



English




USER MANUAL

HNSP9-520P-USB

INDUSTRIAL PC POWER SUPPLY WITH UPS FUNCTION



Legend of used symbols

Symbol	Description
	Attention! Important hazard warning.
	Do not dispose of in the domestic waste.
	Warning of electrical voltage.

Revision Directory

Date	Change
31.08.2023 Revision 0-1	Initial version
25.09.2023 Revision 1	Release version

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A Technical Data

HNSP9-520P-USB

400 Watt

- ✓ **Temperature range 0...+60 °C**
- ✓ **USB interface**
- ✓ **UPS PC power supply for IPCs**
- ✓ **UPS Management Software optional available**



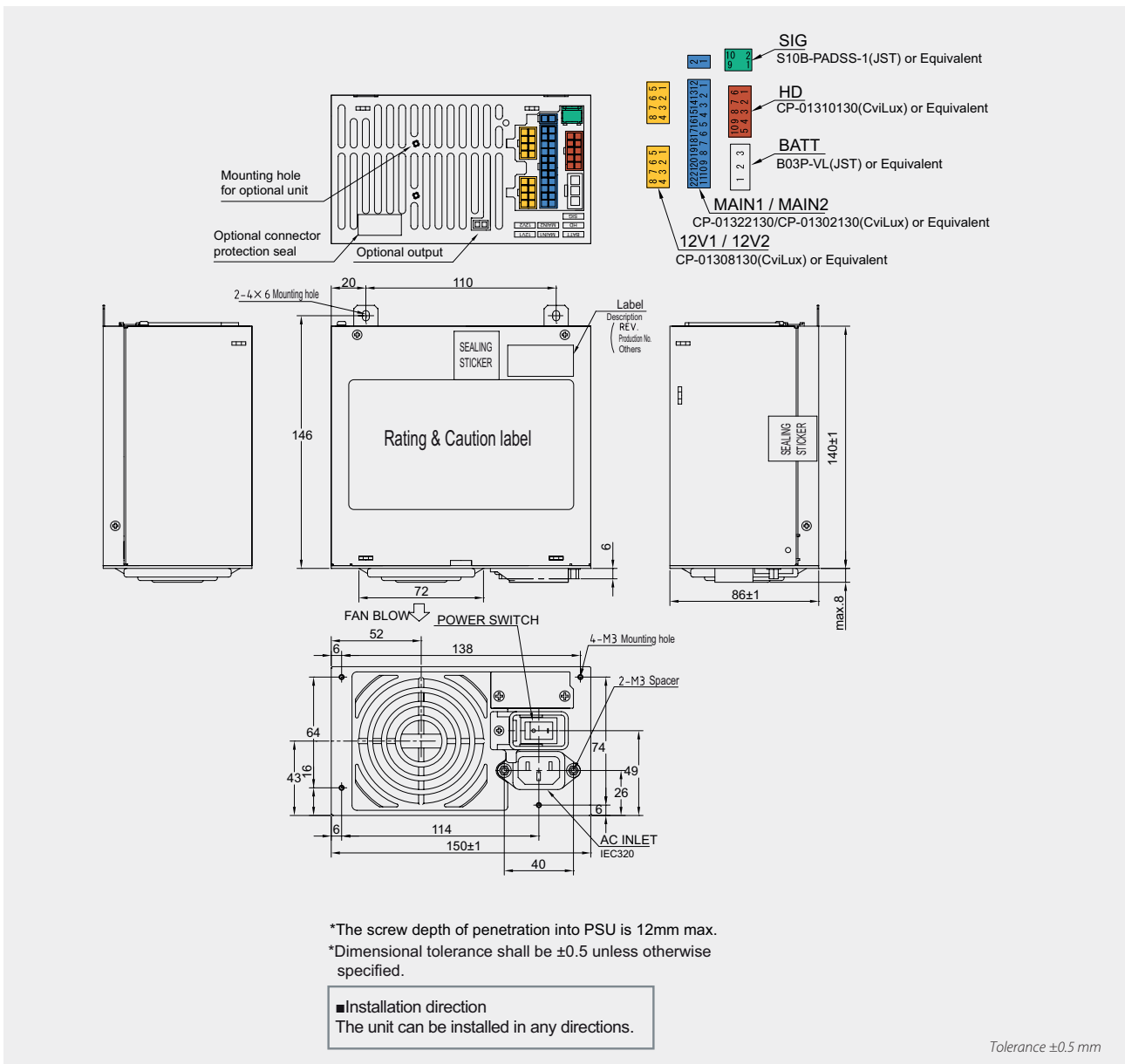
Technical Data	
Input voltage	85...264 VAC, active PFC
Input frequency	47...63 Hz
Input current	4.8 A max. (100 VAC), 2.1 A max. (240 VAC)
Output current	<31 A (100 VAC) / <75 A (240 VAC)
Efficiency	80% typ.
Power Good Signal	Switch on delay 100...500 ms Switch off delay 1 ms
Protection	Short circuit protection: at each output Overvoltage protection: +5 V (5.7...7.0 V) / +3.3 V (3.6...4.3 V) / +12 V (13.4...15.6 V) Switch off
Earth leakage current	<1 mA / 200 VAC
Safety / EMC	EN/IEC/UL61010-1/-2-201, EN/IEC/UL 62368-1, CE
Ambient temperature	Operating Storage/Transport 0...+60 °C -20...+70 °C
Derating	85...90 VAC at 90 % load / +45...+60 °C 2 % / °C
MTBF	>70000 h (EIAJ RCR-9102)
Max. permitted humidity	Operating: 10...95 % RH, non-condensing Storage: 10...90 % RH, non-condensing
Dimensions W / H / D	150 x 140 x 86 mm, ±0.5 mm
Weight	1.8 kg

