DC-CONTROLLER USV6 – Configurator

USER MANUAL

🧭 USV-6 Co	nfigurator Version 2.6.0.1			
File Data	RS232 Help			
	🗎 💾	USV Pov	ver	Exit
Signal co	onfiguration Battery Boost	-/ Manual charg	e / System test	Counter cells Mains Mon. USV3
Text	Analog inputs Digital inputs	Thresholds	Devices 0	utputs Communication / Display / etc.
Serial-No	JJ00000-000.000	Langua	je USV-6	Display
		Englis	sh	Logo line 1
Project	TEST			USV Power
Firmware	Version 9.99	O Germ	an	Number of characters : 16
				Logo line 2
Path	(\DESKTOP\USV6\TEST.MC1	O Englis	sh	USV-6 V2.5x
Nominals	voltage range : LISV-6 - L. (20V-80V)			Number of characters : 16
DIN-rail v	ersion :			
Memo				
				*
				*
	No RS232 Interface found	<u>o</u> k	<u>c</u> ancel	29. 6.2018 13:37:10

DC-Controller USV6 Configurator User manual

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Information about the user manual

IMPORTANT! Please read this user manual very carefully before assembling and starting this device!

The user manual is a part of the delivery of this device, i.e. it should be made available to each and every person involved with the starting, maintenance or operation of the device. The device should be transported, mounted, started, maintained and operated only by Electro technical personnel.

The local specifications for the prevention of accidents as well as the general guidelines according to IEC 364 should always be followed!

constant revision of the operation manual.

The device complies to the EN- and VDE-standards applicable at the time of the publication. The CE symbol on the device confirms the conformation of the EU-guidelines 2006/95/EG (Low voltage directive) and 2004/108/EG (EMC directive).

The devices are delivered exclusively according to our delivery and sales conditions. Alterations in the technical details in this operation manual as well as the respective data sheets are reserved.

Complaints about the delivered goods should be made as soon as possible on receiving them along with the packing invoice as well as the information about the type, serial number and complaint.

Guarantee claims of the customer will not be entertained in the case of visible external influences (e.g. absent or loose screws, welding, loose sheets, etc.), that could be attributed to a non permitted opening of the device.

The current revision status of this manual is the following:

Revision:	01
Date:	2018-06-29
System:	USV6

System voltage: 24/48/108/216VDC

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1. Introduction

The U configurator is a program to change and adjust values of a USV6-unit. The values are changed using a PC and transmitted via serial interface RS232 to the USV6.

1.1 Requirements to start programming of USV6

To start with configuration of USV6 via this program you have to check whether the following requirements are fulfilled:

- 1. USV6 is switched on and the display shows the main menu
- 2. RS232 port is connected via an null modem cable (Sub-Min D 9-pole) to an free COM port of your computer
- 3. The transmission speed of the used COM port is set to 9600 Bps
- 4. The file USV6_V2_6_0_1.EXE (delivered on CD) has been saved in a specific directory on your hard disk

The software is tested with following operation systems: Microsoft Windows 95 , Microsoft Windows 98 , Microsoft Windows 2000 +XP.

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2. Program start

USV-6 Configurator Version 2.6.0.1		
File Data RS232 Help		
	USV Power	Exit
Signal configuration Battery Text Analog inputs Digits	Boost-/ Manual charge / System test al inputs Thresholds Devices	t Counter cells Mains Mon. USV3 Outputs Communication / Display / etc.
Serial-No. JJ000000-000.000 Project TEST Firmware Version 9.99 Path (\DESKTOP\USV6\TH) Nominal voltage range : USV-6-L DIN-rail version □	Language USV-6 © English C German SST.MC1 OV-80V)	Display Logo line 1 USV Power Number of characters : 16 Logo line 2 USV-6 V2.5x Number of characters : 16
Memo		
No PS222 Interface formed	OK	al 29.62019 12:27:10
No RS232 Interface found	<u>UK</u> <u>c</u> anc	el 29. 6.2018 13:37:10

Click on USV6_V2_6_0_1.exe in the specific directory on your hard disc.

The picture on the left shows the main screen after starting the USV6-Configurator.

In the main menu bar you find following items:

"File" for open/close/save/print project files "Data" to start the transmission of data to and from USV6 "RS232" to check and change the baudrate

and COM port for transmission cable "Help" with USV6 version and registration code information

In the icon bar you find buttons for "Read data from USV6", "Write data to USV6", "Open project file", "Close project file", "Print configuration data" and "Exit".

The configuration values are arranged in 12 registers.

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3. Main menu items

3.1 Main menu item – "File"

🧭 US	V-6 Configurator Versior	n 2.6.0.1							x	New Project – generate a new project file
File	Data RS232 Help		_							
1	New Project	Ctrl+R		USV Pov	/er			Exi	it	<i>Open –</i> open a saved project file
(Open	Ctrl+O	Boost	-/Manual charg	e / System test	Counte	rcells	Mains Mon. US	SV3	Cover any the share and publicat file
5	Save	Ctrl+S	tal inputs	Thresholds	Devices	Outputs	Comm	unication / Display,	/etc.	Save – save the changed project me
	Save as			- Languag	je USV-6	Disp	lay ——		- I	Save as – save the changed project file with another
1	Printer configuration			C Earlie	L.	L	ogo line 1			name
	Print	Ctrl+P		U Englis	n					
	Quit					N N	lumber of a	characters : 0		<i>Printer configuration</i> – set the default printer for
	iniware j			C Germ	an		ogo line 2			printing the configuration data list
Pa	th						- 9			
1.0	j			C Custo	mer specific		lumber of r	charactore : 0		Print – print out the configuration data list
									_	
										Quit – exit the program
Me	emo									
									-	
								<u>^</u>		
								-	-	
	No RS232 Interfac	e found		<u>o</u> k	<u>c</u> ancel		29. 6.2	2018 12:41:25		

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3.2 Main menu item – "Data"

USV-6 Configurator Version 2.6.0.1		
File Data RS232 Help		
	USV Power	Exit
Signal configuration Battery Boost -/ N	Manual charge / System test	Counter cells Mains Mon. USV3
Text Analog inputs Digital inputs	Thresholds Devices 0	Dutputs Communication / Display / etc.
Serial-No. JJ000000-000.000	Language USV-6	Display
	English	Logo line 1
Project TEST		USV Power
Firmware Version 9.99	C German	Number of characters : 16
		Logo line 2
Path [\DESKTOP\USV6\TEST.MC1	C English	USV-6 V2.5x
Nominal voltage range : USV-6 - L (20V-80V)		Number of characters : 16
DIN-rail version : 🗖		
Memo		
		-
1		
No RS232 Interface found	K <u>c</u> ancel	29. 6.2018 13:37:10

Read USV6->PC – start data transmission from USV6 to your computer

File Data RS232 Help		
🔤 📐 🗕 🖺	USV Power	Exit
Signel Configuration Battery Text Analog inputs Digits Seniel-No. JJ000000-000.000 Project Firmware Version 2.60 Peth Norr Data transmission USV-6-> PC DN-n Merry	Boost-/ Manual charge / System test inputs Thresholds Devices (Language USV-6	Counter cells Meine Mon. USV3 Usepuis Communication / Display / etc. Display Logo line 1 CP Power Number of characters : 16 USV-6 V 2.60 Number of characters : 16

Write PC->USV6 – start data transmission from your computer to USV6



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3.3 Main menu item – "RS232"

USV-6 Configurator Version 2.6.0.1				
File Data RS232 Help				
	USV Power			Exit
Signal configuration Battery Text Analog inputs Digital	Boost -/ Manual charge / Sys nputs Thresholds Di Language US\	tem test Coun evices Outputs /-6	ter cells Ma Communicatio play	ins Mon. USV3 n / Display / etc.
Serial-No. JJJ000000-000.000			Logo line 1	
Project TEST	RS 232		USV Power	
Firmware Version 9.99	Port COM1	•	Number of characte	ers: 16
Path (\DESKTOP\USV6\TE	Baudrate 9600		USV-6 V2.5x	
Nominal voltage range : USV-6 - L (20)	Datatbits 8		Number of characte	ers : 16
Memo	Stopbits 1			
	Parity 0			*
	Flow Control none			
		ОК		
,				
Interface:	<u></u> OK	<u>c</u> ancel	29. 6.2018	14:08:40

During startup of the software a free COM port is automatically detected. In case of detection failures you can adjust the correct COM port manually.

Comm. Port – COM port on which the serial transmission cable is connected

Baud Rate – the default rate is 9600

Data bits – the standard value is "8"

Stop bits – the standard value is "1"

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3.4 Main menu item – "Help"



This menu item shows the main service parameters of the actual configurator software and the online help:

Menu item – "Info":

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4. Generate a project file

4.1 New project file



If you try to fill in data for USV6 configuration before you opened a new project file or a saved project file you get the message: "Please open a file, new project or read data from USV6!"

To generate a new project file select File/New ...

Choose the *Nominal Voltage Range* of the USV6 unit that you are using.

Confirm with "OK".

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🧭 Save As	(And a state of the state of th								×
😋 🔾 🗢 📕 🕨 US	V6	10000				▼ 4 9	Search USV6		٩
Organize 🕶 Ne	w folder								(?)
🔆 Favorites		Name	*	Date modified	Туре		Size		
 ⇒ Libraries ⇒ Documents ⇒ Music ⇒ Pictures ⇒ Videos ™ Computer ♥ Network 				No items match you	r search.				
File name:	*.mc1								
Save as type:	USV-6-files since V2.	40							•
Alide Folders							Save	Cance	I

The window "Save as" will appear.

Give a name for the new project file.

The project file suffix is "mc1". You do not need to fill in the suffix, because the software will generate it automatically.

Confirm with "OK".

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4.2 Open existing project file

🧀 Open	and provide a local of	Case De		-		×
🔾 🗸 – 🚺 🕨 USV6				👻 🍫 Search US	5V6	٩
Organize 👻 New folder	r				··· ·	(?)
🛛 🔆 Favorites	Name	Date modified	Туре	Size		
	Test.mc1	29/06/2018 12:52	MC1 File	7 KB		
Documents						
🛛 🌙 Music						
Pictures						
🛛 🖳 Computer						
🛛 🗣 Network						
File na	me:				since V2.40 (*.mc	1) 🔻
				Open	Cance	e l

To open an existing project file select *File/Open...*

The window "File open" will appear.

