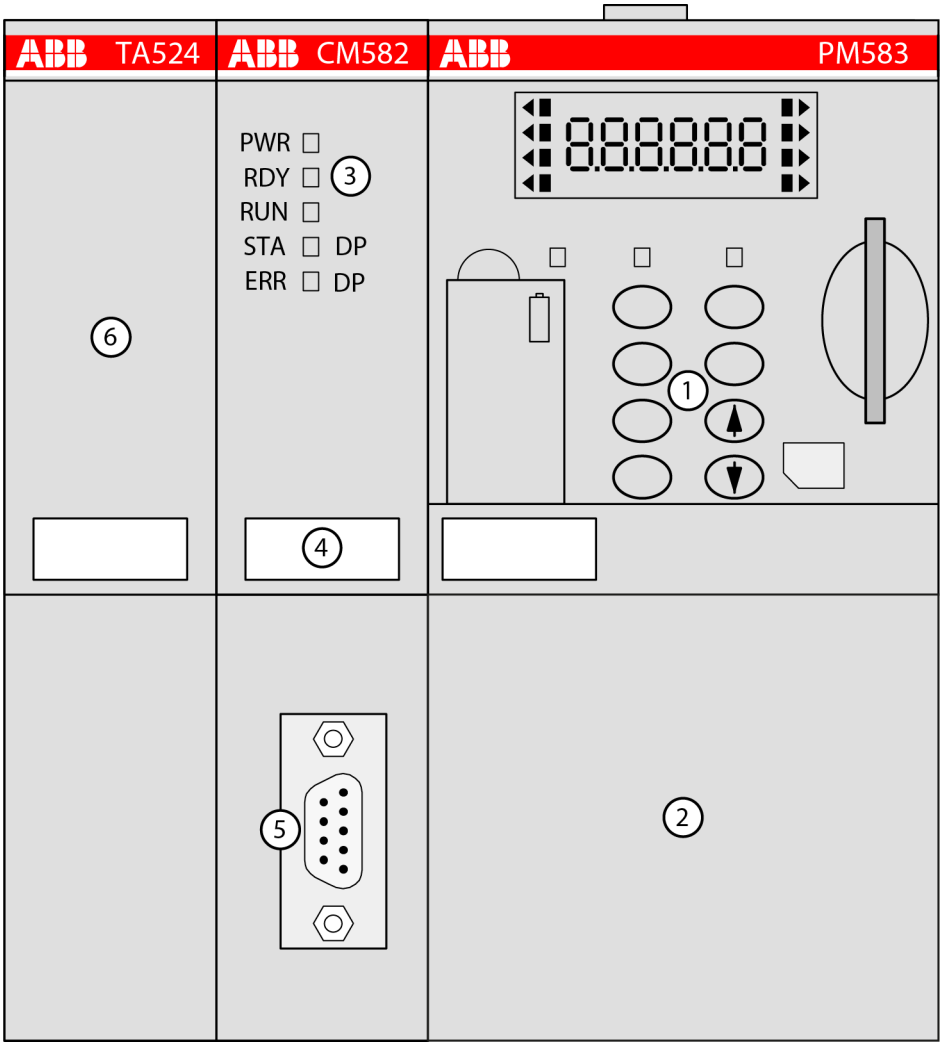


13.3 Dimensions



The dimensions are in mm and in brackets in inch.

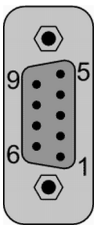
13.4 Connection



1 CPU
2 The connection part may be different on various terminal base types. See installation instructions of the specific terminal base suitable for this CPU for connection specifications.
3 5 LEDs for state display
4 Label
5 Interface for PROFIBUS
6 TA524 Dummy Communication Module
❄ Sign for XC version

13.4.1 Interface for PROFIBUS

Pin Assignment

	Pin	Signal	Description
	1	NC	Not connected
	2	NC	Not connected
	3	RxD/TxD-P	Receive/Transmit positive
	4	CNTR-P	Control signal for repeater, positive
	5	DGND	Reference potential for data exchange and +5 V
	6	VP	+5 V (power supply for the bus terminating resistors)
	7	NC	Not connected
	8	RxD/TxD-N	Receive/Transmit negative
	9	NC	Not connected

In corrosive environment, please protect unused connectors using the TA535 accessory.

Not supplied with this device.

13.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

13.6 Certification

MSIP-REI-Abb-AC500

en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

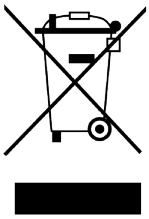
en **Note**
These devices correspond to:

KN61000-6-2 “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는

KN61000-6-2 “산업 환경에 대한 내성**”,**
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

13.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

14 CM589-PNIO(-4)

- CM589-PNIO
- CM589-PNIO-XC
- CM589-PNIO-4
- CM589-PNIO-4-XC

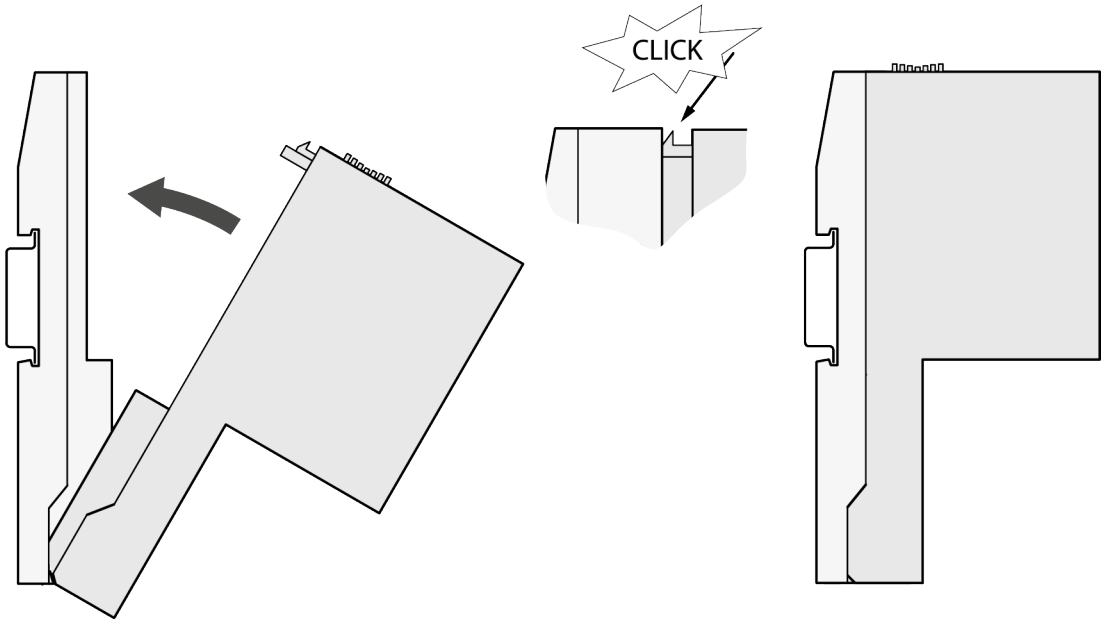
CAUTION!

Risk of injury and damaging the product!

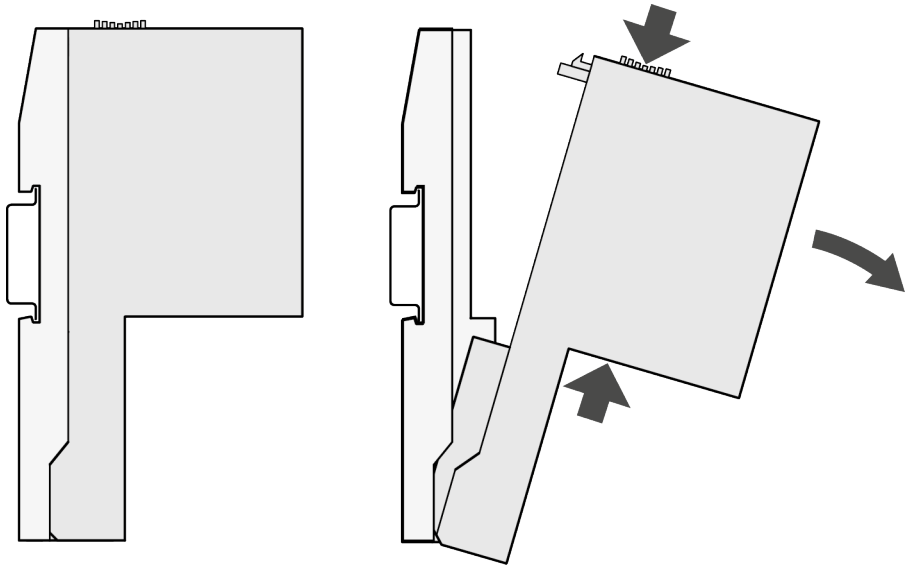
Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

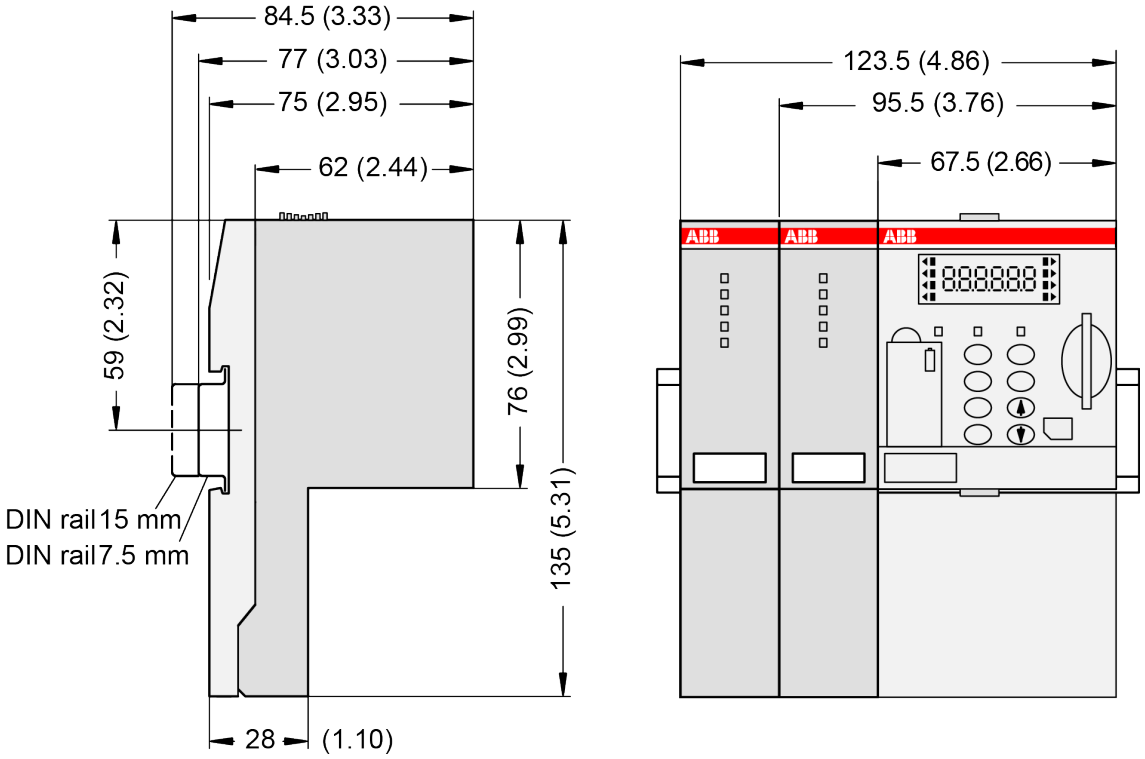
14.1 Assembly



14.2 Disassembly

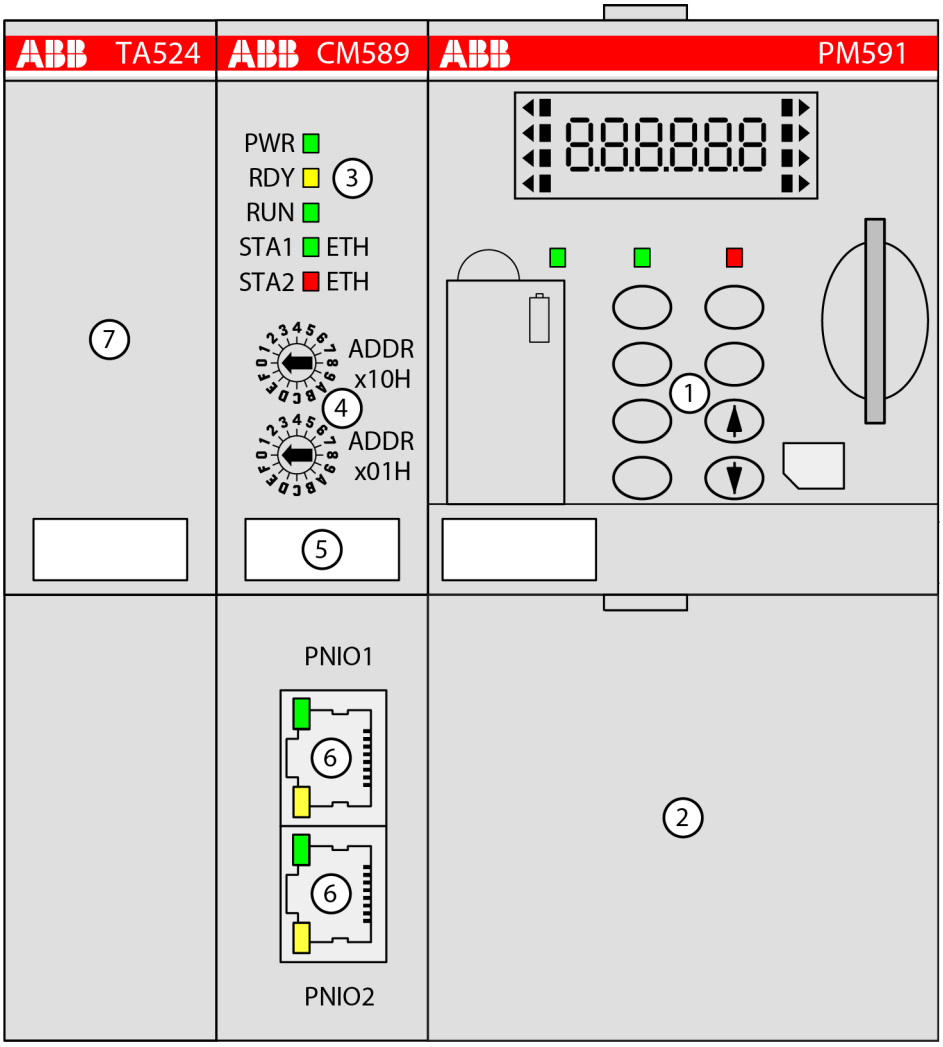


14.3 Dimensions



The dimensions are in mm and in brackets in inch.

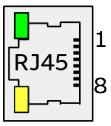
14.4 Connection



1 CPU
2 The connection part may be different on various terminal base types. See installation instructions of the specific terminal base suitable for this CPU for connection specifications.
3 5 LEDs for state display
4 2 rotary switches for setting the I/O device identifier
5 Label
6 Ethernet network interfaces
7 TA524 Dummy Communication Module

14.4.1 Ethernet Network Interface

Pin Assignment

	Pin	Signal	Description
	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NC	Not used
	5	NC	Not used
	6	RxD-	Receive data -
	7	NC	Not used
	8	NC	Not used
	Shield	Cable shield	Functional earth

In corrosive environment, please protect unused connectors using the TA535 accessory.

Not supplied with this device.

14.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

14.6 Certification

MSIP-REI-Abb-AC500

en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

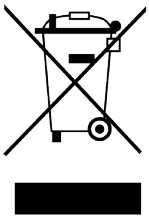
en **Note**
These devices correspond to:

KN61000-6-2 “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는

KN61000-6-2 “산업 환경에 대한 내성**”,**
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

14.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

15 DA501

- DA501
- DA501-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

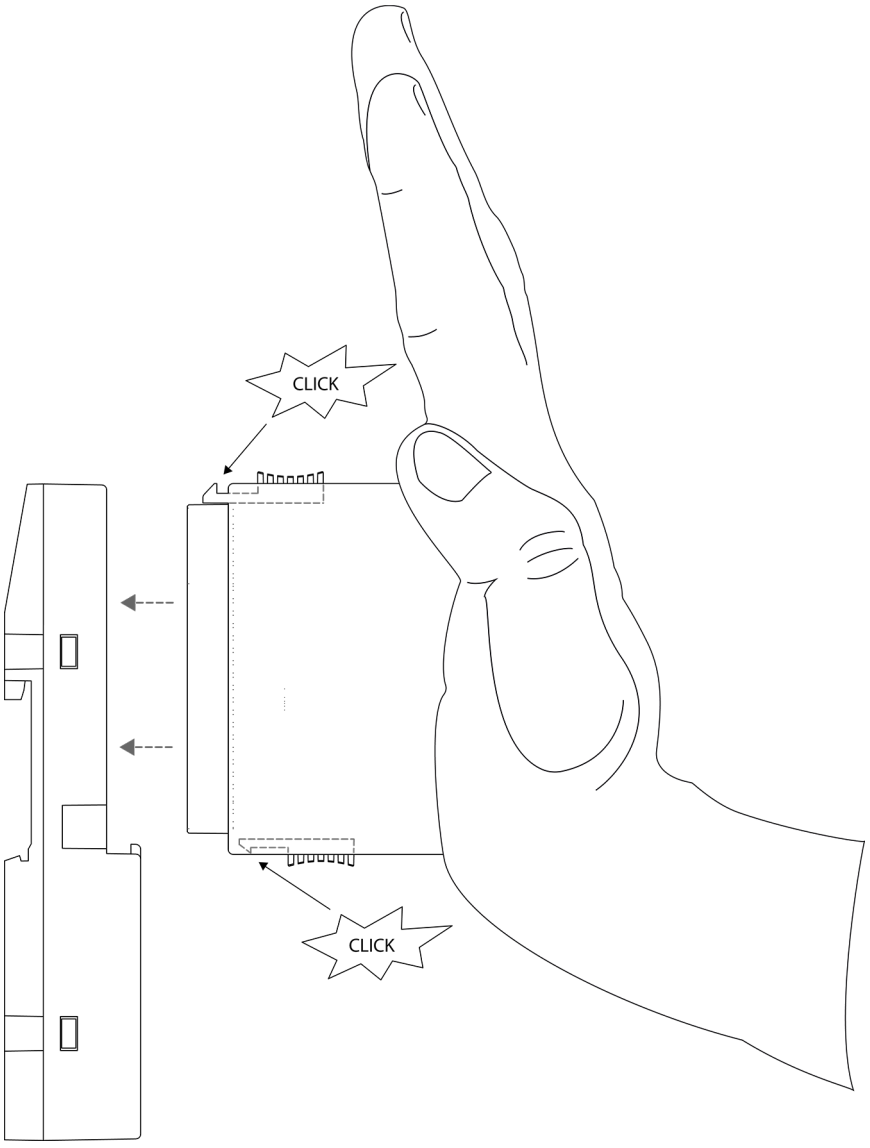
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

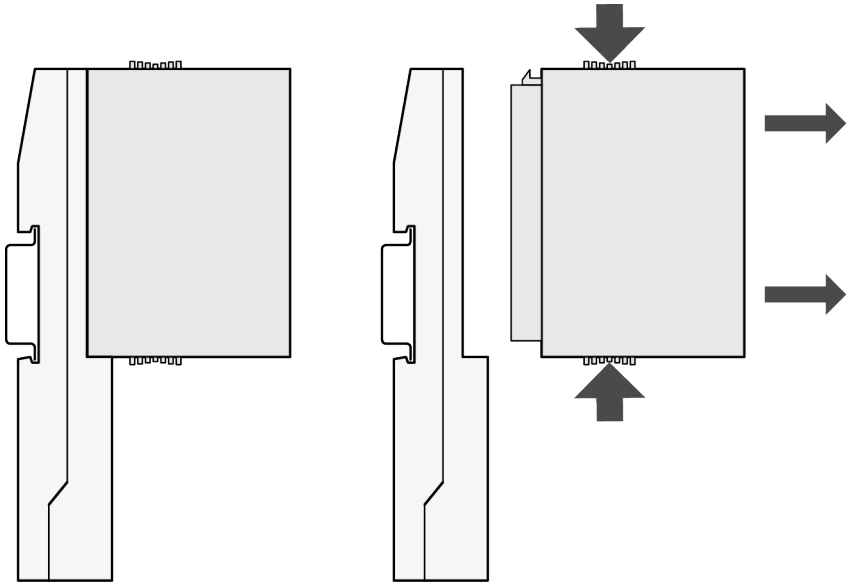
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

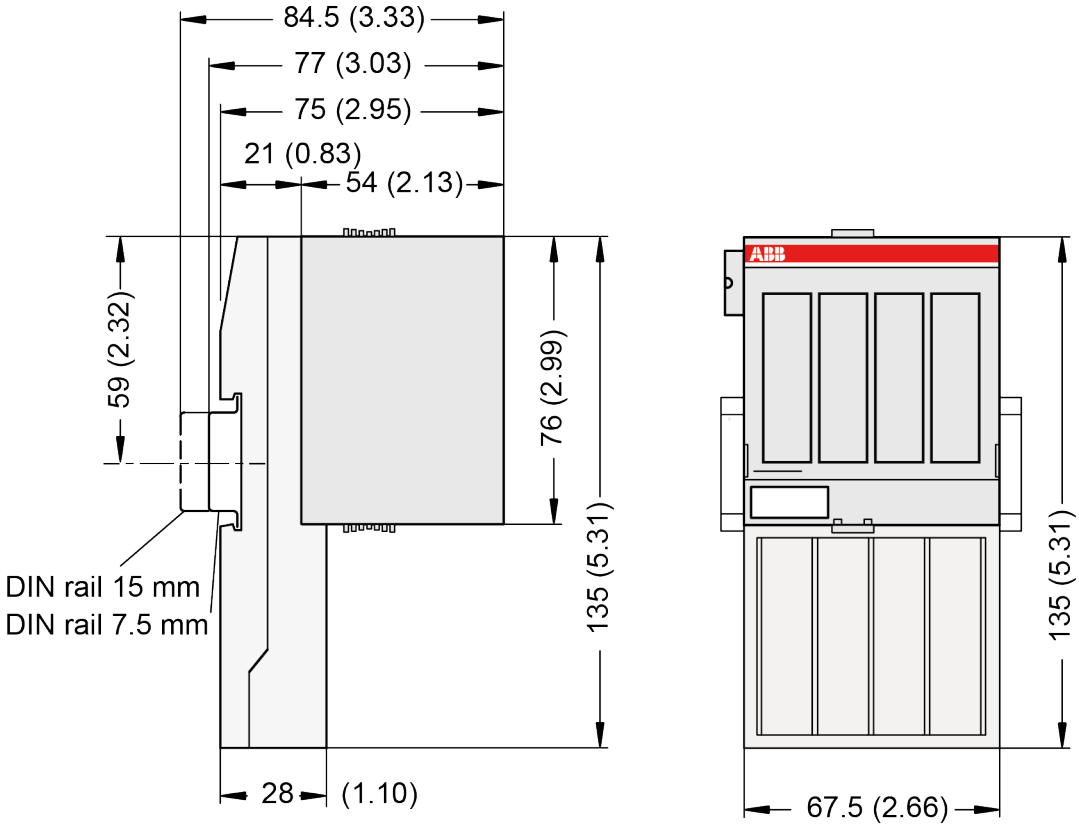
15.1 Assembly



15.2 Disassembly

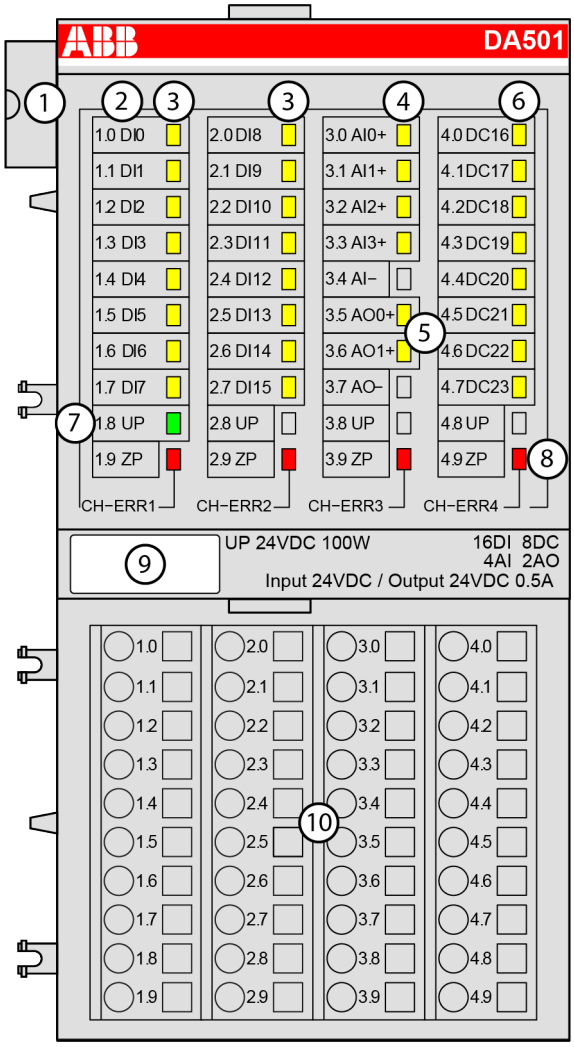


15.3 Dimensions



The dimensions are in mm and in brackets in inch.

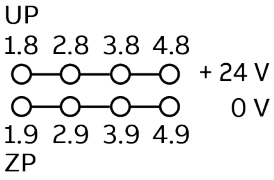
15.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 16 yellow LEDs to display the signal states of the digital inputs DI0 - DI15
4 4 yellow LEDs to display the signal states of the analog inputs AI0 to AI3
5 2 yellow LEDs to display the signal states of the analog outputs AO0 to AO1
6 8 yellow LEDs to display the signal state of the configurable digital inputs/outputs DC16 to DC23
7 1 green LED to display the state of the process supply voltage UP
8 4 red LEDs to display errors
9 Label
10 Terminal unit
❄ Sign for XC version

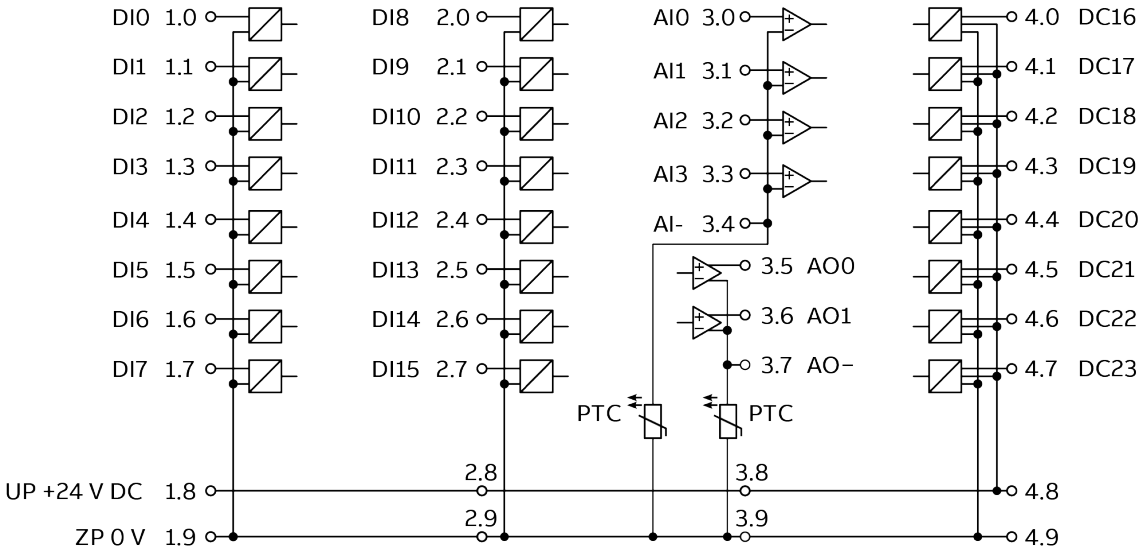
All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

15.4.1 Process Supply Voltage



CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

15.4.2 Inputs/Outputs



Examples

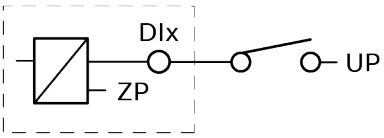


Fig. 25: Example for connection input DIx

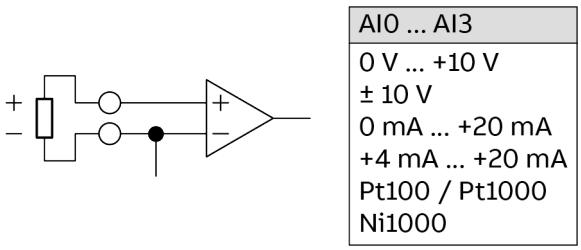


Fig. 26: Example for connection input AIx

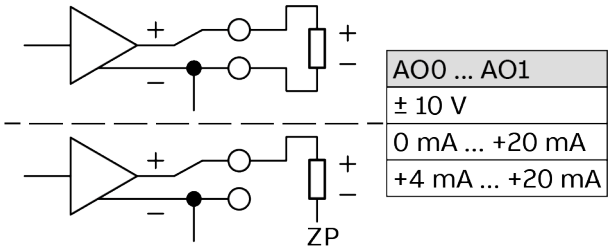
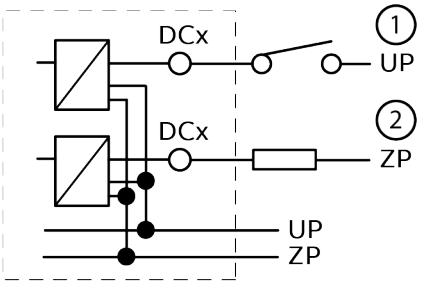


Fig. 27: Example for connection output AOx



1 Example for connection as an input
2 Example for connection as an output

15.5 Cleaning

Cleaning instruction
Do not use cleaning agent for cleaning the device.
Use a damp cloth instead.

15.6 Certification

MSIP-REI-Abb-AC500

en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

en **Note**
These devices correspond to:

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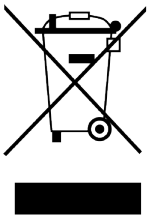
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는

KN61000-6-2 **“**산업 환경에 대한 내성**”**,
KN61000-6-4 **“**산업 환경 누출 기준**”**에 적합함

15.7 Recycling



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16 DA502

- DA502
- DA502-XC

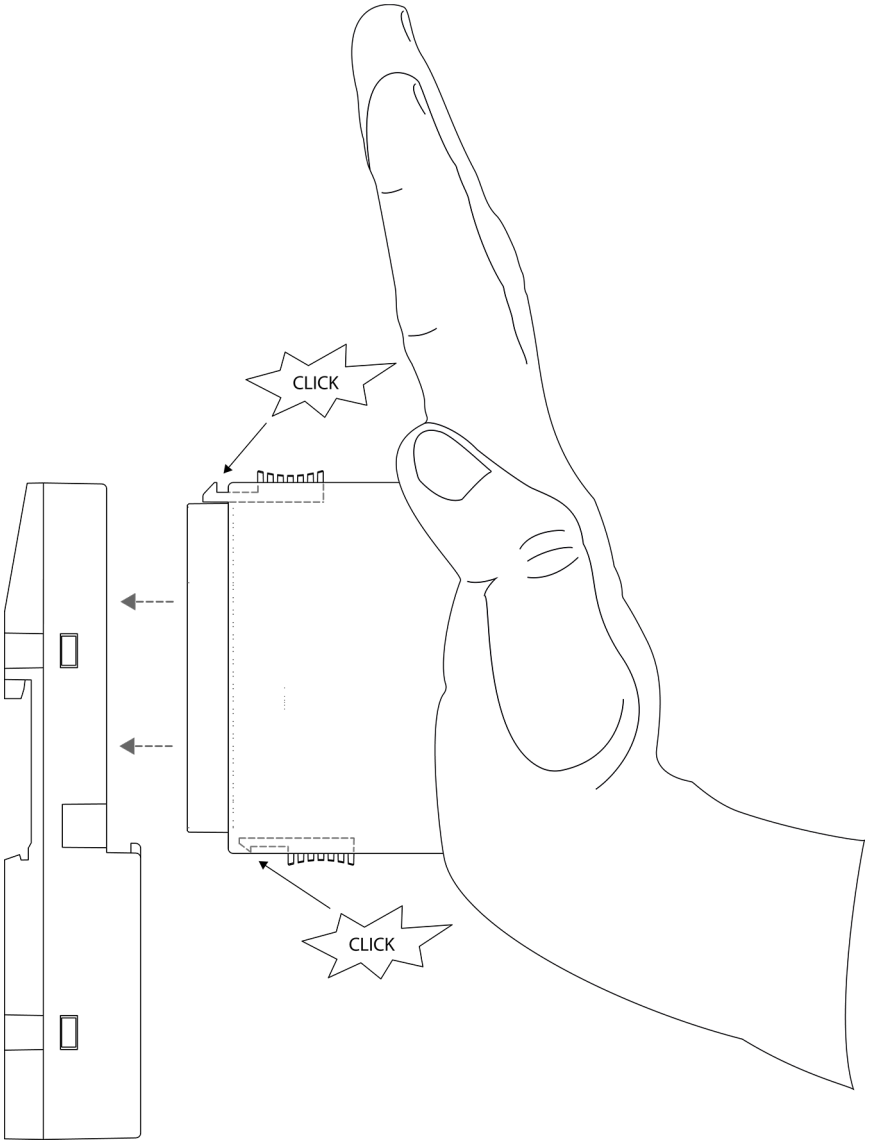
CAUTION!

Risk of injury and damaging the product!

