Draco vario Chassis

Series 474

Introduction

This manual contains important safety instructions as well as instructions for setting up the product and operating it. Please read the general safety instructions (see chapter 2, page 6) and additional notice in the respective chapters. Read carefully through the User Manual before you switch on the product.

Product Identification

The model and serial number of your products are indicated on the bottom of our products. Always refer to this information when you need to contact your dealer or the support of IHSE GmbH (see chapter 7, page 72).

Trademarks and Trade Names

All trademark and trade names mentioned in this document are acknowledged to be the property of their respective owners.

Validity of this Manual

This manual applies to all products of the series named on the cover page. Differences between the various models are clearly described. Please note the change log for this manual in chapter 11, page 78.

The manufacturer reserves the right to change specifications, functions or circuitry of the series described here without notice. Information in this manual can be changed, expanded, or deleted without notice. You can find the current version of the manual in the download area of our website.

Copyright

Available Documentation

Name	Format	Description	Provision
User Manual	PDF	Provides an overview of the product together with technical data and safety instructions. Contains all instructions required to operate the product to a basic level.	Download from website
Quick Setup	Print	Provides a quick installation guide and safety instructions	Contained in the scope of delivery

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Table of Contents

1 Important Information

1.1 Symbols for Warnings and Helpful Information

The meaning of the symbols used for warnings and helpful information in this manual is described below:

⚠ WARNING
WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION
CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE
NOTICE identifies information, if not observed, endangers the functionality of your device or the security of your data.

This symbol indicates instructions for procedures recommended by the manufacturer for an effective utilization of the device potential.

This symbol indicates information about special features on the device or when using device and function variants.

1.2 Terms and Spellings

Uniform terms and spellings are used in this manual for better readability or easier assignment.

The following spellings are used for products and system descriptions:

Term	Description
Source	Computer, graphics card (USB, video, audio, data)
Sink	Console (monitor, keyboard, mouse, video, audio, data)
CPU Unit	Encoder to connect to the source.
CON Unit	Decoder to connect at the peripherals.

The following spellings are used for keyboard commands:

Keyboard command	Description
key	Key on the keyboard
key + key	Press keys simultaneously
key, key	Press keys successively
2x key	Press key quickly, twice in a row (like a mouse double-click)

1.3 Intended Use

474-BODY chassis are designed and intended for mounting or sliding-in IHSE KVM extender modules, IHSE add-on modules, or IHSE devices with extended function therein. The intended use includes the restrictions and safety instructions according to this manual. Non-intended use, non-observance of this user manual, as well as unauthorized modifications exclude the liability of the manufacturer for any resulting damages.

1.4 Labels

Labels with information about the chassis are located on the bottom of the chassis. Here is an example of a label:

Manufacturer
Product type
Part number
Serial number

Information for power supply voltage
Country of origin

Marking for conformity with relevant EU directives

Registration number and marking for EU Directive 2012/19/EU (WEEE)

Warning: Electricity hazard

The shipping labels for BODY2 to BODY6 also contain information on the assembly of the chassis.

1.5 Certificates/Directives

1.5.1 North American Regulatory Compliance

The "equipment" referred to in the "North American Regulatory" chapter consists of a fully assembled modular system and includes the chassis, extender modules and possibly add-on modules along with supplied cables. For more details about the modular system, please refer to chapter 4.1.1, page 13.

This equipment has been found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Shielded cables must be used with this equipment to maintain compliance with radio frequency energy emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

All power supplies are certified to the relevant major international safety standards.

1.5.2 EU Declaration of Conformity

Please find the EU Declaration of Conformity for complete devices (extender modules installed in chassis) under: www.ihse.com/eu-declaration-of-conformity.

1.5.3 WEEE

The manufacturer complies with the EU Directive 2012/19/EU on the prevention of waste electrical and electronic equipment (WEEE).

The device labels carry a respective marking.

1.5.4 Product Safety

The product safety of the following devices is proven by the compliance to the listed standards.

Type	Standards
474-BODY2BPF	• IEC 62368-1:2014 • EN 62368-1:2014/A11:207 • UL 62368-1:2014 • CAN/CSA-C22.2 No. 62368-1:2014
474-BODY6BP	
474-BODY6BPF	
474-BODY2N	• EN 60950-1/A12:2011 • IEC 60950-1/A1:2010 • UL 60950-1-2007 • CAN/CSA-C22.2 No. 60950-1:2007
474-BODY6R	
474-BODY21/4U	

The compliance to the standards is verified and confirmed by TÜV Süd, Germany.

2 Safety instructions

To ensure reliable and safe long-term operation of your device, please note the following guidelines:

- ➡ Read this user manual carefully.
- ➡ Only use the device according to this user manual. Failure to follow the instructions described can result in personal injury, damage to the device, or endanger the security of your data.
- ➡ Take any required ESD precautions.

⚠ WARNING

Risk of electric shock due to freely accessible power connections when the chassis is open

Risk of bruising, abrasion or shearing of fingertips due to rotating fan when the chassis is open

If the chassis is opened while power is supplied to the device, electric shock may occur if the internal wiring is touched. If a running fan is touched while the case is open, bruises, abrasions or shearing of fingertips may occur.

There are no necessary maintenance procedures that require opening the chassis.

- ➡ Do NOT remove the cover of the chassis.
- ➡ Do NOT install the device in environments where children are likely to be present.

⚠ CAUTION

Risk of burns due to tremendously heated chassis surface after a long period of operation

When the chassis is fully equipped, the surface of the chassis can become very warm after a long period of operation. If the chassis surface is touched after a long period of operation, this can cause skin burns.

- ➡ Wear protective gloves to transport a fully equipped chassis after a long period of operation.
- ➡ Ensure that there is sufficient distance from the operator, e.g., for mounting under a table.
- ➡ Do NOT install the device in environments where children are likely to be present.

Installation Location

While operating the device and the power supply units can get warm. Damage to the device can occur in a damp environment.

- ➡ Use the device only in dry, indoor environments.
- ➡ Use the device only in a room with adequate ventilation.
- ➡ For rack-mount installations, at least 0.5 RU (rack unit) is required above the device for ventilation.
- ➡ Do not place the power supply units directly on top of the device.
- ➡ Existing ventilation openings on the device must always be free.
- ➡ If installing the device under the table, place the device at a sufficient distance from the operator.
- ➡ Place all power sockets including the sockets for the supplied external power supply units easily accessible and directly next to each other.

Connection

- ➡ Check the device and the power supply units for visible damage before connecting it.
- ➡ Only connect the device if the device and the ports are not damaged.
- ➡ Only use power supply units originally supplied with the product or manufacturer-approved replacements.
- ➡ Only use power supply units without any visible damage at the chassis or the cable.
- ➡ Connect all power supply units to grounded outlets.
- ➡ Ensure that the ground connection is maintained from the outlet socket through to the power supply unit's AC power input.
- ➡ Only connect the device to KVM devices using the interconnecting cable - not to other devices, particularly not to telecommunications or network devices.

Disconnect the Device from the Circuit

NOTICE
The cable plugs on the device side can contain a lock. In the event of a necessary quick and complete disconnection from external electric circuits: ➡ Remove all corresponding cable plugs from the socket, ➡ Or set the power switch of the power outlets (if available) to the “Off” position.

2.1 Consignes de Sécurité

Pour garantir un fonctionnement fiable et sûr de votre périphérique à long terme, veuillez respecter les directives suivantes :

- ➡ Lisez attentivement ce manuel d'utilisation.
- ➡ N'utilisez le périphérique que conformément à ce manuel d'utilisation. Le non-respect des instructions décrites peut entraîner des blessures corporelles, endommager le périphérique ou mettre en danger la sécurité de vos données
- ➡ Prenez toutes les précautions nécessaires contre les décharges électrostatiques.

⚠ AVERTISSEMENT
Risque de choc électrique dues de l'accès libre aux connexions électriques lorsque le châssis est ouvert **Risque de contusion, d'abrasion ou de cisaillement des bouts des doigts dues de la rotation du ventilateur lorsque le châssis est ouvert** Si le châssis est ouvert alors que le périphérique est sous tension, un choc électrique peut se produire si le câblage interne est touché. Si vous touchez un ventilateur en marche alors que le châssis est ouvert, vous risquez de vous blesser, de vous abraser ou de vous cisailler le bout des doigts. Aucune procédure d'entretien nécessaire ne requiert l'ouverture du châssis. ➡ Ne retirez PAS le couvercle du châssis. ➡ N'installez PAS le périphérique dans des environnements où des enfants sont susceptibles d'être présents.

⚠ ATTENTION

Risque de brûlures dues à la surface du châssis très chaude après une longue période d'utilisation

Lorsque le châssis est entièrement équipé, la surface du châssis peut devenir très chaude après une longue période de fonctionnement.

Si la surface du châssis est touchée après une longue période d'utilisation, cela peut provoquer des brûlures de la peau.

- ➡ Des gants de protection doivent être portés pour transporter un châssis entièrement équipé après une longue période d'opération.
- ➡ Veillez à ce que la distance avec l'opérateur soit suffisante, par exemple pour un montage sous une table.
- ➡ N'installez PAS le périphérique dans des environnements où des enfants sont susceptibles d'être présents.

Emplacement de l'installation

Pendant le fonctionnement, le périphérique et les unités d'alimentation peuvent chauffer. Le périphérique peut être endommagé dans un environnement humide.

- ➡ N'utilisez le périphérique que dans un environnement sec et intérieur.
- ➡ N'utilisez le périphérique dans un lieu correctement ventilée.
- ➡ Pour les installations en rack, au moins 0,5 RU (unité de rack) est nécessaire au-dessus du périphérique pour la ventilation.
- ➡ Ne placez jamais les unités d'alimentation sur le dessus du périphérique.
- ➡ Les ouvertures de ventilation existantes sur le périphérique doivent toujours être libres.
- ➡ Si vous installez le périphérique sous la table, placez le périphérique à une distance suffisante de l'opérateur.
- ➡ Placez toutes les prises de courant, y compris les prises de courant pour les unités d'alimentation externes fournis, de manière facilement accessible et directement les unes à côté des autres.

Connexion

- ➡ Avant de connecter le périphérique et les unités d'alimentation, vérifiez qu'ils ne présentent pas de dommages visibles.
- ➡ Seulement connectez le périphérique et les unités d'alimentation que si le périphérique et les ports ne sont pas endommagés.
- ➡ Utilisez uniquement les unités d'alimentation fournis à l'origine avec le produit ou des pièces de rechange approuvées par le fabricant.
- ➡ N'utilisez que des unités d'alimentation sans dommages visibles au niveau du châssis ou du câble.
- ➡ Connectez tous les unités d'alimentation à des prises de terre.
- ➡ Raccordez tous les unités d'alimentation à des prises de courant mises à la terre.
- ➡ Veillez à ce que la connexion à la terre soit maintenue depuis la prise de courant jusqu'à l'entrée d'alimentation CA du les unités d'alimentation.
- ➡ Ne connectez le périphérique qu'à des périphériques KVM à l'aide du câble d'interconnexion - pas à d'autres périphériques, en particulier pas à des périphériques de télécommunications ou de réseau.

Déconnecter le périphérique du circuit

AVIS
Les fiches de câble du côté du périphérique peuvent contenir un verrou. En cas de nécessité d'une déconnexion rapide et complète des circuits électriques externes : ➡ Retirez toutes les fiches de câble correspondantes de la prise. ➡ Ou mettez l'interrupteur des prises de courant (si elles existent) sur la position « Off ».

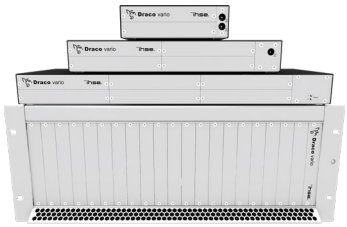
3 Description

3.1 System Overview

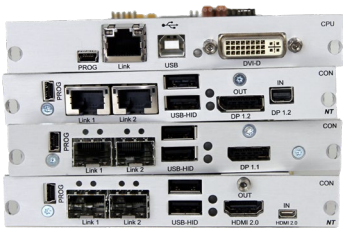
3.1.1 Modular Draco vario System

The Draco vario chassis are compatible with all available Draco vario extender modules and add-on modules (CPU Unit and CON Unit), CWDM modules, repeaters, fan modules, and SNMP modules for standalone or rack-mounted configuration. The flexible, modular system allows custom integration of equipment to meet specific installation requirements. Chassis are available in sizes for 2, 4, 6 and 21 individual modules.

Therefore, please first select a chassis, then select one or more extender module(s), then select one or more add-on module(s) if required.
The Draco System Designer, available on the IHSE website at https://dsd.ihse.com, will help you with system configuration.



Described in this manual.



For more information, please refer to the manual or the respective extender modules.

For more information, please refer to the manual 474-Add-on modules.

Draco vario chassis are available with internal and external power supply voltage options and can be configured with redundant power supply voltage (see chapter 4.2, page 14). For 21-slot chassis, the redundant power supply can be installed or replaced during operation (hot-swap capability).

3.1.2 Slot Numbering of the Chassis

The slot numbering in the chassis runs from bottom left to top right (2-/4-/6-slot chassis) and from left to right (21-slot chassis). The numbering of the slots is relevant for the placement of certain modules such as SNMP module, USB 2.0 stand-alone module or the fan cartridge module for certain extender modules. The relevant information are described in chapter 5 ff.

2
1

2-Slot chassis

2	4
1	3

4-Slot chassis

2	4	6
1	3	5

6-Slot chassis

Fig. 1 Slot numbering of 2-slot/4-slot/6-slot chassis

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

Fig. 2 Slot numbering of the 21-slot chassis

3.2 Chassis Types

Draco vario chassis are available in the following versions:

3.2.1 Mounting Chassis

	Chassis			Power supply unit		
Type	Slots	Active backplane	Current input	Internal	External	Setup for redundant power supply voltage
474-BODY2	2	No	Interface side	-	1x	-
474-BODY2R	2	No	Interface side	-	1x	1x (external)
474-BODY2N	2	No	Interface side	1x	-	1x (external)
474-BODY2DC-12 474-BODY2DC-24 474-BODY2DC-48	2	No	Interface side	1x	-	1x (external)
474-BODY4	4	No	Interface side	-	1x	-
474-BODY4R	4	No	Interface side	-	1x	1x (external)
474-BODY6R-R1	6	No	Interface side	1x	-	1x (external)
474-BODY6DC-12 474-BODY6DC-24 474-BODY6DC-48	6	No	Interface side	1x	-	1x (external)

3.2.2 Slide-in Chassis

Hot-swap capability for adding or replacing modules is available for following chassis to ensure continuous operation.

	Chassis			Power supply unit		
Type	Slots	Active backplane	Current input	Internal	External	Setup for redundant power supply voltage
474-BODY2BPF 474-BODY2BPF-S** 474-BODY2BPF-SNMP*	2	Yes	Interface side	1x	-	1x (external)
474-BODY6BP 474-BODY6BP-S** 474-BODY6BP-SNMP*	6	Yes	Rear view	2x	-	-
474-BODY6BPF 474-BODY6BPF-S**	6	Yes	Interface side	2x	-	-
474-BODY21/4U 474-BODY21/4U-R1	21	Yes	Rear view	1x	-	1x (internal)
474-BODY21/4UR 474-BODY21/4UR-R1	21	Yes	Rear view	2x	-	-

* The 474-BODY2BPF-SNMP and 474-BODY6BP-SNMP chassis provide SNMP functionality through an integrated SNMP interface, allowing the chassis to be fully equipped.
Note: In SNMP-BODYs, the usage of an SNMP board is not possible.

** The 474-BODY2BPF-S, 474-BODY6BP-S, and 474-BODY6BPF-S chassis include a quiet fan.

All external power supply units are separately certified to the relevant major international safety standards.

3.3 Accessories

3.3.1 Accessories - Power Supply Voltage

Part. No.	Description
474-PSU2	Spare ext. PSU for 2-slot chassis 100 to 240 V AC / 50/60 Hz 5 V DC/3 A
474-PSU2BPF	Spare ext. PSU for 474-BODY2-BPF, lockable connector 100 to 240 V AC / 50/60 Hz 5 V DC/5 A
474-PSU4	Spare ext. PSU for 474-BODY2N and 474-BODY4/4R 100 to 240 V AC / 50/60 Hz 5 V DC/5 A
474-PSU6	Spare ext. PSU for 474-BODY6R-R1 100 to 240 V AC / 50/60 Hz 5 V DC/5 A
474-PSU21	Spare PSU for 474-BODY21/4U, slide-in, hot-swappable 100 to 240 V AC / 4 A / 50/60 Hz 5 V DC/40 A
260-5M	International power supply unit 100 to 240 V AC / 50/60 Hz 5 V DC/5 A
PC-TYP-E/C13-020	Power cord IEC Schuko 90° Type-E/C13 2.0 m lockable
PC-TYP-B/C13-020	Power cord IEC US Type-B/C13 2.0 m lockable
08-09-0011	Power cable Draco vario 200 mm to interconnect power to the boards in mounting chassis BODY6

All external power supplies are separately certified according to all relevant safety standards.

3.3.2 Accessories - Mounting Options

Part. No.	Description
474-2RMK	19"-Rackmount Ears for Draco vario 2-slot chassis
474-2NRMK	19"-Rackmount Ears for Draco vario 2-slot chassis w/ built-in PSU
474-4RMK	19"-Rackmount Ears for Draco vario 4-slot chassis
474-6RMK	19"-Rackmount Ears for Draco vario 6-slot chassis
474-BLND1	Blanking plate with IHSE Logo, 1-slot for Draco vario chassis
474-BRACKET	Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis
474-BRACKET-L	Wall-/Tablemount L-Brackets to mount by screws
474-VPLATE	Mounting plate for 2-/4-/6-slot chassis
474-VSNAP	Mounting plate w/ DIN rail snap-on for 2-slot chassis
474-VESA2	VESA screw mounting strap for BODY2 and BODY2R
474-VESA2N	VESA screw mounting strap for BODY2N

3.3.3 Accessories - Fans

Part. No.	Description
474-6FAN	Optional fan for Draco vario 2-slot and 6-slot chassis with backplane
474-MODFAN	Fan cartridge module, retrofittable for all Draco vario chassis

3.4 Scope of Delivery

Product type	Scope of delivery	
Per each Draco vario chassis	474-BODY2 474-BODY2R	• 1x 5 V DC/3 A international power supply unit • 1x country-specific power cord
	474-BODY4 474-BODY4R	• 1x 5 V DC/5 A international power supply unit • 1x country-specific power cord
	474-BODY2N 474-BODY2DC-12 474-BODY2DC-24 474-BODY2DC-48 474-BODY2BPF 474-BODY2BPF-S 474-BODY2BPF-SNMP 474-BODY6R-R1* 474-BODY6DC-12* 474-BODY6DC-24* 474-BODY6DC-48*	1x IEC country-specific power cord C13, 2.0 m
	474-BODY6BP 474-BODY6BP-S 474-BODY6BP-SNMP 474-BODY6BPF 474-BODY6BPF-S 474-BODY21/4UR 474-BODY21/4UR-R1	2x IEC country-specific power cord C13, 2.0 m lockable
	474-BODY21/4U 474-BODY21/4U-R1	1x IEC country-specific power cord C13, 2.0 m lockable

* 474-BODY6 mounting chassis are manufactured as standard with 4 internal power cables for supplying power to up to 4 modules. If modules are to be subsequently installed in a 474-BODY6 mounting chassis that is not fully equipped at the time of the initial order, internal power cables are required, see accessories list (chapter 4.3.1, page 15).

If anything is missing, please contact your distributor.

