
POWERMASTER · Windows · Google Play · DIGITAL POWER · c UL us LISTED · CE · RoHS 2011/65/EU · Pb lead-free

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**

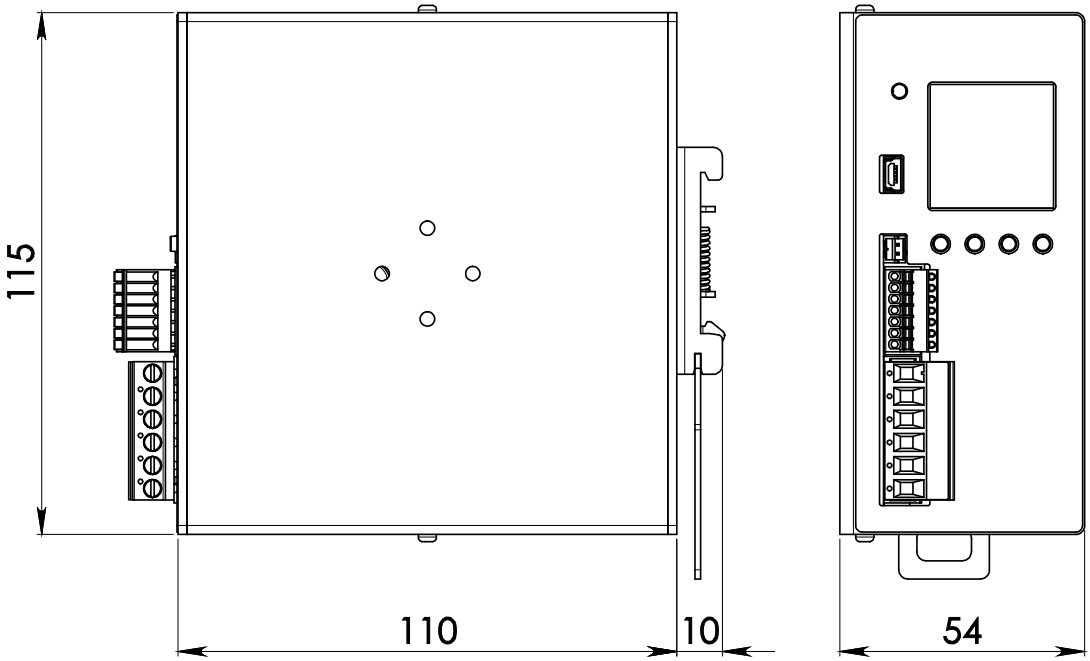
| Model type | DCU20 | |
|---|---|---|
| **INPUT DATA** | | |
| Input DC rated voltage | Nominal: 11…28Vdc (UL certified)<br>Range: 10…29Vdc | |
| Input DC rated current | 20A | |
| Standby power | < 3W | |
| **BATTERY SECTION** | | |
| Rated battery voltage | ▪ 12 or 24Vdc<br>▪ Other voltage possible by request | |
| Battery chemistries | ▪ Lead Acid<br>▪ Nickel<br>▪ Lithium | |
| 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<br>▪ Deep discharge<br>▪ Reverse polarity | |
| **BATTERY HEALTH MONITORING** | | |
| Battery internal resistance range | 1mΩ…300mΩ (using Kelvin connection) | |
| Additional monitoring functions | ▪ Coulomb counter<br>▪ Battery temperature through 10kΩ NTC sensor (optional)<br>▪ Battery operating time since installation<br>▪ 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<br>▪ Blinking: battery backup function active | |
| 2 dry contact (relays) NO, 30Vdc / 1A | ▪ May indicate units status (**READY** or on **BACKUP** model), battery failure (by toggling at 1Hz)<br>▪ Configurable for remote PC shutdown | |
| Other interfaces | ▪ **INHIBIT** - Isolated remote ON/OFF input, active for 5…30Vdc<br>▪ **BATTERY SENSE** - recommended to have an accurate measurement of the battery internal resistance<br>▪ Mini **USB-B** - connector to be used with **POWERMASTER** software<br>▪ **T SENSE** - optional, remote temperature sensor for battery charging (WNTC-2MT) | |
| **GENERAL DATA** | | |
| Efficiency at full load<br>Power loss (on power supply) | > 97.5%<br>< 13W | |
| Efficiency at full load<br>Power loss (on battery) | > 96.5%<br>< 18W | |
| Battery charge efficiency<br>Power loss | > 90%<br>< 16W | |
| Maximum backup time | User programmable, up to battery deep discharge threshold | |
| Operating temperature[12] | - 40°C…+ 60°C<br>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 | ▪ MIL-HDBK-217F | > 600'000h at 25°C ambient full load |
| Overvoltage category<br>Pollution degree | ▪ EN50178<br>▪ IEC60664-1 | I<br>2 |
| Isolation against enclosure | 0.75kVdc | |
| Safety Standards | ▪ UL508<br>▪ EN60950 | (certified E356563)<br>(reference) |
| EMC Emission | ▪ EN55011 (CISPR11)<br>▪ EN55022 (CISPR22) | Class A<br>Class A |
| EMC Immunity | ▪ EN61000-4-2<br>▪ EN61000-4-3<br>▪ EN61000-4-4<br>▪ EN61000-4-5 | Level 3<br>Level 3<br>Level 3<br>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 |

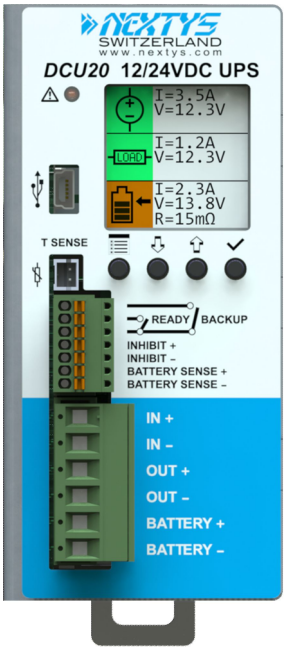
1) Start-up type tested: - 40°C, possible at nominal voltage with load deration.
2) For temperature ≤ - 20°C the LCD is not operating, but the unit will operate correctly.

**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.

## 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

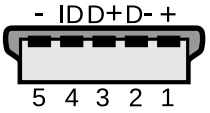
**INHIBIT:** (5…30Vdc)
- + = Positive DC
- - = Negative DC

**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