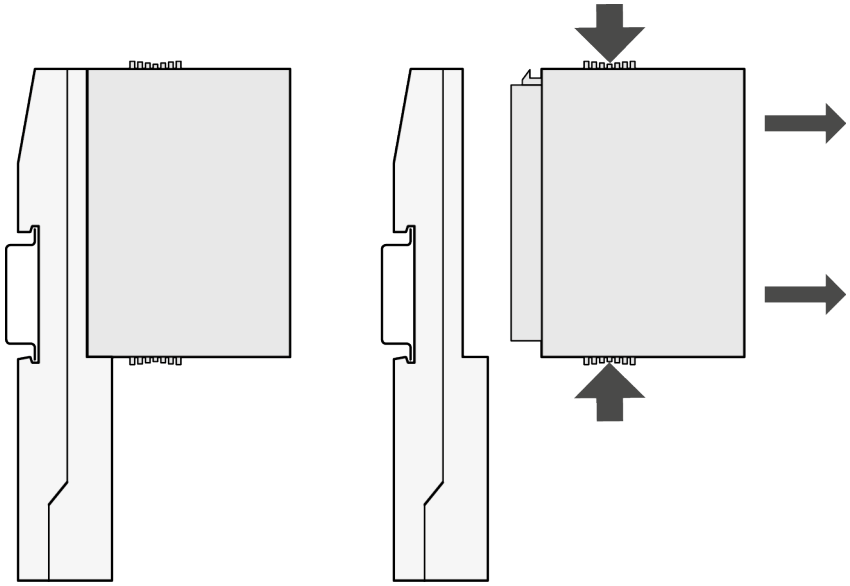
Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

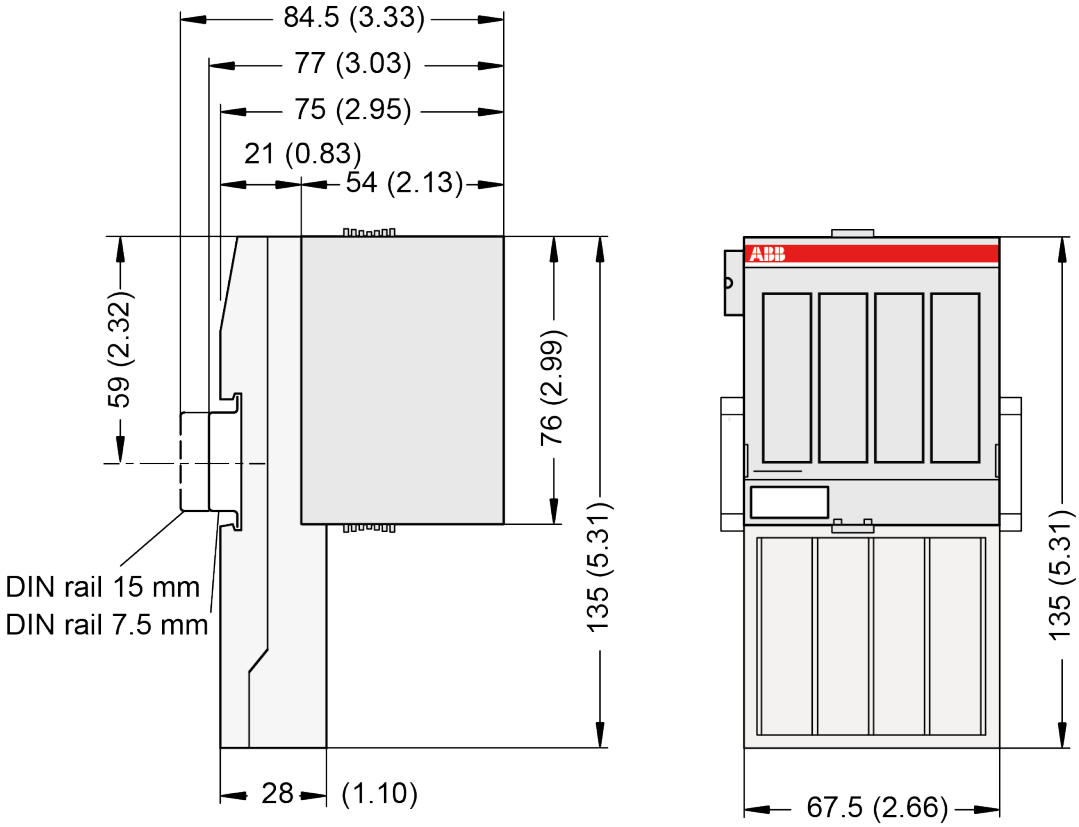
16.1 Assembly



16.2 Disassembly

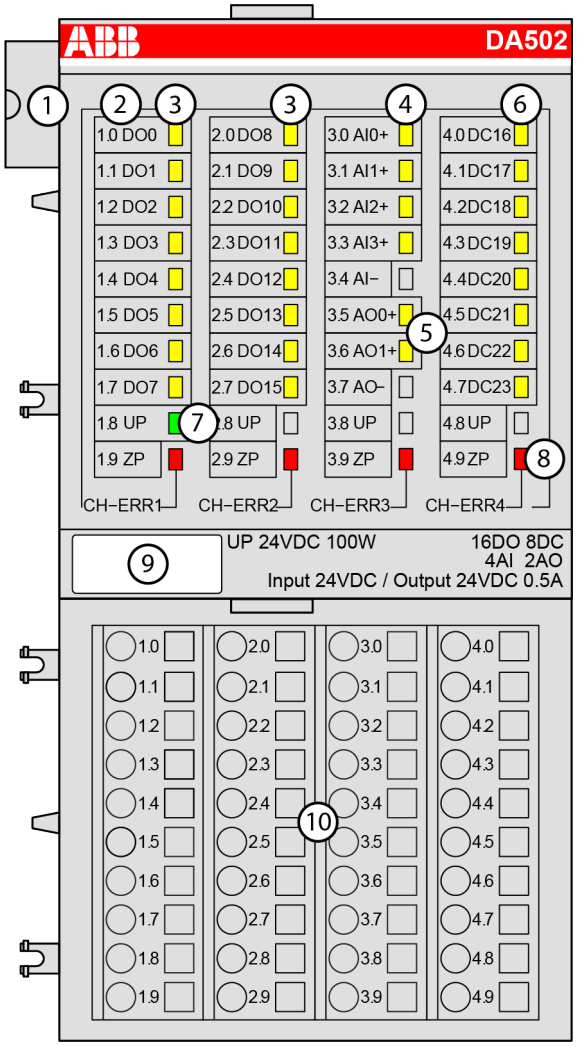


16.3 Dimensions



The dimensions are in mm and in brackets in inch.

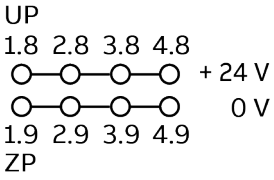
16.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 16 yellow LEDs to display the signal states of the digital outputs DO0 - DO15
4 4 yellow LEDs to display the signal states of the analog inputs AI0 to AI3
5 2 yellow LEDs to display the signal states of the analog outputs AO0 to AO1
6 8 yellow LEDs to display the signal state of the configurable digital inputs/outputs DC16 to DC23
7 1 green LED to display the state of the process supply voltage UP
8 4 red LEDs to display errors
9 Label
10 Terminal unit TU515/TU516(-XC)
❄ Sign for XC version

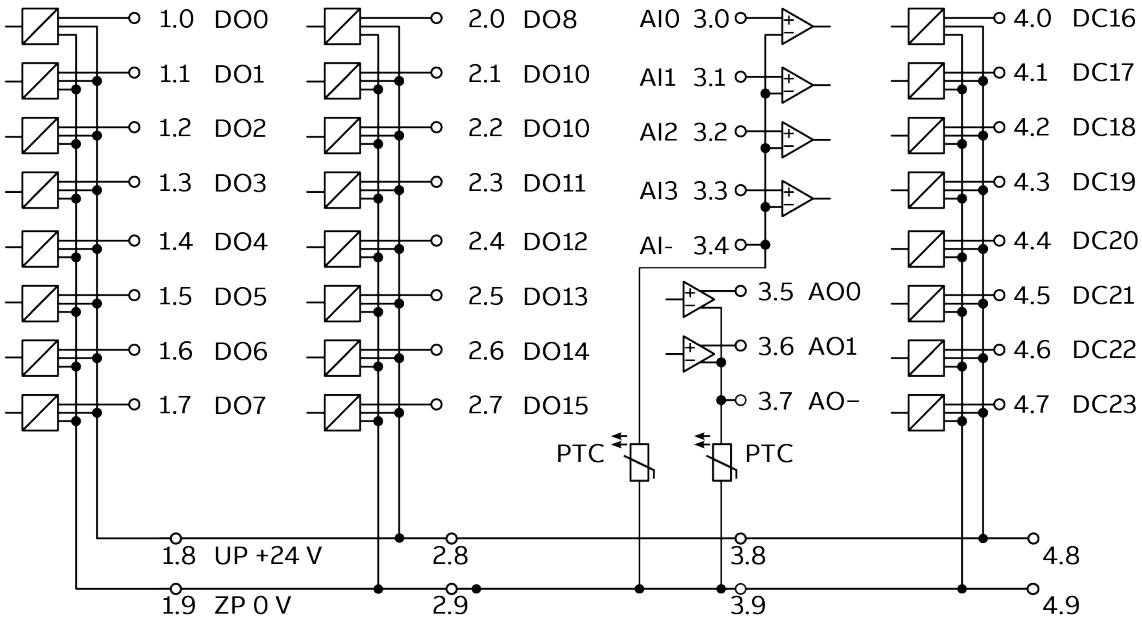
All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

16.4.1 Process Supply Voltage



CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

16.4.2 Inputs/Outputs



Examples

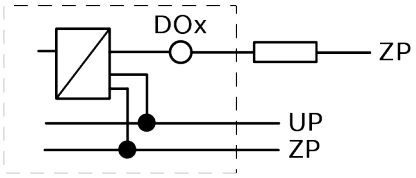
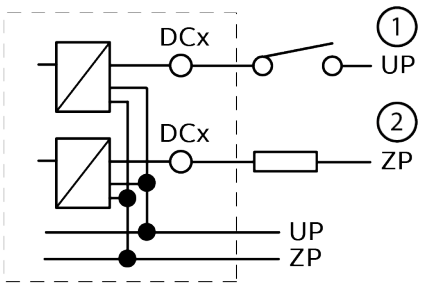
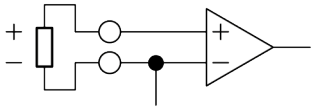


Fig. 28: Example for connection output DOx

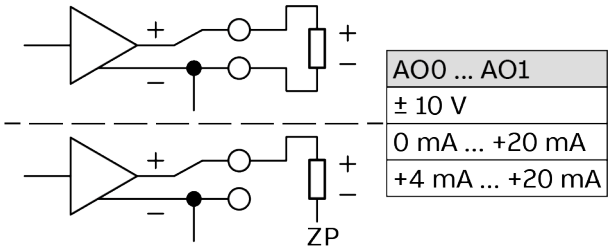


1 Example for connection as an input
2 Example for connection as an output



AI0 ... AI3
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 29: Example for connection input AIx



AO0 ... AO1
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA

Fig. 30: Example for connection output AOx

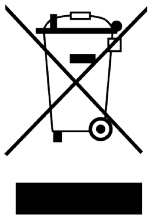
16.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

16.6 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

17 DC522

- DC522
- DC522-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

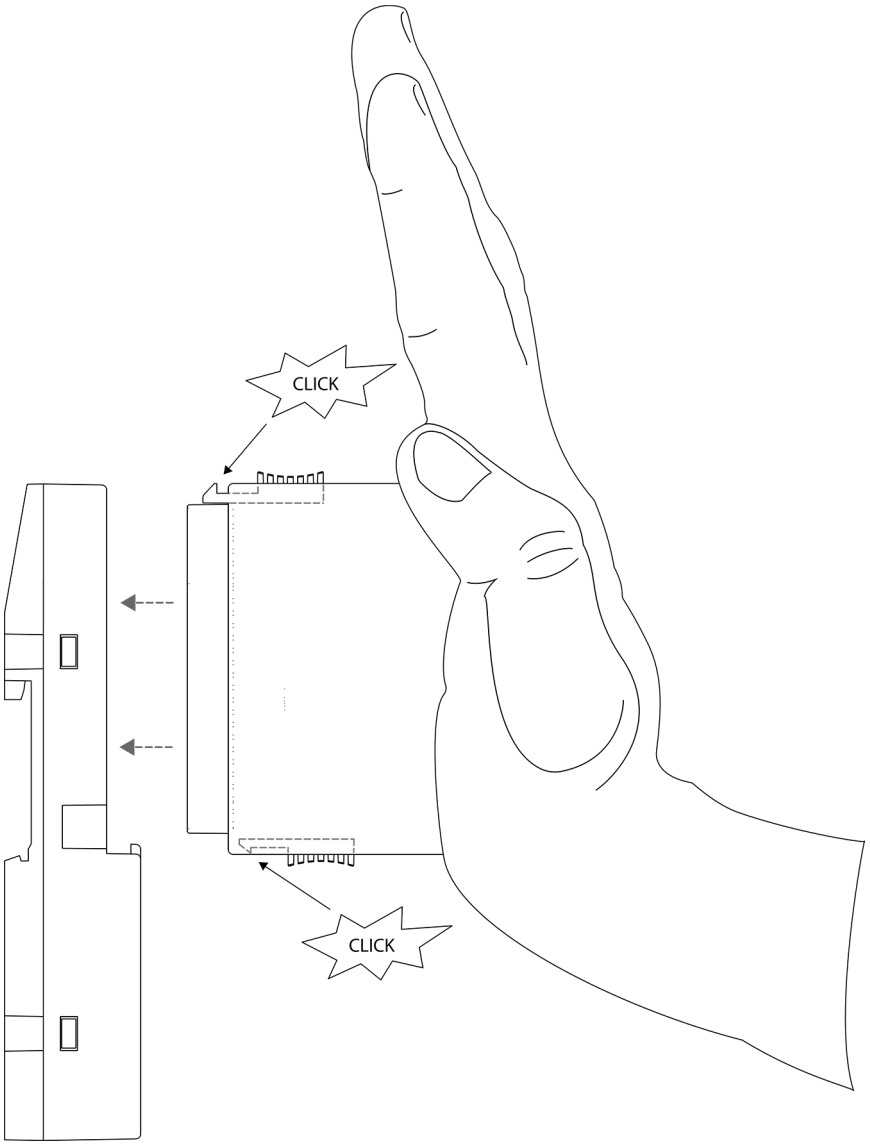
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

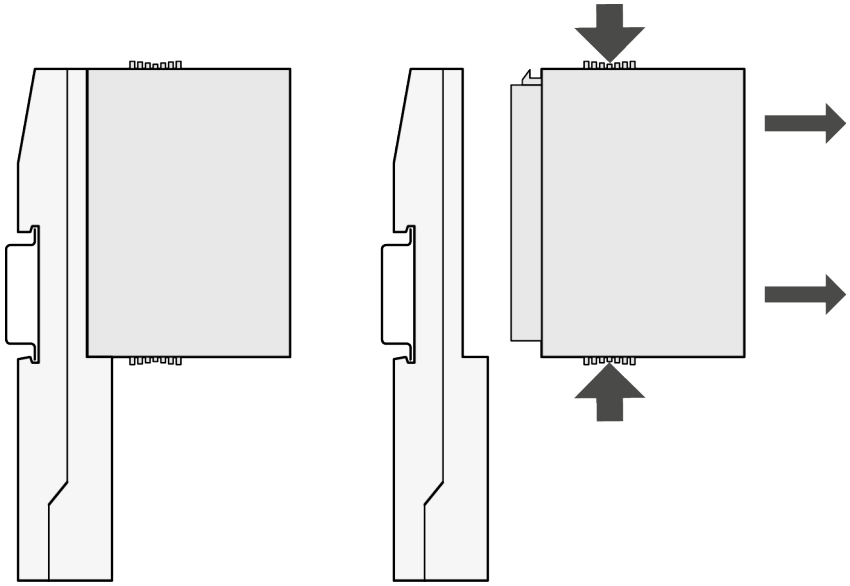
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

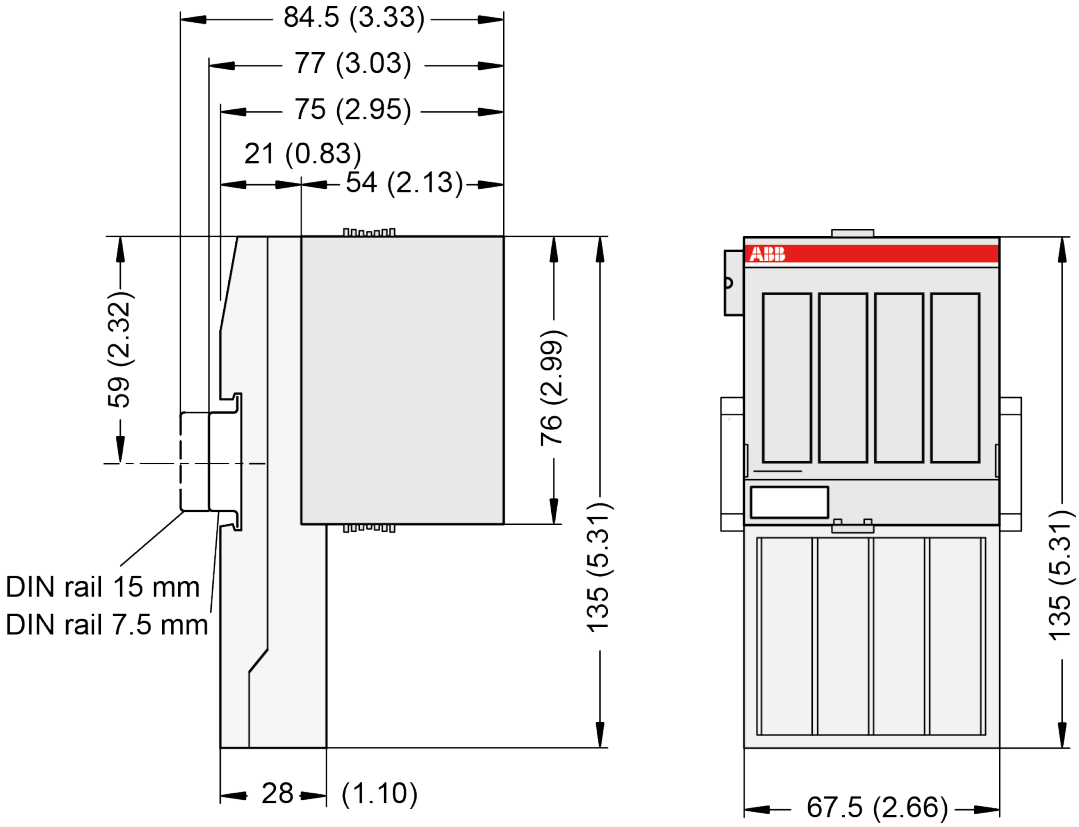
17.1 Assembly



17.2 Disassembly

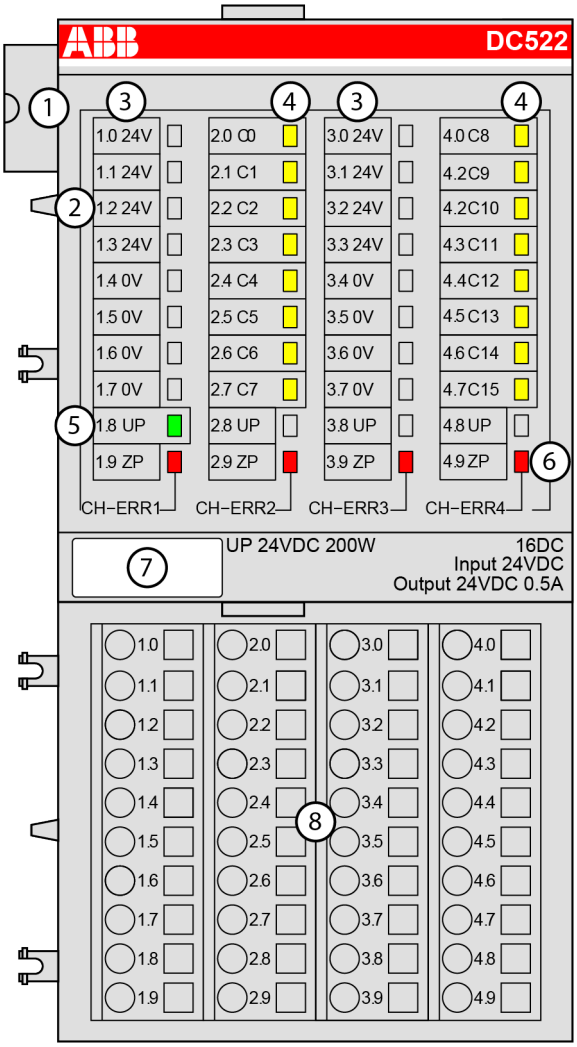


17.3 Dimensions



The dimensions are in mm and in brackets in inch.

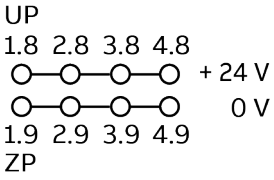
17.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 Sensor power supply 24 VDC / 0.5 A
4 16 yellow LEDs to display the signal states at the digital inputs/outputs (C0 - C15)
5 1 green LED to display the state of the process supply voltage UP
6 4 red LEDs to display errors
7 Label
8 Terminal unit
❄ Sign for XC version

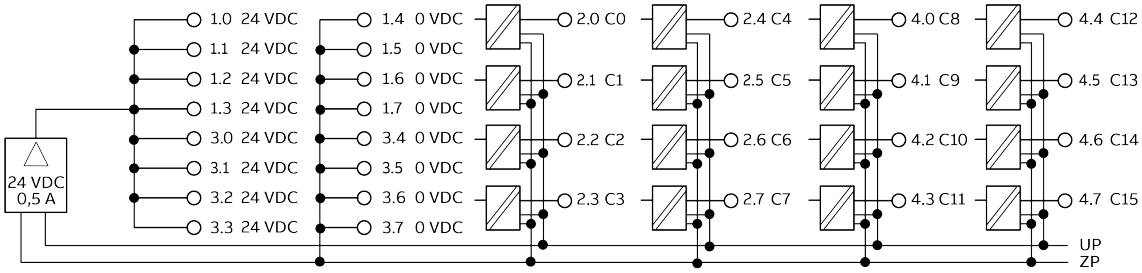
> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.*

17.4.1 Process Supply Voltage

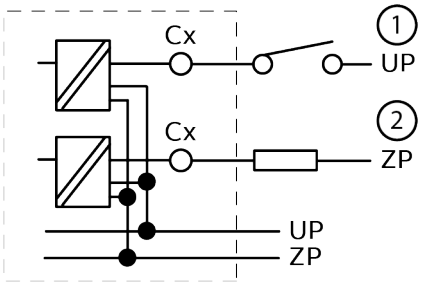


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

17.4.2 Inputs/Outputs



Example



1 Example for connection as an input
2 Example for connection as an output

17.5 Cleaning

Cleaning instruction
Do not use cleaning agent for cleaning the device.
Use a damp cloth instead.

17.6 Certification

MSIP-REI-Abb-AC500

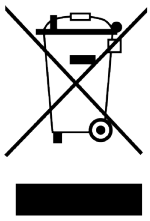
en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

en **Note**
These devices correspond to: **KN61000-6-2** “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는 **KN61000-6-2 “**산업 환경에 대한 내성**”,**
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

17.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

18 DC523

- DC523
- DC523-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

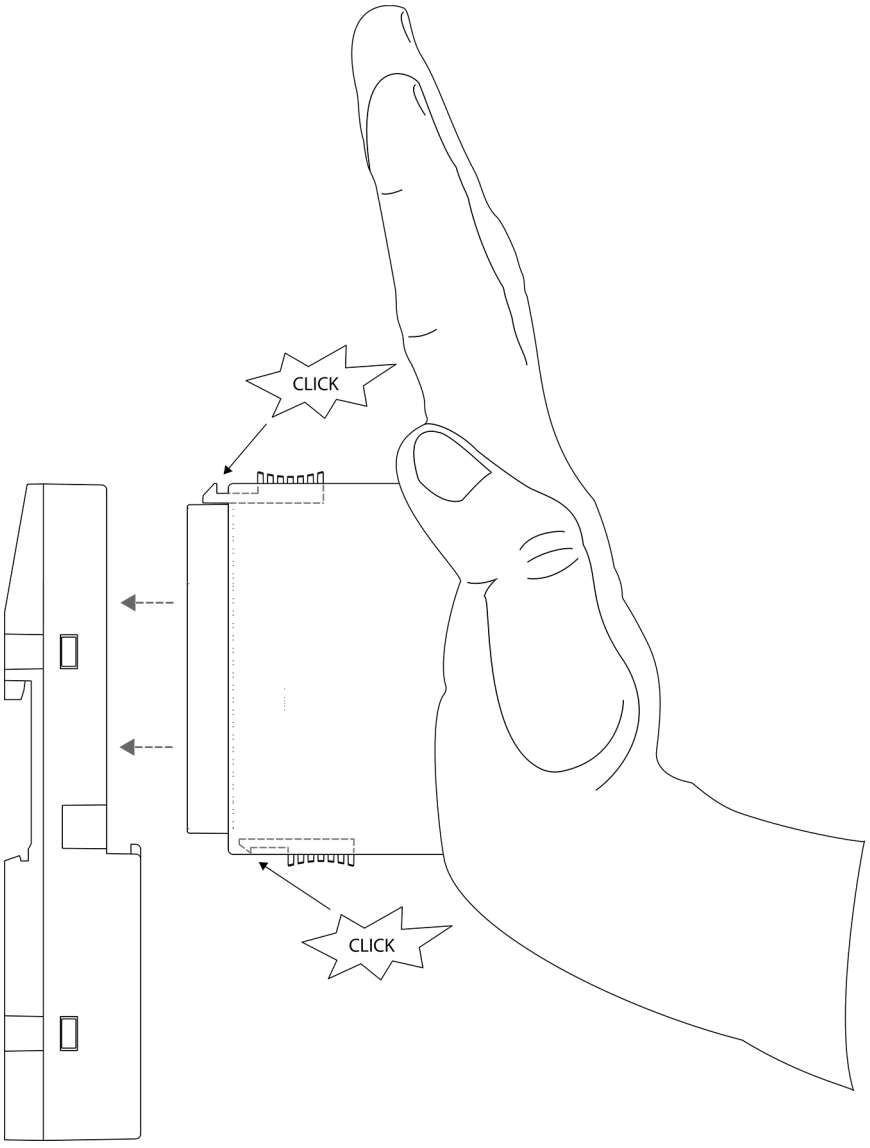
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

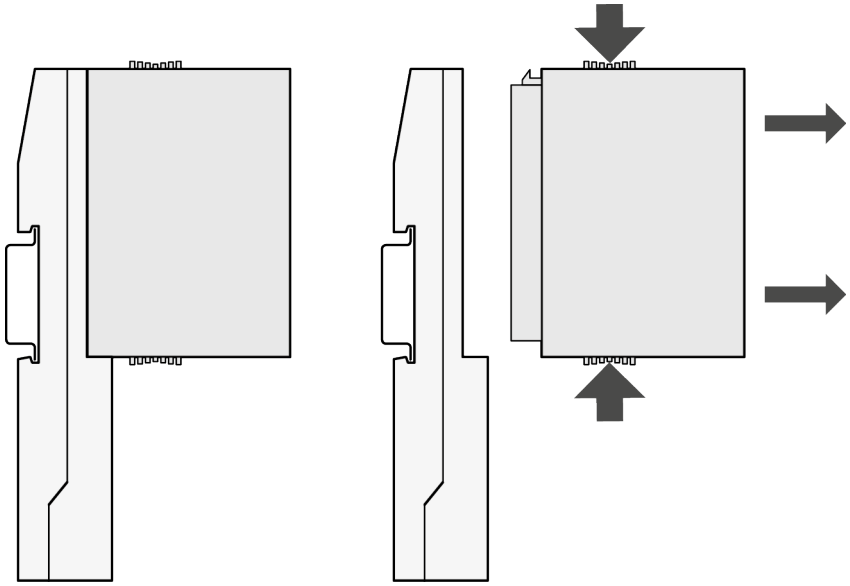
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

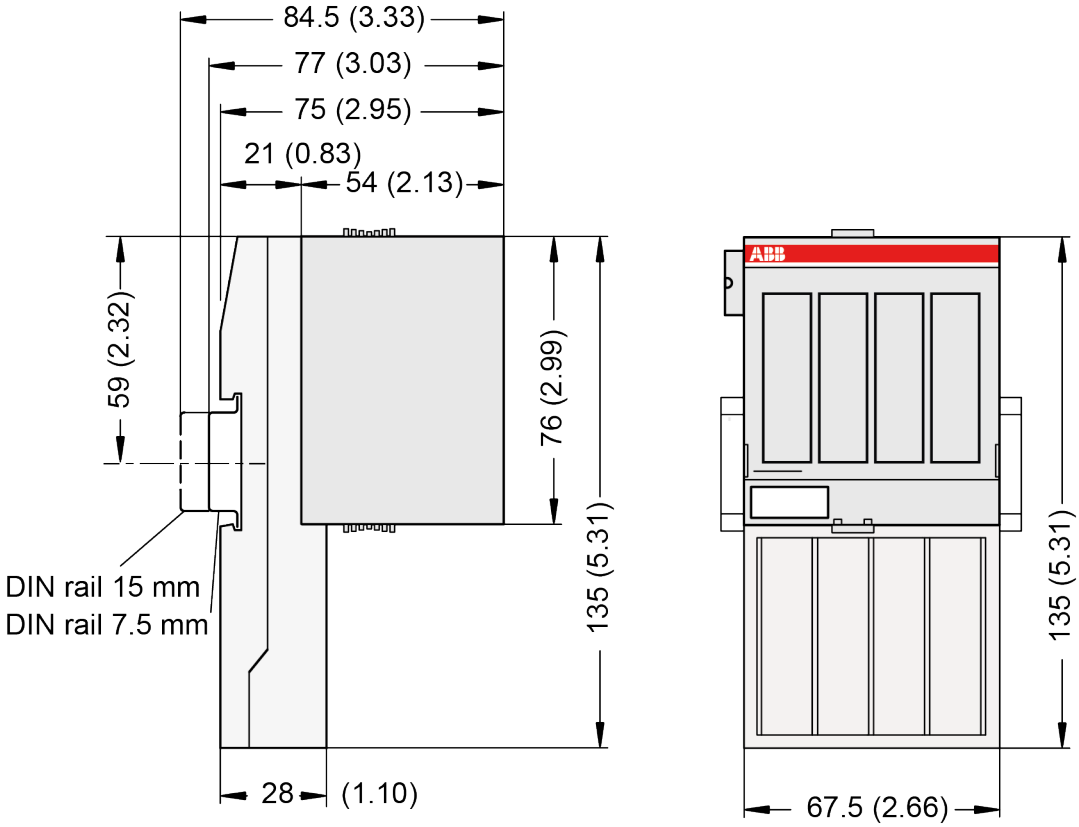
18.1 Assembly



18.2 Disassembly

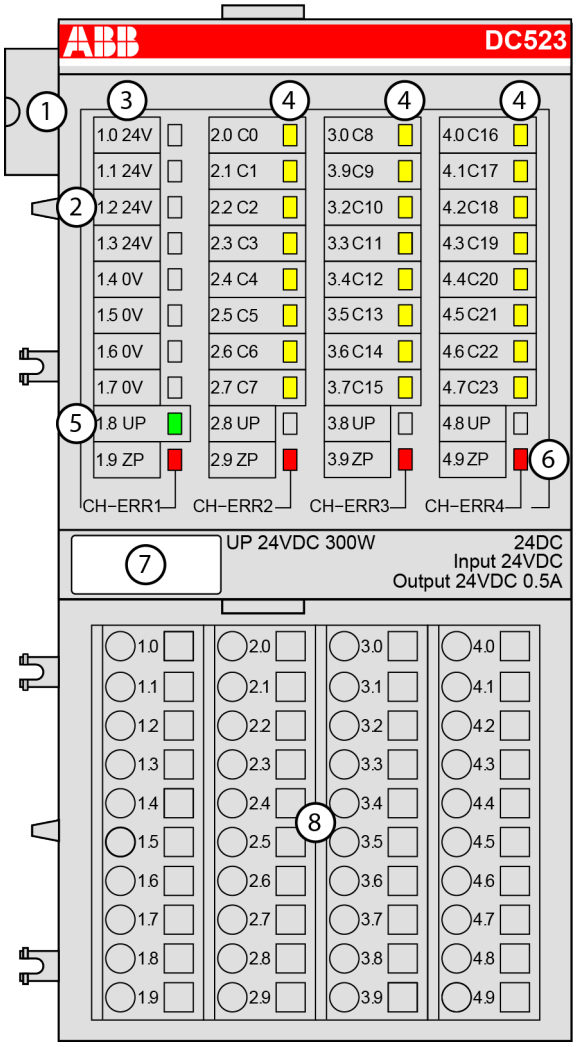


18.3 Dimensions



The dimensions are in mm and in brackets in inch.

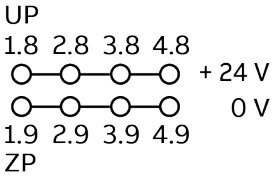
18.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 Sensor power supply 24 VDC / 0.5 A
4 24 yellow LEDs to display the signal states at the digital inputs/outputs (C0 - C23)
5 1 green LED to display the state of the process supply voltage UP
6 4 red LEDs to display errors
7 Label
8 Terminal unit
❄ Sign for XC version

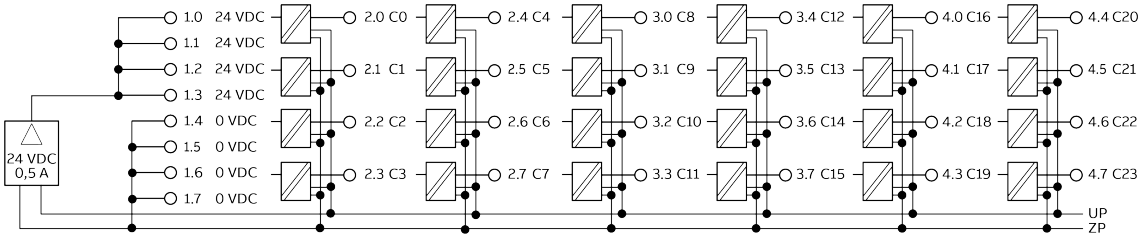
> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.*

18.4.1 Process Supply Voltage

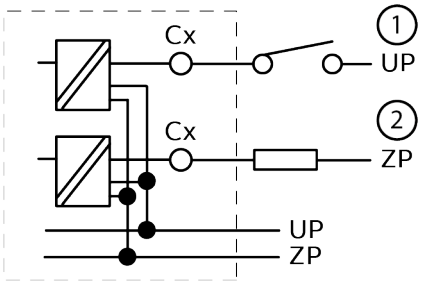


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

18.4.2 Inputs/Outputs



Example



1 Example for connection as an input
2 Example for connection as an output

18.5 Cleaning

Cleaning instruction
Do not use cleaning agent for cleaning the device.
Use a damp cloth instead.