Product specific data	
Battery types	Recommended: BP-2425N: (12 x 2 V / 2.5 Ah), maintenance-free lead batteries
Back-up time	Relating to specification of connected batteries
Battery charge current	0.5 A max., battery is also charged when the PC is switched off
Battery charger	27.3 V, temperature compensated
Battery control	22 V ±0.7 V „Battery low“ triggering 17 V ±0.5 V „Shut down“ triggering

Article No.	Output voltage	Output current			Load regulation	Ripple
		min	max	peak		
HN5P9-520P-USB	+3.3 V	0 A	20 A	30 A	±5 %	50 mV
	+5 V	0 A	24 A	30 A	±5 %	50 mV
	+12 V	0 A	25 A	30 A	±5 %	120 mV
	-12 V	0 A	0.5 A	0.5 A	±5 %	120 mV
	+5 V _{sb}	0 A	2 A	2.5 A	±5 %	50 mV

Max. output on +3.3 V and +5 V combined must not exceed 150 W (200 W peak). Max output on +3.3 V, +5 V and 12 V combined must not exceed 390 W (507 W peak). Peak output can be 520 W for up to 5 seconds. Ripple and Noise was measured by a 20 MHz bandwidth limited oscilloscope with connected 47 µF electrolytic capacitor and 0.1 µF ceramic capacitor at each output. As a power component this PSU is for assembly purposes only and must not be operated in unassembled condition. The final assembly has to comply with the valid EMC and safety standards.

A1 Drawing

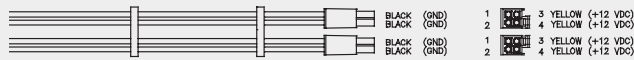


A2 Cable harness

WH-M2422-500, 500 mm
ATX 24 Pin



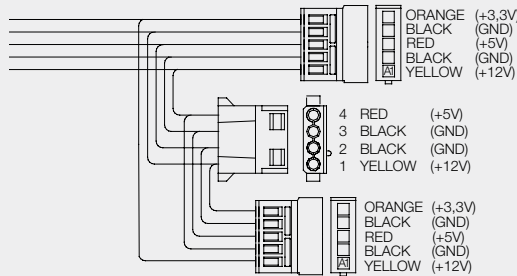
CB-ENSP3-4+4, 500 mm
P4/ EPS, 4+4 Pin



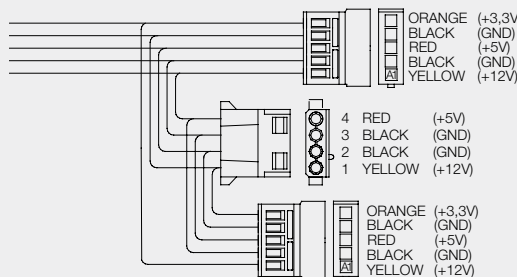
CB-USB01, 500 mm
USB



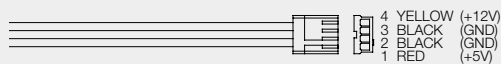
WH-PS710-850
SATA, 550 mm
HD, 150 mm
SATA, 150 mm