3.5 Product View - Slots and Ports of Chassis

3.5.1 2-Slot Chassis 474-BODY2

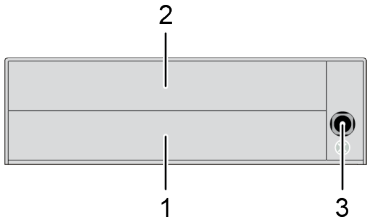


Fig. 3 Interface side chassis 474-BODY2

1 Slot 1
2 Slot 2
3 Power supply voltage, DC

3.5.2 2-Slot Chassis 474-BODY2R

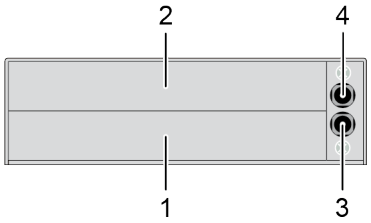


Fig. 4 Interface side chassis 474-BODY2R

1 Slot 1
2 Slot 2
3 Power supply voltage 1, DC
4 Power supply voltage 2, DC

3.5.3 2-Slot Chassis 474-BODY2N

NOTICE

Excessive current draw

The 2-slot chassis with an internal power supply unit is not equipped with a fuse on its primary side.

➡ The protection against excessive current draw has to be provided by the electrical installation of the building.

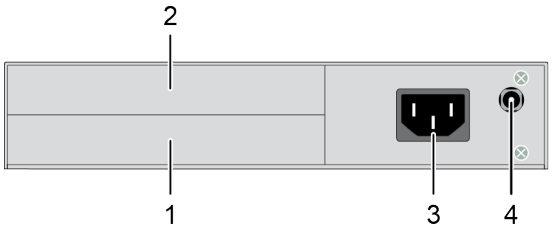


Fig. 5 Interface side chassis 474-BODY2N

1 Slot 1
2 Slot 2
3 Power supply voltage 1, AC
4 Power supply voltage 2, DC

3.5.4 2-Slot Chassis 474-BODY2DC-12/24/48

NOTICE

Excessive current draw

The 2-slot chassis with an internal power supply unit is not equipped with a fuse on its primary side.

➡ The protection against excessive current draw has to be provided by the electrical installation of the building.

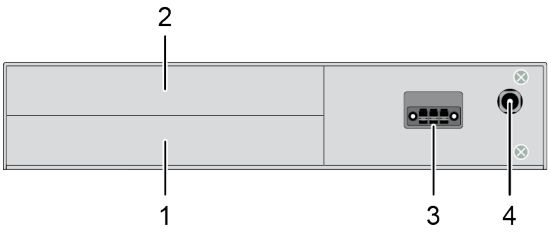


Fig. 6 Interface side chassis 474-BODY2DC-12/24/48

1 Slot 1
2 Slot 2
3 Power supply voltage 1, DC
4 Power supply voltage 2, DC

3.5.5 2-Slot Chassis 474-BODY2BPF/474-BODY2BPF-S

New chassis version with rotated IEC socket, please contact the sales team for availability.

NOTICE

Excessive current draw

The 2-slot chassis with an internal power supply unit is not equipped with a fuse on its primary side.

➡ The protection against excessive current draw has to be provided by the electrical installation of the building.

New chassis version.

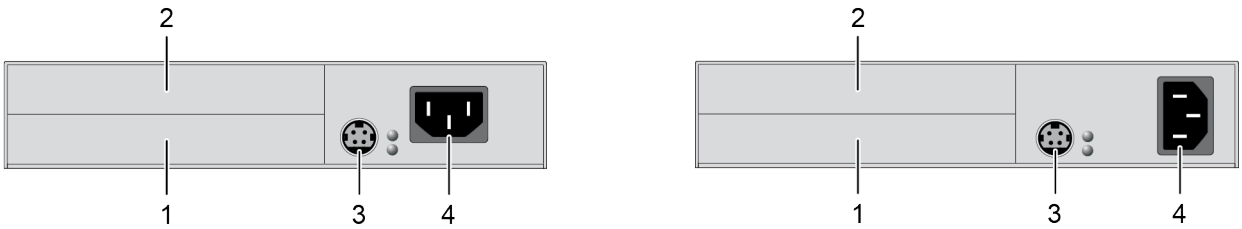


Fig. 7 Interface side chassis 474-BODY2BPF/474-BODY2BPF-S

1 Slot 1
2 Slot 2
1 Power supply voltage 2, DC
2 Power supply voltage 1, AC

3.5.6 2-Slot Chassis 474-BODY2BPF-SNMP

This chassis will be available in the future, please contact the sales team.

NOTICE

Excessive current draw

The 2-slot chassis with an internal power supply unit is not equipped with a fuse on its primary side.

➡ The protection against excessive current draw has to be provided by the electrical installation of the building.

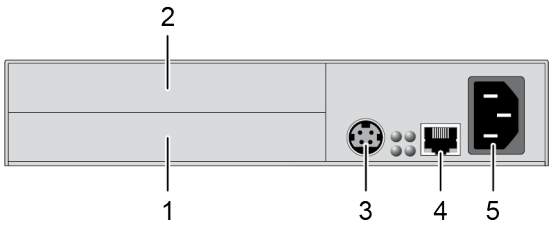


Fig. 8 Interface side chassis 474-BODY2BPF-SNMP

1 Slot 1
2 Slot 2
3 Power supply voltage 2, DC
4 Network
5 Power supply voltage 1, AC

3.5.7 4-Slot Chassis 474-BODY4

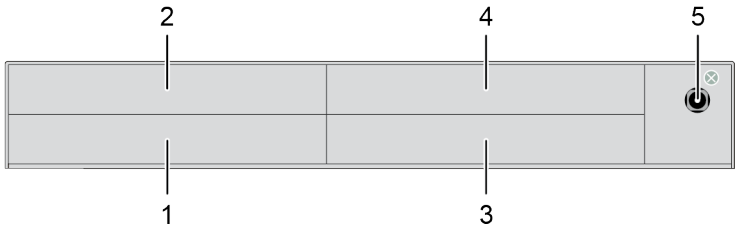


Fig. 9 Interface side chassis 474-BODY4

1 Slot 1
2 Slot 2
3 Slot 3
4 Slot 4
5 Power supply voltage, DC

3.5.8 4-Slot Chassis 474-BODY4R

NOTICE

Excessive current consumption

For operation with three CON extender modules with one CON USB 2.0 Stand-alone module in a 4-slot chassis, an external power supply unit is explicitly required at the second 5 V DC port to power connected peripherals. Redundancy is inapplicable.

➡ The maximum placement/restrictions for peripherals are available via Draco System Designer at https://dsd.ihse.com.

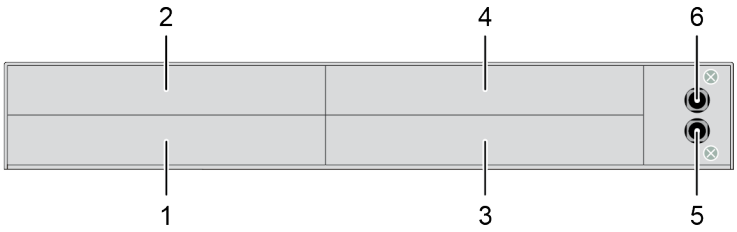


Fig. 10 Interface side chassis 474-BODY4R

1 Slot 1
2 Slot 2
3 Slot 3
4 Slot 4
5 Power supply voltage 1, DC
6 Power supply voltage 2, DC (redundancy)

3.5.9 6-Slot Chassis 474-BODY6R-R1

NOTICE

Excessive current draw

The 6-slot chassis with an internal power supply unit is not equipped with a fuse on its primary side.

➡ The protection against excessive current draw has to be provided by the electrical installation of the building.

NOTICE

Power supply voltage too low

With chassis 474-BODY6R-R1 a redundant power supply voltage is possible up to a current of maximum 5 A (modules inclusive connected periphery). If the power supply voltage of the internal power supply unit fails, the device's power supply voltage is secured via the 5 V external power supply unit.

If there is no redundant power supply voltage and the current is above 5 A, the device is not supplied with sufficient power supply voltage and fails.

➡ Note the maximum current draw of the chassis (see chapter 6.3, page 69).

➡ With a current of more than 5 A, use an external power supply unit. In this case, redundancy is inapplicable.

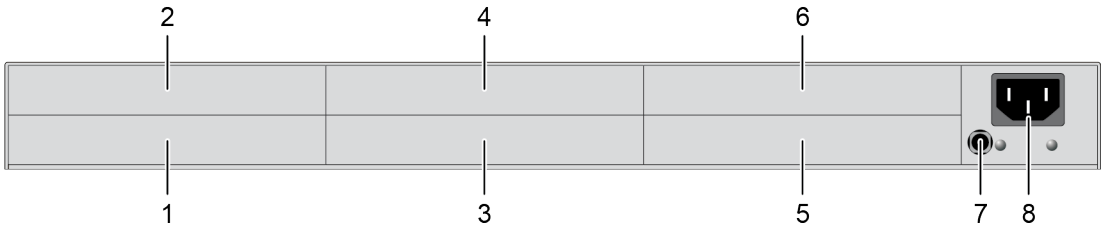


Fig. 11 Interface side chassis 474-BODY6R-R1

1 Slot 1
2 Slot 2
3 Slot 3
4 Slot 4
5 Slot 5
6 Slot 6
7 Power supply voltage 2, DC
8 Power supply voltage 1, AC

3.5.10 6-Slot Chassis 474-BODY6DC-12/24/48

NOTICE

Excessive current draw

The 6-slot chassis with an internal power supply unit is not equipped with a fuse on its primary side.

➡ The protection against excessive current draw has to be provided by the electrical installation of the building.

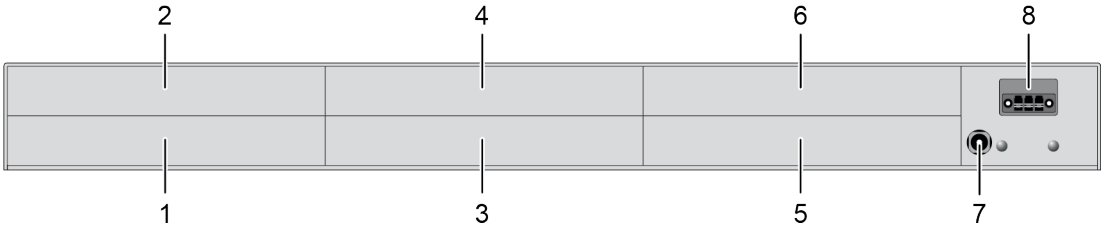


Fig. 12 Interface side chassis 474-BODY6DC-12/24/48

1 Slot 1
2 Slot 2
3 Slot 3
4 Slot 4
5 Slot 5
6 Slot 6
7 Power supply voltage 1, DC
8 Power supply voltage 2, DC

3.5.11 6-Slot Chassis 474-BODY6BP/474-BODY6BP-S

NOTICE

Excessive current draw

The 6-slot chassis with an internal power supply unit is equipped with an internal, device-specific fuse (2A, 250 V, 5x20 mm, Time-lag fuse, Littelfuse type 218 or similar) on the input side in the **474-BODY6BP/BP-S** variant.

➡ Additional protection against excessive current draw must be provided by a suitable external protective device in the building's electrical system.

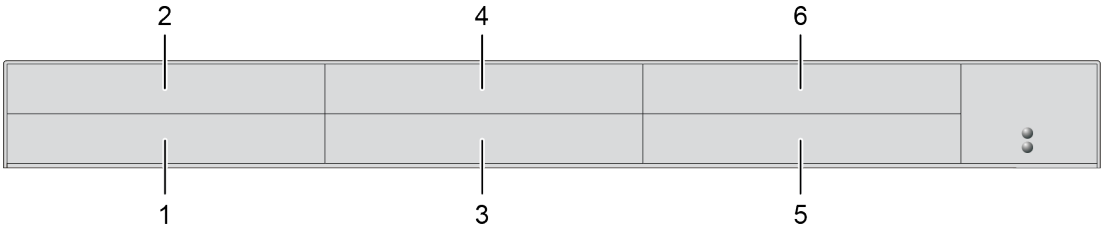


Fig. 13 Interface side chassis 474-BODY6BP/474-BODY6BP-S

1 Slot 1
2 Slot 2
3 Slot 3
4 Slot 4
5 Slot 5
6 Slot 6

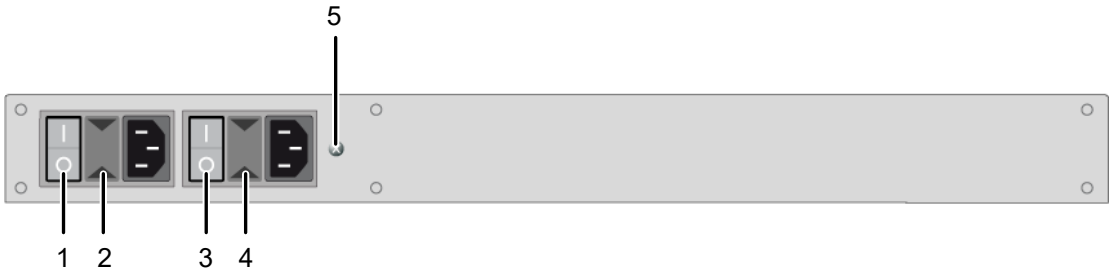


Fig. 14 Rear side chassis 474-BODY6BP/474-BODY6BP-S

1 On-/off switch, Power supply voltage 1, AC
2 Fuse holder 1
3 On-/off switch, Power supply voltage 2, AC
4 Fuse holder 2
5 Grounding

3.5.12 2-Slot Chassis 474-BODY6BP-SNMP

NOTICE

Excessive current draw

The 6-slot chassis with an internal power supply unit is equipped with an internal, device-specific fuse (2A, 250 V, 5x20 mm, Time-lag fuse, Littelfuse type 218 or similar) on the input side in the **474-BODY6BP/-SNMP** variant.

➡ Additional protection against excessive current draw must be provided by a suitable external protective device in the building's electrical system.

This chassis will be available in the future, please contact the sales team.

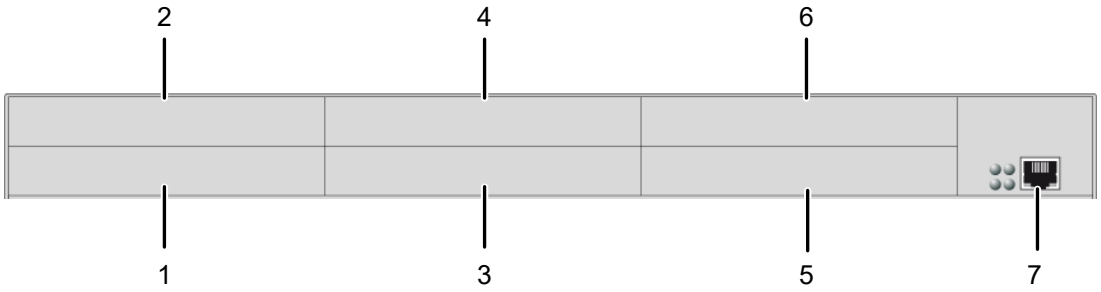


Fig. 15 Interface side chassis 474-BODY6BP-SNMP

1 Slot 1
2 Slot 2
3 Slot 3
4 Slot 4
5 Slot 5
6 Slot 6
7 Network

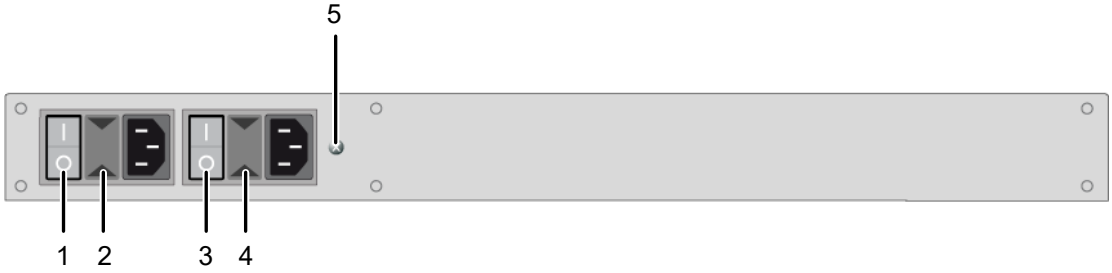


Fig. 16 Rear side chassis 474-BODY6BP-SNMP

1 On-/off switch, Power supply voltage 1, AC
2 Fuse holder 1
3 On-/off switch, Power supply voltage 2, AC
4 Fuse holder 2
5 Grounding

3.5.13 6-Slot Chassis 474-BODY6BPF/474-BODY6BPF-S

NOTICE

Excessive current draw

The 6-slot chassis with an internal power supply unit is not equipped with a fuse on its primary side.

➡ The protection against excessive current draw has to be provided by the electrical installation of the building.

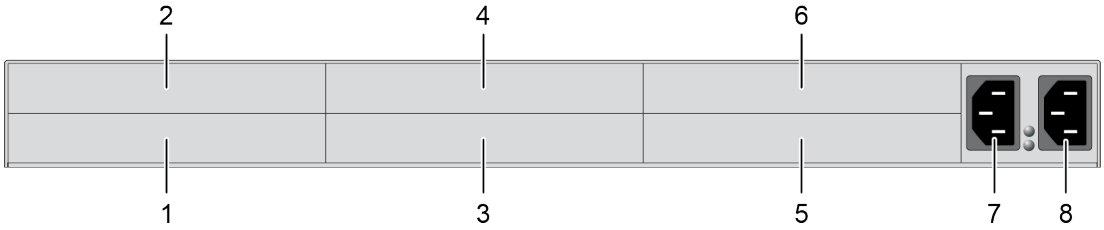


Fig. 17 Interface side chassis 474-BODY6BPF/474-BODY6BPF-S

1 Slot 1
2 Slot 2
3 Slot 3
4 Slot 4
5 Slot 5
6 Slot 6
7 Power supply voltage 1, AC
8 Power supply voltage 2, AC

3.5.14 21-Slot Chassis 474-BODY21/4U(-R1) and 474-BODY21/4UR(-R1)

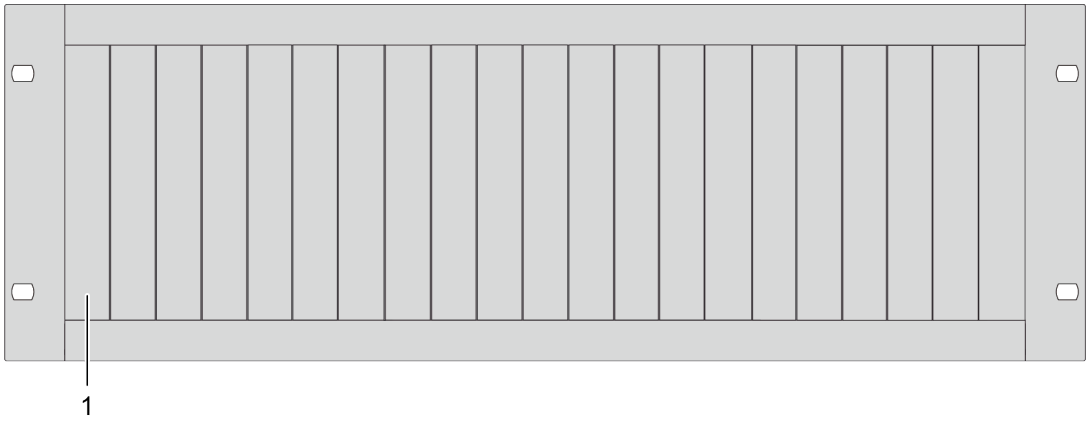


Fig. 18 Interface side chassis 474-BODY21/4U(-R1) and 474-BODY21/4UR(-R1)

1 Slots 1 to 21 (from left to right)

Both IEC sockets are mounted on both chassis. Whether one or two power supply units are mounted can be seen by the black lever for pulling out the power supply.

