



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

- ⌋ 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 DCU20 status and alarms
- ⌋ USB communication port for remote monitoring and configuration
- ⌋ Dry contacts

### ■ Suitable for POWERMASTER software

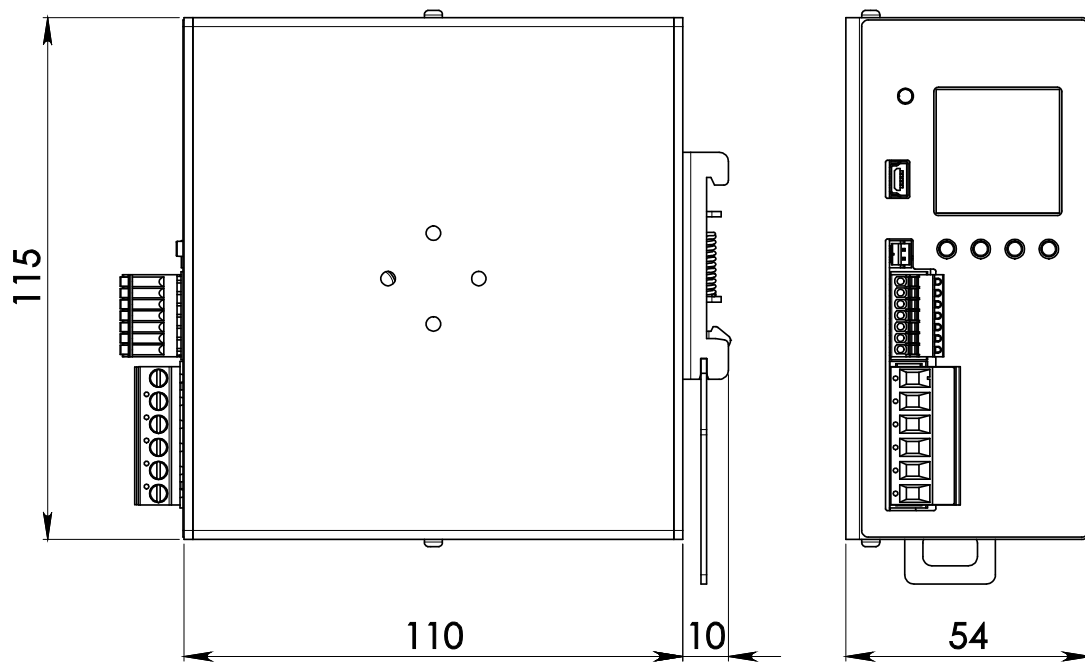
- ⌋ Connection through USB interface
- ⌋ Remote monitoring and configuration
- ⌋ Firmware upgrade
- ⌋ Same functionalities of the embedded user interface with the ease of the PC benefits
- ⌋ available for Windows and Android

