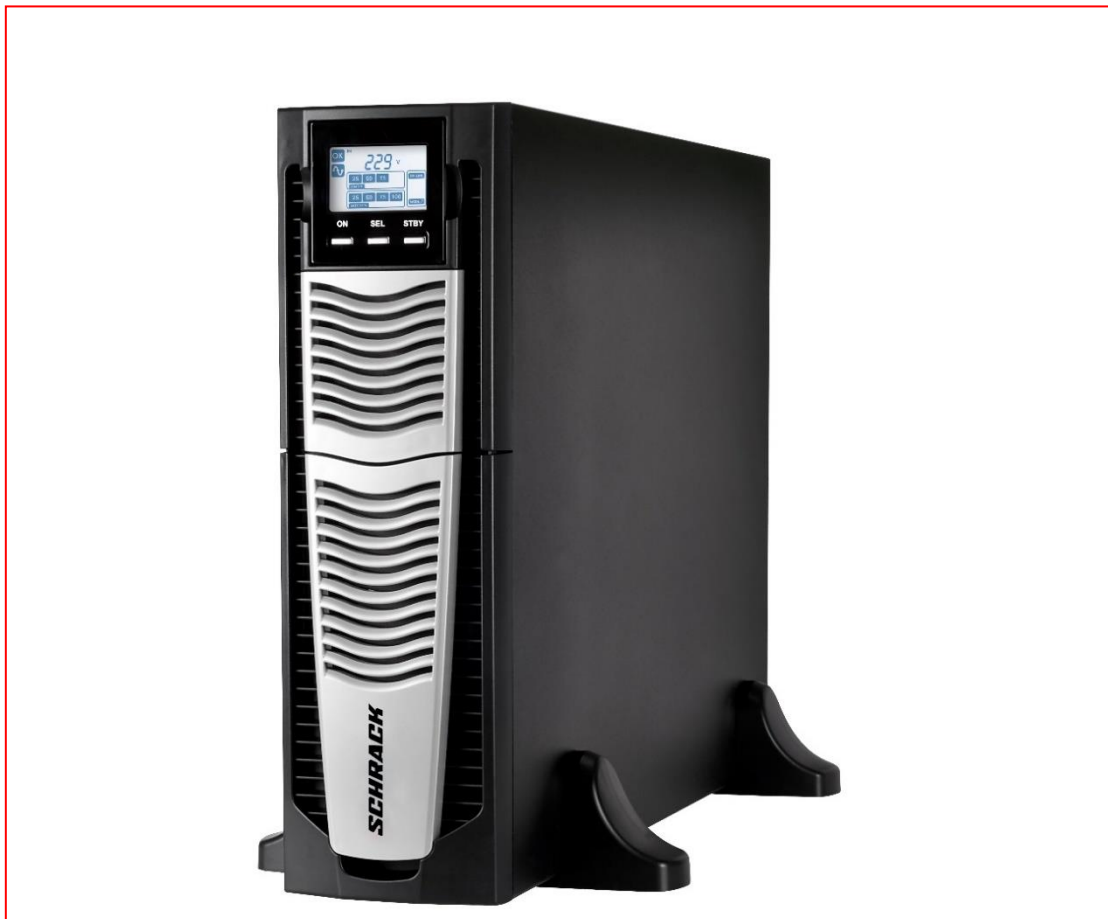


USER MANUAL



UNINTERRUPTIBLE POWER SUPPLY

GENIO Dual Power

Serie USSD 5 – 10 kVA
1 phase input / 1 phase output

Serie USSD 8 – 10 kVA
1 phase input / 1 phase output

On Line Double Conversion Technology (VFI)

CONTENTS

2

<u>1. GENERAL DESCRIPTION</u>	3
2. <i>THE GENIO DUAL POWER</i>	3
3. <i>STANDARD SINGLE-PHASE VERSIONS</i>	4
4. <i>STANDARD THREE-PHASE VERSIONS</i>	4
5. <i>ER VERSIONS FOR EXTENDED AUTONOMY</i>	4
6. <i>DI VERSION FOR SEPARATE SINGLE-PHASE INPUT</i>	4
7. <i>DI ER VERSIONS FOR SEPARATE SINGLE-PHASE INPUT AND EXTENDED AUTONOMY</i>	4
8. <i>X06 BATTERY CABINET</i>	5
<u>9. APPEARANCE AND ACCESSORIES</u>	6
10. <i>DISPLAY</i>	7
11. <i>ACCESSORIES</i>	8
12. <i>GENERIC ACCESSORIES</i>	12
13. <i>FRONT VIEWS</i>	13
14. <i>REAR VIEWS</i>	14
<u>15. CERTIFICATIONS</u>	16
<u>16. TECHNICAL DATA TABLE</u>	17
<u>17. OVERALL EFFICIENCY FOR THE USSD SERIES</u>	23
<u>18. COMMUNICATION PORTS AND FIRMWARE</u>	24
19. <i>TECHNICAL DATA FOR “PIN 6” POWER THROUGH THE RS232 PORT</i>	25
20. <i>FIRMWARE</i>	25

1. GENERAL DESCRIPTION

2. THE GENIO DUAL POWER

The GENIO Dual Power is an online unit for tower/rack installation.

The units are available with power ratings of 5000 VA 6000 VA 8000 VA 10000 VA, with an output power factor equal to 1. The 6000 VA unit is also available in an ER (extended autonomy) version, with a high-power 6 A battery charger in place of the battery tray.

The 10000 VA unit is also available with dual input (DI), equipped with separate input for the rectifier and by-pass line and a version with ER and - DI with a high-power 6 A battery charger and separate input.

The SDU 8000 TM and SDU 10000 TM models come in three-phase input and single phase output configuration.

The UPS is designed to be configured for various operating modes:

- **ON-LINE** is the operating mode which offers maximum load protection and the best output waveform quality (*)
- **ECO** is the operating mode which offers the least UPS consumption, or rather maximum efficiency (**)
- **SMART ACTIVE** is the operating mode which allows the UPS to decide whether to enable ON-LINE or ECO functionality, based on a statistic regarding the quality of the Power Supply network.
- **STAND-BY OFF [Mode 1]** is the operating mode in which the UPS functions as an emergency device. While power is present the UPS does not intervene. In the event of a blackout, the necessary power is provided by the UPS.

(*) The effective values (rms) of the voltage and the output frequency are constantly controlled by the microprocessor independently with respect to the waveform of the network voltage, thereby maintaining the output frequency synchronised with the network within a configurable tolerance.

Outside of this tolerance, the UPS eliminates its synchronism with the network and brings itself to its nominal frequency; under these conditions, the UPS cannot utilise the bypass.

(**) In order to optimise the operating efficiency, the load is normally powered by the bypass in ECO mode. In the event that the network should exceed the preset tolerances, the UPS will switch to ON LINE mode. Once the network has returned back within the preset tolerances for at least five minutes, the UPS will go back to powering the load through the bypass.

The internal battery tray is a hot-swap type and the connector is touch proof protected as per the requirements of the TUV. The battery tray can be replaced using the manual bypass function. This function can be enabled by pressing and holding down the ON and SEL keys for 4 seconds.

The display is a positive type (white background with black lettering). For this reason, in order to avoid unnecessary power consumption, the display's backlight must be turned off when it is not in use.

As already indicated above, the unit's structure is designed for both Tower and Rack installation, with a hot-swap battery tray. The UPS unit is 3U for the 5000 and 6000 VA and 3+3U for the 8000 VA and 10000 VA, they come supplied with support feet for tower installation. The unit is front and rear ventilated in order to allow for rack installation and, in the case of tower installation, to allow for the battery box or other equipment to be positioned adjacent.

The UPS unit's on board communications comprises of: an RS232 serial port, a USB port (not for simultaneous use) and a slot for additional communication cards (with a second serial port independent from the first). The serial port also contains 3 opto-isolated outputs whose functionalities can be programmed using the UPS configuration software. Every version is equipped with a rear 3-pole connector which, by default, performs the R.E.P.O. and Remote ON functions.