SATA, 550 mm
HD, 150 mm
SATA, 150 mm



FDD, 850 mm



WH-G0808-500, 500 mm
PCI Express 6+2



Tolerance ±15 mm

A3 Wiring back

MAIN1		MAIN2		HD		SIG	
PIN No.	Function	PIN No.	Function	PIN No.	Function	PIN No.	Function
1	+3.3 V	1	+5 V	1	+3.3 V	1	AC FAIL
2	+3.3 V Sense	2	+3.3 V	2	+5 V	2	SHUT DOWN
3	+12 V			3	COM	3	BATT LOW
4	+5 V			4	COM	4	FAN_C
5	+5 V	12 V1, 12 V2		5	+12 V	5	FAN_M
6	COM	PIN No.	Function	6	+3.3 V	6	PS_ON
7	COM	1	COM	7	+5 V	7	COM
8	COM	2	COM	8	COM	8	+3.3 V Sense
9	COM	3	COM	9	COM	9	N.C.
10	-12 V	4	COM	10	+12 V	10	+5 V _{sb}
11	+5 V _{sb}	5	+12 V				
12	+3.3 V	6	+12 V				
13	+3.3 V	7	+12 V				
14	+12 V	8	+12 V				
15	+5 V						
16	+5 V	BATT					
17	COM	PIN No.	Function				
18	COM	1	Batt +				
19	COM	2	Charge Cont.				
20	COM	3	Batt -				
21	PWR_OK						
22	PS_ON						

B Safety instructions

Caution, danger of electric shock and information on ESD!

When working on the device, the battery plug and the mains plug must be pulled out. The power supply contains no user-serviceable parts. The battery pack may only be opened by a trained electrician. Danger of short-circuit! Electrostatic discharge can damage computer components. Install the components in an ESD protected environment. If such a workspace is not available, please indicate antistatic wrist strap.

C Software

C1 USB driver installation

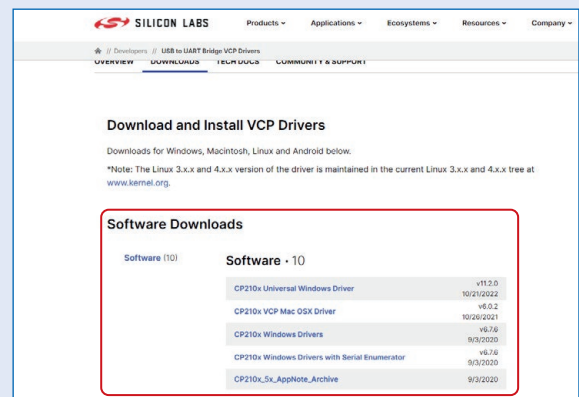
Please download the current driver from www.bicker.de directly at the product HNSP9-520P-USB or via the button below. The installation described below was carried out under Windows® 10 with the VCP driver from SILICON LABS, version 11.2.0.

1

DOWNLOAD
SILICON LABS Software

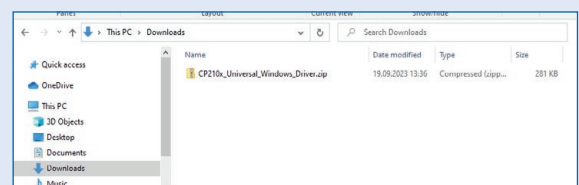
2

Clicking on the corresponding USB driver links to the SILICON LABS website. Start Download.



