#01 PRODUCTS

SYSTEMS TECHNOLOGY

// Systems // Panels // Backplanes // Fan Trays // Application-specific cases and systems

VME64x-System

leading.technology

POLY RACK TECH-GROUP

#01 CONTENTS
SYSTEMS TECHNOLOGY

Systems Technology

Systems

#01 CONTENTS
SYSTEMS TECHNOLOGY

Backplanes

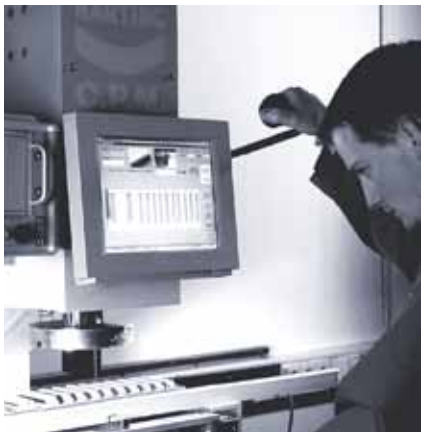
Fan Trays

Application-specific cases and systems

Customer-specific solution
Fully assembled Panel-PC on basis of the product series "PanelPC"

TECHNOLOGIES

// Systems Technology / Electronics



The area of systems technology reflects the logical and consistent development of our group of companies. We apply our long-standing experience in the area of mechanical solutions to develop optimized system applications.
We also have sound knowledge of electronics at our disposal. We use this for example in the development of standard-based backplanes or with CompactPCI, VME64x and VPX.

Upon agreement with our customers, our assembly service offers complete assembly right up to the end product, including functionality and safety testing.

Products and services

- Partially and fully assembled systems
- Backplanes
- Subassembly service
- SMD-equipped modules

Manufacturing technologies

- ESD-compliant assembly
- Semi-automatic, process-monitored press-fit technology for backplane production
- Cable assembly
- Partially and fully automated, stationary and mobile test systems for functionality and safety testing
- Interface connection test for backplanes

GENERAL INFORMATION

// Overview

Systems

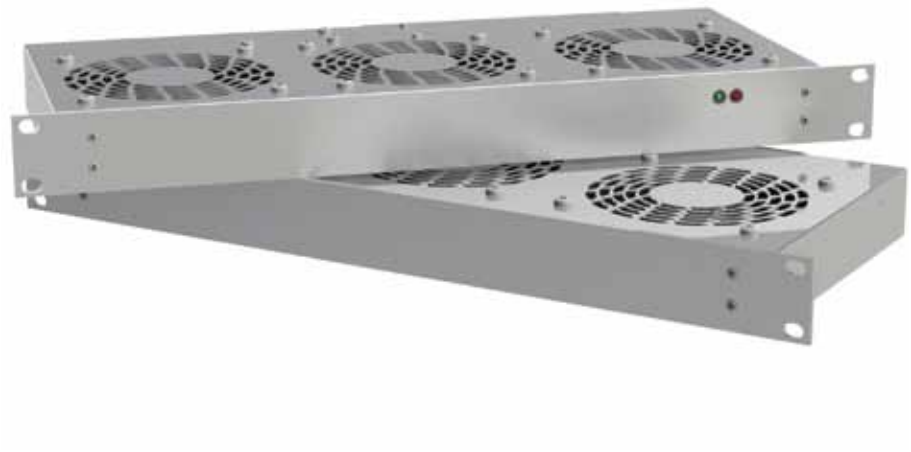
With our microcomputer packaging systems (MPS), in which we deploy high-quality electronic components, we offer you all that you need for the optimum configuration of your end-product. Our MPS meet maximum requirements with regard to EMC performance, optimum ventilation and mechanical and electrical safety.

Backplanes

Top-quality standard backplanes based on the VMEBus, CompactPCI and other standards complete our systems, thus providing fully fledged plug-and-play products. On the basis of the customer's specifications we and our development team create customer-specific solutions using state-of-the-art design tools. We take care of the manufacturing and integrate it into our or your products.

PICMG®

MEMBER VITA Open Standards, Open Markets



Fan Trays
Our range of 19" fan trays offers you optimum facilities for cooling your assemblies.
All fan trays have been functionality and safety tested.

Application-specific cases and systems
Standard product meets modifications through customer specifications.
A variety of standard products is readily available for efficient and economical incorporation of named market requirements without major impact.

// Questions?

We are happy to help you. Please contact us.

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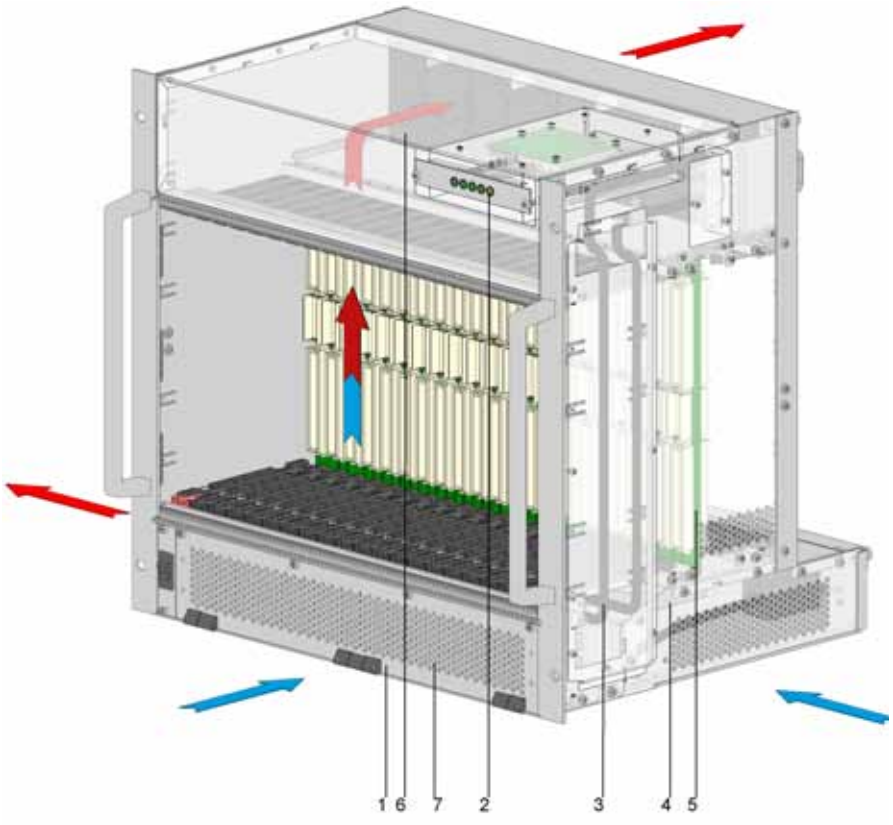
#01 CONTENTS
SYSTEMS

Systems

GENERAL INFORMATION

// Application

With our microcomputer packaging systems (MPS), in which we deploy high-quality electronic components, we offer you all that you need for the optimum configuration of your end-product. Our MPS meet maximum requirements with regard to EMC performance, optimum ventilation and mechanical and electrical safety.



// Principal system components

1 Mechanical components
Based on our standard product range (e.g. "Future" series) and specifically customized.

2 System manager
For monitoring important functions such as fan disassembly, operating voltage, operating temperature, etc.

3 Wiring
Internal system wiring is performed in compliance with current standards (VDE, UL) and the related technical requirements.

4 Power supplies
Our proven power supplies are deployed in our MPS in compliance with current, valid standards.

5 Backplanes
Top-quality standard backplanes based on the VMEBus, CompactPCI and other standards provide the basis for our fully fledged plug-and-play products.

6 Fans
Efficient, top-quality fan solutions are used for heat dissipation in our MPS: Various failure indication options, such as FAN FAIL, are available for special requirements.

7 Dust filter mat
To minimize particle ingress and related contamination of the assemblies in the card cage. The prescribed maintenance schedule must be observed.

// 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..

EC (in mm) defines the board depth.

Dimension diagrams / View drawings
Diagrams and drawings are not necessarily in the same scale.

// Ambient conditions

Storage temperature
- 40 °C ... +80 °C

Operating temperature
0 ... +40 °C
CAUTION!
Openings such as free slots affect the airflow within the system and impair the cooling properties, open slots must therefore be closed using appropriate covers.

Humidity
30 ... 80%, non-condensing

GENERAL INFORMATION

// Overview of series

Series	Height in U						Max. no. of slots							Card format				Card cage		Rear I/O	Features
	1	2	3	4	7	10	2	4	6	7	8	14	21	100x160 mm	233.35x160 mm	half size	full size	vertical	horizontal		
MPS01				●	●								●	●	●			●		-	Optimized for classical applications in the industrial environment
MPS02						●							●		●			●		●	Modular configuration with system monitoring
MPS03	●	●	●	●			●	●	●		●				●				●	●	Cost-optimized and based on "Future" series plate-bending technology.
IPC01				●						●		●		-	-	●	●	●		-	For PC applications under industrial environmental conditions

// Configurability

Configurations that deviate from the defined standards are always possible. For example, a different backplane or a different power supply, without having to create a fundamentally new special solution.

// Custom designs

Modified or tailor-made solutions can be defined on the basis of your requirements. We can also provide you with all services up to a fully assembled system.

Assembly, software and integration

System integration services such as finalization with electrical assemblies, PC components or also software installation can be performed based on the customer's requirements.

// Supplementary products

#01 19" SUBRACKS
⇨ Future, FutureX, FerroRAIL, 75/76/77 Series

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

#01 CASES
⇨ Series 86, Basic Series 19" desktop cases

// Questions?

We are happy to help you. Please contact us.

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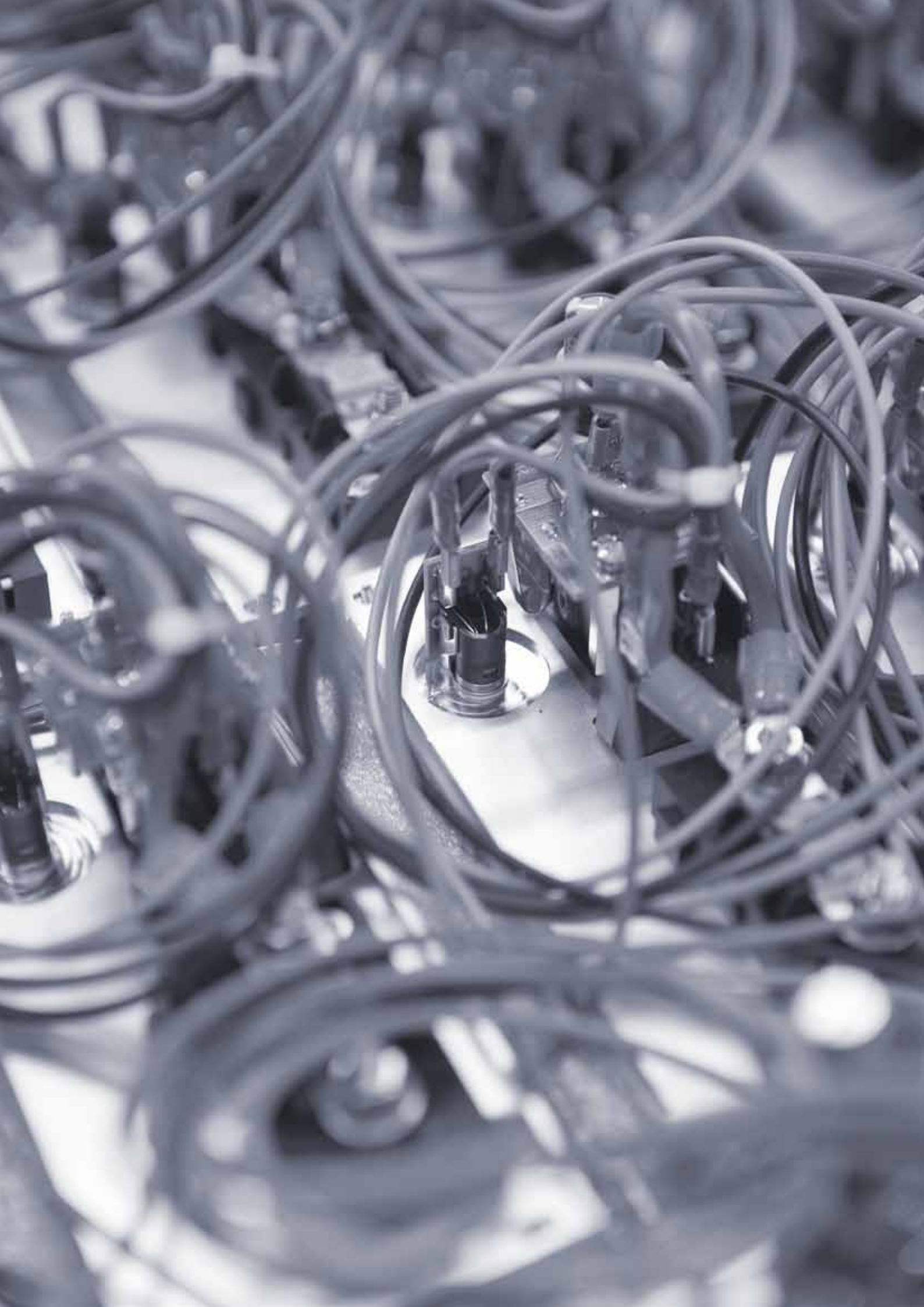


System
MPS01 with accessories

MPS01

Product information

The basic unit of the MPS01 is based on our subrack series "Future". This series lends itself to the creation of top-quality systems. The principal system components, such as backplane, power supply, (not MPS01-4), wiring, etc. are already included.
Further assembly parts are available.

Standards

– Insulation test: in accordance with EN 60950
– Radio disturbance: EN 55022, Class B
– Protection class: 1
– Overvoltage category: 2
– IP rating: IP 20

Note

– Front rails (card cage, 3U below / 6U above and below) with incremented holes in accordance with IEEE-1101.10

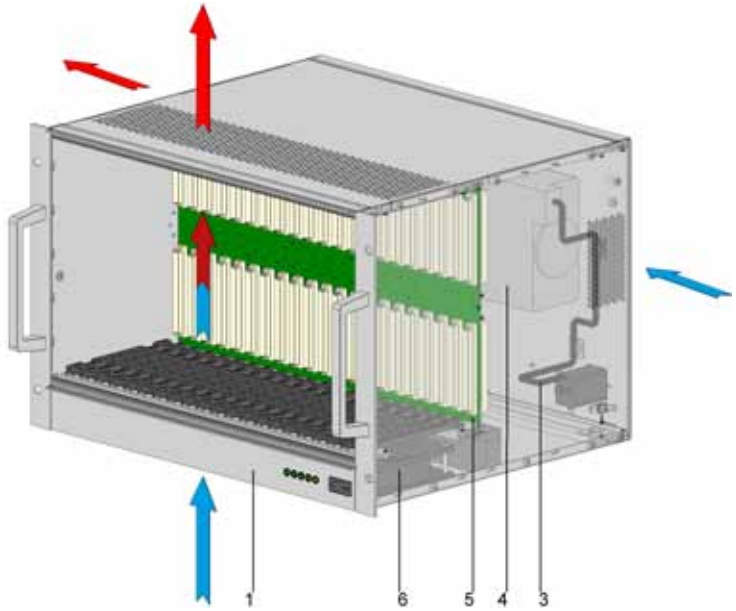
Overview

Basic units	H	Slots	Backplane VMEbus	CPCI		Power supply	Page
- MPS01-4	4 U	max. 21		●	o	-	SYS 01.14
- MPS01-7	7 U	max. 21	●		o	600 watts	SYS 01.14

o Other backplanes can also be used.

MPS01

// Product information



Configuration example

The diagram shows a typical MPS01-7 configuration

1. Mechanical parts
2. System manager
3. Wiring
4. Power supplies
5. Backplanes
6. Fans

Surface finishing

– Alodined
– Front panels = front anodized / rear alodined

Technical specifications of system components

Power supplies

Model	Power	Construc-tion	U_{IN}	V1/Imax	V2/Imax	V3/Imax	V4/Imax	V5/Imax	Accreditation
PSU-OF-600-1	600 watts	Open frame	84-264VAC/50Hz	+5V/120A	+12V/10A	-12V/4A	-	-	CE, CSA, UL, VDE

Backplane

Model	Slots	Standards	Bus width	Termination	Daisy chain	P0	System slot	Rear I/O
VME-J1/J2, 21 slot, IBT, ADC	21	ANSI/VITA 1-1994	32 bit	Inboard	ADC	-	-	-
CPCI-3U, 4 slot, 64 bit ,SR	4	PICMG 2.0R3.0	64 bit	-	-	-	right	-

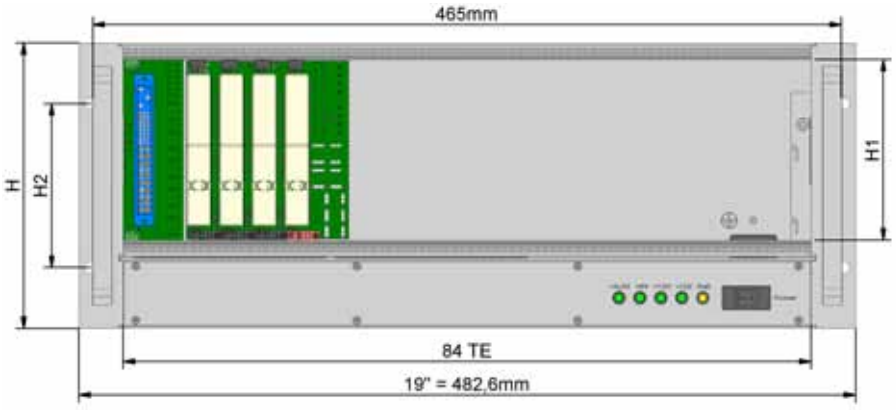
Fans

Model	Dimensions	Airflow rate	Noise	Note
DC/axial	119x119x32mm	100m³	42dB(A)	MPS01-4
DC/axial	119x119x32mm	140m³	45dB(A)	MPS01-7

System monitor

Model	Monitoring function			Signaling		Standards	Note
	Speed	Operating voltage	Tempera-ture	Optical	Logical (potential-free contact)		
FM2	●	-	-	●	●	-	
SM2	●	+4.75 -5.25 +11.4 -12.6 -11.4 -12.6 3,135 -3,456	●	●	●	SYS and POWER-FAIL/ SYS-RESET VITA-compliant	Parameterizable and optional RS232 interface *

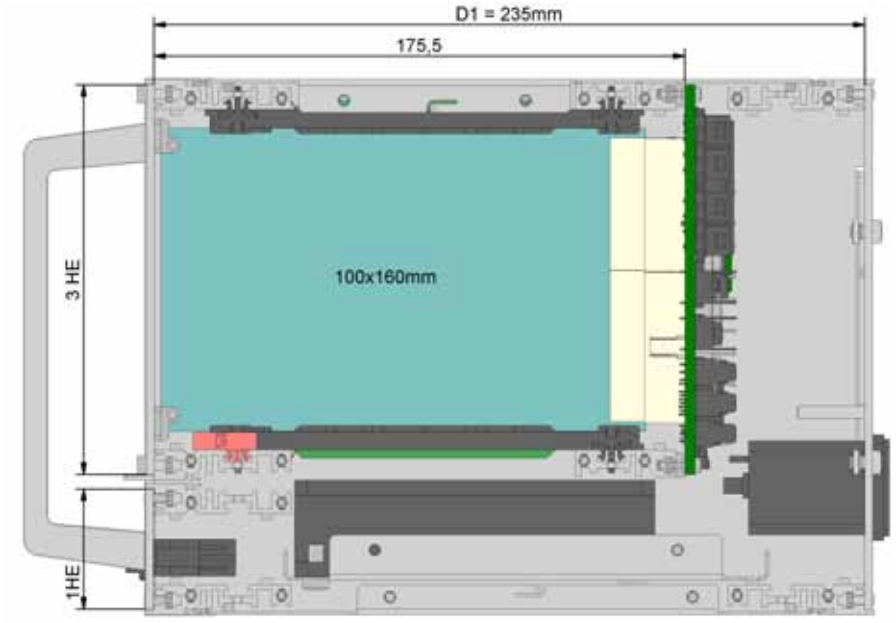
* Further technical details on request



Dimension diagrams

MPS01-4 Front view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments

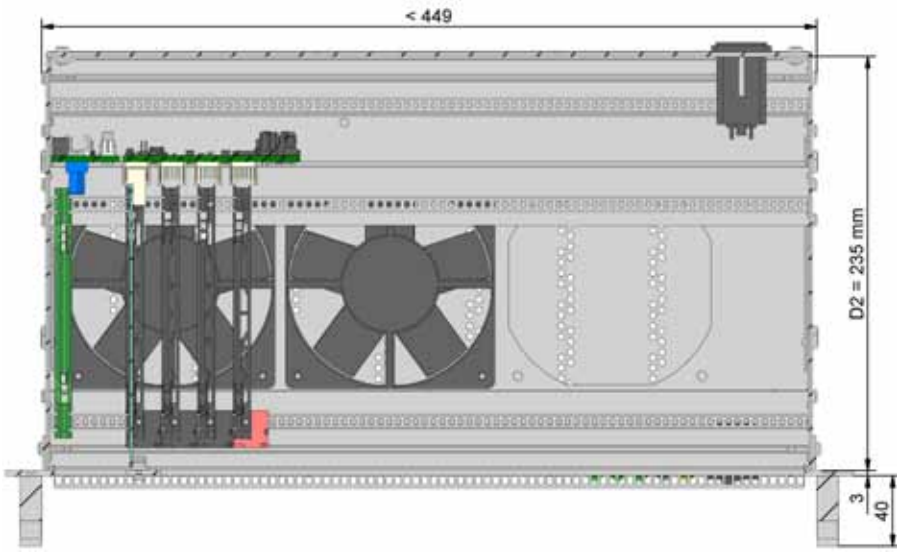


MPS01-4 side view

D1 = internal dimension

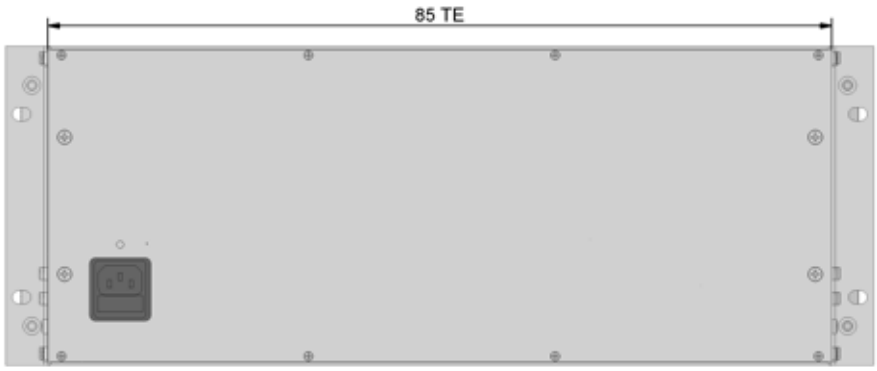
MPS01

// Product information



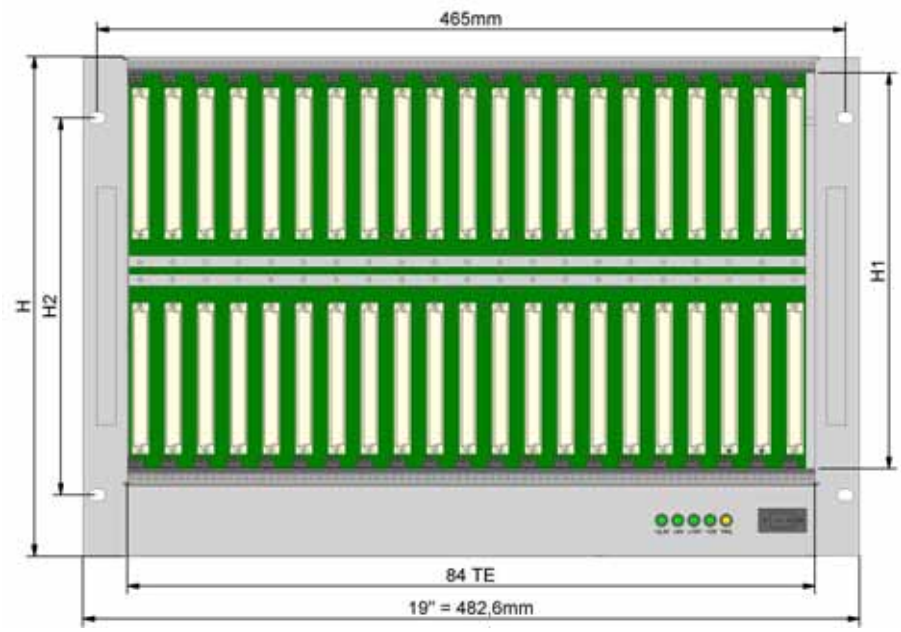
MPS01-4 top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)



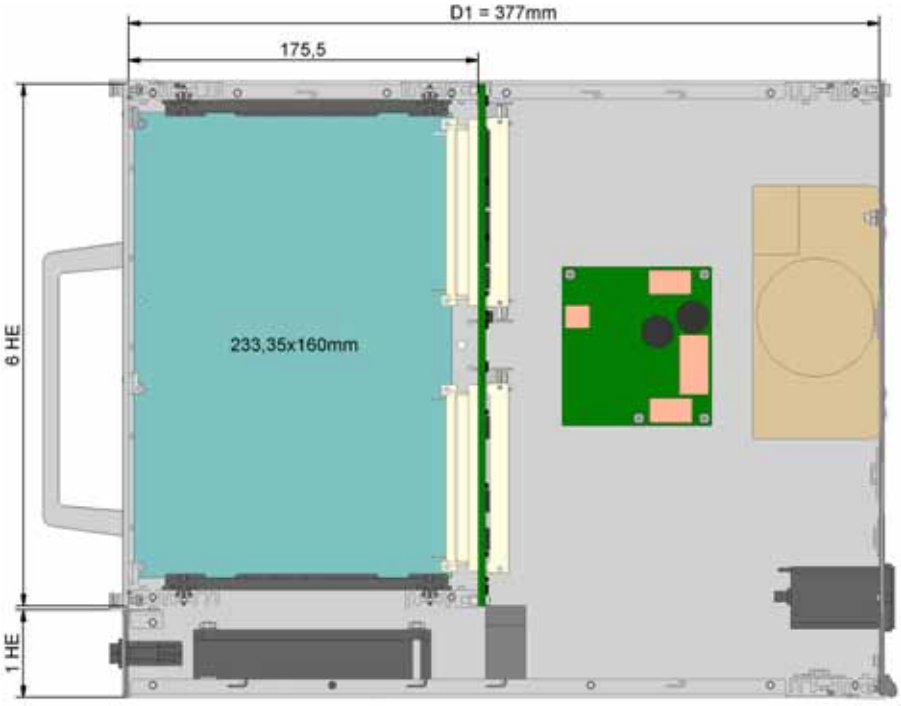
MPS01-4 rear view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments



MPS01-7 front view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments

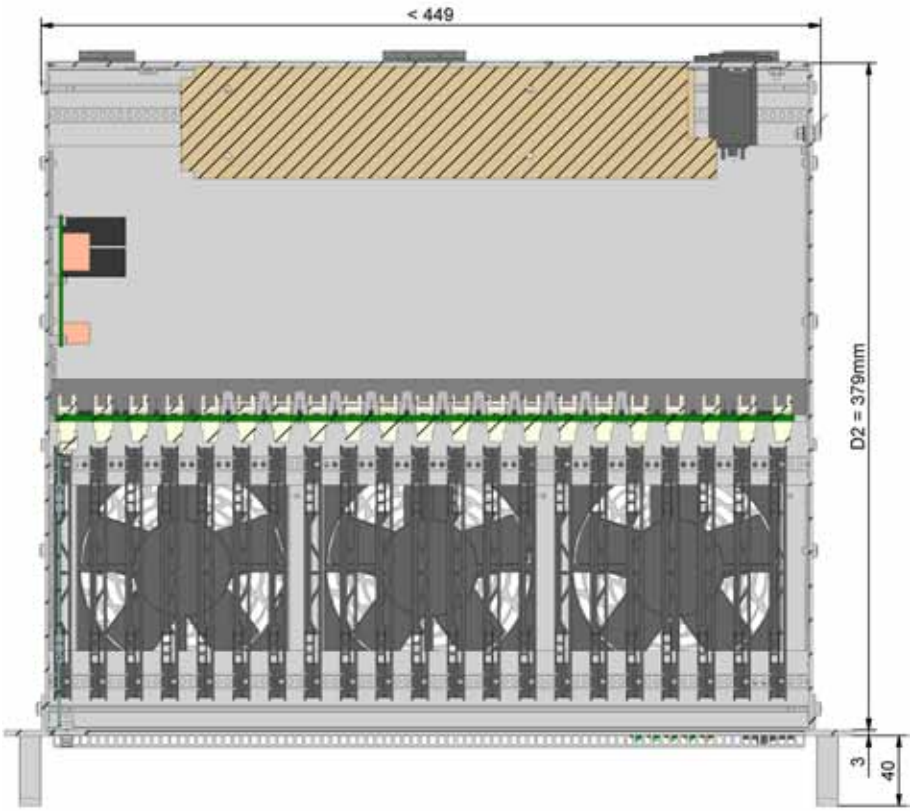


MPS01-7 side view

D1 = internal dimension

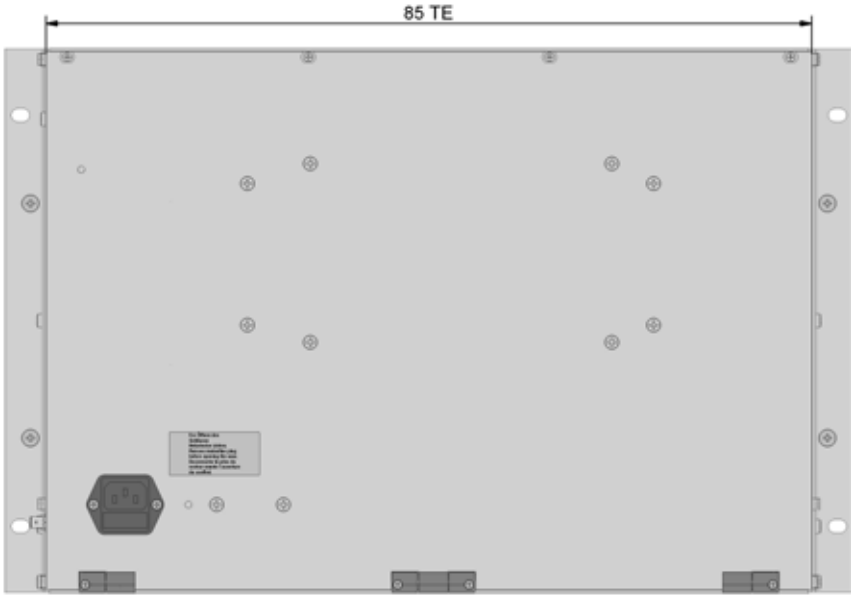
MPS01

// Product information



MPS01-7 Top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)



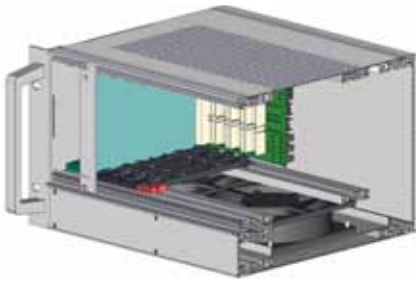
MPS01-7 Rear view

Threads in card cage for mounting plug-in modules etc. = M2.5 / 5.08 mm increments

Basic units

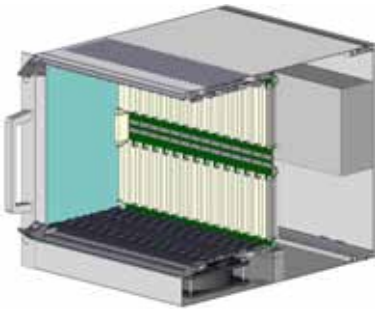
The basic units of the MPS01 system platform are based on our subrack series "Future" and vary in height and configuration.

Features of the basic units



MPS01-4

Basic unit MPS01-4 is suitable for configuration with boards in Eurocard format (100x160 mm).



MPS01-7

Basic unit MPS01-7 is suitable for configuration with boards in double Eurocard format (233.35x160 mm).

MPS01

// Basic units

MPS01-4

Scope of delivery

Mechanical parts	1 pc
Backplanes	1 pc
System monitor (SM2)	1 pc
Power adapter	1 pcs
Fans	2 pcs
Wiring	1 pc
LED display	1 pc
IEC line filter module	1 pc
ON/OFF switch	1 pc

Delivery form

Fully assembled and functionality and safety tested

Notes

– Individually configurable with e.g. other backplanes, power supplies, etc.
– Power supply must be ordered separately (see chapter "Accessories / 19" power supplies")

Ordering table

Basic units	Backplane	Power supply	Order no.
MPS01-4 CPCI	CPCI-3U, 4 slot, 64 bit, SR	o	**64 24 40 50**

o By way of power adapter

MPS01-7

Scope of delivery

Mechanical parts	1 pc
Backplanes	1 pc
Power supply	1 pc
System monitor (SM2)	1 pc
Fans	3 pcs
Wiring	1 pc
LED display	1 pc
IEC line filter module	1 pc
ON/OFF switch	1 pc

Delivery form

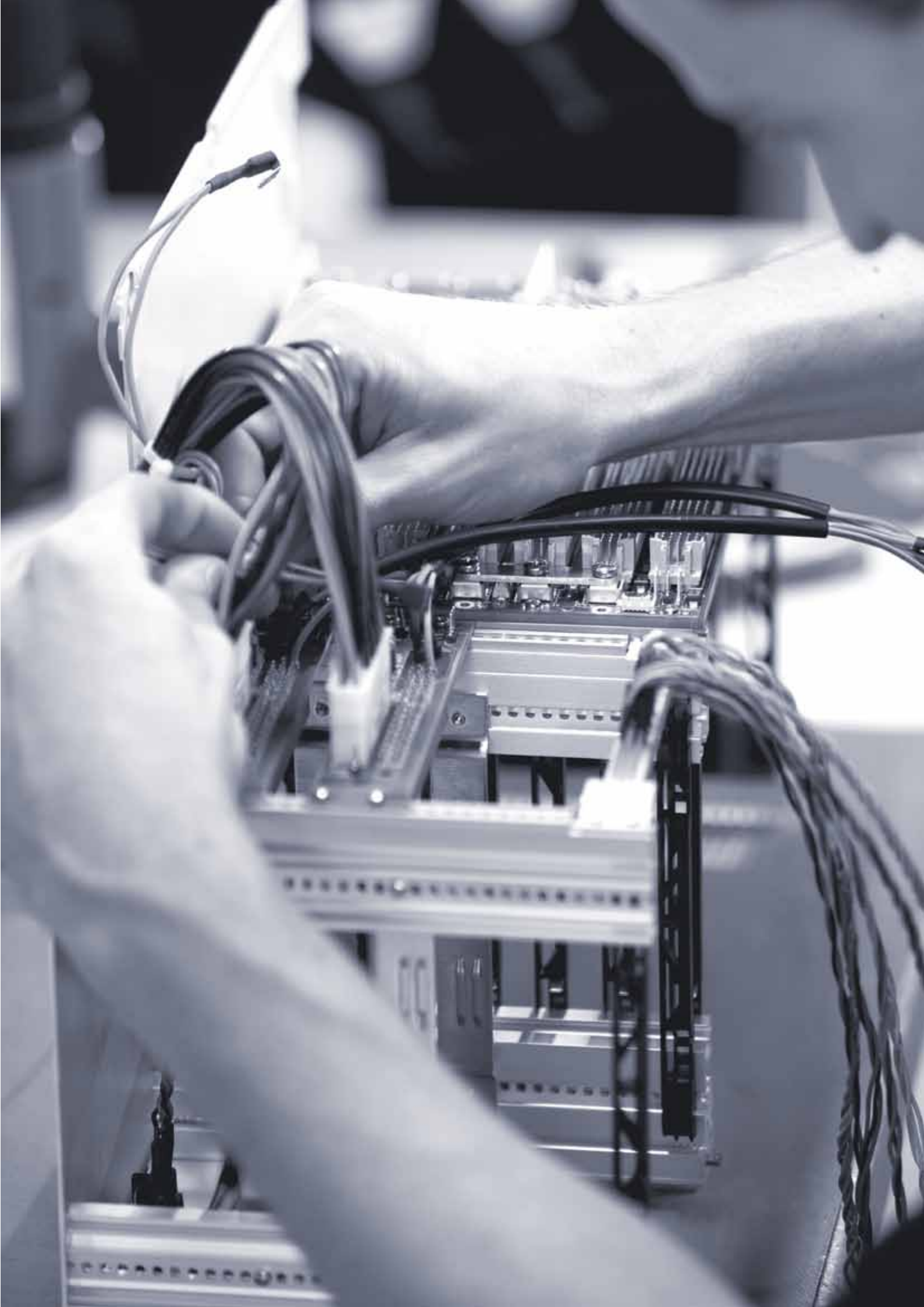
Fully assembled and functionality and safety tested

Note

– Individually configurable with e.g. other backplanes, power supplies, etc.

Ordering table

Basic units	Backplane	Power supply	Order no.
MPS01-7 VME	VME-J1/J2, 21 slot, IBT, ADC	PSU - OF - 600-1	**62 22 40 40**



MPS02

Product information

The basic unit of the MPS02 is based on our subrack series "Future". This series lends itself to the creation of top-quality systems. The principal system components, such as backplane, power supply, wiring, etc. are already included. The power supply, fan and SMC (System Management Controller) system components are all pluggable.
Further assembly parts are available.

Standards

– Insulation test: in accordance with EN 60950
– Radio disturbance: EN 55022, Class B
– Protection class: 1
– Overvoltage category: 2
– IP rating: IP 20

Note

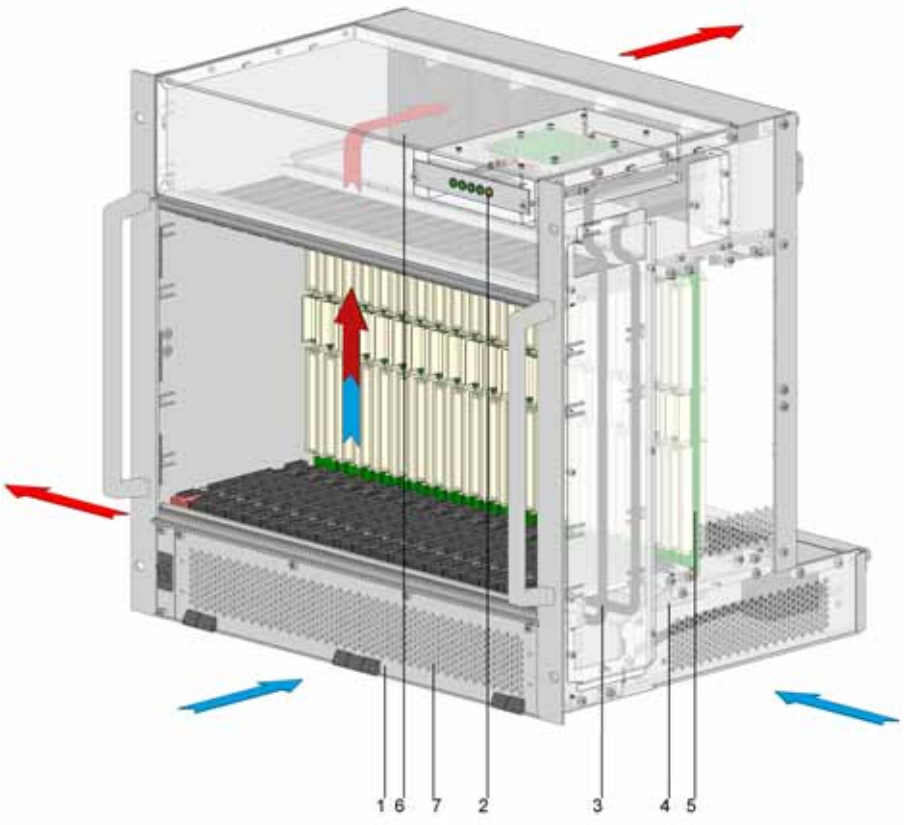
– Front rails (card cage, 3U below / 6U above and below) with incremented holes in accordance with IEEE-1101.10

Overview

Basic units	H	Slots	Backplane VME64x		Power supply	Rear I/O	Page
- MPS02-10-1	10 U	max. 21	●	o	800 watts	EC 80 mm	SYS 01.24
- MPS02-10-2	10 U	max. 21	●	o	800 watts	EC 160 mm	SYS 01.24

o Other backplanes can also be used.