18.6 Certification

MSIP-REI-Abb-AC500

en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

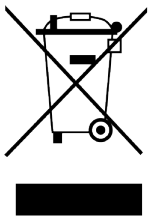
en **Note**
These devices correspond to:

KN61000-6-2 “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는

KN61000-6-2 “산업 환경에 대한 내성**”,**
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

18.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

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For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

19 DC532

- DC532
- DC532-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

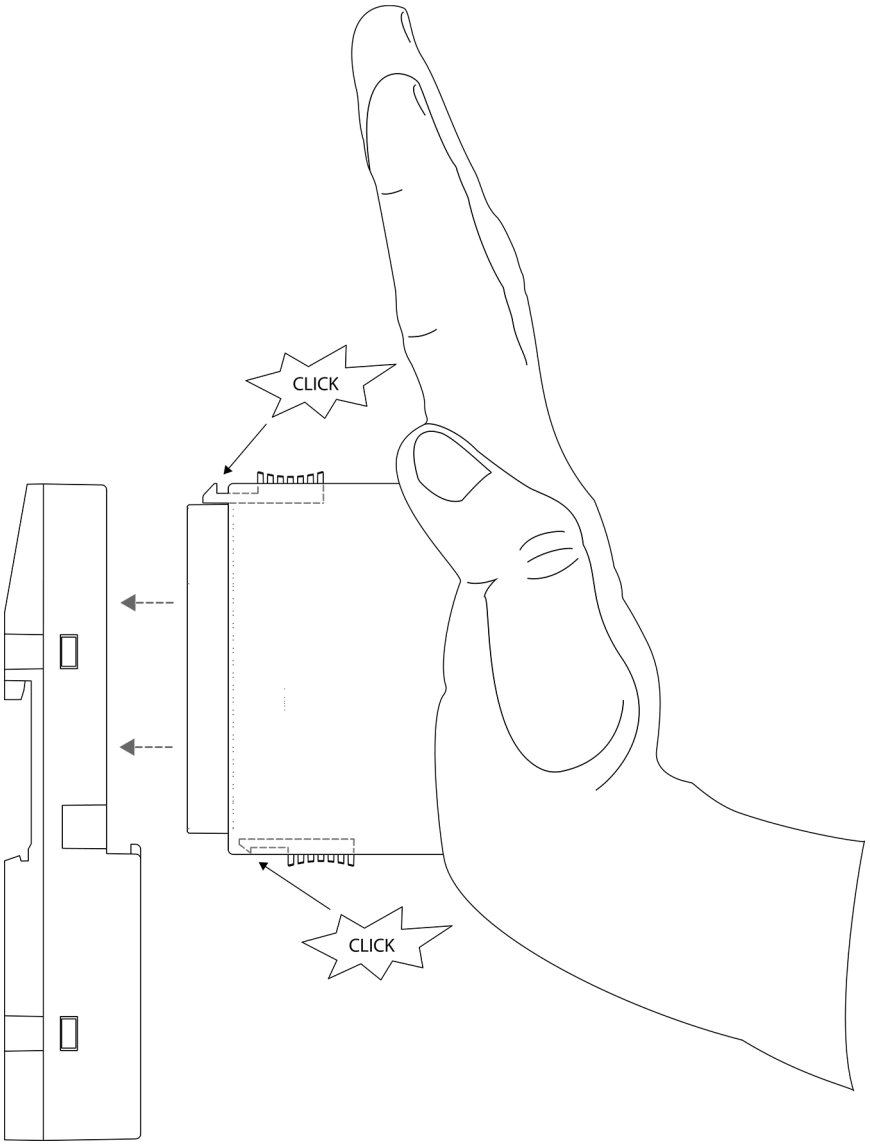
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

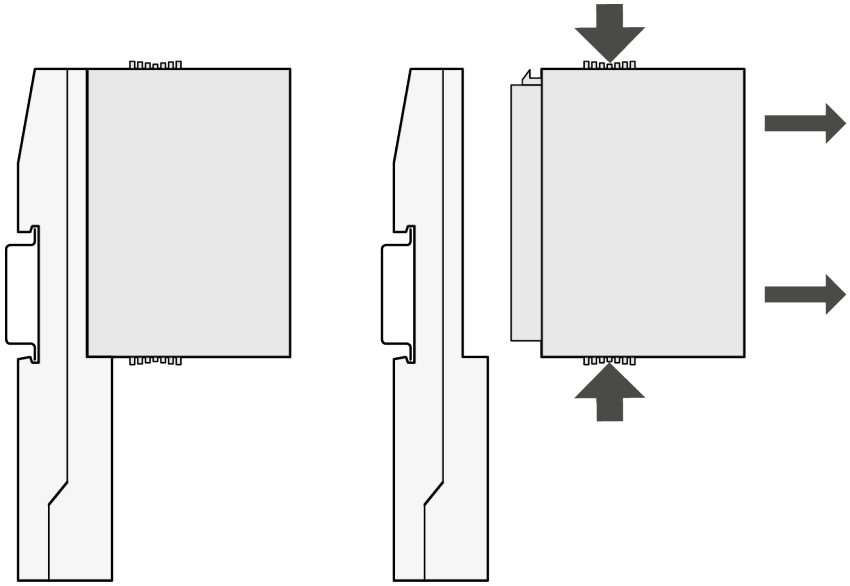
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

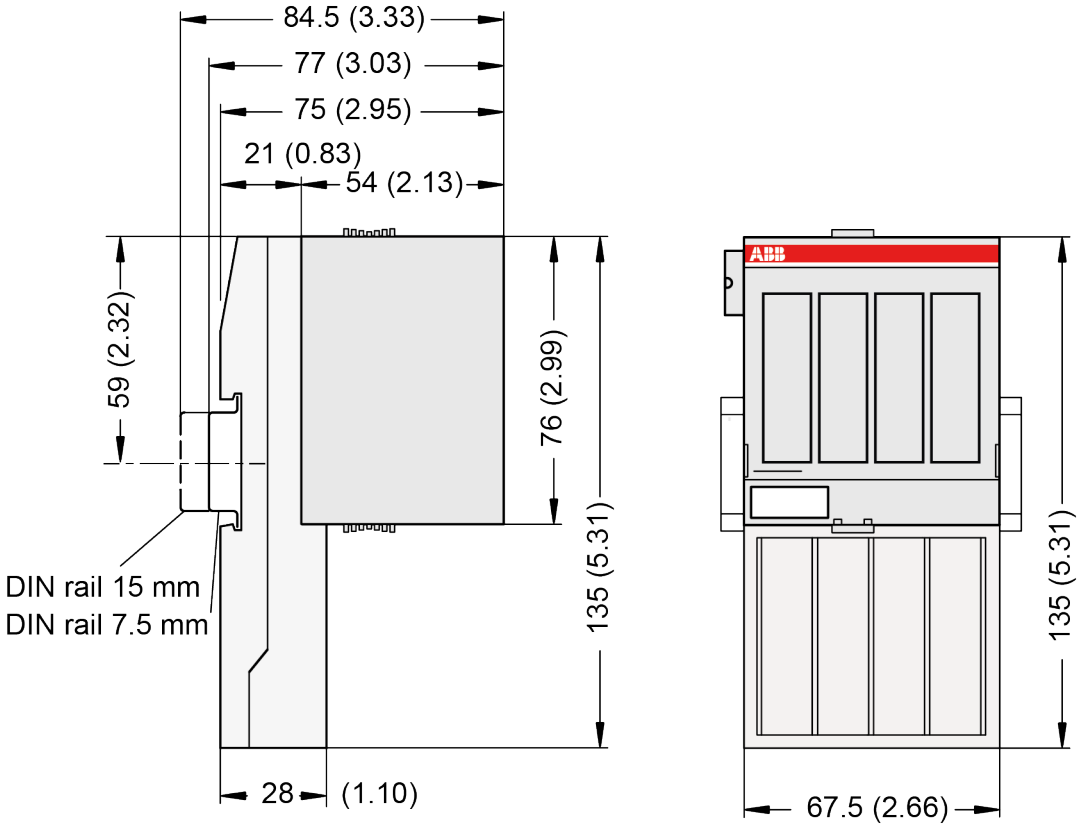
19.1 Assembly



19.2 Disassembly

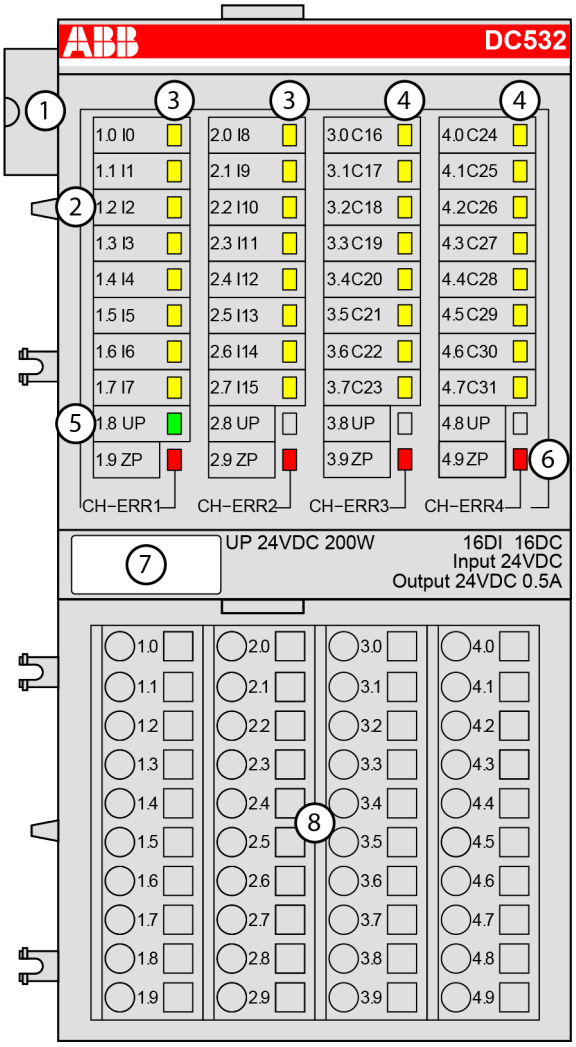


19.3 Dimensions



The dimensions are in mm and in brackets in inch.

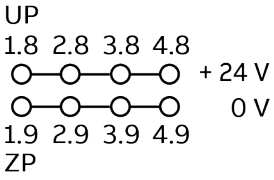
19.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 16 yellow LEDs to display the signal states at the digital inputs (I0 - I15)
4 16 yellow LEDs to display the signal states at the digital outputs (C16 - C31)
5 1 green LED to display the state of the process supply voltage UP
6 4 red LEDs to display errors
7 Label
8 Terminal unit
❄ Sign for XC version

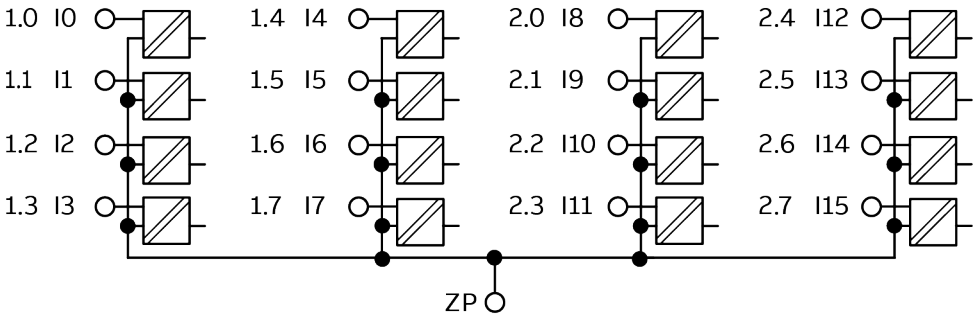
> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.*

19.4.1 Process Supply Voltage



CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

19.4.2 Inputs



Example

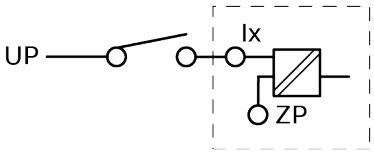
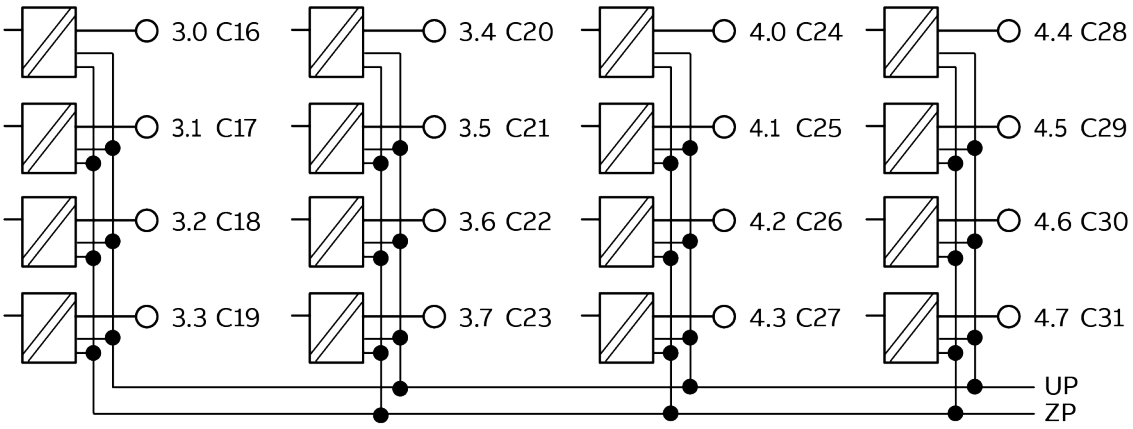
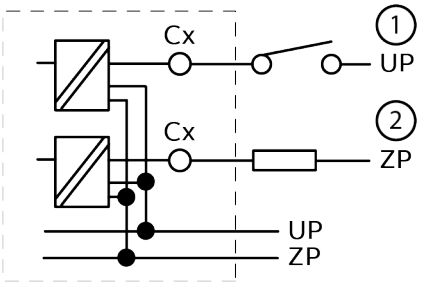


Fig. 31: Example for connection input Ix

19.4.3 Inputs/Outputs



Example



1 Example for connection as an input
2 Example for connection as an output

19.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

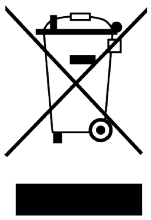
Use a damp cloth instead.

19.6 Certification

MSIP-REI-Abb-AC500

en	**Devices with KCC sign on product sticker and packaging**	
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	
en	**Note** These devices correspond to:	**KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”
ko	참고 이러한 기기는	**KN61000-6-2 “**산업 환경에 대한 내성**”,** **KN61000-6-4 “**산업 환경 누출 기준**”**에 적합함

19.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

20 DI524

- DI524
- DI524-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

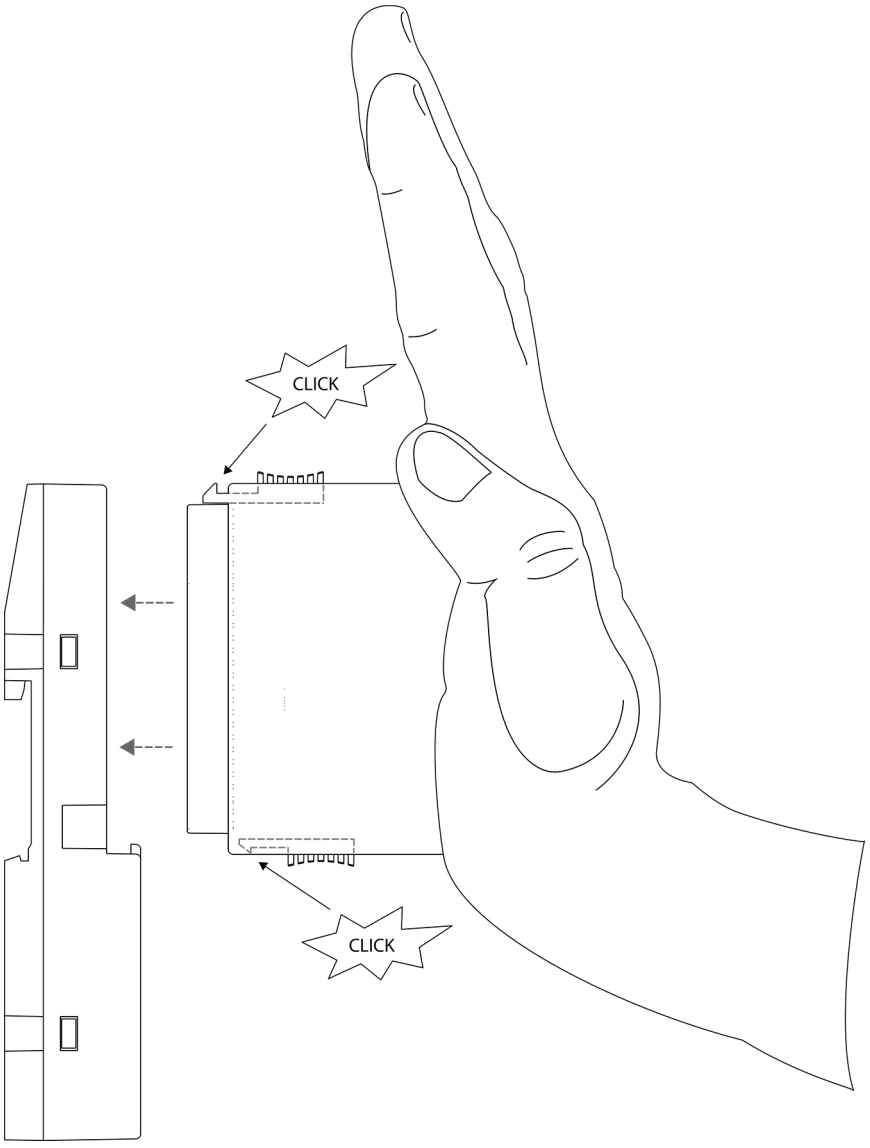
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

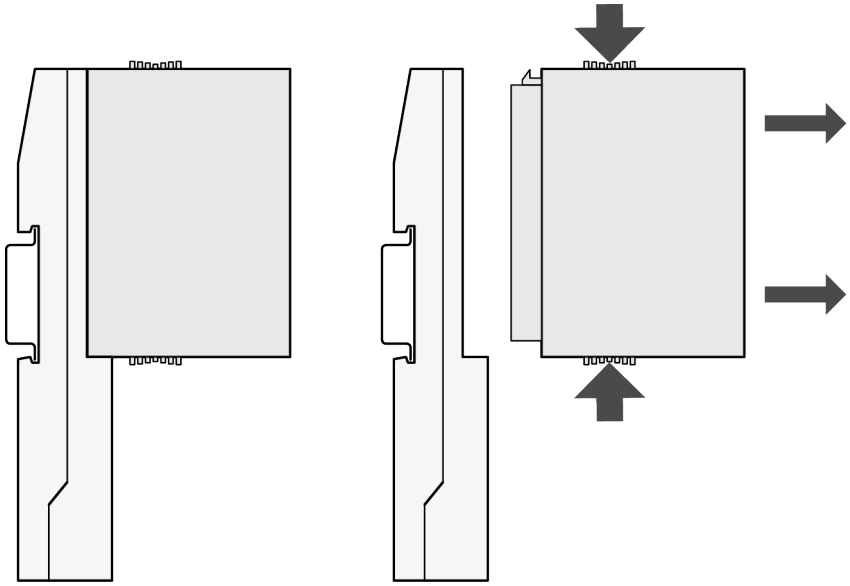
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

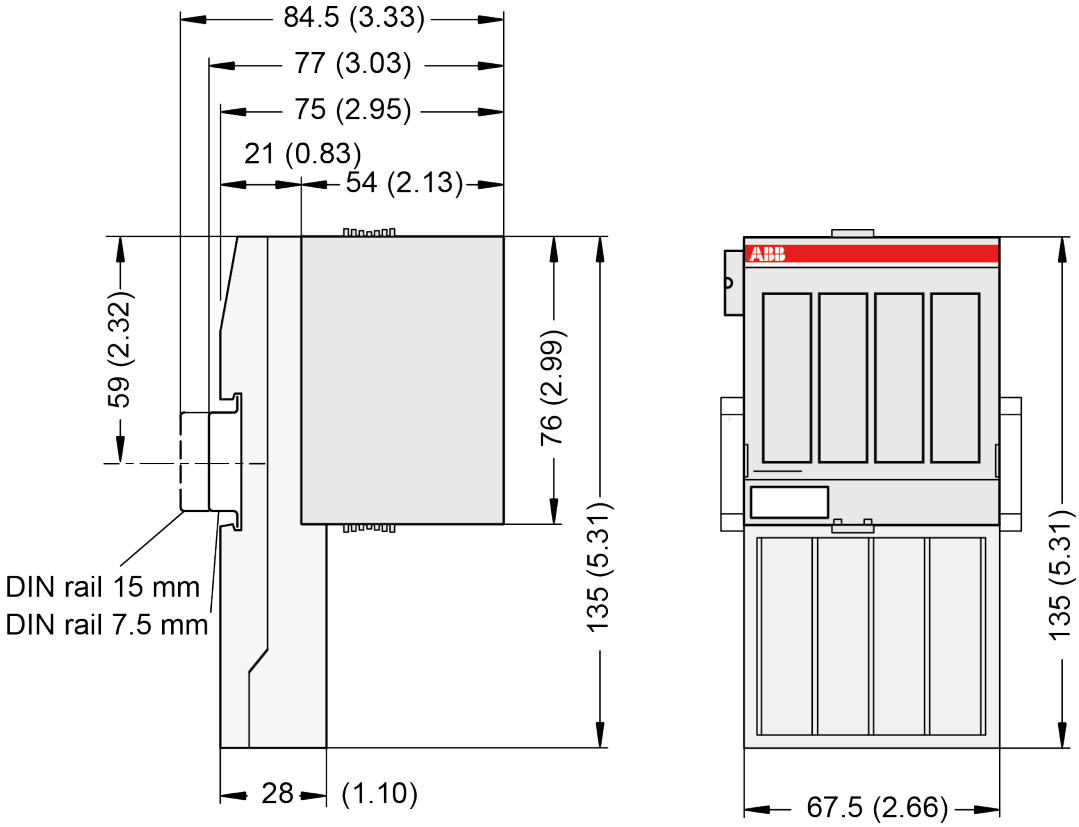
20.1 Assembly



20.2 Disassembly

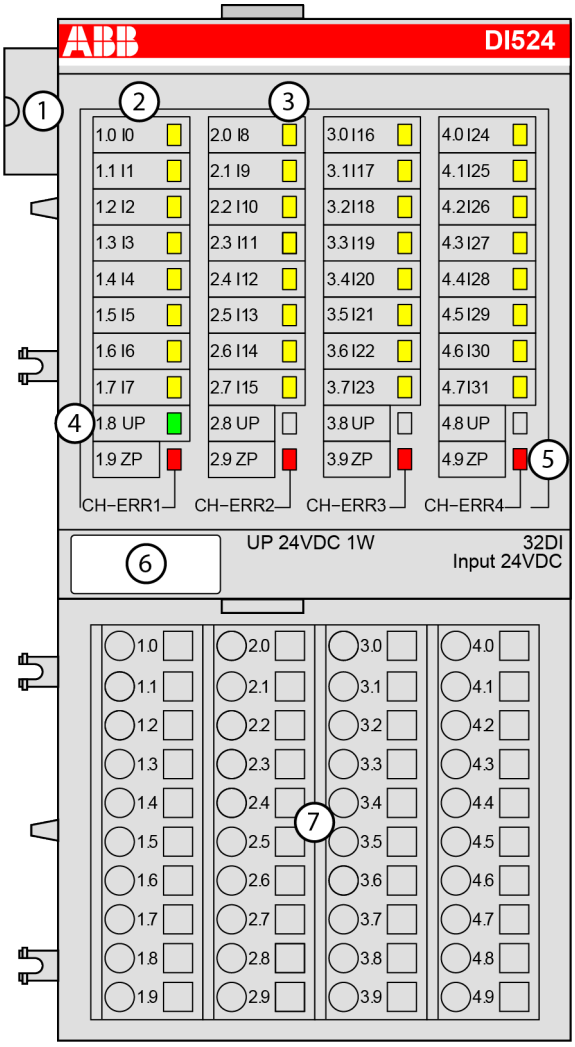


20.3 Dimensions



The dimensions are in mm and in brackets in inch.

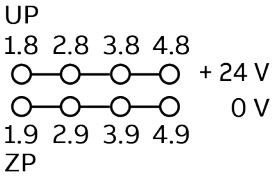
20.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 32 yellow LEDs to display the signal states at the digital inputs I0 to I31
4 1 green LEDs to display the states of the process supply voltage UP
5 4 red LEDs to display errors
6 Label
7 Terminal unit
❄ Sign for XC version

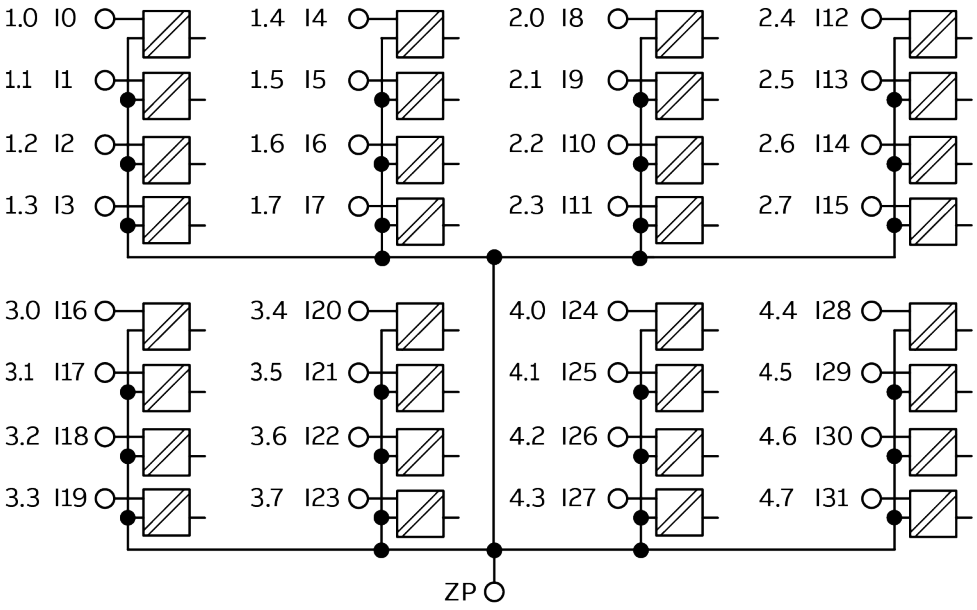
All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

20.4.1 Process Supply Voltage



CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

20.4.2 Inputs



Example

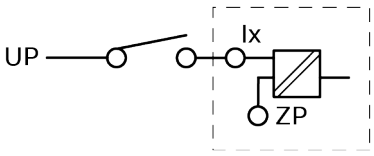


Fig. 32: Example for connection input Ix

20.5 Cleaning

Cleaning instruction
Do not use cleaning agent for cleaning the device.
Use a damp cloth instead.

20.6 Certification

MSIP-REI-Abb-AC500

en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

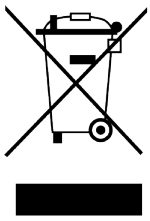
en **Note**
These devices correspond to:

KN61000-6-2 “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는

KN61000-6-2 “산업 환경에 대한 내성**”,**
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

20.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

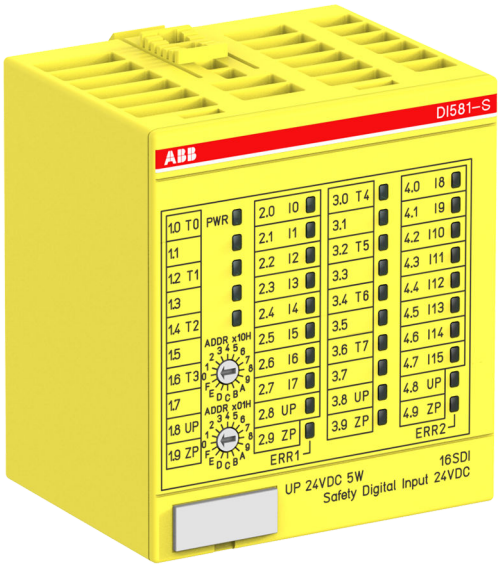
It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

21 DI581-S

- DI581-S
- DI581-S-XC



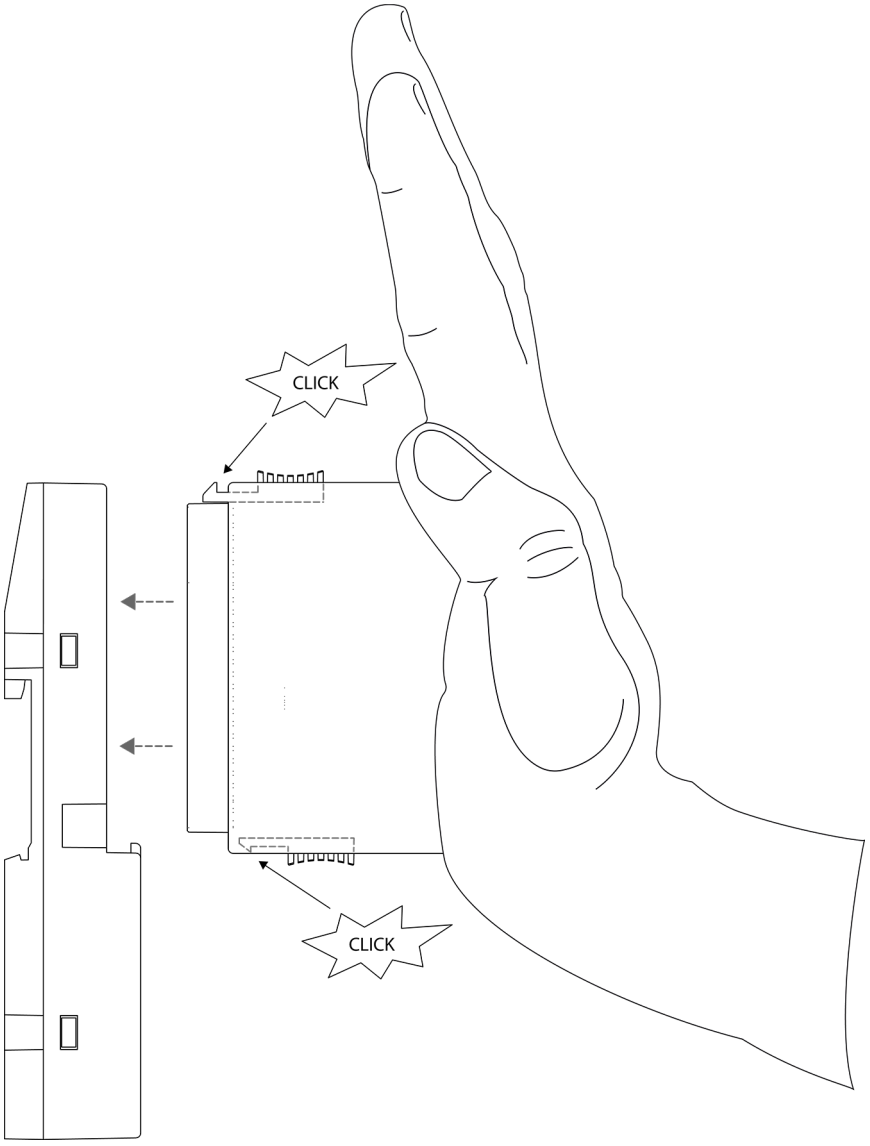
CAUTION!

Risk of injury and damaging the product!

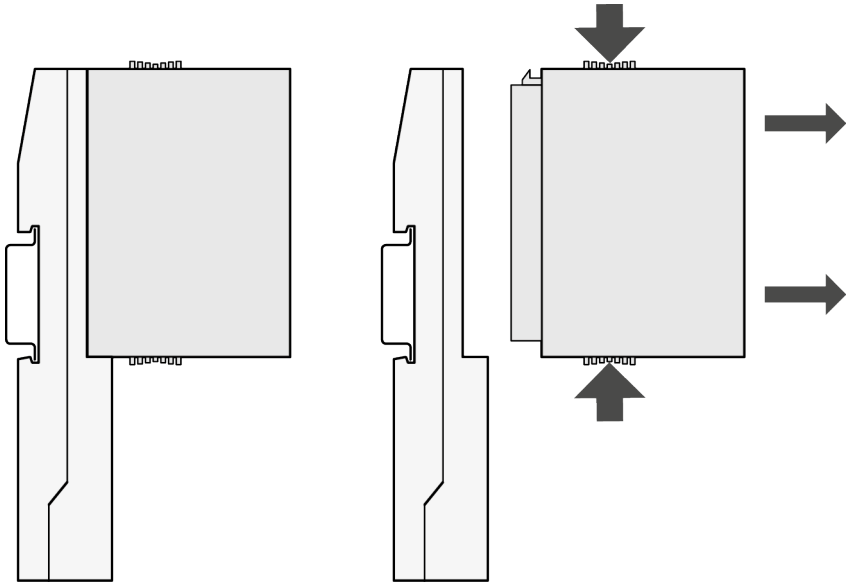
Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

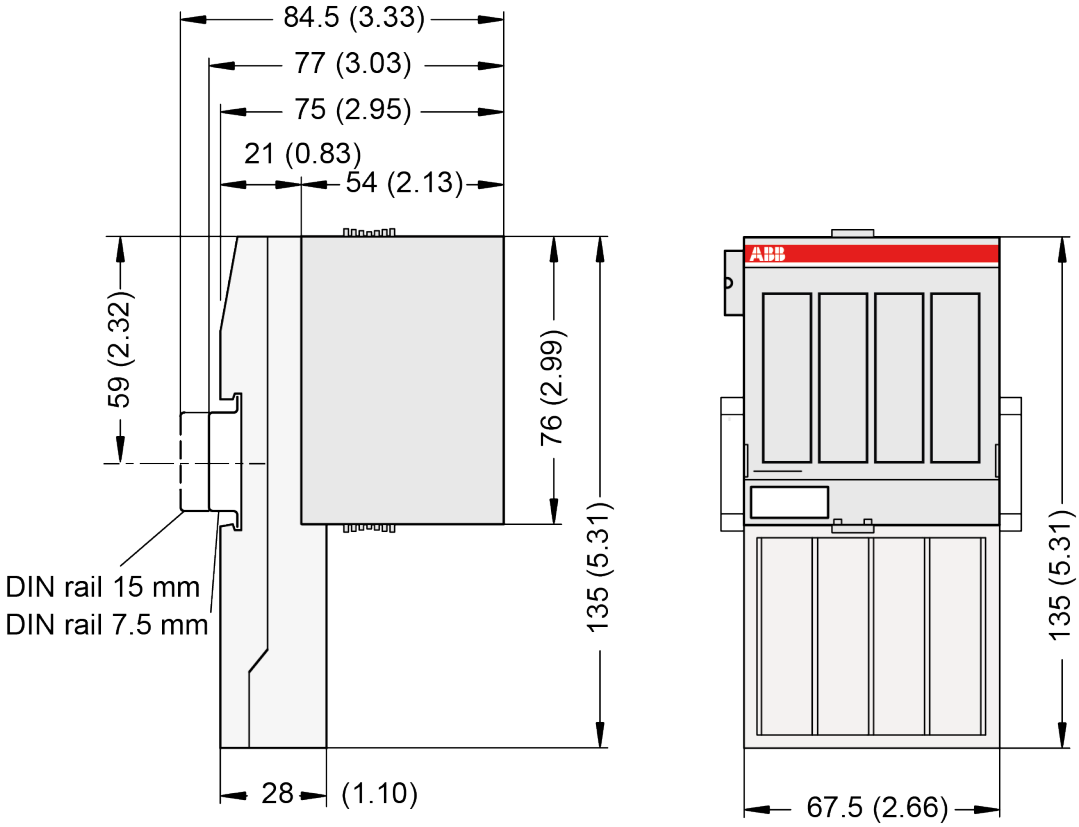
21.1 Assembly



21.2 Disassembly

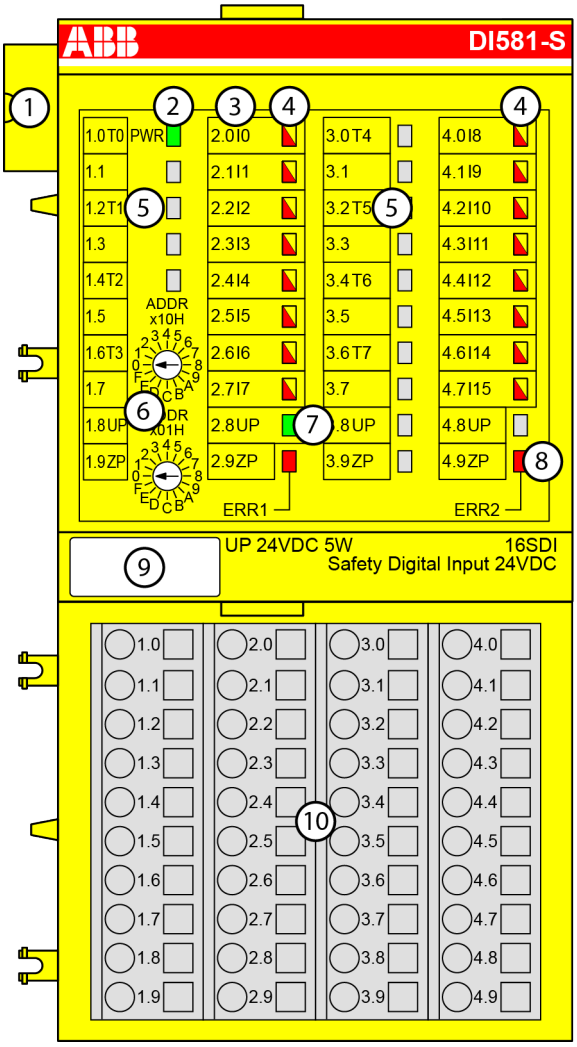


21.3 Dimensions



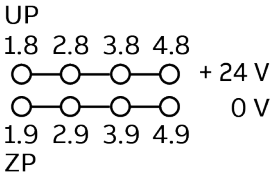
The dimensions are in mm and in brackets in inch.