The UPS unit's control card has an on board E2PROM in order to allow for various information to be saved, including the unit's settings, history log data, calibration data, etc.

The unit's operating mode can be set directly from the display. The firmware of the UPS unit can be reprogrammed on site using the appropriate programming card.

Inverter/bypass switching only takes place in the case of the inverter's final shutdown or in the event of continuous overloading.

The front panel has a main switch (1 / 0) which can be used to disconnect the entire UPS unit, for example, in cases of prolonged disuse. In addition to ensuring that the entire unit has been disconnected, this switch also serves an important energy saving function, for example, in structures where various small UPS units have been installed. It is also useful in the case of rack installation where the rear portion of the device cannot be accessed in order to disconnect the cables.

"Cold start" (activation using the batteries) can be performed if the batteries are fully charged without any mains supply present.

The 5000 VA and 6000 VA PDIST versions, the 8000 VA and the 10000 VA versions are equipped with Energy Share sockets, which can be setup using the UPS configuration software. An icon on the display indicates the status of the Energy Share sockets.

The speed of the fans is regulated by means of a dedicated variable continuous power supply in order to reduce noise levels and increase the reliability of the fans themselves.

All the models are equipped with backfeed relay protection and a relative functionality test.

The main features of the GENIO Dual series include:

- VFI (On-line) / pure sinusoidal waveform during battery-powered functionality
- Output frequency with automatic selection (auto-sensing)
- Front/rear ventilation
- LCD display
- UPS with configurable and customisable functions (i.e. by-pass thresholds, automatic testing, acoustic alarm, etc.) through proprietary configuration software
- Protected battery expansion connector
- Unlimited expandability of autonomy with dedicated or custom Battery Boxes
- Expansion slot for communication cards (i.e. second USB and RS232 Port, SNMP, ModBus, etc.)
- RS232 and USB communication ports
- Frequency converter mode with a derating of 30%
- "Free Running" mode with a derating of 30%
- Eco mode function with 98% yield

3. STANDARD SINGLE-PHASE VERSIONS

- 5000 VA – 5000 W – PF 1 – 15 batteries, 12 V, 6 Ah – internal battery included with an additional external battery expansion connection
- 6000 VA – 6000 W – PF 1 – 15 batteries, 12 V, 6 Ah – internal battery included with an additional external battery expansion connection
- 8000 VA – 8000 W – PF 1 – 20 batteries, 12 V, 7 Ah – two cabinet with an additional external battery expansion connection
- 10000 VA – 10000 W – PF 1 – 20 batteries, 12 V, 9 Ah – two cabinet with an additional external battery expansion connection

4. STANDARD THREE-PHASE VERSIONS

- 8000 VA – 8000 W – PF 1 – 20 batteries, 12 V, 7 Ah – two cabinet with an additional external battery expansion connection
- 10000 VA – 10000 W – PF 1 – 20 batteries, 12 V, 9 Ah – two cabinet with an additional external battery expansion connection

5. ER VERSIONS FOR EXTENDED AUTONOMY

- 6000 VA – 6000 W ER
 - 10000 VA – 10000 W TM ER
- Retains all standard features of the standard version plus:
6 A battery charger

6. DI VERSION FOR SEPARATE SINGLE-PHASE INPUT

- 10000 VA DI - Retains all standard features of the standard version plus:
Dual input for rectifier and by-pass

7. DI ER VERSIONS FOR SEPARATE SINGLE-PHASE INPUT AND EXTENDED AUTONOMY

- 10000 VA DI ER - Retains all standard features of the standard version plus:
- 6 A battery charger
Dual input for rectifier and by-pass

8. X06 BATTERY CABINET

The X06 BATTERY CABINET is an accessory which is dedicated to this series of UPS units, or rather has the same dimensions (3U) and design.

It is available in the same size of UPS cabinet to be perfectly matched with the various UPS power ratings.

There are no internal battery trays: in this case, the hot swap functionality is intended for the entire Battery Box. The 180 Vdc version is equipped with 15 batteries 7 Ah and can only be used in conjunction with the 5000 VA and 6000 VA units.

The 240 Vdc version is equipped with 20 batteries 7 Ah and can be used in conjunction with the 8000 VA and 10000 VA units.

5

Battery Cabinet



9. APPEARANCE AND ACCESSORIES

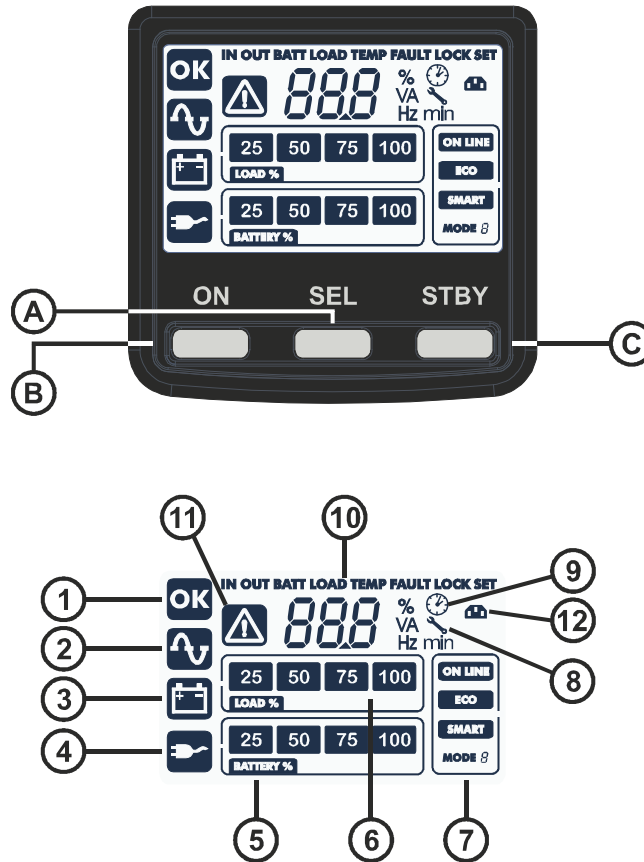
Appearance



- Chassis reference colour: Pantone Black
- Colour of the silver parts: RAL 9006

10. DISPLAY

The diagram below illustrates the layout of the display. It includes the Energy Share socket icon and the possibility of selecting additional operating modes, indicated with MODE 1...MODE 8.



- | | |
|-------------------------------------|---|
| (A) "SEL" Button | (6) Load level indicator |
| (B) "ON" Button | (7) Configuration area |
| (C) "STAND-BY" Button | (8) Maintenance required indicator |
| (1) Regular operating mode | (9) Timer indicator |
| (2) Network operating mode | (10) Measurement display area |
| (3) Battery operating mode | (11) Stand-by / alarm indicator |
| (4) Load powered by bypass | (12) Energy Share indicator |
| (5) Battery charge indicator | |

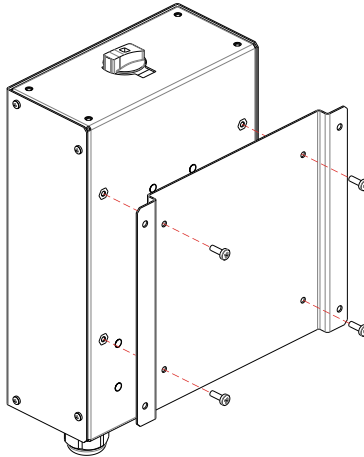
11. ACCESSORIES

MANUAL BYPASS

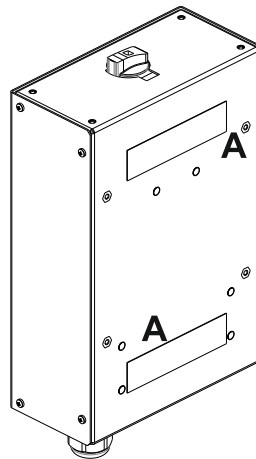
The maintenance bypass allows you to create a UPS isolation system without interrupting the power supply to the load thanks to the use of the plug-socket kit and a control peripheral panel. The maintenance bypass has been developed to be installed on the wall, to be housed on top of a UPS or to be installed inside a 19" rack cabinet.