MPS02



Configuration example

The diagram shows a typical MPS02-2 configuration

1. Mechanical parts
2. System manager *
3. Wiring
4. Power supplies
5. Backplanes
6. Fans
7. Dust filter mat

* Can also be configured with system monitor SMC2 COM or SMC2 WEB, see "Accessories / System manager" chapter

Surface finishing

– Alodined
– Front panels = front anodized / rear alodined

Technical specifications of system components

Power supplies

Model	Power	Construction	U_{IN}	V1/Imax	V2/Imax	V3/Imax	V4/Imax	V5/Imax	Accreditation
PSU-OF- 800-1	800 watts	Open frame	84-264VAC/50Hz	+5V/120A	+3.3V/40A	+12V/10A	-12V/4A	-	CE, CSA, UL, VDE

Backplane

Model	Slots	Standards	Bus width	Termination	Daisy chain	P0	System slot	Rear I/O
VME64, 21 slot, IBT, EADC	21	ANSI/VITA 1.1-1997	64 bit	Inboard	EADC	●	-	●

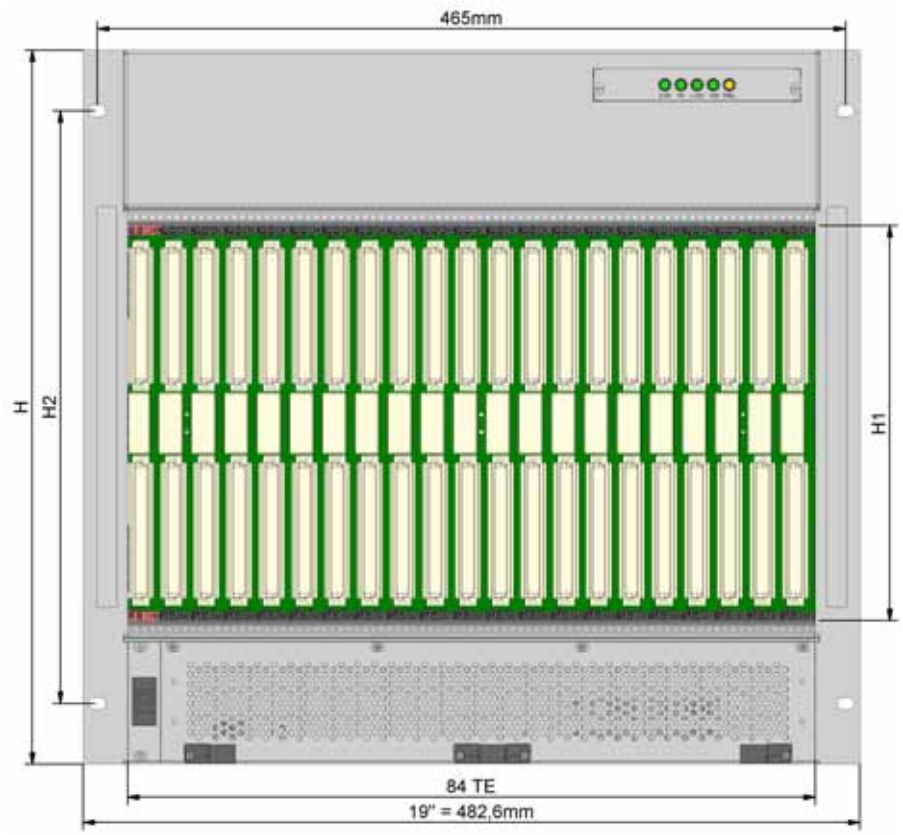
Fans

Model	Dimensions	Airflow rate	Noise	Note
DC/axial	90x90x25mm	100m³	45dB(A)	MPS02-10-1 and MPS02-10-1

System monitor

Model	Monitoring function			Signaling		Standards	Note
	Speed	Operating voltage	Temperature	Optical	Logical (potential-free contact)		
SM2	●	+4.75 -5.25 +11.4 -12.6 -11.4 -12.6 3,135 -3,456	●	●	●	SYS and POWER-FAIL/ SYS-RESET VITA-compliant	Parameterizable and optional RS232 interface *

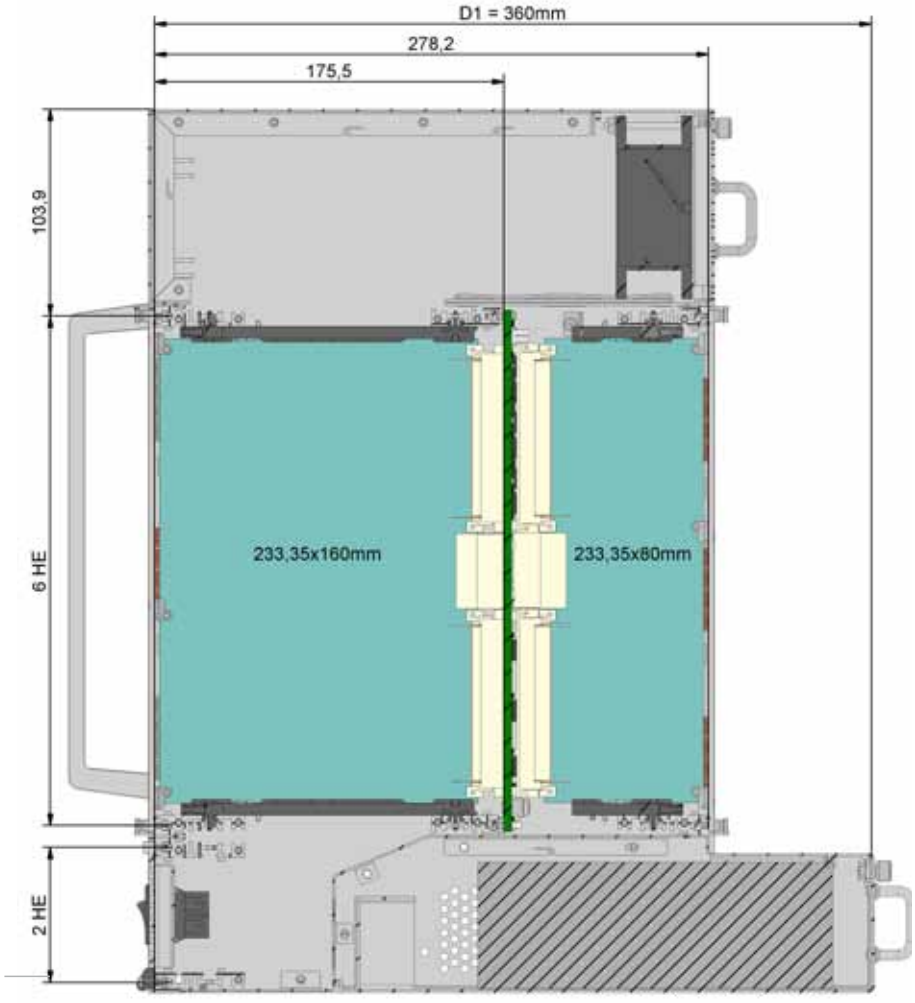
* Further technical details on request



Dimension diagrams

MPS02-10-1 front view

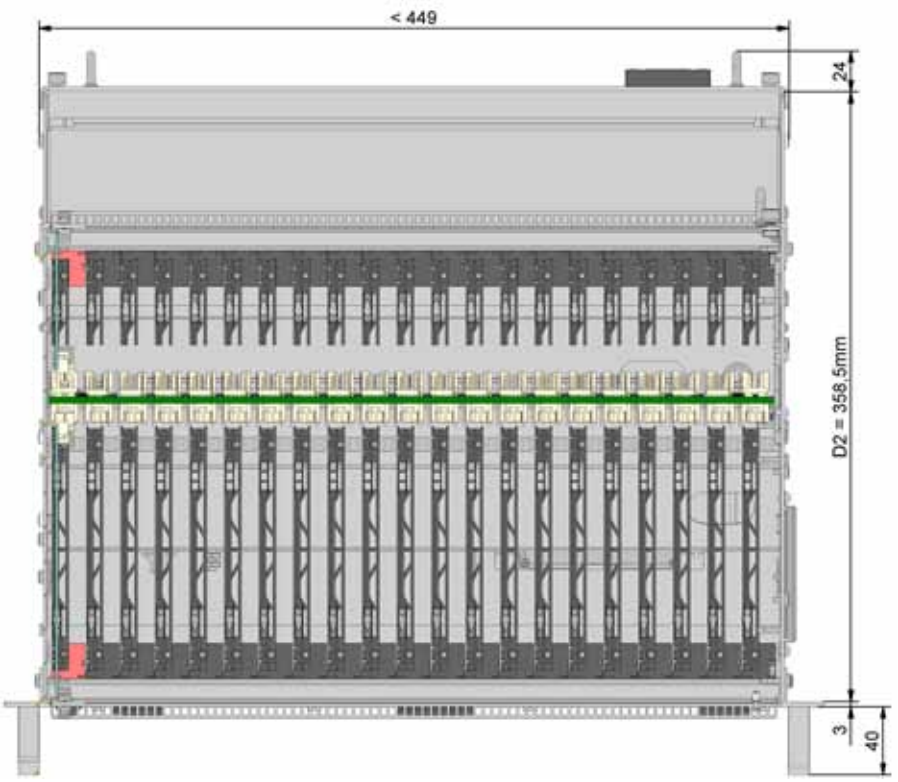
Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments



MPS02-10-1 side view

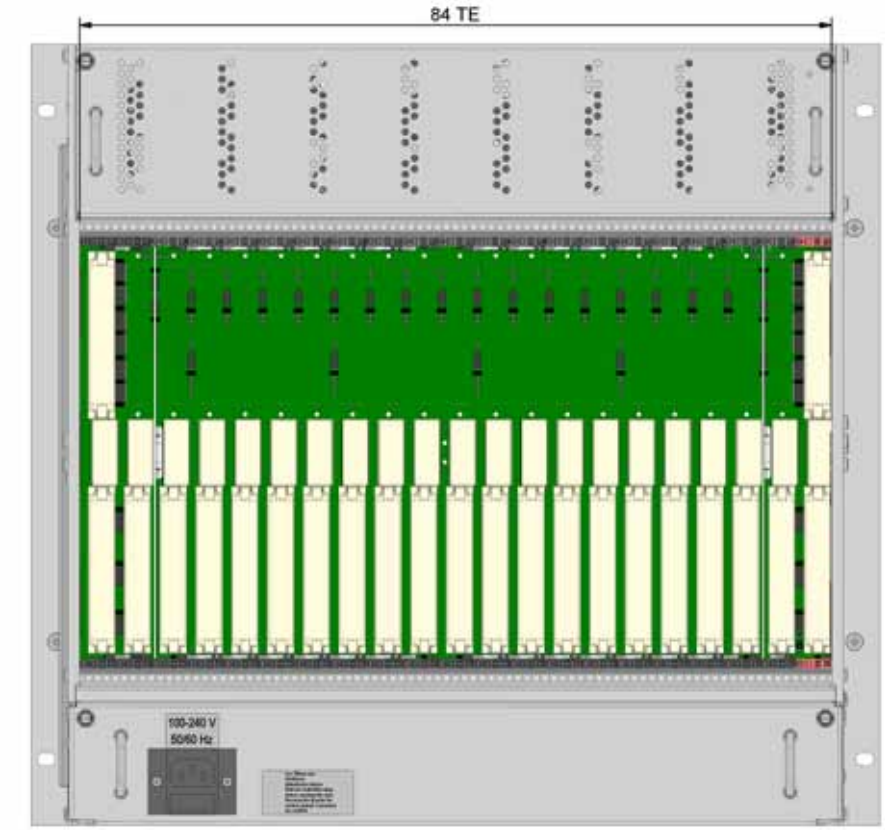
D1 = internal dimension

// Product information



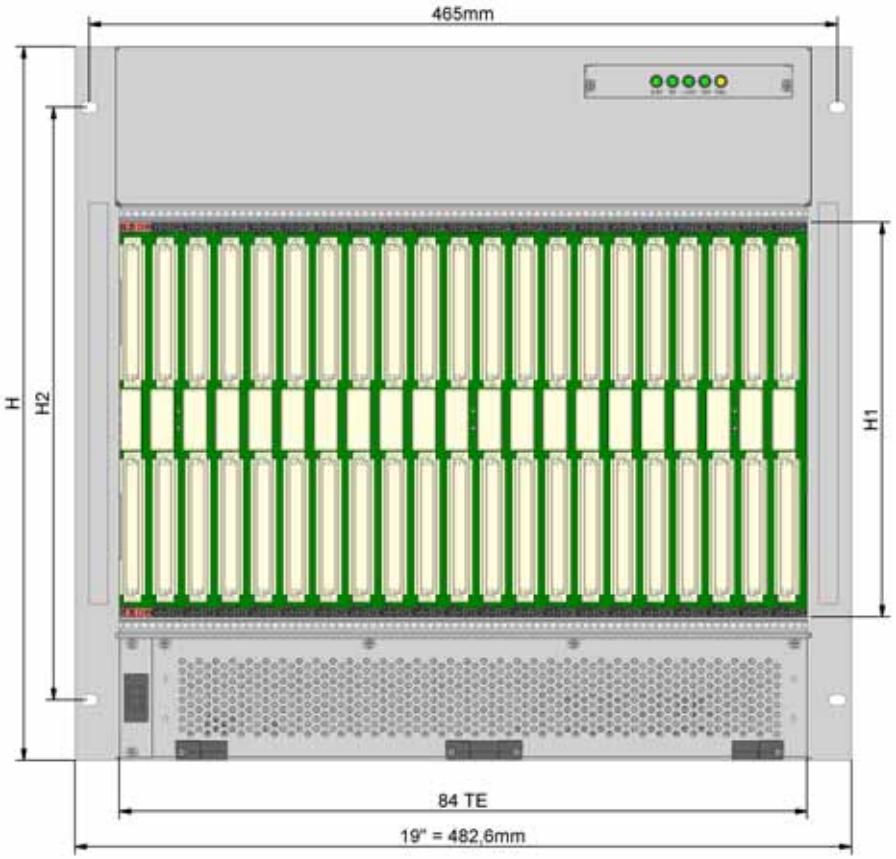
MPS02-10-1 top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)



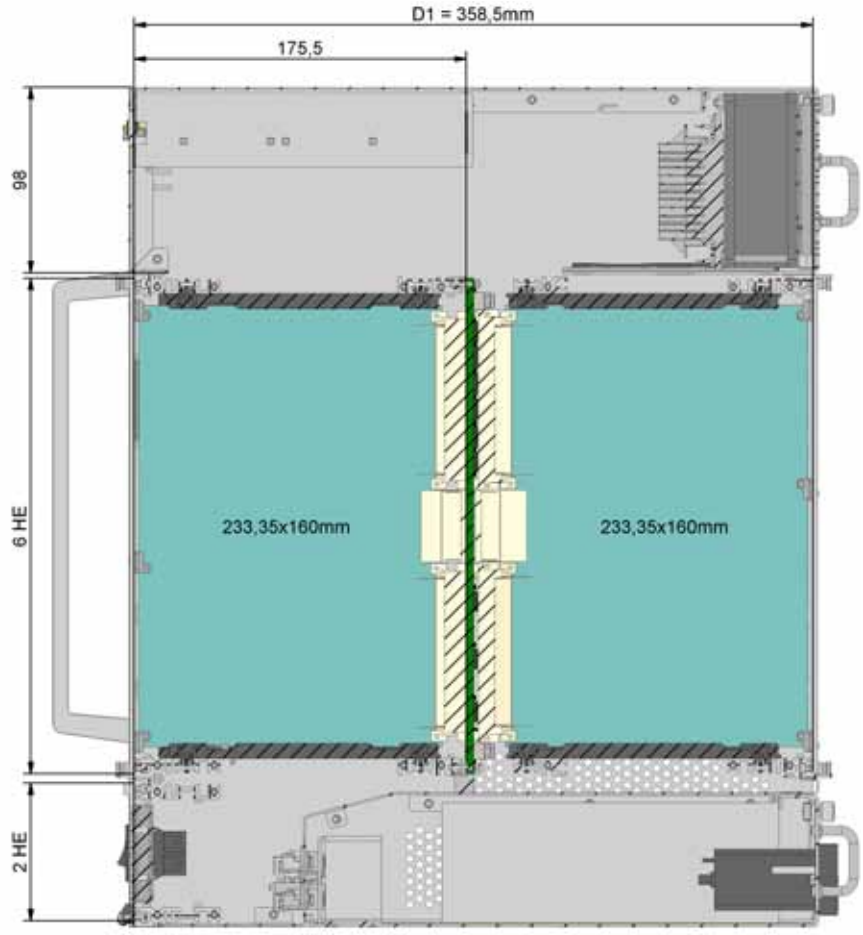
MPS02-10-1 rear view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments



MPS02-10-2 front view

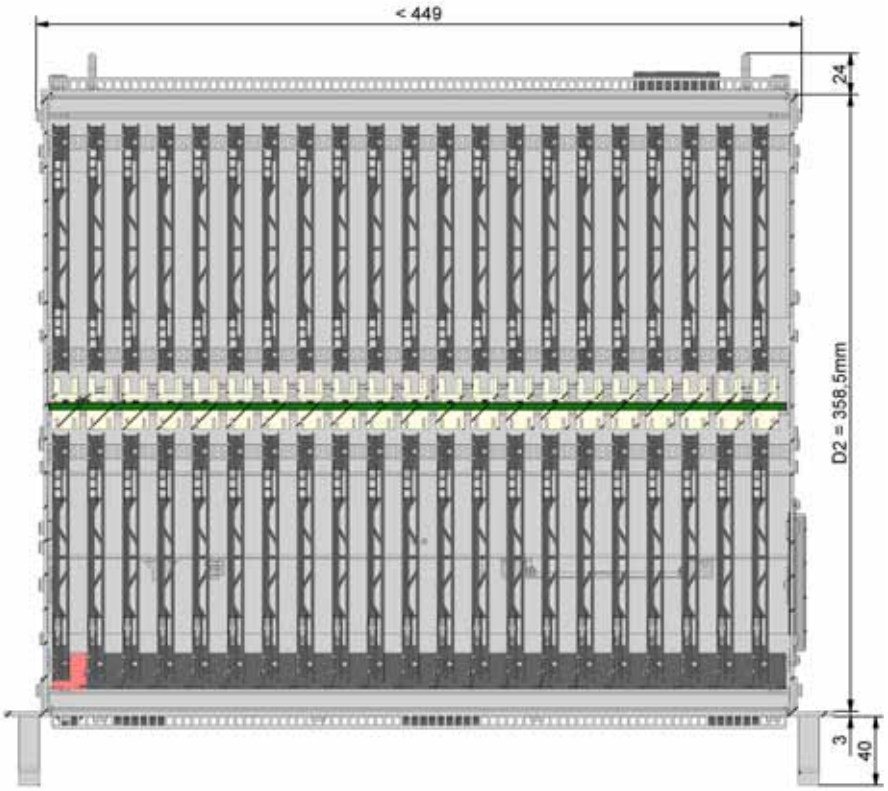
Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments



MPS02-10-2 side view

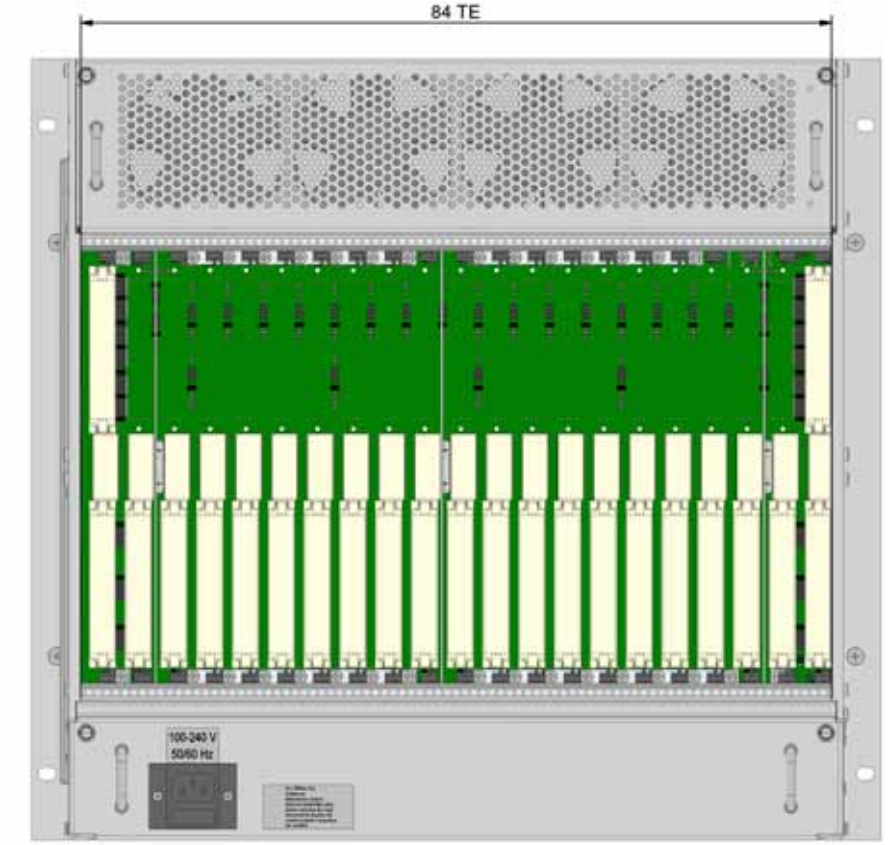
D1 = internal dimension

// Product information



MPS02-10-2 top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)

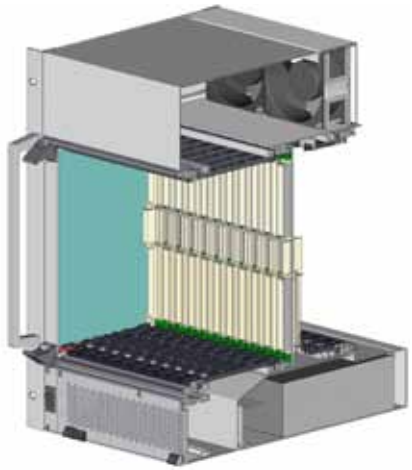


MPS02-10-2 rear view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments

Basic units

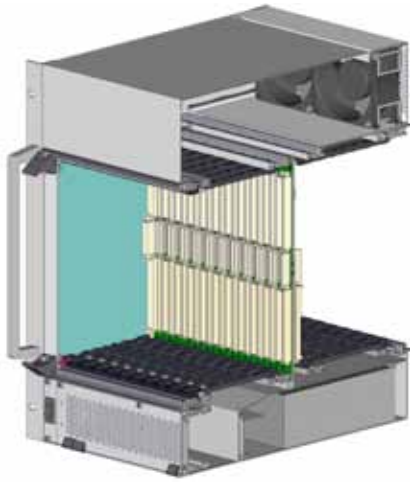
The basic units of the MPS02 system platform are based on our subrack series "Future" and vary with regard to their configuration.



Features of the basic units

MPS02-10-1

Basic unit MPS02-10-1 is suitable for configuration with boards in double Eurocard format (233.35x160mm) and with additional Rear I/O (233.35x80mm).



MPS02-10-2

Basic unit MPS02-10-2 is suitable for configuration with boards in double Eurocard format (233.35x160mm) with additional Rear I/O (233.35x160mm).

MPS02

// Basic units

MPS02-10-1

Scope of delivery

Mechanical parts	1 pc
Backplanes	1 pc
System monitor (SM2)	1 pc
Power supply	1 pc
Fans	4 pcs
Wiring	1 pc
LED display	1 pc
IEC line filter module	1 pc
ON/OFF switch	1 pc
Dust filter mat	1 pc

Delivery form

Fully assembled and functionality and safety tested

Notes

- Individually configurable with e.g. other backplanes, power supplies, etc.
- System monitor, power supply and fan are exchangeable modules
- Please observe maintenance schedule for dust filter mat (for replacement filter mats see "Accessories/ Dust filter mat")

Ordering table

Basic units	Backplane	Power supply	Rear I/O	Order no.
MPS02-10-1	VME64, 21 slot, IBT, EADC	800 watts	EC 80 mm	**62 23 40 10**

MPS02-10-2

Scope of delivery

Mechanical parts	1 pc
Backplanes	1 pc
Power supply	1 pc
Fans	4 pcs
Wiring	1 pc
LED display	1 pc
IEC line filter module	1 pc
ON/OFF switch	1 pc
Dust filter mat	1 pc

Delivery form

Fully assembled and functionality and safety tested

Notes

- Individually configurable with e.g. other backplanes, power supplies, etc.
- Power supply and fan are exchangeable modules
- Please observe maintenance schedule for dust filter mat (for replacement filter mats see "Accessories/ Dust filter mat")

Ordering table

Basic units	Backplane	Power supply	Rear I/O	Order no.
MPS02-10-2	VME64x, 21 slot, IBT, EADC	800 watts	EC 160 mm	**62 23 40 50**

MPS03

Product information

The basic unit of the MPS03 is based on our subrack series "Future". This series lends itself to the creation of top-quality systems. The principal system components, such as backplane, power supply, wiring, etc. are already included.
Further assembly parts are available.

Standards

– Insulation test: in accordance with EN 60950
– Radio disturbance: EN 55022, Class B
– Protection class: 1
– Overvoltage category: 2
– IP rating: IP 20

Note

– Front rails (card cage, 3U below / 6U above and below) with incremented holes in accordance with IEEE-1101.10

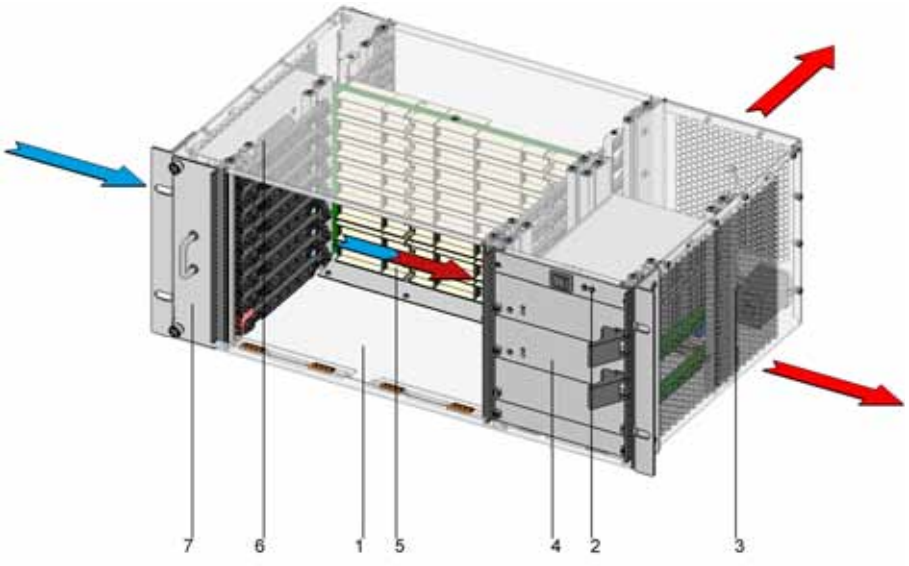
Overview

Basic units	H	Slots	Backplane CPCI		Power supply	Rear I/O	Page
- MPS03-1	1 U	max. 2	●	○	-	EC 80 mm	SYS 01.43
- MPS03-1-ATX	1 U	max. 2	●	○	300 watts	EC 80 mm	SYS 01.43
- MPS03-2	2 U	max. 4	●	○	-	EC 80 mm	SYS 01.44
- MPS03-2-ATX	2 U	max. 4	●	○	300 watts	EC 80 mm	SYS 01.44
- MPS03-3	3 U	max. 6	●	○	-	EC 80 mm	SYS 01.45
- MPS03-4	4 U	max. 8	●	○	-	EC 80 mm	SYS 01.45

○ Other backplanes can also be used

MPS03

// Product information



Configuration example

The diagram shows a typical MPS03-4 configuration

1. Mechanical parts
2. System manager
3. Wiring
4. Power supplies
5. Backplanes
6. Fans
7. Dust filter mat

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 panels = front anodized / rear alodined

Technical specifications of system components

Power supplies

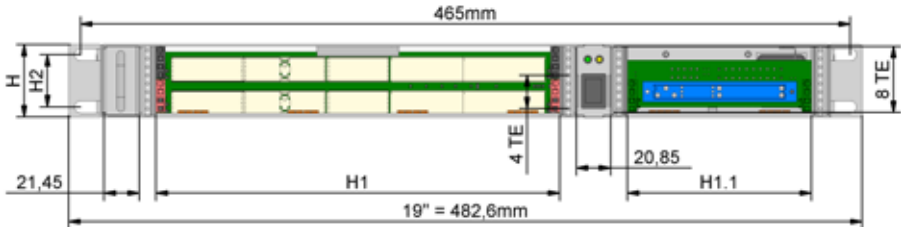
Model	Power	Construction	U_{IN}	V1/Imax	V2/Imax	V3/Imax	V4/Imax	V5/Imax	Accreditation
PSU-PC-300-1	300 watts	2 U IPC	84-264VAC/50Hz	+5V/30A	+3.3V/28A	+12V/15A	-12V/0.8A	+5Vstby/2,0A	CE, CSA, UL, VDE

Backplane

Model	Slots	Standards	Bus width	Termination	Daisy chain	P0	System slot	Rear I/O
CPCI-6,5U, 2 slot, 64 bit, SL	2	PICMG 2.0R3.0	64 bit	-	-	-	left	●
CPCI-6,5U, 4 slot, 64 bit, SL	4	PICMG 2.0R3.0	64 bit	-	-	-	left	●
CPCI-6,5U, 6 slot, 64 bit, SL	6	PICMG 2.0R3.0	64 bit	-	-	-	left	●
CPCI-6,5U, 8 slot, 64 bit, SL	8	PICMG 2.0R3.0	64 bit	-	-	-	left	●

Fans

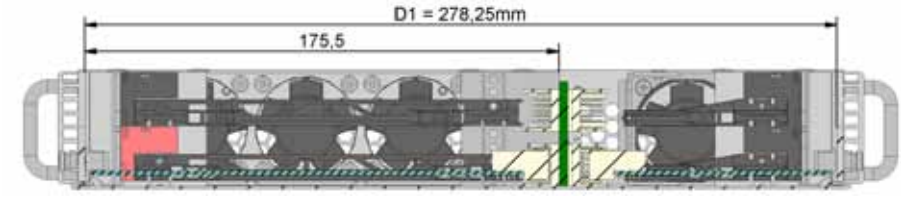
Model	Dimensions	Airflow rate	Noise	Note
DC/axial	40x40x25mm	60m³	45dB(A)	MPS03-1
DC/axial	80x80x25mm	84m³	45dB(A)	MPS03-2
DC/axial	90x90x25mm	100m³	45dB(A)	MPS03-3
DC/axial	90x90x25mm	140m³	45dB(A)	MPS03-4



Dimension diagrams

MPS03-1 front view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments



MPS03-1 side view

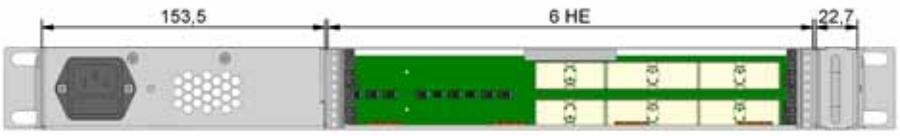
D1 = internal dimension

MPS03

// Product information

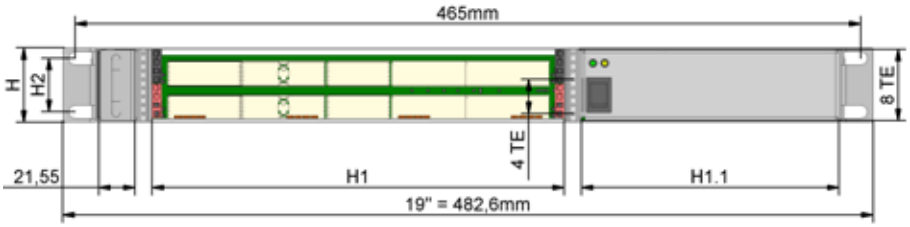
MPS03-1 top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)



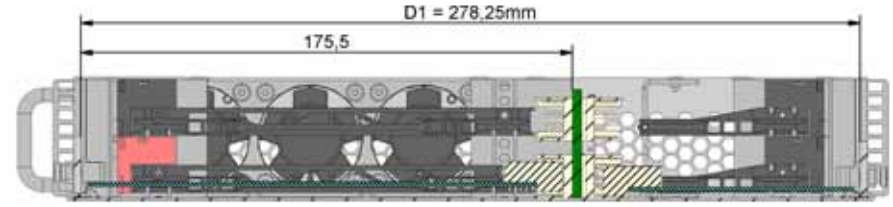
MPS03-1 rear view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments



MPS03-1-ATX front view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments

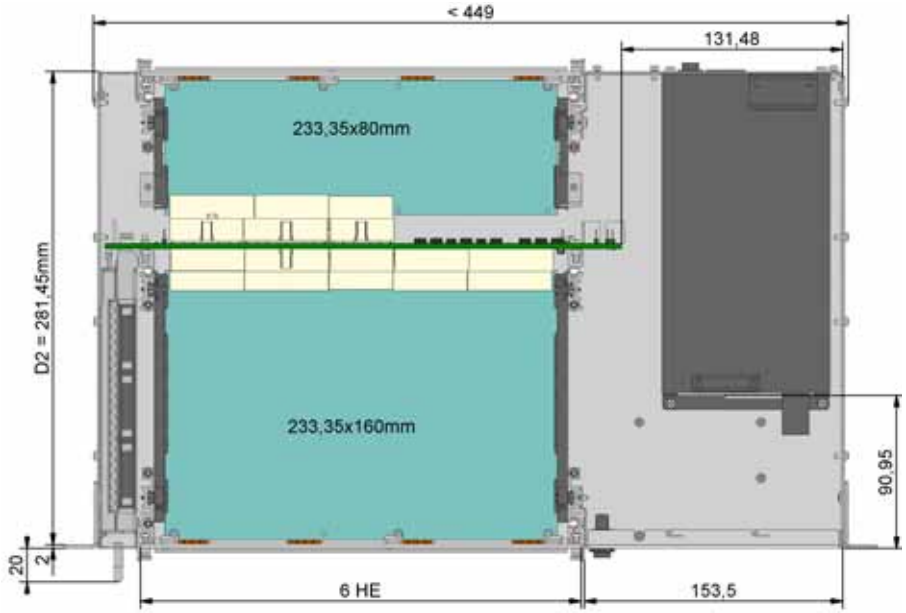


MPS03-1-ATX side view

D1 = internal dimension

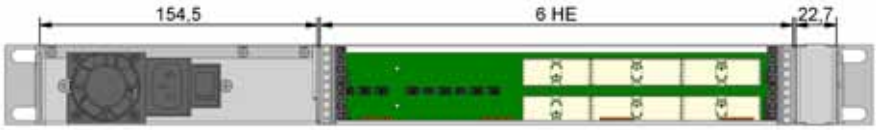
MPS03

// Product information



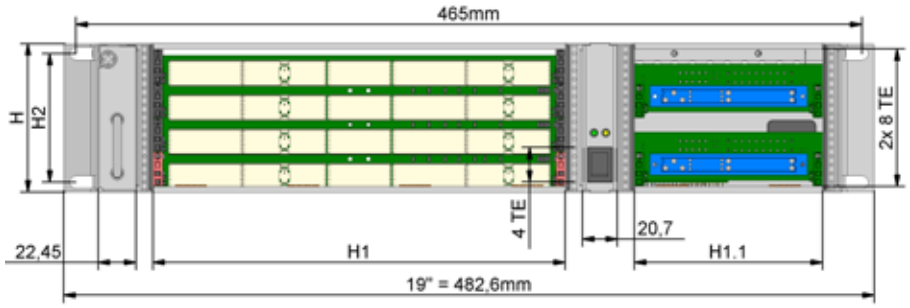
MPS03-1-ATX top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)



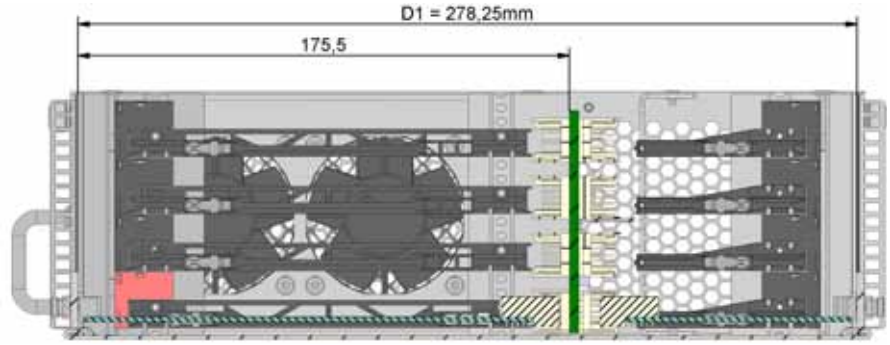
MPS03-1-ATX rear view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments



MPS03-2 front view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments

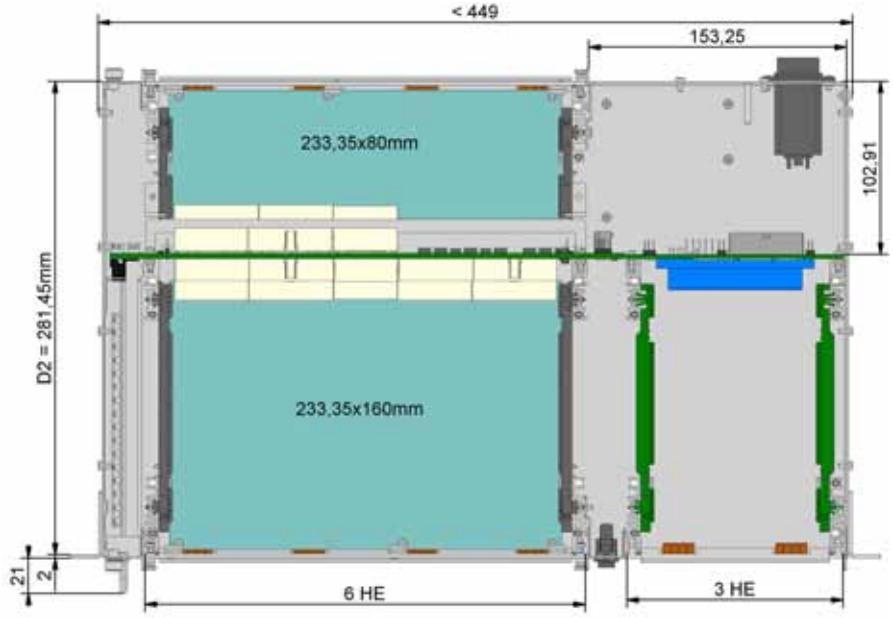


MPS03-2 side view

D1 = internal dimension

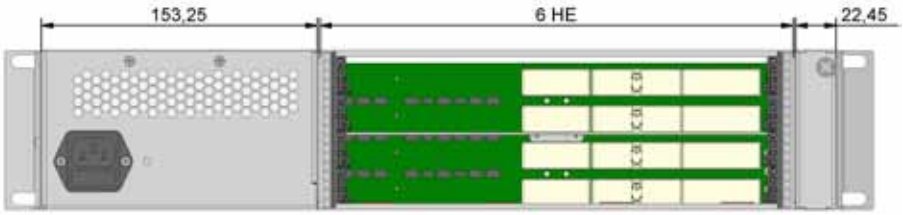
MPS03

// Product information



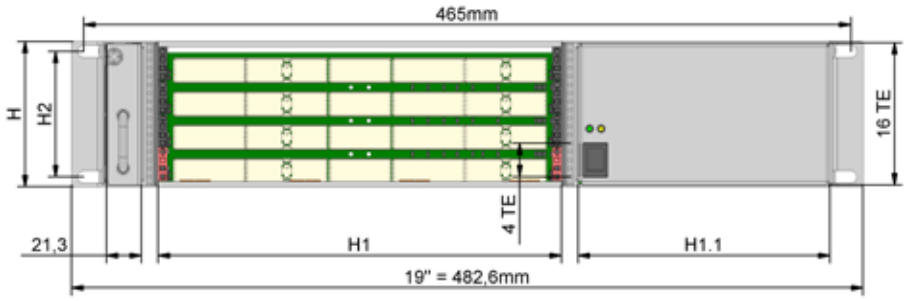
MPS03-2 top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)



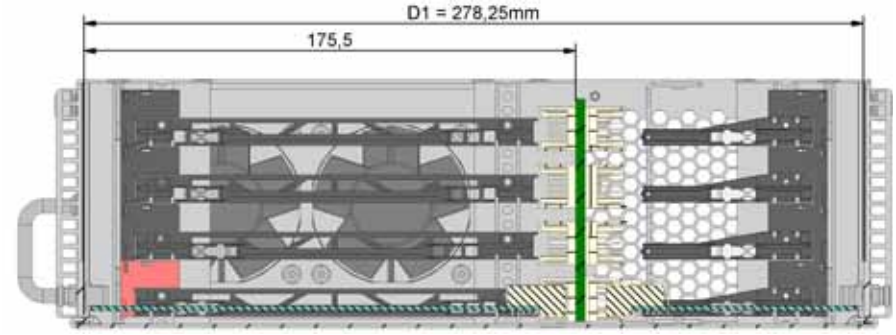
MPS03-2 rear view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments



MPS03-2-ATX front view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments

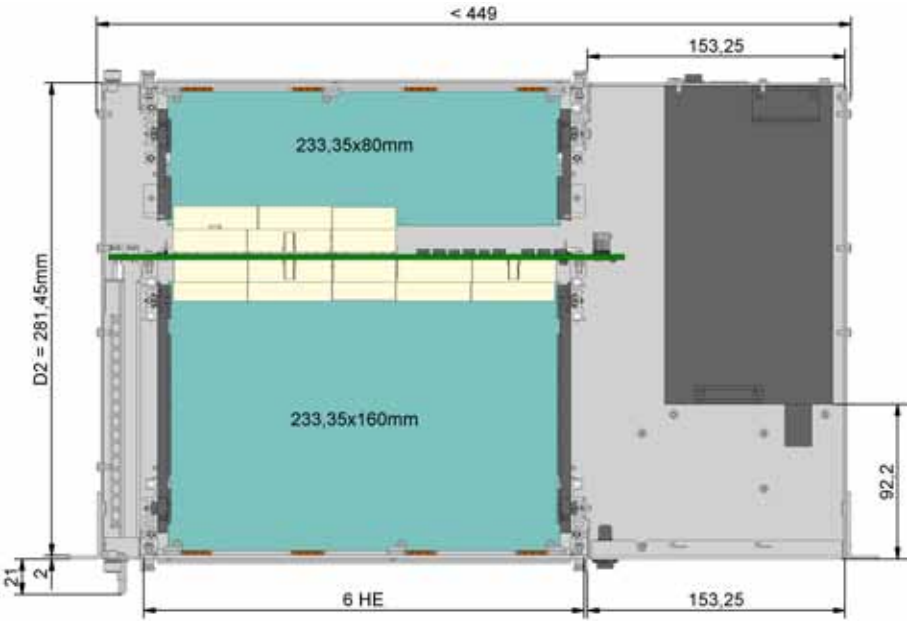


MPS03-2-ATX side view

D1 = internal dimension

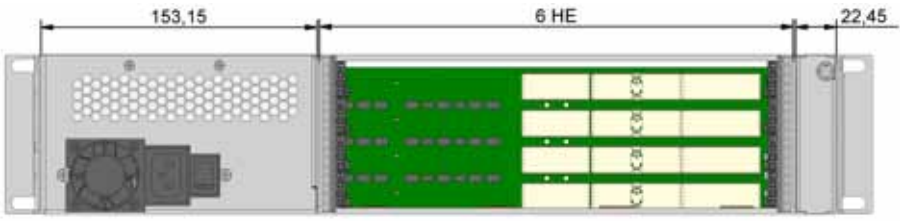
MPS03

// Product information



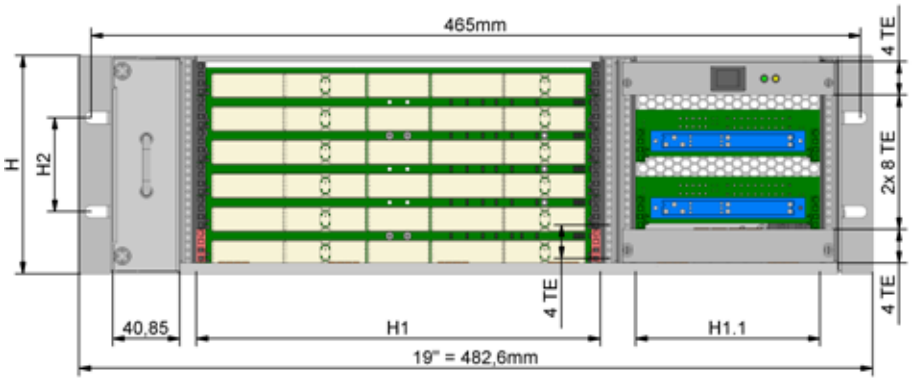
MPS03-2-ATX top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)



