DCU20

DC/DC DC UPS 12V 24V 20A

DCU20 is a microprocessor controlled DC-UPS rated 20A usable in 12V or 24V systems.
DCU20 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

- Multiple protections
- Integrated battery charger for 12V or 24V (or intermediate voltages) multi-chemistry batteries with a charging current up to 5A
- 20 A rated load
- 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
- Remote input to inhibit the UPS function
- Connection for a battery thermal sensor (optional)

■ Embedded user interface

- 4 keys and 1 color graphic CSTN LCD display
- Allows online device configuration
- Displays the DCU20 status and alarms
- USB communication port for remote monitoring and configuration
- Dry contacts

■ Free PC application "POWERMASTER" used for

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

RoHS
2011/65/EU

Pb
lead-free

CE

DCU20

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| TECHINICAL DATA	
Model type	DCU20
INPUT SECTION	
Input DC rated voltage	Nominal: 11…28Vdc Range: 10…29Vdc
Input rated current	20A
No load power consumption	< 3W
BATTERY SECTION	
Rated battery voltage	▪ 12V or 24V ▪ Other voltages possible by request
Battery chemistries	▪ Lead-Acid (charging voltage is temperature corrected with 3mV/K/cell) ▪ Ni-MH / Ni-Cd ▪ Li-ION / LiFePO$_4$
Maximum battery charge current	5A
Allowed battery capacity	up to 150Ah
Maximum battery current	20A (up to 35A for 5 seconds)
Load to Battery switch time	< 5usec
Battery protections	▪ Overcurrent ▪ Deep discharge ▪ Reverse polarity
BATTERY HEALTH MONITOR	
Battery internal resistance range	1.0…300m (using Kelvin connection)
Additional monitoring functions	▪ Coulomb counter ▪ Battery temperature through optional 10k NTC sensor ▪ Battery operating time since installation ▪ Number of cycles
USER INTERFACE	
1.5 inch color graphic LCD	▪ Used to indicate the unit's status and to access the configuration menus
4 Keys	▪ Used to program the unit and to access various menus
Red LED	▪ ON: generic failure on the system, details on the LCD ▪ Blinking: battery backup function active
2 dry contacts (relays) rated 30V/1A	▪ User settable between different functions (see user manual)
USB interface	▪ Mini USB connector used to interface the unit with a PC
GENERAL	
Efficiency Power loss at full load (on power supply)	> 97.5% < 13W
Efficiency Power loss at full load (on battery)	> 96.5% < 18W
Battery charger efficiency Power loss	> 90% < 16W
Maximum backup time	User programmable or up to battery discharge threshold
Operating ambient temperature	- 40°C…+ 60°C Start-up type tested: - 40°C; for temperature < - 20°C the LCD is not operating, but the unit will operate correctly.
Storage temperature	- 20°C…+ 60°C
Humidity	5…95% r.H. non condensing
Life time expectation	253142h (28.9 years) at 25°C ambient full load
Isolation against enclosure	0.75kVdc
Cooling method	Natural convection cooling
Safety Standards	▪ UL508 (reference) ▪ EN60950 (reference)
EMC Emission	▪ EN55022:2010 (CISPR22) Class A ▪ EN55011:2009 /A1:2010 Class A
EMC Immunity	▪ EN61000-4-2:2008 Level 3 ▪ EN61000-4-3:2006 /A2:2010 Level 3 ▪ EN61000-4-4:2012 Level 3 ▪ EN61000-4-5:2014 Level 1 ▪ EN61000-4-11:2004 /A1:2010 Level 2
Protection degree	▪ EN60529:1989 /A:2013 IP20
Vibration sinuosoidal	▪ IEC 60068-2-6:2007 (5-17.8Hz: ±1.6mm; 17.8-500Hz: 2g 2Hours / axis (X,Y,Z)
Shock	▪ IEC 60068-2-27:2008 (30g 6ms, 20g 11ms; 3 bumps / direction, 18 bumps total)
IN/Battery/OUT Connectors	2.5mm², Pluggable screw type (24...12AWG) 6 pins pluggable, 5.08mm pitch
Auxiliary contacts connectors	Up to 0.5mm², Fast Pluggable type (20AWG) 7 pins pluggable, 2.54mm pitch
Temperature sensor connector	2 pins, 2mm pitch, friction lock connector
USB connector	Mini USB connector
Size (WxHxD)	54.0x115.0x110.0 mm
Weight	0.500kg
Mounting Rail	IEC 60715/H15/TH35-7.5(-15)

Notes:
- For more details, performance and description regarding all parameters not indicated in the above table; please refer to user manual, downloadable from www.nextys.com
- Technical parameters are typical, measured in laboratory environment at 25°C, 24V input and 24V lead acid battery.
- 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.