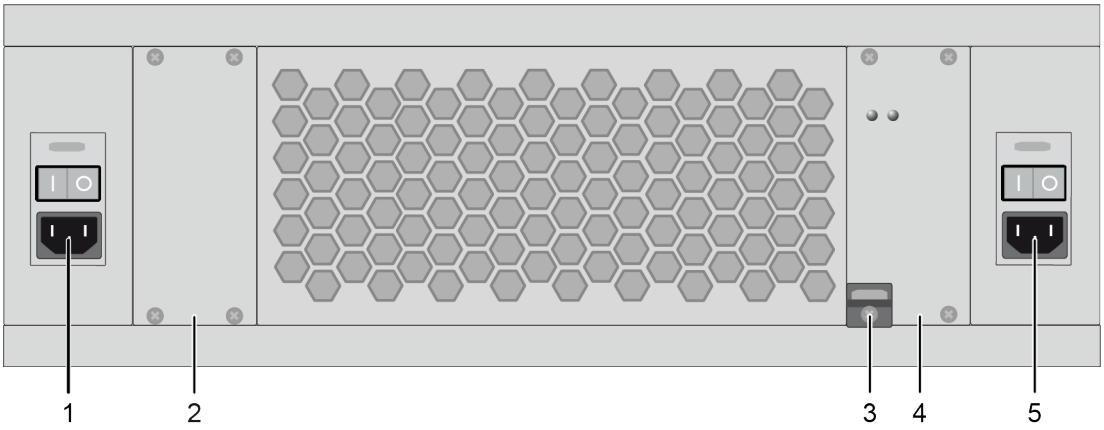


Fig. 19 Rear side chassis 474-BODY21/4U(-R1)

1 Preparation for power supply voltage 2, AC (redundancy)
2 Blind plate, slot covering for power supply unit 2 (redundancy)
3 Pull-out lever for power supply unit 1
4 Power supply voltage 1, AC (redundancy)
5 Power supply unit 1 (redundancy)

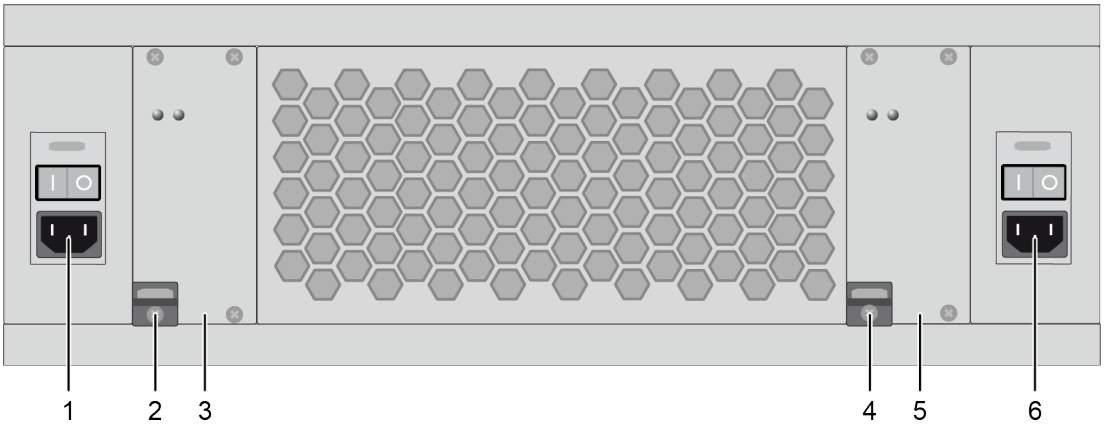


Fig. 20 Rear side chassis 474-BODY21/4UR(-R1)

1 Power supply voltage 2, AC (redundancy)
2 Power supply unit 2 (redundancy)
3 Pull-out lever for power supply unit 2 (redundancy)
4 Pull-out lever for power supply unit 1
5 Power supply unit 1
6 Power supply voltage 1, AC

3.6 Status Indication of Chassis

For an easier identification, the LED representation and column designation in the tables were selected analogously to the LED position on the chassis.

3.6.1 2-Slot-Chassis 474-BODY2

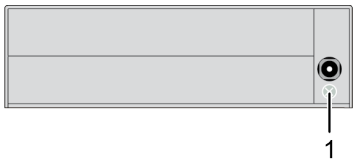


Fig. 21 Interface side chassis 474-BODY2 - LED for power supply voltage

1 LED for power supply voltage

LED for Power Supply Voltage

The following table shows the LED states/colors for the power supply voltage (see chapter 4.5.1, page 17) for the respective situation.

LED Status	Description
Green	Power supply voltage available.
Off	No power supply voltage available.

3.6.2 2-Slot-Chassis 474-BODY2R

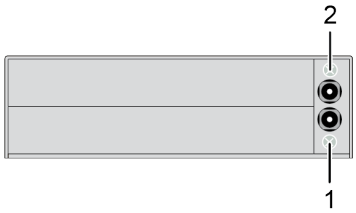


Fig. 22 Interface side chassis 474-BODY2R - LEDs for power supply voltage

1 LED for power supply voltage 1

2 LED for power supply voltage 2

LEDs for Power Supply Voltage

The following tables show the LED states/colors for the power supply voltage (see chapter 4.5.2, page 17) for the respective situation.

Pos.	LED Status	Description
1	Green	Redundant power supply voltage available.
2	Green	
1	Green	No redundant power supply voltage available.
2	Red	
1	Red	No redundant power supply voltage available.
2	Green	
1	Off	No power supply voltage available.
2	Off	

3.6.3 2-Slot-Chassis 474-BODY2N

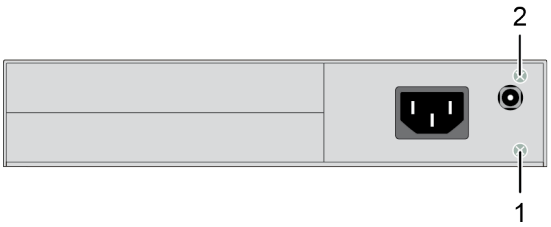


Fig. 23 Interface side chassis 474-BODY2N - LEDs for power supply voltage

1 LED for power supply voltage 1 2 LED for power supply voltage 2

LEDs for Power Supply Voltage

The following tables show the LED states/colors for the power supply voltage (see chapter 4.5.3, page 17) for the respective situation.

Pos.	LED Status	Description
1	Green	Redundant power supply voltage available.
2	Green	
1	Green	No redundant power supply voltage available.
2	Red	
1	Red	No redundant power supply voltage available.
2	Green	
1	Off	No power supply voltage available.
2	Off	

3.6.4 2-Slot-Chassis 474-BODY2DC-12/24/48

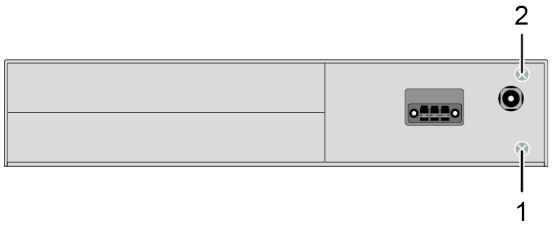


Fig. 24 Interface side chassis 474-BODY2DC-12/24/48 - LEDs for power supply voltage

1 LED for power supply voltage 1 2 LED for power supply voltage 2

LEDs for Power Supply Voltage

The following tables show the LED states/colors for the power supply voltage (see chapter 4.5.4, page 18) for the respective situation.

Pos.	LED Status	Description
1	Green	Redundant power supply voltage available.
2	Green	
1	Green	No redundant power supply voltage available.
2	Red	
1	Red	No redundant power supply voltage available.
2	Green	
1	Off	No power supply voltage available.
2	Off	

3.6.5 2-Slot-Chassis 474-BODY2BPF/474-BODY2BPF-S

New chassis version with rotated IEC socket, please contact the sales team for availability.

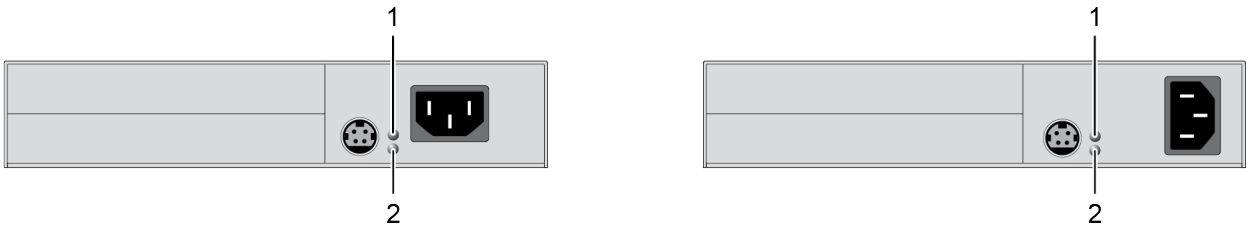


Fig. 25 Interface side chassis 474-BODY2BPF/474-BODY2BPF-S - LEDs for power supply voltage

1 LED for power supply voltage 1

2 LED for power supply voltage 2

LEDs for Power Supply Voltage

The following tables show the LED states/colors for the power supply voltage (see chapter 4.5.5, page 18) for the respective situation.

Pos.	LED Status	Description
1	Green	Redundant power supply voltage available.
2	Green	
1	Green	No redundant power supply voltage available.
2	Red	
1	Red	No redundant power supply voltage available.
2	Green	
1	Off	No power supply voltage available.
2	Off	

3.6.6 2-Slot-Chassis 474-BODY2BPF-SNMP

This chassis will be available in the future, please contact the sales team.

LEDs for Power Supply Voltage

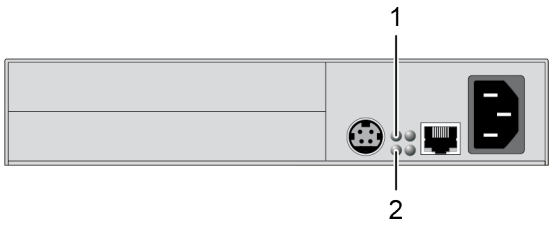


Fig. 26 Interface side chassis 474-BODY2BPF-SNMP - LEDs for power supply voltage

1 LED for power supply voltage 1 2 LED for power supply voltage 2

The following tables show the LED states/colors for the power supply voltage (see chapter 4.5.6, page 19) for the respective situation.

Pos.	LED Status	Description
1	Green	Redundant power supply voltage available.
2	Green	
1	Green	No redundant power supply voltage available.
2	Red	
1	Red	No redundant power supply voltage available.
2	Green	
1	Off	No power supply voltage available.
2	Off	

LEDs for Network Connection

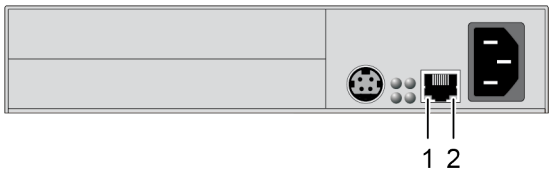


Fig. 27 Interface side chassis 474-BODY2BPF-SNMP - LEDs for network connection

1 LED for network activity 2 LED for network connection

The following table shows the LED states/colors for the network connection of the respective situation.

Pos. 1	Pos. 2	Description
Off	Off	No network connection available.
Off	Flashing green	Network connection available, no data traffic.
Flashing orange	Green	Network connection available, data traffic active.

LEDs for the SNMP Function Part of the Backplane

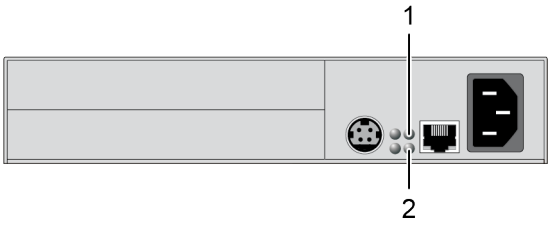


Fig. 28 Interface side chassis 474-BODY2BPF-SNMP - LEDs for SNMP function part

1 SNMP function part LED 1 2 SNMP function part LED 2

The following table shows the LED states/colors of the SNMP function part of the backplane for the respective situation.

Pos.	LED Status	Description
1	Off	Device off, no power supply voltage available.
2	Off	
1	Red	Controller board not running, manual switch-off and switch-on of the power supply voltage required.
2	Red	
1	Red	Initializing.
2	Green	
1	Flashing red	Operating mode, no network connection available.
2	Green	
1	Flashing green	Programming mode (MAC Address and serial interface).
2	Blue	
1	Green	Bootloader process running.
2	Blue	
1	Flashing green	Operating mode, network connection available.
2	Green	

3.6.7 4-Slot-Chassis 474-BODY4

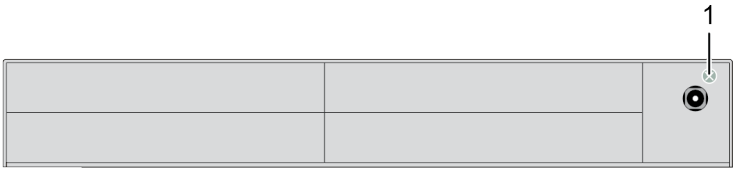


Fig. 29 Interface side chassis 474-BODY4 - LED for power supply voltage

1 LED for power supply voltage

LED for Power Supply Voltage

The following table shows the LED states/colors for the power supply voltage (see chapter 4.5.7, page 19) for the respective situation.

LED Status	Description
Green	Power supply voltage available.
Off	No power supply voltage available.

3.6.8 4-Slot-Chassis 474-BODY4R

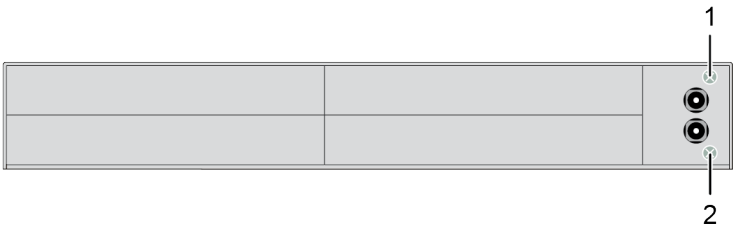


Fig. 30 Interface side chassis 474-BODY4R - LEDs for power supply voltage

1 LED for power supply voltage 1 2 LED for power supply voltage 2

LEDs for Power Supply Voltage

The following tables show the LED states/colors for the power supply voltage (see chapter 4.6.8, page 20) for the respective situation.

Pos.	LED Status	Description
1	Green	Redundant power supply voltage available.
2	Green	
1	Green	No redundant power supply voltage available.
2	Red	
1	Red	No redundant power supply voltage available.
2	Green	
1	Off	No power supply voltage available.
2	Off	

3.6.9 6-Slot-Chassis 474-BODY6R-R1

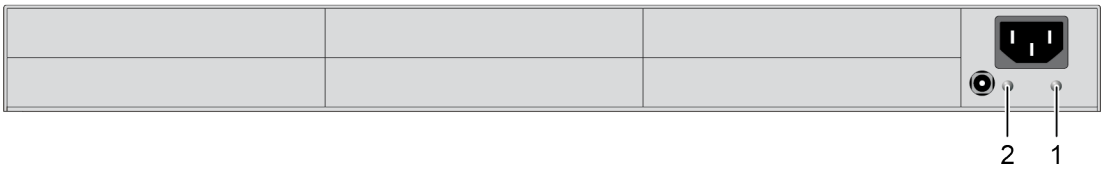


Fig. 31 Interface side chassis 474-BODY6R-R1 - LEDs for power supply voltage

1 LED for power supply voltage 1 2 LED for power supply voltage 2

LEDs for Power Supply Voltage

The following tables show the LED states/colors for the power supply voltage (see chapter 4.5.9, page 21) for the respective situation.

Pos. 2	Pos. 1	Description
Green	Green	Redundant power supply voltage available.
Red	Green	No redundant power supply voltage available.
Green	Red	No redundant power supply voltage available.
Off	Off	No power supply voltage available.

3.6.10 6-Slot-Chassis 474-BODY6DC-12/24/48

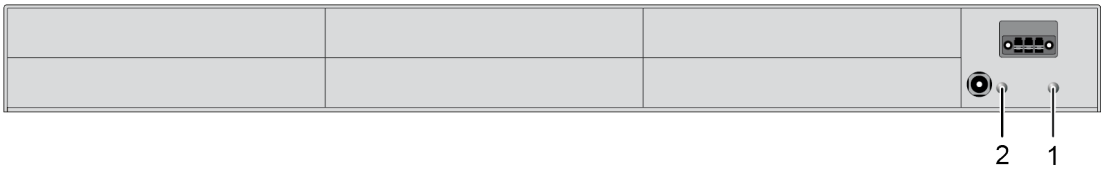


Fig. 32 Interface side chassis 474-BODY6DC-12/24/48 - LEDs for power supply voltage

1 LED for power supply voltage 1 2 LED for power supply voltage 2

LEDs for Power Supply Voltage

The following tables show the LED states/colors for the power supply voltage (see chapter 4.6.10, page 22) for the respective situation.

Pos. 2	Pos. 1	Description
Green	Green	Redundant power supply voltage available.
Red	Green	No redundant power supply voltage available.
Green	Red	No redundant power supply voltage available.
Off	Off	No power supply voltage available.

3.6.11 6-Slot Chassis 474-BODY6BP/474-BODY6BP-S

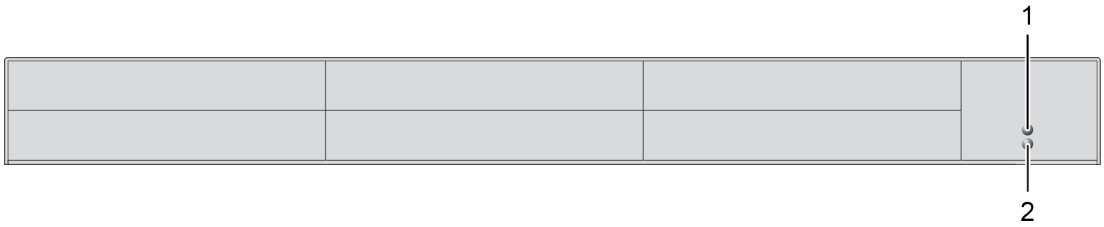


Fig. 33 Interface side chassis 474-BODY6BP/474-BODY6BP-S - LEDs for power supply voltage

1 LED for power supply voltage 1 2 LED for power supply voltage 2

LEDs for Power Supply Voltage

The following tables show the LED states/colors for the power supply voltage (see chapter 4.5.11, page 22) for the respective situation.

Pos.	LED Status	Description
1	Green	Redundant power supply voltage available.
2	Green	
1	Green	No redundant power supply voltage available.
2	Red	
1	Red	No redundant power supply voltage available.
2	Green	
1	Off	No power supply voltage available.
2	Off	

3.6.12 6-Slot-Chassis 474-BODY6BP-SNMP

This chassis will be available in the future, please contact the sales team.

LEDs for Power Supply Voltage

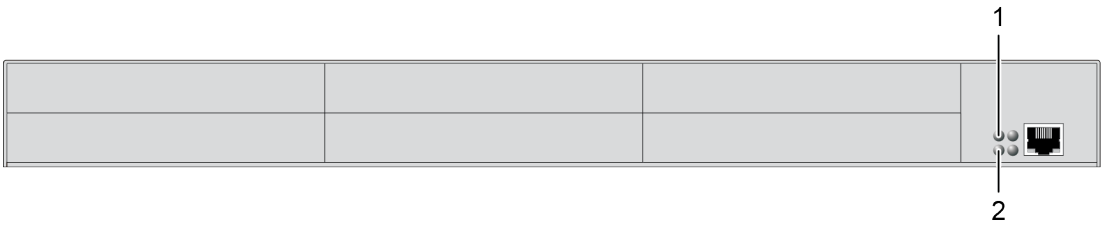


Fig. 34 Interface side chassis 474-BODY6BP-SNMP - LEDs for power supply voltage

1 LED for power supply voltage 1 2 LED for power supply voltage 2

The following tables show the LED states/colors for the power supply voltage (see chapter 4.5.12, page 23) for the respective situation.