8

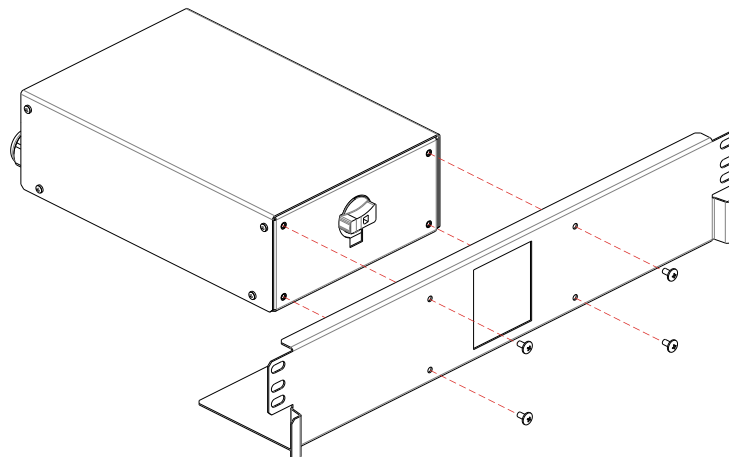
Wall mounted configuration



Installation on UPS



Rack 19" configuration



USSDMMBB1PH version

	SINGLE PHASE CONFIGURATION
Input voltage [V]	220-240 1W+N+PE
Input frequency [Hz]	50-60
Input current [A]	31
Output voltage [V]	220-240 1W+N+PE
Output frequency [Hz]	50-60
Output current [A]	31
Dimensions (WxHxD) [mm]	174x82x280 (only bypass cabinet)
Weight [kg]	3 (without the wall installation flange)

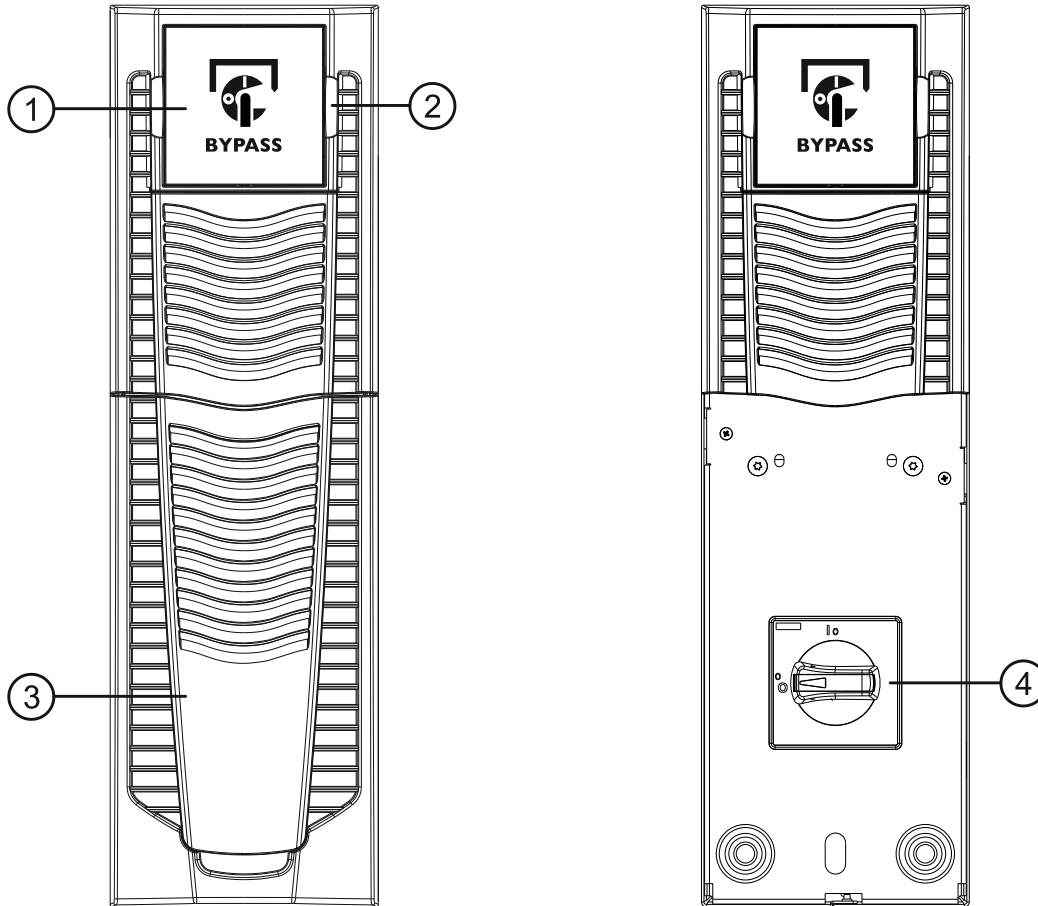
9**USSDMMBB3PH version**

	SINGLE PHASE CONFIGURATION		THREPHASE CONFIGURATION
	STANDARD	SEPARATED BYPASS LINE	
Input voltage [V]	220-240 1W+N+PE		380-415 3W+N+PE
Input frequency [Hz]	50-60		
Input current [A]	50		each phase 18
Voltage on BYPASS operation [V]	220-240 1W+N+PE		380-415 3W+N+PE
Current on BYPASS operation [A]	50	L1 = 0 L _{BYP} = 50	L1 = 50 L2, L3 = 0
Output voltage [V]	220-240 1W+N+PE		380-415 3W+N+PE
Output frequency [Hz]	50-60		
Output current [A]	50		
Dimensions (WxHxD) [mm]	174x82x280 (only bypass cabinet)		
Weight [kg]	3 (without the wall installation flange)		

MODULAR MANUAL BYPASS

The maintenance bypass allows you to create an isolation system up to 3 UPS in parallel without interrupting the power supply to the load thanks to the use of the plug-socket kit and a control peripheral panel. The maintenance bypass has been developed to be installed on TOWER configuration, to be housed on side of a UPS or to be installed inside a 19" rack cabinet.

