ELECTRONICS

CATALOGUE CHASSIS TECHNOLOGY











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For reasons of better readability, the language forms male, female and diverse (m/f/d) are not used simultaneously. All references to persons apply equally to all genders.

COMPANY OVERVIEW



COMPANY OVERVIEW AUTOMATION DIGITALIZATION AND ELECTRONICS



HEITEC is known for industrial expertise in automation, digitalization and electronics and offers solutions, products and services in the fields of software, mechanics and electronics. Its customers improve their productivity and optimise their products with the help of HEITEC's state-of-the-art, reliable and economical system solutions. A work force of over 1200 employees at numerous sites worldwide provides high-quality industry skills close to the customer.

Our experienced employees have in-depth, specialised technical knowledge and are also familiar with the specific requirements of industries such as:

- Systems and machine construction
- Energy technology
- Transportation
- Aerospace technology
- Medical technology
- Information and communication technology
- Measurement and testing technology

We are always finding new applications for this accumulated knowledge and experience, and thus have access to a wealth of tried-and-tested solutions for a variety of fields. Our design and manufacturing processes are audited and certified to meet the requirements of their respective sectors, guaranteeing the robustness and long service life of our products.





COMPANY OVERVIEW AUTOMATION DIGITALIZATION AND ELECTRONICS



DIGITALIZATION

Flexible production planning and control

HEITEC supports you in the digitalization of engineering, production, and business processes in the industrial environment. The HEITEC 4.0 solution portfolio helps you increase the availability and productivity of machines and plants throughout their entire lifecycle, thanks to the gradual, benefit-oriented implementation of Industry 4.0.

HEITEC not only boost productivity, it also create many options for you to successfully implement new business models like digital services with the aid of innovative solutions.

AUTOMATION

Faster to networked production

The solution portfolio from HEITEC's Business Unit Automation includes measurement and test engineering, robotics, complete production systems, and energy technology. As experts in automation and information technology, we can offer solutions for rapid production networking under the HEITEC 4.0 banner:

From digital plant and process planning to virtual commissioning and the monitoring of plants and manufacturing processes: our solutions make it possible to develop a smart factory with adaptive machines and systems, as well as decentralised manufacturing controls.

Practical, step-by-step introduction of Industry 4.0

- Optimisation of processes, plant and quality
- Shortened commissioning periods
- Reduced throughput times
- Reliable planning thanks to real-time data
- Optimised material and component consumption
- Improved construction quality



COMPANY OVERVIEW AUTOMATION DIGITALIZATION AND ELECTRONICS



What is it that makes HEITEC electronics so special?

Three areas of expertise – design, chassis technology and manufacturing – that work together smoothly to meet the increasingly complex requirements of our customers:

Design: This is based on our history as an expert service provider in the area of electronic design since the 1980s.

Chassis technology: A stable, modular system of chassis technology and an extensive library of proven hardware, software and mechanical building blocks from Rittal's former portfolio of electronic packaging systems.

Manufacturing: Since we know how important it is to manufacture products flexibly and yet cost-effectively, particularly when it comes to low and medium module quantities, our portfolio is rounded out by the right manufacturing capacities to meet your needs.

ELECTRONICS

From idea to product

Our comprehensive portfolio helps you to realise your system solution faster, more cost-effectively, with great flexibility and safely – from the module to the board design, all the way to the complete chassis. Thanks to our extensive experience from many projects, with differing levels of added value in a range of demanding industries and for many different target applications, we understand your specific requirements and reflect them in our solutions.

We have a comprehensive library of proven hardware, software and mechanical building blocks that we can draw on for every solution we create.

Expertise in tailor-made solutions

- Customer-specific products and solutions implemented faster, safer and cost-effectively
- Products perfectly optimised thanks to in-depth knowledge of the industry – including for demanding, regulated markets
- The same high design and manufacturing quality for both small and large series
- Optimised products with a large test depth
- Ongoing development of products throughout the entire lifecycle



COMPANY OVERVIEW EXPERTISE IN SOFTWARE, MECHANICS AND ELECTRONICS



INDUSTRY EXPERTISE: WE FOCUS ON THE APPLICATION

Our employees not only have profound technical specialist knowledge, they also have experience in numerous key indutries such as:

- Systems and machine construction
- Energy technology
- Transportation
- Aerospace technology
- Medical technology
- Information and communication technology
- Measurement and testing technology

This means we have an in-depth understanding of your requirements – even if these are not always explicitly formulated.









COMPANY OVERVIEW EXPERTISE IN SOFTWARE, MECHANICS AND ELECTRONICS

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QUALITY IS AT THE CORE OF OUR ACTIVITIES

Our products and services are based on established and certified processes, methods and quality management systems. In addition, we have industry-specific process know-how. Our competence in the design and manufacture of the corresponding components and systems is confirmed by a number of certificates.





Certifications, Standar	da Cuidalinaa
Quality	ISO 9001 ISO 27001
Medical	EN ISO 13485 EN 14971 EN 60601 EN 62304
Energy	NSQ 100 KTA-1401 KTA-3505
Transportation	EN50155/IEC 60571 EN50128
Aviation & Aerospace	DO-160 DO-178 DO-254
Communication	ETSI (European Telecommunications Standards Institute)
Industrial Automation	IEC 61508 IEC 61000 NEBS (Network Equipment-Building System)
19-inch-technology	IEC 60297 IEC 60917 IEC 61587

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COMPETENCE AND KNOW-HOW

Development of customer-specific systems Manufacturing and testing of electronic products for batch sizes starting at quantaty 1 Professional chassis technology from standard products to system solutions

We help you build the best system solutions

Our experience ranges from defining system architecture to developing and implementing individual components, through to manufacturing and integrating entire systems, throughout their entire life cycle. Coordinated processes guarantee excellent quality and provide the flexibility to adapt rapidly when new application requirements call for it. Our experienced employees have in-depth technical knowledge in their fields and understand the industry-specific requirements. Our design and manufacturing processes are coordinated with these requirements, and are audited and certified.

Our solutions minimize your design and production risks and can be applied to your product at lower cost and on time. We look after your products across their whole life span. We strive to offer you the best system solution every time, one that will give you a lasting competitive edge.

Everything comes with the same quality objective – whether it's for a "simple" board or for a more complex system comprising hardware, software and chassis technology.



COMPANY OVERVIEW HEITEC ELECTRONICS



From idea to product: Expertise in tailor-made solutions

To turn your electronic product, which is often not more than a concept at first, into reality, you need reliable partners. We know all the steps and processes needed to make the transition from system design to prototyping, the necessary tests and inspections, through to series production. We know how important it is for design, manufacturing and service interfaces to mesh together. We create targeted industry applications with all the necessary certification. Whether it's electronic modules with the associated firmware, chassis systems in rail-mounted format or any kind of industrial PC for complex, highavailability systems, our teams will be there even after the project is completed to offer consulting, change management, after-sales service and long-term availability. HEITEC can provide everything from a single source – you maintain an overview of your projects and we provide the support and coordinate all the processes.

Design	 A single contact from a Use of existing technol Use of proven building 	Manufacturing services design through to quality certific logy and industry expertise blocks and standard compone	cation and series productic	echnology on
	 You get to your product/ faster and at lower cos easier and more flexible 			
 PRODUCT DEFINITION Feasibility studies Architecture concepts Technology analyses Requirement analyses Creation of requi- rements and other specifications 	DESIGN CONSTRUCTION PROTOTYPING • System engineering • Chip design • Hardware design • Mechanics and construction • Chassis incl. EMC and heat dissipatio • Software engineering	FCC • EMC testing • Shock/vibration • Climate testing • Electrical safety	 VOLUME MANUFACTURING Component procurement/SCM Board assembly Component assembly System assembly System integration Function tests 	 POST- MANUFACTURING SERVICES Global supply logistics Repairs Returns management Obsolescence management Long-term supply guarantees Redesigns

- Library elements (software, mechanics and electronics)
- Wealth of experience from prior projects
- Chassis technology components and system platforms

CASES & ENCLOSURES

COMPANY OVERVIEW

SUBRACKS

COMPANY OVERVIEW PARTNERSHIP RITTAL – HEITEC



YOUR PARTNER FOR ELECTRONIC CHASSIS AND SYSTEMS

The current product portfolio offered by HEITEC AG in the area of electronic packaging systems and chassis is based originally on the corresponding product range from Rittal. Starting in early 2010, HEITEC has been steadily taking over this product range from Rittal and integrating it into its current range of products and services – constantly refining and expanding it. With the establishment of the Chinese subsidiary in 2020, the takeover of the electronic packaging business on an exclusive and global basis was fully completed.



COMPANY OVERVIEW HEITEC ELECTRONIC PACKAGING SYSTEMS



CONSISTENCY AND CONTINUITY

HEITEC not only maintains the original Rittal part numbers but guarantees consistency, product longevity, supply chain security and continuous enhancement of its broad product range.

HEITEC was originally able to guarantee global customer support thanks to its partnership with Rittal subsidiaries abroad. Today, HEITEC has its own global network of sales partners that ensure customer support right around the world.



COMPANY OVERVIEW PRODUCTS AND SERVICES

HEITEC's comprehensive portfolio of standard products and individual solutions gives you professional chassis technology – we "package" your electronics to suit your applications, every time.

We are constantly expanding this broad spectrum of chassis components, subracks, instrument cases and system enclosures as well as system platforms. We also offer individual adaptations to these products, in addition to special, customer-specific developments.

Selecting the right chassis technology is the basis for an efficient end product. Our skills are based on many years of experience covering everything from mechanical

design to ensuring electromagnetic compatibility and effective heat dissipation concepts for highly complex systems. If you would prefer to take responsibility for the bulk of the system integration process yourself, you can order individual components, pre-assembled components or system enclosures from us to suit your requirements. If you prefer pre-integrated or fully integrated solutions, incorporating your own hardware and software if needed, we can provide a complete service through to a customer-specific system solution.

We support you in exactly those areas that match your business model best.



From components through to the complete system

COMPANY OVERVIEW HEITEC ELECTRONIC PACKAGING SYSTEMS



SYSTEM SOLUTION	Ready-to-use, fully integrated with hardware and software	
PRE-INTEGRATED SYSTEMS	Partial or full integration of active modules and/or software	
SYSTEM PLATFORMS	Chassis incl. ventilation/cooling, power supply, backplane	
CHASSIS	Subracks, instrument cases and system enclosures, industrial PC, box-type plug-in units	
COMPONENTS	Individual components and accessories e.g. handles, front panels, EMC components	

CASES & ENCLOSURES

COMPONENTS & ACCESSORIES

TECHNOLOGY EXPERTISE

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COMPANY OVERVIEW PRODUCTS AND SERVICES

HEITEC is not just a manufacturer of hight-quality chassis solutions - it offers much more besides that. Various service offerings maximize customer benefits even from small quantities.

It doesn't matter if you want your preferred components assembled to suit your requirements, or if you need our experienced manufacturing staff to assemble all the mechanical, electrical and electronic components. We also strive to offer a long-term delivery capacity and delivery times to suit customer requirements.

Configuration

The wide range of variations available for chassis products means they can be combined easily and in many different ways

- \rightarrow Using the watchlist on the website, it is easy to compare products and make inquiries
- \rightarrow Easy-to-follow product tables make it easy to put your desired product together

Assembly

HEITEC production facilities offer the latest in certified assembly and manufacturing options

- ightarrow Skilled and reliable assembly, including final inspections, even for small unit quantities
- Assembly of individual parts, wiring, or even complete system configuration depending on what the customer needs

Logistics

HEITEC's experienced logistics team can develop individual logistics plans to suit customer requirements

- → Holding stocks of critical components for your project means HEITEC can guarantee a long-term delivery capacity
- \rightarrow HEITEC is a known consignor that delivers worldwide

Customised adaptations and system solutions

HEITEC can provide adjustments from single-part level through to customer-specific system solutions

- \rightarrow Front panel processing, special colors for chassis and decorative elements
- \rightarrow Design and manufacturing of individual, ready-to-use system solutions



WE CREATE YOUR ELECTRONIC WORLD

COMPANY OVERVIEW **HEITEC ELECTRONIC PACKAGING SYSTEMS**



Besides a multitude of standard products in this catalogue, we provide individual, tailor-made solutions.

We create custom products, such as custom drilled, milled, or printed front panels, subracks, or system enclosures that meet your exact requirements, as well as system configurations that are tailor-made for your application.

We create the right product for you!

Please do not hesitate to contact our specialists.





HeiPac subrack family

A minimum of components – a multitude of applications

SUBRACKS

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SUBRACKS

The modular concept of HeiPac subracks facilitates a wide range of application options with a minimum of components.

All HeiPac subracks are based on the same horizontal rails and system components. The difference lies in the design of the side panels and installation options. The only exception is the HeiPac EASY subrack system, which is based on a horizontal rail system of its own. All front systems can be universally applied for all subrack families.

The subracks are shock and vibration-tested and comply with IEC 60297-3-101, 102 and 103.



Compact subrack system in 21 HP and 42 HP

- · For rail or wall mounting
- A wealth of accessories
- EMC screening optional

→ Page 28

Rugged 19" subrack system for mobile use

- Increased mechanical strengthCertified for use in railway applications
- as per EN 50155 • A wealth of accessories
- EMC screening optional
- → Page 30

- Economical, rugged 19" subrack system
- Bolts pre-assembled
- convenient accessories
- Very easy to assemble
- EMC not available

→ Page 32

SUBRACKS HeiPac Vario / Vario EMC



For standard applications/EMC applications or complex installations

Applications

Subrack system for standard applications or complex installations. Suitable for installation of standardised PCBs or plug-in units from 160mm up to 400 mm depth.

Technical specifications

- 482.6 mm (19") subrack according to IEC 60297-3
- 3, 4, 6, 7 and 9 U
- For board depths up to 400 mm
- Side panels of aluminium, clear-chromated
- 10 mm mounting grids for horizontal rails
- Rear equipment for installation of backplanes
 or connectors
- Separate 19" flanges
- EMC version including EMC gaskets

Benefits at a glance

- Side panels with 10 mm mounting grid
- The HeiPac Vario is upgradeable to EMC
- 19" flanges optionally for front/rear mounting
- Wide range of standard sizes available
- For installation of backplanes or connectors
- Broad range of accessories



10 mm pitch pattern of holes allows many varieties



Components made of solid aluminium alloy



Contact springs made of stainless steel provide high EMC protection



Effective heat dissipation due to open design

EMC diagram for HeiPac Vario/Vario EMC



= Frequency

MHz

dB

1

2

3

4

HF-attenuation

E-Field = Electric field (V/m) EMC subrack

- E-Field standard subrack
- H-Field = Magnetic field (A/m) EMC subrack H-Field standard subrack

SUBRACKS HeiPac Vario

COMPANY OVERVIEW

HeiPac Vario 3 U, 6 U, 9 U





Material/surface finish

Side panels: Horizontal rails:	2.5 mm aluminium, clear-chromated Extruded aluminium section,
	clear-chromated
19" flanges:	Extruded aluminium section,
	clear-chromated

Supply includes

Flanges, side panels, horizontal rails, threaded inserts, insulating strips or Z rails.

Tests

Shock and vibration tested to: IEC 60068-2-6 IEC 60068-2-27

Standards

HeiPac subracks are based on the system dimensions of IEC 60297-3

Note

Upgradeable to EMC

						Order No.					
					[1	[2	3		
U						3		6	9		
Heigh	nt (H1) m	ım			132		265.35		398.70		
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For connector IEC 60603-2	For backplane	For connector IEC 60603-2	For backplane	For connector IEC 60603-2	
482.6	84	185	160	160	3684.020	3684.034	3684.043	3684.056	-	-	
(19")		225	200	160	3684.021	3684.035	3684.044	3684.057	-	-	
		245	220	220	3684.022	3684.036	3684.045	3684.058	-	-	
		285	260	220	3684.023	3685.281	3684.046	-	-	-	
		305	280	280	3685.231	3685.233	3685.238	3685.240	-	-	
		345	320	280	3684.024	-	3684.047	-	3684.051	3684.059	
		365	340	340	3685.232	3685.234	3685.239	-	-	-	
		405	380	340	3684.025	-	3684.048	-	3684.052	3684.060	
		465	440	400	3684.026	-	3684.049	-	3684.053	3684.061	
		525	500	400	3684.027	-	3684.050	-	3684.054	-	
		585	560	400	-	-	-	-	3684.055	-	

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance by phone or by mail at Tel. +49 9126 - 29 34 0 or electronics-quote @heitec.de.







2 Top: for backplane Bottom: for connector







SUBRACKS HeiPac Vario

HeiPac Vario 4 U, 7 U



Material/surface finish

Side panels:	2.5 mm aluminium, clear-chromated
Horizontal rails:	Extruded aluminium section,
	clear-chromated
19" flanges:	Extruded aluminium section,
	clear-chromated

Supply includes

Flanges, side panels, horizontal rails, threaded inserts, insulating strips or Z rails.

Tests

Shock and vibration tested to: IEC 60068-2-6 IEC 60068-2-27

Standards

HeiPac subracks are based on the system dimensions of IEC 60297-3 $\,$

Note

Upgradeable to EMC







BP 1+G

LEC CON 1

CON 1

Bottom: for connector

2 Top: for backplane

V 1

V 1

10











3 Top: for backplane (6 U + 1 U)
4 Bottom: for backplane (6 U + 2 x 1/2 U)

					[1	[2	3	4
U (H1 + H2)					4 (3 + 1)	4 (3 + 1)	4 (3 + 2 x ½)	4 (3 + 2 x ½)	7 (6 + 1)	7 (6 + 2 x ½)
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For connector IEC 60 603-2	For backplane	For connector IEC 60 603-2	For backplane	For backplane
482.6	84	245	220	220	3685.235	-	-	-	-	-
(19")		285 260 220 3684.028 368	3684.037	3684.031	3684.040	-	-			
		305	280	280	3685.236	-	-	-	-	-
		345	320	280	3684.029	3684.038	3684.032	3684.041	-	-
		365	340	340	3685.237	-	-	-	-	-
		405	380	340	3684.030	3684.039	3684.033	3684.042	3684.064	3684.062
		465	440	400	-	-	-	-	3684.065	3684.063

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SUBRACKS HeiPac Vario EMC

COMPANY OVERVIEW

HeiPac Vario EMC 3 U, 6 U, 9 U



2.5 mm aluminium, clear-chromated

Extruded aluminium section,

Extruded aluminium section,

clear-chromated

clear-chromated

Flanges, rear trim, side panels, EMC gaskets, covers, mounting blocks, horizontal rails, threaded inserts,

Aluminium, unplated

HeiPac subracks are based on the system dimensions of

Material/surface finish

Side panels:

19" flanges:

Covers:

Tests

Horizontal rails:

Supply includes

insulating strips

IEC 60068-2-6 IEC 60068-2-27

Standards

IEC 60297-3

Shock and vibration tested to:





BP 1+G V 1 BP-M 1+G V-Ext. 1 BP 1+G BP-M 1+G BP 1+G V 1 20 T V-Ext. 1

2 Bottom: for backplane/ front horizontal rail with

BP 1+G V 1 3 Top: for backplane

BP 1+G V 1

BP-M 1+G

BP-M 1+G

BP 1+G V

BP 1+G V

BP-M 1+G

BP-M 1+G

Bottom: for backplane/ front horizontal rail with 10 mm extension

							Orde	er No.		
					1		2		3	
U	U				3		6		9	
Heigh	Height (H1) mm				132		265.35	265.35		
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For backplane ¹⁾	For backplane	For backplane ¹⁾	For backplane	For backplane ¹⁾
482.6	84	245	220	160	3684.128	3684.142	3684.156	3684.169	-	-
(19")		285	260	220	3684.129	3684.143	3684.157	3684.170	-	-
		305	280	220	3685.241	3685.243	3685.242	3685.244	-	-
		345	320	280	3684.130	3684.144	3684.158	3684.171	3684.162	3684.175
		405	380	340	3684.131	3684.145	3684.159	3684.172	3684.163	3684.176
		465	440	400	3684.132	3684.146	3684.160	3684.173	3684.164	3684.177
		525	500	400	3684.133	3684.147	3684.161	3684.174	3684.165	3684.178
1)		585	560	400	-	-	-	-	3684.166	3684.179

¹⁾ Front horizontal rails with 10 mm extension for injector/extractor handles

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance by phone or by mail at Tel. +49 9126 - 29 34 0 or electronics-quote@heitec.de.

11 V 1	BP 1+0
	BP 1+0
11 V 1	BP 1+G
	BP 1+G
4	

1 Top: for backplane Bottom: for backplane/ front horizontal rail with 10 mm extension

Top: for backplane 10 mm extension

U-Ext. 1

CHOT V-Ext. 1

HEITEC ELECTRONIC PACKAGING SYSTEMS

SUBRACKS HeiPac Vario EMC

HeiPac Vario EMC 4 U, 7 U



Material/surface finish

Side panels:	2.5 mm aluminium, clear-chromated
Horizontal rails:	Extruded aluminium section,
	clear-chromated
19" flanges:	Extruded aluminium section,
	clear-chromated
Covers:	Aluminium, unplated

Supply includes

Flanges, rear trim, side panels, EMC gaskets, covers, mounting blocks, horizontal rails, threaded inserts, insulating strips

Tests

Shock and vibration tested to:
IEC 60068-2-6
IEC 60068-2-27

Standards

HeiPac subracks are based on the system dimensions of IEC 60297-3









3

bottom: for backplane/

front horizontal rail with 10 mm extension

I+G

BP 1+G

V1



4 Top: for backplane Top: for backplane bottom: for backplane/ bottom: for backplane/ front horizontal rail with 10 mm extension front horizontal rail with 10 mm extension

			Order No.									
						1		2		3		4
U (H1+H	H2)				4 (3 + 1)	4 (3 + 1)	4 (3 + 2 x ½)	4 (3 + 2 x ½)	7 (6 + 1)	7 (6 + 1)	7 (6 + 2 x ½)	7 (6 + 2 x ½)
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For backplane ¹⁾						
482,6	84	285	260	220	3684.134	3684.148	3684.137	3684.151	3684.187	3684.192	-	-
(19")		345	320	280	3684.135	3684.149	3684.138	3684.152	3684.188	3684.193	3684.189	3684.196
		405	380	340	3684.136	3684.150	3684.139	3684.153	3684.180	3684.194	3684.190	3684.197
		465	440	400	-	-	-	-	3684.181	3684.195	3684.191	3684.198

bottom: for backplane/

front horizontal rail with 10 mm extension

¹⁾ Front horizontal rails with 10 mm extension for injector/extractor handles

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance by phone or by mail at Tel. +49 9126 - 29 34 0 or electronics-quote@heitec.de.

SUBRACKS SYSTEM PLATFORMS FOR CPCI/CPCI SERIAL, VPX, VME



Systems for CompactPCI

Systems for CompactPCI Serial



Systems for VPX/openVPX



Systems for

VME/VME64x



Systems for ATCA/MTCA

BENEFITS AT A GLANCE

HEITEC offers adjustments on single part level up to customized system solutions for various backplane technologies. HeiPac Vario and HeiPac Vario EMC are perferctly suited for expansion as a customized solution.

In the area of backplane architectures, HEITEC can look back on many years of know-how, which includes, for example, systems with ATCA, CPCI/CPCI Serial, VPX/openVPX and VME/ VME64x. These technologies enable high scalability, flexibility and reliability in demanding industrial applications.

The systems, which HEITEC develops and manufactures according to customer requirements, contain ventilation/heating concepts tailored to the application, suitable power supplies, the necessary wiring and the complete system assembly including functional test.

HEITEC manufactures individual parts and housings according to CI specifications:

- Front panel processing like drilling/milling incl. labeling
- Additional customizations such as special heights, depths, widths or mechanical machining are available upon request
- Development and production of individual, application-ready system solutions



EMC Features

All components have a conductive surfaces: stainless steel EMC gaskets are connected to the individual components. EMC front panels with EMC gaskets ensure proper contacting.



ESD Protection

ESD pin and ESD Clip in the guide rail deflect electrostatic charging before contacting the plug-in-unit. ESD Clip in the PCB guide rail provides permanent and direct deflection via the PCB.



Ventilation

Small card guides and horizontal rails ensure maximum air flow. Individual ventilation concepts provide welldirected air ducting and ideal heat dissipation - optionally from bottom to top or from front to rear.

SUBRACKS HeiPac Vario ECO



Economical 19" subrack system for standard applications

Applications

Economical subrack system for standard applications. Suitable for installation of standardised PCBs or plug-in units of 160 and 220 mm depth.

Technical specifications

- Based on the HeiPac Vario subrack family, the basic components (horizontal rails) of the HeiPac Vario ECO are partly compatible with the HeiPac Vario.
- 482.6 mm (19") subrack according to DIN 41494, part 5/ IEC 60297-3
- 3 and 6 U
- For board depths: 160 mm and 220 mm
- Side panels of sheet steel, zinc-plated
- Pre-configured assembly points for horizontal rails
- Rear installation for backplanes (or optional for connector mounting)
- Separate 19" flanges

Benefits at a glance

- Fast and easy handling
- Low-cost version
- Upgradable for assembly of backplanes or connectors (see page 79 et seq.)



Optional EMC upgrade ensures high EMC protection



A wide range of accessories allow manifold expansions



Side panels made of zinc-plated sheet steel

Plug-in top covers facilitate an easy assembly

SUBRACKS HeiPac Vario ECO

COMPANY OVERVIEW

HeiPac Vario ECO 3 U, 6 U



Material/surface finish

Side panels: Horizontal rails: 1.5 mm sheet steel, zinc-plated Extruded aluminium section, clear-chromated Extruded aluminium section,

clear-chromated

Supply includes

Side panels, flanges, horizontal rails, threaded inserts, assembly screws

Tests

Flanges:

Shock and vibration tested to: IEC 60068-2-6 IEC 60068-2-27

Standards

HeiPac subracks are based on the system dimensions of IEC 60297-3.

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12	Ħ
Ξ.	Į
Br Br	\langle
	2



1 for backplane

0

• BP 3

BP 3

2 for backplane

BP 3

BP-M 1

BP 3

٧·

Order No. 2 1 **U** (H1) 3 6 Max. PCB depth B2 HP B1 Side panel T2 For For (T1) mm backplane mm mm backplane mm 482.6 84 3688.114 175 150 3688.116 160 (19") 235 210 220 3688.115 3688.117

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance by phone or by mail at Tel. +49 9126 - 29 34 0 or electronics-quote@heitec.de.

SUBRACKS HeiPac Vario COMPACT



For mounting plates or top-hat rails

Applications

Subrack system for direct mounting in a cabinet. Mounting either on top hat rails or on mounting plate. Suitable for installation of standardised PCBs or plug-in units.

Technical specifications

- Based on the HeiPac Vario subrack family, the basic components of the HeiPac Vario COMPACT are compatible with the HeiPac Vario.
- Subrack according to IEC 60297-3
- 3 and 6 U
- Side panels of aluminium, clear-chromated
- For board depths up to 160 mm
- Rear equipment for installation of backplanes
- Installation width: 21 and 42 HP

Benefits at a glance

- Direct mounting on a mounting plate or a top-hat rail
- Variable cable entry from bottom/top for EMC version
- Side panels with 10 mm mounting grids for variable
- system assemblySuitable for mounting backplanes
- Optionally in EMC version



Compact dimensions in 21 HP and 42 HP



Adapter for rail mounting



Contact springs provide high EMC protection

Flange for wallmounting

HeiPac Vario Compact 3 U, 6 U



1





COMPANY OVERVIEW

SUBRACKS

CASES & ENCLOSURES



B = Width

T = Depth

1 Top:

2 Bottom:

BP 1+G

BP 1+G

for top-hat rail

for mounting plate

HE = U

TE = HP

D 1 V 1



HeiPac Compact 3 U for

1 4

top-hat rail

BP 1+G

BP-M 1+G

BP 1+G



2 3 5 6 HeiPac Compact 3 U for mounting plate



5 Bottom: EMC for mounting

plate

DI V1 BP 1+G V 1 BP-M 1+G BP 1+G V 1

6 EMC for mounting plate

EM(

			Order No.				0	rder No. EN	NC	
	1	2	1	2	3	4	5	4	5	6
	3	3	3	3	6	3	3	3	3	6
	132	132	132	132	265.35	132	132	132	132	265.35
	21	21	42	42	42	21	21	42	42	42
	Top-hat rail	Mounting plate	Top-hat rail	Mounting plate	Mounting plate	Top-hat rail	Mounting plate	Top-hat rail	Mounting plate	Mounting plate
a Bidepth						or plane				
	3687.667	3687.669	3687.671	3687.673	3687.680	3687.682	3687.684	3687.686	3687.688	3687.690
	3687.668	3687.670	3687.672	3687.674	3687.681	3687.683	3687.685	3687.687	3687.689	3687.691

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance by phone or by mail at Tel. +49 9126 - 29 34 0 or electronics-quote@heitec.de.