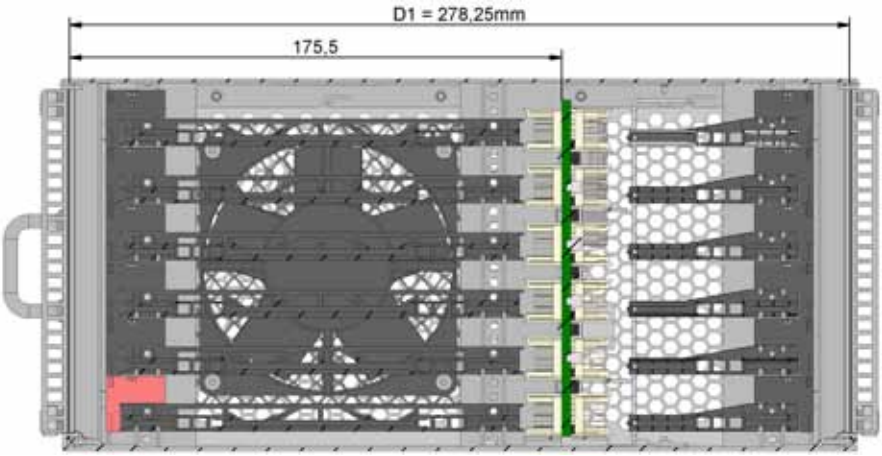
MPS03-2-ATX rear view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments



MPS03-3 front view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments

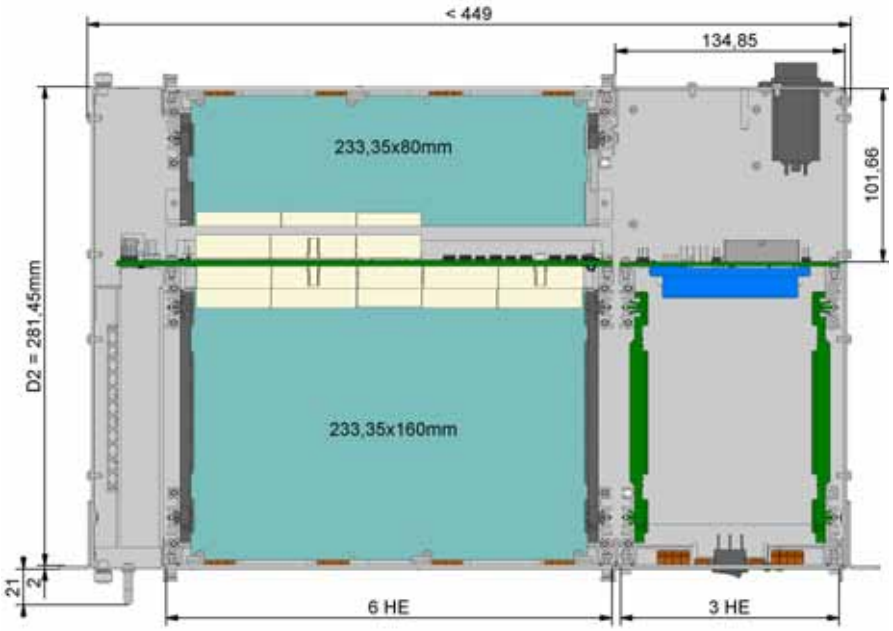


MPS03-3 side view

D1 = internal dimension

MPS03

// Product information

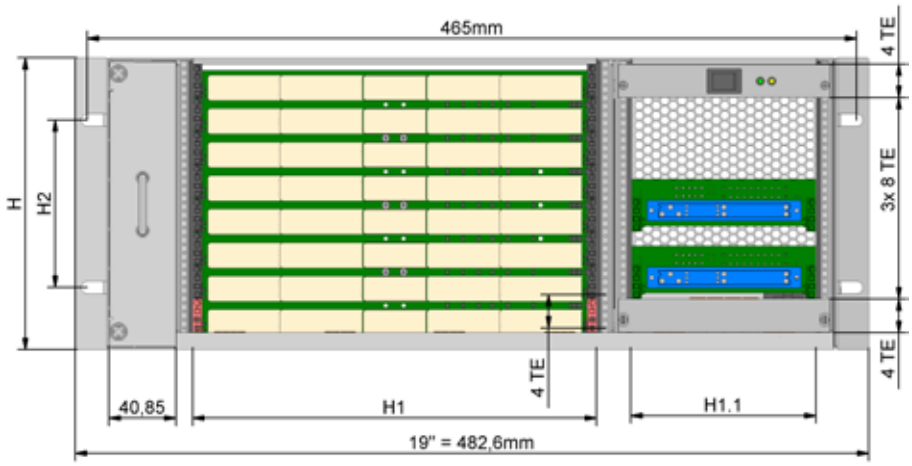


MPS03-3 top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)

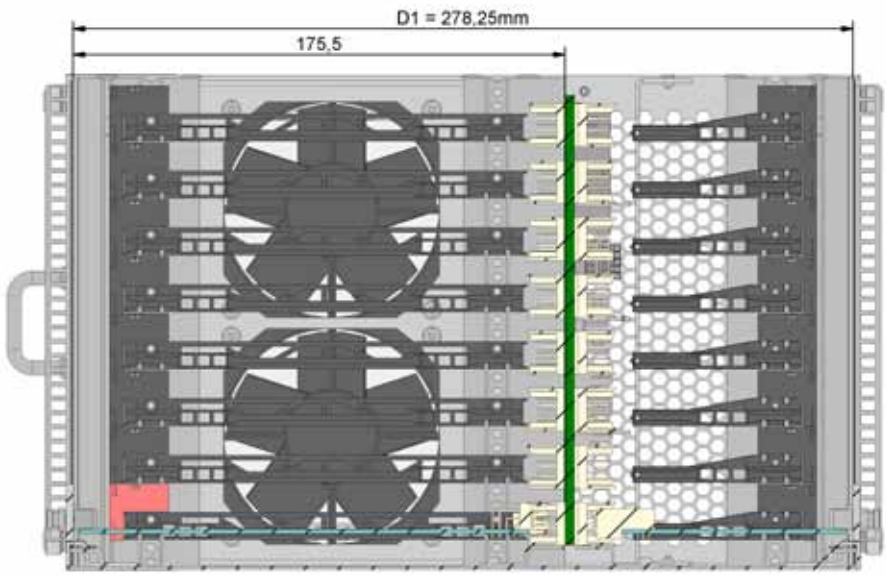
MPS03-3 rear view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments



MPS03-4 front view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments

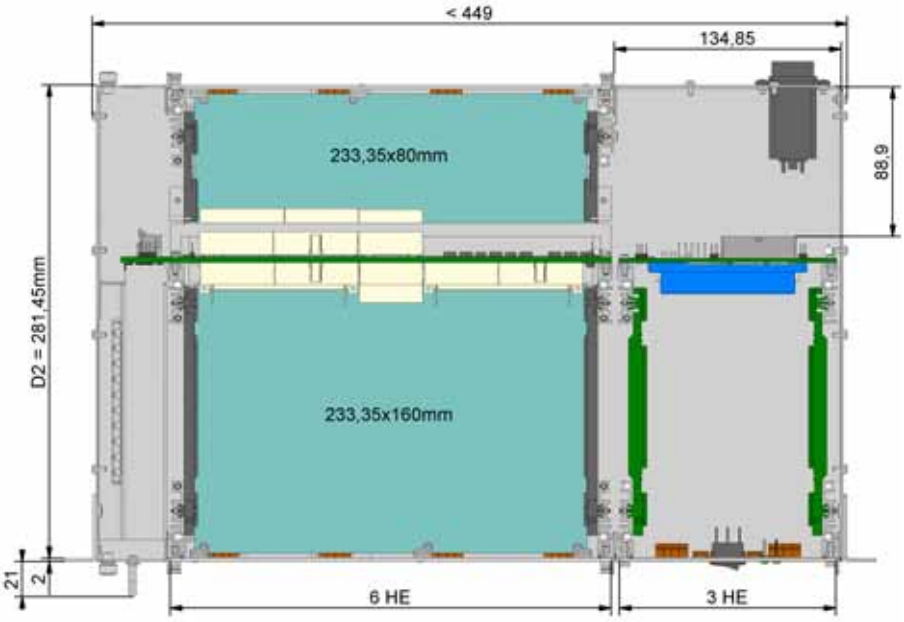


MPS03-4 side view

D1 = internal dimension

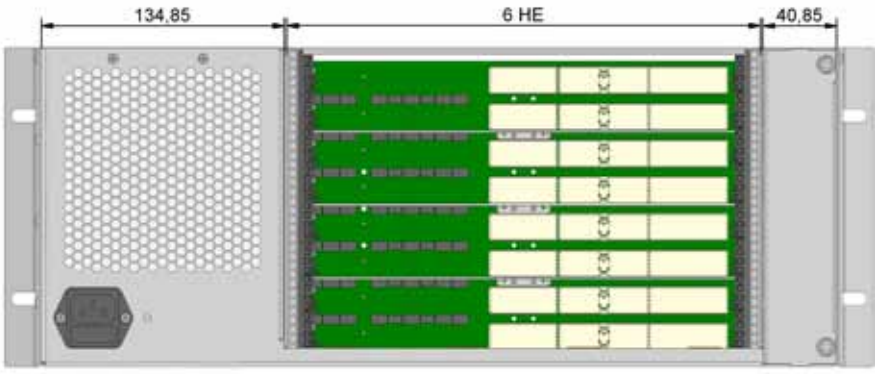
MPS03

// Product information



MPS03-4 top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)



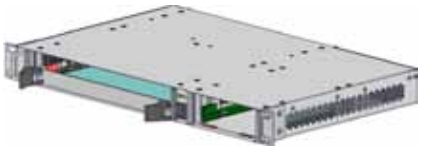
MPS03-4 rear view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments

Basic units

The basic units of the MPS03 system platform are based on our subrack series "Future" and vary in height and configuration.

Features of the basic units



MPS03-1

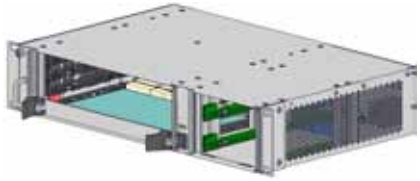
Basic unit MPS03-1 is suitable for configuration with boards in double Eurocard format (233.35x160 mm) and with additional Rear I/O (233.35x80 mm).

MPS03-1-ATX

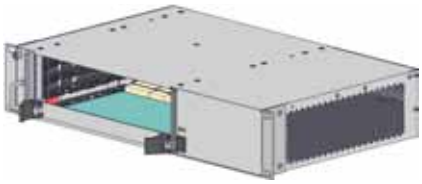
Basic unit MPS03-1-ATX is suitable for configuration with boards in double Eurocard format (233.35x160 mm) and with additional Rear I/O (233.35x80 mm).

MPS03

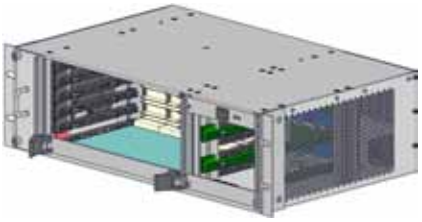
// Basic units



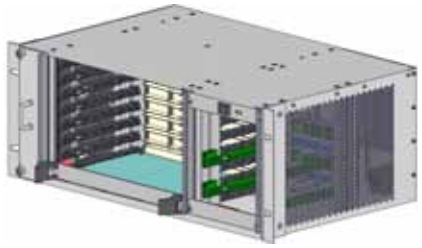
MPS03-2
Basic unit MPS03-2 is suitable for configuration with boards in double Eurocard format (233.35x160 mm) and with additional Rear I/O (233.35x80 mm).



MPS03-2-ATX
Basic unit MPS03-2-ATX is suitable for configuration with boards in double Eurocard format (233.35x160 mm) and with additional Rear I/O (233.35x80 mm).



MPS03-3
Basic unit MPS03-3 is suitable for configuration with boards in double Eurocard format (233.35x160 mm) and with additional Rear I/O (233.35x80 mm).



MPS03-4
Basic unit MPS03-4 is suitable for configuration with boards in double Eurocard format (233.35x160 mm) and with additional Rear I/O (233.35x80 mm).

MPS03-1

Scope of delivery

Mechanical parts	1 pc
Backplanes	1 pc
Power adapter	1 pcs
Fans	3 pcs
Wiring	1 pc
LED display	1 pc
IEC line filter module	1 pc
ON/OFF switch	1 pc
Dust filter mat	1 pc

Delivery form

Fully assembled and functionality and safety tested

Notes

- Individually configurable with e.g. other backplanes, power supplies, etc.
- Power supply must be ordered separately (see chapter "Accessories / 19" power supplies")
- Please observe maintenance schedule for dust filter mat (for replacement filter mats see "Accessories/ Dust filter mat"")

Ordering table

Basic units	Backplane	Power supply	Order no.
MPS03-1	CPCI-6,5U, 2 slot, 64 bit, SL	o	62 26 40 04

o By way of power adapter

MPS03-1-ATX

Scope of delivery

Mechanical parts	1 pc
Backplanes	1 pc
Power supply	1 pc
Fans	3 pcs
Wiring	1 pc
LED display	1 pc
IEC line filter module	1 pc
ON/OFF switch	1 pc
Dust filter mat	1 pc

Delivery form

Fully assembled and functionality and safety tested

Notes

- Individually configurable with e.g. other backplanes, power supplies, etc.
- Please observe maintenance schedule for dust filter mat (for replacement filter mats see "Accessories/ Dust filter mat")

Ordering table

Basic units	Backplane	Power supply	Order no.
MPS03-1-ATX	CPCI-6,5U, 2 slot, 64 bit, SL	PSU ATX 300 watts	62 26 40 03

MPS03

// Basic units

MPS03-2

Scope of delivery

Mechanical parts	1 pc
Backplanes	1 pc
Power adapter	2 pcs
Fans	2 pcs
Wiring	1 pc
LED display	1 pc
IEC line filter module	1 pc
ON/OFF switch	1 pc
Dust filter mat	1 pc

Delivery form

Fully assembled and functionality and safety tested

Notes

- Individually configurable with e.g. other backplanes, power supplies, etc.
- Power supply must be ordered separately (see chapter "Accessories / 19" power supplies")
- Please observe maintenance schedule for dust filter mat (for replacement filter mats see "Accessories/ Dust filter mat")

Ordering table

Basic units	Backplane	Power supply	Order no.
MPS03-2	CPCI-6,5U, 4 slot, 64 bit, SL	o	**62 26 40 06**

o By way of power adapter

MPS03-2-ATX

Scope of delivery

Mechanical parts	1 pc
Backplanes	1 pc
Power supply	1 pc
Fans	2 pcs
Wiring	1 pc
LED display	1 pc
IEC line filter module	1 pc
ON/OFF switch	1 pc
Dust filter mat	1 pc

Delivery form

Fully assembled and functionality and safety tested

Notes

- Individually configurable with e.g. other backplanes, power supplies, etc.
- Please observe maintenance schedule for dust filter mat (for replacement filter mats see "Accessories/ Dust filter mat")

Ordering table

Basic units	Backplane	Power supply	Order no.
MPS03-2-ATX	CPCI-6,5U, 4 slot, 64 bit, SL	PSU ATX 300 watts	**62 26 40 05**

MPS03-3

Scope of delivery

Mechanical parts	1 pc
Backplanes	1 pc
Power adapter	2 pcs
Fans	2 pcs
Wiring	1 pc
LED display	1 pc
IEC line filter module	1 pc
ON/OFF switch	1 pc
Dust filter mat	1 pc

Delivery form

Fully assembled and functionality and safety tested

Notes

- Individually configurable with e.g. other backplanes, power supplies, etc.
- System monitoring in conjunction with System Monitoring Controller (SMC2, see "Accessories" chapter) also possible as an option.
- Power supply must be ordered separately (see chapter "Accessories / 19" power supplies")
- Can also be configured with system monitor SMC2 COM or SMC2 WEB, see "Accessories / System manager" chapter
- Please observe maintenance schedule for dust filter mat (for replacement filter mats see "Accessories/ Dust filter mat")

Ordering table

Basic units	Backplane	Power supply	Order no.
MPS03-3	CPCI-6,5U, 6 slot, 64 bit, SL	o	**62 26 40 07**

o By way of power adapter

MPS03-4

Scope of delivery

Mechanical parts	1 pc
Backplanes	1 pc
Power adapter	2 pcs
Fans	2 pcs
Wiring	1 pc
LED display	1 pc
IEC line filter module	1 pc
ON/OFF switch	1 pc
Dust filter mat	1 pc

Delivery form

Fully assembled and functionality and safety tested

Notes

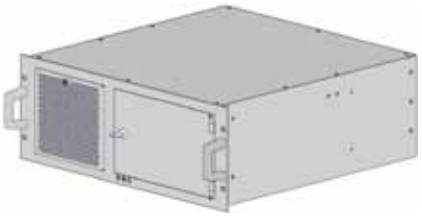
- Individually configurable with e.g. other backplanes, power supplies, etc.
- System monitoring in conjunction with System Monitoring Controller (SMC2, see "Accessories" chapter) also possible as an option.
- Power supply must be ordered separately (see chapter "Accessories / 19" power supplies")
- Can also be configured with system monitor SMC2 COM or SMC2 WEB, see "Accessories / System manager" chapter
- Please observe maintenance schedule for dust filter mat (for replacement filter mats see "Accessories/ Dust filter mat")

Ordering table

Basic units	Backplane	Power supply	Order no.
MPS03-4	CPCI-6,5U, 8 slot, 64 bit, SL	o	**62 26 40 08**

o By way of power adapter

IPC01



Product information

Suitable for constructing top-quality PC systems for industrial environments.

Standards

– Insulation test: in accordance with EN 60950
– Radio disturbance: EN 55022, Class B
– Protection class: 1
– Overvoltage category: 2
– IP rating: IP 20

Notes

– We offer full assembly service, including PC component purchasing and software installation, depending on what the customer requires in his specification.
– Suitable for slide rail mounting (height of main structure 3 mm less than front)

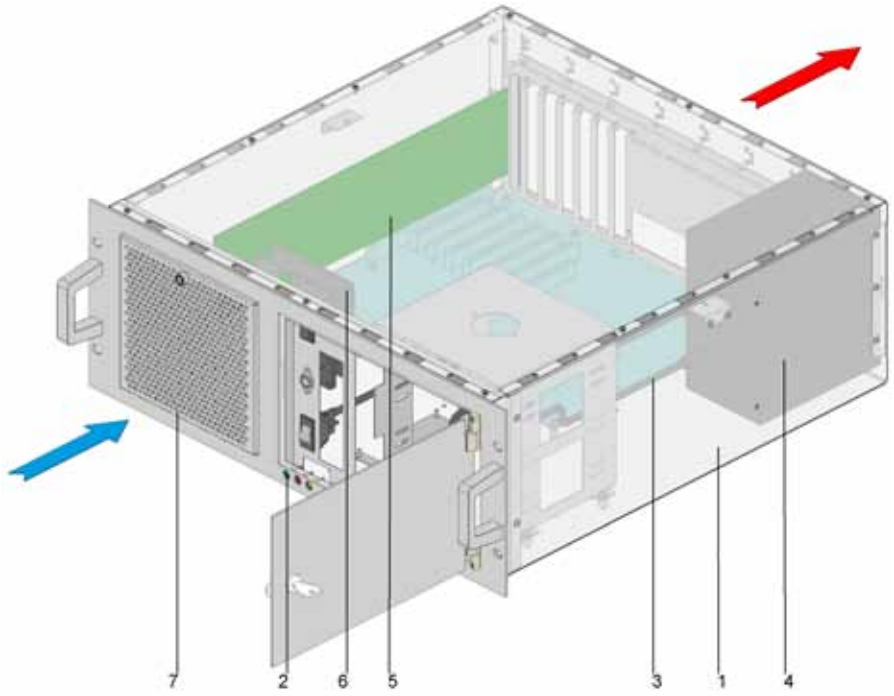
Overview

Basic units	H	Slots	Backplane ATX	Backplane passive		Power supply	Page
- IPC01-4-ATX	4 U	max. 7	-		o	400 watts	SYS 01.52
- IPC01-4-passive	4 U	max. 14		-	o	400 watts	SYS 01.52

o Other backplanes can also be used

IPC01

// Product information



Configuration example

The diagram shows a typical IPC01-ATX configuration

1. Mechanical parts
2. System manager
3. Wiring
4. Power supplies
5. Backplanes
6. Fan*
7. Dust filter mat

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

Surface finishing

– Main structure and cover plate in stainless steel 4016
– Front panel = powder-coated RAL7035

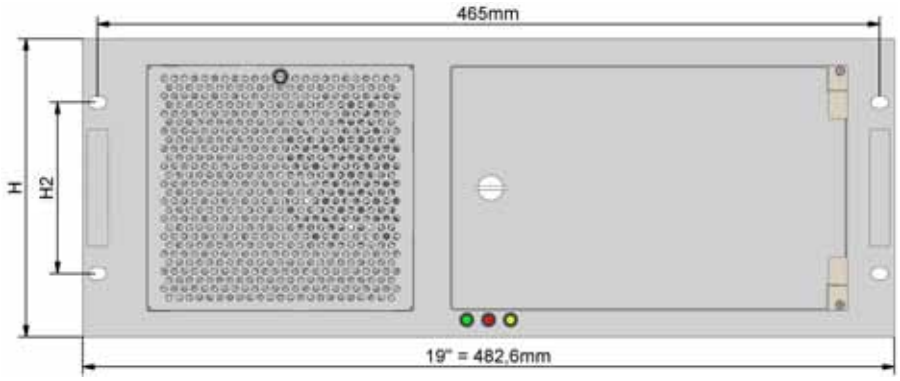
Technical specifications of system components

Power supplies

Model	Power	Construction	U_{IN}	V1/Imax	V2/Imax	V3/Imax	V4/Imax	V5/Imax	Accreditation
PSU-ATX	400 watts	PS2	84-264VAC/50Hz	+5V/30A	+3.3V/28A	+12V/15A	-12V/0.8A	+5Vstby/2,0A	CE, CSA, UL, VDE

Fans

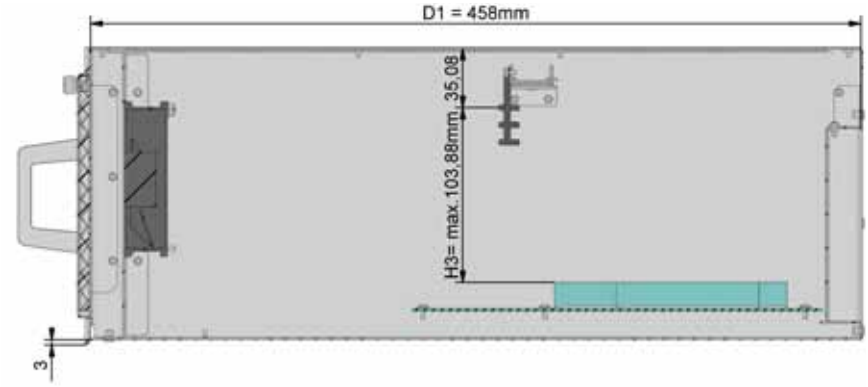
Model	Dimensions	Airflow rate	Noise	Note
DC/axial	90x90x25 mm	140 m³	45dB(A)	Operation via V3



Dimension diagrams

IPC01-4-ATX and passive, front view

Threads in card cage for mounting plug-in modules, etc. = M2.5 / 5.08 mm increments

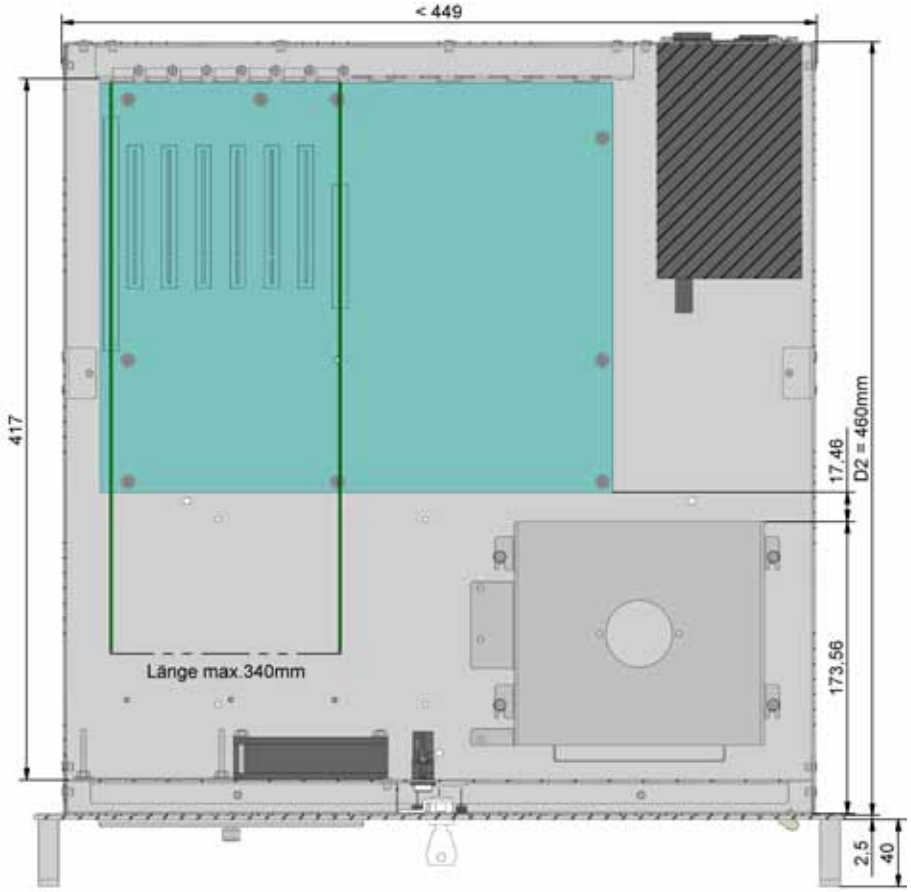


IPC01-4-ATX and passive, side view

D1 = internal dimension
M3 = max. card height in conjunction with "card hold-down" (optional)

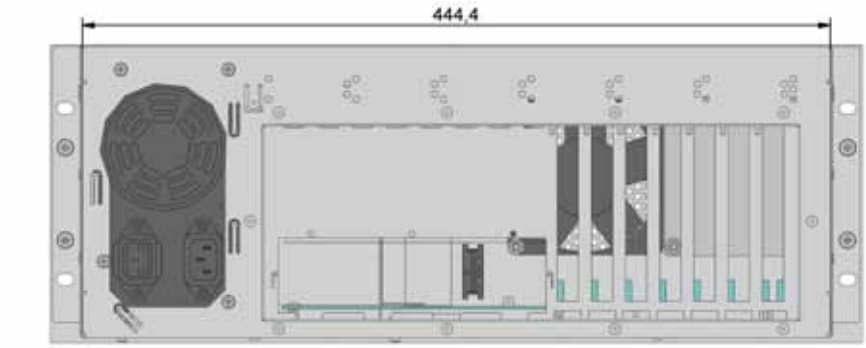
IPC01

// Product information



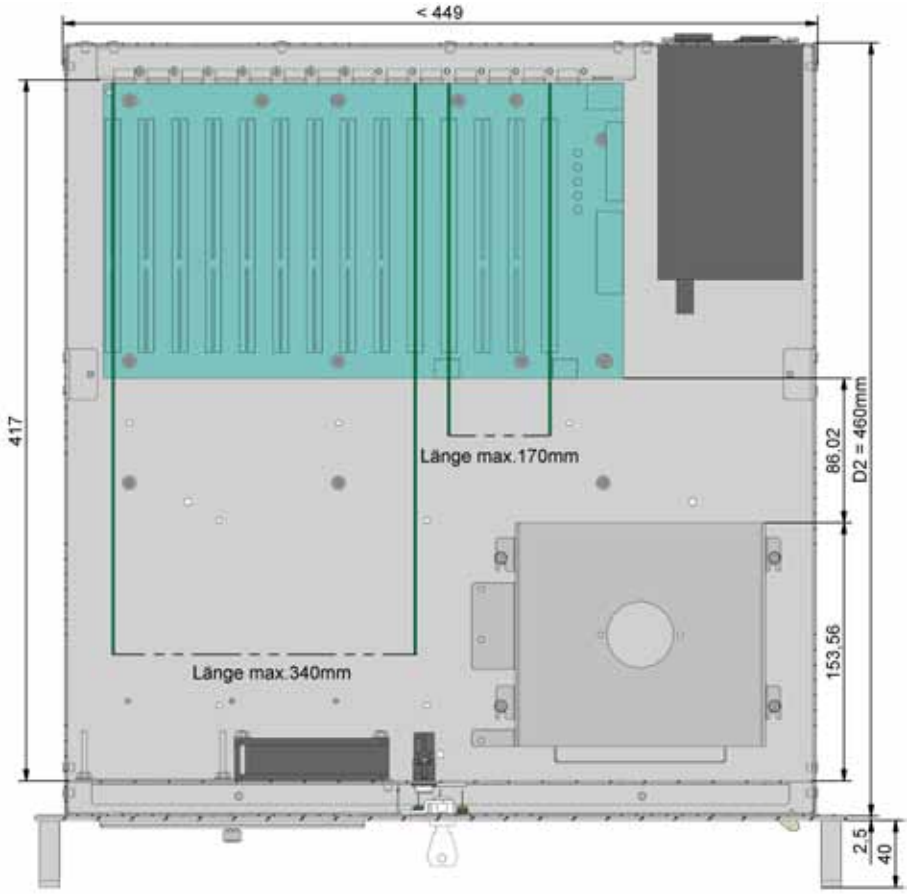
IPC01-4-ATX top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)



IPC01-4-ATX rear view

Threads in card cage for mounting plug-in modules, etc. = M3.0 / 20.32 mm increments



IPC01-4-passive top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)

PC01-4-passive rear view

Threads in card cage for mounting plug-in modules, etc. = M3.0 / 20.32 mm increments

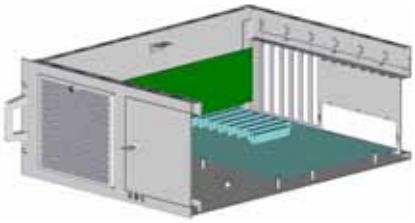
Drive cage

Corresponding cutout dimension in splitting plate = 130 mm x 150 mm and 103.7 mm x 27.3 mm

IPC01

Basic units

The system platform IPC01 basic units differ in their configuration, i.e. either for active (ATX) or for passive backplanes.



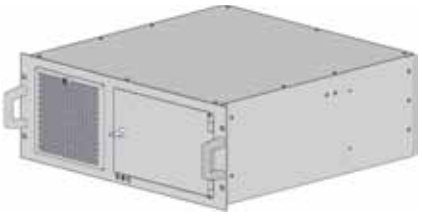
Features of the basic units

IPC01-4-ATX

The IPC01-4-ATX basic unit accepts standard ATX main boards.

IPC01-4-passive

The IPC01-4-passive basic unit accepts passive backplanes.



IPC01-4-ATX

Scope of delivery

Mechanical parts	1 pc
Power supply	1 pc
Wiring	1 pc
Fan	1 pc
ON/OFF switch	1 pc
Filter mat	1 pc
LED display	1 pc
Reset button	1 pc
Dust filter mat	1 pc

Delivery form

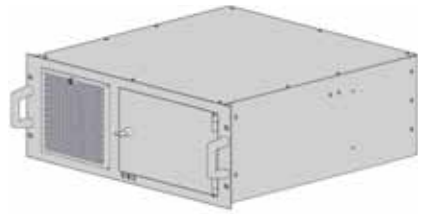
Fully assembled and functionality and safety tested

Notes

– Backplane not included in scope of delivery
– Please observe maintenance schedule for dust filter mat (for replacement filter mats see "Accessories/ Dust filter mat")

Ordering table

Basic Units	Backplane	Power supply	Order no.
IPC01-4-ATX	for standard ATX	PSU-ATX	**62 24 40 20**



IPC01-4-passive

Scope of delivery

Mechanical parts	1 pc
Power supply	1 pc
Wiring	1 pc
Fan	1 pc
ON/OFF switch	1 pc
Filter mat	1 pc
LED display	1 pc
Reset button	1 pc
Dust filter mat	1 pc

Delivery form

Fully assembled and functionality and safety tested

Notes

– Backplane not included in scope of delivery
– Please observe maintenance schedule for dust filter mat (for replacement filter mats see "Accessories/ Dust filter mat")

Ordering table

Basic Units	Backplane	Power supply	Order no.
IPC01-4-passive	for max 14 slot PICMG	PSU-ATX	**62 24 40 19**

Accessories
Overview

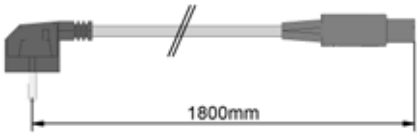
//03 SYSTEMS
ACCESSORIES

// Contents

ACCESSORIES

Power cables

To connect appliances to the line power



Power cable EU

Color
black

Delivery form
In units for self-assembly

Scope of delivery
Connecting cable 1 pc

Note
– Total length of connecting cable = 1.8 m
– Compliant with VDE and UL
– Imax = 16A

Ordering table

	Order no.
Power cable EU	68 21 00 01

Power cable US

Color
black

Delivery form
In units for self-assembly

Scope of delivery
Connecting cable 1 pc

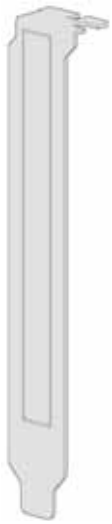
Note
– Total length of connecting cable = 1.8 m
– Compliant with VDE and UL
– Imax = 16A

Ordering table

	Order no.
Power cable US	68 21 00 05

Slot covers

To cover slots in PC systems that are not in use



Slot covers, basic

Material
Slot plate, hot-dip galvanized

Delivery form
In units for self-assembly

Scope of delivery
PC slot plate 1 PU (10 pcs)

Ordering table

	Order no.
PC slot plate, basic	62 24 80 15

Slot covers, reinforced

Material
Slot plate, hot-dip galvanized

Delivery form
In units for self-assembly

Scope of delivery
PC slot plate 1 PU (10 pcs)

Ordering table

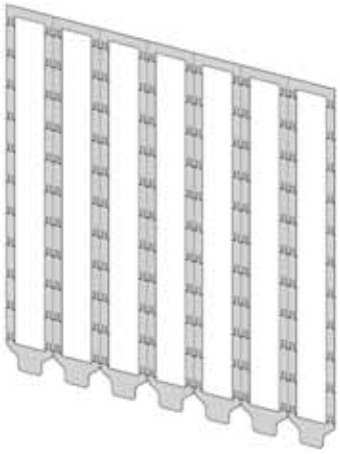
	Order no.
PC slot plate, reinforced	62 24 80 11

ACCESSORIES

// Slot gasket

Slot gasket

For EMC-compliant contact between slot plates and card cage



Slot gasket

Material
CU-BE

Delivery form
In units for self-assembly

Scope of delivery
EMC spring 1 PU (10 pcs)

Ordering table

	Order no.
EMC spring for card cage, 7 slots	62 24 80 33

Card hold-down assemblies/guides

To mechanically secure the printed circuit boards

Card hold-down assemblies

Material
Stainless steel / PC-ABS

Delivery form
In sets for self-assembly

Scope of delivery

Bar	1 pc
Card hold-down 15-25mm	2 pcs
Card hold-down 25-35mm	2 pcs
Card hold-down 35-45mm	2 pcs
Mounting module	1 pc

Ordering table

	Order no.
Card hold-down assemblies	**62 24 80 12**

Card guides

Material
Stainless steel / PC-ABS

Delivery form
In sets for self-assembly

Scope of delivery

Card guides	7 pcs
Card guide bracket	1 pc

Note
– For a board depth of 340mm

Ordering table

	Order no.
Card guide	**62 24 80 13**

ACCESSORIES

19" Power supplies

Power supply for industrial computer systems

19" Power supplies

Version
3U/8HP plug-in power supply in accordance with PICMG 2.9 with P47 connector

Scope of delivery
Power supply, complete 1 pc

Delivery form
In units for self-assembly

Note
– More detailed data sheet available on request

Ordering table

	Order no.
CE, CSA, UC, UDE	66 22 08 01

Model	Power	U_{IN}	V1/Imax	V2/Imax	V3/Imax	V4/Imax	V5/Imax
PSU-19"-250-1	250 watts	84-264VAC/50Hz	+5V/25A	+12V/4A	-12V/1A	+3.3V/20A	-

System manager

For monitoring system-critical functions such as fan speed, operating voltage and temperature and for signaling/communication

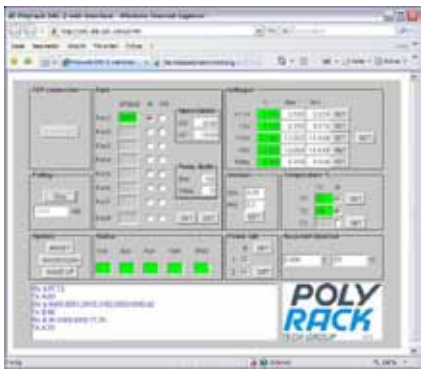
System manager

Version
3U/4HP plug-in card with microcontroller-based system monitoring. Open interface protocol via RS232 or web interface

Scope of delivery
Plug-in card 1 pc

Delivery form
In units for self-assembly

Note
– Manual with further data / information available on request



Ordering table

	Order no.
SMC2 COM	**68 28 02 01**
SMC2 WEB	**68 28 02 02**

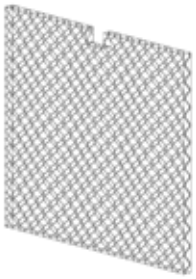
Model	Monitoring function				Signaling		Standards	Note
	Speed	Operating voltage		Tempera-ture	Optical	Logical (potential-free contact)		
SMC2	●	+4.75 +11.4 -11.4 3,135	-5.25 -12.6 -12.6 -3,456	●	●	●	SYS and POWER-FAIL/ SYS-RESET VITA-compliant	Parameterizable and optional RS232 Interface and battery backup, remote ON/OFF and remote reset

ACCESSORIES

// Dust filter mat

Dust filter mat

To minimize particle ingress and related contamination of the assemblies in the card cage. The prescribed maintenance schedule must be observed.



Dust filter mat

Material
Filter, coarse G2 PSB 145/S

Delivery form
In units for self-assembly

Scope of delivery
Dust filter mat 1 PU (10 pcs)

Note
UL/V0

Ordering table

MPS02		MPS03						IPC01		Order no.
MPS02-10-1	MPS02-10-2	MPS03-1	MPS03-1-ATX	MPS03-2	MPS03-2-ATX	MPS03-3	MPS03-4	IPC01-4-ATX	IPC01-4-passive	
								●	●	62 24 80 20
●	●									62 23 80 01
		●	●							62 23 80 05
				●	●					62 23 80 06
						●				62 23 80 07
							●			62 23 80 08

Ordering table

Usage		Description	Version Material	Standard	MPS01	MPS02	MPS03	IPC	Order no.	PU
Mounting in 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 black		●	●	●	●	**79 91 30 00**	1 PU (100 pcs)
		Cage nut	M6 Steel zinc-plated		●	●	●	●	**79 91 31 00**	1 PU (100 pcs)

Backplanes
Various boards

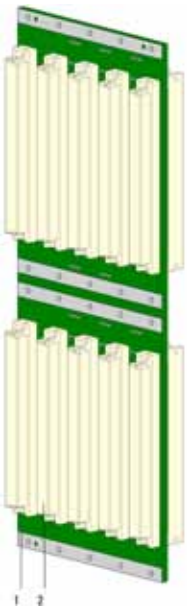
#01 CONTENTS
BACKPLANES

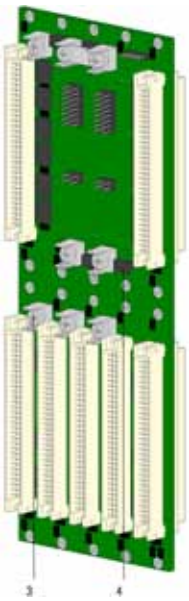
Backplanes

//01 BACKPLANE
GENERAL INFORMATION

// Application

Top-quality standard backplanes based on the VMEBus, CompactPCI and other standards complete our systems, thus providing fully fledged plug-and-play products. On the basis of the customer's specifications we and our development team create customer-specific solutions using state-of-the-art design tools. We take care of the manufacturing and integrate it into our or your products.





