#01 PRODUCTS
CASES

// 19" Rackmount/desktop cases for plug-in units // Desktop cases for plug in units
// 19" Desktop cases // Small equipment cases

SmarTEC

leading.technology

POLY RACK TECH-GROUP

FreeTEC

19" rackmount/desktop case – which won the "if product design award"

#01 CONTENTS
CASES

Cases

19" Rackmount/desktop cases for plug-in units

#01 INHALT
GEHÄUSE

Small equipment cases

PanelPC
Panel case

#01 CASES
GENERAL INFORMATION

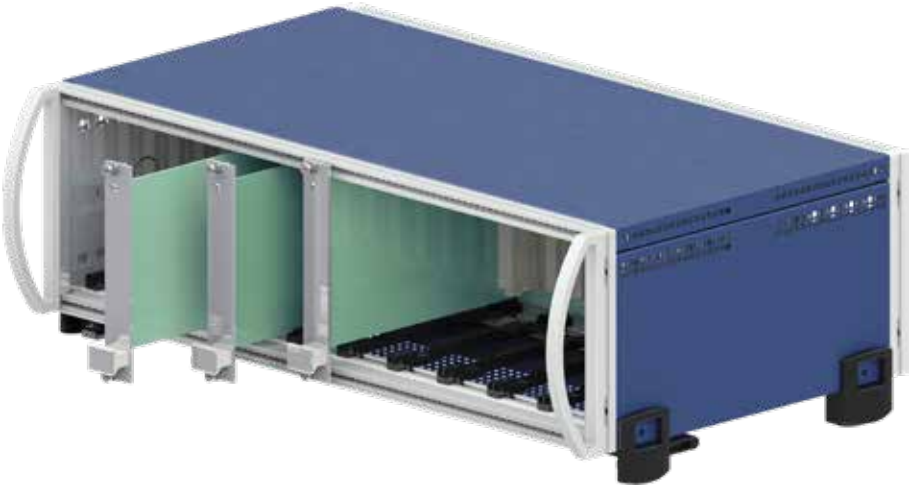
// Overview

POLYRACK cases basically differ according to their application. Here particular attention is paid to the related technical specifications but also to the design of the case.

	Configuration with 19" subracks	Configuration with plug-in modules	Configuration with custom components	Mounting in 19" racks
19" Rackmount/desktop cases for plug in units	–	●	●	●
Desktop cases for plug in units	–	●	●	–
19" Desktop cases	●	–	●	–
Small equipment cases	–	●	●	o

o Depending on the series

GENERAL INFORMATION



// Overview

19" Rackmount / desktop cases for plug-in units
For mounting plug-in units or customized configurations.
Cases from the FreeTEC, Magic and Space Series can be used as desktop cases or 19“ rackmount cases.

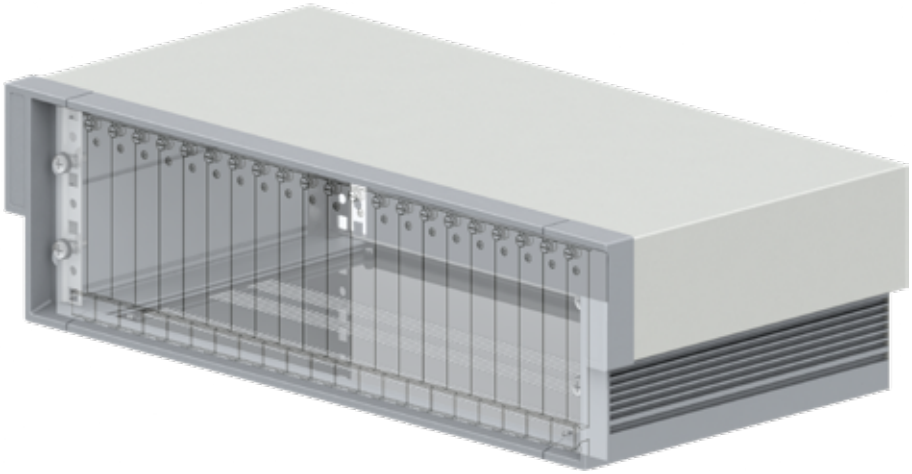
The illustration shows a FreeTEC case with plug-in units, assembled card cage and backplane.

Small equipment Cases
For mounting plug-in modules and non-standard board formats or customized assemblies.
Series for special requirements, e.g. rail mounting or increased IP protection, are also available.

The illustration shows a SmarTEC case with processed front panel.

Desktop cases for plug-in units

Products in this segment are considered out of stock and are only available on request.
Alternatively, the products Magic or FreeTEC can be selected.



19" desktop cases

The product segment is currently being revised.

Please contact us if you are interested.

// Questions?

We are happy to help you. Please contact us.

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sales@polyrack.com

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Cases
Serie 84 and Serie 86

GENERAL INFORMATION

// Cases with limited availability

Desktop case for accommodating plug-in modules, 19" subracks or individual electronics

Application, versions and size-limited enclosure types

Individual
Serie 73
Frame profile widths 60, 80, 130mm by the meter, as well as corresponding corner connectors

Alternative standard product: Quarto

Plug-In Modules
Serie 72
Side panel profile by the meter

Serie 83
Side panel profiles in 3 U and 4 U by the meter

Serie 84
Exclusively in 3 U height

Alternative standard product: FreeTEC and Magic

19" subrack
Basic
Exclusively in 3 U and 6 U heights

Serie 86
Complete discontinuation of the series - please contact us for alternative products

Alternative standard product: FrameTEC

Availability
Enclosures with limited availability are not subject to controlled stocking. Completely configured cases can only be processed depending on the availability of all individual parts on request from 50 pieces.

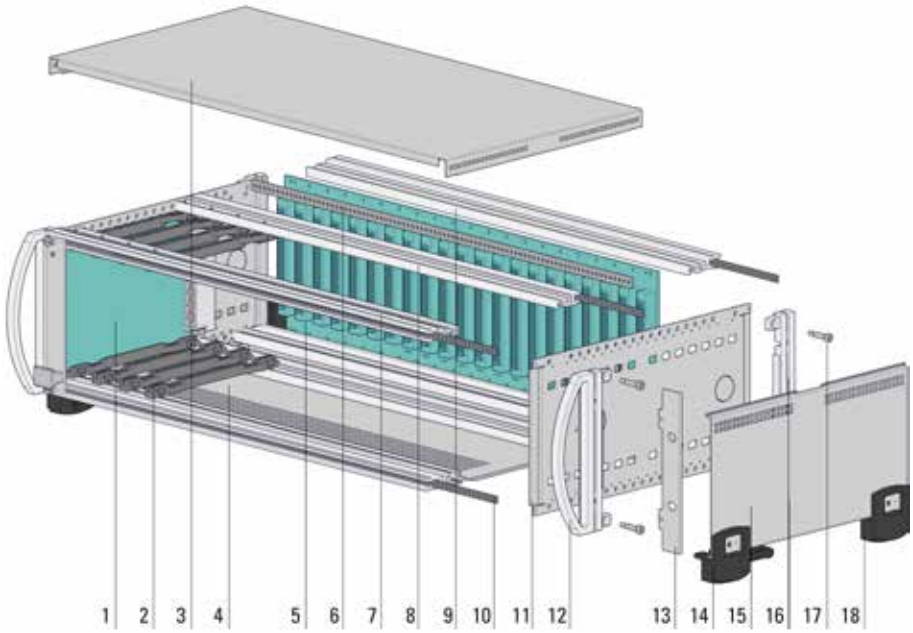
Please contact POLYRACK TECH-GROUP for details and current offers

Space
19" rackmount/desktop case

#01 CONTENT
CASES

19" Rackmount/desktop cases for plug-in units

GENERAL INFORMATION



// Application

19" subrack/desktop cases from POLYRACK for mounting plug-in units, typically in single or double Eurocard format.

// Configuration example

The diagram shows the configuration of a 19" rackmount/desktop case using the FreeTEC Series (Basic Unit type B) as an example.

1 Plug-in unit
2 Card guide*
3 Cover plate, top
4 Cover plate, bottom
5 Backplane*
6 Isolating strip*
7 Front rail, front
8 Rear rail B*
9 Front rail, rear
10 Threaded inserts*
11 Side plate
12 Corner bracket with special-design handle
13 19" adapter
14 Special-design tilt foot, hinged
15 Side cover
16 Corner bracket
17 Assembly hardware
18 Special-design tilt foot, rear

Parts marked with * are not included in the scope of delivery of the basic unit.

// Notes on standards, units of measurement and mounting/overall dimensions

Inner and outer dimensions
– IEC 60297-3-101
– IEC 60297-3-102
– IEC 60297-3-103

Unit of height U
Measurement unit for height in 19" rack systems
1 U = 44.45 mm

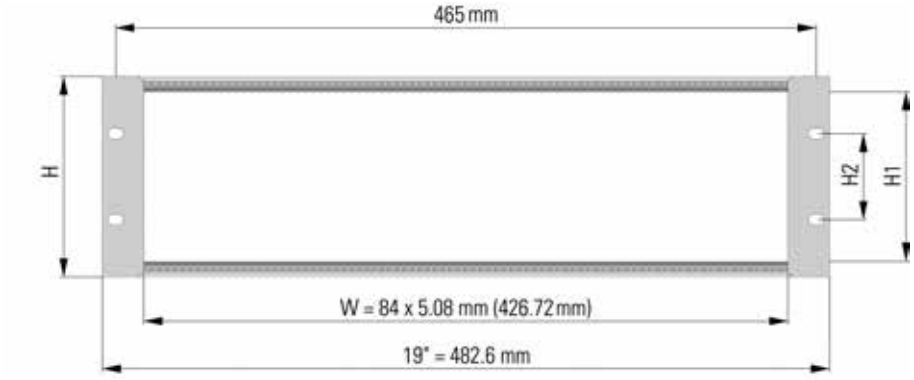
Increment unit HP
Measurement unit for width in 19" rack systems
1 HP = 5.08 mm

Dimensions specified in ordering tables
The dimensions, in particular those given in U and HP, are specified in relation to the application:

Height H = (n (U) x 44.45 mm) - 0.8 mm

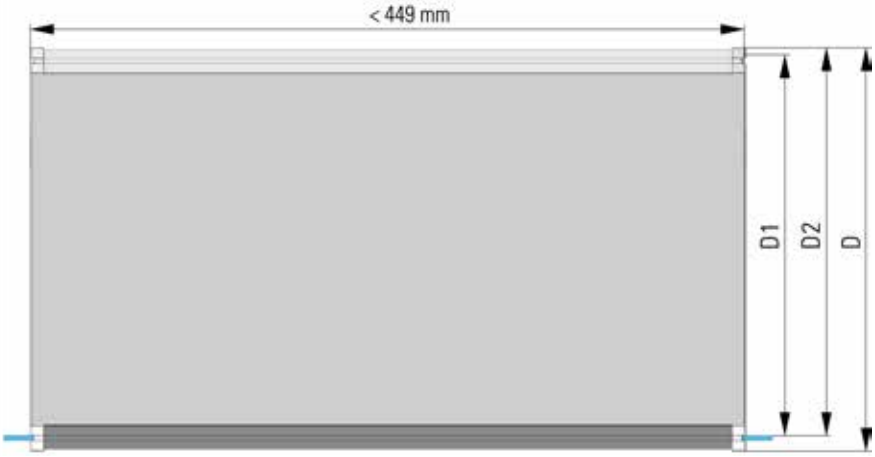
Usable width W = (n (HP) x 5.08 mm)
Actual rail dimension = usable width W + 5.08 mm

The depth D (in mm) indicates the total depth of the case without handles, feet, etc.

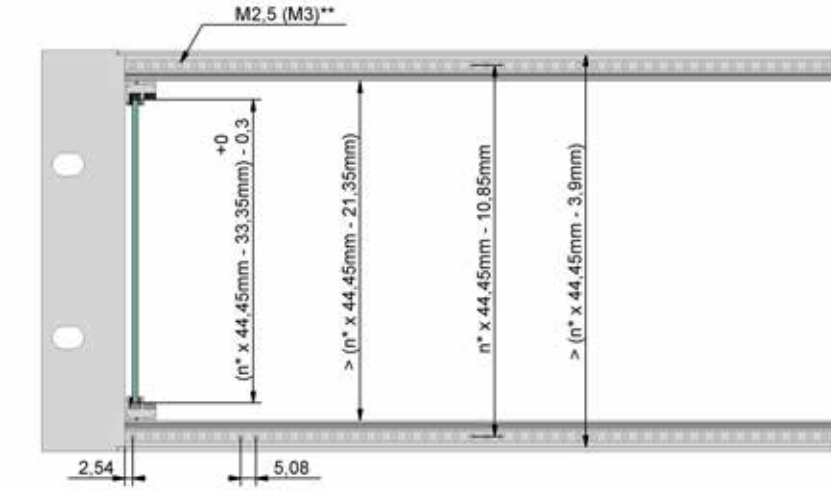


Mounting dimensions (mm)

	H	H1	H2
1 U	= 43.6	≤ 23.1	= 31.7
2 U	= 88.1	≤ 67.5	= 76.2
3 U	= 132.5	≤ 112.0	= 57.1
4 U	= 177.0	≤ 156.45	= 101.6
6 U	= 265.9	≤ 245.35	= 190.5

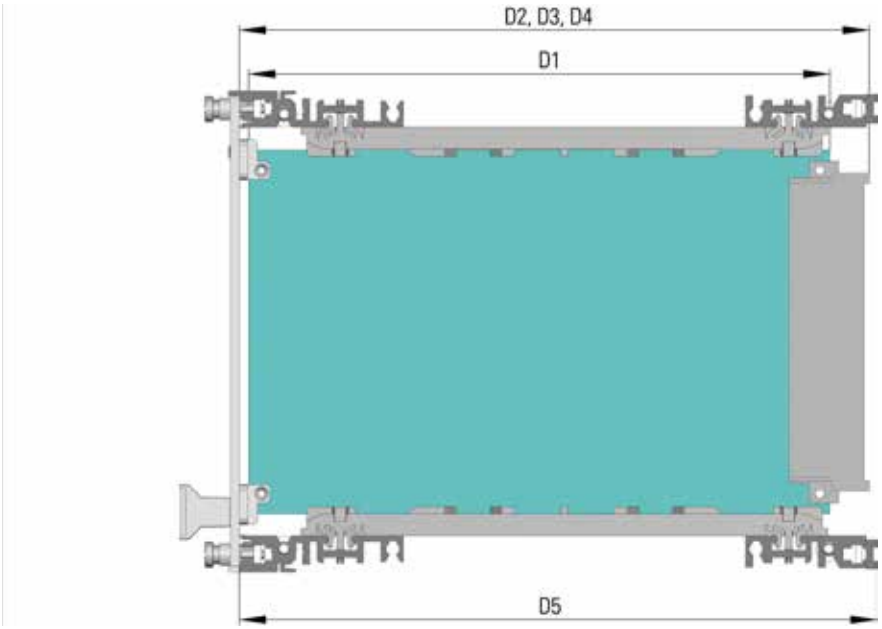


D = overall depth
D1 = usable internal dimension
D2 = mounting depth in 19" rack



* (U)
** Mounting holes for front panels

GENERAL INFORMATION

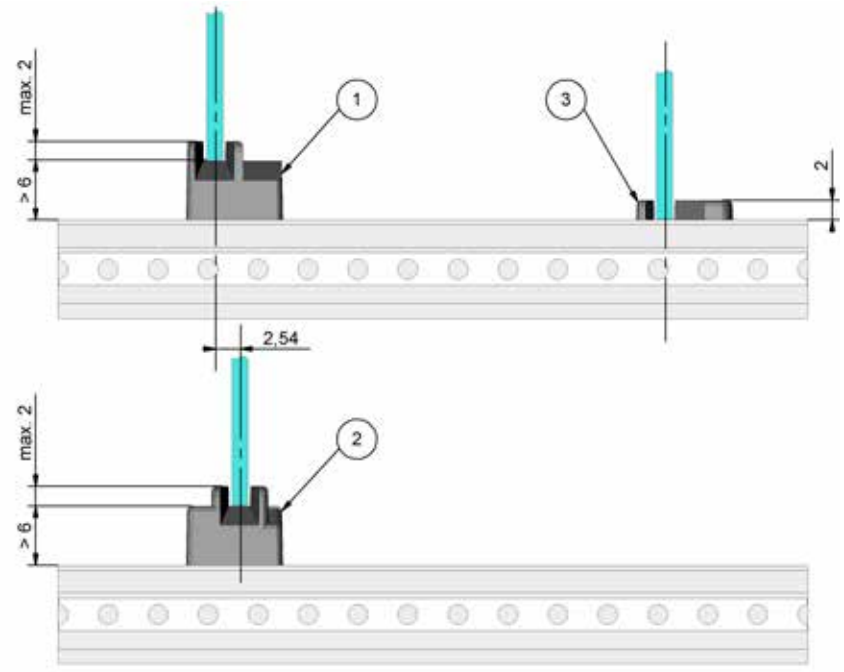


Dimensions for plug-in modules (mm)

D1*	D2 ± 0.4**	D3 ± 0.4***	D4 ± 0.4****
80.00	89.93	91.93	91.74
100.00	109.93	111.93	111.74
160.00	169.93	171.93	171.74
220.00	229.93	231.93	231.74
280.00	289.93	291.93	291.74

* PCB depth
** Insertion depth for IEC 60603-2 connectors, styles B, C, D and IEC 61076-4-113
*** Insertion depth for IEC 60603-2 connectors, styles F, G, H
**** Insertion depth for IEC 61076-4-101 connectors

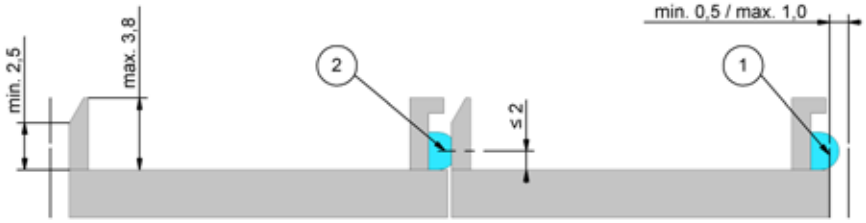
D5 = D1 + 15.5 mm



Card guides - front view

1 Card guide, standard
2 Card guide 2.54 mm offset
3 Card guide 4.4" (111.7 mm)

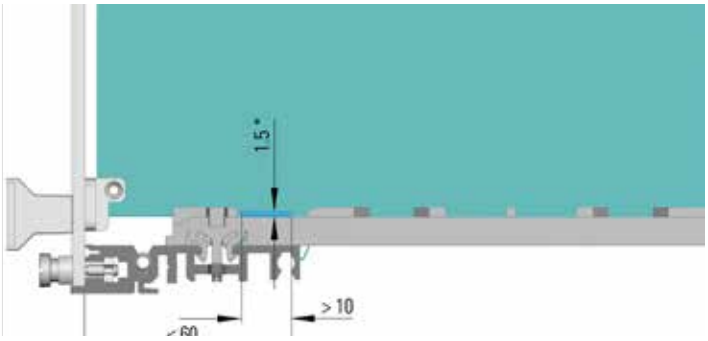
Slot width – depending on type – choice of 2 or 2.4 mm



EMC fabric shielding concept - front panel
In terms of a standardized contact point (contact level), this is defined as part of IEEE.1101.10.

The diagram shows excerpts from the IEEE 1101.10 standard based on EMC fabric.

1 Non-compressed shielding
2 Compressed shielding



ESD contact area
The electrostatic discharge is via a contact clip which is mounted in the front of the card guide. To ensure faultless performance, the ESD clip must make contact with the grounded sections of the card cage and the conductive section of the board.

*ESD contact area

// Manufacturing tolerances

All parts are subject to POLYRACK's factory specifications, whereby:

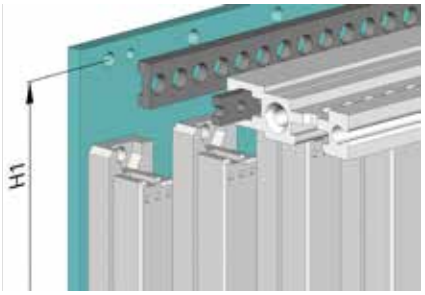
Extrusion specifications comply with
DIN EN 12020-1

Punched parts comply with
DIN ISO 6930-1/6930-2 and DIN 6932

GENERAL INFORMATION

// Basic units

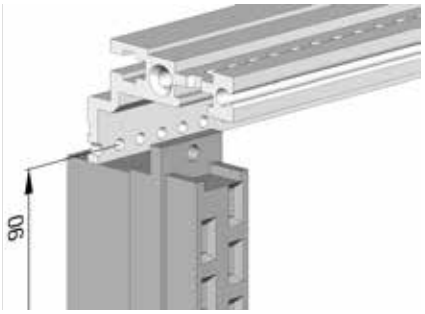
There is a choice between 3 basic units, depending on the application.



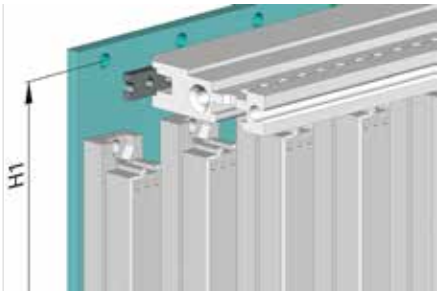
Basic unit B
For indirect mounting of backplanes with isolating strips or for mounting Z-rails.

The dimensions for backplane mounting are calculated as follows:
H1 = n x U - 10.85 mm

Calculation example for 3 U:
H1 = 3 x 44.45 mm - 10.85 mm = 122.5 mm



Basic unit C
With integrated Z-rail for connectors according to IEC 60603-2.



Basic unit E
For direct mounting of backplanes without isolating strips or for mounting perforated rails, extrusion width + 3 mm compared to basic unit B.

The dimensions for backplane mounting are calculated as follows:
H1 = n x U - 10.85 mm

Calculation example for 3 U:
H1 = 3 x 44.45 mm - 10.85 mm = 122.5 mm

// Overview of series

Series	Surface Alodined	Powder-coated	EMC shielding concept	Front rail with pitch perforation (IEEE 1101.1/.10)	Features
FreeTEC	–	●	●	●	19" adapter can be retrofitted "Special-design front" version for front panel without screws Optimized assembly time
Magic	–	●	●	–	Special-design side extrusion for high stability Top/bottom covers can be removed separately
Space	●	–	●	–	Can be used for all purposes on basis of a side extrusion For individual configurations (chassis plate)

// Custom designs

Custom designs are possible in various widths and depths and with individual processing to your specifications.

// Individual assembly

Components are available for your individual assembly.

// Assembly service

Our assembly service is available to you on request.

// Supplementary products

#01 FRONT PANELS AND PLUG-IN MODULES
⇨ Front panels, PCB holders, plug-in modules and cassettes

#01 SYSTEMS TECHNOLOGY
⇨ Backplanes

// Questions?

We are happy to help you. Please contact us.

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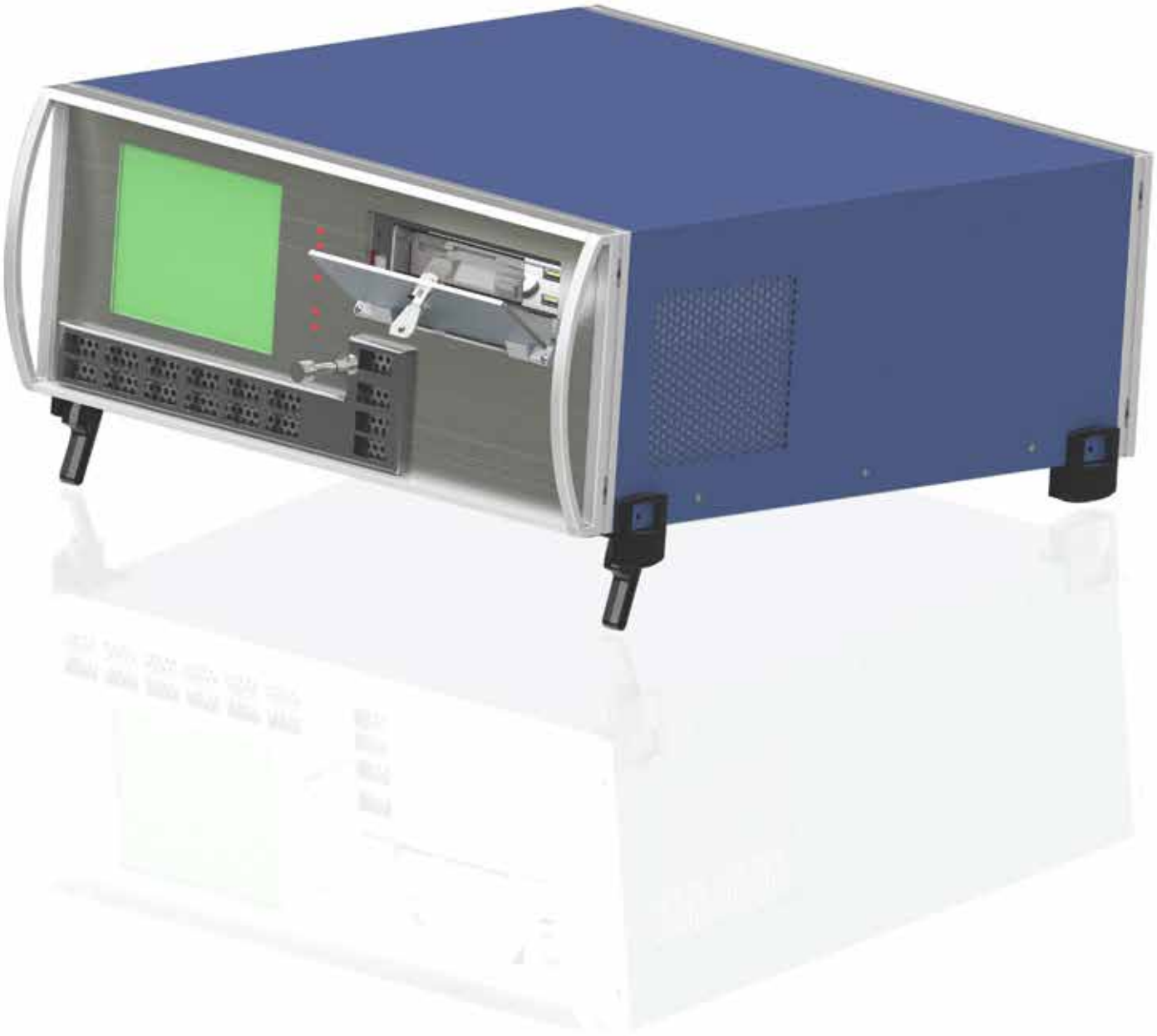
FreeTEC
19" rackmount/desktop case



FreeTEC

Product information

The cases of the series awarded the „iF product design award“ can be used as a desktop or a 19" rackmount case. Typical is the configuration with standardized plug-in units, but also with custom electronics or assemblies.
In the case version with "special-design front" the front panel is mounted without screws and is therefore suitable e.g. for membrane keyboards.
The cases are suitable for use under EMC criteria and can be upgraded as required with additional shielding material. The frame construction is self-supporting, the covers (top/bottom covers, side covers) are quick to assemble.
Perforation in the bottom cover, side covers and rear panel provides for heat dissipation of the assemblies.

Standards

– Mounting dimensions in accordance with IEC 60297-2
– IP20 rating in accordance with IEC 60529

Notes

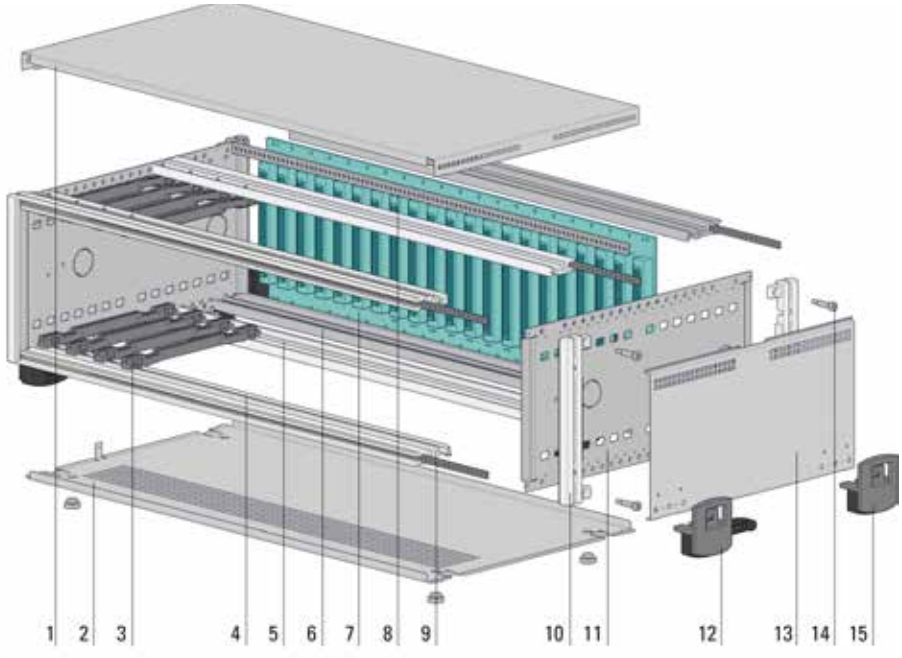
– “IEEE” version: Front rail(s) with pitch perforation according to IEEE 1101.10
– Rails are positioned in 10 mm increments
– Grounding tabs integrated into the top/bottom covers and side covers.

Overview

Basic units	H in U					W in HP		D in mm		Page
	1	2	3	4	6	42	84	253	353	
- Standard	●					●	●	●	–	CAS 01.13
		●	●			●	●	●	●	CAS 01.13
				●	●	–	●	●	●	CAS 01.13
- IEEE	–	–	●	–		●	●	●	●	CAS 01.13
	–	–		–	●	–	●	●	●	CAS 01.13
- Special-design front	●					●	●	●	–	CAS 01.14
		●	●			●	●	●	●	CAS 01.14
				●	●	–	●	●	●	CAS 01.14

FreeTEC

// Product information



Configuration example

The diagram shows the configuration of a Free-TEC Series desktop case (Basic Unit type B).

1 Cover plate, top
2 Card guide*
3 Cover plate, bottom
4 Front rail, front
5 Rear rail B*
6 Front rail, rear
7 Backplane*
8 Isolating strip*
9 Threaded inserts
10 Corner bracket
11 Side plate
12 Special-design tilt foot, hinged
13 Side cover
14 Assembly hardware
15 Special-design tilt foot, rear

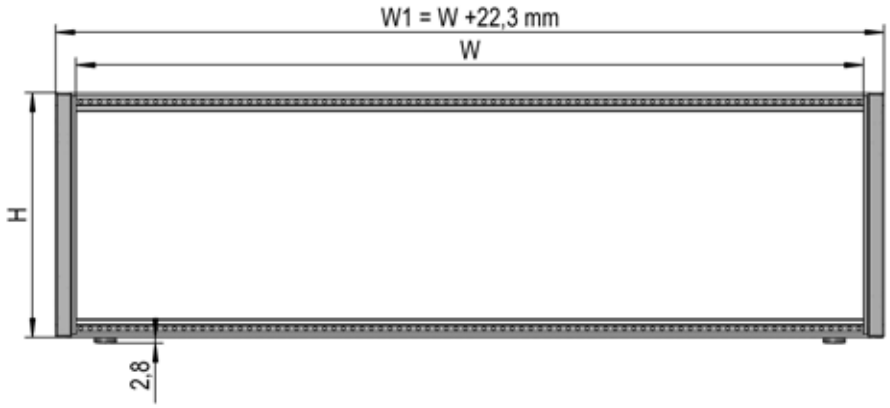
Parts marked with * are not included in the scope of delivery of the basic unit, i. e. must be ordered separately.

