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Open 19" racks

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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 (PDU)

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- UTE (France)
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RZ flex PDU

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- Earthing-pin
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19" power distribution units

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- modular 19" power distribution systems



Configure your own PDU system

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- PDU configurator

USV systems, 19" devices

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

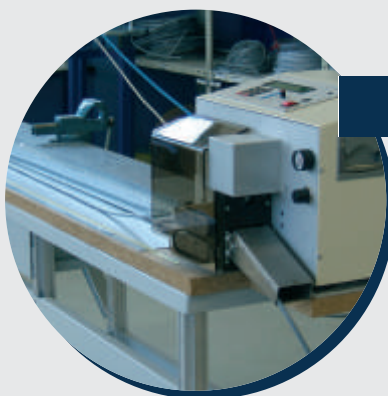


Our service for you: Pre-wiring, power supplies, plug-and-play versions in enclosures and cabinet systems

✔ 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

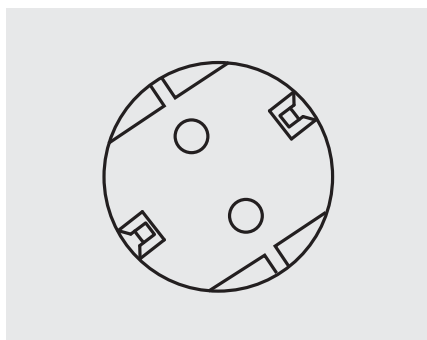


Multiple socket strips

- space-saving design
- stable aluminium enclosure
- suitable for 19" mounting in 1 U division (L = 440 mm) and/or cabinet rack mounting
- connection: $3 \times 1.5 \text{ mm}^2$
- standard cable length: 2.0 m
- earthing-pin plug and UTE standard sockets: twisted 35°
- incl. mounting bracket

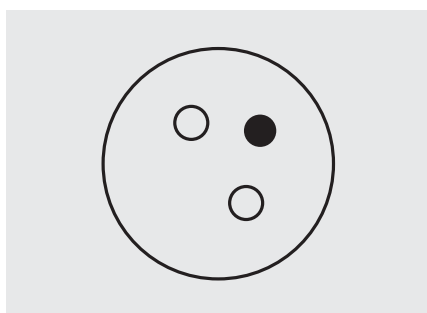


two-pin earthed plug 230 V AC, 16 A



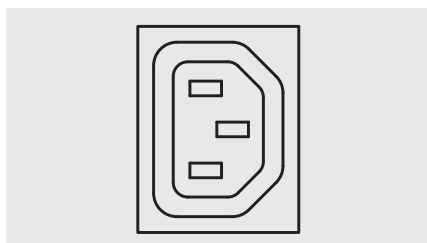
No. of sockets	Switch	Surge protection	Mains filter	Amp. meter	19" install.-compatible 1 U	Length L mm	Colour	Order no.
9	-	-	-	-	x	440	light grey	591-400-00
12	-	-	-	-	-	610	black	591-412-00
8	x	-	-	-	x	440	light grey	591-401-00
8	-	x	-	-	x	440	light grey	591-402-00
6	-	x	x	-	x	440	light grey	591-403-00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

UTE (France), 230 VAC, 16 A



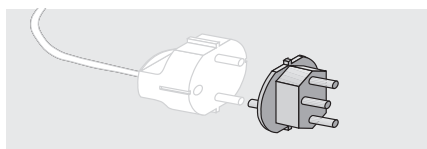
No. of sockets	Switch	Surge protection	Mains filter	Amp. meter	19" install.-compatible 1 U	Length L mm	Colour	Order no.
9	-	-	-	-	x	440	light grey	591-405-60
12	-	-	-	-	-	610	black	591-412-60
8	x	-	-	-	x	440	light grey	591-406-60
8	-	x	-	-	x	440	light grey	591-402-60
6	-	x	x	-	x	440	light grey	591-403-60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

IEC connectors IEC-C13, 230 VAC, 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	-	-	-	-	x	440	black	591-414-10
8	-	-	-	x	x	440	light grey	591-400-17

"Swiss earthing-pin plug" adapter



- connector pin side: Swiss
 - jack side: earthing-pin plug
- Material:** plastic, black

Order no.