Search for the right file in your harddisk subdirectories (suffix ".mc1" is preadjusted).

Click on the file name and confirm with "OK".

Note, you must open the USV6 Configurator first, and then open the file. The .MC1 file will not automatically open the USV1.

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4.3 Read data from USV6

USV-6 Configurator Version 2.6.0.1							
File Data RS232 Help							
	USV	/ Power		Exit			
Signal configuration Battery	Boost-/Manual c	harge / System test	Counter cells	Mains Mon. USV3			
Text Analog inputs Digital	inputs Threshol	lds Devices	Outputs Comn	nunication / Display / etc.			
Serial-No. JJ000000-000.000							
Project	• E	inglish	CP P	'ower			
Firmware Version 2.60		Jerman	Number of	characters : 16			
			Logo line 2				
Path	o s	wedish	USV-6	V 2.60			
Nomi Data transmission USV-6 -> PC			Number of	characters : 16			
DIN-r: Transmission running !							
	E9 of 1024 Words						
	50 01 1024 HYDIUS						
				*			
		-					
				-			
Interface: COM3	<u>0</u> K	<u>c</u> ancel	3. 7.	2018 11:49:29			

To read data from USV6 select Data/Read USV6->PC...

The window "Data transmission PC <- USV6" will appear.

With "cancel" you stop the data transmission.

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5. Configuration registers

5.1 Register – "Text"

Ø USV-6 Configurator Version 2.6.0.1		
File Data RS232 Help		
	USV Power	Exit
Signal configuration Battery	Boost -/ Manual charge / System	test Counter cells Mains Mon. USV3
Text Analog inputs Digital in	nputs Thresholds De∨ic	es Outputs Communication / Display / etc.
Serial-No. JJ000000-000.000	Language USV-6 -	Display
Project mp.cm	English	Logo line I
		Number of characters : 16
Firmware Version 9.99	C German	Logo line 2
Path (\DESKTOP\USV6\TES	F.MC1	USV-6 V2.5x
,	C English	, Number of characters : 16
Nominal voltage range : USV-6 - L (20V-	80\)	
Memo		
		<u>^</u>
		-
,		
No RS232 Interface found	<u>OK</u>	eancel 29. 6.2018 13:37:10

Serial no. – the serial number of the USV6 hardware is shown automatically in this line

Project – project file name You can change this name if you save the project file with "File/Save as..." with another name.

Firmware – firmware version of USV6 processor software.

The firmware version will be read out from the USV6 during data transmission from USV6 to PC.

Path – file path for your project file

You can change this file path if you save the project file with "File/Save as..." in another subdirectory on your harddisk.

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USV-6 Configurator Version 2.6.0.1 File Data RS222 Help			Language – choose the language that you usually use to display in the USV6.
File Data RS232 Help Signal configuration Battery Text Analog inputs Digital in Serial-No. JJ000000-000.000 Project TEST Firmware Version 9.99 Path [\DESKTOP\USV6\TEST] Nominal voltage range : USV-6-L (20V-6) DIN-rail version : Memo	USV Power Boost -/ Manual charge / System test outs Thresholds Devices Out Language USV-6 C English © German C English 80V)	Counter cells Mains Mon. USV3 htputs Communication / Display / etc. Display Logo line 1 USV Power Number of characters : 16 Logo line 2 USV-6 V2.5x Number of characters : 16	 The third language is customer specific. If you read from the USV6 than you will see the language in the Configurator. Logo name line 1 - fill in your company name (max. 16 letters) The logo name will appear in the main menu on USV6 display. Logo name line 2 - fill in any statement or note (max. 16 letters) The logo name will appear in the main menu on USV6 display. In the Logo lines you can also put in special characters like Cyrillic, to display in the USV6. Click on the right mouse button to get a LCD character set, than paste the string into the line.
No RS232 Interface found	<u>O</u> K <u>c</u> ancel	29. 6.2018 13:38:20	

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5.2 Register – "Analog inputs and Shunts"

5.2.1 Analog inputs

USV-6 Configurator Version 2.6.0.1				
File Data R\$232 Help				
	LISV	Power		E Exit
Signal configuration Batteny	Boost-/Manual d	harge / System test	Counter cells	Maine Mon LISV3
Text Analog inputs Digita	l inputs Threshol	lds Devices Ou	tputs Commun	ication / Display / etc.
Analog inputs				
Input Display Text				
Vdc1 @ Yes C No MU Vdc1				
Vdc2 • Yes C No MU Vdc2				
Vdo3 @ Yos C No. MIL Vdc3				
Idc1 • Yes C No MU Idc1	Shunt 50	A		
MIL Ido2		_ _ ,		
	Shunt [50			
Idc3 • Yes C No MU Idc3	Shunt 50	A A		
N. DC222 Interferent (m. 1	or		20.000	- 12.41.07
No HS232 Interface found	<u>U</u> K	<u>c</u> ancel	29. 6.201	8 13:41:07

On this page you are able to assign the designations for the analogue measuring inputs of USV6.

Following designations are possible for every measuring input:

Display – Yes – value is displayed on USV6 display (use this selection if the measuring input is used)

Display - No - value is not displayed on USV6 display (use this selection if the measuring input is not used)

Text - User defined voltage and current measurement designations – fill in your own measurement designation if you do not want to use predefined designators (max. 8 letters)

You can also put in specific characters such as Cyrillic, to display the text in the USV6 (for details see section 8.)

Click the right mouse button to get a LCD character set, than paste the string into the line.

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5.2.2 Shunts

USV-6 Configurator Version 2.6.0.1				
File Data RS232 Help				
	USV	'Power		<u>E</u> xit
Signal configuration Battery	Boost-/Manual c	harge / System test	Counter cells	Mains Mon. USV3
Text Analog inputs Digital	inputs Threshol	ds Devices	Outputs Comm	unication / Display / etc.
Analog inputs				
Input Display Text				
Vdc1 💽 Yes C No MU Vdc1				
NUL O N O N MIL VIEQ				
Vdc2 · Yes C No MU Vacz				
Vdc3 • Yes C No MU Vdc3				
Idc1 • Yes C No MU Idc1	Shunt 50			
Idc2 • Yes C No MU Idc2	Shunt 50	A A		
Idc3 • Yes C No MU Idc3	Shunt 50			
No RS232 Interface found	<u>0</u> K	<u>c</u> ancel	29. 6.2	2018 13:41:07

Idc1 – set the correct shunt size connected to measuring input Idc1

To measure the battery charge/discharge current you have to use Idc1 input because this input can handle positive and negative measurement values.

Idc2 – set the correct shunt size connected to measuring input Idc2

Idc3 – set the correct shunt size connected to measuring input Idc3

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5.3 Register – "Digital inputs"

If you connect external signalling loops to USV6 digital input interface you can configure every input (16 in total, 8 inputs from USV6 and 8 inputs from external I/O-Board or DIG8) as following:

File Data RS232 Help Image: Signal configuration Battery Boost-/Manual charge/System test Counter cells Mains Mon. USV3 Text Analog inputs Digital input SUSV-6 Input active if InputNo. Text open 1 Imput1 2 Input2 Imput2 2 Imput2 Imput2
Imput No. Text Open closed Delay in sec. 1 Imput 1 C C 2 Imput 2 C C 0 Imput 2 C C 1 Imput 2 C C C 1 Imput 2 C C C C 1 Imput 2 C C C C 1 C C C
Signal configuration Battery Boost-/Manual charge/System test Counter cells Mains Mon. USV3 Text Analog inputs Digital inputs Thresholds Devices Outputs Communication / Display / etc. Digital Inputs USV-6 Input active if Input active if Input active if Text open closed Delay in sec. 1 Input1 C C C C C C C Digital inputs Display. 2 Input2 C <td< td=""></td<>
Text Analog inputs Digital inputs Thresholds Devices Outputs Communication / Display/etc. hardware! Digital Inputs USV-6 Input active if Input active if Input active if Text fill in a error text (max. 16 letters) Input-No. Text open closed Delay in sec. This text will be used to show the signal change on input during operation in the error list and/or histor on USV6 display. 2 Input2 Input2 Imput2 Imput3 USV6 detects an error text (max and compared in the input if
Digital Inputs USV-6 Input active if Input-No. Text open closed Delay in sec. 1 Input1 Imput2 Imput2 Imput2 Imput2 Imput2 2 Imput2 Imp
Input active if Input-No. Text open cosed Delay in sec. Imput1 color Imput2 color Imput2 color Break contact/Close contact - USV6 detects an error the input if
Input-No. Text open closed Delay in sec. 1 Input1 Imput2 Impu2 Impu2 Impu2
input during operation in the error list and/or histor on USV6 display. Input2 C 0 \$ Break contact/Close contact - USV6 detects an error be input if the input is the input if the input is the input if the input and an error input input and an error input input and an error input input input and an error input input input input and an error input input input input and an error input e
1 Input1 Input2
² Input2 • • • • • • • • • • • • • • • • • • •
Break contact/Close contact – USV6 detects an erro
3 Input3 • • • • • • • • • • • • • • • • • • •
Delay, delay time for digital input error detection i
⁴ Input4 C 0 C
⁵ Input ⁵ C C C C
display the input text in the USV6
6 Input6 C 0
7 Tuput 7 For C O A CONTRACT OF A CONTRACT O
character set, than paste the string into the edit field.
8 Input8 @ C 0 보
The panel "I/O- or DIG8 inputs" appears only if an
I/O-board or a DIG8-board is configured.
No BS232 Interface found OK Cancel 29. 6.2018 13:44:00

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5.4 Register – "Thresholds"

Configuration of monitoring thresholds for measuring inputs Vdc1, Vdc2, Vdc3, Idc1-3max, temperature and isolation resistance.