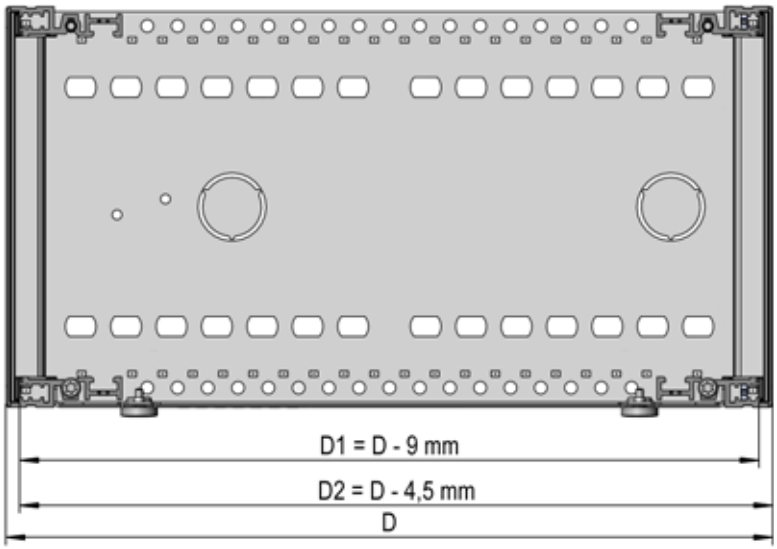
Surface finishing

– Bezels powder-coated „sand metallic“
– Covers powder-coated „dark blue“

Dimension diagrams

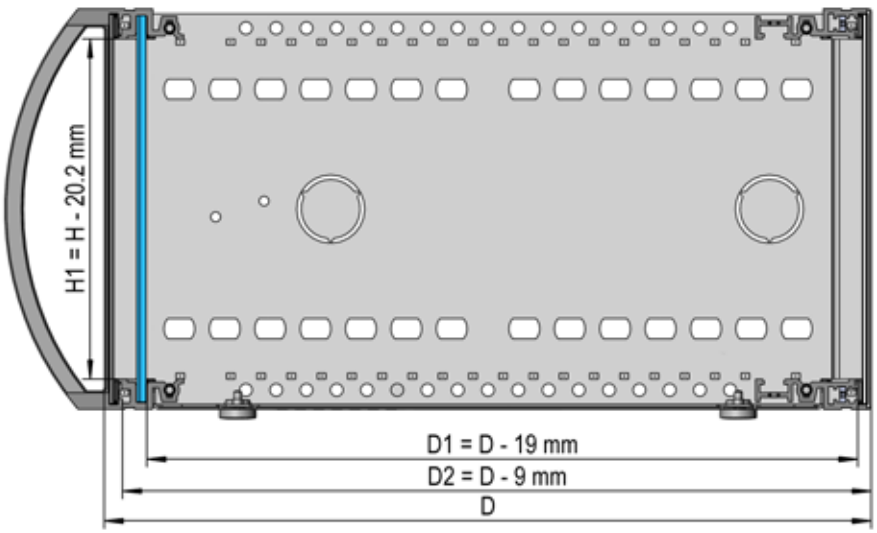
Front view





Side view, standard

D = overall depth
D1 = usable internal dimension
D2 = mounting depth in 19" rack



Side view, special-design front

D = overall depth
D1 = usable internal dimension
D2 = mounting depth in 19" rack

(front panel shown in blue)

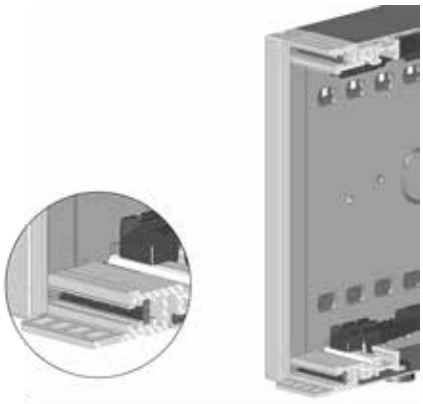
// Basic units

Basic units

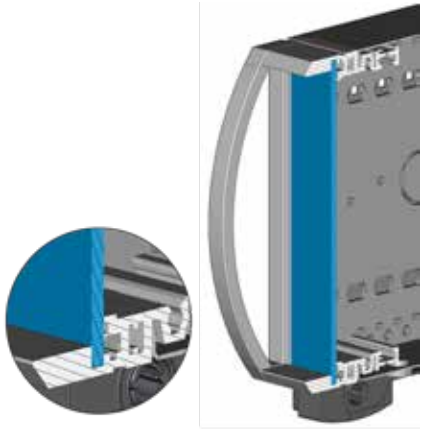
The FreeTEC Series cases are available in 3 basic versions. These are by default designed as desktop cases. The 19" adapters required for assembly in 19" racks must be ordered separately. Further configurations can be made by combining different components as required

Features of the basic units

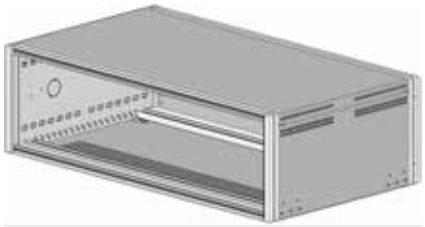
Standard



IEEE



Special-design front



FreeTEC case, standard

Scope of delivery

Cover plate, bottom	1 pc
Cover plate, top	1 pc
Side plate	2 pcs
Side cover	2 pcs
Corner bracket	4 pcs
Front rail	4 pcs
Threaded insert	4 pcs
Rubber foot, self-adhesive 20 x 20 x 8 mm	4 pcs
Plug-in foot ø12 x 3 mm	4 pcs
Assembly kit	1 pc

Delivery form

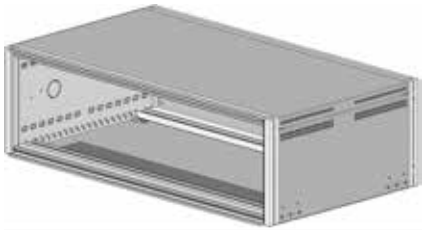
Individual components in units for self-assembly

Notes

– Conversion kits (choice of B or E) and threaded inserts must be ordered separately
– The 19" adapters required for assembly in 19" racks must be ordered separately

Ordering table

H	W	H in mm	W1 in mm	D = 253 mm	D = 353 mm
1 U	42 HP	43.6	235	**24 11 00 01**	–
1 U	84 HP	43.6	449	**24 11 00 03**	–
2 U	42 HP	88.1	235	**24 11 00 04**	**24 11 00 19**
2 U	84 HP	88.1	449	**24 11 00 06**	**24 11 00 21**
3 U	42 HP	132.5	235	**24 11 00 07**	**24 11 00 22**
3 U	84 HP	132.5	449	**24 11 00 09**	**24 11 00 24**
4 U	42 HP	177	235	–	–
4 U	84 HP	177	449	**24 11 00 12**	**24 11 00 27**
6 U	42 HP	266	235	–	–
6 U	84 HP	266	449	**24 11 00 15**	**24 11 00 30**



FreeTEC case, IEEE

Scope of delivery

Cover plate, bottom	1 pc
Cover plate, top	1 pc
Side plate	2 pcs
Side cover	2 pcs
Corner bracket	4 pcs
Front rail	4 pcs
Threaded insert	4 pcs
Rubber foot, self-adhesive 20 x 20 x 8 mm	4 pcs
Plug-in foot ø12 x 3 mm	4 pcs
Assembly kit	1 pc

Delivery form

Individual components in units for self-assembly

Notes

– Conversion kits (choice of B or E) and threaded inserts must be ordered separately
– The 19" adapters required for assembly in 19" racks must be ordered separately

Ordering table

H	W	H in mm	W1 in mm	D = 253 mm	D = 353 mm
3 U	42 HP	132.5	235	**24 11 00 31**	**24 11 00 37**
3 U	84 HP	132.5	449	**24 11 00 33**	**24 11 00 39**
6 U	42 HP	266	235	–	–
6 U	84 HP	266	449	**24 11 00 36**	**24 11 00 42**

FreeTEC

// Basic units

FreeTEC case, special-design front

Scope of delivery

Cover plate, bottom	1 pc
Cover plate, top	1 pc
Side plate	2 pcs
Side cover	2 pcs
Corner bracket with handle	2 pcs
Corner bracket, rear	2 pcs
Front rail for handle	2 pcs
Front rail (rear)	2 pcs
Threaded insert	4 pcs
Special-design tilt foot	4 pcs
Assembly kit	1 pc

Delivery form

Individual components in units for self-assembly

Note

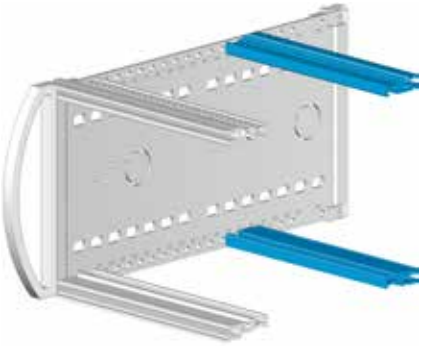
– Special-design front panel and threaded inserts (rear front rail) must be ordered separately

Ordering table

H	W	H in mm	W1 in mm	D = 253 mm	D = 353 mm
1 U	42 HP	43.6	235	24 10 00 01	–
1 U	84 HP	43.6	449	24 10 00 03	–
2 U	42 HP	88.1	235	24 10 00 04	24 10 00 19
2 U	84 HP	88.1	449	24 10 00 06	24 10 00 21
3 U	42 HP	132.5	235	24 10 00 07	24 10 00 22
3 U	84 HP	132.5	449	24 10 00 09	24 10 00 24
4 U	42 HP	177	235	–	–
4 U	84 HP	177	449	24 10 00 12	24 10 00 27
6 U	42 HP	266	235	–	–
6 U	84 HP	266	449	24 10 00 15	24 10 00 30

Conversion kits

Extruded channels are provided for self-forming M4 screws for mounting to the side plate. Front and rear rails include incremented holes for the insertion of card guides.



Conversion kit, basic unit B – FreeTEC

For indirect mounting of backplanes with isolating strips or for mounting Z-rails

Material
Aluminum extrusion, alodined

Scope of delivery

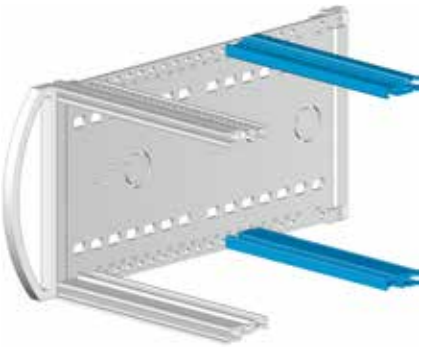
Rear rail B	2 pcs
Center rail B (6 U only)	1 pc
Assembly kit	1 pc

Delivery form
In units for self-assembly

Note
– Threaded inserts and card guides must be ordered separately

Ordering table

H	42 HP	84 HP
1 - 4 U	24 12 00 20	24 12 00 24
6 U	24 12 00 21	24 12 00 25



Conversion kit, basic unit E – FreeTEC

For direct mounting of backplanes without isolating strips or for mounting perforated rails, extrusion width + 3 mm compared to basic unit B

Material
Aluminum extrusion, alodined

Scope of delivery

Rear rail E	2 pcs
Center rail E (6 U only)	1 pc
Assembly kit	1 pc

Delivery form
In units for self-assembly

Note
– Threaded inserts and card guides must be ordered separately

Ordering table

H	42 HP	84 HP
1 - 4 U	24 12 00 26	24 12 00 30
6 U	24 12 00 27	24 12 00 31

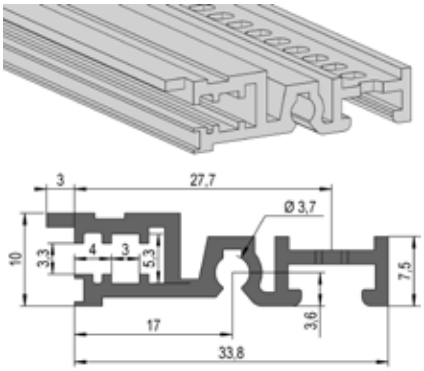
// Single components

Front rails

Extruded channels are provided for self-forming M4 screws for mounting to the side plate. Front rails include incremented holes for the insertion of card guides.

The „special-design front rail“ is an exception; this is designed for insertion of the front panel and does not include incremented holes.

Front rail, standard – FreeTEC



For mounting plug-in units or front panels

Material
Aluminum extrusion alodined, visible side powder-coated "sand metallic"

Scope of delivery
Front rail, standard 1 pc

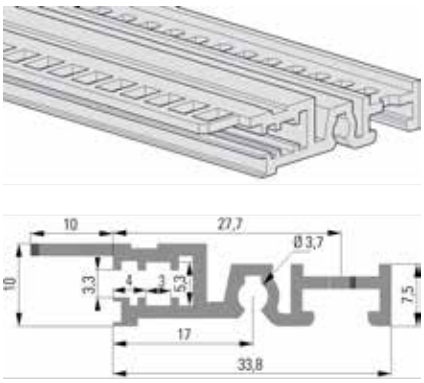
Delivery form
In units for self-assembly

Note
– Secured with one screw

Ordering table

W	Alodined / powder-coated
42 HP	**24 12 00 01**
84 HP	**24 12 00 02**

Front rail, IEEE – FreeTEC



For mounting plug-in units in compliance with IEEE 1101.1/IEEE 1101.10

Material
Aluminum extrusion alodined, visible side powder-coated "sand metallic"

Scope of delivery
Front rail, IEEE 1 pc

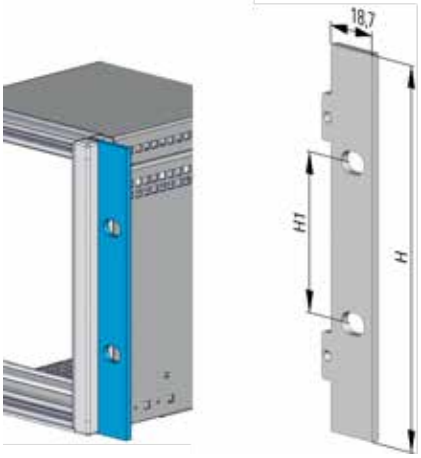
Delivery form
In units for self-assembly

Notes
– Secured with one screw
– Corners notched

Ordering table

W	Alodined / powder-coated
42 HP	**24 12 00 03**
84 HP	**24 12 00 04**

19"-Adapter – FreeTEC



Enables mounting in 19" racks

Material
Aluminum 3 mm, powder-coated "sand metallic"

Scope of delivery
19“ adapter 1 PU (10 pcs)

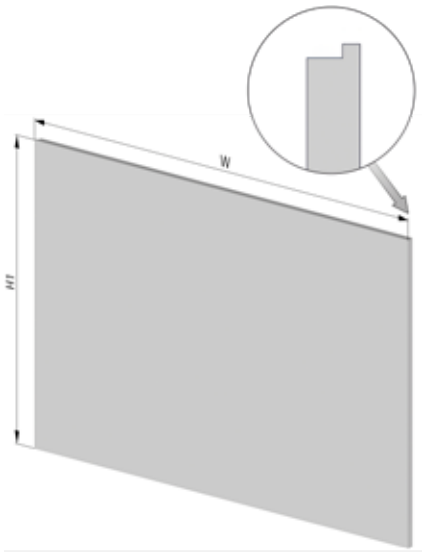
Delivery form
In units for self-assembly

Note
– Assembly hardware contained in FreeTEC assembly kit

Ordering table

H	H1 in mm	Powder-coated
1 U	31.75	**24 12 00 10**
2 U	76.20	**24 12 00 11**
3 U	57.15	**24 12 00 12**
4 U	101.60	**24 12 00 13**
6 U	190.50	**24 12 00 14**

Special-design front panel, rear panel



Special-design front panel – FreeTEC

For screwless mounting to front rail with special-design front

Material
Aluminum 3 mm, front anodized/rear alodined

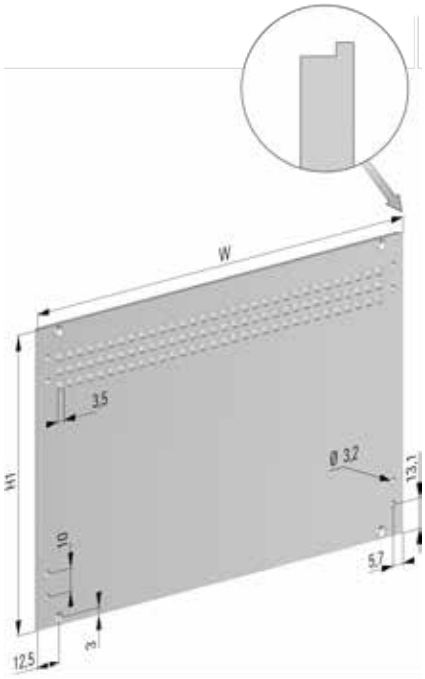
Scope of delivery
Special-design front panel 1 pc

Delivery form
Individual components in units for self-assembly

Notes
– Can only be used in conjunction with special-design front rail
– Prepared for fixation of EMC shielding D

Ordering table

H	H1 in mm	W = 42 HP	W = 84 HP
1 U	40.1	24 13 00 20	24 13 00 30
2 U	84.5	24 13 00 21	24 13 00 31
3 U	129.0	24 13 00 22	24 13 00 32
4 U	173.4	–	24 13 00 33
6 U	262.3	–	24 13 00 34



Rear panel – FreeTEC

With ventilation slits for better heat dissipation

Material
Aluminum 2.5 mm, front anodized/rear alodined

Scope of delivery
Rear panel 1 pc

Delivery form
Individual components in units for self-assembly

Notes
– Prepared for fixation of EMC shielding D
– Prepared for assembly of tilt feet

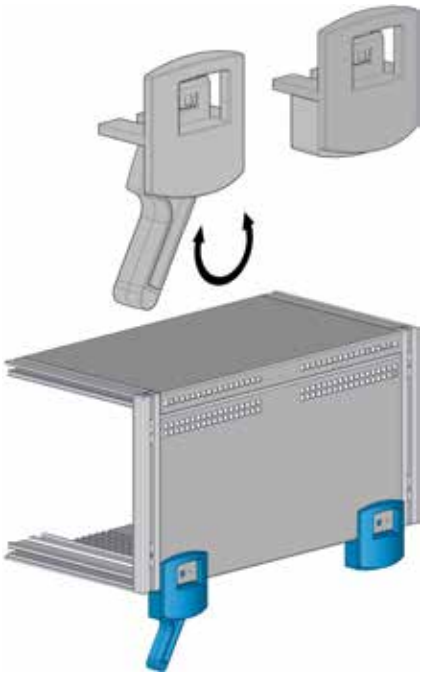
Ordering table

H	H1 in mm	W = 42 HP	W = 84 HP
1 U	39.6	–	–
2 U	84.1	–	–
3 U	128.5	24 13 00 03	24 13 00 13
4 U	173.0	–	24 13 00 14
6 U	261.9	–	24 13 00 15

// Single components

Tilt feet

The special-design tilt feet and the mounting feet for the rear panel were specially designed for the FreeTEC case. Adhesive rubber feet are also available. These are included in the FreeTEC assembly kit or can be ordered separately as accessories.



Special-design tilt foot – FreeTEC

When used as desktop case

Material
TPE, black

Scope of delivery

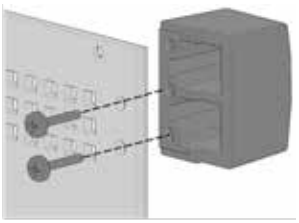
Foot, rear	2 pcs
Tilt foot, front	2 pcs
Assembly kit	1 pc

Delivery form
As kit for self-assembly

Notes
– Max. load 5 kg
– Tilt angle of case 10°

Ordering table

Order no.
24 12 00 41



Mounting foot for rear panel – FreeTEC

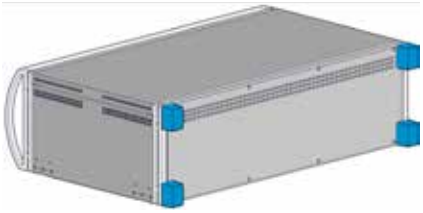
For mounting and for cable bend protection

Material
TPE, black

Scope of delivery

Mounting feet	4 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly



Ordering table

Order no.
24 12 00 40

Carrying/support handle

To convert the cases for mobile use.

Carrying /support handle – FreeTEC

Can be mounted at a later point in time, only the side covers of the case need to be replaced.

Material
Side legs PA 6, RAL 9005 (deep black)
Handle bar, aluminum, anodized
Side covers, sheet steel 0,8 mm,
hot-dip galvanized

Scope of delivery

Handle side legs	2 pcs
Handle bar	1 pc
Side cover left/right	2 pcs
Assembly kit	1 pc

Delivery form
As kit for self-assembly

Notes
– Max. load 30 kg
– Adjustable in steps of 30°

Ordering table

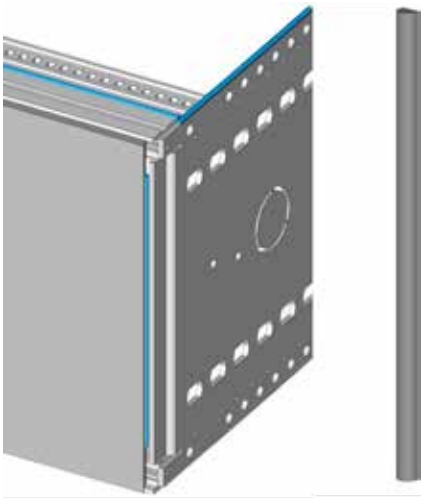
H	W	D = 253 mm	D = 353 mm
2 U	42 HP	**24 10 01 00**	**24 10 01 12**
2 U	84 HP	**24 10 01 02**	**24 10 01 14**
3 U	42 HP	**24 10 01 03**	**24 10 01 15**
3 U	84 HP	**24 10 01 05**	**24 10 01 17**
4 U	42 HP	–	–
4 U	84 HP	**24 10 01 08**	**24 10 01 20**
6 U	42 HP	–	–
6 U	84 HP	**24 10 01 11**	**24 10 01 23**

// Single components

EMC shielding material

To ensure that the electronic products function satisfactorily in an electromagnetic environment i. e. that the electromagnetic compatibility (EMC) of the products is guaranteed, shielding material is required, dependent on the electronics and the ambient conditions.

EMC shielding is used to establish contact with mechanical components and thus protect plug-in units and electronics against radio frequency interference.



EMC fabric shielding material – FreeTEC

The EMC shielding material D is used to establish contact between
– Side plate and top/bottom cover
– Front/rear rail and top/bottom cover
– Front/rear rail and front/rear panel
– Front/rear panel and side plate

Material
Conductive fabric, 1.5 x 2 mm, CuNi coated

Scope of delivery
by length (L = 1000 mm) 1 pc

Delivery form
In units for self-assembly

Notes
– Single sided adhesive (peel-off film)
– Thermal resistance: -40°C to +100°C
– Fire resistance rating: UL 94V0

Ordering table

Order no.
23 10 04 32

Assembly kit – FreeTEC

The assembly kit is required for customized configuration of FreeTEC cases.

Notes

– The assembly kit is supplied with every FreeTEC basic unit
– Individual components cannot be ordered separately

Scope of delivery

	Usage	Description	Version/material	Standard	Quantity
	Mounting bottom cover to side cover	Countersunk head screw with Torx T8	M2.5 x 6 mm Steel zinc-plated	similar to DIN 965	4 pcs
	Connecting extrusions to side plate and corner bracket	Cylinder head screw, eco-syn with Torx T20	M4 x 20 mm Steel zinc-plated	ISO 7049	8 pcs
	Mounting 19" adapter on corner bracket	Hex socket set screw with cup point	M4 x 12 mm Steel zinc-plated	DIN 916	4 pcs
	Insertion into bottom cover	Rubber plug-in foot	ø12 x 3 mm Hytrel, black UL 94 V0		4 pcs
	For affixing to bottom cover	Rubber foot, self-adhesive	20 x 20 x 8 mm PUR, black UL 94 HB		4 pcs

Ordering table

Order no.
24 12 00 86

Magic
19" rackmount/desktop case

Magic

Product information

The Magic case series features an esthetically pleasing design, functionality and stability. The frame construction with side extrusions is self-supporting. The top and bottom covers can be removed individually, thus ensuring excellent accessibility.
Designed to accommodate plug-in modules and non-standard components, the cases serve as desktop cases or, in conjunction with the 19" mounting brackets, as rackmount cases in 19" racks.
Heat is dissipated via ventilation slits in the region of the card cage and via the rear panel. The ribbed structure of the side extrusions supports heat dissipation and brings out the design.

The cases are suitable for use under EMC criteria and can be upgraded as required with additional gasketing material.

Standards

– Mounting dimensions in accordance with IEC 60297-2
– IP20 rating in accordance with IEC 60529

Notes

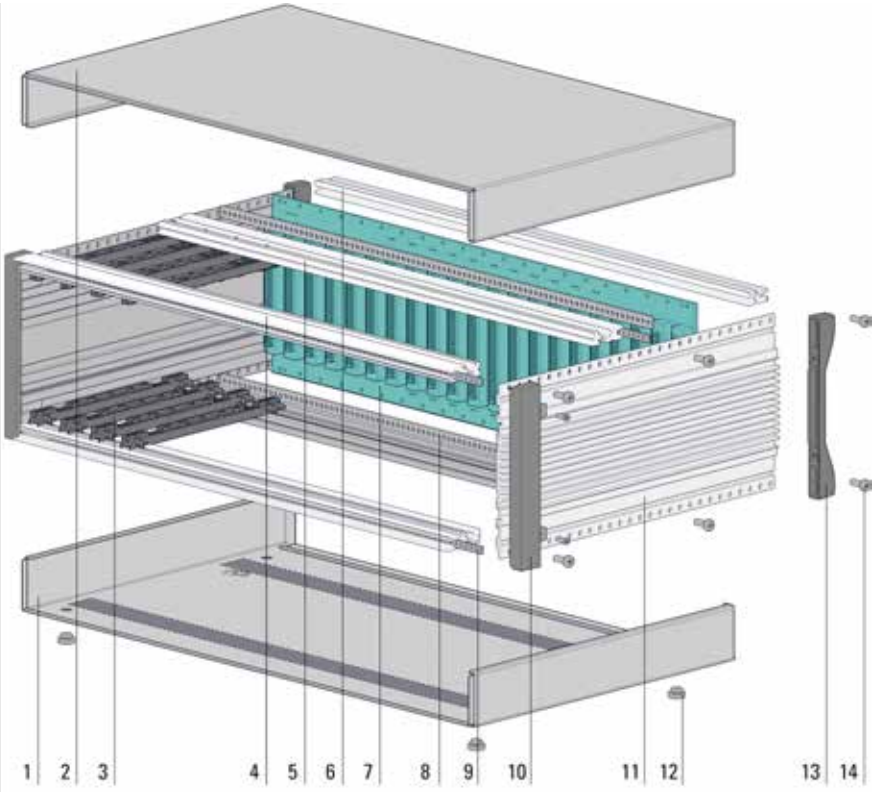
– "IEEE" version: Front rail(s) with pitch perforation according to IEEE 1101.10
– Rails are positioned in 10 mm increments
– Grounding tabs in top/bottom covers; Grounding tabs for side extrusions are included in the assembly kit.

Overview

Basic units	H in U				W in HP		D1 in mm			Page
	2	3	4	6	42	84	279	359	439	
- Standard	●				●	●	●	●	–	CAS 01.29
		●	●	●	●		●	●	–	CAS 01.29
		●	●	●		●	●	●	●	CAS 01.29
- With carrying/support handle	●				●	●	●	●	–	CAS 01.29
		●	●	●	●		●	●	–	CAS 01.29
		●	●	●		●	●	●	●	CAS 01.29

Magic

// Product information



Configuration example

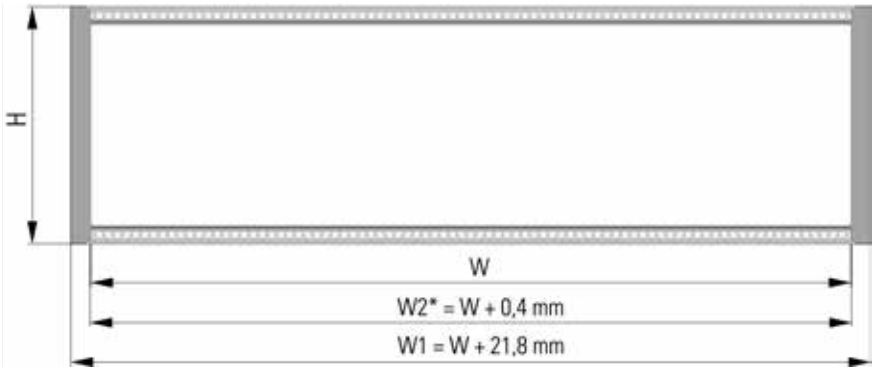
The diagram shows the configuration of a 19" Magic Series rackmount/desktop case (Basic Unit type B)

1 Bottom cover
2 Top cover
3 Card guide*
4 Front rail
5 Rear rail B*
6 Rear rail with M3 threads
7 Backplane*
8 Isolating strip*
9 Threaded inserts*
10 Corner bracket*
11 Side extrusion
12 Plug-in foot
13 Corner bracket
14 Assembly hardware

Parts marked with * are not included in the scope of delivery of the basic unit, i. e. must be ordered separately.

Surface finishing

– Bezel and extrusions powder-coated RAL 7001 (silver gray)
– Top and bottom cover powder-coated RAL 7035 (light gray)



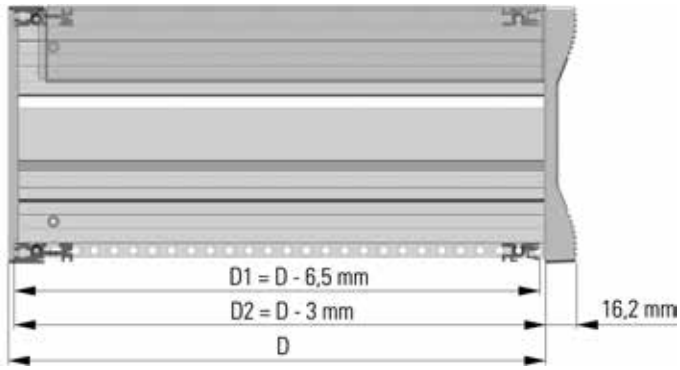
Dimension diagrams

Front view

* W2 = inner mounting dimension

Note

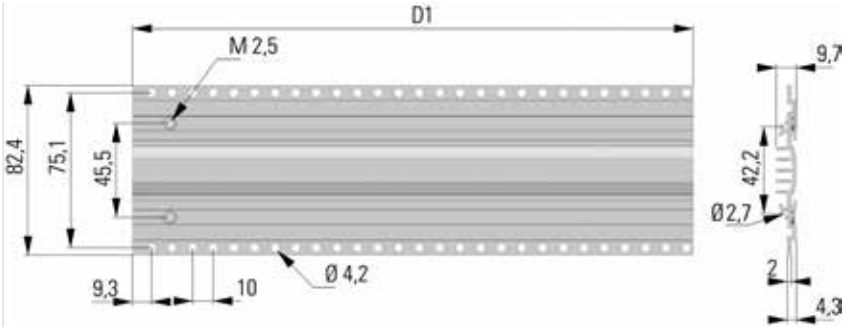
– To prevent electric spark-over from the PC board to the side plate in the 1st slot, use an isolating mat if necessary



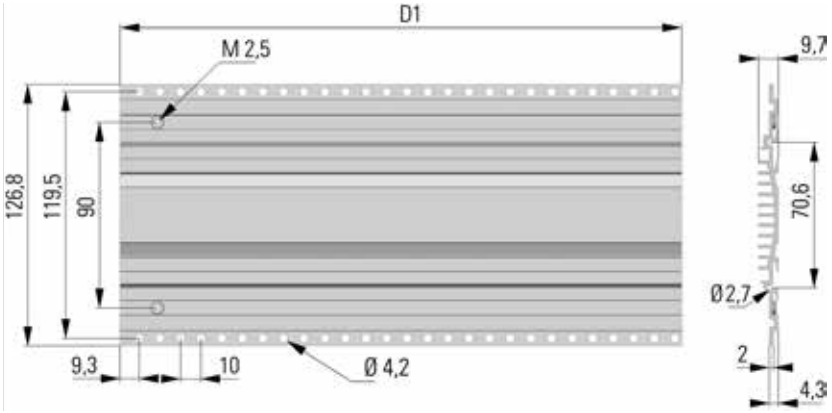
Side view

D = overall depth
D1 = usable internal dimension
D2 = mounting depth in 19" rack

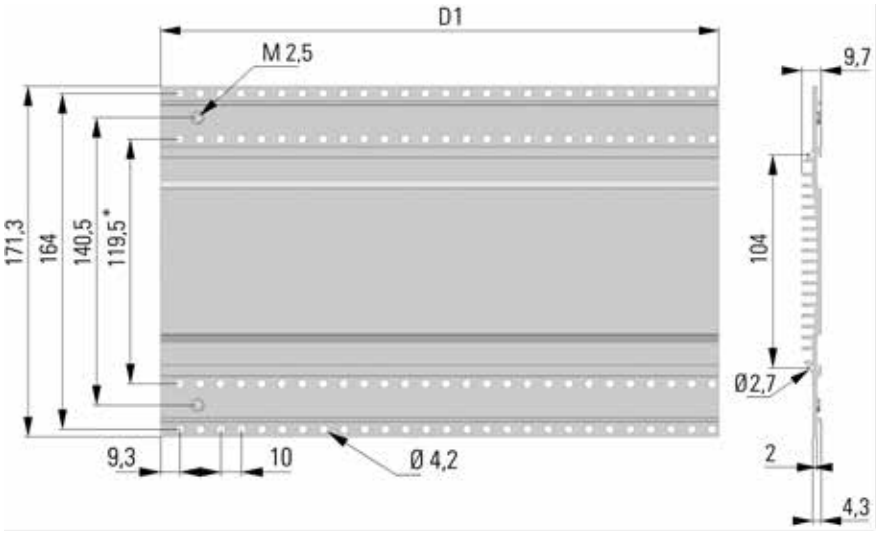
// Product information



Side extrusion 2 U

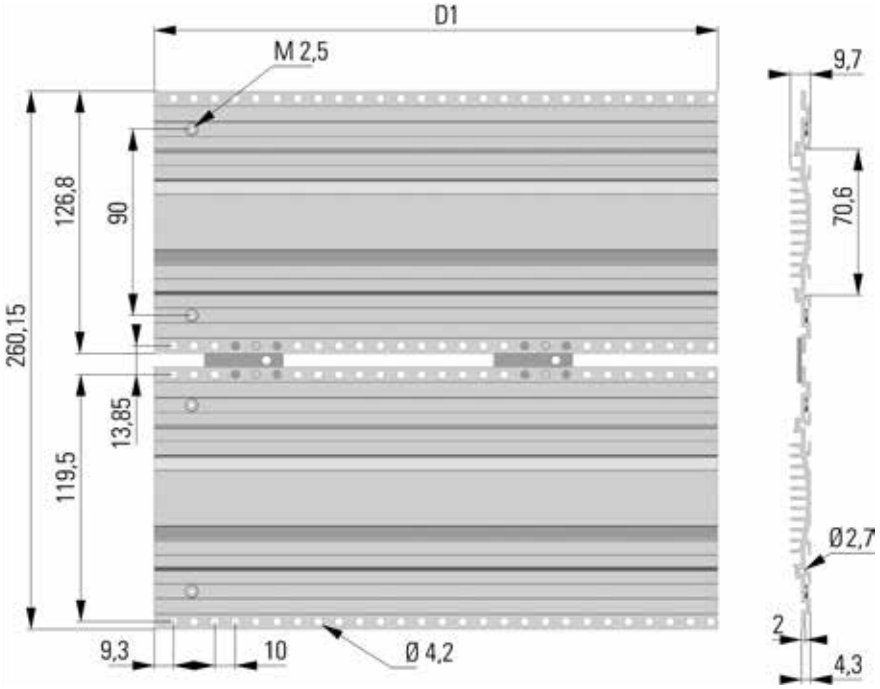


Side extrusion 3 U



Side extrusion 4 U

* (3 U)



Side extrusion 6 U (2 x 3 U)

With connecting plates

Magic

Basic units

The Magic series cases are available in two basic versions. The corner brackets and the 19" mounting brackets are not supplied as standard; these must be ordered separately.
The model with the carrying/support handle is ideal for use as a desktop case or for mobile use.
Further configurations can be made by combining different components as required

Features of the basic units

Standard
"Standard corner brackets – Magic" are not included in the scope of delivery of the basic units.