## TECHNICAL DATA

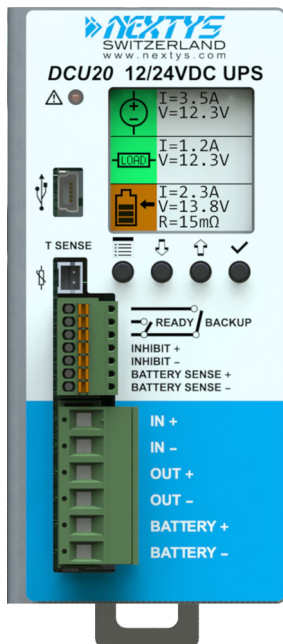
Model type	DCU20	
<b>INPUT DATA</b>		
Input DC rated voltage	Nominal: 11...28Vdc (UL certified) Range: 10...29Vdc	
Input DC rated current	20A	
Standby power	< 3W	
<b>BATTERY SECTION</b>		
Rated battery voltage	<ul style="list-style-type: none"> <li>▪ 12 or 24Vdc</li> <li>▪ Other voltage possible by request</li> </ul>	
Battery chemistries	<ul style="list-style-type: none"> <li>▪ Lead Acid</li> <li>▪ Nickel</li> <li>▪ Lithium</li> </ul>	
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	< 5 $\mu$ s	
Battery protections	<ul style="list-style-type: none"> <li>▪ Overcurrent</li> <li>▪ Deep discharge</li> <li>▪ Reverse polarity</li> </ul>	
<b>BATTERY HEALTH MONITORING</b>		
Battery internal resistance range	1m $\Omega$ ...300m $\Omega$ (using Kelvin connection)	
Additional monitoring functions	<ul style="list-style-type: none"> <li>▪ Coulomb counter</li> <li>▪ Battery temperature through 10k<math>\Omega</math> NTC sensor (optional)</li> <li>▪ Battery operating time since installation</li> <li>▪ Number of cycles</li> </ul>	
<b>USER INTERFACE</b>		
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"> <li>▪ Constantly ON: generic failure on the system, details on the LCD</li> <li>▪ Blinking: battery backup function active</li> </ul>	
2 dry contact (relays) NO, 30Vdc / 1A	<ul style="list-style-type: none"> <li>▪ May indicate units status (<b>READY</b> or on <b>BACKUP</b> model), battery failure (by toggling at 1Hz)</li> <li>▪ Configurable for remote PC shutdown</li> </ul>	
Other interfaces	<ul style="list-style-type: none"> <li>▪ <b>INHIBIT</b> - Isolated remote ON/OFF input, active for 5...30Vdc</li> <li>▪ <b>BATTERY SENSE</b> - recommended to have an accurate measurement of the battery internal resistance</li> <li>▪ Mini <b>USB-B</b> - connector to be used with <b>POWERMASTER</b> software</li> <li>▪ <b>T SENSE</b> - optional, remote temperature sensor for battery charging (WNTC-2MT)</li> </ul>	
<b>GENERAL DATA</b>		
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 <sup>12</sup>	- 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	
MTBF	<ul style="list-style-type: none"> <li>▪ MIL-HDBK-217F &gt; 600'000h at 25°C ambient full load</li> </ul>	
Overvoltage category	<ul style="list-style-type: none"> <li>▪ EN50178 1</li> </ul>	
Pollution degree	<ul style="list-style-type: none"> <li>▪ IEC60664-1 2</li> </ul>	
Isolation against enclosure	0.75kVdc	
Safety Standards	<ul style="list-style-type: none"> <li>▪ UL508 (certified E356563)</li> <li>▪ EN60950 (reference)</li> </ul>	
EMC Emission	<ul style="list-style-type: none"> <li>▪ EN55011 (CISPR11) Class A</li> <li>▪ EN55022 (CISPR22) Class A</li> </ul>	
EMC Immunity	<ul style="list-style-type: none"> <li>▪ EN61000-4-2 Level 3</li> <li>▪ EN61000-4-3 Level 3</li> <li>▪ EN61000-4-4 Level 3</li> <li>▪ EN61000-4-5 Level 1</li> </ul>	
Protection degree	<ul style="list-style-type: none"> <li>▪ EN60529 IP20</li> </ul>	
Vibration sinusoidal	<ul style="list-style-type: none"> <li>▪ IEC 60068-2-6 (5-17.8Hz: <math>\pm</math>1.6mm; 17.8-500Hz: 2g 2hours / axis (X,Y,Z)</li> </ul>	
Shock	<ul style="list-style-type: none"> <li>▪ IEC 60068-2-27 (30g 6ms, 20g 11ms; 3 bumps / direction, 18 bumps total)</li> </ul>	
IN/Battery/OUT Connection terminals	2.5mm <sup>2</sup> , screw type pluggable (24...12AWG)	
Auxiliary connection terminals	Up to 0.5mm <sup>2</sup> , 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.	
<b>Notes:</b> - For more details, performance and descriptions regarding all parameters not indicated in the above table, please refer to the user manual downloadable from <a href="http://www.nextys.com">www.nextys.com</a> - 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.	

## 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

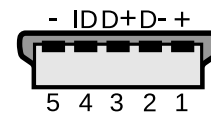
**BACKUP:** (close when running on Battery)

- 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