Material/surface finish

Side panels: Horizontal rails:	2.5 mm aluminium, clear-chromated Extruded aluminium section,
	clear-chromated
Flanges:	Extruded aluminium section,
	clear-chromated

Supply includes

Side panels, horizontal rails, threaded inserts, insulating strips, flanges for mounting plates, front/rear panels for top-hat rail adaptors

EMC version additional includes: EMC gaskets, covers, front/rear panels, cable entry

Tests

U

ΗP

mm

225

285

Height (H1) mm

Attachment Side

panel (T1)

Shock and vibration tested to: IEC 60068-2-6 IEC 60068-2-27

Standards

HeiPac subracks are based on the system dimensions of IEC 60297-3.

Max.

PCB

mm

T2

mm

200 160

260 220

10
õ
U7
\leq

SUBRACKS HeiPac Vario HEAVY



For heavy loads in mobile applications and tough ambient conditions

Applications

The standard product line HeiPac Vario HEAVY was specifically designed for use under rough environmental conditions and for mobile applications, such as for example railway or naval technologies.

The subrack system is shock and vibration-tested in accordance with EN 50155 and DIN EN 61587-1&2, and is designed to accommodate standardised PCBs.

Technical specifications

- rack-mount system in accordance with IEC 60297-3
- 3 and 6 U
- Clear-chromated aluminium side panels
- For card formats up to 220 mm deep
- Front horizontal rails with 10 mm extension for injector/extractor handles
- · Horizontal rails with double screw fastening
- Reinforced mounting flange
- Rear equipment for installation of backplanes
- Installation width: 84 HP

Benefits at a glance

- Side panels with 10 mm mounting grids for variable system assembly
- For mounting backplanes
- Optionally in EMC version



Extensive accessories allow for a wide range of expansion options



Horizontal rails with double screw fastening provide high mechanical strength



Reinforced flange ensures high resistance to shock and vibrations



EMC can be retrofitted

Shock/vibration profile HeiPac Vario HEAVY

Shock/vibration testing in accordance with : IEC 61587-1 DL2V/DL2S for use in different locations

Shock/vibration testing in accordance with : EN 50155 EN 61373, category 1, class B



SUBRACKS **HeiPac Vario HEAVY**

COMPANY OVERVIEW

HeiPac Vario HEAVY 3 U, 6 U



Material/surface finish

Side panels: Horizontal rails:	2.5 mm aluminium, clear-chromated Extruded aluminium section,
	clear-chromated
Flanges:	Extruded aluminium section,
	clear-chromated

Supply includes

Side panels, flanges, horizontal rails, threaded inserts, assembly screws

Tests

Shock and vibration tested in accordance with: DIN EN 61587-1&2 EN 50155

Standards

HeiPac subracks are based on the system dimensions of IEC 60297-3.

			Order No.		Order No.	
			without handle holes		with handle holes	
			1	2	1	2
U			3	6	3	6
Height (H1)	mm		132	265.35	132	265.35
HP			84	84	84	84
Side panel (T1) mm		Max. PCB depth mm				
245	220	160	9921.860	9921.862	9921.864	9921.866
305	280	220	9921.861	9921.863	9921.865	9921.867

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance by phone or by mail at Tel. +49 9126 - 29 34 0 or electronics-quote@heitec.de.

V 2 BP 2 97.ES σ 5-15 പല V-Ext. 3 BP 2

1



2

SUBRACKS HeiPac EASY



Economical, rugged 19" subrack system

Applications

Subrack system for standard applications that require easy handling and fast assembly. Suitable for installation of standardised PCBs or plugin units up to 400 mm depth.

Technical specifications

- 482.6 mm (19") subrack according to IEC 60297-3
- 3 and 6 U
- For board depths: 160 mm, 220 mm, 280 mm, 340 mm, 400 mm
- Fast and easy assembly due to pre-assembled screws and longitudinal holes in the side panels
- Horizontal rails with double screwed joint
- Material: aluminium, noncorrosive
- 60 mm mounting grids for horizontal rails
- Rear horizontal rails with integrated contact surface
- Rear equipment for installation of backplanes or connectors
- Separate 19["] flanges

Benefits at a glance

- Fast and easy handling by pre-assembled screws in the horizontal rails
- Top covers easily insertable
- Horizontal rails with integrated contact surface (insulating strips cannot be used)
- Double screw joints of horizontal rails ensure stability even for high loads



EASY completely assembled in two minutes



Horizontal rails with double screwed joint ensure a higher mechanical resistance



Top covers easily to retract



EASY to handle and yet extremely versatile

Requirement Profile HeiPac EASY

EN 61587-1; Requirement Category C2 Climatic tests: cold, dry and damp heat, cyclic

EN 61587-1; Requirement Category A1 Industrial climate

IEC 61587-1; Requirement Category SL1 Mechanical tests: mechanical loads (static)

IEC 61587-1; Requirement Category DL1

Mechanical loads, industrial applications (dynamic)

SUBRACKS HeiPac EASY

COMPANY OVERVIEW

HeiPac EASY 3 U, 6 U



Material/surface finish

Side panels: Horizontal rails: 2 mm aluminium, unplated extruded aluminium section, noncorrosive pre-anodised

Max.

mm

220

280

340

PCB depth

Т2

mm

160 160

220

280

340

400 400

Supply includes

Side panels, flanges, horizontal rails incl. pre-mounted threaded inserts and assembly screws

Tests

Flanges:

Shock- and vibration tested to: IEC 60068-2-6 IEC 60068-2-27

Standards

HeiPac subracks are based on the system dimensions of IEC 60297-3

Side panel

(T1) mm

175

235

295

355

415

or by mail at Tel. +49 9126 - 29 34 0 or electronics-quote@heitec.de

Note

U (H1)

B2

HP

84

B1

mm

482.6

(19")

Backplanes can be mounted directly on the rear horizontal rails. Isolating strips cannot be used.







Bottom: for connector

1

For

connector

3634.150

3634.160

3634.170

_

IEC 60603-2

3

For

backplane

3634.100

3634.110

3634.120

3634.130

3634.140

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance by phone

Order No

6

For

backplane

3634.180

3634.190

3634.200

3634.210

3634.220



Top: for backplane 2 Bottom: for connector

2

For

connector IEC 60603-2

3634.230

3634.240

3634.250

COMPONENTS & ACCESS					
OMPONENTS & ACCI	¢	J			
OMPONENTS & ACC			Ļ		
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OMPON					
NO	1				
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2	11				

HEITEC Instrument Cases and System Enclosures High Functionality and Modern Design

INSTRUMENT CASES AND SYSTEM ENCLOSURES

INSTRUMENT CASES AND SYSTEM ENCLOSURES OVERVIEW

The HeiCase instrument case impresses with its modern design and high functionality. Particular features include the numerous colour variants and the all-metal enclosure construction. The HeiPac Vario-Module system enclosure (instrument case or rack-mount enclosure) is fully compatible with the latest HeiPac subrack range, making it ideal for individual configuration and assembly as a microcomputer system.

At just 1 U and 2 U, the HeiBox system enclosure offers a high packaging density in the smallest space.



High-quality 1 U 19" system enclosure

- Optionally for use as an instrument case or rackmount enclosure
- For horizontal installation of standardised 6 U boards
- For individual expansion
- High-quality aluminium design
- Extremely easy to assemble
- EMC upgradeable
- Page 36

Economical 1 U and 2 U 19" system enclosure

- Optionally for use as an instrument case or rackmount enclosure
- For individual expansion
- Extremely easy to assemle
- Low-cost design made of sheet steel
- EMC upgradeable

→ Page 38

HeiPac Vario-Module

HeiCase



Universal 19" system enclosure

- Optionally for use as an instrument case or rackmount enclosure
- Varied selection of sizes
- Flexibel design options
- Wide range of accessories
- EMC upgradeable

Page 40



- Instrument case for the installation of 19"- slide-in assemblies and- elements
- For individual expansion
- Outstanding stability
- Varied selection of sizes
- Flexibel design options
- Wide range of accessories
- Modern design

INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiBox ALU



Innovative system enclosure for standard applications

Applications

The HeiBox ALU is optionally for use as an instrument case or rack-mount enclosure. Accommodates Eurocards/ Double Eurocards (horizontal), switches, patch panels, routers or modems.

Technical specifications

- 19" system enclosure, complies with IEC 60297-3
- Optionally for use as an instrument case or rack-mount enclosure
- Height: 1 U
- Installation width: 84 HP
- Optionally with mounting kit for 1 Double Eurocard
- Mounting plate (accessory) for individual population
- Extruded aluminium section
- Protection category IP 40

Benefits at a glance

- Minimum space requirement
- Easy and fast mounting
- High-quality design
- EMC upgradeable
- Individual assembly according to customer needs



Installation of standardised 6 U boards with mounting kit



Solid, high-quality design of extruded aluminium section



High EMC protection with additional EMC kit



Easy to assemble with just 4 screws
INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiBox ALU

HeiBox system enclosure 1 U



Technical specifications

System enclosures 1 U, 150, 200, 250, 300, 350 mm deep. Easy to assemble with just 4 screws. Optionally for use as an instrument case or 19" rack-mount enclosure. Front panel to hold an overlay to conceal the screws.

Maximum interior space. Optional EMC upgrades with additional EMC gaskets.

Option of installing electronic boards such as 1 VME or CPCI board horizontally.

Design

System enclosure 1 U, to IEC 60297-3. Optionally available for 19" rack-mounting in the enclosure or as an instrument case version.



2 Equipped as a rack-mount unit

Material/surface finish

Side panels: Base/cover trays: Front/rear panel: Mounting plate: Extruded aluminium section, untreated Aluminium, clear-chromated Extruded aluminium section, clear-chromated Aluminium

U	1	1	1	1	1	1	1
Width (B1) mm	447	447	447	447	447	447	447
Width (B2) mm	482.6 (19")	482.6 (19")	482.6 (19")	482.6 (19")	482.6 (19")	482.6 (19")	482.6 (19")
Depth (T) mm	150	200	250	300	350	250	350
Model No. instrument case	3687.819	3687.820	3687.821	3687.822	3687.823	-	-
Model No. rack case	3687.814	3687.815	3687.816	3687.817	3687.818	-	-
Model No. rack-mount including mounting kit for double Euroboards	-	-	-	-	-	3684.072	3684.073
Supply includes							
Side panel	2	2	2	2	2	2	2
Front panel	1	1	1	1	1	1	1
Rear panel	1	1	1	1	1	1	1
Base/cover tray	2	2	2	2	2	2	2
Mounting kit	-	-	-	-	-	1	1
Accessories							
EMC set	9919.999	9919.999	9919.999	9919.999	9919.999	9919.999	9919.999
Mounting plate	3684.074	3684.075	3684.076	3684.077	3684.078	-	-

INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiBox ECO



Well-priced system enclosure for standard applications

Applications

The HeiBox ECO is for use as a rack-mount enclosure. Accommodates Eurocards/Double Eurocards (horizontal), switches, patch panels, routers or modems.

Technical specifications

- 19" system enclosure, complies with IEC 60297-3
- For use as a rack-mount enclosure
- Height: 1 U and 2 U
- Installation width: 84 HP
- Enclosure made of sheet steel, front panel and rear panel made of extruded aluminium section
- Optionally available as an instrument case or rack-mount enclosure
- Optional: highly effective EMC protection

Benefits at a glance

- Minimum space requirement
- Well-priced and solid
- Easy and fast mounting
- EMC upgradeable
- Individual assembly according to customer needs



Available as instrument case with individual spray finish upon request



Easy to assemble with just 4 components



High EMC protection with additional EMC kit



Aluminium rear panel easy to process

INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiBox ECO

HeiBox ECO system enclosure 1 U and 2 U



Technical specifications

System enclosures 1 U and 2 U, 150 mm up to 400 mm deep. Easy to assemble with just 4 components. Optionally for use as an instrument case or 19" rack-mount enclosure. Maximum interior space. Optional EMC upgrades with additional EMC gaskets.

Design

System enclosure 1 U and 2 U, to IEC 60297-3. Optionally available for 19" rack-mounting in the enclosure or as an instrument case version on customer request.

Supply includes

Front panel Cover Base tray Rear panel Assembly parts



- 1 Equipped as an instrument case
- 2 Equipped as a rack-mount unit

Material/surface finish

Front/rear panel:	sheet steel Extruded aluminium section, clear-chromated sheet steel
-------------------	---

Note

Upon request, the HeiBox ECO is also available as 2 U version as well as instrument case with individual spray finish.

				Order No.				
Width (B1) mm	Width (B2) mm	Depth (T) mm	1 U	2 U				
447	482,6 (19")	150	9919.795	9922.394				
		200	9919.796	9922.395				
		250	9919.797	9922.235				
		300	9919.798	9922.396				
		350	9919.799	9922.397				
		400	-	9921.809				
		450	-	9920.864				
Accessories								

EMC set

Other customised solutions regarding dimensions and coloring are available upon request. Please get in contact with one of our sales representatives for further assistance by phone or by mail at Tel. +49 9126 - 29 34 0 or electronics-quote@heitec.de.

9919.800

INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiPac Vario-Module



Modern system enclosure for mobile and stationary applications

Applications

Optionally for use as an instrument case or rack-mount enclosure. Accommodates PCBs or plug-in units. For mobile and stationary applications.

Technical specifications

- 19" system enclosure, complies with IEC 60297-3
- Optionally for use as an instrument case or rack-mount enclosure
- Basic case optionally with bottom or top cover
- Height: 2 7 U
- Installation width: 42, 63, 84 HP
- Depth: 250 430 mm
- Variable depth interior installation
- Extruded aluminium sectionProtection category IP 40

Benefits at a glance

- Easy modification from instrument case to rack-mount system
- Broad range of accessories
- Aesthetic design
- Basic case with variable expansions
- Optional EMC version



Customization and coloration possible



Flange for 19" installation



Interior fittings from the HeiPac Vario range



Front corner trims for assembly as instrument case

INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiPac Vario-Module

HeiPac Vario-Module 2 U



Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions to IEC 60297-3 for installation in enclosures, 482,6 mm (19"). Installation dimensions for plugin units according to IEC 60297-3-101.

Protection category

IP 40 for non-vented version

Installation width (HP)

Mod.No. VM basic case

Width (B1) mm

Width (B2) mm

Depth (T) mm

Also required Top covers with vent holes

Bottom covers

with vent holes

- without vent holes

without vent holes

as instrument case Flanges for configuration as rack-mount system

 without handle holes Accessories Front/rear panels

Rear adjustable feet

Front corner trims for assembly

Supply includes

- 2 side panels
- 4 horizontal rails
- 4 threaded inserts
- 2 corner trims fror the rear of the enclosure Assembly parts
- 1

2

- Equipped as an instrument case
 - Equipped as a rack-mount enclosure

Packs of

2

2

4

42

235.6

251.6

250.4

3982.000

3982.941

3982.901

3982.741

3982.701

3981.300

3981.200

3901.000

see page 50 - 51

further assistance by phone or by mail at Tel. +49 9126 - 29 34 0 or electronics-quote@heitec.de

42

235.6

251.6

310.4

3982.020

3982.951

3982.911

3982.751

3982.711

3981.300

3981.200

3901.000

Other customised solutions regarding dimensions and colouring are available upon request. Please get in contact with one of our sales representatives for



Material/surface finish

Side panels:

Horizontal rail: Side trim panels:

63

342.3

358.3

250.4

3982.290

3982.942

3982.902

3982.742

3982.702

3981.300

3981.200

3901.000

Extruded aluminium section, spray-finished in grey (RAL 7035) Extruded aluminium section, clear-chromated Extruded aluminium section, spray-finished in grey (RAL 7035)

Note

Corner trims, mounting flanges for the front of the enclosure and top/bottom covers have to be ordered separately.

84

449.0

465.1

250.4

3982.010

3982.940

3982.900

3982.740

3982.700

3981.300

3981.200

3901.000

Horizontal rails for additional installations have to be ordered separately, see page 68

21

63

342.3

358.3

310.4

3982.300

3982.952

3982.912

3982.752

3982.712

3981.300

3981.200

3901.000

Exemplary horizontal rail configuration BP 1 V 1



84

449.0

465.1

310.4

3982.030

3982.950

3982.910

3982.750

3982.710

3981.300

3981.200

3901.000

47

47

47 47

49

48

49

Paga	
Page	

COMPONENTS & ACCESSORIES

SUBRACKS

CASES & ENCLOSURES

INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiPac Vario-Module

HeiPac Vario-Module 2 U, EMC



Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions according to IEC 60297-3 for installation in enclosures, 482.6 mm (19"). Installation dimensions for plug-in units according to IEC 60297-3-101.

Protection category

IP 40 for non-vented version.

Supply includes

- 2 side panels
- 4 horizontal rails
- 4 threaded inserts
- 2 corner trims fror the rear of the enclosure
- Assembly parts



2 Equipped as a rack-mount enclosure



Material/surface finish

Side panels:

Horizontal rail: Corner trims:

Contact points:

Extruded aluminium section, spray-finished in grey (RAL 7035) Extruded aluminium section, clear-chromated Extruded aluminium section, spray-finished in grey (RAL 7035) conductive

Note

Corner trims, mounting flanges for the front of the enclosure and top/bottom covers have to be ordered separately.



Exemplary horizontal rail configuration

Packs of 211 Page Installation width (HP) 42 42 63 63 84 84 235.6 342.3 449.0 Width (B1) mm 235.6 342.3 449 0 251.6 251.6 358.3 465.1 465.1 Width (B2) mm 358.3 Depth (T) mm 250.4 310.4 250.4 310.4 250.4 310.4 Mod.No. VM basic case EMC 3983.000 3983.020 3983.290 3983.300 3983.010 3983.030 Also required Top cover with vent holes 3981.941 3981.951 3981.942 3981.952 3981.940 3981.950 47 without vent holes 3981.901 3981.911 3981.902 3981.912 3981.900 3981.910 47 1 Bottom covers 3981.751 3981.711 47 47 3981.741 3981.742 3981.752 3981.740 3981.750 with vent holes 3981.700 3981.701 3981.702 3981.712 3981.710 without vent holes 1 Corner trims for assembly 2 3981.300 3981.300 3981.300 3981.300 49 3981.300 3981.300 as instrument case Flanges for configuration as rack-mount enclosure - without handle holes 2 3981.200 3981.200 3981.200 3981.200 3981.200 3981.200 48 **EMC** installation EMC gaskets, horizontal - for upper/lower 3684.808 3684.808 3684.808 85 3684.808 3684,808 3684.808 1 horizontal rail between covers and 10 3684.245 3684.245 3684.245 3684.245 3684.245 3684.245 89 horizontal rails EMC gaskets, vertical 3686.974 3686.974 3686.974 3686.974 3686.974 3686.974 51 1 Front/rear panels EMC see page 50 - 51 Accessories Rear adjustable feet 4 3901.000 3901.000 3901.000 3901.000 3901.000 3901.000 49

INSTRUMENT CASES AND SYSTEM ENCLOSURES **HeiPac Vario-Module**

HeiPac Vario-Module 3 U



Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions according to IEC 60297-3 for installation in enclosures, 482.6 mm (19"). Installation dimensions for plug-in units according to IEC 60297-3-101.

Protection category

IP 40 for non-vented version.

Supply includes

- 2 side panels
- 4 horizontal rails
- 4 threaded inserts
- 2 corner trims fror the rear of the enclosure Assembly parts
- 1

2

Equipped as an instrument case

Equipped as a rack-mount enclosure



Material/Surface finish

Horizontal rail: Corner trims:

Side panels:

Extruded aluminium section, spray-finished in grey (RAL 7035) Extruded aluminium section, clear-chromated Extruded aluminium section, spray-finished in grey (RAL 7035)

Note

see pages 68

Corner trims, mounting flanges for the front of the enclosure and top/bottom covers have to be ordered separately.

Horizontal rails for additional installations
have to be ordered separately,

Exemplary horizontal rail configuration BP 1 V 1 BP 1 V 1 3 U

	Packs of				3 U				Page
Installation width (HP)		42	42	63	63	84	84	84	
Width (B1) mm		235.6	235.6	342.3	342.3	449.0	449.0	449.0	
Width (B2) mm		251.6	251.6	358.3	358.3	465.1	465.1	465.1	
Depth (T) mm		250.4	310.4	250.4	310.4	250.4	310.4	370.4	
Mod.No. VM basic case	1	3982.040	3982.070	3982.050	3982.080	3982.060	3982.090	3982.100	
Also required									
Top covers - with vent holes - without vent holes	1	3982.941 3982.901	3982.951 3982.911	3982.942 3982.902	3982.952 3982.912	3982.940 3982.900	3982.950 3982.910	3982.960 3982.920	47 47
Bottom covers - with vent holes - without vent holes	1	3982.741 3982.701	3982.751 3982.711	3982.742 3982.702	3982.752 3982.712	3982.740 3982.700	3982.750 3982.710	3982.760 3982.720	47 47
Front corner trims for assembly as instrument case	2	3981.310	3981.310	3981.310	3981.310	3981.310	3981.310	3981.310	49
Flanges for configuration as rack-mount system - without handle holes - with handle holes	2	3981.210 3981.260	48						
Accessories									
Front/rear panels	see page	9 50 - 51							
Carrying handles	2	3981.350	3981.360	3981.350	3981.360	3981.350	3981.360	3981.370	49
Front handles 1)	2	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	136
Rear adjustable feet	4	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	49

¹⁾ Only in conjunction with mounting flanges with handle holes.

INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiPac Vario-Module

HeiPac Vario-Module 3 U, EMC



Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions according to IEC 60297-3 for installation in enclosures, 482.6 mm (19["]). Installation dimensions for plug-in units according to IEC 60297-3-101.

Protection category

IP 40 for non-vented version.

Supply includes

- 2 side panels
- 4 horizontal rails

2

- 4 threaded inserts
- 2 corner trims fror the rear of the enclosure
- Assembly parts

1 Equipped as an instrument case

Equipped as a rack-mount enclosure

B = Width T = Depth HE = U TE = HP EENC

Material/surface finish

Side panels: Horizontal rail:

Corner trims: Contact points: Extruded aluminium section, spray-finished in grey (RAL 7035) Extruded aluminium section, clear-chromated Extruded aluminium section, spray-finished in grey (RAL 7035) conductive

Note

Corner trims, mounting flanges for the front of the enclosure and top/bottom covers have to be ordered separately.

Horizontal rails for additional installations have to be ordered separately, see pages 68

Exemplary horizontal rail configuration

	Packs of				3 U				Page
Installation width (HP)		42	42	63	63	84	84	84	
Width (B1) mm		235.6	235.6	342.3	342.3	449.0	449.0	449.0	
Width (B2) mm		251.6	251.6	358.3	358.3	465.1	465.1	465.1	
Depth (T) mm		250.4	310.4	250.4	310.4	250.4	310.4	370.4	
Mod.No. VM basic case EMC	1	3983.040	3983.070	3983.050	3983.080	3983.060	3983.090	3983.100	
Also required									
Top covers - with vent holes - without vent holes	1 1	3981.941 3981.901	3981.951 3981.911	3981.942 3981.902	3981.952 3981.912	3981.940 3981.900	3981.950 3981.910	3981.960 3981.920	47 47
Bottom covers - with vent holes - without vent holes	1	3981.741 3981.701	3981.751 3981.711	3981.742 3981.702	3981.752 3981.712	3981.740 3981.700	3981.750 3981.710	3981.760 3981.720	47 47
Front corner trims for assembly as instrument case	2	3981.310	3981.310	3981.310	3981.310	3981.310	3981.310	3981.310	49
Flanges for configuration as rack-mount system - without handle holes - with handle holes	22	3981.210 3981.260	48						
EMC installation							•		
EMC gaskets, horizontal - for upper/lower horizontal rail - between covers and horizontal rails	1 10	3684.808 3684.245	85 89						
EMC gaskets, vertical	1	3686.975	3686.975	3686.975	3686.975	3686.975	3686.975	3686.975	51
Front/rear panels EMC	see page	e 50 - 51							
Accessories									
Carrying handles	2	3981.350	3981.360	3981.350	3981.360	3981.350	3981.360	3981.370	49
Front handles 1)	2	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	136
Rear adjustable feet	4	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	49
⁰ Only in conjunction with mounting fland	nes with han	dle holes							

¹⁾ Only in conjunction with mounting flanges with handle holes.

INSTRUMENT CASES AND SYSTEM ENCLOSURES **HeiPac Vario-Module**

HeiPac Vario-Module 4 U, 6 U, 7 U



Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions according to IEC 60297-3 for installation in enclosures, 482.6 mm (19"). Installation dimensions for plug-in units according to IEC 60297-3-101.

Protection category

IP 40 for non-vented version.

Supply includes

- 2 side panels
- 4 horizontal rails
- 4 threaded inserts
- 2 corner trims fror the rear of the enclosure
- 2 side trims center
- Assembly parts

1 Equipped as an instrument case

2 Equipped as a rack-mount enclosure



Material/Surface finish

Side panels: Horizontal rail: Corner trims:

Side trims center:

Extruded aluminium section, spray-finished in grey (RAL 7035) Extruded aluminium section, clear-chromated Extruded aluminium section, spray-finished in grey (RAL 7035) Extruded aluminium section, spray-finished in grey (RAL 7035)

Note

V 1

Corner trims, mounting flanges for the front of the enclosure and top/bottom covers have to be ordered separately.

6 U

Exemplary horizontal rail configuration





Horizontal rails for additional installations have to be ordered separately, see pages 68

	Packs of		4 U (3 + 1)			6 U		7	υ	Page
Installation width (HP)		84	84	84	84	84	84	84	84	
Width (B1) mm		449.0	449.0	449.0	449.0	449.0	449.0	449.0	449.0	
Width (B2) mm		465.1	465.1	465.1	465.1	465.1	465.1	465.1	465.1	
Depth (T) mm		250.4	310.4	370.4	310.4	370.4	430.4	310.4	430.4	
Mod.No. VM basic case	1	3982.110	3982.120	3982.130	3982.140	3982.150	3982.160	3982.170	3982.190	
Also required										
Top covers - with vent holes - without vent holes	1 1	3982.940 3982.900	3982.950 3982.910	3982.960 3982.920	3982.950 3982.910	3982.960 3982.920	3982.970 3982.930	3982.950 3982.910	3982.970 3982.930	47 47
Bottom covers - with vent holes - without vent holes	1 1	3982.740 3982.700	3982.750 3982.710	3982.760 3982.720	3982.750 3982.710	3982.760 3982.720	3982.770 3982.730	3982.750 3982.710	3982.770 3982.730	47 47
Front corner trims for assembly as instrument case	2	3981.320	3981.320	3981.320	3981.330	3981.330	3981.330	3981.340	3981.340	49
Flanges for configuration as rack-mount system - without handle holes - with handle holes	2 2	3981.220 3981.270	3981.220 3981.270	3981.220 3981.270	3981.230 3981.280	3981.230 3981.280	3981.230 3981.280	3981.240 3981.290	3981.240 3981.290	48 48
Accessories										
Front/rear panels	see page	see page 50 - 51								
Carrying handles	2	3981.350	3981.360	3981.370	3981.360	3981.370	3981.380	3981.360	3981.380	49
Front handles 1)	2	3636.010	3636.010	3636.010	3666.010	3666.010	3666.010	3666.010	3666.010	136
Rear adjustable feet	4	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	49
¹⁾ Only in conjunction with mountir	n flanges v	with handle h	oles			-				

Only in conjunction with mounting flanges with handle holes.

Other customised solutions regarding dimensions and colouring are available upon request. Please get in contact with one of our sales representatives for further assistance by phone or by mail at Tel. +49 9126 - 29 34 0 or electronics-quote@heitec.de.

SUBRACKS

= Width

= Depth

= U

= HP

INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiPac Vario-Module

HeiPac Vario-Module 4 U, 6 U, 7 U, EMC



Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions according to IEC 60297-3 for installation in enclosures, 482.6 mm (19"). Installation dimensions for plug-in units according to IEC 60297-3-101.

Protection category

IP 40 for non-vented version.

Supply includes

- 2 side panels
- 4 horizontal rails
- 4 threaded inserts
- 2 corner trims fror the rear of the enclosure

2 side trims center

Assembly parts

1 Equipped as an instrument case

2 Equipped as a rack-mount enclosure



Material/surface finish

Side panels: Horizontal rail: Corner trims:

Side trims center:

Contact points:

Extruded aluminium section, spray-finished in grey (RAL 7035) Extruded aluminium section, clear-chromated Extruded aluminium section, spray-finished in grey (RAL 7035) Extruded aluminium section, spray-finished in grey (RAL 7035) conductive

Note

Corner trims, mounting flanges for the front of the enclosure and top/bottom covers have to be ordered separately.