With carrying/support handle
"Standard corner brackets – Magic" are not included in the scope of delivery of the basic units.

Magic case, standard

Scope of delivery

Bottom cover	1 pc
Top cover	1 pc
Front rail	2 pcs
Side extrusion	2 pcs
Rear rail with M3 thread	2 pcs
Corner bracket	2 pcs
Plug-in foot ø12 x 3 mm	4 pcs
Assembly kit	1 pc

Delivery form

Individual components in units for self-assembly

Notes

- Corner brackets and 19" mounting brackets for assembly in 19" racks must be ordered separately
- Conversion kits (choice of B, C or E) and threaded inserts must be ordered separately
- Max. tightening torque for "rear rail with M3 thread" is 0.75 Nm

Ordering table

H	W	H in mm	W1 in mm	D = 279 mm	D = 359 mm	D = 439 mm
2 U	42 HP	88.1	235	22 10 00 01	22 10 00 04	–
2 U	84 HP	88.1	449	22 10 00 03	22 10 00 06	–
3 U	42 HP	132.5	235	22 10 00 10	22 10 00 13	–
3 U	84 HP	132.5	449	22 10 00 12	22 10 00 15	22 10 00 18
4 U	42 HP	177	235	22 10 00 19	22 10 00 22	–
4 U	84 HP	177	449	22 10 00 21	22 10 00 24	22 10 00 27
6 U	42 HP	266	235	22 10 00 28	22 10 00 31	–
6 U	84 HP	266	449	22 10 00 30	22 10 00 33	22 10 00 36

Magic case with carrying/support handle

Scope of delivery

Bottom cover	1 pc
Top cover	1 pc
Front rail	2 pcs
Side extrusion	2 pcs
Rear rail with M3 thread	2 pcs
Corner bracket	2 pcs
Carrying/support handle	1 pc
Plug-in foot ø12 x 3 mm	4 pcs
Assembly kit	1 pc

Delivery form

Individual components in units for self-assembly

Notes

- Corner brackets must be ordered separately
- Conversion kits (choice of B, C or E) and threaded inserts must be ordered separately
- Max. tightening torque for "rear rail with M3 thread" is 0.75 Nm
- Max. carrying load of the handle is 30 kg

Ordering table

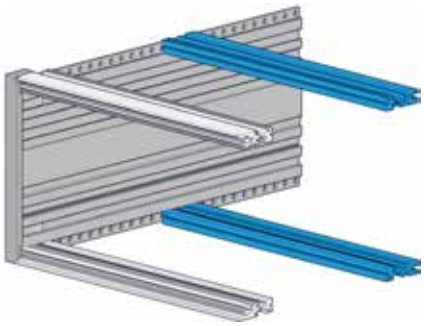
H	W	H in mm	W1 in mm	D = 279 mm	D = 359 mm	D = 439 mm
2 U	42 HP	88.1	235	22 10 00 50	22 10 00 53	–
2 U	84 HP	88.1	449	22 10 00 52	22 10 00 55	–
3 U	42 HP	132.5	235	22 10 00 59	22 10 00 62	–
3 U	84 HP	132.5	449	22 10 00 61	22 10 00 64	22 10 00 67
4 U	42 HP	177	235	22 10 00 68	22 10 00 71	–
4 U	84 HP	177	449	22 10 00 70	22 10 00 73	22 10 00 76
6 U	42 HP	266	235	22 10 00 77	22 10 00 80	–
6 U	84 HP	266	449	22 10 00 79	22 10 00 82	22 10 00 85

Magic

// Single components

Conversion

Front-end M4 threads are provided for mounting to side plate. Rear rails include incremented holes for the insertion of card guides.
Center rails do not have incremented holes and are used solely for mounting backplanes, either directly or indirectly, or for mounting Z-rails or perforated rails in 6 U cases.



Conversion kit, basic unit B – Magic

For indirect mounting of backplanes with isolating strips or for mounting Z-rails

Material
Aluminum extrusion, alodined

Note
– Assembly hardware contained in case assembly kit

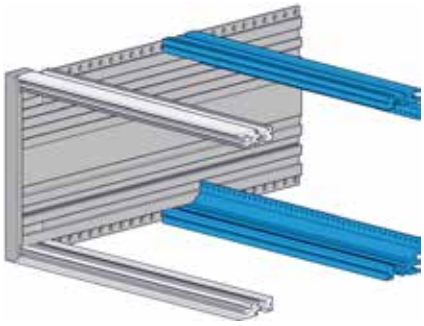
Scope of delivery

Rear rail B	2 pcs
Center rail B (6 U only)	1 pc
Side plate connection (6 U only)	2 pcs

Delivery form
In units for self-assembly

Ordering table

H	W = 42 HP	W = 84 HP
2 - 4 U	80 21 70 10	80 21 70 01
6 U	22 10 01 53	22 10 01 55



Conversion kit, basic unit C – Magic

With integrated Z-rail for connectors according to IEC 60603-2

Material
Aluminum extrusion, alodined

Note
– Assembly hardware contained in case assembly kit

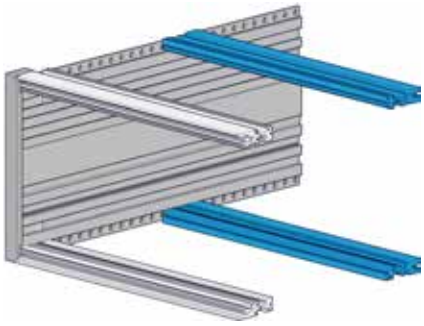
Scope of delivery

Rear rail C	2 pcs
Center rail C (6 U only)	1 pc
Side plate connection (6 U only)	2 pcs

Delivery form
In units for self-assembly

Ordering table

H	W = 42 HP	W = 84 HP
2 - 4 U	22 10 04 28	22 10 04 30
6 U	22 10 01 63	22 10 01 65



Conversion kit, basic unit E – Magic

For direct mounting of backplanes without isolating strips or for mounting perforated rails

Material
Aluminum extrusion, alodined

Note
– Assembly hardware contained in case assembly kit

Scope of delivery

Rear rail E	2 pcs
Center rail E (6 U only)	1 pc
Side plate connection (6 U only)	2 pcs

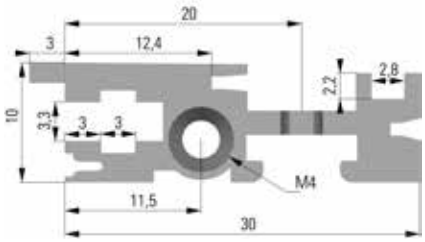
Delivery form
In units for self-assembly

Ordering table

H	W = 42 HP	W = 84 HP
2 - 4 U	80 21 70 12	80 21 70 00
6 U	22 10 01 70	22 10 01 72

Front and rear rails

Front-end M4 threads are provided for mounting to side plate.



Front rail, double-level – Magic

For conversion of Magic case 6 U (2 x 3 U) or 4 U (1 x 3 U/ 2 x 0.5 U)

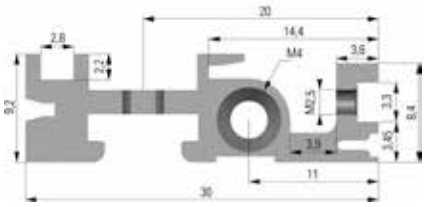
Scope of delivery
Front rail, double-level 1 pc

Material
Aluminum extrusion, alodined

Delivery form
In units for self-assembly

Ordering table

W	Alodined
42 HP	22 10 02 21
84 HP	22 10 02 25



Rear rail, dual, with M2.5 thread – Magic

For rear mounting of plug-in units
Is used in place of the rear rail with thread

Scope of delivery
Rear rail, dual 1 pc

Material
Aluminum extrusion, alodined

Delivery form
In units for self-assembly

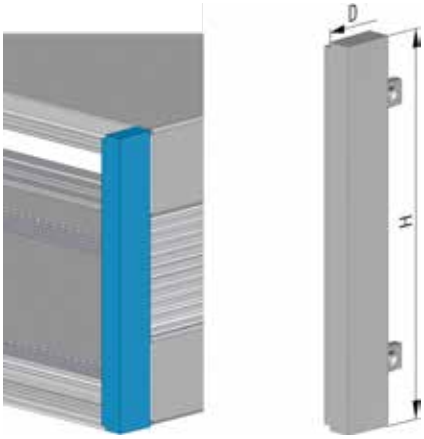
Note
– Threaded insert not required

Ordering table

W	Alodined
42 HP	22 10 02 01
84 HP	22 10 02 05

// Single components

Corner brackets



Standard corner bracket – Magic

For front trimming of case

Material
Die-cast aluminum, powder-coated in RAL 7001 (silver gray), contact points uncoated

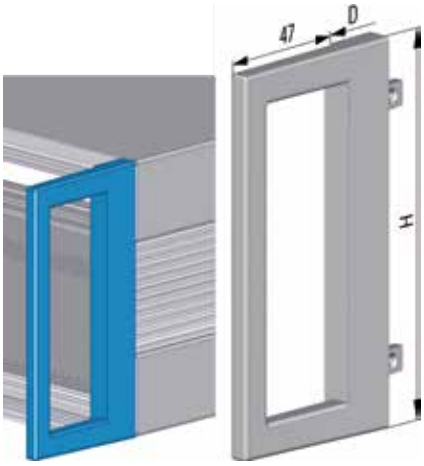
Scope of delivery
Corner bracket, standard 1 pc

Delivery form
In units for self-assembly

Note
– Assembly hardware contained in Magic assembly kit

Ordering table

H	Powder-coated
2 U	22 10 01 00
3 U	22 10 01 01
4 U	22 10 01 02
6 U	22 10 01 03



Corner bracket with handle – Magic

For front trimming of case

Material
Die-cast aluminum, powder-coated in RAL 7001 (silver gray), contact points uncoated

Scope of delivery
Corner bracket with handle 1 pc

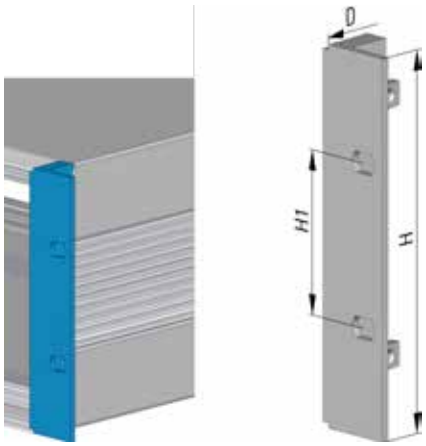
Delivery form
In units for self-assembly

Note
– Assembly hardware contained in Magic assembly kit

Ordering table

H	Powder-coated
2 U	22 10 01 04
3 U	22 10 01 05
4 U	22 10 01 06
6 U	22 10 01 07

19" mounting bracket



19" mounting bracket – Magic

Enables mounting in 19" racks

Material
Die-cast aluminum, powder-coated in RAL 7001 (silver gray), contact points uncoated

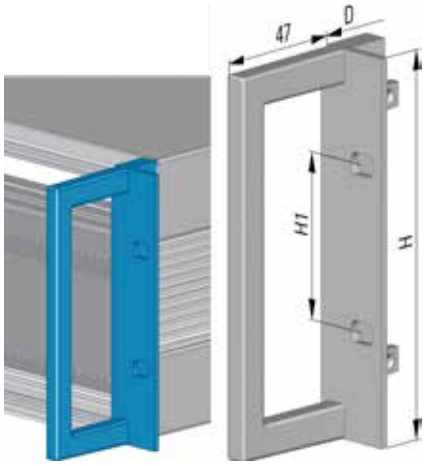
Scope of delivery
19" mounting bracket 1 pc

Delivery form
In units for self-assembly

Note
– Assembly hardware contained in Magic assembly kit

Ordering table

H	H1 in mm	Powder-coated
2 U	76.20	**22 10 01 08**
3 U	57.15	**22 10 01 09**
4 U	101.60	**22 10 01 10**
6 U	190.50	**22 10 01 11**



19" mounting bracket with handle – Magic

Enables mounting in 19" racks

Material
Die-cast aluminum, powder-coated in RAL 7001 (silver gray), contact points uncoated

Scope of delivery
19" mounting bracket with handle 1 pc

Delivery form
In units for self-assembly

Note
– Assembly hardware contained in Magic assembly kit

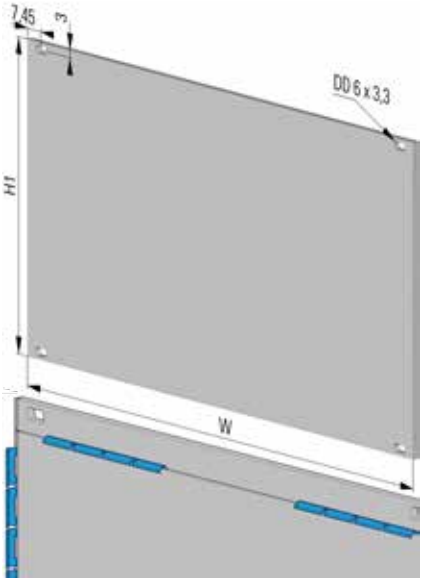
Ordering table

H	H1 in mm	Powder-coated
2 U	76.20	**22 10 01 12**
3 U	57.15	**22 10 01 13**
4 U	101.60	**22 10 01 14**
6 U	190.50	**22 10 01 15**

Magic

// Single components

Front/rear panels, EMC, rear panel



Front/rear panels – Magic

With grooves for mounting EMC springs

Material
Aluminum 2.5 mm, alodined

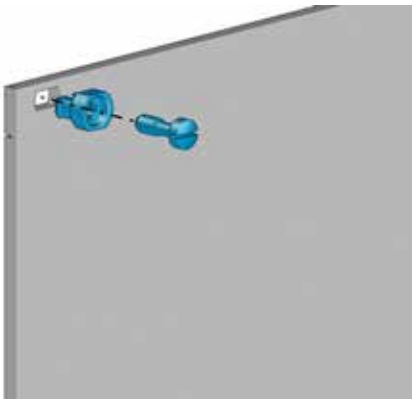
Scope of delivery
Front/rear panel 1 pc

Delivery form
In units for self-assembly

Note
– Shielding material and assembly kit must be ordered separately

Ordering table

H	H1 in mm	W = 42 HP	W = 84 HP
2 U	40.1	22 10 03 00	22 10 03 02
3 U	129.0	22 10 03 03	22 10 03 05
4 U	173.4	22 10 03 06	22 10 03 08
6 U	262.3	22 10 03 09	22 10 03 11



Assembly kit for EMC rear panels – Magic

For rear mounting of standard front panels and EMC rear panels
Maximum tightening torque 0.75 Nm

Material
Plastic sleeve PA 6 gray
Pan head screw M3: Brass, nickel-plated

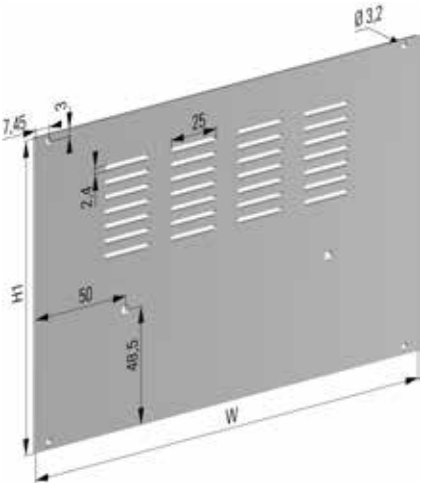
Scope of delivery
Plastic sleeve 8 pcs
Pan head screw M3, captive 8 pcs

Delivery form
Packed as kit

Note
– Can only be used for rear rail with M3 thread

Ordering table

	Order no.
Assembly kit	22 10 03 20



Rear panel – Magic

With ventilation slits for better heat dissipation

Material
Aluminum 1.5 mm, clear anodized/cutting edges raw

Scope of delivery
Rear panel 1 pc

Delivery form
In units for self-assembly

Note
– Assembly hardware contained in Magic assembly kit

Carrying/support handle, corner bracket

Carrying/support handle – Magic

For mobile use, for mounting on "Magic standard cases", cannot be added later.

Material
Side legs PA 6, RAL 9005 (deep black)
Handle bar, aluminum, anodized

Scope of delivery

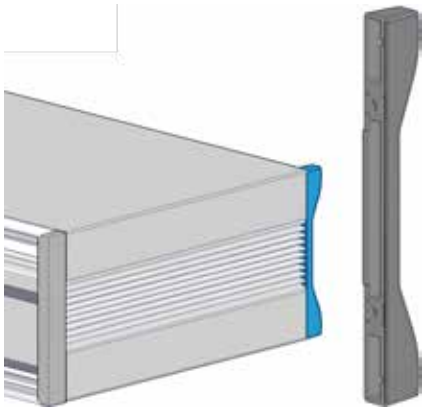
Handle side legs	2 pcs
Handle bar	1 pc
Assembly kit	1 pc

Delivery form
As kit for self-assembly

Notes
– Max. load 30 kg
– Adjustable in steps of 30°

Ordering table

H	W = 42 HP	W = 84 HP
2 U	22 10 03 80	22 10 03 82
3 U, 4 U, 6 U	22 10 03 83	22 10 03 85



Corner bracket – Magic

For rear trimming of case

Material
Plastic PA

Scope of delivery

Corner bracket	1 pc

Delivery form
In units for self-assembly

Ordering table

H	H in mm	RAL 7001	Black
2 U	88.1	22 10 04 40	22 10 04 45
3 U	132.5	22 10 04 41	22 10 04 46
4 U	177.0	22 10 04 42	22 10 04 47
6 U	266.0	22 10 04 43	22 10 04 48

// Single components

EMC shielding material

To ensure that electronic products function satisfactorily in an electromagnetic environment i. e. that the electromagnetic compatibility (EMC) of the products is guaranteed, shielding material is required, dependent on the electronics and on the ambient conditions.

EMC shielding materials are used to establish contact with mechanical components and thus protect plug-in units and electronics against radio frequency interference.

EMC fabric shielding material – Magic

The 3 x 3 mm EMC shielding material is used to establish contact between
– Side extrusion and top/bottom cover
– Front/rear rail and top/bottom cover
– Corner bracket/19" mounting bracket and side extrusion

Material
Conductive fabric, 3 x 3 mm, CuNi coated

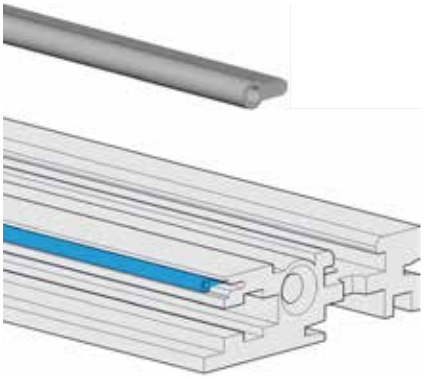
Scope of delivery
By length (L = 2500 mm) 1 pc

Delivery form
In units for self-assembly

Notes
– Single sided adhesive (peel-off film)
– Thermal resistance: -40°C to +200°C
– Fire resistance rating: UL 94V0

Ordering table

Order no.
22 10 04 10



EMC shielding material for vertical front mount – Magic

The EMC shielding material is used to establish contact between
– Front rail and front panels

Material
Silicone with silver-coated particles, 55 Shore

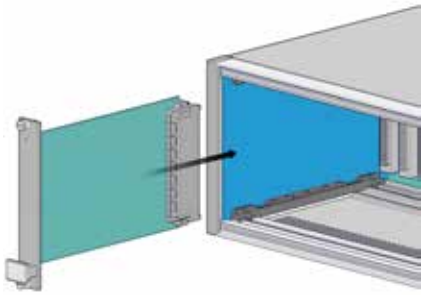
Scope of delivery
By length (L = 1000 mm) 1 pc

Delivery form
In units for self-assembly

Note
– Thermal resistance: -55°C to +160°C

Ordering table

Order no.
22 10 04 15



Isolating mat – Magic

For prevention of electric sparkover to the side plates in compliance with VDE 340 Part 3
– Side extrusion and PCB, solder side

Material
Polyester mat 0.12 mm
240 x 111.5 mm

Scope of delivery
Isolating mat 1 pc

Delivery form
In units for self-assembly

Notes
– Single sided adhesive (peel-off film)
– 2 ea. are required for 6 U

Ordering table

H	Order no.
2 - 6 U	22 10 04 21

Magic

19" rackmount/desktop case with front panel

Space
19" rackmout/desktop case

Space

Product information

The Space Series cases are typically used for configuration with custom electronics and accessories. Conversion kits are available for horizontal PCB mount of plug-in modules in single or double Eurocard format .
Depending on the choice of front panel, the cases can be used as desktop or 19" rackmount cases. Use of front panel "Type B"" in conjunction with 19" mounting brackets also enables recessed mounting in 19" racks.
The cases are suitable for use under EMC criteria and can be upgraded as required with additional shielding material.

Standards

– Mounting dimensions in accordance with IEC 60297-2
– IP rating in accordance with IEC 60529
IP20 when perforated top covers are used,
IP40 when non-perforated top/bottom covers are used

Note

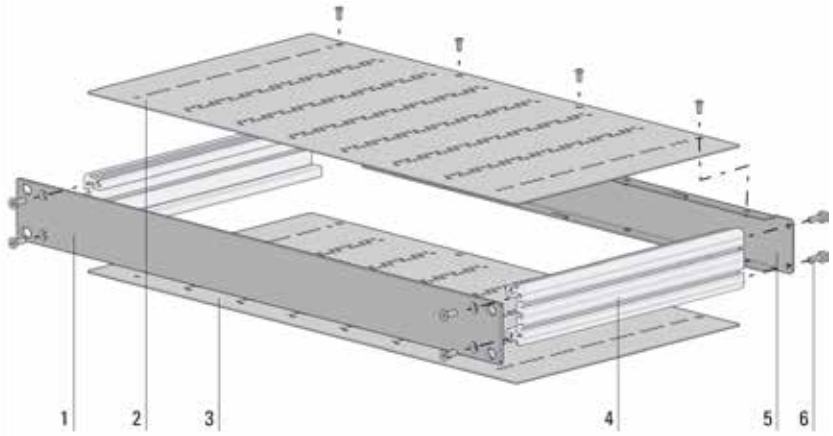
– No grounding tabs, but these can be mounted individually

Overview

Basic units	H in U			W in HP	D in mm			Page
	1	2	3	84	224	284	344	
- Type A	●	●	●	●	●	●	●	CAS 01.45
- Type B	●	●	●	●	●	●	●	CAS 01.45

Space

// Product information

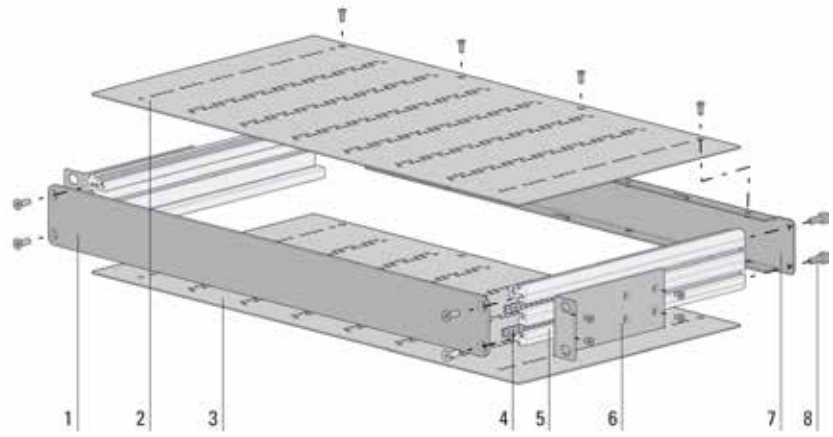


Configuration examples

The diagram shows the configuration of a 19" Space Series type A rackmount case

1 Front panel
2 Top/bottom cover* perforated (option of non-perforated)
3 Top/bottom cover* perforated (option of non-perforated or chassis plate)
4 Side extrusion
5 Rear panel
6 Assembly hardware

Parts marked with * are not included in the scope of delivery of the basic unit, i. e. must be ordered separately.



The diagram shows the configuration of a 19" Space Series type B rackmount case

1 Front panel
2 Top/bottom cover* perforated (option of non-perforated)
3 Top/bottom cover* perforated (option of non-perforated or chassis plate)
4 Threaded inserts*
5 Side extrusion
6 19"mounting bracket
7 Rear panel*
8 Assembly hardware

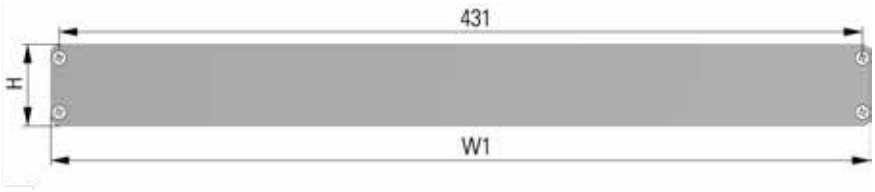
Parts marked with * are not included in the scope of delivery of the basic unit, i. e. must be ordered separately.

Surface finishing

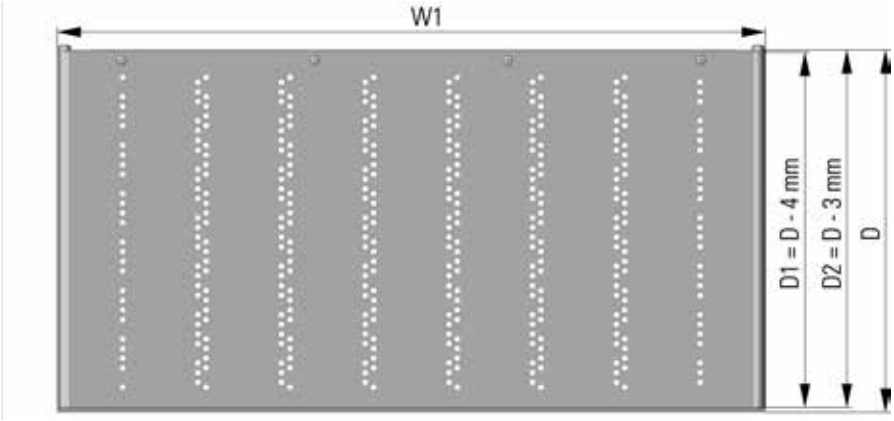
– Alodined
– Front panel: front anodized/rear alodined

Dimension diagrams

Front view, type A

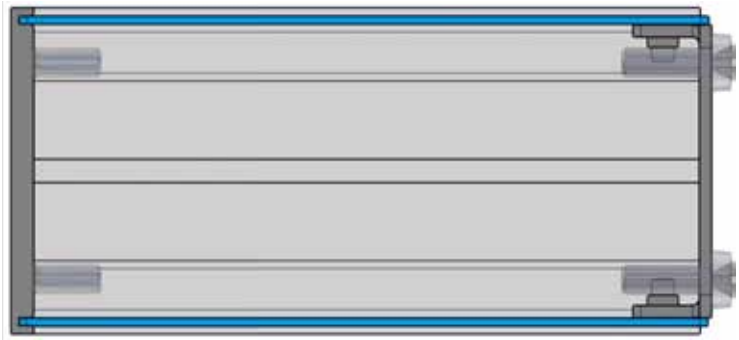


Front view, type B



Top view (type A and B)

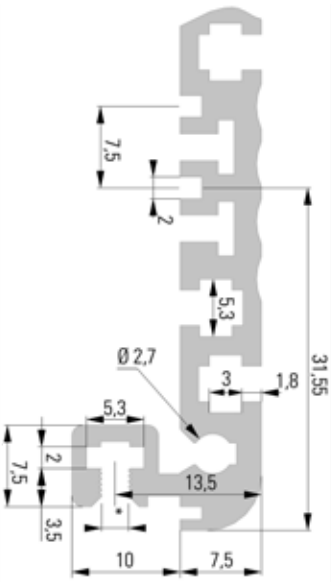
D = overall depth
D1 = usable internal dimension
D2 = mounting depth in 19" rack when 19" mounting brackets are used (optional)



Side view with top/bottom cover

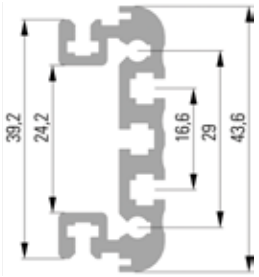
Space

// Product information

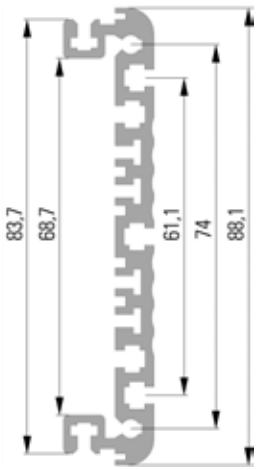


Side extrusions 1 U, 2 U, 3 U

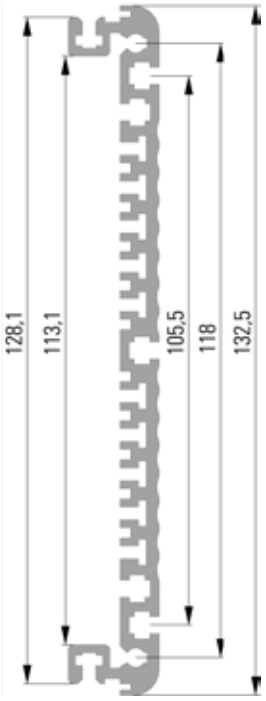
* M3 thread
(Maximum tightening torque 0.75 Nm)



Side extrusion 1 U



Side extrusion 2 U



Side extrusion 3 U

Space

Basic units

With the Space Series you have a choice between two basic units. "Type A" cases are used as 19" Rackmount cases, "Type B" cases are used as desktop cases.

Features of the basic units

Type A with 19" front panel

Type B

Type B with 19" mounting brackets (optional)

Appropriate positioning of the 19" mounting brackets enables recessed mounting to a depth of up to 60 mm.