// Principal components

1 PC board
Multilayer PC boards, the number of layers being dependent on the requirements; impedance-controlled manufacturing technologies and materials with high-speed designs and power solutions.

2 Connector
Connectors of many different designs are used in soldering and in the solder-free press-fit technique, which is the preferred method for backplane technology.

3 Power elements
Optimized to meet standards and technical requirements.

4 Components
Such as network termination, optimized and deployed in accordance wtih the application

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

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, especially 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.

EC (in mm) defines the board depth.

Dimension diagrams / View drawings
Diagrams and drawings are not necessarily in the same scale.

// Ambient conditions

Storage temperature
- 40 °C ... +80 °C

Operating temperature
-20 ... +70 °C

Humidity
30... 80%, non-condensing

GENERAL INFORMATION

// Standard bus systems

Series	Transmission mode	Bus width	Transmission rate	Number of layers	Connectors
VMEbus	parallel	16 / 32 / 64 bit	max. 160 Mbytes/s	4, 6, 8	DIN41612 C96 C96 GK2
VME64x (ANSI / VITA 31.1)	parallel serial	16 / 32 / 64 bit Ethernet	max. 320 Mbytes/s max. 1000 BASE-T	10	DIN41612 160pin GK2, IEC 610-4-113 IEC 61076-4-101, 2 mm increments
CPCI (PIGMG 2.16)	parallel serial	32 / 64 bit	max. 528 Mbyte/s max. 1000 BASE-T	10-14	IEC 61076-4-101, 2 mm increments
CPCI PlusIO	parallel serial	32 bit PCIe, SATA, USB2, Ethernet	max. 264 Mbyte/s max. 5 GB/s max. 3 GB/s max. 480 Mb/s max. 10G BASE-T	12	IEC 61076-4-101, 2 mm increments 2-piece connector in compliance with IEC 60917 AIRMAX VS
Power adapter	-	-	-	4	P47

// Special designs/development and layout series

Our development and layout service enables you to design your own customer-specific backplane.

// Supplementary Products

#01 19" SUBRACKS
⇨ Future, FutureX, FerroRAIL, 75/76/77 Series

#01 CASES
⇨ Series 86, Basic Series 19" desktop cases

// Questions?

We are happy to help you. Please contact us.

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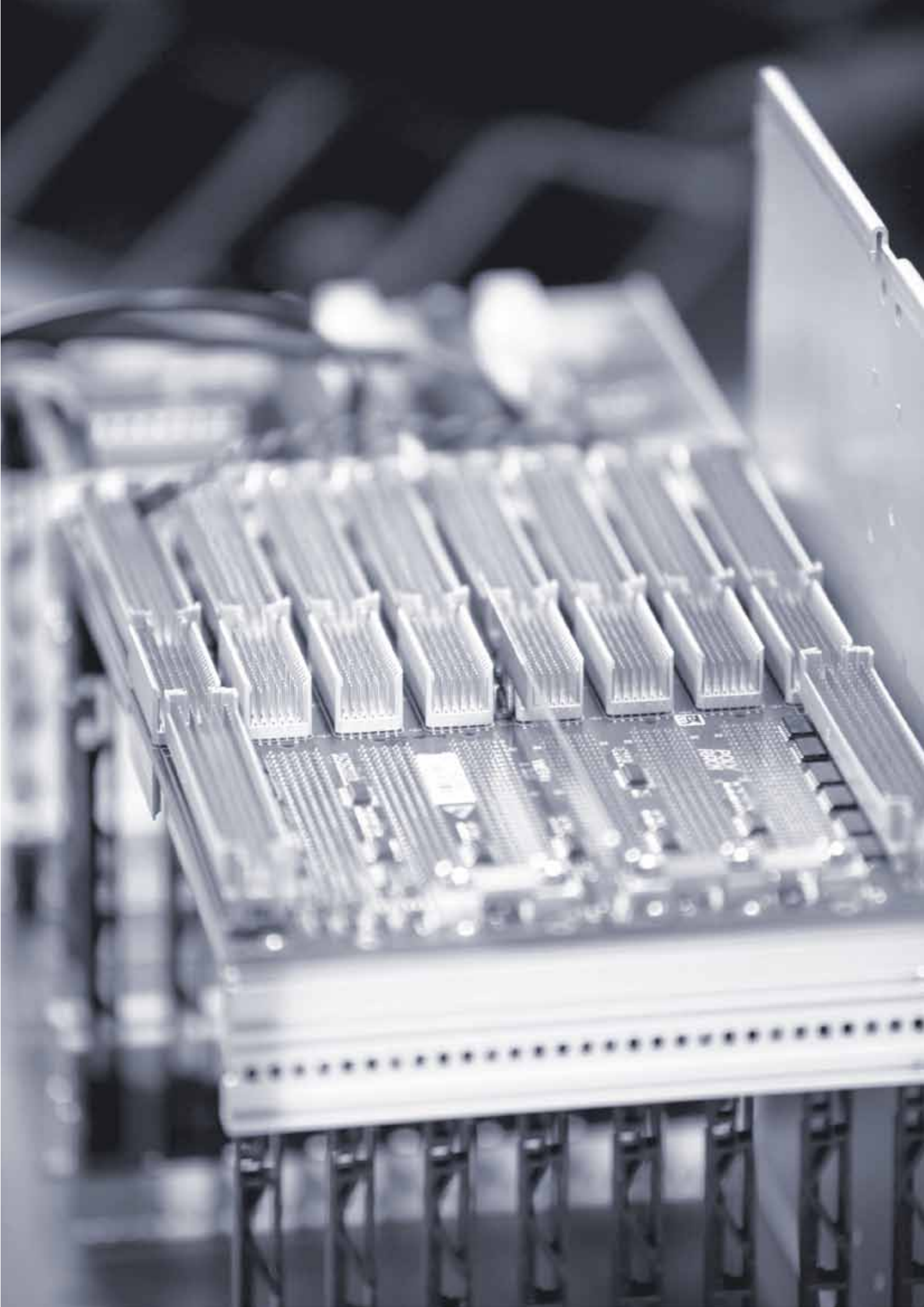
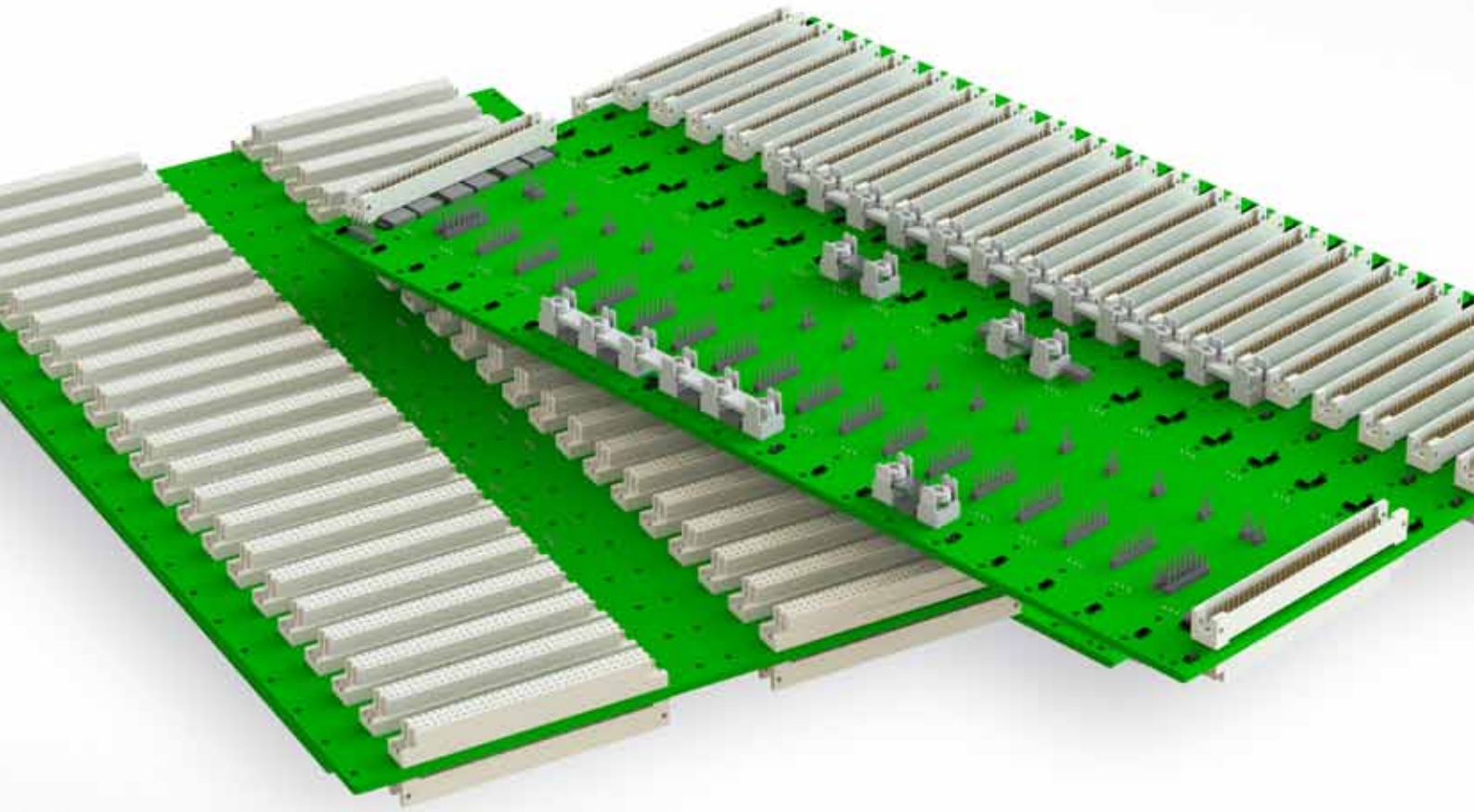
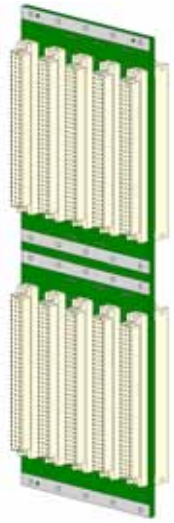




VMEbus



Product information

J1 backplane 3U (16 Bit) supports all data and control signals and thus functions as an independent backplane.
The J2 backplane (3U) complements the J1 backplane in the system to provide a higher transmission rate (32Bit).
The "Mono" backplane (6U) enables fast assembly and easy power supply. It combines the J1 and the J2 backplanes into one unit.

Standards
– IEEE 1014 and IEC 921 compliant
– Transmission rates and bus parameters compliant with VME specification
– Connector class 2
– Power connections M4

Scope of delivery
– Backplane fully equipped and tested (connection / interface test)
– Screw/plug-in connectors for power input

Delivery form
In units for self-assembly

Note
– Different layouts or number of slots available on request

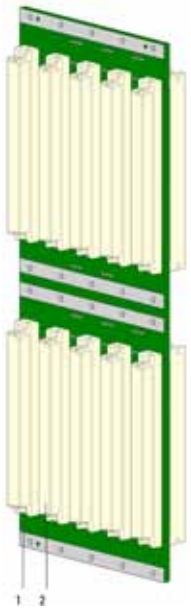
Overview

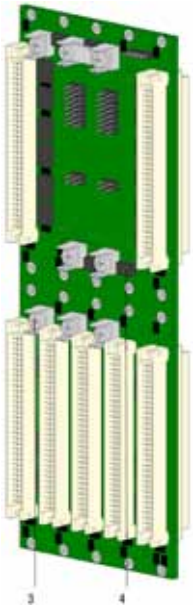
Basic units	U	Slots	Termination passive		Daisy Chain ADC switch	Page
- J1	3 U	max. 21	●	○	●	SYS 02.14
- J2	3 U	max. 21	●	○	●	SYS 02.14
- J1/J2	6 U	max. 21	●	○	●	SYS 02.15

○ Termination "active" or switchable to "passive / active" and "Manual daisy chain" or "Electronic automatic daisy chain (EADC)"

VMEbus

// Product information





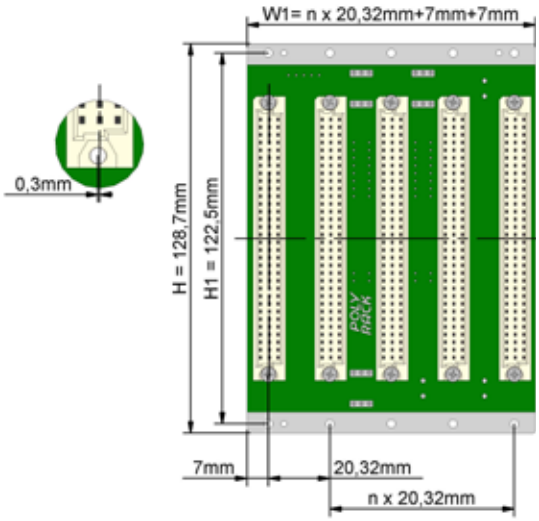
Configuration example

The diagram shows the configuration of a J1/J2 VMEbus

1 Printed circuit board
2 Connector
3 Power elements
4 Components

Surface finishing

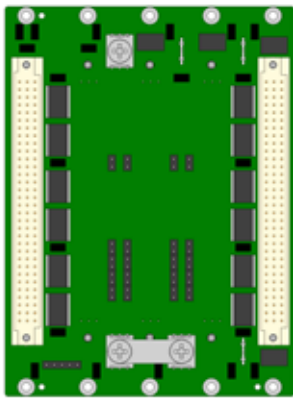
PC board = immersion tin



Dimension diagrams

J1 VMEbus front view

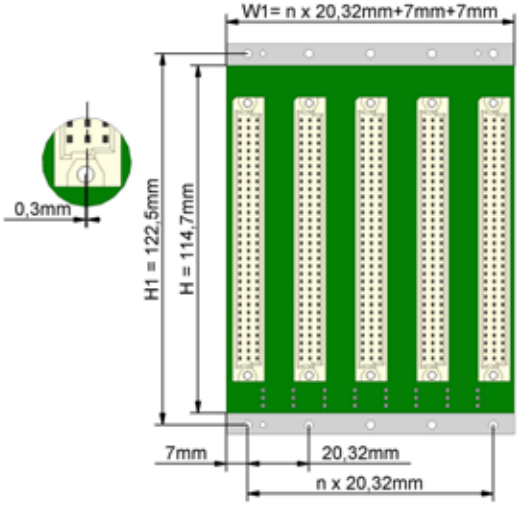
W1 = total width
n = number of slots
PCB thickness = 3.20 mm (1 slot = 2.40 mm)



J1 VMEbus rear view

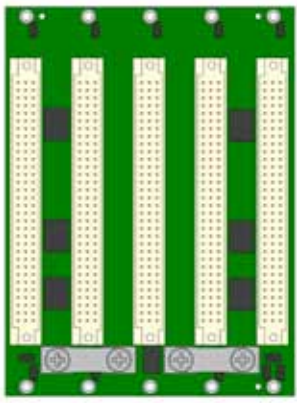
VMEbus

// Product information

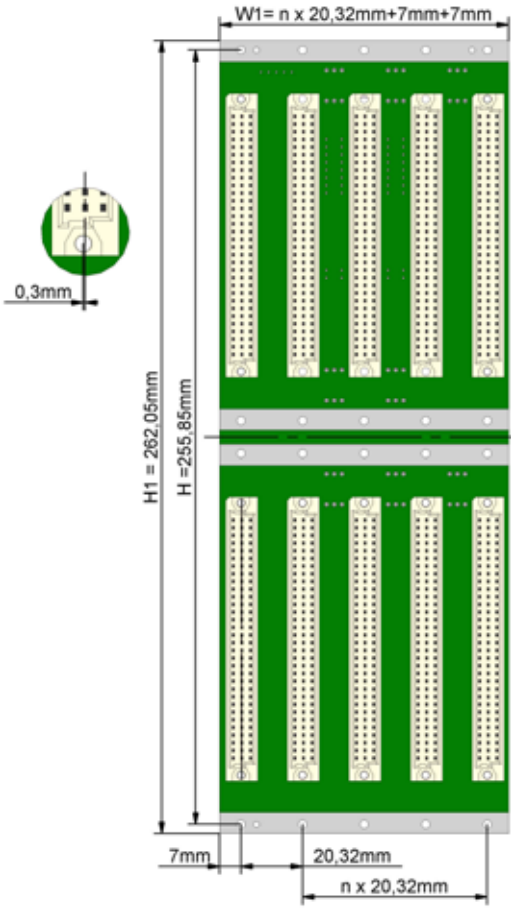


J2 VMEbus front view

W1 = total width
n = number of slots
PCB thickness = 3.20 mm



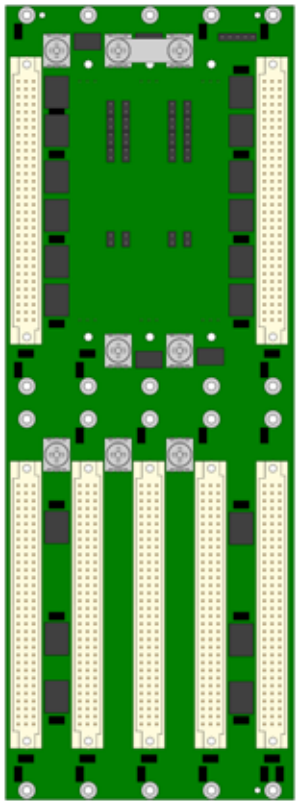
J2 VMEbus rear view



J1/J2 VMEbus front view

W1 = total width
n = number of slots
PCB thickness = 3.75 mm

J1/J2 VMEbus rear view

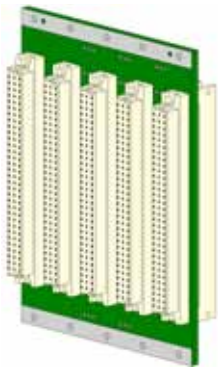


// Basic units

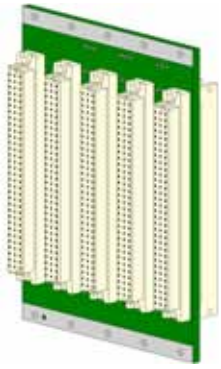
Basic units

The basic units differ in data size, whereby J2 is used exclusively to supplement J1.

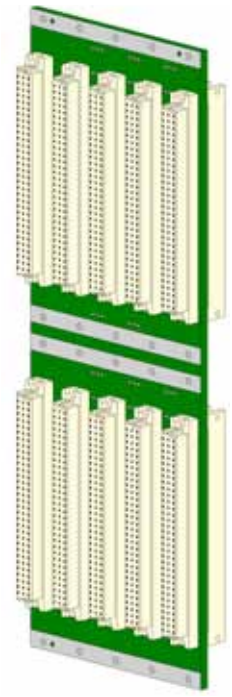
Features of the basic units



J1
J1-VMEbus backplanes for 16-bit data

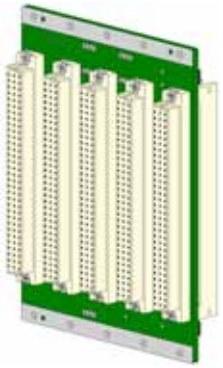


J2
J2-VMEbus backplanes, for expansion to 32-bit data.



J1/J2
J1/J2-VMEbus backplanes for 32-bit data

// Basic units



J1

Scope of delivery
Backplane, fully equipped
Terminal screws M4 for power input elements incl. screws

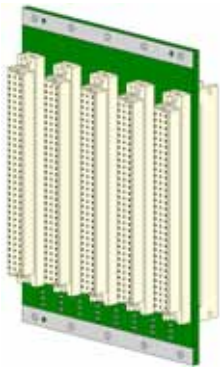
1 pc

Delivery form
In units for self-assembly

Notes
– Number of layers = 6 (1 slot = 4)
– Number and configuration of power elements on request

Ordering table

Model	Slots	Order no.
VME-J1, 1 slot, IBT, ADC	1	**64 22 11 01**
VME-J1, 3 slot, IBT, ADC	3	**64 22 11 03**
VME-J1, 5 slot, IBT, ADC	5	**64 22 11 05**
VME-J1, 6 slot, IBT, ADC	6	**64 22 11 06**
VME-J1, 7 slot, IBT, ADC	7	**64 22 11 07**
VME-J1, 8 slot, IBT, ADC	8	**64 22 11 08**
VME-J1, 9 slot, IBT, ADC	9	**64 22 11 09**
VME-J1, 11 slot, IBT, ADC	11	**64 22 11 11**
VME-J1, 12 slot, IBT, ADC	12	**64 22 11 12**
VME-J1, 13 slot, IBT, ADC	13	**64 22 11 13**
VME-J1, 15 slot, IBT, ADC	15	**64 22 11 15**
VME-J1, 19 slot, IBT, ADC	19	**64 22 11 19**
VME-J1, 21 slot, IBT, ADC	21	**64 22 11 21**



J2

Scope of delivery
Backplane, fully equipped
Terminal screws M4 for power input elements incl. screws

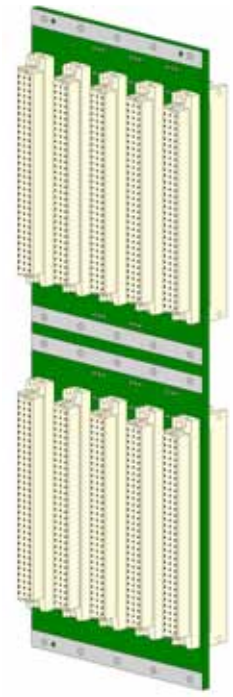
1 pc

Delivery form
In units for self-assembly

Notes
– Number of layers = 2 (1 slot = 4)
– Number and configuration of power elements on request

Ordering table

Model	Slots	Order no.
VME-J2, 1 slot, IBT	1	**64 22 41 01**
VME-J2, 5 slot, IBT	5	**64 22 41 05**
VME-J2, 12 slot, IBT	12	**64 22 41 12**



J1/ J2

Scope of delivery
Backplane, fully equipped
Terminal screws M4
for power input elements 1 pc

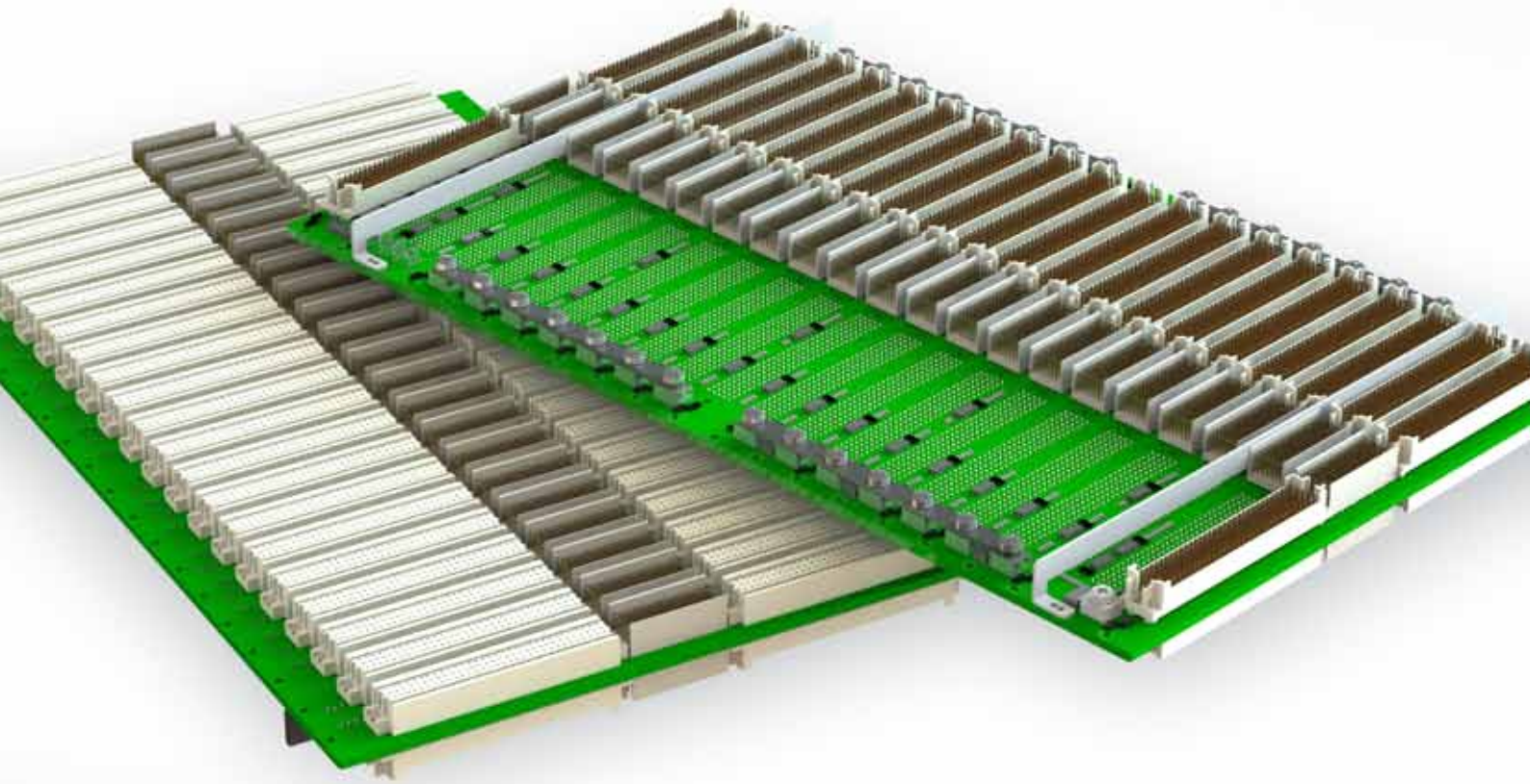
Delivery form
In units for self-assembly

Notes
– Number of layers = 8
– Number and configuration of power elements on request

Ordering table

Model	Slots	Order no.
VME-J1/J2, 5 slot, IBT, ADC	5	**64 22 61 05**
VME-J1/J2, 7 slot, IBT, ADC	7	**64 22 61 07**
VME-J1/J2, 8 slot, IBT, ADC	8	**64 22 61 08**
VME-J1/J2, 9 slot, IBT, ADC	9	**64 22 61 09**
VME-J1/J2, 12 slot, IBT, ADC	12	**64 22 61 12**
VME-J1/J2, 15 slot, IBT, ADC	15	**64 22 61 15**
VME-J1/J2, 16 slot, IBT, ADC	16	**64 22 61 16**
VME-J1/J2, 21 slot, IBT, ADC	21	**64 22 61 21**

Backplanes
VME64x



//02 BACKPLANE
VME64x

Product information

VME64x is an upgrade of the VME64 standard and it permits 64-bit data transmission. This means that a whole set of new features can be added to the VME, VME64 boards and to the backplanes and subracks. The new features include enhanced 160-pin P1/J1 and P2/J2 connections, optional 95-pin (2-mm hardmetric P0/J0 connection) for more user-defined I/O, +3.3V and additional performance.

Standards
– Compliant with IEEE1101, ANSI/VITA 1-1994 and ANSI/VITA 1.1-1997
– Connector class 2
– Power connections M4

Scope of delivery
– Backplane fully equipped and tested (connection / interface test)
– Screw/plug-in connectors for power input
– Stabilization bars

Delivery form
In units for self-assembly

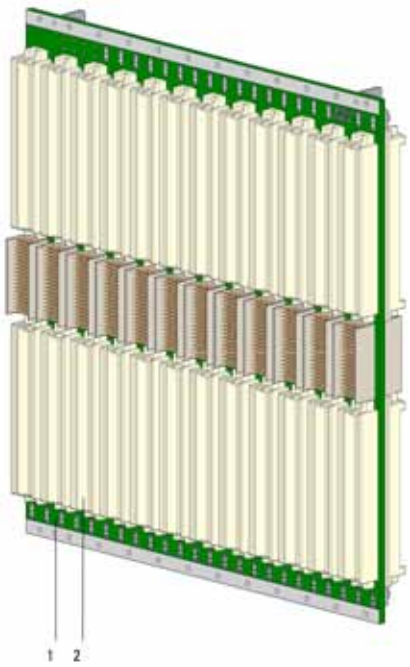
Note
– Different layouts or number of slots available on request

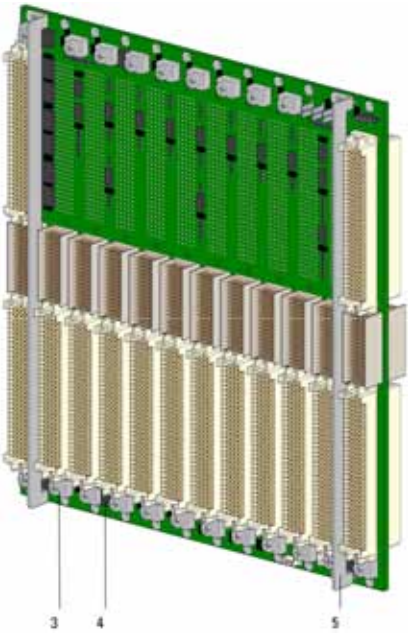
Overview

Basic units	U	Slots	Termination passive		Daisy Chain ADC electronic	Page
- J1/J2	6 U	max. 21	●	o	●	SYS 02.20

o Termination “active“ or switchable to “passive / active" and “Manual daisy chain“ or “Electronic automatic daisy chain (EADC)“

// Product information





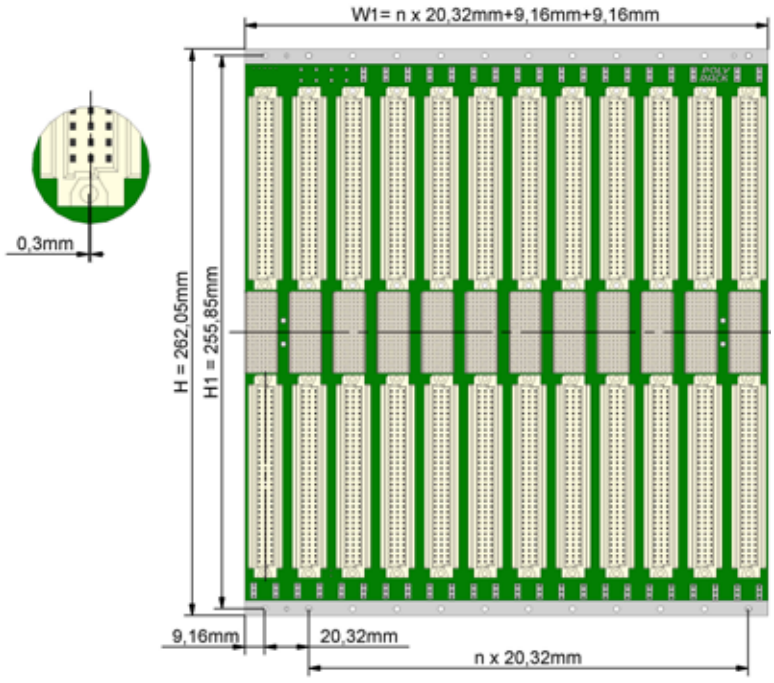
Configuration example

The diagram shows the configuration of a J1/J2 VME64x with P0

1 Printed circuit board
2 Connector
3 Power elements
4 Components
5 Stabilization bar

Surface finishing

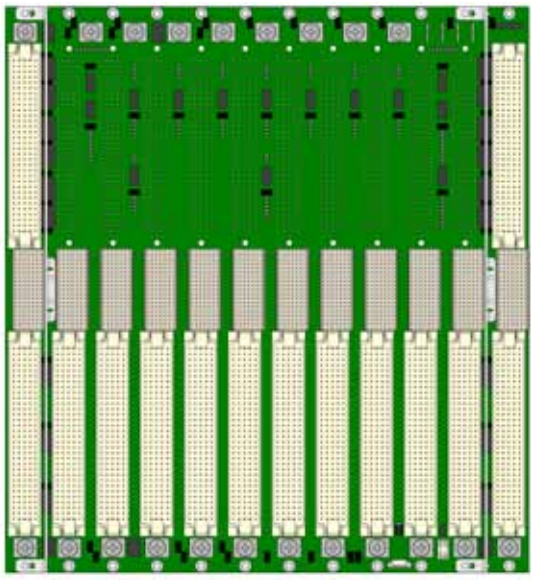
PC board = immersion tin



Dimension diagrams

J1/J2 VME64x front view

W1 = total width
n = number of slots
PCB thickness = 3.75 mm

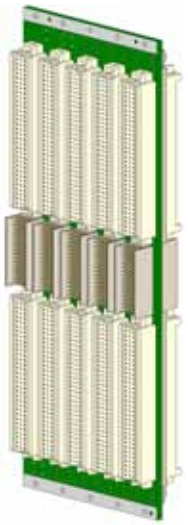


J1/J2 VME64x rear view

VME64x

Basic units

The basic units differ with regard to the number of slots



J1/J2 VME64x

Scope of delivery
Backplane, fully equipped 1 pc
Terminal screws M4
for power input elements

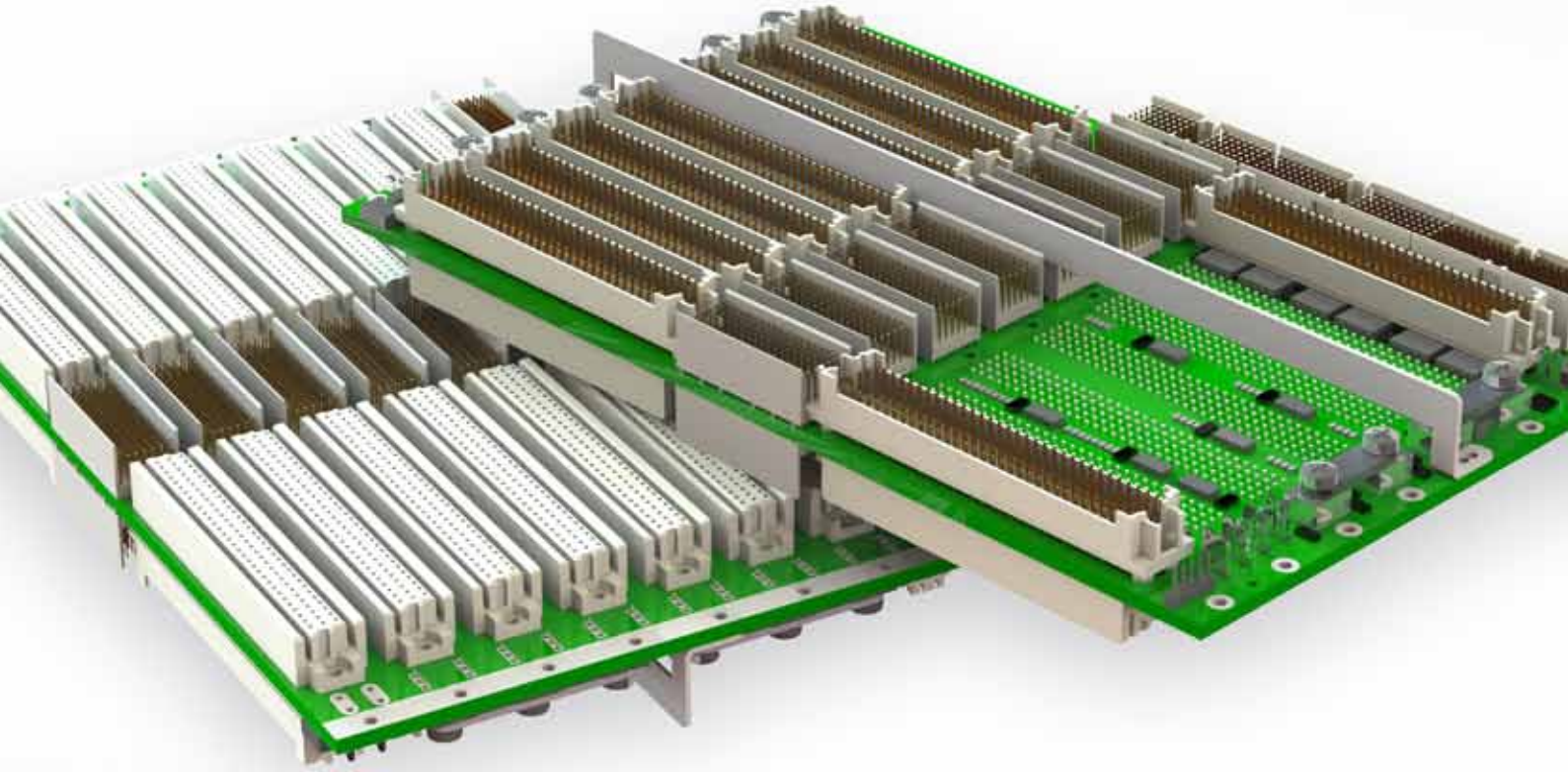
Delivery form
In units for self-assembly

Notes
- Number of layers = 10
- Number and configuration of power elements on request

Ordering table

Model	Slots	Order no.
VME64x J1/J2, 3 slot, IBT, EADC, P0	3	**64 22 81 03**
VME64x J1/J2, 4 slot, IBT, EADC, P0	4	**64 22 81 04**
VME64x J1/J2, 5 slot, IBT, EADC, P0	5	**64 22 81 05**
VME64x J1/J2, 6 slot, IBT, EADC, P0	6	**64 22 81 06**
VME64x J1/J2, 7 slot, IBT, EADC, P0	7	**64 22 81 07**
VME64x J1/J2, 8 slot, IBT, EADC, P0	8	**64 22 81 08**
VME64x J1/J2, 10 slot, IBT, EADC, P0	10	**64 22 81 10**
VME64x J1/J2, 12 slot, IBT, EADC, P0	12	**64 22 81 12**
VME64x J1/J2, 14 slot, IBT, EADC, P0	14	**64 22 81 14**
VME64x J1/J2, 16 slot, IBT, EADC, P0	16	**64 22 81 16**
VME64x J1/J2, 21 slot, IBT, EADC, P0	21	**64 22 81 21**

Backplanes
VITA31.1



VITA31.1

Product information

The VME64x backplane forms the basis for the VITA31.1 backplane. The VITA31.1 has simply been enhanced with a Gigabit Ethernet Link. This leads to a PICMG 2.16 Gigabit Ethernet Switch (Fabric) which connects the links (nodes) with one another. This can also be connected to the front panel with an RJ45 connector, if needed.