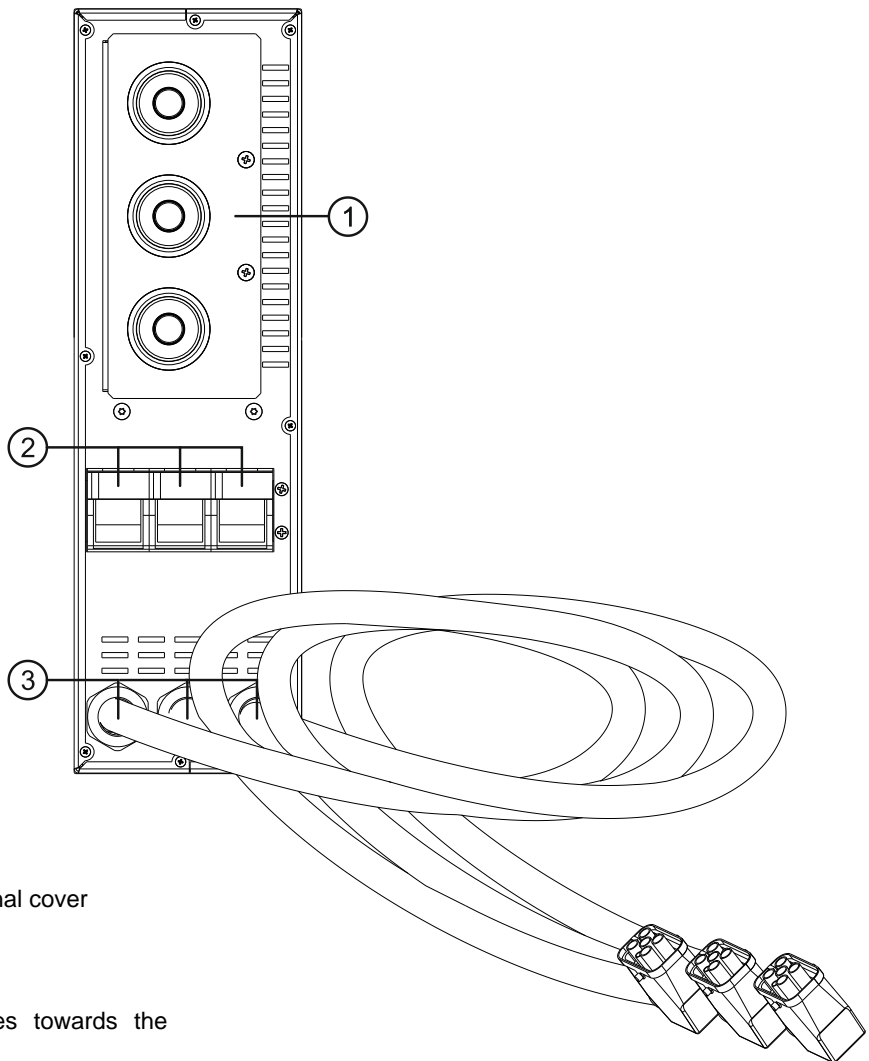
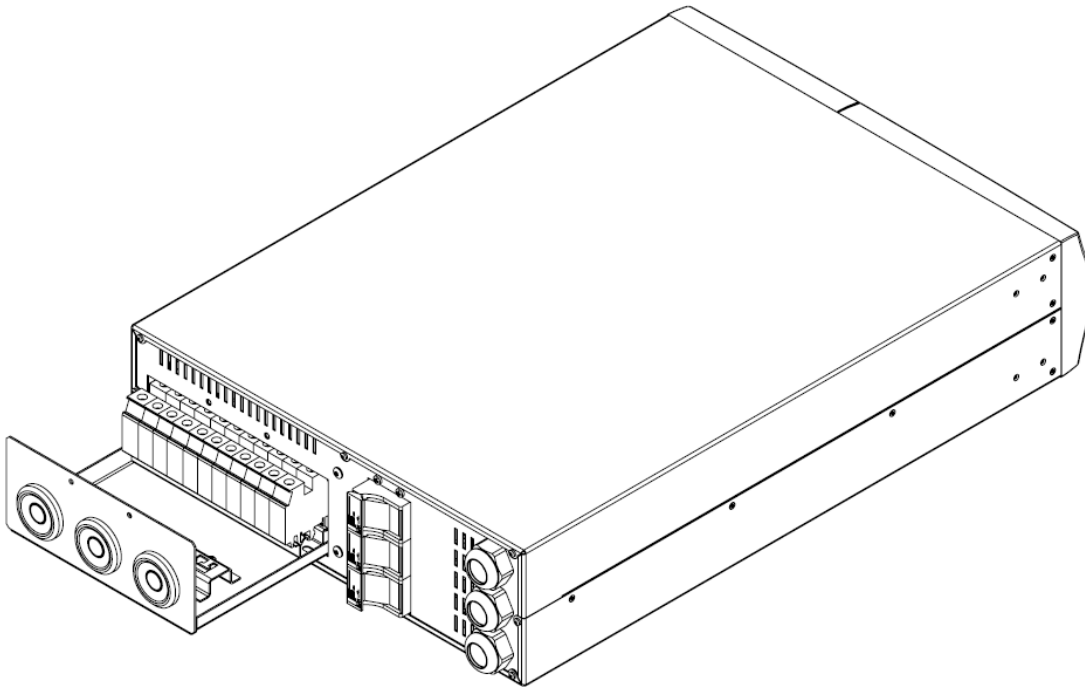
Front view



View without front panel

- ① Extractable / rotatable plate
- ② Release slits
- ③ Removal front panel
- ④ Bypass switch

Rear view



- ① Extractable terminal cover
- ② Protection fuses
- ③ Connection cables towards the UPS

Version YSDUE04...

	SINGLE PHASE CONFIGURATION
Input voltage [V]	220-240 1W+N+PE
Input frequency [Hz]	50-60
Input current [A]	120
Output voltage [V]	220-240 1W+N+PE
Output frequency [Hz]	50-60
Output current [A]	120
Current for each connector [A]	40 for each connection
Dimensions (WxHxD) [mm]	131 x 448 x640 - Tower 19" x 3U x 640 – Rack
Weight [kg]	21

Version YSDUE05...

	SINGLE PHASE CONFIGURATION		THREPHASE CONFIGURATION
	STANDARD	SEPARATED BYPASS LINE	
Input voltage [V]	220-240 1W+N+PE		380-415 3W+N+PE
Input frequency [Hz]	50-60		
Input current [A]	150		each phase 60
Voltage on BYPASS operation [V]	220-240V 1W+N+PE		380-415V 3W+N+PE
Current on BYPASS operation [A]	150	L1 = 0 L _{BYP} = 150	L1 = 150 L2, L3 = 0
Output voltage [V]	220-240 1W+N+PE		380-415 3W+N+PE
Output frequency [Hz]	50-60		
Output current [A]	150		
Current for each connector [A]	50 for each connection		
Dimensions (WxHxD) [mm]	131 x 448 x640 - Tower 19" x 3U x 640 - Rack		
Weight [kg]	22		

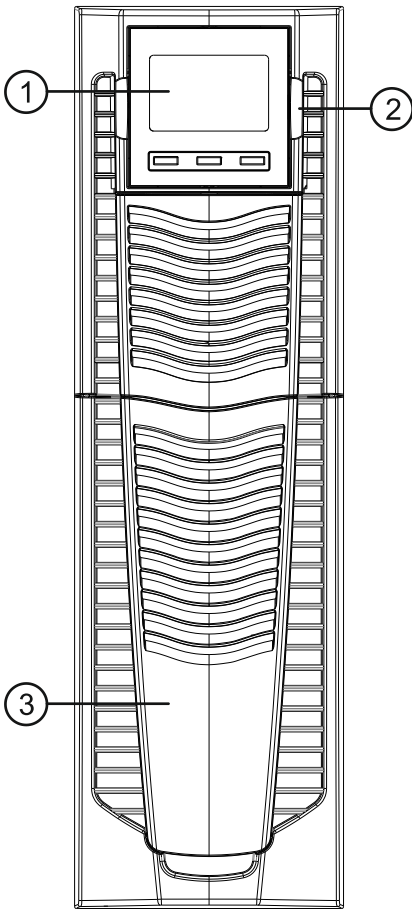
12. GENERIC ACCESSORIES

OPTIONAL SLOT CARDS

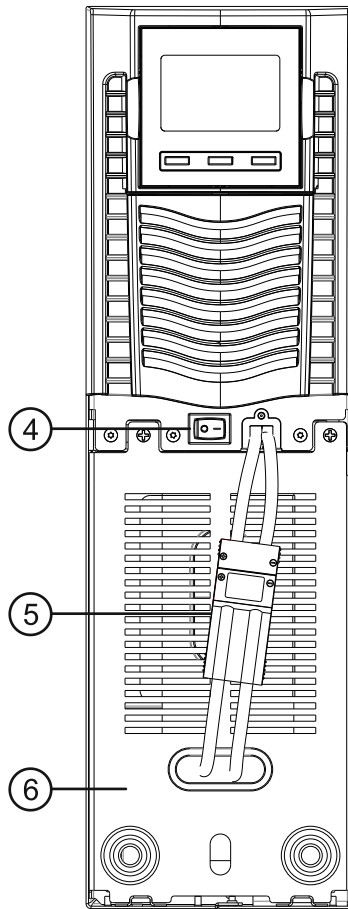
The slot complies with our normal company standard and can therefore accept any of the accessory cards which are currently available, such as the various MultiCOM cards and the NetMan card.
Visit www.ups-technet.com for the updated list of compatible accessories.

