



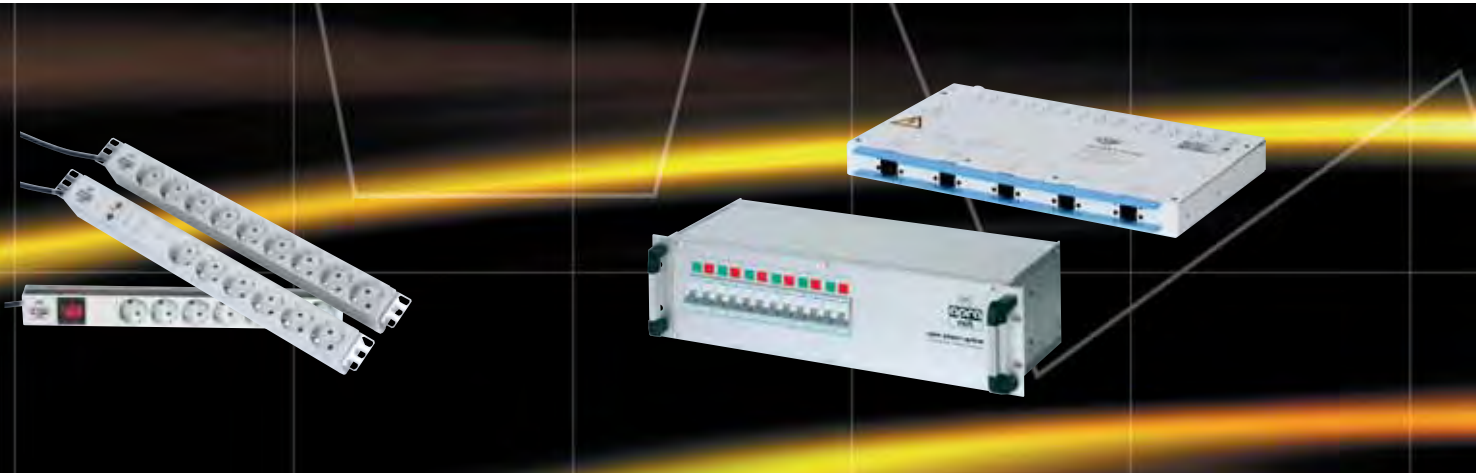
	19" TiRAX cabinet system	from page	3	
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You can read more about products from the apra-group at www.apra-norm.com



Power distribution system



Multiple socket strips

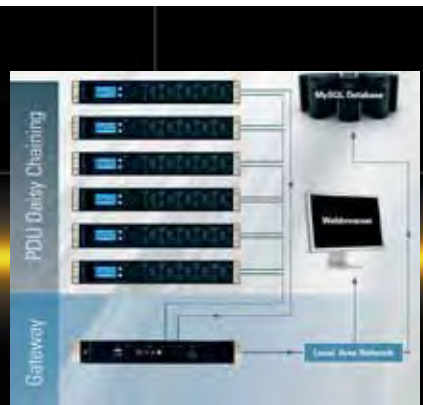
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- 19" socket strips
- SCHUKO
- UTE (France)
- IEC connectors IEC-C13

19" power distribution units

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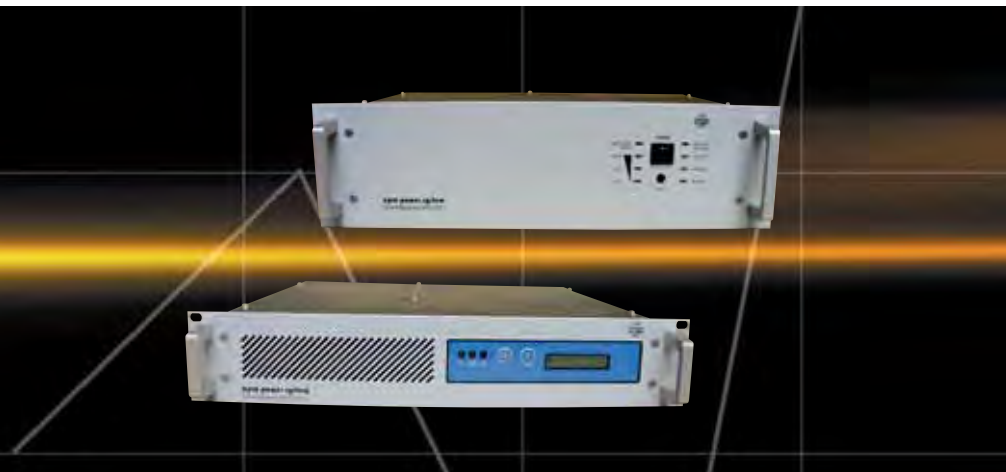
- modular 19" power distribution systems



Intelligent power distribution systems for computer centres

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- networked systems
- stand-alone systems



UPS systems, 19" devices

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- 19" line interactive VI-SS-211
- 19" online continuous transducer FI-SS-111