Dimensions

115

110   10   54
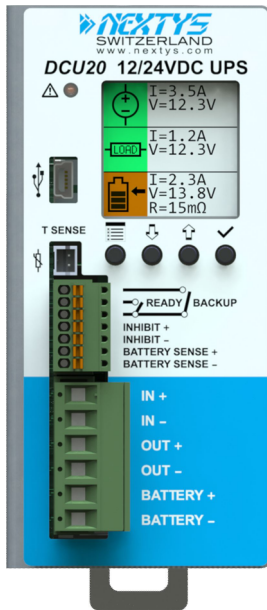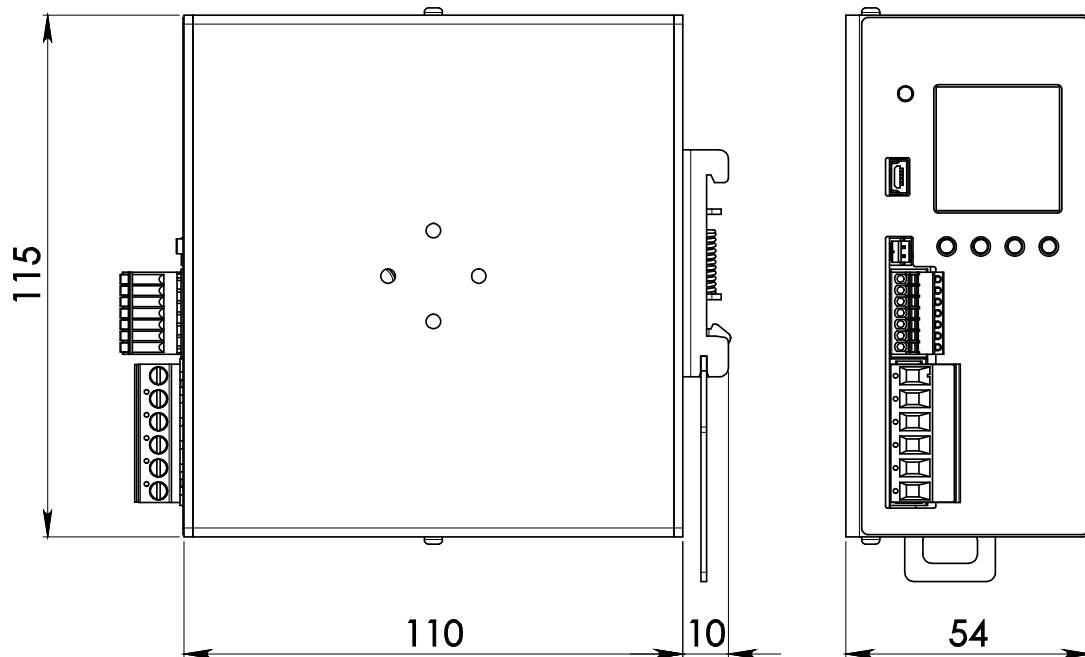
Input / Output Connection:

- IN (+/-) = connect to DC (+/-) Power supply
- OUT (+/-) = connect to DC (+/-) Load
- BATTERY (+/-) = connect to Battery (+/-)
- BATTERY SENSE (+/-) = connect to Battery (+/-) for better accuracy of internal resistance measurement
- INHIBIT (+/-) = used to inhibits the backup function
- Backup = dry contact closed when DCU20 is running on battery.
- Ready = programmable dry contact

NEXTYS
SWITZERLAND
www.nextys.com

DCU20 12/24VDC UPS

I=3.5A
V=12.3V

I=1.2A
V=12.3V LOAD

I=2.3A
V=13.8V
R=15mΩ

T SENSE

READY / BACKUP

INHIBIT +
INHIBIT –
BATTERY SENSE +
BATTERY SENSE –

IN +
IN –
OUT +
OUT –
BATTERY +
BATTERY –