Space case, type A

Scope of delivery

Side extrusion	2 pcs
19" front panel	1 pc
Rear panel	1 pc
Assembly kit	1 pc

Delivery form

Individual components in units for self-assembly

Notes

– Top/bottom covers or chassis plates must be ordered separately
– Conversion kits (choice of B, C or E) and threaded inserts must be ordered separately

Ordering table

H	W	H in mm	W1 in mm	D = 224 mm	D = 284 mm	D = 344 mm
1 U	84 HP	43.6	440	**22 30 00 20**	**22 30 00 23**	**22 30 00 26**
2 U	84 HP	88.1	440	**22 30 00 21**	**22 30 00 24**	**22 30 00 27**
3 U	84 HP	132.5	440	**22 30 00 22**	**22 30 00 25**	**22 30 00 28**

Space case, type B

Scope of delivery

Side extrusion	2 pcs
Front panel	1 pc
Rear panel	1 pc
Assembly kit	1 pc

Delivery form

Individual components in units for self-assembly

Notes

– 19" mounting brackets and top/bottom covers or chassis plates must be ordered separately
– Conversion kits (choice of B, C or E) and threaded inserts must be ordered separately

Ordering table

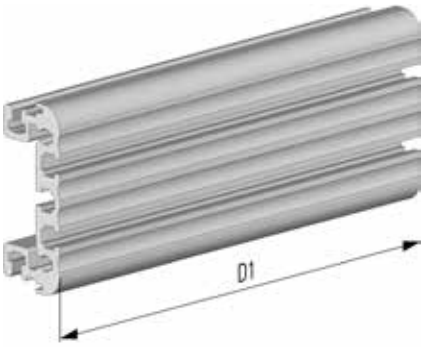
H	W	H in mm	W1 in mm	D = 224 mm	D = 284 mm	D = 344 mm
1 U	84 HP	43.6	440	**22 30 00 01**	**22 30 00 04**	**22 30 00 07**
2 U	84 HP	88.1	440	**22 30 00 02**	**22 30 00 05**	**22 30 00 08**
3 U	84 HP	132.5	440	**22 30 00 03**	**22 30 00 06**	**22 30 00 09**

Space

// Single components

Side extrusions

For mounting front panel, rear panel and top and bottom covers



Side extrusions – Space

Material
Aluminum extrusion, alodined

D1 = D - 4 mm

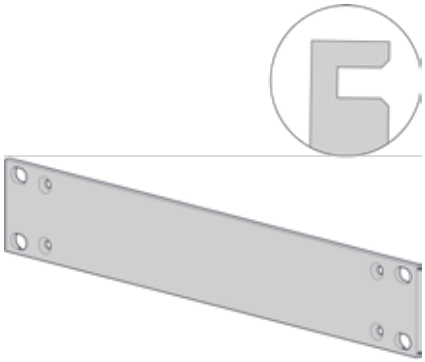
Scope of delivery
Side extrusion 1 pc

Delivery form
In units for self-assembly

Ordering table

H	H in mm	D = 224 mm	D = 284 mm	D = 344 mm
1 U	43.6	22 30 01 30	22 30 01 35	22 30 01 40
2 U	88.1	22 30 01 31	22 30 01 36	22 30 01 41
3 U	132.5	22 30 01 32	22 30 01 37	22 30 01 42

19" Front panels, rear panels



19" Front panel type A – Space

With grooves for mounting top/bottom covers

Material
Aluminum 3 mm, front anodized/rear alodined

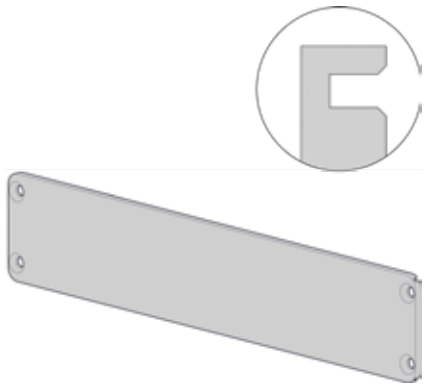
Scope of delivery
19" Front panel Space type A 1 pc

Delivery form
In units for self-assembly

Note
– Assembly hardware contained in Space assembly kit

Ordering table

H	H in mm	W = 84 HP
1 U	43.6	**22 30 01 50**
2 U	88.1	**22 30 01 51**
3 U	132.5	**22 30 01 52**



Front panel type B – Space

With grooves for mounting top/bottom covers

Material
Aluminum 3 mm, front anodized/rear alodined

Scope of delivery
Front panel Space type B 1 pc

Delivery form
In units for self-assembly

Note
– Assembly hardware contained in Space assembly kit

Ordering table

H	H in mm	W = 84 HP
1 U	43.6	**22 30 01 55**
2 U	88.1	**22 30 01 56**
3 U	132.5	**22 30 01 57**

Rear panel – Space

With EMC plates for making contact with top and bottom covers

Material
Aluminum 1.5 mm, alodined

Scope of delivery
Rear panel 1 pc

Delivery form
In units for self-assembly

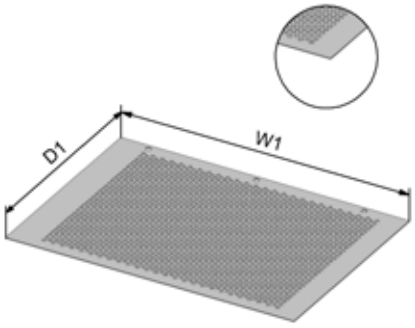
Note
– Assembly hardware contained in Space assembly kit

Ordering table

H	H in mm	W = 84 HP
1 U	43.6	**22 30 01 60**
2 U	88.1	**22 30 01 61**
3 U	132.5	**22 30 01 62**

// Single components

Top/bottom covers, chassis plate



Top/bottom cover, perforated – Space

For covering and shielding

Material
Aluminum 1 mm, alodined
Perforation Rv4-6, airflow 38.5 %

W1 = W + 1.9 mm
D1 = D - 3 mm

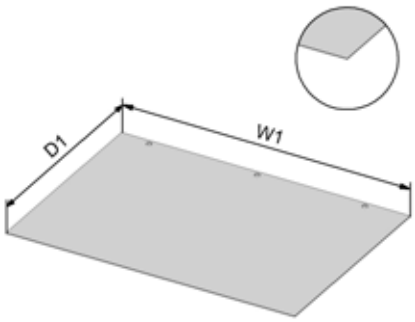
Scope of delivery
Top/bottom cover, perforated 1 pc

Delivery form
Individual components in units for self-assembly

Notes
– Assembly hardware kis contained in the Space assembly kit
– Can be used for top and bottom

Ordering table

W	D = 224 mm	D = 284 mm	D = 344 mm
84 HP	22 30 00 50	22 30 00 51	22 30 00 52



Top/bottom cover, non-perforated – Space

For covering and shielding

Material
Aluminum 1 mm, alodined

W1 = W + 1.9 mm
D1 = D - 3 mm

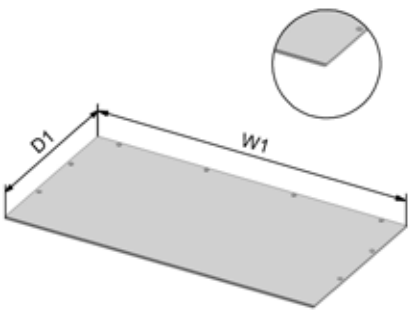
Scope of delivery
Top/bottom cover, perforated 1 pc

Delivery form
Individual components in units for self-assembly

Notes
– Assembly hardware kis contained in the Space assembly kit
– Can be used for top and bottom

Ordering table

W	D = 224 mm	D = 284 mm	D = 344 mm
84 HP	22 30 00 60	22 30 00 61	22 30 00 62



Chassis plate, heavy-duty – Space

For mounting custom components

Material
Aluminum 2 mm, alodined

W1 = W + 1.9 mm
D1 = D - 3 mm

Scope of delivery
Chassis plate 1 pc

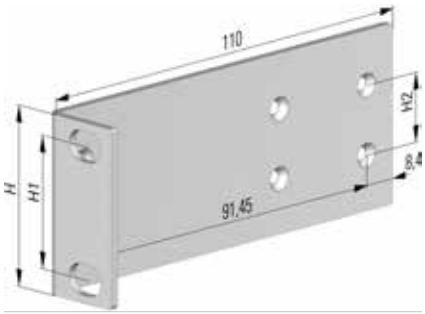
Delivery form
Individual components in units for self-assembly

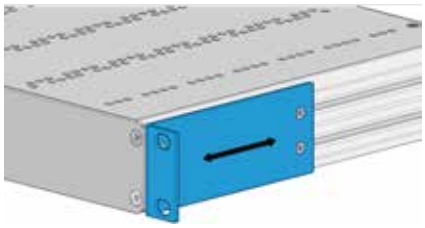
Notes
– Assembly hardware kis contained in the Space assembly kit
– Can be used as alternative to bottom cover

Ordering table

W	D = 224 mm	D = 284 mm	D = 344 mm
84 HP	22 30 00 70	22 30 00 71	22 30 00 72

19" Mounting bracket





19" Mounting bracket – Space

For mounting to Space type B cases for assembly in 19" racks.

Material
Aluminum 2 mm, alodined

Scope of delivery

19" mounting bracket	2 pcs
Threaded inserts M3, 20 HP	4 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly

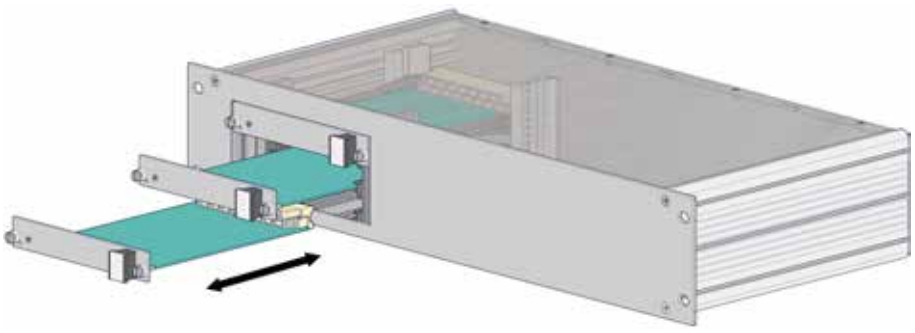
Note
– Can be used for recessed mounting (up to 60 mm)

Ordering table

H	H1 in mm	H2 in mm	Alodined
1 U	76.20	16.6	**22 30 00 40**
2 U	57.15	61.1	**22 30 00 41**
3 U	101.60	105.5	**22 30 00 42**

Space

// Single components

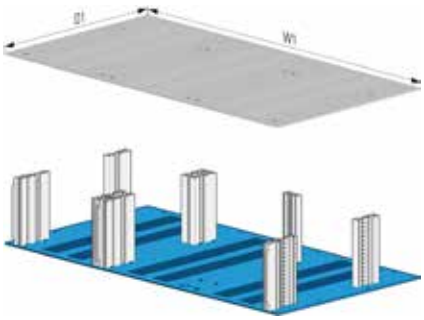


Horizontal PCB mount

Product information
For horizontal PCB mount of single and/or double Eurocards in 1 U and 2 U Space Series cases.

Standards
Mounting dimensions in accordance wtih IEC 60297-3-101

Note
– Front panels for horizontal PCB mount on request



Chassis plate for horizontal PCB mount – Space

Chassis plates are used to assemble the conversion kits required for horizontal PCB mount. They replace the bottom covers.

Material
Aluminum 2 mm, alodined

W1 = W + 1.9 mm

D1 = D + 2 mm

Scope of delivery
Chassis plate 1 pc

Delivery form
Individual components in units for self-assembly

Notes
– Additional screw connection using threaded inserts M3 (on request)
– Assembly hardware for chassis plate mounting is included in the Space assembly kit

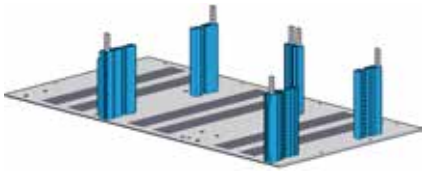
Ordering table

W	D = 224 mm	D = 284 mm	D = 344 mm
84 HP	22 30 00 80	22 30 00 81	22 30 00 82

Conversion kits for horizontal PCB mount

Conversion kits enable mounting of plug-in units. Extruded channels are provided for self-forming M4 screws for mounting on the bottom cover. Front and rear rails include incremented holes for the insertion of card guides.

Center rails do not have incremented holes and are used solely for mounting backplanes, either directly or indirectly, or for mounting Z-rails.



Conversion kit, basic unit B – Space

For indirect mounting of backplanes with isolating strips

Material
Aluminum extrusion, alodined

Note
– Isolating strips on request
– Scope of delivery for plug-in unit 6 U

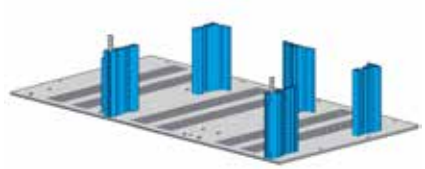
Scope of delivery

Front rail	2 pcs
Rear rail B	2 pcs
Center rail B	1 pc
Threaded inserts	6 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly

Ordering table

H	W = 84 HP
1 U	**22 30 00 90**
2 U	**22 30 00 91**



Conversion kit, basic unit C – Space

With Z-rail for connectors according to IEC 60603-2

Material
Aluminum extrusion, alodined

Note
– Scope of delivery for plug-in unit 6 U

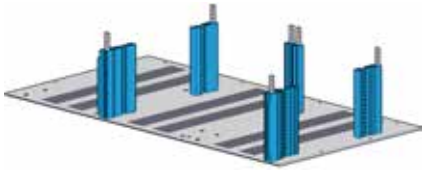
Scope of delivery

Front rail	2 pcs
Rear rail C	2 pcs
Center rail B	1 pc
Z-rail	2 pcs
Threaded inserts	2 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly

Ordering table

H	W = 84 HP
1 U	**22 30 01 00**
2 U	**22 30 01 01**



Conversion kit, basic unit E – Space

For direct mounting of backplanes without isolating strips

Material
Aluminum extrusion, alodined

Note
– Scope of delivery for plug-in unit 6 U

Scope of delivery

Front rail	2 pcs
Rear rail E	2 pcs
Center rail E	1 pc
Threaded inserts	6 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly

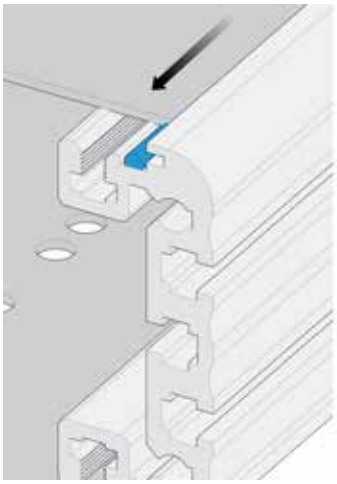
Ordering table

H	W = 84 HP
1 U	**22 30 01 10**
2 U	**22 30 01 11**

// Single components

EMC shielding material – Space

To ensure that electronic products function satisfactorily in an electromagnetic environment i. e. that the electromagnetic compatibility (EMC) of the products is guaranteed, shielding material is required, dependent on the electronics and on the ambient conditions.
EMC shielding materials are used to establish contact with mechanical components and thus protect plug-in units and electronics against radio frequency interference.



EMC fabric shielding material – Space

The EMC shielding material D is used to establish contact between
– Top/bottom covers or base/chassis plate and side extrusion

Material
Conductive fabric, 1.5 x 2 mm, CuNi coated

Scope of delivery
by length (L = 2500 mm) 1 pc

Delivery form
In units for self-assembly

Notes
– Single sided adhesive (peel-off film)
– Thermal resistance: -40°C to +100°C
– Fire resistance rating: UL 94V0

Ordering table

Order no.
22 30 01 20

Assembly kit – Space

The assembly kit is required for customized configuration of Space cases.

Note

– The assembly kit is supplied with every Space basic unit
– Individual components cannot be ordered separately

Scope of delivery

Usage	Description	Version/material	Standard	Quantity
Mounting top/bottom covers to rear panel	Cross-recessed countersunk head screw	M3 x 6 mm Steel blue zinc-plated	DIN 7500	8 pcs
Mounting the chassis plate to side extrusion	Cross-recessed countersunk head screw	M3 x 6 mm Steel nickel-plated	DIN 965	16 pcs
Mounting front panel to side extrusion	Cross-recessed countersunk head screw	M4 x 12 mm Steel blue zinc-plated	DIN 7500	4 pcs
Mounting rear panel to side extrusion	Cross-recessed pan head screw	M4 x 12 mm Steel blue zinc-plated	DIN 7500	4 pcs

Ordering table

Order no.
22 30 01 65

Accessories

Various card guides and handles

ACCESSORIES

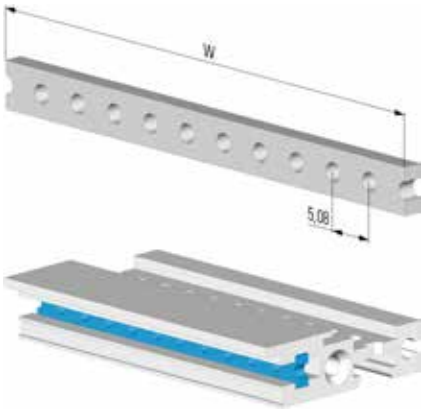
// Content

ACCESSORIES

//Threaded inserts

Threaded inserts

Enable mounting of plug-in units or backplanes
on horizontal rails



Threaded inserts

Material
Steel 5 x 2 mm, white zinc-plated

Scope of delivery
Threaded inserts 1 PU (10 pcs)

Delivery form
In units for self-assembly

Note
– Option of M2.5 or M3 thread

Ordering table

W	M2.5 thread	M3 thread
20 HP	79 32 18 00	79 33 18 00
42 HP	79 32 14 00	79 33 14 00
63 HP	79 32 16 00	79 33 16 00
84 HP	79 32 17 00	79 33 17 00

Card guides

For mounting Eurocards in the card cage of the case. They are clipped into the incremented holes of the rails and are also used for positioning.

Notes

– Slot width 2 mm for PCB thickness of 1.6 mm
  NEW: Slot width 2.4 mm for PCB thickness of 2.0 mm
– Fire resistance rating
  ABS: UL 94 V0
  PC: NF F 16-101/102 class F1, I2
  PBT: UL 94 V0
  PPO: UL 94 V0
– The 3-piece card guide accepts PCBs of all depths.

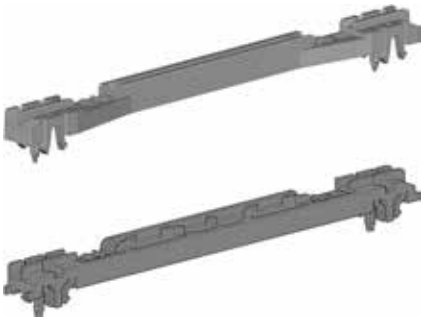
Overview

Board depth	Slot width	Version	Material	Color	FreeTEC	Magic	Space	Order no.	Page
EC 100 mm	2.0 mm	Standard	PPO	Black		●		**79 31 40 00**	CAS 01.63
EC 160 mm	2.0 mm	Standard	PPO	Black	●		●	**23 10 04 29**	CAS 01.62
	2.0 mm	Standard	PPO	Gray	●		●	**23 10 04 34**	CAS 01.62
	2.0 mm	Standard	PPO	Black		●		**79 31 00 00**	CAS 01.63
	2.0 mm	Heavy-duty version	PPO	Black	●		●	**23 10 04 02**	CAS 01.62
	2.0 mm	Heavy-duty version	PPO	Black		●		**79 31 04 00**	CAS 01.63
	2.0 mm	Heavy-duty version	PC	Gray	●****		●****	**23 10 04 04**	CAS 01.62
	2.4 mm	Heavy-duty version	PPO	Black	●		●	**23 10 04 43**	CAS 01.62
	2.0 mm	1/2 HP/IEEE	PBT	Green				**23 10 04 38**	CAS 01.63
		Card grid, 7-piece							
	2.0 mm	Standard	PPO	Black		●		**79 31 91 00**	CAS 01.64
		4.4" **							
	2.0 mm	Standard	PPO	Black	●			**79 31 05 00**	CAS 01.63
	2.0 mm	Standard	PPO	Black		●		**79 31 03 00**	CAS 01.63
EC 220 mm	2.0 mm	Heavy-duty version	PPO	Black	●		●	**23 10 04 03**	CAS 01.62
	2.0 mm	Heavy-duty version	PPO	Black		●		**79 31 12 00**	CAS 01.63
	2.0 mm	Heavy-duty version	PC	Gray	●****		●****	**23 10 04 05**	CAS 01.62
	2.0 mm	Heavy-duty version	AL	Clear	●		●	**23 10 04 40**	CAS 01.62
		4.4" **							
	2.0 mm	Standard	PPO	Black	●			**79 31 06 00**	CAS 01.63
EC 280 mm	2.0 mm	Heavy-duty version	PPO	Black	●			**23 10 04 37**	CAS 01.62
	2.0 mm	Heavy-duty version	AL	Clear	●			**23 10 04 41**	CAS 01.62
EC variable		Card guide, 3-piece							
	2.0 mm	End pieces (1 pair)	PPO	Black	●	●	●	**79 31 62 00**	CAS 01.64
	2.0 mm	Extrusion (l = 2750 mm)***	AL	Clear	●	●	●	**90 16 00 00**	CAS 01.64
	2.0 mm	Extrusion (l = 2750 mm)***	ABS	Black	●	●	●	**90 42 40 01**	CAS 01.64

** For board formats 111.7 mm x 160 mm and 111.7 mm x 220 mm
*** Extrusion length adjusted to PCB depth (for Magic Series = EC - 49 mm; for FreeTEC, Space Series = EC - 58 mm) on request
**** Required for French SNCF railway applications

ACCESSORIES

// Card guides



Card guide – FreeTEC/Space

Material
PPO or PC

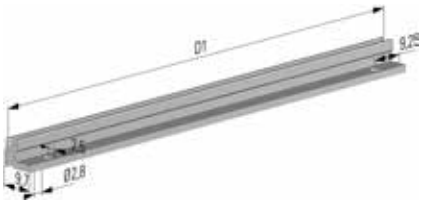
Scope of delivery
Card guide 1 PU (50 pcs)

Delivery form
In units for self-assembly

Notes
– Can in addition be screwed into place
– Possible to include ESD springs

Ordering table

Board depth	Slot width	Material	Color	Standard	Heavy-duty version
160 mm	2.0 mm	PPO	Black	**23 10 04 29**	**23 10 04 02**
160 mm	2.0 mm	PPO	Gray	**23 10 04 34**	–
160 mm	2.4 mm	PPO	Black	–	**23 10 04 43**
220 mm	2.0 mm	PPO	Black	–	**23 10 04 03**
160 mm	2.0 mm	PC	Gray	–	**23 10 04 04**
220 mm	2.0 mm	PC	Gray	–	**23 10 04 05**



Card guide Al-extrusion – FreeTEC/Space

Material
Aluminum extrusion, raw

Scope of delivery
Card guide extrusion 1 PU (50 pcs)

Delivery form
In units for self-assembly

Note
– Can only be screwed into place

Ordering table

Board depth	Slot width	D1	Standard	Heavy-duty version
220 mm	2.0 mm	202 mm	–	**23 10 04 40**
280 mm	2.0 mm	262 mm	–	**23 10 04 41**

Card guide Eurocard 280 mm – FreeTEC

Material
PPO

Scope of delivery
Card guide 1 PU (50 pcs)

Delivery form
In units for self-assembly

Note
– Can only be clipped into place

Ordering table

Board depth	Slot width	Color	Standard	Heavy-duty version
280 mm	2.0 mm	Black	–	**23 10 04 37**

Card guide 1/2 HP/IEEE – FreeTEC

With 1/2 HP lateral offset for applications according to IEEE 1101.1/IEEE 1101.10
For mounting CompactPCI power supplies and SMD assembled plug-in units

Material
PBT

Scope of delivery
Card guide 1 PU (50 pcs)

Delivery form
In units for self-assembly

Notes
– Can in addition be screwed into place
– Possible to include ESD springs

Ordering table

Board depth	Slot width	Color	Standard	Heavy-duty version
160 mm	2.0 mm	Green	**23 10 04 38**	–

Card guide 4.4" – FreeTEC/Magic

For card height 4.4" (111.7 mm)

Material
PPO

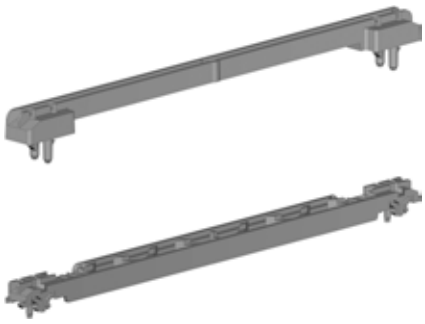
Scope of delivery
Card guide 1 PU (50 pcs)

Delivery form
In units for self-assembly

Note
– Can only be clicked into place

Ordering table

Board depth	Slot width	Series	Color	Standard	Heavy-duty version
160 mm	2.0 mm	FreeTEC	Black	**79 31 05 00**	–
220 mm	2.0 mm	FreeTEC	Black	**79 31 06 00**	–
160 mm	2.0 mm	Magic	Black	**79 31 03 00**	–



Card guide – Magic

Material
PPO

Scope of delivery
Card guide 1 PU (50 pcs)

Delivery form
In units for self-assembly

Notes
– Heavy-duty version screwed into place
– Inclusion of ESD springs only possible with heavy-duty version

Ordering table

Board depth	Slot width	Color	Standard	Heavy-duty version
100 mm	2.0 mm	Black	**79 31 40 00**	–
160 mm	2.0 mm	Black	**79 31 00 00**	**79 31 04 00**
220 mm	2.0 mm	Black	–	**79 31 12 00**

ACCESSORIES

// Card guides

Card grid – Magic

Card grid, 7-piece, in 4 HP increments

Material
PPO

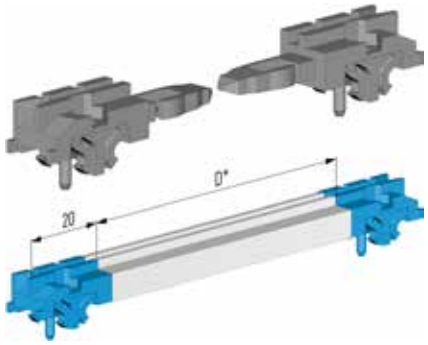
Scope of delivery
Card grid 1 PU (25 pcs)

Delivery form
In units for self-assembly

Note
– Can only be clipped into place

Ordering table

Board depth	Slot width	Color	Standard	Heavy-duty version
160 mm	2.0 mm	Black	**79 31 91 00**	–



Card guide, 3-piece – FreeTEC/Magic/Space

Card guide, 3-piece, for customized board depth

Material
See ordering table

Scope of delivery
See ordering table

Delivery form
In units for self-assembly

Notes
– End pieces can in addition be screwed into place
– ESD springs cannot be used

Ordering table

Version	Slot width	Material	Color	Scope of delivery	Order no.
End pieces (pair)	2.0 mm	PPO	Black	1 PU (50 pairs)	**79 31 62 00**
Card guide extrusion	2.0 mm	Aluminum	Anodized	2750 mm	**90 16 00 00**
Card guide extrusion	2.0 mm	ABS	Black	2750 mm	**90 42 40 01**

Extrusion length D* adjusted to PCB depth (for Magic Series = EC - 49 mm) on request
Extrusion length D* adjusted to PCB depth (for FreeTEC/Space Series = EC - 58 mm) on request

Board retainers

Board retainers are used to secure the boards in the case, typically in applications without front panels.

Note
– Fire resistance rating
PC: NF F 16-101/102 class F1, I2
PPO: UL 94 V0

Board retainer – FreeTEC/Magic/Space

Used singly

Material
See ordering table

Scope of delivery
Board retainer 1 PU (50 pcs)

Delivery form
In units for self-assembly

Note
– The use of PC is required for French railway (SNCF) applications

Ordering table

Series	Color	Material	Order no.
Magic	Black	PPO	**79 31 53 00**
FreeTEC/Space	Black	PPO	**79 31 70 00**
FreeTEC/Space	Gray	PC	**79 31 70 01**

Board extractor

Used singly

Material
PC

Scope of Delivery
Board extractor 1 pc
Cylindrical pin 1 pc

Delivery Form
In units for self assembly

Notes
– Mounting either bottom or top board extractor
– Board extractor and board retainers can be used in combination

Ordering table

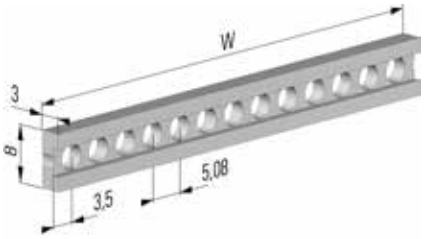
Order no.
79 31 51 00

ACCESSORIES

// Isolating strips, mounting clips for isolating strips

Isolating strips

Enable isolated mounting of the backplane on rear rail B and establish standard insertion depth. Mounting clips secure the isolating strip.



Isolating strips

Material
ABS

Scope of delivery
Isolating strips 1 PU (10 pcs)

Delivery form
In units for self-assembly

Note
– Fire resistance rating UL 94 V0

Ordering table

W	Color	Order no.
20 HP	Gray	**79 38 04 00**
42 HP	Gray	**79 38 01 00**
63 HP	Gray	**79 38 03 00**
84 HP	Gray	**79 38 02 00**

Mounting clips for isolating strips

For positioning and securing isolating strips to threaded inserts

Material
ABS

Scope of delivery
Mounting clips 1 PU (100 pcs)

Delivery form
In units for self-assembly

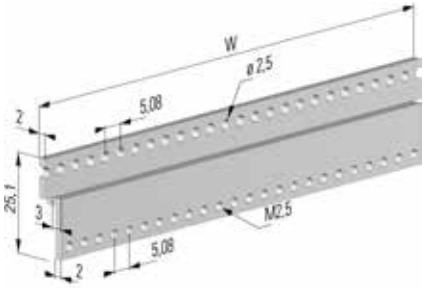
Note
– Fire resistance rating UL 94 V0

Ordering table

Color	Order no.
Gray	**79 51 50 00**

Z-rails

Enable mounting of IEC 60603-2 or IEC 60603-1 connectors on rear rail B.



Z-rails for Basic Unit B – IEC 60603-1

Material
Aluminum extrusion, choice of anodized/cutting edges raw or alodined

Scope of delivery

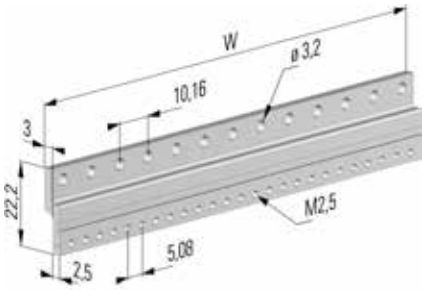
Z-rail	1 PU (10 pcs)
Assembly kit M3	1 PU (10 pcs)

Delivery form
In units for self-assembly

Notes
– Assembly also possible using threaded inserts M2.5/M3
– Screws DIN 7985 M2.5 x 8 mm must be ordered separately

Ordering table

W	Length in mm	Anodized	Alodined
20 HP	104.7	90 41 11 63	–
42 HP	216.5	90 41 11 53	90 41 11 59
63 HP	323.1	90 41 11 54	90 41 11 60
84 HP	429.8	90 41 11 55	90 41 11 61



Z-rails for Basic Unit B – IEC 60603-2

Material
Aluminum extrusion, choice of anodized/cutting edges raw or alodined

Scope of delivery

Z-rail	1 PU (10 pcs)
Assembly kit M3	1 PU (10 pcs)

Delivery form
In units for self-assembly

Notes
– Assembly also possible using threaded inserts M2.5/M3
– Screws DIN 7985 M2.5 x 8 mm must be ordered separately

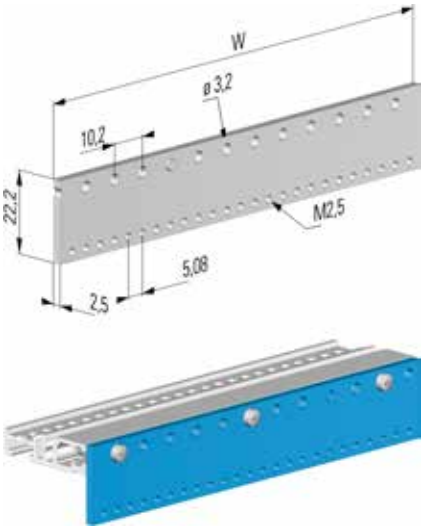
Ordering table

W	Length in mm	Anodized	Alodined
20 HP	104.7	90 41 11 62	–
42 HP	216.5	90 41 11 50	90 41 11 56
63 HP	323.1	90 41 11 51	90 41 11 57
84 HP	429.8	90 41 11 52	90 41 11 58

ACCESSORIES

Perforated rails

Enable mounting of IEC 60603-2 connectors on rear rail E.



Perforated rails for Basic Unit E – IEC 60603-2

Material
Aluminum 2.5 mm, alodined

Delivery form
In units for self-assembly

Scope of delivery

Perforated rail	1 PU (10 pcs)
Assembly kit M3	1 PU (10 pcs)

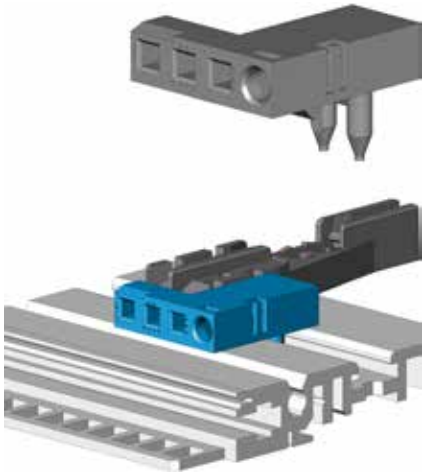
Notes
- Assembly also possible using threaded inserts M2.5/M3
- Screws DIN 7985 M2.5 x 8 mm must be ordered separately

Ordering table

W	Length in mm	Anodized	Alodined
20 HP	104.7	–	**23 11 02 48**
42 HP	216.5	–	**23 11 02 32**
63 HP	323.1	–	**23 11 02 47**
84 HP	429.8	–	**23 11 02 33**

Coding elements

Coding elements are used for labeling slots or subracks in order to prevent mistakes and hence protect the electronics.



Mounting block for coding pins – FreeTEC

For mounting coding pins in IEEE applications and, in conjunction with the ESD spring, making contact with the board via the front rail.

Material
See ordering table

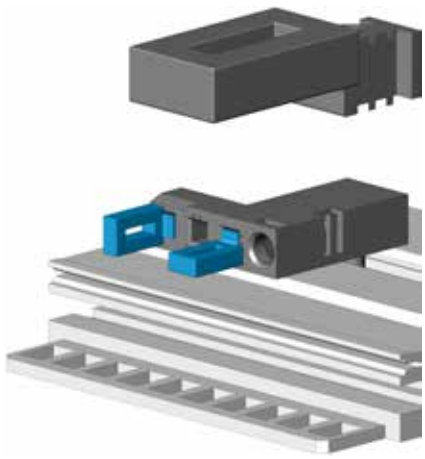
Scope of delivery
Coding block 1 PU (50 pcs)

Delivery form
In units for self-assembly

Notes
– Is clipped into front rail in front of card guide
– Can be used in 4 HP increments
– Possible to include ESD spring
– Fire resistance rating
PPO: UL 94 V0
PC: NF F 16-101/102 class F1, I2

Ordering table

Position	Color	Material	Order no.
Top	Black	PPO	**23 10 01 50**
Top	Red	PPO	**23 10 04 35**
Top	Gray	PC	**23 10 04 06**
Bottom	Black	PPO	**23 10 01 51**
Bottom	Red	PPO	**23 10 04 36**
Bottom	Gray	PC	**23 10 04 07**



Coding pins IEEE – FreeTEC

Coding pins are inserted into the coding block to prevent confusion when the slots are plugged.

Material
PA

Scope of delivery
Coding pin IEEE 1 PU (50 pcs)

Delivery form
In units for self-assembly

Notes
– Can be turned to 4 positions
– Fire resistance rating
PA: UL 94 V0

Ordering table

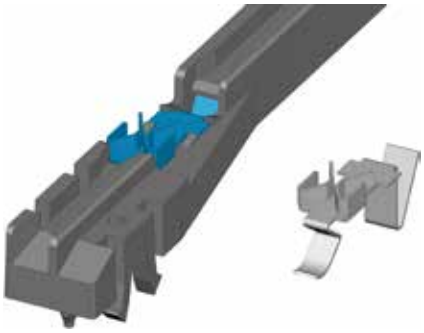
Color	Order no.
Red	**23 10 01 57**

ACCESSORIES

// ESD shielding material

ESD shielding material

ESD springs/screws are used for the discharge of static electricity. ("ESD" abbreviation for "Electrostatic Discharge").



ESD spring for card guide

Is mounted in the card guides for electrostatic discharge of the board to the case.

Material
Tin bronze, tin-plated

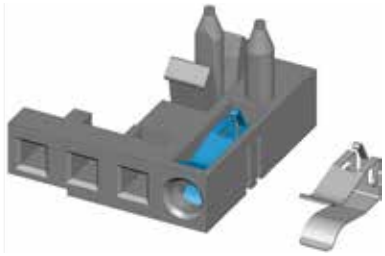
Scope of delivery
ESD spring 1 PU (50 pcs)

Delivery form
In units for self-assembly

Note
– Only for card guides that accept ESD springs

Ordering table

Order no.
79 41 71 02



ESD spring alignment pin

The ESD spring alignment pin is mounted in the coding block for electrostatic discharge of the board via the IEEE extractor handle with ESD pin.

Material
Tin bronze, tin-plated

Scope of delivery
ESD spring 1 PU (50 pcs)

Delivery form
In units for self-assembly

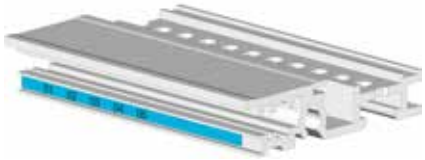
Note
– Only for IEEE extractor handle with ESD pin

Ordering table

Order no.
23 10 01 52

Identification strips

Identification strips are used for labeling the slots. The slot position is viewable through a hole in the front panel.



Identification strips – FreeTEC

Is slotted into the groove provided in the rails.