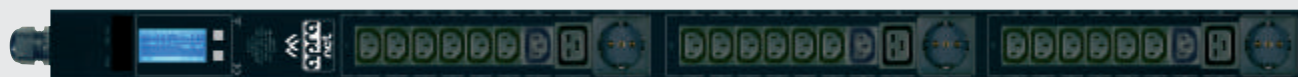
640-230-00

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



Design	Input	Phases Input	Current per phase	Outputs	Measurement Input	Measurement per port	Switched outputs	Order no.
Horizontal (19")	400 V 16 A	3	16	3 x Earthing-pin	X			591-920-01
Vertical	230 V 16 A	1	16	18 x C13	X			591-920-02
Vertical	230 V 16 A	1	16	18 x C13	X	X		591-920-03
Vertical	230 V 16 A	1	16	18 x C13	X		X	591-920-04
Vertical	230 V 16 A	1	16	18 x C13	X	X	X	591-920-05
Horizontal (19")	230 V 16 A	1	16	4 x C13, 5 x C19	X			591-920-06
Horizontal (19")	230 V 16 A	1	16	4 x C13, 5 x C19	X	X		591-920-07
Horizontal (19")	230 V 16 A	1	16	4 x C13, 5 x C19	X		X	591-920-08
Horizontal (19")	230 V 16 A	1	16	4 x C13, 5 x C19	X	X	X	591-920-09
Vertical	230 V 32 A	1	32	4 x Earthing-pin, 12 x C13, 2 x C19	X			591-920-10
Vertical	230 V 32 A	1	32	4 x Earthing-pin, 12 x C13, 2 x C19	X	X		591-920-11
Vertical	230 V 32 A	1	32	4 x Earthing-pin, 12 x C13, 2 x C19	X		X	591-920-12
Vertical	230 V 32 A	1	32	4 x Earthing-pin, 12 x C13, 2 x C19	X	X	X	591-920-13
Vertical	400 V 16 A	3	16	3 x Earthing-pin, 18 x C13	X			591-920-14
Vertical	400 V 16 A	3	16	3 x Earthing-pin, 15 x C13	X	X		591-920-15
Vertical	400 V 16 A	3	16	3 x Earthing-pin, 15 x C13	X		X	591-920-16
Vertical	400 V 16 A	3	16	3 x Earthing-pin, 15 x C13	X	X	X	591-920-17
Vertical	400 V 16 A	3	16	1 x Earthing-pin, 8 x C19	X			591-920-18
Vertical	400 V 16 A	3	16	1 x Earthing-pin, 8 x C19	X	X		591-920-19
Vertical	400 V 16 A	3	16	1 x Earthing-pin, 8 x C19	X		X	591-920-20
Vertical	400 V 16 A	3	16	1 x Earthing-pin, 8 x C19	X	X	X	591-920-21
Vertical	400 V 16 A	3	16	3 x Earthing-pin, 3 x C19, 21 x C13	X			591-920-22
Vertical	400 V 16 A	3	16	3 x Earthing-pin, 3 x C19, 21 x C13	X	X		591-920-23
Vertical	400 V 16 A	3	16	3 x Earthing-pin, 3 x C19, 21 x C13	X		X	591-920-24
Vertical	400 V 16 A	3	16	3 x Earthing-pin, 3 x C19, 21 x C13	X	X	X	591-920-25
Vertical	400 V 32 A	3	32	3 x Earthing-pin, 24 x C13	X			591-920-26
Vertical	400 V 32 A	3	32	3 x Earthing-pin, 24 x C13	X	X		591-920-27
Vertical	400 V 32 A	3	32	3 x Earthing-pin, 24 x C13	X		X	591-920-28
Vertical	400 V 3 2A	3	32	3 x Earthing-pin, 24 x C13	X	X	X	591-920-29
Vertical	400 V 32 A	3	32	1 x Earthing-pin, 2 x C13, 15 x C19	X			591-920-30
Vertical	400 V 32 A	3	32	1 x Earthing-pin, 2 x C13, 15 x C19	X	X		591-920-31
Vertical	400 V 32 A	3	32	1 x Earthing-pin, 2 x C13, 15 x C19	X		X	591-920-32
Vertical	400 V 32 A	3	32	1 x Earthing-pin, 2 x C13, 15 x C19	X	X	X	591-920-33
Temp. sensor								591-920-34

