POWERMASTER

Configuration and diagnostic tool

User Manual



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1 Introduction

POWERMASTER is a software tool used to configure and monitor the operation of the following products:

- **NPS2400:** Advanced 3 Phases 2400W DIN rail power supply.
- **DCU20:** CPU controlled 12/24V 20A DC UPS.

Reader of this document should be familiar with the mentioned products, at this purpose reading of the NPS2400 and DCU20 user manual is recommended.

With **POWERMASTER** the user can:

- Monitor the device status.
- Update the firmware.
- Read and write the device configuration.
- Read and write the configuration from/to a file.
- Read the logs.
- Read and write the logs from/to a file.

2 Installation

Simply run "SETUP-POWERMASTER-XX.exe" (where XX is replaced with the release number) and follow the instructions on the screen until the end of the installation process.

POWERMASTER application can be installed on any PC running windows XP, windows 7 (32 and 64bits) or window 8 (32 and 64bits).



USB driver are bundled with POWERMASTER application. Install the application before connecting the device to the PC with USB.

3 Functional description

On **POWERMASTER** start-up, the user must select the device type as shown on Figure 1.

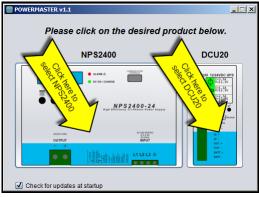


Figure 1: Start-up screen

User can operate the application in two ways:

- Offline: This mode is active when the device is disconnected from the PC. The user can perform a limited number of activities, all activities that require the device connected are disabled.
- Online: This mode is active when the device is connected to the PC. The user can benefit of all the functionalities.

3.1 NPS2400

To connect the NPS2400 to the PC the CommBox (Communication Box) is mandatory. The CommBox must be inserted into the dedicated slot on the NPS2400 (see Figure 2) and plugged to the PC using the provided USB cable. Connect the main supply input to power on the device.



In case only single phase is available, it is possible to connect neutral and phase between L1 and L2 to power on the device. The DC output will not work and the under voltage alarm will be shown on the screen, but it will be possible to communicate with the device.

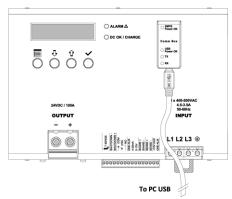


Figure 2: CommBox connection

There are 4 different activities that can be performed, each one related to a tab, as shown on Figure 3 and described later.

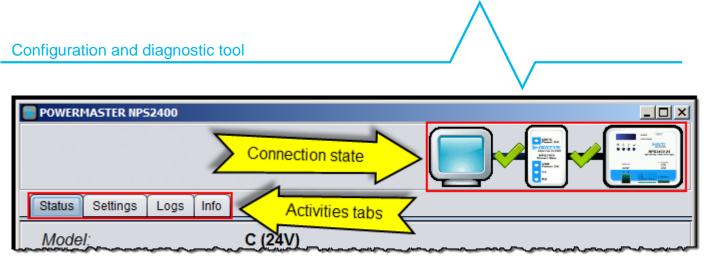


Figure 3: NPS2400 activities and connection state

The top of the page shows the connection state. Depending on the connection state the image changes as shown on the table below.

PC – CommBox connected, CommBox – NPS2400 disconnected PC – CommBox connected, CommBox – NPS2400 connected	PC – CommBox disconnected, CommBox – NPS2400 disconnected
PC – CommBox connected, CommBox – NPS2400 connected	PC – CommBox connected, CommBox – NPS2400 disconnected
	PC – CommBox connected, CommBox – NPS2400 connected

Table 1: NPS2400 connection state

3.1.1 Status

To view the connected device status select the "**Status**" tab as shown on Figure 4.

If the device is connected to the PC the fields are automatically read and updated once per second, otherwise the string "**Not connected**" is displayed.