3

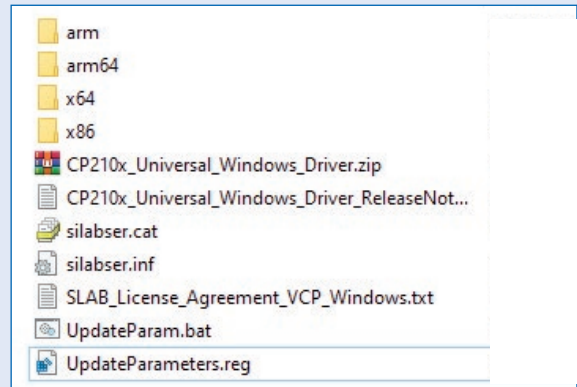
Copy the downloaded file to a folder (e.g. CP210x_Universal_Windows_Driver) and unzip/extract.



4

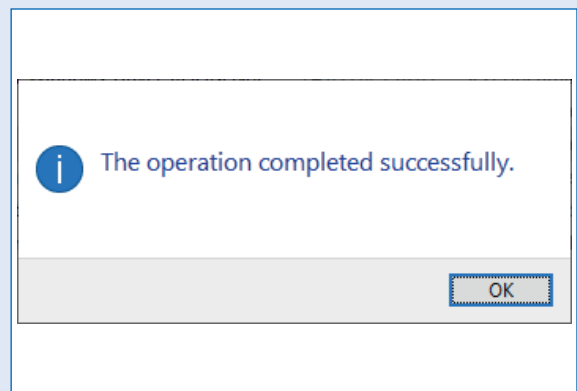
The file „CP210x_Universal_Windows_Driver_ReleaseNotes.txt“ describes the installation.

Right-click the „silabser.inf“ file and choose „Install“.



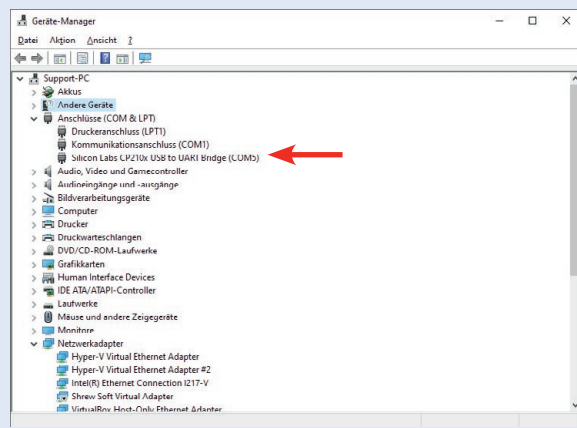
5

Installation
When finished, press ok.



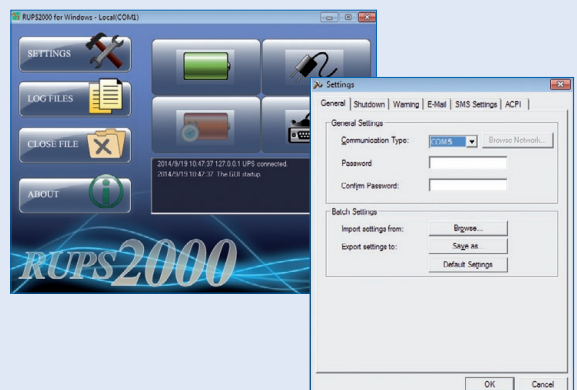
6

The COM 5 port is now active in the device manager under „Ports“.



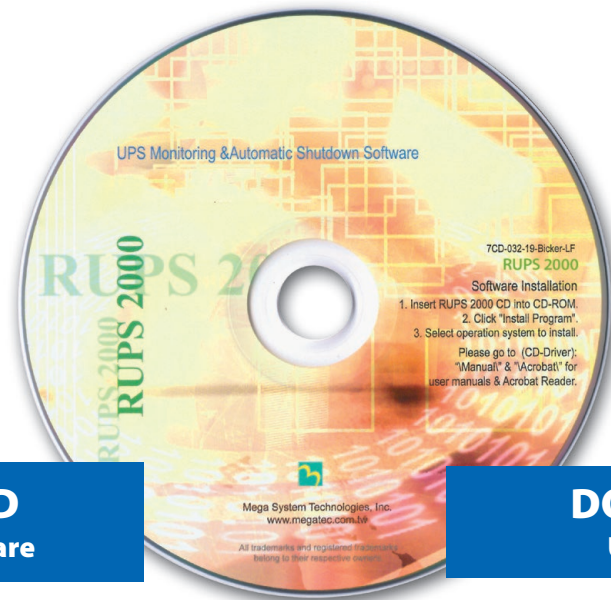
7

If you are using RUPS 2000, select COM port 5 under „Settings“.