Standards
– Compliant with IEEE1101, ANSI/VITA 1-1994, ANSI/VITA 1.1-1997 and VITA31.1 and VITA 38
– Connector class 2
– Power connections M4

Scope of delivery
– Backplane fully equipped and tested (connection / interface test)
– Screw/plug-in connectors for power input
– Stabilization bars

Delivery form
In units for self-assembly

Note
– Different layouts or number of slots available on request

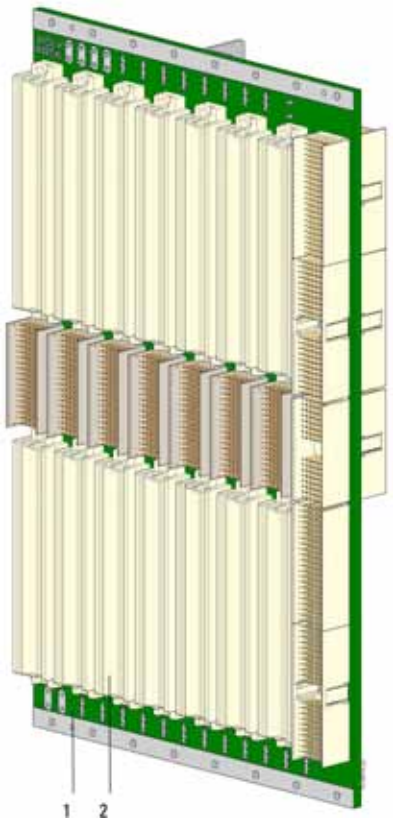
Overview

Basic units	U	Slots	Termination passive		Daisy Chain ADC electronic	Page
- J1/J2	6 U	max. 8	●	o	●	SYS 02.26

o Termination "active" or switchable to "passive / active" and "Manual daisy chain" or "Electronic automatic daisy chain (EADC)"

VITA31.1

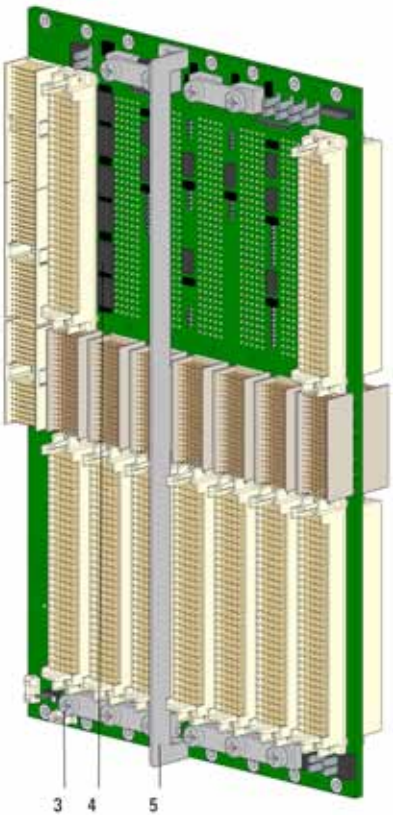
// Product information



Configuration example

The diagram shows the configuration of a J1/J2 VITA31 with P0

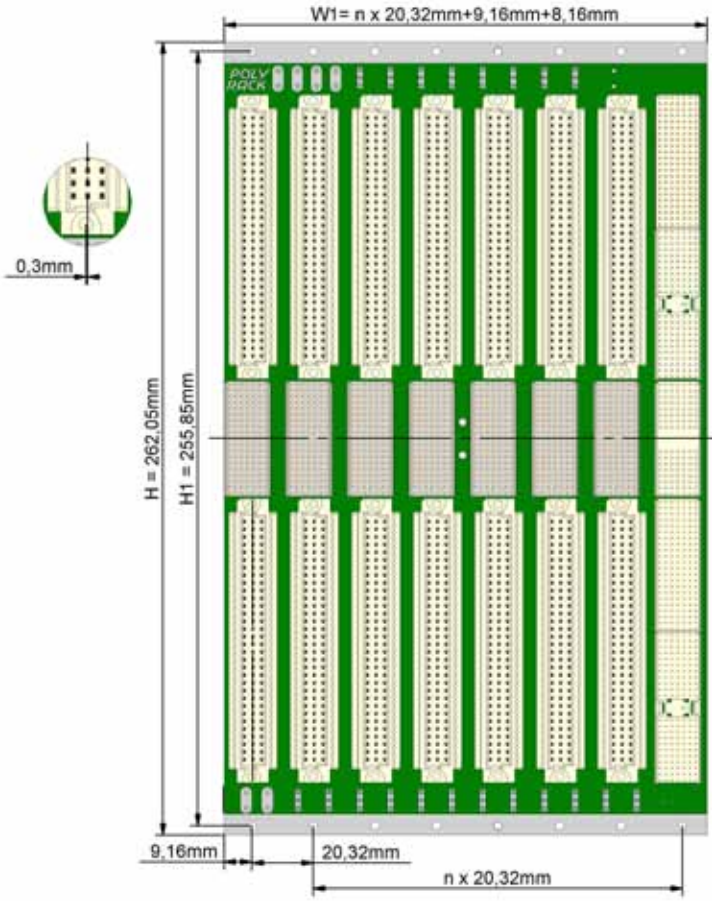
1 Printed circuit board
2 Connector
3 Power elements
4 Components
5 Stabilization bar



Surface finishing

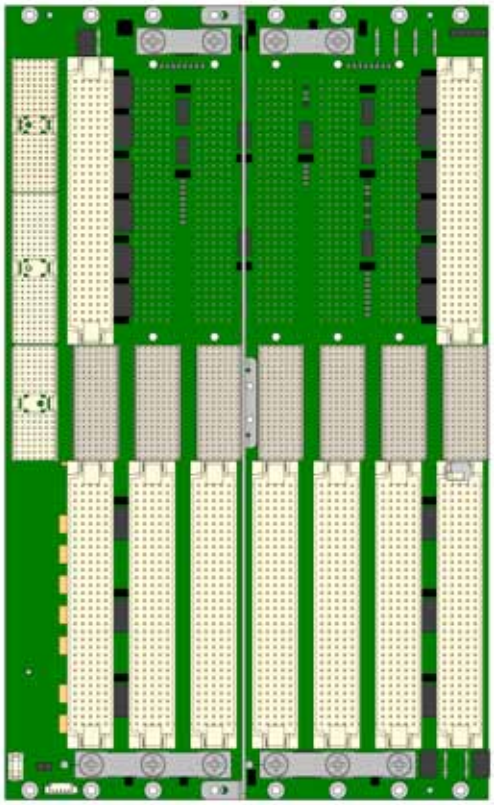
PC board = immersion tin

Dimension diagrams



J1/J2 VITA31 front view

W1 = total width
n = number of slots
PCB thickness = 3.75 mm

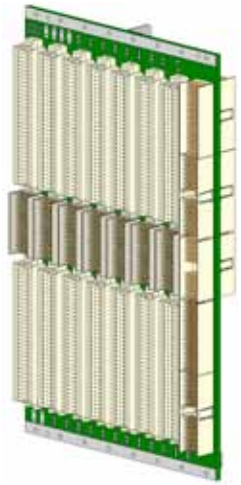


J1/J2 VITA31 rear view

VITA31.1

Basic units

A J1/J2 basic unit is available for the VITA31.1 series



J1/J2 VITA31

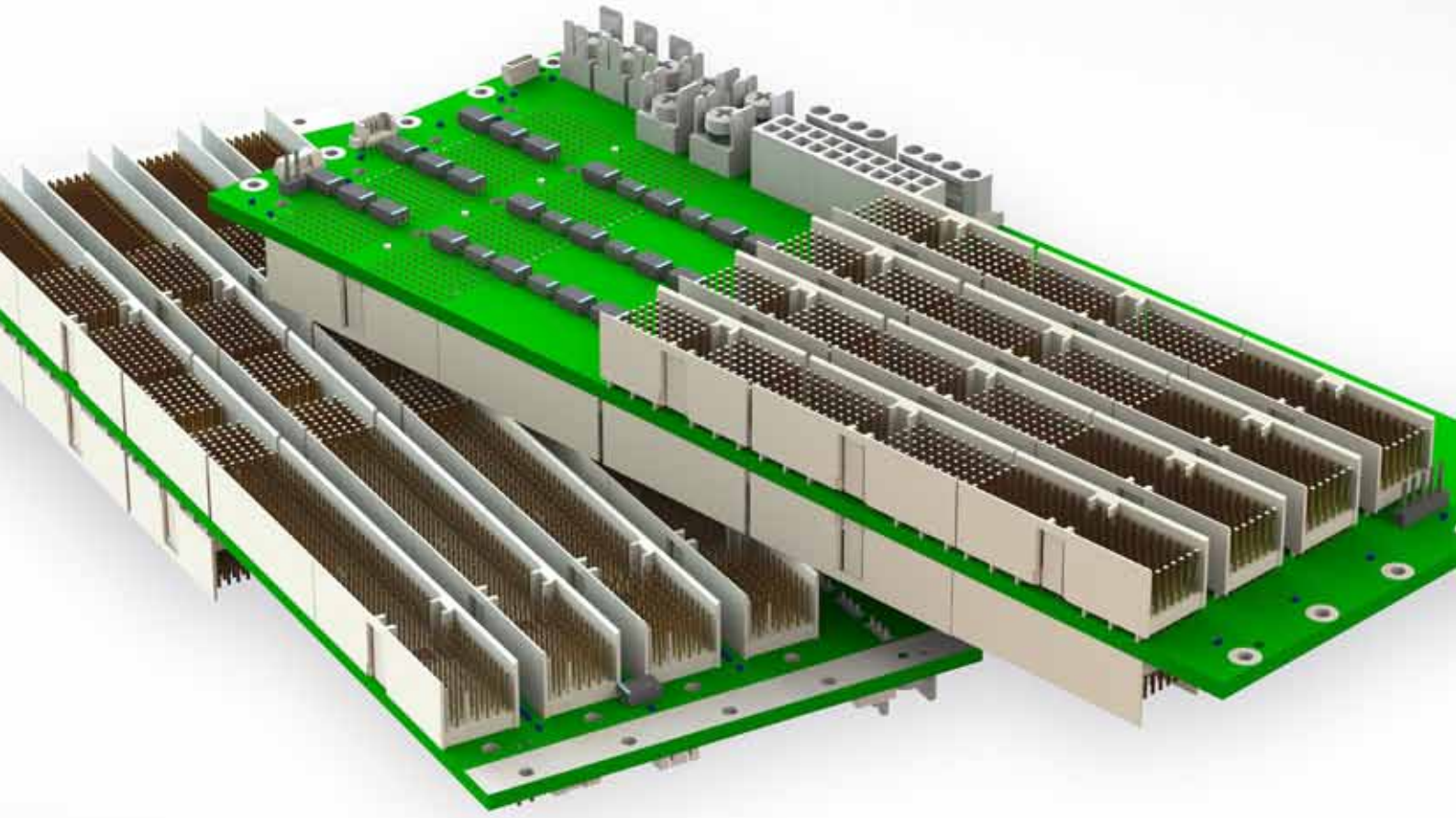
Scope of delivery
Backplane, fully equipped
Terminal screws M4
for power input elements 1 pc

Delivery form
In units for self-assembly

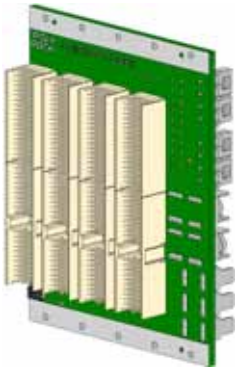
Notes
- Number of layers = 10
- Number and configuration of power elements on request

Ordering table

Model	Slots	Order no.
VITA31 J1/J2, 8 slot, IBT, EADC, P0	8	**64 22 90 01**



CompactPCI



Product information

The CompactPCI is based on a PICMG standard and thanks to its reliability and robust design is suitable for use in industrial environments. Here the classical PCI bus is transposed to a 19"-compliant platform.

Standards
- PICMG specification 2.0 R3.0 core specification, 2.1 R2.0 compliant
- Hot swap specification
- 2.9 R1.0 system management specification
- JTAG interface, 33 and 66MHz configurable (up to max. 5 slots)
- Connector class 2
- Power connections M4, ATX and HDD connectors

Scope of delivery
- Backplane fully equipped and tested (connection / interface test)
- Screw/plug-in connectors for power input
- Stabilization bars with 6U

Delivery form
In units for self-assembly

Note
- Different layouts or number of slots available on request

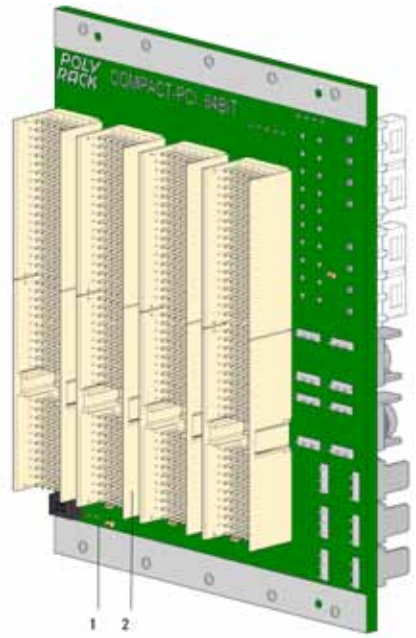
Overview

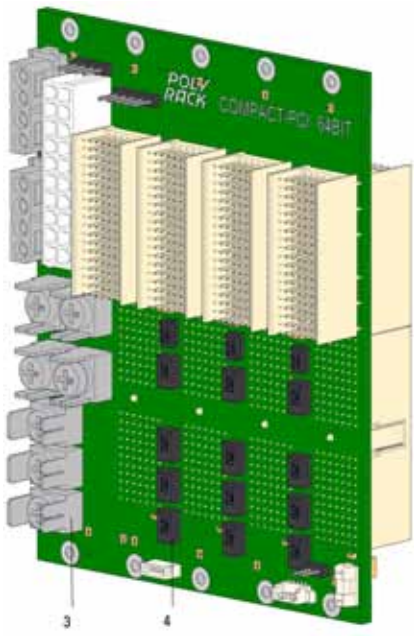
Basic units	H	Slots	Data size		System slot		Rear I/O	Page
			32 Bit	64 Bit	R	L		
- CompactPCI 3U	3 U	max. 8	●	●	●	o	o	SYS 02.34
- CompactPCI 6U	6 U	max. 8	●	●	●	o	o	SYS 02.34

o On request

CompactPCI

// Product information





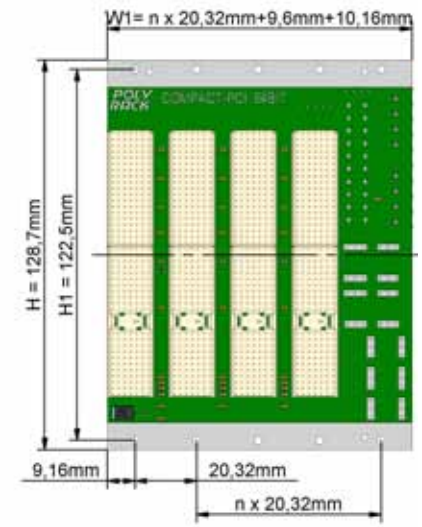
Configuration example

The diagram shows the configuration of a CompactPCI 3U

1 Printed circuit board
2 Connector
3 Power elements
4 Components

Surface finishing

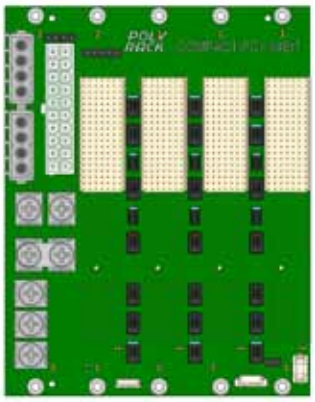
PC board = immersion tin



Dimension diagrams

CompactPCI 3U front view

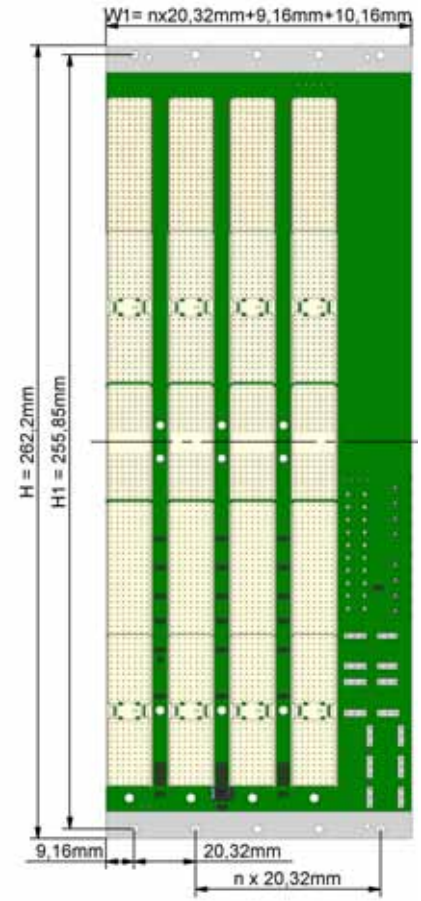
W1 = total width
n = number of slots
PCB thickness = 3.20 mm



CompactPCI 3U rear view

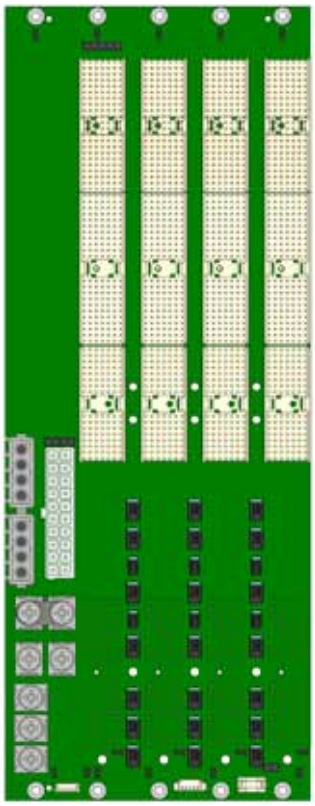
CompactPCI

// Product information



CompactPCI 6U front view

W1 = total width
n = number of slots
PCB thickness = 3.20 mm

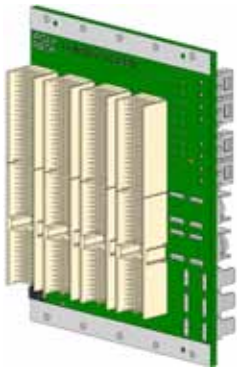


CompactPCI 6U rear view

Basic units

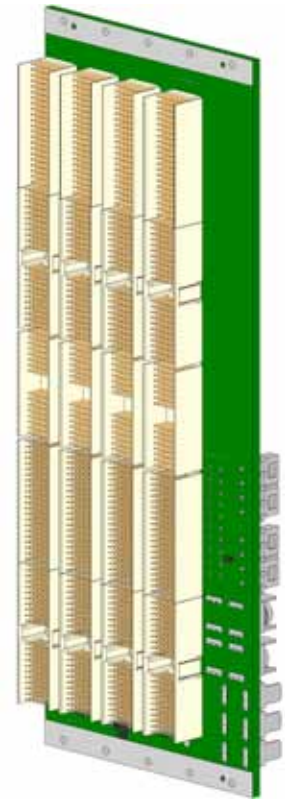
The basic units differ with regard to data size and the position of the system slot.

Features of the basic units



CompactPCI 3U
32 bit or 64 bit, system slot either right or left

Note
Rear I/O only with 32 bit version



CompactPCI 6U
64 bit, system slot either right or left,
with Rear I/O

CompactPCI

// Basic units

CompactPCI 3U

Scope of delivery
Backplane, fully equipped
Terminal screws M4
for power input elements

1 pc

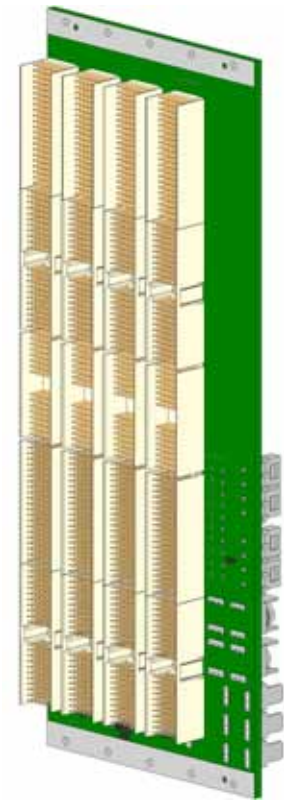
Delivery form
In units for self-assembly

Notes
– Number of layers = 10
– Number and configuration of power elements on request

Ordering table

Model	Slots	32 Bit System slot right	32 Bit System slot left	64 Bit System slot right	64 Bit System slot left
CPCI-3U, 4 slot, 32bit, 64bit, S*	4	64 23 00 01	64 23 00 06	64 23 00 11	
CPCI-3U, 5 slot, 32bit, S*	5		64 23 00 07		
CPCI-3U, 6 slot, 32bit, S*	6	64 23 00 03			
CPCI-3U, 7 slot, 32bit, S*	7	64 23 00 04			
CPCI-3U, 8 slot, 32bit, 64bit, S*	8	64 23 00 05	64 23 00 10	64 23 00 15	

* according to table



CompactPCI 6U

Scope of delivery
Backplane, fully equipped
Terminal screws M4
for power input elements

1 pc

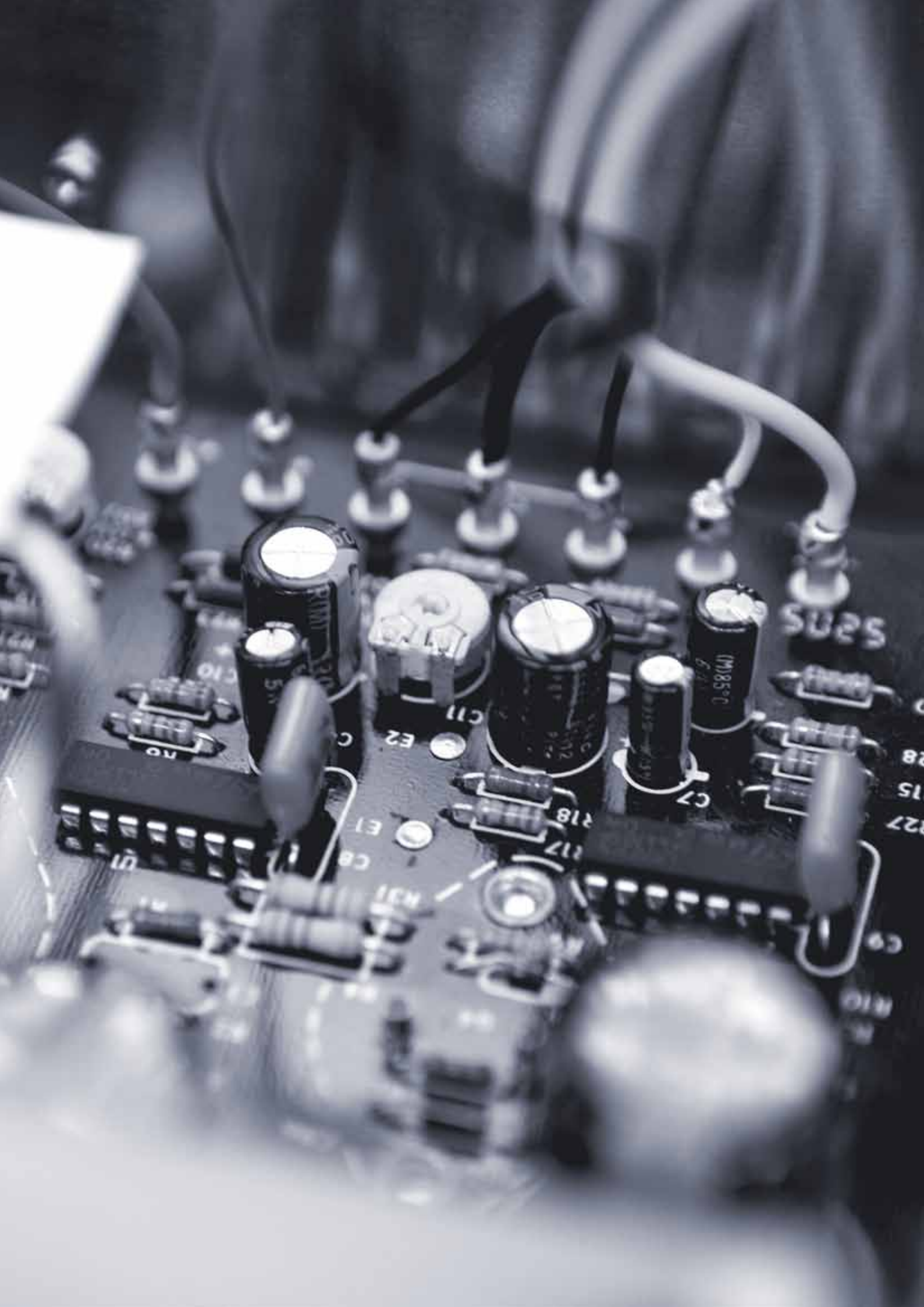
Delivery form
In units for self-assembly

Notes
– Number of layers = 10
– Number and configuration of power elements on request

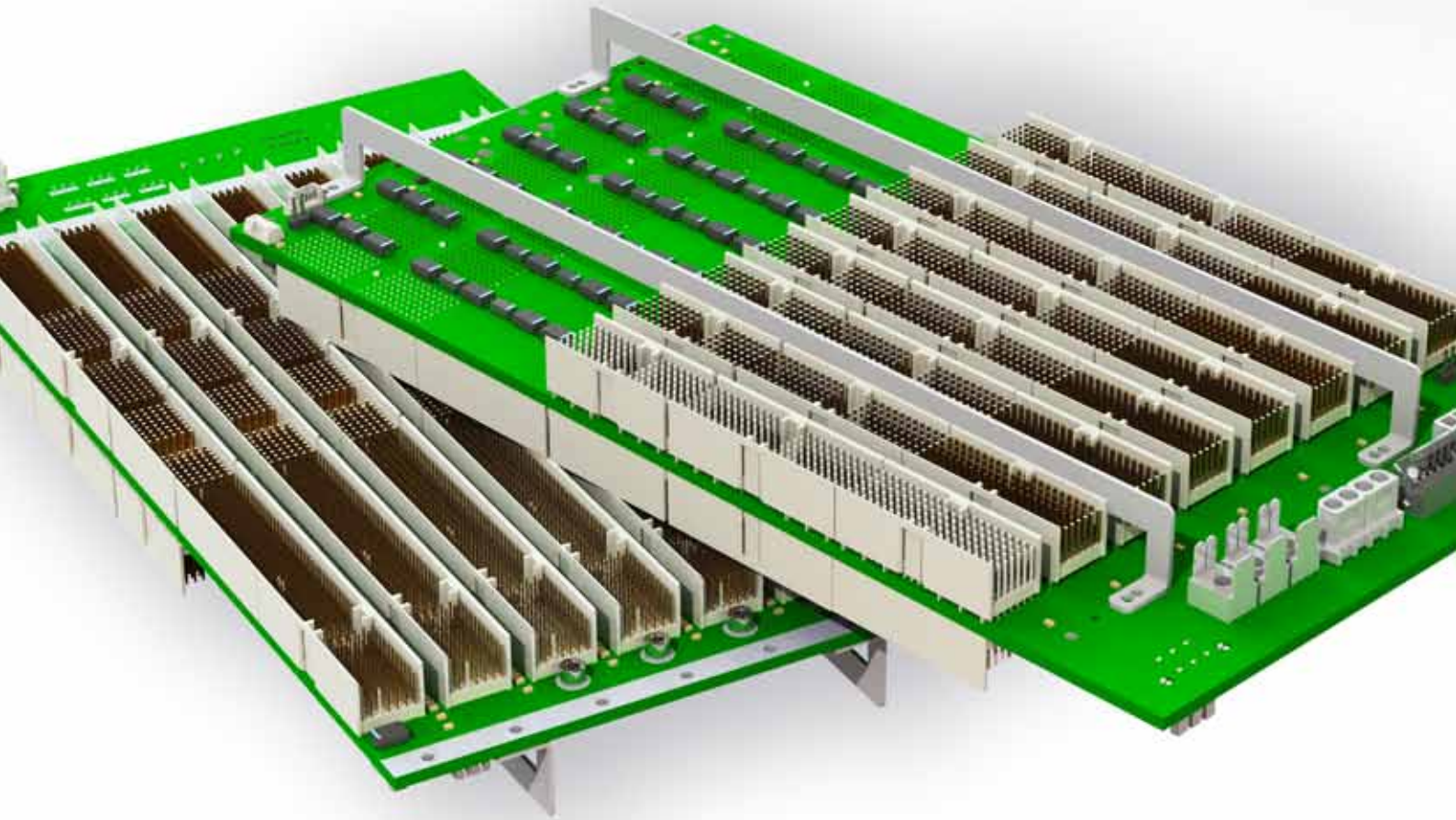
Ordering table

Model	Slots	64 Bit System slot right	64 Bit System slot left
CPCI-6U, 4 slot, 64bit, S*	4	64 23 00 21	
CPCI-6U, 6 slot, 64bit, S*	6	64 23 00 23	64 23 00 28
CPCI-6U, 8 slot, 64bit, S*	8	64 23 00 25	64 23 00 30

* according to table



Backplanes
PSB2.16



PSB2.16

Product information

The PSB2.16 backplane is based on the PICMG backplane. The VITA31.1 has simply been enhanced with a Gigabit Ethernet Link. This leads to a PICMG 2.16 Gigabit Ethernet Switch (Fabric) which connects the links (nodes) with one another. This can also be connected to the front panel with an RJ45 connector, if needed.

Standards
- PICMG specification 2.0 R3.0 core specification
- 2.1 R2.0 hot swap specification
- 2.9 R1.0 system management specification
- 2.16 R1.0 packet switching backplane specification
- JTAG interface
- Connector class 2
- Power connections M4, ATX and HDD connectors

Scope of delivery
- Backplane fully equipped and tested (connection / interface test)
- Screw/plug-in connectors for power input
- Stabilization bars

Delivery form
In units for self-assembly

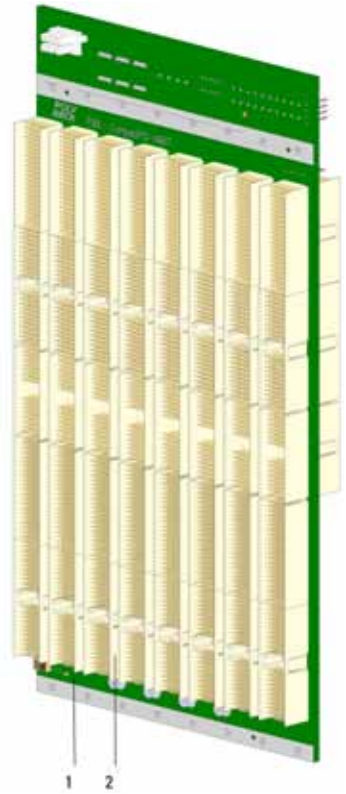
Note
- Different layouts or number of slots available on request

Overview

Basic units	H	Slots	Data size	System slot	Fabric Slot/ Node Slot		Topology		Rear I/O	Page
					1/2	7/6	Single star	Dual star		
- PSB2.16 6.5U	6.5 U	8	64 bit	right	●	●	●	●	●	SYS 02.41

PSB2.16

// Product information



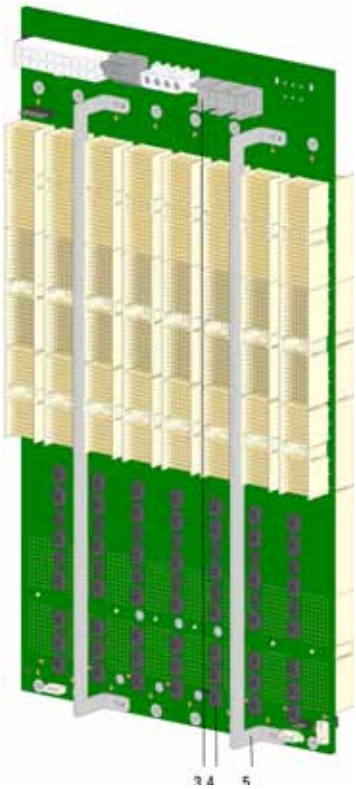
Configuration example

The diagram shows the configuration of a PSB2.16 6.5U

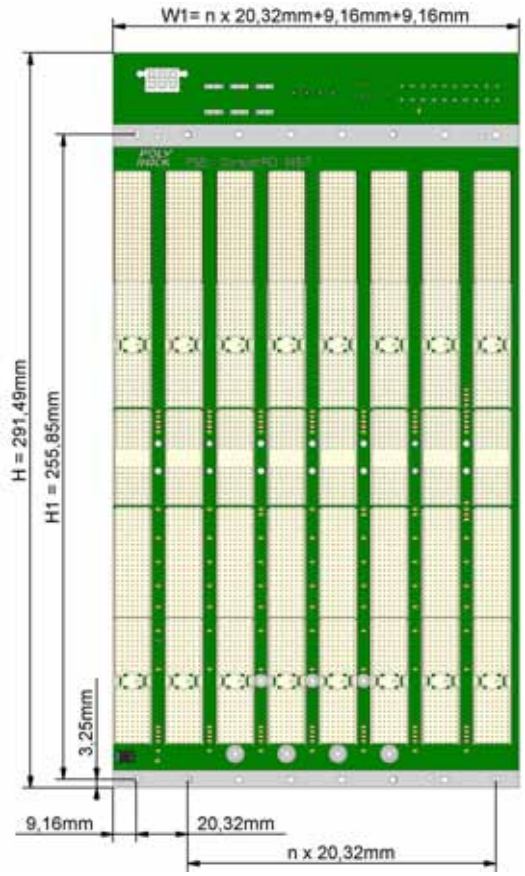
1 Printed circuit board
2 Connector
3 Power elements
4 Components
5 Stabilization bar

Surface finishing

PC board = immersion tin

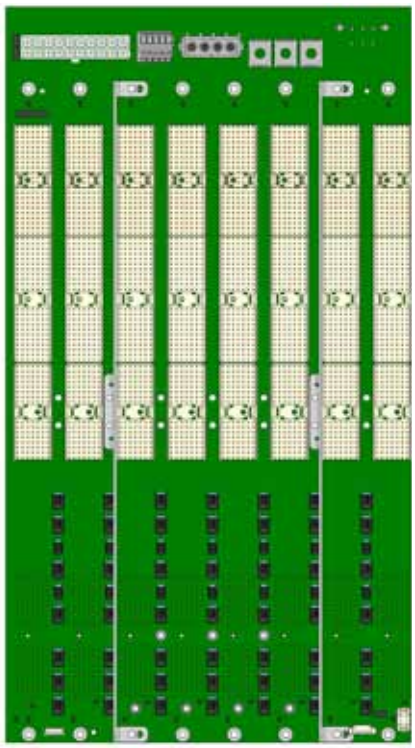


Dimension diagrams



PSB2.16 6.5U front view

W1 = total width
n = number of slots
PCB thickness = single star 3.20 mm / dual star 4.70 mm



PSB2.16 6.5U rear view

PSB2.16

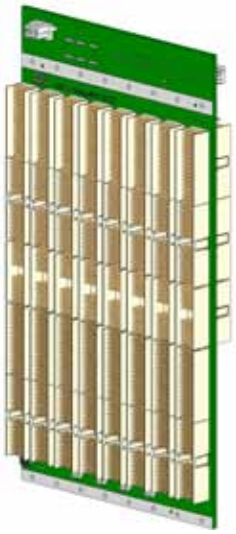
Basic units

The basic units differ in their topology

Features of the basic units

PSB2.16 6.5U

The PSB2.16 series backplanes are available with varying numbers of slots



PSB2.16 6.5U

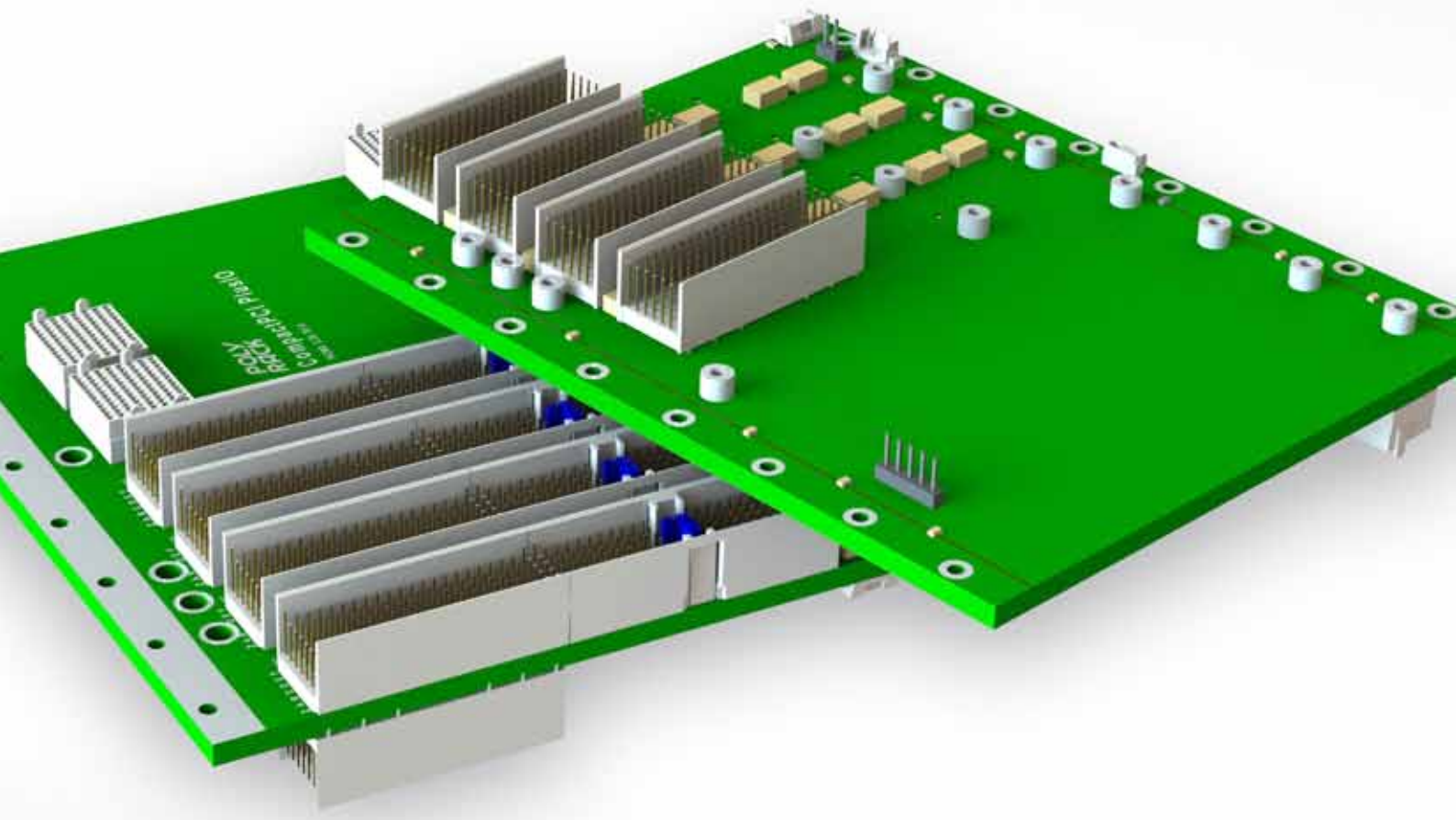
Scope of delivery
Backplane, fully equipped
Terminal screws M4
for power input elements
1 pc

Delivery form
In units for self-assembly

Notes
– Number of layers, single star = 10
Number of layers, dual star = 14
– Number and configuration of power elements on request

Ordering table

Model	Slots			Topology	Order no.
		Fabric slot	Node slot		
PSB2.16, 6.5U, 8 slot, 1FS, 7NS, SS	8	1	7	Single star	**64 23 02 01**
PSB2.16, 6.5U, 8 slot, 2FS, 6NS, DS	8	2	6	Dual star	**64 23 02 02**


PCIEX
BACK
CompactPCI PlusIO

CompactPCI Plus I/O

Product information

The CompactPCI Plus I/O backplane is an extension of the PICMG 2.0 CompactPCI industry standard and specifies additional pin assignments as a hybrid solution by way of which fast serial connections can be established.

Standards

- PICMG specification 2.0 R3.0 core specification
- 2.1 R2.0 hot swap specification
- 2.9 R1.0 system management specification
- CompactPCI PlusIO in accordance with PICMG 2.30 R1.0 and serial in accordance with PICMG CPCI-S.0 R1.0
- USB2.0 and SATA
- JTAG interface
- 33 and 66 MHz configurable (up to max. 5 slots)
- Connector class 2
- Power connections M4

Scope of delivery

- Backplane fully equipped and tested (connection / interface test)
- Screw/plug-in connectors for power input

Delivery form

In units for self-assembly

Note

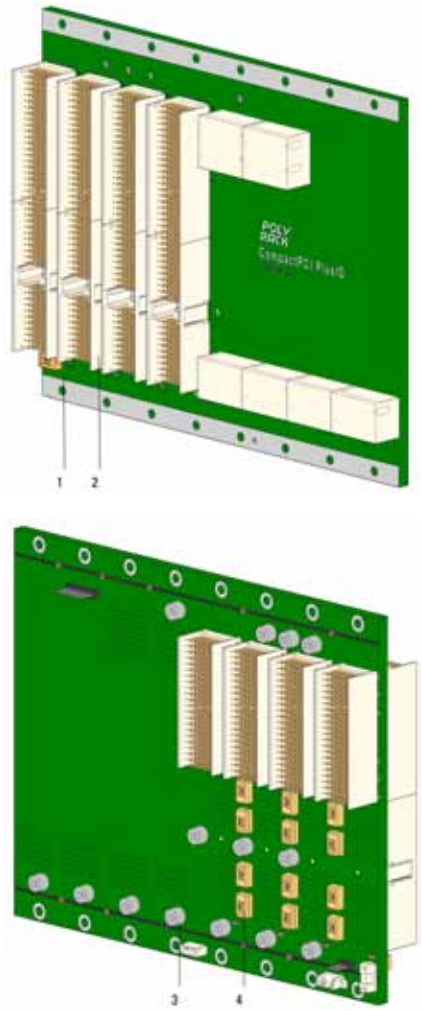
- Different layouts or number of slots available on request

Overview

Basic units	H	Slots	Transmission mode/data size					Page
			parallel	serial				
			32 bit	PCIe	SATA	USB	Gigabit Ethernet	
- CompactPCI Plus I/O	3 U	max. 8	●	●	●	●	●	SYS 02.46

CompactPCI Plus I/O

// Product information



Configuration example

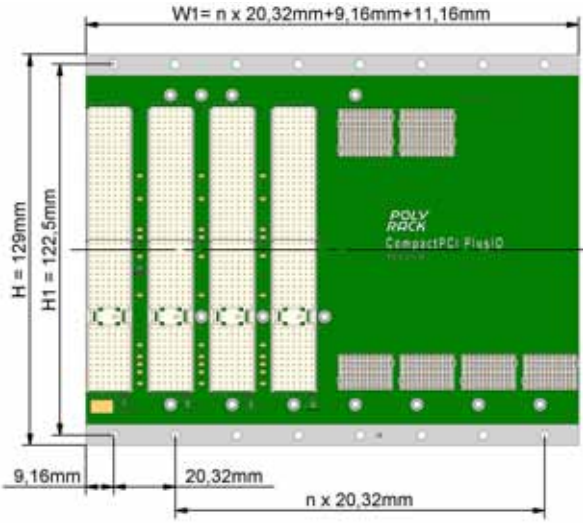
The diagram shows the configuration of CompactPCI Plus I/O 3U

1 Printed circuit board
2 Connector
3 Power elements
4 Components

Surface finishing

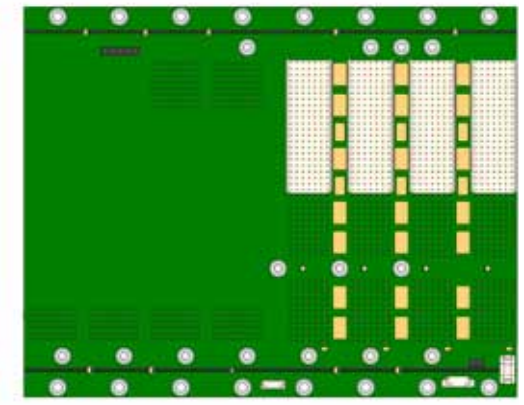
PC board = immersion tin

Dimension diagrams



CompactPCI Plus I/O 3U front view

W1 = total width
n = number of slots
PCB thickness = 4.40 mm



CompactPCI Plus I/O 3U rear view

CompactPCI Plus I/O

Basic units

The basic units differ with regard to the number of slots

CompactPCI Plus I/O

Scope of delivery
Backplane, fully equipped
Terminal screws M4
for power input elements 1 pc

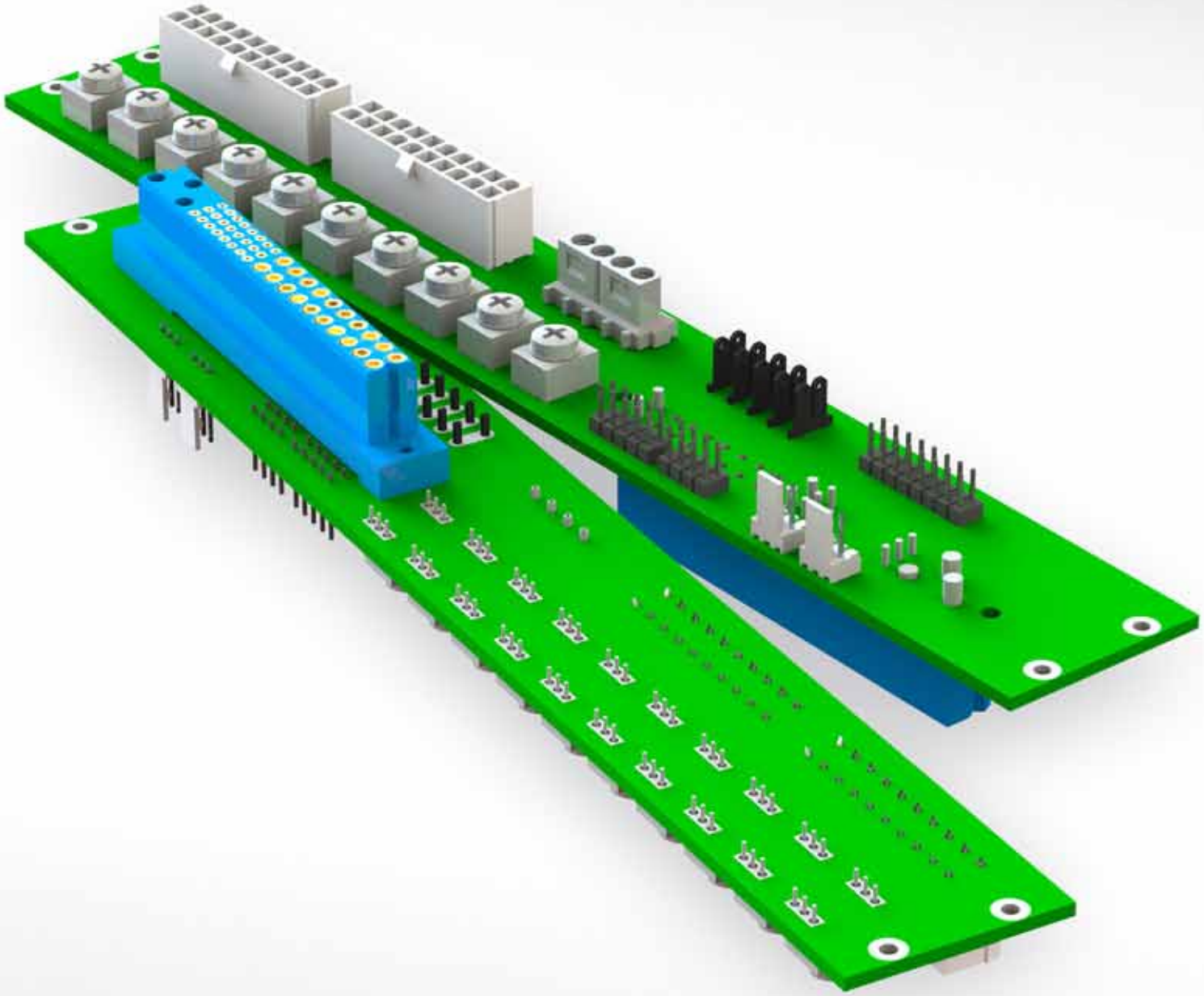
Delivery form
In units for self-assembly

Note
- Number of layers = 12
- Number and configuration of power elements on request
- Detailed data sheet available on request

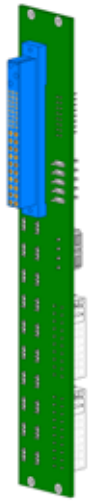
Ordering table

Model	Slots	Order no.
CPCI PlusIO, 3U, 8 slot, 4CPCI, 64Bit, 2GB FM, 4PCIe x1, SR, 4SATA, 4USB	8	**64 23 03 01**


380°C



Power Backplane



Product information

The Power Backplanes enable integration of a plug-in power supply.