File Data RS232 Help USV Power Signal configuration Battery Boost -/ Manual charge / System test Counter cells Mains Mon. USV3 Text Analog inputs Digital inputs Thresholds Devices Outputs Communication / Display / etc. Thresholds Vdc1 Vdc1 Version Sec. Hysteresis 1 % Vwar 45.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 1 % Vdc2 Vmax 57.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 1 % Vdc2 Vmax 57.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 1 % Vdc3 Vmax 57.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 5 % Vdc3 Vmax 57.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 5 %
Image: Signal configuration Battery Boost -/ Manual charge / System test Counter cells Mains Mon. USV3 Text Analog inputs Digital inputs Thresholds Devices Outputs Communication / Display / etc. Thresholds Vdc1 Vdc1 Vell Delay 3< sec.
Signal configurationBatteryBoost-/ Manual charge / System testCounter cellsMains Mon. USV3TextAnalog inputsDigital inputsThresholdsDevicesOutputsCommunication / Display / etc.ThresholdsVdc1Vmax 57.6 V => 2.40 V/cellDelay 3 \bullet sec.Hysteresis 1 \bullet %Vwam 45.6 V => 1.90 V/cellDelay 10 \bullet sec.Hysteresis 5 \bullet %Vdc2Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Idc1max 50.0 ADelay 3 sec.Hysteresis 1 $\%$
TextAnalog inputsDigital inputsThresholdsDevicesOutputsCommunication / Display / etc.ThresholdsVdc1 $\forall max$ 57.6 $\forall \Rightarrow 2.40$ $\forall cell$ Delay 3 \clubsuit sec.Hysteresis1 \clubsuit $\forall wam$ 45.6 $\forall \Rightarrow 1.90$ $\forall cell$ Delay 10 \clubsuit sec.Hysteresis5 \clubsuit $\forall min$ 43.2 $\forall \Rightarrow 2.40$ $\forall cell$ Delay 3sec.Hysteresis1 $\%$ $\forall min$ 43.2 $\forall \Rightarrow 1.80$ $\forall cell$ Delay 3sec.Hysteresis5 \clubsuit $\forall dc3$ $\forall \Rightarrow 2.40$ $\forall cell$ Delay 3sec.Hysteresis5 \clubsuit $\forall max$ 57.6 $\forall \Rightarrow 2.40$ $\forall cell$ Delay 3sec.Hysteresis5 \clubsuit $\forall dc3$ $\forall \Rightarrow 2.40$ $\forall cell$ Delay 3sec.Hysteresis1 $\%$ $\forall max$ 57.6 $\forall \Rightarrow 2.40$ $\forall cell$ Delay 3sec.Hysteresis5 \clubsuit $\forall max$ 57.6 $\forall \Rightarrow 2.40$ $\forall cell$ Delay 3sec.Hysteresis1 $\%$ $\forall max$ 57.6 $\forall \Rightarrow 2.40$ $\forall cell$ Delay 3sec.Hysteresis1 $\%$ $\forall dc3$ $\forall \Rightarrow \Rightarrow 1.80$ $\forall cell$ Delay 3sec.Hysteresis1 $\%$ $\forall dc3$ $\forall \Rightarrow \Rightarrow 1.80$ $\forall cell$ Delay 3sec.Hysteresis1 $\%$ $\forall dc3$ $\forall \Rightarrow \Rightarrow 1.80$ $\forall cell$ Delay 3sec.Hysteresis1 $\%$ </td
ThresholdsVdc1Vmax 57.6 V => 2.40 V/cellDelay 3 \clubsuit sec.Hysteresis 1 $\%$ Vwarn 45.6 V => 1.90 V/cellDelay 10 \clubsuit sec.Hysteresis 5 $\%$ Vdc2Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc2Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Idc1max 50.0 ADelay 3 \clubsuit sec.Hysteresis 1 $\%$
Vdc1 $\forall max$ 57.6 $\forall \Rightarrow 2.40$ $\forall /cell$ $Delay$ 3 \Rightarrow sec. $Hysteresis$ 1 \Rightarrow $\forall warm$ 45.6 $\forall \Rightarrow 1.90$ $\forall /cell$ $Delay$ 10 \Rightarrow sec. $Hysteresis$ 5 \Rightarrow $\forall max$ 57.6 $\forall \Rightarrow 2.40$ $\forall /cell$ $Delay$ 3 \Rightarrow sec. $Hysteresis$ 1 \Rightarrow $\forall max$ 57.6 $\forall \Rightarrow 2.40$ $\forall /cell$ $Delay$ 3 \Rightarrow sec. $Hysteresis$ 1 \Rightarrow $\forall dc3$ $\forall \Rightarrow 2.40$ $\forall /cell$ $Delay$ 3 \Rightarrow sec. $Hysteresis$ 1 $\%$ $\forall max$ 57.6 $\forall \Rightarrow 2.40$ $\forall /cell$ $Delay$ 3 \Rightarrow sec. $Hysteresis$ 1 $\%$ $\forall dc3$ $\forall \Rightarrow 2.40$ $\forall /cell$ $Delay$ 3 \Rightarrow sec. $Hysteresis$ 1 $\%$ $\forall max$ 57.6 $\forall \Rightarrow 2.40$ $\forall /cell$ $Delay$ 3 \Rightarrow sec. $Hysteresis$ 1 $\%$ $\forall dc3$ $\forall \Rightarrow 2.40$ $\forall /cell$ $Delay$ 3 \Rightarrow sec. $Hysteresis$ 1 $\%$ $\forall dc3$ $\forall \Rightarrow 2.40$ $\forall /cell$ $Delay$ 3 \Rightarrow sec. $Hysteresis$ 1 $\%$ $\forall dc1$ a a $belay$ 3 \Rightarrow sec. $Hysteresis$ 1 $\%$ $\forall dc2$ a a $belay$ a a $belay$ a a $belay$ $\forall dc3$ a a $belay$ a a $belay$ a be
Vmax 57.6 $\vee \Rightarrow 2.40$ V/cellDelay 3 \clubsuit sec.Hysteresis 1 \checkmark Vwarn 45.6 $\vee \Rightarrow 1.90$ V/cellDelay 10 \clubsuit sec.Hysteresis 5 $\%$ Vdc2Vmax 57.6 $\vee \Rightarrow 2.40$ V/cellDelay 3 sec.Hysteresis 1 $\%$ Vmax 57.6 $\vee \Rightarrow 2.40$ V/cellDelay 3 sec.Hysteresis 1 $\%$ Vmax 57.6 $\vee \Rightarrow 2.40$ V/cellDelay 10 \clubsuit sec.Hysteresis 5 $\%$ Vdc3Vmax 57.6 $\vee \Rightarrow 2.40$ V/cellDelay 3 sec.Hysteresis 1 $\%$ Vmax 57.6 $\vee \Rightarrow 2.40$ V/cellDelay 3 sec.Hysteresis 1 $\%$ Idc1max 50.0 ADelay 3 \clubsuit sec.Hysteresis 1 $\%$
Vwarn 45.6 V => 1.90 V/cellDelay 10 \clubsuit sec.Hysteresis 5 $\%$ Vdc2Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vdc3Vdc3Vdc3Sec.Hysteresis 1 $\%$ Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vdc3Vdc3V/cellDelay 3 sec.Hysteresis 1 $\%$ Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Idc1max 50.0 ADelay 3 \clubsuit sec.Hysteresis 1 \bigstar
Vmin 43.2 V =>1.80V/cellDelay10 \clubsuit sec.Hysteresis5 \clubsuit Vdc2Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vmin 43.2 V => 1.80 V/cellDelay 10 \clubsuit sec.Hysteresis 5 $\%$ Vdc3Vdc3Vdc3V/cellDelay 3 sec.Hysteresis 1 $\%$ Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Vdc3Vmax 57.6 V => 2.40 V/cellDelay 3 sec.Hysteresis 1 $\%$ Idc1max 50.0 ADelay 3 \clubsuit sec.Hysteresis 1 $\%$
Vdc2 Vmax 57.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 1 $\%$ Vmin 43.2 V => 1.80 V/cell Delay 10 \Rightarrow sec. Hysteresis 5 $\%$ Vdc3 Vmax 57.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 1 $\%$ Vmax 57.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 1 $\%$ Idc1max 50.0 A Delay 3 \clubsuit sec. Hysteresis 1 $\%$ Idc2max 50.0 A Delay 3 \clubsuit sec. Hysteresis 1 $\%$
Vmax 57.6 $\forall \Rightarrow 2.40$ $\forall cell$ Delay 3 sec. Hysteresis 1 % Vmin 43.2 $\forall \Rightarrow 1.80$ $\forall cell$ Delay 10 \clubsuit sec. Hysteresis 5 $\%$ Vdc3 $\forall max$ 57.6 $\forall \Rightarrow 2.40$ $\forall cell$ Delay 3 sec. Hysteresis 1 % Vmin 43.2 $\forall \Rightarrow 1.80$ $\forall cell$ Delay 3 sec. Hysteresis 1 % Idc1max 50.0 A Delay 3 \clubsuit sec. Hysteresis 1 $\%$ Idc2max 50.0 A Delay 3 \clubsuit sec. Hysteresis 1 $\%$
Vmin 43.2 V => 1.80 V/cell Delay 10 \clubsuit sec. Hysteresis 5 $\%$ Vdc3 Vmax 57.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 1 $\%$ Vmin 43.2 V => 1.80 V/cell Delay 10 \clubsuit sec. Hysteresis 5 $\%$ Idc1max 50.0 A Delay 3 \clubsuit sec. Hysteresis 1 $\%$
Vdc3 V 2.40 V/cell Delay 3 sec. Hysteresis 1 % Vmin 43.2 V => 1.80 V/cell Delay 10 sec. Hysteresis 5 % Idc1max 50.0 A Delay 3 sec. Hysteresis 1 % Idc2max 50.0 A Delay 3 sec. Hysteresis 1 %
Vmax 57.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 1 % Vmin 43.2 V => 1.80 V/cell Delay 10 \clubsuit sec. Hysteresis 5 \clubsuit Idc1max 50.0 A Delay 3 \clubsuit sec. Hysteresis 1 $\%$ Idc2max 50.0 A Delay 3 \clubsuit sec. Hysteresis 1 $\%$
Vmin 43.2 V => 1.80 V/cell Delay 10 sec. Hysteresis 5 % Idc1max 50.0 A Delay 3 sec. Hysteresis 1 % Idc2max 50.0 A Delay 3 sec. Hysteresis 1 %
Idc1max 50.0 A Delay 3 € sec. Hysteresis 1 € %
Idcimax 50,0 A Delay 3 sec. Hysteresis 1 %
Idc2max 50 0 A Delay 2 sec Hysteresis 1 %
Idc3max 50.0 A Delay 3 sec. Hysteresis 1 %
Temp. low < -U.1 high > 60.0 ℃ Delay 10 🗣 sec. Hysteresis 5 🗣 %
Battery operation 20.0 A Delay 10 🕏 sec. Hysteresis 5 🕏 %
Riso error 60 🕏 KOhm Delay 10 🕏 sec. Hysteresis 5 🕏 %
No BS232 Interface found OK cancel 29.6 2018 13:45:01

Vdc1 –

Vmax: over voltage threshold for measuring point Vdc1 You can put in the value in V or in V/cell. This threshold is used also for controlling of LED "Udc>" on USV6 front panel.