21.4 Connection



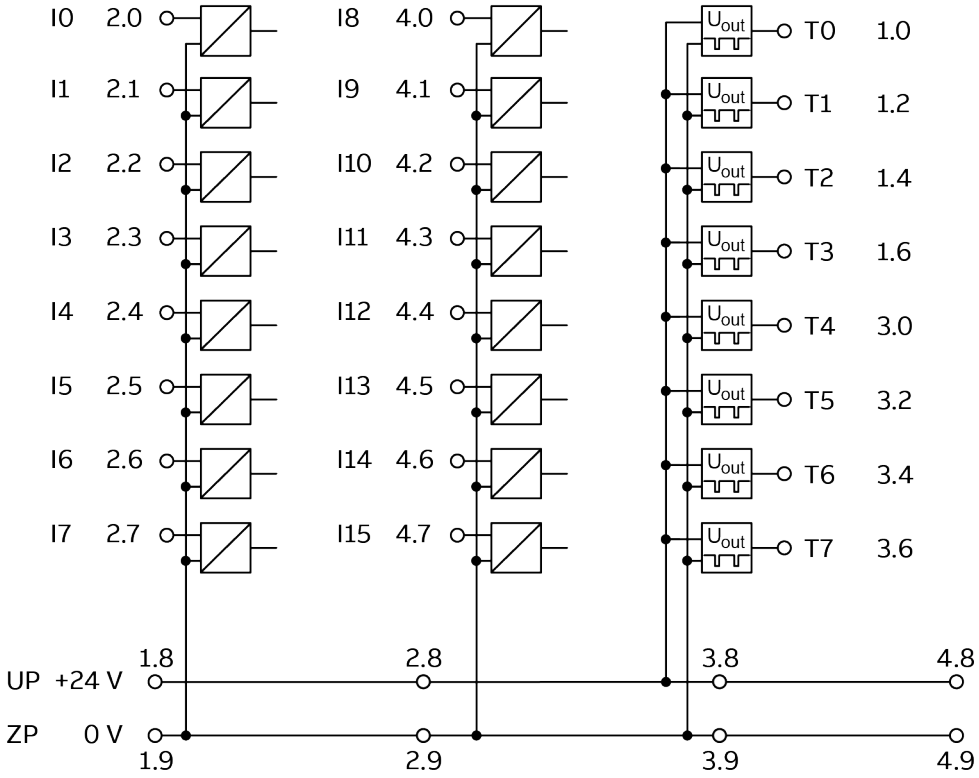
1 I/O bus
2 System LED
3 Allocation between terminal number and signal name
4 16 yellow/red LEDs to display the signal states of the digital inputs I0 to I15
5 8 Test pulse outputs T0 to T7
6 2 rotary switches for setting the PROFIsafe address
7 1 green LED to display the state of the process supply voltage UP
8 2 red LEDs to display errors
9 Label
10 Terminal unit TU582-S(-XC)
❄ Sign for XC version

21.4.1 Process Supply Voltage



CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

21.4.2 Inputs



Example

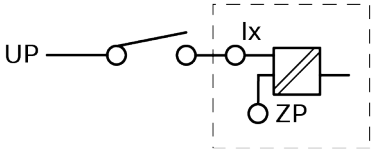


Fig. 33: Example for connection input Ix

AC500-S Safety User Manual
For a detailed description of the electrical connection of the module, please refer to the "AC500-S Safety User Manual".

21.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

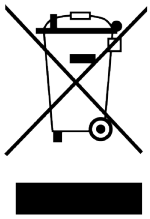
Use a damp cloth instead.

21.6 Certification

MSIP-REI-Abb-AC500

en	**Devices with KCC sign on product sticker and packaging**	
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	
en	**Note** These devices correspond to:	**KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”
ko	참고 이러한 기기는	**KN61000-6-2 “**산업 환경에 대한 내성**”,** **KN61000-6-4 “**산업 환경 누출 기준**”**에 적합함

21.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

22 DO524

- DO524
- DO524-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

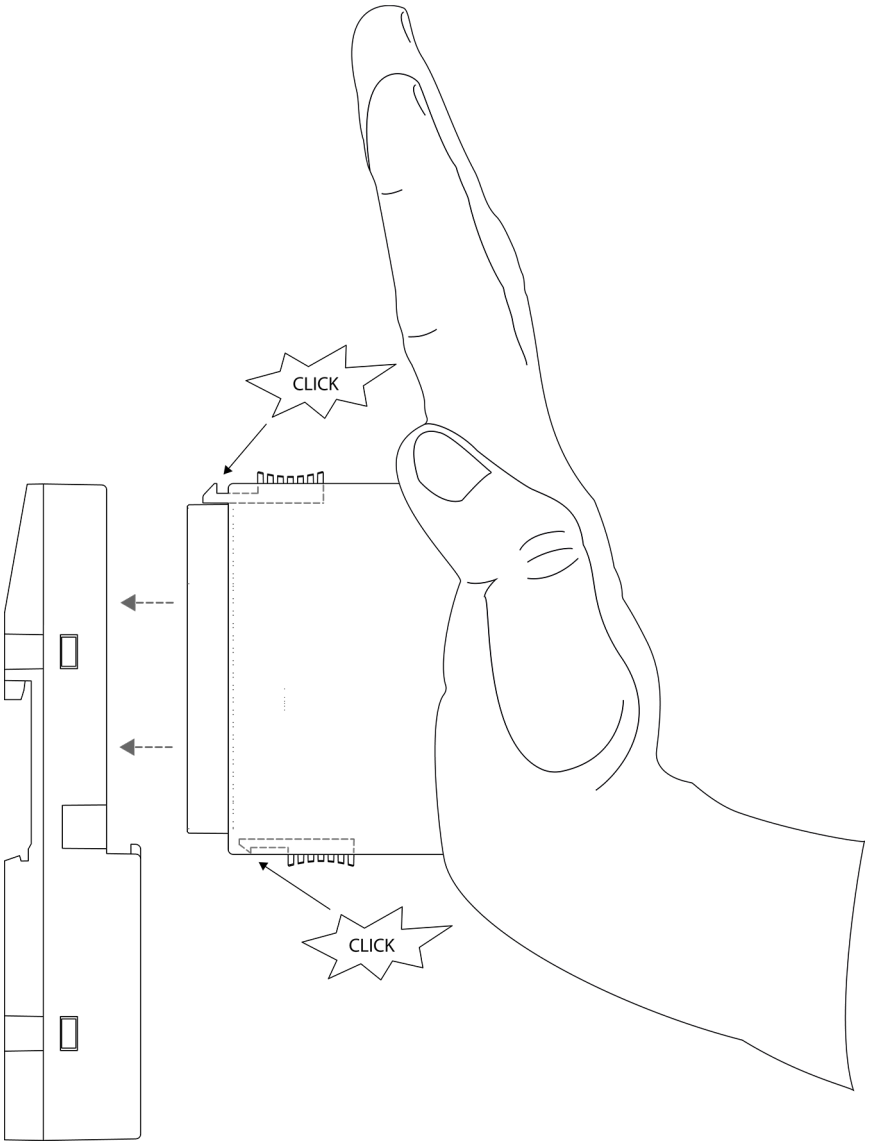
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

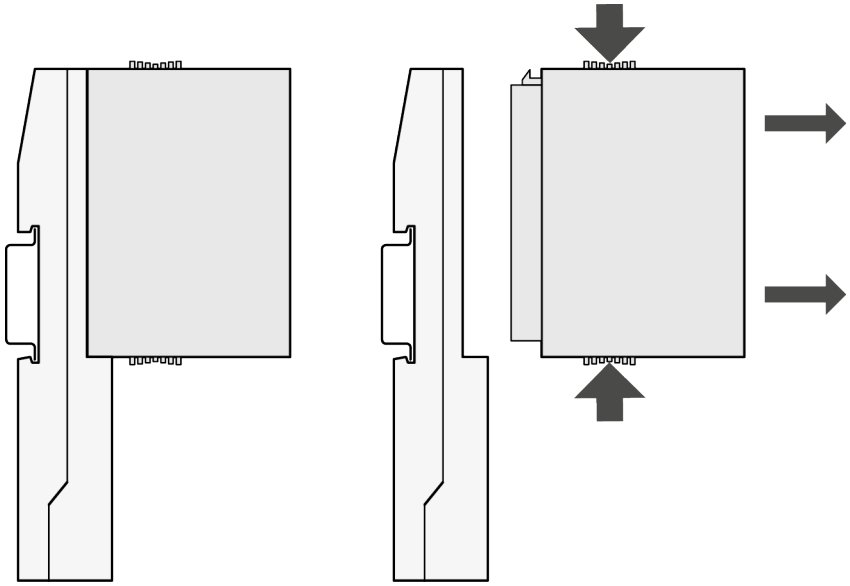
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

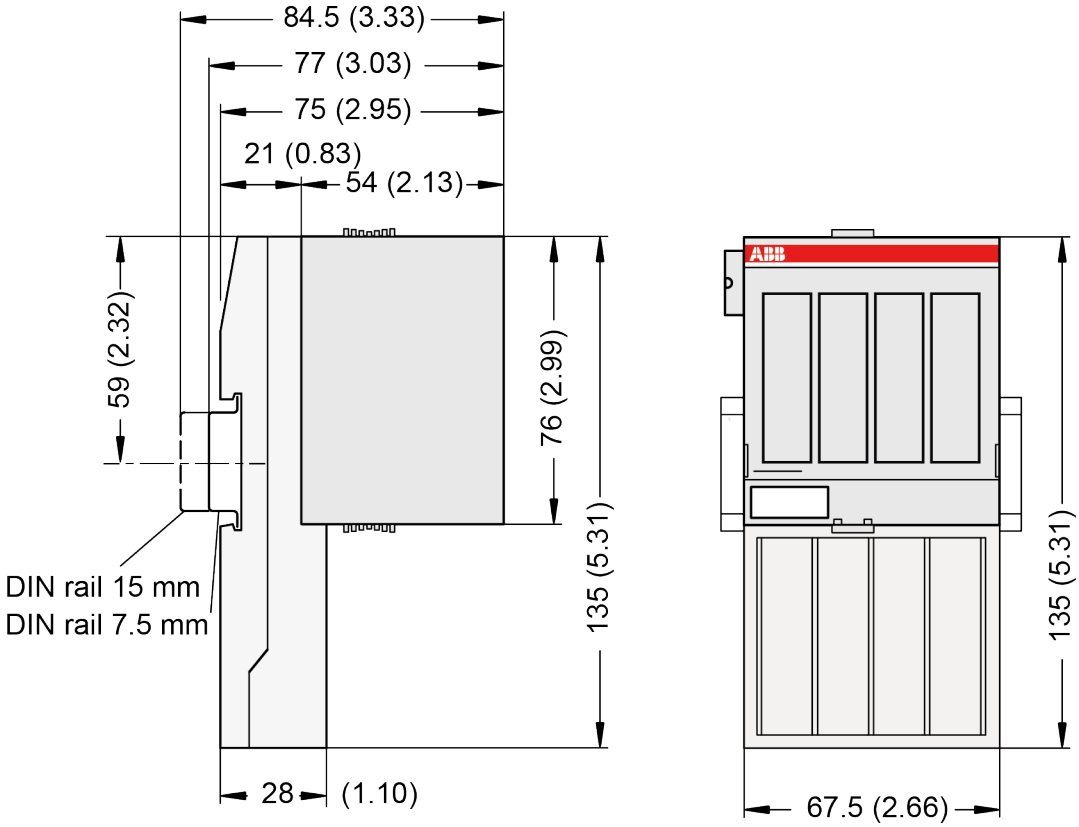
22.1 Assembly



22.2 Disassembly

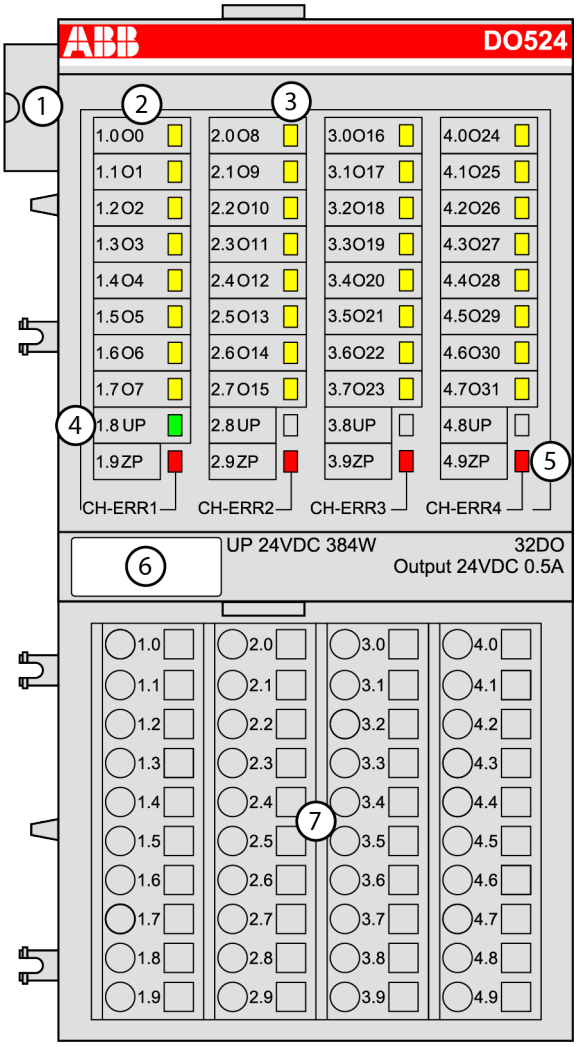


22.3 Dimensions



The dimensions are in mm and in brackets in inch.

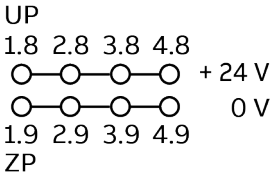
22.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 32 yellow LEDs to display the signal states at the digital outputs (O0 to O31)
4 1 green LEDs to display the state of the process supply voltage UP
5 4 red LEDs to display errors
6 Label
7 Terminal unit
❄ Sign for XC version

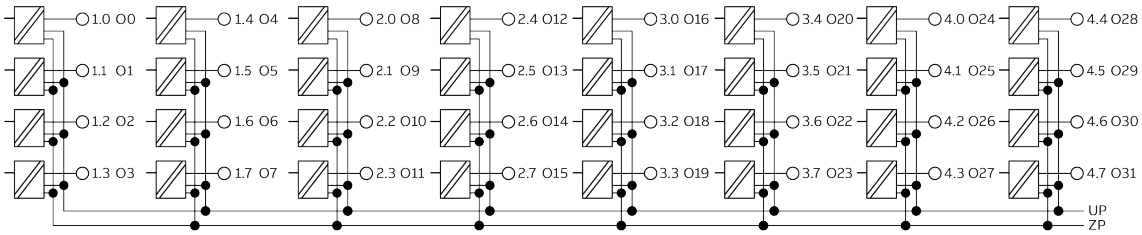
> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.*

22.4.1 Process Supply Voltage



CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

22.4.2 Outputs



Example

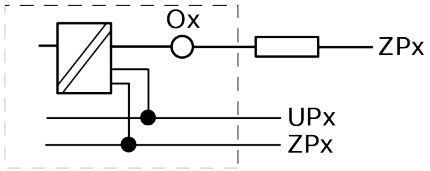


Fig. 34: Example for connection output

22.5 Cleaning

Cleaning instruction
Do not use cleaning agent for cleaning the device.
Use a damp cloth instead.

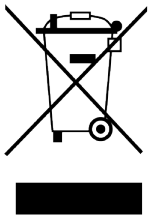
22.6 Certification

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:	**KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”
ko	참고 이러한 기기는	**KN61000-6-2** **“**산업 환경에 대한 내성**”**, **KN61000-6-4** **“**산업 환경 누출 기준**”**에 적합함

en **Devices with KCC sign on product sticker and packaging**
ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

22.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

23 DO526

- DO526
- DO526-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

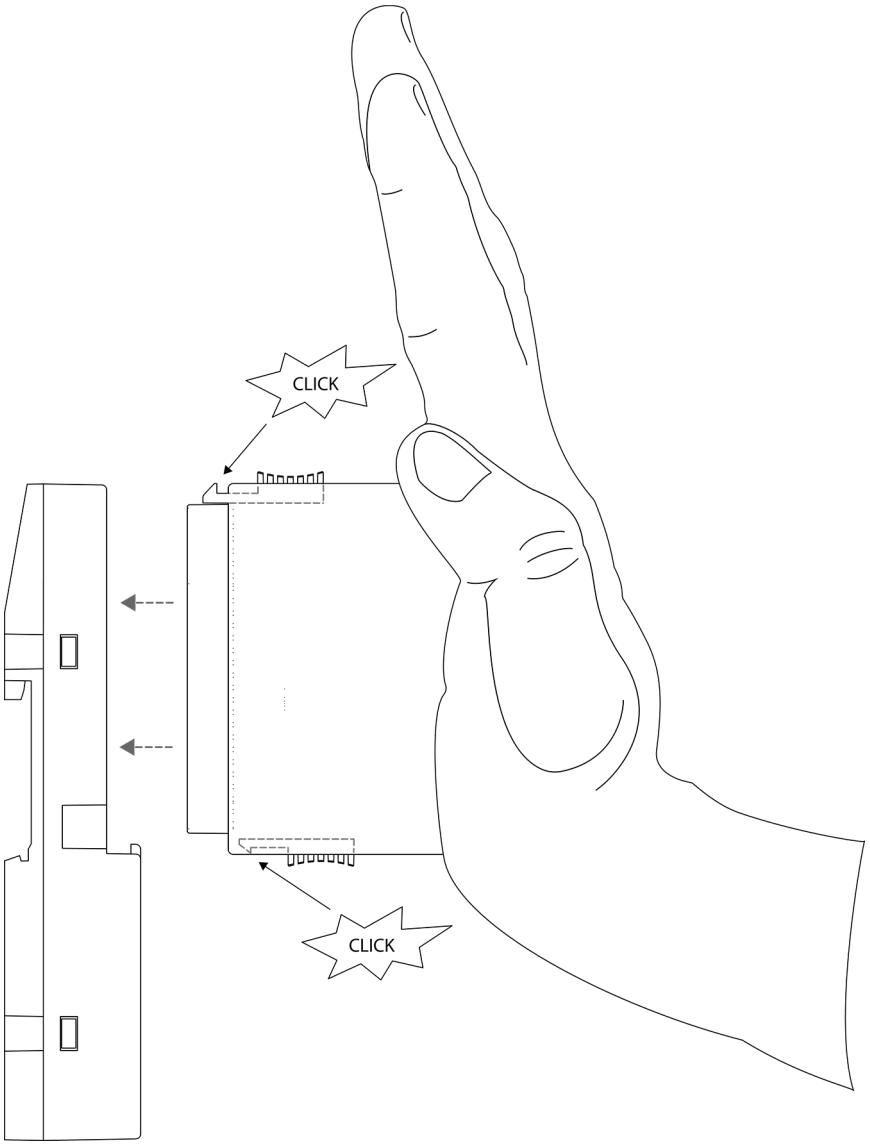
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

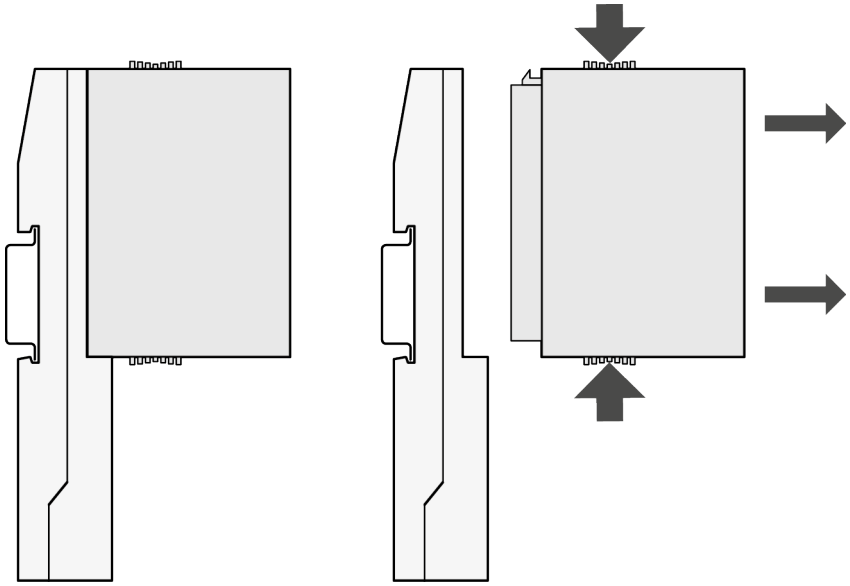
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

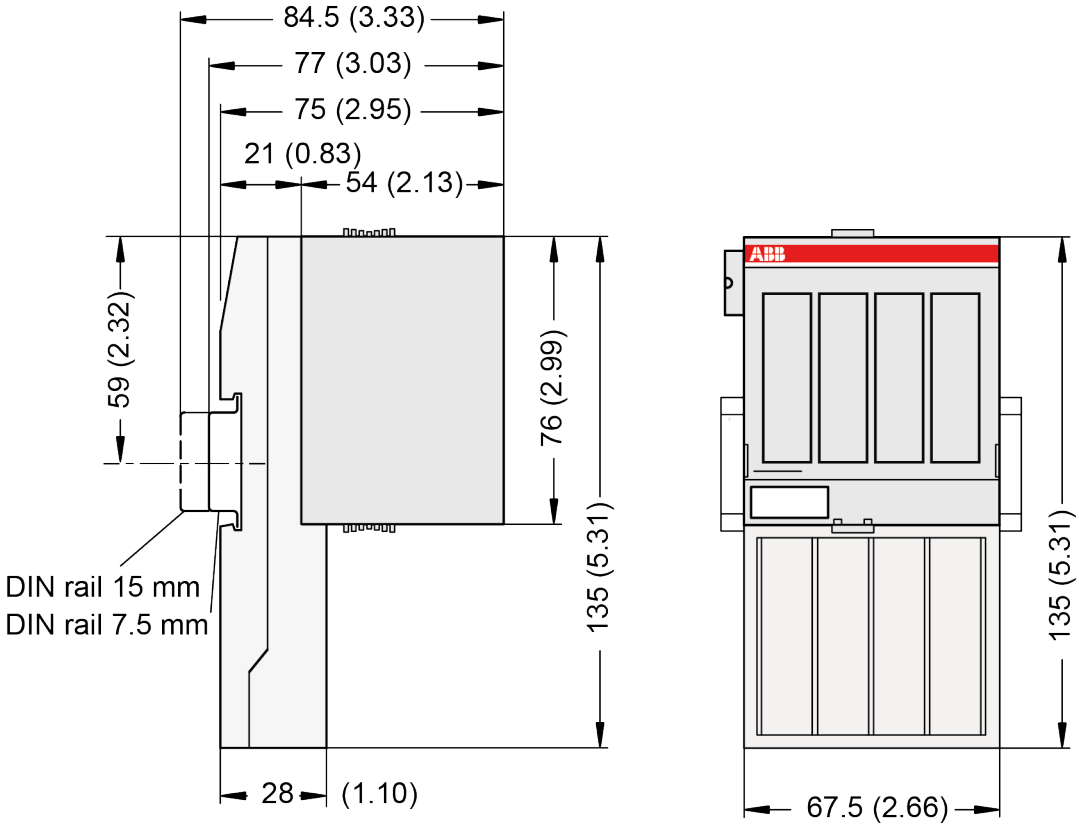
23.1 Assembly



23.2 Disassembly

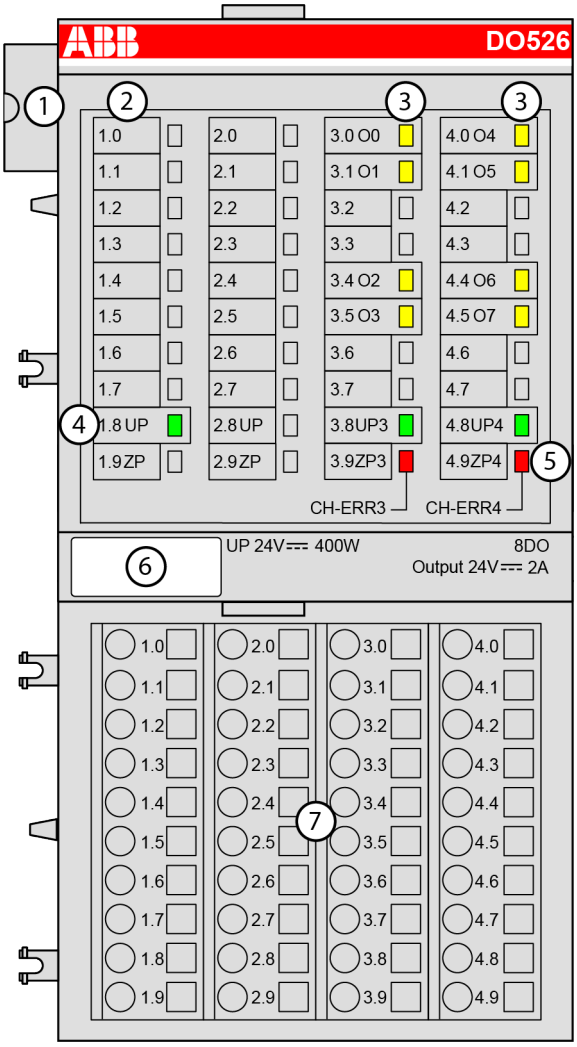


23.3 Dimensions



The dimensions are in mm and in brackets in inch.

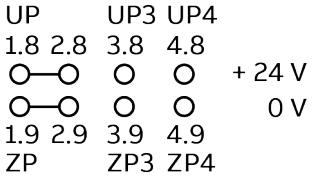
23.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 8 yellow LEDs to display the signal states of the outputs O0 to O7
4 3 green LEDs to display the states of the process supply voltage UP, UP3 and UP4
5 2 red LEDs to display errors
6 Label
7 Terminal unit
❄ Sign for XC version

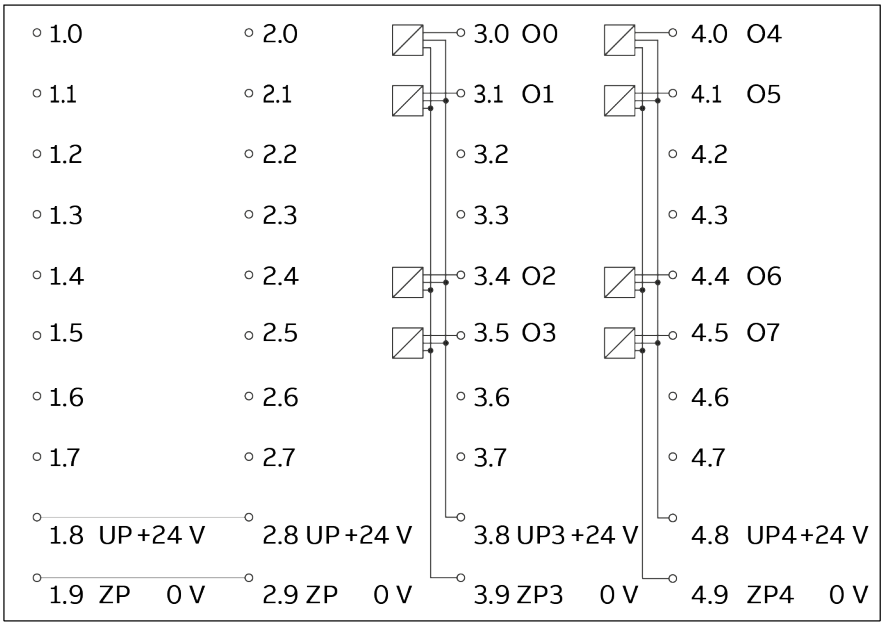
> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.*

23.4.1 Process Supply Voltage



CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

23.4.2 Outputs



Example

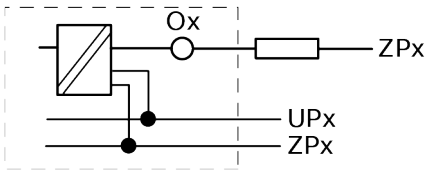


Fig. 35: Example for connection output

23.5 Cleaning

Cleaning instruction
Do not use cleaning agent for cleaning the device.
Use a damp cloth instead.

23.6 Certification

MSIP-REI-Abb-AC500

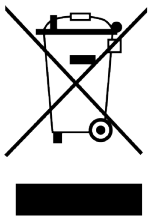
en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

en **Note**
These devices correspond to: **KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”

ko 참고
이러한 기기는 **KN61000-6-2 “**산업 환경에 대한 내성**”**, **KN61000-6-4 “**산업 환경 누출 기준**”**에 적합함

23.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

24 DX522

- DX522
- DX522-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

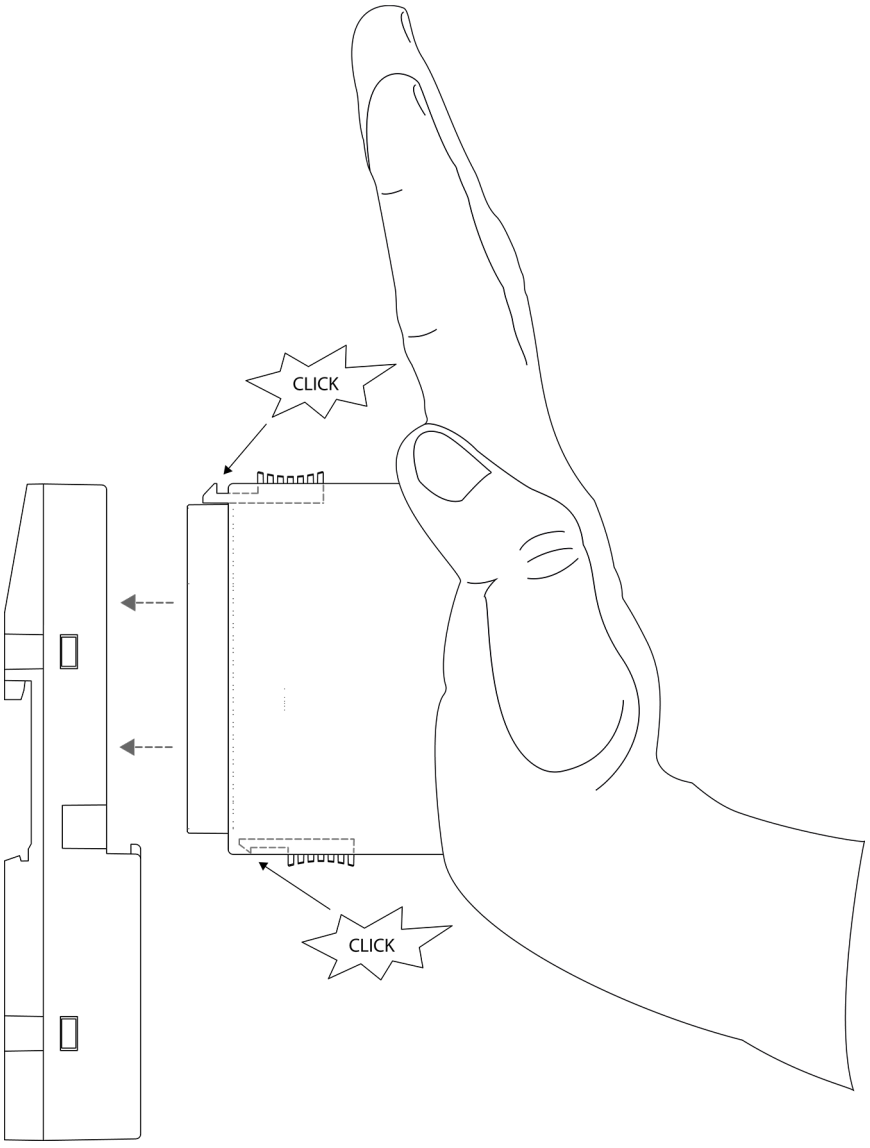
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

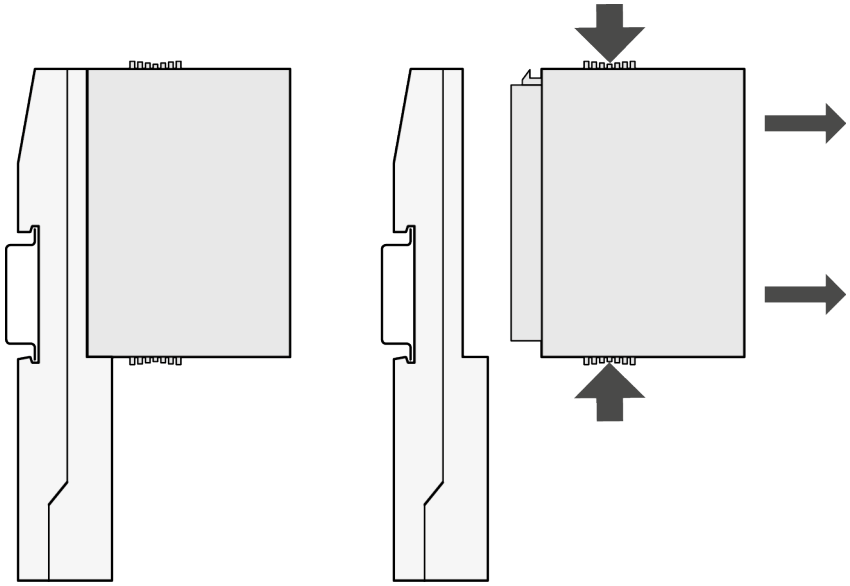
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

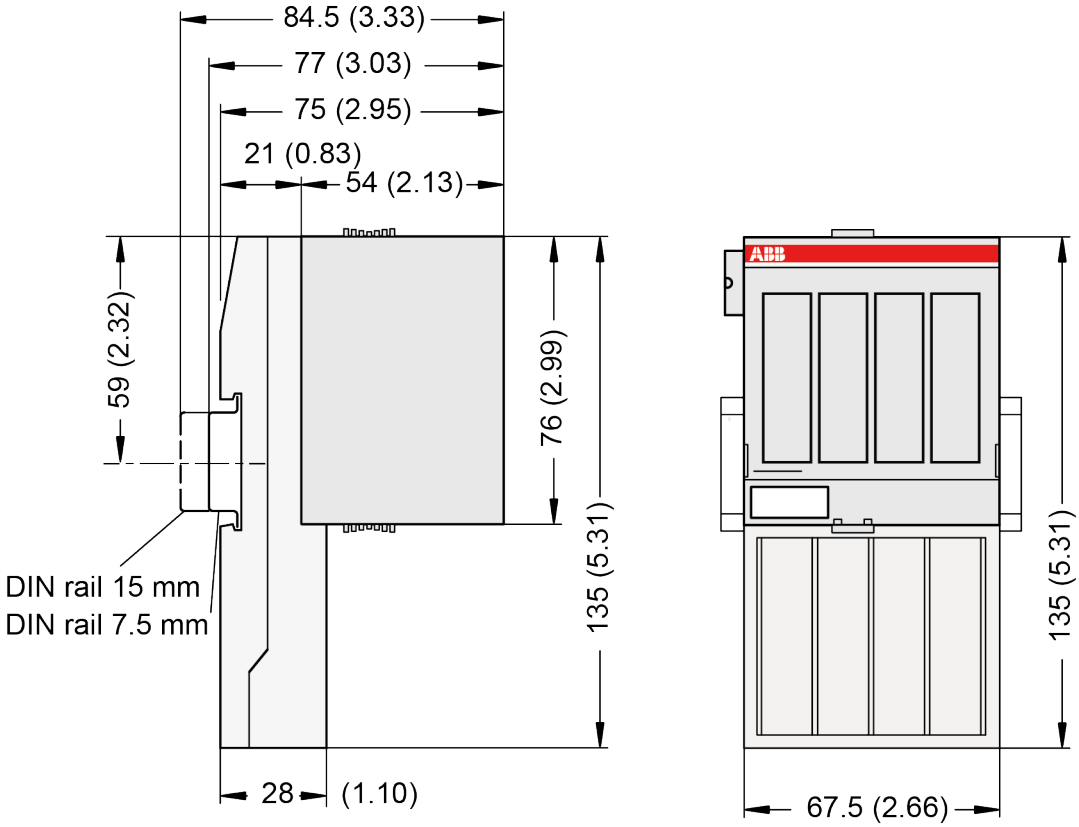
24.1 Assembly



24.2 Disassembly

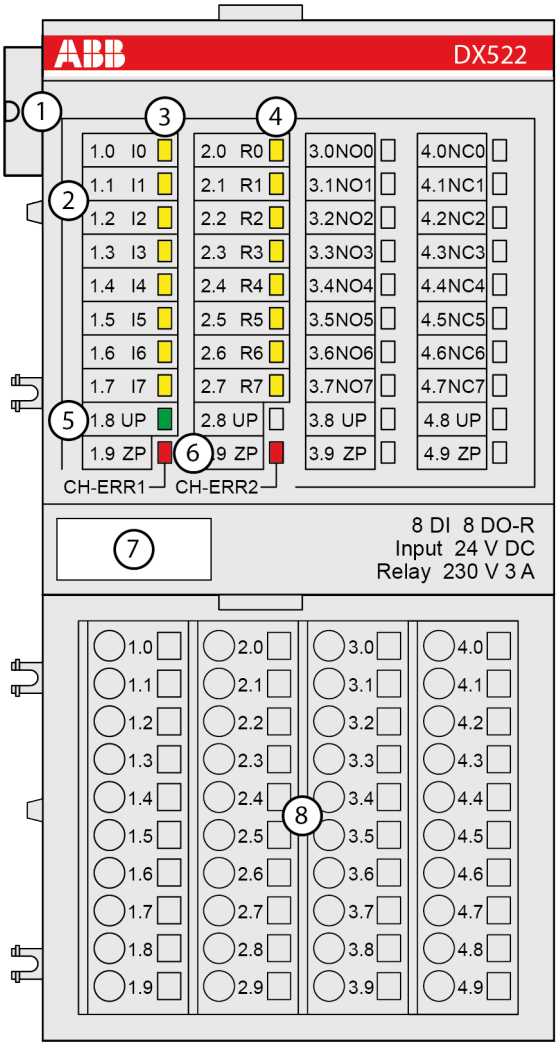


24.3 Dimensions



The dimensions are in mm and in brackets in inch.