C2 RUPS 2000-B1 Software

A separate user manual was created to describe the software. This is available for download on our homepage www.bicker.de under the heading „Service > Downloads“ or via the button at the bottom right.



DOWNLOAD
RUPS 2000 Software

DOWNLOAD
User Manual

D Wiring

D1 External

The power supply is connected to the mainboard on the back with a USB cable.



D2 Internal, with ENSP3-USB-INT bracket

1

Remove USB module and install dummy panel.



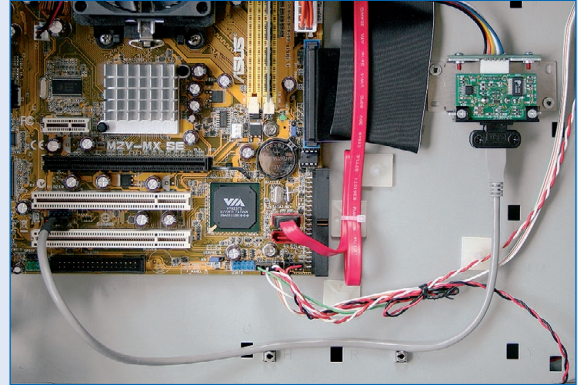
2

Mount the USB module in the aluminum bracket and connect it to the internal SIG connector.



3

Assemble the aluminium bracket and install it in the PC housing. Connect the internal USB cable to the mainboard.



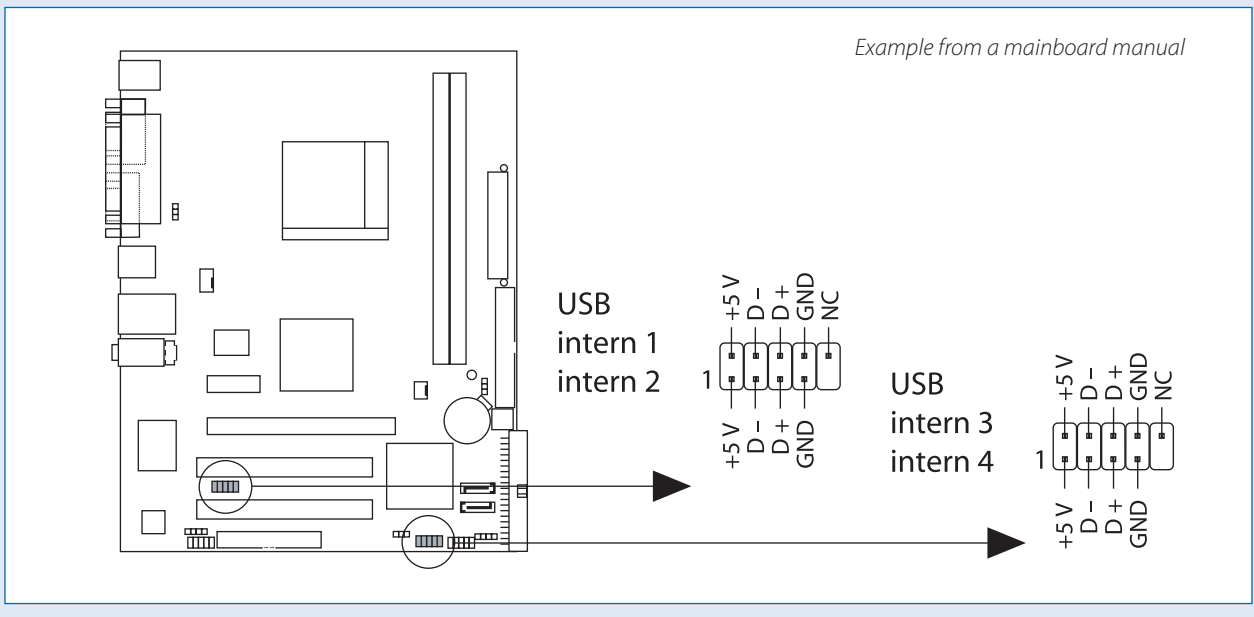
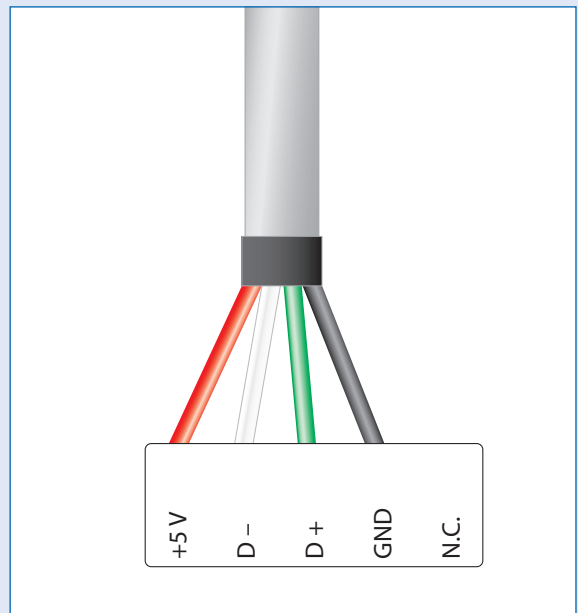
4