13. FRONT VIEWS

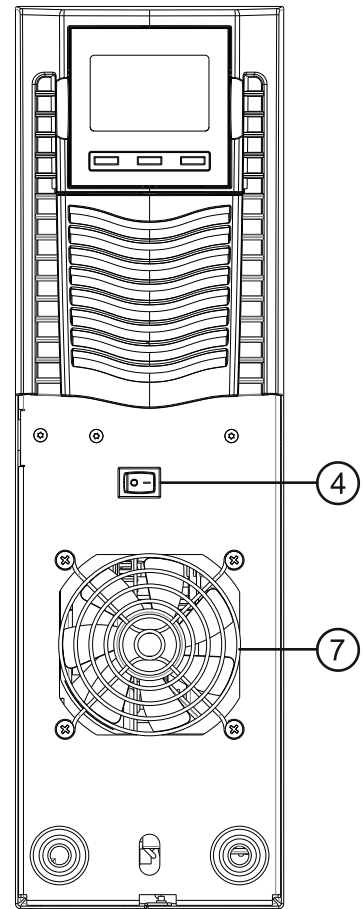
UPS



5000 – 6000 W Model
without front panel



8000 – 10000 W Model
without front panel

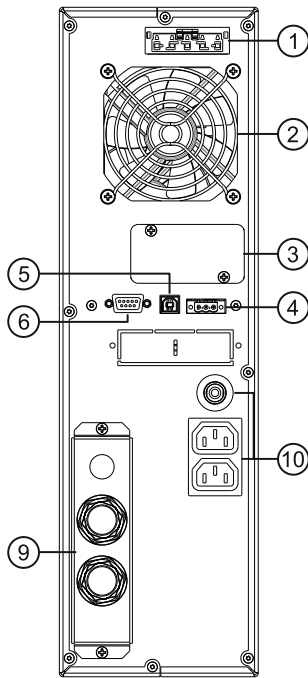


- ① Rotatable display
- ② Display release slots
- ③ Removable front panel
- ④ I / O Switch

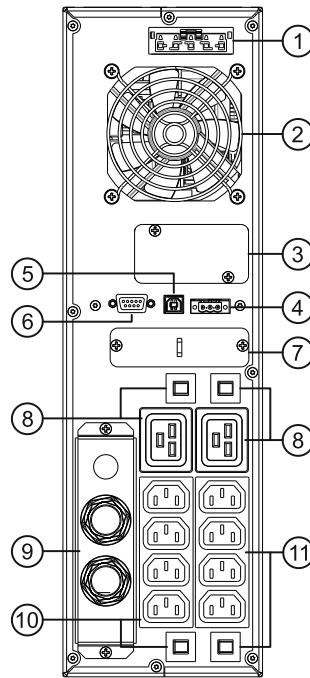
- ⑤ Battery pack connector
- ⑥ Battery pack retention panel
- ⑦ Cooling fan

14. REAR VIEWS

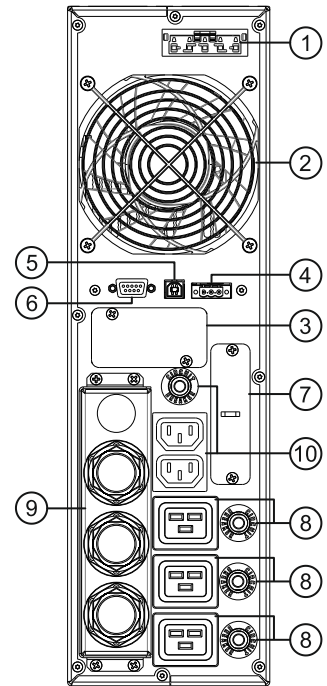
The rear panels are illustrated below:



5000 / 6000 W Model



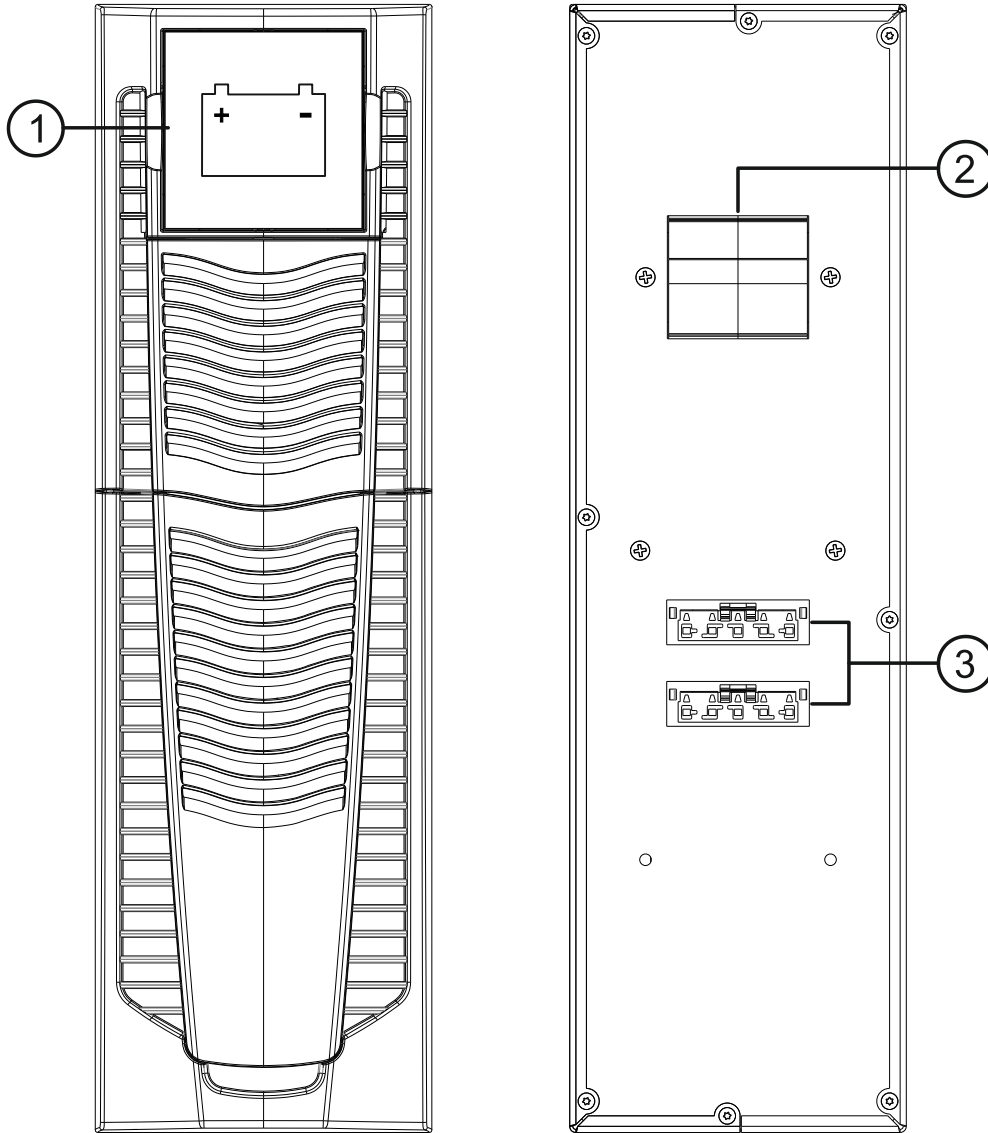
**5000 / 6000 W Model
with Power Distribution and ER**



8000 / 10000 W Model

- | | | | |
|---|-------------------------------|---|--|
| ① | Battery expansion connector | ⑦ | Slot for parallel board (optional) |
| ② | Cooling fan | ⑧ | IEC 16 A output socket with circuit breaker |
| ③ | Slot for communication cards | ⑨ | Input / Output terminal |
| ④ | Remote control terminal board | ⑩ | IEC 10 A Energy Share output socket with circuit breaker |
| ⑤ | USB communication port | ⑪ | IEC 10 A output socket with circuit breaker |
| ⑥ | RS232 communication port | | |

Every Battery Box comes supplied with a wiring set and 2 expansion connectors for connection to the UPS unit or to a chain of Battery Boxes.



- ① Rotatable display
- ② Battery fuses
- ③ Battery expansion connectors

15. CERTIFICATIONS

The UPS unit is certified according to EMI / EMC EN62040-2 compatibility class C1 for emissions and class C2 for immunity.

