DCW20 is a microprocessor controlled unit that can perform 2 functions:

A) DC-UPS rated 960W/20A usable in any system 12…48Vdc
B) DC/DC converter (non isolated) rated 960W/20A usable in any combination of IN/OUT voltages 12…48Vdc

For the UPS function it may use 1 battery of 12V, independently of the operating load voltage. For any supply voltages (12…48Vdc) it may use also multiple battery configuration (12…58Vdc).
DCW20 monitors the voltage coming from a DC power supply and in case of power failure a backup battery is supplying the energy to the load. In normal condition the battery is kept charged by an integrated battery charger supporting various battery chemistries.
As a DC/DC converter (no battery present) the load has to be connected to the battery connector. The input voltage is converted to any output voltage as per the set-up (programmable by front keys or communication interfaces).

Main Features

- Digital Power regulation, LCD interface
- Integrated battery charger for 12…48V multi-chemistries batteries with a charging current up to 20A
- Can be operate on super capacitors module
- Battery voltage independent of load voltage
- 20A or 960W rated load
- Multiple protections
- Remote ON/OFF or other remote control functions possible through INHIBIT input
- 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
- Auxiliary output with same voltage as battery voltage (5A Max.), protected against overcurrent/shortcircuit
- Modbus over RS-485 and USB interfaces for control and monitoring

Embedded user interface

- 4 keys and 1 color graphic CSTN LCD display
- Allows online device configuration
- Displays the DCW20 status and alarms
- USB communication port for remote monitoring and configuration
- Dry contacts for programmable status signals

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

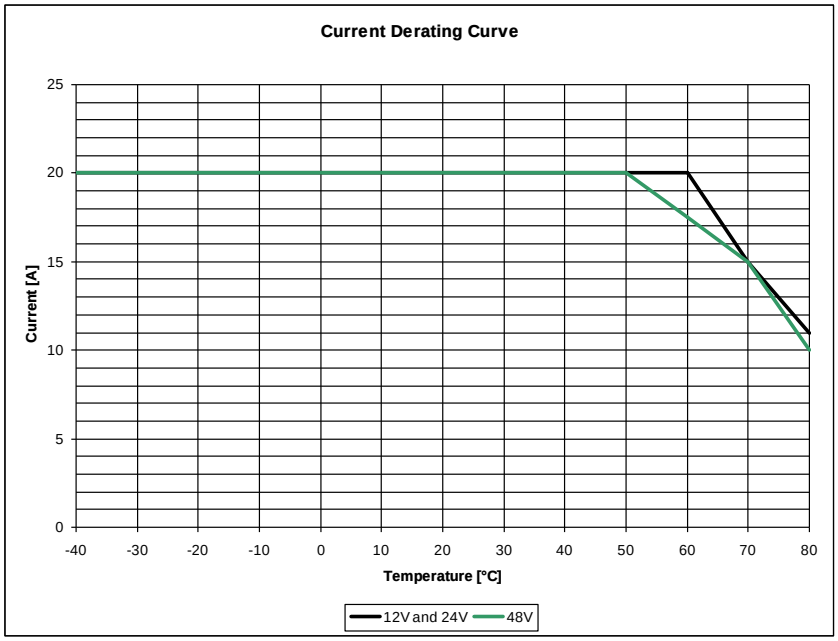
Model type	DCW20	
INPUT DATA		
Input DC rated voltage	Nominal: 11…58Vdc Range: 10…60Vdc	
Input DC rated current	20A	
Standby power	< 3W	
MAIN OUTPUT SECTION		
Voltage	Nominal: 12…48Vdc (= Vin for use as UPS; according to set-up for use as DC/DC converter)	
Current / Power	20A / 960W	
Continuous current	35A	
Load regulation	± 1%	
AUXILIARY OUTPUT SECTION		
Voltage	Nominal: 12…48Vdc (= U battery - non regulated)	
Continuous current	5A	
Overload limit	6A	
BATTERY SECTION		
Rated battery voltage (or to be used as input for DC/DC conversion)	Nominal: 12…48Vdc Range: 10…55Vdc	
Battery chemistries	▪ Lead Acid ▪ Nickel ▪ Lithium ▪ Supercap capacitors	
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	▪ Overcurrent ▪ Deep discharge ▪ Reverse polarity	
BATTERY HEALT MONITORING		
Battery internal resistance range	1mΩ…300mΩ (using Kelvin connection)	
Additional monitoring functions	▪ Coulomb counter ▪ Battery temperature through 10kΩ NTC sensor (optional WNTC-2MT) ▪ Battery operating time since installation ▪ Number 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	▪ Constantly ON: generic failure on the system, details on the LCD ▪ Blinking: battery backup function active	
2 dry contact relays (NO, 30Vdc / 1A)	▪ **RL1 / RL2** - Configurable ▪ **RL COM** - Common Pin	
Other interfaces	▪ **INH** - (INIHBIT) Isolated remote ON/OFF input, active for 5…30Vdc ▪ Mini **USB-B** - connector to be used with **POWERMASTER** software ▪ **MBUS** - (MODBUS) over RS-485 with 2 wire Half Duplex interface ▪ **T SENSE** - optional, remote temperature sensor for battery charging (WNTC-2MT)	
GENERAL DATA		
Efficiency at full load Power loss (in UPS mode)	> 98% < 10W	
Efficiency at full load Power loss (DC-DC mode)	> 96% < 20W	
Battery charge efficiency Power loss	> 97% < 15W	
Maximum backup time	User programmable, up to battery deep discharge threshold	
Operating temperature[12]	- 40°C…+ 80°C	
Derating	See charts on Fig.1	
Storage temperature	- 40°C…+ 80°C	
Humidity	5…95% r.H. non condensing	
Life time expectation	281'904h (32.2 years) at 25°C ambient full load	
Overvoltage category Pollution degree	▪ EN50178 I ▪ IEC60664-1 2	
Isolation against enclosure	0.75kVdc	
Safety Standards	▪ UL508 (reference) ▪ EN60950 (reference)	
EMC Emission	▪ EN55011 (CISPR11) Class B ▪ EN55022 (CISPR22) Class B	
EMC Immunity	▪ EN61000-4-2 Level 3 ▪ EN61000-4-3 Level 3 ▪ EN61000-4-4 Level 3 ▪ EN61000-4-5 Level 1	
Protection degree	▪ EN60529 IP20	
Vibration sinuosoidal	▪ IEC 60068-2-6 (5-17.8Hz: ±1.6mm; 17.8-500Hz: 2g 2hours / axis (X,Y,Z)	
Shock	▪ IEC 60068-2-27 (30g 6ms, 20g 11ms; 3 bumps / direction, 18 bumps total)	