Other configurations e.g. with differential current measurement available on request!





RZ-flex PDU

This modular system makes it possible to connect different PDU modules and change them during operation by means of a very sturdy and safe coupling device (Neutrik single phase/ 16 A). Its supply line can be connected simply and quick. Thus, an individual configuration on site afterwards is possible.

- individual connection of PDU by standard Neutrik system (single phase/ 16 A).
- type of modules C13, C19 and earthing-pin plug
- assembly: 19" mounting (see fig. 1) or individual mounting to rack (see fig. 2)

Material:

high-quality aluminium extrusion

Dimensions (H x W x D):

44,45 (1 U) x 440 x 47 mm

Delivery:

mounting material included

1



2



3



4



5



6





Order information

Pos.	Description	Power Inputs	Order no.
1	6 times C13	1x	591-400-62
2	4 times C19 with IEC LOCK	1x	591-400-63
3	6 times Earthing-pin	1x	591-400-87
4	6 times C19 with IEC LOCK	3x	591-400-90
5	12 times C13	2x	591-401-37
6	8 times C19 with IEC LOCK	2x	591-401-38

Accessories

Description	Order no.
Neutrik coupling 16 A for cable mounting	640-024-17
Locking set for C13 PDU (set for 6 locks)	591-400-61
Mains cable 3m, with Neutrik socket u. CEE plug 16 A 3pol.	640-044-30
Mains cable 5m, with Neutrik socket u. CEE plug 16 A 3pol.	640-044-50

Installation: Individual connection of the PDU via standard Neutrik system (single-phase / 16 A)





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:

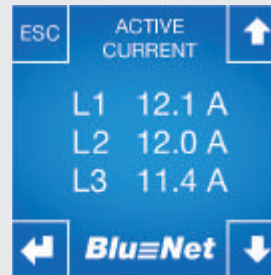
aluminium

Dimensions (H x W x D):

44.4 (1U) × 438 × 130 mm

Delivery text

PDU, 19" mounting bracket, supply line: 3 metre H05VV-F 3G2,5 mm² with Earthing-pin plug 16A



Switchable metered 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, SNMP V2 und V3, Modbus TCP, IPv4 und IPv6

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





Monitored PDU

Integrated measurement of: power, active power, voltage, frequency, $\cos \varphi$ (Zeichen Phi: Arial Unicode 03C6) and energy.

All values can be read on the integrated, illuminated OLED 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, SNMP V2 und V3, Modbus TCP, IPv4 und IPv6



Description	Order no.
8-way Earthing-pin	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, $\cos \varphi$ (Zeichen Phi: Arial Unicode 03C6) and energy.

All values can be read on the integrated, illuminated OLED 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, SNMP V2 und V3, Modbus TCP, IPv4 und IPv6



Description	Type of connection	Order no.
400 V / 16 A	CEE plug-socket	591-920-47
400 V / 32 A	Input and Output terminal	591-920-48

Further models available on request!



Configure "Your" individual PDU

Through cooperation with several well-known manufacturers, we can provide you with PDUs that are optimally tailored to your needs.

Contact us - we will be happy to advise you!