Vwarn: prewarning threshold for measuring point Vdc1 You can put in the value in V or in V/cell.

Vmin: under voltage threshold for measuring point Vdc1 You can put in the value in V or in V/cell.

Delay: delay time for error signalization in sec.

Hysteresis: range between error detection start and stop value in % of programmed value

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🥑 USV-6 Confi	igurator Version 2.6.0.1			
File Data RS	5232 Help			
		USV Powe	r	<u>E</u> xit
Signal con	figuration Battery Bo	ost-/Manual charge/	/ System test Counter cells	Mains Mon. USV3
Text	Analog inputs Digital inputs	Thresholds	Devices Outputs Com	munication / Display / etc.
_ Threshold	ds			
Vdc1				
Vmax	57.6 V => 2.40 V/cell	Delay 3 🌒 🚔 s	sec. Hysteresis 📘 🖨 %	
Vwarn	45.6 V => 1.90 V/cell		,	
∨min	43.2 V => 1.80 V/cell	Delay 10 🚔 s	sec. Hysteresis 5 불 %	
Vdc2 -				
Vmax	57.6 V => 2.40 V/cell	Delay 3 s	sec. Hysteresis <u>1</u> %	
Vmin	43.2 V => 1.80 V/cell	Delay 10 🔷 s	sec. Hysteresis 5 불 %	
Vdc3 -				
Vmax	57.6 V => 2.40 V/cell	Delay 3 s	sec. Hysteresis 1 %	
Vmin	43.2 V => 1.80 V/cell	Delay 10 🔷 s	sec. Hysteresis 5 🖨 🛠	
-				
ldc1max	50.0 A	Delay 3 📑 s	sec. Hysteresis 1 🕃 %	
ldc2max	50.0 A	Delay 3 s	sec. Hysteresis <u>1</u> %	
ldc3max	50.0 A	Delay 3 s	sec. Hysteresis <u>1</u> %	
Temp. lo	w < −0.1 high > 60.0 °C	: Delay 10 🔷 s	sec. Hysteresis 5 🗧 🗣 %	
Battery o	pperation 20.0 A	Delay 10 👤 s	sec. Hysteresis 5 륒 %	
Riso erro	or 60 🗣 KOhm	Delay 10 🗘 s	sec. Hysteresis 5 🗣 %	
N	o RS232 Interface found	<u>0</u> K	<u>c</u> ancel 29.6	.2018 13:45:01

Vdc2 -

Vmax: over voltage threshold for measuring point Vdc2 You can put in the value in V or in V/cell.

Vmin: under voltage threshold for measuring point Vdc2 You can put in the value in V or in V/cell. This threshold is used also for controlling of LED "Udc<" on USV6 front panel.

Delay: delay time for error signalization in sec.

Hysteresis: range between error detection start and stop value in % of programmed value

Vdc3 –

Vmax: over voltage threshold for measuring point Vdc3 You can put in the value in V or in V/cell.

Vmin: under voltage threshold for measuring point Vdc3 You can put in the value in V or in V/cell.

Delay: delay time for error signalization in sec.

Hysteresis: range between error detection start and stop value in % of programmed value

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USV-6 Configurator Version 2.6.0.1	
File Data RS232 Help	Idc1 – 3
USV Power	<i>Idc1-3max:</i> over current threshold for measuring point
Signal configuration Battery Boost -/ Manual charge / System test Counter cells Mains Mon. USV3	
Text Analog inputs Digital inputs Thresholds Devices Outputs Communication / Display / etc.	Temperature high –
Thresholds	
Vdc1 Vmax 57.6 V => 2.40 V/cell Delay 3 € sec. Hysteresis 1 € %	threshold for temperature monitoring inside the cabinet (an external connected temperature sensor is required)
Vwarn 45.6 V => 1.90 V/cell	
Vmin 43.2 V => 1.80 V/cell Delay 10 ♀ sec. Hysteresis 5 ♀ %	<i>Delay:</i> delay time for error signalization in sec.
Vdc2	Unstance in range between error detection start and star
Vmax 57.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 1 %	Hysteresis: range between error detection start and stop
Vmin 43.2 V => 1.80 V/cell Delay 10 ♀ sec. Hysteresis 5 ♥ %	
Vdc3	
Vmax 57.6 V => 2.40 V/cell Delay 3 sec. Hysteresis 1 %	Battery operation -
Vmin 43.2 V => 1.80 V/cell Delay 10	
Idc1max 50.0 A Delay 3 € sec. Hysteresis 1 € %	threshold for signalization of "Battery discharge operation"
Idc2max 50.0 A Delay 3 sec. Hysteresis 1 %	
Idc3max 50.0 A Delay 3 sec. Hysteresis 1 %	The signal occurs if the measured negative voltage drop on battery current shunt exceeds this value.
Temp.low < -0.1 high > 60.0 °C Delay 10 ♀ sec. Hysteresis 5 ♀ %	
Battery operation 20.0 A Delay 10 🜩 sec. Hysteresis 5 🜩 %	
Riso error 60 🖨 KOhm Delay 10 🖨 sec. Hysteresis 5 🖨 %	
No RS232 Interface found QK gancel 29. 6.2018 13:45:01	

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🥑 USV-6 Conf	igurator Version 2.6.0.1			
File Data R	S232 Help			
		USV Power		<u>E</u> xit
Signal cor	nfiguration Battery Bo	ost -/ Manual charge / System test	Counter cells	Mains Mon. USV3
Text	Analog inputs Digital inputs	Thresholds Devices	Outputs Comm	nunication / Display / etc.
⊢ Threshol	ds			
Vdc1				
Vmax	57.6 V => 2.40 V/cell	Delay 3 🔷 sec. Hyste	eresis 1 🗘 %	
Vwam	45.6 V => 1.90 V/cell	—	,	
Vmin	43.2 V => 1.80 V/cell	Delay 10 🔷 sec. Hyste	eresis 5 🗣 %	
Vdc2 -				
Vmax	57.6 V => 2.40 V/cell	Delay 3 sec. Hyste	eresis 1 %	
Vmin	43.2 V => 1.80 V/cell	Delay 🚺 🗲 sec. Hysta	eresis 5 륒 %	
Vdc3 -				
Vmax	57.6 V => 2.40 V/cell	Delay 3 sec. Hyste	eresis 1 %	
∨min	43.2 V => 1.80 V/cell	Delay 10 🔹 sec. Hyste	eresis 5 🗘 %	
- Ido1mau				
Tuermax	50.0	Delay 3 Sec. Hysic		
ldc2max	50.0 A	Delay <mark>3 sec. Hyst</mark> e	eresis 1 %	
ldc3max	50.0 A	Delay 3 sec. Hyste	eresis 1 %	
Temp. Io	ow < <mark>−0.1</mark> high > 60.0 °C	: Delay 10 👤 sec. Hysta	eresis 5 🗣 %	
Battery o	pperation 20.0 A	Delay 10 🔹 sec. Hyste	eresis 5 🗘 %	
Riso erro	or 60 🗣 KOhm	Delay 10 🔷 sec. Hyste	eresis 5 🚔 %	
N	lo RS232 Interface found	<u>O</u> K <u>c</u> ancel	29. 6.	2018 13:45:01

Delay: delay time for error signalization in sec.

Hysteresis: range between error detection start and stop value in % of programmed value

Riso error –

threshold for signalization of "Isolation fault"

The signal occurs if the measured resistance between pluspole and earth or minuspole and earth exceeds this value.

Delay: delay time for error signalization in sec.

Hysteresis: range between error detection start and stop value in % of programmed value

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5.5 Register – "Devices"

5.5.1 Device

🖉 USV-6 Configurator Version 2.6.0.1			
File Data RS232 Help			
	USV	/ Power 📃 🛓 Exit	
Signal configuration Battery Text Analog inputs D	/ Boost-/Manual c igital inputs Threshol	harge / System test Counter cells Mains Mon. USV3 Ids Devices Outputs Communication / Display / etc.	
Device Dectifier count			
Reculer count			
Inverter count	0	Battery test voltage 42.5 V => 1.77 V/cell	
Redundant Rec. count	0	Boost charge voltage 57.5 V => 2.40 V/cell	
Redundant Inv. count	0	Nominal current 50.0 A	
Thyristor count	0	Load limit 100 🐳 %	
Static Bypass Switch SBS	C yes ເ no	Load limit delay 60 🗣 sec.	
Mains monitoring USV-3	C yes 🕫 no	Load current difference	
Relay board USV-4	C yes 📀 no	Current distribution delay 5 sec.	
Digital input board USV-5	C yes 🕫 no	blink if CAN-Adr. 0	
		Thyristor Control USV-2	
Temperature sensor	C yes (© no	Voltage 10V = 100.0 V	
		Current 10V = 50.0 A	
Riso measurement	C yes 🕫 no		
Riso reference to	● Vdc1 C Vdc2	Inverter Nominal voltage 230 ↓ V	
No RS232 Interface found	<u>O</u> K		

On this page you have to configure the main operation parameter for controlling of connected (via CAN-Bus) power supply modules.