Material
Polycarbonate 0.25 mm, printed

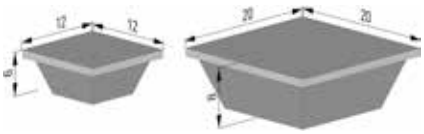
Ordering table

84 HP	Inscription	Order no.
Front	1 - 84 HP (horizontal pitch)	**79 37 00 00**
Rear	84 - 1 HP (horizontal pitch)	**79 37 10 00**
Front	1 - 21 (slot increment)	**79 37 04 21**
Rear	21 - 1 (slot increment)	**79 37 14 21**

ACCESSORIES

// Chassis feet

Chassis feet



Rubber foot, self-adhesive

Can be used for all series

Material
Hard rubber, black

Scope of delivery
Rubber foot 1 PU (20 pcs)

Delivery form
In units for self-assembly

Ordering table

Dimensions	Order no.
12 x 12 mm	79 50 00 00
20 x 20 mm	79 50 01 00

Design construction/studies, backplane layout
based on state-of-the-art CAD technologies

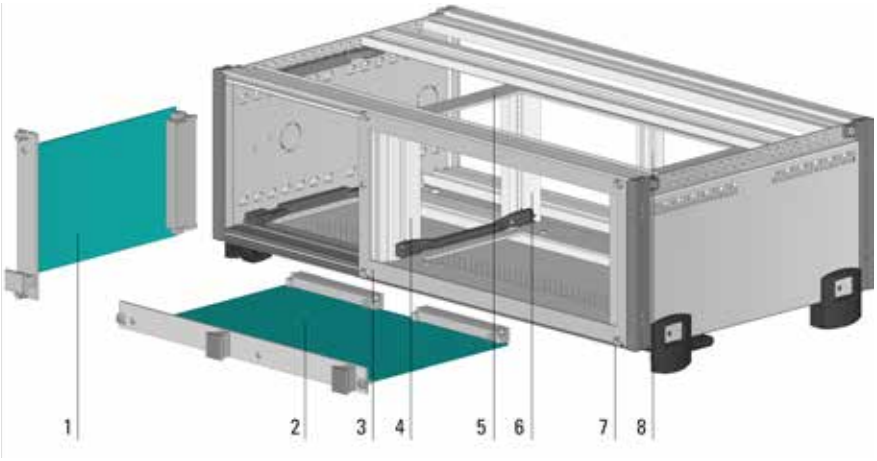
ACCESSORIES

// Horizontal PCB mount

Conversion kit for horizontal PCB mount

Product information
For horizontal PCB mount of double Eurocards in 3 U FreeTEC Series cases

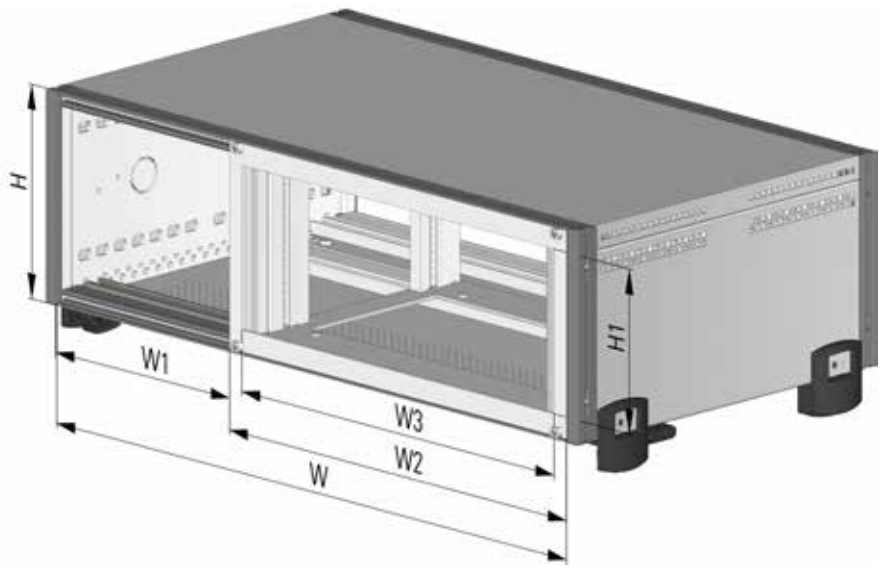
Standards
Mounting dimensions in accordance wtih IEC 60297-3-101



Configuration example
The diagram shows a typical horizontal PCB mount configuration.

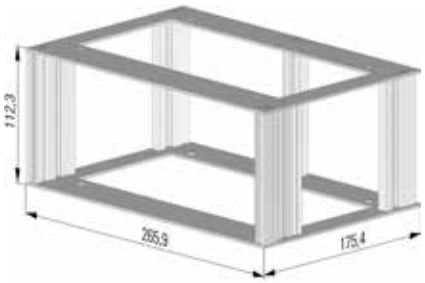
1 (Single Eurocard)
2 (Double Eurocard)
3 Front bezel*
4 Front rail
5 Frame top/bottom
6 Rear rail
7 Assembly hardware
8 Center rail

Parts marked with * must be ordered separately.



Mounting dimensions

H	3 U
H1	20 HP = 101.6 mm
W	84 HP
W1	28 HP
W2	56 HP = 284.1 mm
W3	6 U = 262.7 mm



Conversion kit for horizontal PCB mount, EMC – FreeTEC

Scope of delivery

Frame top/bottom	2 pcs
Front rail	2 pcs
Rear rail (B/E)	2 pcs
Center rail (B/E)	1 pc
Assembly kit	1 pc

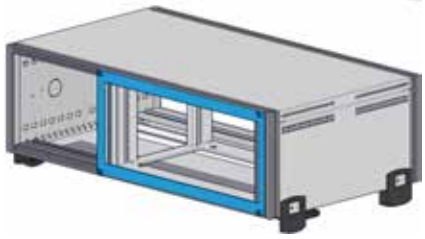
Material
Aluminum, alodined

Delivery form
Individual components in units for self-assembly

Notes
– EMC version
– Front bezels must be ordered separately. (see below)

Ordering table

H	Basic Unit	Board depth = 160 mm	Board depth = 220 mm
3 U	B	**23 10 04 50**	–
3 U	E	**23 10 04 51**	–



Front bezel, 3 U/56 HP, EMC – FreeTEC

For trimming horizontal PCB mount

Scope of delivery

Front bezel	1 pc
Assembly kit, type A (knurled screw)	1 pc

Material
Aluminum 2.5 mm, front anodized/rear alodined

Delivery form
Individual components in units for self-assembly

Notes
– Press-fit metal sleeve
– Shielded version on request

Ordering table

H	W2	Order no.
3 U	56 HP	**23 10 04 52**

ACCESSORIES

// Assembly components

Ordering table

Usage		Description	Version Material	Standard	FreeTEC	Magic	Space	Order no.	PU
Mounting Z-rails, perforated rails		Cross-recessed pan head screw	M2.5 x 8 mm Steel nickel-plated	DIN 7985	●	●	●	**79 91 08 00**	1 PU (100 pcs)
Mounting card guide		Cross-recessed countersunk head screw	M2.5 x 6 mm Steel zinc-plated	WN 1413	●	●	●	**79 51 50 48**	1 PU (100 pcs)
		Cross-recessed pan head screw	M2.5 x 12 mm Steel nickel-plated	DIN 7985	●	●	●	**79 91 13 00**	1 PU (100 pcs)
		Hexagon nut	M2.5 Steel nickel-plated	DIN 934	●	●	●	**79 91 07 00**	1 PU (100 pcs)
Mounting card guide, thread-forming		Cross-recessed pan head screw	KA3.0 x 12 mm Steel zinc-plated	PT®	●	●	●	**79 51 50 47**	1 PU (100 pcs)
Mounting subrack to 19" rack		Pan head screw with Torx T30	M6 x 16 mm stainless steel	ISO 14583	●	●	●	**79 91 85 00**	1 PU (100 pcs)
		Cross-recessed pan head screw	M6 x 16 mm Steel nickel-plated	DIN 7985	●	●	●	**79 91 23 00**	1 PU (100 pcs)
		Plastic washer	d = 6.8 mm PP		●	●	●	**79 91 30 00**	1 PU (100 pcs)
		Cage nut	M6 Steel zinc-plated		●	●	●	**79 91 31 00**	1 PU (100 pcs)
Individual mounting to side plate		Insert nut	M4 stainless steel		●			**79 91 41 00**	1 PU (10 pcs)

FreeTEC
19" rackmount/desktop case

SmarTEC
Small equipment cases

#01 CONTENT
CASES

Small equipment cases

GENERAL INFORMATION

// Overview

SmarTEC/Sequence

Small equipment cases in extrusion construction with front/rear bezel for horizontal mounting of Eurocards, typically in single or double Eurocard formats.

The illustration shows a case from the SmarTEC Series.

Quarto

Small equipment cases for mounting custom electronics. The stable extrusion construction and the modular concept, which permits flexible configuration of both length and width, opens up a wide variety of applications. The height dimensions are fixed dimensions.
Depending on the series, the cases can be configured to comply with up to IP54.

The illustration shows a case from the Quarto Series.

CasTEC

Small equipment case in die-cast aluminum accommodates custom electronics, particularly suitable for use in harsh, industrial environments (IP65 rating).

// Overview of series

Series	Surface			EMC	IP rating	Board formats		Individual	Features
	Anodized	Alodined	Powder-coated	Shielding concept		3 U	6 U	assembly	
SmarTEC	●	–	●	●	–	●	●	●	One-piece or two-piece extruded case Guide rails integrated in side extrusion
Sequence	●	–	–	●	–	●	●	●	One-piece extruded case Guide rails integrated in side extrusion
Quarto	●	–	–	●	●	–	–	●	Customizable in depth and width Can be configured up to IP54 Also available by the meter
CasTEC	–	–	–	●	●	–	–	●	Die-cast aluminum case For use outdoors (IP65)

// Custom designs

Custom designs are possible in various widths and depths and with individual processing to your specifications.

// Individual assembly

Components are available for your individual assembly.

// Assembly service

Our assembly service is available to you on request.

// Questions?

We are happy to help you. Please contact us.

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+49.(0)800-POLYRACK (+49.(0)800-76597225)
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POLY
RACK

SmarTEC

Product information

SmarTEC can be flexibly adapted to the specific application and requirements.
The cases are available both as a one-piece or a two-piece extrusion solution. A distinctive feature of the two-piece solution is the accessibility from above. At the same time it is not necessary to forgo the typical benefits of an extrusion solution - such as for example stability and design for quick assembly.
Both versions comply with EMC criteria.

Standards

– IP rating in accordance with IEC 60529
  Case with one-piece extrusion: IP54,
  Case with two-piece extrusion: IP43

Notes

– Cases that are 115 mm wide are suitable for Eurocards, cases that are 275 mm wide accept double Eurocards
– No grounding tabs, but these can be mounted individually

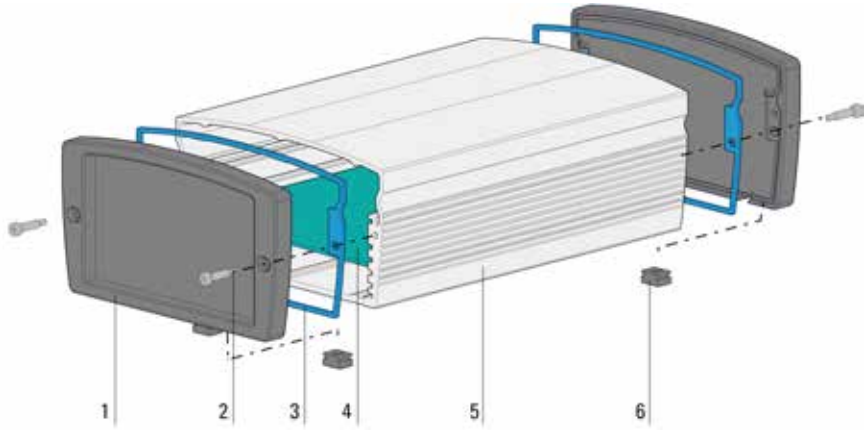
Overview

Basic units	H1 in mm			W1 in mm			D in mm			Page
	45	65	85	85	115	275	123	183	243	
- Extrusion, one-piece	●			●			●	–	–	CAS 02 .13
		●			●		–	●	–	CAS 02 .13
			●			●	–	–	●	CAS 02 .13
- Extrusion, two-piece		●			●		–	●	–	CAS 02 .13
			●			●	–	–	●	CAS 02 .13

// Product information

Configuration examples

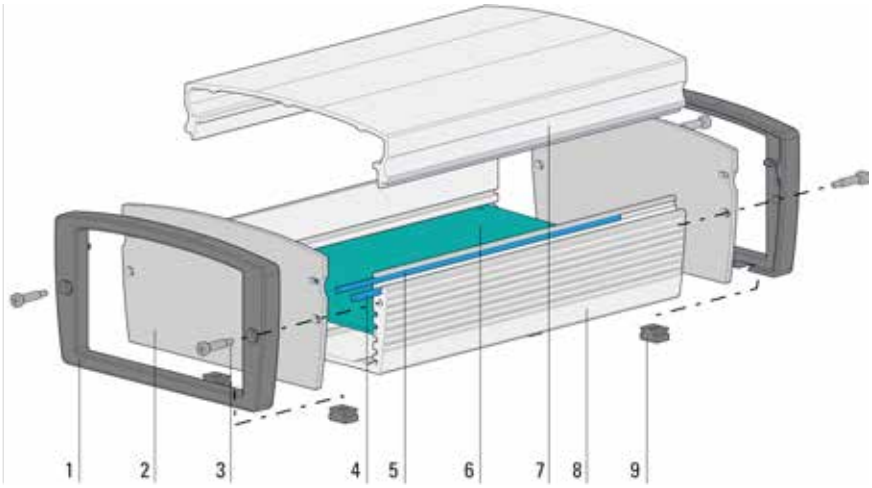
The diagram shows the configuration of a SmarTEC Series one-piece extruded case.



1 Front/rear bezel, closed
2 Assembly hardware
3 IP molded gasket
4 Printed circuit board*
5 Extruded case, one piece
6 Foot for insertion

Parts marked with * are not included in the scope of delivery of the basic unit, i. e. must be ordered separately.

The diagram shows the configuration of a SmarTEC Series two-piece extruded case.

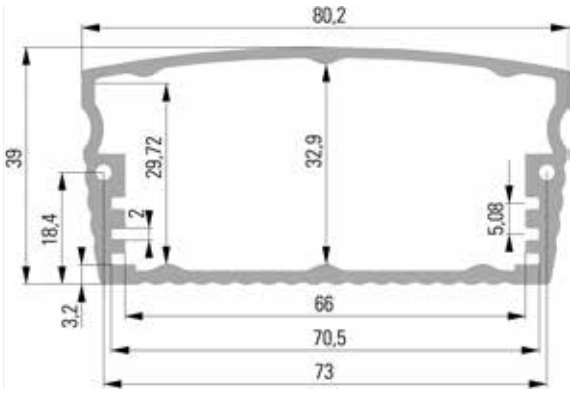


1 Front/rear bezel, open
2 Front/rear panel
3 Assembly hardware
4 IP cord gasket ø 2.5 mm
5 EMC shielding D, 1.5 x 2 mm
6 Printed circuit board*
7 Extruded case, top
8 Extruded case, bottom
9 Foot for insertion

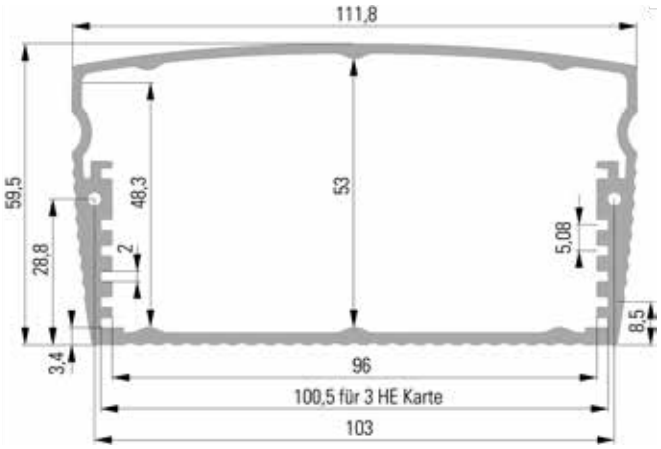
Parts marked with * are not included in the scope of delivery of the basic unit, i. e. must be ordered separately.

// Product information

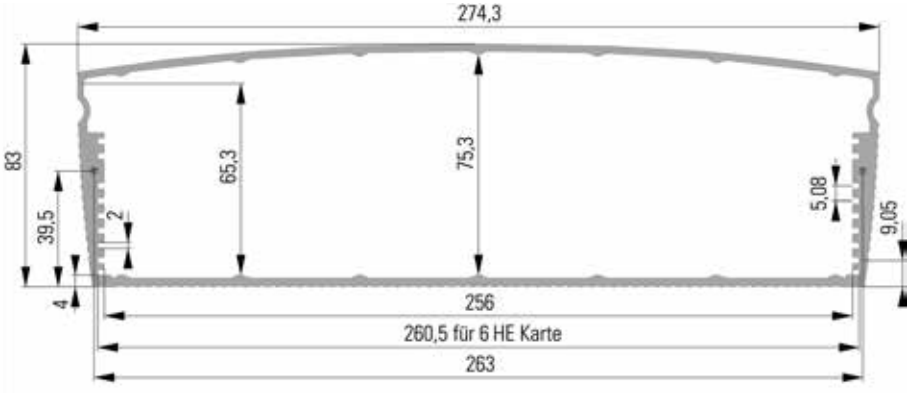
Dimension diagrams



Extruded case H1 = 45 mm / W1 = 85 mm



Extruded case H1 = 65 mm / W1 = 115 mm



Extruded case H1 = 85 mm / W1 = 275 mm

// Manufacturing tolerances

All parts are subject to POLYRACK's factory specifications, whereby:

Extrusion specifications comply with DIN EN 12020-1

Punched parts comply with DIN ISO 6930-1/6930-2 and DIN 6932

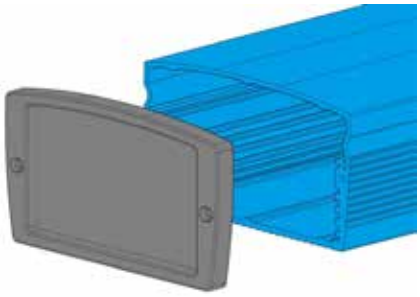
Die-cast parts comply with DIN 1688-4

// Basic units

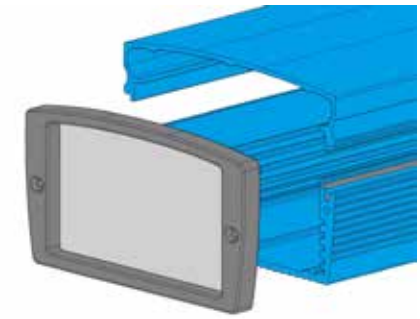
Basic units

The SmarTEC Series cases are available in two basic versions. In the "two-piece extruded case" version, the front/rear bezels are open and the front/rear panels are separate. However, the combination with front/rear bezel open or closed is basically possible for both versions. For this and for other dimensions, customized configuration is available.

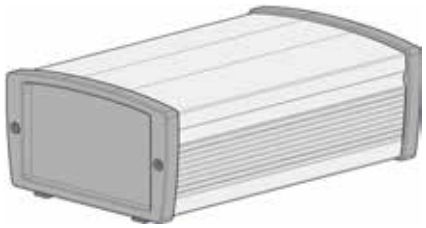
Features of the basic units



Extruded case, one piece



Extruded case, two-piece



SmarTEC case, one-piece extruded case

Scope of delivery

Extruded case, one piece	1 pc
Front/rear bezel, closed	2 pcs
IP molded gasket	2 pcs
Feet 9 x 7 x 2.5 mm	4 pcs
Assembly kit	1 pc

Delivery form

Individual components in units for self-assembly

Notes

– Further sizes available for customized configuration
– IP54 rating in accordance with IEC 60529

Ordering table

H1 in mm	W1 in mm	D = 123 mm	D = 183 mm	D = 243 mm
45	85	21 00 00 21	–	–
65	115	–	21 00 00 22	–
85	275	–	–	21 00 00 24

SmarTEC case, two-piece extruded case

Scope of delivery

Extrusion, bottom	1 pc
Extrusion, top	1 pc
Front/rear bezel, open	2 pcs
Front/rear panel	2 pcs
EMC shielding D, 1.5 x 2 mm for extruded case (L = 1000 mm)	1 pc
IP cord gasket ø 2.5 mm for extruded case (L = 1000 mm)	1 pc
Feet 9 x 7 x 2.5 mm	4 pcs
Assembly kit	1 pc

Delivery form

Individual components in units for self-assembly

Notes

– Further sizes available for customized configuration
– IP43 rating in accordance with IEC 60529

Ordering table

H1 in mm	W1 in mm	D = 123 mm	D = 183 mm	D = 243 mm
65	115	–	21 00 00 13	–
85	275	–	–	21 00 00 15

SmarTEC

// Single components

Extruded case, one-piece – SmarTEC

Material
Aluminum extrusion, anodized/cutting edges raw

D1 = D - 18 mm

Scope of delivery
Extruded case 1 pc

Delivery form
Individual components in units for self-assembly

Ordering table

H1 in mm	W1 in mm	D1 = 105 mm	D1 = 165 mm	D1 = 225 mm
45	85	21 00 30 01	21 00 30 07	–
45	115	21 00 30 02	21 00 30 08	–
65	115	21 00 30 04	21 00 30 10	21 00 30 15
65	175	21 00 30 05	21 00 30 11	21 00 30 16
85	175	–	21 00 30 13	21 00 30 18
85	275	–	21 00 30 14	21 00 30 19

Extruded case, top cover – SmarTEC

Material
Aluminum extrusion anodized/cutting edges and surfaces for "EMC shielding fabric" raw

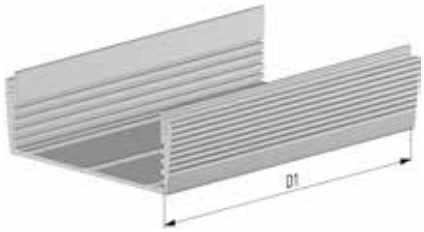
D1 = D - 18 mm

Scope of delivery
Extruded case, top 1 pc

Delivery form
In units for self-assembly

Ordering table

H1 in mm	W1 in mm	D1 = 105 mm	D1 = 165 mm	D1 = 225 mm
65	115	21 00 31 04	21 00 31 10	21 00 31 15
65	175	21 00 31 05	21 00 31 11	21 00 31 16
85	275	–	21 00 31 14	21 00 31 19



Extruded case, bottom – SmarTEC

Material
Aluminum extrusion anodized/cutting edges and surfaces for "EMC shielding fabric" raw

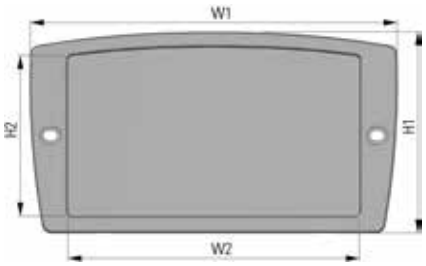
D1 = D - 18 mm

Scope of delivery
Extruded case, bottom 1 pc

Delivery form
In units for self-assembly

Ordering table

H1 in mm	W1 in mm	D1 = 105 mm	D1 = 165 mm	D1 = 225 mm
65	115	21 00 32 04	21 00 32 10	21 00 32 15
65	175	21 00 32 05	21 00 32 11	21 00 32 16
85	275	–	21 00 32 14	21 00 32 19



Front/rear bezel closed – SmarTEC

As front and rear cover for one-piece or two-piece extrusions

Material
Die-cast aluminum, powder-coated "anthracite metallic"

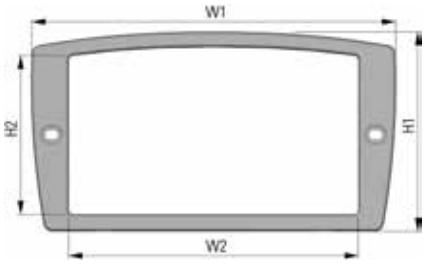
Scope of delivery
Front/rear bezel, closed 1 pc

Delivery form
Individual components in units for self-assembly

Note
– Can only be used in conjunction with IP molded gasket

Ordering table

H1 in mm	W1 in mm	H2 in mm	W2 in mm	D = 225 mm
45	85	31.0	62	**21 00 10 01**
45	115	31.0	92	**21 00 10 02**
65	115	50.5	92	**21 00 10 03**
65	175	50.5	152	**21 00 10 05**
85	175	67.7	152	**21 00 10 06**
85	275	67.7	252	**21 00 10 08**



Front/rear bezel open – SmarTEC

As front and rear cover for one-piece or two-piece extrusions

Material
Die-cast aluminum, powder-coated "anthracite metallic"

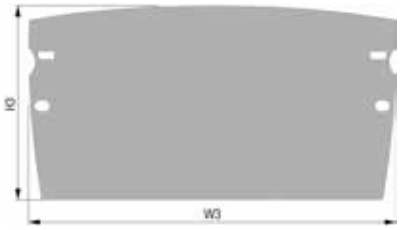
Scope of delivery
Front/rear bezel, open 1 pc

Delivery form
In units for self-assembly

Note
– For use with separate front/rear panel

Ordering table

H1 in mm	W1 in mm	H2 in mm	W2 in mm	D = 225 mm
45	85	31.0	62	**21 00 10 11**
45	115	31.0	92	**21 00 10 12**
65	115	50.5	92	**21 00 10 13**
65	175	50.5	152	**21 00 10 15**
85	175	67.7	152	**21 00 10 16**
85	275	67.7	252	**21 00 10 18**



Front/rear panels – SmarTEC

As full front and rear cover when open bezel is used

Material
Aluminum 2.5 mm, front anodized/rear alodined

Scope of delivery
Front/rear panel 1 pc

Delivery form
In units for self-assembly

Note
– In conjunction with "front/rear bezel, open"

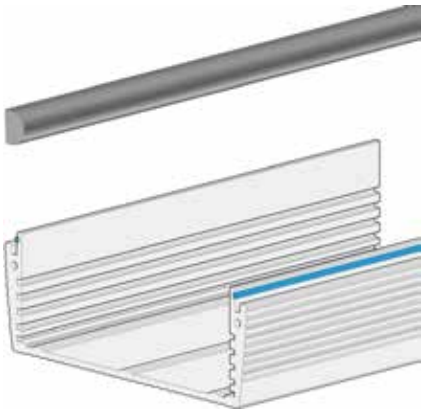
Ordering table

H1 in mm	W1 in mm	H3 in mm	W3 in mm	Order no.
45	85	38.1	79.4	**21 00 20 01**
45	115	38.1	111.0	**21 00 20 02**
65	115	58.6	111.0	**21 00 20 03**
65	175	58.6	170.4	**21 00 20 05**
85	175	82.1	170.4	**21 00 20 06**
85	275	82.1	272.4	**21 00 20 08**

// Single components

EMC shielding material

To ensure that electronic products function satisfactorily in an electromagnetic environment i. e. that the electromagnetic compatibility (EMC) of the products is guaranteed, shielding material is required, dependent on the electronics and on the ambient conditions.
EMC shielding materials are used to establish contact with mechanical components and thus protect plug-in units and electronics against radio frequency interference.



EMC fabric shielding material – SmarTEC

The EMC shielding material D is used to establish contact between the top of the extruded case and the bottom of the extruded case

Material
Conductive fabric, 1.5 x 2 mm, CuNi coated

Scope of delivery
by length (L = 1000 mm) 1 pc

Delivery form
In units for self-assembly

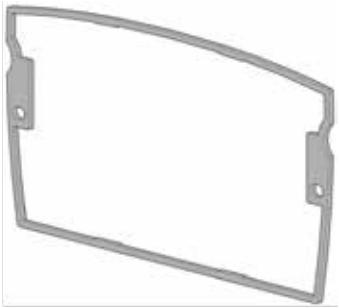
Notes
– Single sided adhesive (peel-off film)
– Thermal resistance: -40°C to +100°C
– Fire resistance rating: UL 94V0

Ordering table

Order no.
23 10 04 32

IP Gaskets

Required to enhance IP rating



IP molded gasket – SmarTEC

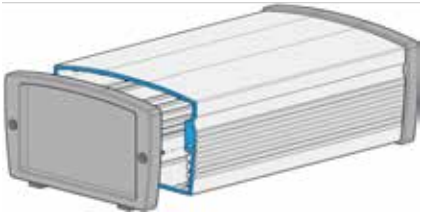
Required with use of closed front/rear bezel

Material
Molded gasket, EPDM, 30 Shore

Scope of delivery
Molded gasket 1 pc

Delivery form
In units for self-assembly

Note
– Cannot be used in conjunction with open bezels



Ordering table

H1 in mm	W1 in mm	Order no.
45	85	**21 00 43 01**
45	115	**21 00 43 02**
65	115	**21 00 43 03**
65	175	**21 00 43 05**
85	175	**21 00 43 06**
85	275	**21 00 43 08**

IP gasket – SmarTEC

For extruded case, two-piece

Material
Sponge rubber cord ø 2.5 mm

Scope of delivery
by length (L = 1000 mm) 1 pc

Delivery form
In units for self-assembly

Note
– Required for compliance with IP 43 for two-piece extruded case

Ordering table

Order no.
21 00 40 02

// Single components

Assembly kit – SmarTEC

The assembly kit is required for customized configuration of SmarTEC cases.

Notes

– The assembly kit is supplied with every SmarTEC basic unit.
– Individual components cannot be ordered separately.

Scope of delivery

Usage	Description	Version/material	Standard	Quantity
Mounting front/rear bezels to extruded case	Cylinder head screw with Torx T8 eco-syn	M3 x 15 mm Steel zinc-plated		4 pcs
Slots into case frame	Foot SmarTEC 9 x 7 x 2.5 mm	TPE, black 65 Shore		4 pcs

Ordering table

Order no.
21 00 40 01

Sequence

Product information

The design of the Sequence extruded case with its striking cooling fin structure is particularly appealing. The case is designed to accommodate single or double Eurocards in multiple levels. It is available in 2 versions. One version has closed front/rear bezels, the second has open front/rear bezels with separate front/rear panels. These are also available with a groove so that the case can be equipped with conductive gasketing for compliance with EMC criteria and up to IP54 rating.

Standards

– IP40 rating in accordance with IEC 60529
Up to IP54 when front panels with groove and gasketing are used.

Note

– Use of grounding tabs not possible

Overview

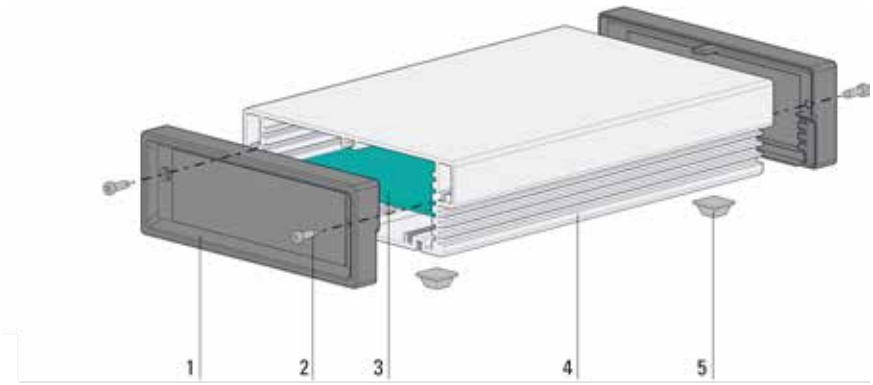
Basic units	H in U		W1 in mm			D1 in mm				Page
	1	2	125	172	260	185	209	240	264	
- Front/rear bezel closed	●		●			●	–	●		CAS 02 .27
	●			●	●	–	●	–	●	CAS 02 .27
		●	●		●	–	●	–	●	CAS 02 .27
- Front/rear bezel open	●		●			●	–	●	–	CAS 02 .27
	●			●	●	–	●	–	●	CAS 02 .27
		●	●		●	–	●	–	●	

Sequence

// Product information

Configuration examples

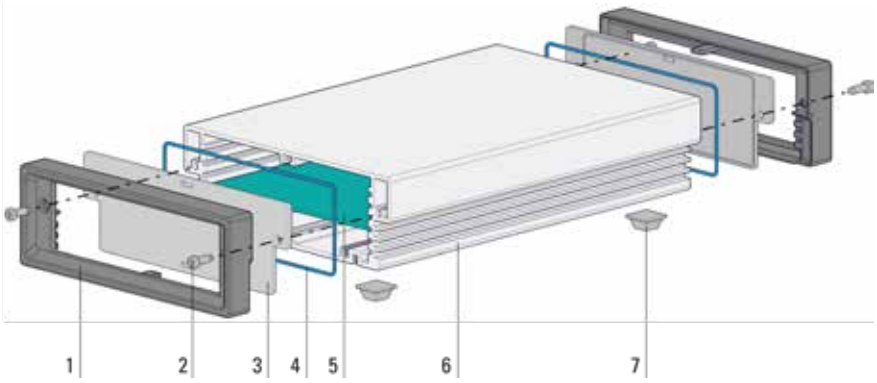
The diagram shows the configuration of a Sequence Series extruded case with closed front/rear bezel.



1 Front/rear bezel, closed
2 Assembly hardware
3 Printed circuit board*
4 Extruded case
5 Adhesive foot

Parts marked with * are not included in the scope of delivery of the basic unit, i. e. must be ordered separately.

The diagram shows the configuration of a Sequence Series extruded case with open front/ rear bezel.



1 Front/rear bezel, open
2 Assembly hardware
3 Front/rear panel with groove*
4 Cord gasket ø 1 mm
5 Printed circuit board*
6 Extruded case
7 Adhesive foot

Parts marked with * are not included in the scope of delivery of the basic unit, i. e. must be ordered separately.