Horizontal rails for additional installations have to be ordered separately, see page 68

Exemplary horizontal rail configuration see page 45

	Packs of		4 U (3 + 1)			6 U		7	U	Page
Installation width (HP)		84	84	84	84	84	84	84	84	
Width (B1) mm		449,0	449,0	449,0	449,0	449,0	449,0	449,0	449,0	
Width (B2) mm		465,1	465,1	465,1	465,1	465,1	465,1	465,1	465,1	
Depth (T) mm		250,4	310,4	370,4	310,4	370,4	430,4	310,4	430,4	
Mod.No. VM basic case EMC	1	3983.110	3983.120	3983.130	3983.140	3983.150	3983.160	3983.170	3983.190	
Also required										
Top covers - with vent holes - without vent holes	1	3981.940 3981.900	3981.950 3981.910	3981.960 3981.920	3981.950 3981.910	3981.960 3981.920	3981.970 3981.930	3981.950 3981.910	3981.970 3981.930	47 47
Bottom covers - with vent holes - without vent holes	1	3981.740 3981.700	3981.750 3981.710	3981.760 3981.720	3981.750 3981.710	3981.760 3981.720	3981.770 3981.730	3981.750 3981.710	3981.770 3981.730	47 47
Front corner trims for assembly as instrument case	2	3981.320	3981.320	3981.320	3981.330	3981.330	3981.330	3981.340	3981.340	49
Flanges for configuration as rack-mount system - without handle holes - with handle holes	2	3981.220 3981.270	3981.220 3981.270	3981.220 3981.270	3981.230 3981.280	3981.230 3981.280	3981.230 3981.280	3981.240 3981.290	3981.240 3981.290	48 48
EMC installation										
EMC gaskets, horizontal - for upper/lower horizontal rail - between covers and horizontal rails	1 10	3684.808 3684.245	85 89							
EMC gaskets, vertical	1	3686.976	3686.976	3686.976	3686.977	3686.977	3686.977	3686.978	3686.978	51
Front/rear panels EMC	see page	e 50 - 51								
Accessories										
Carrying handles	2	3981.350	3981.360	3981.370	3981.360	3981.370	3981.380	3981.360	3981.370	49
Front handles 1)	2	3636.010	3636.010	3636.010	3666.010	3666.010	3666.010	3666.010	3666.010	136
Rear adjustable feet	4	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	49
	4	3901.000	3901.000							

Only in conjunction with mounting flanges with handle holes

INSTRUMENT CASES AND SYSTEM ENCLOSURES RECOMMENDED ACCESSORIES HeiPac Vario-Module

Top covers



For HeiPac	Vario-Module
------------	--------------

Standard version - Material
Sheet steel, spray-finished
Colour

Grey (RAL 7035)

EMC version - Material Sheet steel, spray-finished Contact points: conductive





	Depth	Order No.						
ΗP	mm	with vent holes	without vent holes					
42	250.4	3982.941	3982.901					
42	310.4	3982.951	3982.911					
63	250.4	3982.942	3982.902					
03	310.4	3982.952	3982.912					
	250.4	3982.940	3982.900					
84	310.4	3982.950	3982.910					
	370.4	3982.960	3982.920					
	430.4	3982.970	3982.930					

VM EMC

VMEMC					
	Depth	Order No.			
ΗP	mm with vent holes		without vent holes		
42	250.4	3981.941	3981.901		
42	310.4	3981.951	3981.911		
63	250.4	3981.942	3981.902		
63	310.4	3981.952	3981.912		
	250.4	3981.940	3981.900		
84	310.4	3981.950	3981.910		
84	370.4	3981.960	3981.920		
	430.4	3981.970	3981.930		

Bottom covers



For HeiPac Vario-Module

Standard version - Material Sheet steel, spray-finished

Colour Grey (RAL 7035)

EMC version - Material Sheet steel, spray-finished Contact points: conductive



VM standard

	Depth	Order No.		
ΗP	mm	with vent holes	without vent holes	
42	250.4	3982.741	3982.701	
	310.4	3982.751	3982.711	
63	250.4	3982.742	3982.702	
63	310.4	3982.752	3982.712	
	250.4	3982.740	3982.700	
84	310.4	3982.750	3982.710	
	370.4	3982.760	3982.720	
	430.4	3982.770	3982.730	

VM EMC

HP	Depth mm	Order No.		
		with vent holes	without vent holes	
42	250.4	3981.741	3981.701	
	310.4	3981.751	3981.711	
63	250.4	3981.742	3981.702	
03	310.4	3981.752	3981.712	
	250.4	3981.740	3981.700	
84	310.4	3981.750	3981.710	
	370.4	3981.760	3981.720	
	430.4	3981.770	3981.730	

INSTRUMENT CASES AND SYSTEM ENCLOSURES **RECOMMENDED ACCESSORIES HeiPac Vario-Module**

Feet



With or without fold-out support stand. Support stand load capacity up to 20 kg.

Material Plastic

Colour

Grey (RAL 7035) Black

Supply includes Assembly parts

		Orde No.		
Colour	Packs of	without sup- port stand	with support stand	
RAL 7035	2	9919.775	3919.000	
Black	2	9920.524	9920.523	

Mounting plate



For	mounting	heavy	components.	

Material Aluminium Supply includes Assembly parts

HP	Depth mm	Pack of	Order No.
42	250	1 St.	3982.370
42	310	1 St.	9921.946
42	370	1 St.	9921.947
42	430	1 St.	9921.948
63	250	1 St.	3982.380
63	310	1 St.	9921.949
63	370	1 St.	9921.950
63	430	1 St.	9921.951
84	250	1 St.	9921.390
84	310	1 St.	9921.952
84	370	1 St.	9921.953
84	430	1 St.	9921.954

Front flanges



Required when the HeiPac Vario-Module is to be used as a rack-mount enclosure. The flanges have a channel to accommoda-te vertical EMC gaskets.

Material

Aluminium, clear-chromated

Supply includes

Assembly parts

		Order No.		
U	Packs of	without handle hole	with handle hole - 3981.260	
2	2	3981.200	-	
3	2	3981.210	3981.260	
4	2	3981.220	3981.270	
6	2	3981.230	3981.280	
7	2	3981.240	3981.290	

+ Accessories

Vertical EMC gasket, see page 88 Front handles for mounting on front flanges, see page 136

INSTRUMENT CASES AND SYSTEM ENCLOSURES RECOMMENDED ACCESSORIES HeiPac Vario-Module

Front corner trims



Required when the HeiPac Vario-Module is to be used as a instrument case. The corner trims have a channel to accommodate vertical EMC gaskets.

Material

Aluminium, spray-finished Colour Grey (RAL 7035)

GIEY (NAL 7033)

Supply includes Assembly parts

U Packs of Order No. 2 2 3981.300 3 2 3981.310 4 2 3981.320 3981.330 6 2 7 2 3981.340

+ Accessories

Vertical EMC gasket, see page 88

Carrying handles



For ergonomic transportation, even with sta- cked enclosures. May also be used as a support stand. Load capacity: 35 kg
Material
Die-cast zinc and

Extruded aluminium section

Colour

Grey (RAL 7035)

Note Cannot be used with flanges.

Supply includes

Assembly parts

For enclosure depth mm	Packs of	Order No.
250.4	2	3981.350
310.4	2	3981.360
370.4	2	3981.370
430.4	2	3981.380

Rear feet



- For mounting on the rear of the enclosure. Dual function:
- Mechanical protection of the connection components
- Also act as a cable holder during transportation

Material

PA, self-extinguishing to UL 94-V0

Colour

Grey (RAL 7035)

Supply includes Base stand Cover cap Self adhesive cable holder Assembly parts

F	Packs of	Order No.
4	1	3901.000

INSTRUMENT CASES AND SYSTEM ENCLOSURES RECOMMENDED ACCESSORIES HeiPac Vario-Module

Earthing set



For connecting the top and bottom covers to the side panels with PE conductors.

Supply includes

Material

Supply includes

Assembly parts

1 front panel 1 set of hinges

2.5 mm aluminium, anodised

Conductor cable green/yellow, 1.5 mm², with washer for screw M4, flat-pin connector Assembly parts

Packs of	Length mm	Order No.
5	135	3900.000

Front panels, hinged



	HP	Order No.	
U		vertically hinged	horizontally hinged
3	42	3652.600	3652.500
3	84	3652.610	3652.510
6	42	3652.620	3652.520
6	84	3652.630	3652.530



EMC front/rear panels, hinged



Material

2.5 mm aluminium, clear-chromated

Supply includes

- 1 front panel
- 1 set of hinges 1 contact strip
- 1 gasket strip

1 vertical EMC gasket, version 1 Assembly parts

ssembly parts





Front panels as filler panel



Front pan	els as	filler	nanel	flat
i ioni pun	JID UD	mor	punoi,	nai

Material

2.5 mm aluminium, naturalanodised

Note

Other sizes see page 120.

	Order No.				
ΗP	2 U H = 84.25	3 U H = 128.7		6 U H = 262.05	7 U H = 306.5
42	3684.887	3684.904	3684.908	3684.925	3684.928
63	-	3684.906	3684.909	3684.926	3684.929
84	3684.888	3684.907	3684.910	3684.927	3684.930

+ Also required

EMC

Collar screws and plastic collars, packs of 100 sets, order No. 3658.160 see page 140



INSTRUMENT CASES AND SYSTEM ENCLOSURES RECOMMENDED ACCESSORIES HeiPac Vario-Module

EMC front panels as filler panels





Front panels as filler panels, U-shaped.

Material

2.5 mm extruded aluminium section, clear-chromated

Supply includes

- 1 front panel, one-piece (with 2 – 14 HP version)
- or three-piece
- (with > 14 HP version),
- 1 vertical EMC gasket, version 1
- 1 contact strip (three-piece only)
- 1 gasket strip (three-piece only)

Note

Other sizes see page 121.

			Order No.		
ΗP		3 U H = 128.7		6 U H = 262.05	7 U H = 306.5
42	-	3684.252	3684.255	3684.261	3684.264
63	-	3684.253	3684.256	3684.262	3684.265
84	3684.248	3684.254	3684.257	3684.263	3684.266

+ Also required

Slotted centering screws, packs of 100, order no. 3687.050 see page 141

Cross-head centering screws, packs of 100, order no. 3687.051 see page 141



Support stand/carrying handle



To fit HeiPac Vario-Module 3 U, 4 U and 6 U, adjustable on a 30° pitch pattern.

Material

Extruded aluminium section/die-cast

Colour

Grey (RAL 7035)

Supply includes

Assembly parts

Note

Corner trim for support stands/carrying handles should be ordered separately. Not compatible with profile rail with 10 mm extension

For HeiPac Vario-Module HP	Packs of	Order No.
42	1	3981.390
63	1	3981.400
84	1	3981.410
Corner trim for support stand	Packs of	Order No.
U		
0	2	0004 040
3	2	3981.310
4	2	3981.310 3981.500

EMC gaskets, vertical



To ensure EMC protection between the subracks side panel and the front/rear panels.

There are two versions available.

- Suitable for mounting on:
- 482.6 mm (19") flanges for subracks
- Corner trims, rear
- EMC contact strip
- U-channel front panels

Material Stainless steel

German patent No. 101 15 525 and No. 198 46 627 US patent no. 6,500,012

US patent no. 7,044,753



Version 1: Segmented

U	Order No. Packs of 1	Order No. Packs of 10
1	3686.973	3684.236
2	3686.974	3684.237
3	3686.975	3684.238
4	3686.976	3684.239
6	3686.977	3684.240
7	3686.978	3684.241
9	3686.979	3684.242
10	3686.980	3684.243
11	3686.981	3684.244

Version 2: One-piece

version 2. One-piece								
U	Order No. Packs of 1	Order No. Packs of 10						
2	3688.610	-						
3	3688.611	9921.942						
4	3688.612	-						
5	3688.613	-						
6	3688.614	9921.943						
7	3688.615	-						
8	3688.634	-						
9	3688.616	9921.944						
10	3688.609	-						
11	3688.633	-						
12	3688.606	-						

INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiCase



Universal instrument case in a timeless design

Applications

The HeiCase is the HEITEC instrument case of sophisticated design that is suitable for 19" rack-mount systems as well as individual configuration. In combination with rollers and carrying handles the instrument case is particularly easy to transport.

Technical specifications

- Instrument case, complies with IEC 60297-3
- Height: 1 12 HE
- Installation with: ½ 19" and 19"
- Depth: 300 540 mm
- Protection category IP 42
- Extruded aluminium section
- · Variable depth/height interior installation

Benefits at a glance

- Outstanding mechanical stability
- Upgradeable to a tower version
- Standard in 3 colours
- · Ergonomic handles, bottom- and door types
- Appropriate for mobile and stationary applications



Flexible sizing through modular design



Wide range of accessories



Stable set up from aluminium profiles



Individual colouring available

High flexibility following customer requests



The modular line of standard casings can be manufactured to a height of up to 30 U and a depth of up to 900 mm

Those maxi-versions are suitable for applications of high packing density as well as a mobile alternative to cabinets. Thanks to their set up of individual, interconnected extruded aluminium sections even the large versions provide a high degree of stability and are scalable not only in height, but also in depth (up to 900 mm), modular in segments of 120 mm.

If necessary, they can be mounted on rollers for mobile applications and can be equipped with specific handles, thus providing mobility and making the enclosure flexibly applicable despite its large dimensions. The carrying handles were tested to a load of 100 kg and are suitable for heavy load applications.

The design of the enclosure can be customised to match the customer's corporate design. Decorative elements (corner trims and plastic parts) and even the system enclosure of the maxi versions can be designed in your desired RAL-color if required.

Due to their solid structure the customised versions meet the requirements for robust instrument case and system enclosures with scalable interior and exterior installations. Through a variety of accessories they can be adapted to the respective requirements.

INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiCase

HeiCase 1/2 19"



Technical specifications

Depth: 300 mm, 420mm, 540 mm Installation width: 269.2 mm (½ 19″) Installation options: 269.2 mm (½ 19″)-slide-in equipment to 60 297-3

Protection category

IP 42 for unvented version

Supply includes

2 side panels 2 covers 8 corner caps 16 cover caps 4 feet (300/420/540 mm depth) 4 19" mounting brackets 4 threaded inserts 2 plain inserts, 1 rear panel Cases are supplied preassembled



Colour

Grey (RAL 7035)

Decorative colours and corner caps

Green (RAL 5018) Blue (RAL 5012) Grey (RAL 7030)

Material/surface finish

Covers: Side panels: Corner caps: (19") mounting bracket: Extruded aluminium section/die-cast, spray-finished Extruded aluminium section, spray-finished Plastic

Extruded aluminium section, clear-chromated

Property rights

German registered design no. 96 09 457 UK reg. design no. 2064682 US design patents, Des. 402,640 and Des. 423,464 Japan. reg. designs no. 1045507 and 1045508

Enclosures for subrack width 269,2 mm (1/2		Packs of	1 U		2 U		3 U			4 U		Page
Height (H) mm	n		77.5	77.5	121.9	121.9	166.4	166.4	166.4	210.8	210.8	
H1 mm			45.0	45.0	89.4	89.4	133.8	133.8	133.8	178.3	178.3	
Depth (T) mm			300.0	420.0	300.0	540.0	300.0	420.0	540.0	420.0	540.0	
Unvented												
Order No. RA	L 5018	1	3750.100	-	3750.200	-	3750.210	3750.300	-	3750.400	-	
Order No. RA	L 5012	1	3750.102	-	3750.202	-	3750.212	3750.302	-	3750.402	-	
Order No. RA	L 7030	1	3750.104	-	3750.204	-	3750.214	3750.304	-	3750.404	-	
Vented												
Order No. RA	L 5018	1	-	3750.110	-	3750.220	-	3750.350	3750.360	-	3750.450	
Order No. RA	L 5012	1	-	3750.112	-	3750.222	-	3750.352	3750.362	-	3750.452	
Order No. RA	L 7030	1	-	3750.114	-	3750.224	-	3750.354	3750.364	-	3750.454	
Weight (kg)	vented/ unvented		3.3 3.4	4.2 4.4	3.7 3.8	5.4 6.1	4.1 4.2	5.2 5.4	6.1 6.8	5.8 6.0	6.8 7.5	
Accessories												
Support stand, handle	/carrying	1					see pag	e 60				
Carrying hand	les, horizontal	2	3751.250	3751.260	3751.250	3751.270	3751.250	3751.260	3751.270	3751.260	3751.270	58
Back panel screw-fastened	d	1	-	-	-	-	9918.119	9918.119	9918.119	9918.120	9918.120	59
Front door, ver	tically hinged	1	-	-	-	-	3751.300	3751.300	3751.300	3751.310	3751.310	57
Slide rails		2	3751.500	3751.510	3751.500	3751.520	3751.500	3751.510	3751.520	3751.510	3751.520	56
Mounting angl	es 19″	2	3751.650	3751.650	3751.660	3751.660	3751.670	3751.670	3751.670	3751.680	3751.680	56
Threaded inse M4 thread	rts with	8	3751.700	3751.700	3751.710	3751.710	3751.720	3751.720	3751.720	3751.730	3751.730	56
End section		4	-	-	-	-	3751.900	3751.900	3751.900	3751.910	3751.910	58
Ather sustamized solutions regarding dimensions (up to 20 LL beight and up to 2000 mm depth) and colouring are available upon request. Please get in con-												

INSTRUMENT CASES AND SYSTEM ENCLOSURES HeiCase

HeiCase 19"



Technical specifications

Depth: 300 mm, 420mm, 540 mm Installation width: 482,6 mm (19") Installation options: 482,6 mm (19")-slide-in equipment to IEC 60297-3

Protection category

IP 42 for unvented version

Supply includes

2 side panels 2 covers 8 corner caps 16 cover caps 4 feet (300/420/540 mm depth) 4 19" mounting brackets 4 threaded inserts 2 plain inserts Cases are supplied preassembled

Note

For rear installation, order back panel/door separately.



Colour

Grey (RAL 7035)

Decorative colours and corner caps

Green (RAL 5018) Blue (RAL 5012) Grey (RAL 7030)

Material/surface finish

Covers: Side panels: Corner caps: (19") mounting bracket: Extruded aluminium section/die-cast, spray-finished Extruded aluminium section, spray-finished Plastic

Extruded aluminium section, clear-chromated

Property rights

German registered design no. 96 09 457 UK reg. design no. 2064682 US design patents, Des. 402,640 and Des. 423,464 Japan. reg. designs no. 1045507 and 1045508

Enclosures for subrack width 19"	Packs of	3 U		4 U		6 U			7 U		9 U		12 U	Page
Height (H) mm		166.4	166.4	210.8	210.8	299.7	299.7	299.7	344.2	344.2	433.1	433.1	566.5	
H1 mm		133.8	133.8	178.3	178.3	267.2	267.2	267.2	311.7	311.7	400.6	400.6	534.0	
Depth (T) mm		300.0	420.0	300.0	420.0	300.0	420.0	540.0	420.0	540.0	420.0	540.0	540.0	
Unvented														
Order No. RAL 5018	1	3750.310	3750.320	3750.410	3750.420	3750.600	3750.610	3750.620	3750.700	3750.710	3750.900	3750.910	3750.000	
Order No. RAL 5012	1	3750.312	3750.322	3750.412	3750.422	3750.602	3750.612	3750.622	3750.702	3750.712	3750.902	3750.912	3750.002	
Order No. RAL 7030	1	3750.314	3750.324	3750.414	3750.424	3750.604	3750.614	3750.624	3750.704	3750.714	3750.904	3750.914	3750.004	
Vented														
Order No. RAL 5018	1	3750.330	3750.340	3750.430	3750.440	3750.630	3750.640	3750.650	3750.720	3750.730	3750.920	3750.930	3750.030	
Order No. RAL 5012	1	3750.332	3750.342	3750.432	3750.442	3750.632	3750.642	3750.652	3750.722	3750.732	3750.922	3750.932	3750.032	
Order No. RAL 7030	1	3750.334	3750.344	3750.434	3750.444	3750.634	3750.644	3750.654	3750.724	3750.734	3750.924	3750.934	3750.034	
Weight vented/ (kg) unvented		5.3 5.4	6.9 7.1	5.7 7.2	7.5 7.7	6.5 6.6	8.5 8.7	10.8 12.2	9.1 9.3	11.5 12.9	10.1 10.3	12.9 14.3	15.0 16.4	
Accessories														
Support stand/carrying handle	1						se	e page 60)					
Carrying handles, hori- zontal	2	3751.250	3751.260	3751.250	3751.260	3751.250	3751.260	3751.270	3751.260	3751.270	3751.260	3751.270	3751.270	58
Back panel screw-fastened	1	3751.600	3751.600	3751.610	3751.610	3751.620	3751.620	3751.620	3751.630	3751.630	3751.530	3751.530	3751.540	59
Rear door, vertically hinged	1	3751.100	3751.100	3751.110	3751.110	3751.120	3751.120	3751.120	3751.130	3751.130	-	-	-	59
Rear door for fan installation	1	3751.150	3751.150	3751.160	3751.160	3751.170	3751.170	3751.170	3751.180	3751.180	-	-	-	59
Front door, vertically hinged	1	3751.320	3751.320	3751.330	3751.330	3751.340	3751.340	3751.340	3751.350	3751.350	-	-	-	57
Slide rails	2	3751.500	3751.510	3751.500	3751.510	3751.500	3751.510	3751.520	3751.510	3751.520	3751.510	3751.510	3751.520	56
Mounting angles 19"	2	3751.670	3751.670	3751.680	3751.680	3751.690	3751.690	3751.690	3751.640	3751.640	3751.780	3751.780	3751.790	56
Threaded inserts with M4 thread	8	3751.720	3751.720	3751.730	3751.730	3751.740	3751.740	3751.740	3751.750	3751.750	3751.760	3751.760	3751.770	56
End section	2	3751.900	3751.900	3751.910	3751.910	3751.920	3751.920	3751.920	3751.930	3751.930	3751.820	3751.820	3751.830	58

INSTRUMENT CASES AND SYSTEM ENCLOSURES RECOMMENDED ACCESSORIES HeiCase

Mounting rails



For depth-variable installation of mounting brackets and of mounting plates fixed or extendable.

Material

Aluminium, clear-chromated

Supply includes Assembly parts

rosennory parts



1 Threaded inserts

2 Short spacers

3 Mounting rails

For enclosure depth mm	Packs of	Order No.
300	2	3751.400
420	2	3751.410
540	2	3751.420

+ Also required

Threaded inserts, see page 56 Spacers, see below



- 3

Α

Spacers



For the attachment of mounting rails.

Material

Steel, galvanized

Design	Packs of	Order No.
Short for depth-variable mounting bracket	4	3751.450
Long for mounting plate installation (width 409 mm)	4	3751.460

+ Also required

Mounting rails, see above





55

INSTRUMENT CASES AND SYSTEM ENCLOSURES RECOMMENDED ACCESSORIES HeiCase

Mounting angles for 482,6 mm (19")



For front installation of subracks and blanking plates.

Material

Extruded aluminium section, clear-chromated

Supply includes

Assembly parts

Note

1 pack of threaded inserts and 2 packs of mounting rails and spacers are required for depth-adjustable installation.

	1	
For enclosure height U	Packs of	Order No.
1	2	3751.650
2	2	3751.660
3	2	3751.670
4	2	3751.680
6	2	3751.690
7	2	3751.640
9	2	3751.780
12	2	3751.790

+ Also required

Threaded inserts, see below Mounting rails, see page 55 Spacers, see page 55

Threaded inserts



With M4 thread for HeiCase

For the installation of mounting angles, slide rails, mounting kits, cable ducts etc. Simply slide into the channels in the side panels.

Material

Extruded aluminium section, clear-chromated

For enclosure height	Packs of	Order No.
U		
1	8	3751.700
2	8	3751.710
3	8	3751.720
4	8	3751.730
6	8	3751.740
7	8	3751.750
9	8	3751.760
12	8	3751.770

Slide rails



To support	heavv	installed	equipment.
TO Support	nouvy	motuneu	equipriterit.

Material

1.5 mm sheet steel, clear-chromated

Supply includes

Assembly parts

For enclosure depth mm	Packs of	Order No.
300	2	3751.500
420	2	3751.510
540	2	3751.520
660	2	9919.472

+ Also required

Threaded inserts, see above

INSTRUMENT CASES AND SYSTEM ENCLOSURES RECOMMENDED ACCESSORIES HeiCase

Keyboard lid



- Suitable for the installation of 19" keyboards • Horizontally hinged with security lock
- Removable cover plate
- Material

Frame section: Extruded aluminium section/ die-cast, spray-finished Base and cover plate: Aluminium, sprayfinished

Colour

Grey (RAL 7035)

Supply includes

Assembly parts

For enclosure width	Height (H) U	Packs of	Order No.
19''	4	1	3751.800
19''	6	1	3751.810



COMPANY OVERVIEW

INDEX

Front door with smoked acrylic, vertically hinged



For mechanical protection of built-in control components.

- Optionally hinged on the right or left
- With security lock

Material

Frame section: Extruded aluminium section, spray-finished Corner pieces: Die-cast aluminium, sprayfinished

Glazed pane: Smoked acrylic

Colour

Grey (RAL 7035)

Supply includes

Assembly parts

Note

The figure shows the 6 U version; solutions smaller than 6 U feature a front door with only one security lock. Other sizes on request.

For enclosure width	W mm	Height (H) U	Order No.
1⁄2 19''	295,6	3	3751.300
1⁄2 19''	295,6	4	3751.310
19''	509	3	3751.320
19''	509	4	3751.330
19''	509	5	9918.370
19''	509	6	3751.340
19''	509	7	3751.350



INSTRUMENT CASES AND SYSTEM ENCLOSURES RECOMMENDED ACCESSORIES HeiCase

Protective conductor connector set



Fits all HeiCase enclosures.
To meet electrical protective measures.

Supply includes

Threaded insert Screw, green/yellow Connection cable Serrated washer Nut

Packs o	f	Order No.
4		3798.000

Rear trim



To cover the sides to the left and right of the subrack when no rear door or rear panel is used.

Material

Extruded aluminium section, spray-finished

Colour Grey (RAL 7035)

Supply includes

Assembly parts

For enclosure height U	Packs of	Order No.
3	2	3751.900
4	2	3751.910
6	2	3751.920
7	2	3751.930
9	2	3751.820
12	2	3751.830



Carrying handles



Horizontal carrying handles for easy, secure transportation.

- May be retrofitted
- Load capacity up to 100 kg

Material

Side parts: Die-cast, spray-finished Center part: Extruded aluminium section spray-finished

Colour Grey (RAL 7035)

Supply includes

Assembly parts

For enclosure depth mm	Packs of	Order No.
300	2	3751.250
420	2	3751.260
540	2	3751.270

INSTRUMENT CASES AND SYSTEM ENCLOSURES RECOMMENDED ACCESSORIES HeiCase

Back panel, screw-fastened



То	close	off	the	rear.
10	01000	0.11		rour.

Material Aluminium, 2 mm, natural-anodised

Supply includes 2 19" mounting brackets Assembly parts Note

Other sizes on request.

Height	Packs	Order No.	
(H) U	of	enclosure width $L = \frac{1}{2}19"$	enclosure width L = 19"
3	1	9918.119	3751.600
4	1	9918.120	3751.610
6	1	9918.121	3751.620
7	1	9918.122	3751.630
9	1	9918.123	3751.530
12	1	9918.125	3751.540



COMPANY OVERVIEW

Rear door, vertically hinged



To close off the rear.

- Hinged, with security lock
- Optionally hinged on the left or right

Material

Aluminium, 2.5 mm, spray-finished

Colour Grey (RAL 7035)

Supply includes

Assembly parts

Note

The picture shows the 3 U version; solutions bigger than 3 U feature a rear door with two security locks. Other sizes on request.

19" 3 1 3751.100 19" 4 1 3751.110 19" 6 1 3751.120 10" 7 1 3751.120	For enclosure width	Height (H) U	Packs of	Order No.
19" 6 1 3751.120	19''	3	1	3751.100
	19''	4	1	3751.110
	19''	6	1	3751.120
19 7 1 3751.130	19''	7	1	3751.130



Rear door for fan installation



- To close off the rear.
- With security lock
- For the installation of two 120 mm fans
- Optionally hinged on the left or right

Material

Aluminium, 2.5 mm, spray-finished

Colour

Grey (RAL 7035)

Supply includes

Assembly parts

Note

The picture shows the 6 U version; solutions smaller than 6 U feature a rear door with only one security lock. Other sizes on request.

For	Height (H)	H1	Order No.
enclosure width	U	mm	
19''	3	66.65	3751.150
19''	4	88.90	3751.160
19''	6	83.50	3751.170
19''	7	83.50	3751.180



INSTRUMENT CASES AND SYSTEM ENCLOSURES RECOMMENDED ACCESSORIES HeiCase

Aluminium front door, vertically hinged



For mechanical protection of built-in control components.