Power supply

- 230 / 400 VAC
- Single- / Three-phase
- 16 A / 32 A
- Positioning (Top/Bottom/Front/rear)

Fuses

- Circuit breaker
- Thermal fuse
- Overvoltage Protection

Cable

- Individual length
- Different plug types
- Terminal block
- Halogen-free
- Larger cross-section



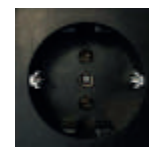


Enclosure / housing

- dimensions
- 1 U / 1,5 U
- individual length according to equipment
- Horizontal or vertical alignment
- color
- Individual labelling possible

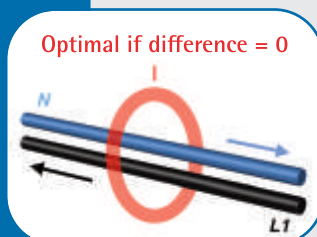
Connection types

- IEC320 C13
- IEC320 C19 IEC-lock
- CEE 7/3 (Earthing-pin)



Monitoring / Measuring

- Local measuring
 - Current in A
- Telemetry
 - Current in A
 - Consumption in W and VA
 - Energy in kWh
 - Voltage in V
 - Effective power
- Different current measurement
 - Class B measurement (alternating current / direct current)
 - Single & three-phase



Output features

- Energy metering
 - PDU total
 - Groups
 - Per output
- Remote output switching by means of bistable relays per output



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 crosssections (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 either 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

Material:

enclosure: aluminium

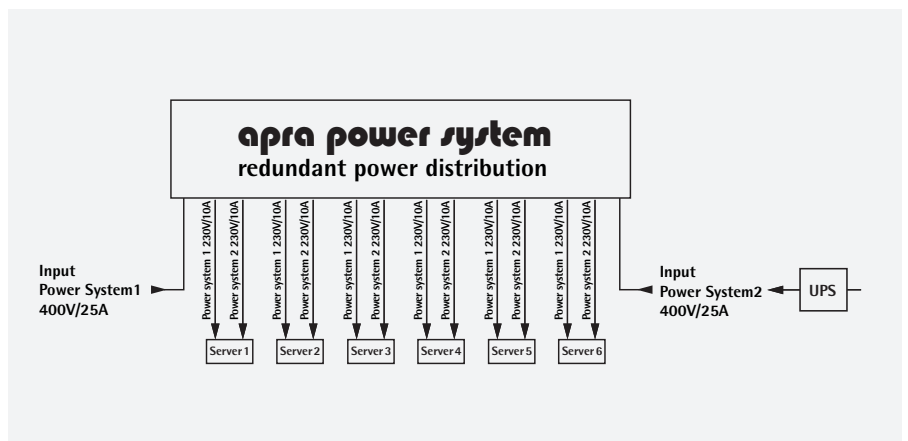
inserts: plastic

Finish:

anodised

Dimensions (H x W x D):

3 U (132.5 mm) x 482.6 mm x 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 acc. 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