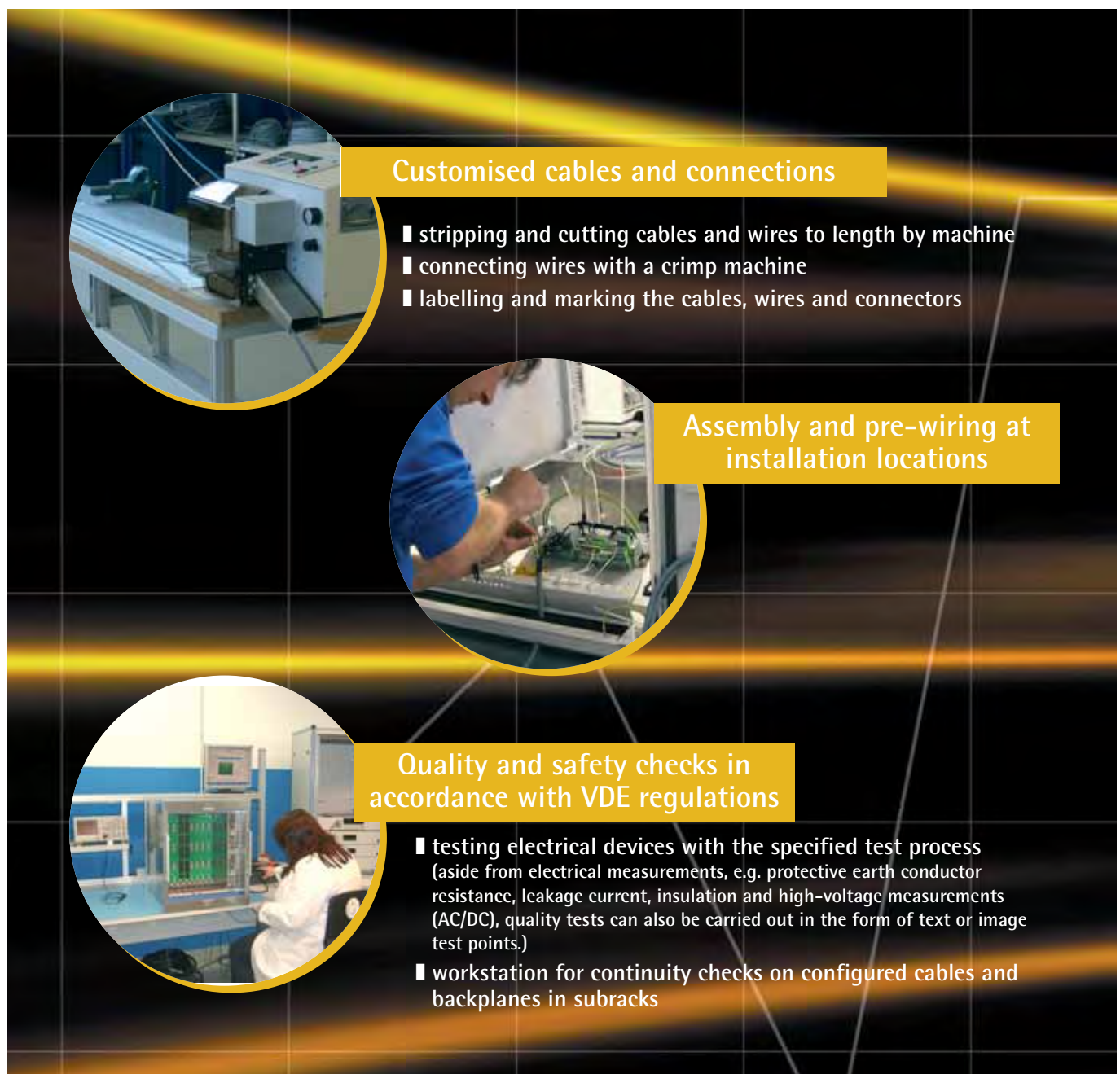



Our service for you: Pre-wiring, power supplies, plug-and-play versions in enclosures and cabinet systems

✔ take advantage of our expertise ✔ save time and money

The apra Group places particular emphasis on individual and flexible system solutions. Our enclosures and 19" cabinet systems are equipped with components such as a power supply and power distribution system in line with customer requirements and are supplied with full pre-wiring. This enables us to fulfil a wide range of customer requirements.

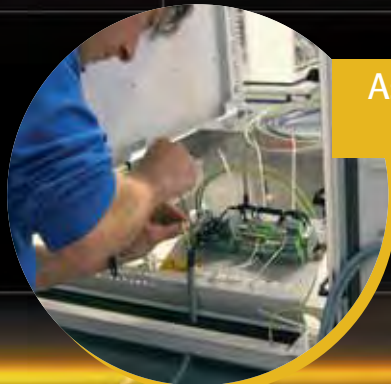
From development right through to the finished product, you can benefit from our expertise and flexibility!






Customised cables and connections

- stripping and cutting cables and wires to length by machine
- connecting wires with a crimp machine
- labelling and marking the cables, wires and connectors



Assembly and pre-wiring at installation locations



Quality and safety checks in accordance with VDE regulations

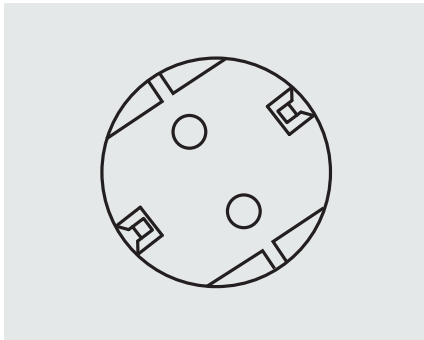
- testing electrical devices with the specified test process (aside from electrical measurements, e.g. protective earth conductor resistance, leakage current, insulation and high-voltage measurements (AC/DC), quality tests can also be carried out in the form of text or image test points.)
- workstation for continuity checks on configured cables and backplanes in subracks