Please compare the pin assignment of the internal USB cable to the pin assignment of your mainboard.

WARNING:

The pin assignments must comply!

A polarity reversal may damage the USB module as well as the mainboard!



E ENSP3-REBOOT (Automatic Startup PC board)

THE BOARD SUPPORTS THE FOLLOWING OPERATING MODES

The PC starts as soon as the mains voltage is applied

Switching on the PC or Windows® (reboot) if the mains voltage returns during the Windows® shutdown phase. NOTE: This is not possible via the PC BIOS setting!

THE ENSP3-REBOOT INCLUDES

Automatic Startup PC board

Cabling

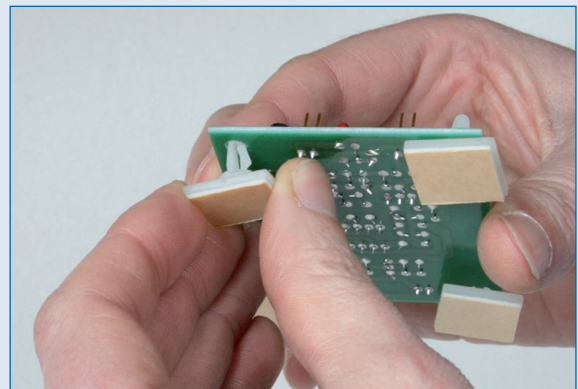
Crimp connector

Spacers

Installation or retrofit

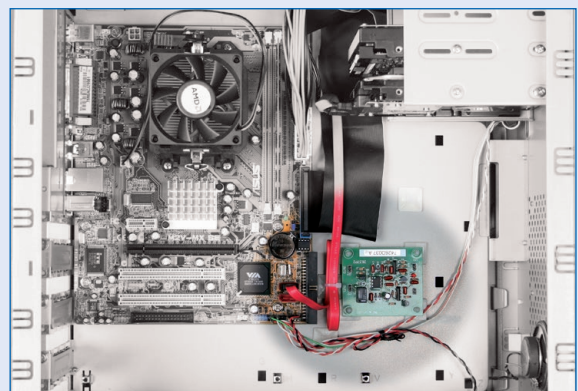
1

Mount the spacers to the PCB.