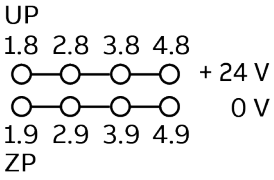
24.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 8 yellow LEDs to display the signal states at the digital inputs (I0 - I7)
4 8 yellow LEDs to display the signal states at the digital relay outputs (R0 - R7)
5 1 green LED to display the state of the process supply voltage UP
6 2 red LEDs to display errors
7 Label
8 Terminal unit
❄ Sign for XC version

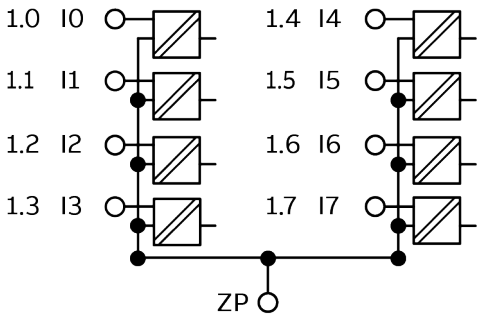
> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.*

24.4.1 Process Supply Voltage



CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

24.4.2 Inputs



Example

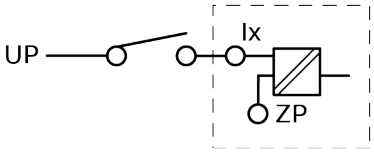
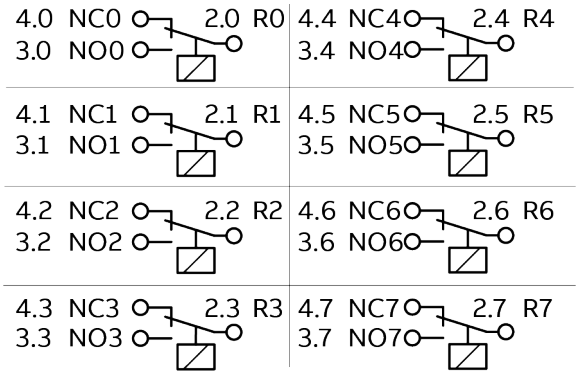


Fig. 36: Example for connection input

24.4.3 Outputs



If the relay outputs have to switch inductive DC loads, free-wheeling diodes must be circuited in parallel to these loads.

If the relay outputs have to switch inductive AC loads, spark suppressors are required.

24.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

24.6 Certification

MSIP-REI-Abb-AC500

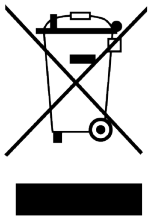
en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

en **Note**
These devices correspond to: **KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”

ko 참고
이러한 기기는 **KN61000-6-2 “**산업 환경에 대한 내성**”**, **KN61000-6-4 “**산업 환경 누출 기준**”**에 적합함

24.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

25 DX531

- DX531

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

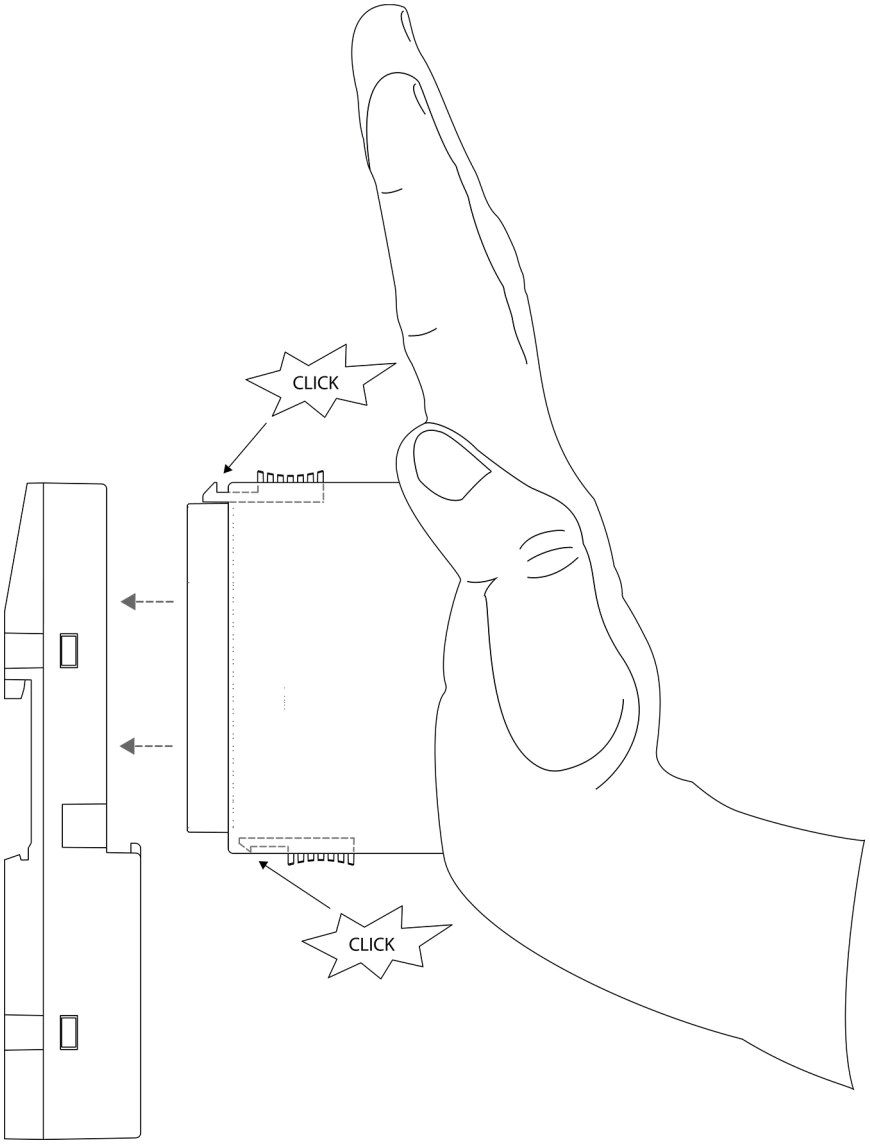
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

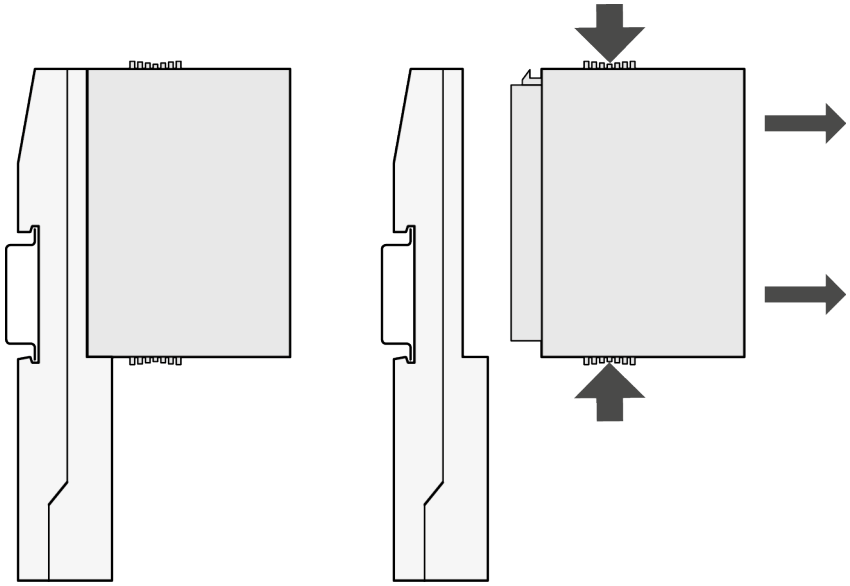
Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4

Device	Min. required device index for I/O module as of FW Version 3.0.14
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

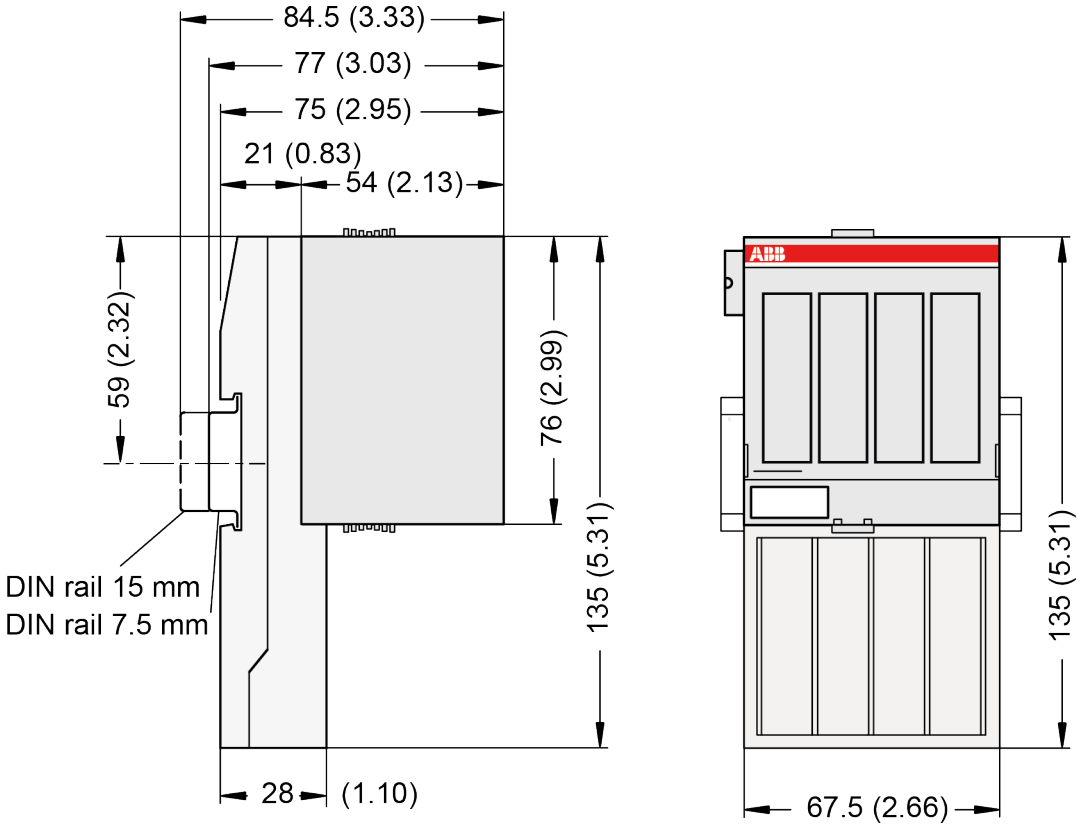
25.1 Assembly



25.2 Disassembly

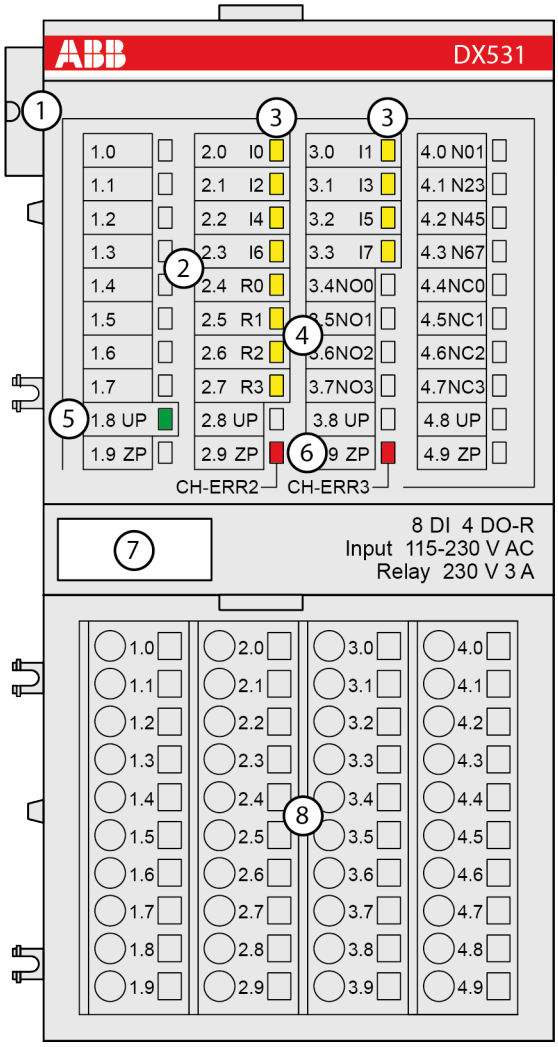


25.3 Dimensions



The dimensions are in mm and in brackets in inch.

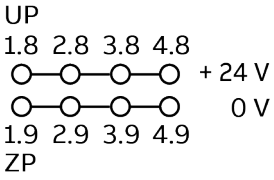
25.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 8 yellow LEDs to display the signal states at the digital inputs (I0 - I7)
4 4 yellow LEDs to display the signal states at the digital relay outputs (R0 - R3)
5 1 green LED to display the state of the process supply voltage UP
6 2 red LEDs to display errors
7 Label
8 Terminal unit

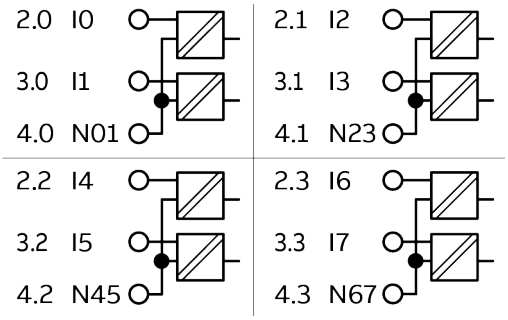
All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

25.4.1 Process Supply Voltage

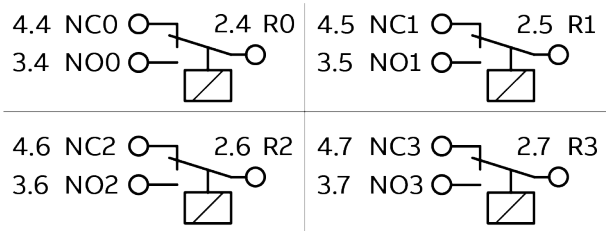


CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

25.4.2 Inputs



25.4.3 Outputs



If the relay outputs have to switch inductive DC loads, free-wheeling diodes must be circuited in parallel to these loads.

If the relay outputs have to switch inductive AC loads, spark suppressors are required.

25.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

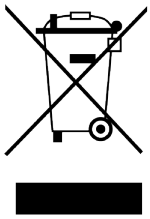
25.6 Certification

MSIP-REI-Abb-AC500

en	**Devices with KCC sign on product sticker and packaging**
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”
ko	참고 이러한 기기는	**KN61000-6-2 “**산업 환경에 대한 내성**”,** **KN61000-6-4 “**산업 환경 누출 기준**”**에 적합함

25.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

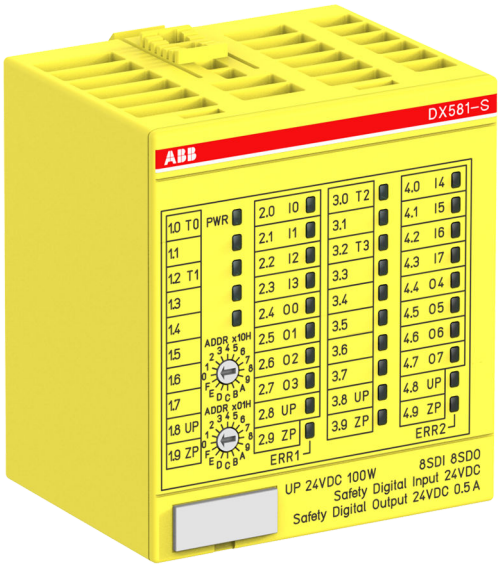
It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

26 DX581-S

- DX581-S
- DX581-S-XC



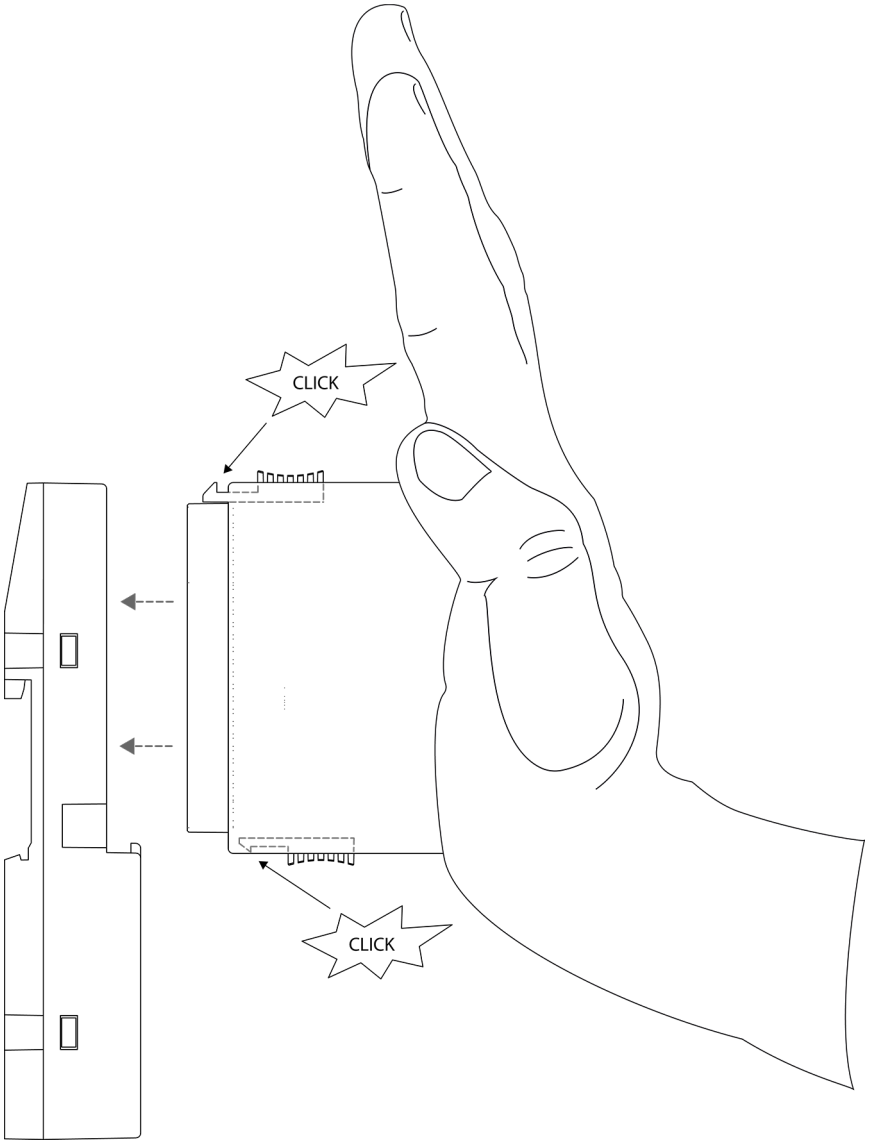
CAUTION!

Risk of injury and damaging the product!

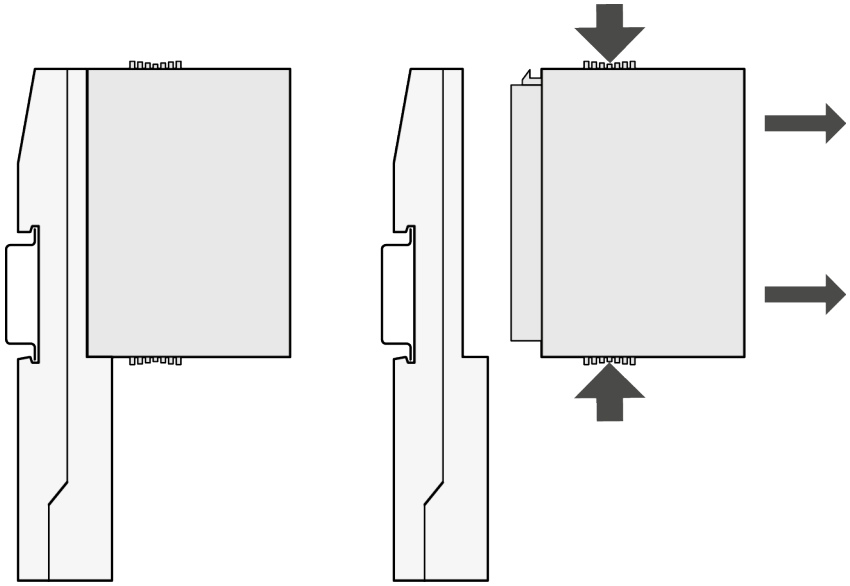
Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

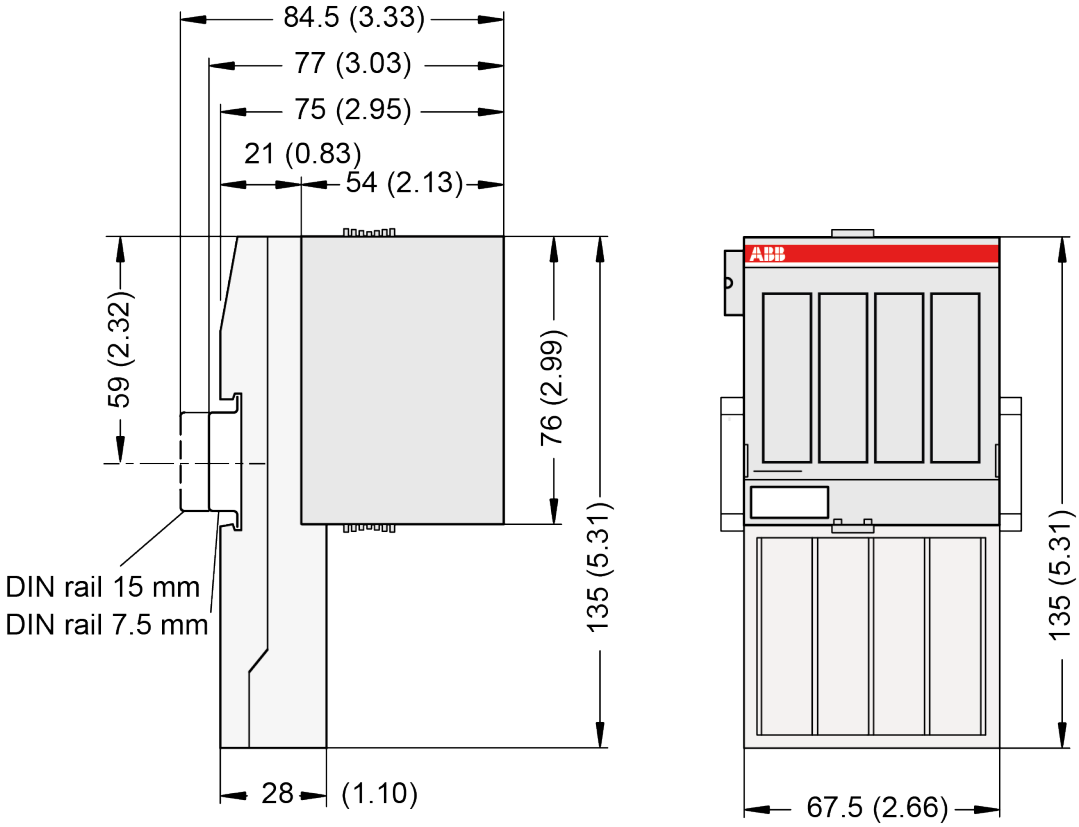
26.1 Assembly



26.2 Disassembly

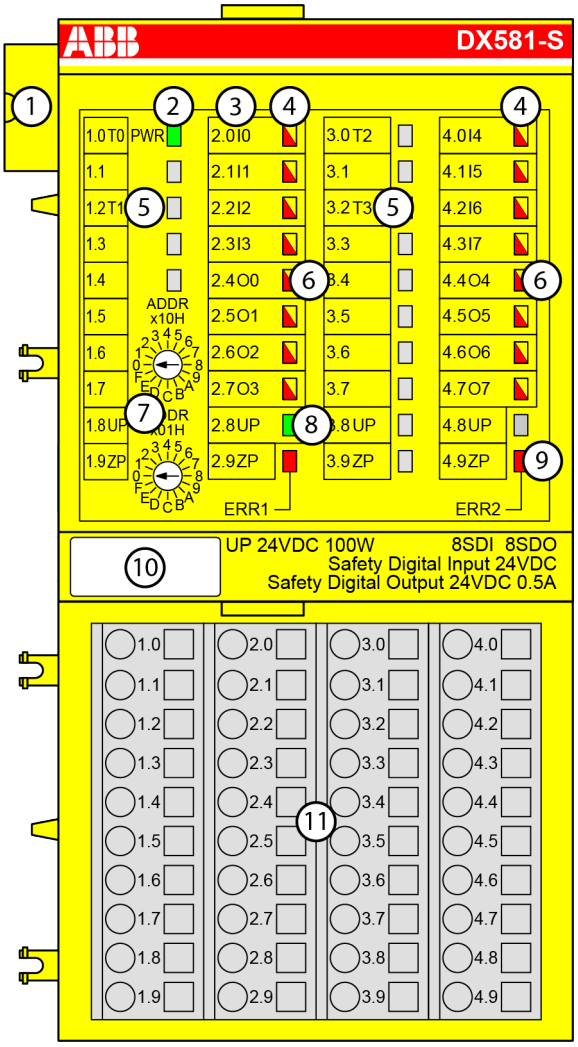


26.3 Dimensions



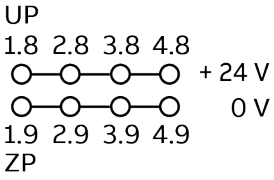
The dimensions are in mm and in brackets in inch.

26.4 Connection



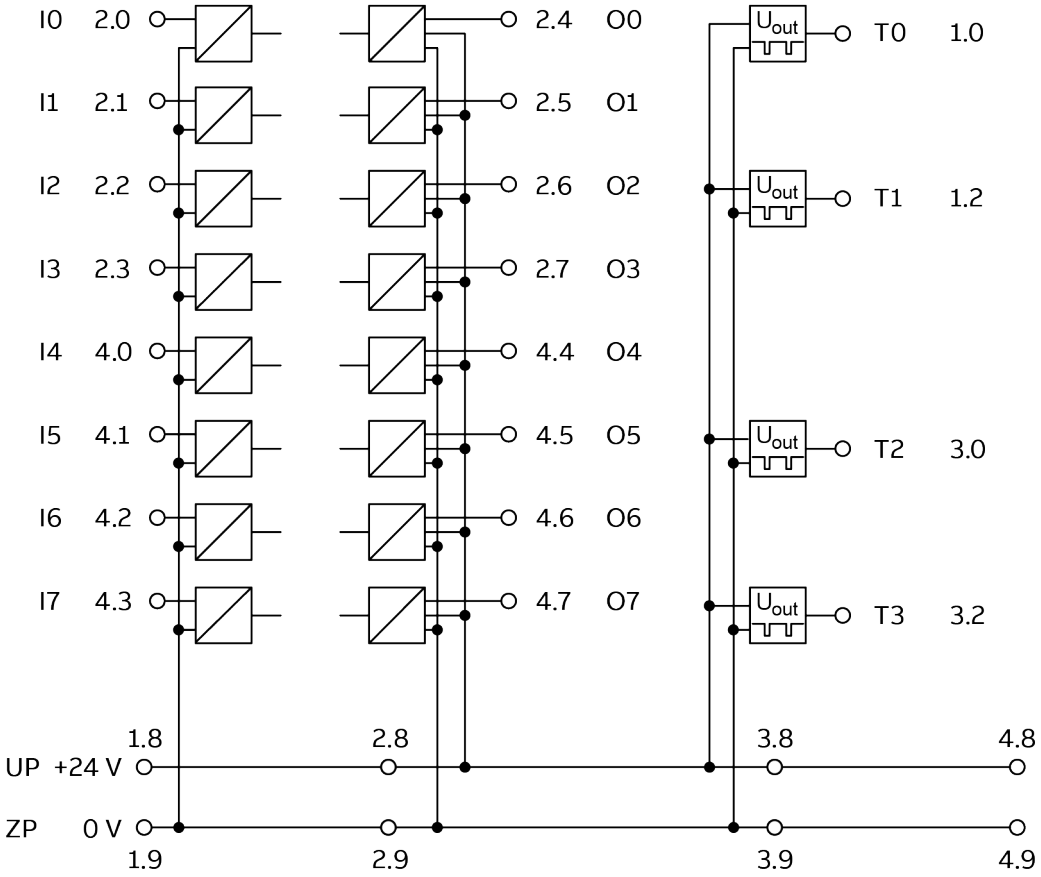
1 I/O bus
2 System LED
3 Allocation between terminal number and signal name
4 8 yellow/red LEDs to display the signal states of the digital inputs I0 to I7
5 4 Test pulse outputs T0 to T3
6 8 yellow/red LEDs to display the signal states of the digital outputs O0 to O7
7 2 rotary switches for setting the PROFIsafe address
8 1 green LED to display the state of the process supply voltage UP
9 2 red LEDs to display errors
10 Label
11 Terminal unit TU582-S(-XC)
❄ Sign for XC version

26.4.1 Process Supply Voltage



CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

26.4.2 Inputs/Outputs



Examples

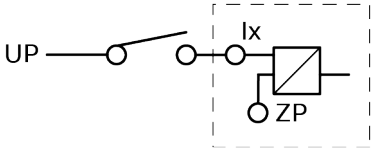


Fig. 37: Example for connection input Ix

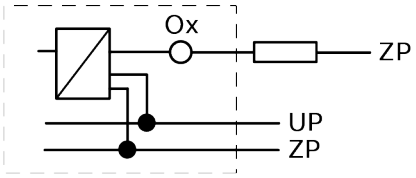


Fig. 38: Example for connection output Ox

AC500-S Safety User Manual
For a detailed description of the electrical connection of the module, please refer to the "AC500-S Safety User Manual".

26.5 Cleaning

Cleaning instruction
Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

26.6 Certification

MSIP-REI-Abb-AC500

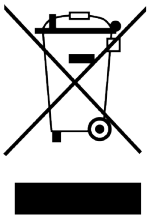
en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

en **Note**
These devices correspond to: **KN61000-6-2** “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는 **KN61000-6-2 “**산업 환경에 대한 내성**”,**
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

26.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

27 PD501-4CH

- PD501-4CH

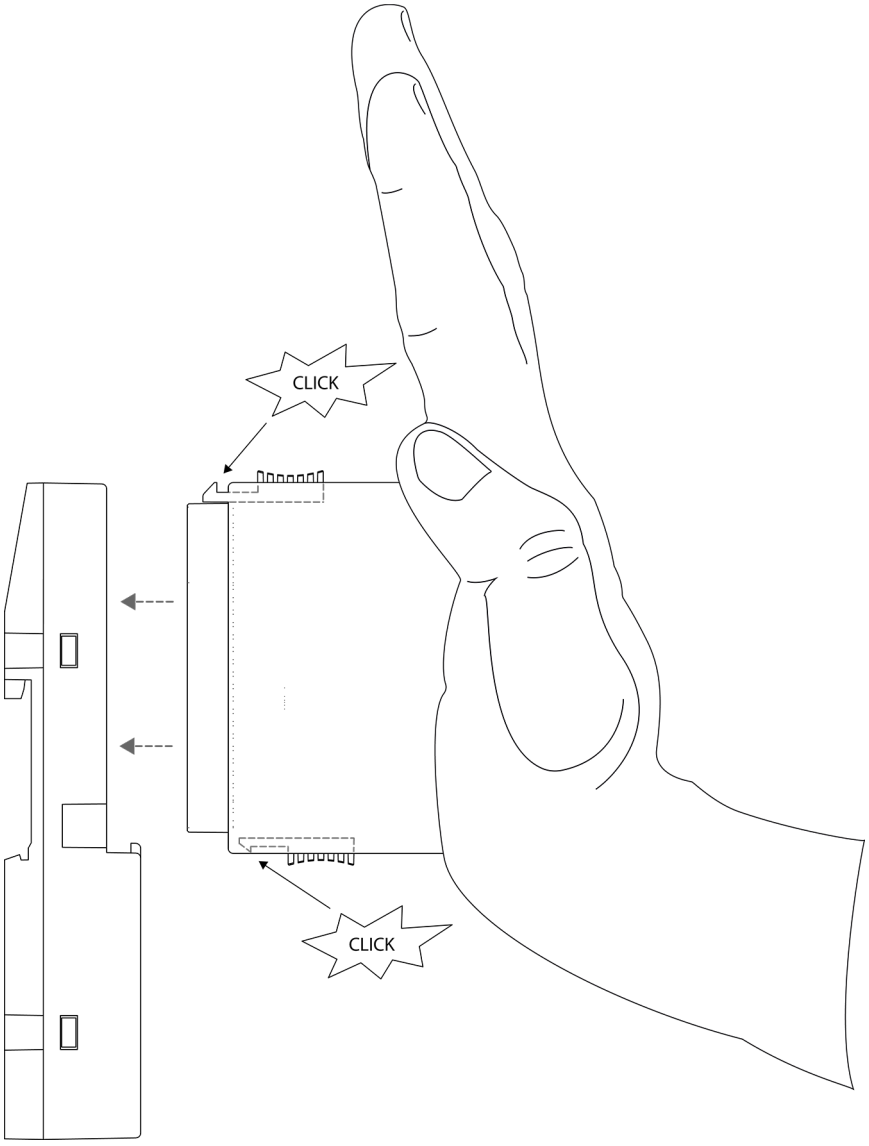
CAUTION!

Risk of injury and damaging the product!