Multiple socket strips

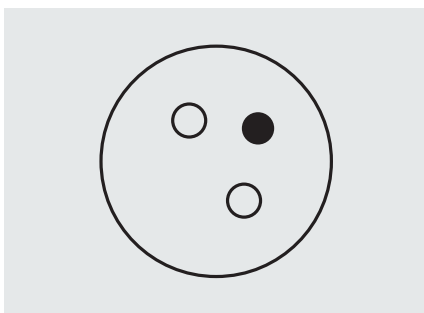
- space-saving design
- stable aluminium enclosure
- suitable for 19" mounting in 1 U division (L = 440 mm) and/or cabinet rack mounting
- connection: 3 × 1.5 mm²
- standard cable length: 2.5 m
- Schuko and UTE standard sockets: twisted 450
- incl. fixing material

Schuko 230 V AC, 16 A



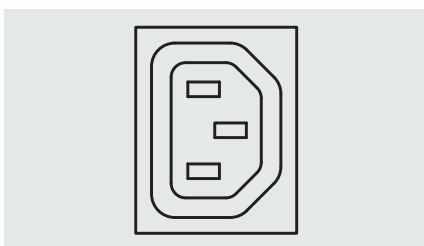
No. of sockets	Switch	Surge protection	Mains filter	Amp. meter	19" install.-compatible 1 U	Length L mm	Colour	Order no.
9	-	-	-	-	x	440	light grey	591-400-00
12	x	-	-	-	-	610	black	591-412-00
8	-	-	-	-	x	440	light grey	591-401-00
8	-	x	-	-	x	440	light grey	591-402-00
6	x	x	x	-	x	440	light grey	591-403-00
7	-	x	-	x	x	440	light grey	591-404-00
7	-	-	-	-	x	440	light grey	591-400-15

UTE (France), 230 V AC, 16 A



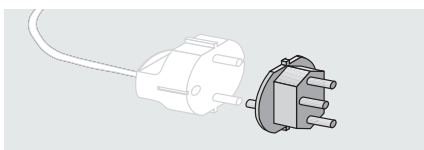
No. of sockets	Switch	Surge protection	Mains filter	Amp. meter	19" install.-compatible 1 U	Length L mm	Colour	Order no.
9	-	-	-	-	x	440	light grey	591-405-60
12	-	-	-	-	-	610	black	591-412-60
8	x	-	-	-	x	440	light grey	591-406-60
8	-	x	-	-	x	440	light grey	591-402-60
6	-	x	x	-	x	440	light grey	591-403-60
7	x	x	-	-	x	440	light grey	591-404-60

IEC connectors IEC-C13, 230 V AC, 10 A



No. of sockets	Switch	Surge protection	Mains filter	Amp. meter	19" install.-compatible 1 U	Length L mm	Colour	Order no.
9	-	-	-	-	x	440	light grey	591-414-00
12	-	-	-	-	-	610	black	591-414-10
8	-	-	-	x	x	440	light grey	591-400-17

"Swiss Schuko" adapter



- connector pin side: Swiss
- jack side: Schuko connector

Material: plastic, black

Order no.
640-230-00

Additional multiple socket strips such as C-19, monitorable or switchable socket strips available on request!



www.apranet.de

19" power distribution units 1 U

This power distribution system is specially designed to supply power to servers easily and safely in a 19" cabinet. In the PDU, the supply line can be connected simply to a terminal in the device (cross-section up to 10 mm²)

High level of safety thanks to surge protection and distribution of the mains supply over 5 fuse-protected circuits (10 A) each with 3 IEC sockets at the output.

Considerable time and cost savings, as there is no need for costly installations for power supplies.

- input: 1 × 32 A / 230 V / 50 Hz
- output: 15 × IEC socket with surge protection, 3 pieces in each case with 10 A fuse protection (see figure below right)
- remote signalling contact (in each case 1 × zero-volt NOC and 1 × NCC)
- individual mounting in the cabinet using the mounting bracket included in the scope of delivery
- mounting on the 19" level using additional adapter brackets
- high-quality surge protection (class II to IEC 61643-1) with remote signalling output (see figure below left)

Finish:

RAL 7035 light grey

Material:

enclosure: sheet metal

Dimensions (H × W × D):

1 U (44 mm) × 482.6 mm × 300 mm

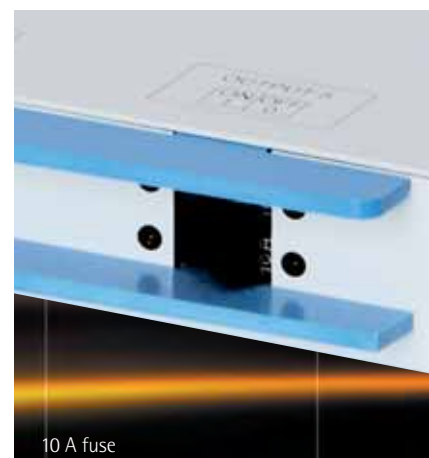
Order no.
591-910-00

Mounting set for 19" installation (1 U)

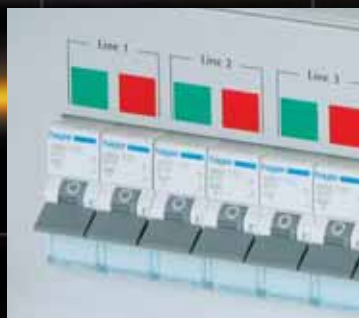
Order no. (set)
591-910-01



Surge protection with remote signalling output



10 A fuse



19" power distribution units 3 U, redundant

This power distribution system is ideal for the safe supply of power to servers with redundant power supply units.

It enables two separate power supplies (each 400 V / 3 × 25 A) to be fed in. The supplies are distributed over 6 outputs (each 2 × 230 V / 10 A) and each output is protected with a B10 A automatic circuit breaker. Clear colour identification of the outputs and automatic circuit breakers divides the device into six lines and enables a redundant supply to six servers from a single point.