Optionally hinged on the right or left With security lock

Material

Frame section: Extruded aluminium section, spray-finished Corner pieces: Die-cast aluminium, spray-finished Aluminum plate

Colour

Grey (RAL 7035)

Supply includes Assembly parts

Note

The picture shows the 6 U version. Solutions smaller than 6 U feature a front door with only one security lock. Other sizes on request.

For enclosure width	W mm	Height (H) U	Order No.
19''	509	3	3751.360
19''	509	4	3751.370
19''	509	6	3751.380



Tower feet



For vertical siting of enclosures, may be retrofitted.

Material Plastic self-extinguishing to UL 94-V0

Decorative colours

1 Grey (RAL 7030)

2 Green (RAL 5018)

3 Blue (RAL 5012)

Supply includes

4 tower feet Assembly parts

Decorative colour RAL	Packs of	Order No.
5018	4	3751.850
5012	4	3751.852
7030	4	3751.854

Support stand/carrying handles





- Support stand/carrying handle adjustable in 30° increments
- Suitable for retro-fitting to 2 7 U
- For 1/2 19" and 19" enclosures

Load capacity 30 kg

Material

Hinged part: Die-cast, spray finished in grey (RAL 7035), Center part: Extruded aluminium section, spray finished in grey (RAL 7035) with plastic coating.

Decorative colour

1 Grey (RAL 7030)

- 2 Green (RAL 5018)
- 3 Blue (RAL 5012)

Supply includes

Assembly parts

For	W	Colour	Order No.
enclosure width	mm	RAL	
1⁄2 19''	392	5018	3751.200
1⁄2 19''	392	5012	3751.202
1⁄2 19''	392	7030	3751.204
19''	605	5018	3751.210
19''	605	5012	3751.212
19''	605	7030	3751.214

W = total width handle PU = 1 set

> 131.5 170 12°

INSTRUMENT CASES AND SYSTEM ENCLOSURES SYSTEM PLATFORMS FOR CPCI/CPCI SERIAL, VPX, VME



Systems for CompactPCI Serial

Systems for CompactPCI



Systems for VPX/openVPX

BENEFITS AT A GLANCE

HEITEC offers adjustments on single parts level up to customized system solutions for various backplane technologies. The HeiPac Vario-Module product family is perfectly suited as a customized solution for instrument cases or system enclosures.

In the area of backplane architectures, HEITEC can look back on many years of know-how, which includes, for example, systems with ATCA, CPCI/CPCI Serial, VPX/openVPX and VME/ VME64x. These technologies enable high scalability, flexibility and reliability in demanding industrial applications.

The systems, which HEITEC manufactures according to customer requirements, contain ventilation/heating concepts tailored to the application, suitable power supplies, the necessary wiring and the complete system assembly including functional test.

HEITEC manufactures individual parts and housings according to CI specifications:

- Front panel processing such as drilling/milling incl. labeling
- Painting of housings and decorative elements in special colors
- Development and production of individual, applicationready system solution

COMPANY OVERVIEW

SUBRACKS

CASES & ENCLOSURES

EMC Features

All components have a conductive surface: stainless steel EMC gaskets connect to the individual components. EMC front panels with EMC gaskets ensure proper contacting.





ESD Protection

ESD pin and ESD Clip in the guide rail deflect electrostatic charging before contacting the plug in unit. ESD Clip in the PCB guide rail provides permanent and direct deflection via the PCB. Ventilation

Small card guides and horizontal rails ensure maximum air flow. Individual ventilation concepts provide welldirected air ducting and ideal heat dissipation - optionally from bottom to top or from front to rear.

HEITEC Components and Accessories

High performance in every detail

COMPONENTS AND ACCESSORIES

COMPONENTS AND ACCESSORIES OVERVIEW

Besides complete subrack and system solutions HEITEC offers a wide range of individual components and accessories for setup, mounting and upgrade.

Our inside and outside sales staff will gladly help you to find the right selection of components and support you in compiling the optimum package to fulfill your individual preferences and requirements.



COMPANY OVERVIEW

COMPONENTS AND ACCESSORIES SIDE PANELS

Side panels for HeiPac Vario



Suitable for HeiPac Vario, EMC, Compact, Heavy and Vario-Module.

Mounting holes in 10mm pitch pattern including anti-twist half-shears for easier assembly.

Material

2.5 mm aluminium, clearchromated

+ Accessories

Flanges for HeiPac Vario, see page 66

							Order No.				
U			3	4 (3 + 1)	4 (3 + 2 x ½)	6	7 (6 + 1)	7 (6 + 2 x ½)	9	10	11
D (T) mm	a ¹⁾ mm	Packs of									
175	150	1	9901.021	-	-	9901.023	-	-	-	-	-
185	160	1	3684.511	-	-	3684.529	-	-	-	-	-
225	200	1	3684.512	3685.793	3685.890	3684.530	3685.896	3685.893	3685.797	-	-
245	220	1	3684.513	3685.850	3685.891	3684.531	3685.897	3685.894	-	-	-
285	260	1	3684.514	3684.523	3684.526	3684.532	3685.743	3685.895	-	-	-
305	280	1	3684.515	3685.794	-	3684.533	-	-	3685.798	-	-
345	320	1	3684.516	3684.524	3684.527	3684.534	3685.744	3685.745	3684.547	-	-
365	340	1	3684.517	3685.795	-	3684.535	-	-	3685.799	-	-
405	380	1	3684.518	3684.525	3684.528	3684.536	3684.541	3684.543	3684.548	3684.545	-
425	400	1	3684.519	-	-	3684.537	-	-	-	-	-
465	440	1	3684.520	3685.796	3685.892	3684.538	3684.542	3684.544	3684.549	3684.546	3684.552
525	500	1	3684.521	9906.727	-	3684.539	3685.898	3685.959	3684.550	3685.899	3684.553
585	560	1	3684.522	9906.914	-	3684.540	-	-	3684.551	-	3684.554
1) ი – Г	Jiotopoc	hotwoo	ı n tha first and l	ant mounting b							

¹⁾ a = Distance between the first and last mounting hole.















WE CREATE YOUR ELECTRONIC WORLD

COMPONENTS AND ACCESSORIES SIDE PANELS

Side panels for HeiPac Vario ECO



Mounting holes on a 10 mm pitch pattern.

Material

1.5 mm sheet steel, zinc-plated

· /		Max. board depth	Order No.			
mm		mm	3 U	6 U		
175	1	160	3688.100	3688.102		
235	1	220	3688.101	3688.103		

+ Accessories

Flanges for HeiPac ECO, see page 67





SUBRACKS

COMPANY OVERVIEW

Side panels for HeiPac EASY



Mounting holes on a 60 mm pitch pattern as long holes.

Material

2 mm aluminium, non-corrosive

Mounting holes suitable for threaded insert PEM-FM4-1 for mounting telescopic slides

D (T1)	L2	n	n1	Packs of	Max. board depth	Orde	er No.
mm				01	mm	3 U	6 U
175	-	-	-	2	160	3634.695	3634.720
235	60	-	-	2	220	3634.700	3634.725
295	60	2	2	2	280	3634.705	3634.730
355	60	3	3	2	340	3634.710	3634.735
415	60	4	3	2	400	3634.715	3634.740

+ Accessories

Flanges for HeiPac EASY, see page 67



COMPONENTS AND ACCESSORIES **FLANGES**

Flanges 19" for HeiPac Vario



Suitable for HeiPac Vario, EMC, Compact and Vario-Module.

With integral channel to accommodate EMC gaskets.

Material

Extruded aluminum section

Surface finish Clear-chromated

		Order No.				
U	Packs of	with handle holes	without handle holes			
2	1	-	3684.614			
3	1	3684.622	3684.615			
4	1	3684.623	3684.616			
6	1	3684.624	3684.617			
7	1	3684.625	3684.618			
9	1	-	3684.619			
10	1	-	3684.620			
11	1	-	3684.621			

+ Accessories

EMC gaskets, vertical, see page 88 Handles for subrack, see page 136





Flanges 19" for HeiPac Vario, depth-adjustable installation



-

Suitable for HeiPac Vario, EMC and Compact.

Material

Extruded aluminum section

Surface finish

Clear-chromated

U	Packs of	Order No.
3	1	3684.626
4	1	3684.627
6	1	3684.628
7	1	3684.629
9	1	3684.630
10	1	3684.631
11	1	3684.632

+ Also required

Assembly screws, nuts and washers, packs of 4 sets, Order No. 3687.015, see page 141





COMPONENTS AND ACCESSORIES FLANGES

Flanges 19" for HeiPac Vario HEAVY, reinforced



Suitable for HeiPac Vario, EMC, Compact and Heavy Reinforced flange ensures a high level of stability even under extreme loads.

Material

Extruded aluminum section 3 mm material thickness

Surface finish Clear-chromated UPacks ofOrder No.With
handle holeswithout
handle holes319921.725619921.726

+ Accessories

Handles for subrack, see page 136





Flanges 19" for HeiPac Vario ECO



Material Extruded aluminum section Surface finish

Clear-chromated

U	Packs of	Order No.
3	1	3688.110
6	1	3688.111



Flanges 19" for HeiPac EASY



Integrated mounting holes for installation of handles.

Material Extruded aluminium section

Surface finish

Pre-anodised

U	Packs of	Order No.
3	2	3634.745
6	2	3634.750

+ Accessories

Handles for subrack, see page 136





COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac Vario

Overview horizontal rails HeiPac Vario

Main sections	V 1 Front horizontal	V 2 Front horizontal	V 3 Double front horizontal	horizontal	V-Ext. 2 Double front horizontal	horizontal	V-Ext. 4 Double front horizontal	BP 1 Rear horizontal	BP 2 Rear horizontal rail, with double
	rail	rail, with double screw fastening	rail	rail, with 10 mm extension, for extractor handle type IV or VII	rail, with 10 mm extension	rail, with 10 mm extension, with double screw fastening	rail, with 10 mm extension	rail	screw fastening
	Page 70	Page 70	Page 71	Page 71	Page 72	Page 72	Page 73	Page 73	Page 74
Additional sections			Ð		-32	- 13 . 17	÷E	_	971 EC;
Adaptor rail, rear center, to acommodate guide rails Tag Page 78	-	-	-	-	-	-	-	-	-
Z rail for connector	-	-	-	-	-	-	-	- B -1]	۹٦LE: I
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Insulating strip ¹⁾ J Page 85	-	-	-	-	-	-	-	-Lî	€
Conductive strip ²⁾									
لر Page 87	-	-	-	-	-	-	-	_ î	
Threaded insert									
I								-	
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Identification strips Page 87									
EMC gaskets, horizontal Page 85								-	-

For ¹⁾insulated or ²⁾conductive attachment of backplanes.

All system requirements may be covered with just a few basic types of horizontal rail. A cost-effective, easy-to-manage range.

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COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac Vario

Main sections	BP 3 Rear horizontal rail	BP 4 Rear horizontal rail	BP 5 Rear horizontal rail	BP-M 1 Rear horizontal rail, center	BP-M 2 Rear horizontal rail, center (also for Hei- Pac EASY)	CON 1 Rear horizontal rail, with integral Z rail	CON 2 Rear horizontal rail, with integral Z rail	CON-M 1 Rear horizontal rail, with integral Z rail (also for HeiPac EASY)
	Page 74	Page 75	Page 75	Page 76	Page 76	Page 77	Page 77	Page 78
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Adaptor rail, rear center, to acommodate guide rails T Page 78	-	-	-	đ	ब्द	-	-	
Z rail for connector Page 86		-	-	33	-	-	-	-
Insulating strip ¹⁾] Page 85	LE	-	-	G	-	-	-	-
Conductive strip ²⁾] Page 87		-	-	3	-	-	-	-
Threaded insert		-	-	-	-			der
Identification strips		<u>یت</u>	يم	-	-		-	-
EMC gaskets, horizontal L Page 85	-	-	-	-	-	-	-	-

For ¹⁾insulated or ²⁾conductive attachment of backplanes.

Overview horizontal rails HeiPac Vario

COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac Vario

Horizontal rail Vario V 1, front



To accommodate guide rails and for the attachment of front panels

- Front projection 2.5 mm corresponding to IEC 60297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Horizontal rail 192 HP, anodised without end face machining. Suitable for individual cutting to length.

Usable width (HP)	Packs of	Order No. unprinted	Order No. printed
4 (left)	1	3684.592	-
4 (right)	1	3684.955	-
8 (left)	1	3684.593	-
8 (right)	1	3684.956	-
12	1	3684.594	-
16	1	3684.595	-
20	1	3684.596	-
21	1	3685.985	-
40	1	3684.960	-
42	1	3684.560	9921.788 ³⁾
63	1	3684.561	-
84	1	3684.562	9921.789 ³⁾
84	2	3685.267 ¹⁾	-
192	1	3688.000 ²⁾	-

¹⁾ Including 4 assembly screws

²⁾ Anodised

3) with HP pattern printing

+ Also required

Assembly screws M4 x 12, acks of 100, order no. 3654.300, see page 140

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87 Gaskets, see page 85





Horizontal rail Vario V 2, front, with double screw fastening



To accommodate guide rails and for the attachment of front panels. The double screw fastening ensures a high level of stability even under extreme loads.

- Front projection 2.5 mm corresponding to IEC 60297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole
- Load test to DIN EN/IEC 61 587-1, requirement level SL1
- Shock and vibration tests undertaken as per IEC 61 373 (DIN EN 50 155), Category 1, Class B

Material

Extruded aluminium section

Surface finish

Clear-chromated

		Order No. printed
1	9917.695	9921.792
1	9908.721	9921.793 ¹⁾
		of unprinted 1 9917.695

¹⁾ with HP pattern printing

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87 Gaskets, see page 85





COMPONENTS AND ACCESSORIES **HORIZONTAL RAILS HeiPac Vario**

Horizontal rail Vario V 3, front



To accommodate guide rails and for the attachment of front panels. For subdivision i. e. 6 U in 2 x 3 U.

- Front projection 2.5 mm corresponding to IEC 60297-3-101
- · HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width	Packs		Order No.
(HP)	of		printed
84	1	9904.745	9921.799 ¹⁾

1) with HP pattern printing

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

2.5

1.2

3.55 .95 2.3 12.75

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87 Gaskets, see page 85



COMPANY OVERVIEW

SUBRACKS

Horizontal rail Vario V-Ext. 1, front, with 10 mm extension



For type IV, IVs and VII injector/extractor handle To accommodate guide rails and for the attachment of front panels.

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Not compatible with Vario-Module support stand/carrying handle. Horizontal rail 192 HP, anodised without end

face machining. Suitable for individual cutting to length.





	-			
Usable width (HP)	Packs of	Order No. unprinted	Order No. printed	
40	1	3684.961	-	
42	1	3684.565	9921.790 ³⁾	
63	1	3684.566	-	
84	1	3684.567	9921.791 ³⁾	
84	2	3685.269 ¹⁾	-	
192	1	3688.001 ²⁾	-	
1) Including 4 assembly screws				

) Including 4 assembly screws

²⁾ Anodised

3) with HP pattern printing

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87 Gaskets, see page 85

COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac Vario

Horizontal rail Vario V-Ext. 2, with 10 mm extension and double screw fastening, front



For type IV, IVs and VII injector/extractor handle

To accommodate guide rails and for the attachment of front panels. Double screw fastening and an extra high profile section ensure unique stability evens under extreme loads.

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60297-3-102
 HP pitch pattern of holes for the precise
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
84	1	3687.724

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87 Gaskets, see page 85



Horizontal rail Vario V-Ext. 3, with 10 mm extension and double screw fastening, front



For type IV, IVs and VII injector/extractor handle

To accommodate guide rails and for the attachment of front panels. The double screw fastening ensures a high level of stability even under extreme loads.

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Not compatible with Vario-Module support stand/carrying handle

Usable width (HP)	Packs of	Order No. unprinted	Order No. printed	
84	1	9908.722	9921.795 ¹⁾	
1) with LID a state of a significant				

¹⁾ with HP pattern printing

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87 Gaskets, see page 85




Horizontal rail Vario V-Ext. 4, with 10 mm extension and double screw fastening, front



For type IV, IVs and VII injector/extractor handle

For subdivision i. e. 6 U in 2 x 3 U. To accommodate guide rails and for the attachment of front panels

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60297-3-102
- · HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
84	1	3688.704

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

2.5

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87 Gaskets, see page 85

M4x18

Horizontal rail Vario BP 1, for backplane



To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips.

- Tapped holes M2.5 on a 1 HP pitch pattern for mounting backplanes and Z rails
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- · Applicable for top-mounting under covers
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Horizontal rail 192 HP, anodised without end face machining. Suitable for individual cutting to length.

Usable width (HP)	Packs of	Order No.
21	1	3685.991
40	1	3684.962
42	1	3684.570
63	1	3684.571
84	1	3684.572
84	2	3685.268 ¹⁾
192	1	3688.002 ²⁾

12.75

1) Including 4 assembly screws ²⁾ Anodised

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Conductive strips, see page 87 Insulating strips, see page 85 Identification strips, see page 87 Z rail, see page 86





11.75 23.5

COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac Vario

Horizontal rail Vario BP 2, for backplane



To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips. The double screw fastening ensures a high level of stability even under extreme loads.

- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- For mounting backplanes/Z rails additional threaded inserts (9901.816) are regiured
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
84	1	9908.723

+ Also required

Assembly screws M4 x 12, acks of 100, order no. 3654.300, see page 140 $\,$

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87 Insulating strips, see page 85 Conductive strips, see page 87 Z rail, see page 86





Horizontal rail Vario BP 3, for backplane



To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips.

- HP pitch pattern of holes for the precise installation of guide rails
- Channel for slide-in covers
- Additional threaded inserts (3684.610) are required for mounting backplanes/Z rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Not suitable for mounting under covers

Usable width (HP)	Packs of	Order No.
84	1	3688.104

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87 Insulating strips, see page 85 Conductive strips, see page 87 Z rail, see page 86



COMPONENTS AND ACCESSORIES **HORIZONTAL RAILS HeiPac Vario**

Horizontal rail Vario BP 4, for conductive mounting of backplanes



To accommodate guide rails and for the conductive attachment of backplanes.

- HP pitch pattern of holes for the precise installation of guide rails
- Tapped holes M2.5 on a HP pitch pattern
- Channel for slide-in covers
- · M4 thread on end face
- · Straight-through core hole
- For mounting slide-in covers

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Not suitable for mounting under covers Due to integrated contact area, insulating strips cannot be used

Usable width (HP)	Packs of	Order No.
84	1	9920.069

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Identification strips, see page 87

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9	_					_	
1	2.25		2	<u>12.7</u>	5	. 25	





Horizontal rail Vario BP 5, for conductive mounting of backplanes



To accommodate guide rails and for the conductive mounting of backplanes.

- Tapped holes M2.5 on a HP pitch pattern
- · HP pitch pattern of holes for the precise installation of guide rails
- Applicable for top-mounting under covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Due to integrated contact area, insulating strips cannot be used





Usable width (HP)	Packs of	Order No.
84	1	9912.522

+ Also required

> Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Also required

Identification strips, see page 87

COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac Vario

Horizontal rail Vario BP-M 1, for backplane, center



When using 6 U PCBs or box-type plug-in units. Facility for the attachment of Z rails, insulating strips or conductive strips.

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Horizontal rail 192 HP, anodised without end face machining. Suitable for individual cutting to length.

Usable width (HP)	Packs of	Order No.
40	1	3684.963
42	1	3684.580
63	1	3684.581
84	1	3684.582
84	1	3685.270 ¹⁾
168	1	3684.579
192	1	3688.003 ²⁾

1) Including 2 assembly screws

²⁾ Anodised

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Insulating strips, see page 85 Conductive strips, see page 87 Z rails, see page 86 Adaptor rail, see page 78





Horizontal rail Vario BP-M 2, for backplane, center



When using 6 U PCBs or box-type plug-in units. Facility for the attachment of Z rails or backplanes.

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole
- Due to integrated contact area, insulating strips cannot be used

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
84	1	9912.523

+ Accessories

Adaptor rail, see page 78





COMPONENTS AND ACCESSORIES **HORIZONTAL RAILS HeiPac Vario**

Horizontal rail Vario CON 1, with integrated Z rail for connector



To accommodate guide rails. Integrated Z rail for mounting connectors (CON) to IEC 60603-2.

- · HP pitch pattern of holes for the precise installation of guide rails
- Tapped holes M2.5 for connector mounting · Applicable for top-mounting under covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
42	1	3686.191
63	1	3686.919
84	1	3686.159

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

> 12.2 2.1

> > 3.5

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12.8 20

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87



SUBRACKS

COMPANY OVERVIEW

Horizontal rail Vario CON 2, with integrated Z rail for connector



To accommodate guide rails. Integrated Z rail for mounting connectors (CON) to DIN 41612.

- HP pitch pattern of holes for the precise installation of guide rails
- 84 tapped holes M2.5 for connector mounting • M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Not suitable for mounting under covers

Usable width (HP)	Packs of	Order No.
84	1	9901.991

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Threaded inserts, see page 86





COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac Vario

Horizontal rail Vario CON-M 1, with integral Z rail for connector, rear center



When using 6 U PCBs or box-type plug-in units. Integral Z rail for mounting connectors (CON) to IEC 60603-2.

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Horizontal rail 168 HP without end face machining. Suitable for individual cutting to length.

Usable width (HP)	Packs of	Order No.
42	1	3687.600
63	1	3687.601
84	1	3687.602
168	1	3687.603

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Adaptor rail, see below Threaded insert, see page 86





-An den beiden Stirnseiten∕at the two fa Senkung 1x 1.5x90° mit Gewinde M4x18 Countersink 1 x 1.5x90°with Thread M4x′

Adaptor rail, rear center



Suitable for horizontal rail Vario BP-M 1, BP-M 2, CON-M 1.

When subdividing 6 U into 2×3 U, the adaptor rail accommodates the guide rails when fastened to the center horizontal rail.

- HP pitch pattern of holes for the precise installation of guide rails
- M4 and M2.5 thread on the end face
- Applicable in combination with BP-M 1,
- BP-M 2 and EST-M 1
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Horizontal rail 192 HP, anodised without end face machining. Suitable for individual cutting to length.

Usable width (HP)	Packs of	Order No.
12	1	3684.587
16	1	3684.588
20	1	3684.589
40	1	3684.964
42	1	3684.590
63	1	3686.005
84	1	3684.591
84	1	3685.272 ¹⁾
168	1	3684.584
192	1	3688.004 ²⁾

1) Including 4 assembly screws

²⁾ Anodised

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140





COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac Vario ECO

Overview horiz	ontal rails HeiPac Vari	o ECO		
Main sections	V 1 Front horizontal rail	BP 3 Rear horizontal rail	CON 2 Rear horizontal rail, with integral Z rail	BP-M 1 Rear horizontal rail, center
	Page 81	Page 81	Page 80	Page 80
Additional sections				g
Adaptor rail, rear center, to acommodate guide rails Page 78	-	-	-	đ
Z rail for connector Page 86	-		-	B
Insulating strip ¹⁾] Page 85	-		-	
Conductive strip ²⁾] Page 87	-		-	
Threaded insert				-
Identification strips			-	-
EMC gaskets, horizontal Page 85	Cuctive attachment of backplanes	-	-	-

All system requirements may be covered with just a few basic types of horizontal rail. A cost-effective, easy-to-manage range.

COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac Vario ECO

Horizontal rail Vario BP-M 1, for backplane, center



When using 6 U PCBs or box-type plug-in units. Facility for the attachment of Z rails, insulating strips or conductive strips.

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
84	1	3684.582
84	1	3685.270 ¹⁾
-		

¹⁾ Including 2 assembly screws

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Conductive strips, see page 87 Insulating strips, see page 85 Z rails, see page 86 Adaptor rail, see page 78





Horizontal rail Vario CON 2, with integral Z rail for connector



To accommodate guide rails. Integral Z rail for mounting connectors (CON) to IEC 41612.

- HP pitch pattern of holes for the precise installation of guide rails
- 84 tapped holes M2.5 for connector mounting
- Not suitable for mounting under covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Not suitable for mounting under covers.

Usable width (HP)	Packs of	Order No.
84	1	9901.991

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Threaded inserts, see page 86





COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac Vario ECO

Horizontal rail Vario V 1, front



To accommodate guide rails and for the attachment of front panels.

- Front projection 2.5 mm corresponding to IEC 60297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
84	1	3684.562

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87 Gaskets, see page 85



Horizontal rail Vario BP 3, for backplane, with integral channel for slide-in covers



To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips.

- HP pitch pattern of holes for the precise installation of guide rails
- Channel for slide-in covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

Not suitable for mounting under covers. Additional threaded inserts are required for mounting backplanes/Z rails.



Usable width (HP)	Packs of	Order No.
84	1	3688.104

+ Also required

Assembly screws M4 x 12, packs of 100, order no. 3654.300, see page 140

+ Accessories

Threaded inserts, see page 86 Identification strips, see page 87 Conductive strips, see page 87 Insulating strips, see page 85 Z rails, see page 86 Gaskets, see page 85



COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac EASY

Overview horizontal rails HeiPac EASY

	EASY V 1	EASY BP 1	EASY CON 1	Vario CON-M 1	Vario BP-M 2	EASY H 1
Main sections	Front horizontal rail, with double screw fastening	Rear horizontal rail, with double screw fastening, for mounting backplanes	Rear horizontal rail, with double screw fastening, with integral Z rail	Rear horizontal rail, with integral Z rail	Rear horizontal rail, center	Rear horizontal rail, with double screw fastening, for mounting rear panels
	PageSeite 83	PageSeite 83	PageSeite 84	PageSeite 78	PageSeite 76	PageSeite 84
Additional sections		<u>27161</u>	ل مىھى	Ę	3	പപ്പ
Adaptor rail, rear center, to acommodate guide rails	-	-	-		ब्द	-
Z rail for connector Page 86	-	-	-	-	-	-
Insulating strip ¹⁾] Page 85	-	-	-	-	-	-
Conductive strip ²⁾] Page 87	-	-	-	-	-	-
Threaded insert		-	ᠴᢄ᠆		-	പഫ്
Identification strips Page 87	-	-	-	-	-	-
EMC gaskets, horizontal Page 85	-	-	-	-	-	-

For ¹)insulated or ²)conductive attachment of backplanes.

COMPONENTS AND ACCESSORIES **HORIZONTAL RAILS HeiPac EASY**

Horizontal rail EASY V 1, with double screw fastening, front



To accommodate guide rails and for the attachment of front panels.

- Pre-assembled screws M 4x16 for fast mounting on the subrack side panel
- Front excess length 2.5 mm corresponding to IEC 60297-3
- · HP pitch pattern of holes for the precise installation of guide rails
- · On request with double screw fastening to ensure a high stability
- M4 thread on end face
- Straight-through core hole for optional double screw fastening

Material

Extruded aluminium section

- Surface finish
- Non-corrosive

Supply includes

2 horizontal rails with pre-assembled threaded inserts and screws M4 x 16



Usable width	Packs	Order No.	Order No.
(HP)	of	unprinted	printed
84	2	3634.600	9921.803 ¹⁾

1) with HP pattern printing

+ Also required

Assembly screws M4 x 16 for double screw fastening, order no. 3634.430 (packs of 100)

+ Accessories

Threaded inserts, see page 86

1 Core hole M4

Order No.

COMPONENTS & ACCESSORIES

84	2	3634.615
+ Also required		
Assembly screws M4	x 16 for d	ouble scre

fastening, order no. 3634.430 (packs of 100)

Packs

of

1 Core hole M4

HEITEC ELECTRONIC PACKAGING SYSTEMS

To accommodate guide rails and for the attachment of backplanes.

- · Pre-assembled screws M4 x 16 for fast mounting on the subrack side panel
- Tapped holes M2.5 in 1 HP pitch pattern for mounting backplanes
- HP pitch pattern of holes for the precise installation of guide rails
- On request with double screw fastening to ensure a high stability
- · M4 thread on end face

Horizontal rail EASY BP 1, with double screw fastening, for backplane

- · Height of the profile allows cover extension
- Straight-through core hole for optional double screw fastening

Material

Extruded aluminium section

Surface finish

Non-corrosive

Supply includes

2 horizontal rails with pre-assembled threaded inserts and screws M4 x 16

Note

Due to integrated contact area, insulating strips cannot be used





Usable width

(HP)

ouble screw crews M₄

COMPONENTS AND ACCESSORIES HORIZONTAL RAILS HeiPac EASY

Horizontal rail EASY CON 1, with integral Z rail for connector, with double screw fastening



To accommodate guide rails, integral Z rail for the attachment of connectors (CON). Integral Z rail for mounting connectors (CON) to IEC 60603-2.