Module count – number of CAN- connected MT or MTS rectifier modules

This value is used to detect the error state of connected rectifier modules. Every single module in the system has its own CAN address.

Example: If you have 5 units inside of your power supply you have to set the "Rectifier count" to 5 and the addresses on modules from 1 to 5.

Redundant Rectifier count – number of CAN-connected rectifier modules for redundant operation

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USV-6 Configurator Version 2.6.0.1			
File Data RS232 Help			
	USV	Power	<u>E</u> xit
Signal configuration Batte	ry 📔 Boost-/Manual ch	arge / System test 🔰 Cou	nter cells Mains Mon. USV3
Text Analog inputs	Digital inputs Threshold	ds Devices Outputs	Communication / Display / etc.
_ Device		Rectifier	
Rectifier count	1	Nominal voltage	54.5 V => 2.27 V/cell
Inverter count	0	Battery test voltage	42.5 V => 1.77 V/cell
Redundant Rec. count	0	Boost charge voltage	57.5 V => 2.40 V/cell
Redundant Inv. count	0	Nominal current	50.0 A
Thyristor count	0		
		Load limit	100 🗣 %
Static Bypass Switch SBS	Cyes 🕫 no	Load limit delay	60 🍨 sec.
Mains monitoring USV-3	C yes no	Load current difference	10 🗣 %
Relay board USV-4	C yes 📀 no	Current distribution delay	5 🗣 sec.
Digital input board USV-5	C yes 📀 no	blink if CAN-Adr. 0	
		Thyristor Control USV-2	
Temperature sensor	C yes 📀 no	Voltage	10V= 100.0 V
		Current	10V= 50.0 A
Riso measurement	C yes 🕫 no		
Riso reference to	♥ Vdc1 ♥ Vdc2	Inverter Nominal voltage	230 V
No RS232 Interface found	<u></u> K	cancel	29. 6.2018 13:48:10

redundant connected rectifier modules. Every single module in the system has its own CAN address.

Example: If you have 5 units inside of your power supply and you use 4 for load supply + battery charging and 1 module for redundancy operation - you have to set the "Rectifier count" to 5, the "Redundant Rec count" to 1 and the addresses on modules from 1 to 5.

Inverter count – number of CAN- connected inverter modules

This value is used to

detect the error state of connected inverter modules. Every single module in the system has its own CAN address.

Example: If you have 5 units inside of your power supply you have to set the "Inverter count" to 5 and the addresses on modules from 1 to 5.

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USV-6 Configurator Version 2.6.0.1			
File Data RS232 Help			
	USV	Power	Exit
Signal configuration Batter	ry Boost-/Manual ch	narge / System test 📔 Cou	unter cells Mains Mon. USV3
Text Analog inputs [Digital inputs Threshold	ds Devices Outputs	s Communication / Display / etc.
_ Device		Rectifier	
Rectifier count	1	Nominal voltage	54.5 V => 2.27 V/cell
Inverter count		Battery test voltage	42.5 V => 1.77 V/cell
Redundant Rec. count	0	Boost charge voltage	57.5 V => 2.40 V/cell
Redundant Inv. count		Nominal current	50.0 A
Thyristor count	0		
· · · · · · · · · · · · · · · · · · ·		Load limit	100 🌻 %
Static Bypass Switch SBS	C yes 📀 no	Load limit delay	60 🚽 sec.
Mains monitoring USV-3	C yes 📀 no	Load current difference	10 🔷 %
Relay board USV-4	C yes 🕫 no	Current distribution delay	5 🔷 sec.
Digital input board USV-5	C yes 📀 no	blink if CAN-Adr. 0	
		Thyristor Control USV-2	
Temperature sensor	C yes no	Voltage	10V= 100.0 V
		Current	10V= 50.0 A
Riso measurement	C yes		
Riso reference to	● Vdc1 C Vdc2	nverter Nominal voltage	230 V
No RS232 Interface found	<u> </u>	<u>c</u> ancel	29. 6.2018 13:48:10

Redundant Inverter count – number of CAN-connected inverter modules for redundant operation

This value is used to detect the error state of redundant connected inverter modules. Every single module in the system has its own CAN address.

Example: If you have 5 units inside of your power supply and you use 4 for load supply and 1 module for redundancy operation - you have to set the "Inverter count" to 4, the "Redundant Inverter count" to 1 and the addresses on modules from 1 to 5.

Relay board USV4 – turn on/off the CAN-connected relay board USV6-I/O

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USV-6 Configurator Version 2.6.0.1			
File Data RS232 Help			
	USV	Power	<u>E</u> xit
Signal configuration Battery	y Boost-/Manual cł	narge / System test 🔡 Counter cells	Mains Mon. USV3
Text Analog inputs D)igital inputs Threshol	ds Devices Outputs Co	mmunication / Display / etc.
_ Device		Rectifier	
Rectifier count	1	Nominal voltage 54.5	V => 2.27 V/cell
Inverter count	0	Battery test voltage 42.5	V => 1.77 V/cell
Redundant Rec. count	0	Boost charge voltage 57.5	V => 2.40 V/cell
Redundant Inv. count	0	Nominal current 50.0	A
Thyristor count	0		
		Load limit	100 🔮 %
Static Bypass Switch SBS	O yes 💿 no	Load limit delay	50 🔺 sec.
Mains monitoring USV-3	C yes 🔎 no	Load current difference	LO 🔹 %
Relay board USV-4	C yes	Current distribution delay	5 ♦ sec.
Digital input board USV-5	C yes	blink if CAN-Adr. 0	
		Thyristor Control USV-2	
Temperature sensor	O yes 💿 no	Voltage 10V = 1	100.0 V
		Current 10V =	50.0 A
Riso measurement	C yes 💿 no		
Riso reference to	♥ Vdc1 C Vdc2	Nominal voltage	230 🗘 V
No RS232 Interface found	<u>o</u> k	<u>c</u> ancel 25	3. 6.2018 13:48:10

^{CP} If you turn on the relay board option you can use the digital input interface on I/O board and on USV6 hardware to connect external signaling loops. You can use either an I/O board or a RB6 and/or DIG8 board.

Mains monit. USV3 – turn on/off the CANconnected mains monitoring board USV6-MM

UNB – turn on if static bypass switch UNB is also connected to the CAN bus

 $\ensuremath{\textcircled{}^{\ensuremath{\textcircled{}^{\ensuremath{\mathbb{C}}}}}}$ This feature prevents "Master" collisions on CAN bus.

Temperature sensor – turn on/off an external connected active temperature sensor

You need this feature if you want to use temperature compensation of charge voltage or to monitor the cabinet temperature.

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USV-6 Configurator Version 2.6.0.1			
File Data RS232 Help			
	USV	Power	<u>Exit</u>
Signal configuration Batte	ry Boost-/Manual ch	narge / System test Counter	cells Mains Mon. USV3
Text Analog inputs	Digital inputs Threshol	ds Devices Outputs	Communication / Display / etc.
Device		Rectifier	
Rectifier count	1	Nominal voltage 54	4.5 V => 2.27 V/cell
Inverter count	0	Battery test voltage	2.5 V => 1.77 V/cell
Redundant Rec. count	0	Boost charge voltage 57	7.5 V => 2.40 V/cell
Redundant Inv. count	0	Nominal current).0 A
Thyristor count	0	Load limit	100 🖨 %
Static Bypass Switch SBS	C yes 🕫 no	Load limit delay	60 🗣 sec.
Mains monitoring USV-3	C yes 💿 no	Load current difference	10 🔷 %
Relay board USV-4	C yes 📀 no	Current distribution delay	5 🔺 sec.
Digital input board USV-5	⊂ yes ເ no	blink if CAN-Adr. 0	
		Thyristor Control USV-2	
Temperature sensor	C yes € no	Voltage 10	/= 100.0 V
		Current 10	/= 50.0 A
Riso measurement	C yes ତ no		
Riso reference to		- Inverter Nominal voltage	230 ↓ ∨
No RS232 Interface found	<u></u> OK	cancel	29. 6.2018 13:48:10

The number of the temperature sensors depends on the count of the batteries. (see register "Battery"). The picture shows 2 sensors (sensor1 - MU; sensor2 - BM1)

Riso measurement – turn on/off the isolation fault monitoring

Turn off if one pole is earthed in the system or if
 two monitoring units are connected to the same DC bus.

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5.5.2 Inverter

USV-6 Configurator Version 2.6.0.1			
File Data RS232 Help			
	USV	Power	Exit
Signal configuration Battery	/ Boost-/Manual cl	harge / System test 🔋 Counte	r cells Mains Mon. USV3
Text Analog inputs D	igital inputs Threshol	ds Devices Outputs	Communication / Display / etc.
_ Device		Rectifier	
Rectifier count	1	Nominal voltage 5	4.5 V => 2.27 V/cell
Inverter count	0	Battery test voltage 4	2.5 V => 1.77 V/cell
Redundant Rec. count	0	Boost charge voltage 5	7.5 V => 2.40 V/cell
Redundant Inv. count	0	Nominal current 5	0.0 A
Thyristor count	0	Load limit	100 🔹 %
Static Bypass Switch SBS	C yes 💿 no	Load limit delay	60 🜩 sec.
Mains monitoring USV-3	C yes ເ no	Load current difference	10 🔷 %
Relay board USV-4	C yes ເ no	Current distribution delay	5 🔷 sec.
Digital input board USV-5	C yes ତ no	blink if CAN-Adr. 0	
		Thyristor Control USV-2	
Temperature sensor	C yes 🕫 no	Voltage 10	V= 100.0 V
		Current 10	V= 50.0 A
Riso measurement	C yes 💿 no		
Riso reference to		│ Inverter Nominal voltage	230 V
No RS232 Interface found	<u></u> K	<u>c</u> ancel	29. 6.2018 13:48:10

Nominal voltage: set the nominal output voltage for the connected rectifiers or inverters

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5.5.3 Rectifier

USV-6 Configurator Version 2.6.0.1		
File Data RS232 Help		
	USV Power	Exit
Signal configuration Battery	Boost -/ Manual charge / System test Counter ce	lls 🔰 Mains Mon. USV3 📗
Text Analog inputs Digital in	iputs Thresholds Devices Outputs (Communication / Display / etc.
_ Device	Rectifier	
Rectifier count 1	Nominal voltage 54.5	5 V => 2.27 V/cell
Inverter count	■ Battery test voltage 42.5	; V => 1.77 V/cell
Redundant Rec. count	Boost charge voltage 57.5	V => 2.40 V/cell
Redundant Inv. count	Nominal current 50.0	A .
Thyristor count		
	Load limit	100 🔷 %
Static Bypass Switch SBS	es 📀 no Load limit delay	60 👤 sec.
Mains monitoring USV-3	es	10 🔷 %
Relay board USV-4 O y	es 📀 no Current distribution delay	5 🔹 sec.
Digital input board USV-5	es 📀 no blink if CAN-Adr. 0	
· · · · · · · · · · · · · · · · · · ·	Thyristor Control USV-2	
Temperature sensor	es © no Voltage 10V=	100.0 V
	Current 10V =	50.0 A
Riso measurement 🛛 🖸 y	es @ no	,
Riso reference to	/dc1 O Vdc2	
	Nominai Voitage	230 V
No RS232 Interface found	<u>Q</u> K <u>c</u> ancel	29. 6.2018 13:48:10

Nominal voltage: set the nominal charge voltage for the connected rectifier modules. You can put in the value in V or in V/cell.