The product is classified VFI-SS-111.

REFERENCE STANDARDS

Schrack operates a Quality Management System certified to ISO 9001/2000 (Certification No. CERT-04116-99-AQ-MIL-SINCERT) covering all company functions from design and manufacture to after sales services.

This certification is a guarantee for the customer with regard to the following aspects:

- use of quality materials;
- meticulousness in the production and testing phases;
- constant customer support.

In addition, the UPS meets the VFI-SS-111 classification (according to EN 62040-3) and complies with the following specific standards for UPS:

- **IEC EN62040-1: Static uninterruptible power supplies (UPS): general and safety provisions;**
- **IEC EN 62040-2: Electromagnetic compatibility (EMC) requirements category C2;**
- **EN 62040-3: Methods of specification of performances and test provisions;**

The GENIO Dual series also satisfies the following general standards, where applicable:

- **IEC 60529: Degree of protection provided by enclosures;**
- **IEC 60664: Insulation for low-voltage equipment;**
- **IEC 60755: General Requirements for Residual Current Operated Protective Devices;**
- **IEC 60950: General safety provisions for "Information Technology" equipment;**
- **IEC 61000-2-2: Electromagnetic compatibility immunity;**
- **IEC 61000-4-2: Electrostatic discharge immunity test;**
- **IEC 61000-4-3: Radio frequencies, electromagnetic immunity test;**
- **IEC 61000-4-4: Transitory overvoltage immunity test;**
- **IEC 61000-4-5: Overvoltage immunity test;**
- **IEC 61000-4-11: Voltage dips, short interruptions and voltage variations immunity test.**
- **IEC 61000-3-12: Harmonic current emissions (for equipment with rated current $> 16 \text{ A} \leq 75$).**

European Directives:

LVD directive 2014/35/EU

The LVD directive covers all health and safety risks of electrical equipment operating with a voltage between 50 and 1000 V for alternating current and between 75 and 1500 V for direct current.

EMC directive 2014/30/EU

The EMC directive **limits electromagnetic emissions from equipment**; The directive also **governs the immunity of such equipment to interferences**.

16. TECHNICAL DATA TABLE

UPS MODELS		USSD500..	USSD600..	USSD 800..	USSD1000..
INPUT					
Rated voltage		220 - 230 – 240 Vac (1W+N+PE)			
Maximum operating voltage	[Vac]	300			
Voltage range and frequency for no battery intervention	[Vac]	Maximum: 276			
	[Vac]	Minimum: 184 - 140 (from 100% to 50% load in linear mode)			
	[Hz]	Return to network powered functionality: 190 Frequency: 40 - 72			
Rated frequency	[Hz]	50 - 60			
Maximum current ⁽¹⁾	[A]	30	36	49.1	60.6
Rated current ⁽²⁾	[A]	25	30	40	49.6
Power factor @ rated load and voltages		≥0.99			
Current distortion @ rated load and voltages		≤2%			

UPS MODELS		USSD500..	USSD600..	USSD 800..	USSD1000..
BYPASS					
Separate input					DI version only
Separate input voltage	[Vac]				220 - 230 - 240 (1W+N+PE)
Accepted voltage range for switching	[Vac]	Minimum configurable threshold: 180 - 200 Maximum configurable threshold: 250 - <u>264</u>			
Accepted frequency range for inverter synchronization		Selectable: 3% - 10% Default: ±5 %			
Switching time	[ms]	Typical: 3			

UPS MODELS		USSD500..	USSD600..	USSD 800..	USSD1000..
BATTERY					
Number of batteries / V	[n°]x [V]	15x12 V		20x12 V	
Standard capacity	[Ah]	6 Ah (a)	6 Ah (a)	7 Ah (b)	9 Ah (c)
Charging current	[A]	0.7-0.8 A @ UPS on with maximum fan speed Approximately 1 A with UPS in Stand-By			
Charging time ⁽⁶⁾	[h] [h]	<4 h for 80% of the load <4-6 h for 90% of the load			
Expandability and rated voltage of the Battery Box		180 Vdc		240 Vdc	
Charging current (only for ER versions)		N/A	6 A	N/A	6 A
Suggested Battery Box capacity (only for ER versions)		N/A	>40 Ah	N/A	>40 Ah

- (a) 12 V / 6 Ah batteries: **CSB HR1221WF2**
- (b) 12 V / 7 Ah batteries: **CSB GP1272-F2** or **CSB GP1272(28W)** or **CSB UPS12360-7** or **YUASA NPW36-12**
- (c) 12 V / 9 Ah batteries: **CSB HR1234W-F2** or **YUASA NPW45-12**

UPS MODELS		USSD500..	USSD600..	USSD 800..	USSD1000..
OUTPUT					
Rated voltage	[Vac]	Selectable: 220 / 230 / 240 ±1%			
Frequency ⁽³⁾	[Hz]	Selectable: 50, 60 or automatic detection			
Rated power	[kVA]	5	6	8	10
Rated power	[kW]	5	6	8	10
Overload: 100% <load <110%	Bypass line available:	activates the bypass after 10 min			
	Bypass line unavailable:	Continues to work on by-pass shutdown after 10 min			
Overload: 110% <load <133%	Bypass line available:	activates the bypass after 1 min			
	Bypass line unavailable:	shut down after 1 h shutdown after 1 min			
Overload: 133% <load <150%	Bypass line available:	activates the bypass after 5 s			
	Bypass line unavailable:	shutdown after 10 min shutdown after 5 s			
Overload: >150%	Bypass line available:	activates the bypass instantaneously			
	Bypass line unavailable:	shutdown after 3 s (load > 150%) shutdown after 2 s (load > 200%) shutdown after 0.5 s			
Static variation		≤1%			
Dynamic variation @ linear load		≤1%			
Dynamic variation @ distorting load		EN62040-3 Class 1 performance-linear load			
		6.6% in 5 ms		6% in 5 ms	
		10% in 10 ms		8.5% in 10 ms	
		13.6% in 20 ms		12% in 20 ms	
Voltage distortion @ linear load		≤1%			
Voltage distortion @ distorting load		≤3%			
Current crest factor		≥3:1			
Inverter short-circuit (no by-pass available)		I _{cc} = 2.5 I _n for 200 ms + 1.5 I _n x 300 ms [where I _n = Power [VA] / 220 V]			
Inverter short-circuit (by-pass available)		By-pass activated simultaneously			
By-pass SCR characteristics		I ² _{tmax} = 4325 A ² S		I ² _{tmax} = 11250 A ² S	

UPS MODELS		USSD500..	USSD600..	USSD800..	USSD1000..
MISCELLANEOUS					
Leakage current to ground	[mA]	<1.5		<1.7	
AC/AC efficiency @ load=100%Res		94.65%	94.50%	95.00%	95.20%
AC/AC efficiency @ load=100%Dist		94.46%	94.35%	94.62%	94.72%
ECO mode efficiency @ rated load		98%			
DC/AC efficiency in BATTERY mode		92.60%	92.60%	93.60%	93.30%
Auto-consumption in ECO mode (batteries disconnected)		36 W	36 W	26 W	26 W
Auto-consumption in ONLINE mode (batteries disconnected)		67 W	67 W	84 W	84 W
Auto-consumption in Stand-by mode (batteries disconnected)		26 W	26 W	14 W	14 W
Auto-consumption with on/off switch turned off		0.5 W			0.33 W
Power loss with resistive nominal load	[W]	290	350	420	560
	[BTU/h]	990	1195	1430	1910
	[kcal/h]	250	300	360	480
Operating room temperature ⁽⁴⁾	[°C]	0 – 40			
Storage temperature	[°C]	-25 – 60 (UPS) -15 – 40 (for the batteries)			
Humidity		5 - 95% without condensation			
Installation height		Operation: 1000 m at nominal power (-1% power for every 100 m above 1000 m) 4000 m maximum			
		Transport: <15000 m			
Protection devices		excessive battery discharge – overcurrent – short circuit – over voltage – undervoltage – thermal			
Overvoltage protection		1 VDR x 300 Joules			
Noise levels		<48 dB(A) at 1 m		<50 dB(A) at 1 m	
Dimensions L x D x H ⁽⁵⁾	[mm]	T 131 x 640 x 448 R 19" x 640 x 3U		T 2 x (131 x 640 x 448) R 2 x (19" x 640 x 3U) ER version: T 131 x 640 x 448 R 19" x 640 x 3U	
Carton box dimensions L x D x H	[mm]	800 x 600 x 240 + H 120 ER version: 760 x 580 x 240		2 x (800 x 600 x 240) + H 120 ER version: 760 x 580 x 240	
Net weight	[kg]	45	46 ER version: 20	19+53	20+62 ER version: 21
Gross weight	[kg]	53	54 ER version: 28	83	93 ER version: 25