Pos.	LED Status	Description
1	Green	Redundant power supply voltage available.
2	Green	
1	Green	No redundant power supply voltage available.
2	Red	
1	Red	No redundant power supply voltage available.
2	Green	
1	Off	No power supply voltage available.
2	Off	

LEDs for Network Connection

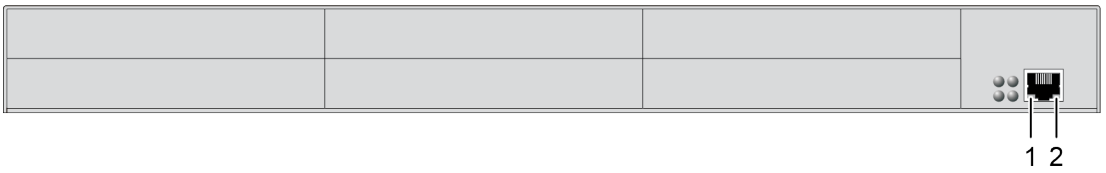


Fig. 35 Interface side chassis 474-BODY6BP-SNMP - LEDs for network connection

1 LED for power supply voltage 1 2 LED for power supply voltage 2

The following table shows the LED states/colors of the network connection for the respective situation.

Pos. 1	Pos. 2	Description
Off	Off	No network connection available.
Off	Flashing green	Network connection available, no data traffic.
Flashing orange	Green	Network connection available, data traffic active.

LEDs for the SNMP Function Part of the Backplane

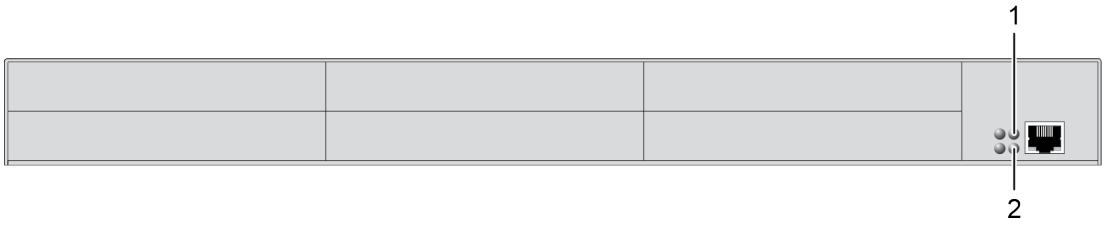


Fig. 36 Interface side chassis 474-BODY6BP-SNMP - LEDs for SNMP function part

1 SNMP function part LED 1 2 SNMP function part LED 2

The following table shows the LED states/colors of the SNMP function part of the backplane for the respective situation.

Pos.	LED Status	Description
1	Off	Device off, no power supply voltage available.
2	Off	
1	Red	Controller board not running, manual switch-off and switch-on of the power supply voltage required.
2	Red	
1	Red	Initializing.
2	Green	
1	Flashing red	Operating mode, no network connection available.
2	Green	
1	Flashing green	Programming mode (MAC Address and serial interface).
2	Blue	
1	Green	Bootloader process running.
2	Blue	
1	Flashing green	Operating mode, network connection available.
2	Green	

3.6.13 6-Slot-Chassis 474-BODY6BPF/474-BODY6BPF-S

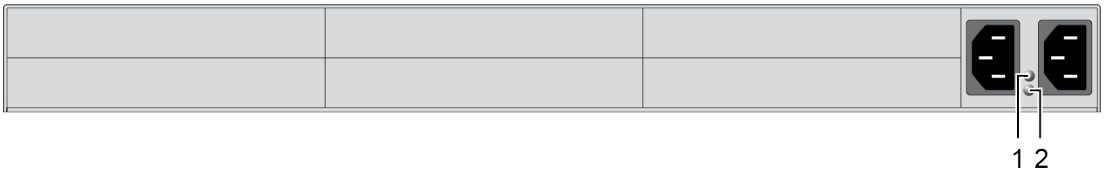


Fig. 37 Interface side chassis 474-BODY6BPF/474-BODY6BPF-S - LEDs for power supply voltage

1 LED for power supply voltage 1 2 LED for power supply voltage 2

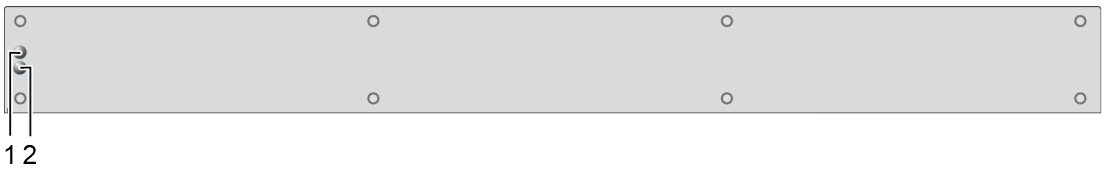


Fig. 38 Rear side chassis 474-BODY6BPF/474-BODY6BPF-S - LEDs for power supply voltage

1 LED for power supply voltage 1 2 LED for power supply voltage 2

LEDs for Power Supply Voltage

The following tables show the LED states/colors for the power supply voltage (see chapter 4.5.13, page 25) for the respective situation.

Pos.	LED Status	Description
1	Green	Redundant power supply voltage available.
2	Green	
1	Green	No redundant power supply voltage available.
2	Red	
1	Red	No redundant power supply voltage available.
2	Green	
1	Off	No power supply voltage available.
2	Off	

3.6.14 21-Slot Chassis 474-BODY21/4U(-R1)

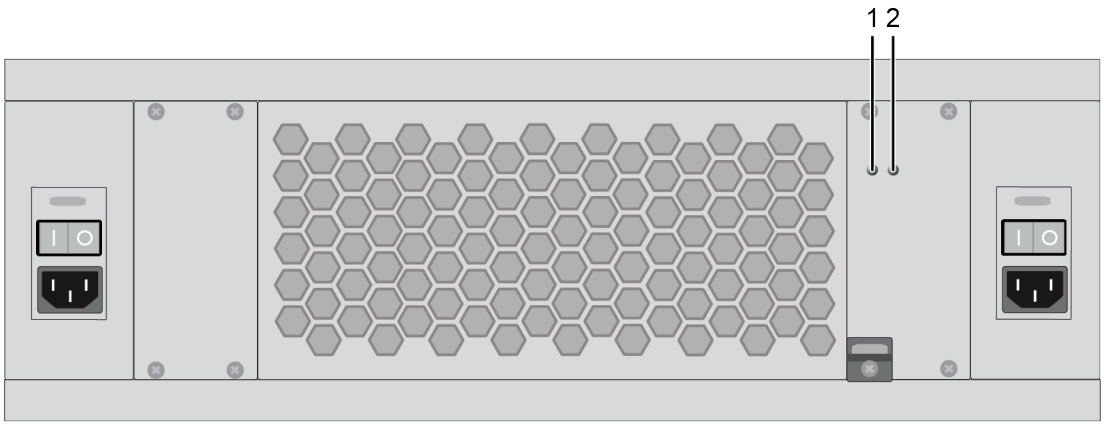


Fig. 39 Rear side chassis 474-BODY21/4U(-R1) - LEDs for power supply voltage/faults

1 Status LED power supply voltage 1 2 Fault LED power supply voltage 1

LEDs for Power Supply Voltage of the Standard Power Supply Unit

The following tables show the LED states/colors for the power supply voltage (see chapter 4.5.14, page 25) for the respective situation.

Pos. 1	Pos. 2	Description
Green	Off	Power supply voltage available.
Green	Red	• The input voltage of the power supply unit is too low. • The output voltage of the power supply unit too high. • Permissible power supply temperature exceeded.
Off	Off	• No power supply voltage available. • No redundant power supply unit installed.

3.6.15 21-Slot Chassis 474-BODY21/4UR(-R1)

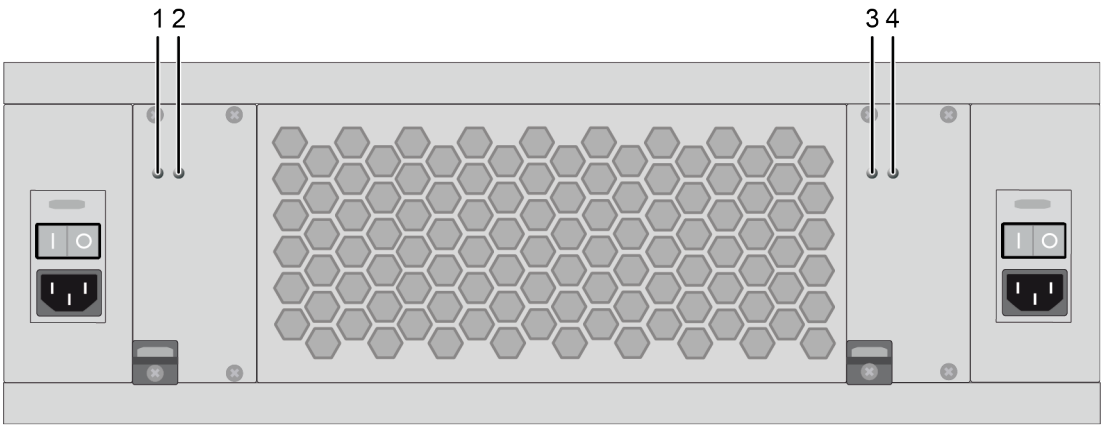


Fig. 40 Rear side chassis 474-BODY21/4UR(-R1) - LEDs for power supply voltage/faults

1 Status LED power supply voltage 2 (redundancy)
2 Fault LED power supply voltage 2 (redundancy)
3 Status LED power supply voltage 1
4 Fault LED power supply voltage 1

LEDs for Power Supply Voltage of the Standard Power Supply Unit

The following tables show the LED states/colors for the power supply voltage (see chapter 4.5.14, page 40) for the respective situation.

Pos. 3	Pos. 4	Description
Green	Off	Power supply voltage available.
Green	Red	• The input voltage of the power supply unit is too low. • The output voltage of the power supply unit too high. • Permissible power supply temperature exceeded.
Off	Off	• No power supply voltage available. • No redundant power supply unit installed.

LEDs for Power Supply Voltage of the Redundant Power Supply Unit

Pos. 1	Pos. 2	Description
Green	Off	Power supply voltage available.
Green	Red	• The input voltage of the power supply unit is too low. • The output voltage of the power supply unit too high. • Permissible power supply temperature exceeded.
Off	Off	• No power supply voltage available. • No redundant power supply unit installed.

4 Maintenance

4.1 Cleaning of Chassis and Modules

NOTICE

Damage to the mechanical and electronic components

The chassis and modules described in this manual as well as the accessories can be damaged by cleaning with damp or aggressive cleaning agents. If the chassis and modules are nevertheless cleaned with damp or aggressive cleaning agents and damaged in the cleaning process, the manufacturer's warranty will be voided.

➡ Remove dust deposits from the device with a dry, antistatic cloth or dehumidified air spray.

4.2 Safety during Installation Work

All installation instructions in chapter 5 ff are for retrofitting an extender module, an add-on module, or a fan in a 2-slot, 4-slot, 6-slot, or a 21-slot chassis.

⚠ WARNING

Risk of electric shock due to freely accessible power connections when the chassis is open

Risk of bruising, abrasion or shearing of fingertips due to rotating fan when the chassis is open

If the chassis is opened while power is supplied to the device, electric shock may occur if the internal wiring is touched. If a running fan is touched while the case is open, bruises, abrasions or shearing of fingertips may occur.

Maintaining a mounting chassis is only permitted if following points are fulfilled:

➡ Remove all power supply cables from the chassis.

➡ Only personal with VDE100 qualification is allowed to open the chassis.

➡ Consider ESD handling specifications.

⚠ CAUTION

Risk of burns due to tremendously heated chassis surface after a long period of operation

When the chassis is fully equipped, the surface of the chassis can become very warm after a long period of operation. If the chassis surface is touched after a long period of operation, this can cause skin burns.

➡ Protective gloves must be worn to transport a fully equipped chassis after a long period of operation.

➡ Ensure that there is sufficient distance from people while transporting a warm chassis.

➡ Before opening the chassis, wait until the chassis and the modules are cooled down.

NOTICE

Damage to the electronic components

The chassis as well as the extender or add-on modules contain sensitive components that can be damaged by electrostatic discharge and tools if touched.

Opening of chassis and replacement or extension of extender and add-on modules is only permitted if the following conditions are met:

➡ Only personal with VDE100 qualification is allowed to open the chassis.

➡ Consider ESD handling specifications.

➡ No introduction of foreign materials, tools or third party parts.

➡ Before replacing or extending add-on modules, check the power supply limits of the chassis in the Draco System Designer under https://dsd.ihse.com.

➡ Before replacing or adding add-on modules, contact the manufacturer’s technical support.

➡ Depending on the device, certain criteria must be observed during installation (see details in the instructions).

➡ Cover all empty slots with mounted blanking plates after removing an extender and/or add-on module.

4.3 Overview of Installation Work

4.3.1 Required Materials

Required fasteners are already shipped with the initial order and are pre-assembled with the following exceptions:

- **474-BODY6 Mounting chassis:** If modules are to be subsequently installed in a 474-BODY6 mounting chassis that is not fully equipped at the time of the initial order, internal power cables are required depending on the module type, see accessories list (chapter 4.3.1, page 15).
- **474-BODY21/4U:** If you would like to order an add-on module for use in a 474-BODY21/4U slide-in chassis, please specify this when ordering. You will then receive a connection plate for marking the extender module to the add-on module free of charge with your order.

4.3.2 Workplace Preparation

➡ Ensure all ESD specifications are met:

- The workplace includes correct ESD safety precautions.
- Use an ESD wristlet.
- Only use tools that cannot build up ESD charges.

4.3.3 Required Tools

Chassis type	Device/Part	Tool	Connecting element	Purpose
474-BODY2/4/6	Cover	Torx 10	2x ISO 14581, M 3 x 6	Fastening
	Extender module/ other modules	Torx 10	2x ISO 14581, M 3 x 6	Fastening
		Torx 8	1x ISO 7080-1, M 2.5 x 5, 4.8	Grounding
	Add-on module	By Hand	XPort (A, B, and/or C)	Assembly
		Torx 8	2x ISO 14581, M 3 x 6	Fastening
	Chassis fan*	Torx 10	2x ISO 14581, M 3 x 25	Fastening
474-BODY21/4U	Extender module	By hand	2x Safety nipple	Fastening
		By hand or slotted screwdriver	2x Knurled screw M 2.5 x 11	Fastening
	Add-on module	By hand	XPort (A, B, and/or C)	Assembly
		By hand	2x Safety nipple	Fastening
		By hand or slotted screwdriver	2x Knurled screw M 2.5 x 11	Fastening
		By hand	1x Connection plate	Assembly
	Power supply unit	Cross-headed screwdriver	Firmly connected to the power supply unit or the blanking plates.	Fastening

* The chassis fan can only be installed on 2-slot and 6-slot chassis with backplane.

When using a torque wrench, an M3 attachment and approximately 1 N/m is recommended.
When using a cordless screwdriver, 1 N/m, and the model "DeWALT DCF680" is also recommended.

4.3.4 Basics for 474-BODY2/4/6

- Extender modules are mounted at the bottom so that the slot above is kept free for add-on modules.
- The fixing by means of a grounding screw is omitted, if:
  - an extender module is mounted in an upper slot.
  - an extender module is to be mounted in a slide-in chassis.
- The slot assignment is to be kept as in the following picture from bottom left to top right.

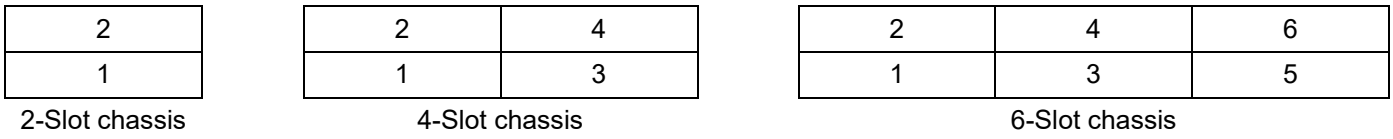


Fig. 41 Slot numbering of 2-slot/4-slot/6-slot chassis

4.3.5 Basics for 474-BODY21

- Extender modules are mounted to the left of an add-on module.
- The slot assignment is to be kept as in the following picture from left to right.

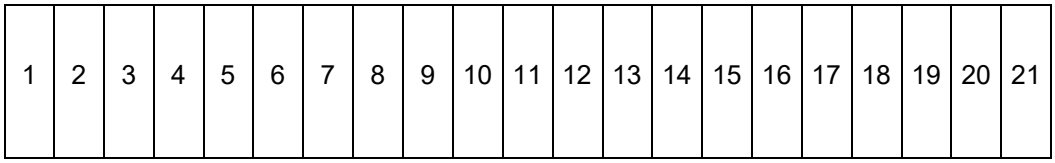


Fig. 42 Slot numbering of the 21-slot chassis

4.3.6 Installation Preparation for 2-/4-/6-Slot Mounting Chassis

For clarity, work steps that are necessary for all conversions are summarized in this chapter so that they are not repeated for each conversion of a mounting chassis:

Preparation

1. Prepare a suitable workplace for the conversion. The workplace must be plane and clean and must fulfill all necessary ESD requirements.
2. Remove all cables from the chassis and the mounted extender and add-on modules.
2. Remove the chassis from the current installation environment (e.g., rack). Wear protective gloves if the chassis has been in use for long period of operation.
3. Place the chassis at the workplace intended for the conversion.
4. Wait until the chassis has been cool down if it has been used for a longer period of operation.
5. Remove the cover of the chassis using a TORX 10 screwdriver.

6. Replacing/installing a module:
   6.1. Remove the mounting screw of the module or blanking plate to be replaced using a TORX 10 screwdriver.
   6.2. Remove the grounding screw at the bottom of the chassis for the installation of an extender module in one of the lower slots using a TORX 8 screwdriver.

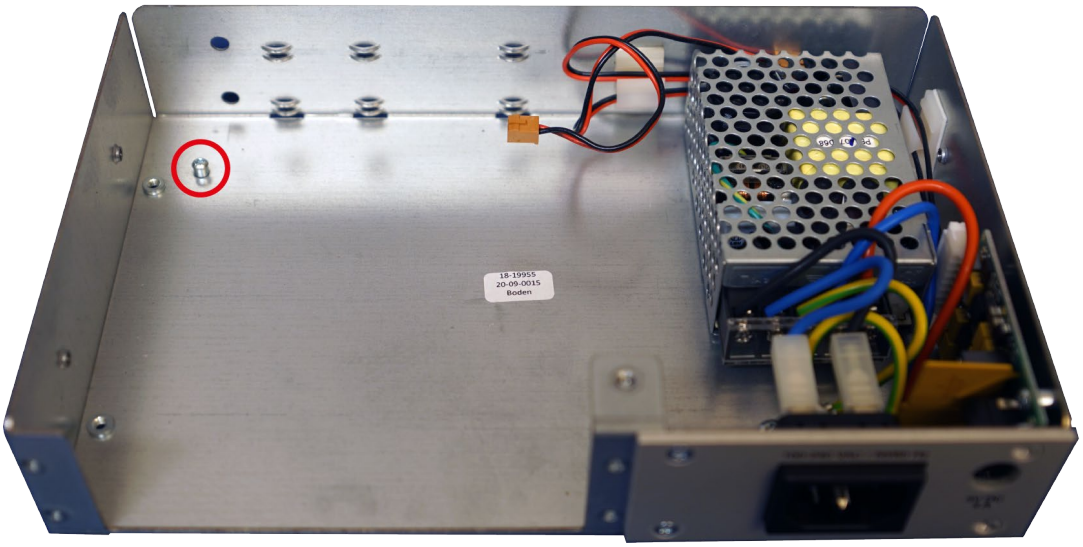


Fig. 43 Grounding screw in the delivery status of the chassis

   6.3. Remove the module to be replaced or the blind plate of the slot to be equipped.
   6.4. Store all disassembled connection elements dust-free and dry until they are used again.