Surface finishing

– Extruded case aluminum anodized/cutting edges raw or powder-coated RAL 7035 (light gray)/cutting edges raw
– Front/rear bezels ABS (fire resistance rating, RAL 7001 (silver gray)

// Notes on units of measurement and mounting/overall dimensions

Inner dimensions
– For mounting standard or double Eurocards

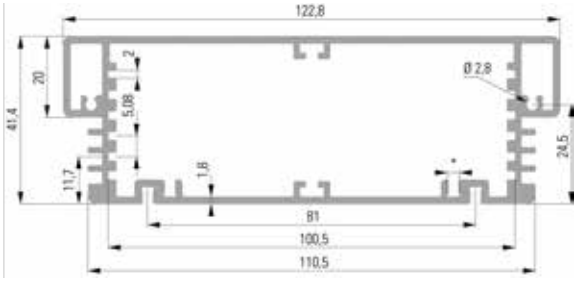
Unit of height U
Measurement unit for height in 19" rack systems
1 U = 44.45 mm

Dimensions specified in ordering tables
The dimensions, especially those given in U, are specified in relation to the application:

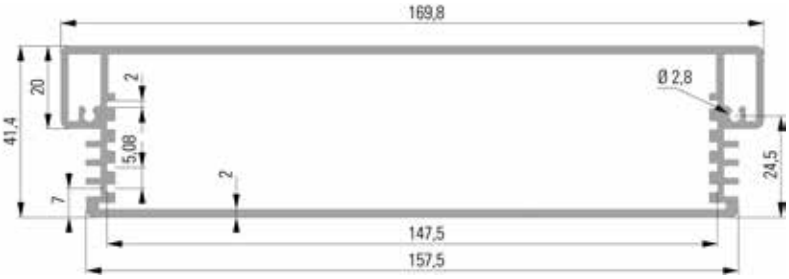
Height H = (n (U) x 44.45 mm) - 0.8 mm

Sequence

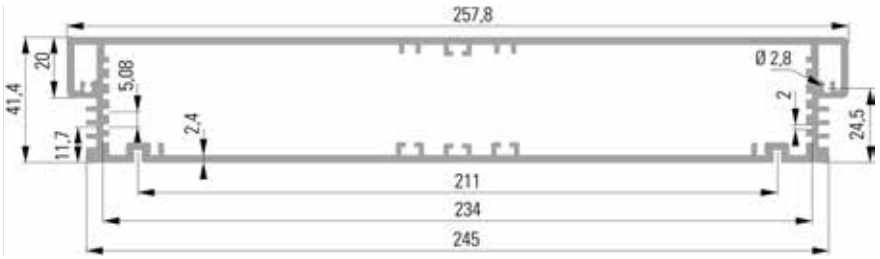
Dimension diagrams



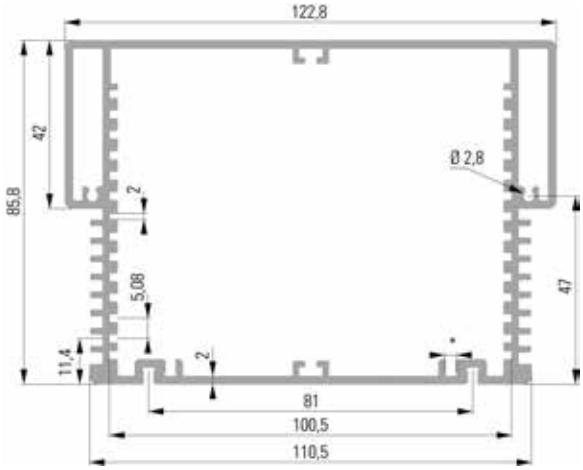
Extruded case H = 1 U / W1 = 125 mm



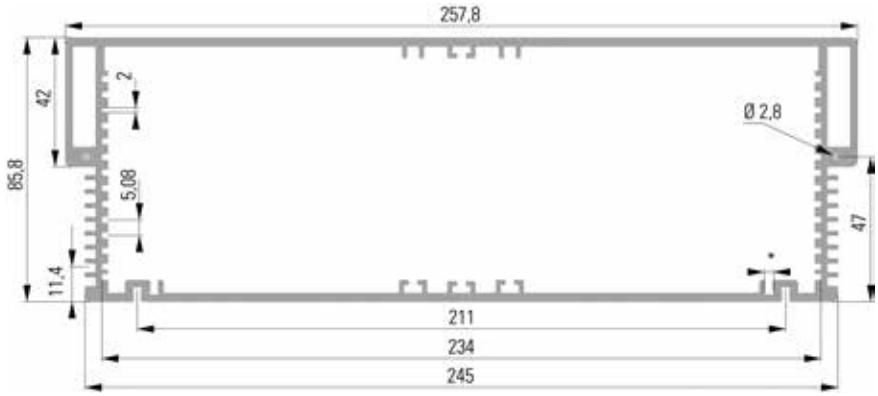
Extruded case H = 1 U / W1 = 172 mm



Extruded case H = 1 U / W1 = 260 mm



Extruded case H = 2 U / W1 = 125 mm



Extruded case H = 2 U / W1 = 260 mm

// Manufacturing tolerances

All parts are subject to POLYRACK's factory specifications, whereby:

Extrusion specifications comply with DIN EN 12020-1

Punched parts comply with DIN ISO 6930-1/6930-2 and DIN 6932

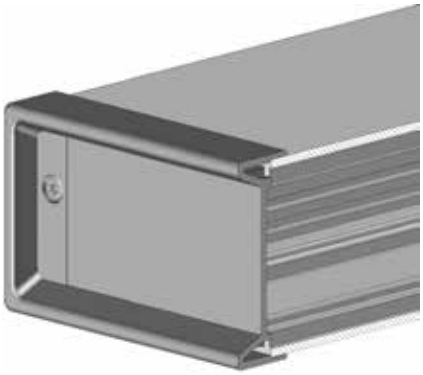
Plastic parts comply with DIN ISO 16901-130

Sequence

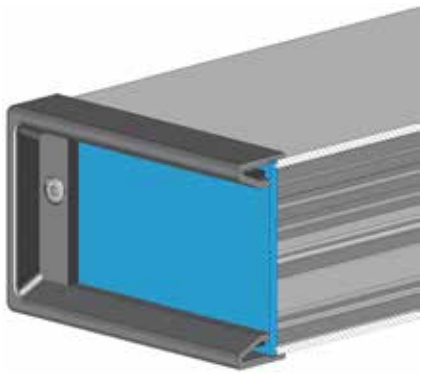
Basic units

The Sequence series cases are available in two basic versions.
The "front/rear bezel open" version can be equipped with various different front/rear panels, which also determine the degree of shielding and IP protection.

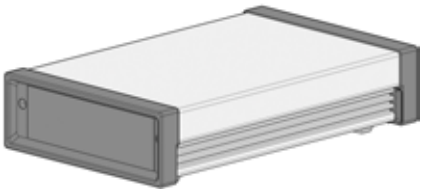
Features of the basic units



Front/rear bezel closed



Front/rear bezel open
"Front/rear panels – Sequence" are not included in the scope of delivery of the basic units.



Sequence case, closed front/rear bezel

Scope of delivery

Extruded case, anodized with option of RAL 7035	1 pc
Front/rear bezel, closed	2 pcs
Rubber foot self-adhesive 12 x 12 x 6 mm	4 pcs
Assembly kit	1 pc

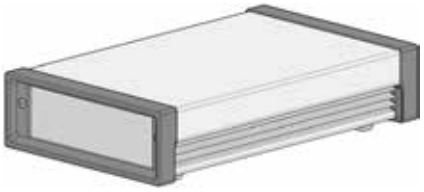
Delivery form
In units for self-assembly

Note
– Front/rear panels cannot be mounted

D = D1 + 20mm

Ordering table

H	H in mm	W in mm	D1 in mm	Extrusion anodized	Extrusion RAL 7035
1 U	43.6	125	185	**20 00 00 01**	**20 00 00 21**
1 U	43.6	125	240	**20 00 00 05**	**20 00 00 25**
1 U	43.6	172	209	**20 00 00 09**	**20 00 00 29**
1 U	43.6	172	264	**20 00 00 10**	**20 00 00 30**
1 U	43.6	260	209	**20 00 00 03**	**20 00 00 23**
1 U	43.6	260	264	**20 00 00 07**	**20 00 00 27**
2 U	88.1	125	209	**20 00 00 02**	**20 00 00 22**
2 U	88.1	125	264	**20 00 00 06**	**20 00 00 26**
2 U	88.1	260	209	**20 00 00 04**	**20 00 00 24**
2 U	88.1	260	264	**20 00 00 08**	**20 00 00 28**



Sequence case, open front/rear bezel

Scope of delivery

Extruded case, anodized with option of RAL 7035	1 pc
Front/rear bezel, open	2 pcs
Rubber foot, self-adhesive 12 x 12 x 6 mm	4 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly

Note
– Front/rear panels must be ordered separately.

D = D1 + 24mm

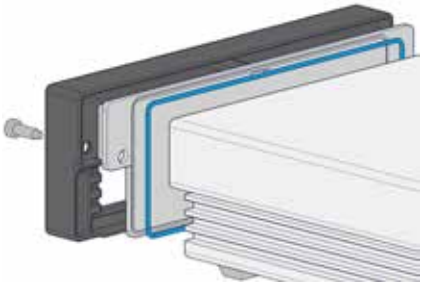
Ordering table

H	H in mm	W in mm	D1 in mm	Extrusion anodized	Extrusion RAL 7035
1 U	43.6	125	185	**20 00 00 11**	**20 00 00 31**
1 U	43.6	125	240	**20 00 00 15**	**20 00 00 35**
1 U	43.6	172	209	**20 00 00 19**	**20 00 00 39**
1 U	43.6	172	264	**20 00 00 20**	**20 00 00 40**
1 U	43.6	260	209	**20 00 00 13**	**20 00 00 33**
1 U	43.6	260	264	**20 00 00 17**	**20 00 00 37**
2 U	88.1	125	209	**20 00 00 12**	**20 00 00 32**
2 U	88.1	125	264	**20 00 00 16**	**20 00 00 36**
2 U	88.1	260	209	**20 00 00 14**	**20 00 00 34**
2 U	88.1	260	264	**20 00 00 18**	**20 00 00 38**

Sequence

// Single components

Front/rear panels, center rails



Front/rear panels – Sequence

As front/rear cover for use with open front/rear bezel

Material
Aluminum 2 mm
See ordering table

* Diagram: Front/rear panel with groove

Scope of delivery
Front/rear panel 1 pc
Cord gasket ø =1 mm
only for front/rear panels with groove 1 pc

Delivery form
Individual components in units for self-assembly

Note
– Can only be used in conjunction with open bezels

Ordering table

H	H1 in mm	W1 in mm	W2 in mm	Front/rear anodized / cutting edges raw	Front anodized/ rear without groove, alodined	Front anodized/ rear with groove, alodined
1 U	41.1	125	122	20 41 50 01	20 41 50 11	20 21 50 01
1 U	41.1	172	169	20 41 50 15	20 41 50 16	20 41 50 17
1 U	41.1	260	257	20 41 50 03	20 41 50 13	20 21 50 03
2 U	85.5	125	122	20 41 50 02	20 41 50 12	20 21 50 02
2 U	85.5	260	257	20 41 50 04	20 41 50 14	20 21 50 04

Center rails – Sequence

For split PCB mounting of 100-mm Eurocards with case width of 260 mm.

Material
Aluminum extrusion, raw

D2 = D1 - 24 mm

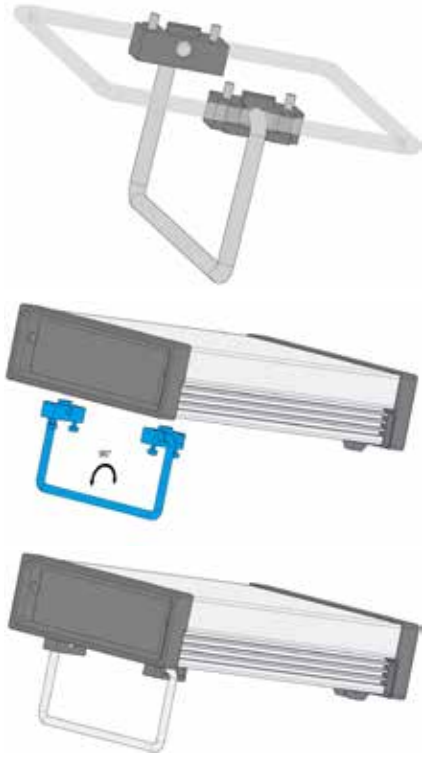
Scope of delivery
Center rail 1 pc

Delivery form
In units for self-assembly

Ordering table

H	H1 in mm	D1 = 209 mm	D1 = 264 mm
1 U	35.9	20 41 70 01	20 41 70 03
2 U	79.3	20 41 70 02	20 41 70 04

Carrying/support handle



Carrying/support handle – Sequence

For mobile use, can be mounted at a later point in time

Material
Handle, steel, nickel-plated
Handle reception ABS RAL 7001

Fire-resistance rating
ABS: UL 94 V0

Scope of delivery

Handle	1 pc
Handle reception	2 pcs
Buffer ø 6 mm x 1.6 mm	2 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly

Notes
– The handle can be adjusted in steps of 90°
– Tilt angle of case 16°

Ordering table

W1 in mm	Order no.
125	20 21 70 00
260	20 21 70 01

Quarto
Small equipment case

Quarto

Product information

The Quarto Series small equipment cases accommodate custom electronics. The modular concept of the extruded case construction gives dimensional flexibility as regards both width and depth. The good EMC characteristics and the possibility of rendering the case so dust-proof and water-proof that it complies with IP54 are additional benefits. Thanks to multiple configuration options, the case can be used as a desktop, wall-mounting, extension, control or 19" case.

Standards
– IP rating in accordance with IEC 60529 can comply with up to IP54, depending on configuration

Note
– No grounding tabs, but these can be mounted individually

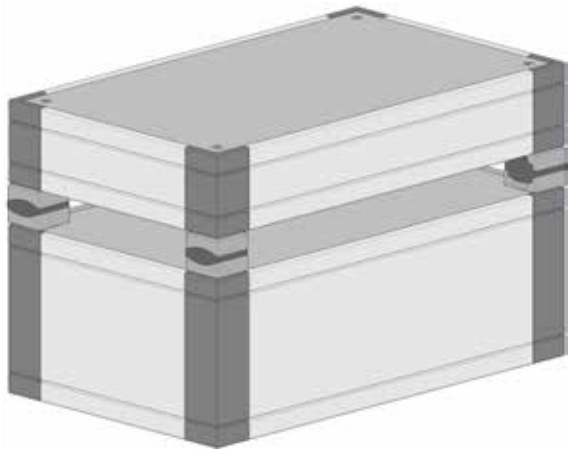
Overview

Basic Units	H			W1 in mm		D in mm		Page
	1 U	2 U	3 U	250	433	150	250	
- Standard	●	●	●	●	●	●	●	CAS 02.37
- Standard, preassembled	●	●	●	●	●	●	●	CAS 02.37
- EMC	●	●	●	●	●	●	●	CAS 02.38
- EMC/IP54	●	●	●	●	●	●	●	CAS 02.38

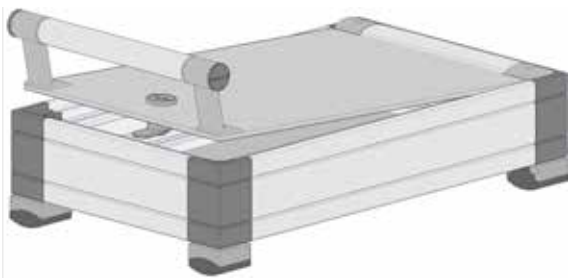
Quarto

Application solutions

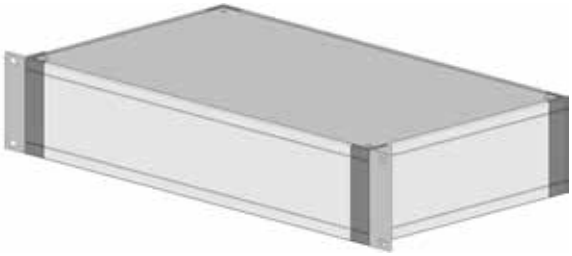
Desktop case



Extension case

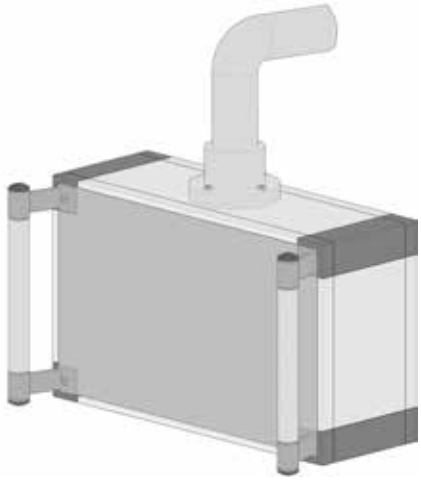


Hinged front panel



19" case

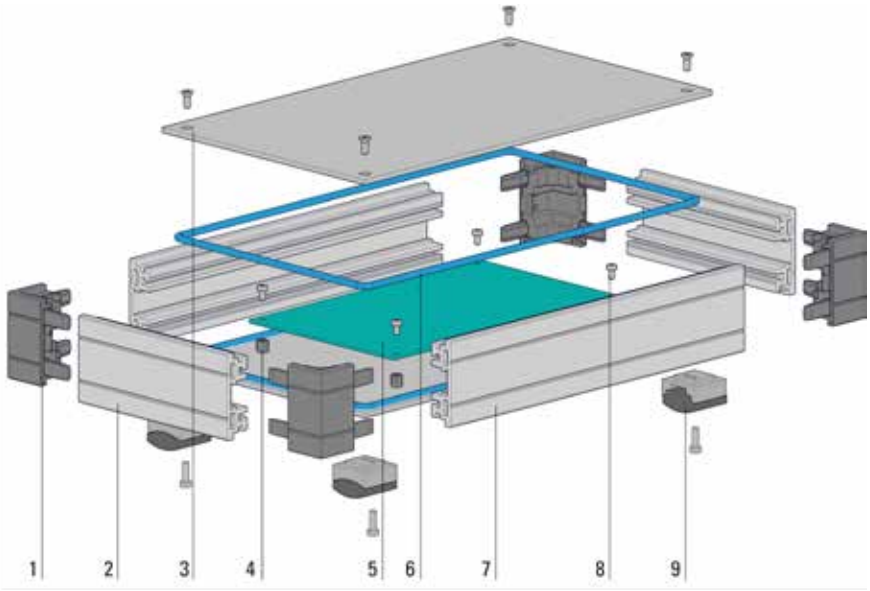
Wall-mounting case



Control case

Quarto

// Product information



Configuration example

The diagram shows the configuration of a Series Quarto desktop case.

1 Die-cast corner bracket
2 Extrusion, dimension for D
3 Front/rear panel*
4 Standoff*
5 Printed circuit board*
6 EMC/IP gasket
7 Extrusion, dimension for W1
8 Assembly hardware
9 Foot (stack foot available as option)

Parts marked with * are not included in the scope of delivery of the basic unit, i. e. must be ordered separately.

Surface finishing

– Extrusions anodized cutting edges raw, corner brackets powder-coated RAL 7001 (silver gray)
Option of case fully powder-coated RAL 7035 (light gray)

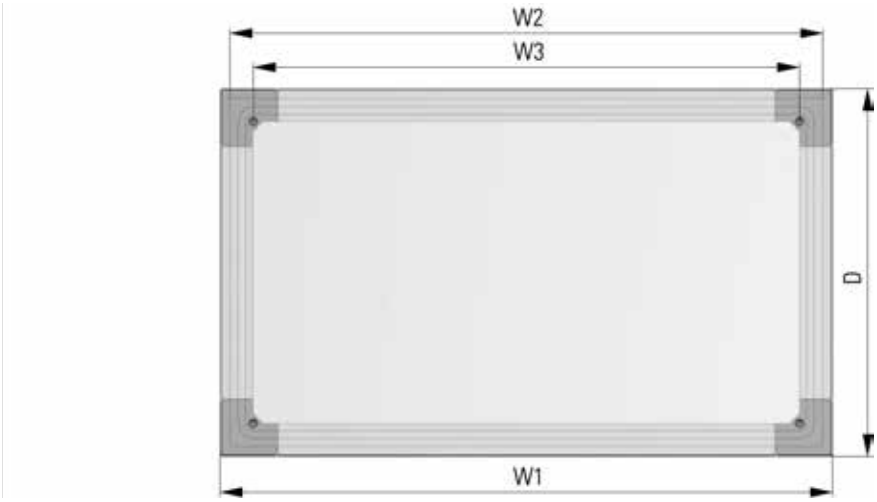
// Notes on units of measurement and mounting/overall dimensions

Unit of height U
Measurement unit for height in 19“ rack systems
1 U = 44.45 mm

Dimensions specified in ordering tables
The dimensions, especially those given in U, are specified in relation to the application:

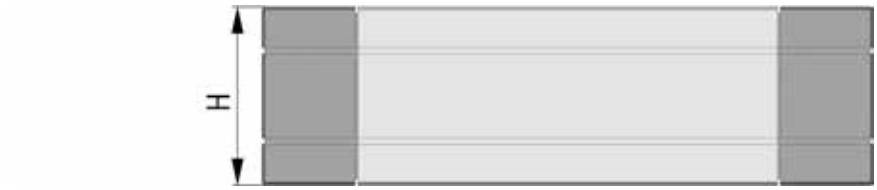
Height H = (n (U) x 44.45 mm) - 0.8 mm

Dimension diagrams



D = Case depth

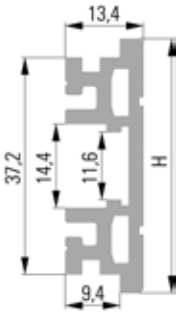
W1 = Case width
W2 = W1 - 10 mm
W3 = W1 - 13.4 mm
= inner mounting dimension
= distance between front and rear panel mounting



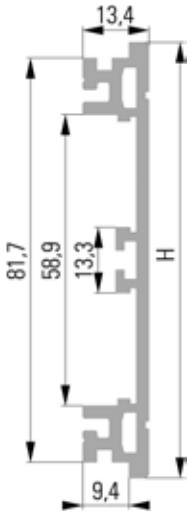
Side view

Quarto

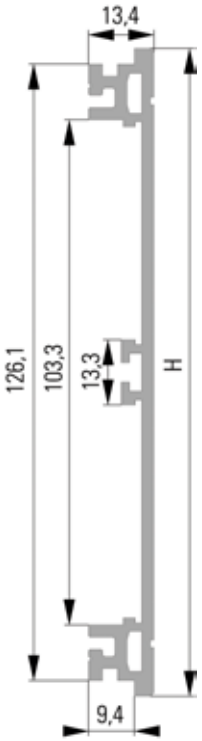
// Product information



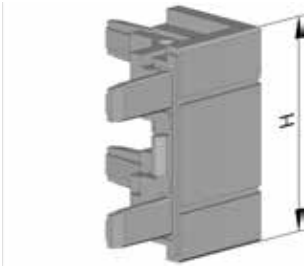
Side extrusion 1 U



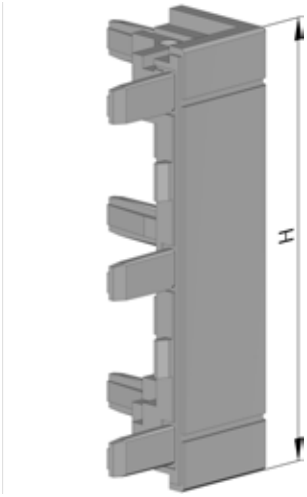
Side extrusion 2 U



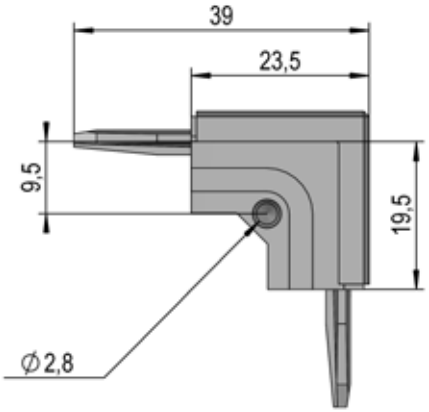
Side extrusion 3 U



Corner bracket, 1 U



Corner bracket, 2 U or 3 U



Top view of corner bracket

// Manufacturing tolerances

All parts are subject to POLYRACK's factory specifications, whereby:

Extrusion specifications comply with DIN EN 12020-1

Punched parts comply with
DIN ISO 6930-1/6930-2 and DIN 6932

Die-cast parts comply with DIN 1688-4

Quarto

Basic units

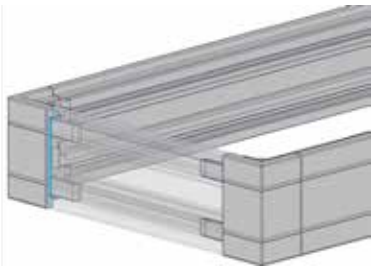
The Quarto Series basic units are available in 4 versions.

Features of the basic units

Quarto case, standard
Extrusions anodized, corner brackets RAL 7001
In units for self-assembly

Quarto case, standard, preassembled
Extrusions anodized, corner brackets RAL 7001
Frame preassembled

Quarto case, EMC
Extrusions and corner brackets RAL 7035
Frame preassembled



Quarto case, EMC/IP54
Frame and corner brackets RAL 7035
Frame preassembled

Quarto case, standard

Scope of delivery

Frame extrusion for case width W1	2 pcs
Frame extrusion for case depth D	2 pcs
Corner bracket RAL7001	4 pcs

Delivery form

Individual components in units for self-assembly

Note

– Front/rear panels must be ordered separately

Ordering table

H	W1 in mm	D in mm	Order no.
1 U	250	150	**96 00 00 01**
1 U	433	250	**96 00 00 31**
2 U	250	150	**96 00 00 06**
2 U	433	250	**96 00 00 36**
3 U	250	150	**96 00 00 11**
3 U	433	250	**96 00 00 41**

Quarto case, standard, preassembled

Scope of delivery

Frame extrusion for case width W1	2 pcs
Frame extrusion for case depth D	2 pcs
Corner bracket RAL7001	4 pcs

Delivery form

In units, frame preassembled

Note

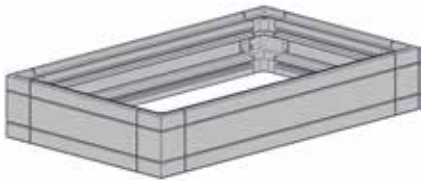
– Front/rear panels must be ordered separately

Ordering table

H	W1 in mm	D in mm	Order no.
1 U	250	150	**96 10 00 01**
1 U	433	250	**96 10 00 31**
2 U	250	150	**96 10 00 06**
2 U	433	250	**96 10 00 36**
3 U	250	150	**96 10 00 11**
3 U	433	250	**96 10 00 41**

Quarto

// Basic units



Quarto case, EMC

Scope of delivery

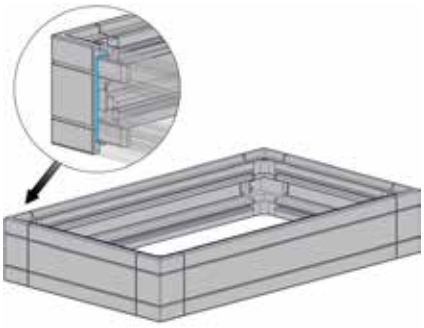
Frame extrusion for case width W1	2 pcs
Frame extrusion for case depth D	2 pcs
Corner bracket RAL7035	4 pcs

Delivery form
In units, frame preassembled

Note
– Front/rear panels must be ordered separately

Ordering table

H	W1 in mm	D in mm	Order no.
1 U	250	150	**96 10 00 02**
1 U	433	250	**96 10 00 32**
2 U	250	150	**96 10 00 07**
2 U	433	250	**96 10 00 37**
3 U	250	150	**96 10 00 12**
3 U	433	250	**96 10 00 42**



Quarto case, EMC/IP54

Scope of delivery

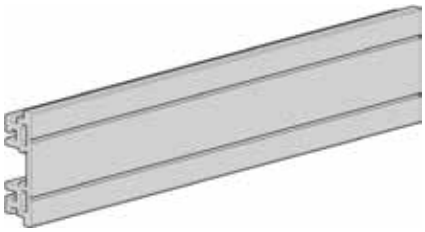
Frame extrusion for case width W1	2 pcs
Frame extrusion for case depth D	2 pcs
Corner bracket RAL7035	4 pcs
Cord gasket ø 1 mm	8 pcs

Delivery form
In units, frame preassembled

Note
– Front/rear panels, the requisite EMC/IP cord gasket ø 3.5 mm (L = 1000 mm) and slider for extra screw connection of the panels must be ordered separately

Ordering table

H	W1 in mm	D in mm	Order no.
1 U	250	150	**96 10 00 03**
1 U	433	250	**96 10 00 33**
2 U	250	150	**96 10 00 08**
2 U	433	250	**96 10 00 38**
3 U	250	150	**96 10 00 13**
3 U	433	250	**96 10 00 43**



Frame extrusion – Quarto

Frame extrusion 2700 mm long in 1 U, 2 U and 3 U for cutting to individual lengths.
The frame extrusions are compression-joined with the die-cast corner brackets

Material
Aluminum extrusion, clear anodized

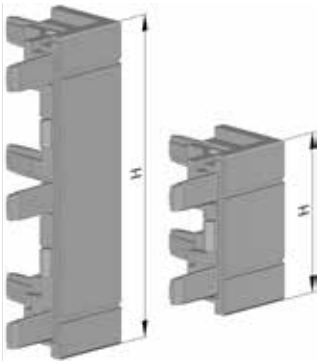
Scope of delivery
Frame extrusion
Extrusion (L = 2700 mm) 1 pc

Delivery form
In units for self-assembly

Note
– Cutting dimensions of frame extrusions = W1 or D - 47 mm

Ordering table

H	H in mm	Order no.
1 U	43.6	**96 42 10 01**
2 U	88.1	**96 42 10 03**
3 U	132.5	**96 42 10 05**



Corner bracket – Quarto

To construct the case, the die-cast corner brackets are compression-joined with the frame extrusions.

Material
Die-cast aluminum, powder-coated RAL 7001 (silver gray)

Scope of delivery
Corner bracket 1 pc

Delivery form
In units for self-assembly

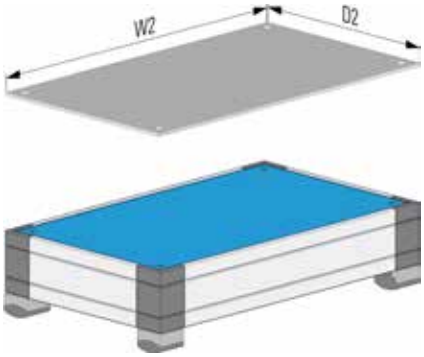
Note
– IP cord gasket ø 1 mm must be ordered separately

Ordering table

H	H in mm	Order no.
1 U	43.6	**96 42 41 11**
2 U	88.1	**96 42 41 12**
3 U	132.5	**96 42 41 13**

Quarto

// Single components



Front/rear panel, standard – Quarto

As front/rear cover

Material
Aluminum 2.5 mm, anodized/cutting edges raw

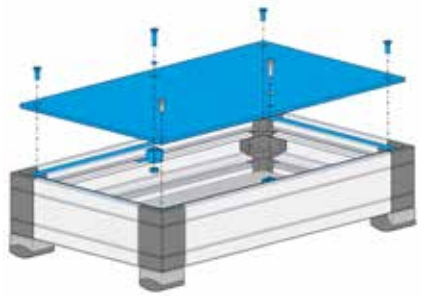
Scope of delivery

Front/rear panel	1 pc
Assembly kit	1 pc

Delivery form
Individual components in units for self-assembly

Ordering table

W1 in mm	D in mm	W2 in mm	D2 in mm	Anodized/cutting edges raw
250	150	240	140	**96 21 50 00**
433	250	423	240	**96 21 50 04**



Front/rear panel, EMC/IP54 – Quarto

As front/rear cover, in EMC/IP54 version

Material
Aluminum 2.5 mm, front anodized/rear alodined

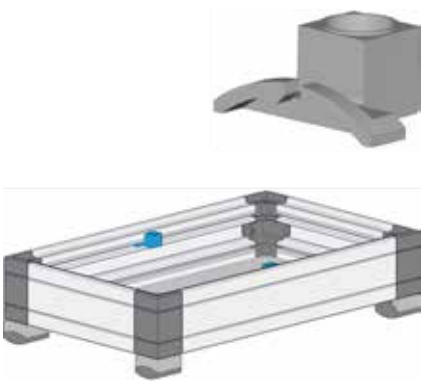
Scope of delivery

Front/rear panel	1 pc
Cord gasket ø = 3.5 mm, L = 700 mm or 1400 mm (EMC/IP54 version only)	1 pc
slider for screw connection	2 or 4 pcs
Assembly kit	1 pc

Delivery form
Individual components in units for self-assembly

Ordering table

W1 in mm	D in mm	W2 in mm	D2 in mm	Front anodized / rear alodined (EMC/IP54)
250	150	240	140	**96 21 50 01**
433	250	423	240	**96 21 50 05**



Slider for extra screw connection EMC/IP54 – Quarto

For additional screw connection of front panels in EMC/IP54 version

Material
PPO black, UL94 V0

Scope of delivery

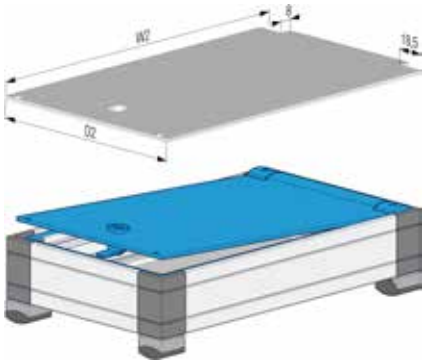
Slider for extra screw connection	1 PU 50 pcs

Delivery form
Individual components in units for self-assembly

Notes
– To be mounted approx. every 140 mm
– Assembly components must be ordered separately

Ordering table

Order no.
96 21 70 10



Front panel, hinged – Quarto

As front cover, available in standard version and EMC version

Material
Front panel 2.5 mm, option of anodized/ cutting edges raw or front/anodized/rear alodined/cutting edges raw (EMC version)
Hinges PA UL 94 V0, RAL 7001

Scope of delivery

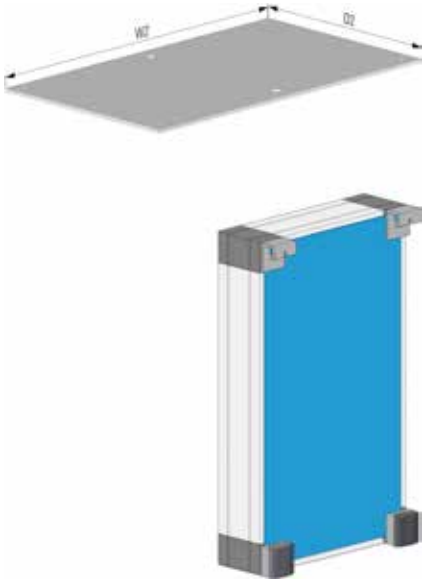
Front panel	1 pc
Hinge extrusion	1 pc
Hinge left/right	2 pcs
Lock with key	1 pc
Mounting spring	1 pc
Assembly kit	1 pc

Delivery form
Individual components in units for self-assembly

Note
– Handle elements and handle bar must be ordered separately

Ordering table

W1 in mm	D in mm	W2 in mm	D2 in mm	Anodized/ cutting edges raw	Front anodized / rear alodined EMC
250	150	240	140	**96 21 50 10**	**96 21 50 11**
433	250	423	240	**96 21 50 14**	**96 21 50 15**



Rear panel for wall mounting – Quarto

As rear cover and for attaching wall-mount elements, available in standard version and in EMC version

Material
Aluminum 2.5 mm, option of anodized/ cutting edges raw or front anodized/rear alodined (EMC)

Scope of delivery

Front panel	1 pc
Assembly kit	1 pc
For EMC version, the following is also required:	
Cord gasket ø 3.5 mm	2 pcs
Slider for extra screw connection	2 or 4 pcs

Delivery form
Individual components in units for self-assembly

Note
– Cord gasket ø 3.5 mm for EMC must be ordered separately

Ordering table

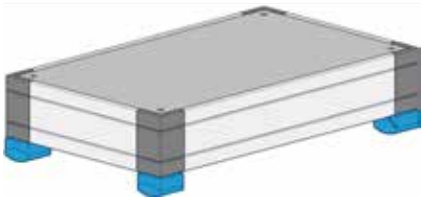
W1 in mm	D in mm	W2 in mm	D2 in mm	Anodized/ cutting edges raw	Front anodized / rear alodined EMC
250	150	240	140	**96 21 50 20**	**96 21 50 25**
433	250	423	240	**96 21 50 21**	**96 21 50 26**

Quarto

// Single components

Foot, stack foot, wall mounting

Foot, stack foot and wall mounting are screwed to the corner brackets together with the front/ rear panel.