Status Settings Logs Info			
Model:	C (24V)		
Device name:	NPS2400		
Device S/N:	1182400030		
Average output power:	25W		
Average output current:	1A		
Average temperature:	50.5C		
Power on cycles:	70cycles		
Operating time:	7d 22h 28m 10s		
Fan operating time:	6d 13h 26m 19s		
Fan speed (0-3):	1		
Input voltage:	393V	320V	580V
Output voltage:	24.02V	11V	29V
Output current:	0.0A	0A	100A
Output power:	1W	ow	2400W
Internal temperature:	49.8°C / 121.7°F	0°C / 32°F	115°C / 239°F
Environmental temperature	19.8°C / 67.7°F	0°C / 32°F	100°C / 212°F

Figure 4: NPS2400 status

3.1.2 Settings

This tab contains all the device settings, 4 buttons are available to the user:

- Read from device: Used to read the settings from the connected device. This button is enabled only if a device is connected.
- Write to device: Used to write the displayed settings to the connected device. This button is enabled only if a device is connected.
- Read from file: Used to read settings from previously saved file.
- Write to file: Used to write the displayed settings to a file. The file type is .xml.
- Read on connection: Select to automatically read settings on device connection.

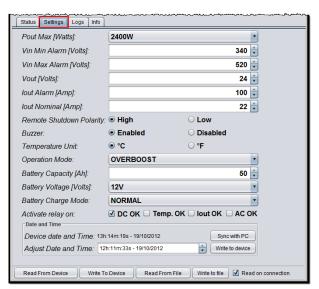


Figure 5: NPS2400 settings

3.1.3 Logs

The log panel shows the logs present on the device, 4 buttons are available to the user:

- **Read from device**: Used to read the logs from the connected device. This button is enabled only if a device is connected.
- **Read from file**: Used to read logs from a previously saved file.
- Write to file: Click to write the logs to a file. The file type is .xml.
- Export to excel: Click to export the logs in excel format.
- Read on connection: Select to automatically read logs on device connection.

Description	Value	Time
EVENT: POWER ON		Fri, 19 Oct 2012 @ 10h54m19s
EVENT: POWER ON		Thu, 18 Oct 2012 @ 11h53m37s
EVENT: POWER ON		Mon, 01 Oct 2012 @ 09h48m19s
EVENT: POWER ON		Wed, 26 Sep 2012 @ 12h15m31s
EVENT: POWER ON		Mon, 24 Sep 2012 @ 14h57m40s
EVENT: POWER ON		Mon, 24 Sep 2012 @ 13h50m44s
EVENT: POWER ON		Mon, 24 Sep 2012 @ 13h49m12s
ALARM: OVER LOAD END	13A	Fri, 21 Sep 2012 @ 14h49m17s
ALARM: OVER LOAD START	10A	Fri, 21 Sep 2012 @ 14h48m53s
EVENT: POWER ON		Fri, 21 Sep 2012 @ 14h47m01s
EVENT: POWER ON		Tue, 18 Sep 2012 @ 10h11m51s
EVENT: POWER ON		Mon, 17 Sep 2012 @ 13h51m12s
EVENT: POWER ON		Thu, 13 Sep 2012 @ 10h43m02s
EVENT: POWER ON		Thu, 13 Sep 2012 @ 08h07m06s
ALARM: OVER LOAD END	15A	Wed, 12 Sep 2012 @ 16h17m08s
ALARM: OVER LOAD START	11A	Wed, 12 Sep 2012 @ 16h16m57s
EVENT: POWER ON		Wed, 12 Sep 2012 @ 16h11m37s
ALARM: PHASE LOSS END		Wed, 12 Sep 2012 @ 16h07m35s
ALARM: PHASE LOSS START		Wed, 12 Sep 2012 @ 16h07m31s
ALARM: OVER LOAD END	153A	Wed, 12 Sep 2012 @ 16h03m29s
ERROR: SHORT CIRCUIT		Wed, 12 Sep 2012 @ 16h03m25s
	1.00	West 40.000 0040 0 40500-044

Figure 6: NPS2400 logs

3.1.4 Info

From the info panel user can view the firmware version, name and serial of the connected NPS2400. The "**Update**" button is used to update the device with a new firmware.