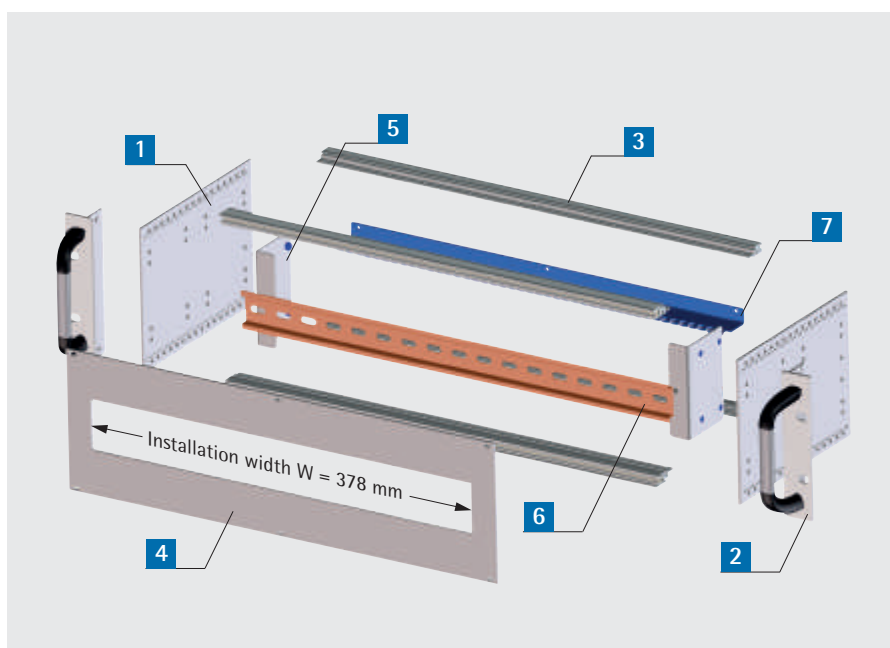


Sample configuration with cover sheets (special build)

Delivery

Pos.	St.	Bezeichnung
1	2	Side panels
2	2	Front bracket with handles
3	4	Modul rails en (2x standard, 2x BUS)
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 no.
245-311-80



Accessories

Cover plate closed

- for top and bottom mounting

Material:

aluminium

Order no.
240-662-85

Cover strip S 35 G

- to conceal the front panel openings
- L: 219 mm

Material:

plastic

Order no.
640-222-00



19" Line Interactive VFI-SS-311 1000, 1500, 2000, 3000 VA

The Racktower housing and the rotatable LCD display make it possible to use it as a tower unit as well as in 19" cabinets.

The series comes standard with RS-232, USB and emergency shutdown contacts. Through the card slot, it can be added with an optional SNMP adapter or a relay card. All models provide at least 8 IEC C13 (10 A) consumer outputs.

The 3000 VA model also provides a 16 amp IEC C19 output.

- UPS classification VFI-SS-311 according to IEC 62040-3
- "Line interactive" technology
- excellent power factor of 0.9
- high efficiency (> 97%)
- can be used as a tower as well as 19" version
- user-friendly backlit LCD display depending on operating status
- optional XL version with expandable batteries
- large voltage input window (161-276 VAC)
- automatic frequency detection
- sine wave output
- RS-232 and USB interface as standard
- slot for optional adapters: relay card or SNMP card
- management software for all common operating systems
- 36 months warranty



top: Rear side APS 1000 / 1500 LI
middle: Rear side APS 2000 LI
bottom: Rear side APS 3000 LI



	APS 1000 LI	APS 1500 LI	APS 2000 LI	APS 3000 LI
Power VA / Watt	1000 / 900	1500 / 1350	2000 / 1800	3000 / 2700
Power failure bridging time Load 100% / 50%	4,5 min / 10 min	3 min / 7 min	4,5 min / 10 min	3 min / 7 min
Input				
- Nominal voltage / voltage range	230 VAC / 161 ~ 276 VAC			
- Input frequency range	50/60 Hz normal operation / 40-70 Hz generator operation			
- Boost threshold	207 VAC ± 4 % / 215 VAC ± 4 % (setup 230 VAC Wide Range)			
- Undervoltage threshold	161 VAC ± 4 % / 171 VAC ± 4 % (setup 230 VAC Wide Range)			
- Voltage return threshold	243 VAC ± 4 % / 236 VAC ± 4 % (setup 230 VAC Wide Range)			
- Overvoltage threshold	276 VAC ± 4 % / 266 VAC ± 4 % (setup 230 VAC Wide Range)			
Output				
- Output voltage	220, 230, 240 VAC			
- Voltage tolerance (Battery Mode)	± 5 % RMS			
- THD(i) typical linear/non-linear load	< 3 % THD / < 6 % THD			
- Frequency tolerance synchronization range	45-55 Hz / 55-65 Hz			
- Frequency tolerance Battery Mode	50 / 60 ± 0,1 Hz			
- Power factor	0,9			
- Voltage waveform	sinusoidal			
- Efficiency	> 97 % (normal operation, loaded batteries))			
DC Start	cold start			
Switch time	typical, 2 ~ 6 ms			
Batteries				
- Nominal voltage	36 VDC		72 VDC	
- Type	closed, maintenance-free lead-mat battery			
- Charging time	approx. 3 h auf 90 %			
Display				
- LCD	rotary LCD display			
- LCD backlight	Normal (blue) / Fault (red)			
Interface	RS232, USB, EPO, Card slot for optional SNMP / relay card			
Audible alarm				
- Battery mode / Battery Low	Beeping every 4 seconds / Beeping every second			
- USV fault / overload	Beep continuously / Beeping every second			
Environment				
- Temperature	0 °C - 40 °C			
- Humidity	0-95% non-condensing			
- Acoustic noise	< 50 dB(A) @ 1 Meter			
Mechanic				
- Dimensions (H x W x D in mm)	86,5 (2 HE) x 438 (19") x 430		86,5 (2 HE) x 438 (19") x 600	
- Weight	16 kg		29,5 kg	
- Degree of protection	IP 20			
Terminals				
- Input	1 x IEC (10 A)		1 x IEC (16A)	
- Output	8 x IEC C13 (10A)			8x IEC C13 (10 A) + 1x IEC C19 (16 A)
Regulations / standards	CE / EN 62040-1 / EMC: EN 62040-2 class C1			
Order no.	235-300-02	235-300-03	235-300-04	235-300-05