Foot, standard – Quarto

Can be added later, with anti-slip insert

Material
Base foot PA RAL 7001, UL94V0
Foot rubber EPDM, RAL 9005, 60 Shore

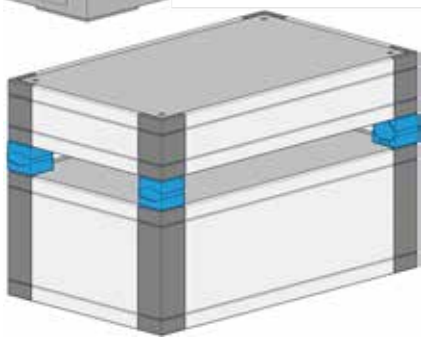
Scope of delivery

Base foot	4 pcs
Foot rubber	4 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly

Ordering table

Order no.
96 21 70 02



Stack foot – Quarto

Connection element for stacking Quarto cases

Material
Base foot PA RAL 7001, UL94V0
Coupling rubber EPDM, RAL 9005, 60 Shore

Scope of delivery

Base foot	8 pcs
Coupling rubber	4 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly

Ordering table

Order no.
96 21 70 03

Wall mount – Quarto

Can be added later, with anti-slip insert in base foot

Material
Base foot/wall-mounting element
PA, RAL 7001, UL94V0
Foot rubber EPDM, RAL 9005, 60 Shore

Scope of delivery

Base foot	2 pcs
Foot rubber	2 pcs
Wall-mounting element	2 pcs
Assembly kit	1 pc

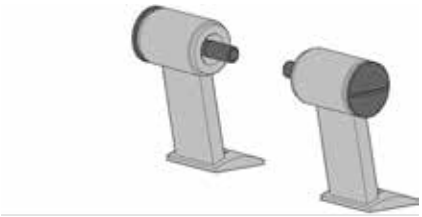
Delivery form
In units for self-assembly

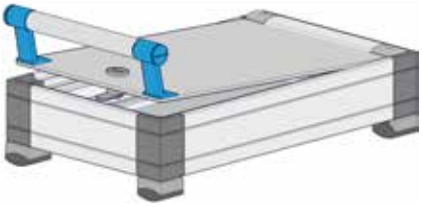
Ordering table

Order no.
96 21 70 01

Handle

Handle elements are screwed to the corner brackets together with the front panel.
The handle bar connects the handle elements.





Handle elements – Quarto

Material
Handle elements PA, RAL 7001, UL94V0
Handle faceplate screw, brass, bright nickel-plated

Scope of delivery

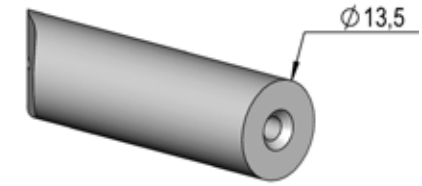
Handle elements	2 pcs
Handle faceplate screw M4	2 pcs
Assembly kit	1 pc

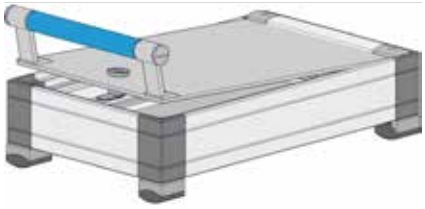
Delivery form
In units for self-assembly

Note
– Handle extrusion (available by length) must be ordered separately

Ordering table

Order no.
96 21 70 05





Handle bar – Quarto

Material
Aluminum extrusion, anodized

Scope of delivery
Handle extrusion (by length L = 2700 mm) 1 pc

Delivery form
In units for self-assembly

Notes
– Length of extrusion = case width - 47 mm
– For mounting, create M4/12 mm thread

Ordering table

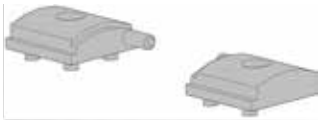
Order no.
96 42 10 21

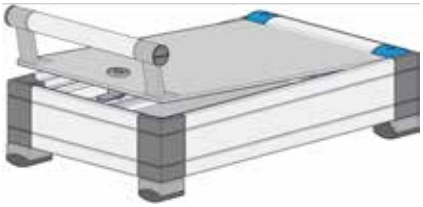
Quarto

// Single components

Hinge – Quarto

Hinge elements are screwed to the corner brackets together with the hinge extrusion. The front panel is clamped into the groove of the hinge extrusion.





Hinge elements – Quarto

Material
Hinge elements, PA RAL7001, UL94V0

Scope of delivery

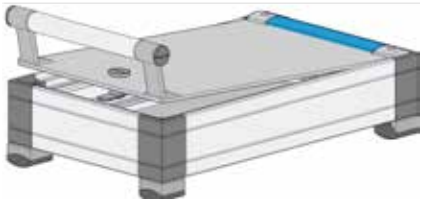
Hinge elements	2 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly

Note
– Hinge extrusion must be ordered separately (by length)

Ordering table

Order no.
96 21 70 04



Hinge extrusion – Quarto

Material
Aluminum extrusion, anodized/cutting edges raw

Scope of delivery

Hinge extrusion (by length L = 2700 mm)	1 pc

Delivery form
In units for self-assembly

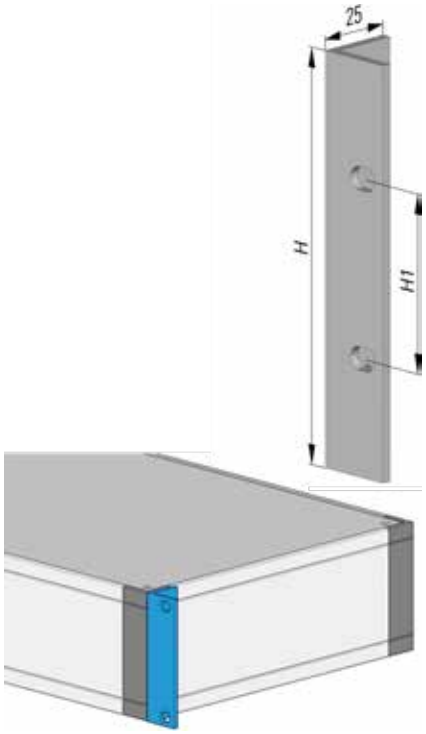
Note
– Length of hinge = case width - 47 mm

Ordering table

Order no.
96 42 10 11

19" Mounting bracket

19" mounting brackets are mounted on the sides of the case and enable the case to be mounted in 19" racks.



19" Mounting bracket – Quarto

Material
Aluminum extrusion, anodized/cutting edges raw

Scope of delivery

19" mounting bracket	2 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly

Notes
- Can be standardly used with cases W1 = 433 mm (84HP)
- Indentations are provided on the insides of the corner brackets so that the bore holes can be broken through using an appropriate tool

Ordering table

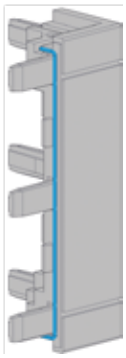
H	H1 in mm	Order no.
1 U	31.75	**96 21 70 06**
2 U	76.20	**96 21 70 07**
3 U	57.15	**96 21 70 08**

// Single components

EMC shielding material/IP gaskets

To ensure that electronic products function satisfactorily in an electromagnetic environment i. e. that the electromagnetic compatibility (EMC) of the products is guaranteed, shielding material is required, dependent on the electronics and on the ambient conditions.

EMC shielding materials are used to establish contact with mechanical components and thus protect plug-in units and electronics against radio frequency interference.
For electronic equipment that is used in industrial environments the so-called "IP ratings" in accordance with IEC 60529 apply.



EMC/IP cord gasket ø 1.0 mm – Quarto

The EMC shielding material is used to establish contactbetween the mounting bracket and the extrusion.

Material
Silicone with silver-coated particles, 65 Shore

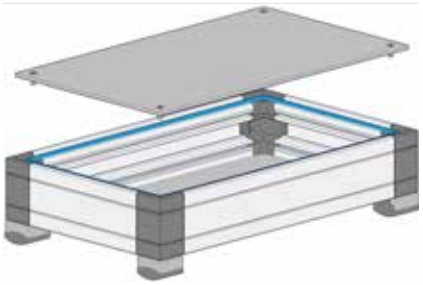
Scope of delivery
Cord gasket ø 1.0 mm:
by length (L = 1000 mm) 1 pc

Delivery form
In units for self-assembly

Notes
– Thermal resistance: -50°C to +160°C
– Requirement for 1 case = approx. 8 x H

Ordering table

Order no.
96 48 60 01



EMC/IP cord gasket ø 3.5 mm – Quarto

The EMC shielding material is used to establishcontact between the case bezel and the front/rear panel.

Material
Silicone with silver-coated particles, 65 Shore

Scope of delivery
Cord gasket ø 3.5 mm:
by length (L = 1000 mm) 1 pc

Delivery form
In units for self-assembly

Notes
– Thermal resistance: -50°C to +160°C
– Requirement for 1 case = approx. 2 x W1+ 2 x D
– Slider and assembly components for extra screw connection must be ordered separately

Ordering table

Order no.
96 48 60 11

Quarto
Small equipment case

CasTEC
Small equipment case

CasTEC

Product information

The CasTEC case series was designed specifically for use in harsh industrial environments. The case consists of two covers made of die-cast aluminum. The sealing profile required for IP 65 compliance is positioned internally in the top cover, recessed.
The possibility of unintentional damage is thus practically excluded. This guarantees the reliability of the case, even when it is frequently opened and closed. A chassis plate can be mounted in the base of the bottom cover. Easy-to-mount and retrofittable mounting flanges enable wall mounting.

Chassis plate and mounting flanges are optionally available for every case size.

Standards

– Protection class IP65 in accordance with IEC 60529

Note

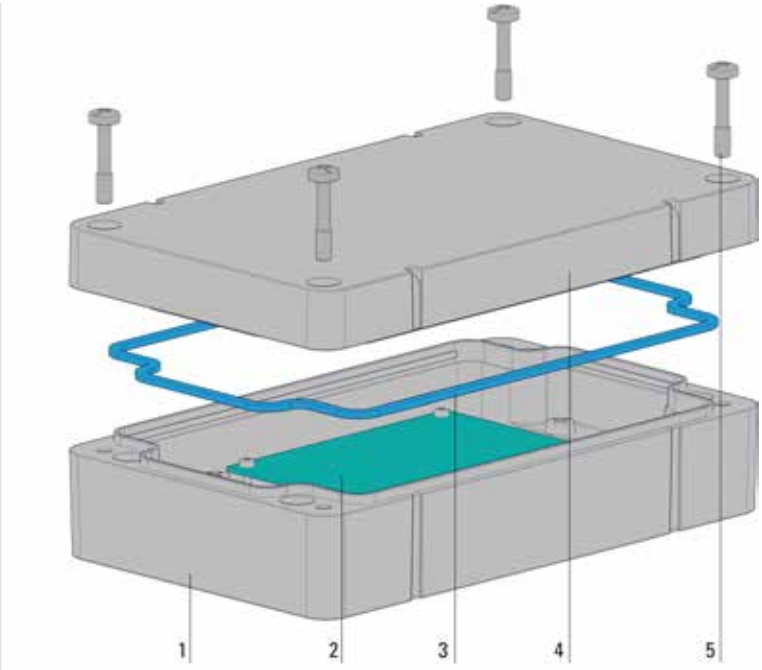
– No grounding straps, but these can be introduced individually

Overview

Basic units	H1 in U			W1 in mm		D in mm		Page
	55	65	105	200	260	120	160	
- Standard	●			●	–	●	–	CAS 02 .53
		●		–	●	–	●	CAS 02 .53
			●	–	●	–	●	CAS 02 .53

CasTEC

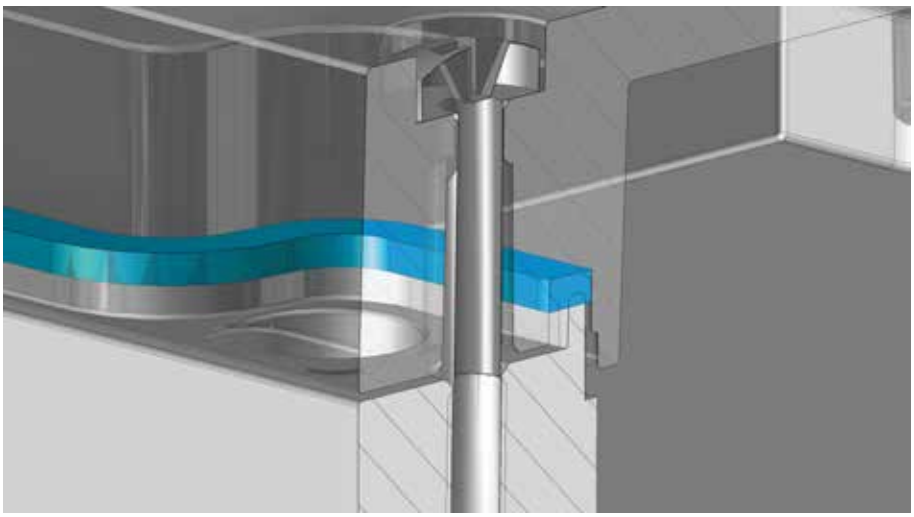
// Product information



The diagram shows the configuration of a CasTEC Series die-cast case.

1 Bottom cover
2 Printed circuit board*
3 IP gasket
4 Top cover
5 Assembly hardware

Parts marked with * are not included in the scope of delivery of the basic unit.



The gasket required for IP 65 compliance is positioned in the top cover, recessed.

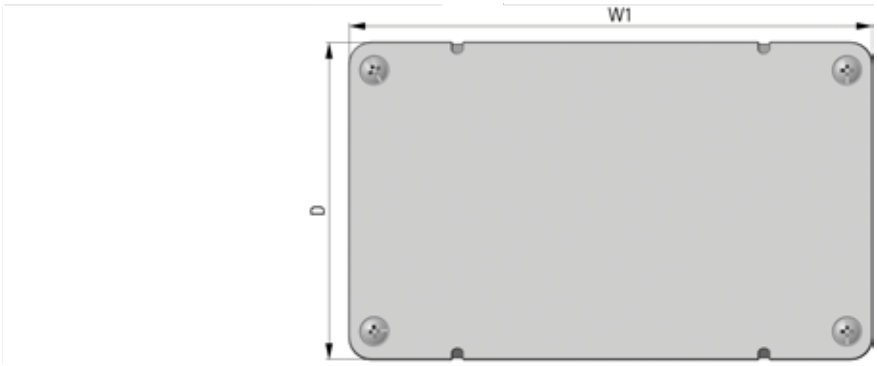
Surface finishing

– Case covers made of die-cast aluminum, powder-coated "anthracite-metallic"
– Molded gasket made of EPDM, 50 Shore

// Notes on mounting/overall dimensions

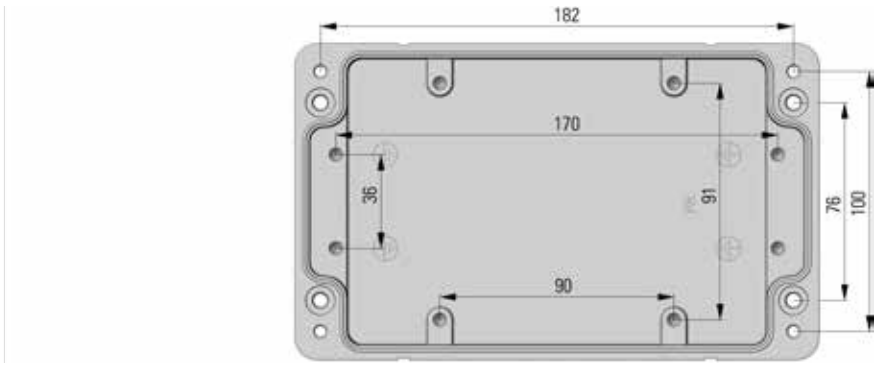
Dimensions specified in ordering tables
The dimensions are specified in relation to the application.

Dimension diagrams

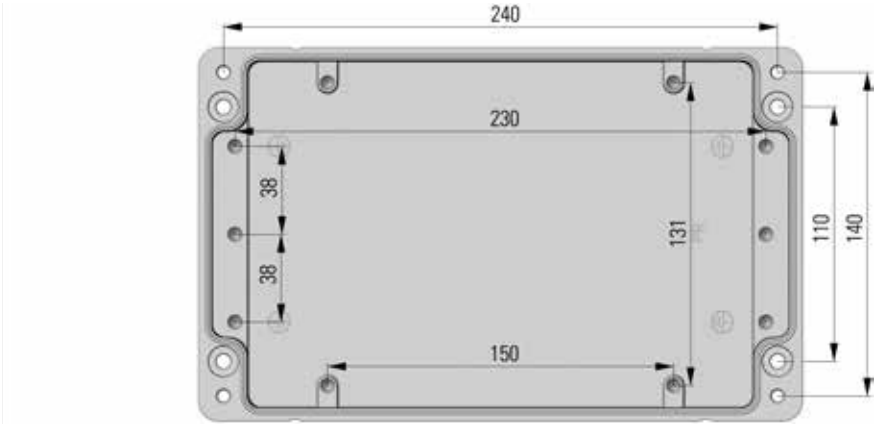


Front view
W1= total width
H1 = total height

Side view



Interior view (W1 = 200 mm)
All threads M5



Interior view (W1 = 260 mm)
All threads M6

// Manufacturing tolerances

All parts are subject to POLYRACK's factory specifications, whereby:
Die-cast parts comply with DIN 1688-4

CasTEC

// Basic units

Basic unit

In the CasTEC Series there is one basic unit available.

Features of the basic unit

The CasTEC Series cases are available in 3 sizes.

55 x 200 x 120 mm

65 x 260 x 160 mm

105 x 260 x 160 mm

CasTEC case, standard

Scope of delivery

Bottom cover	1 pc
Top cover	1 pc
Assembly kit including molded gasket	1 pc

Delivery form

In units for self-assembly

Notes

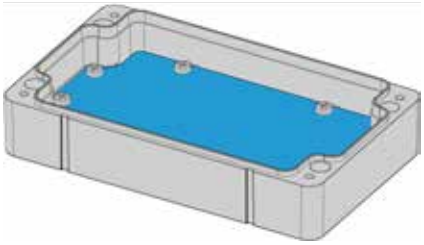
– Chassis plate must be ordered separately.
– The assembly kit for cases where
W1 = 200 mm includes:
Pan head screws M5 x 27 mm
W1 = 260 mm:
Pan head screws M6 x 27 mm

Ordering table

H1 in mm	W1 in mm	D in mm	Order no.
55	200	120	**21 01 00 01**
65	260	160	**21 01 00 02**
105	260	160	**21 01 00 03**

// Single components

Chassis plate, wall-mounting kit



Chassis plate – CasTEC

For mounting custom electronics

Material
Sheet steel, hot-dip galvanized 1.5 mm

Scope of delivery

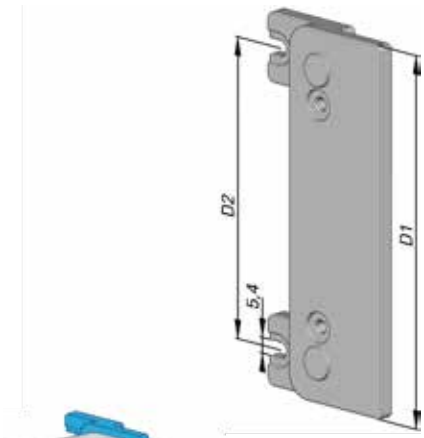
Chassis plate	1 pc
Assembly kit	1 pc

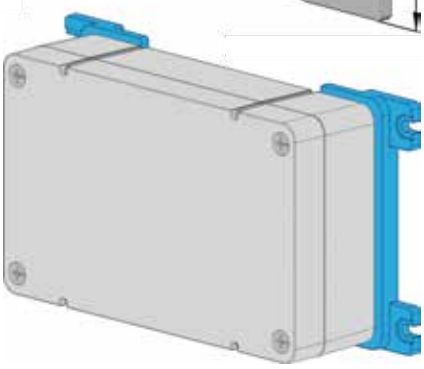
Delivery form
In units for self-assembly

Note
– The assembly kit for cases where
W1 = 200 mm includes:
Cylinder head screws M5 x 8 mm
W1 = 260 mm:
Cylinder head screws M6 x 8 mm

Ordering table

W1 in mm	W2 in mm	D in mm	D1 in mm	Order no.
200	185	120	105	**21 01 00 21**
260	245	160	145	**21 01 00 22**





Wall mounting kit – CasTEC

For mounting to custom wall-mount plate or for wall mounting

Material
Die-cast aluminum, powder-coated "anthracite metallic"

Scope of delivery (1 PU)

Wall mounting plate	2 pcs
Assembly kit	1 pc

Delivery form
In units for self-assembly

Note
– The assembly kit for cases where
D1 = 120 mm includes:
Pan head screws M5 x 30 mm
D1 = 160 mm:
Pan head screws M6 x 30 mm

Ordering table

For D in mm	D1 in mm	D2 in mm	Order no.
120	128	103	**21 01 00 11**
160	168	143	**21 01 00 12**

Assembly kits

Case assembly kit – CasTEC

Scope of delivery

Usage	Description	Version/ Material	Standard	Quantity	Order no.
Screwing top/bottom covers into place (W1 = 200 mm)	Pan head screw	M5 x 27 mm A2		4 pcs	21 01 00 30
Screwing top/bottom covers into place (W1 = 260 mm)	Pan head screw	M5 x 27 mm A2		4 pcs	21 01 00 31

Chassis plate assembly kit – CasTEC

Note
– available as A2 version on request

Scope of delivery

Usage	Description	Version/ Material	Standard	Quantity	Order no.
Mounting the chassis plate in the case (W1 = 200 mm)	Cylinder head screw	M5 x 8 mm Steel zinc-plated	DIN 7985	8 pcs	21 01 00 32
Mounting the chassis plate in the case (W1 = 260 mm)	Cylinder head screw	M6 x 8 mm Steel zinc-plated	DIN 7985	8 pcs	21 01 00 33

Wall mounting assembly kit – CasTEC

Scope of delivery

Usage	Description	Version/ Material	Standard	Quantity	Order no.
Mounting the wall-mounting plate to the case (D = 120 mm)	Pan head screw	M5 x 30 mm A2	DIN 7985	4 pcs	21 01 00 34
Mounting the wall-mounting plate to the case (D = 160 mm)	Pan head screw	M5 x 30 mm A2	DIN 7985	4 pcs	21 01 00 35

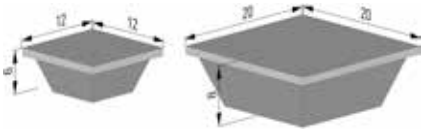
//03 SMALL EQUIPMENT CASES
ACCESSORIES

// Content

ACCESSORIES

// Chassis feet

Chassis feet



Rubber foot, self-adhesive

Can be used for all series

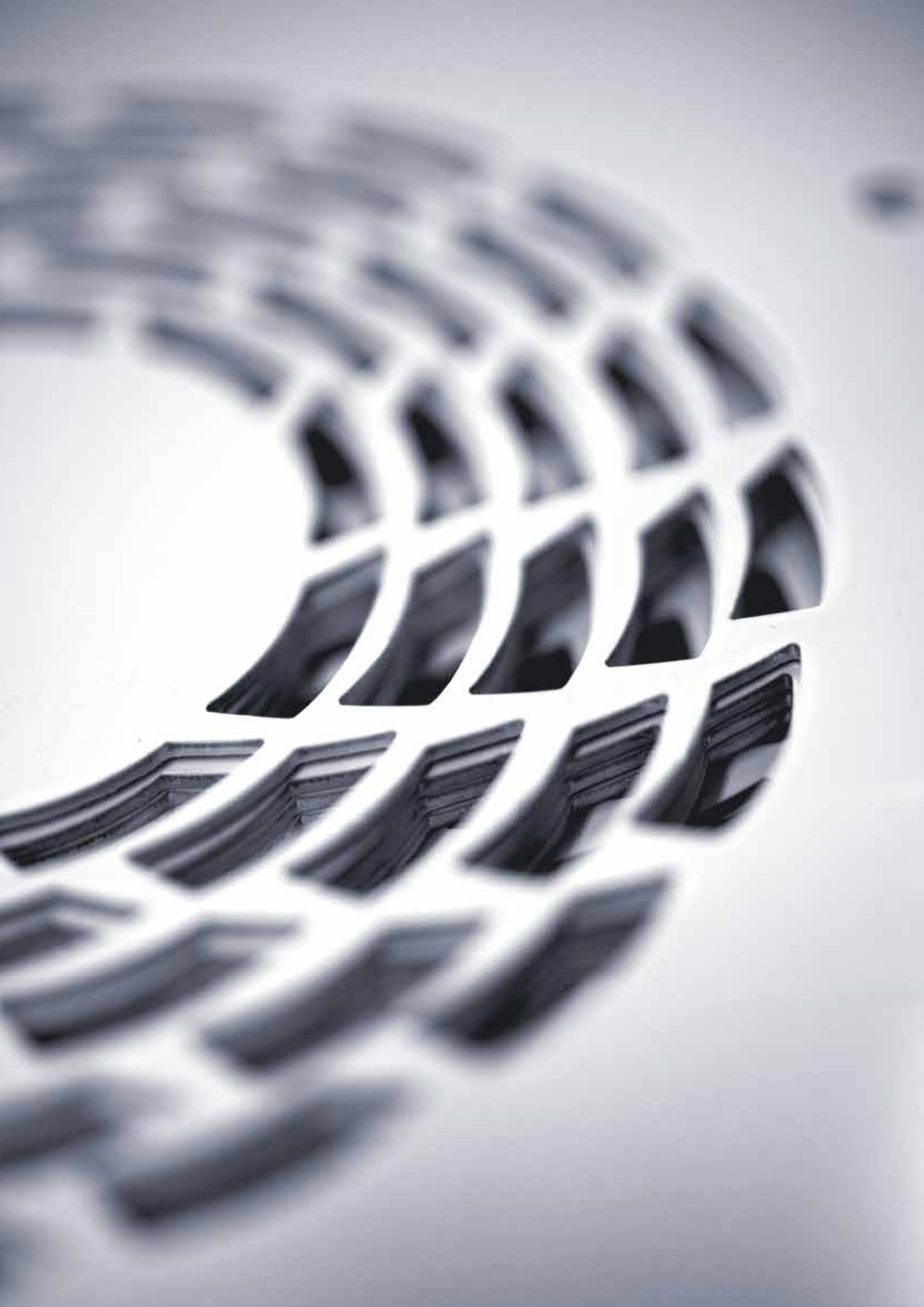
Material
Hard rubber, black

Scope of delivery
Rubber foot 1 PU (20 pcs)

Delivery form
In units for self-assembly

Ordering table

Dimensions	Order no.
12 x 12 mm	79 50 00 00
20 x 20 mm	79 50 01 00



ACCESSORIES

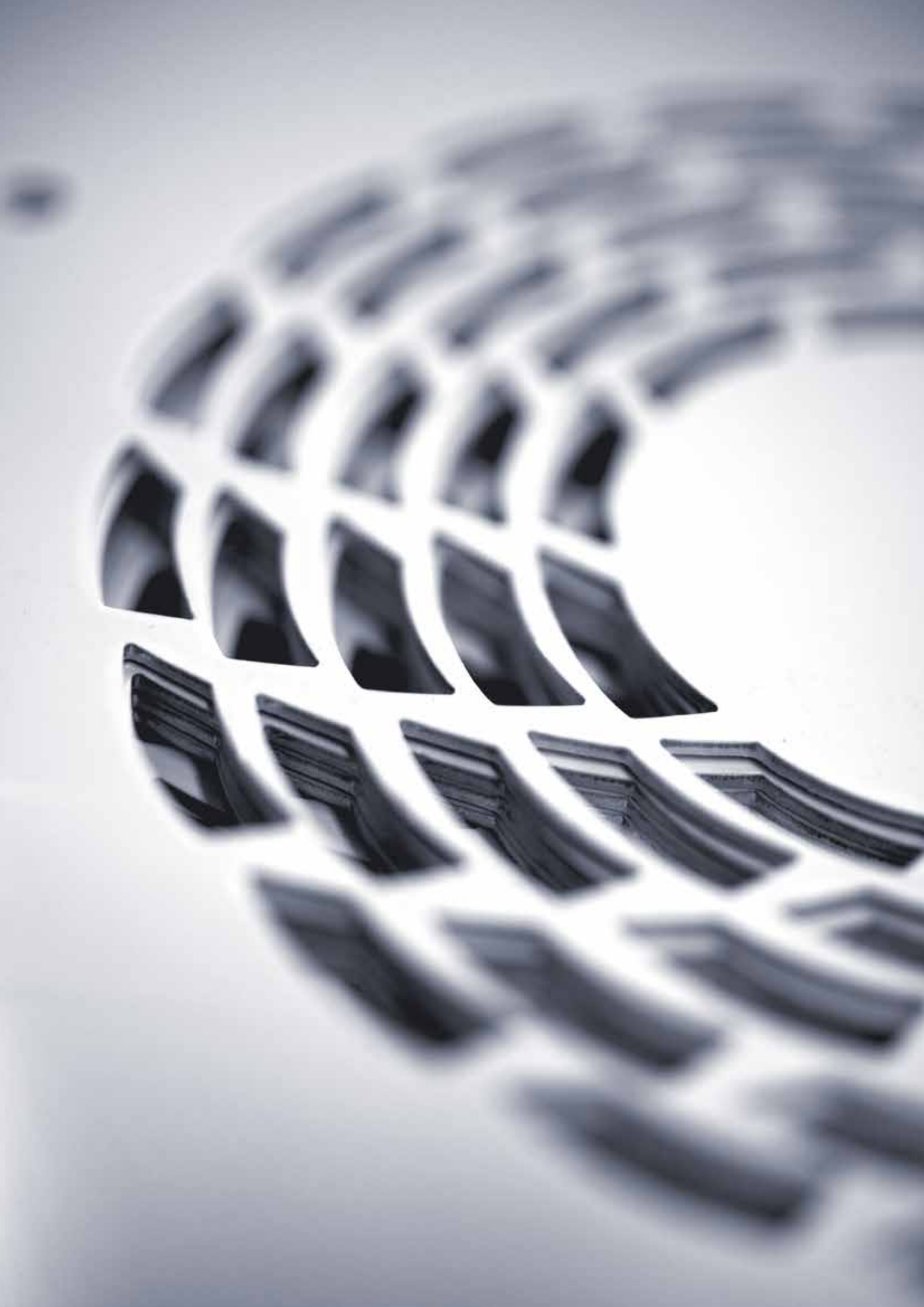
// Assembly components

Ordering table

Usage		Description	Version Material	Standard	SmarTEC	Sequence	Series 72	Quarto	Series 73	CasTEC	Order no.	PU
Mounting top/ bottom cover		Cross-recessed raised countersunk head screw	M4 x 8 mm Steel nickel-plated	DIN 966			●				79 91 42 00	1 PU (100 pcs)
		Square nut with nut holder	M4/SW7 Steel zinc-plated/PP				●				79 91 44 00	1 PU (100 pcs)
Mounting front/rear panel		Cross-recessed countersunk head screw	M3 x 8 mm Steel nickel-plated	DIN 965					●		79 91 16 00	1 PU (100 pcs)
		Press nut	M3 Steel zinc-plated/ passivated - colorless						●		79 91 38 00	1 PU (100 pcs)
		Cross-recessed countersunk head screw	M3 x 8 mm Steel blue zinc-plated	DIN 7500				●			79 51 50 42	1 PU (100 pcs)
Mounting front panel		Cross-recessed raised countersunk head screw	M4 x 10 mm Steel nickel-plated				●				79 91 06 00	1 PU (100 pcs)
Mounting rear panel		Cross-recessed pan head screw	M4 x 10 mm Steel nickel-plated	DIN 7985			●				79 91 33 00	1 PU (100 pcs)
Mounting tilt feet		Cross-recessed pan head screw	M3 x 6 mm Steel nickel-plated	DIN 7985			●				79 91 40 00	1 PU (100 pcs)
		Square nut	M3/SW5 Steel nickel-plated	similar to DIN 562			●				79 91 54 00	1 PU (100 pcs)
Mounting carrying/ support handle		Cross-recessed pan head screw	M5 x 12 mm Steel nickel-plated	DIN 7985			●				79 91 32 00	1 PU (100 pcs)

Ordering table

Usage		Description	Version Material	Standard	SmarTEC	Sequence	Series 72	Quarto	Series 73	CasTEC	Order no.	PU
Mounting slider for extra screw connection		Cross-recessed countersunk head screw	M3 x 12 mm Steel nickel-plated	DIN 965				●			**79 51 50 55**	1 PU (100 pcs)
		Hex nut	M3 Steel nickel-plated	DIN 934				●			**79 51 50 56**	1 PU (100 pcs)
Mounting side plate/cover hood to platform extrusion		Cylinder head screw with Torx T10 and dog point	M3 x 8 mm Steel nickel-plated								**79 51 50 41**	1 PU (100 pcs)



A

ABS
Acrylnitril-Butadien-Styrol (ABS) ist in Rohform ein farbloser bis grauer Feststoff, besitzt eine hohe Oberflächenhärte und ist damit für kratzfeste und mattglänzende Oberflächen geeignet. Er zeichnet sich durch gute Schlagfestigkeit und Ölbeständigkeit aus. ABS wird u. a. für Automobil- und Elektronikteile sowie Gehäuse von Elektrogeräten eingesetzt.