⁽¹⁾ @ rated load, minimum voltage of 184 Vac, battery charging

⁽²⁾ @ rated load, rated voltage of 220 Vac, battery charging

⁽³⁾ *Automatic detection*: If the network frequency is within $\pm 5\%$ of the selected value, the UPS is synchronised with the network. If the frequency is out of tolerance or battery-powered functionality is enabled, the frequency is that which is selected $\pm 0.1\%$. *Power derating*: The UPS unit derates the output power to 70% of the rated power if the UPS is operating as a frequency converter. This means that it is configured so the output is not synchronised with the input (without link) or else is configured with an option other than automatic detection.

⁽⁴⁾ 20 - 25 °C for increased battery life.

⁽⁵⁾ The dimensions shown in the table refer to the tower version, taking the support feet into account.

⁽⁶⁾ For the ER versions, the recharging time depends on battery type installed.

UPS MODELS		USSD800TM	USSD1000TM USSD1000MR
INPUT			
Rated voltage		380 - 400 - 415 Vac (3W+N+PE) / 220 - 230 - 240 Vac (1W+N+PE)	
Maximum operating voltage	[Vac]	519 / 300	
Voltage range and frequency for no battery intervention	[Vac] [Vac] [Vac] [Hz]	Maximum: 478 Minimum: 318 - 242 (from 100% to 50% load in linear mode) Return to network powered functionality: 329 Frequency: 40 - 72	
Rated frequency	[Hz]	50 - 60	
Maximum current ⁽¹⁾	[A]	49.5 16.5	60.9 20.2
Rated current ⁽²⁾	[A]	40 13.3	49.6 16.5
Power factor @ rated load and voltages		≥0.99	
Current distortion @ rated load and voltages		≤ 25% / ≤ 2%	

UPS MODELS		USSD800TM	USSD1000TM USSD1000TMR
BYPASS			
Accepted voltage range for switching	[Vac]	Minimum configurable threshold: 180 - 200 Maximum configurable threshold: 250 - <u>264</u>	
Accepted frequency range for inverter synchronization		Selectable: 3% - 10% Default: ±5 %	
Switching time	[ms]	Typical: 3	

UPS MODELS		USSD800TM	USSD1000TM USSD1000TMR
BATTERY			
Number of batteries / V	[n°]x [V]	20x12 V	
Standard capacity	[Ah]	7 Ah (a)	9 Ah (b)
Charging current	[A]	0.7-0.8 A @ UPS on with maximum fan speed Approximately 1 A with UPS in Stand-By	
Charging time ⁽⁶⁾	[h] [h]	<4 h for 80% of the load <4-6 h for 90% of the load	
Expandability and rated voltage of the Battery Box		240 Vdc	
Max Charging current (only for ER versions)		N/A	6 A
Suggested Battery Box capacity (only for ER versions)		N/A	>40 Ah

(a) 12 V / 7 Ah batteries: **CSB GP1272-F2** or **CSB GP1272(28W)** or **CSB UPS12360-7** or **YUASA NPW36-12**

(b) 12 V / 9 Ah batteries: **CSB HR1234W-F2** or **YUASA NPW45-12**

UPS MODELS		USSD800TM	USSD10000TM USSD10000MR
OUTPUT			
Rated voltage	[Vac]	Selectable: 220 / 230 / 240 ±1%	
Frequency ⁽³⁾	[Hz]	Selectable: 50, 60 or automatic detection	
Rated power	[kVA]	8	10
Rated power	[kW]	8	10
Overload: 100% <load <110%		Bypass line available:	activates the bypass after 10 min Continues to work on by-pass shutdown after 10 min
		Bypass line unavailable:	
Overload: 110% <load <133%		Bypass line available:	activates the bypass after 1 min shut down after 1 h
		Bypass line unavailable:	shutdown after 1 min
Overload: 133% <load <150%		Bypass line available:	activates the bypass after 5 s shutdown after 10 min
		Bypass line unavailable:	shutdown after 5 s
Overload: >150%		Bypass line available:	activates the bypass instantaneously shutdown after 3 s (load > 150%) shutdown after 2 s (load > 200%)
		Bypass line unavailable:	shutdown after 0.5 s
Static variation		≤1%	
Dynamic variation @ linear load		≤1%	
		EN62040-3 Class 1 performance-linear load	
Dynamic variation @ distorting load		6% in 5 ms 8.5% in 10 ms 12% in 20 ms	
Voltage distortion @ linear load		≤1%	
Voltage distortion @ distorting load		≤3%	
Current crest factor		≥3:1	
Inverter short-circuit (no by-pass available)		I _{cc} = 2.5 I _n for 200 ms + 1.5 I _n x 300 ms [where I _n = Power [VA] / 220 V]	
Inverter short-circuit (by-pass available)		By-pass activated simultaneously	
By-pass SCR characteristics		I ² _{tmax} = 11250 A ² S	

UPS MODELS		USSD800TM	USSD10000TM USSD10000MR
MISCELLANEOUS			
Leakage current to ground	[mA]	<1.7	
AC/AC efficiency @ load=100%Res		95.00%	95.20%
AC/AC efficiency @ load=100%Dist		94.62%	94.72%
ECO mode efficiency @ rated load		98%	
DC/AC efficiency in BATTERY mode		93.60%	93.30%
Auto-consumption in ECO mode (batteries disconnected)		26 W	26 W
Auto-consumption in ONLINE mode (batteries disconnected)		84 W	84 W
Auto-consumption in Stand-by mode (batteries disconnected)		14 W	14 W
Auto-consumption with on/off switch turned off		0.5 W	0.33 W
Power loss with resistive nominal load	[W]	420	560
	[BTU/h]	1430	1910
	[kcal/h]	360	480
Operating room temperature ⁽⁴⁾	[°C]	0 – 40	
Storage temperature	[°C]	-25 – 60 (UPS) -15 – 40 (for the batteries)	
Humidity		5 - 95% without condensation	
Installation height		Operation: 1000 m at nominal power (-1% power for every 100 m above 1000 m) 4000 m maximum	
		Transport: <15000 m	
Protection devices		excessive battery discharge – overcurrent – short circuit – over voltage – undervoltage – thermal	
Overvoltage protection		1 VDR x 300 Joules	
Noise levels		<50 dB(A) at 1 m	
Dimensions L x D x H ⁽⁵⁾	[mm]	T 2 x (131 x 640 x 448) R 2 x (19" x 640 x 3U)	
		ER version: T 131 x 640 x 448 R 19" x 640 x 3U	
Carton box dimensions L x D x H	[mm]	2 x (800 x 600 x 240) + H 120	
		ER version: 760 x 580 x 240	
Net weight	[kg]	19+52	20+62 ER version: 21
Gross weight	[kg]	83	93 ER version: 25

(1) @ rated load, minimum voltage of 184 Vac, battery charging

(2) @ rated load, rated voltage of 220 Vac, battery charging

(3) *Automatic detection*: If the network frequency is within $\pm 5\%$ of the selected value, the UPS is synchronised with the network. If the frequency is out of tolerance or battery-powered functionality is enabled, the frequency is that which is selected $\pm 0.1\%$. *Power derating*: The UPS unit derates the output power to 70% of the rated power if the UPS is operating as a frequency converter. This means that it is configured so the output is not synchronised with the input (without link) or else is configured with an option other than automatic detection.