- Pre-assembled screws M4 x 16 for fast mounting on the subrack side panel
- On request with double screw fastening to ensure
 a high stability
- HP pitch pattern of holes for precise mounting of guide rails
- M4 thread on end face
- Straight-through core hole for optional double screw fastening
- · Height of the profile allows cover extension

Material

- Extruded aluminium section
- Surface finish
- Non-corrosive

Supply includes

2 horizontal rails with pre-assembleds screws M4 x 16



Usable width (HP)	Packs of	Order No.
84	2	3634.620

+ Also required

Assembly screws M4 x 16 for double screw fastening, order no. 3634.430 (packs of 100)

+ Accessories

Threaded inserts, see page 86



1

Horizontal rail EASY H 1, with double screw fastening, for mounting rear panels



To accommodate rear front panels.

- With channel for mounting top covers see page 106 Covers EASY version 2
- On request with double screw fastening to ensure a high stability
- Straight-through core hole for optional double screw fastening
- M4 thread on end face
- Pre-assembled screws M4 x 16 for fast mounting on the subrack side panel

Material

Extruded aluminium section

Surface finish

Non-corrosive

Supply includes

2 horizontal rails with threaded inserts and screws M4 x 16

Usable width (HP)	Packs of	Order No.
84	1	3634.510

+ Also required

Assembly screws M4 x 16 for double screw fastening, order no. 3634.430 (packs of 100)

+ Accessories

Threaded inserts, see page 86





1 Core hole M4

COMPONENTS AND ACCESSORIES **ACCESSORIES FOR HORIZONTAL RAILS**

EMC gaskets for front horizontal rails





FNC	
EMC	

Suitable for horizontal rails Vario V 1, 2, 3, V-Ext. 1, 2, 3, 4.	Usable width (HP)	Packs of	Order No.	
For horizontal EMC protection.	For top/bottom horizontal rail			
For snapfastening onto the front	40	1	3684.974	
horizontal rails.	40	10	9921.945	
Material	84	1	3684.808	
Stainless steel	84	10	3684.246	
European patent no. 0 937 375 with validity	For sub-division of 6 l between 2 horizontal		J,	
for DE	84	1	3685.789	
US patent no. 6,137,052 Chinese patent	84	10	3685.229	
no. ZL 97 1 98582.0			20.20	



Insulating strip



Suitable for horizontal rails Vario BP 1, 2, 3, BP-M 1.

For insulated mounting of backplanes.

• 21 HP

 Slides onto the rear horizontal rail

Material

Plastic, self-extinguishing to UL 94-V0

Usable width (HP)	Packs of	Order No.
21	1	3684.611
21	8	3685.274



COMPONENTS AND ACCESSORIES ACCESSORIES FOR HORIZONTAL RAILS

Z rail for connector, IEC 60 603-2



Suitable for horizontal rails Vario BP 1, 2, 3 and BP-M 1.

With M2.5 threaded holes. For the assembly of single connectors according to IEC 60603-2.

Material
Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
4	1	3684.597
8	1	3684.598
20	1	3684.599
40	1	3684.965
42	1	3684.600
63	1	3684.601
84	1	3684.602
84	2	3685.271

+ Also required

Assembly screws M2.5 x 6, packs of 100, order no. 3654.340, see page 140



Threaded insert



Suitable for horizontal rails Vario 1, 2, 3, V-Ext. 1, 2, 3, 4, BP 2, 3, CON 1, 2 and CON-M 1.

With M2.5 threaded holes on an HP pitch pattern. For sliding into the horizontal rail. There are two threaded insert versions, which are distinguished by their height.

Material

Sheet steel, zinc-plated

Usable width (HP)	Packs of	Order No.		
		6 x 2 mm	5 x 2 mm	
		for subracks		
		Vario Vario EMC ECO Compact HEAVY	EASY	
3	1	3684.603	-	
7	1	3684.604	-	
12	1	3684.605	-	
16	1	3684.606	-	
20	1	3684.607	-	
21	1	3686.149	-	
40	1	3684.966	-	
42	1	3684.608	-	
63	1	3684.609	-	
84	1	3684.610	9901.816	

COMPONENTS AND ACCESSORIES **ACCESSORIES FOR HORIZONTAL RAILS**

Conductive strip



Suitable for horizontal rails Vario BP 1, 2, 3 and BP-M 1.

For conductive mounting of backplanes.

• 84 HP

· Slides onto the rear horizontal rail

Material

Aluminium

Usable width (HP)	Packs of	Order No.
84	1	3684.612
84	2	3685.273



COMPANY OVERVIEW

Identification strip



Suitable for horizontal rails Vario 1, 2, 3, V-Ext. 1, 3, 4, BP 1, 2, 3, 4, 5 and CON 1.

To identify the slots on the subrack, self-adhesive.

The following versions are available:

4 mm wide:

- · for front horizontal rails
- for rear horizontal rails
- 2 mm wide:
- for front horizontal rails (channel on front face)

For horizontal rail	Width mm	Label	Packs of	Order No.
Front	4	1 83	1	3687.575
Rear	4	1 167	1	3687.577
Front	4	83 1	1	3687.574
Front	2	1 84	1	3687.576

Perforated strip

Perforated strips with 2.9 mm diameter holes in HP pitch pattern. Holes for centering shielded

plug-in modules.

Material Aluminium

Usable width (HP)	Packs of	Order No.
84	2	3685.275



COMPONENTS AND ACCESSORIES COMPONENTS FOR EMC INSTALLATION

EMC gaskets, vertical



To ensure EMC protection between the subrack side panel and the front/rear panels. There are two versions available.

Suitable for mounting on:

- 482.6 mm (19") flanges for subracks
- Corner trims, rear
- EMC contact strip
- U-channel front panels
- Trim panels for HeiPac Vario-Module
- Flanges for HeiPac Vario-Module

Material

Stainless steel

German patent no. 101 15 525 and no. 198 46 627 US patent no. 6,500,012 US patent no. 7,044,753



Version 1: Segmented

	•	
U	Order No. Packs of 1	Order No. Packs of 10
1	3686.973	3684.236
2	3686.974	3684.237
3	3686.975	3684.238
4	3686.976	3684.239
6	3686.977	3684.240
7	3686.978	3684.241
9	3686.979	3684.242
10	3686.980	3684.243
11	3686.981	3684.244

Version 2: One-piece

U	Order No. Packs of 1	Order No. Packs of 10
2	3688.610	-
3	3688.611	9921.942
4	3688.612	-
5	3688.613	-
6	3688.614	9921.943
7	3688.615	-
8	3688.634	-
9	3688.616	9921.944
10	3688.609	-
11	3688.633	-
12	3688.606	-

EMC contact strip, depth-adjustable istallation



To ensure EMC protection when horizontal rails are set-back. Integral channel to accommodate EMC oaskets.

Material

Extruded aluminium section

Surface finish

Clear-chromated

Note

2 sections are required for each subrack.

U	Packs of	Order No.
3	1	3684.643
6	1	3684.644
9	1	3684.645

+ Also required

EMC gaskets, vertical, see above Assembly screws M3 x 6, packs of 100, order no. 3684.233, see page 140





COMPONENTS AND ACCESSORIES COMPONENTS FOR EMC INSTALLATION

EMC gaskets for covers



For EMC shielding between the horizontal rails and covers.	HP	Packs of	Order No.
	40	1	3684.975
Material	84	1	3684.807
Stainless steel	84	10	3684.245





COMPANY OVERVIEW

EMC gaskets for front horizontal rails





For horizontal EMC protection. For snapfastening onto the front horizontal rails.

Material

Stainless steel

European patent no. 0 937 375 with validity for DE US patent no. 6,137,052 Chinese patent no. ZL 97 1 98582.0



Usable width (HP)	Packs of	Order No.
For top/bottom horizo	ntal rail	
40	1	3684.974
40	10	9921.945
84	1	3684.808
84	10	3684.246
For sub-division of 6 l between 2 horizontal		J,
84	1	3685.789
84	10	3685.229



COMPONENTS AND ACCESSORIES **MOUNTING COVERS/COMPONENTS FOR EMC INSTALLATION**

Mounting blocks for cover plates



For mounting covers, versions 1-4, on the subrack side panel.

Material Die-cast zinc

Surface finish

Nickel-plated

Note

For EMC applications, mounting blocks must be fitted across the entire subrack depth.

EMC

	Packs of	Order No.
Mounting blocks 28.5 mm long	10	3684.234
Approximate number of mounting blocks for max. EMC protection	Cover pla mm	ate depth
4	142	
8	192	
10	212	
12	252	
14	272	
16	312	
18	332	
20	372	
24	432	
28	492	
32	552	

+ Also required

Assembly screws M3 x 6, packs of 100, order no. 3684.233, see page 140

8





Mounting clips for cover plates



For mounting covers on the subrack side panel.

Compatible with cover plate versions 1-4 and the ECO and EASY versions. Sheet metal blanks 0.8-1.0 mm thickness.

Material

Stainless steel

Note

EM(

For EMC applications, mounting clips must be fitted across the full depth of the subrack.





Length mm	Packs of	Order No.
30	1	3688.109
30	50	3634.450

Recommended number of mounting clips for max. EMC protection	Cover plate depth mm
4	142
8	192
10	212
12	252
14	272
16	312
18	332
20	372
24	432
28	492
32	552

Assembly screws, order no. 9921.879, see page 140

COMPONENTS AND ACCESSORIES REAR COVERS

Back cover



For HeiPac Vario, EMC and Heavy.

Ensures cover for back of subrack.

Material

Aluminium

Surface finish

Clear-chromated

Note

The side panel depth required is obtained by taking the length of the plug-in units used, and adding 85 mm (refer to table). A precondition is the use of a horizontal rail that allows room for additional construction.

U	Packs of	Order No.
3	1	9921.685
6	1	9921.710
PCB depth mm		Side panel depth mm
160		245
220		305
280		365

Horizontal rail that allows room for additional construction



Trim section, rear



For HeiPac Vario ECO.

Ensures 84 HP fit at the rear of the subrack. With integral channel to accommodate EMC gaskets.

Material

Extruded aluminium section

Surface finish Clear-chromated

U	Packs of	Order No.
3	1	3688.112
6	1	3688.113

+ Accessories

EMC gaskets, vertical, see page 88





Trim section, rear

For HeiPac Vario, EMC, Compact and Heavy.

Ensures 84 HP fit at the rear of the subrack. With integral channel to accommodate EMC gaskets.

Material

Extruded aluminium section

Surface finish

Clear-chromated

U	Orde	er No.
0	Packs of 1	Packs of 2
2	3684.633	-
3	3684.634	3685.276
4	3684.635	-
6	3684.636	3685.277
7	3684.637	-
9	3684.638	-
10	3684.639	-
11	3684.640	-

+ Accessories

EMC gaskets, vertical, see page 88





COMPONENTS AND ACCESSORIES TOP-HAT RAIL MOUNTING

Fixing for HeiPac top-hat rail version 1



Rail holder to mount a top-hat rail on the horizontal subrack rails.

Material

Rail holder: Aluminium, not surface-coated Top-hat rail: steel, zinc-plated

Supply includes

2 rail holders 1 top-hat rail, perforated Assembly parts

Height	Top-hat width mm	L1 mm	Top-hat height mm	Packs of	Order No.
3 U	35	100	7.5	1	9918.814
3 U	35	200	7.5	1	9918.815
3 U	35	300	7.5	1	9918.816
3 U	35	400	7.5	1	9918.817
3 U	35	100	15	1	9918.818
3 U	35	200	15	1	9918.819
3 U	35	300	15	1	9918.820
3 U	35	400	15	1	9918.821



Fixing for HeiPac top-hat rail version 2



Fixing bracket to mount a top-hat rail on the subrack side panel.

Material

Fixing bracket: steel plate, zinc-plated

Supply includes 2 fixing brackets Assembly parts 1 set 36

Order No. 3634.770

+ Also required

Packs of

Top-hat rail, packs of 1, see page 93



Back panel for top-hat rail mounting



For HeiPac Vario COMPACT subracks

For top-hat rail mounting of subracks

Material

Aluminium, clear-chromated

		Orde	er No.
U Width Packs HP of		3	3
		Non-EMC	EMC
21	1	3687.742	3687.750
42	1	3687.744	3687.751

+ Also required

Top-hat rail adapter, packs of 1, Order no. 3687.739, see page 93

COMPONENTS AND ACCESSORIES TOP-HAT RAIL MOUNTING

Top-hat rail adapter



Top-hat rail adapter to directly mount a component or device on a top-hat rail.

Material

Extruded aluminium section

Packs of	Order No.
1	3687.739

+ Also required

Assembly screws, packs of 100, Order no. 3606.550, see page 140 Back panel for top-hat rail mounting, see page 92



Top-hat rail



Suitable for HeiPac top-hat application Version 2	For Width	Dimensions mm	Packs of	Order No.
Material	84 HP	35 x 7.5 x 425	1	3634.780
Steel	84 HP	35 x 15 x 425	1	9912.828
Ounte es finis h				

Surface finish

Zinc-plated

Flange 19" for HeiPac Vario COMPACT, mounting plate



Material	Version	Packs	Orde	er No.
Extruded aluminium section		of	3 U	6 U
Surface finish	left	1	3687.776	3687.800
Clear-chromated	right	1	3687.743	3687.777

COMPONENTS AND ACCESSORIES **MOUNTING KITS**

Vertical divider kit



For the combined installation of single and double Eurocards in 6 U and 9 U subracks.

Material

Aluminium, clear-chromated

- Supply includes
- 2 front horizontal rails
- 1 adaptor rail
- 2 threaded inserts 1 vertical support (from 12 HP)
- assembly parts

6 U (2 x 3 U)

HP	HP	Onder No.
1 (2 × 3 U)	2 (6 U)	Order No.
14	68	3684.220
21	61	3684.221
28	54	3684.222
40	42	3684.223
42	40	3684.224

9 U (1 x 6 U + 1 x 3 U)

HP	HP	Order No.
(1 x 6 + 1 x 3 U)	(9 U)	Order No.
4	80	3684.225
8	76	3684.226
12	70	3684.227
16	66	3684.228
20	62	3684.229

+ Accessories

Front panel, see page below EMC gaskets, horizontal, see page 89

Vertical support



Required for the combined installation of single, double and triple Eurocards in one subrack.
 U
 Packs of
 Order No.

 6
 1
 3684.678

 9
 1
 3684.679

Aluminium, extruded

Material

Surface finish

Clear-chromated

Front panel to conceal the vertical support of the vertical divider kit



To conceal the vertical support of the vertical divider kit.

Material Aluminium, extruded

,

Supply includes Assembly parts

Note

EMC version, see page 121

U	HP	Packs of	Order No.
6	2	1	3685.176
9	2	1	3685.286

COMPONENTS AND ACCESSORIES **MOUNTING KITS**

Horizontal mounting kit



For horizontal installation of 6 U/9 U PCBs in 3 U/4 U subracks.

- Horizontal installation space: 1 3 U subrack: 20 HP (5 slots) 4 U subrack: 28 HP (7 slots)
 - Vertical installation space: (when installing double Eurocards) 31 HP (without trim frame) 28 HP (with trim frame)

Material

2

Aluminium, clear-chromated

Supply includes

- 2 horizontal rails, front
- 2 horizontal rails, rear
- 1 or 2 horizontal rails, rear, center 2 threaded inserts
- 4 or 6 insulating strips
- 4 connecting parts
- assembly parts

For backplane assembly with standard horizontal rail, front

Order No. U horizontal for 3 U subrack for 4 U subrack 6 3684.206 3684.208 9 3684.207 3684.209

For backplane assembly Horizontal rail front, with 10 mm extension

U	Order No.		
horizontal	for 3 U subrack	for 4 U subrack	
6	3684.210	3684.212	
9	3684.211	3684.213	

+ Accessories

Trim frame, see below

Trim frame for horizontal mounting kit



To conceal the front sections of the horizontal mounting kit.

Material

Aluminium, anodised

U horizontal	HP	Order No.	
	ΗP	for 3 U subrack	for 4 U subrack
6	56	3685.783	3685.785
9	84	3685.784	3685.786

+ Also required

Collar screws and plastic collars, packs of 100 sets, order no. 3658.160, see page 140

Trim frame for horizontal mounting kit, vented



horizontal mounting kit.

To conceal the front sections of the

Surface finish Anodised, clear-chromated (EMC version)

Supply includes

EMC accessories (with EMC version).

Material Aluminium

U	НР	Orde	er No.
horizontal	пг	for 3 U subrack	for 4 U subrack
6	63	3685.787	3685.788

+ Also required

Collar screws and plastic collars, packs of 100 sets, order no. 3658.160, see page 140

EMC version

U horizontal	HP	Order No.		
		for 3 U subrack	for 4 U subrack	
6	63	3685.291	3685.292	

+ Also required

Centering screws, packs of 100, order no. 3687.050, see page 141

COMPONENTS AND ACCESSORIES GUIDE RAILS

Guide rails, plastic



For 160, 220 and 280 mm PCBs up to 2 mm nominal thickness.

2 versions are available:

- Snap-in fastening and screw-fastening
- Snap-in fastening

Material

Polycarbonate Base material to UL 94-V0

For	Packs	Order No.		
PCB depth mm	of	Snap-in fastening/ screw-fastening ¹⁾	Snap-in fastening	
100	1	-	3688.005	
160	10	3688.048	3688.045	
220	10	3688.049	3688.046	
280	10	3688 052	3688.047	

+ Also required

¹⁾ Assembly screws, packs of 100, order no. 3654.360, see page 140

Guide rails for contact spring fitting, plastic



For 160, 220 and 280 mm PCBs up to 2 mm nominal thickness. By installing contact springs, an electrical connection can be made between the PCB and the assembly.

Material Polycarbonate

Base material to UL 94-V0

For PCB depth mm	Packs of	Order No.
160	10	3688.048
220	10	3688.049
280	10	3688.052

+ Also required

Contact springs, order no. 3687.726, see page 96

Contact springs



For electrical connection between the PCB and the subrack, or to discharge static charges from the PCB. Suitable for installation in

Guide rails for contact spring fitting

End pieces for guide rails

Material

Copper-tin alloy

Packs of	Order No.
1	3687.548
10	3687.726

Guide rails, Aluminium



For high loads. Suitable for nominal PCB thicknesses of 1.6 mm. A distinction is made between guide rails for and without end

pieces. The guide rails without end pieces are screwfastened directly into the horizontal rail.

Material

Aluminium

2

Order No. For Packs PCB depth 1 2 of mm Without end piece1) For end pieces 160 10 3688.064 3688.057 220 10 3651.120 3688.058 280 10 3651.160 3688.059 1000 1 3684.666

+ Also required

- ¹⁾ Screw M2.5 x 6, packs of 100, order no. 3654.340, see page 140
- ¹⁾ Nut M2.5, packs of 100, order no. 3654.370, see page 140

¹⁾ Retaining cage M2.5, packs of 100, order no. 9901.417, see page 140

COMPONENTS AND ACCESSORIES **GUIDE RAILS**

End pieces for aluminium guide rails, plastic



Mounting contact springs ensures an electrical connection between the PCB and the subrack.

Material

Polycarbonate Base material UL 94-V1

Supply includes End piece, front

End piece, rear

Version	Packs of	Order No.
End piece, front + rear	10	3688.028

+ Also required

Contact springs, order no. 3687.726, see page 96

Keyable guide rails 4 HP, plastic





Guide rails 4 HP, keyable, to IEEE 1101.10.

- For 1.6 2.4 mm nominal thickness
- · Chambers for the installation of keys
- Option of installing ESD contacts to
- discharge static charges
- Narrow design for maximum air flow · Various colour variants to identify the slots:
- Red for system slot
- Green for power supply
- Yellow and grey for board-type plug-in units

ESD contact for guide rails
 ESD contact for front panel
 Keys

Material

Polycarbonate Base material to UL 94-V0

Colour

Grey (RAL 7035) Red (RAL 3000) Green Yellow

Note

Only for use in conjunction with type IV, IVs, VII injector/extractor handles.

For	Packs	Order No.			
PCB depth mm	of	Grey	Red	Green	Yellow
160	10	3685.257	-	-	-
220	10	3685.258	-	-	-
280	10	3685.259	-	-	-
160	1	3684.669	3686.063	3688.055	3689.089
220	1	3684.953	9902.240	-	3689.091
280	1	3684.954	-	-	3689.093

Other customised solutions regarding colouring are available upon request. Please get in contact with one of our sales representatives for further assistance by phone or by mail at Tel. +49 9126 - 29 34 0 or electronics-quote@heitec.de.

+ Accessories

- Keys, see page 101
- ESD contact, see page 101 Extractor handles type IV, IVs, VII, see page 110 et seq.





SUBRACKS

CASES & ENCLOSURES

COMPONENTS AND ACCESSORIES GUIDE RAILS

Keyable guide rails with 1/2 HP offset



Guide rails with ½ HP offset for use in telecom applications. This allows PCBs to be populated on both sides. Green guide rails with offset are prescribed in the CompactPCI specification (PICMG 2.11) for the installation of power supply units.

- For 1.6 2.0 mm PCB thickness
- 4 HP width for 160/220 mm PCB
- Narrow design for maximum air flow
- Chambers for the installation of keys
- Option of installing ESD contacts to discharge static charges

Material

Polycarbonate Base material to UL 94-V0

Note

Only suitable for use in conjunction with extractor handles type IV, IVs, VII with $\frac{1}{2}$ HP offset.

For PCB depth mm	Packs of	Colour	Order No.
160	10	Grey	3688.062
	1	Yellow	3689.090
	1	Green	3687.832
220	10	Grey	3688.060
	1	Yellow	3689.092

+ Accessories

Keys, see page 101 ESD contact, see page 101 Extractor handles Type IVs, VII with $\frac{1}{2}$ HP offset, see page 111

Keyable guide rails for rear I/O assemblies



Guide rails 4 HP, keyable to IEEE 1101.10. Prepared to accommodate a ground contact for assembly of a plug-type connection.

- For 1.6 2.0 mm nominal thickness
- For 80 mm deep PCBs
- Chambers for the installation of keysOption of installing ESD contacts to
- discharge static chargesNarrow design for maximum air flow
- For CPCI or VME applications

Material

Polycarbonate Base material to UL 94-V0

Note

Only for use in conjunction with type IV, IVs, VII injector/extractor handles. Not suitable for horizontal rails with double screw-fastening.

	For	Packs of		er No.
Colour	PCB depth		Guide rails	
	mm		Тор	Bottom
Grey	80	1	3687.936	3687.937
Yellow	80	1	3689.097	3689.098

+ Accessories

Keys, see page 101 ESD contact, see page 101 Extractor handles type IV, IVs, VII, see page 110 et seq.

Ground contact



Ensures a plug-in ground connection. UL-approved.

Material

Die-cast zinc
Supply includes

Grounding bush and contact spring.

Note

Only suitable for use in conjunction with keyable guide rails for I/O assemblies.

Version	Order No.	
	1 set	50 sets
Grounding bush and contact spring	3689.036	3687.951

+ Also required

Assembly screws 3.5 x 12 mm, packs of 50, order no. 3684.109, see page 140 $\,$



COMPONENTS AND ACCESSORIES GUIDE RAILS

Keyable guide rails, aluminium, three-part



Keyable guide rails with aluminium center part, for high mechanical loads. Suitable for 1.6 – 2.0 mm PCB thickness. The guide rails are compiled from the following individual components:

1 2 end pieces

For PCB depth

mm 220

280

340

400

1000

400

- 2 1 aluminium center part
- 3 Insulating center part(s)





1	End	pieces

For three-part guide rails For 1.6 – 2.0 mm PCB thickness

Material

Polycarbonate Base material to UL 94-V0

Note

A front and a rear end piece is required for each guide rail.

2	Aluminium center part	

For three-part guide rails		
For 1.6 – 2.0 mm PCB thickness		
For 1.6 – 2.0 mm PCB thickness		

Material Aluminium, unplated

Version	Packs of	Order No.
Front + rear end piece	10 pairs	3685.265
Front end piece	1	3685.790
Rear end piece	1	3684.670

5

 Order No.

 Packs of 1
 Packs of 10

 3684.673
 3685.260

 3684.674
 3685.261

 3684.675
 3685.262

 3684.676
 3685.263

 3684.672



3 Insulated center part	Packs of	Order No.
	1	3684.677
For three-part guide rails	10	3685.264
The insulating center part is pushed onto		
the aluminium center piece. Length: 60 mm	For PCB depth mm	Number of insulating strips required
Material	220	2
Plastic, self-extinguishing to UL 94-V0	280	3
	340	4

COMPONENTS & ACCESSORIES

COMPANY OVERVIEW

COMPONENTS AND ACCESSORIES GUIDE RAILS

Guide rails for 4.4["] drive modules



Snap-fastening guide rails to accommodate PCBs and assemblies with a height of 4.4" (111.76 mm).

- it	For PCB depth mm	Packs of	Order No.
	160	1	9919.834

Material

Polycarbonate Base material to UL 94-V0

Colour

Grey (RAL 7032)



Guide rails for box type plug-in units



For PCB thickness 1.6 mm. For insertion into covers with vent slots (from 12 HP), see page 126.

Material

Noryl

For PCB depth mm	Packs of	Order No.
160	10	3606.140
220	10	3606.200

Air block panel for slots





To conceal unused slots and prevent unwanted airflow. The air block panel simply snaps into position on the guide rails.

Material

Polycarbonate, self-extinguishing to UL 94-V0

Colour

Blue

Note

Can only be used in conjunction with keyable guide rails 4 HP/160 mm. Not suitable for use in conjunction with guide rails with ½ HP offset.

For keyable guide rail mm	Packs of	Order No.
160	1	3687.924



COMPONENTS AND ACCESSORIES **ACCESSORIES FOR KEYABLE GUIDE RAILS**

ESD contacts





For installation in keyable guide rails. To discharge static charges.

- 1 ESD contact in the guide rail For permanent direct discharge from the PCB.
- 2 ESD contact for front panel To discharge static charges in conjunction with the ESD pin. For insertion into the end piece of the guide rail.

3 ESD pin

4 Keys

- Material 1 Stainless steel
- 2 Tin bronze, tin-plated

Note

Only for use in conjunction with extractor handle with ESD pin (type IV, IVs, VII), see page 110 et seq.

ESD clip for	Packs of	Order No.
Guide rail	50	3684.204
Front panel	50	3684.205



Keys





Keys are used for coding of board-type plug-in units and prevent the use of assemblies in incorrect slots. The keys are inserted into the chambers of the keyable guide rails and the injector/extractor handles, types IV, IVs and VII (4 positions are possible). This produces 64 keying combinations per guide rail.

When keying the top and bottom guide rail, 4096 potential combinations are possible.

Standards

IEEE 1101.10, IEC 60297-5-104

Material

Plastic, PBTP Base material to UL 94-V0

Colour	Packs of	Order No.
Grey	100	3684.325
Red	100	3684.326

+ Accessories

Keying tool, see page 102

	Pos. 1	Pos. 2
	Pos. 3	Pos. 4
\checkmark		

COMPONENTS AND ACCESSORIES ACCESSORIES FOR KEYABLE GUIDE RAILS

PCB ejector/retainer



The two-piece PCB ejector is used for securing and extracting PCBs without front panels.

The base section may also be used separately for board retention only.

Material

Polycarbonate Base material to UL 94-V0

Note

Only suitable for guide rails 2 HP

Version	Packs of	Order No.
PCB ejector/ retainer	10	3687.014
2 PCB retainer	1	3686.003
2 PCB retainer	10	3687.052



Keying tool



For simple assembly of keys. Up to 3 coding keys may be fitted simultaneously. An integral alignment pin makes positioning easier.

Material

Polycarbonate Base material to UL 94-V0

Packs of	Order No.
1	3687.956

COMPONENTS AND ACCESSORIES **COVERS**

Covers version 1



For subracks HeiPac Vario, Vario EMC, COMPACT and HEAVY

To cover the overallsubrack depth

(EMC application) or as connector protection.

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version.

Each set includes

2 cover plates 8 mounting blocks 28.5 mm 26 assembly screws

Individual unit includes 1 cover plate

Note

For EMC applications, additional mounting blocks must be fitted across the entire subrack depth. Not suitable for HeiPac EASY and ECO, see page 106.