Battery test voltage: set the voltage level for decreasing the rectifier output voltage during battery test

To secure an uninterruptable load supply you have to set this value higher than battery low threshold of your system. That way the rectifiers are able to take over the load before the battery will disconnected from the load.

You have to turn on the battery test function before this value will have any influence on the system function.

Boost charge voltage – set the value for boost charge voltage

You have to turn on the boost charge function before this value will have any influence on the system function.

Nominal current – set the nominal current limitation of the single rectifier module

Please check the specific data of the used rectifier module type to adjust the correct current limitation.

Load limit – pre warning threshold for total rectifier output power

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Example: You defined a maximum load on system output of 80% because you do not want that every rectifier operates permanent with 100% output power. The 100% load value will be calculated with number of connected rectifier modules multiplied by max. output current of the single module.

If the connected load exceeds the adjusted load limit level the system generates an alarm signal.

Load limit delay - delay time for load limitation alarm

Blink if CAN-ID 0 – enable this value if you want to know whether a module has the CAN address "0"

This feature is used when you get new modules for system extension. Usually the new modules have the CAN address "0". If you put in all new modules you can see by blinking display that only these modules have to be reprogrammed with a new CAN address.

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5.6 Register – "Outputs"

On this page you can configure the isolated relay outputs.

5.6.1 USV6

SUSV-6 Configurator Version 2.6.0.1		Alarm A - delay time for alarm signalization on relay A
✓ USV-6 Configurator Version 2.6.0.1 File Data RS232 Help ✓ Image: Section 1 Battery Boost -/ Manual Text Analog inputs Digital inputs Threst Relays USV-6 Relay ON if signal delay inactive active Alarm A 5 Image: sec. C Image: sec. C LED S1 5 Image: sec. Image: sec. C Image: sec. Relay K1 5 Image: sec. Image: sec. C Image: sec. Relay K1 5 Image: sec. Image: sec. Image: sec. Image: sec. Relay K1 5 Image: sec. Image: sec. Image: sec. Image: sec. Relay K2 5 Image: sec. Image: sec. Image: sec. Image: sec. Relay K2 5 Image: sec. Image: sec. Image: sec. Image: sec. Image: sec. Image: sec. Image: sec. Image: sec. Image: sec. Image: sec. Image: sec. Image: sec. Image: sec. Image: sec. Image: sec.	SV Power Charge / System test Counter cells Mains Mon. USV3 Polds Devices Outputs Communication / Display / etc.	 Alarm A - delay time for alarm signalization on relay A Alarm B - delay time for alarm signalization on relay B Break/close cont in case of failure the relay contacts are opened/closed We recommend to include all urgent single alarm signals to alarm A (urgent alarm) and all non-urgent alarms to alarm B (non-urgent alarm). The alarm configuration will be made in Register "Signal configuration". LED S1/S2 - delay time for LED signalization S1/S2 on USV6 front panel
No RS232 Interface found <u>O</u> K		

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USV-6 Configurator Version 2.6.0.1 File Data RS232 Help Signal configuration Battery Boost -/ Manual Text Analog inputs Digital inputs Thresh Relays USV-6 Relay ON if signal delay inactive active Alarm A 5 \$ sec. C \$ Alarm B 5 \$ sec. C \$ LED S1 5 \$ sec. C \$ Here S1 5 \$ sec. C \$ Here S1 5 \$ sec. C \$ Here S1 \$ \$ sec. C \$ Here S1 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	SV Power Exit charge / System test Counter cells Mains Mon. USV3 nolds Devices Outputs Communication / Display / etc.	 You can set a single failure signalization to LED S1/S2. In that way you are able to expand the front side LED functionality for two additional LED signals. <i>Relay K1</i> - delay time for alarm signalization on relay K1 <i>Relay K2</i> - delay time for alarm signalization on relay K2 <i>Break/close cont.</i> – in case of failure the relay contacts are opened/closed You can use relay K1 and relay K2 on USV6 to signalize single failures by single relay outputs. It is possible to include
Alarm B 5 sec. ∩ LED S1 5 sec. LED S2 5 sec. Relay K1 5 sec. ∩ Relay K2 5 sec. ∩ C		are opened/closed You can use relay K1 and relay K2 on USV6 to signalize single failures by single relay outputs. It is possible to include more than one single failure to one relay output.
No RS232 Interface found		

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5.7 Register – "Signal configuration"

USV-6 Configurator Version 2.6.0.1		-				
File Data RS232 Help						
		USV	/Power			<u>E</u> xit
Text Analog inputs	Digital inpu	uts Threshol	lds	Devices 0	itputs Communic	ation / Display / etc.
Signal configuration Bat	tery E	Boost-/Manual cl	harge / S	ystem test	Counter cells	Mains Mon. USV3
not used	not use	d S	iystem OF	F (res	.) POWER ON	
Error state						
Event history						
LED S1						
LED S2						
Alarm A (K4)						
Alarm B (K3)						
Relay K1						
Relay K2						
Relay K11						
Relay K12						
Relay K13						
Relay K14						
Relay K15						
Relay K16						
Relay K17						
Relay K18						
			1		1	
No RS232 Interface found		<u>0</u> K		<u>c</u> ancel	29. 6.2018	13:55:25

On this page you can assign every single failure signal in the system to one or more output channels. Click in the row of output device you want to add a fault signal. The actual fault signal is marked in red. The black sign shows that the fault is enabled on this output device.

Error state – assign a single error to error state list on USV6 display

Event history – assign a single fault to USV6 event history list

The event history show time and date when the fault occurs and time and date when the fault is gone. The event history is a memory stack for 100 messages. If the stack limit is reached the oldest message will be erased.

LED S1/S2 – assign a single fault to front side LED S1/S2

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🧭 USV-6 Con	ifigura	itor \	Ver	sior	n 2	.6.0).1																																									5	2		٥		2	Z	
File Data R	(S232	He	аlр																																																			Ì	Ì
	B				_	A													U	S١	٧I	Pc	sw	/er	r																								-		<u>E</u> ×	it			
Text	A	nalo	ig ir	npi	uts			С	Dig	jitə	ıl ir	hρι	uts			Ī	T٢	hre	əsl	hc	old	ls		1	1	Dr	ev	/ic	e:	8			С	Jut	pu	uts	;	1		Co	om	ım	un	nic	ati	ior	n /	Di	isț	ple	ay	/ε	etc		Ì
Signal cor	nfigur	/atio	'n			В	att	ter	У			F	30	os	st -/	/ N	/la/	.ทบ	Jal	l c	ch	ar	ge	ə /	S	ys	te	m	i te	est	t			ſ	Сс	bur	nte	er	CE	elle	3				М	ai	ns	М	lor	n. '	Uξ	SV	3		Į
	ł	not u:	sed		_		_	_	_	n	at u	lse/	d	_	_	Ţ	_	_		2	Sy	/st/	.er	n (0F	F	_	_	_	_	_		(re	es.)) PC	٥v	VЕ	R/	ON	1	_	_			_	_			_	_					
Error state		Ш	Ш]	П]'	Í]	\square	Ц.	ľ	\square			Ц]'	Ľ	Ũ	Ū.	<u> </u>					Ū.	1]			Ľ	Ũ	Ì		Ľ	Ũ	Ì			\square	Ĺ			Ц			Ľ	Ĺ	Ū.						
Event history	/		Ш	'	Ш	'	Ĺ	1		Ú.]'	Ц			Ú.	1]'	Ľ	Ú	<u> </u>	Ĺ.]				Ú	4	1			Ľ	Ĺ	4		Ľ	Ú	Ú	1			Ĺ			Ц			Ľ	Ĺ	Ú.	1					
LED S1		Ш]]'			\square	Ú.]'		1		Ŭ.]'	Ľ	Ũ	<u> </u>	Ì					Ù	1	1			Ľ	Ũ	Ì		Ľ	Ũ	Ū.										Ľ	Ũ	Ì	1					
LED S2		Ш	\square]	\square]'			\square	Ū.	ľ	\square]		Ū.]]'	Ľ	Ũ	Ū						Ù					Ľ	Ù	Ì		Ľ	Ũ	Ū							Ц			Ľ	Ũ	Ū						
Alarm A (K4)		\square]]'		\Box	$\begin{bmatrix} 1 \end{bmatrix}$		['			[]			[['					I]			[$\left[\right]$		Ι	[]]]]	Ľ								
Alarm B (K3)		\square	\square]]'			\Box	Ū.	ľ			D	Ũ]	ľ	[]	$\left[\right]$				Ţ			Ò					Ľ	Ũ			D	$\left[\right]$	Ì										Ľ	Ũ	Ì						
Relay K1		\square]]'			$\prod_{i=1}^{j}$		[[]			[['					Ţ			D					Ľ	$\left[\right]$			[]]]	Ľ	\square							
Relay K2		Ш	\square]]'			$\prod_{i=1}^{n}$	Ũ]']	[]	Ũ		ľ	Ľ	Ũ]	Ţ	Ţ		Ũ				Ţ	Ľ	Ũ	Ì		Ľ	Ũ	Ū]]					Ľ	Ũ	Ū						
Relay K11		\square	\square]]'			\Box	Ì	ľ			D	\square]	ľ	[]					Ţ			Ù					Ľ	$\left[\right]$			D	$\left[\right]$	D										Ľ	Ũ	D						
Relay K12		Ш	\square]	\square]'	\square		\prod	Ū.	ľ	\square]		Ū.]	ľ	Ľ	Ũ	Ū]				Ũ					Ľ	Ù			Ľ	Ũ	Ū			\square	Ĺ			Δ			Ľ	Ũ	Ū						
Relay K13		\square]'			\Box		['			[]			[[]					Ţ	I		D			Ţ	I	[$\left[\right]$		Ţ	[]]	l								[
Relay K14		\square	\square]]'			\Box	\square	ľ			D	\square		ľ	[]					Ţ			Ù					Ľ	$\left[\right]$			D	$\left[\right]$	D										Ľ	Ũ							
Relay K15		\square]]'		\Box	[]		[[]			[['					Ţ			\square					[$\left[\right]$			[]]]]	Ľ	\square							
Relay K16		\square	\square			ľ		l	\Box		['			[I			[Ľ					Ţ	I					Ţ	I	Ľ			I	Ľ												Ľ	\square	D						
Relay K17		\square	\square]]'			\Box	\square]'			D	\square		[ľ					Ţ			Ù					Ľ	$\left[\right]$			D	$\left[\right]$	D										Ľ	Ù							
Relay K18		\square]]'		\Box	[]		[[]	\square]	[['					Ι			\square		\Box			[$\left[\right]$		Ι	[]		\Box]			\Box]]	Ľ	\Box]				
	No RS232 Interface found						1				<u>0</u> '	ĸ	T			1							ç	ja,	nc	:el			1		Γ				2	29.	6.2	201	18		1	3:5	55:	:25	ز										