AC
„Alternating Current“ (AC) bedeutet Wechselstrom: Strom, der seine Richtung in regelmäßiger Wiederholung ändert.

ADC
Automatisches (mechanisches oder elektronisches) Daisy Chaining siehe auch Daisy Chain/ Daisy Chaining bzw. EADC

ANSI
Das „American National Standards Institute“ (ANSI) ist die Standardisierungs- und Normierungskommission der USA (vergleichbar dem deutschen DIN), die u. a. die Codierung für Zeichensätze in Rechnern festgelegt hat.

ASA-PC
Die Kunststoffblends aus Acrylester-Styrol-Acrylnitril (ASA) und Polycarbonat (PC) besitzen hohe thermische Stabilität, gute Chemikalienresistenz und ausgezeichnete Beständigkeit gegen Witterungseinflüsse, Alterung und Vergilbung. (Handelsnamen z. B. Luran® S, Terblend S)

AT
„Advanced Technology“ (AT) steht für eine bestimmte Board-Generation von Personalcomputern. Charakterisiert werden Rechner der AT-Klasse durch den 80286 Prozessor der Firma Intel oder durch den 16-Bit-ISA-Erweiterungsbus. Aus diesem Grund wird der ISA-Bus auch als AT-Bus bezeichnet.

ATX
Der Begriff „ATX“ definiert ein Mainboard-Layoutformat, das von Intel spezifiziert wurde. Charakteristisch für ATX Boards sind kurze Kabelwege zur Festplatte für höhere Übertragungsgeschwindigkeiten, eine bessere Lüftung der CPU sowie die Möglichkeit den Computer automatisch zu starten.

B

Bridge
Verbindet zwei eigenständige Bussysteme miteinander und koordiniert die Kommunikation in beide Richtungen. Sie kann als Steckkarte oder Piggypack-Modul ausgeführt sein. Bei speziellen Lösungen werden die hierzu nötigen Bausteine bereits auf die Backplane integriert. Somit kann z. B. ein CompactPCI System mit mehr als 8 Slot realisiert oder unterschiedliche Bussysteme gekoppelt werden.

C

CE
Die CE-Kennzeichnung (Conformité Européenne, so viel wie „Übereinstimmung mit EU-Richtlinien“) ist eine Kennzeichnung nach EU-Recht für bestimmte Produkte in Zusammenhang mit der Produktsicherheit. Durch die Anbringung der CE-Kennzeichnung bestätigt der Hersteller, dass das Produkt den geltenden europäischen Richtlinien entspricht.

CompactPCI
„Compact Peripheral Component Interconnect Bus“ (CompactPCI) ist ein eingetragenes Warenzeichen der PCI Industrial Computer Manufacturers Group (PICMG). CompactPCI-Systeme sind standardisierte Microcomputer. Der hauptsächliche Vorteil des CompactPCI ist seine Hot-Swap Fähigkeit.

CompactPCI PlusIO
Erweiterung der bisherigen parallelen Datenübertragung des CompactPCI Busses nach PICMG 2.0R3.0 um serielle Verbindungstechniken (USB, PCIexpress, Ethernet, ...).
Ermöglicht den Einsatz beider Übertragungsarten als Hybrid-Lösung und öffnet den Übergang zur rein seriellen. Die Mechanik beruht weiterhin auf dem bekannten IEEE 1101.10 Standard.

D

Daisy Chain
Als „Daisy Chain“ wird eine Anzahl von Hardware-Komponenten bezeichnet, die in Serie miteinander verbunden sind. Die erste Komponente hängt direkt am Computer, alle weiteren Komponenten sind in einer Verkettung miteinander verbunden.

Daisy Chaining
Den angeschlossenen Komponenten einer Daisy Chain können beim Datenaustausch verschiedene Prioritäten zugeordnet werden. Dadurch werden Konflikte und Fehlfunktionen verhindert. Das Daisy Chaining kann auf einer Platine manuell (MDC) oder automatisch (ADC) erfolgen.

DC
„Direct Current“ (DC) bedeutet Gleichstrom: Strom gleicher Richtung und Stromstärke

Differential-Pair
Beschreibt die paarweise Verbindungstechnik bei seriellen Datenleitungen, die mit sehr hoher Übertragungsrate arbeiten. Leitungsführung, als auch deren Länge und koaxiale Geometrien sind hier zum Teil ausschlaggebende Kenngrößen, die erst Geschwindigkeiten > 5 GBits ermöglichen. Hierzu werden spezielle Highspeed-Simulationstools beim Leiterplatten-Design eingesetzt.

DIN
Abkürzung für „Deutsches Institut für Normung“

// Lexikon DIN - H

DIN 41494 (ersetzt durch: IEC 60297)
Die DIN 41494 ist die Basisnorm des 19"-Aufbausystems. Sie ist in verschiedene Teile gegliedert und definiert die Abmaße der einzelnen Baugruppen.

DIN 41612 (ersetzt durch: IEC 60603-2)
Die DIN 41612 ist die Basisnorm von Steckverbindern für gedruckte Schaltungen. Sie definiert Bauformen und Einbaumerkmale von Steckverbindern.

DIN 41617 (ersetzt durch: IEC 60603-1)
Die DIN 41617 ist die Basisnorm von Steckverbindern für gedruckte Schaltungen. Sie definiert Bauformen und Einbaumerkmale von Steckverbindern.

DIN EN 62368-1
Diese Norm definiert die Sicherheit von Einrichtungen der Informationstechnik.

DIN 6930-1
Norm zu technischen Lieferbedingungen für Stanzteile aus Stahl

DIN 6930-2
Diese Norm legt Allgemeintoleranzen für Stanzteile aus Stahl fest.

DIN 6932
Diese Norm betrifft die Gestaltungsregeln für Stanzteile aus Stahl.

DIN EN 12020-1
Norm zu technischen Lieferbedingungen für stranggepresste Präzisionsprofile aus Aluminium und Aluminiumlegierungen

DIN EN 12020-2
Norm zu Grenzabmaßen und Formtoleranzen stranggepresster Präzisionsprofile aus Aluminium und Aluminiumlegierungen

Doppel-Europakarte
Die Doppel-Europakarte ist eine nach IEC 297-1 genormte Leiterplatte. Die Maße der Karte betragen 233,35 mm x 160 mm. Sie wird als Doppel-Europakarte bezeichnet, da neben ihr zwei Europakarten übereinander angeordnet werden können.

E

EADC
„Electronic Automatic Daisy Chaining" (EADC) wird beispielsweise bei VME64x eingesetzt und ersetzt dann den mechanischen Schalterstecker.

EMV
Elektromagnetische Verträglichkeit (EMV) ist die Fähigkeit einer elektrischen Einrichtung in ihrer elektromagnetischen Umgebung zufriedenstellend zu funktionieren, ohne diese Umgebung, zu der auch andere Einrichtungen gehören, unzulässig zu beeinflussen.

Aktuell hierzu gültige Normen für elektromagnetische Verträglichkeit behandeln die Störaussendung und Störfestigkeit in Wohnbereich, Geschäfts- und Gewerbebereichen sowie in Kleinbetrieben. Eine weitere Norm legt die Grenzwerte und Messverfahren für Funkstörungen von Einrichtungen der Informationstechnik fest. Darüber hinaus sind weitere für Einsatzart, Einsatzländer und Produktart geltende Normen zu berücksichtigen.

EN
Die Europäischen Normen (EN) sind Regeln, die von einem der drei europäischen Komitees für Standardisierung Europäisches Komitee für Normung (CEN), Europäisches Komitee für elektrotechnische Normung (CENELEC) oder Europäisches Institut für Telekommunikationsnormen (ETSI) ratifiziert worden sind.

EN 55022
Diese Norm definiert Standards für Einrichtungen der Informationstechnik und beschreibt im Wesentlichen die Bereiche Funkstörungen sowie Grenzwerte und Messverfahren.

ESD
Steht sowohl für „Electrostatic Discharge" als auch für„Electrostatic Sensitive Devices"(ESD). „Electrostatic Discharge" (Entladung statischer Elektrizität) ist der Vorgang des Ladungsausgleichs zwischen festen, flüssigen oder gasförmigen Medien, die unterschiedlich elektrostatisch aufgeladen sind. Dieser Ladungsausgleich ist meist von funken- oder blitzähnlichen Entladungserscheinungen begleitet. „Electrostatic Sensitive Devices"sind elektrostatisch gefährdete Bauteile.

ETSI
Mitglied des „European Telecommunications Standards Institute" (ETSI) sind Verwaltungen der EU, europäische Hersteller und Forschungsinstitute. Von dem ETSI herausgegebene Standards werden mit ETS (European Telecommunications Standards) abgekürzt.

Europakarte
Die Europakarte ist eine nach IEC 297-1 genormte Leiterplatte. Die Maße der Karte betragen 100 mm x 160 mm.

F

Farbric
Name für den Switch-Steckplatz bei Netzwerk-Bustopologien

G

H

H.110
Ist die Erweiterung von Bussystemen um eine für Telefonie Anwendungen nötige Bustopologie. Hierbei sind u. a. spezielle Leitungssignale für die externe Anbindung von Telefonanlagen

vorgesehen (Prüfspannungen > 1,5 KV), ebenso wird die Versorgung mit einer 48 V Betriebsspannung gewährleistet.

HE
Abkürzung für „Höheneinheit“ (HE). Dies ist eine Maßeinheit für die Vertikalhöhe von Einschubeinheiten in 19"-Aufbausystemen.
1 HE entspricht 44,45 mm.

Heatpipe
Metallrohr zur Ableitung der an einem elektronischen Bauteil (z. B. CPU) entstehenden Verlustleistung. Im Inneren des mit Werkzeugen formbaren Rohres befindet sich, hermetisch abgeschlossen, ein leicht verdampfbares Medium zur besseren Abführung der Wärmeenergie. Teilweise sind die inneren Strukturen zusätzlich als kapillare Systeme ausgeführt um den Kühleffekt zu verstärken. Wird neben der reinen Konvektions- oder Konduktionskühlung bei passiv gekühlten Baugruppen eingesetzt.

HF
Hochfrequenz (HF) ist in der Elektrotechnik die Bezeichnung für Frequenzen über den hörbaren Schallwellen (Niederfrequenz).
Mit Hochfrequenz wird auch das Frequenzband von 3 bis 30 MHz bezeichnet.

Hot Swap
Diese Bezeichnung bedeutet frei übersetzt „heißes Wechseln“. Damit ist das Austauschen von Rechnerkomponenten während des laufenden Betriebs gemeint.
Man unterscheidet drei Stufen:
1. Basic Hot Swap: Die zu wechselnde Baugruppe muss zuerst deaktiviert werden oder die Rechnerkonfiguration muss zuerst angepasst werden.
2. Full Hot Swap: Eine auf einer gesteckten oder auf der zu wechselnden Komponente installierte Software übernimmt die Aktivierung bzw. Deaktivierung.
3. High Availability Model: Hier übernimmt ein separater Hot Swap Controller zentral die Steuerung. Dadurch können ausgefallene Boards automatisch deaktiviert und Rechnerabstürze vermieden werden.

I

IEC
Abkürzung für „International Electrotechnical Commission“. Dies ist eine Internationale Normungsorganisation, die alle nationalen elektrotechnischen Komitees umfasst. Sie arbeitet und verabschiedet auf weltweiter Ebene elektrotechnische Normen.

IEC 60297 (vormals DIN 41494)
Ist die Basisnorm des 19"-Aufbausystems. Sie ist in verschiedene Teile gegliedert und definiert die Abmaße der einzelnen Baugruppen.
Die Normenreihe IEC 60297 spezifiziert in den verschiedenen Teildokumenten den mechanischen Aufbau von Leiterplatten, Baugruppenträgern und Gestellen in 19"-Bauweise. In diesen Normen geht es um die mechanischen Strukturen, um Höhen-, Breiten- und Tiefenmaße. Obwohl die Bauweise ursprünglich auf 19" festgelegt wurde und auch als solche angegeben wird, werden die Maße für die Einsteckplatinen und Baugruppenträger im metrischen System angegeben. Die Angabe von 19" entspricht bei 25,4 mm für ein Inch 482,6 mm.

IEC 60297-1
Bei der Norm 60297-1 geht es um Frontplatten und Gestellgrößen. Die Größenangaben sind in Verbindung mit den in der folgenden Norm behandelten Schrankmaßen und den Einsteckplatten zu sehen.

IEC 60297-3-100
In diesem Teildokument geht es um die Schrankmaße, Rastergrößen für die Baugruppenträger, die äußeren Verkleidungen der Gestelle und die Türen und Trageelemente.

IEC 60297-3-101
Beschreibt die Abmessungen für modulare Baugruppenträger und die darin einsteckbaren Leiterplatten

IEC 60297-3-102
Ergänzt das vorherige Teildokument 3-101 um mechanische Vorrichtungen für das Herausziehen und Einführen der Leiterplatten.

IEC 60297-3-103
Spezifiziert die Codierungsvorrichtungen, Führungsstifte und -schienen

IEC 60603-1 (vormals DIN 41617)
Ist die Basisnorm von Steckverbindern für gedruckte Schaltungen. Sie definiert Bauformen und Einbaumerkmale von Steckverbindern.

IEC 60603-2 (vormals DIN 41612)
Ist die Basisnorm von Steckverbindern für gedruckte Schaltungen. Sie definiert Bauformen und Einbaumerkmale von Steckverbindern.

IEC 821
Der IEC 821 Standard definiert die Spezifikation des VMEbus.

IEEE
Steht für „Institute of Electrical and Electronics Engineers, Inc.“(IEEE) und ist eine Non-Profit-Organisation, die technische Entwicklungen vorantreibt und standardisiert.

IEEE 1101.10
Standard, der zusätzliche mechanische Spezifikationen für Microcomputersysteme definiert. Dieser Standard sollte bei allen Microcomputer-Applikationen, die zum 19"-Standard konform sein müssen, angewendet werden.

IEEE 1014
Definiert die Spezifikation des VMEbus

IN-Board-Termination
Die Termination ist auf der Busplatine zwischen dem ersten und zweiten, sowie letzten und vorletzten Steckplatz positioniert. Dies hat den Vorteil, dass sich die Aussenmaße der Busplatine durch die Termination nicht verlängern.

IP
„International Protection“ (IP). IP-Schutzarten definieren den Schutz elektrischer Betriebsmittel gegen Berührung, gegen Fremdkörper sowie gegen Wasser. Gehäuse und Abdeckungen müssen so beschaffen sein, dass Sie den geforderten IP-Schutzarten entsprechen.
Die IP-Schutzart wird anhand einer Kennziffer definiert. Grundlage für die Darlegung der IP-Kennziffern sind die Normen DIN VDE 0470 Teil 1, EN 60529 und IEC 529.

Im Einzelnen bedeutet

1. Ziffer	Schutz gegen Berührung	Schutz gegen Fremdkörper
0	Kein Schutz	Kein Schutz
1	Größere Körperteile (Handrücken)	Fremdkörper ø > 50 mm
2	Finger	Fremdkörper ø > 12 mm
3	Werkzeuge und Drähte ø > 2,5 mm	Kleine Fremdkörper ø > 2,5 mm
4	Werkzeuge und Drähte ø > 1,0 mm	Kornförmige Fremdkörper ø > 1,0 mm
5	Vollständiger Berührungsschutz	Staubablagerung
6	Vollständiger Berührungsschutz	Staubeintritt

2. Ziffer	Schutz gegen Wasser
0	Kein Schutz
1	Schutz gegen senkrecht fallendes Tropfwasser
2	Schutz gegen schräg (max. 15°) fallendes Tropfwasser
3	Schutz gegen Sprühwasser (max. 60°)
4	Schutz gegen Spritzwasser von allen Seiten
5	Schutz gegen Strahlwasser
6	Schutz gegen starkes Strahlwasser
7	Schutz gegen kurzzeitiges Untertauchen
8	Schutz gegen andauerndes Untertauchen

ISA
“Industry Standard Architecture” (ISA) bezeichnet einen Bus, der von IBM entwickelt wurde und aus Gründen der Kompatibilität auch heute noch auf fast allen Mainboards vorhanden ist.

ISO
„International Organization for Standardization“ (ISO) ist ein internationaler Zusammenschluss aller Normungsausschüsse.

J
JTAG
„Joint Test Action Group“ (JTAG) definiert eine Anbindung an Testsysteme um einen Systemtest auch bei installierten, komplexen Baugruppen zu ermöglichen. Hierbei kann vor Inbetriebnahme des Systems ein Boundrary-Scan der einzelnen Baugruppen und Funktionen gezielt vorgenommen werden. Zusätzlich ist u. a. eine Programmierung als auch ein Debuggen der Baugruppen möglich.

K
Kühlkörper
Kühlkörper übernehmen die Wärmeabfuhr an die Umgebung durch eine Vergrößerung der Oberfläche eines Bauteils mit Verlustleistung.

L
LVDS
„Low Voltage Differential Signal“ (LVDS), typische Ansteuerungsart für TFT-Displays

M
MDC
Manuelles Daisy Chaining (MDC) mit Jumper für VMEbus

MPS
Auf Basis eines Microcomputer-Aufbausystems „Microcomputer Packaging System“(MPS), werden hauptsächlich im industriellen Umfeld Microcomputer für VMEbus-, VME-, VME64x-, CompactPCI und Industrie PC-Anwendungen aufgebaut.

N
NEMA
Die „National Electrical Manufacturers Association“ (NEMA) ist Interessensvertretung sowie Berufsverband der elektrotechnischen Industrie Nordamerikas. Unter ihrer Kontrolle stehen etliche Standards wie der National Electrical Code, die im Bezug zur Elektrotechnik stehen.

Node
Name für die Endpunkt-Steckplätze einer Netzwerk-Bustopologie

O
ON-Board-Termination
Die Termination ist auf der Busplatine vor dem ersten und nach dem letzten Steckplatz angebracht. Dadurch werden die Aussenmaße der Platine links und rechts länger. Das Aufmaß beträgt in der Regel je 2 TE.

Open Frame
„Open Frame“ bedeutet frei übersetzt „offener Rahmen“. Der Begriff wird im Zusammenhang mit Netzgeräten verwendet. So genannte „Open-Frame-Netzgeräte“ verfügen über kein Umgehäuse, d.h. die Elektronikkomponenten des Netzgerätes sind frei zugänglich.

P

PA
Polyamide (PA) bezeichnen üblicherweise synthetische, technisch verwendbare thermoplastische Kunststoffe. Die meisten technisch bedeutsamen Polyamide sind teilkristalline thermoplastische Polymere und zeichnen sich durch eine hohe Festigkeit, Steifigkeit und Zähigkeit aus. Sie besitzen eine gute Chemikalienbeständigkeit und Verarbeitbarkeit.

PBT
Polybutylenterephthalat (PBT) wird z. B. für Gehäuse in der Elektrotechnik und Steckverbinder eingesetzt. (Handelsnamen z. B. Ultradur, Crastin)

PC
Polycarbonat (PC) wird in transparenter Ausführung u. a. für Lichtleiter eingesetzt. (Handelsnamen z. B. Lexan, Makrolon)

PC-ABS
Polycarbonat+ABS-Blend (PC+ABS) kombiniert die Vorzüge von PC und ABS – beides Werkstoffe für die Gehäusetechnik. Besonders hervorzuheben sind Schlagzähigkeit, Wärmeformbeständigkeit, die hochwertige, mattglänzende und kratzfeste Oberfläche sowie die hohe Steifheit und Härte. Eine typische Anwendung ist der Gehäusebau für elektronische Geräte.

PCI
„Peripheral Component Interconnect“ (PCI) ist ein Bus-Standard zur Verbindung von Peripheriegeräten mit dem Chipsatz eines Prozessors, sowie die Basis diverser weiterer Bus-Standards wie Compact-PCI und PCI-Express. Er wird sowohl bei normalen PCs als auch bei Industrie-Rechnerlösungen eingesetzt.

PE
Polyethylen (PE), vormals Polyäthylen, ist ein durch Polymerisation von Ethen hergestellter thermoplastischer Kunststoff. Polyethylen wird vor allem für Kabelisolierungen und z. B. als Schrumpffolienverpackung, eingesetzt.

PFC
Der Power Factor gibt das Verhältnis zwischen Wirkleistung und Scheinleistung eines elektrischen Gerätes an. Je höher der Power Factor eines Gerätes, desto höher ist sein Wirkungsgrad. Die Power Factor Correction (PFC) dient zur Steigerung des Wirkungsgrades eines elektrischen Gerätes. Dies wird durch Reduzierung von Wärmeverlusten, Reduzierung von hochfrequenten EMV-Störungen sowie durch eine Verbesserung der Netzspannungsverläufe erreicht.

PICMG
Die „PCI Industrial Computer Manufacturers Group“ (PICMG) ist ein Konsortium mit mehr als 600 Unternehmen, die in enger Zusammenarbeit Spezifikationen für hochwertige Telekommunikations- und Industriecomputer-Applikationen entwickeln. Zu den PICMG Spezifikationen zählt unter anderem der CompactPCI für Europakartenformate.

PMMA
Polymethylmethacrylat (PMMA), umgangssprachlich Acrylglas oder Plexiglas, ist ein synthetischer, glasähnlicher thermoplastischer Kunststoff. PMMA wird meist als Display eingesetzt.

P0
Der P0 ist ein zusätzlicher, frei belegbarer I/O Stecker und wird in der VME64x-Busplatine verwendet. Er wird zwischen der J1 und J2 Ebene platziert. An den P0 kann ein PCI-Bus oder Netzwerkbus angeschlossen werden. (vgl. VME64x-Spezifikation ANSI/VITA 1.1-1994 bis 1.1-1997)

POM
Polyoxymethylen (POM), auch Polyacetal genannt, wird wegen seiner hohen Steifigkeit, niedrigen Reibwerte, ausgezeichneten Dimensions- und thermischen Stabilität als technischer Kunststoff besonders für Präzisionsteile eingesetzt. (Handelsnamen z. B. Hostaform, Delrin)

PP
Polypropylen (PP), gelegentlich auch Polypropen genannt, ist ein dem Hart-PE eng verwandter thermoplastischer Kunststoff, der u. a. zur Herstellung von Spritzgußteilen, Fasern, Thermoformteilen und Halbzeugen verwendet wird.

PPE oder PPO
Polyphenylenether(PPE), vormals Polyphenylenoxid (PPO), wird in reiner Form kaum genutzt. Es wird überwiegend als Blend mit Polystyrol, schlagzähem Styrol-Butadien-Copolymer oder Polyamid verwendet. Eingesetzt wird es für Formteile u. a. im Elektronik-, Haushalts- und Fahrzeugsektor bei denen es auf hohe Wärmeformbeständigkeit, Dimensionsstabilität und Maßhaltigkeit ankommt, aber auch in der Medizintechnik. (Handelsnamen z. B. Noryl)

PS
Polystyrol (PS), auch Polystyren genannt, ist ein transparenter, amorpher oder teilkristalliner Thermoplast. Polystyrol wird entweder als thermoplastisch verarbeitbarer Werkstoff oder als Schaumstoff (expandiertes Polystyrol) eingesetzt. Bekannte Handelsnamen für Polystyrolschaumstoff sind z. B. Styropor, Styrodur. In der Elektrotechnik wird Polystyrol wegen der guten Isolationseigenschaft verwendet. Es wird zur Herstellung von Schaltern, Spulenkörpern und Gehäusen (High Impact Polystyrene, HIPS) für Elektrogeräte verwendet.

PSB
„Packet Switching Bus“ (PSB) wird als Erweiterung bei CompactPCI als PSB 2.16 oder bei VME64x als VITA31 definiert und beschreibt die

Bustopologie für eine Erweiterung mit einem Netzwerkbus auf Backplane-Ebene.

PT® Schraube
Gewindeformende bzw. gewindefurchende Schraube für Kunststoffe (speziell Thermoplaste), findet z. B. bei Kartenführungen Verwendung.

PWM
„Pulse Wide Modulation" (PWM), typische Ansteuerungart für Drehzahl regulierte Lüfter

Q

R

REACH
„Registration, Evaluation, Authorisation of CHemicals" steht für eine EG-Verordnung zur Registrierung, Bewertung und Zulassung von Chemikalien.

Rear-I/O
Der Begriff „Rear-I/O" kommt aus dem Bereich der Busplatinen. Rear-I/O sind Pins auf der Rückseite einer Busplatine. Diese sind frei belegbar, d. h. der Anwender kann dort frei wählbar seine Steckkarten anbringen.

Redundanz
Beschreibt das Vorhandensein eines Backup für eine systemrelevante Baugruppe und deren Funktion. Es wird gewährleistet, dass bei Fehlerfall die Funktion durch die redundante Baugruppe übernommen werden kann. Speziell bei Netzteilen sind im Regelfall zwei gleichwertige Netzteile intelligent parallel geschaltet um durch Einsatz der Hot-Swap Technologie die fehlerhafte Baugruppe im Betrieb tauschen zu können. Eine Signalisierung dieser Funktionen erfolgt im Regelfall über übliche Schnittstellen.

RoHS
„Restriction of Hazardous Substances" (RoHS) bezeichnet die EU-Richtlinie 2011/65/EU zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten.

RPM
„Rounds Per Minutes" (RPM), typisches Drehzahlsignal bei Lüftern

S

Shore
Die Shore-Härte, benannt nach Albert Shore, ist ein Werkstoffkennwert für Elastomere und Kunststoffe und ist in den Normen DIN 53505 und DIN 7868 festgelegt. Bei Härte nach Shore wird ein Widerstand gemessen, der durch das Eindringen eines Körpers mit bestimmter Form entsteht, welcher mit einer definierter Federkraft auf das Prüfobjekt gedrückt wird. Messwerte sind 0 bis 100, wobei 0 der kleinsten und 100 der größten Härte entspricht. Die Härte in Shore A ist weicher als die in Shore D, wobei eine Überschneidung dieser beiden Härteangaben vorliegt. 90 Shore A entspricht ungefähr 35 Shore D.

SMB
„System Management Bus" (SMB) ist die bei Bussystemen verwendete Busstruktur zum Austausch von unabhängigen Systemüberwachungsinformationen. Basiert sehr oft auf einem seriellen I²C Bus und nutzt das IPMI-Protokoll.

SMD
„Surface Mounted Device" (oberflächenmontierbares Bauelement). Dies sind elektronische Bauteile, die nicht über Anschlussdrähte verfügen, sondern direkt auf die Oberfläche einer Elektronikplatine platziert und dort im Lötbad kontaktiert werden.

SMT
Oberflächenmontierbare Bauelemente „Surface Mounted Devices" (SMD), wie u. a. Widerstände, Kondensatoren, haben im Gegensatz zu Bauelementen der Durchsteckmontage „Through Hole Technology" (THT), den „bedrahteten Bauelementen", keine Drahtanschlüsse, sondern werden mittels lötfähiger Anschlussflächen direkt auf eine Leiterplatte (Flachbaugruppe) gelötet. Die dazu gehörige Technik ist die Oberflächenmontage „Surface-Mounting Technology" (SMT).

T

TE
Abkürzung für „Teileinheit". Dies ist eine Maßeinheit für die Breite von Einschubeinheiten in 19"-Aufbausystemen. Eine Teileinheit (TE) entspricht 5,08 mm.

Termination
Die Termination ist ein definierter Leitungsabschluss auf einer Busplatine.

Touchscreen
Computereingabegerät (im Regelfall eine speziell beschichtete Glasplatte) bei dem durch Berührung von Teilen eines Bildes der Programmablauf eines technischen Gerätes, meist eines Computers, direkt gesteuert werden kann. Zur Umsetzung der Berührungsempfindlichkeit kommen vor allem resistive bzw. kapazitive Systeme zum Einsatz. Der zur Auswertung nötige Controller wird mit üblichen Schnittstellen (USB, seriell, PS/2) an das Mainboard angebunden. Spezielle Treiber sind u. a. zur Kalibrierung erforderlich.

TPE
Thermoplastische Elastomere (TPE) sind Werkstoffe, welche thermoplastisch verarbeitbar sind und gummiähnliche Gebrauchseigenschaften aufweisen. TPE lassen sich sehr leicht formen, da sie bei der Verarbeitung den plastischen Zustand durchlaufen. Sie lassen sich in allen Härten von 5 Shore A bis über 70 Shore D herstellen. Typische Anwendungen in der Elektroindustrie sind z.B. IP-Dichtungen oder Trägermaterial bei EMV-Dichtungen.

U

UL
„Underwriters Laboratories“ (UL) ist eine unabhängige Organisation und führt Sicherheitstests sowie Zertifizierungen von Produkten durch.

UL94
Die Vorschrift UL94 „Tests for Flammability of Plastic Materials for Parts in Devices and Applications“ (Tests zur Brennbarkeit von Kunststoffen für Teile in Geräten und Anwendungen) der Underwriters Laboratories (UL) beschreibt ein Verfahren zur Beurteilung und Klassifizierung der Brennbarkeit von Kunststoffen.

USV
„Unterbrechungsfreie Stromversorgung“ (USV): typischerweise über eine zusätzliche wiederaufladbare Batterie parallel DC gespeiste Stromversorgung, die bei Ausfall der Hauptversorgungsspannung eine zeitlich begrenzte Überbrückung übernehmen kann. Dieser Notbetrieb wird im Regelfall über eine zusätzliche Schnittstelle signalisiert, die auch zur Auswertung (Beispiel: Shutdown des Systems) genutzt werden kann.

V

VDE
Abkürzung für „VDE Verband der Elektrotechnik, Elektronik und Informationstechnik e.V.“ Sitz ist Frankfurt am Main.

VE
Abkürzung für Verpackungseinheit

VITA
Abkürzung für „VMEbus International Trading Association“ (Non-Profit-Organisation): Vereinigung von Herstellern und Anwendern von VMEbus-Produkten mit der Zielsetzung, den VMEbus zu fördern und zu verbreiten.

VME64x
Erweiterung des VMEBus auf 64 Bit Technologie. Zusätzlich sind die Erweiterungen, die über IEEE 1101.10 gegeben sind (wie z. B. Hot-Swap) adaptiert. Über den PO-Stecker sind diverse Buserweiterungen möglich.

VMEbus
Der VMEbus ist ein Microcomputer-Bussystem für die Echtzeitverarbeitung. Ursprünglich wurde der VMEbus durch ein Konsortium, unter der Leitung von Motorola, entwickelt. Heute ist der VMEbus durch die Norm IEEE 1014 spezifiziert.

W

WEEE
WEEE st die Abkürzung für „Waste Electrical and Electronic Equipment” und bezeichnet eine EG-Verordnung. Die kurz als WEEE bezeichnete Direktive regelt die Rücknahme und das Recycling von Elektronikprodukten unter der Vorgabe von Recyclingquoten für die Hersteller.

WN
Abkürzung für POLYRACK Werksnorm

X

Y

Z

// Informationen zu RoHS, REACH, WEEE

// RoHS

Produkte der POLYRACK TECH-GROUP entsprechen, wenn keine anders lautenden Vorgaben an uns gestellt wurden, der Vorgabe der europäischen Richtlinie 2011/65/EU (RoHS). Der entsprechende Status für jedes Produkt wird in unseren Geschäftspapieren entsprechend ausgewiesen.

// REACH

Die POLYRACK TECH-GROUP mit den Unternehmen POLYRACK Electronic-Aufbausysteme GmbH, RAPP Kunststofftechnik GmbH und RAPP Oberflächenbearbeitung GmbH ist in erster Linie nachgeschalteter Anwender. Als Unternehmen stehen unsere Maßnahmen im Einklang mit den anderen Marktteilnehmern in der Lieferkette. Produkte der POLYRACK TECH-GROUP entsprechen nach heutigem Kenntnisstand der Vorgabe der REACH-Verordnung EG 1907/2006.

// WEEE

Die POLYRACK TECH-GROUP ist kein Hersteller im Sinne der europäischen Richtlinie 2012/19/EG (WEEE) und ist damit hiervon grundsätzlich entbunden. Die Verantwortung zur Erfüllung der vorgegebenen Recyclingquoten kann ausschließlich nur durch die Hersteller des Endproduktes erfolgen.

// Hinweise zur Broschüre

Im Hinblick auf die ständige Weiterentwicklung und Verbesserung unserer Produktpalette behalten wir uns technische Änderungen gegenüber den Angaben in unseren Veröffentlichungen vor. Änderungen, Irrtümer und Druckfehler begründen keinen Anspruch auf Schadensersatz.

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