			Order No.			
			Single	piece 1)	S	et
ΗP	For side panel depth (T) mm	Cover depth (d1) mm	Perforated	Solid	Perforated	Solid
21	225	192	3687.618	3687.620	-	-
21	285	252	3687.619	3687.621	-	-
42	175	142	3684.957	3687.626	-	-
42	225	192	3687.623	3687.627	-	-
42	245	212	3684.958	3687.628	-	-
42	285	252	3685.642	3687.629	-	-
84	175	142	3684.681	3684.680	3685.245	3685.250
84	225	192	3684.694	3684.683	-	-
84	235	202	3685.851	3685.813	-	-
84	245	212	3684.695	3684.684	3685.246	3685.251
84	285	252	3684.696	3684.685	-	-
84	295	262	3685.855	3685.814	-	-
84	305	272	3685.852	3684.686	3685.247	3685.252
84	345	312	3684.698	3684.687	-	-
84	365	332	3685.853	3684.688	3685.248	3685.253
84	405	372	3684.700	3684.689	3685.249	3685.254
84	465	432	3684.701	3684.691	-	-
84	525	492	3684.702	3684.692	-	-
84	585	552	3684.703	3684.693	-	-

+ Also required

¹⁾ Mounting blocks, see page 90

¹⁾ EMC gaskets for cover plates, see page 89 ¹⁾ Assembly screws, packs of 100, order no. 3684.233, see page 140





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COMPONENTS AND ACCESSORIES COVERS

Covers version 2



For subracks HeiPac Vario, Vario EMC, COMPACT and HEAVY

To cover the PCB depth

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version

Each set includes

2 cover plates 8 mounting blocks 28.5 mm 26 assembly screws

Individual unit includes

1 cover plate

Note

Not suitable for HeiPac EASY and ECO, see page 106.

			Order No.			
			Single	piece 1)	Set	
ΗP	For PCB depth (d2) mm	Cover depth (d1) mm	Perforated	Solid	Perforated	Solid
21	160	142	3687.630	3687.634	-	-
21	220	202	3687.631	3687.635	-	-
42	160	142	3684.957	3687.626	-	-
42	220	202	3687.633	3687.637	-	-
42	280	262	3687.638	3687.639	-	-
84	160	142	3684.681	3684.680	3685.245	3685.250
84	220	202	3685.851	3685.813	-	-
84	280	262	3685.855	3685.814	-	-
84	340	322	3685.856	-	-	-
84	400	382	3685.857	-	-	-

+ Also required

¹⁾ Mounting blocks, see page 90

¹⁾ Assembly screws, packs of 100, order no. 3684.233, see page 140





Covers version 3



For subracks HeiPac Vario and Vario EMC

To cover the overall subrack depth

(EMC application)

- Cover with 1 U edge fold (item 1), to conceal the 1 U area in the subrack
- **2** A version 1 fl at cover (item 2) is additionally required
- Optionally perforated or solid on the front
- Suitable for subracks 4 U (3 + 1), 7 U (6 + 1)
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter

4 mm in perforated version.

Note

For EMC applications, mounting blocks must be fitted across the entire subrack depth.

Not suitable for HeiPac EASY and ECO, see page 106.

Individual unit includes

1 cover plate

			Orde	er No.
ΗP	For side panel depth (T) mm	Cover depth (d3) mm	Perforated	Solid
84	285	270	3684.720	3684.714
84	345	330	3684.721	3684.715
84	405	390	3684.722	3684.716
84	465	450	3684.723	3684.717
84	525	510	3684.724	3684.718
84	585	570	3684.725	3684.719

+ Also required

Mounting blocks, see page 90

EMC gaskets for covers, see page 89

Assembly screws, packs of 100, order no. 3684.233, see page 140 Cover, version 1, see page 103





COMPONENTS AND ACCESSORIES COVERS

Covers version 4



For subracks HeiPac Vario and Vario EMC To cover the overall subrack depth

(EMC application)

- Cover top/bottom with ½ U edge fold to cover the ½ U section in the subrack
- Optionally perforated or solid on the front
- Suitable for subracks 4 U (3 + 2 x ½), 7 U (6 + 2 x ½)
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version.

Note

For EMC applications, mounting blocks must be fitted across the entire subrack depth. Not suitable for HeiPac EASY and ECO, see page 106.

Individual unit includes

1 cover plate

			Orde	er No.
ΗP	For side panel depth (T) mm	Cover depth (d3) mm	Perforated	Solid
84	285	270	3684.732	3684.726
84	345	330	3684.733	3684.727
84	405	390	3684.734	3684.728
84	465	450	3684.735	3684.729
84	525	510	3684.736	3684.730
84	585	570	3684.737	3684.731

+ Also required

Mounting blocks, see page 90 EMC gaskets for covers, see page 89 Assembly screws, packs of 100, order no. 3684.233, see page 140







Covers version 5



For subracks HeiPac Vario, Vario EMC, ECO, COMPACT and HEAVY

To cover the overall subrack depth or PCB depth. (EMC application)

Simple assembly:

- Side edge fold with half shears facilitates fast assembly (without mounting blocks) by simply snap-fastening
- Side notches for fitting horizontal rails in 160, 220 or
- 280 mm depthOptionally solid or perforated

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version.

Supply includes

2 gaskets

Note

Not suitable for HeiPac EASY, see page 106.





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COMPONENTS AND ACCESSORIES COVERS

Covers for HeiPac EASY





Perforated or sol	id.
-------------------	-----

Optionally with screwed fastening clips on the side panels for additional support.

Material

0.8 mm aluminium

Supply includes 2 cover plates

Cover plates

version 1 (slide- in)

The covers are simply slid into the front and rear horizontal rails for mounting backplanes/ connectors.

version 2 (slide-in/screw-in)

For mounting additional rear horizontal rails on the rear panels. The horizontal rails for backplane/connector assembly are top-mounted. The covers are slid in the front horizontal rails and screwed in the rear horizontal rails for rear panel mounting.





Version 1

HP	For	Order No.		
	For side panel depth mm	Perforated	Solid	
84	175	3634.685	3634.675	
84	235	3634.690	3634.680	

Version 2

ΗP	For side panel depth mm	Order No.		
		Perforated 1)	Solid 1)	
84	175	3634.650	3634.625	
84	235	3634.655	3634.630	
84	295	3634.660	3634.635	
84	355	3634.665	3634.640	
84	415	3634.670	3634.645	

+ Also required

¹⁾ assembly screws, packs of 100 order no. 3684.233, see page 140

+ Accessories

Fastening clips see page 90

Fastening clips

0 1				
Packs of	Order No.			
50	3634.450			
Assembly screws for fastening clips				
Packs of	Order No.			
100				





To cover the overall subrack depth.

Perforated or solid. The covers are slid into the horizontal rails. Optionally with screwed fastening clips for additional support.

Material

0.8 mm sheet steel

Surface finish

Zinc-plated

Supply includes

1 cover plate

HP HP HP HP HP HP HP HP HP HP HP HP HP H	For	Order No.	
	depth	Perforated	Solid
84	175	3688.105	3688.107
84	235	3688.106	3688.108

+ Accessories

Fastening clips see page 90

Fastening clips

100

Packs of	Order No.
50	3634.450

Assembly screws for fastening clips
Packs of
Orde

Order No.
9921.879





COMPONENTS AND ACCESSORIES **FRONT PANELS AND HANDLES**

Flat front panels with extractor handle



With type I or II extractor handle. Complete modular systems.

Material

Front panel: 2.5 mm aluminium, anodised Handle: Plastic, black

Supply includes

- 1 front panel
- 2 handles (1 with 3 U)
- 1 set of assembly parts 1 PCB holder (for 3 U)



U	HP	a mm	Order No.	
			1 Type I	2 Type II
3	4	20.0	3684.330	3684.358
3	5	25.1	3684.331	3684.359
3	6	30.2	3684.332	3684.360
3	7	35.3	3684.333	3684.361
3	8	40.3	3684.334	3684.362
3	10	50.5	3684.335	3684.363
3	12	60.7	3684.336	3684.364
6	4	20.0	3684.337	3684.365
6	5	25.1	3684.338	3684.366
6	6	30.2	3684.339	3684.367
6	7	35.2	3684.340	3684.368
6	8	40.3	3684.341	3684.369
6	10	50.5	3684.342	3684.370
6	12	60.7	3684.343	3684.371
9	4	20.0	-	3684.372
9	8	40.3	-	3684.373

a (8 – 12 HP) 5.9

> . ŧl 3.3

Tet T

2.5

255.85

6 U

41

2.6

29

12.6

5

Pro-

6.1

M2.5

22.9

Front panels with type I, II or IV, IVs, VII extractor handles

6 U

2.5

a (4 – 7 TE)

зU



2.5



Extractor handles Type I









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COMPONENTS AND ACCESSORIES FRONT PANELS AND HANDLES

EMC U-channel front panels with injector/extractor handle



With type I, II extractor handle or type IV injector/extractor handle. Complete modular systems

Material

ront panel: extruded aluminium, section, clear-chromated Handle: plastic, black

Supply includes

- 1 front panel
- 2 handles (1 with 3 U) 1 EMC gasket, vertical, version 1
- 1 set of assembly parts 1 PCB holder (for 3 U)

Detailed drawing see page 110 et seq.





		_	Order No.		
U	HP	a mm	1 Type I	2 Type II	3 Type IV ¹⁾
3	4	20.0	3684.344	3684.374	3684.413
3	5	25.1	3684.345	3684.375	3684.414
3	6	30.2	3684.346	3684.376	3684.415
3	7	35.3	3684.347	3684.377	3684.416
3	8	40.3	3684.348	3684.378	3684.417
3	10	50.5	3684.349	3684.379	3684.418
3	12	60.7	3684.350	3684.380	3684.419
6	4	20.0	3684.351	3684.381	3684.420
6	5	25.1	3684.352	3684.382	3684.421
6	6	30.2	3684.353	3684.383	3684.422
6	7	35.2	3684.354	3684.384	3684.423
6	8	40.3	3684.355	3684.385	3684.424
6	10	50.5	3684.356	3684.386	3684.425
6	12	60.7	3684.357	3684.387	3684.426
9	4	20.0	-	3684.388	3684.427
9	5	25.1	-	-	3684.428
9	6	30.2	-	-	3684.429
9	7	35.3	-	-	3684.430
9	8	40.3	-	3684.389	3684.431
9	10	50.5	-	-	3684.432
9	12	60.7	-	-	3684.433

¹⁾Can only be inserted in conjunction with front horizontal rails, with 10 mm extension (Vario V-Ext. 1), see page 71

Front panels for type I, II, IV, IVs or VII handles









 $^{1)}$ 2.3 mm drilled hole not contained in versions 5 – 7 HP.

9 U
Flat front panels for handles



For type I, II extractor handle or type IV, IVs or VII injector/extractor handle.

Material

2.5 mm aluminium, anodised

Detailed drawing front panel see page 107



+ Also required

From front panel widths of 4 HP (at 3 U) and 8 HP (at 6 U): Collar screws and plastic collars, packs of 100 sets, order no. 3658.160, see page 140 For 3 U front panels: PCB holder set, see page 119

HP	а	Order No.		
nr	mm	3 U	6 U	9 U
4	20.0	3685.500	3685.508	3685.516
5	25.1	3685.501	3685.509	3685.517
6	30.2	3685.502	3685.510	3685.518
7	35.3	3685.503	3685.511	3685.519
8	40.3	3685.504	3685.512	3685.520
10	50.5	3685.505	3685.513	3685.521
12	60.7	3685.506	3685.514	3685.522

U-channel front panels for handles



For type I, II extractor handle or type IV, IVs or VII injector/extractor handle.

Material

2.5 mm extruded aluminium section, clear-chromated

Detailed drawing front panel see page 108





+ Also required

From front panel width 4 HP (for 3 U) and 8 HP (for 6 U): Slotted centering screws, packs of 100, order no. 3687.050, see page 141 Posidrive centering screws, packs of 100, order no. 3687.051, see page 141 EMC gaskets, see page 88 For 3 U front panels: PCB holder set, see page 119

HP	a	Order No.		
	mm	3 U	6 U	9 U
4	20.0	3685.524	3685.532	3685.540
5	25.1	3685.525	3685.533	3685.541
6	30.2	3685.526	3685.534	3685.542
7	35.3	3685.527	3685.535	3685.543
8	40.3	3685.528	3685.536	3685.544
10	50.5	3685.529	3685.537	3685.545
12	60.7	3685.530	3685.538	3685.546

Extractor handle type I and type II



Suitable for flat front panels/U-channel front panels. With removal function. May be used in combination with horizontal rails with 10 mm extension.

With 3 U, only one extractor handle is

Supply includes Assembly parts

Note

required.

1 Type I extractor handle, 15 mm

Colour	Packs of	Order No.
Grey	1	3685.587
Black	1	3685.589

2 Type II extractor handle, 30 mm

Colour	Packs of	Order No.
Grey	1	3685.588
Black	1	3685.590

+ Accessories

Identification strips for extractor handles, see page 111







Injector/extractor handle type IV



For inserting and removing connectors with a large number of pins.

Handles with micro-switch

- Insertion/removal function
 Integral microswitch for
- "live insertion" applicationsSelf-activation of the micro-switch during insertion/removal
- ESD pin to dissipate static charges before contacting the connectors and for precise positioning of the board type plug-in unit
- Keyable
- Integral PCB attachment
- Self-locking
- Bayable

Handle without micro-switch

Description see above. Micro-switch may be retrofitted.

Supply includes

1 handle with or without micro-switch, assembly parts

Note

Insertion only when used with front horizontal rails, with 10 mm extension see page 71 et seq. With 3 U front panels, only one extractor handle is required.

Handles with micro-switch

Colour	Installation	Packs of	Order No.
Grey	Тор	1	3686.905
Grey	Bottom	1	3686.904
Black	Тор	1	3686.907
Black	Bottom	1	3686.906

Handle without micro-switch

Colour	Installation	Packs of	Order No.
Grey	Тор	1	3686.901
Grey	Bottom	1	3686.900
Black	Тор	1	3686.903
Black	Bottom	1	3686.902

+ Accessories

Keys, see page 101 Keyable guide rails, see page 98 Micro-switches, see page 113 Connector pin for baying, see page 112





Injector/extractor handle type IV, 8 HP bayed



For two front panels 4 HP. Connects two front panels mechanically

Supply includes 2 bayed handles fully assembled

llv.	Colour	Installation	Packs of	Order No.
iiy.	Black	Bottom	1	3686.908
	Black	Тор	1	3686.909

+ Accessories

Connector pin for baying, see page 112

Identification strips for extractor handles



For type I, II or IV extractor handle. For labeling of Injector/extractor handles width 4 HP.

Material

Polyester film, self-adhesive

Colour

Aluminum metallic, matt

Packs of	Order No.
100	3684.328

Injector/extractor handle type IVs



For inserting and removing connectors with a large number of pins. A metal insert ensures reliable functioning, even at forces of up to 815 N.

With push-button

- Insertion/removal function
- Push-button for locking and unlocking the board type plug-in unit (cannot be extracted in the locked position)
- Optionally with ½ HP offset PCB attachment, e. g. for component mounting on both sides
- Optional integral micro-switch for "live insertion" applications
- ESD pin to dissipate static charges before contacting the connectors and for precise positioning of the board type plug-in unit
- according to IEEE 1101.1
- Keyable
- Integral PCB attachment
- Bayable

Material

Plastic/metal

Supply includes

Assembly parts

Note

Insertion only when used with front horizontal rails, with 10 mm extension see page 71 et seq. With 3 U front panels, only one extractor handle is required.

Handles without offset

Installation	Packs of	Order No.
Тор	1	3688.770
Bottom	1	3688.771

Handles with 1/2 HP offset

Installation	Packs of	Order No.
Тор	1	3688.772
Bottom	1	3688.773

+ Accessories

Keys, see page 101 Keyable guide rails with 1/2 HP offset, see page 98 Micro-switches, see page 113 Connector pin for baying, see page 112



Connection pin for injector/extractor handles



For injector/extractor handles, types IV, IVs and VII. The connection pin can be used to connect injector/extractor handles, types IV, IVs and VII.

Material

Steel

Packs of	Order No.
20	3685.319

Injector/extractor handle type VII



For inserting and removing connectors with a large number of pins. This handle was specifically designed for use in telecom applications.

Plastic

- Insertion/removal function
- Optionally with ½ HP offset PCB attachment, e. g. for component mounting on both sides
- Minimum front space requirements, due to foldup handle
- Optional integral micro-switch for "live insertion" applications
- ESD pin to dissipate static charges prior to making contact with the connectors and for precise positioning of the board type plug-in unit
- Keyable
- Large labelling area on the front

Material

Plastic/metal

Supply includes

Assembly parts

Note

Insertion only when used with front horizontal rails, with 10 mm extension see page 71 et seq.

Handles without off set

Installation	Packs of	Order No.
Тор	1	3688.784
Bottom	1	3688.785

Handles with 1/2 HP offs et

Installation	Packs of	Order No.
Тор	1	3688.780
Bottom	1	3688.781

+ Accessories

Keys, see page 101 Keyable guide rails with 1/2 HP offset, see page 98 Micro-switches, see page 113 Connector pin for baying, see page 112



Injector/extractor handle type VII



For inserting and removing PCBs with a high connector pin-count (up to 815 N). This handle was specifically designed for use in telecom applications.

Metal

Insertion/removal function
 Optionally with ½ HP offset PCB attachment, e. g. for component mounting on

- both sidesMinimum front space requirements due to foldup handle
- Optional integral micro-switch for "live insertion" applications
- ESD pin to dissipate static charges prior to making contact with the connectors and for precise positioning of the board type plug-in unit
- Keyable
- Metal design for use in aggressive atmospheres
- Material

Die-cast zinc

Supply includes

Assembly parts

Note

Insertion only when used with front horizontal rails, with 10 mm extension see page 71 et seq.

Handles without off set

Installation	Packs of	Order No.
Тор	1	3688.790
Bottom	1	3688.791

Handles with 1/2 HP offs et

Installation	Packs of	Order No.
Тор	1	3688.786
Bottom	1	3688.787

+ Accessories

Keys, see page 101 Keyable guide rails with 1/2 HP offset, see page 98 Micro-switches, see page 113 Connector pin for baying, see page 112



Micro-switch



Micro-switch, with cable

Installation in injector/extractor handles, types IV, IVs and VII. For "live insertion" applications, may also be retrofitted.

Installation in injector/extractor handles,

Micro-switch, connector type Molex

Technical specifications

Switching load: 50 mA 30 V DC

Service life: At nominal load: 30.000 mechanical: 50.000

types IV, IVs and VII.

Supply includes

51021-0300.

fully assembled

With cable and connector For "live insertion" applications.

mounting clips, 3 cables, 25 mm x #32 AWG,

Packs of	Order No.
10	3684.410

+ Accessories

Packs of

1 set

Micro-switch mounting clip, see page 114

COMPONENTS & ACCESSORIES



Injector/extractor handle in latch positior 1-3 micro-switch levers not depressed Injector/extractor handle unlatched



Order No.

3686.536

1 Lever not depressed

2 Lever hinge

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Micro-switch mounting clip



For mounting micro-switches in handles.

Material

Plastic, UL94-V0

ndles.	Packs of	Order No.
	10	3684.411

+ Also required

Micro-switch see page 113

Plastic covers for PCBs



For mechanical protection of the component side and of the EMC gaskets. Attachment holes as per CPCI or VMEspecifications. Optionally available as perforated or solid version.

Material

0.5 mm plastic, transparent, anti-static UL 94-V0, maximum temperature up to 65°C

 $^{1)}$ 0.5 mm plastic, black, anti-static UL 94-V0, maximum temperature up to 120°C

		Order No.				
For PCBs	Packs of	for CPCI	for VME			
		Perforated	Solid	Solid	Solid	
3 U x 160 mm	1	3687.932	3686.572	3685.966	3685.626	
	5	-	-	-	3685.279	
3 U x 220 mm	1	-	-	-	3685.805	
	5	-	-	-	3685.266	
6 U x 80 mm	1	3687.933	3686.573	3686.037	3686.146	
6 U x 160 mm	1	3687.934	3686.574	3685.967	3685.627	
	1	9905.574 ¹⁾	9905.990 ¹⁾	-	-	
	5	-	-	-	3685.280	
6 U x 220 mm	1	-	-	-	3685.824	
	5	-	-	-	3685.000	

Front panels for type III extractor handle



Material

1.0 mm extruded aluminium section

Surface finish Untreated





A B	C1 C2	Order No.				
mm	mm	mm	mm	3 U	6 U	9 U
15,20	12,20	-	-	3685.548	3685.555	
20,22	17,20	-	-	3685.549	3685.556	3685.562
25,28	22,28	-	22,68	3685.550	3685.557	3685.563
30,36	27,36	-	25,22	3685.551	3685.558	3685.564
40,52	37,52	-	30,30	3685.552	3685.559	3685.566
50,68	47,68	40,46	25,22	3685.553	3685.560	3685.567
60,84	57,84	50,62	30,30	3685.554	3685.561	3685.568
				97,00	230,35	363,70
				90,00	223,35	356,70
	15,20 20,22 25,28 30,36 40,52 50,68	mm mm mm 15,20 12,20 20,22 17,20 25,28 22,28 30,36 27,36 40,52 37,52 50,68 47,68	mm mm 15,20 12,20 - 20,22 17,20 - 25,28 22,28 - 30,36 27,36 - 40,52 37,52 - 50,68 47,68 40,46	mmmmmm15,2012,2020,2217,2025,2822,28-22,6830,3627,36-25,2240,5237,52-30,3050,6847,6840,4625,22	mm mm mm mm 3 U 15,20 12,20 - - 3685.548 20,22 17,20 - - 3685.549 25,28 22,28 - 22,68 3685.550 30,36 27,36 - 25,22 3685.551 40,52 37,52 - 30,30 3685.552 50,68 47,68 40,46 25,22 3685.553 60,84 57,84 50,62 30,30 3685.554 97,00 - - 97,00 -	mm mm mm 3 U 6 U 15,20 12,20 - - 3685.548 3685.555 20,22 17,20 - - 3685.549 3685.556 25,28 22,28 - 22,68 3685.550 3685.557 30,36 27,36 - 25,22 3685.551 3685.559 40,52 37,52 - 30,30 3685.553 3685.559 50,68 47,68 40,46 25,22 3685.553 3685.561 60,84 57,84 50,62 30,30 3685.554 3685.561 97,00 230,35 - - - - -

Type III extractor handle



Material	HP	Packs of	Order No.
Fibreglass-reinforced polycarbonate Base section: nickel-plated ABS	3	1	3685.591
Dase section. Hickel-plated ADS	4	1	3685.592

Colour Grey





Covers for panel end spaces for type III extractor handle



Material
Fibreglass-reinforced polycarbonate

HP	Width mm	Packs of	Order No.
1	5	1	3687.529
2	10.08	1	3687.530
4	20.24	1	3687.531

Universal holder for front panel support



To support the front panel	HP	Packs of	Order No.
Material	4	1	3687.545
Plactic			

Plastic

Flat front panels with type V handle and PCB holder



Complete modular systems

Material Flat front panel: 2.5 mm aluminium, natural-anodised

Handle: Aluminium, natural-anodised PCB holder: Polycarbonate

Supply includes

1 front panel 1 handle (2 with 6 U) 1 PCB holder (2 with 6 U) Assembly parts

ΗP	а	В	Order No.			
	mm	mm	3 U H = 128.7	6 U H = 262.05		
3	14.9-		3652.000	3652.200		
4	20.0	-	3652.010	3652.210		
5	25.1	-	3652.020	3652.220		
6	30.1	-	3652.030	3652.230		
7	35.2	-	3652.040	3652.240		
8	40.3	-	3652.050	3652.250		
10	50.5	35.6	3652.060	3652.260		
12	60.6	45.7	3652.070	3652.270		
14	70.8	55.9	3652.080	-		

+ Accessories

9.5

2.5

14

15

88.9

10.85

66 6 Identification strips for handles, see page 119









Flat front panels for type V and VI handle



Flat front panel with pre-drilled holes for mounting handles type V and VI.

Material

2.5 mm aluminium, anodised

Note Detailed drawing without EMC



HP	а	В	b	Packs of	Order No.	
	mm	mm	mm		3 U	6 U
3	14.9	-	-	1	3685.569	3685.578
4	20.0	-	-	1	3685.570	3685.579
5	25.1	-	-	1	3685.571	3685.580
6	30.2	-	15.2	1	3685.572	3685.581
7	35.2	-	20.3	1	3685.573	3685.582
8	40.3	-	25.4	1	3685.574	3685.583
10	50.5	35.6	35.6	1	3685.575	3685.584
12	60.6	45.7	45.7	1	3685.576	3685.585
14	70.8	55.9	55.9	1	3685.577	3685.586

+ Also required

Collar screws and plastic collars, packs of 100 sets, order no. 3658.160, see page 140

+ Accessories

Handles type V, see page 118 Handles type VI, see page 119



U-channel front panels for type V and VI handle



EMC flat front panel with pre-drilled holes for mounting handles type V and VI.

Material

2.5 mm aluminium, clear-chromated

Supply includes

Material Plastic

1 vertical EMC gasket, version 1.



ΗP	а	В	Packs	Order No.	
	mm	mm	of	3 U	6 U
4	20.0	-	1	3687.655	3687.660
6	30.2	-	1	3687.656	3687.661
8	40.3	-	1	3687.657	3687.662
10	50.5	35.6	1	3687.658	3687.663
12	60.6	45.7	1	3687.659	3687.664

+ Also required

Slotted centering screws, packs of 100, order no. 3687.050, see page 141 Cross-head centering screws, packs of 100, order no. 3687.051, see page 141

+ Accessories

Handles type V, see page 118 Handles type VI, see page 119

Detailed drawing,

see page 117

Type V handle, plastic



HP	Colour	Packs of	Order No.
3	Grey	1	3685.490
4	Grey	1	3685.491
8	Grey	1	3685.492
12	Grey	1	3685.493
20	Grey	1	3685.494
3	Black	1	3685.495
4	Black	1	3685.496
8	Black	1	3685.497
12	Black	1	3685.498
20	Black	1	3685.499

+ Also required

Mounting kit, packs of 1 set, order no. 3687.519, see page 140



Type V handle, aluminium



Material

Aluminium, anodised



ΗP	Packs of	Order No.	HP	Packs of	Order No.
3	1	3685.595	10	1	3685.601
4	1	3685.596	12	1	3685.602
5	1	3685.597	14	1	3685.603
6	1	3685.598	21	1	3685.761
7	1	3685.599	28	1	3685.762
8	1	3685.600	42	1	3685.763

1 1 3685.604	

+ Also required

Mounting kit, packs of 1 set, order no. 3687.146, (from 6 HP 2 packs required), see page 141 $\,$

WE CREATE YOUR ELECTRONIC WORLD

Identification strips for type V handle, aluminium



	For individ	ual labelling	of the	handles.
--	-------------	---------------	--------	----------

Material	
1.4 mm aluminium.	anodised

HP	Packs of	Order No.
3	1	3685.746
4	1	3685.747
5	1	3685.748
6	1	3685.749
7	1	3685.750
8	1	3685.751
10	1	3685.752
12	1	3685.753
14	1	3685.754
21	1	3685.755
28	1	3685.756
42	1	3685.757

Length m	Packs of	Order No.
1	1	3685.758
0.5	5	3606.300

Type VI handle



Material

Aluminium, anodised.

ΗP	Packs of	Order No.	ΗP	Packs of	Order No.
3	1	3685.605	12	1	3685.612
4	1	3685.606	14	1	3685.613
5	1	3685.607	21	1	3685.614
6	1	3685.608	28	1	3685.615
7	1	3685.609	42	1	3685.616
8	1	3685.610	84	1	3685.617
10	1	3685.611			



Length m	Packs of	Ore
1	1	368

der No. 85.618

+ Zusätzlich wird benötigt

Mounting kit, packs of 1 set, order no. 3687.146 (from 6 HP 2 packs required), see page 141

PCB holder kit



For attaching the PCB to front panels with handle types I, II, IV, IVs, VII.
•• • • •

Material Die-cast

Note

Only required at the top with 3 U front panels.

ר I	Packs of	Order No.
_	1	3685.619
	10	3685.198

+ Also required

For attaching the PCB to the PCB holder:

Pan-head screws, packs of 100, order no. 3654.320, see page 140 For attaching the front panel to the PCB holder:

Oval csk-screws, packs of 100, order no. 3685.282, see page 141





COMPANY OVERVIEW

PCB holder for front panels



For attaching PCBs to front panels	
(handle type V, VI).	

Material

Noryl

Supply includes

Assembly parts



Order No.

3606.330

Packs of

10

Front panels as filler panel



Flat front panels for covering unused slots or front/rear panels. Not suitable for EMC.