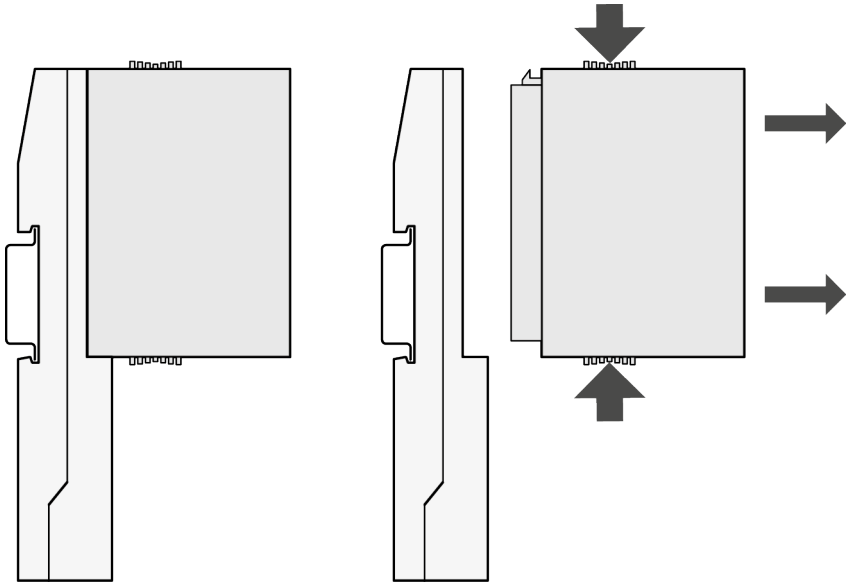
Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

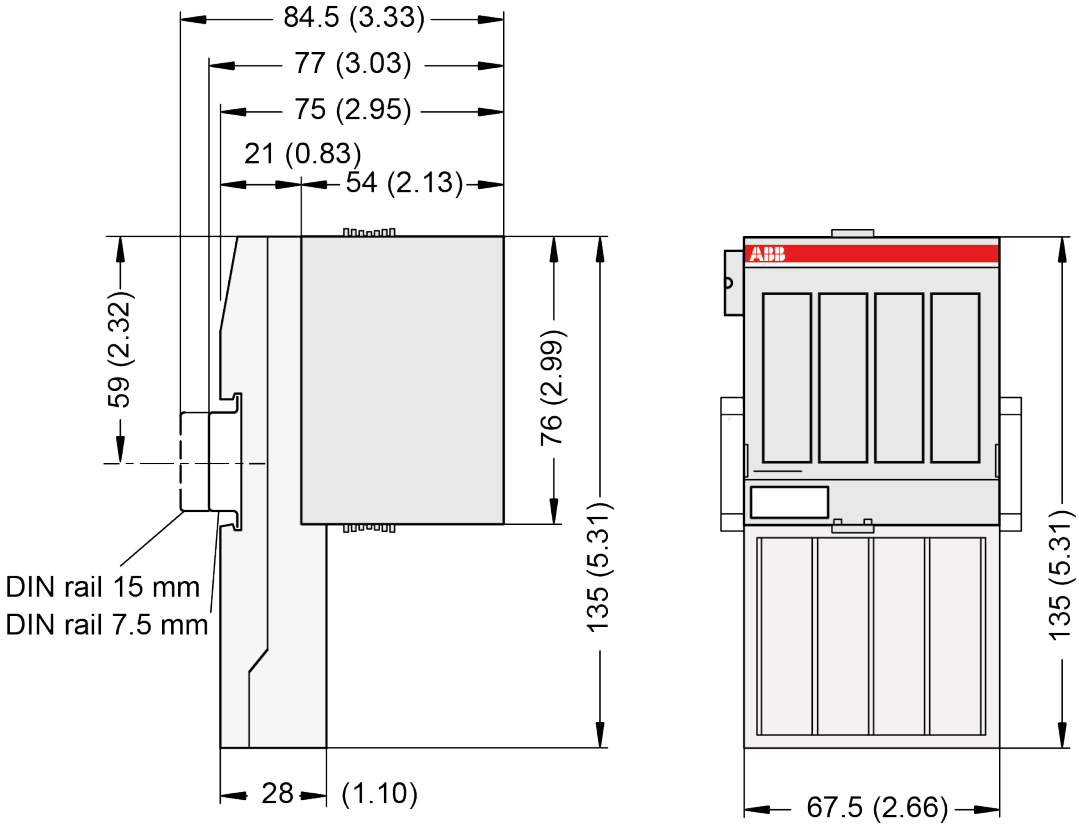
27.1 Assembly



27.2 Disassembly

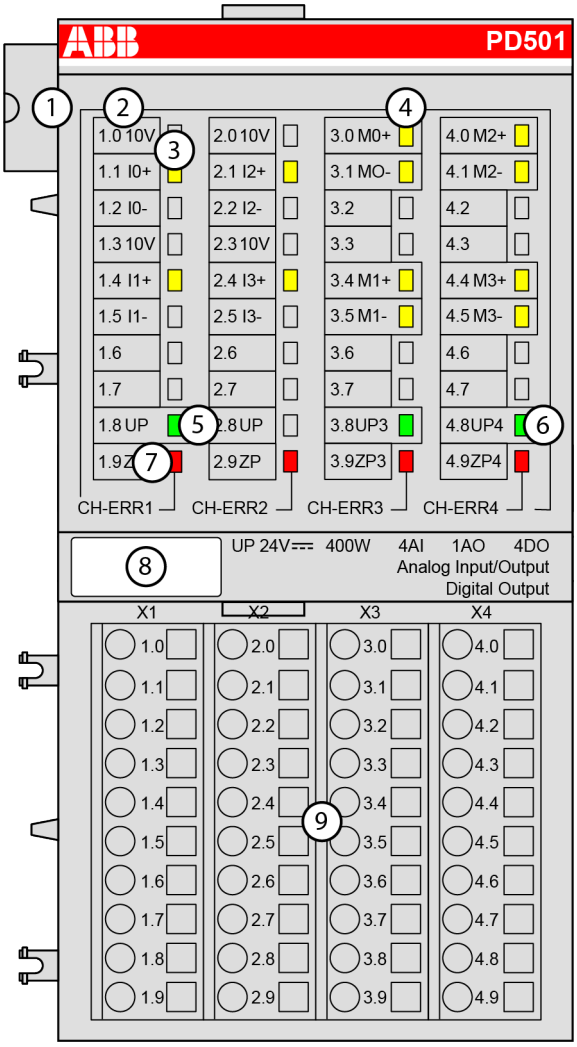


27.3 Dimensions



The dimensions are in mm and in brackets in inch.

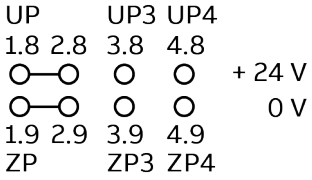
27.4 Connection



1 I/O bus
2 Allocation between terminal number and signal name
3 4 yellow LEDs to display the signal states of the analog inputs I0 to I3
4 8 yellow LEDs to display the signal states of the outputs M0 to M3
5 1 green LED to display the state of the process supply voltage UP
6 2 green LEDs to display the states of the motor supply voltages UP3 and UP4
7 4 red LEDs to display errors CH-ERR1 to CH-ERR4
8 Label
9 Terminal unit TU542

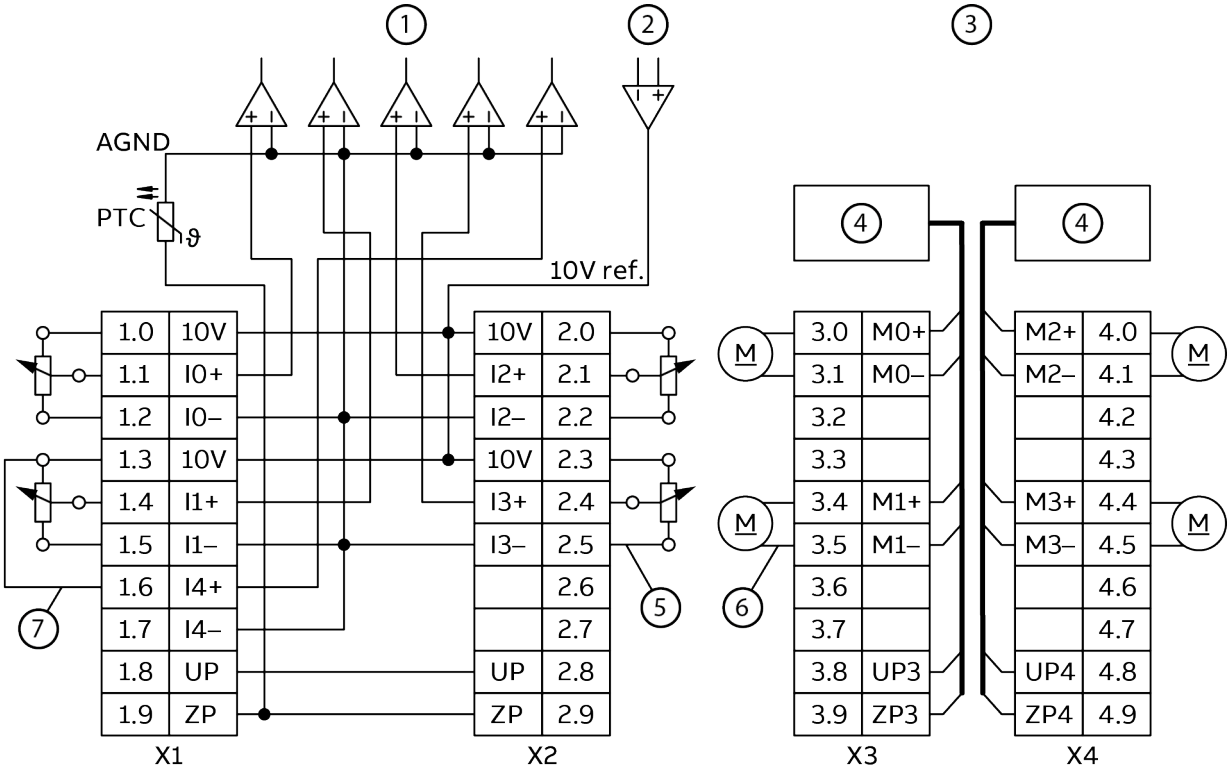
All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and continuous overvoltage up to 30 VDC.

27.4.1 Process Supply Voltage



CAUTION!
The process supply voltage must be included in the earthing concept (e. g. earthing of the minus pole).

27.4.2 Inputs/Outputs



1 4 analog inputs
2 1 analog output
3 4 digital outputs
4 Motor drivers
5 3x 0.5 mm² + shield
6 2x 2.5 mm²
7 External connection between I4+ and 10 V for sensor supply monitoring required

27.5 Cleaning

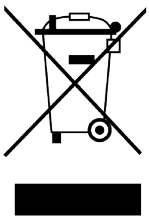
Cleaning instruction
Do not use cleaning agent for cleaning the device.
Use a damp cloth instead.

27.6 Certification

MSIP-REI-Abb-AC500

en	**Devices with KCC sign on product sticker and packaging**	
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	
en	**Note** These devices correspond to:	**KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”
ko	참고 이러한 기기는	**KN61000-6-2 “**산업 환경에 대한 내성**”,** **KN61000-6-4 “**산업 환경 누출 기준**”**에 적합함

27.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

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It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

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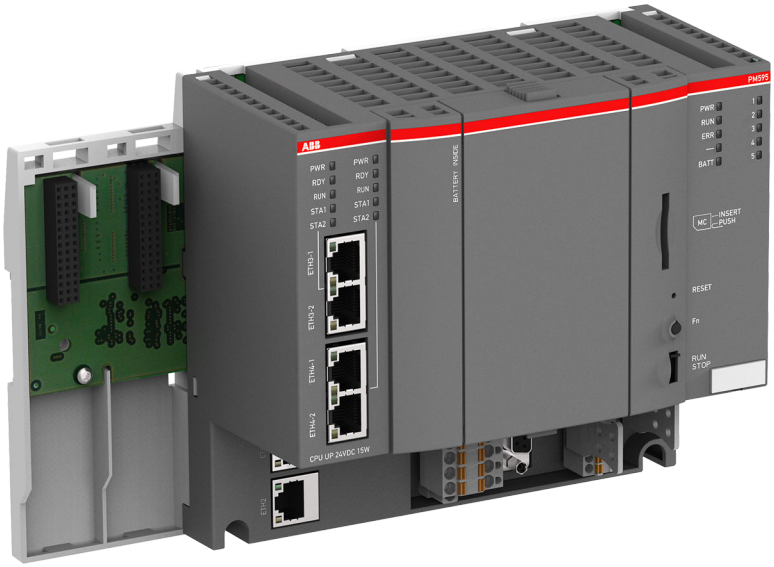
28 PM595

- PM595-4ETH-F
- PM595-4ETH-M-XC



CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

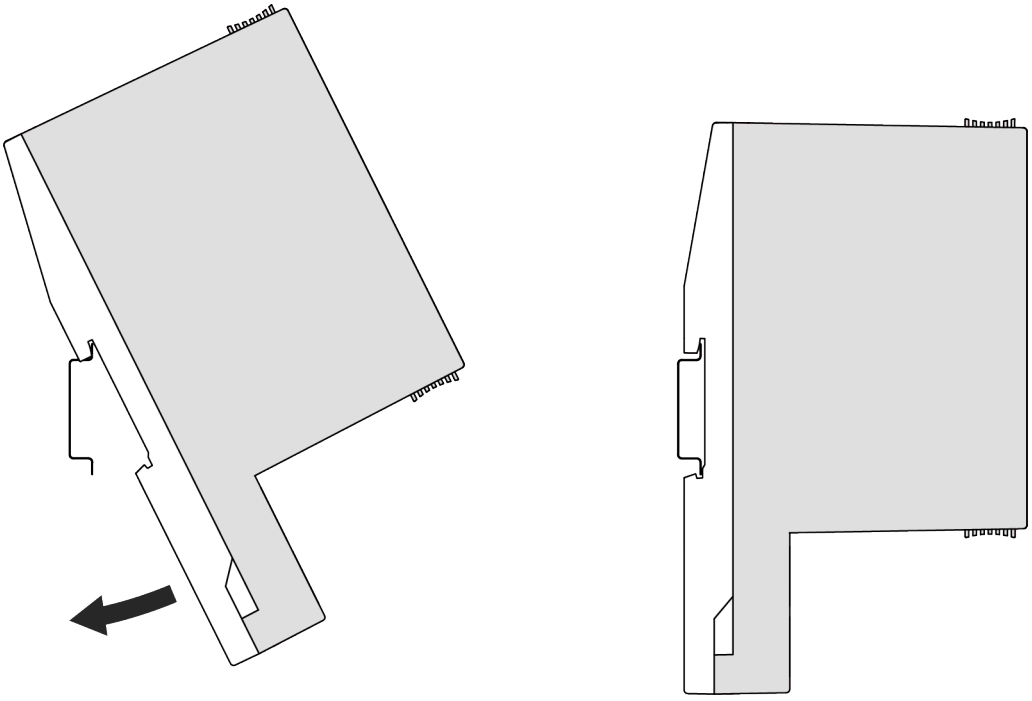
NOTICE!

Damage to the modules without using screw mounting accessory!

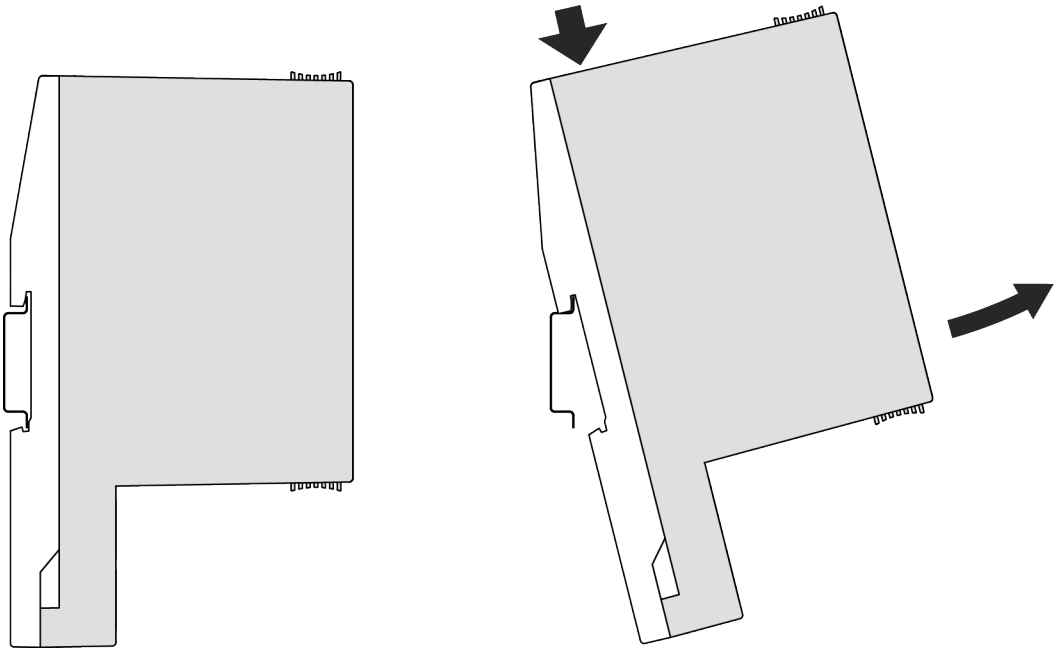
Screw mounting accessories TA543 prevent bending and damaging the processor modules PM595.

Without using DIN rail inserting the screw mounting accessories TA543 is mandatory.

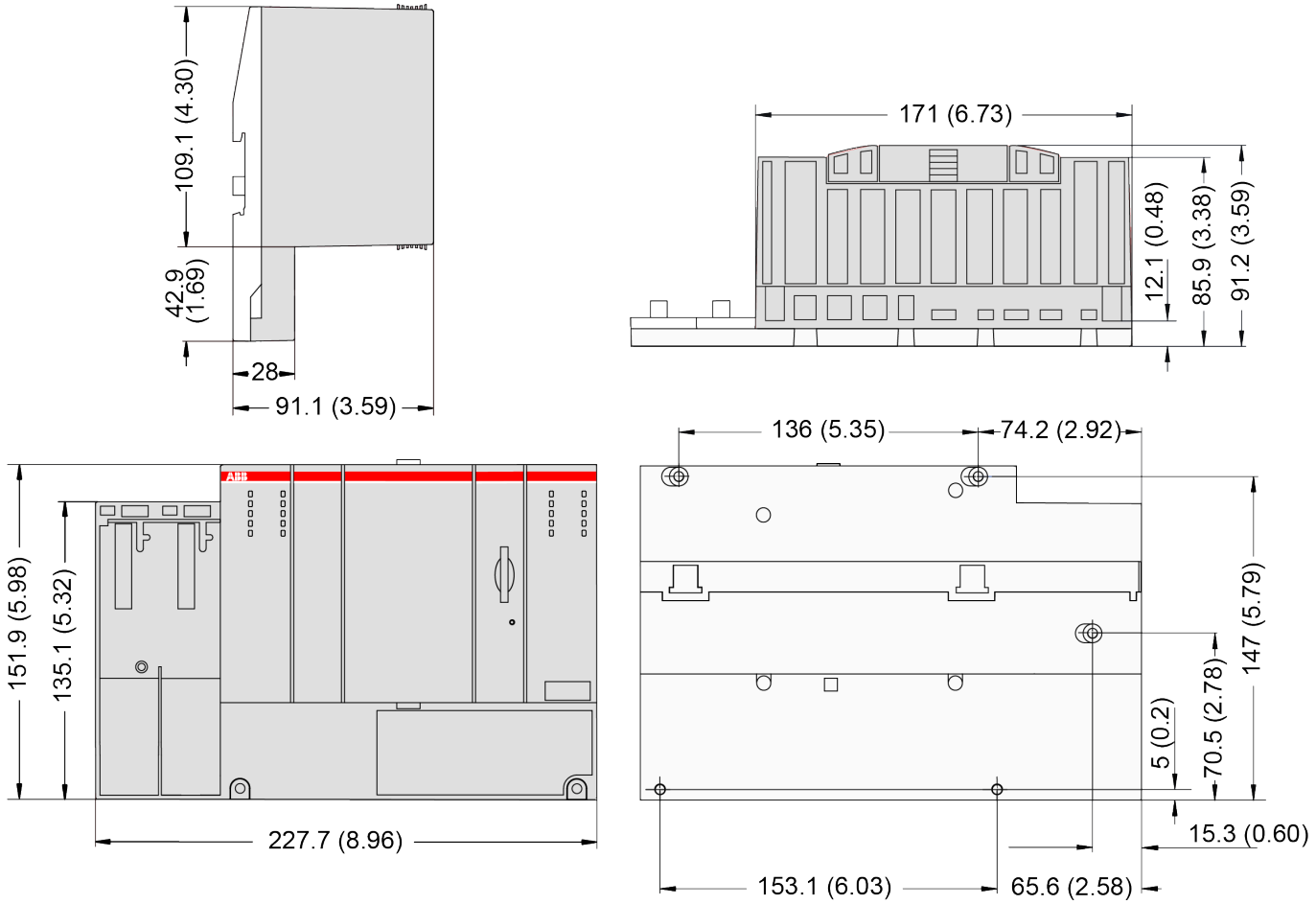
28.1 Assembly



28.2 Disassembly

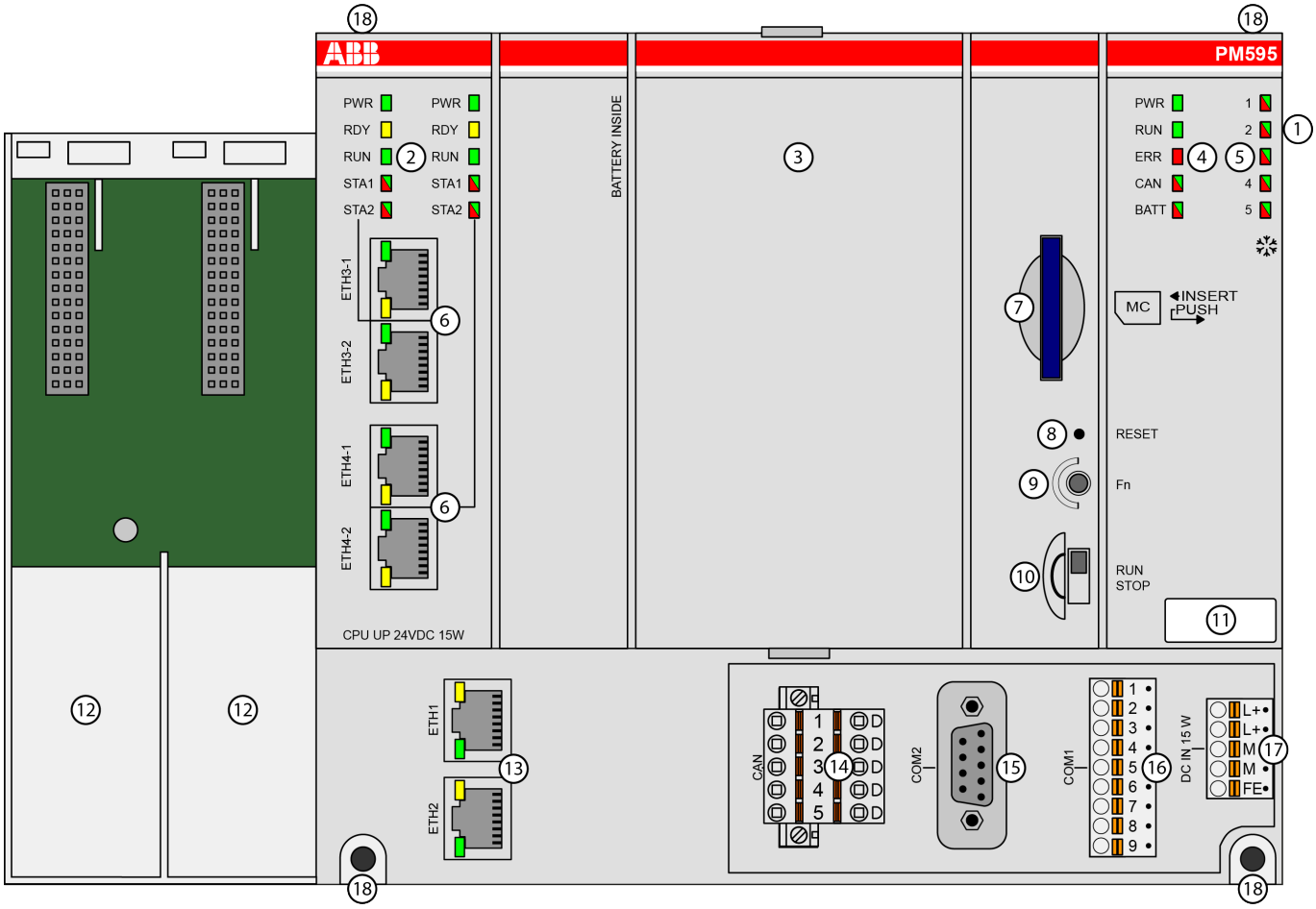


28.3 Dimensions



The dimensions are in mm and in brackets in inch.

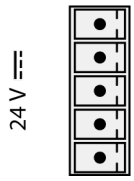
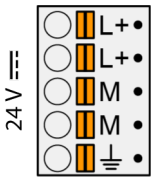
28.4 Connection



1 I/O bus for connection of I/O modules
2 2x 5 LEDs to display the states of the fieldbuses
3 Cover for battery and display
4 5 LEDs to display the states of the processor module
5 5 LEDs (reserved)
6 2x2 RJ45 interfaces for fieldbuses
7 Slot for memory card
8 Reset button
9 Button (reserved)
10 RUN/STOP switch
11 Label
12 Slots for communication modules (max 2; unused slots must be covered with TA524)
13 2 RJ45 interfaces for Ethernet connection
14 5-pin terminal block (reserved)
15 Serial interface COM2 (D-sub 9)
16 Serial interface COM1 (9-pin terminal block, removable)
17 Power supply (5-pin terminal block, removable)
18 4 holes for wall mounting
❄ Sign for XC version

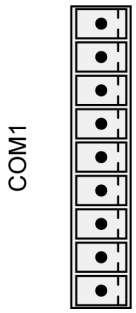
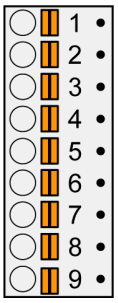
28.4.1 Power Supply

Pin Assignment

Pin Assignment		Label	Function	Description
 Terminal block removed	 Terminal block inserted	L+	+24 VDC	Positive pin of the power supply voltage
		L+	+24 VDC	Positive pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		⏚	FE	Functional earth

28.4.2 Serial Interface COM1

Pin Assignment

		Pin	Signal	Interface	Description
 Terminal block removed	 Terminal block inserted	1	Terminator P	RS-485	Terminator P
		2	RxD/TxD-P	RS-485	Receive/Transmit, positive
		3	RxD/TxD-N	RS-485	Receive/Transmit, negative
		4	Terminator N	RS-485	Terminator N
		5	RTS	RS-232	Request to send (output)
		6	TxD	RS-232	Transmit data (output)
		7	SGND	Signal Ground	Signal Ground
		8	RxD	RS-232	Receive data (input)
		9	CTS	RS-232	Clear to send (input)

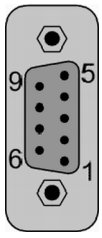
NOTICE!

Unused connector!

Make sure that the terminal block is always connected to the terminal base, even if you do not use the interface.

28.4.3 Serial Interface COM2

Pin Assignment

Serial Interface	Pin	Signal	Interface	Description	
	1	FE	-	Functional earth	
	2	TxD	RS-232	Transmit data	Output
	3	RxD/TxD-P	RS-485	Receive/Transmit	Positive
	4	RTS	RS-232	Request to send	Output
	5	SGND	Signal ground	0 V supply out	

Serial Interface	Pin	Signal	Interface	Description	
	6	+5 V	-	5 V supply out	
	7	RxD	RS-232	Receive data	Input
	8	RxD/TxD-N	RS-485	Receive/Transmit	Negative
	9	CTS	RS-232	Clear to send	Input
	Shield	FE	-	Functional earth	

NOTICE!

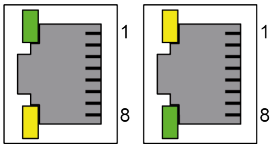
Risk of corrosion!

Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices *TA535*.

28.4.4 Ethernet Network Interface

Pin Assignment



Pin	Signal	Description
1	TxD+	Transmit Data +
2	TxD-	Transmit Data -
3	RxD+	Receive Data +
4	NU	Not used
5	NU	Not used
6	RxD-	Receive Data -
7	NU	Not used
8	NU	Not used
Shield	Cable shield	Functional earth

NOTICE!

Risk of corrosion!

Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices *TA535*.

28.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

28.6 Certification

MSIP-REI-Abb-AC500

en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

en **Note**
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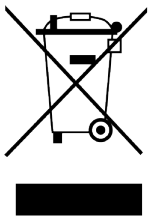
ko 참고
이러한 기기는 **KN61000-6-2 “**산업 환경에 대한 내성**”,**
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

28.7 Recycling



Disposal and recycling information

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It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

29 PM56xx-2ETH

- PM5610-2ETH
- PM5630-2ETH
- PM5630-2ETH-XC
- PM5650-2ETH
- PM5650-2ETH-XC
- PM5670-2ETH
- PM5670-2ETH-XC
- PM5675-2ETH
- PM5675-2ETH-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

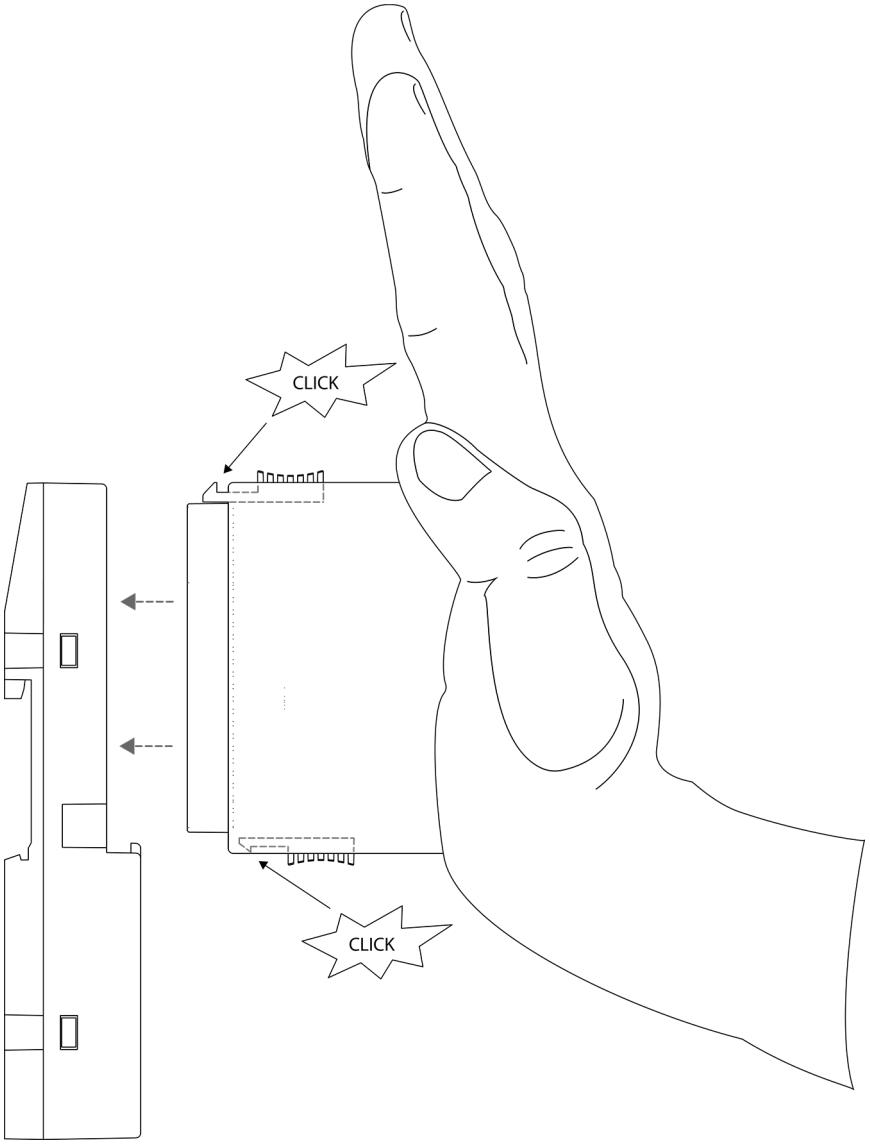
- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH terminal bases.

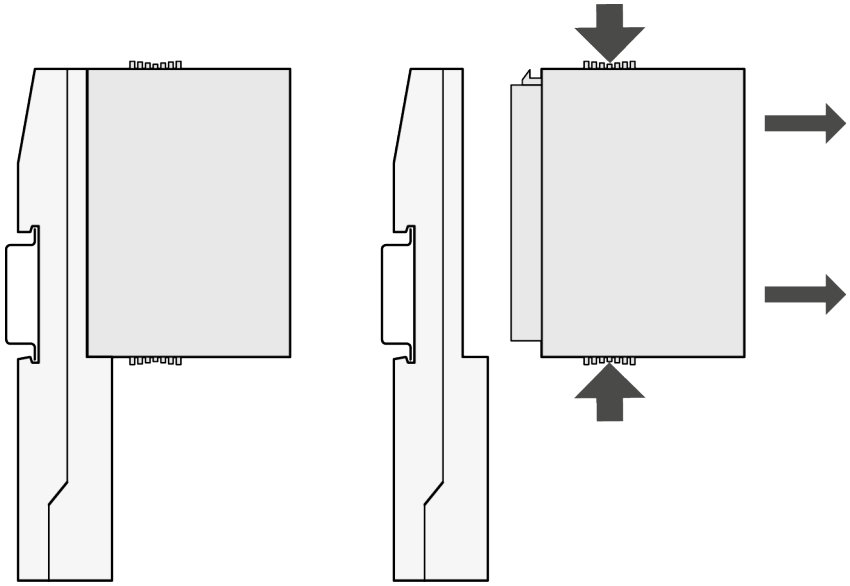
The index of the processor module PM56xx-2ETH(-XC) must be at least C0 for using the terminal base TB5660-2ETH(-XC).

The terminal base TB5660-2ETH(-XC) cannot be used with the processor modules PM5610-2ETH and PM5630-2ETH(-XC).

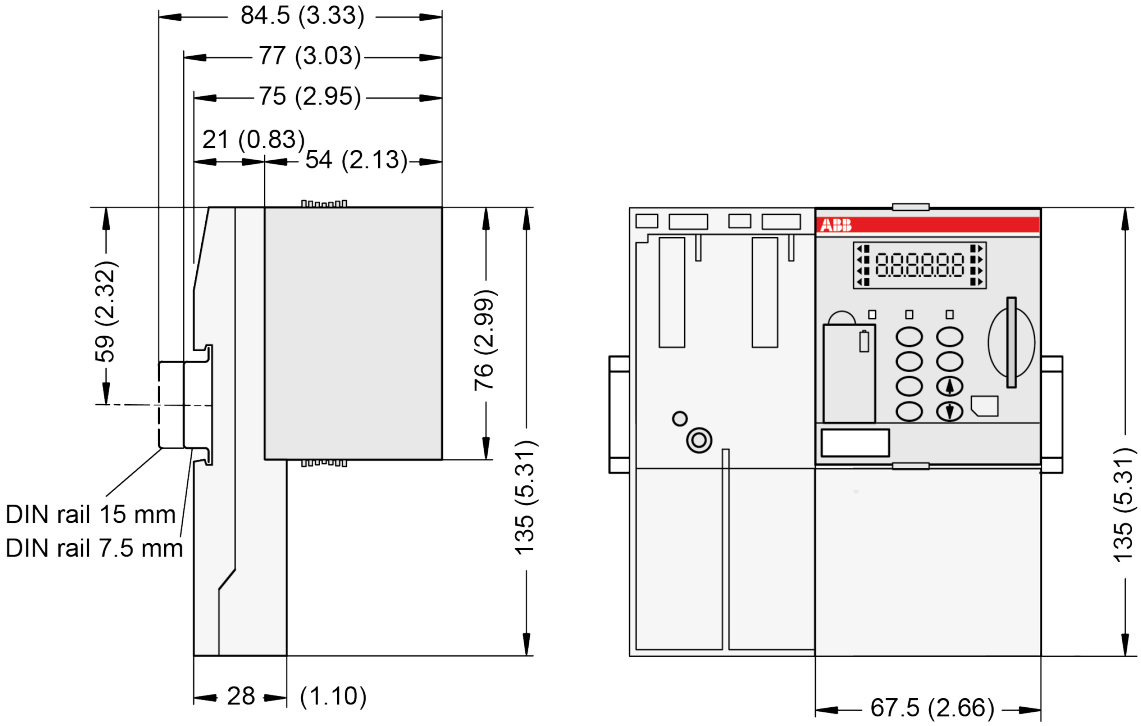
29.1 Assembly



29.2 Disassembly

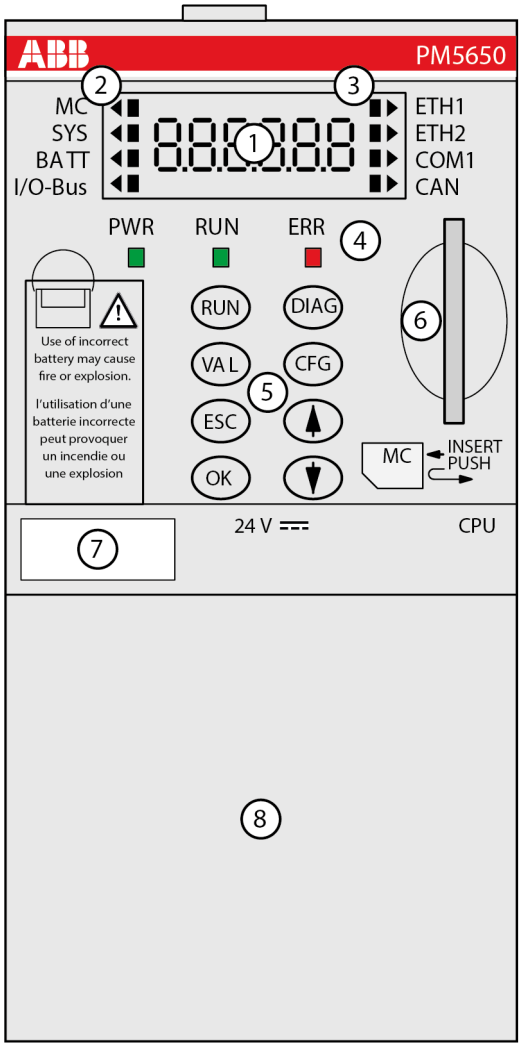


29.3 Dimensions



The dimensions are in mm and in brackets in inch.