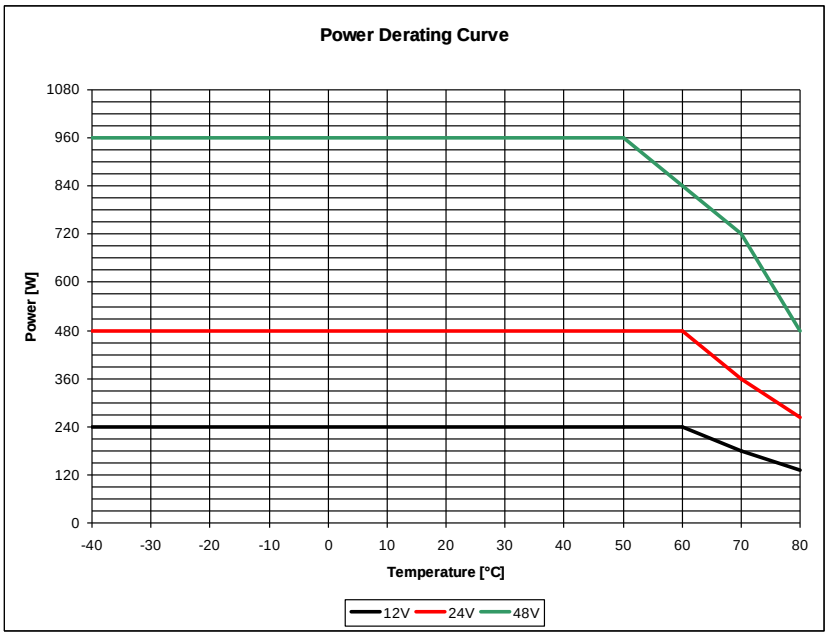
IN/Battery/OUT Connection terminals	2.5mm², screw type pluggable (24...12AWG)
Auxiliary connection terminals	Up to 0.5mm², Fast pluggable type (20AWG)
Temperature sensor connector	Friction lock connector
Communication interface connector	Mini USB-B type
Case material	Aluminum
Weight	0.50kg
Size (W x H x D)	54.0 x 115.0 x 110.0mm

1) Start-up type tested: - 40°C, possible at nominal voltage with load deration.
2) For temperature ≤ - 20°C the LCD is not operating, but the unit will operate correctly.