4.3.7 Installation Preparation for 2-/6-Slot Slide-in Chassis

For clarity, work steps that are necessary for all conversions are summarized in this chapter so that they are not repeated for each conversion of a slide-in chassis:

Preparation

1. Observe the necessary ESD requirements.
2. Replacing/installing a module:
   2.1. When replacing a mounted module, remove all cables from the mounted module.
   2.2. Remove the mounting screw of the module or blanking plate to be replaced using a TORX 10 screwdriver.
   2.3. Remove the module to be replaced or the blind plate of the slot to be equipped.
   2.4. Store all disassembled connection elements dust-free and dry until they are used again.
3. Replacing/installing the chassis fan in the 6-slot plug-in chassis:
   3.1. Prepare a suitable workplace for the conversion. The workplace must be plane and clean and must fulfill all necessary ESD requirements.
   3.2. Remove all cables from the chassis and the mounted extender and add-on modules.
   3.3. Remove the chassis from the current installation environment (e.g., rack). Wear protective gloves if the chassis has been in use for long period of operation.
   3.4. Place the chassis at the workplace intended for the conversion.
   3.5. Wait until the chassis has been cool down if it has been used for a longer period of operation.
   3.6. Remove the cover of the chassis using a TORX 10 screwdriver.

4.3.8 Installation Preparation for 21-Slot Slide-in Chassis

Preparation

1. Observe the necessary ESD requirements.
2. When replacing a mounted module, remove all cables from the mounted module.
3. Loosen the knurled screw on the front panel of the module to be replaced or the blind plate by hand.
4. Remove the module to be replaced or the blind plate of the slot to be equipped.
5. Remove the knurled screw on the front panel of the module to be replaced or the blind plate by hand.
6. Remove the safety nipple on the front panel by pressing the nipple together on the inside and sliding it out.
7. Store all disassembled connection elements dust-free and dry until they are used again.

4.4 Installation of an Extender Module

This chapter 5.4 applies to all modules except add-on modules or modules for which special installation instructions must be observed. For installation add-on modules, see chapter 5.5, page 52. Special installation instructions for modules are described in separate chapters, e.g., installation of modules of the 490 and 495 series or SNMP modules.

4.4.1 Standard Installation in 2-/4-/6-Slot Mounting Chassis

1. Carry out the preparatory work steps for a module installation (see chapter 5.3.6, page 43).
2. Insert the extender module into the guides on the rear panel of the chassis, sliding the LED through the hole in the rear panel of the chassis.
3. Plug the cable connector of one of the internal power cables of a power supply unit into the multi-pin connector as shown in the following figure.

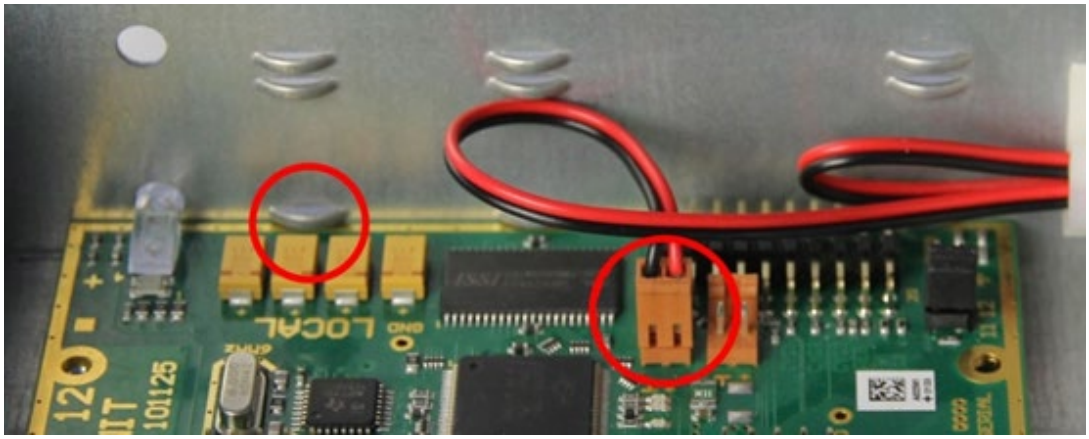


Fig. 44 Positioned extender module with connected power cable

4. Slightly tighten the previously removed screws using a Torx 10 screwdriver, but do not fix them yet.

Fig. 45 Front view - Front panel with fastening screws

5. Fix the extender module on the chassis bottom with the previously removed screw for grounding using a Torx 8 screwdriver.

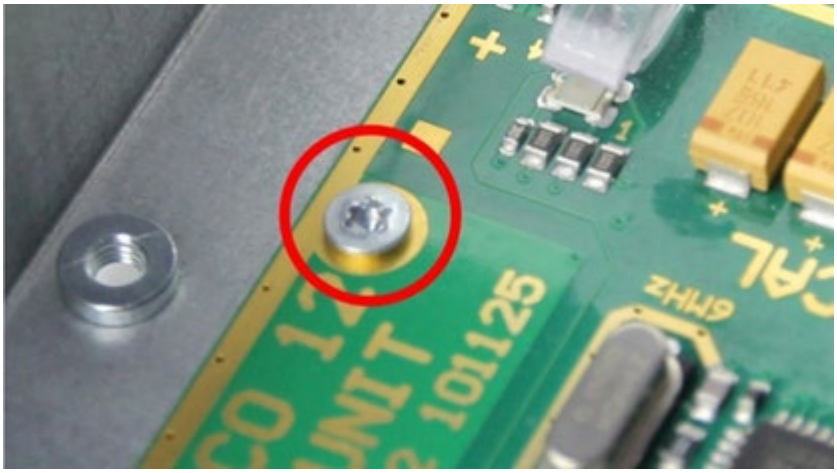


Fig. 46 Extender module with grounding screw

6. Tighten the fastening screws on the front panel using a Torx 10 screwdriver.
7. Remount the chassis cover to the chassis with the previously removed mounting screws using a Torx 10 screwdriver.
8. Connect the chassis to the power supply voltage via at least one power cable and check the functionality of the installed extender module.
9. Reassemble the chassis in the original installation situation (e.g., rack).
10. Connect the previously removed cables to the chassis and the existing modules and corresponding cables to the newly installed extender module.

4.4.2 Standard Installation in 2-/6-Slot Slide-in Chassis

1. Carry out the preparatory steps for a module installation (see chapter 5.3.7, page 44).
2. Place the extender module in the sideward guidance of the chassis and push the extender module into the chassis.
3. Ensure that the connector pins are correctly plugged into the backplane and snap into place, and that the front panel of the extender module is fully seated against the chassis.

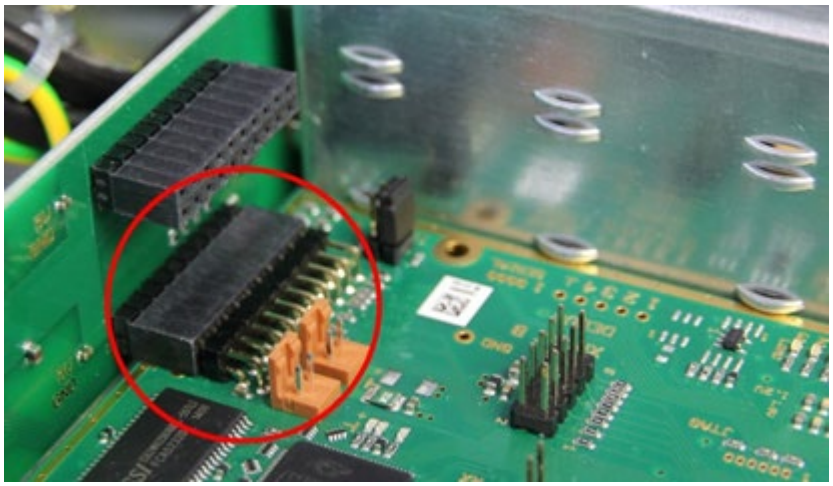


Fig. 47 Positioned extender module, connected to the backplane

4. Tighten the previously removed screws using a Torx 10 screwdriver.

Fig. 48 Front view - Front panel with fastening screws

5. Connect the corresponding cables to the newly installed extender module and check the functionality of the installed extender module.

4.4.3 Standard Installation in 21-Slot Slide-in Chassis

1. Push the safety nipples through the boreholes of the front panel and press them into the front panel until they snap into place.

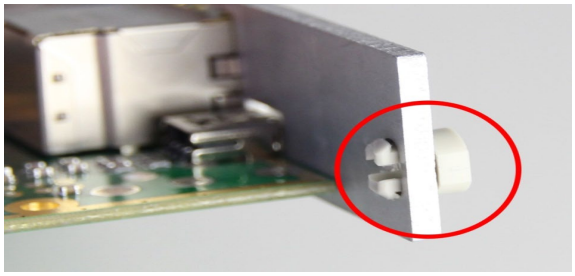


Fig. 49 Safety nipple in front panel

2. Plug the knurled screws through the nipples.

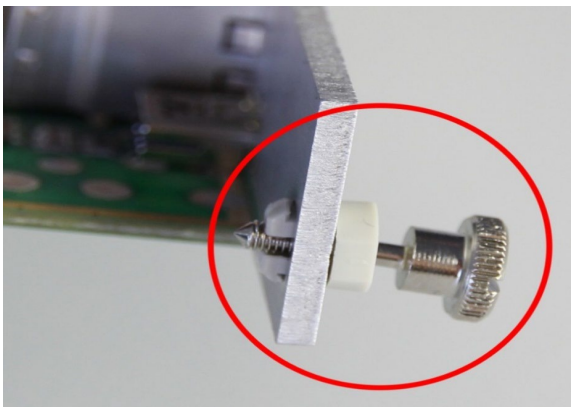


Fig. 50 Safety nipple with knurled screw front panel

3. Place the extender module in the lower and upper guidance rails of the chassis and push the extender module completely into the chassis.
4. Ensure that the connector pins are correctly plugged into the backplane and snap into place, and that the front panel of the extender module is fully seated against the chassis.

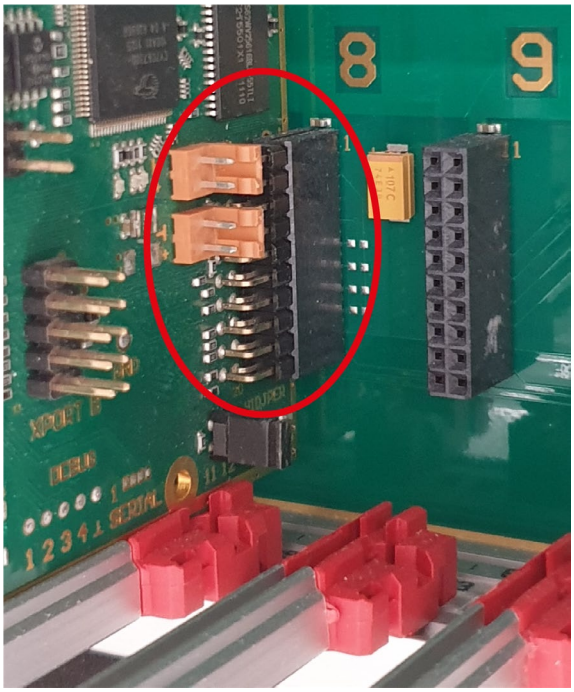


Fig. 51 Positioned extender module, connected to the backplane

5. Tighten the knurled screw by hand or a slotted screwdriver.
6. Connect the corresponding cables to the newly installed extender module and check the functionality of the installed extender module.

4.4.4 Installation Requirements for Series 490 and 495

The subsequent installation of DisplayPort 1.2 extender modules with Cat X interface (Series 490) or HDMI 2.0 extender modules with Cat X interface or with fiber interface (Series 495) requires the observance of certain installation rules to enable sufficient thermal cooling and thus guarantee a long service life of the modules. Non-compliance with these installation rules will void the warranty claims.

The following options are provided to ensure sufficient ventilation or cooling of the DisplayPort 1.2 and HDMI 2.0 extender modules:

- Installation of a fan cartridge module: always in one of the upper slots (see page 50)
- Installation of a chassis fan (see chapter 5.10, page 64)
- Sticking conduction pads onto the extender modules (see page 51)

Installation options

Permitted installation options for extender modules of the 490 (Cat X) and 495 (Cat X and fiber) series in compliance with the mandatory installation positions (see page 51):

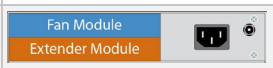
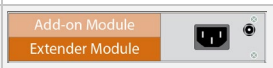
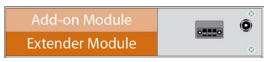
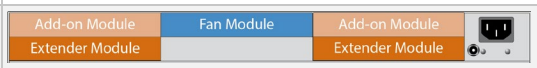
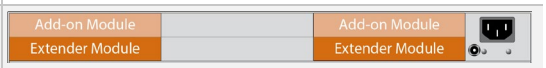
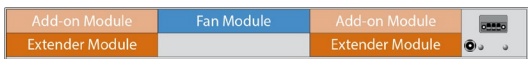
	With additional fan 474-MODFAN		With additional fan 474-6FAN		With integrated ventilation by default		With additional conduction pads	
Type	490 Cat X 495 Cat X/fiber	Add-on module	490 Cat X 495 Cat X/fiber	Add-on module	490 Cat X 495 Cat X/fiber	Add-on module	490 Cat X 495 Cat X/fiber	Add-on module
474-BODY2	---	---	---	---	---	---	---	---
474-BODY2R	---	---	---	---	---	---	---	---
474-BODY2N	1	0	---	---	---	---	1	1
474-BODY2DC-12 474-BODY2DC-24 474-BODY2DC-48	1	0	---	---	---	---	1	1
474-BODY2BPF	1	0	1	1	---	---	---	---
474-BODY2BPF-S	1	0	---	---	1	1	---	---
474-BODY2BPF-SNMP	1	0	1	1	---	---	---	---
474-BODY4	---	---	---	---	---	---	---	---
474-BODY4R	---	---	---	---	---	---	---	---
474-BODY6R-R1	2	2	---	---	---	---	2	2
474-BODY6DC-12 474-BODY6DC-24 474-BODY6DC-48	2	2	---	---	---	---	2	2
474-BODY6BP	3	2	3	3	---	---	---	---
474-BODY6BP-S	3	2	---	---	3	3	---	---
474-BODY6BP-SNMP	3	2	3	3	---	---	---	---
474-BODY6BPF	3	2	3	3	---	---	---	---
474-BODY6BPF-S	3	2	---	---	3	3	---	---
474-BODY21/4U(-R1)	---	---	---	---	*	*	---	---
474-BODY21/4UR(-R1)	---	---	---	---	*	*	---	---

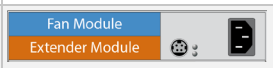
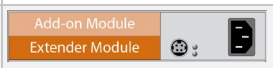
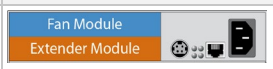
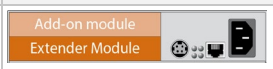
--- The installation of extender modules of the 490 (Cat X) and 495 (Cat X and fiber) series is not permitted.

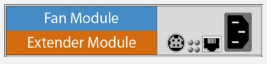
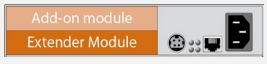
* Please determine the maximum equipment with corresponding modules via the Draco System Designer under https://dsd.ihse.com.

Mounting positions

Permitted mounting positions for series 490 (Cat X) and 495 (Cat X and fiber) extender modules and for add-on modules when using appropriate cooling options:

	With additional fan module 474-MODFAN	With additional conduction pads
474-BODY2N		
474-BODY2DC-12 474-BODY2DC-24 474-BODY2DC-48		
474- BODY6R-R1		
474-BODY6DC-12 474-BODY6DC-24 474-BODY6DC-48		

	With additional fan module 474-MODFAN	With additional chassis fan 474-6FAN
474-BODY2BPF		
474-BODY2BPF-SNMP*		
474-BODY6BP		
474-BODY6BP-SNMP*		
474-BODY6BPF		

	With additional fan module 474-MODFAN	With integrated chassis fan
474-BODY2BPF-S**		
474-BODY6BP-S**		
474-BODY6BPF-S**		

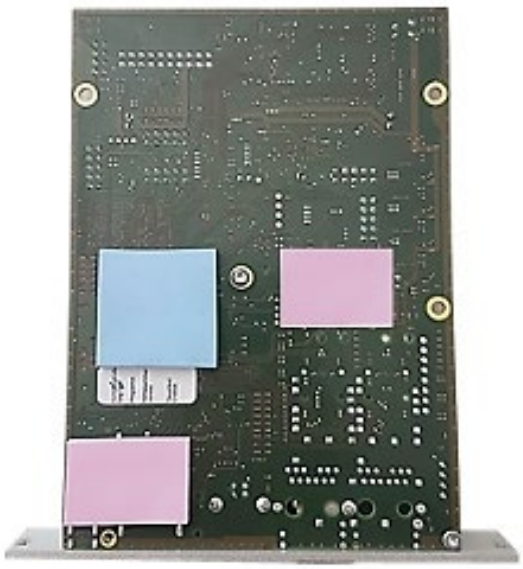
The installation of the HDMI 2.0/DisplayPort 1.2 extender modules in 474-BODY21/4U(-R1) and 474-BODY21/4UR(-R1) is done according to the rules in the Draco System Designer under https://dsd.ihse.com.

Conduction Pads

The cooling is done via additional conduction pads. HDMI 2.0/DisplayPort 1.2 extender modules ordered individually are delivered with two conduction pads, which must be sticked to the extender as follows.

1. Peel off the film on the adhesive surface of the thermal pads.
2. Apply the thermal pads to the underside of the extender modules as shown in the following figures:
   2.1. Cat X devices (490 and 495): 1x blue heat conduction pad, 2x pink heat conduction pads.
   2.2. Fiber devices Cat-X devices (495): 1x blue conduction pad,1x pink conduction pad

Conduction pads for Cat X devices



Conduction pads for fiber devices

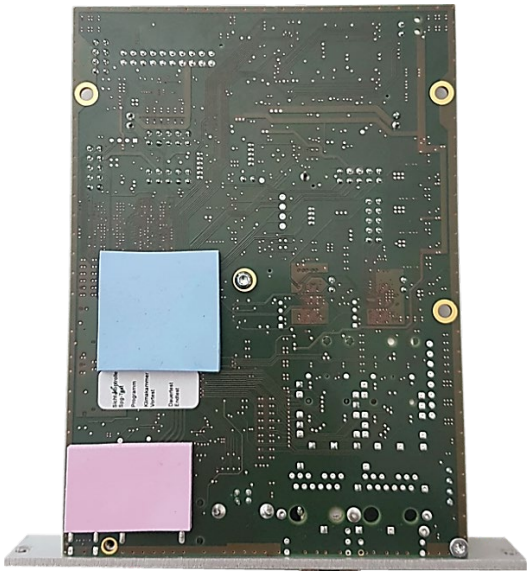


Fig. 52 Positioning of the conduction pads to be applied

4.5 Installation of an Add-on Module

Add-on modules receive their power supply via the XPorts of the extender module. Exception: The USB 2.0 embedded CON module requires its own power supply. The XPorts are labeled on the PCB.

