

VPU20

20A DIN Rail High Performance DC-UPS



VPU20 is a microprocessor controlled DC-UPS rated 20A usable in 12V or 24V systems.

VPU20 monitors the voltage supplied by a DC source and in case of power failure a backup battery is connected to the load. When powered externally the unit charges the battery by an integrated battery charger supporting various battery chemistries.

■ Main Features

- Digital Power regulation, LCD interface
- Multiple user settable parameters
- BI VOLTAGE: 12V or 24V (intermediate voltages possible)
- Battery chemistry: Lead acid, nickel and lithium
- Maximum battery capacity 150Ah
- Load current: 20 A Max.
- Multiple protections
- Remote ON/OFF or other remote control functions possible through INHIBIT input
- Cold start
- Automatic sensing of input voltage, load current and battery current
- Battery protection against reverse polarity connection and overcurrent
- Battery health monitoring system: measuring battery internal resistance, battery temperature, charge/discharge cycles and Coulomb counter
- User settable maximum backup time

■ Embedded user interface

- 4 keys and 1 color graphic CSTN LCD display
- Allows online device configuration
- Displays the VPU20 status and alarms
- USB communication port for remote monitoring and configuration
- Dry contacts

■ Suitable for POWERMASTER software

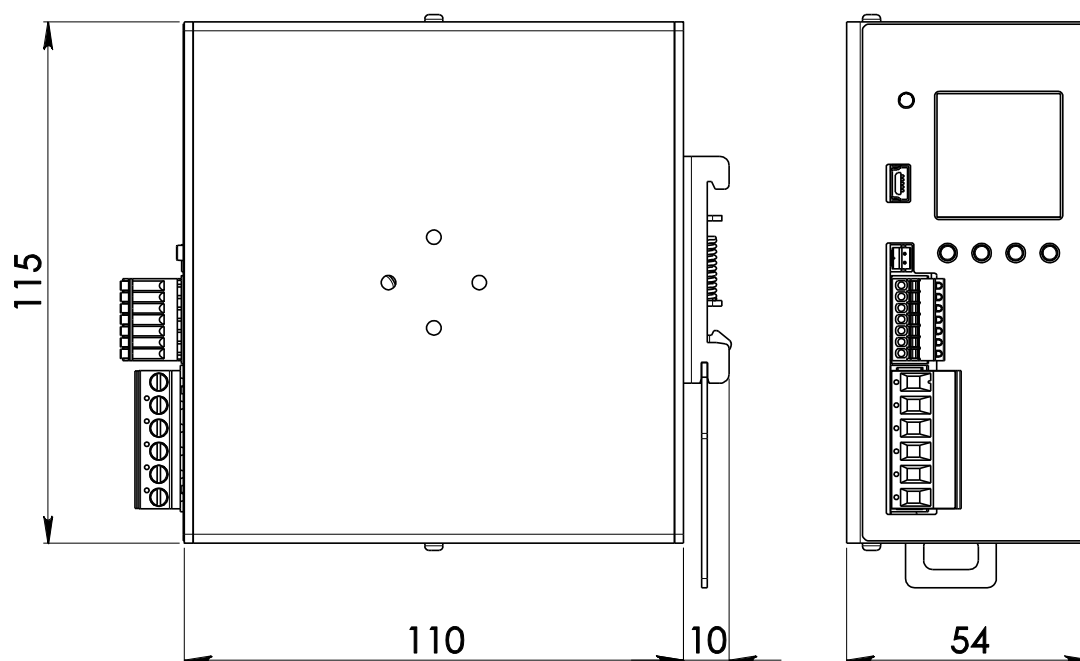
- Connection through USB interface
- Remote monitoring and configuration
- Firmware upgrade
- Same functionalities of the embedded user interface with the ease of the PC benefits
- available for Windows and Android