The mains supply lines are connected easily with a connector included in the scope of delivery without any additional tools or material costs via clamp spring contacts and are inserted and locked at one of the two inputs.

Various conductor types with various cross-sections (0.5 to 4 mm²) can be connected here.

At the outputs, power can also be picked up by lockable C14 IEC connectors or by connectors included in the scope of delivery (design similar to power input connector).

Advantages:

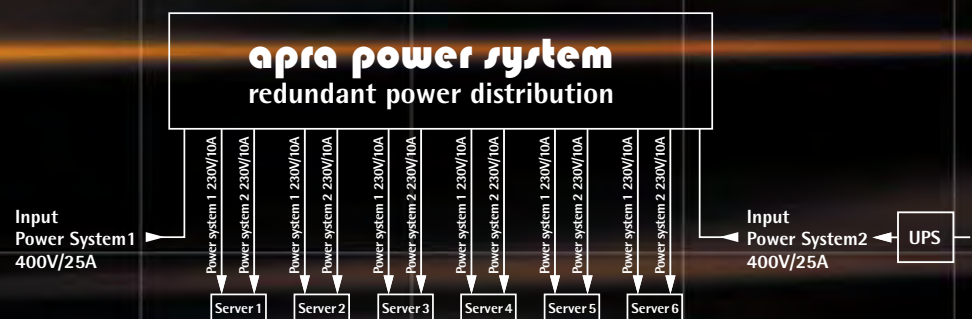
- redundant power supply to 6 servers with just one device
- only 3 U space required thanks to compact design
- simple power feed via cables to up to 5 × 4 mm² max. 3 × 25 A
- simple connection of servers either via IEC sockets or with the connector system included in the scope of delivery
- fuse protection of the outputs each with a B10 A automatic circuit breaker

Finish: anodised

Material: enclosure: aluminium
inserts: plastic

Dimensions (H × W × D):

3 U (132.5 mm) × 482.6 mm × 170 mm



Order no.

591-910-10



19" power distribution unit 3 U for automatic circuit breakers

- for the installation of automatic circuit breakers
- fast access to the wiring space
- stable accommodation of components to DIN 43 880 in build sizes 1-3
- strain relief of the rear-side cable via cable guard rail

Material:

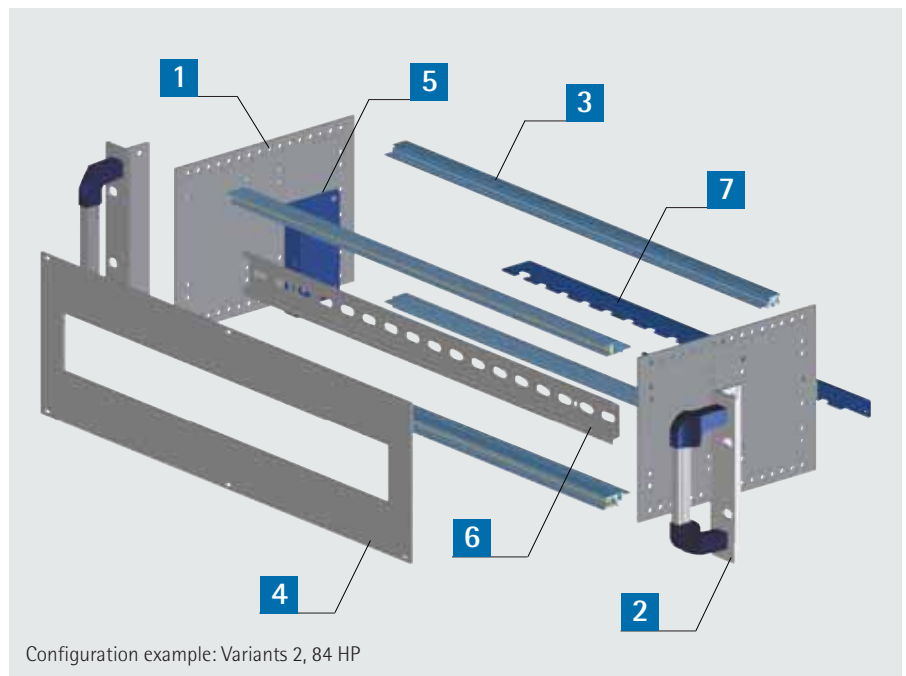
side panels: aluminium 2.5 mm
 module rail: aluminium profile
 front bracket: aluminium profile

Finish: transparent, chromated

Delivery: assembly set



Technical information



Scope of delivery

Item	Pc.	Description
1	2	Side panels
2	2	Front bracket with handles
3	4	Module rails
4	1	Front panel
5	2	Angle bracket
6	1	Top hat rail TS 35
7	1	Cable guard rail
8	1	Mounting hardware

Order information

Description	Order no.
19" subrack 3 U / 84 HP	245-311-80

Accessories

Cover sheet closed

- for floor and cover mounting

Material: aluminium

Order no.
240-662-85

Cover strip S 35 G

- to conceal the front panel openings

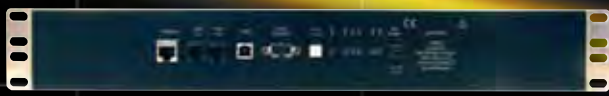
Material: plastic

Length mm	Order no.
219	640-222-00



Intelligent PDUs for computer centres

- The electrical energy supply is the most expensive item of all variable costs in the data centre. For this reason alone, one should obtain an overview of consumption using an intelligent PDU. A detailed measurement of energy flows optimises the administration of your data centre and prevents outages due to overload.
- Power Distribution Units (PDUs) are connector strips for installation in server racks. The main task of a PDU is the power distribution within a cabinet. In order to meet the high requirements of data centres, we ensure our products provide maximum quality and high system reliability.