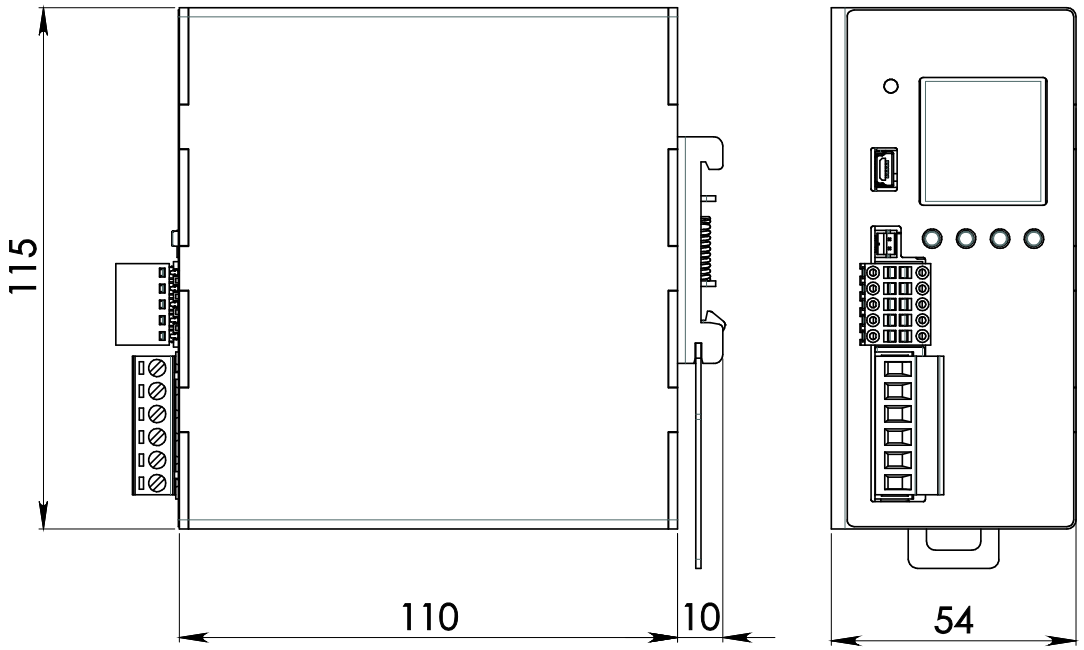
Notes:
- For more details, performance and descriptions regarding all parameters not indicated in the above table, please refer to the user manual downloadable from www.nextys.com
- Technical parameters are typical, measured in laboratory environment at 25°C, 24Vdc input and 24V lead acid battery, at nominal values, after minimum 5 minutes of operation.
- Power rating, losses, efficiency, ripple, thermal behaviour and start-up may change outside of the nominal rated input range. Contact factory for details.
- Data may change without prior notice in order to improve the product.

Fig.1

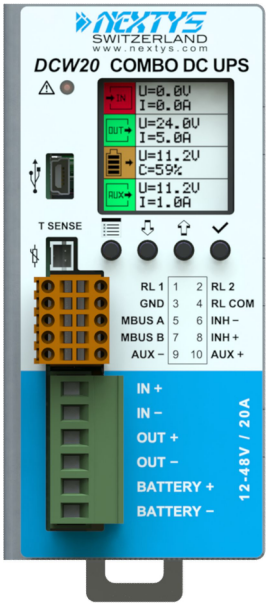




DIMENSIONS



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:

RL1 / RL2: (programmable dry contact)
- RL1 = NO
- RL2 = NO
- RL COM = COM

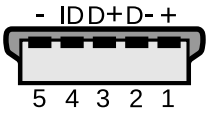
Modbus: (over RS-485, 2 wire interface)
- MBUS A = RX/TX
- MBUS B = RX/TX
- GND = Common

INHIBIT: (5…30Vdc)
- INH+ = Positive DC
- INH- = Negative DC

AUX: (12…48Vdc not regulated 5A Max.)
- AUX + = Positive DC
- AUX - = Negative DC

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