Material

2.5 mm aluminium, natural-anodised



+ Also required Collar screws and plastic collars, packs of 100 sets, order no. 3658.160, see page 140

			h	Order No.						
HP	a mm	B mm	b mm	10	20	3 U	4 U	6 U	7 U	90
				H = 39.8	H = 84.25	H = 128.7	H = 173.15	H = 262.05	H = 306.5	H = 395.4
2	9.8	-	-	-	-	3684.889	-	3684.911	-	3684.738
3	14.9	-	-	-	-	3684.890	-	3684.912	-	-
4	20.0	-	-	-	-	3684.891	9921.405-	3684.913	-	3684.739
5	25.1	-	-	-	-	3684.892	-	3684.914	-	-
6	30.2	-	-	-	-	3684.893	-	3684.915	-	-
7	35.2	-	-	-	-	3684.894	-	3684.916	-	-
8	40.3	-	-	-	-	3684.895	-	3684.917	-	3684.740
10	50.5	35.6	-	-	-	3684.896	-	3684.918	-	-
12	60.6	45.7	-	-	-	3684.897	9921.405	3684.919	-	3684.741
14	70.8	55.9	-	-	-	3684.898	-	3684.920	-	-
20	101.3	86.4	-	-	-	3684.899	-	3684.921	-	-
21	106.4	91.4	-	-	3685.350	3684.900	-	3684.922	-	-
24	121.7	106.7	-	-	3685.429	9912.139	-	-	-	-
27	136.8	121.9	-	-	-	3684.901	-	3684.923	-	-
28	141.9	127.0	-	-	-	3684.902	9909.388	3684.924	-	-
40	202.9	188.0	-	-	-	3684.903	-	3684.976	-	3684.977
42	213.0	198.1	-	3684.885	3684.887	3684.904	3684.908	3684.925	3684.928	3684.742
60	304.5	289.6	-	-	-	3684.905	-	-	-	-
63	319.7	304.8	152.4	-	-	3684.906	3684.909	3684.926	3684.929	-
84	426.4	411.5	203.2	3684.886	3684.888	3684.907	3684.910	3684.927	3684.930	3684.743
85	431.5	431.5	203.2	-	-	3684.744	3684.745	3684.746	3684.747	3684.748

U-channel front panels as filler panels



1

. .

Flat front panels U-shaped to cover unused slots or front/rear panels. EMC material is included in the scope of delivery.

Material

2.5 mm extruded aluminium section, clear-chromated

Supply includes

1 front panel, one-piece (with 2 – 14 HP version) or three-piece (with > 14 HP version) 1 vertical EMC gasket, version 1 1 contact strip (three-piece only) 1 gasket strip (three-piece only)

- 1 gasket strip (three-piece only)



+ Also required



Slotted centering screws, packs of 100, order no. 3687.050

SUBRACKS

CASES & ENCLOSURES

COMPANY OVERVIEW

see page 141 Cross-head centering screws, packs of 100, order no. 3687.051, see page 141

		В	Ь		d				Order No.			
HP	a mm	тт	b mm	c mm	mm	1 U H = 39.8	2 U H = 84.25	3 U H = 128.7	4 U H = 173.15	6 U H = 262.05	7 U H = 306.5	9 U H = 395.4
2	9.8	-	-	-	-	-	-	3685.177	-	3685.185	-	3685.193
3	14.9	-	-	-	-	-	-	3686.138	-	3686.139	-	3686.140
4	20.0	-	-	-	-	-	-	3685.178	-	3685.186	-	3685.194
5	25.1	-	-	-	-	-	-	3685.179	-	3685.187	-	-
6	30.1	-	-	-	-	-	-	3685.180	-	3685.188	-	-
7	35.2	-	-	-	-	-	-	3685.181	-	3685.189	-	-
8	40.3	25.4	-	-	-	-	-	3685.182	-	3685.190	-	3685.195
10	50.5	35.6	-	-	-	-	-	3685.183	-	3685.191	-	-
12	60.6	45.7	-	-	-	-	-	3685.184	-	3685.192	-	3685.196
14	70.8	55.9	-	-	-	-	-	3684.249	-	3684.258	-	3684.278
16	80.9	66.0	-	-	-	-	-	3685.348	-	3685.349	-	-
20	101.3	86.4	-	-	-	-	-	3684.250	-	3684.259	-	3684.279
21	106.4	91.4	-	-	-	-	-	3684.272	-	3684.275	-	-
28	141.9	127.0	61.0	-	-	-	-	3684.251	-	3684.260	-	-
40	202.9	188.0	91.5	-	-	-	-	3684.273	-	3684.276	-	3684.280
42	213.0	198.1	96.5	-	-	-	-	3684.252	3684.255	3684.261	3684.264	3684.267
60	304.5	289.6	96.5	193.0	-	-	-	3684.274	-	3684.277	-	-
63	319.7	304.8	101.6	203.2	-	-	-	3684.253	3684.256	3684.262	3684.265	3684.268
84	426.4	411.5	101.6	203.2	304.8	3684.247	3684.248	3684.254	3684.257	3684.263	3684.266	3684.269

COMPONENTS & ACCESSORIES

Front panels, hinged



Material

2.5 mm aluminium, anodised

Supply includes 1 set of hinges

Assembly parts

		Order No.				
U	HP	vertically hinged	horizontally hinged			
3	42 ¹⁾	3652.600	3652.500			
3	841)	3652.610	3652.510			
3	85	-	3684.291			
4	85	-	3684.292			
6	42 ¹⁾	3652.620	3652.520			
6	841)	3652.630	3652.530			
6	85	-	3684.293			
7	85	-	3684.294			
9	85	-	3684.295			

+ Also required

 With rear mounting of 42 HP and 84 HP front panels, additonal trim sections must be attached at the rear of the subrack. Rear trim sections, see page 91

EMC front panels, hinged



Material	υ	HP	Order No.
2.5 mm aluminium, clear-chromated			horizontally hinged
Supply includes			
1 front panel	3	84	3684.298
1 set of hinges	4	84	3684.299
1 contact strip 1 gasket strip	6	84	3684.300
1 vertical EMC gasket, version 1	7	84	3684.301
Assembly parts	9	84	3684.302



Door cut-out trim for subracks installed indoors

Material Aluminium



Width	Packs of	Order No.
1⁄2 19"	2	3634.060
19"	2	3634.070

Mezzanine front panels



For PCI mezzanine cards (PMC), conforms to IEEE 1386.

Material/surface finish Extruded aluminium section, clearchromated

Packs of	Order No.
1	3688.658

+ Accessories

EMC seals, see page 123 Assembly screws M2.5 x 6, packs of 100, order no. 3654.340, see page 140

Mezzanine front panels



For PCI mezzanine cards (PMC), con-
forms to IEEE 1386.

1-	Packs of	Order No.
	1	3688.659

+ Accessories

EMC seals, see page 123 Assembly screws M2.5 x 6, packs of 100, order no. 3654.340, see page 140

Support spacers for mezzanine cards



Support spacer 10 mm, for mounting	
mezzanine cards.	

Material

Material Die-cast zinc

Steel, nickel plated

or mounting	Packs of	Order No.
	1	3688.663

Covers for mezzanine cut-outs



To conceal unused mezzanine cut-outs. The covers are simply clipped into the cut-outs.

Packs of	Order No.
1	3688.660

Material

Stainless steel

EMC seals for mezzanine front panels



For inserting into the all-round channel of the mezzanine front panels.

Material/surface finish

Sealing ring made of conductive carbon filled silicon sealing gasket made from stainless steel

f	Design	Packs of	Order No.
	Sealing ring	1	3688.661
	Sealing gasket	1	3688.662

COMPONENTS AND ACCESSORIES **BOX-TYPE PLUG-IN UNITS**

HeiPac box-type plug-in units - type I



Technical specifications

Installation depth: 160 and 220 mm Height: 3 U and 6 U to IEC 60297-3 Rear panel to accommodate single connectors

Material

Front panel: 2.5 mm aluminium, pure anodised Real panel: 2 mm aluminium, untreated Side panel profile: extruded aluminium profile, pure anodised Handle: aluminium, pure anodised PCB holder: plastic

Available on request

• Box-type plug-in units in special sizes or printed

• EMC box-type plug-in units with EMC front panels

HP	а	B b c C d e f		1.		Order No.					
	mm	mm	mm	mm	mm	mm	mm	mm	3 U	3 U	6 U
Board de	Board depth 160 mm										
6	32.2	-	20.3	27.5	-	171.5	122	167	3653.000	-	-
8	40.3	-	30.5	36.0	-	171.5	122	167	-	3653.010	-
10	50.5	35.6	40.6	46.2	-	171.5	122	167	-	3653.020	3653.100
12	60.6	45.7	50.8	56.4	-	171.5	122	167	-	3653.030	3653.110
14	70.8	55.9	60.9	66.5	-	171.5	122	167	-	3653.040	3653.120
21	106.3	91.4	96.4	102.0	86.3	171.5	122	167	-	3653.050	3653.130
28	141.9	127.0	132.0	137.6	121.8	171.5	122	167	-	3653.060	3653.140
42	213.1	198.1	203.2	208.8	193.0	171.5	122	167	-	3653.070	3653.150
Board de	epth 22	0 mm									
10	50.5	35.6	40.6	46.2	-	231.5	182	227	-	3653.200	3653.300
12	60.6	45.7	50.8	56.4	-	231.5	182	227	-	3653.210	3653.310
14	70.8	55.9	60.9	66.5	-	231.5	182	227	-	3653.220	3653.320
21	106.3	91.4	96.4	102.0	86.3	231.5	182	227	-	3653.230	3653.330
28	141.9	127.0	132.0	137.6	121.8	231.5	182	227	-	3653.240	3653.340
42	213.1	198.1	203.2	208.8	193.0	231.5	182	227	-	3653.250	3653.350
Supply i	ncludes	6									
Front par	nel								1	1	1
Handle									1	1	2
Side pan	el								1	2	2
Cover pla	Cover plate incl. rear panel								1	-	-
Rear pan	Rear panel								-	1	2
PCB hold	der								2	2	2
Assembly	Assembly parts (set) 1 1										











Section A – A Board depth 160 mm

7.35

9 9

+ Accessories

Covers, see page 126

Guide rails, see page 100

Individual components, see page 126





15.7

b



COMPONENTS AND ACCESSORIES BOX-TYPE PLUG-IN UNITS

PCB holder for box-type plug-in units



For fastening PCBs in box-type	Packs of	Order No.
plug-in units.	2	3606.321
Material	•	

Plastic PBTP, basic material to UL 94-V0

Supply includes Assembly parts

Guide rails for drive chassis



For guiding drive chassis in the subrack.

Material Aluminium

Supply includes Press-fit pin

Note

Two guide rails are required for each drive chassis. Guide rails 4.4" for plastic drives, see page 100.

+ Also required

For installation

depth mm

160

Assembly screws packs of 100, order no. 3654.340, see page 140

Packs of



Order No.

3686.989

COMPONENTS AND ACCESSORIES **BOX-TYPE PLUG-IN UNITS**

HeiPac box-type plug-in units - individual components type I and type II



HeiPac box-type plug-in units, types I and II in 3 U and 6 U, individual components Type I for one connector/type II for several connectors

TYP	ype i for one connector/type ii for several connectors											
	k-type plug-in units, ividual components	A Type I	B Type II	Packs of	8 HP	10 HP	12 HP	14 HP	21 HP	28 HP	42 HP	Page
Fro	nt panels of 2.5 mm aluminium, anodis	ed surf	ace fini	ish								
1	for 3 U	•	•	1	3685.769	3685.629	3685.630	3685.631	3685.636	3685.637	3685.638	-
	for 6 U (for 1 handle)	•	•	1	3685.767	3685.633	3685.634	3685.635	3685.639	3685.640	3685.641	-
	for 6 U (for 2 handles)	•	•	1	-	3687.520	3687.521	3687.522	3687.523	3687.524	3687.525	-
EM	C front panels of 2.5 mm aluminium, su	urface f	inish cl	ear-chr	omated (on	ly for use ir	n conjunctio	on with 10 l	HP box-typ	e plug-in u	nit)	
1a	for 3 U/10 HP box-type plug-in units	•	•	1	-	-	3687.587	-	-	-	-	-
	for 6 U/10 HP box-type plug-in units	•	•	1	-	-	3687.588	-	-	-	-	-
EM	C gaskets, vertical, for front panels											
1b	for 3 U	•	•	1	-	-	3686.975	-	-	-	-	88
	for 6 U	•	•	1	-	-	3686.977	-	-	-	-	88
Ha	ndle type V											
2	of aluminium, anodised surface finish	•	•	1	3685.600	3685.601	3685.602	3685.603	3685.761	3685.762	3685.763	118
	of plastic	•	•	1	3685.492	-	3685.493	-	3685.494	-	-	118
lde	ntification strips											
3	of 0.5 mm aluminium, anodised surface finish	•	•	1	3685.751	3685.752	3685.753	3685.754	3685.755	3685.756	3685.757	119
Co	vers 4a 4b of 1 mm aluminium, untreated	d 4c of	1.2 mm	n sheet	steel, paint	ed, RAL 90	06 (with ve	ent slots)				
4a	unvented, for board depth 160 mm	•	•	1	3687.555	3685.689	3685.690	3685.691	3685.692	3685.693	3685.694	-
	unvented, for board depth 220 mm	•	•	1	3687.562	3685.701	3685.702	3685.703	3685.704	3685.705	3685.706	-
4b	vented, for board depth 160 mm slide-in	•	•	1	3687.585	3685.683	3685.684	3685.685	3685.686	3685.687	3685.688	-
	vented, for board depth 220 mm slide-in	•	•	1	-	3685.695	3685.696	3685.697	3685.698	3685.699	3685.700	-
4c	vent slots for guide rails, for board depth 160 mm	•	•	1	-	3687.556	3687.557	3687.558	3687.559	3687.560	3687.561	-
	vent slots for guide rails, for board depth 220 mm	•	•	1	-	3687.563	3687.564	3687.565	3687.566	3687.567	3687.568	-
Sid	e panel of extruded aluminium section,	anodis	ed surf	face fini	sh							
5	3 U, for board depth 160 mm	•	•	1				3685.645				-
	6 U, for board depth 160 mm	•	•	1				3685.648				-
	3 U, for board depth 220 mm	•	•	1				3685.646				-
	6 U, for board depth 220 mm	•	•	1				3685.649				-
Rea	ar panel ^{6a} of 2.0 mm aluminium, untrea	ated 6b	of 1.2 i	mm she	et steel, sp	ray-finished	b					
6a	for 1 connector	•	-	1	3687.536	3685.707	3685.708	3685.709	3685.710	3685.711	3685.712	-
6b	for several connectors	-	•	1	-	-	-	-	3687.537	3687.538	3687.539	-
As	sembly parts for box-type plug-in uni	ts, see	page 1	140								
	······································											

WE CREATE YOUR ELECTRONIC WORLD

COMPONENTS AND ACCESSORIES BOX-TYPE PLUG-IN UNITS

HeiPac box-type plug-in units - individual components type V and type VI





HeiPac box-type plug-in units, types V and VI in 3 U and 6 U, in dividual components

Ту	pe V with cover (unvented)/type VI with co	ver (v	ented)								
	x-type plug-in units, lividual components	A Type V	B Type VI	Packs of	6 HP	7 HP	8 HP	10 HP	12 HP	14 HP	Page
Fre	ont panels of 2.5 mm aluminium, anodised s	urface	finish								
1	for 3 U	•	•	1	3685.768	3685.628	3685.769	3685.629	3685.630	3685.631	-
	for 6 U	•	•	1	3685.766	3685.632	3685.767	3685.633	3685.634	3685.635	-
На	ndle type V										
2	of aluminium, anodised surface finish	•	•	1	3685.598	3685.599	3685.600	3685.601	3685.602	3685.603	118
	of plastic	•	•	1	-	-	3685.492	-	3685.493	-	118
lde	entification strips for 3 U		•								
3	of 0.5 mm aluminium, anodised surface finish	•	•	1	3685.749	3685.750	3685.751	3685.752	3685.753	3685.754	119
Co	ver 4a 4b of 1 mm aluminium, clear-chromat	ed sur	face fin	ish							
4a		•	-	1	3685.774	3685.658	3685.776	3685.659	3685.660	3685.661	-
	unvented, 3 U, for board depth 220 mm	•	-	1	3685.775	3685.674	3685.777	3685.675	3685.676	3685.677	-
	unvented, 6 U, for board depth 160 mm	•	-	1	3685.717	3685.662	3685.764	3685.663	3685.664	3685.665	-
	unvented, 6 U, for board depth 220 mm	•	-	1	3685.718	3685.678	3685.765	3685.679	3685.680	3685.681	-
4b	vented, 3 U, for board depth 160 mm	-	•	1	3685.770	3685.650	3685.772	3685.651	3685.652	3685.653	-
	vented, 3 U, for board depth 220 mm	-	•	1	3685.771	3685.666	3685.773	3685.667	3685.668	3685.669	-
	vented, 6 U, for board depth 160 mm	-	•	1	3685.713	3685.654	3685.715	3685.655	3685.656	3685.657	-
	vented, 6 U, for board depth 220 mm	-	•	1	3685.714	3685.670	3685.716	3685.671	3685.672	3685.673	-
Sic	de panel of extruded aluminium section, ano	dised s	surface	finish							
5	3 U, for board depth 160 mm	•	•	1			368	5.645			-
	6 U, for board depth 160 mm	•	•	1			368	5.648			-
	3 U, for board depth 220 mm	•	•	1			368	5.646			-
	6 U, for board depth 220 mm	•	•	1			368	5.649			-
As	sembly parts for box-type plug-in unit typ	es I, I	I, V, VI								
De	scription	for ins	stallatio	n of:			Packs of		Order. No.		-
Assembly kit for box-type plug-in unit I/II, 3 U		Box-type plug-in units, type I/II, 3 U					1 set 3687.589				-
Assembly kit for box-type plug-in unit I/II, 6 U			Box-type plug-in units, type I/II, 6 U					1 set 3687.590			-
Assembly kit for box-type plug-in unit type V/VI Box-t			Box-type plug-in units, type V/VI				1 set		3685.294		-
Assembly kit for box-type plug-in unit with EMC front panel			ype plu	ıg-in uni	t with EMC f	ront panel	1 set 3687.591			-	
As	sembly kit for plastic handles	Plasti	c hand	les on b	ox-type plug	g-in units	1 set 3687.519				140
Gi	Guide rails for box-type plug-in units, see page 100										

Guide rails for box-type plug-in units, see page 100

For more screws, see page 140

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COMPONENTS AND ACCESSORIES CLIMATE CONTROL

Vertical cooling from bottom to top



Air flow via normal convection or forced cooling devices in the enclosure or housing outside of the subrack.

Vertical forced air flow, supported by fans installed at the bottom of the subrack (1 U). + Accessories AC/DC fan see page 132 f. Fan mounting plate see below

Fan mounting plate





For the installation of 120 mm fans and filter modules in 4 U and 7 U subracks. For mounting on the subrack side

panels.

Material

1.5 mm aluminium, anodised

ι	J	For PCB depth mm	No. of fan mounting plates required	ΗP	Order No.	
		160	1			
		220	1		3684.317	
1	1	280	2	84		
		340	2			
		400	3			

+ Also required

1 terminal block is required for each subrack.

Packs of	Order No.
1	3686.805



Diagonal cooling from front to back



Diagonal air flow from front to back allows individual cooling of PCBs in vertical installation position. An air baffle and air partition ensure controlled air flow.

- **1** Air baffle, see page 129
- 2 Fan (mounted on the rear panel), see page 132
- 3 Air partition, see page 129

COMPONENTS AND ACCESSORIES CLIMATE CONTROL

Air baffle



For controlled air flow in 7 U subracks. For mounting on subrack side panels with the aid of mounting blocks.

Material 1 mm aluminium

Supply includes Assembly parts

Subrack depth mm	Order No.
285	3685.302
345	3685.303
405	3684.320
465	3684.321
525	3684.322





Air partition



For controlled air flow in the subrack. The partitions are mounted on the horizontal rails together with the backplanes.

Material

Ероху

Height U	Order No.
1/2	3684.870
1	3684.871
3	3684.872

+ Also required

Fastening screws and washers packs of 100, order no. 3684.019, see page 140





Front/rear panels for ventilation



Non-EMC version

Material

2.5 mm aluminium
Surface finish

Anodised

EMC version Material

2.5 mm aluminium
Surface finish

Clear-chromated

- Supply includes
- 1 front panel 1 contact strip
- 1 gasket strip
- 1 vertical EMC gasket Assembly parts





Non-EMC version

	10101011		
U	HP	Packs of	Order No.
1	84	1	3684.812
2	84	1	3684.813
3	84	1	3684.814

+ Also required

Screws and collars, packs of 100 sets, Order no. 3658.160 see page 140



EMC version

U	HP	Packs of	Order No.
1	84	1	3684.281
2	84	1	3684.282
3	84	1	3684.283

+ Also required

Centering screws, see page 141



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COMPONENTS AND ACCESSORIES CLIMATE CONTROL

Rear panels for fan installation



Non-EMC version

Material 2.5 mm aluminium Surface finish Anodised

EMC version

Material 2.5 mm aluminium

Surface finish Clear-chromated

Supply includes

1 rear panel

1 contact strip 1 gasket strip

1 vertical EMC gasket

assembly parts

Non-EMC version

U	HP	For fans mm	Packs of	Order No.
3	85	80	1	3684.839
4	85	80	1	3684.840
6	85	120	1	3684.841
7	85	120	1	3684.842

+ Also required

Screws and collars, packs of 100 sets, order no. 3658.160, see page 140 $\,$

EMC version

U	HP	For fans mm	Packs of	Order No.
3	84	80	1	3684.284
4	84	80	1	3684.285
6	84	120	1	3684.286
7	84	120	1	3684.287

+ Also required

Centering screws, see page 141

+ Accessories

Fans, see page 132 f.









COMPONENTS AND ACCESSORIES CLIMATE CONTROL

Rear panels, horizontally hinged for fan installation



Non-EMC version

Material 2.5 mm aluminium

Surface finish Anodised

Supply includes 1 rear panel

1 set of hinges assembly parts

Non-EMC version								
U	HP	For fans mm	Packs of	Order No.				
3	85	80	1	3684.304				
4	85	80	1	3684.305				
6	85	120	1	3684.306				
7	85	120	1	3684.307				

+ Also required

Screws and collars, packs of 100 sets, order no. 3658.160, see page 140 $\,$

EMC version

Material 2.5 mm aluminium

Surface finish Clear-chromated

Supply includes

1 rear panel 1 contact strip 1 gasket strip 1 vertical EMC gasket 1 set of hinges assembly parts

EMC version									
U	ΗP	For fans mm	Packs of	Order No.					
3	84	80	1	3684.311					
4	84	80	1	3684.312					
6	84	120	1	3684.313					
7	84	120	1	3684.314					

+ Also required

Centering screws, see page 141



+ Accessories

Fans, see page 132 f.







SUBRACKS

CASES & ENCLOSURES

COMPONENTS AND ACCESSORIES CLIMATE CONTROL

AC fans



For subracks and microcomputer systems.

1 fan without connection cable

Supply includes

+ Also required

Assembly screws packs of 1 set, order no. 3685.197, see page 141

AC fan	AC fans									
Dimensions		Bearing	Rated	Power	Noise	Tempera-	Volume	Order No.		
Fan mm	A mm	B mm		voltage V/Hz	Watts	level dB(A)	°C	flow m ³ /h		
80	79.5	71.5	Ball bearing	115/60	11.0	42	-40 bis +95	57	3686.645	
80	79.5	71.5	Ball bearing	230/50	12.0	37	-40 bis +90	48	3686.646	
120	119.0	104.8	Ball bearing	115/60	18.0	51	-40 bis +90	180	3686.643	
120	119.0	104.8	Ball bearing	230/50	19.0	47	-40 bis +85	160	3686.644	

Connection cable

Cable length mm	Packs of	Order No.
610	1	3686.658
1000	1	3686.659



COMPONENTS AND ACCESSORIES **CLIMATE CONTROL**

Assembly screws packs of 1 set, order no. 3685.197, see page 141 Temperature sensor for DC fans with speed control, see page 134

DC fans



Optionally available with temperature-dependent speed control via additional temperature sensor.

Supply includes

1 fan with connection cable (310 mm)

DC fan with speed control and alarm signal

Dime	nsions		Bearing	Rated	Voltage	Power Watt	Noise level	Tempera-	Volume flow	Order No.
Fan mm	A mm	B mm		voltage V (DC)	range Volt	vvall	dB(A)	ture range °C	m ³ /h	
80	79.5	71.5	Ball bearing	12	8,0 - 14,0	2,2	34	-20 bis +65	48	3686.649
80	79.5	71.5	Ball bearing	24	21,6 - 26,4	2,4	36	-20 bis +65	54	3686.650
120	119.0	104.8	Ball bearing	12	8,0 - 13,2	5,5	45	-20 bis +65	170	3686.647
120	119.0	104.8	Ball bearing	24	21,0 - 27,0	5,4	45	-20 bis +65	170	3686.648

+ Also required

DC fan without speed control and without alarm signal

Dime	nsions		Bearing			Power Noise				Order No.
Fan mm	A mm	B mm		voltage V (DC)	range Volt	Watt	level dB(A)	ture range °C	flow m³/h	
80	80.0	71.5	Ball bearing	12	6,0 - 15,0	1,8	34	-20 bis +75	48	3687.612
80	80.0	71.5	Ball bearing	24	12,0 - 28,0	2,1	34	-20 bis +75	48	3687.613
120	119.0	104.8	Ball bearing	12	6,0 - 15,0	2,6	39	-20 bis +75	140	3687.614
120	119.0	104.8	Ball bearing	24	12,0 - 28,0	2,6	39	-20 bis +75	140	3687.615



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COMPONENTS AND ACCESSORIES CLIMATE CONTROL

Temperature sensor



For DC fans 12/24 V with speed control.

Resistor body: Surface enameled Power loss P = 0.1 W

Technical specifications Resistor type: NTC

Voltage	Packs of	Order No.
12 V/24 V (DC)	1	3686.657



Finger guard



Material Polyamide

Self-extinguishing to UL 94-V0

Colour Black

For fans mm	Packs of	Order No.
80	1	3686.656
120	1	3686.655

COMPONENTS AND ACCESSORIES CLIMATE CONTROL

EMC shielding plate



Suitable for AC fans and DC fans. Material	For fans mm	Packs of	Order No.
1 mm aluminium, clear-chromated	80	1	3686.359
	120	1	3686.329



Air block panel for unused slots





To seal unused slots and prevent unwanted airflow. The air block panel simply snaps into position on the guide rails.

For keyable guide rail mm	Packs of	Order No.
160	1	3687.924

Material

Polycarbonate Self-extinguishing to UL 94-V0

Colour

Blue

Note

Not suitable for use in conjunction with guide rails with $\frac{1}{2}$ HP offset.

COMPONENTS AND ACCESSORIES HANDLES

Front handles for HeiPac subracks



For attaching to the subrack flange with handle holes and on all component shelves.

Material

Die-cast zinc

Supply includes

Assembly parts

Surface finish Spray-finished, silver-grey

For Subracks	L1	L2	Packs of	Order No.
3 U and 4 U	114.5	130.5	2	3636.010
6 U and 7 U	248	264	2	3666.010



Front handles



The handles are fitted onto the 482.6 mm
(19") flanges. They allow easy withdrawal of
the cases from the enclosure.

Material

Sheet steel, plated

Supply includes

Assembly parts











COMPONENTS AND ACCESSORIES POWER SUPPLIES

Main switch



Main switch with LED Display-module.

Technical specifications

Rocker switch 6 A/250 V, 2-pole, FASTON connections, (4.7 x 0.8 mm) VDE, UL, CSA, TÜV, SEMKO, DEMCO, SEV, NEMKO, SETI, BEAB approvals Insulation resistance: > 10 MΩ Test voltage: 1 kV Front panel: 21 x 15 mm Cut-out: 19.2 x 12.9 mm Installation depth: 17 mm

Max. current	Packs of	Order No.
6 A	1 St.	3687.711

Filtered IEC mains inlet



Combination module for mains input consisting of an IEC socket to IEC 60320 and IEC 60950 with line filter and 5×20 mm G fuse holder.

Technical specifications

Metal enclosure for screw mounting Mains input: via IEC socket Mains output: via 3 FASTON contacts (L, N, PE, 6.3 x 0.8) Variants available with or without switch Temperature range: -25°C to +85°C



Ord	er	No.
-----	----	-----

	with switch	without switch		
	3687.709	3687.710		
Mains voltage max.	250 V AC	250 V AC		
Leakage current	2 x 0.32 mA	500 µA		
Max. current	6 A	6 A		
Mounting holes	40 mm	36 mm		
Installation depth	90 mm	56 mm		
Cut-out	60 x 29 mm	33.9 x 29 mm		
Approvals	VDE, SEMKO, SEV, UL, CSA	VDE		

COMPONENTS AND ACCESSORIES **POWER SUPPLIES**

AT/ATX power supply



- AT/ATX power supply
- PS/2 model
- Built-in fan
- Short circuit-protected
- CSA-approved
- On/off switch
- PFC active/passive
- W x H x D = 86 x 150 x 140 mm
- 47 63 Hz

Supply includes

Connection cable

Design	Power	Packs of	Order No.
AT	300 W	1	3688.118
ATX	400 W	1	9916.222

Technical specifications

3688.118	9916.222
300 W max. / 230 V AC	400 W max. / 90 - 240 V AC
5.0 V / 30.0 A	3.3 V / 20.0 A
- 5.0 V / 0.5 A	5.0 V / 20.0 A
12.0 V / 12.0 A	- 5.0 V / 0.3 A
- 12.0 V / 0.5 A	12.0 V / 32 A
PFC passive	- 12.0 V / 32 A
	+ 5 VSB / 2.5 A
	3.3 V u. 5 V plus max. 150 W
	3.3 V, 5 V & 12 V plus max. 385 W
	PFC active

ATX power supply 1 U



ATX power supply

- 2 built-in fans
- Short circuit-protected
- On/off switch
- PFC active
- W x H x D = 85 x 40 x 230 mm

Supply includes

Connection cable

Design	Packs of	Order No.
ATX	1	3688.130

Technical specifications

3688.130
250 W max. / 90 - 264 V AC
47 - 63 Hz
3.3 V / 16.0 A
5.0 V / 18.0 A
- 5.0 V / 0.3 A
12 V / 18 A
- 12 V / 0,8 A
+ 5 VSB / 2.5 A
+ 3.3 V u. 5 V plus max. 120 W

COMPONENTS AND ACCESSORIES **POWER SUPPLIES**

Order No.