19" Gateway



19" PDU



Product features

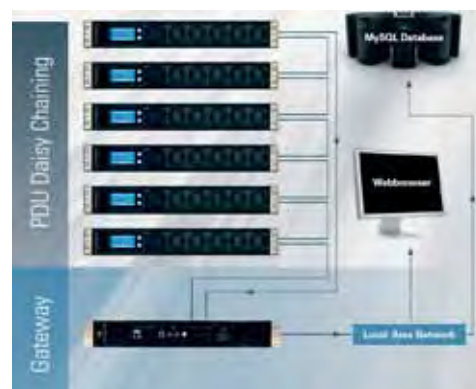
- inputs: one-phase or three-phase, 16A or 32A via CEE-plug
- thermal fuses against overload
- measurement of outbound electric circuits if required
- switching of individual outputs if required
- measurement of power, voltage, output and consumption as well as the internal temperature of the strip and as an option the external temperature in the rack
- illuminated LCD-display on the PDU with the display of all measurement values
- all strips are fitted with a socket for the connection of an external temperature sensor.
- high quality and the use of oversized cabling, adjusted electronics and bistable relays use extremely low amounts of energy. This leads to considerable savings during the life cycle.
- the use of a data bus ensures easy and fast installation. The simple IP connection saves maintenance costs and makes operation much easier and safer.

PDU - vertical installation

Monitoring

- all strips are connected to a data bus for management purposes and "remote monitoring".
- the gateway is the interface between the data bus and a TCP/IP network. This means that you have access to all your PDUs via one single IP-address.

This reduces costs for infrastructure and for security measures.



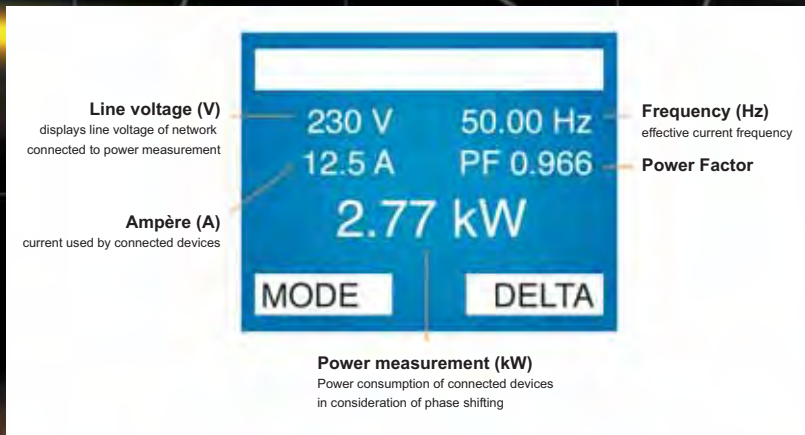


Order information

Design	Input	Phases Input	Current per phase	Outputs	Measurement per port	Switched outputs	Order no.
Gateway							591-920-00
Horizontal (19")	400V / 16A	3	16	3 x Schuko			591-920-01
Horizontal (19")	230V / 16A	1	16	12 x C13			591-920-02
Horizontal (19")	230V / 16A	1	16	12 x C13	X		591-920-03
Horizontal (19")	230V / 16A	1	16	12 x C13		X	591-920-04
Horizontal (19")	230V / 16A	1	16	12 x C13	X	X	591-920-05
Horizontal (19")	230V / 16A	1	16	3 x C13, 6 x C19			591-920-06
Horizontal (19")	230V / 16A	1	16	3 x C13, 6 x C19	X		591-920-07
Horizontal (19")	230V / 16A	1	16	3 x C13, 6 x C19		X	591-920-08
Horizontal (19")	230V / 16A	1	16	3 x C13, 6 x C19	X	X	591-920-09
Horizontal (19")	230V / 32A	1	32	4 x Schuko, 12 x C13, 2 x C19			591-920-10
Horizontal (19")	230V / 32A	1	32	4 x Schuko, 12 x C13, 2 x C19	X		591-920-11
Horizontal (19")	230V / 32A	1	32	4 x Schuko, 12 x C13, 2 x C19		X	591-920-12
Horizontal (19")	230V / 32A	1	32	4 x Schuko, 12 x C13, 2 x C19	X	X	591-920-13
Vertical	400V / 16A	3	16	3 x Schuko 15 x C13			591-920-14
Vertical	400V / 16A	3	16	3 x Schuko 15 x C13	X		591-920-15
Vertical	400V / 16A	3	16	3 x Schuko 15 x C13		X	591-920-16
Vertical	400V / 16A	3	16	3 x Schuko 15 x C13	X	X	591-920-17
Vertical	400V / 16A	3	16	1 x Schuko 8 x C19			591-920-18
Vertical	400V / 16A	3	16	1 x Schuko 8 x C19	X		591-920-19
Vertical	400V / 16A	3	16	1 x Schuko 8 x C19		X	591-920-20
Vertical	400V / 16A	3	16	1 x Schuko 8 x C19	X	X	591-920-21
Vertical	400V / 16A	3	16	3 x Schuko, 3 x C19, 21 x C13			591-920-22
Vertical	400V / 16A	3	16	3 x Schuko, 3 x C19, 21 x C13	X		591-920-23
Vertical	400V / 16A	3	16	3 x Schuko, 3 x C19, 21 x C13		X	591-920-24
Vertical	400V / 16A	3	16	3 x Schuko, 3 x C19, 21 x C13	X	X	591-920-25
Vertical	400V / 32A	3	32	3 x Schuko 24 x C13			591-920-26
Vertical	400V / 32A	3	32	3 x Schuko 24 x C13	X		591-920-27
Vertical	400V / 32A	3	32	3 x Schuko 24 x C13		X	591-920-28
Vertical	400V / 32A	3	32	3 x Schuko 24 x C13	X	X	591-920-29
Vertical	400V / 32A	3	32	1 x Schuko, 2 x C13, 15 x C19			591-920-30
Vertical	400V / 32A	3	32	1 x Schuko, 2 x C13, 15 x C19	X		591-920-31
Vertical	400V / 32A	3	32	1 x Schuko, 2 x C13, 15 x C19		X	591-920-32
Vertical	400V / 32A	3	32	1 x Schuko, 2 x C13, 15 x C19	X	X	591-920-33
Temp. sensor							591-920-34