4.5.1 Scope of Delivery

Check the scope of delivery of the add-on module for completeness:

– Add-on module

– Up to 3 XPort adapters depending on the version (see table below)

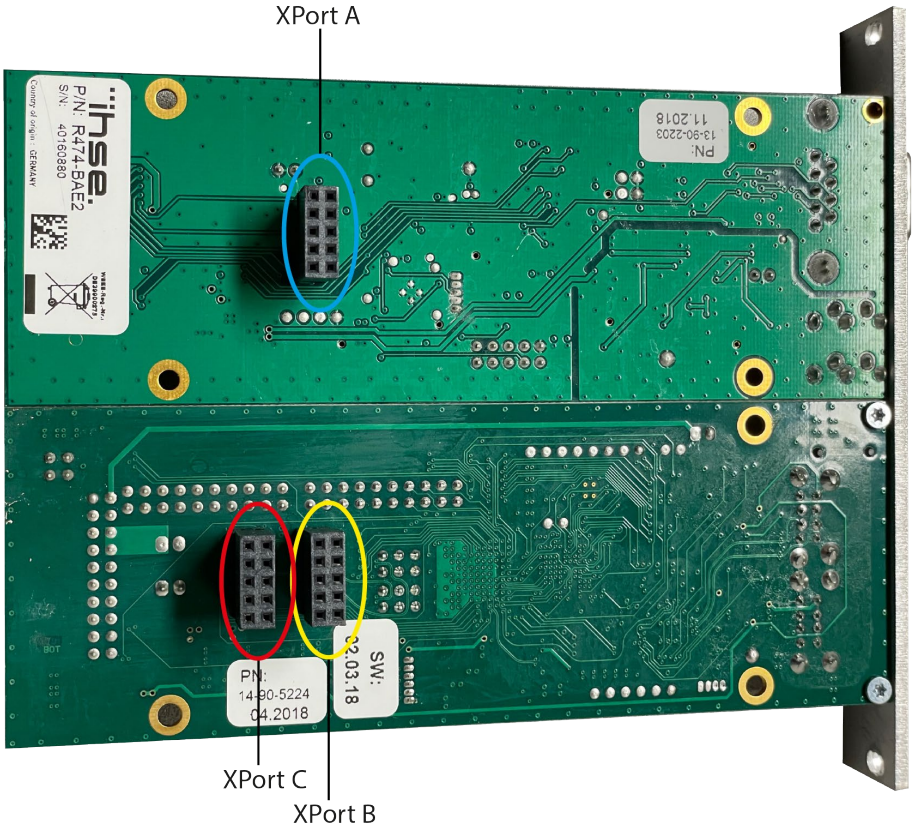


Fig. 53 Extender module with XPort adapters

Viewed from the front panel, the XPorts are located on the left or right part of the add-on module as listed in the table:

Part A (left)	Part B (right)	
XPort A	**XPort B**	**XPort C**
Audio modules (BAx, BDx, BSx, BBx)	-	-
-	USB HID module (BxH)	-
-	Embedded USB 2.0 module (BxE)	-
-	Embedded USB 2.0 module (BxE2)	Embedded USB 2.0 module (BxE2)

4.5.2 Add-on Module Installation in 2-/4-/6-Slot Mounting Chassis

There are two possibilities to install an extender module in a mounting chassis.

- Extender module remains in the chassis
  - With grounding screw, with easier fixing in the guides
- Extender module is first removed from the chassis
  - Without grounding screw, simultaneous fixing in the guides is more difficult

Possibility 1

1. Carry out the preparatory steps for a module installation (see chapter 5.3.6, page 43).
2. Remove the XPort adapters from the add-on module.
3. Plug the required XPort adapters on the XPorts to be used (see table in chapter 5.5.1, page 52).

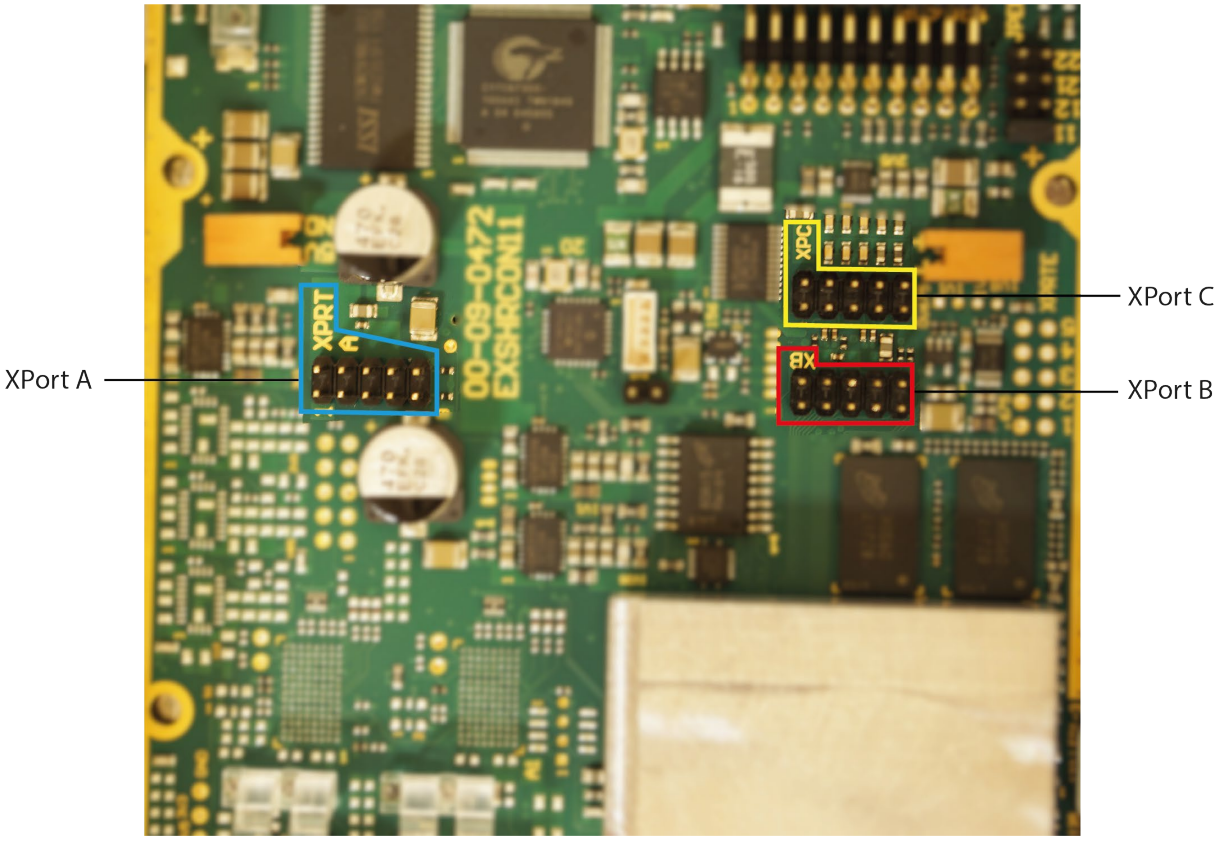


Fig. 54 Extender module with labeled XPorts

4. Insert the add-on module above an extender module into the mounting chassis.

5. Insert the add-on module into the guides of the chassis rear panel.
6. Press lightly against the rear panel and carefully lower the add-on module onto the XPort adapters below.
7. Ensure that the pin headers of the add-on module are correctly inserted into the XPort adapters.
8. In the area of the XPorts, press the add-on module down against the extender module to connect the two modules completely.
9. In the case of one of the BXE or BXE2 add-on modules, plug the connector of one of the internal power cables of the power supply unit into the multi-pin connector on the BXE/BXE2 add-on module (see the following figure on the right).

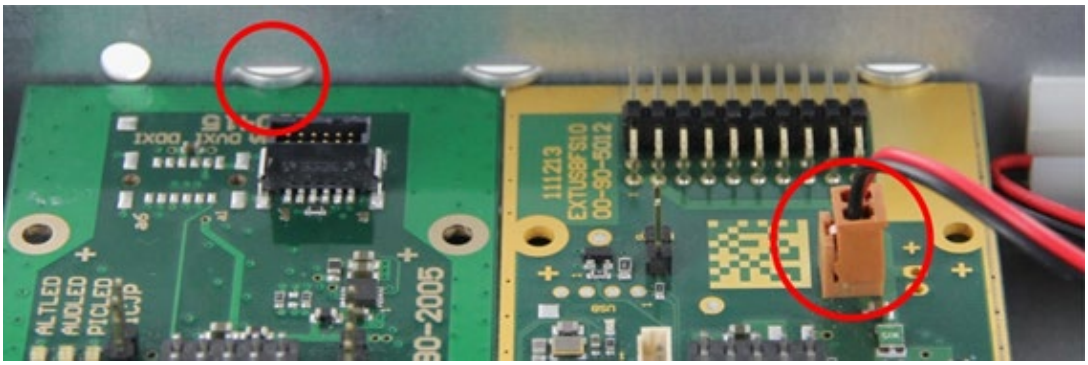


Fig. 55 Add-on module mounted in a mounting chassis

10. Tighten the front panel of the add-on module with the previously removed fastening screws using a Torx 10 screwdriver.

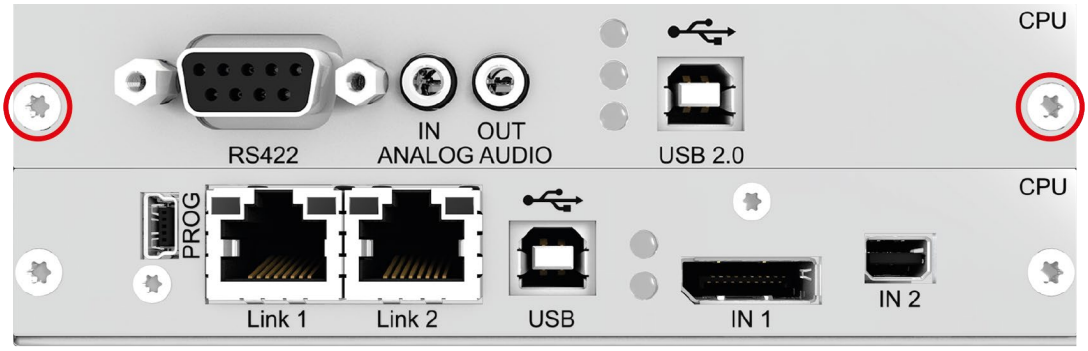


Fig. 56 Add-on module and extender module mounted in a mounting chassis

11. Remount the chassis cover to the chassis with the previously removed mounting screws using a Torx 10 screwdriver.
12. Connect the chassis to the power supply voltage via at least one power cable and check the functionality of the installed add-on module.
13. Reassemble the chassis in the original installation situation (e.g., rack).
14. Connect the previously removed cables to the chassis and the existing modules and corresponding cables to the newly installed add-on module.

Possibility 2

1. Carry out the preparatory steps for a module installation (see chapter 5.3.7, page 44).
2. Demount the extender module on which the add-on module is to be mounted.
3. Plug the XPort adapters of the add-on module on the corresponding XPorts of the extender module (following figure and table in chapter 5.5.1, page 52).

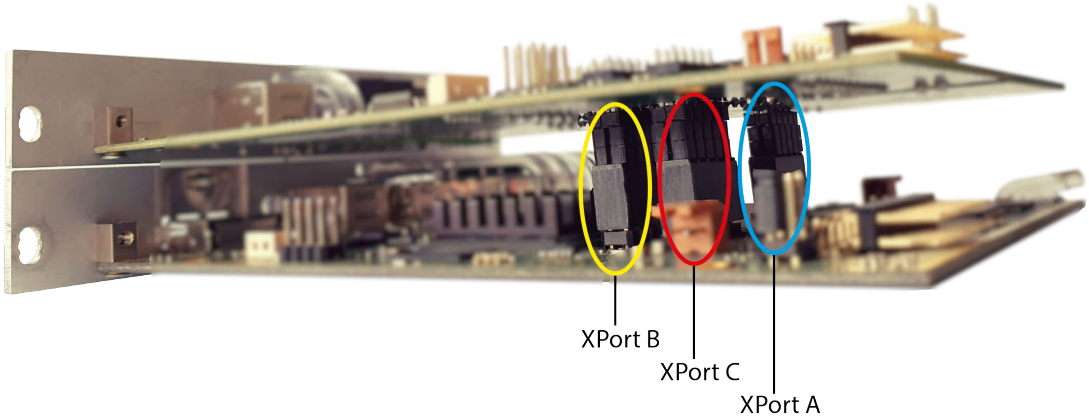


Fig. 57 Add-on module connected to an extender module via XPort adapter

4. Insert the extender module and the add-on module simultaneously into the guides on the chassis rear panel, sliding the LED through the hole in the chassis rear panel.
5. Tighten the front panels of both modules with the previously removed fastening screws using a Torx 10 screwdriver.

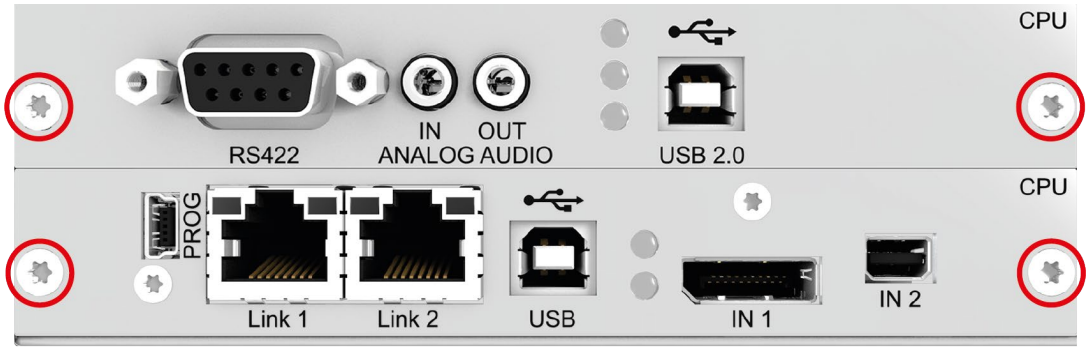


Fig. 58 Add-on module and extender module mounted in a mounting chassis

6. Remount the chassis cover to the chassis with the previously removed mounting screws using a Torx 10 screwdriver.
7. Connect the chassis to the power supply voltage via at least one power cable and check the functionality of the installed add-on module.
8. Reassemble the chassis in the original installation situation (e.g., rack).
9. Connect the previously removed cables to the chassis and the existing modules and corresponding cables to the newly installed add-on module.

4.5.3 Add-on Module Installation in 2-/6-Slot Slide-in Chassis

To use an add-on module, it must be connected to an extender module before.

1. Carry out the preparatory steps for a module installation (see chapter 5.3.7, page 44).
2. Demount the extender module on which the add-on module is to be mounted.
3. Plug the add-on module via the XPort adapters on the corresponding XPorts of the extender module (following figure and table in chapter 5.5.1, page 52).

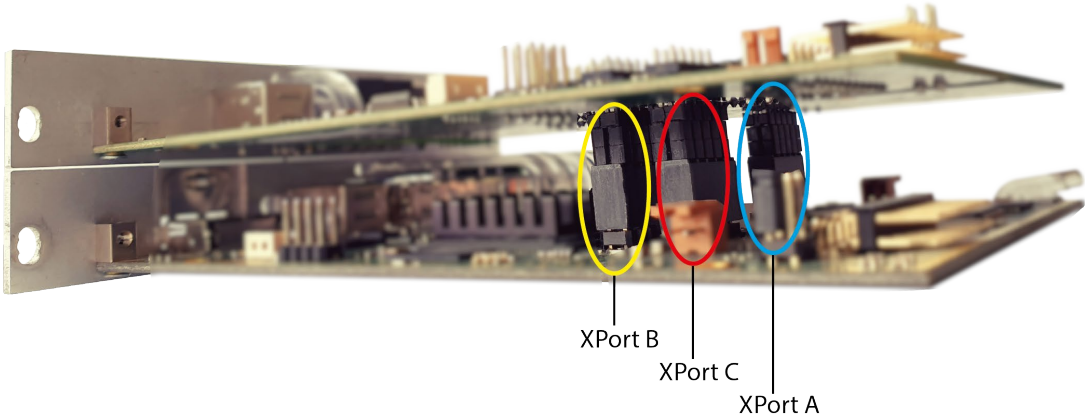


Fig. 59 Add-on module connected to an extender module via XPort adapter

4. Insert the extender module together with the add-on module into the lower and upper side guides of the slide-in chassis and push both modules completely into the chassis.
5. Ensure that the connector pins are correctly plugged into the backplane and snap into place, and that the front panel of the extender module is fully seated against the chassis.

   With one of the CON add-on modules BXE or BXE2, the necessary power supply voltage is also provided via the backplane (see following figure). Other add-on modules are supplied by the extender module via the XPort adapters.

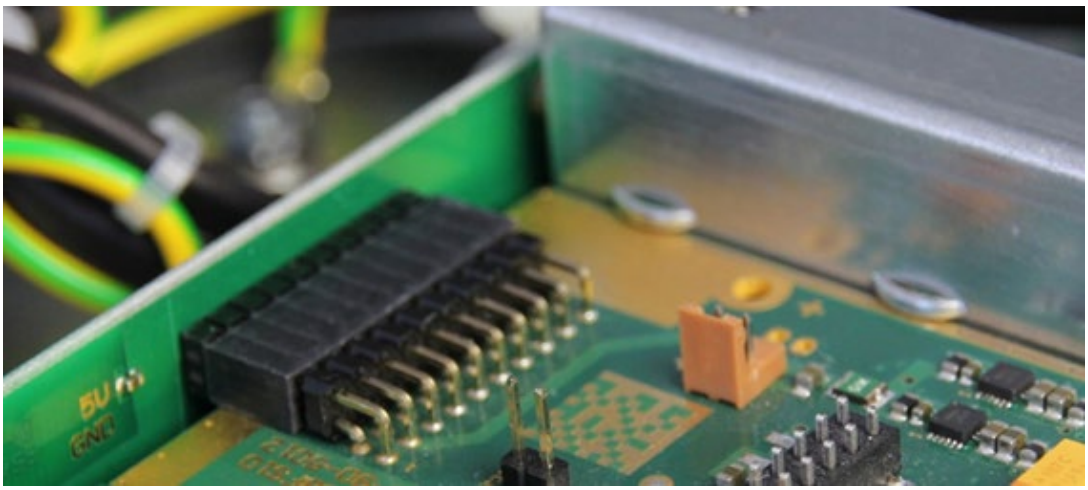


Fig. 60 Add-on module mounted in a 2-/6-Slot slide-in chassis

6. Tighten the front panels of both modules with the previously removed fastening screws using a Torx 10 screwdriver.

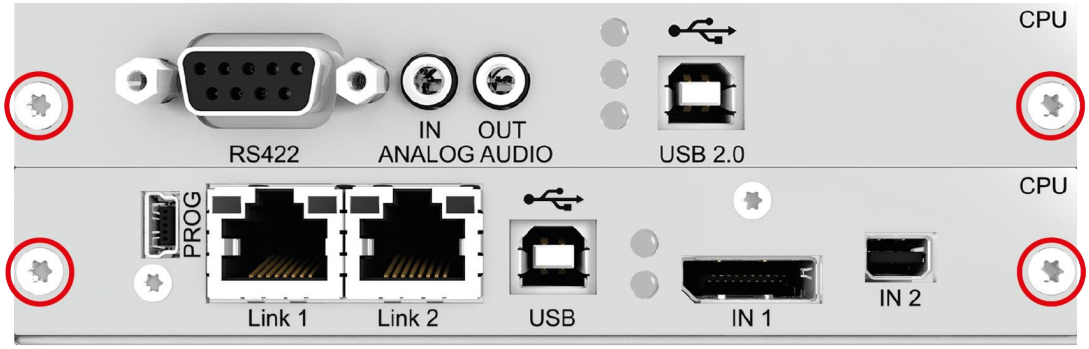


Fig. 61 Add-on module and extender module mounted in a mounting chassis

7. Connect the previously removed cables to the extender module and the corresponding cables to the newly installed modules and check the functionality of the installed add-on module.