User can change the name of the device from this panel.

Status Settings	Logs Info	~~~
	RMASTER S2400	
FW version:	v1.13 (latest available v1.18) Update	
Name:	NPS2400C Change	
Serial number	121282400098	
Service mode	Disabled Enable	

Figure 7: NPS2400 info



(B)

The firmware is bundled with the executable. The application will automatically choose the latest firmware version and download it to the device.

If the update procedure fails the device will not work and the LCD screen stays off, but even from this status the device can be recovered. In this case please check the connection between the PC and the device. Ensure that the CommBox is well inserted into the NPS2400 slot and then launch the update procedure again.

3.2 DCU20

There are 5 different activities that can be performed, each one related to a tab, as shown on Figure 8 and described later.

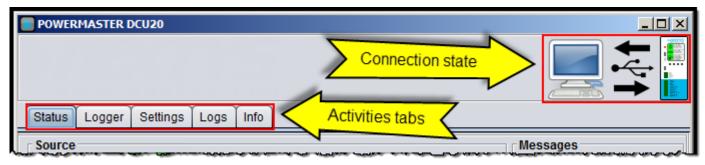


Figure 8: DCU20 activities and connection state

The top of the page shows the connection state. Depending on the connection state the image changes as shown on the table below.

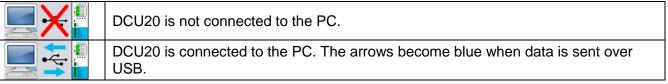


Figure 9: DCU20 connection state

3.2.1 Status

To view the current device status select the "**Status**" tab as shown on Figure 10.

If the device is connected to the PC the fields are automatically updated once per seconds.

Status Logger Settings Logs Info	
Source	Messages
Current 0.0A Voitage: 0.0V	Backup. System is running on batteries.
Current: 1.0A Voltage: 23.7V	
Battery Current: -1.0A Voltage: 23.7V Temperature: N/A Capacity: 2.0Ah / 100% Resistance: 167.3mQ	1 ⁴
Battery Info Battery installation date: 12/02/2015 Change Battery operating hours: 19h	

Figure 10: DCU20 status

3.2.2 Logger

This tab is used to show measured data on a chart and/or save them to an excel file, 5 controls are available to the user:

- **Enable**: When selected the collected points are added to the chart.
- Show points: When selected the points markers are shown on the chart.
- Clear points: Used to clear all points form the chart.
- **Zoom all**: Used to adjust the chart zoom making all points visible.
- Start save to file: Used to save the collected points to an excel file.

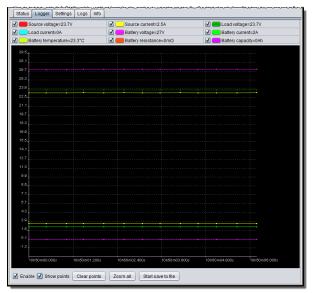


Figure 11: DCU20 logger

3.2.3 Settings

This tab contains all the DCU20 settings, 4 buttons are available to the user:

- **Read from device**: Used to read the settings from the connected device. This button is enabled only if a device is connected.
- Write to device: Used to write the displayed settings to the connected device. This button is enabled only if a device is connected.
- **Read from file**: Used to read settings from previously saved file.
- Write to file: Used to write the displayed settings to a file. The file type is .xml.
- **Read on connection**: Select to automatically read setting on device connection.