Further configurations available on request!





apra power system network-enabled PDUs

Professional high-quality multiple socket strips

The strips measure electrical parameters and the on/off switching of the individual outputs via an integrated ethernet connection.

Material: aluminium

Dimensions (H x W x D):
44.4 (1U) x 438 x 199 mm

Scope of delivery:
PDU, 19" mounting bracket, supply line: 2 metre H05VV-F 3G1, 5 mm² with Schuko plug



Example with 19" mounting bracket

Switchable PDU

Individually switchable sockets with switching in the zero passage and additional switching status control. The PDU has an integrated ethernet connection and can therefore be easily operated via a web browser.

The following protocols are supported, amongst others: HTTP, HTTPS, SNMP, SMTP, NTP, SSH

Description	Order no.
6-way Schuko	591-920-40
8-way IEC 320 C13	591-920-41



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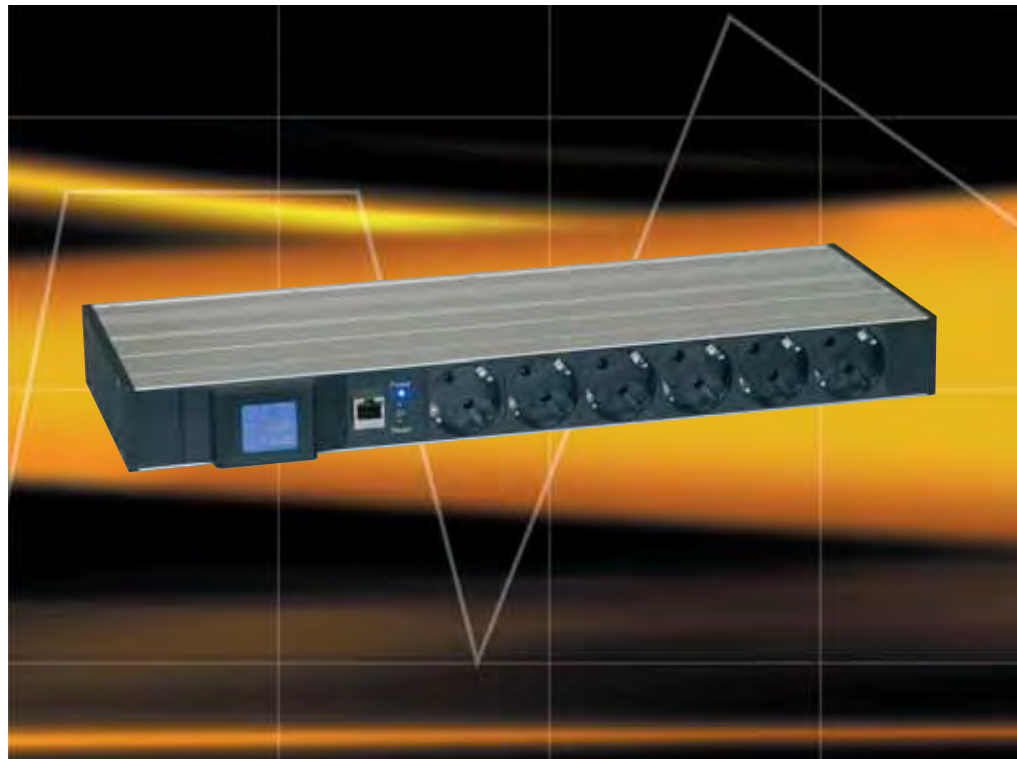
Monitored PDU

Integrated measurement of: power, active power, voltage, frequency, phase angle and energy.

All values can be read on the integrated, illuminated LC display.

The PDU has an integrated ethernet connection and can therefore be easily operated via a web browser.