Standards
- PICMG - spec.: 2.9
- Connector: class 2
- Power connections M4, ATX and HDD connectors (with 6U)

Scope of delivery
- Backplane fully equipped and tested (connection / interface test)
- Screw/plug-in connectors for power input

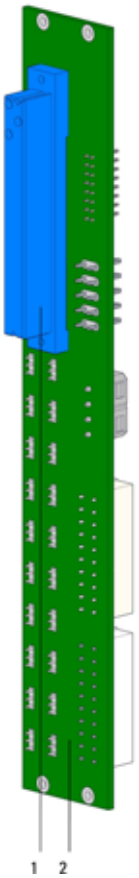
Delivery form
In units for self-assembly

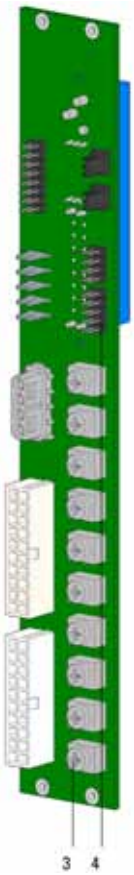
Overview

Basic units	H	Slots	Connectors			Page
			ATX	Screw	HDD	
- Power Backplane 3 U	3 U	1	●	●	●	SYS 02.54
- Power Backplane 6 U	6 U	1	●	●	●	SYS 02.54

Power Backplane

// Product information





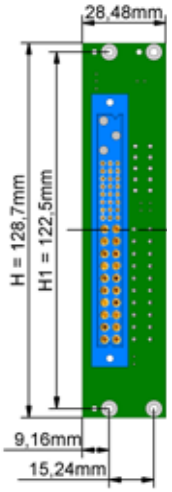
Configuration example

The diagram shows the configuration of a Power Backplane 6 U

1 Printed circuit board
2 Connector
3 Power elements
4 Components

Surface finishing

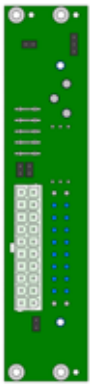
PC board = immersion tin



Dimension diagrams

Power Backplane 3 U Front view

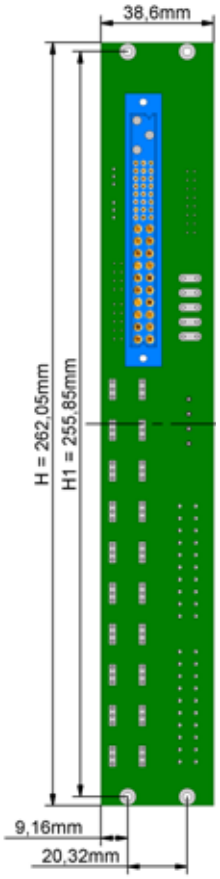
W1 = total width
n = number of slots
PCB thickness = 2.40 mm



Power Backplane 3 U Rear view

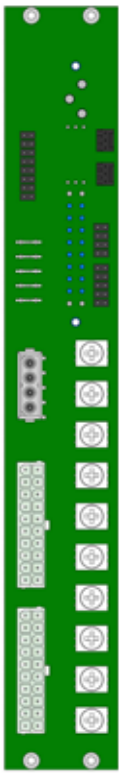
Power Backplane

// Product information



Power Backplane 6 U front view

W1 = total width
n = number of slots
PCB thickness = 2.40 mm

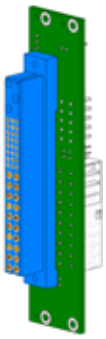


Power Backplane 6 U rear view

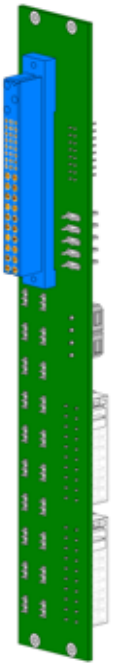
Basic units

The basic units Power Backplane 3 U and Power Backplane 6 U differ with regard to their height

Features of the basic units



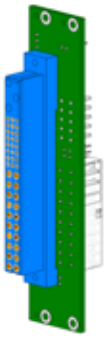
Power Backplane 3 U
For use in 3U applications (single Eurocard format)



Power Backplane 6 U
For use in 6U applications (double Eurocard format)

Power Backplane

// Basic units



Power Backplane 3 U

Scope of delivery
Backplane, fully equipped.
Socket connector for ATX power supply (20-pole mini fit from Molex)

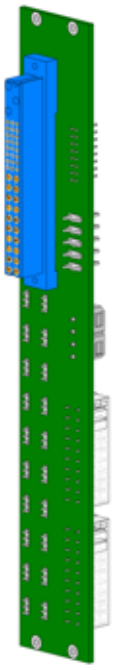
1 pc

Delivery form
In units for self-assembly

Note
– Number of layers = 2
– Number and configuration of power elements on request

Ordering table

Model	Slots	Order no.
PBP, P47, 3U, 1 slot	1	**64 25 01 01**



Power Backplane 6 U

Scope of delivery
Backplane, fully equipped
Terminal screws M4
for power input elements

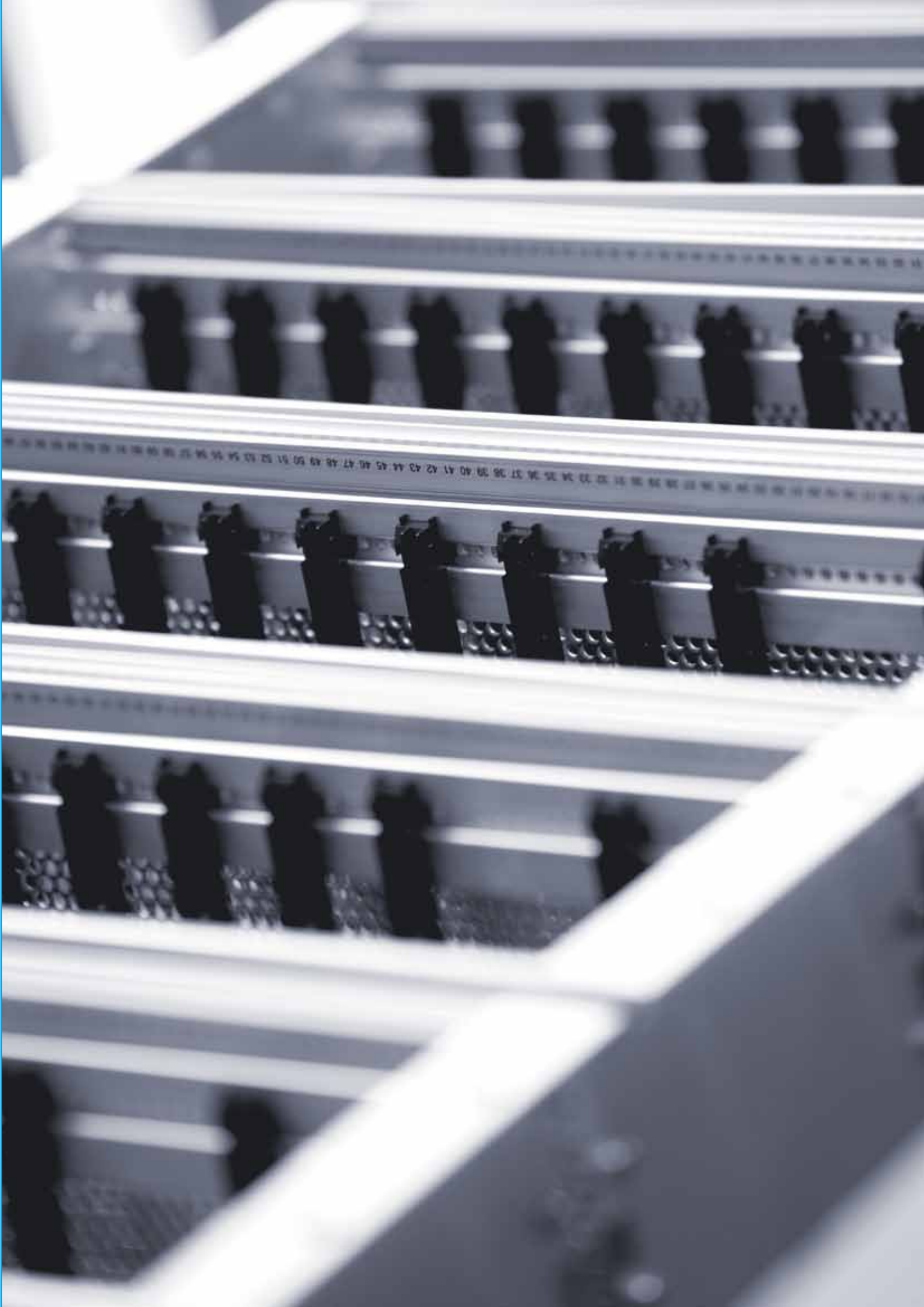
1 pc

Delivery form
In units for self-assembly

Note
– Number of layers = 4
– Number and configuration of power elements on request

Ordering table

Model	Slots	Order no.
PBP, P47, 6U, 1 slot	1	**64 25 01 02**



Accessories
Overview

//03 BACKPLANES
ACCESSORIES

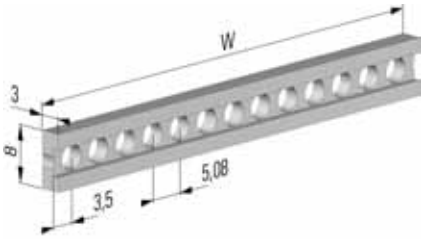
// Contents

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

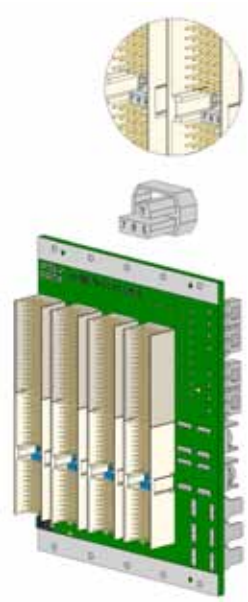
Note
– Fire resistance rating UL 94 V0

Ordering table

Color	Order no.
Gray	79 51 50 00

Coding elements

Coding elements are used to indicate the intended function, either mechanical or electrical



Coding pins

Used to indicate the mode of operation and the voltage version of the board/system to be used.

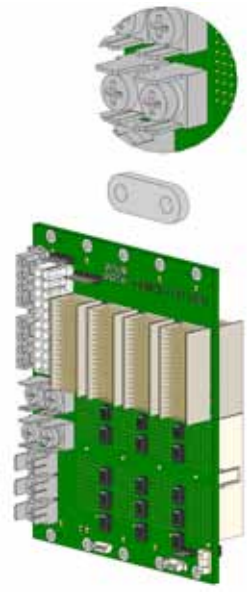
Material
PC ABS

Scope of delivery
Coding pin IEEE 1 PU (10 pcs)

Delivery form
In units for self-assembly

Ordering table

	Order no.
3.3V cadmium yellow	64 23 00 31
5.0V brilliant blue	64 23 00 32



VI/O Bridge

VI/O Bridge rail for V(I/O) connection

Material
AL

Scope of delivery
VI/O bridge 1 PU (10 pcs)

Delivery form
In units for self-assembly

Ordering table

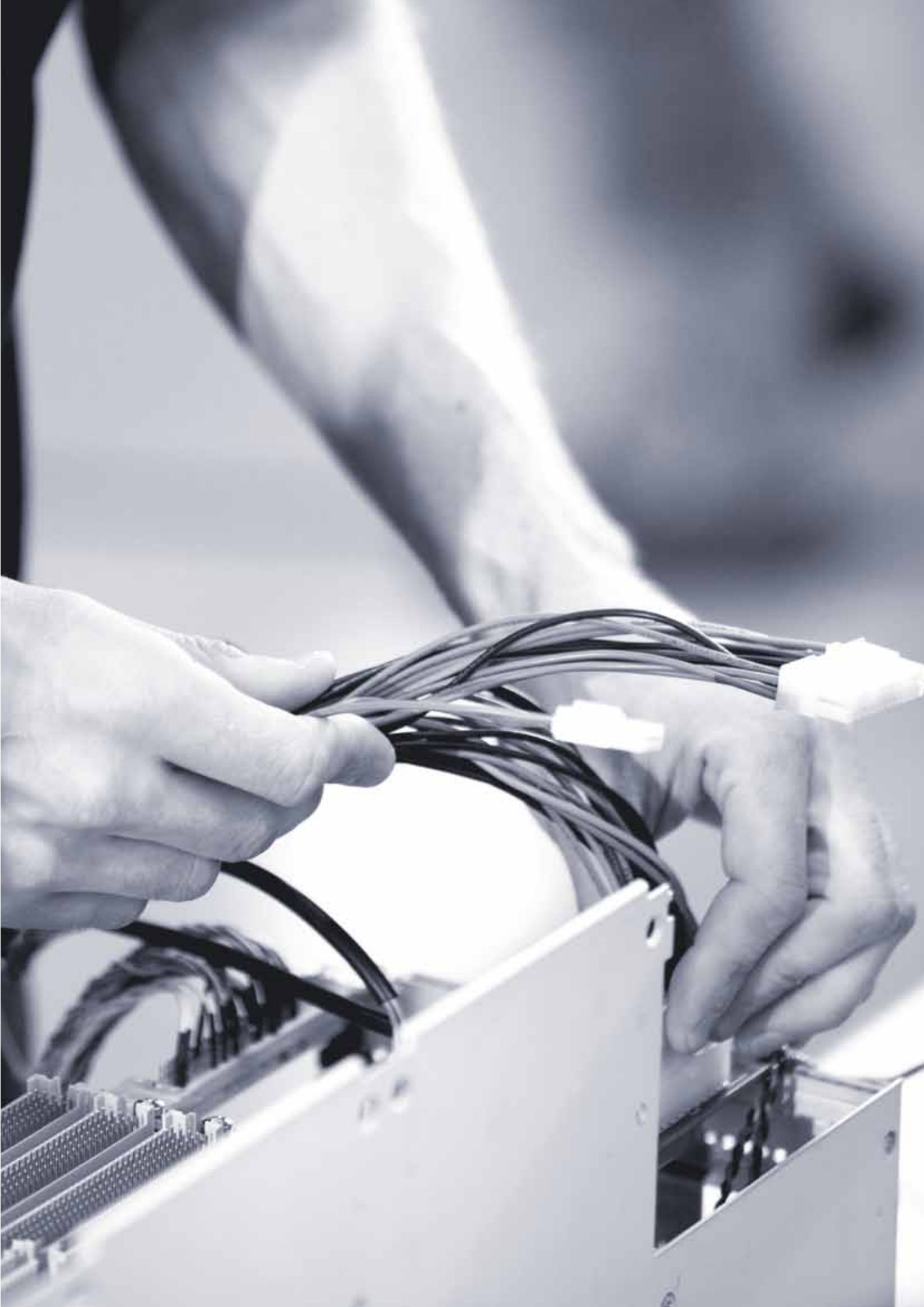
	Order no.
VI/O bridge	64 23 00 33

ACCESSORIES

// Assembly components

Ordering table

Usage		Description	Version material	Standard	VMEbus	VME 64x	VITA31.1	CompactPCI	PSB2.16	CompactPCI PlusI/O	Power Backplane	Order no.	PU
For mounting backplane to rear rail E		Cross-recessed pan head screw	M2.5 x 8 mm Steel zinc-plated		●	●	●	●	●	●	●	23 10 03 26	1 PU (100 pcs)
For mounting backplane to rear rail B, with isolating strips		Cross-recessed pan head screw	M2.5 x 12 mm Steel zinc-plated		●	●	●	●	●	●	●	79 91 13 01	1 PU (100 pcs)
For mounting backplane to rear rail E		Cross-recessed pan head screw	M2.5 x 8 mm Steel zinc-plated	DIN 7985	●	●	●	●	●	●	●	79 91 87 00	1 PU (100 pcs)
For mounting backplane to rear rail B, with isolating strips		Cross-recessed pan head screw	M2.5 x 12 mm zinc-plated	DIN 7985	●	●	●	●	●	●	●	79 91 88 00	1 PU (100 pcs)

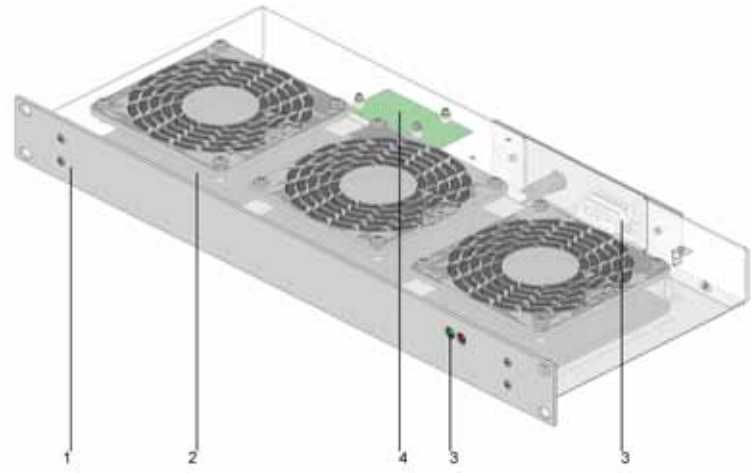


Fan trays
FT01/02

#01 CONTENTS
FAN TRAYS

Fan Trays

//01 FAN TRAYS
GENERAL INFORMATION



// Application

Our range of 19" fan trays offers you optimum facilities for cooling your assemblies.
All fan trays have been functionality and safety tested.

// Principal system components

1 Mechanical components
Optimized to the specific circumstances of fan trays

2 Fans
Various failure indication options, such as FAIL or RPM, are available for special requirements. Other cooling solutions such as heat pipes, conduction cooling are also possible.

3 Wiring, display, operating and connecting elements
Components selected on the basis of functionality and technical requirements such as international accreditation.

4 Monitoring electronics
For monitoring the fan speed and the temperature-controlled speed regulation. Both "optical" and "logical" signaling via potential-free contact.

// 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

Dimension diagrams / View drawings
Diagrams and drawings are not necessarily in the same scale.

// Ambient conditions

Storage temperature
- 40 °C ... +80 °C

Operating temperature
0 ... +40 °C
CAUTION!
Openings such as free slots affect the airflow within the system and impair the cooling properties, open slots must therefore be closed using appropriate covers.

Humidity
30 ... 80%, non-condensing

//01 FAN TRAYS
GENERAL INFORMATION

// Overview of series

Series	H in U	Version		Operating voltage		ON/OFF switch and line voltage connected	Fan failure monitoring and temperature regulation	Features
		Pressure fan	Circulation fan	AC	DC			
FT01	1	o	●	●		o		cascadable
FT02	1	o	●		●		o	Use of cabinet supply voltage

o See "Accessories / pressure fan conversion kit" chapter

// Custom designs

Modified or tailor-made solutions can be defined on the basis of your requirements. We are happy to help you.

// Supplementary products

#01 19" SUBRACKS
⇨ Future, FutureX, FerroRAIL, 75/76/77 Series

#01 CASES
⇨ Series 86, Basic Series 19“desktop cases

// Questions?

We are happy to help you. Please contact us.

HOTLINE Europe
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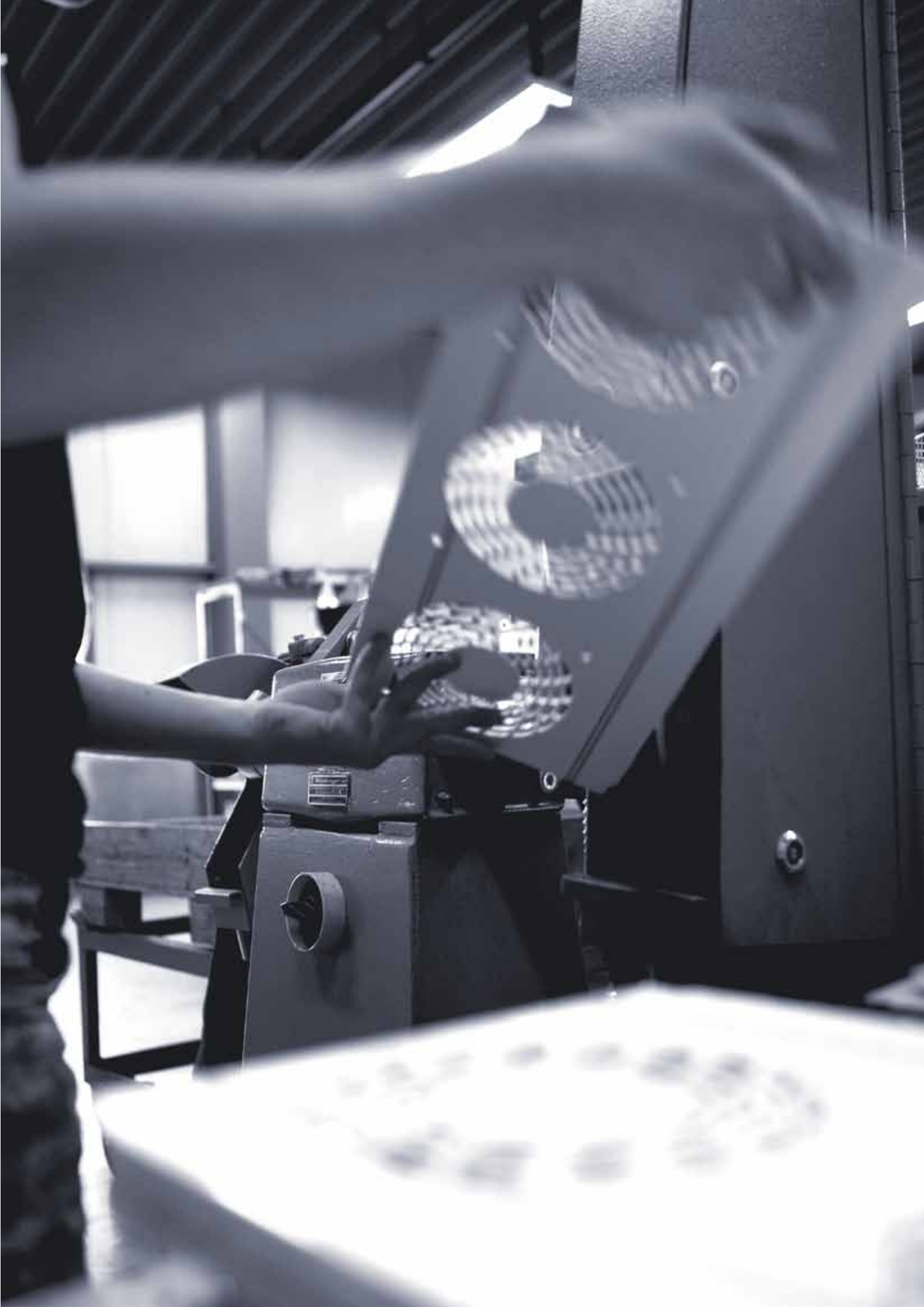
+1.401.770.1500
polyrack_us@polyrack.com



Fan tray
FT01/02

FT01/02

Product information

Our fan trays are designed as circulation fans, they draw the air in from below and blow it into the assemblies located above.
You can choose between various models and can at all times upgrade the fan to convert to forced heat dissipation of individual subracks (also when several subracks are stacked one above the other).

Standards
– Isolation test in accordance with EN 60950
– Protection class (AC): 1
– Overvoltage category: 2
– IP rating: IP20
– Protection against contact: EN292, T1 and T2

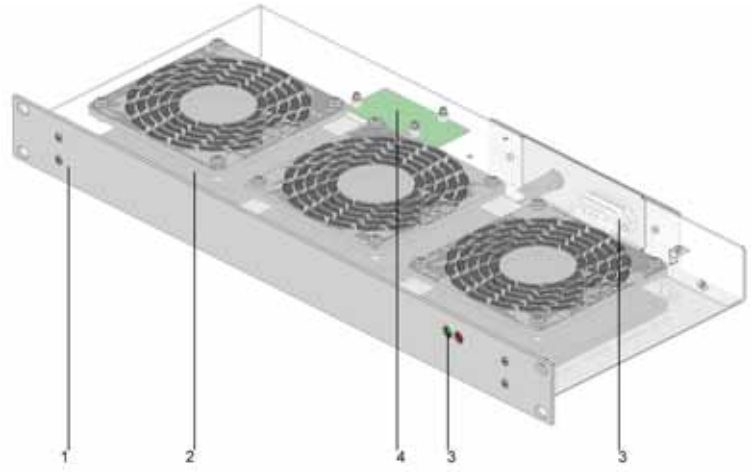
Overview

Series

Basic units	Operating voltage AC	Operating voltage DC	Power line connector	Monitoring electronics Fan failure	Monitoring electronics Temperature regulation	ON/OFF switch	Connected Power inlet	Page
- FT01-1	●			-	-	-		SYS 03.14
- FT01-2	●		●	-	-	●	●	SYS 03.14
- FT02-1		●		-	-	-		SYS 03.15
- FT02-2		●		●	●	-		SYS 03.15

FT01/02

// Product information



Configuration example

The diagram shows the configuration of a series FT02-2 fan tray

1 Mechanical components
2 Fan
3 Wiring, with operating and connecting elements
4 Monitoring electronics

Surface finishing

– Main structure stainless steel 4016
– Front panels = front anodized / rear alodined

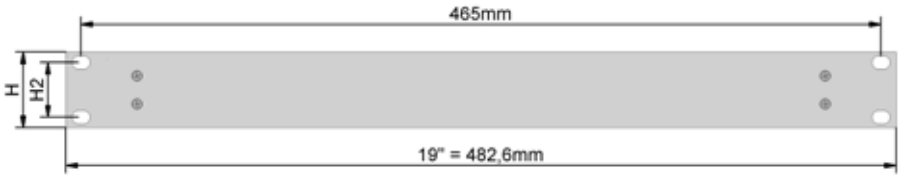
Technical specifications of components

Fans

Model	Dimensions	Fan performance	Noise	Use FT01-1	FT01-2	Note
AC	119 x 119 x 38 mm	100 m³	32dB(A)	●	●	115V version available on request

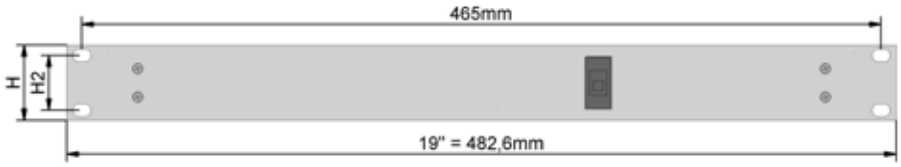
Model	Dimensions	Fan performance	Noise	Use FT02-1	FT02-2	Note
DC	119 x 119 x 32 mm	170 m³	45dB(A)	●		
DC	119 x 119 x 32 mm	85 - 170 m³	45dB(A)		●	Speed temperature-controlled, FAIL signaling

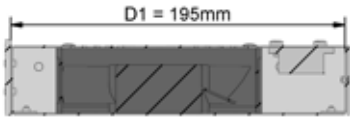
Dimension diagrams



FT01-1 front view

FT01-2 front view



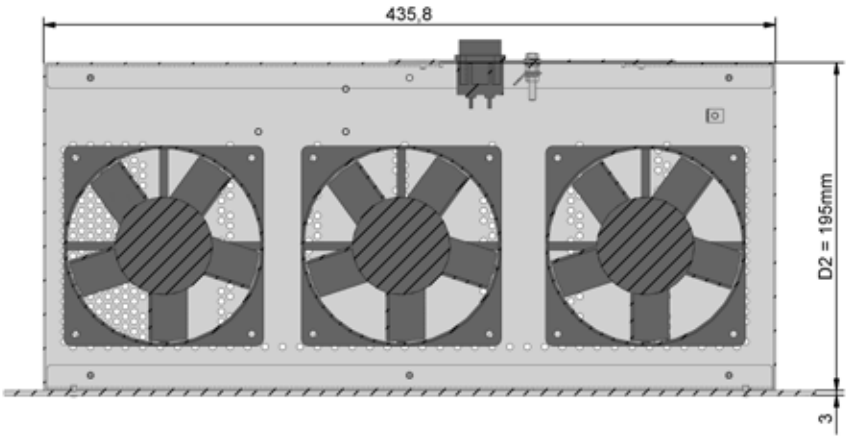


FT01-1 and FT01-2 side view

Power inlet not included in FT01-1

FT01/02

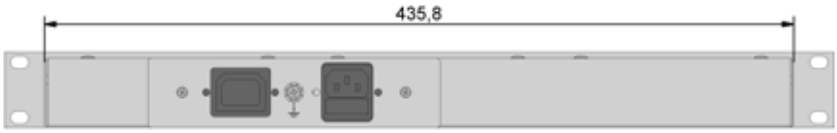
// Product information



FT01-1 and FT01-2 top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)

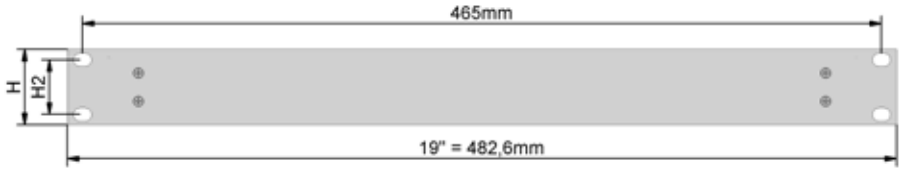
Power inlet not included in FT01-1



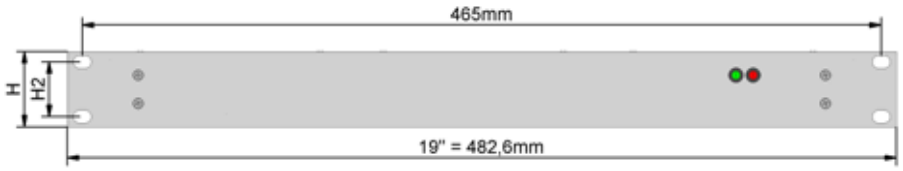
FT01-1 and FT01-2 rear view

Power inlet not included in FT01-1

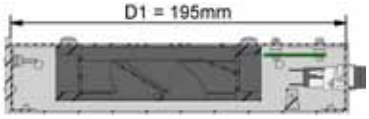
Dimension diagrams



FT02-1 ront view



FT02-2 ront view

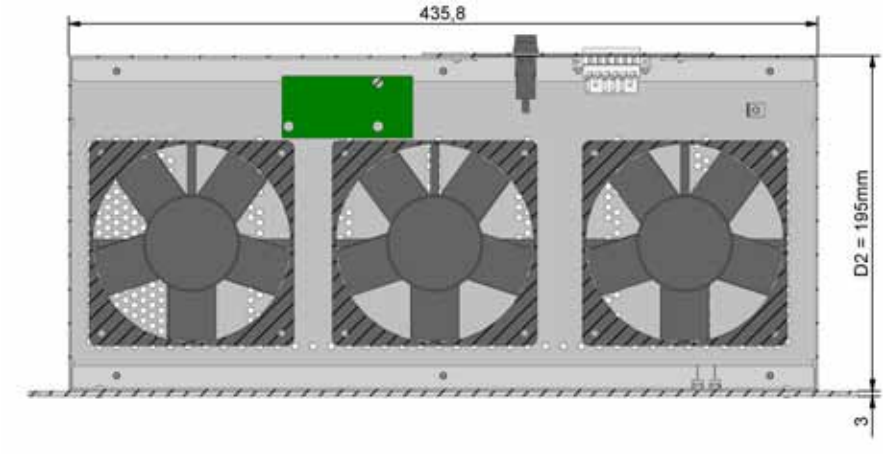


FT02-1 and FT02-2 side view

Power inlet not included in FT02-1

FT01/02

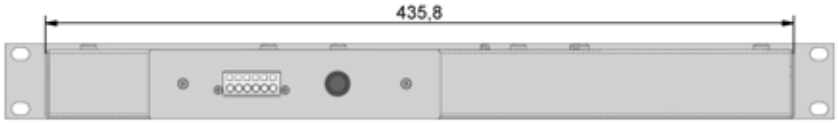
// Product information



FT02-1 and FT02-2 top view

D2 = mounting depth in 19" rack (without allowance for power components etc.)

Power inlet not included in FT02-1

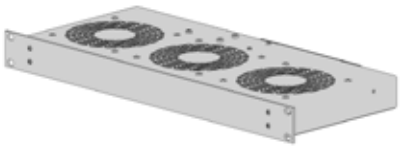


FT02-1 and FT02-2 rear view

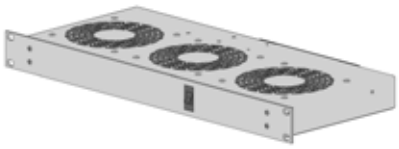
Basic units

The basic units differ with regard to operating voltage (AC or DC) and configuration

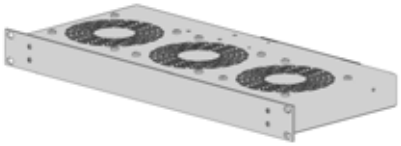
Features of the basic units



FT01-1
Application-optimized version for use with AC voltage supply



FT01-2
As FT01-1, but with power switch and power inlet

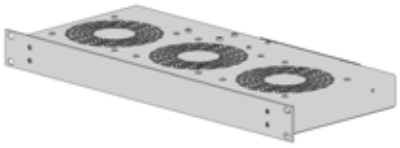


FT02-1
Application-optimized version for use with DC voltage supply

FT02-2
As FT02-1, but with temperature and speed regulation

FT01/02

// Basic units



FT01-1

Scope of delivery

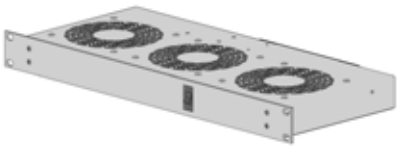
Mechanical parts	1 pc
Fans	3 pcs
Wiring and connecting elements	1 pc

Delivery form

Fully assembled and functionality and safety tested

Ordering table

Model	Operating voltage	Power consumption	Number of fans	ON/OFF switch	Imax power inlet	Order no.
FT01-1	230 VAC / 50Hz	15 W	3	-	-	**68 28 20 02**



FT01-2

Scope of delivery

Mechanical parts	1 pc
Fans	3 pcs
Wiring and connecting elements	1 pc
ON/OFF switch	1 pc
Power inlet	1 pc

Delivery form

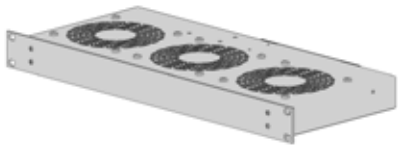
Fully assembled and functionality and safety tested

Note

– Power inlet, switched

Ordering table

Model	Operating voltage	Power consumption	Number of fans	ON/OFF switch	Imax power inlet	Order no.
FT01-2	230 VAC / 50Hz	15 - 20W	3	•	max. 5A	**68 28 20 22**



FT02-1

Scope of delivery

Mechanical parts	1 pc
Fans	3 pcs
Wiring and connecting elements	1 pc

Delivery form

Fully assembled and functionality and safety tested

Ordering table

Model	Operating voltage	Power consumption	Number of fans	Monitoring electronics		Order no.
				Fan failure	Temperature regulation	
FT02-1	24VDC	15 W	3	-	-	**68 28 40 01**

FT02-2

Scope of delivery

Mechanical parts	1 pc
Fans	3 pcs
Wiring and connecting elements	1 pc
Monitoring electronics	1 pc

Delivery form

Fully assembled and functionality and safety tested

Ordering table

Model	Operating voltage	Power consumption	Number of fans	Monitoring electronics		Order no.
				Fan failure	Temperature regulation	
FT02-2	24VDC	16 W	3	●	●	**68 28 40 11**

Accessories
Overview

//03 FAN TRAYS
ACCESSORIES

// Contents

ACCESSORIES

// Pressure fan

Pressure fan conversion kit

Conversion kit to convert the circulation fan to a pressure fan

Pressure fan conversion kit

Material
Air conduction plate, stainless steel
19" Front panel, aluminum anodized

Delivery form
Packed in sets

Scope of delivery

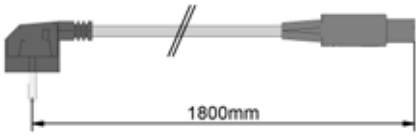
Air conduction plate	1 pc
19" 1U front panel	1 pc
Assembly kit	1 pc

Ordering table

	Order no.
Conversion kit	68 28 60 01

Power cables

To connect appliances to the line power



Power cable EU

Color
black

Delivery form
In units for self-assembly

Scope of delivery
Connecting cable 1 pc

Note
– Total length of connecting cable = 1.8 m
– Compliant with VDE and UL
– Imax = 16A

Ordering table

	Order no.
Power cable EU	68 21 00 01

Power cable US

Color
black

Delivery form
In units for self-assembly

Scope of delivery
Connecting cable 1 pc

Note
– Total length of connecting cable = 1.8 m
– Compliant with VDE and UL
– Imax = 16A

Ordering table

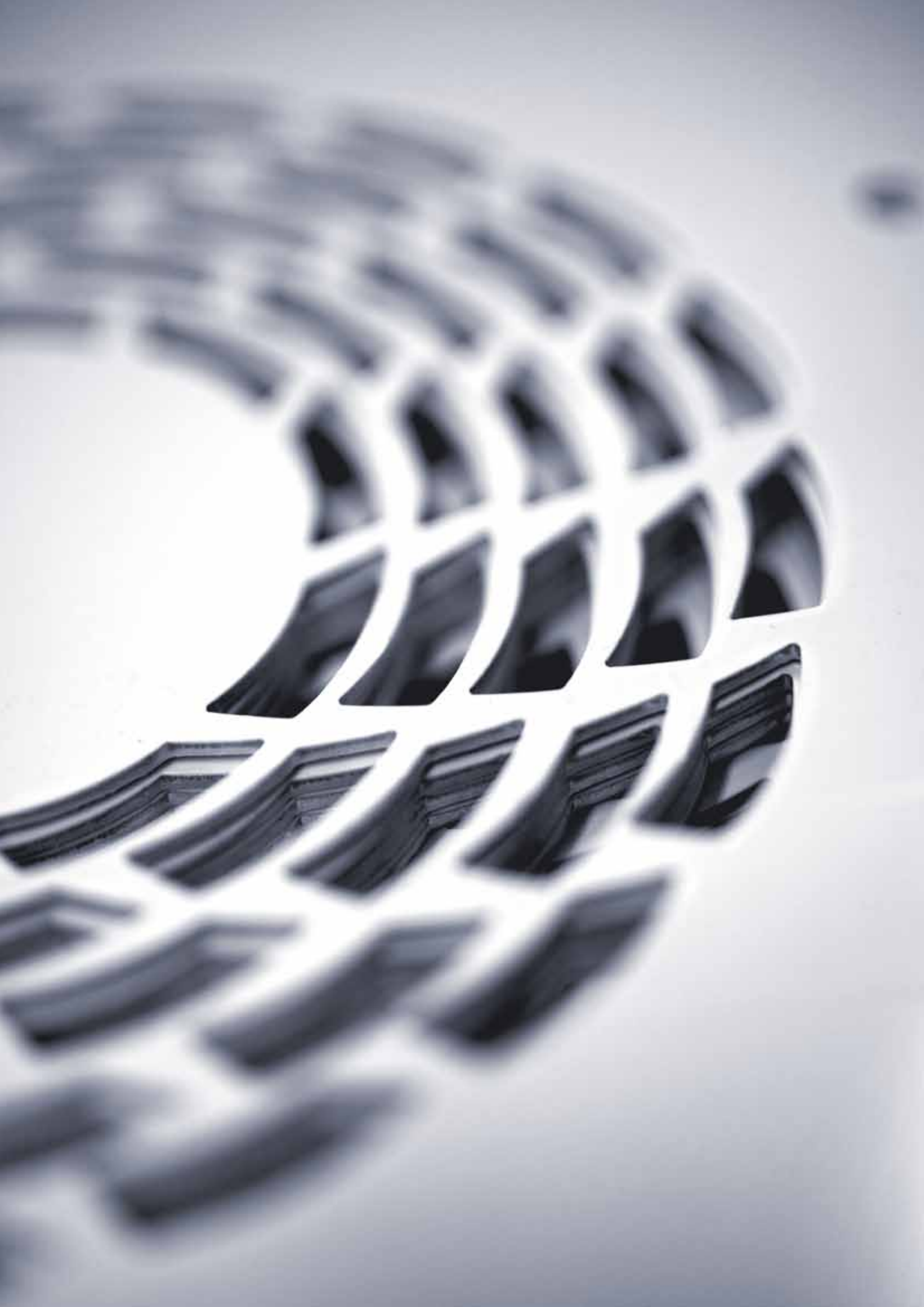
	Order no.
Power cable US	68 21 00 05

ACCESSORIES

// Assembly components

Ordering table

Usage		Description	Version material	Standard	FT01	FT02	Order no.	PU
Mounting in 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 black		●	●	**79 91 30 00**	1 PU (100 pcs)
		Cage nut	M6 Steel zinc-plated		●	●	**79 91 31 00**	1 PU (100 pcs)




Rückmeldung in der Fertigung
POLY

#01 CONTENTS
SYSTEM APPLICATIONS

Application-specific cases and systems

GENERAL INFORMATION

// Overview

DIN-rail case Railo
Small equipment case in extrusion construction – can be used as a DIN-rail module or wallmounting module – accepts single Eurocards or PCBs with a height of 122 mm.