4.5.4 Add-on Module Installation in 21-Slot Slide-in Chassis

1. Carry out the preparatory steps for a module installation (see chapter 5.3.8, page 45).
2. Demount the extender module on which the add-on module is to be mounted.
3. Plug the add-on module via the XPort adapters on the corresponding XPorts of the extender module (following figure and table in chapter 5.5.1, page 52).

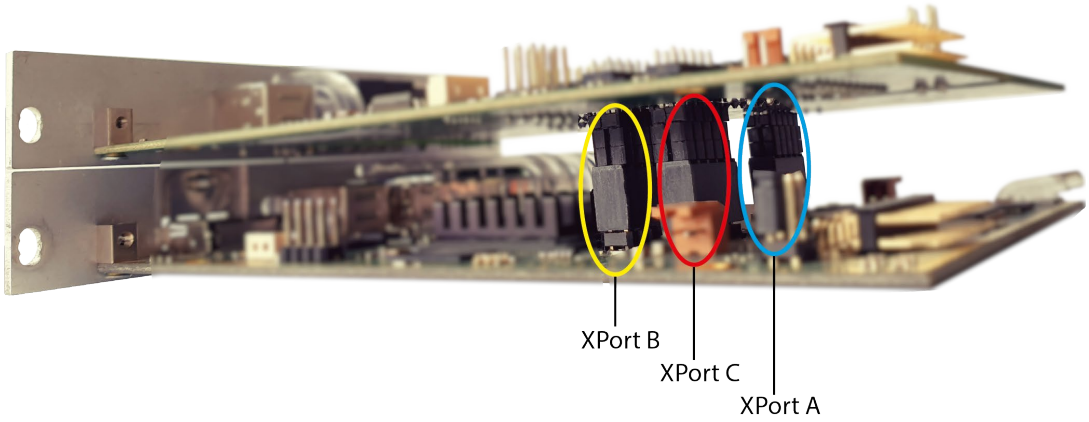


Fig. 62 Add-on module connected to an extender module via XPort adapter

4. Push the safety nipples through the boreholes of the front panel and press them into the front panel until they snap into place.

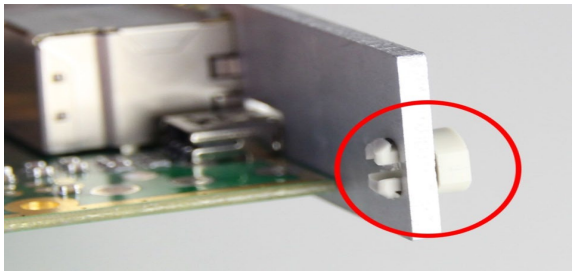


Fig. 63 Safety nipple in front panel

5. Plug the knurled screws through the nipples.

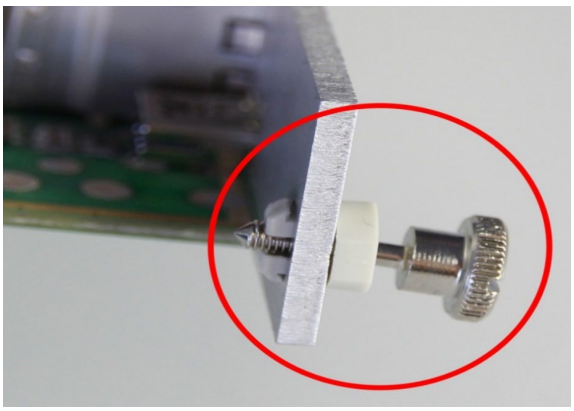


Fig. 64 Safety nipple with knurled screw in front panel

6. Remove one of the two knurled screws and position the connecting plate between the extender module and the add-on module.
7. Insert the knurled screw into the safety nipple.

   The connecting plate serves to visually clarify that the extender module and add-on module belong together.

Fig. 65 Extender module and add-on module with connecting plate

8. Insert both modules into the lower and upper guidance rails of the slide-in chassis and push both modules completely into the chassis.
9. Ensure that the connector pins are correctly plugged into the backplane and snap into place, and that the front panel of the extender module is fully seated against the chassis.

   With one of the CON add-on modules BXE or BXE2, the necessary power supply voltage is also provided via the backplane (see following figure). Other add-on modules are supplied by the extender module via the XPort adapters.

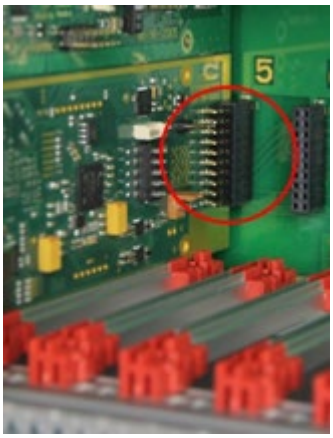


Fig. 66 Add-on module mounted in a 21-Slot slide-in chassis

10. Tighten the knurled screw by hand or with a slotted screwdriver.

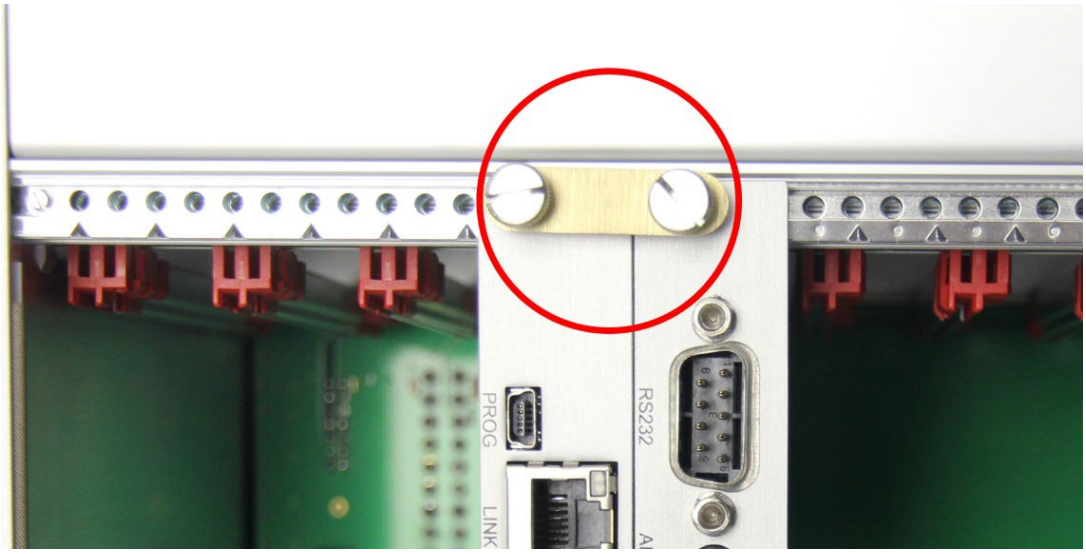


Fig. 67 Add-on module and extender module mounted in a 21-Slot slide-in chassis

11. Connect the previously removed cables to the extender module and the corresponding cables to the newly installed modules and check the functionality of the installed add-on module.

4.6 Installation of a USB 2.0 Stand-alone Module

4.6.1 Slot Assignment of a USB 2.0 Stand-alone Module in Mounting Chassis

The USB 2.0 stand-alone module is supplied with a jumper from pin 1 to pin 3 on the backplane connector. The installation of a USB 2.0 stand-alone module differs with regard to the chassis variants.

Slot Assignment of a USB 2.0 Stand-alone Module in Mounting Chassis

In the 2-/4-/6-slot chassis, the USB 2.0 stand-alone module must be installed in slot 2.

2
1

2-slot chassis

2	4
1	3

4-slot chassis

2	4	6
1	3	5

6-slot chassis

Fig. 68 Slot numbering of 2-/4-6-slot-chassis with placement (gray) of a USB 2.0 Stand-alone Module

Slot Assignment of a USB 2.0 Stand-alone Module in Slide-in Chassis

For chassis with backplane the USB 2.0 stand-alone module can be inserted into any slot.

4.6.2 USB 2.0 Stand-alone Module Installation in a 2-/4-/6-Slot Mounting Chassis

1. Carry out the preparatory work steps for a module installation (see chapter 5.3.6, page 43).
2. Plug the power cables from the chassis power supply unit into the multi-pin connector of the USB 2.0 stand-alone module. Observe the cable colors, see Fig. 69.

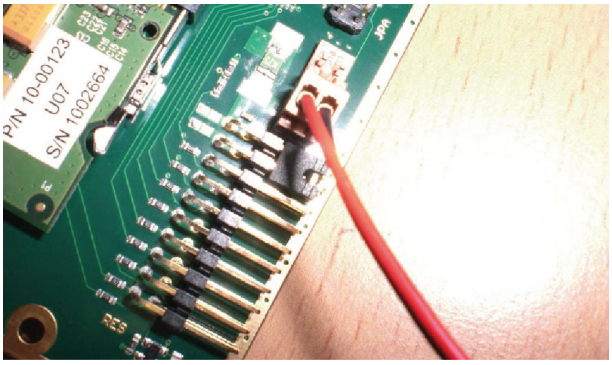


Fig. 69 Installation of a USB 2.0 Stand-alone module in mounting chassis - Power supply voltage via power cable

3. Insert the USB 2.0 Stand-alone module into the guides of slot 2 on the rear panel of the chassis.
4. Ensure that the USB 2.0 stand-alone module is correctly seated in the chassis guides.
5. Tighten the front panel of the USB 2.0 stand-alone module to slot 2 with the previously removed fastening screws using a Torx 10 screwdriver.
6. Fasten the chassis cover to the chassis with the previously removed fastening screws using a Torx 10 screwdriver.
7. Connect the chassis to the power supply voltage via at least one power cable and check the functionality of the module.
8. Remount the chassis in the original installation situation (e.g., rack).
9. Connect the previously removed cables to the chassis and the existing modules and corresponding cables to the newly installed USB 2.0 Stand-alone module.

4.6.3 USB 2.0 Stand-alone Module Installation in 2-/6-Slot Slide-in Chassis

1. Carry out the preparatory steps for a module installation (see chapter 5.3.7, page 44).
2. Remove the jumper from pin 1 to pin 3 on the backplane connector of the USB 2.0 stand-alone module.

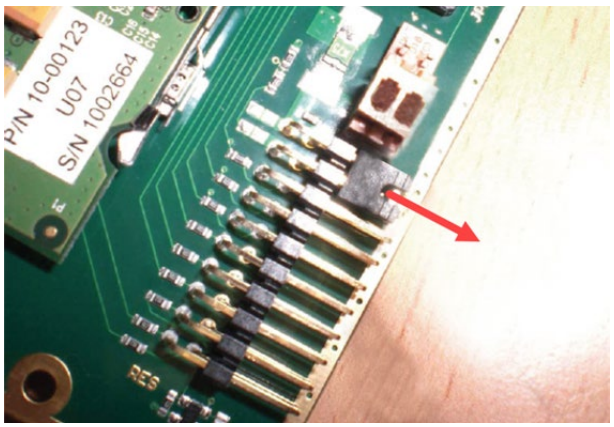


Fig. 70 Removing the jumper for installing a USB 2.0 stand-alone module in a slide-in chassis

3. Insert the USB 2.0 stand-alone module into the side guides of the slide-in chassis and push the USB 2.0 stand-alone module completely into the chassis.
4. Ensure that the connector pins are correctly plugged into the backplane and snap into place, and that the front panel of the extender module is fully seated against the chassis.
5. Tighten the front panel of the USB 2.0 stand-alone module with the previously removed fastening screws using a Torx 10 screwdriver.
6. Connect the corresponding cables to the newly installed USB 2.0 stand-alone module and check the functionality.

4.6.4 USB 2.0 Stand-alone Module Installation in 21-Slot Slide-in Chassis

1. Carry out the preparatory steps for a module installation (see chapter 5.3.8, page 45).
2. Remove the jumper from pin 1 to pin 3 on the backplane connector of the USB 2.0 stand-alone module.

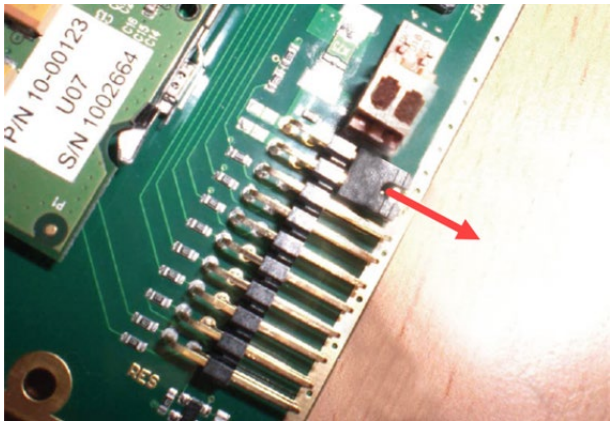


Fig. 71 Removing the jumper for installing a USB 2.0 stand-alone module in a slide-in chassis

3. Push the safety nipples through the boreholes of the front panel and press them into the front panel until they snap into place.

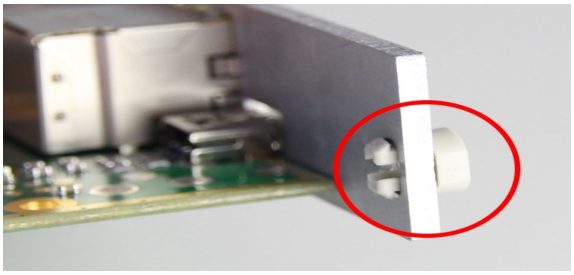


Fig. 72 Safety nipple in front panel

4. Plug the knurled screws through the nipples.

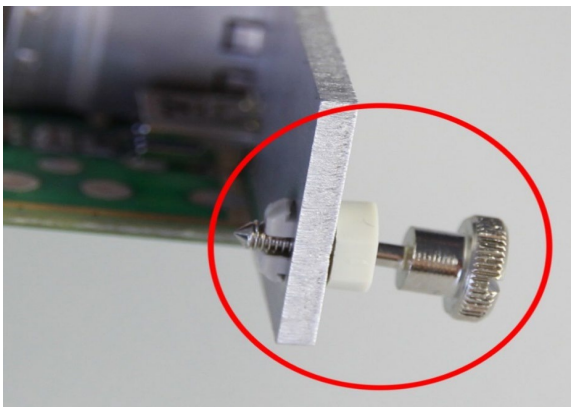


Fig. 73 Safety nipple with knurled screw in front panel

5. Insert the USB 2.0 stand-alone module into the lower and upper guidance rails of the slide-in chassis and push the USB 2.0 stand-alone module completely into the chassis.
6. Ensure that the connector pins are correctly plugged into the backplane and snap into place, and that the front panel of the extender module is fully seated against the chassis.

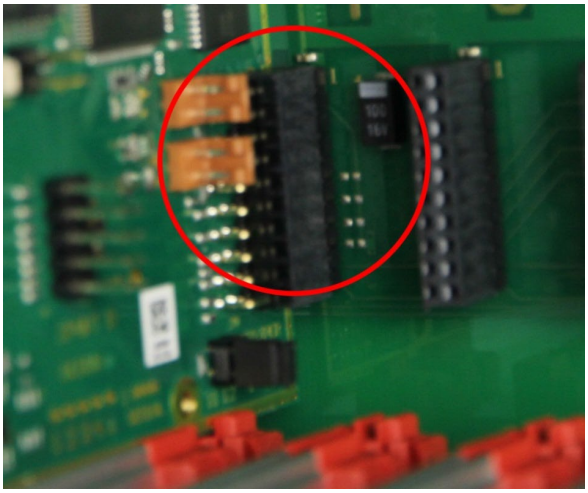


Fig. 74 USB 2.0 stand-alone module mounted in a 21-Slot slide-in chassis

7. Tighten the knurled screw by hand or with a slotted screwdriver.
8. Connect the corresponding cables to the newly installed USB 2.0 stand-alone module and check the functionality.

4.7 Installation of an SNMP Module

4.7.1 Slot Assignment for Installation of an SNMP Module

SNMP modules can be used as follows:

- In slot 5 of a 6-slot backplane chassis with exception of SNMP chassis (see chapter 4.2.2, page 14).
- In slot 21 of a 21-slot chassis.

2	4	6
1	3	5

Fig. 75 Slot numbering of 6-slot backplane chassis with placement (gray) of an SNMP module

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

Fig. 76 Slot numbering of 21-slot chassis with placement (gray) of an SNMP module

4.7.2 SNMP Module Installation

The installation of an SNMP module is done according to the installation of an extender module in slide-in chassis:

- 6-Slot slide-in chassis (see chapter 5.4.2, page 47).
- 21-Slot slide-in chassis (see chapter 5.4.3, page 47).

4.8 Installation of a U-Switch Module

The installation of a U-Switch module is done according to the installation of an extender module:

- 2-/4-/6-Slot slide-in chassis (see chapter 5.4.1, page 45).
- 2-/6-Slot slide-in chassis (see chapter 5.4.2, page 47).
- 21-Slot slide-in chassis (see chapter 5.4.3, page 47).

4.9 Installation of a Fan Cartridge Module

The installation of a fan cartridge module is done according to the installation of an extender module:

- 2-/4-/6-Slot slide-in chassis (see chapter 5.4.1, page 45).
- 2-/6-Slot slide-in chassis (see chapter 5.4.2, page 47).
- 21-Slot slide-in chassis (see chapter 5.4.3, page 47).

4.10 Installation of a Chassis Fan

4.10.1 Scope of Delivery

Check the package contents of the chassis fan for completeness:

- Fan (40 x 40 mm) incl. power cables
- Mounting plate
- 4x Countersunk head screws (M3 x 25)

4.10.2 Chassis Fan Installation

1. Place the fan in terms of the label towards the outside of the chassis as shown in the following illustration. Ensure that both power cables of the fan are led towards the backplane.