3685.331

3685.332

Non-EMC

3685.328

3685.329

EMC

Front panel



Front panel with cut-outs for mounting the ATX power supply units in the subrack.
Material
Aluminium, clear-chromated
A I I I I

128.7 [3 U]

262.05 [6 U]

Supply includes EMC gaskets (with EMC version) Assembly parts

106.36 [21 HP]



Width (B) mm

431.8

431.8

ΗP

42

21

U

3

6

213.04 [42 HP]



Order No.

3684.323

3684.324

Mounting base for power supplies



To attach ATX-power supplies to the subrack side panel.

Material

2 mm aluminium, clear-chromated

Supply includes

Assembly parts



Depth (T) mm

100

130

SUBRACKS

COMPONENTS AND ACCESSORIES **ASSEMBLY PARTS**

Assembly parts

For the attachment of	Description	Dimensions		Order No.	Packs of
Front panels to unit side panels	Oval csk-screw ISO 7047-4.8-Z-A2K	M3 x 8		3606.550	100
Rear panels to box-type plug-in units	Panhead screw ISO 7045-4.8-Z-A2K	M3 x 8		3606.560	100
PCB holders (plastic) to front panels, top	Oval csk-screw ISO 7047-4.8-Z-A2K	M2.5 x 10		3606.610	100
Horizontal rails to side panels Divider panels to horizontal rails Horizontal rails to vertical supports	Panhead self-locking screw similar to DIN ISO 7045-8.8-Z-A2K	M4 x 12		3654.300	100
Front/rear horizontal rails for side panels (HeiPac EASY)	Drill screw, T20, self-locking	M4 x 16		3634.430	100
Center horizontal rails for side panels (HeiPac EASY)	Fastening screw, T20, self-locking	M4 x 12		3634.435	100
PCBs to PCB holders (die-cast for 3 U), top PCBs to extractor handles with 6 U	Panhead posidrive screw ISO 7045-4.8-Z-A2K	M2.5 x 8		3654.320	100
PCB holder (plastic) to type V/VI handles, bottom PCBs to PCB holders (plastic) Backplanes to threaded inserts	Panhead posidrive screw ISO 7045-4.8-Z-A2K	M2.5 x 10		3654.330	100
Connectors to Z rails Z rails to horizontal rails Type V/VI handles to partial front panels, bottom right for 5 HP Aluminium guide rails to horizontal rails Mezzanine front panels	Panhead posidrive screw ISO 7045-4.8-Z-A2K	M2.5 x 6		3654.340	100
Aluminium guide rails to horizontal rails fastening of square nuts)	Retaining cage	M2.5		9901.417	100
Handle type V (plastic) to front panels and box-type plug-in units	Mounting kit for type V handle (plastic): Cover black Cover grey Hex nut Screw Screw Square nut DIN 562-04-A2K	M2.5 M2.5 x 16 M2.5 x 12 M2.5		3687.519	1 set
Connectors to PCBs	Panhead posidrive screw ISO 7045-4.8-Z-A2K	M2.5 x 12		3654.350	100
Guide rails (plastic) to horizontal rails	Screw for plastic WN 1413	M2.2 x 6		3654.360	100
Flat front panels to handles type V, VI Aluminium guide rails to horizontal rails	Square nut DIN 562-A2K	M2.5		3654.370	100
Flat front panels to horizontal rails Trim frame to conceal the front sections of the horizontal mounting kit	Captive screws (cheese-head) and plastic collars	M2.5 x 11		3658.160	100 sets
-lat front panels	Plastic collars			3687.021	100
PCB to type III handle	Screw for plastic WN 1412	3.0 x 8		3658.190	100
PCBs to PCB holders (plastic) PCB holders to front panels, top	Hex nut ISO 4032-8	M2.5		3658.210	100
Backplanes to threaded inserts Air partitions to horizontal rails	Mounting kit for backplanes: Panhead posidrive screw ISO 7045-4.8-Z-A2K Washer PE, natural DIN 125	M2.5 x 6 2.7		3684.019	100
Covers to mounting blocks EMC contact strips	Flat csk-screw ISO 7046-1-4.8-Z-A2K	M3 × 6		3684.233	100
Covers with mounting clips	Flat head tapping screw ISO14585-TX15-A2K	M3,5x13		9921.879	100
Covers to side panels (Heipac Vario)	Mounting block		<u></u>	3684.234	10
Type V/VI handle to front panels	Bracket		ф'ф "	3684.435	100
Ground contact to keyable guide rails	Fastening screw for ground contact	3.5 x 12		3684.109	50
	Pop rivet				

COMPONENTS AND ACCESSORIES ASSEMBLY PARTS

Assembly parts

For the attachment of	Description	Dimensions		Order No.	Packs of
	Mounting kit for fans:				
	Flat csk-screw ISO 7046-1-4.8-Z-A2K	M4 x 12			
Fans to fan mounting plate	Hex nut ISO 4032-8	M4		3685.197	1 set
	Serrated washer DIN 6798-A-Fst-A2K	4.3			
	Mounting kit for covers:				
Covers to side panels	Mounting block		00	3685.256	24 sets
	Flat csk-screw ISO 7046-1-4.8-Z-A2K	M3 x 6			
PCB holders (die-cast) to front panels, top	Oval csk-screw DIN ISO 7047-4.8-Z-A2K	M2.5 x 8		3685.282	100
- Covers box-type plug-in units type I/II - Contact/spring sections for 3-part front panels	Flat csk-screw ISO 7046-1-4.8-Z-A2K	M2.5 x 5		3685.289	100
 Handles on front panels for box type plug-in units Front panels to hinge strip 	Flat csk-screw ISO 7046-1-4.8-Z-A2K	M2.5 x 6		3685.290	100
Holder (horizontal assembly kit) to horizontal rail	Flat csk-screw similar to DIN ISO 7046-1-4.8-Z-A2K	M2.5 x 5		3686.916	100
Holder (horizontal assembly kit) to horizontal rail	Flat csk-screw similar to DIN ISO 7046-1-4.8-Z-A2K	M2.5 x 8		3686.917	100
Contact and spring sections on 3-part front panels without countersink	Panhead posidrive screw DIN ISO 7046-4.8-Z-A2K	M2.5 x 5		3686.924	100
	Mounting kit for set back flanges: Panhead self-locking screw similar to DIN ISO 7045-8.8-Z-A2K	M4 x 8			
Set back flanges to side panels	Hex nut ISO 4032-8	M4		3687.015	4 sets
	Washer	4.3			
Fastening the threaded inserts in horizontal rails	Grub screw ISO 7434-14H	M2.5 x 8		3687.020	100
 EMC front panels to horizontal rails EMC trim frame to conceal the front sections of the horizontal mounting kit 	Centering screw, slotted	M2.5 x 11		3687.050	100
EMC front panels to horizontal rails	Centering screw, posidrive	M2.5 x 11		3687.051	100
EMC front panels to horizontal rails	Centering screw, hex screws	M2.5 x 11		3688.709	100
Subracks into racks	Panhead screw, posidrive ISO ISO7045-M6x16-4.8-Z-A2K Washer plastic M6	M6 x 16		2089.000	100
Subracks into racks	Panhead screw, Torx drive ISO 14583 M6x16-4.8-A2K Washer plastic M6	M6 x 16		7094.600	100
Subracks at the profiles of racks	Cage nut M6 0,8-2,0 with electrical contact	M6		2094.200	50
Subracks at the profiles of racks	Cage nut M6 0,8-2,0 without electrical contact	M6		2092.200	50
Front panels and rear panels to horizontal rails	Collar screw, cheese-head, slotted	M2.5 x 11		3685.097	100
Type V/VI handles (aluminium) to front panels	Mounting kit for type V/VI handles: Panhead posidrive screw ISO 7045-4.8-Z-A2K Bracket Square nut	M2.5 × 6		3687.146	1 set
	DIN 562-11H-A2K	M2.5			

TECHNOLOGY EXPERTISE



TECHNOLOGY EXPERTISE INTERNATIONAL STANDARDS

Overview of standards

Designs for electronic systems (dimensions for 19-inch design)				
IEC 60297-3-100	Basic dimensions of front panels, subracks, rack-mount systems, racks and cabinets			
IEC 60297-3-101	Subracks and assembly modules			
IEC 60603-2	Connectors for printed circuits operating at frequencies below 3 MHz - Part 2: Component specification for quality-rated indirect connectors for printed circuits, 2.54 mm (0,1 in) pitch, with common mounting features (IEC 60603-2:1995 + A1:2000)			
IEC 60297-3-102	Injector/extractor handle			
IEC 60297-3-103	Keying and guide pin			
IEC 60297-3-104	Connector dependent interface dimensions of subracks and assembly modules			
IEC 60297-3-105	Dimensions and layout of 1 U high rack-mount systems			
IEC 60297-3-106	Adaptation dimensions for subracks and rack-mount systems applicable with metric cabinets or racks in accordance with IEC 60917-2-1			
IEC 60917	Modular order for the development of mechanical structures for electrical and electronic equipment practices - Part 1: Generic standard			

Environmental conditions for designs as per IEC 60917, IEC 60297				
DIN EN 61587-1	Environmental requirements, test set-up, as well as safety aspects for empty enclosures, i.e. cabinets, racks, subracks and chassis under indoor and transport conditions			
DIN EN 61587-2	Seismic tests for cabinets and racks			
DIN EN 61587-3	Electromagnetic shielding performance tests for cabinets and subracks			
VG 95373, part 15	Electromagnetic compatibility of equipment Part 15: Measuring method for coupling and shielding			
Safety				
EN 00000 1	Environment for a set of the set of a section and a section to the set of the			

EN 62368-1	Equipment for audio/video, information and communication technology - Part 1: Safety requirements
Rail	
EN 50155	Electronic equipment used on rail vehicles
Fire protection	

EN 45545	Railroad applications - fire protection in rail vehicles

TECHNOLOGY EXPERTISE 19-INCH PACKAGING SYSTEM

19-inch technology: dimensional coherence

The 19-inch packaging system is based on internationally applicable dimensional standards that describe the coordinated, modular system structure. The mechanical structure of the system is described in various parts of the series of standards IEC 60297.

The objective of these provisions is to ensure that different devices and modules from all potential manufacturers can be combined and replaced without difficulty.

The 19-inch packaging system is now used in almost every area of industrial electronics: Systems and machine construction, energy technology, transportation, aerospace technology, medical technology, Information and communication technology and measurement and testing technology

More specifically, the 19-inch packaging system can be divided into the following four levels:

Level IV 19-inch cabinet			
Level III –––– Subrack			
Level II Module			
Level I	5		
Level 1: Printed circuit board



Subrack	PCB	PCB			
height	height	depth (m	nm)		
	h + 0mm -	t +0 mm	- 0.3 mm	ı	
	0.3 mm				
		100 mm	160 mm	220 mm	280 mm
3 U	100 mm	-	х	х	-
6 U	233.35 mm	-	х	х	-
9 U	366.70 mm	-	х	х	-
v most cor	mmon dimens	ione			

x most common dimensions

The PCB dimensions are defined on the basis of the eurocard format and are set forth in standard IEC 60297-3-101. Starting from a height of 100 mm and a depth of 160 mm as the basic dimensions, the height increases by multiples of one height unit (1 U = 44.45 mm) and the depth by multiples of 60 mm.

The table above shows the PCB formats most commonly used.

PCBs are generally 1.6 mm thick. Different, higher values must be coordinated between the user and the manufacturer to arrange suitable guide rails. Standard subrack depths are arranged in accordance with PCB depths of 160 mm, 220 mm and 280 mm.



Level 2: Module



The IEC 60297-3-101 standard also describes the dimensions of the entire module and associated front panel, together with the screw fixing points. The following table shows the most common dimensions. D1 represents the depth of the subrack.The other values are shown in the figures.

Height H (in	Depth D (in mm)						
Height units 3 U 6 U 9 U				Depth units			
H8 ± 0.15	128.55	261.90	395.25	$D1 \pm 0.5$	175.60	235.60	295.60
H9 ± 0.2	122.50	255.85	389.20	D3 – 0.3	160.00	180.00	220.00
H10 +0 -0.3	100.00	233.35	366.70	$D4 \pm 0.4$	169.93	229.93	289.93

Level 3: Subrack



Width	84 HP (19-inch)	42 HP (1/2 19-inch)	21 HP (1/4 19-inch)
Card cage	426.72 mm	213.36 mm	106.68 mm
Flange	465.10 mm	251.70 mm	145.00 mm
Enclosure	482.60 mm	269.10 mm	162.40 mm

DIN EN 60297-3-101 provides a figure of 482.6 mm (19 inches) for the width of the subrack front. In practice, widths derived from this, such as 1/2 19-inch or 1/4 19-inch, are also common (see chart).

The maximum subrack height is given as a multiple of one height unit (1 U), or 44.45 mm. This ensures that the subrack height is coordinated with the height of the plug-in units used. Typical sizes are 3 U, 6 U and 9 U (refer to table).

The installation space for the modules is divided into horizontal pitch units (HP) of 5.08 mm (0.2 inch), or 84 HP for a subrack width of 19 inches.



HE = U

n x 1HE

> 482.6 (19")

Backplane



Backplane with plug connector as per DIN 41612/IEC 60603-2 and IEC 61076-4-113

Typical application: VME/VME64 systems



Backplane with plug connector as per IEC 61076-4-101

Typical application: CPCI systems

The IEC 60297-3-104 standard describes the dimensions of the backplanes for the most common height variations (refer to table).

Height units	3 U	6 U	9 U
H6 ± 0.2	122.50 mm	255.85 mm	389.20 mm
H8 ± 0.15	128.55 mm	261.90 mm	395.25 mm

TECHNOLOGY EXPERTISE PROTECTION REQUIREMENTS

IP protection levels – chassis protection classes (IP code)



	Protection against solid objects
	No protection
	Protected against solid objects over 50 mm in diameter
2	Protected against solid objects over 12.5 mm in diameter
;	Protected against solid objects over 2.5 mm in diameter
ļ	Protected against solid objects over 1.0 mm in diameter
;	Protected against dust (limited ingress, no harmful deposit)
;	Totally protected against dust
	Protection against contact
	No protection

1	Protected against contact with back of hand
2	Protected against contact with fingers
3	Protected against tools
4	Protected against wires
5	Complete protection against contact
6	Complete protection against contact

Protection against liquid

0	No protection
1	Protected against vertically falling drops of water, e.g. condensation
2	Protected against direct sprays of water up to 15 degrees from vertical
3	Protected against sprays up to 60 degrees from vertical
4	Protected against water sprayed from all directions
5	Protected against low-pressure jets of water from all directions
6	Protected against strong jets of water
7	Protected against the effects of short-term submersion
8	Protected against long periods of submersion

Examples of typical protection classes used in industry:

IP20 - For a touch-proof device that is mounted, for example, on a DIN rail or mounting plate in a control cabinet.

- IP54 For a splash-proof device, which is placed outside the control cabinet, e.g. a table-top device.
- IP67 For a waterproof device which can be used for permanent outdoor use, e.g. a control cabinet.
- IP68 For a waterproof device which can be used under water e.g. a watch or a current smartphone.

TECHNOLOGY EXPERTISE PROTECTION REQUIREMENTS

Electromagnetic compatibility (EMC)



- EMC gaskets, vertical
 EMC gaskets, berizontal
- 2 EMC gaskets, horizontal
- 3 EMC gaskets for cover plates
- 4 Mounting blocks

EMC (electromagnetic compatibility) refers to the ability of an electrical device to function properly in its electromagnetic environment without influencing this environment more than is admissible. These requirements were taken into account when developing the HEITEC subracks.

They are made entirely from metal and coated with a conductive surface finish. Stainless steel EMC gaskets ensure a conductive connection between the separate parts.

Testing of measurements of the shielding effectiveness of empty chassis is based on DIN EN 61587-3 or military standards, e.g. MIL STD 285 (US) or VG 95373 Part 15 (GER).

International EMC standards are published mainly by IEC (International Electrotechnical Commission) and CISPR (International Special Committee on Radio Interference).

Key series of EMC standards with global importance: IEC 61000.



The diagram above shows the extent to which EMC shielding influences the attenuation of the electromagnetic field. The attenuation of a standard chassis with no suitable EMC components is thus much lower than that of a HeiPac Vario EMC subrack.

Of particular interest is the shielding factor provided by the attenuation.

HF attenuation (dB)	Shielding (%)
6	50
20	90
40	99
60	99.9

TECHNOLOGY EXPERTISE MOUNTING ACCESSORIES



Screws are used to achieve a tight connection between two or more components. They form part of a screw gear consisting of two standardised, paired components. Friction on the wedge-shaped thread under load prevents the screws from coming loose.



Nuts



Nuts are the counterpart to the screws. They have a standardised inside thread that matches the thread of the screw. The prismatic outside contour is shaped to accommodate a wrench, which is used to tighten the nut. In terms of dimensions, the height of a nut is approximately half the width across the flats.



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2092.200	141	3634.770	92	3654.370	140	3684.078	37	3684.198	24
2094.200	141	3634.780	93	3658.160	140	3684.109	141	3684.204	101
3606.140	100	3636.010	136	3658.190	140	3684.128	23	3684.205	101
3606.200	100	3651.120	96	3658.210	140	3684.129	23	3684.206	95
3606.300	119	3651.160	96	3659.020	136	3684.130	23	3684.207	95
3606.321	125	3652.000	116	3659.240	136	3684.131	23	3684.208	95
3606.330	120	3652.010	116	3659.540	136	3684.132	23	3684.209	95
3606.550	140	3652.020	116	3666.010	136	3684.133	23	3684.210	95
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3634.120	33	3652.200	116	3684.025	21	3684.142	23	3684.223	94
3634.130	33	3652.210	116	3684.026	21	3684.143	23	3684.224	94
3634.140	33	3652.220	116	3684.027	21	3684.144	23	3684.225	94
3634.150	33	3652.230	116	3684.028	22	3684.145	23	3684.226	94
3634.160	33	3652.240	116	3684.029	22	3684.146	23	3684.227	94
3634.170	33	3652.250	116	3684.030	22	3684.147	23	3684.228	94
3634.180	33	3652.260	116	3684.031	22	3684.148	24	3684.229	94
3634.190	33	3652.270	116	3684.032	22	3684.149	24	3684.233	140
3634.200	33	3652.500	50, 122	3684.033	22	3684.150	24	3684.234	90
3634.210	33	3652.510	50, 122	3684.034	21	3684.151	24	3684.236	88
3634.220	33	3652.520	50, 122	3684.035	21	3684.152	24	3684.237	88
3634.230	33	3652.530	50, 122	3684.036	21	3684.153	24	3684.238	88
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3634.430	140	3652.630	50, 122	3684.039	22	3684.159	23	3684.241	88
3634.450	90, 106	3653.010	124	3684.041	22	3684.160	23	3684.243	88
3634.510	84	3653.020	124	3684.042	22	3684.161	23	3684.244	88
3634.600	83	3653.030	124	3684.043	21	3684.162	23	3684.245	89
3634.615	83	3653.040	124	3684.044	21	3684.163	23	3684.246	85, 89
3634.620	84	3653.050	124	3684.045	21	3684.164	23	3684.247	121
3634.625	106	3653.060	124	3684.046	21	3684.165	23	3684.248	121
3634.630	106	3653.070	124	3684.047	21	3684.166	23	3684.249	121
3634.635	106	3653.100	124	3684.048	21	3684.169	23	3684.250	121
3634.640	106	3653.110	124	3684.049	21	3684.170	23	3684.251	121
3634.645	106	3653.120	124	3684.050	21	3684.171	23	3684.252	121
3634.650	106	3653.130	124	3684.051	21	3684.172	23	3684.253	121
3634.655	106	3653.140	124	3684.052	21	3684.173	23	3684.254	121
3634.660 3634.665	106 106	3653.150 3653.200	124 124	3684.053	21 21	3684.174 3684.175	23 23	3684.255	121
3634.665	106	3653.200	124	3684.054	21	3684.175	23	3684.256 3684.257	121 121
3634.675	106	3653.220	124	3684.055 3684.056	21	3684.177	23	3684.258	121
3634.680	106	3653.230	124	3684.057	21	3684.178	23	3684.259	121
3634.685	106	3653.240	124	3684.058	21	3684.179	23	3684.260	121
3634.690	106	3653.250	124	3684.059	21	3684.180	24	3684.261	121
3634.695	65	3653.300	124	3684.060	21	3684.181	24	3684.262	121
3634.700	65	3653.310	124	3684.061	21	3684.187	24	3684.263	121
3634.705	65	3653.320	124	3684.062	22	3684.188	24	3684.264	121
3634.710	65	3653.330	124	3684.063	22	3684.189	24	3684.265	121
3634.715	65	3653.340	124	3684.064	22	3684.190	24	3684.266	121
3634.720	65	3653.350	124	3684.065	22	3684.191	24	3684.267	121
3634.725	65	3654.300	140	3684.072	37	3684.192	24	3684.268	121
3634.730	65	3654.320	140	3684.073	37	3684.193	24	3684.269	121
3634.735	65	3654.330	140	3684.074	37	3684.194	24	3684.272	121
3634.740	65	3654.340	140	3684.075	37	3684.195	24	3684.273	121
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3684.277	121	3684.353	108	3684.482	140	3684.589	78	3684.661	96
684.278	121	3684.354	108	3684.511	64	3684.590	78	3684.662	96
684.279	121	3684.355	108	3684.512	64	3684.591	78	3684.666	96
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684.281	129	3684.357	108	3684.514	64	3684.593	70	3684.669	97
684.282	129	3684.358	107	3684.515	64	3684.594	132	3684.670	99
684.283	129	3684.359	107	3684.516	64	3684.595	70	3684.672	99
684.284	130	3684.360	107	3684.517	64	3684.596	70	3684.673	99
684.285	130	3684.361	107	3684.518	64	3684.597	86	3684.674	99
684.286	130	3684.362	107	3684.519	64	3684.598	86	3684.675	99
684.287	130	3684.363	107	3684.520	64	3684.599	86	3684.676	99
684.291	122	3684.364	107	3684.521	64	3684.600	86	3684.677	99
684.292	122	3684.365	107	3684.522	64	3684.601	86	3684.678	94
684.293	122	3684.366	107	3684.523	64	3684.602	86	3684.679	94
684.294	122	3684.367	107	3684.524	64	3684.603	86	3684.680	103
684.295	122	3684.368	107	3684.525	64	3684.604	86	3684.681	103
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684.300	50, 122	3684.370	107	3684.527	64	3684.607	86	3684.685	103
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684.305	131	3684.375	108	3684.532	64	3684.611	85	3684.689	103
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684.307	131	3684.377	108	3684.534	64	3684.614	66	3684.692	103
684.311	131	3684.378	108	3684.535	64	3684.615	66	3684.693	103
684.312	131	3684.379	108	3684.536	64	3684.616	66	3684.694	103
684.313	131	3684.380	108	3684.537	64	3684.617	66	3684.695	103
684.314	131	3684.381	108	3684.538	64	3684.618	66	3684.696	103
684.317	128	3684.382	108	3684.539	64	3684.619	66	3684.698	103
684.320	129	3684.383	108	3684.540	64	3684.620	66	3684.700	103
684.321	129	3684.384	108	3684.541	64	3684.621	66	3684.701	103
684.322	129	3684.385	108	3684.542	64	3684.622	66	3684.702	103
684.323	139	3684.386	108	3684.543	64	3684.623	66	3684.703	103
684.324	139	3684.387	108	3684.544	64	3684.624	66	3684.714	104
684.325	101	3684.388	108	3684.545	64	3684.625	66	3684.715	104
684.326	101	3684.389	108	3684.546	64	3684.626	66	3684.716	104
684.328	111	3684.410	113	3684.547	64	3684.627	66	3684.717	104
684.330	107	3684.411	114	3684.548	64	3684.628	66	3684.718	104
684.331	107	3684.413	108	3684.549	64	3684.629	66	3684.719	104
684.332	107	3684.414	108	3684.550	64	3684.630	66	3684.720	104
684.333	107	3684.415	108	3684.551	64	3684.631	66	3684.721	104
684.334	107	3684.416	108	3684.552	64	3684.632	66	3684.722	104
684.335	107	3684.417	108	3684.553	64	3684.633	91	3684.723	104
684.336	107	3684.418	108	3684.554	64	3684.634	91	3684.724	104
684.337	107	3684.419	108	3684.560	70	3684.635	91	3684.725	104
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684.340	107	3684.422	108	3684.565	71	3684.638	91	3684.728	105
684.341	107	3684.423	108	3684.566	71	3684.639	91	3684.729	105
684.342	107	3684.424	108	3684.567	71	3684.640	91	3684.730	105
684.343	107	3684.425	108	3684.570	73	3684.643	88	3684.731	105
684.344	108	3684.426	108	3684.571	73	3684.644	88	3684.732	105
684.345	108	3684.427	108	3684.572	73	3684.645	88	3684.733	105
684.346	108	3684.428	108	3684.579	76	3684.654	96	3684.734	105
684.347	108	3684.429	108	3684.580	76	3684.655	96	3684.735	105
684.348	108	3684.430	108	3684.581	76	3684.656	96	3684.736	105
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TECHNOLOGY EXPERTISE

COMPANY OVERVIEW

SUBRACKS

CASES & ENCLOSURES

COMPONENTS & ACCESSORIES

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3684.746	120	3684.953	97	3685.249	103	3685.501	109	3685.569	117
3684.747	120	3684.954	97	3685.250	103	3685.502	109	3685.570	117
3684.748	120	3684.955	70	3685.251	103	3685.503	109	3685.571	117
3684.807	89	3684.956	70	3685.252	103	3685.504	109	3685.572	117
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3684.812	129	3684.958	103	3685.254	103	3685.506	109	3685.574	117
3684.813	129	3684.960	70	3685.256	141	3685.508	109	3685.575	117
3684.814	129	3684.961	71	3685.257	97	3685.509	109	3685.576	117
3684.839	130	3684.962	73	3685.258	97	3685.510	109	3685.577	117
3684.840	130	3684.963	76	3685.259	97	3685.511	109	3685.578	117
3684.841	130	3684.964	78	3685.260	99	3685.512	109	3685.579	117
3684.842	130	3684.965	86	3685.261	99	3685.513	109	3685.580	117
3684.870	129	3684.966	86	3685.262	99	3685.514	109	3685.581	117
3684.871	129	3684.974	85, 89	3685.263	99	3685.516	109	3685.582	117
3684.872	129	3684.975	89	3685.264	99	3685.517	109	3685.583	117
3684.885	120	3684.976	120	3685.265	99	3685.518	109	3685.584	117
3684.886	120	3684.977	120	3685.266	114	3685.519	109	3685.585	117
3684.887	120	3685.000	114	3685.267	70	3685.520	109	3685.586	117
3684.888	120	3685.097	141	3685.268	73	3685.521	109	3685.587	110
3684.889	120	3685.146	114	3685.269	71	3685.522	109	3685.588	110
3684.890	120	3685.177	121	3685.270	76, 80	3685.524	109	3685.589	110
3684.891	120	3685.178	121	3685.271	86	3685.525	109	3685.590	110
3684.892	120	3685.179	121	3685.272	78	3685.526	109	3685.591	115
3684.893	120	3685.180	121	3685.273	87	3685.527	109	3685.592	115
3684.894	120	3685.181	121	3685.274	85	3685.528	109	3685.595	118
3684.895	120	3685.182	121	3685.275	87	3685.529	109	3685.596	118
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– HeiPac Vario-Module	
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– for subracks	
 for microcomputer systems 	
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– rear, center	
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Air block panel	1
Air partition	
Aluminium front door	
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Aluminium center part	
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– HeiPac Vario-Module	

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