29.4 Connection



1 Status displays (7-segment)
2 Triangle displays for ”Item”
3 Square displays for ”Status”
4 Status LEDs
5 Function keys
6 MC: Slot for the SD Memory Card
7 TA525: Label
8 The connection part may be different on various terminal base types. See installation instructions of the specific terminal base suitable for this CPU for connection specifications.
❄ Sign for XC version

Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH terminal bases.

For PM5610-2ETH, no communication module or safety module SM560 can be added.

Only the following terminal base can be used:

– *TB5600-2ETH*

For PM5630-2ETH(-XC), the maximum number of communication modules is limited to 2.

Only following terminal bases can be used:

- *TB5600-2ETH(-XC)*
- *TB5610-2ETH(-XC)*
- *TB5620-2ETH(-XC)*

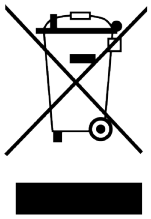
29.5 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

29.6 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

30 PM5xx (-y)

- PM572
- PM573-ETH
- PM573-ETH-XC
- PM582
- PM582-XC
- PM583-ETH
- PM583-ETH-XC
- PM585-ETH
- PM590-ARCNET
- PM590-ETH
- PM591-ETH
- PM591-ETH-XC
- PM592-ETH
- PM592-ETH-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

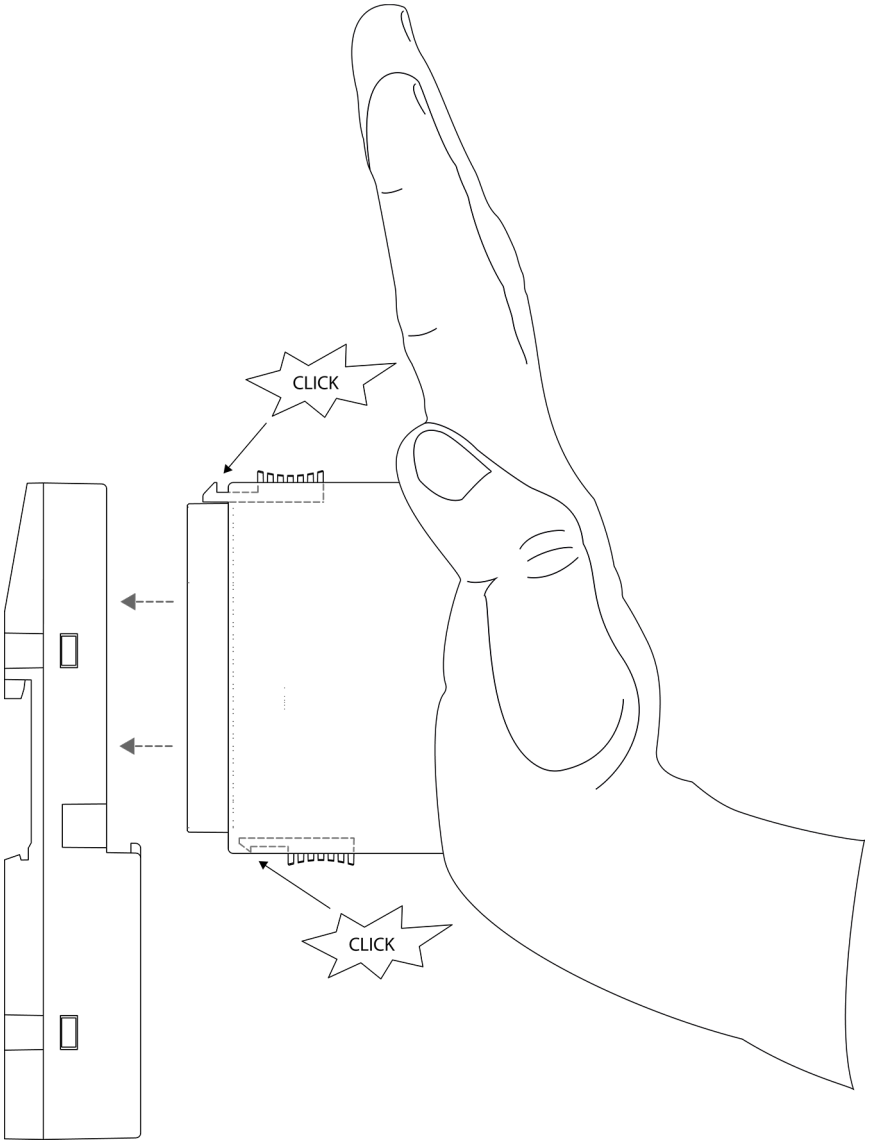
– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

Processor modules PM57x-ETH, PM58x-ETH and PM59x-ETH with ordering No. 1SAPxxxxxxR0271 can only be used with terminal bases TB5xx with ordering No. 1SAPxxxxxxR0270.

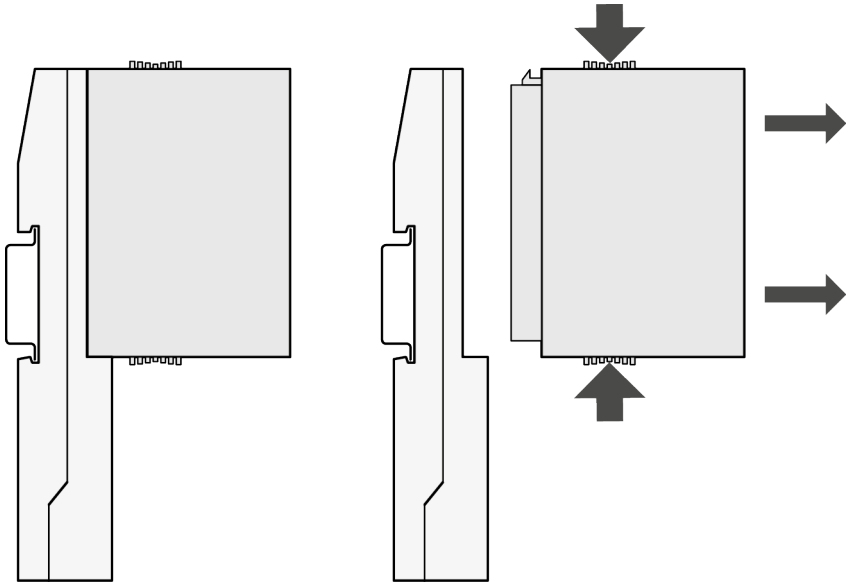
Processor module PM591-2ETH can only be used with TB523-2ETH.

The processor modules PM59x-ETH can only be used with terminal bases TB5xx with product index C6 or higher. Otherwise, they should be updated to that index.

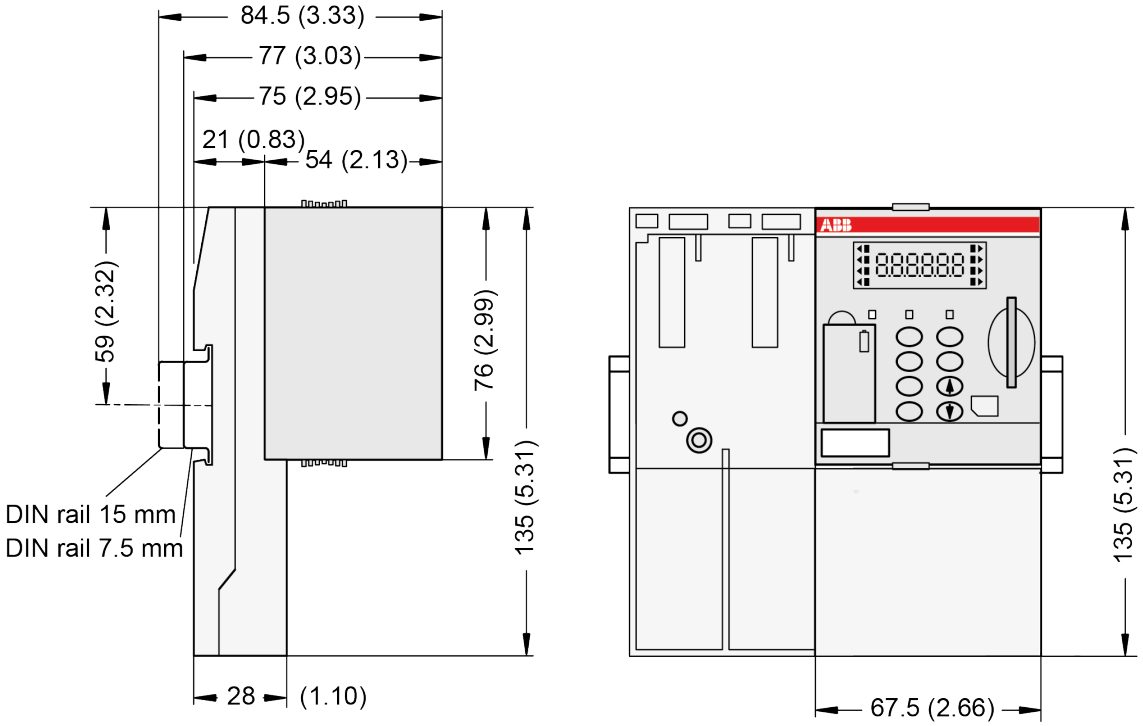
30.1 Assembly



30.2 Disassembly

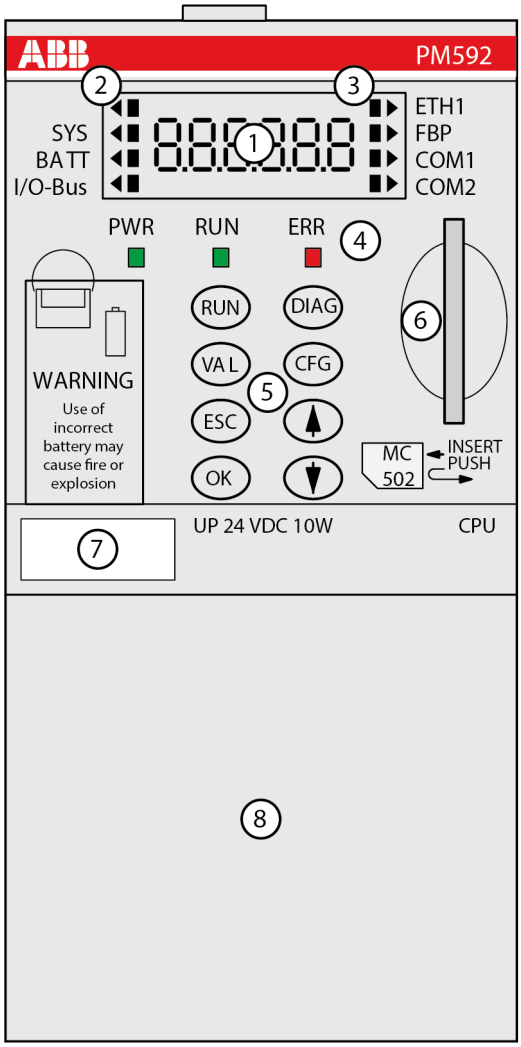


30.3 Dimensions



The dimensions are in mm and in brackets in inch.

30.4 Connection



1 Status displays (7-segment)
2 Triangle displays for ”Item”
3 Square displays for ”Status”
4 Status LEDs
5 Function keys
6 MC: Slot for the SD Memory Card
7 TA525: Label
8 The connection part may be different on various terminal base types. See installation instructions of the specific terminal base suitable for this CPU for connection specifications.
❄ Sign for XC version

30.5 Cleaning

Cleaning instruction
Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

30.6 Certification

MSIP-REI-Abb-AC500

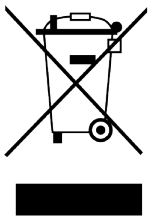
en **Devices with KCC sign on product sticker and packaging**

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

en **Note**
These devices correspond to: **KN61000-6-2** “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는 **KN61000-6-2 “**산업 환경에 대한 내성**”**,
KN61000-6-4 “산업 환경 누출 기준**”**에 적합함

30.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

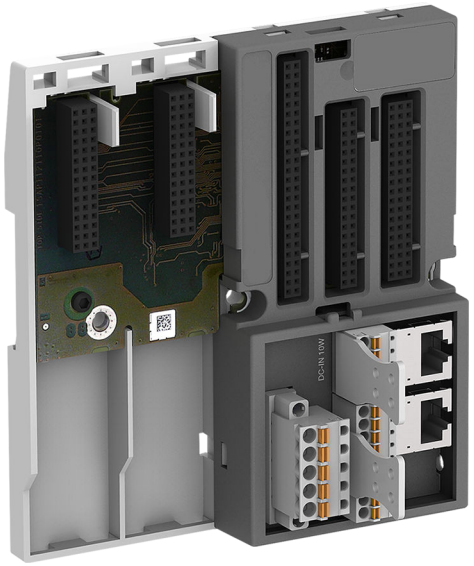
It is the end user’s responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

31 TB56xx-2ETH

- TB5600-2ETH
- TB5600-2ETH-XC
- TB5610-2ETH
- TB5610-2ETH-XC
- TB5620-2ETH
- TB5620-2ETH-XC
- TB5640-2ETH
- TB5640-2ETH-XC
- TB5660-2ETH
- TB5660-2ETH-XC



CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

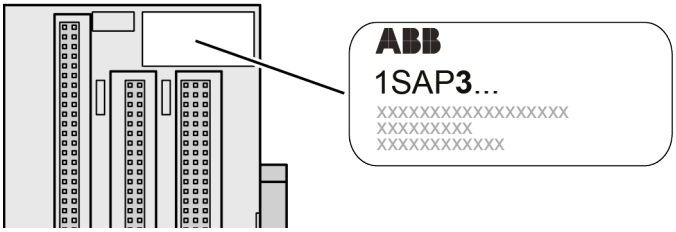
– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH terminal bases.

The index of the processor module PM56xx-2ETH(-XC) must be at least C0 for using the terminal base TB5660-2ETH(-XC).

The terminal base TB5660-2ETH(-XC) cannot be used with the processor modules PM5610-2ETH and PM5630-2ETH(-XC).

XC Version **XC** = e**X**treme **C**onditions

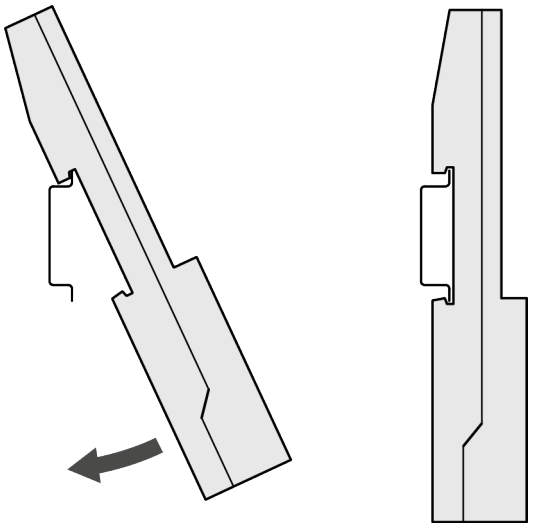


Extreme conditions

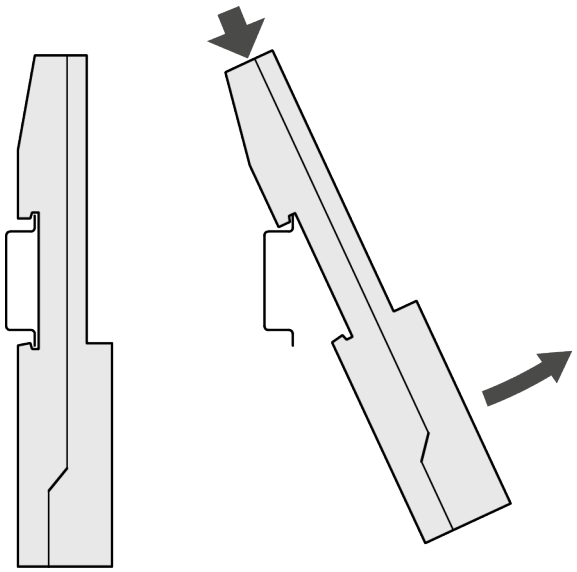
Terminal bases for use in extreme ambient conditions have no ❄ sign for XC version.

*The figure **3** in the Part no. 1SAP**3**... (label) identifies the XC version.*

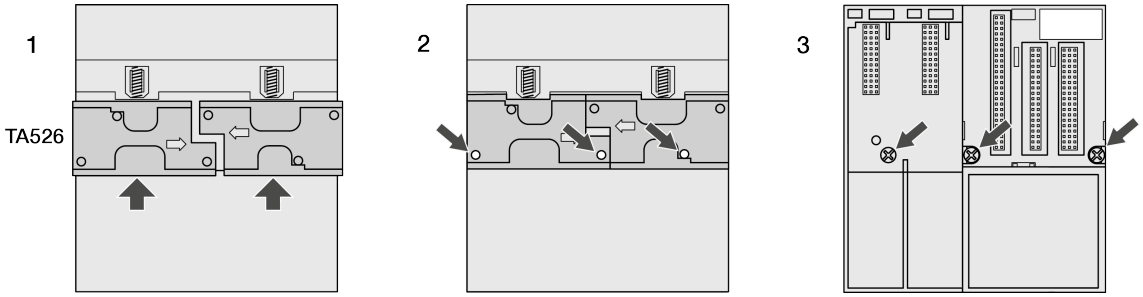
31.1 Assembly



31.2 Disassembly



31.3 Assembly with Screws



NOTICE!

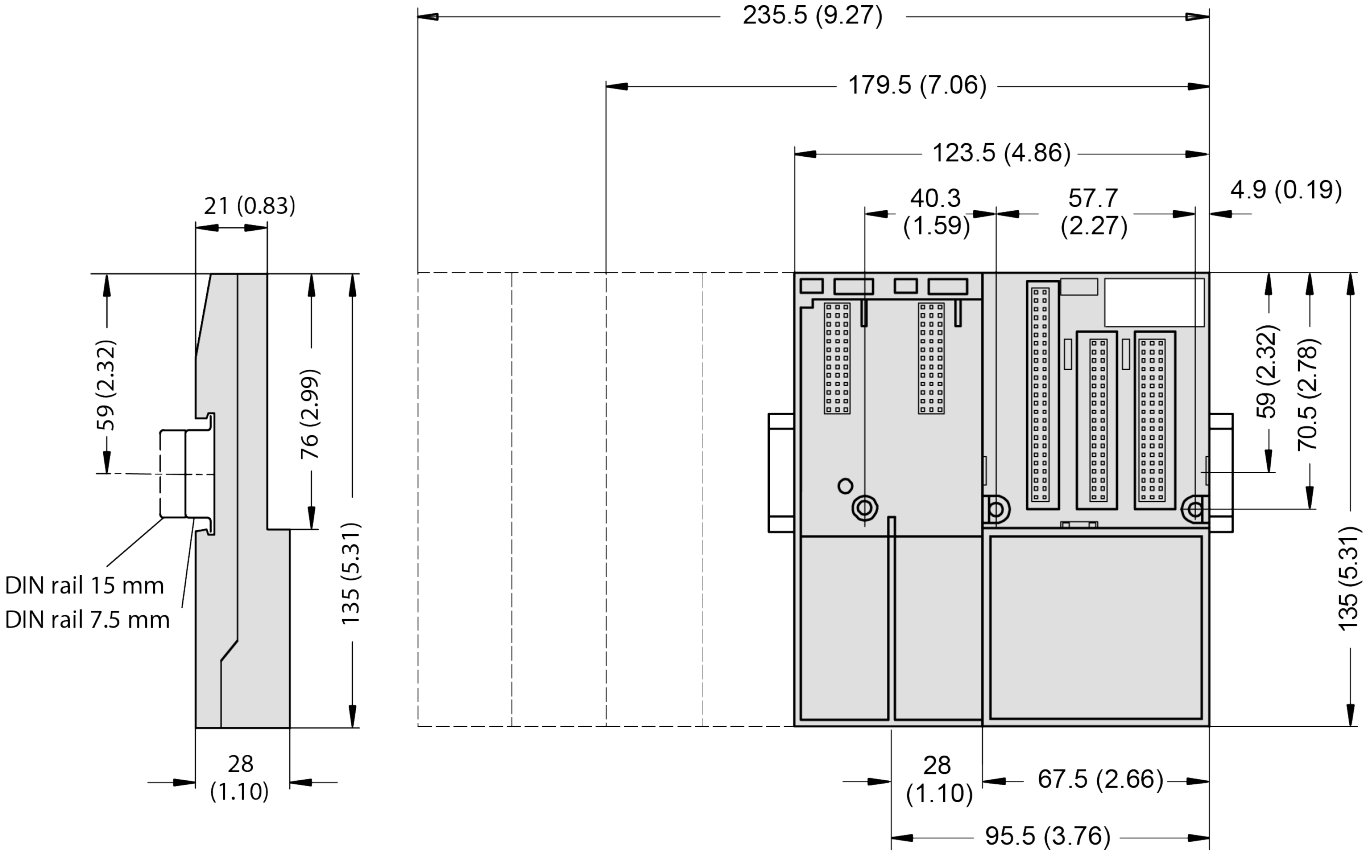
Damage to the modules without using wall mounting accessory!

Wall mounting accessories (TA526) prevent bending and damaging the modules during assembly with screws.

Inserting the wall mounting accessories TA526 is mandatory.

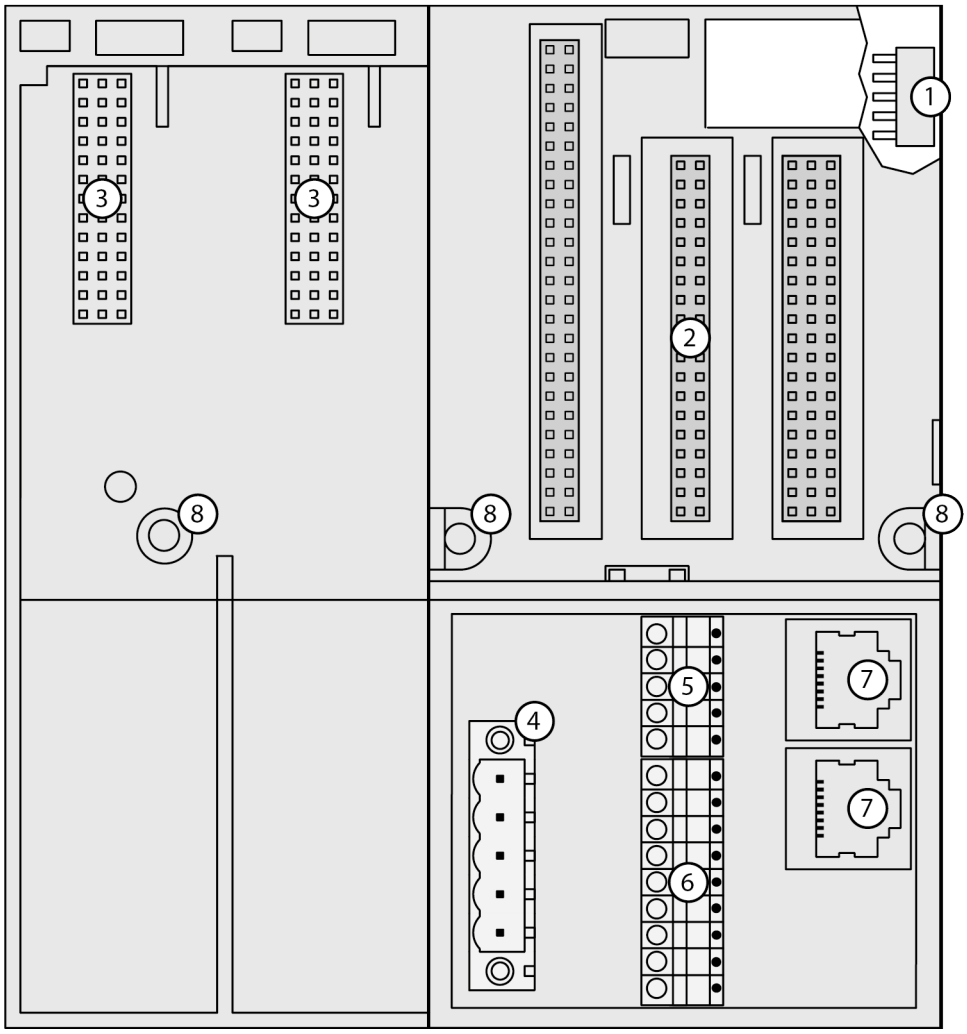
1. TA526 are snapped on the rear side of the module like DIN rails. One TA526 is turned by 180°.
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

31.4 Dimensions



> *The dimensions are in mm and in brackets in inch.*

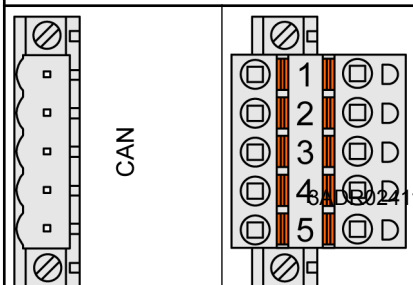
31.5 Connection



1 I/O bus
2 Slot for processor module
3 Slots for communication modules
4 Interface for CAN
5 Power supply 24 VDC
6 Serial interface COM1
7 Ethernet network interfaces
8 Holes for wall mounting

31.5.1 CAN Interface

Pin Assignment

Interface	Pin	Signal	Description
	1	CAN_GND	CAN reference potential
	2	CAN_L	Bus line, receive/transmit line, LOW

Interface		Pin	Signal	Description
Terminal block removed	Terminal block inserted	3	CAN_SHLD	Shield of the bus line
		4	CAN_H	Bus line, receive/transmit line, HIGH
		5	NC	Not connected

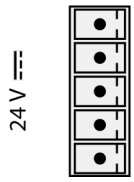
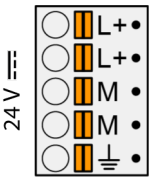
NOTICE!

Unused connector!

Make sure that the terminal block is always connected to the terminal base, even if you do not use the interface.

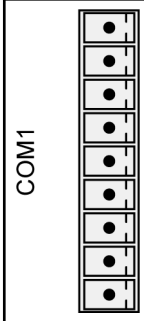
31.5.2 Power Supply

Pin Assignment

Pin Assignment		Label	Function	Description
 Terminal block removed	 Terminal block inserted	L+	+24 VDC	Positive pin of the power supply voltage
		L+	+24 VDC	Positive pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		⏚	FE	Functional earth

31.5.3 Serial Interface COM1

Pin Assignment



Pin	Signal	Interface	Description
1	Terminator P	RS-485	Terminator P
2	RxD/TxD-P	RS-485	Receive/Transmit, positive
3	RxD/TxD-N	RS-485	Receive/Transmit, negative
4	Terminator N	RS-485	Terminator N
5	RTS	RS-232	Request to send (output)
6	TxD	RS-232	Transmit data (output)
7	SGND	Signal Ground	Signal Ground
8	RxD	RS-232	Receive data (input)
9	CTS	RS-232	Clear to send (input)

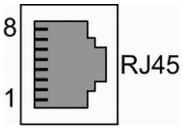
NOTICE!

Unused connector!

Make sure that the terminal block is always connected to the terminal base, even if you do not use the interface.

31.5.4 Ethernet Network Interface

Pin Assignment



Pin	Signal	Description
1	TxD+	Transmit Data +
2	TxD-	Transmit Data -
3	RxD+	Receive Data +
4	NU	Not used
5	NU	Not used
6	RxD-	Receive Data -
7	NU	Not used
8	NU	Not used
Shield	Cable shield	Functional earth

NOTICE!

Risk of corrosion!

Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices *TA535*.

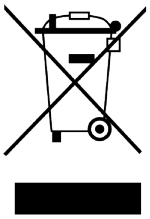
31.6 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

31.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

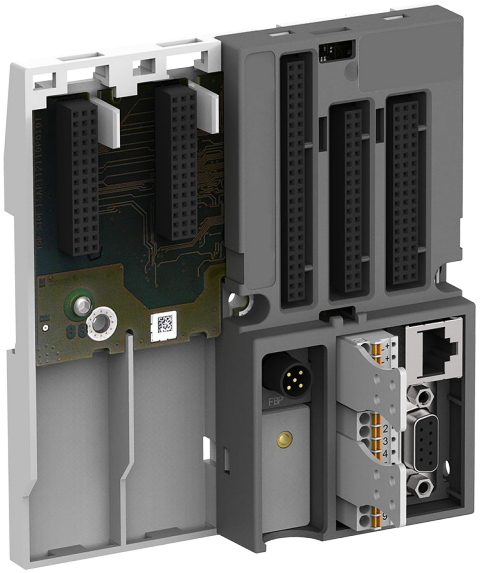
It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

32 TB51x-TB54x

- TB511-ARCNET
- TB511-ETH
- TB511-ETH-XC
- TB521-ARCNET
- TB521-ETH
- TB521-ETH-XC
- TB523-2ETH
- TB541-ETH
- TB541-ETH-XC



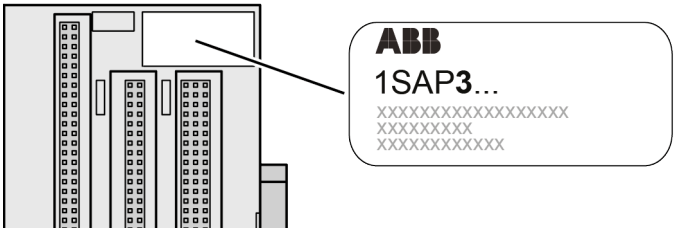
CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by skilled electricians.

XC Version **XC** = e**X**treme **C**onditions

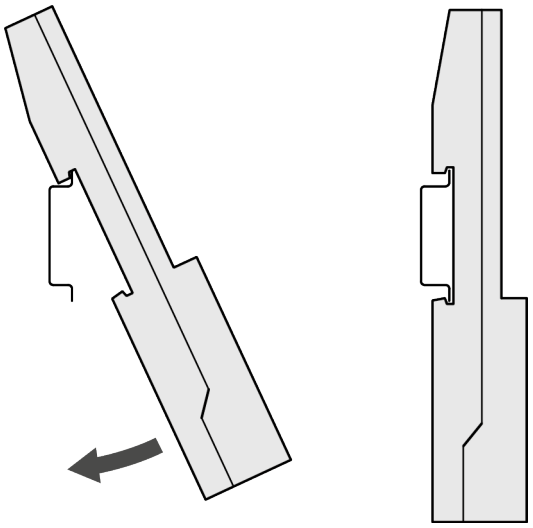


Extreme conditions

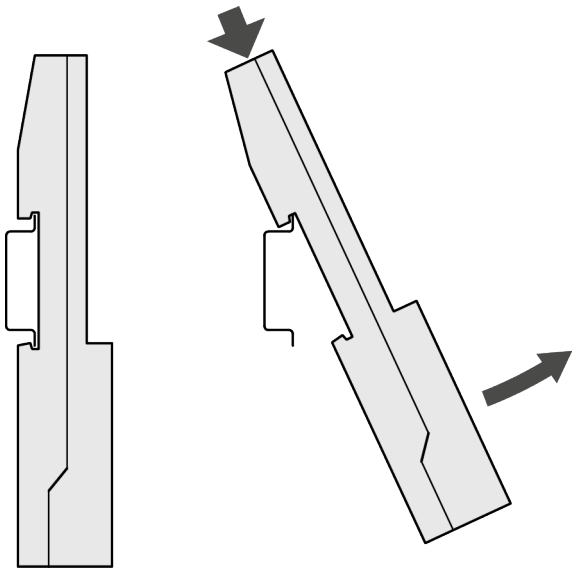
Terminal bases for use in extreme ambient conditions have no ❄ sign for XC version.

*The figure **3** in the Part no. 1SAP**3**... (label) identifies the XC version.*

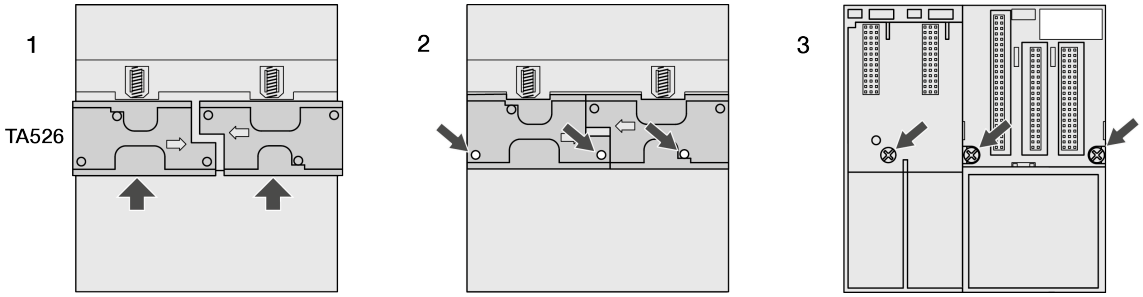
32.1 Assembly



32.2 Disassembly



32.3 Assembly with Screws



NOTICE!

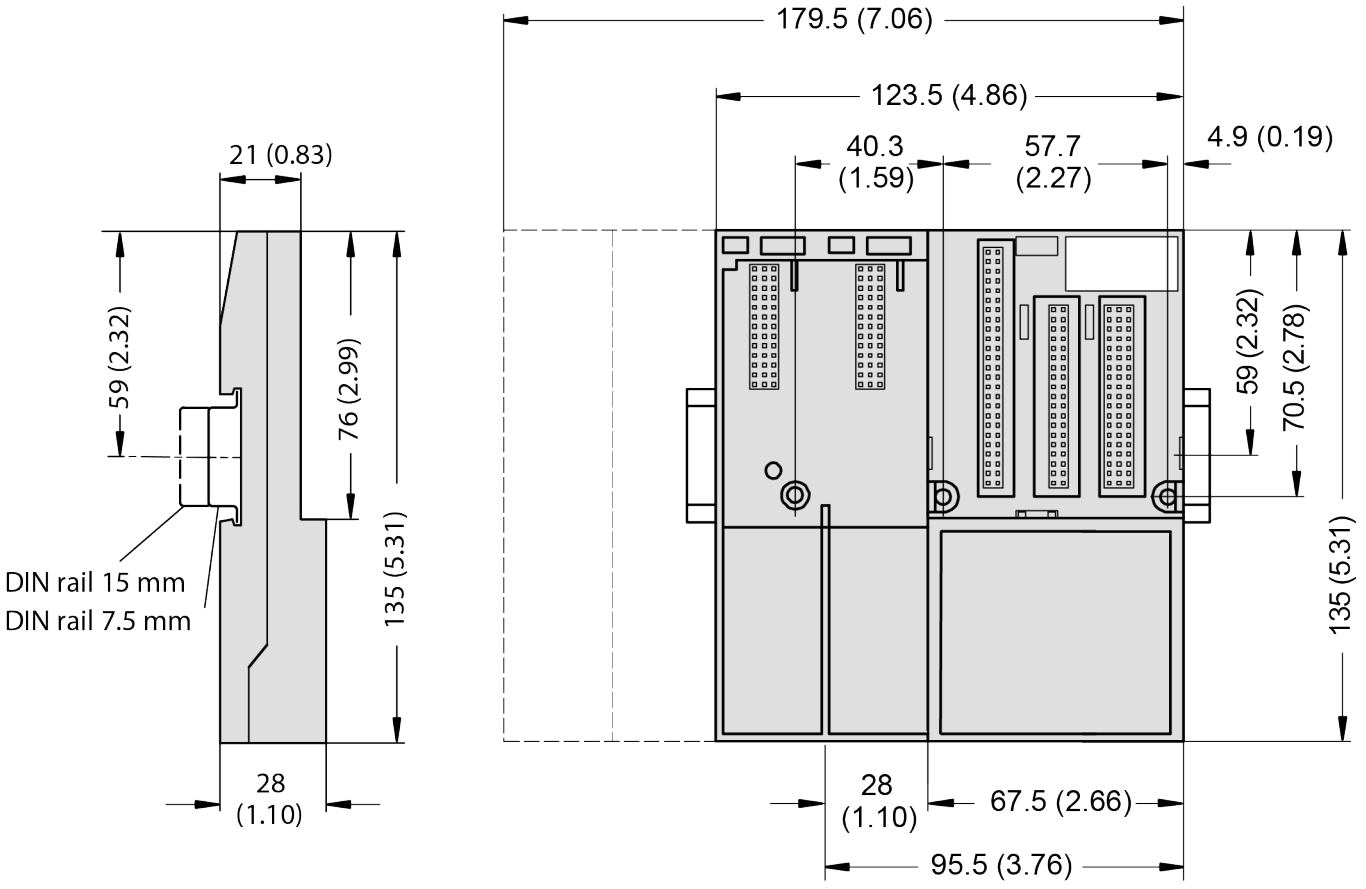
Damage to the modules without using wall mounting accessory!