Alarm A/B – assign a single fault to alarm relay K4/K3 on USV6 hardware

Relay K1/K2 – assign a single fault to alarm relay K1/K2 on USV6 hardware

Relay K11-K18 – assign a single fault to alarm relay K11-K18 on USV4 relay board (optional board has to be connected on CAN bus)

All fault signals are OR-operation.

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5.8 Register – "Battery"

5.8.1 Value

WSV-6 Configurator Version 2.6.0.1	
File Data RS232 Help	
USV Po	wer 🗧 Exit
Text Analog inputs Digital inputs Thresholds Signal configuration Battery Boost -/ Manual charg Value Cell count 24	Devices Outputs Communication / Display / etc. ge / System test Counter cells Mains Mon. USV3 Test Min. discharge voltage 40.0 V
tapping point (from -)	Max. discharge capacity 80 🜩 % Max. test duration 04:00 🗣 hh:mm
Nominal capacity 50 Ah Max. charge current 30.0 A	☐ Manual test enabled ☐ Boost charge after test ☐ Automatic test enabled Start test digit.input 0 🚔
Display calculated capacity C yes C no Charge factor for calculation 1.00	
Battery unsymmetry 2.5 ∨ Delay 10 ♦ sec. Hysteresis 5 ♦ % Battery current control rectifier voltage increase delay 0 ♦ sec.	Tk
rectifier voltage decrease delay 0 🔹 sec.	Tk min 0 *C Tk max 60.0 *C
No RS232 Interface found OK	<u>c</u> ancel 29. 6.2018 13:57:33

Cell count – number of installed battery cells of each bank

Tapping point – number of cells where the tapping point for battery unsymmetric voltage measurement is connected (counted from minus side)

Nominal capacity – nominal battery capacity of bank

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Max. charge current – value for charging current limitation of bank

Delay – delay time for unsymmetric fault signalization in sec.

Hysteresis – value between fault detection and fault deleting in % of programmed battery unsymmetry value

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5.8.2 Test

WSV-6 Configurator Version 2.6.0.1	
File Data RS232 Help	
USV Po	wer Exit
Text Analog inputs Digital inputs Thresholds	Devices Outputs Communication / Display / etc.
Signal configuration Battery Boost -/ Manual charg	ge / System test Counter cells Mains Mon. USV3
Value	Test
Cell count 24	Min. discharge voltage 40.0 V
tapping point (from -)	Max. discharge capacity 80 🗣 %
	Max. test duration 04:00 🖨 hh:mm
Nominal capacity 50 🖨 Ah	🗖 Manual test enabled 🛛 🗖 Boost charge after test
Max. charge current 30.0 A	T Automatic test enabled Start test digit.input 0
Display calculated capacity Cyes © no	
Charge factor for calculation 1.00	
Battery unsymmetry 2.5 V Delay 10 🕏 sec.	
Hysteresis 5 🕏 %	
Battery current control	
rectifier voltage increase delay 0 📮 sec.	IK -2 ▼mv/(Cell™K)
rectifier voltage decrease delay	Tk min 0 °C
	Tk max 60.0 °C
No RS232 Interface found OK	<u>c</u> ancel 29. 6.2018 13:57:33

Min. discharge voltage – battery low threshold for battery test

Max. discharge capacity – maximum discharge capacity in % of nominal battery capacity *Max. test duration* – maximum battery test time in hour:minutes

Manual test enable – enables the possibility to start the battery manual via front side keys

Automatic test enable – enables the automatic battery test function

Test start at – date of first battery test (year/month/day and hour/min)

Repetition – interval for new battery tests beginning from first test date (in days)

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5.8.3 Tk

USV-6 Configurator Version 2.6.0.1	
File Data RS232 Help	
📰 📐 🖹 🖺 🛛 USV Po	wer 🗧 Exit
Text Analog inputs Digital inputs Thresholds	Devices Outputs Communication / Display / etc.
Signal configuration Battery Boost -/ Manual charg	ge / System test Counter cells Mains Mon. USV3
Value	Test
Cell count 24	Min. discharge voltage 40.0 V
tapping point (from -)	Max. discharge capacity 🛛 😣 🖨 🛠
	Max. test duration 04:00 🖨 hh:mm
Nominal capacity 50 Ah	Manual test enabled Boost charge after test
Max. charge current 30.0 A	Automatic test enabled Start test digit input
Display calculated capacity C yes C no Charge factor for calculation 1.00	
Battery unsymmetry 2.5 V Delay 10 🗣 sec.	
Hysteresis 5 🗣 %	
Battery current control	
rectifier voltage increase delay 0 🖨 sec.	IK -2 ↓ mV/(Cell**K)
rectifier voltage decrease delay	Tkmin 0 *C Tkmex 60.0 *C
No RS232 Interface found	<u>c</u> ancel 29. 6.2018 13:57:33

With these values you can have influence on the charge line characteristic (inclination, start/stop temperature for temperature compensation).

Tk – temperature coefficient for temperature compensation of charge voltage Put in the value without sign ("4" means "-4" mV/cell/K).

Tk min – minimum temperature for temperature compensation of charge voltage

Tk max – maximum temperature for temperature compensation of charge voltage

If temperature of battery is out of the defined range the temperature compensation is switched off. Also during boost charge the temperature compensation is switched off.

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5.9 Register – "Boost-/Manual charge/System test"

5.9.1 Boost charge

File Data RS232 Help	
	USV Power
Text Analog inputs Digital inputs Signal configuration Battery Boost -/ Boost charge Manual boost charge enabled Image: Configuration and the context of the conte	Thresholds Devices Outputs Communication / Display / etc. /Manual charge / System test Counter cells Mains Mon. USV3 Manual charge Activation enabled □ Over voltage alarm enabled □ Alarm delay after manual charge 600 ♀ sec. Vmax 65.0 ∨ => 2.71 ∨/cell Max charging current 40.0 A
Battery operation / mains fault 15 🗼 min. Boost charge dis. digital input 0	Emerg. switch off : Vmax + 3.5 V
Boost charge start digital input	System test Activation enabled Over voltage alarm enabled
follow-up charge starts above 56.0 ∨ or Ibatt (Idc1) < 0 A after a delay of 20 ♀ sec. follow-up charge duration 30 ♀ min.	Alarm delay after system test 600 ♦ sec. Vmin 40.0 V => 1.67 Vmax 65.0 V => 2.71 Max. charging current 50.0 A
Pan deray 5 ♥ min.	<u>QK</u> <u>c</u> ancel 29. 6.2018 14:02:54

Manual boost charge enabled – enables the possibility to start battery boost charging function manually via front side keys

Automat. boost charge enabled – enables the automatic boost charging function (reasons to start boost charge automatically: battery voltage low and/or mains fault)

Aut. Boost charge starts below – minimum battery voltage level where automatic boost charge starts

After a delay of – delay time for start boost charge after voltage level was reached

Battery operation/Mains fault – maximal time duration for mains failure or battery operation to start boost charging automatically

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Boost charge inhibit –

By activing this item you can choose the input to cut off fast

Follow-up charge starts above – battery voltage level where follow-up charging time will start

After a delay of – delay time for start follow-up charging time after boost charge end voltage level was reached

Follow-up charge duration – duration time for followup charging (in minutes)

Fan delay – delay time for battery room ventilation fan (an external fan has to be connected to an outgoing alarm relay for this function)