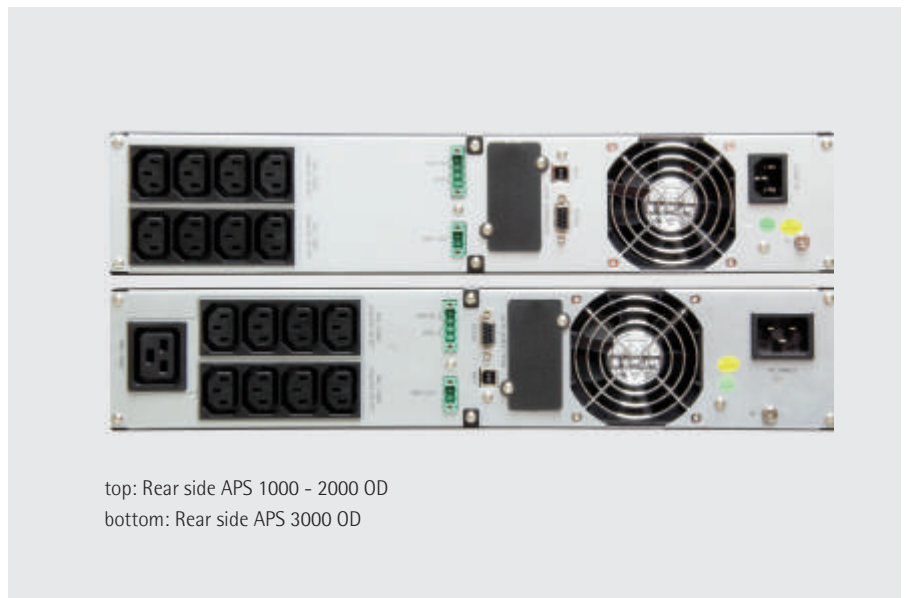


19" online continuous transducer VFI-SS-3111 1000, 1500, 2000, 3000 VA

High-end UPS in the field of high-quality microprocessor-controlled online permanent converters for your EDP landscape or for metrological or industrial plants. The Racktower UPS is already equipped as standard with extensive and special features, which otherwise offer on the UPS market at most expensive special designs. The programmable switch contacts or the adjustable restart function are only two of the countless examples. Their racktower housing and the rotatable LCD display allow both use as a tower unit as well as the installation in 19" cabinets.