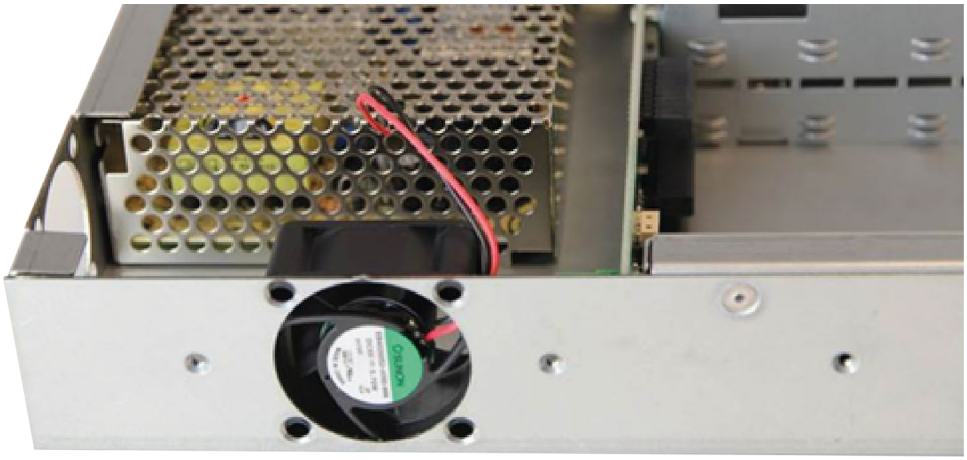


Fig. 77 Positioning of the fan

2. Place the mounting plate with the smooth surface towards the fan.

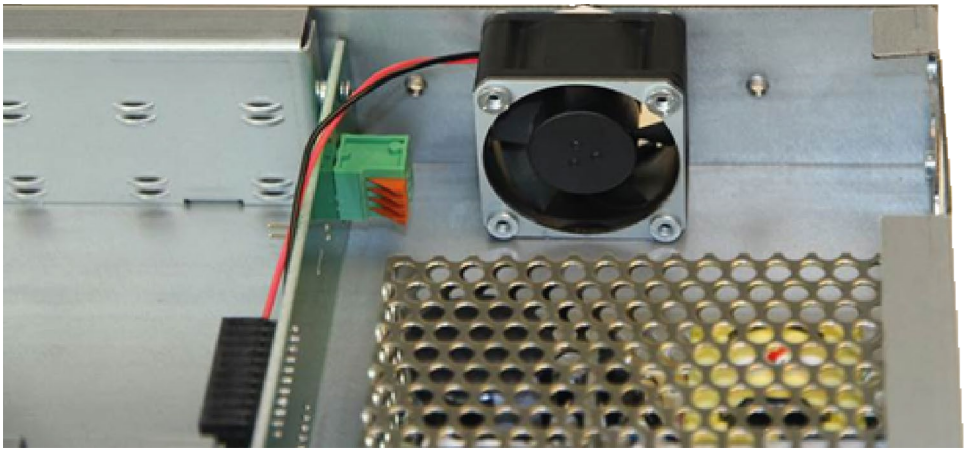


Fig. 78 Positioning of the mounting plate

3. Mount the 4 screws to the outside of the chassis.

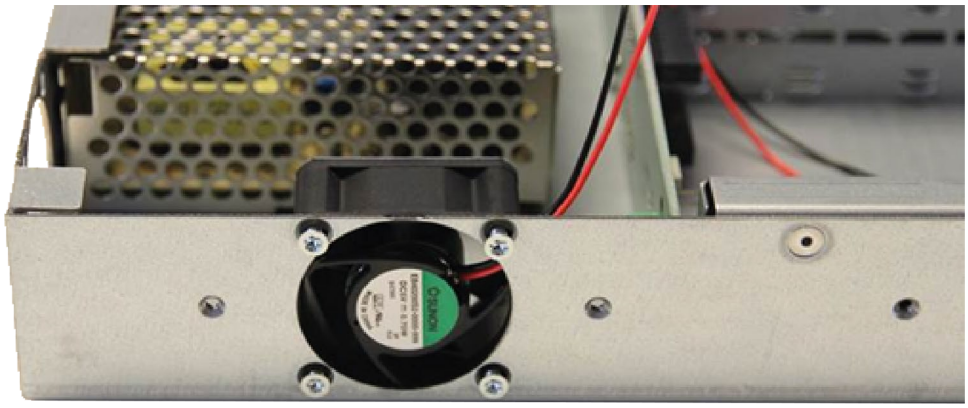


Fig. 79 Fastening of the fan

4. Insert the red cable into the top opening of the terminal strip until you will reach the snap position. Therefore, the buttons can be pressed manually to provide assistance.
5. Insert the black cable into the second top opening of the terminal strip until you will reach the snap position. Therefore, the buttons can be pressed manually to provide assistance.

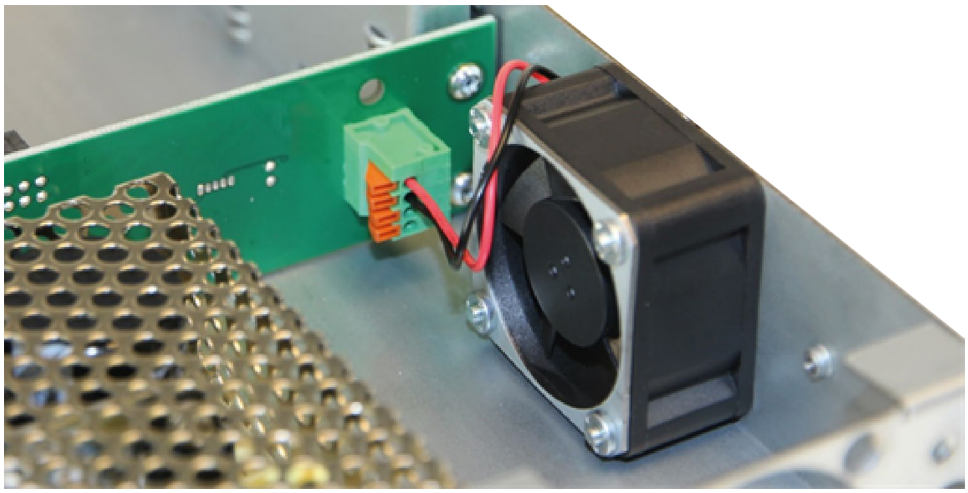


Fig. 80 Arrangement of cables

6. Mount the cover of the chassis back to the chassis.
7. Connect the chassis with at least one power cord to the power supply and verify the function of fan.
8. Mount the chassis back to the original installation environment (e.g., rack).
9. Reconnect all cables to the extender modules.

4.11 Installation of a Power Supply Unit in a 474-BODY21

Installing a redundant power supply unit

To install a power supply unit in the chassis 474-BODY21/4U, proceed as follows:

1. Loosen the screws of the blanking plate with a cross-headed screwdriver and remove the blanking plate.

Fig. 81 Removing the blanking plate from chassis 474-BODY21/4U

2. Store the removed blanking plate in a dust-free and dry place for possible reuse.

☑ Mounting is made easier if removing the ventilation grille beforehand.

3. Push the pull-out lever on the power supply unit down and push the power supply unit completely into the chassis. Ensure that the front panel is flush and that the sealing on the front panel does not protrude.
4. Push the pull-out lever upwards when inserting the power supply unit.

Fig. 82 Pull-out lever of the power supply unit of chassis 474-BODY21/4U

5. Use a cross-headed screwdriver to tighten the 4 fastening screws on the power supply unit.
6. Connect the corresponding IEC socket using to the power supply voltage.
7. Toggle the switch on the IEC socket to **I**.
8. Check the LED status of the power supply unit for proper function. LED status see chapter 4.6.14, page 39.

Replacing a power supply unit

To replace a power supply unit in the chassis 474-BODY21/4U, proceed as follows:

1. Loosen the screws of the power supply unit to be replaced with a cross-headed screwdriver.
2. Press down the locking (pos. 1) on the power supply unit and keep it pressed.
3. Push the pull-out lever (pos. 2) down and pull the power supply unit out of the chassis.

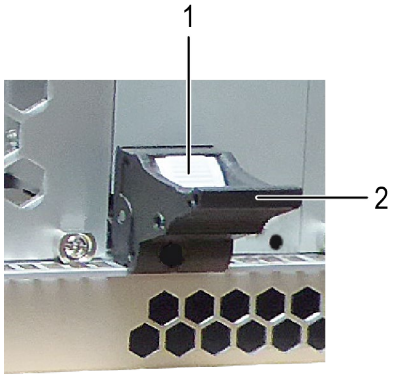


Fig. 83 Pull-out lever of the power supply unit of chassis 474-BODY21/4U

4. Install a new power supply unit, see page 66.

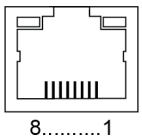
5 Technical Data

5.1 Interface RJ45 (Network)

The devices offer a 1000BASE-T interface to establish a network connection to a computer. The wire pairs are used in both directions. The cabling is suitable for a full duplex operation.

5.2 Connector Pinouts

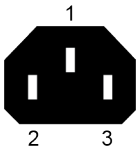
5.2.1 RJ45 (Network)

Connector	Pin	Signal	Pin	Signal
	1	D1+	5	Not connected
	2	D1-	6	D2-
	3	D2+	7	Not connected
	4	Not connected	8	Not connected

5.2.2 Power Socket - 2.5-mm Barrel

Connector	Pin	Signal
	Inside	+5 V (DC)
	Out-side	GND

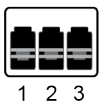
5.2.3 Power Socket - C14

Connector	Pin	Signal
	1	Live
	2	GDN
	3	Neutral

5.2.4 Power Socket - Kycon, 4-pole

Connector	Pin	Signal
	1	+5 V (DC)
	2	NC
	3	GND
	4	HP/GND

5.2.5 Power Socket - PCB Connector, 3-pole

Connector	Pin	Signal
	1	+
	2	-
	3	GND

5.3 Current Draw, Power Supply Voltage and Power Consumption

NOTICE

Overheating of power supply units and electronic components

In addition to the current draw of the extender/add-on modules used in the same chassis, there is also the current draw of the connected peripherals.

To avoid overheating of power supply units and electronic components:

- ➡ In the case of redundant power supply units, the maximum current supply must not exceed the value of one of the two power supply units due to heat dissipation.
- ➡ Do NOT exceed the recommended maximum current supply of the chassis.
- ➡ To optimize the chassis equipment considering the chassis limitations, please refer to the Draco System Designer at https://dsd.ihse.com.

The table shows the power supply voltage 1 and 2 of the chassis and the recommended maximum power supply of the chassis.

Product type	Chassis power supply voltage 1	Chassis power supply voltage 2	Max. recommended power supply
474-BODY2	5 V DC, 3 A	n/a	5 V DC, 2,4 A
474-BODY2R	5 V DC, 3 A	5 V DC, 3 A	5 V DC, 2,4 A
474-BODY2N	100 V to 240 V AC, 50/60 Hz, 0.7 A	5 V DC, 5 A	5 V DC, 4 A
474-BODY2BPF*	100 V to 240 V AC, 50/60 Hz, 0.7 A	5 V DC, 5 A	5 V DC, 4 A
474-BODY2BPF-S*	100 V to 240 V AC, 50/60 Hz, 0.7 A	5 V DC, 5 A	5 V DC, 4 A
474-BODY2BPF-SNMP*	100 V to 240 V AC, 50/60 Hz, 0.7 A	5 V DC, 5 A	5 V DC, 4 A
474-BODY2DC-12	9.2 V to 18 V/12 V DC, 1.9 A	5 V DC, 3 A	5 V DC, 2.4 A
474-BODY2DC-24	18 V to 36 V/24 V DC, 0.9 A	5 V DC, 3 A	5 V DC, 2.4 A
474-BODY2DC-48	36 V to 72 V/48 V DC, 0.45 A	5 V DC, 3 A	5 V DC, 2.4 A
474-BODY4	5 V DC, 5 A	n/a	5 V DC, 4 A
474-BODY4R	5 V DC, 5 A	5 V DC, 5 A	5 V DC, 4 A
474-BODY6R-R1	100 V to 240 V AC, 50/60 Hz, 1.5 A	5 V DC, 5 A	5 V DC, 6 A
474-BODY6DC-12	9 V to 18 V/12 V DC, 4.5 A	5 V DC, 5 A	5 V DC, 4 A
474-BODY6DC-24	18 V to 36 V/24 V DC, 2.5 A	5 V DC, 5 A	5 V DC, 4 A
474-BODY6DC-48	36 V to 72 V/48 V DC, 1.1 A	5 V DC, 5 A	5 V DC, 4 A
474-BODY6BP*	100 V to 240 V AC, 50/60 Hz, 1.3 A	100 V to 240 V AC, 50/60 Hz, 1.3 A	5 V DC, 8 A
474-BODY6BP-S*	100 V to 240 V AC, 50/60 Hz, 1.3 A	100 V to 240 V AC, 50/60 Hz, 1.3 A	5 V DC, 8 A
474-BODY6BP-SNMP*	100 V to 240 V AC, 50/60 Hz, 1.3 A	100 V to 240 V AC, 50/60 Hz, 1.3 A	5 V DC, 8 A
474-BODY6BPF*	100 V to 240 V AC, 50/60 Hz, 1.3 A	100 V to 240 V AC, 50/60 Hz, 1.3 A	5 V DC, 8 A
474-BODY6BPF-S*	100 V to 240 V AC, 50/60 Hz, 1.3 A	100 V to 240 V AC, 50/60 Hz, 1.3 A	5 V DC, 8 A
474-BODY21R/4U(-R1)	100 V to 240 V AC, 50/60 Hz, 4 A	n/a	5 V DC, 32 A
474-BODY21R/4UR(-R1)	100 V to 240 V AC, 50/60 Hz, 4 A	100 V to 240 V AC, 50/60 Hz, 4 A	5 V DC, 32 A

* The 474-BODY6BP/-S/-SNMP and 474-BODY6BPF/-S chassis require a fan should the extender modules exceed a current draw of 6,000 mA. We recommend a chassis fan 474-6FAN.

** The 474-BODY2BPF/-S/-SNMP chassis require a fan should the extender modules exceed a current draw of 2,500 mA. We recommend a chassis fan 474-6FAN.

5.4 Dimensions

Product	Dimension	Dimension of the shipping box incl. accessories
474-BODY2/ 474-BODY2R	145 x 147 x 44 mm (5.7" x 5.8" x 1.7")	CON Units: 270 x 219 x 67 mm (10.5" x 8.5" x 2.5") CPU Units: 253 x 194 x 113 mm (10.0" x 7.6" x 4.4")
474-BODY2N 474-BODY2DC-12 474-BODY2DC-24 474-BODY2DC-48	221 x 147 x 44 mm (8.7" x 5.8" x 1.7")	
474-BODY2BPF 474-BODY2BPF-S 474-BODY2BPF-SNMP	221 x 182 x 44 mm (8.7" x 7.2" x 1.7")	
474-BODY4/ 474-BODY4R	296 x 147 x 44 mm (11.6" x 5.8" x 1.7")	445 x 240 x 110 mm (17.5" x 9.4" x 4.3")
474-BODY6R-R1 474-BODY6DC-12 474-BODY6DC-24 474-BODY6DC-48	442 x 147 x 44 mm (17.4" x 5.8" x 1.7")	
474-BODY6BP 474-BODY6BP-S 474-BODY6BP-SNMP 474-BODY6BPF 474-BODY6BPF-S	442 x 270 x 44 mm (17.4" x 10.6" x 1.7")	545 x 368 x 143 mm (21.5" x 14.8" x 5.6")
474-BODY21/4U 474-BODY21/4UR 474-BODY21/4U-R1 474-BODY21/4UR-R1	482 x 462 x 176 mm (19.0" x 18.2" x 6.9")	630 x 560 x 340 mm (24.8" x 22.0" x 13.4")

5.5 Weight

The following table contains the weight when the respective chassis is fully equipped with the maximum number of modules, and with redundant power supply units depending on the chassis, for both the CPU Unit and the CON Unit.

Chassis	Max. weight of fully equipped chassis	Max. weight of shipping box with fully equipped chassis incl. accessories*
474-BODY2	0.8 kg (1.7 lb)	2.5 kg (5.5 lb)
474-BODY2R	1.0 kg (2.2 lb)	2.7 kg (6.0 lb)
474-BODY2N	1.4 kg (3.1 lb)	2.8 kg (6.2 lb)
474-BODY2DC-12 474-BODY2DC-24 474-BODY2DC-48	1.4 kg (3.1 lb)	2.8 kg (6.2 lb)
474-BODY2BPF 474-BODY2BPF-S	1.7 kg (3.7 lb)	3.2 kg (7.1 lb)
474-BODY2BPF-SNMP	1.8 kg (3.9 lb)	3.3 kg (7.3 lb)
474-BODY4	1.5 kg (3.3 lb)	3.4 kg (7.5 lb)
474-BODY4R*	1.7 kg (3.7 lb)	3.6 kg (7.9 lb)
474-BODY6R-R1	2.4 kg (5.3 lb)	4.5 kg (9.9 lb)
474-BODY6DC-12 474-BODY6DC-24 474-BODY6DC-48	2.4 kg (5.3 lb)	4.5 kg (9.9 lb)
474-BODY6BP 474-BODY6BP-S 474-BODY6BP-SNMP 474-BODY6BPF 474-BODY6BPF-S	4.3 kg (9.5 lb)	7.9 kg (17.4 lb)
474-BODY21/4U 474-BODY21/4U-R1	10.3 kg (22.7 lb)	20.5 kg (45.2 lb)
474-BODY21/4UR 474-BODY21/4UR-R1	10.3 kg (22.7 lb)	21.8 kg (48.1 lb)

* Plus, up to 0.2 kg (0.4 lb) for each cable included in the shipping boxes for CON Units depending on the ordered extender and add-on modules.

5.6 Environmental Conditions and Emissions

Parameter	Value
Operating temperature	5 to 45 °C (41 to 113 °F)
Storage temperature	-25 to 60 °C (-13 to 140 °F)
Relative humidity	Max. 80% non-condensing
Operating altitude	Max. 2.500 m (7,500 ft)
Sound pressure level (SPL)	Max. 43 dBA per fan (474-6FAN)
Heat dissipation	Corresponds to power consumption in Watt (W)

5.7 MTBF

Specific MTBF values (mean time between failure) can be requested from the manufacturer’s technical support if required.

6 Technical Support

Prior to contacting support please ensure you have read this manual, and then installed and set-up your KVM extender as recommended.

6.1 Support Checklist

To efficiently handle your request, it is necessary that you complete a support request checklist (Download). Please ensure that you have the following information available before you call:

- Company, name, phone number and email
- Type and serial number of the device (see chapter 1.4, page 7)
- Date and number of sales receipt and name of dealer if necessary
- Issue date of the existing manual
- Nature, circumstances, and duration of the problem
- Components included in the system (such as graphic source/CPU, OS, graphic card, monitor, USB HID/USB 2.0 devices, interconnect cable) including manufacturer and model number
- Results from any testing you have done

6.2 Shipping Checklist

1. To return your device, you need an RMA number (Return-Material-Authorization). Therefore, please contact your dealer.
2. Package your devices carefully. Add all pieces which you received originally. Preferably use the original box.
3. Note your RMA number visibly on your shipment.

Devices that are sent in without an RMA number will not be accepted. The shipment will be sent back without being opened, postage unpaid.

7 Glossary

The following terms are commonly used in this manual or in video and KVM technology.

Term	Description
Cat X	Any Cat 5e (Cat 6, Cat 7) cable.
CON Unit	Decoder extender module to connect to the console (monitor(s), keyboard, and mouse; optionally also with USB 2.0 devices).
CPU Unit	Encoder extender module to connect to a source.
DisplayPort	A VESA standardized interface for an all-digital transmission of audio and video data. It is differentiated between the DisplayPort standards 1.1 and 1.2. The signals have LVDS level.
Fiber	Single-mode or multi-mode fiber cables.
KVM	Keyboard, video, and mouse.
MTBF	Mean Time Between Failure (MTBF) is measured in power-on hours and describes the system reliability.
Multi-Mode	50 µm multi-mode fiber cable.
Single-Mode	9 µm single-mode fiber cable.
USB HID	USB HID devices (Human Interface Device) allow users to interact with computers. There is no need for a special driver during installation. When connecting, the message “New USB HID device found” is reported. Typical USB HID devices include keyboards, mice, graphics tablets and touch screens. Storage, video, and audio devices are not USB HID devices.

8 Index

9 Table of Figures

10 Change Log

This table offers an overview about the most important changes available, such as new functions, changed configuration or operation.

Edition	Date	Chapter	New functions/changes
REV07.00	2025-07-07	3.6.12	Corrected: Chapter title 6-Slot-Chassis 474-BODY6BP-SNMP
REV06.00	2025-06-17	3.5.11, 3.5.12, 3.5.14	Added: Fuse in the Excessive power draw notice Added: Caption in 474-BODY6BP/474-BODY6BP-SNMP Fig. 14 / Fig. 16 Corrected: 474-BODY21/4U-R1 and 474-BODY21/4UR-R1 Fig. 19 / Fig. 20 - Error corrected
REV05.00	2023-01-13	4.6.12, 4.6.6	Changed: LED status of the SNMP part
REV04.00	2023-01-11	6.4	Correction of dimensions
REV03.00	2022-08-18	1.4 3.2.1, 3.2.2, 3.3.1, 3.4 3.5.9, 3.5.14 3.6.9, 3.6.14, 3.6.15 4.4.4, 5.3, 5.4, 5.6	Added: chassis 474-BODY21/4U-R1 and 474-BODY21/4UR-R1, Moved: Certificates/Directives to chapter 1
REV02.00	2022-07-08	1.3, 3.4, 4.3.1, 5 ff	Added: Label description, additional accessories, additional information for scope of delivery Added: Replacement/additional installation of modules, fans, and power supply unit
REV01.00	2022-03-24	-	Initial user manual for 474-BODY chassis