Wall mounting accessories (TA526) prevent bending and damaging the modules during assembly with screws.

Inserting the wall mounting accessories TA526 is mandatory.

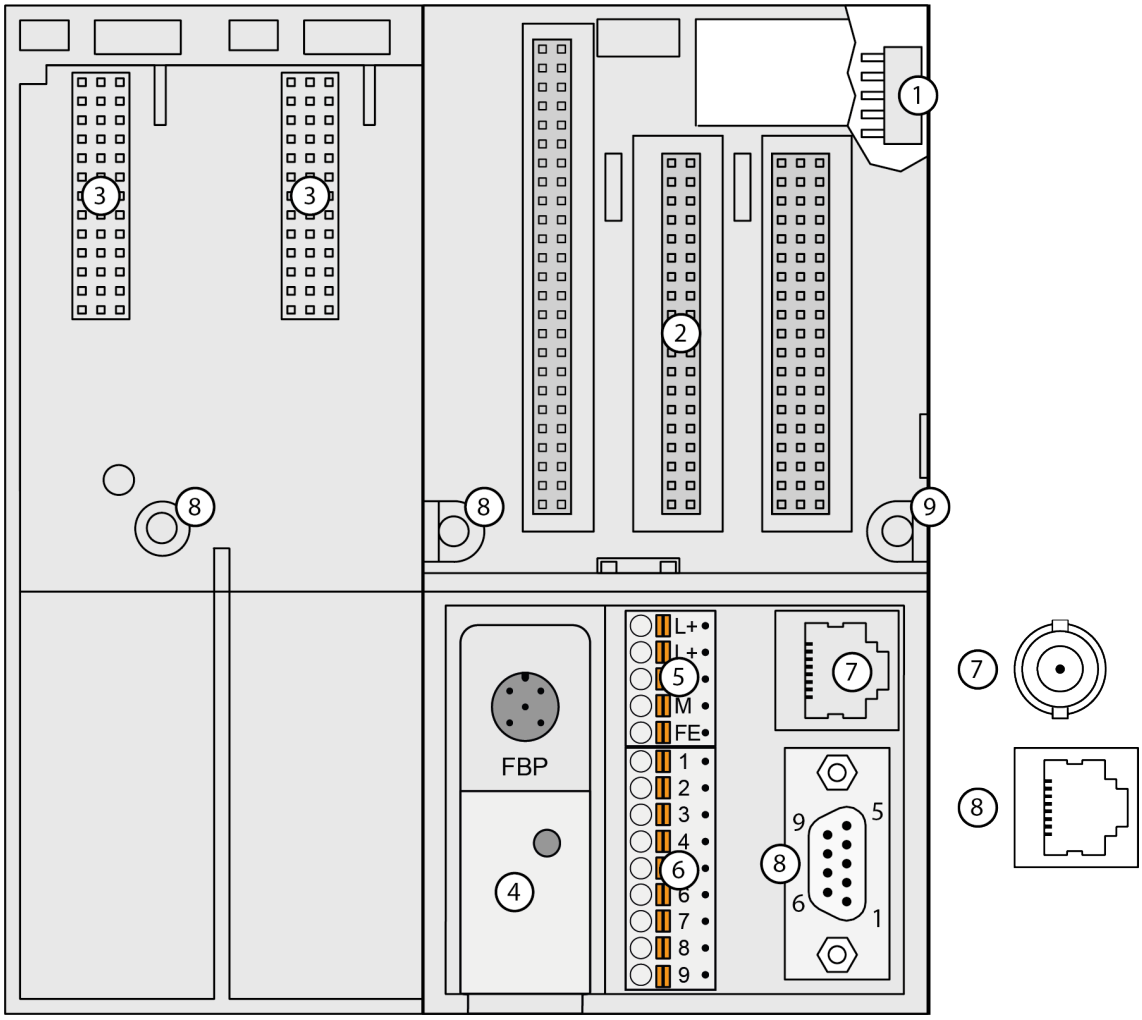
1. TA526 are snapped on the rear side of the module like DIN rails. One TA526 is turned by 180°.
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

32.4 Dimensions



The dimensions are in mm and in brackets in inch.

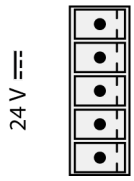
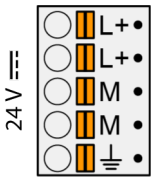
32.5 Connection



1 I/O bus
2 Slot for processor module
3 Slots for communication modules
4 Interface for FieldBusPlug, not for terminal base TB523-2ETH
5 Power supply 24 VDC
6 Serial interface COM1
7 Network interfaces: TB5xx-ETH: Ethernet, TB5xx-ARCNET: ARCNET
8 TB5x1: Serial interface COM2, TB523-2ETH: second Ethernet network interface
9 Holes for wall mounting

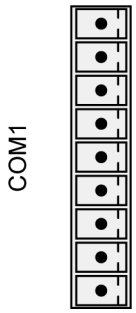
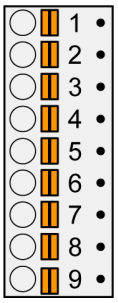
32.5.1 Power Supply

Pin Assignment

Pin Assignment		Label	Function	Description
 Terminal block removed	 Terminal block inserted	L+	+24 VDC	Positive pin of the power supply voltage
		L+	+24 VDC	Positive pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		⏚	FE	Functional earth

32.5.2 Serial Interface COM1

Pin Assignment

		Pin	Signal	Interface	Description
 Terminal block removed	 Terminal block inserted	1	Terminator P	RS-485	Terminator P
		2	RxD/TxD-P	RS-485	Receive/Transmit, positive
		3	RxD/TxD-N	RS-485	Receive/Transmit, negative
		4	Terminator N	RS-485	Terminator N
		5	RTS	RS-232	Request to send (output)
		6	TxD	RS-232	Transmit data (output)
		7	SGND	Signal Ground	Signal Ground
		8	RxD	RS-232	Receive data (input)
		9	CTS	RS-232	Clear to send (input)

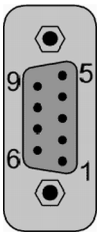
NOTICE!

Unused connector!

Make sure that the terminal block is always connected to the terminal base, even if you do not use the interface.

32.5.3 Serial Interface COM2

Pin Assignment

Serial Interface	Pin	Signal	Interface	Description	
	1	FE	-	Functional earth	
	2	TxD	RS-232	Transmit data	Output
	3	RxD/TxD-P	RS-485	Receive/Transmit	Positive
	4	RTS	RS-232	Request to send	Output
	5	SGND	Signal ground	0 V supply out	

Serial Interface	Pin	Signal	Interface	Description	
	6	+5 V	-	5 V supply out	
	7	RxD	RS-232	Receive data	Input
	8	RxD/TxD-N	RS-485	Receive/Transmit	Negative
	9	CTS	RS-232	Clear to send	Input
	Shield	FE	-	Functional earth	

NOTICE!

Risk of corrosion!

Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

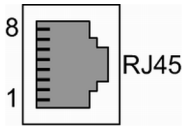
Protect unused connectors and slots with TA535 protective caps for XC devices *TA535*.

32.5.4 ARCNET Network Interface

ARCNET connection of the processor modules PM5xx-ARC.

32.5.5 Ethernet Network Interface

Pin Assignment



Pin	Signal	Description
1	TxD+	Transmit Data +
2	TxD-	Transmit Data -
3	RxD+	Receive Data +
4	NU	Not used
5	NU	Not used
6	RxD-	Receive Data -
7	NU	Not used
8	NU	Not used
Shield	Cable shield	Functional earth

NOTICE!

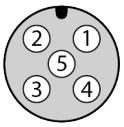
Risk of corrosion!

Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices *TA535*.

32.5.6 Fieldbus-neutral Interface

Pin Assignment in Serial Mode

FieldBusPlug	Pin	Signal	Description
	1	+24 V	Standard power supply
	2	Diagnosis pin	
	3	0 V	Standard power supply
	4	Serial data	
	5	Serial data	

NOTICE!

Risk of corrosion!

Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices *TA535*.

32.6 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

32.7 Certification

MSIP-REI-Abb-AC500

en Devices with KCC sign on product sticker and packaging

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

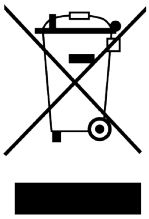
en **Note**
These devices correspond to:

KN61000-6-2 “Immunity for industrial environments”,
KN61000-6-4 “Emission standard for industrial environments”

ko 참고
이러한 기기는

KN61000-6-2 **“**산업 환경에 대한 내성**”,**
KN61000-6-4 **“**산업 환경 누출 기준**”**에 적합함

32.8 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

33 TU582-S

- TU582-S 24 VDC
- TU582-S-XC 24 VDC

CAUTION!

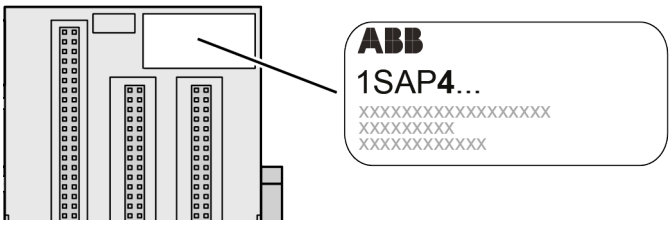
Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

XC Version

XC = e**X**treme **C**onditions

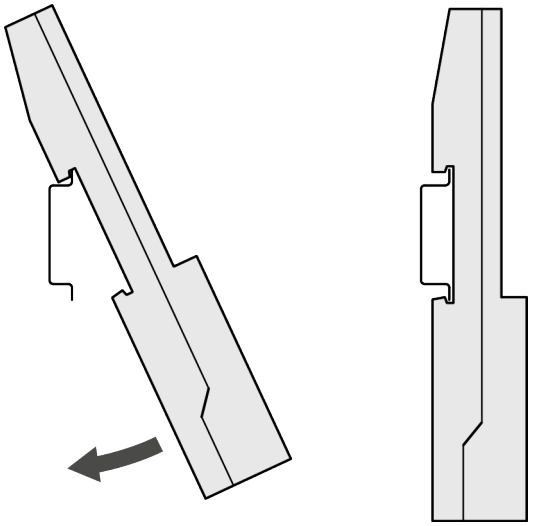


Extreme conditions

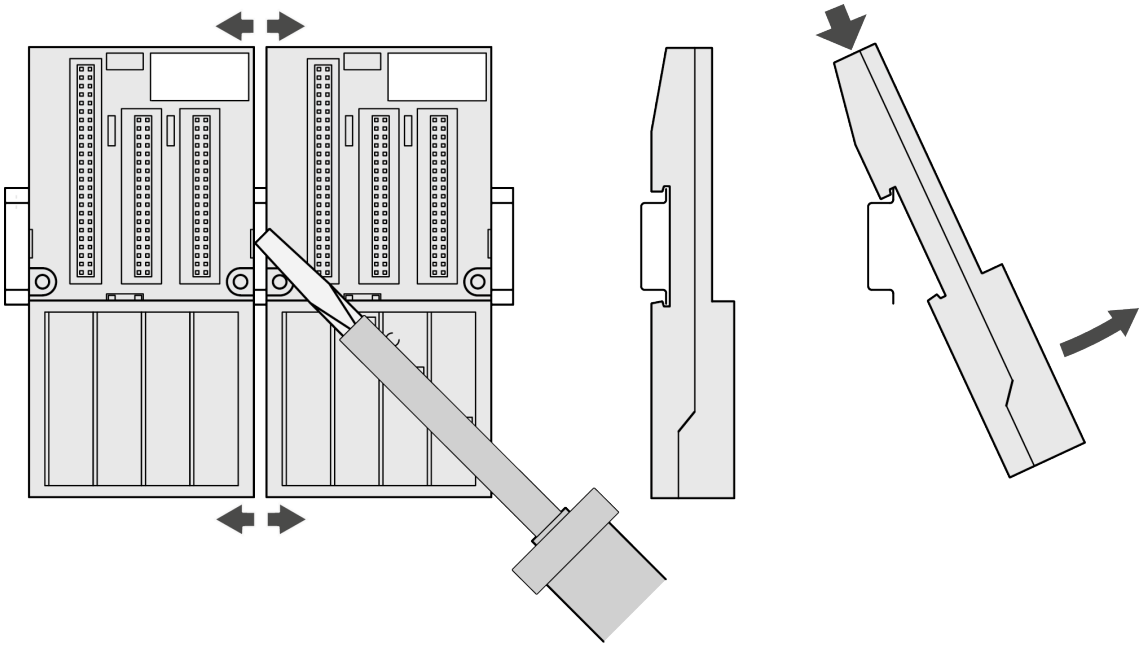
Terminal units for use in extreme ambient conditions have no ❄ sign for XC version.

*The figure **4** in the Part no. 1SAP**4**... (label) identifies the XC version.*

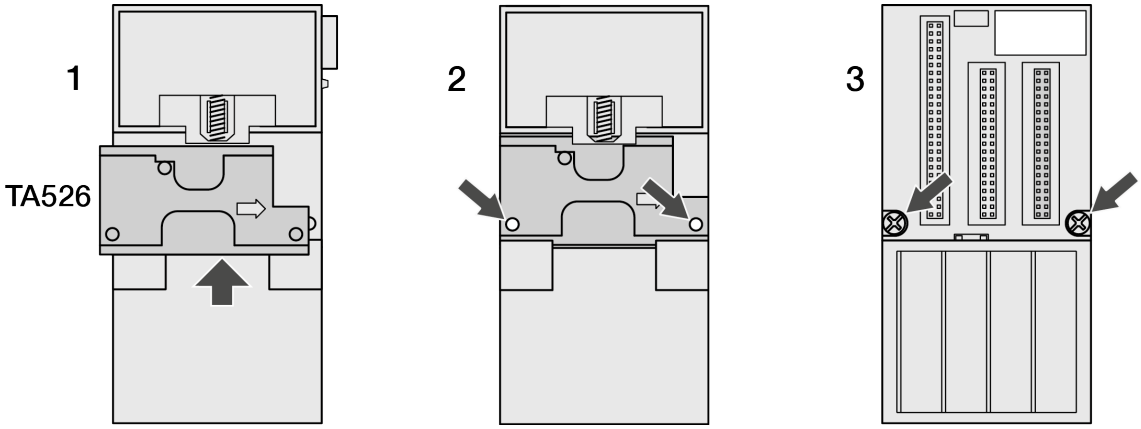
33.1 Assembly



33.2 Disassembly



33.3 Assembly with Screws



NOTICE!

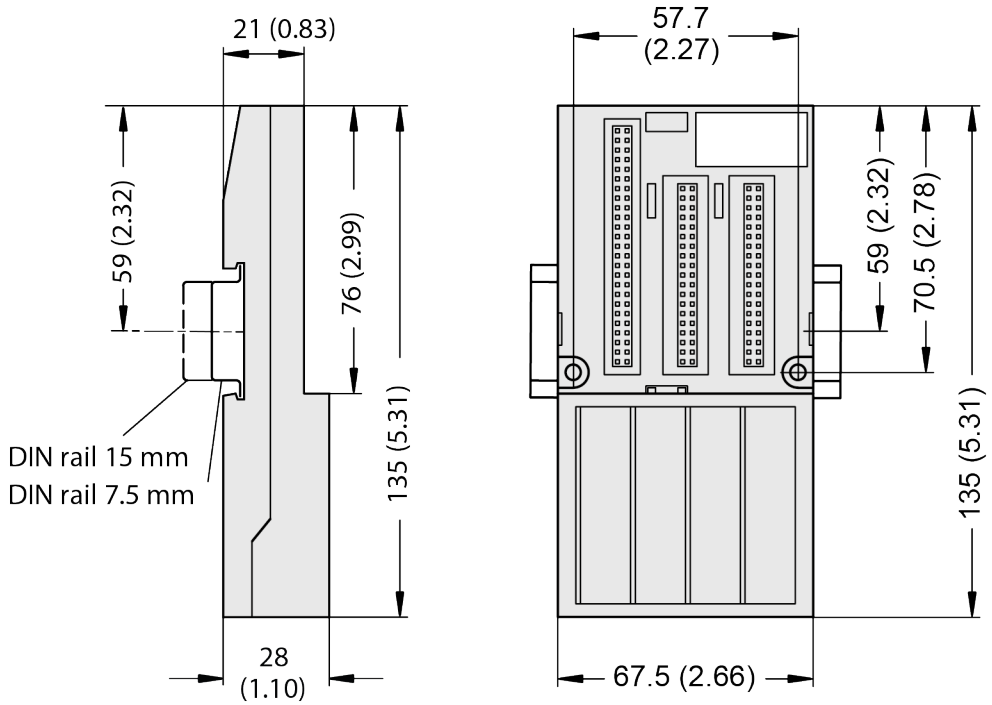
Damage to the modules without using wall mounting accessory!

Wall mounting accessories (TA526) prevent bending and damaging the modules during assembly with screws.

Inserting the wall mounting accessories TA526 is mandatory.

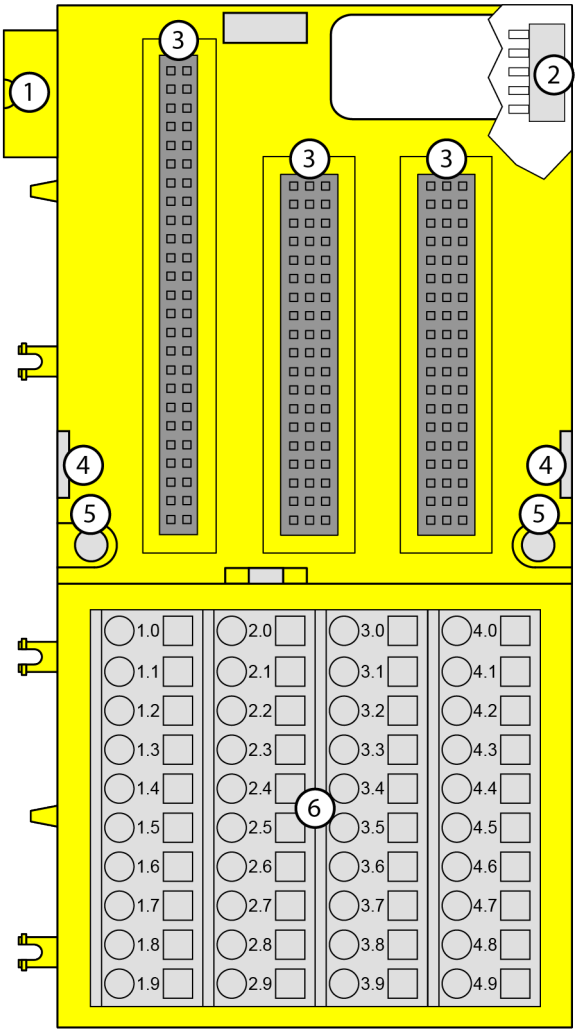
1. TA526 is snapped on the rear side of the module like DIN rails.
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

33.4 Dimensions



The dimensions are in mm and in brackets in inch.

33.5 Connection



1 I/O bus (10 pins, male) to electrically connect the previous terminal unit, the CPU terminal base or the communication interface module to the terminal unit
2 I/O bus (10 pins, female) to electrically connect other terminal units
3 Plug (1x 50 pins and 2x 57 pins) to electrically connect the inserted I/O modules
4 With a screwdriver inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
5 Holes for wall mounting
6 40 spring terminals for signals and process supply voltage

AC500-S Safety User Manual

For a detailed description of the electrical connection of the module, please refer to the "AC500-S Safety User Manual".

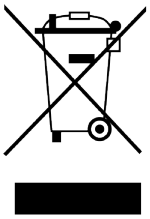
33.6 Cleaning

Cleaning instruction

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

33.7 Recycling



Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

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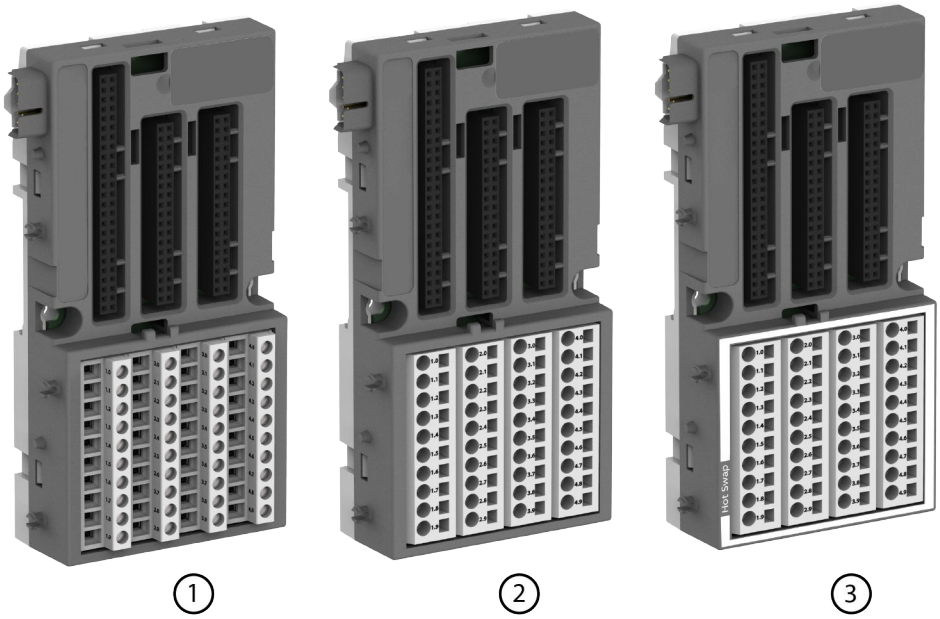
The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

34 TU5xx

- ① TU515 24 VDC
- ① TU531 230 VAC
- ① TU541 24 VDC
- ② TU516(-XC) 24 VDC
- ② TU532(-XC) 230 VAC
- ② TU542(-XC) 24 VDC
- ③ TU516-H(-XC) 24 VDC
- ③ TU532-H(-XC) 230 VAC
- ③ TU542-H(-XC) 24 VDC



CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by skilled electricians.

Hot Swap

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to wrongdoing during hot swapping!

To avoid electric shock

- follow these conditions for hot swapping:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.
  - Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid a skipping arc.
- Do not operate improperly mechanical installation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Hot-swappable terminal units have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*
- *Communication interface modules CI5xx as of index F0.*

The index of the module is in the right corner of the label.

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

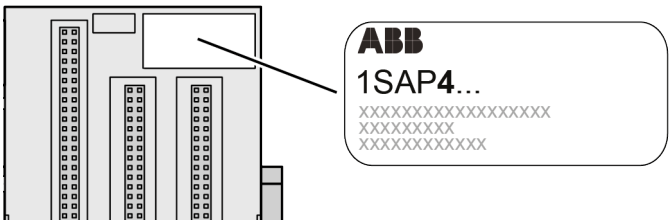
Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC561	B2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

XC Version **XC** = e**X**treme **C**onditions

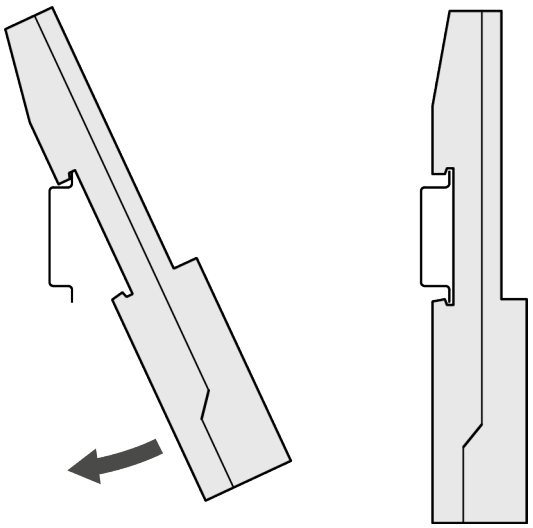


Extreme conditions

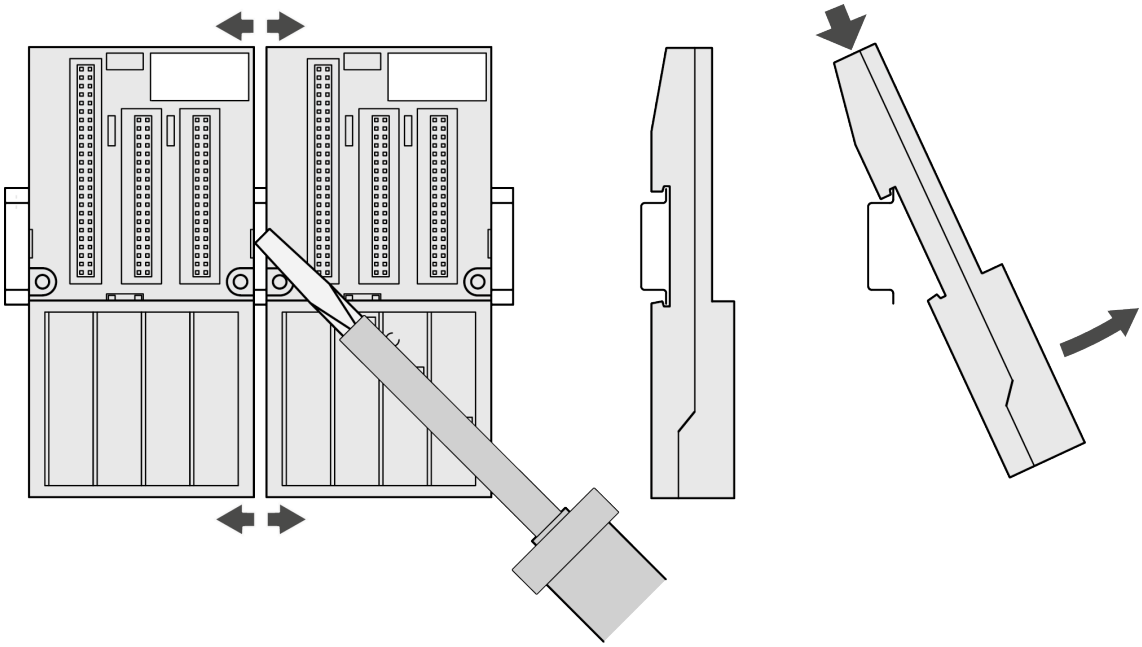
Terminal units for use in extreme ambient conditions have no ❄ sign for XC version.

*The figure **4** in the Part no. 1SAP**4**... (label) identifies the XC version.*

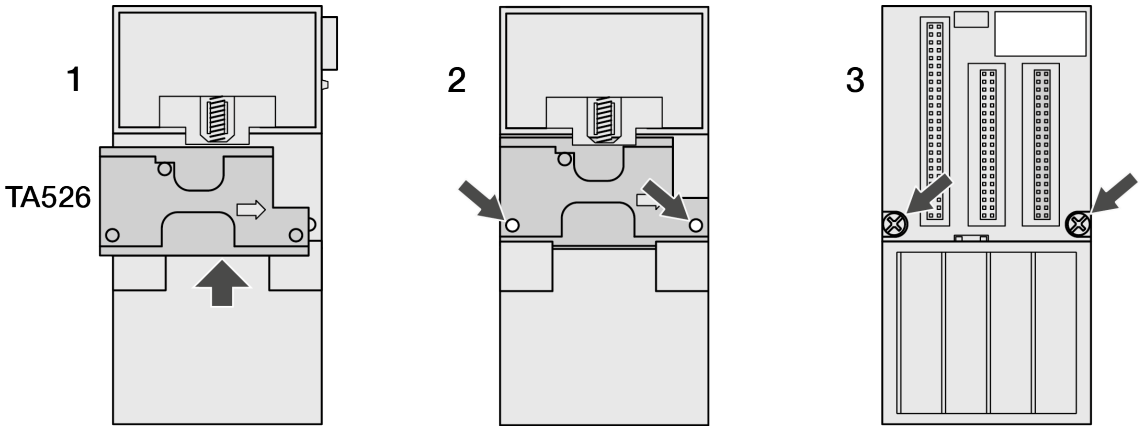
34.1 Assembly



34.2 Disassembly



34.3 Assembly with Screws



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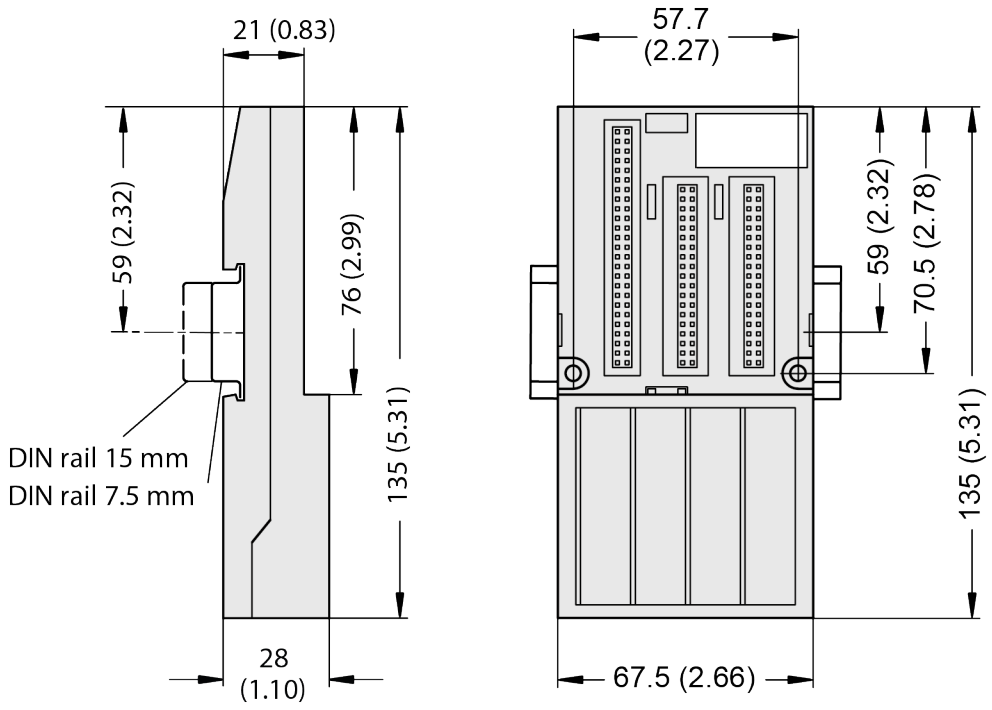
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

34.4 Dimensions



The dimensions are in mm and in brackets in inch.

34.5 Connection

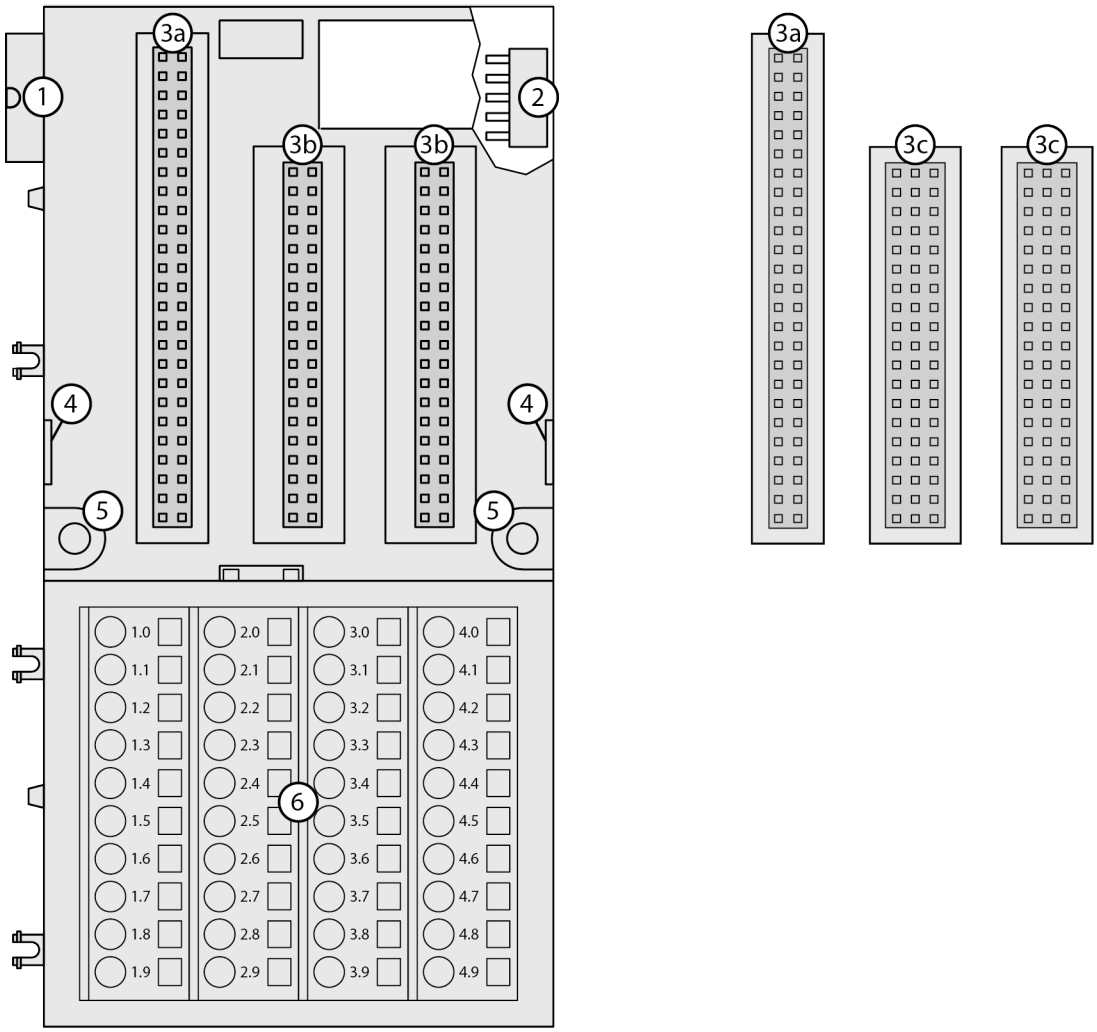


Fig. 39: TU516 for example

1 I/O bus (10 pins, male) to electrically connect the previous terminal unit, the CPU terminal base or the communication interface module to the terminal unit
2 I/O bus (10 pins, female) to electrically connect other terminal units
3a Plug (2x 25 pins) to electrically connect the inserted I/O modules
3b **For TU515, TU516(-H)(-XC), TU541 and TU542(-H)(-XC):** Plug (**2x 19 pins**) to electrically connect the inserted I/O modules
3c **For TU531 and TU532(-H)(-XC):** Plug (**3x 19 pins**) to electrically connect the inserted I/O modules
4 With a screwdriver inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
5 Holes for wall mounting
6 40 screw terminals or spring terminals for signals and process supply voltage

34.6 Cleaning

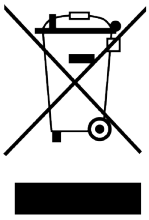
Cleaning instruction
Do not use cleaning agent for cleaning the device.
Use a damp cloth instead.

34.7 Certification

MSIP-REI-Abb-AC500

en	**Devices with KCC sign on product sticker and packaging**	
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	
en	**Note** These devices correspond to:	**KN61000-6-2** “Immunity for industrial environments”, **KN61000-6-4** “Emission standard for industrial environments”
ko	참고 이러한 기기는	**KN61000-6-2 “**산업 환경에 대한 내성**”,** **KN61000-6-4 “**산업 환경 누출 기준**”**에 적합함

34.8 Recycling



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