The following protocols are supported, amongst others: HTTP, HTTPS, SNMP, SMTP, NTP, SSH



Description	Order no.
6-way Schuko	591-920-42
8-way IEC 320 C13	591-920-43

Retrofit module for existing systems

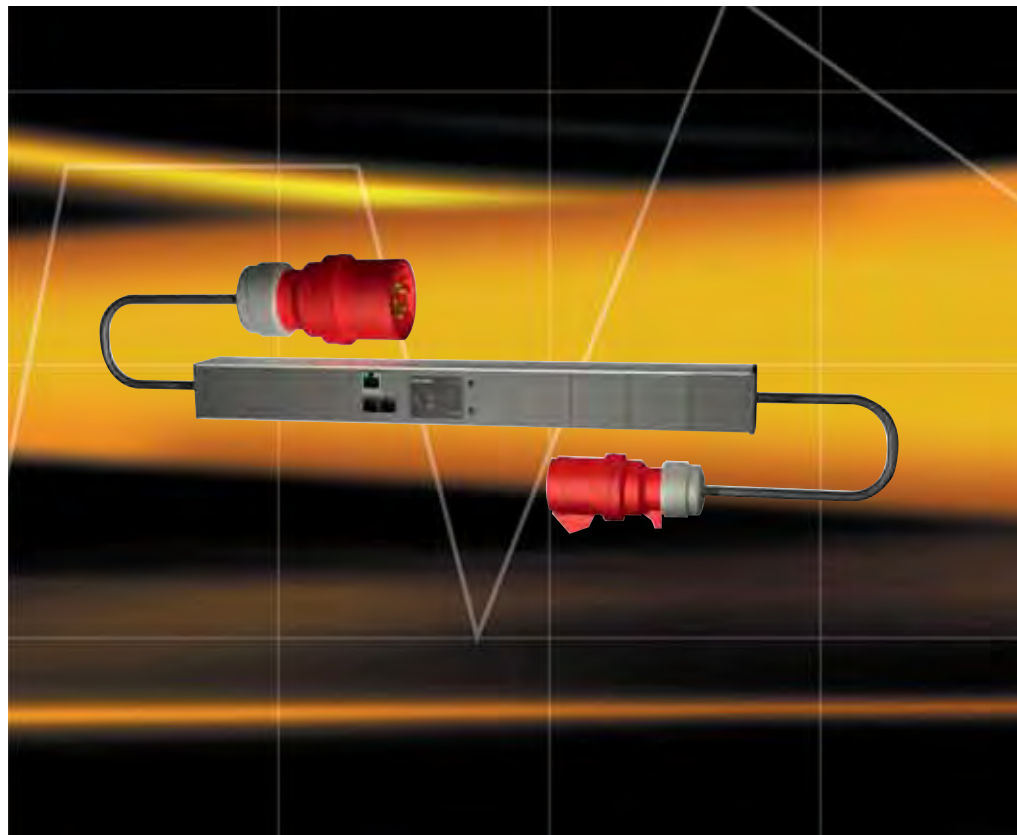
In order to also exploit all the benefits of a monitored power distribution on existing racks, the retrofit module offers the option of integrating an intelligent component into an existing system. The installation work and costs are greatly minimised by the pluggable system.

Integrated measurement of: power, active power, voltage, frequency, phase angle and energy.

All values can be read on the integrated, illuminated LC display.

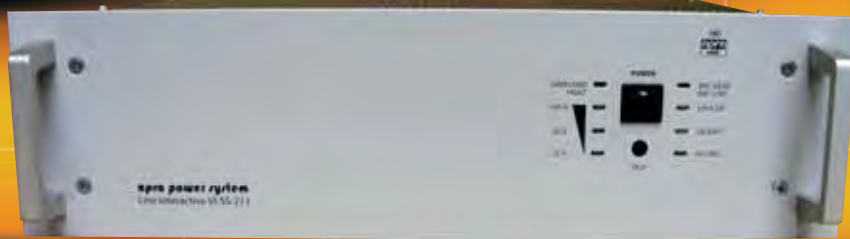
The PDU has an integrated ethernet connection and can therefore be easily operated via a web browser.

The following protocols are supported, amongst others: HTTP, HTTPS, SNMP, SMTP, NTP, SSH



Description	Connection mm	Order no.
400V / 16A	CEE plug-socket	591-920-47
400V / 32A	Terminal Wago X-Com	591-920-48

Further models available on request!



19" Line Interactive VI-SS-211; 700, 1000, 1500, 2000, 3200 VA

The apra power system Line Interactive VI-SS-211 is an advanced network-interactive UPS, which protects sensitive consumers against power failures, spikes and other electrical faults. This device is ideal for computers, telecommunications systems and other computer-aided systems. The compact and stable design also provides safety and flexibility when it comes to application possibilities.

- UPS classification VI-SS-211 to IEC 62040-3
- line interactive technology
- microprocessor controlled
- sine wave output
- temperature sensor
- automatic frequency detection
- RS-232, signalling contacts and SNMP via adapter
- management software for Windows '95, '98, 2000, 2003 Server, NT, XP, Novell, Unix
- 36 months' warranty

UPS management

With the available UPS management software, the MT's RS232 interface offers extensive communication options from shutdown through to UPS diagnostics.

The PowershutPlus runs as a client/server application for heterogeneous networks and local computers. It works on Windows 5/98/2000/2003 Server/NT, Novell, Linux and all current Unix derivatives. It also contains an SNMP agent on Windows NT and Novell. Optionally available RCCMD clients enable all servers on the network to be shut down (multi-server shutdown). The software provides all important UPS data such as the battery level, temperature, state of the power supply, etc. in the form of a clear graphic. Any faults that occur can be reported conveniently by email, mobile phone or fax.



Higher-specification UPS systems are available on request.