Status Logger Settings Logs Config PC shutdown Date and t	Info	
Input nominal voltage [V]:	24.0	÷
Battery chemistry:	Pb	•
Battery capacity [Ah]:	2	÷
Battery nominal voltage [V]:	24.0	÷
Battery charge voltage [V]:	28.8	÷
Battery charge current [A]:	0.2	÷.
Battery deep disch. volt. [V]:	I 18.0	÷.
Battery Ri nom [mΩ]:	Disabled Automatic	
Battery max Ri variation [%]:	200	÷
Battery max. temp. [°C]:	50	÷
Battery lifetime[kh]:	100	÷.
Backup timeout:	2 Hours 0 Minutes 0 Seconds	v
Screen:	26 Contrast 2 Backlight 5 Timeout	v
Buzzer:	Disabled	•
Inhibit polarity:	HIGH	•
	NC NO Backup SoC < 25% Set life time	
Relay 2 (backup):	● NC NO ✓ Backup SoC < 25%	

Figure 12: DCU20 settings

3.2.4 Logs

The events logs present on the connected device can be read from this panel, 3 buttons are available to the user:

- **Read from device**: Used to read the logs from the connected device. This button is enabled only if a device is connected.
- **Read from file**: Used to read logs from a previously saved file.
- Write to file: Click to write the logs to a file. The file type is .xml.
- Read on connection: Select to automatically read logs on device connection.

Description	Value	Time
EVENT_BATTERY_CHARGING		19/10/2012 @ 15h:40m:06s
ALARM_INPUT_UNDERVOLTAGE_END	3.76V	19/10/2012 @ 15h:40m:06s
EVENT_BATTERY_DISCHARGING		19/10/2012 @ 15h:40m:01s
ALARM_INPUT_UNDERVOLTAGE_START	10.00V	19/10/2012 @ 15h:40m:01s
EVENT_BATTERY_CHARGING		19/10/2012 @ 15h:39m:58s
ALARM_BATTERY_UNDEVOLTAGE_END	0.00V	19/10/2012 @ 15h:39m:58s
ALARM_BATTERY_UNDEVOLTAGE_START	9.60V	19/10/2012 @ 15h:39m:55s
EVENT_BATTERY_CHARGED		19/10/2012 @ 15h:39m:55s
EVENT_BATTERY_CHARGING		19/10/2012 @ 15h:39m:24s
ALARM_BATTERY_UNDEVOLTAGE_END	0.00V	19/10/2012 @ 15h:39m:24s
ALARM_BATTERY_UNDEVOLTAGE_START	9.60V	19/10/2012 @ 15h:39m:21s
EVENT_BATTERY_CHARGED		19/10/2012 @ 15h:39m:21s
EVENT_BATTERY_CHARGING		19/10/2012 @ 15h:39m:19s
ALARM_INPUT_UNDERVOLTAGE_END	4.87V	19/10/2012 @ 15h:39m:19s
EVENT_BATTERY_DISCHARGING		19/10/2012 @ 15h:39m:17s
ALARM_INPUT_UNDERVOLTAGE_START	10.00V	19/10/2012 @ 15h:39m:17s
EVENT_BATTERY_CHARGING		19/10/2012 @ 15h:39m:13s
ALARM_BATTERY_UNDEVOLTAGE_END	0.00V	19/10/2012 @ 15h:39m:13s
ALARM_BATTERY_UNDEVOLTAGE_START	9.60V	19/10/2012 @ 15h:39m:12s
EVENT_BATTERY_CHARGED		19/10/2012 @ 15h:38m:54s
EVENT BATTERY CHARGING		19/10/2012 @ 15h:25m:04s

Figure 13: DCU20 logs

3.2.5 Info

From the help panel user can view several information about the connected device. The "**Update**" button is used to update the DCU20 with a new firmware.

User can change the name of the device from this panel.

POWE	RMASTER	
DC	CU20	
FW version:	v1.2 (latest availabl	e v1.2) Update
Boot cycles:	2	
Operating hours	: 18	
Name:	DCU20	Change
Serial number:	12345678	
Service mode:	Disabled	Enable

Figure 14: DCU20 info

The firmware is bundled with the executable. The application will automatically choose the latest firmware version and download it to the device.



If the update procedure fails the device will not work and the LCD screen stays off, but even from this status the device can be recovered. In this case please check the connection between the PC and the device and then launch the update procedure again.