TECHNICAL DATA

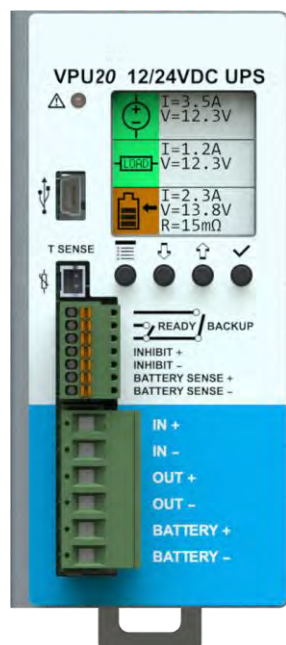
TECHNICAL DATA		VPU20	
INPUT DATA			
Input DC rated voltage	Nominal: 11...28Vdc (UL certified) Range: 10...29Vdc		
Input DC rated current	20A		
Standby power	< 3W		
BATTERY SECTION			
Rated battery voltage	<ul style="list-style-type: none">12 or 24VdcOther voltage possible by request		
Battery chemistries	<ul style="list-style-type: none">Lead AcidNickelLithium		
Maximum battery charge current	5A		
Allowed battery capacity	up to 150Ah		
Maximum battery current	20A (up to 35A for 5s)		
Load to Battery switch time	< 5µs		
Battery protections	<ul style="list-style-type: none">OvercurrentDeep dischargeReverse polarity		
BATTERY HEALTH MONITORING			
Battery internal resistance range	1mΩ...300mΩ (using Kelvin connection)		
Additional monitoring functions	<ul style="list-style-type: none">Coulomb counterBattery temperature through 10kΩ NTC sensor (optional)Battery operating time since installationNumber of cycles		
USER INTERFACE			
1.5 inch color graphic LCD	Used to display the unit's status and to access the configuration menus		
4 keys	Used to program the unit and to access various menus		
Red LED	<ul style="list-style-type: none">Constantly ON: generic failure on the system, details on the LCDBlinking: battery backup function active		
2 dry contact (relays) NO, 30Vdc / 1A	<ul style="list-style-type: none">May indicate units status (READY or on BACKUP model), battery failure (by toggling at 1Hz)Configurable for remote PC shutdown		
Other interfaces	<ul style="list-style-type: none">INHIBIT - Isolated remote ON/OFF input, active for 5...30VdcBATTERY SENSE - recommended to have an accurate measurement of the battery internal resistanceMini USB-B - connector to be used with POWERMASTER softwareT SENSE - optional, remote temperature sensor for battery charging (WNTC-2MT)		
GENERAL DATA			
Efficiency at full load	> 97.5%		
Power loss (on power supply)	< 13W		
Efficiency at full load	> 96.5%		
Power loss (on battery)	< 18W		
Battery charge efficiency	> 90%		
Power loss	< 16W		
Maximum backup time	User programmable, up to battery deep discharge threshold		
Operating temperature ¹²	- 40°C...+ 60°C UL certified up to 60°C		
Storage temperature	- 40°C...+ 80°C		
Humidity	5...95% r.H. non condensing		
Life time expectation	253'142h (28.9 years) at 25°C ambient full load		
Overvoltage category	<ul style="list-style-type: none">EN50178	I	
Pollution degree	<ul style="list-style-type: none">IEC60664-1	2	
Isolation against enclosure	0.75kVdc		
Safety Standards	<ul style="list-style-type: none">UL508EN60950	(certified E356563) (reference)	
EMC Emission	<ul style="list-style-type: none">EN55011 (CISPR11)EN55022 (CISPR22)	Class A Class A	
EMC Immunity	<ul style="list-style-type: none">EN61000-4-2EN61000-4-3EN61000-4-4EN61000-4-5	Level 3 Level 3 Level 3 Level 1	
Protection degree	<ul style="list-style-type: none">EN60529	IP20	
Vibration sinuosoidal	<ul style="list-style-type: none">IEC 60068-2-6	(5-17.8Hz: ±1.6mm; 17.8-500Hz: 2g 2hours / axis (X,Y,Z)	
Shock	<ul style="list-style-type: none">IEC 60068-2-27	(30g 6ms, 20g 11ms; 3 bumps / direction, 18 bumps total)	
IN/Battery/OUT Connection terminals	2.5mm², screw type pluggable (24...12AWG)		
Auxiliary connection terminals	Up to 0.5mm², Fast pluggable type (20AWG)		
Temperature sensor connector	Friction lock connector		
Communication interface connector	Mini USB-B type		

Case material	Aluminum
Weight	0.50kg
Size (W x H x D)	54.0 x 115.0 x 110.0mm
<p>1) Start-up type tested: - 40°C, possible at nominal voltage with load deration.</p> <p>2) For temperature $\leq -20^{\circ}\text{C}$ the LCD is not operating, but the unit will operate correctly.</p> <p>Notes:</p> <p>- For more details, performance and descriptions regarding all parameters not indicated in the above table, please refer to the user manual downloadable from www.nextys.com</p> <p>- Technical parameters are typical, measured in laboratory environment at 25°C, 24Vdc input and 24V lead acid battery, at nominal values, after minimum 5 minutes of operation.</p> <p>- Power rating, losses, efficiency, ripple, thermal behaviour and start-up may change outside of the nominal rated input range. Contact factory for details.</p> <p>- Data may change without prior notice in order to improve the product.</p>	

DIMENSIONS



CONNECTION



IN/Battery/OUT Connection:

IN: (connect to power supply)

- + = Positive DC
- - = Negative DC

Battery: (connect to battery)

- + = Positive DC
- - = Negative DC

OUT: (connect to load)

- + = Positive DC
- - = Negative DC

Auxiliary Connections:

BATTERY SENSE: (connect to battery)

- + = Positive DC
- - = Negative DC

INHIBIT: (5...30Vdc)

- + = Positive DC
- - = Negative DC

READY: (programmable dry contact)

- NO
- COM

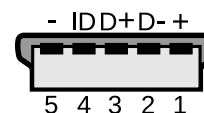
BACKUP: (close when running on Battery)

- NO
- COM

T SENSE: (remote temperature sensor for battery charging)

- Optional WNTC-2MT

Mini USB-B Type



- 1 = VBUS (+5V)
- 2 = Data (D+)
- 3 = Data (D-)
- 4 = Not connected (ID)
- 5 = GND