With standard RS232 and USB interface, standard emergency stop contact (EPO) and individually programmable switch contacts (DRY IN / DRY OUT), the Racktower UPS offers comprehensive communication and control options. And even these can be extended by additional optional slot adapters (SNMP, relay card). All models provide at least 8 IEC C13 (10 A) consumer outputs.

- UPS classification VFI-SS-111 according to IEC 62040-3
- online permanent converter with sine output switchable to ECO mode (line-interactive)
- excellent power factor of 0.9
- can be used as a tower as well as 19" version
- user-friendly rotatable LCD display
- optional XL version with expandable batteries
- large voltage input window (120-276 VAC)
- microprocessor control
- automatic frequency detection
- preset output frequency (frequency converter function)
- RS-232 as standard
- USB as standard
- programmable switch contacts as standard
- emergency stop contact "EPO" as standard
- slot for further optional adapters: relay card or SNMP
- management software for all common operating systems
- 36 months warranty



top: Rear side APS 1000 - 2000 OD
bottom: Rear side APS 3000 OD



	APS 1000 OD	APS 1500 OD	APS 2000 OD	APS 3000 OD
Power VA / Watt	1000 / 900	1500 / 1350	2000 / 1800	3000 / 2700
Power failure bridging time 100% / 50 % load (pf0,7)	7 min / 15 min	5 min / 15 min	5 min / 15 min	7 min / 20 min
Input				
- Cold start	yes, preset frequency = 50 Hz			
- Acceptable voltage range	120 VAC - 276 VAC			
- THDi	< 5 % full load			
- Input Power Factor	≥ 0,99 (Full RCD LOAD)			
- Input frequency range	45 - 55 Hz / 54 - 66 Hz			
Output				
- Output voltage				
- Voltage waveform	Sinus			
- Nominal voltage	208 VAC / 220 VAC / 230 VAC / 240 VAC / ± 1 %			
- Transient recovery	100 ms (IEC 62040-3 non-linear load			
- Distortion factor	< 2% THD, linear load / < 5 % THD, non-linear load			
- Output frequency				
- Synchronization range	45 - 55 Hz / 54 - 66 Hz (adjustable)			
- Battery operation	50 / 60 ± 0,2 Hz			
Power Factor	0,9			
Efficiency at full load				
- Line mode	> 89 % with loaded batteries			
- Battery mode	> 84 % @ 12 VDC / Battery			
- ECO mode	> 95 %			
Overload (Normal/Battery)	102 % ~ 130 % : 12s / 130 % ~ 150 % : 1,5s / > 150 % :100 ms			
Battery				
- Battery type	12 VDC / 7 Ah (closed, maintenance-free lead-mat battery)		12 VDC / 9 Ah (closed, maintenance-free lead-mat battery)	
- Number of blocks	3	4	4	6
- DC voltage	36 VDC	48 VDC	48 VDC	72 VDC
- Charging time	< 3 h for 90%			
- Maximum charge current	1,5 A			
Communication integrated / Optional cards	RS 232, USB, switch contacts, EPO / Intelligent Slot for AS 400, SNMP			
Indicator / Alarm	rotary LCD display / acoustic alarm			
Ambient conditions				
- Temperature (operating)	0 °C - 40 °C			
- Humidity	0-95% non-condensing			
- Noise level	ca. 52 dB(A) @ 1 Meter			
Mechanical				
- Dimensions (H x W x D in mm)	(2 HE) x (19") x 435			(2 HE) x (19") x 604
- Weight	13,2 kg	19,7 kg	19,7 kg	27,8 kg
- Degree of protection	IP 20			
Connection input	1 x IEC (10 A)			1 x IEC (16 A)
Connection output	8 x IEC 13 (10 A)			8 x IEC 13 (10 A) + 1 x IEC 19 (16 A)
Standards	CE / EN 62040-1 / EMV: EN 62040-2 Klasse C1			
Order no.	235-300-07	235-300-08	235-300-09	235-300-10



Guarantee success with a unique combination
of our individual products!

Contact us and we will be happy to advise you.