Parameters \ Type	MT 700 RM	MT 1000 RM	MT 1500 RM	MT 2000 RM	MT 3200 RM
Output					
Power V A/Watt	700/400	1000/670	1500/950	2000/1200	3200/2000
Current at 230 V	2.6 A	4.3 A	6 A	7.8 A	13.9 A
Connections	2 × earthed power socket	2 × Schuko socket	2 × Schuko socket	2 × Schuko socket	8 × IEC-C13
Output voltage	230 V ± 2,6 %				
Frequency	50/60 Hz ± 0.1 % automatic				
Voltage waveform	Sine wave				
Input					
Voltage	171-278 V AC (230 V AC)				
Frequency	50 Hz (47.5-52.5) / 60 Hz (57-63) automatic				
Boost (+ 13%)	Yes				
Boost (- 13%)	Yes				
Batteries					
Autono. time at nom. load	8 min	10 min	10 min	10 min	8 min
DC voltage	24 VDC	36 VDC	48 VDC	60 VDC	96 VDC
Assembly	7 Ah-12 V				
Type	Sealed maintenance-free lead-acid batteries				
Charging time	8-10 hours at 90 %				
Test	Automatic or manually via button				
Efficiency AC-AC	> 95 %				
Battery start	Yes				
Auto-restart	Yes				
Overload	110% for 10 seconds				
Noise level	< 40 dB(A) at 1 m spacing (depending on load and temperature)				
Displays					
LED (UPS status)	Line, On Bat, On A VR, Bat Weak, Fault, Overload, Load-Level				
Acoustic alarm	Yes				
Protection					
Surge	Yes				
Lightning protection	ANSI / IEEE587 Cat A				
EMC/LVD	EN50091-2, EN50091-1				
Tests	TÜV, GS, CE				
Communication	RS232 / optocoupler / SNMP via adapter				
Environment					
Temperature	0-40 °C (UPS without batteries)				
Humidity	0-95 % (non-condensing)				
Mechanics					
Dimensions (U × D in mm)	3 U × 300	3 U × 300	3 U × 300	3 U × 360	3 U × 600
Weight	14 kg	15 kg	23 kg	30 kg	42.7 kg
Order no.	235-300-01	235-300-02	235-300-03	235-300-04	235-300-05



**19" online continuous transducer
VFI-SS-111
700, 1000, 1500, 2000, 3000 V A**

This device is a modern microprocessor-controlled online continuous transducer with an electronic bypass for extremely sensitive and critical applications such as servers, workstations and measurement or industrial systems. The compact and stable design provides additional safety and flexibility when it comes to application possibilities.

- UPS classification VFI-SS-111 to IEC 62040-3
- microprocessor controlled
- sine wave output
- automatic frequency detection
- intelligent battery management
- RS-232, signalling contacts and SNMP via adapter
- management software for Windows '95, '98, 2000, 2003 Server, NT, XP, Novell, Unix
- temperature sensor
- low noise development
- 36 months' warranty

UPS management

With the available UPS management software, the MH's RS232 interface offers extensive communication options from shutdown through to UPS diagnostics.

The PowershutPlus runs as a client/server application for heterogeneous networks and local computers. It works on Windows 5/98/2000/2003 Server/NT, Novell, Linux and all current Unix derivatives. It also contains an SNMP agent on Windows NT and Novell. Optionally available RCCMD clients enable all servers on the network to be shut down (multi-server shutdown). The software provides all important UPS data such as the battery level, temperature, state of the power supply, etc. in the form of a clear graphic. Any faults that occur can be reported conveniently by email, mobile phone or fax.



Higher-specification UPS systems are available on request.



Parameters \ Type	MHD 700 RM	MHD 1000 RM	MHD 1500 RM	MHD 2000 RM	MHD 3000 RM
Output					
Power V A/Watt	700/490	1000/700	1500/975	2000/1400	3000/2100
Current at 230 V	3.0 A	4.3 A	6 A	8.7 A	13 A
Connections	2 × Schuko socket	2 × Schuko socket	2 × Schuko socket	2 × Schuko socket	2 × Schuko socket
Output voltage	230 V ± 2 %				
Frequency	50/60 Hz ±0,1 % automatic				
Voltage waveform	Sine wave				
Input					
Voltage	160-278 V AC (230 V AC)				
Frequency	45-65 Hz				
Batteries					
Autono.s time at nom. load	10 min	10 min	6 min	10 min	10 min
DC voltage	24 VDC	36 VDC	36 VDC	72 VDC	96 VDC
Assembly	7 A h-12 V	7 Ah-12 V	9.5 Ah-12 V	7 Ah-12 V	7 Ah-12 V
Type	Sealed maintenance-free lead-acid batteries				
Charging time	8-10 hours at 90 %				
Test	Automatic or manually via button				
PFC	Yes				
Efficiency DC-AC	> 90 %				
Battery start	Yes				
Auto-restart	Yes				
Overload	110 % for 10-25 seconds				
Noise level	< 40 dB(A) at 1 m spacing (depending on load and temperature)				
Displays					
LED (UPS status)	LINE; BYPASS; INV; FAULT; BAT-LEVEL; LOAD-LEVEL;				
LED (load)	BAT. (MH2000/3000)				
Acoustic alarm	20 %, 50 %, 100 %, OVERLOAD				
Protection					
Surge	Yes				
Lightning protection	ANSI / IEEE587 Cat A				
EMC/LVD	EN50091-2, EN50091-1				
Tests	TÜV, GS, CE				
Communication	RS232 / optocoupler / SNMP via adapter				
Environment					
Temperature	0-40 °C (USV without batteries)				
Humidity	0-95 % (non-condensing)				
Mechanics					
Dimensions (U × D in mm)	2 U × 390	2 U × 390	2 U × 410	2 × 2 U × 480	2 × 2 U × 480
Weight	16.4 kg	19.3 kg	19.3 kg	15.4 + 25.4 kg	15.5 + 31 kg
Order no.	235-300-06	235-300-07	235-300-08	235-300-09	235-300-10



Service

Guarantee success with a unique combination of our individual products!

Contact us and we will be happy to advise you.