(4) 20 - 25 °C for increased battery life.

(5) The dimensions shown in the table refer to the tower version, taking the support feet into account.

(6) For the ER version, the charging time depends on the type of batteries installed

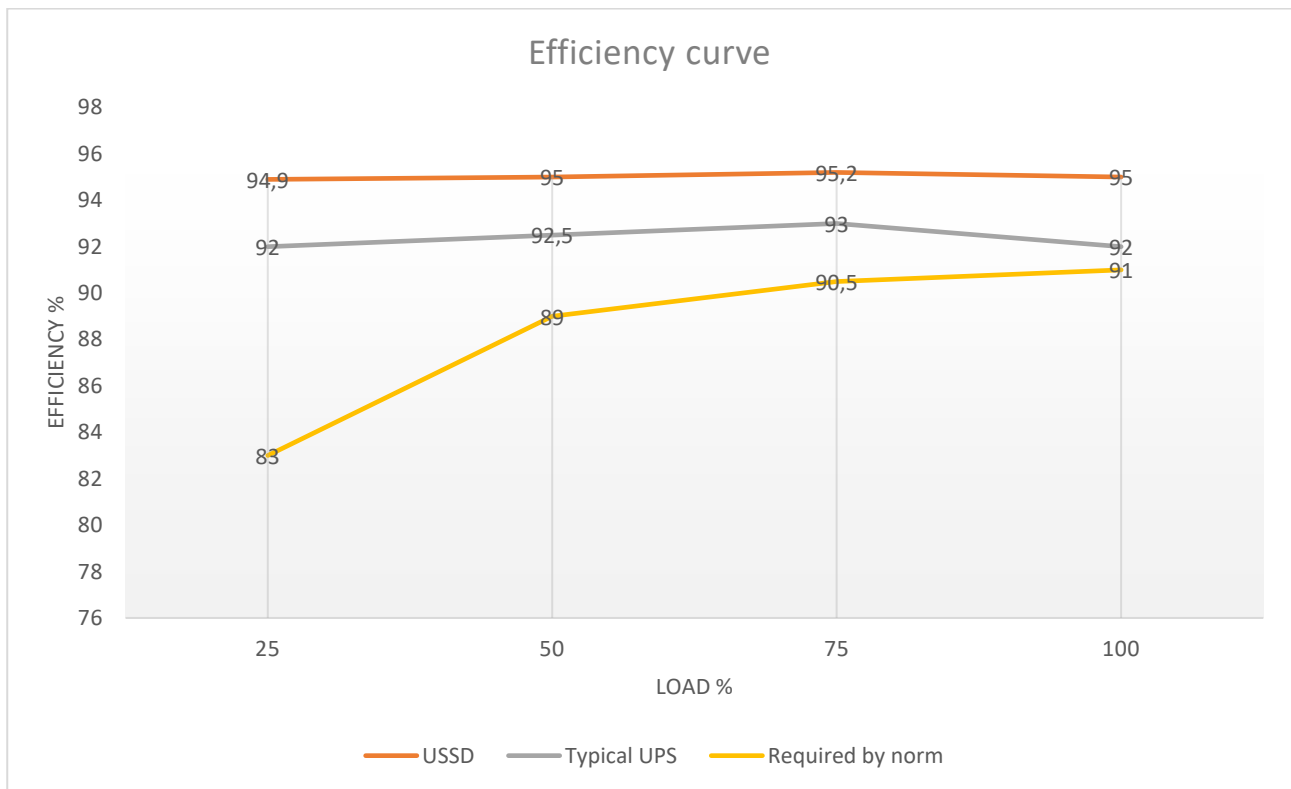
(7) Three-phase and single-phase configuration

BATTERY BOX MODELS		USBB180A3D	USBB180B1D	USBB240A3D	USBB240B1D
Rated battery voltage	[Vdc]	180		240	
Rated battery capacity	[Ah]	7 (a)	40 (b)	7 (a)	40 (b)
Dimensions L x D x H	[mm]	131 x 640 x 448	400 x 815 x 1320	131 x 640 x 448	400 x 815 x 1320
Net weight	[kg]	42	293	52	360
Gross weight	[kg]	47	303	57	370

In the event that the UPS unit is connected to a Battery Box, the maximum active power will NOT be derated.

- (a) 12 V / 7 Ah Batteries: **CSB GP1272-F2** or **CSB GP1272(28W)** or **CSB UPS12360-7** or **YUASA NPW36-12**
- (b) 12 V / 40 Ah Batteries: **CSB GP12400**

17. OVERALL EFFICIENCY FOR THE USSD SERIES

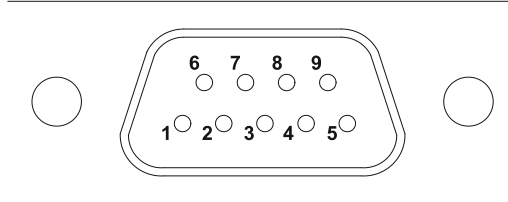


18. COMMUNICATION PORTS AND FIRMWARE

The UPS comes with a standard RS232 port with input and output signals, a USB Port and an expansion slot for connecting additional electronic boards.

RS232 Connector

RS232 CONNECTOR



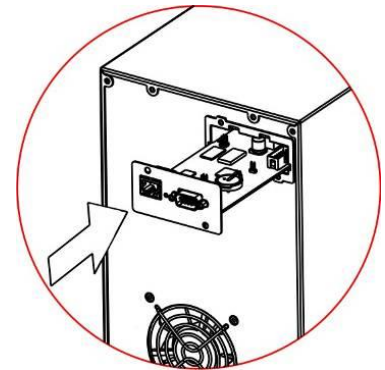
PIN #	SIGNAL	NOTES
1	Programmable output *: [default: UPS shut down]	(*) Opto-isolated contact max. +30 Vdc / 35 mA. These contacts can be associated with other events using the appropriate software For additional information about interfacing with the UPS unit, please refer to the appropriate manual
2	TXD	
3	RXD	
5	GND	
6	DC Power Supply (Imax = 20 mA)	
8	Programmable output *: [default: discharge pre-alarm]	
9	Programmable output *: [default: battery-powered functionality]	

Communication Slot

The UPS comes supplied with an expansion slot for optional communication cards (see the diagram on the right), which can allow the device to communicate using the most common communication standards.

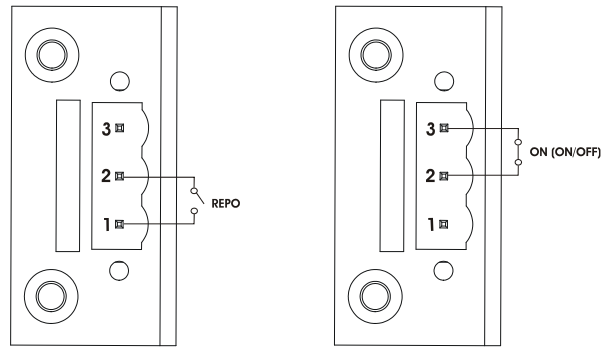
Some examples include:

- Serial duplicator
- Ethernet network card with TCP/IP, HTTP-HTTPS, SNMP, MODBUS/TCP and BACnet/IP protocols
- JBUS / MODBUS protocol converter card
- PROFIBUS protocol converter card
- PROFINET protocol converter card
- Card with isolated relay contacts



Please consult the website www.ups-technet.com to check the availability of additional accessories

Connections for REPO and remote ON/OFF functionality



The ON (ON/OFF) contact can be associated with other actions using the appropriate software

19. TECHNICAL DATA FOR “PIN 6” POWER THROUGH THE RS232 PORT

The voltage provided by pin 6 of the serial port depends on the absorbed current.

- Vcc max: 10.8 Vdc without load
- Vcc min: 8 Vdc @ 25 mA

The firmware of the UPS unit can be updated by inserting the appropriate programming card into the expansion Slot.

THE COMPANY

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