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5.9.2 Manual charge

USV-6 Configurator Version 2.6.0.1	
File Data RS232 Help	
	USV Power
Text Analog inputs Digital inputs	Thresholds Devices Outputs Communication / Display / etc.
Signal configuration Battery Boost -/ M	fanual charge / System test Counter cells Mains Mon. USV3
Boost charge	Manual charge
Manual boost charge enabled	Activation enabled
Automat. boost charge enabled	Over voltage alarm enabled
Aut. boost charge starts below 43.2 V	Alarm delay after manual charge 600 🖨 sec.
or lbatt (ldc1) > 0 A	Vmax 65.0 V->2.71 V/cell
after a delay of 20 🖨 sec.	
Battery operation / mains fault 15 🚔 min.	Max. charging current 40.0 A
	Emerg. switch off : Vmax + 3.5 V
Boost charge dis. digital input 🛛 🖕	
Boost charge start digital input 🛛 🔒	D sharehol
	Activation oneblad
Boost charge max. time 4 🚽 h	
tollow-up charge starts above 56.0 V	Alarm delay atter system test 600 🕃 sec.
	Vmin 40.0 V=> 1.67 V/cell
after a delay of 20 🗣 sec.	Vmax 65.0 V=> 2.71 V/cell
	Max charging current 50.0 A
Fan delay 5 🚔 min.	
No RS232 Interface found	K <u>c</u> ancel 29. 6.2018 14:02:54

Activation enabled – enables the possibility to start manual charge with front side keys

Over voltage alarm enabled – possibility to disable the over voltage alarm if the voltage level is reached due to manual charging

Alarm delay after manual charge – time to give a reminding alarm to the user after manual charge have been started (to avoid over charging of the battery in case that the user has forgotten to switch off manual charging)

Vmax – maximum allowed charging voltage

Max. charging current – maximal battery charging current during manual charge operation

Emerg. Switch off – not used

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5.9.3 System test

USV-6 Configurator Version 2.6.0.1								
File Data RS232 Help								
USV Power	Exit							
Text Analog inputs Digital inputs Thresholds Decision Signal configuration Battery Boost -/ Manual charge / System Boost charge Manual boost charge enabled Manual charge - Automat. boost charge enabled Aut. boost charge starts below 43.2 V Or Ibatt (Idc1) > O A Vmax Battery operation / mains fault 15 min. Emerg. switch or	avices Outputs Communication / Display / etc. tem test Counter cells Mains Mon. USV3 led □ arm enabled □ er manual charge 600 \$ sec. 65.0 V => 2.71 V/cell urrent 40.0 A ff: Vmax + 3.5 V							
Boost charge dis. digital input Boost charge start digital input Boost charge max. time follow-up charge starts above 56.0 V	led □ arm enabled □ er system test 600 \$ sec.							
or Ibatt (Idc1) <	40.0 V => 1.67 V/cell 65.0 V => 2.71 V/cell 50.0 A							
No RS232 Interface found	<u>c</u> ancel 29. 6.2018 14:02:54							

This function can be used to test all monitoring thresholds of the system during commissioning.

Activation enabled – enables the possibility to start system test with voltage variation function

Over voltage alarm enabled – possibility to disable the over voltage alarm if voltage level is reached due to manual system test.

Alarm delay after manual charge – time to give a reminding alarm to the user after system test have been started (to avoid that system operates permanent in wrong mode in case that the user has forgotten to switch off system test)

Vmin – minimal allowed system test voltage

Vmax – maximal allowed system test voltage

Max. charging current – maximal battery charging current during system test operation

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5.10 Register – "Counter cell"

Ø USV-6 Configurator Version 2.6.0.1			State States	- 0 ×				
File Data RS232 Help								
🔝 📐 🗕 🖹 USV Power 🔤								
Text Analog inputs Digital	inputs Threshol	ds Devices O	utputs Communic	ation / Display / etc.				
Signal configuration Battery	Boost-/Manual cl	harge / System test	Counter cells	Mains Mon. USV3				
Counter cells								
on	off							
Counter cell 1 60.0 V	58.5 V							
Counter cell 2	59.5 V							
Voltage reference								
♥ Vdc1 ○ Vdc2 ○ Vdc3								
No RS232 Interface found	<u>0</u> K	cancel	29. 6.2018	14:04:52				

On this page you can configure the values for switching a one-level or two-level counter cell. For this function one or two external contactors have to be connected to outgoing alarm relays. The counter cell function has to be assigned in signal configuration menu to the used alarm relays.

Counter cells-

Counter cell 1 – voltage value for open (on) and close (off) the dropping diode contactor 1

Counter cell 2 – voltage value for open (on) and close (off) the dropping diode contactor 2

Voltage reference – sets the measuring input that is used to measure the reference voltage

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5.11 Register – " Mains Mon. USV3"

USV-6 Configurator Version 2.6.0.1 File Data RS232 Help	Configuration of the optional CAN connected mains monitoring board USV3.
File Data RS22 Help Image: State in the s	 mains monitoring board USV3. USV3 - Monitoring L1/L2/L3 - enables the monitoring channel for phase L1. L2, L3 V> - monitoring threshold mains voltage high alarm in % of measuring value V< - monitoring threshold for mains voltage low alarm in % of measuring value Delay - delay time for mains fault detection Display - enables the display for measured voltage and/or current value of all enabled phases
No RS232 Interface found OK Cancel 29. 6.2018 14:05:39	

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6. Send new data to USV6



If you finished the configuration on all register entries, you have to send the new data to USV6.

Select File/Data/Write PC->USV6...

If any error occurs please try to start the transmission again.

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7. Save project file

USV-6 Configurator Version 2.6.0.1		
File Data RS232 Help		
	USV Power	Exit
Signal configuration Battery Text Analog inputs Dig	Boost -/ Manual charge / System test ital inputs Thresholds Devices	Counter cells Mains Mon. USV3
Serial-No. JJ000000-000.00	C English	Display Logo line 1
Project TEST		USV Power
🧀 Save As		×
○ ○ ○ ↓ USV6		 ✓ ✓
Organize 🔻 New folder		≣ ▾ 🔞
☆ Favorites	Name	Date modified Type Size
	Test.mc1	29/06/2018 12:52 MC1 File
📄 Libraries		
🖳 Computer		
📬 Network		
	•	
File name: Test mc1		
	10	
Save as type: USV-0-Tiles since V2.4	ŧU	•
🗻 Hide Folders		Save Cancel
NOTIOZOZ Interrace louna		23. 0.2010 14.10.13

To save the changed project file select *File/Save...*

To save the new generated project file select *File/Save as...*, search for right subdirectory on your harddisk, put in a new file name and confirm with "OK".

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8. Input LCD characters (especial for cyrillic characters)

USV-6 Configurator Version 2.6.0.1								
File Data RS232 Help								
	USV F	ower						
Signal configuration Battery F	Boost-/Manual cha	rge / System test	Counter cells Mains Mon. USV3					
Text Analog inputs Digital inpu	uts Thresholds	s Devices Ou	utputs Communication / Display / etc.					
Serial-No. JJ000000-000.000		age USV-6	Display					
Project TEST	• Eng	glish	USV Power					
Firmware Version 9.99	C Ge	man	Number Paste					
Path (\DESKTOP\USV6\TEST.	MC1 O Eng	glish	USV-6 V2.5x					
Nominal voltage range : USV-6 - L (20V-80	v)		Number of characters : 16					
Memo								
No RS232 Interface found	<u>0</u> K	<u>c</u> ancel	29. 6.2018 14:12:32					

There is the possibility to key in specific LCD characters in different text fields, as for example in the *Logo line 1* and 2, in *Analog inputs* or *Digital inputs* (see section 8.1.).

Press the right mouse key in the respective text field. After that there appears a Popup menu with the choice of "LCD character" and "paste".

With the choice of "LCD character" a form appears such as shown at section 8.1. (see the following page).

It is possible to key in a maximum of 16 characters. These characters appear in the edit field below. Click on *Copy* to load the required character(s) into the buffer, leave the form with *Exit* and copy this into the text field with another click on the right mouse key choosing *Paste*.

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8.1. LCD character set

1	Char	Set											1				x
		Low															
		0	1	2	3	4	5	6	7	8	9	A	в	С	D	Е	F
High	1	►	•	66	"	\$	¥	•	Ļ	î	ţ	->	+	≤	≥	4	V
	2		!	"	#	\$	8	æ	1	()	*	+	,	-		1
	3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
	4	0	A	в	С	D	Е	F	G	н	I	J	K	L	м	N	0
	5	Ρ	Q	R	s	т	U	v	W	х	Y	Z	[X.]	^	_
	6	•	a	b	с	d	e	f	g	h	i	j	k	1	m	n	0
	7	р	q	r	s	t	u	v	W	х	У	z	{	T	}	~	Δ
	8	Б	д	ж	Э	и	й	л	П	У	ц	ч	ш	щ	ъ	ы	з
	9	α	۵.	г	л	Σ	σ	ß	τ	۵	θ	Ω	δ	~	۲	е	Π
	А	II	i	¢	£	ы	¥	ł	s	£	©	<u>a</u>	«	ю	я	B	6
	в	۰	±	2	з	Pł	μ	R	•	ω	1	2	»	14	1- <u>5</u>	34	ż
	С	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
	D	Ð	Ñ	Ò	Ó	ô	õ	ö	×	Φ	Ù	Ú	Û	Ü	Ý	þ	ß
	Е	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
	F	ð	ñ	ò	ó	ô	õ	ö	÷	ф	ù	ú	û	ü	ý	Þ	Ϋ́
Please, click on a character to transfer it into the edit field !																	
г							_										1
				,	10			Lopy							<u>E</u> xit		
	No of (Char-H	char.: lex-Co	0 ide:	(ma:	k 16 d	:harac	ters)		<u>D</u> ele	ete							

The picture on the left shows the especial LCD character set.

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9. Notes	

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10. Data transmission Error / Data transmission abortion

Transmission Error:

On display	Error	Error probability	
"Transmission Error	Communication error	The USV6 is not switched on	The USV6 switch on
No answer from the		The USV6 is in the menue	Leave the menue by pressing the
USV6″		(to push on the Enter-button)	ESC-button
		communication is not possible	
		Read/write-error: the USV6 is in timeout	Wait until timeout is over
			(display)
		Chose wrong interface	Check the interface in the menue
			RS232/com
		Interface connection defect	Check the communication
		(Hardware)	between
			PC and USV6
"Checksum error"	Check sum	Data transmission failed	

Transmission abortion:

Pressing the abort button during the data transmission

Transmission abortion during the write cycle:

Important: The USV6 lost their new values during the transmission time. At this point the USV6 gets internal default values. At this time you have to repeat the write cycle.