PanelTEC case
The panel case made of die-cast aluminum was developed specially for use in harsh industrial environments (IP65). It provides the optimum basis for configuring high-class computer systems (ITX standard or similar).
The display bezel is designed for a 15" display with touchscreen.

PanelPC case
The PanelPC case provides the basis for high-class computer systems (ITX standard or similar) for use in industrial environments (IP30).
The display bezel is standardly designed for a 10.4“ display with touchscreen, but can also be customized for other sizes.

EmbedTEC system platform
Small equipment case as the basis or development platform for customized modular case solutions. It can be engineered as a desktop case or a panel case in practically all dimensions. Various mounting options for components, accessories and extensions can be integrated.

Ruggedized systems
Designed to work reliably in harsh environments and under heavy environmental conditions such as shock, vibration and temperature POLYRACK offers a large portfolio of systems according to international customer specific solutions.

Potential applications:
Railway and transport technology
Aviation
Mining industry
Military

GENERAL INFORMATION

// Overview of series

Series	Display size		Surface finishing			EMC shielding concept	IP rating	Individual assembly	Features
	10.4"	15"	Anodized	Alodined	Powder-coated				
DIN-rail case Railo	–	–	–	●	–	●	–	●	For rail mounting Guide rails for 100 or 122 mm PCB boards integrated in side extrusion Also available by the meter
PanelTEC case	–	●	–	–	●	●	●	●	IP rating 65. Optimized heat dissipation concept. Stable die-cast aluminum solution.
PanelPC case	●	–	–	–	●	●	–	●	Flexible configuration in layer construction
EmbedTEC system platform	–	–	●			●	●	●	Development platform for customized case solutions
Ruggedized system	–	–	○	○	○	●	●	●	Designed to operate in harsh environments with high requirements of temperature, shock vibration and humidity.

○ Adaptable to individual requirements!

// Assembly, software and integration

System integration services such as finalization with electrical assemblies, PC components or also software installation can be performed based on the customer's requirements.

// Ambient conditions

Storage temperature
- 40 °C ... +80 °C

Operating temperature
Dependent on the electronic components to be used
CAUTION!
Openings such as free slots affect the airflow and impair the cooling properties, open slots must therefore be closed using appropriate covers.

Humidity
30... 80%, non-condensing

// Questions?

We are happy to help you. Please contact us.

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sales@polyrack.com

HOTLINE North America
+1.401.770.1500
polyrack_us@polyrack.com

DIN-rail case Railo
Small Equipment Cases

GENERAL INFORMATION

Product information

Railo can be used as a DIN-rail or wall-mounting module and accommodates PC boards, Eurocards or custom electronics. Insertion of the boards into the grooves provided for this purpose is stable and torsion-free
There are 2 different fronts available, both of which can be processed as required. The width can be varied, depending on the configuration.

Standards

– Mounting rail adapter in accordance with EN 60715
– IP20/IP30 rating (version-dependent) in accordance with IEC 60529

Note

– No grounding tabs, but these can be mounted individually

Overview

Basic units	H1 in mm		W1 in mm			Material by length in mm	D in mm*	Page
	111	122	80	100	160	930	26.4	
- For card height 100 mm (EC 100)	●		●	●	●	●	●	SYS 04.12
- For card height 122 mm		●	●	●	●	●	●	SYS 04.12

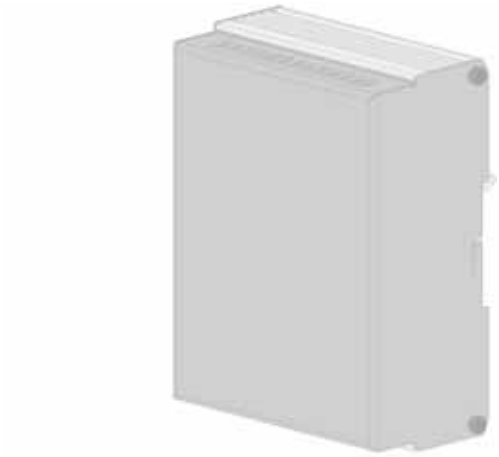
*Without snap-on clips for rail mounting

DIN-rail case Railo

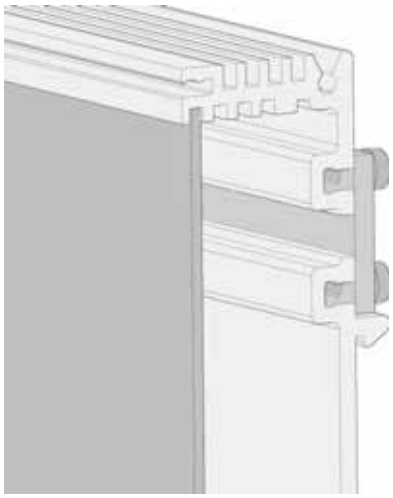
// Product information

Application solutions

Railo DIN-rail module with wall-mounting and front panel



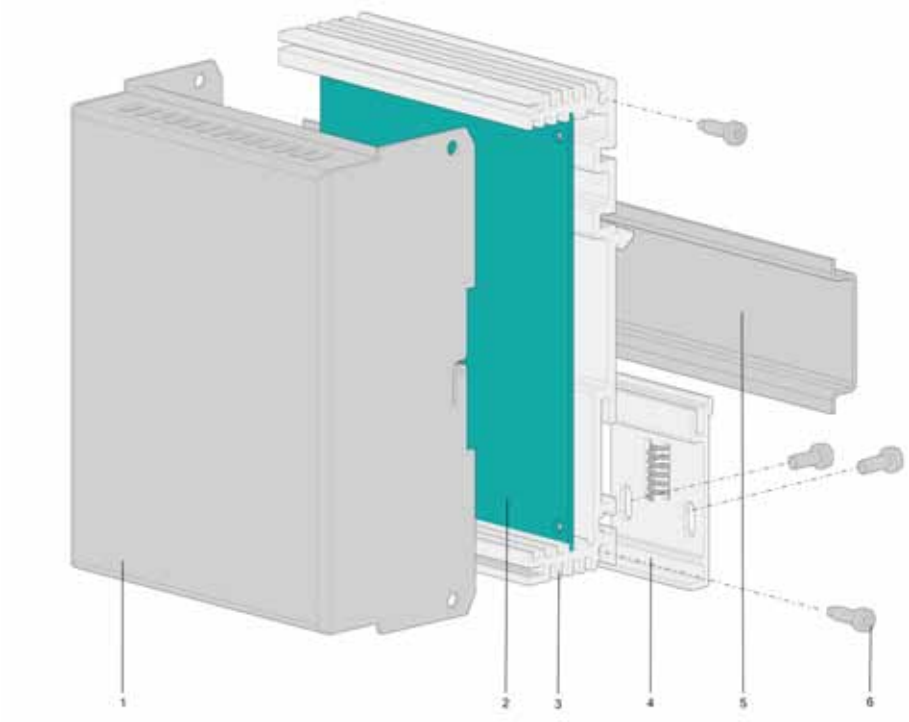
Railo DIN-rail module with front hood



Railo DIN-rail module for expansion in height

Configuration example

The diagram shows the configuration of a Railo Series DIN-rail module with front hood



1 Front cover
2 Printed circuit board*
3 Platform extrusion
4 Snap-on clip kit
5 Mounting rail*
6 Assembly hardware

All parts are available as individual components except for those marked *.

Surface finishing

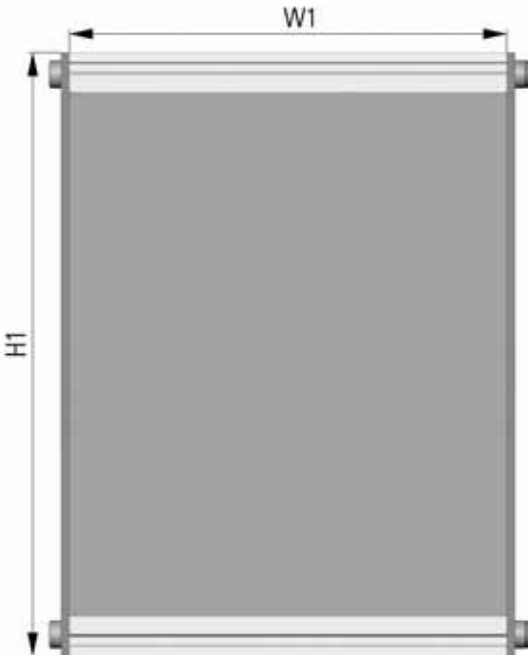
– Platform extrusion alodined
– For other components see product specifications

// Notes on mounting/overall dimensions

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

DIN-rail case Railo

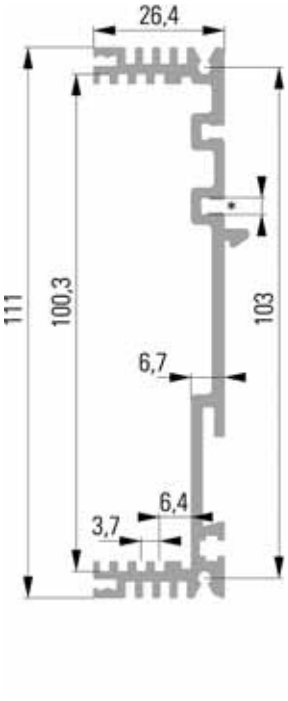
// Product information

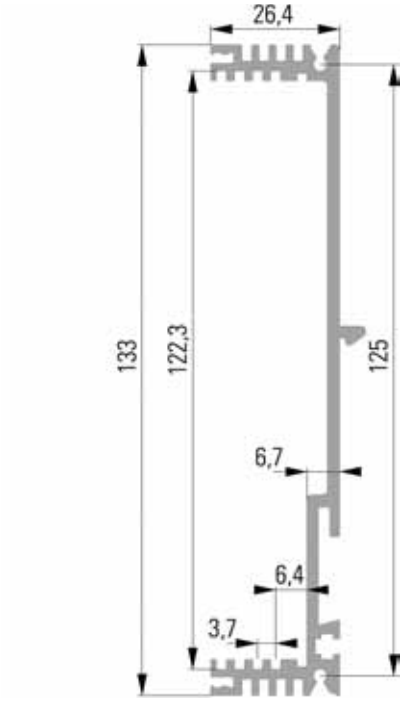


Dimension diagrams

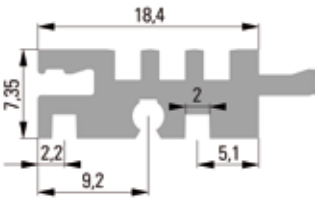
Front view
W1 = length of platform extrusion
= inner mounting dimension
H1 = total height

Side view
(1 board)





Platform extrusion 100 mm card height (EC 100)
Platform extrusion 122 mm card height



Adapter extrusion

// 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

DIN-rail case Railo

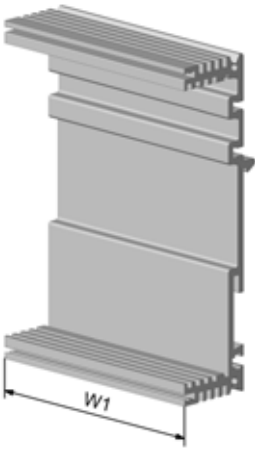
Basic units

The Railo Series basic units are available in 2 versions. The platform extrusion with a height of H1 = 111 mm accepts a single Eurocard (100 mm); the platform extrusion with a height of H1 = 133 mm accepts a 122-mm PCB.

Features of the basic units

Platform extrusion for 100 mm card height (EC 100)

Platform extrusion for 122 mm card height



Railo case, platform extrusion for 100 mm card height

Material
Aluminum extrusion, alodined

Delivery form
In units for self-assembly

Scope of delivery

Platform extrusion	1 pc
(Extrusion L = 930 mm)	1 pc

Note
– Front/side plates and snap-on clip set (contains all assembly hardware) must be ordered separately

Ordering table

For card height in mm	H1 in mm	W1 in mm	Alodined
100	111	80	**22 04 52 01**
100	111	100	**22 04 52 02**
100	111	160	**22 04 52 03**
100	111	930	**22 04 52 04**

Railo case, platform extrusion for 122 mm card height

Material
Aluminum extrusion, alodined

Delivery form
In units for self-assembly

Scope of delivery

Platform extrusion	1 pc
(Extrusion L = 930 mm)	1 pc

Note
– Front/side plates and snap-on clip set (contains all assembly hardware) must be ordered separately

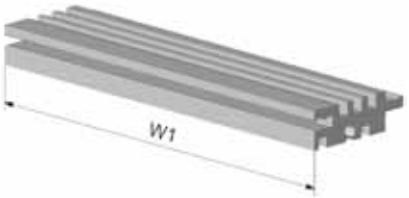
Ordering table

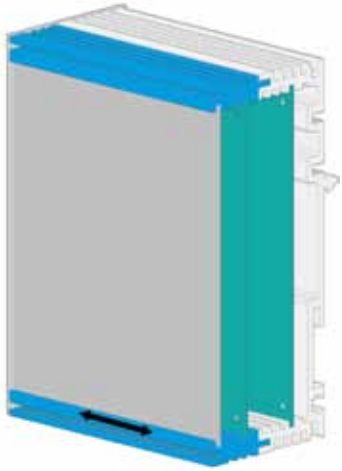
For card height in mm	H1 in mm	W1 in mm	Alodined
122	133	80	**22 04 51 01**
122	133	100	**22 04 51 02**
122	133	160	**22 04 51 03**
122	133	930	**22 04 51 04**

DIN-rail case Railo

// Single components

Adapter extrusion, snap-on clip kit





Adapter extrusion for card height 100/122 mm – Railo

For extension of the platform extrusion

Material
Aluminum extrusion, alodined

Scope of delivery
Adapter extrusion
(Extrusion L = 930 mm) 1 pc

Delivery form
In units for self-assembly

Notes
– Slides into platform extrusion
– Stabilized by screwing to side plates
– Side plates and snap-on clip set must be ordered separately.
– Can be extended as needed

Ordering table

W1 in mm	Alodined
80	22 04 50 20
100	22 04 50 21
160	22 04 50 22
930	22 04 50 23

Snap-on clip set – Railo

For rear attachment to platform extrusion for mounting on an off-the-shelf mounting rail 35 x 7.5 mm in compliance wtih EN 50022

Material
Snap-on clip: Aluminum extrusion, anodized/ cutting edges raw

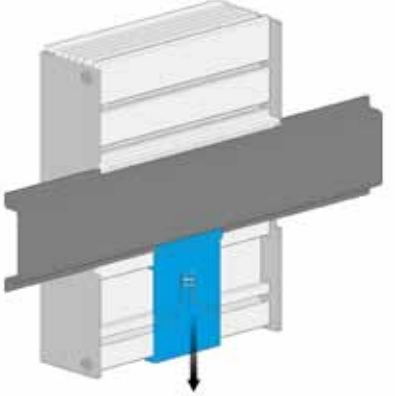
Scope of delivery (1 PU)
Snap-on clips 10 pcs
Springs 10 pcs
Threaded inserts 5 HP 10 pcs
Assembly kit 10 pcs

Delivery form
In units for self-assembly

Notes
– Is required for every platform extrusion
– 1 PU is enough for 10 platform extrusions

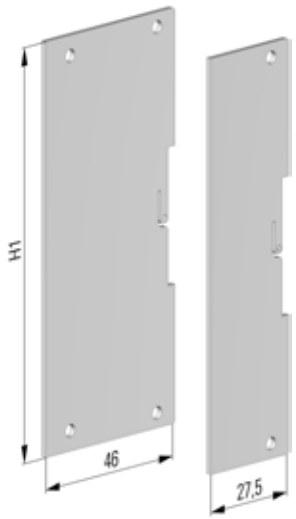
Ordering table

Order no.
22 04 51 06



Side plates

As side cover for the platform extrusion
and for PCB fixation
Raised protuberances enhance EMC protection



Standard side plate – Railo

Material
Aluminum 1.5 mm, alodined

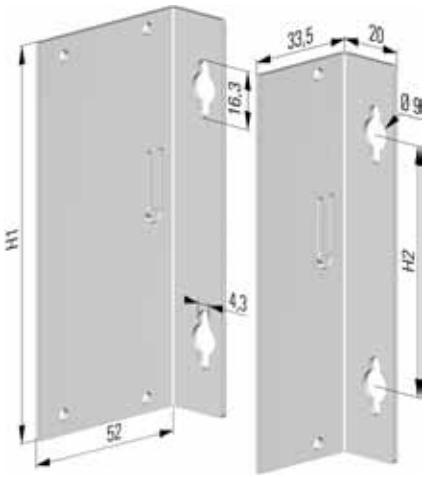
Scope of delivery
Side plates left/right 2 pcs

Delivery form
In units for self-assembly

Notes
– Only for use with front panel
– When deploying platform extrusion (1 board) use side plate D1 = 27.5 mm
– When deploying platform and adapter extrusion use side plate D1 = 46 mm

Ordering table

For card height in mm	H1 in mm	D1 = 27.5 mm	D1 = 46 mm
100	111	22 04 52 15	22 04 52 19
122	133	22 04 51 15	22 04 51 19



Wall-mount side plate – Railo

As side cover and for wall mounting

Material
Aluminum 1.5 mm, alodined

Scope of delivery
Side plates left/right 2 pcs

Delivery form
In units for self-assembly

Notes
– Only for use with front panel
– When deploying platform extrusion (1 board) use side plate D1 = 33.5 mm
– When deploying platform and adapter extrusion use side plate D1 = 52 mm

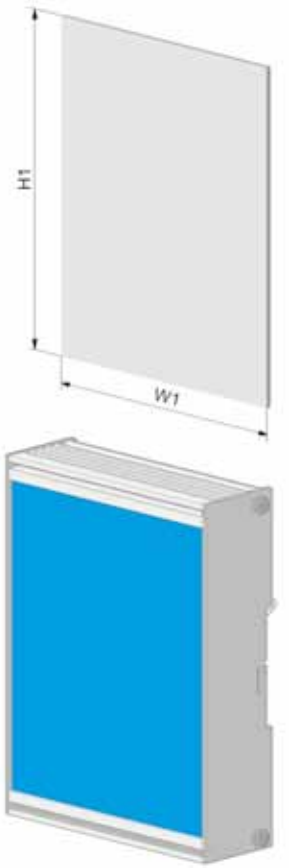
Ordering table

For card height in mm	H1 in mm	D1 = 33.5 mm	D1 = 52 mm
100	111	22 04 52 17	22 04 52 18
122	133	22 04 51 17	22 04 51 18

DIN-rail case Railo

// Single components

Front panels



Front panel – Railo

For insertion into platform extrusion for use as front cover. As no screws are required, it is possible to apply a front panel foil.

Material
Aluminum 1.5 mm, front anodized/rear alodined

Scope of delivery
Front panel 1 pc

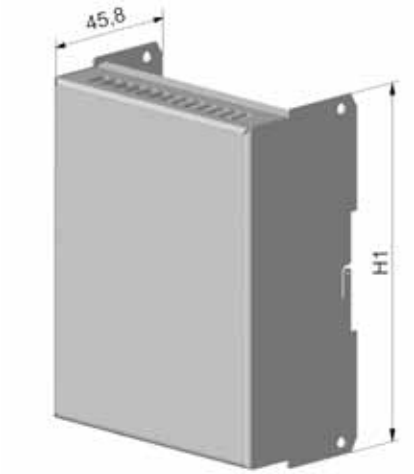
Delivery form
In units for self-assembly

Note
– Can only be used in conjunction with side plates

Ordering table

For card height in mm	H1 in mm	W1 in mm	Alodined
100	111	80	**22 04 50 07**
100	111	100	**22 04 50 08**
100	111	160	**22 04 50 09**
122	133	80	**22 04 51 07**
122	133	100	**22 04 51 08**
122	133	160	**22 04 51 09**

Front hoods



Front hood – Railo

For use as front and side cover. The one-piece version enables fast assembly. Passive ventilation via ventilation slits at top and bottom.

Material
Stainless steel 1.4016 IIID (glossy), 1 mm

Scope of delivery
Front cover 1 pc

Delivery form
In units for self-assembly

Note
– Assembly hardware is included in "snap-on clip set" or must be ordered separately.

Ordering table

For card height in mm	H1 in mm	W1 in mm	Alodined
100	111	80	**22 04 50 10**
100	111	100	**22 04 50 11**
100	111	160	**22 04 50 12**
122	133	80	**22 04 51 10**
122	133	100	**22 04 51 11**
122	133	160	**22 04 51 12**

PanelTEC
Panel case

PanelTEC case

Product information

Developed for PanelPC and/or display and control systems, the case is typically used in industrial environments. The die-cast aluminum case is robust, even the basic version is EMC-compliant and compliant with IP65. Additional electronic components can be added by way of appropriate screw connection points or assembly components. Ventilation is passive (TDP max. 30 watts)

Standards

– IP65 rating in accordance with IEC 60529
– DIN 1688, Part 4 (die-casting, manufacturing tolerances)

Notes

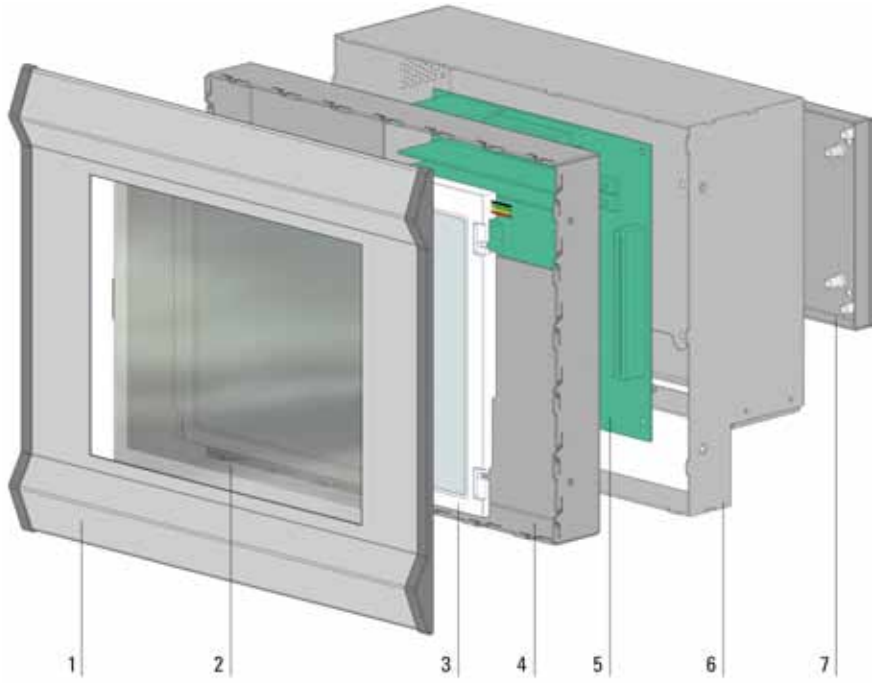
– The Panel case is available either as a set of mechanical parts for self-assembly or configuration or on request fully assembled according to specification (including software).
– Support arm mounting complies with the VESA standard.

Overview

Basic units	Display size 15"	H1 in mm 309	W1 in mm 373	D in mm 105	Page
Standard	●	●	●	●	SYS 04.25

PanelTEC case

// Product information



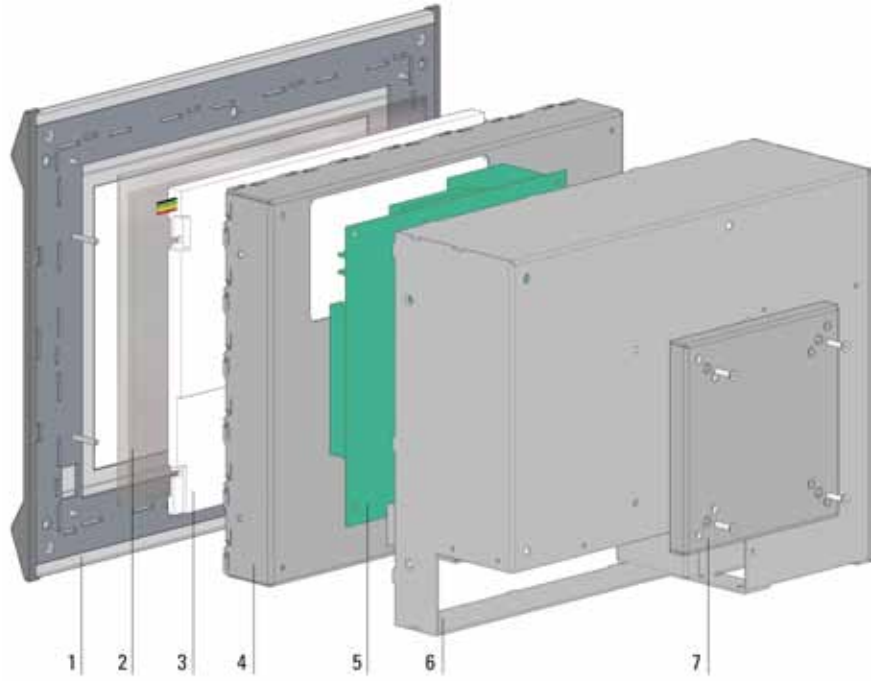
Configuration example

The diagram shows the typical configuration of a PanelTEC Series panel case as touch panel.

Front view

1 Display bezel
2 EMC/IP gaskets
3 Glass panel/Touch*
4 Display*
5 Board*
6 Rear hood
7 Connection hood

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



Rear view

1 Display bezel
2 EMC/IP gaskets
3 Glass panel/Touch*
4 Display*
5 Board*
6 Rear hood
7 Connection hood

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

Surface finishing

– Display bezel, rear and connection hoods die-cast aluminum, powder-coated RAL 9007 (gray aluminum), fine structure

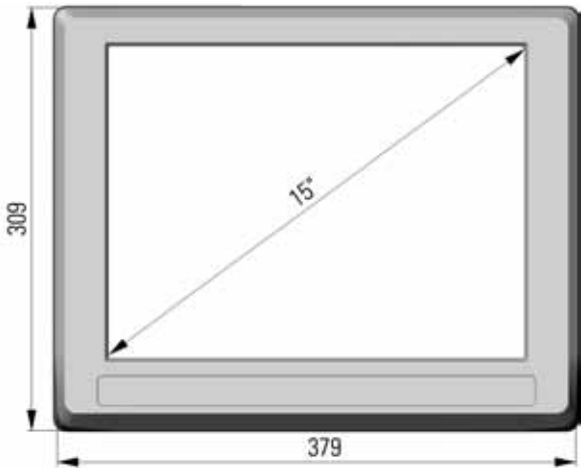
// Notes on units of measurement and mounting/overall dimensions

Dimensions specified in ordering tables
The dimensions are specified in relation to the application and are given in mm, if not indicated otherwise.

The screen size is given in inches (1" = 25.4 mm).

PanelTEC case

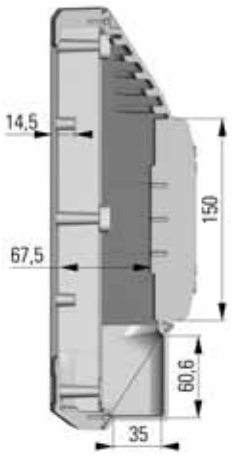
// Product information

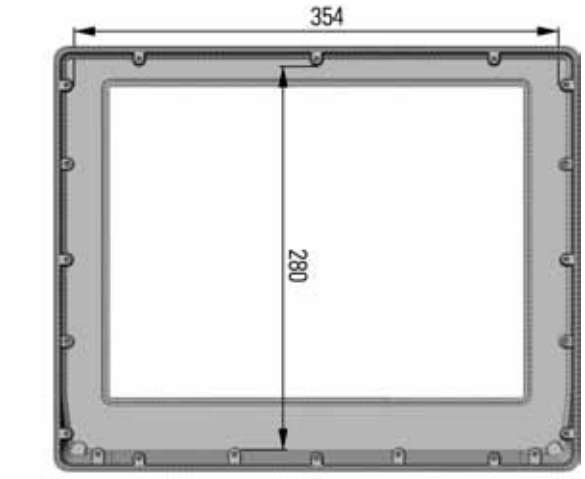


Dimension diagrams

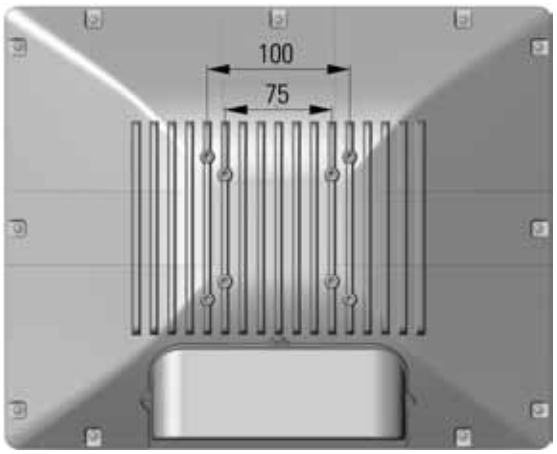
Front view / Side view

Outer dimensions



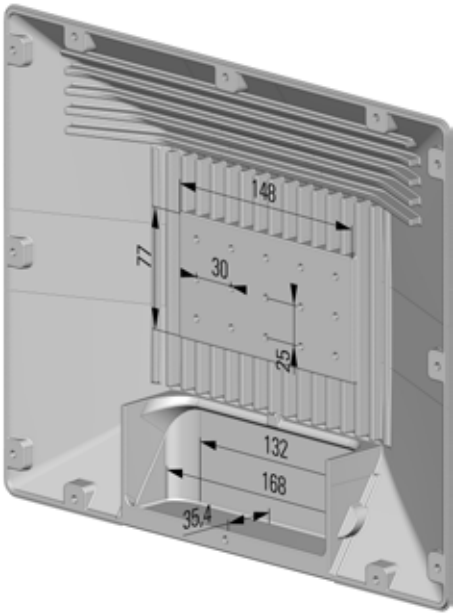


Internal dimensions



Rear hood, exterior

Rear hood with support arm mounting in compliance with the VESA standard (75 x 75 mm or 100 x 100 mm)



Rear hood, interior

Mounting surface dimensions

Connection hood dimensions

// Manufacturing tolerances

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

Die-cast parts comply with DIN 1688, part 4

PanelTEC case

Basic units

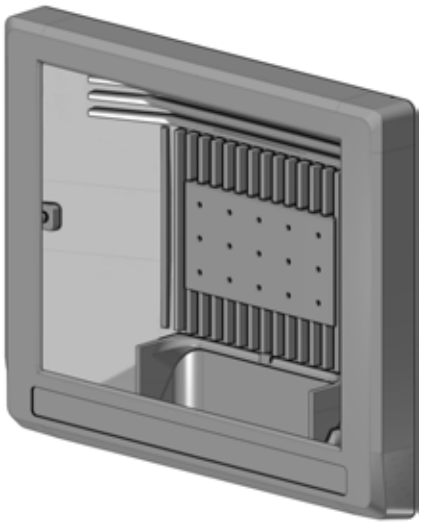
The PanelTEC Series cases are made of die-cast aluminum and are therefore ideal for use in harsh industrial environments.

Features of the basic units

PanelTEC
3-piece die-cast aluminum case

Removable connection hood
For further processing (e.g. connector or cable cut-outs)

EMC-compliant / IP65



PanelTEC case, standard

Scope of delivery

Display bezel	1 pc
Rear hood	1 pc
Connection hood	1 pc
Cord gasket ø 2.2 mm by length (L = 3000 mm)	1 pc

Delivery form

Preassembled

Notes

– Additional components such as display mounting brackets available on request
– Complete assembly available on request

Ordering table

Display size	H1 in mm	W1 in mm	D in mm	Order no.
15"	309	373	105	**62 24 40 50**

PanelPC
Panel case

PanelPC case

Product information

Developed for PanelPC and/or display and control systems, the case is typically used in industrial environments. An innovative concept in layer construction enables simple and flexible configuration. At the same time this forms the basis for individual, customer-specific solutions. The display bezel with an attractive design element is designed for a 10.4" display, but can also be adapted to other sizes. The case construction is robust, even the basic version is EMC-compliant and can be configured frontally to be compliant with a rating of up to IP30. It is prepared for configuration with ITX-standard mother boards, power supply and ventilator. Additional electronic components can be added by way of appropriate screw connection points.

Standards

– IP30 rating in accordance with IEC 60529

Notes

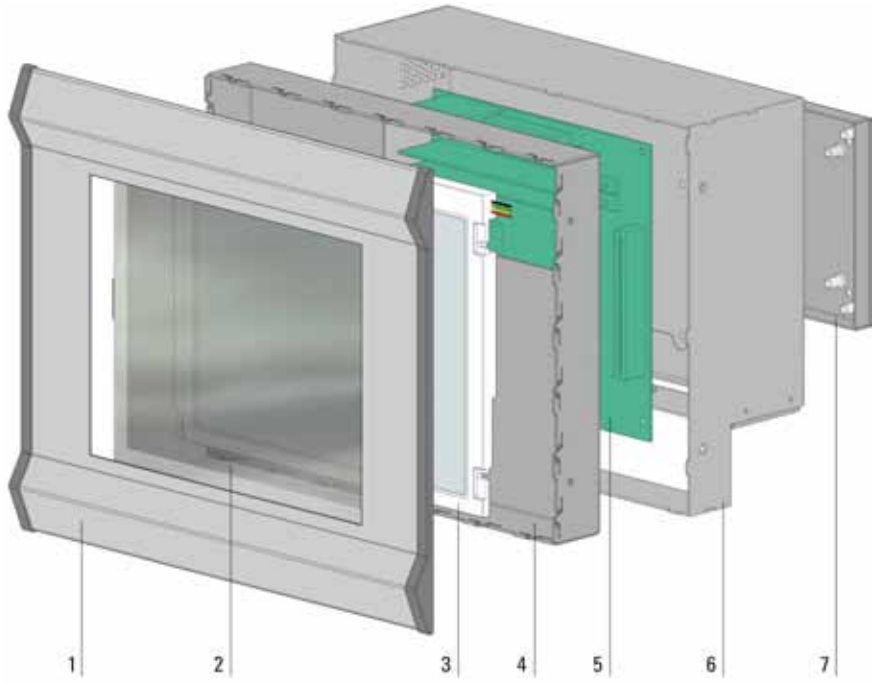
– The PanelPC case is available either as a set of mechanical parts for self-assembly or configuration or as a complete system. In this case it is partially wired, equipped with power supply and fan and tested.
On request, the system can also be fully assembled according to specification (including software).
– Support arm mounting complies with the VESA standard.

Overview

Basic units	Display size 10.4"	H1 in mm 223.5	W1 in mm 279.5	D in mm 91	Page
- Standard	●	●	●	●	SYS 04.33

PanelPC case

// Product information



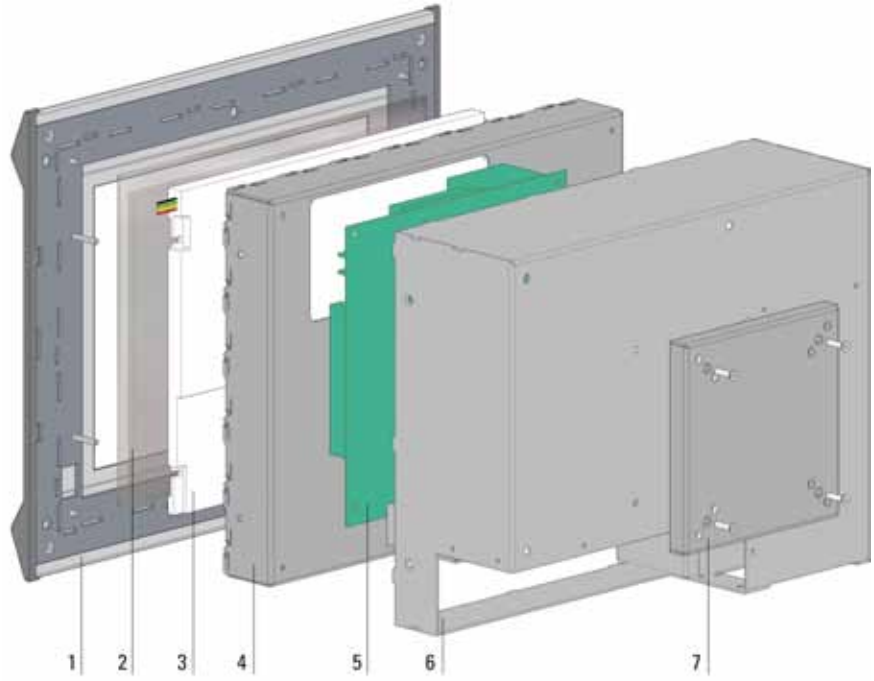
Configuration example

The diagram shows the typical configuration of a PanelPC Series panel case as touch panel.

Front view

1 Special-design front hood
2 Glass panel/Touch*
3 TFT *
4 TFT hood
5 Board*
6 Rear hood
7 Adapter for VESA standard

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



Rear view

1 Special-design front hood
2 Glass panel/Touch*
3 TFT *
4 TFT hood
5 Board*
6 Rear hood
7 Adapter for VESA standard

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

Surface finishing

– Case made of sheet steel, powder-coated RAL 7038 (light gray)
– Front either sheet steel powder-coated RAL 7038 (light gray) or stainless steel (on request)
– Special-design covers powder-coated RAL 7015 (slate gray)

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

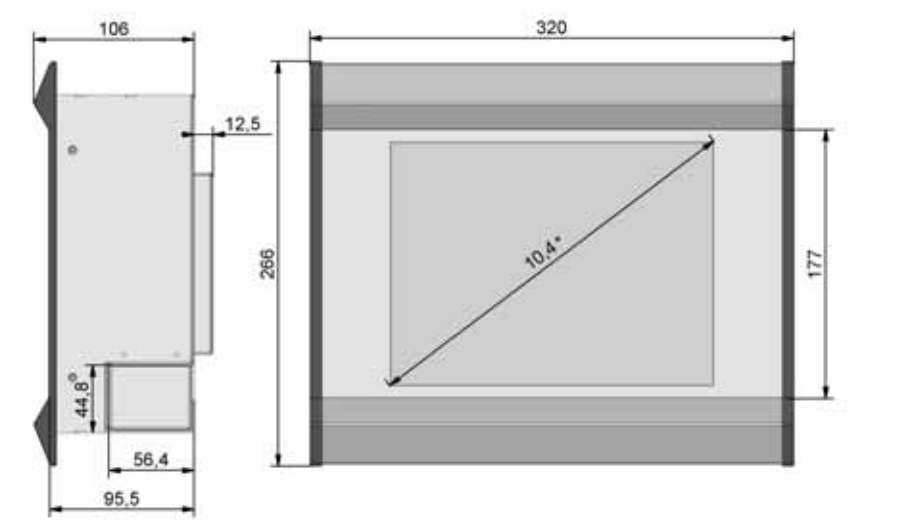
Dimensions specified in ordering tables
The dimensions are specified in relation to the application and are given in mm, if not indicated otherwise.

The screen size is given in inches (1" = 25.4 mm).

PanelPC case

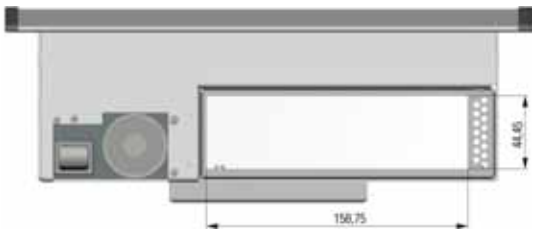
// Product information

Dimension diagrams



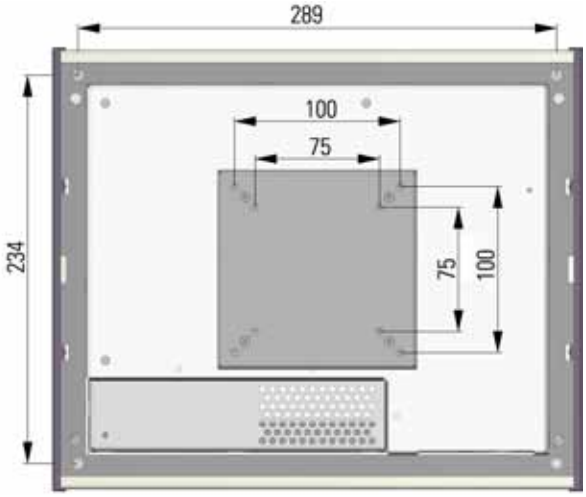
Front view / Side view

Outer dimensions



View from below

Cut-out for ATX I/O cover



Rear view

Rear view with support arm mounting in compliance with the VESA standard (75 x 75 mm or 100 x 100 mm)

// Manufacturing tolerances

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

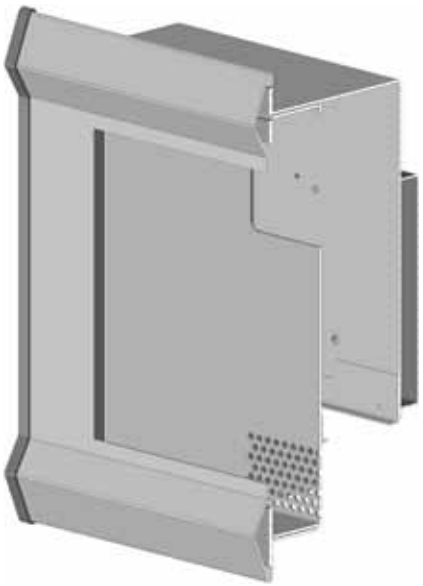
Punched parts comply with
DIN ISO 6930-1/6930-2 and DIN 6932

PanelPC case

// Basic units

Basic unit

The PanelPC Series cases are made of sheet metal and are suitable for use in industrial environments.



Features of the basic unit

2-piece case

EMC-compatible / IP30

Customizable display bezel
The display bezel is designed for a 10.4" display but can also be adapted to other sizes.

PanelPC case, standard

Scope of delivery

Special-design front hood	1 pc
Rear hood	1 pc
TFT hood	1 pc
Adapter plate (VESA standard)	1 pc

Delivery form

Preassembled

Notes

– Additional components such as display mounting brackets available on request
– Complete assembly available on request

Ordering table

Display size	H1 in mm	W1 in mm	D in mm	Order no.
10.4"	223.5	279.5	91	**62 24 40 60**

EmbedTEC system platform
Desktop-PC (ITX)

EmbedTEC system platform

Product information

The EmbedTEC case series is a flexible case solution that is available in practically all dimensions. Although primarily developed for embedded-computing and HMI (human machine interface) applications, EmbedTEC is also ideally suited for all other fields of application. Thanks to its capacity for flexible configuration, the concept provides the optimal basis, or development platform, for customized case solutions.

EmbedTEC consists of one base plate, 4 special-design corner elements and a hood. The corner elements, the base plate and the hood can all be individually dimensioned. The base plate and the hood can also be processed for component assembly and mounting parts and accessories.

The design also allows the hood to be fitted e.g. with a further functional element such as a heat sink. The use of EMC shielding material - which is also customizable - ensures compliance with enhanced EMC criteria.

Notes

– The base plate must be ordered separately.
– EMC and IP gasketing material must be ordered separately.

Overview

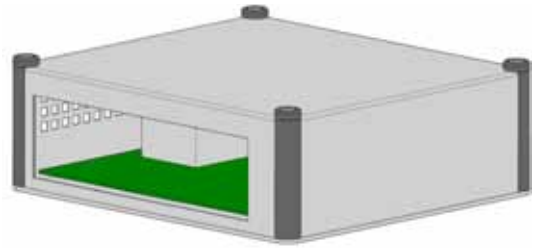
Basic units	H1 in mm 63.2	W1 in mm 296.6	D in mm 196.6	Page
- Standard	●	●	●	SYS 04.43

EmbedTEC system platform

// Product information

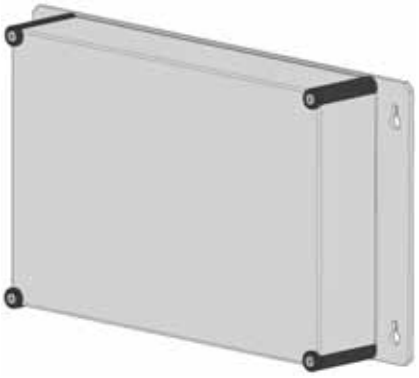
Application examples

Desktop-PC (ITX)



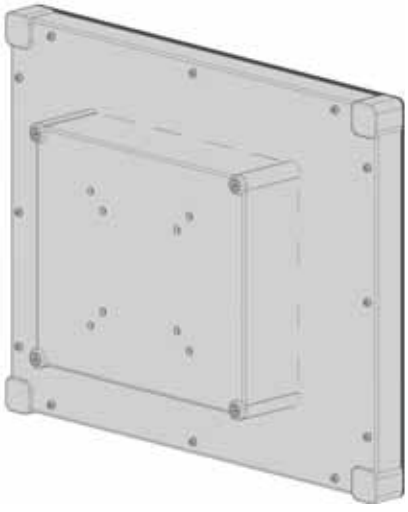
ITX case, without power supply

Desktop case with fanless cooling concept



Chassis plate for wall mounting

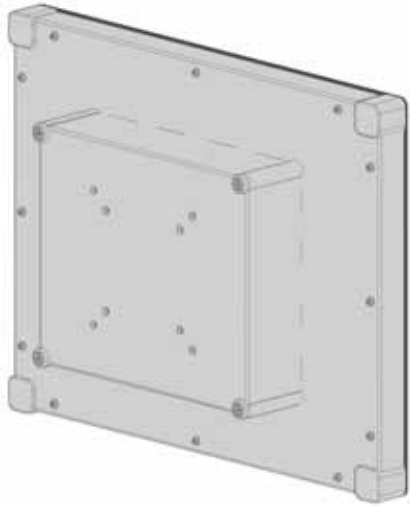
Box PC, with fanless cooling concept



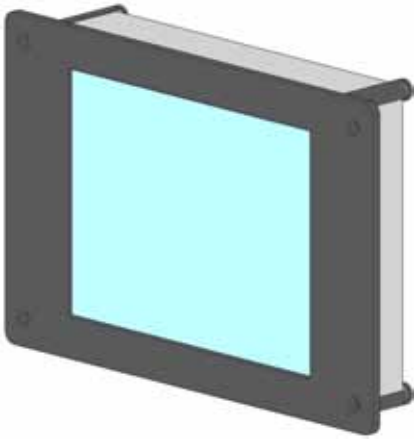
Shallow hood, ARM

EmbedTEC system platform

// Product information



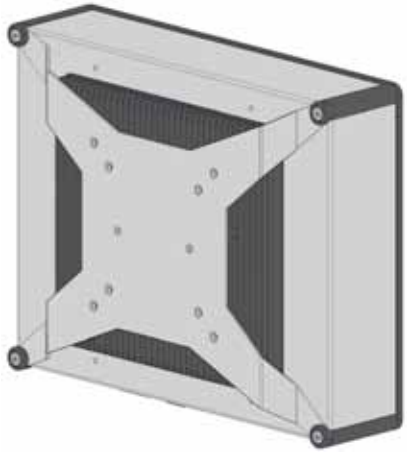
Deep hood, ITX



PanelPC with special-design front panel (base plate)

PanelPC

VESA2 case - mounting holes

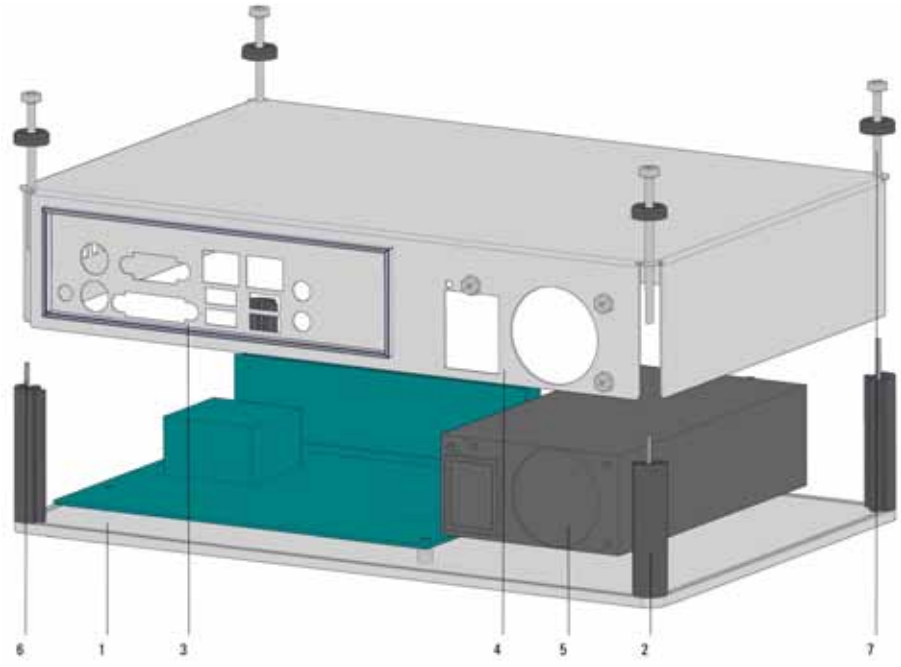


VESA2 case - mounting holes and integrated fanless cooling concept

VESA2 case - mounting holes and integrated fanless cooling concept, for rail mounting

EmbedTEC system platform

// Product information



Configuration example

The diagram shows the configuration of an EmbedTEC series small equipment case.

1 Base plate*
2 Corner bracket
3 Hood
4 ATX-I/O shield*
5 Power supply*
6 EMC/IP gasket
7 Assembly hardware

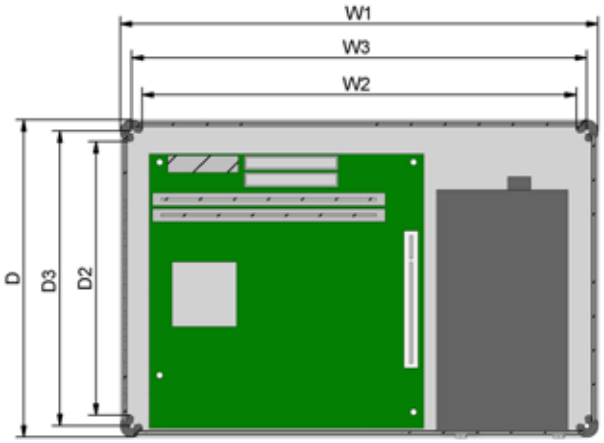
Parts marked with * are not included in the scope of delivery of the basic unit, i. e. must be ordered separately.

Surface finishing

- Corner elements anodized / contact surface raw
- Hood high-grade steel, brushed
- Base plate aluminum, anthracite metallic

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

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



Dimension diagrams

Top view

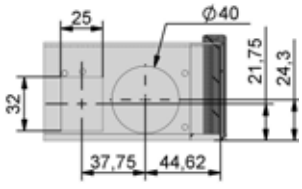
D = Case depth
D2 = D - 26.9 mm
D3 = D - 14 mm

W1 = Case width
W2 = W1 - 26.9 mm
W3 = W1 - 14 mm = inner mounting dimension = distance between front and rear panel mounting

Rear view

H1 = total height, without feet
H2 = H1 - 10 mm = inner mounting dimension

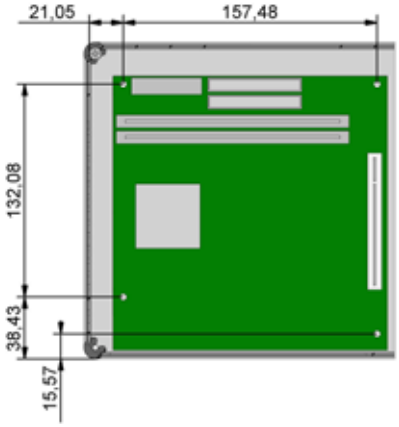
Detailed view of ATX-I/O shield



Detailed view of power supply cut-out / mounting holes

EmbedTEC system platform

// Product information



Detailed view of board mounting

// 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

Basic units

EmbedTEC series basic units are available as "Desktop PC" version.

Features of the basic units

EmbedTEC case, standard

EmbedTEC case, standard

Scope of delivery

Hood	1 pc
Corner bracket 54	4 pcs
Corner elements	4 pcs
Screw M4 x 60 A2	4 pcs

Delivery form

Individual components in units for self-assembly

Note

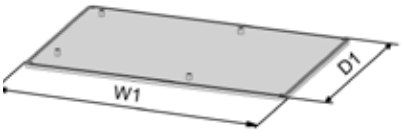
– Diagram shows EmbedTEC "Desktop PC" case with base plate. This is not supplied as standard
– The base plate must be ordered separately
– EMC and IP gasketing material must be ordered separately

Ordering table

H1 in mm	W1 in mm	D in mm	Order no.
63.2	296.6	196.6	**25 20 00 01**

EmbedTEC system platform

// Single components



Base plate

Base plate with mounting holes to accommodate ITX-standard mother boards

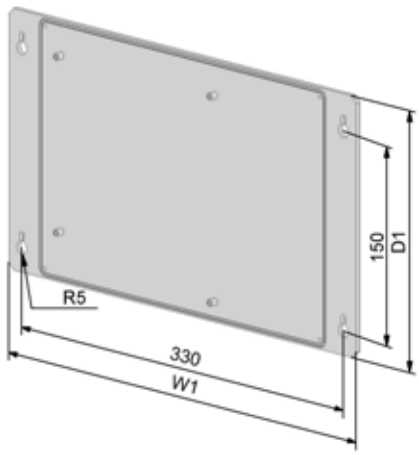
Material
Aluminum, powder-coated in anthracite metallic

Scope of delivery
Base plate 1 pc

Delivery form
In units for self-assembly

Ordering table

W1 in mm	D1 in mm	Order no
296.6	196.6	**25 20 10 01**



Base plate, wall mounting

Base plate with mounting holes

Material
Aluminum, powder-coated in anthracite metallic

Scope of delivery
Base plate 1 pc

Delivery form
In units for self-assembly

Note
Keyholes for mounting with M4

Ordering table

W1 in mm	D1 in mm	Order no
196.6	356.6	**25 20 10 02**

Corner bracket

Corner bracket for connecting / mounting hood and base plate

Material
Aluminum extrusion, anodized / contact surface raw length=134 mm

Scope of delivery
Corner bracket 1PU (4 pcs)

Delivery form
In units for self-assembly

Ordering table

Order no.
25 20 11 01

Corner element

Decorative screw washer

Material
Aluminum anodized

Scope of delivery
Corner element 1PU (4 pcs)

Delivery form
In units for self-assembly

Ordering table

Order no.
25 20 11 02

EmbedTEC system platform

// Single components

EMC shielding material/IP gaskets

To ensure that the electronic products function satisfactorily in your 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 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 - on request.

EMC/IP gasket kit

The EMC sheilding material is used to establish contact from the corner bracket and the base plate to the hood .

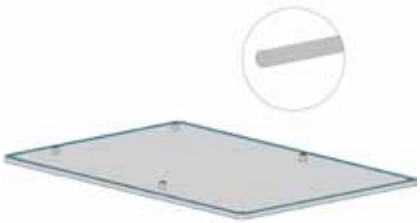
Material
D 1.5 x 2.0
Conductive mesh, CuNi covered

Round ø 1.0
Silicon strip with silver particles, 65 shore

Scope of delivery
By length (L=1000 mm)

Delivery form
In units for self-assembly

Note
– Thermal resistance: -40°C to +100°C



Ordering table

Description	Order no.
EMV Mesh over foam, form D	23 10 04 32
EMV Silicone with silver particles ø 1,0	96 48 60 01

EmbedTEC system platform
Case with various mounting options

Ruggedized systems
Overview

Ruggedized systems

Product information

POLYRACK offers under the heading "Ruggedized systems" a wide range of products according to international standards, as well as development platforms for custom-made solutions.

Mechanical, electrical, thermal and functional interaction of all system components is essential for a reliable operation in harsh environments and to cover massive environmental influences such as shock, vibration and temperature.

Our system solutions are based on international standards such as in example
VITA 48 VPX REDI for ruggedized systems
or MIL STD 810.

The overall system concept is determining the required standards. Standards are based on the individual system configurations in correspondence to the customer requirements.

The mechanical platform can be realized through sheet-metal-bend solutions, aluminum or magnesium die-cast solutions, continuous casting solutions or individual milling solutions. The choice of different aluminum alloys as well as different galvanized surface treatments - such as anodize or chromate - can be easily realized considering customer requirements.

VMEbus, CompactPCI, VPX and TCA backplanes are available for the integration in the various system configurations. Conformal coating can be applied to all backplanes upon request.

Convection and conduction cooling are common concepts for heat dissipation.

Typical areas for use of ruggedized systems:

- Railway and traffic engineering
- Aviation
- Mining industry
- Military

Our systems design and development engineers carry the experience and answer to your system requirements.

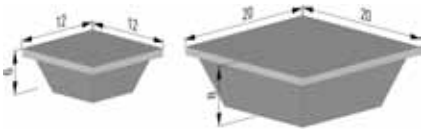
Accessories
Overview

//03 SYSTEM APPLICATIONS
ACCESSORIES

// Contents

ACCESSORIES

// 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)

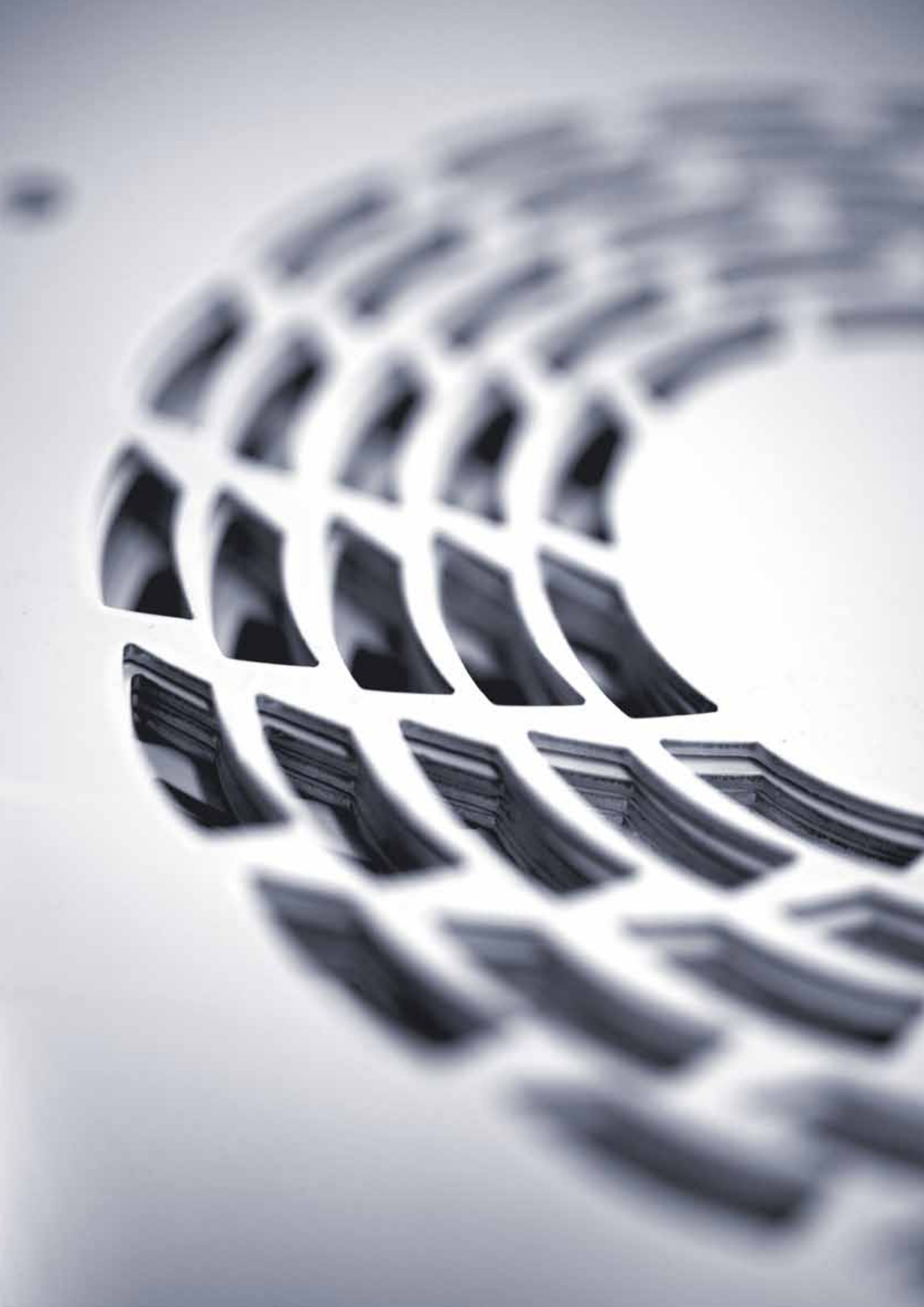
Delivery form
In units for self-assembly

Ordering table

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

Ordering table

Usage		Description	Version material	Standard	DIN-rail case Railo	PanelTEC case	PanelPC case	EmbedTEC system platform	Ruggedized syteme	Order no.	PU
Mounting to VESA mount		Cross-recessed pan head screw	M5 x 10 mm Stainless steel	DIN7985		●	●			79 91 86 00	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)



//SYS Appendix

// Glossary A - DIN

A

ABS
Acrylonitrile butadiene styrene (ABS) is in its raw form a colorless to gray plastic material; it has a high surface hardness and is therefore suitable for scratch-resistant and semi-gloss surfaces. It features good impact and oil resistance. ABS is used for automotive and electronic parts as well as cases for electronic devices.

AC
"Alternating Current" (AC): electric current which periodically reverses direction.

ADC
Automatic (mechanical or electronic) daisy chaining see also Daisy Chain/Daisy Chaining and EADC

ANSI
The "American National Standards Institute" (ANSI) is the American organization responsible for standardization (equivalent of the German DIN), which defined e.g. the codification of character sets for computers.

ASA-PC
The plastic blends made of acrylonitrile styrene acrylate (ASA) and polycarbonate (PC) have high thermal stability, good chemical resistance and excellent resistance to weather, aging and yellowing. (Trade marks i.e. Luran® S, Terblend S)

AT
"Advanced Technology" (AT) stands for a particular generation of circuit boards for personal computers. AT-class computers are characterized by the 80286 processor from the Intel Corporation or by the 16-bit ISA bus extension. For this reason the ISA-bus is also referred to as the AT-bus.

ATX
ATX refers to a main board layout specification that was defined by Intel. ATX boards are characterized by short cables to the hard drive which allows for high transfer rates, better ventilation of the CPU and the possibility to start the computer automatically.

B

Bridge
A bridge interconnects two independent bus architectures and coordinates the communication in both directions. A bridge can be designed as a plug-in card or as a piggyback module. For special applications the components that are required can be implemented on the backplane. The bridge can for example provide for a CompactPCI system with more than 8 slots or be used to interconnect different bus architectures.

C

CE
The CE mark (Conformité Européenne, meaning "European conformity") identifies conformity of a product with respect to product safety according to EU law. By applying the CE mark the manufacturer confirms that the product complies with the effective European Union regulations.

CompactPCI
"Compact Peripheral Component Interconnect Bus" (CompactPCI) is a registered trademark of the PCI Industrial Computer Manufacturers Group (PICMG). CompactPCI systems are standardized microcomputers. The main advantage of CompactPCI lies in its hot-swap capabilities.

CompactPCI PlusIO
Extension of the existing parallel data transmission of the CompactPCI busses according to PICMG 2.0R3.0 to include serial connection (USB, PCIexpress, Ethernet, etc.).
Enables the use of both data transmission approaches as a hybrid solution and opens the transfer to solely serial. The mechanics is based on the known IEEE 1101.10 standard.

D

Daisy Chain
A daisy chain is a number of hardware components that are connected in series. The first component is connected directly to the computer, and all other components are linked to each other in a chain.

Daisy Chaining
The connected components in a daisy chain can be allocated different priorities for the exchange of data, which is meant to prevent conflicts and malfunctions. Daisy chaining on a circuit board can be done either mechanically or electronically.

DC
"Direct Current" (DC): current with just one polarity

Differential Pair
Describes the pairwise coupling technology of serial data lines which work with a very high transmission rate. Routing, as well as the length and coaxial geometry are the determining parameters, enabling speeds >5Gbits. For this, special high-speed simulation tools are used during PCB design.

DIN
Abbreviation for "Deutsches Institut für Normung" (German Institute for Standardization): comparable to the American ANSI.

// Glossary DIN - H

DIN 41494 (replaced by: IEC 60297)
DIN 41494 is the basic specification for the 19" construction system. It is separated into different parts and defines the dimensions for the individual assemblies.

DIN 41612 (replaced by: IEC 60603-2)
DIN 41612 is the basic standard for printed circuit connectors. It defines the design and assembly characteristics for connectors

DIN 41617 (replaced by: IEC 60603-1)
DIN 41617 is the basic standard for printed circuit connectors. It defines the design and assembly characteristics for connectors.

DIN 6930-1
Specification for technical terms of delivery for punched parts made of steel.

DIN 6930-2
This specification defines the general tolerances for punched parts made of steel.

DIN 6932
This specification defines the design rules for punched parts made of steel.

DIN EN 12020-1
Specification for technical terms of delivery for extruded precision profiles made of aluminum or aluminum alloys.

DIN EN 12020-2
Specification for max/min dimensions and shape tolerances for extruded precision profiles made of aluminum or aluminum alloys.

Double Eurocard
The double Eurocard is a circuit board according to IEC 297-1. The card measures 233.35 mm x 160 mm. The term "double Eurocard" means that two cards can be inserted into the space one above the other.

E

EADC
"Electronic Automatic Daisy Chaining" (EADC) is for example used in VME64x and replaces the mechanical switch connector.

EMC
Electromagnetic Compatibility (EMC) is the ability of an electrical device to function properly in its electromagnetic environment, without negatively influencing this environment, which also includes other devices.
The specifications for electromagnetic compatibility are primarily based on three European norms.

The generic standard EN 50081 covers both emitted interference and interference immunity in residential, commercial and light industrial environments. The EN 55022 norm defines the limits and measurement procedures for RFI of IT equipment.

EN
The European Norms (EN) are rules which have been ratified by one of the three European standardization committees: the European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (CENELEC) or the European Telecommunications Standards Institute (ETSI).

EN 55022
This specification defines standards for information technology equipment and essentially covers the topics of radio interference and defines limits and measuring procedures.

EN 60950
This specification defines the safety of equipment for information technology.

ESD
Means both "Electrostatic Discharge" and "Electrostatic Sensitive Devices" (ESD).
"Electrostatic Discharge" is the process of charge equalization between solid, liquid or gaseous media that have different electrostatic charges. The charge equalization is usually accompanied by a spark or other sign of discharge.

ETSI
Members of the "European Telecommunications Standards Institute" (ETSI) include parts of the EU administration, European manufacturers and research institutes.
ETSI standards are referred to as ETS (European Telecommunication Standards).

Eurocard
The Eurocard is a circuit board according to IEC 297-1. The card measures 100 mm x 160 mm.

F

Fabric
Name for the switch-slot in networking bus topologies.

G

H

H.110
Extension of bus systems with a bus topology as required for telecommunication applications. This means e.g. providing special signal lines for the external connection of telephone installations (high-voltage test > 1.5 KV), as well as guaranteeing the supply of an operating voltage of 48 V.

Heat pipe
Metal pipe for dissipation of power loss on an electronic component (e.g. CPU). Inside the pipe there is (hermetically sealed) a vaporizable medium which improves dissipation of thermal energy. The pipe can be formed with a tool. The internal structures are also partially designed as capillary systems to improve the cooling effect. The heat pipe is used for convectional and conductive cooling in passively cooled assemblies.

Heat sink
Heat sink take over the heat dissipation in the environment by enlarging the surface of a component with power loss.

HF
High frequency (HF) is the designation for frequencies that are higher than audible sound waves (low frequency).
The frequency band from 3 to 30 MHz is also known as high frequency.

Hot swap
This refers to the exchange of computer components while the computer is running.
There are three defined stages:
1. Basic hot swap: the component that is going to be exchanged has to be deactivated beforehand or the computer configuration has to be changed first.
2. Full hot swap: software installed in the component that is to be exchanged or in another component takes care of activation or deactivation.
3. High availability model: a separate hot swap controller takes over the control centrally. This enables failed boards to be deactivated automatically and therefore prevents the computer from crashing.

HP
Abbreviation for "Horizontal Pitch" or standard width measurement which defines the width for plug-in modules in 19" construction system. One HP equals 5.08 mm.

I

IEC
Abbreviation for "International Electrotechnical Commission". The IEC is an international standards organization which is comprised of all national electrical engineering committees. It develops and adopts electrotechnical standards on a global level.

IEC 60297 (previously DIN 41494)
This is the generic specification for 19" technology. It is subdivided into 4 sections and defines the dimensions of the individual assemblies IEC 60297 defines in different sub-documents the mechanical structure of PCB's, subracks and cabinets of 19" construction. These specifications define the mechanical structure in terms of height, width and depth. Although the structure was defined on the basis of 19" the dimensions of the boards, subracks and frames are given in metric. The dimension 19" equals 482.6 mm.

IEC 60297-1
The specification 60297-1 defines front panel and rack dimensions. The dimensions given are linked to the following specification which defines the detailed dimensions of the 19" cabinets.

IEC 60297-2
This sub-document defines cabinet dimensions, incremented pitches for the subracks, covers, doors and bearing elements.

IEC 60297-3-101
Describes the dimensions for modular subracks and the plug-in boards.

IEC 60297-3-102
Supplements the previous sub-document 3-101 with mechanical fixtures for extracting and inserting boards.

IEC 60297-3-103
Specifies coding elements, guiding pins and guide rails.

IEC 60603-1 (previously DIN 41617)
This is the basic specification for PCB connectors. It defines the the design and assembly characteristics for connectors.

IEC 60603-2 (previously DIN 41612)
This is the basic specification for PCB connectors. It defines the the design and assembly characteristics for connectors.

IEC 821
The IEC 821 defines the specification for the VMEbus.

IEEE
The "Institute of Electrical and Electronics Engineers" (IEEE) is a non-profit organization which encourages and standardizes technical developments.

IEEE 1101.10
Standard which defines additional mechanical specifications for microcomputer systems. This specification applies to all microcomputer applications that have to conform to the 19" standard.

IEEE 1014
Defines the specification for the VMEbus.

IN-Board termination
The termination is positioned between the first and second and the last and next-to-last slots on the backplane. This has the advantage of not affecting the outer dimensions of the backplane due to the termination.

// Glossary IP - P

IP
"International Protection" (IP). IP protection classes define the protection of electrical devices against contact, foreign bodies or moisture. Cases and covers must be designed so as to meet the IP protection class requirements. The IP Protection Class is defined by an identification number.
The definitions and eyplonation for the IP identification numbers are given in the specifications DIN VDE 0470 Part 1, EN60529 and IEC 529.

In detail:

First digit	Protection against contact	Protection against foreign objects
0	Not protected	Not protected
1	Large body parts (back of hand)	Foreign objects ø > 50 mm
2	Fingers	Foreign objects ø > 12 mm
3	Tools and wires ø > 2.5 mm	Foreign objects ø > 2.5 mm
4	Tools and wires ø > 1.0 mm	Granular foreign objects ø > 1.0 mm
5	Complete protection against contact	Dust protected
6	Complete protection against contact	Dust tight

Second digit	Protection against water
0	Not protected
1	Dripping water (vertically falling drops)
2	Dripping water (falling at an angle of up to 15°)
3	Spraying water (max. 60°)
4	Splashing water
5	Water jets
6	Powerful water jets
7	Immersion up to 1 m
8	Immersion beyond 1 m

ISA
"Industry Standard Architecture" (ISA) refers to a bus that was developed by IBM and is still used today on almost all main boards for reasons of compatibility.

ISO
"International Organization for Standardization" (ISO) is an international board composed of representatives from all standards organizations.

J
JTAG
"Joint Test Action Group" (JTAG) defines an interface to test systems that enables a system test even for installed and complex electronic assemblies. Before the system is put into operation, a boundary scan of the individual assemblies and functions can be performed. In addition, the electronic assemblies can be programmed and also debugged.

K

L
LVDS
"Low Voltage Differential Signal" (LVDS), typical triggering mode for TFT displays.

M
MDC
Manual Daisy Chaining (MDC) with jumpers for VMEbus.

MPS
Based on a Microcomputer Packaging System (MPS), industrial microcomputers are built for VMEbus, VME, VME64x, CompactPCI and Industrial PC applications mainly in the industrial environment.

N
NEMA
The "National Electrical Manufacturers Association" (NEMA) is a federation of the electronics industry in North America. The NEMA controls a variety of standards in relation to the electronics industry such as the National Electrical Code.

Node
Name for the end-point slot of a network bus topology.

O
ON-Board-Termination
The termination is positioned before the first and after the last slot on the backplane, which increases the outer dimensions of the backplane by approximately 2 HP on both the right and left sides.

Open Frame
This term is used in connection with power supply units. So-called "open-frame power supplies" do not have a cover, which means that the electronic components in the power supply are easily accessible.

P
PA
Polyamides (PA) usually refer to synthetic and technically usable thermoplastics. Most of the technically significant polyamides are partially crystalline thermoplastic polymers and feature high mechanical strength, stiffness and durability. They also provide good chemical resistance and processibility.

PBT
Polybutylene terephthalate (PBT) is used e.g. for cases in the electrical and electronics industries and for connector housings. (Trade marks e.g. Ultradur, Crastin)

PC
In its transparent form polycarbonate (PC) is used for making light conductors. (Trade marks e.g. Lexan, Makrolon)

PC-ABS
Polycarbonate+ABS blends (PC+ABS) combine the advantages of PC and ABS – both materials are used in the electronic packaging industry. The impact resistance and heat resistance, the high-grade semi-gloss and scratch-resistant surface, and the high stiffness and durability should be particularly emphasized. A typical application is casings for electronic devices.

PCI
"Peripheral Component Interconnect" (PCI) defines a standardized bus structure for interfacing between peripherals and the chipset of a CPU, as well as being the basis for several other bus standards, like Compact-PCI and PCI-Express. It is used for normal PCs and also for industrial computer-based solutions.

PE
Polyethylene (PE) is a thermoplastic which is produced by polymerization of ethylene. Polyethylene is mainly used for making cable insulation and e.g. for shrink-wrap film.

PFC
The power factor defines the relationship between active power and apparent power for an electrical appliance. The higher the power factor for any given appliance, the higher its effectiveness. The power factor correction (PFC) serves to increase the effectiveness of an electrical appliance. This is achieved by the reduction of heat loss, reduction of high frequency EMC interference as well as by improvement of the mains voltage distribution process.

PICMG
The "PCI Industrial Computer Manufacturers Group" (PICMG) is a consortium of more than 600 companies that work in close cooperation to develop specifications for high-end telecommunications and industrial computer applications. The PICMG specifications include the CompactPCI for Eurocard formats.

PMMA
Polymethyl methacrylate (PMMA), also known as acrylic glass or Plexiglas, is a synthetic, glass-like thermoplastic. PMMA is generally used in display applications.

P0
The P0 is an additional I/O connection that can be freely allocated and is used in VME64x backplanes. It is positioned between the J1 and J2 levels. A PCI Bus or network bus can be connected to the P0. (See also VME64x specification ANSI/VITA 1.1-1994 thru 1.1-1997)

POM
Thanks to its high stiffness, low friction and excellent dimensional and thermal stability, polyoxymethylene (POM), also known as polyacetal, is used as a technical plastic typically for high-precision parts. (Trade marks e.g. Hostaform, Delrin)

PP
Polypropylene (PP), also known as polypropene, is a thermoplastic that is closely related to HDPE. It is used e.g. for making injection molded parts, fiber, thermoformed parts and semi-finished parts.

PPE or PPO
Polyphenyl ether (PPE), formerly polyphenylene oxide (PPO), is rarely used in its pure form. It is typically blended with polystyrene, impact-resistant styrene-butadiene copolymer or polyamide. The material is used for making formed parts in the electronics, household and automotive industries, where high heat resistance, dimensional stability and accurate dimensions play an important role. (Trade mark e.g. Noryl)

PS
Polystyrene (PS) is a transparent, amorphous or semi-crystalline thermoplastic. Polystyrene is used as thermoplastically processible material or as foamed material (expanded polystyrene). Well known trade marks for foamed polystyrene are Styropor and Styrodur. The material provides good isolation and is used in electronics for making switches, inductors and cases. (High Impact Polystyrene, HIPS)

PSB
"Packet Switching Bus" (PSB) defines the extension of the CompactPCI as PSB2.16 or the VME64x as VITA31 and describes the bus topology for extension with a network bus on backplane level.

PT® screw
Thread-forming or self-tapping screw for plastics (especially thermoplasts), used e.g. for card guides.

PU
Abbreviation for packaging unit.

PWM
"Pulse Width Modulation" (PWM), typical triggering mode for speed-controlled fans.

Q

R

REACH
"Registration, Evaluation, Authorisation and Restriction of Chemicals" is an EU regulation on chemicals and their safe use.

// Glossary REAR I/O - UPS

Rear I/O
The term Rear I/O has to do with bus circuit boards. Rear I/O are pins on the rear of bus circuit boards which can be freely allocated so that the user can connect his expansion cards as needed.

Redundancy
This describes the availability of backup for a system-relevant assembly and its function. This guarantees that in the event of a failure the function will be taken over by the redundant assembly. Especially in the case of power supplies, two equivalent power supplies are generally intelligently connected in parallel so that a failed assembly can be exchanged during operation using hot swap technology. Indication of these functions is generally handled via the standard interfaces.

RoHS
"Restriction of Hazardous Substances Directive" (RoHS) is the EU directive 2002/95/EG on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

RPM
"Revolutions per minute" (RPM), typical rotational speed signal for fans.

S

Shore
Shore hardness, named after Albert Shore, is a material parameter for elastomers and plastics and is defined in the specifications DIN 53505 and DIN 7868. To determine the hardness according to Shore the resistance of a material is measured as follows: a defined sample piece penetrates a material at a defined elastic force. The test results range from 0 to 100, whereby 0 represents the lowest and 100 the highest hardness. The hardness in Shore A is softer than that in Shore D, whereby there is an overlap between these two hardness scales. Example: 90 Shore A equals approximately 35 Shore D.

SMB
"System Management Bus" (SMB) is the bus structure used for bus systems for independent communication of system monitoring information. It is often based on a serial I²C bus and uses the IPMI protocol.

SMD
"Surface-mount device". These are electronic components that do not have connection wires but instead are mounted directly on the surface of an electronic circuit board and attached with solder.

SMT
"Surface-mount devices"(SMD), such as resistors, capacitors, unlike "wired components" using "through-hole technology" (THT), do not have connection wires but instead are mounted directly on to the surface of the PCB via soldered connection pins. This is called "surface-mount technology" (SMT).

T

Termination
Termination is a defined cable termination on a bus circuit board.

Touchscreen
Computer user interface (normally a specially coated glass plate) by means of which a technical device, usually a computer, can be directly controlled by touching specific program items. Mainly resistive or capacitive solutions are used for interaction with the screen. The controller needed for position analysis is connected to the main board via a standard interface (USB, serial, PS/2). Special drivers are needed amongst other for calibration.

TPE
Thermoplastic elastomers (TPE) are materials which can be processed thermoplastically and have properties that resemble those of rubber. TPE can be formed easily as they go through the plastic state during processing. They can be manufactured in hardnesses ranging from 5 Shore A up to 70 Shore D. Typical applications in the electronics industry are for parts such as IP seals or EMC shielding material.

U

U
Abbreviation for "Unit" (U) or standard height measurement. This defines the vertical height for plug-in modules in the 19" construction system.
1 U equals 44.45 mm

UL
"Underwriters Laboratory" (UL) is an independent organization which conducts safety tests and product certifications.

UL94
The UL94 standard "Tests for Flammability of Plastic Materials for Parts in Devices and Applications" from the Underwriters Laboratory (UL) describes a procedure to evaluate and classify the flammability of plastics.

UPS
"Uninterruptible power supply" (UPS): typically a parallel DC power supply via an additional rechargeable battery to back up the main power supply for a limited amount of time. Emergency operation is generally indicated via an additional interface, which can also be used for analysis (e.g. shut-down of the system).

V

VDE
Abbreviation for "VDE Verband der Elektrotechnik, Elektronik und Informationstechnik e.V." (Association for Electrical, Electronic & Information Technologies), based in Frankfurt am Main, Germany

VITA
Abbreviation for "VMEbus International Trading Association" (non-profit organization): Association of manufacturers and users of VMEbus products that has the goal of promoting and spreading VMEbus.

VME64x
Extension of the VMEbus to 64 bit technology. The extensions that are defined by IEEE 1101.10. (such as hot swap) are also integrated. The P0 connector provides the possibility for further bus extensions.

VMEbus
The VMEbus is a microcomputer bus system for real-time use. The VMEbus was originally designed by a consortium led by Motorola. Today the VMEbus is defined by the Standard IEEE 1014.

W

WEEE
WEEE is the abbreviation for "Waste Electrical and Electronic Equipment". This EU directive directive regulates the collection and recycling of electronic equipment. It also includes recycling rates for manufacturers.

WN
Abbreviation for "Werksnorm", POLYRACK's factory specifications

X

Y

Z

// Information on RoHS, REACH, WEEE

// RoHS

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