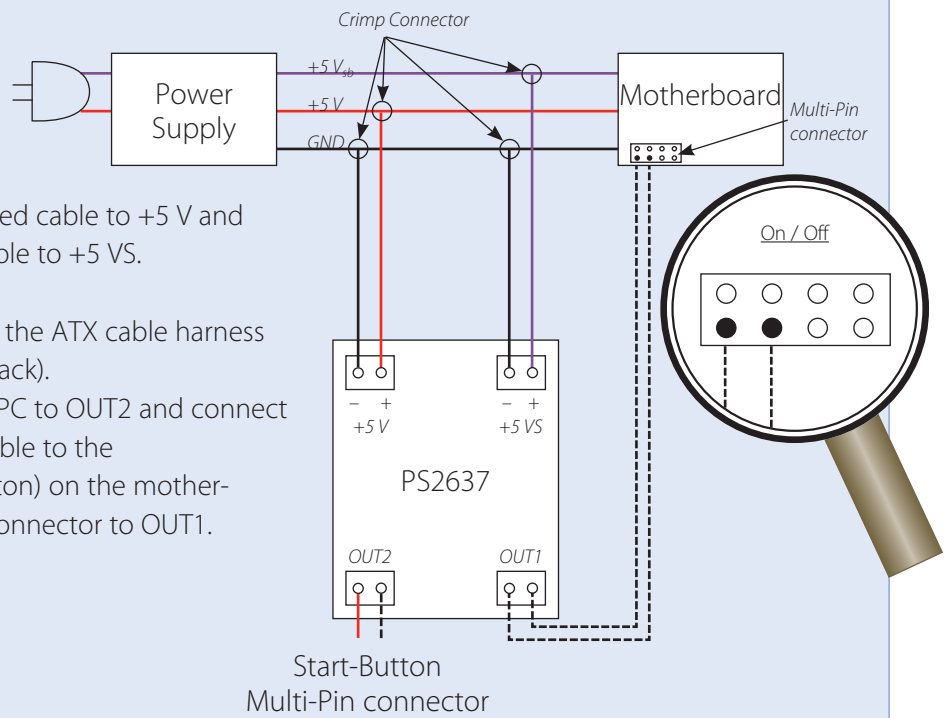
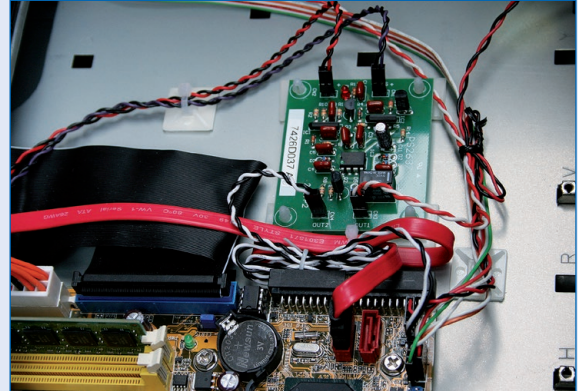
2

Install PCB into casing.



3

The following connections have to be made at the PCB:



Connect the red-and-black twisted cable to +5 V and the purple-and-black twisted cable to +5 VS.

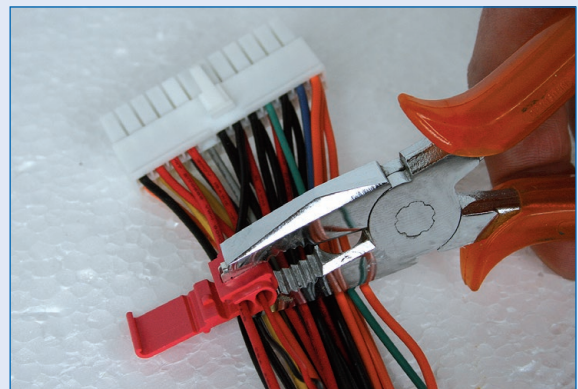
Observe polarity!

Then, connect the open ends to the ATX cable harness (red/red, purple/purple, black/black).

Connect the start button of the PC to OUT2 and connect the included black-and-white cable to the multi-pin connector (= start button) on the motherboard. Connect the remaining connector to OUT1.

4

Connect the open ends to the ATX cable harness (red/red, purple/purple, black/black).



F Convert HNSP9-520P-USB with RS232 interface

- 1** Loosen the two screws on the left and right of the USB module and set them aside



- 2** Pull out the USB drawer.



3



- 4** Insert the RS232 module SU-RS.
Fasten the new module with the 2 screws.



G Troubleshooting

FAILURE

NO FUNCTION

POSSIBLE CAUSE

1. Mains switch is switched off
2. Cable at PSU and PC is loose

POSSIBLE COUNTERMEASURE

1. Switch on mains switch
2. Check cable at PSU and PC for tightness

FAILURE

NO UPS FUNCTION

POSSIBLE CAUSE

1. No battery pack is connected
2. Battery pack has not enough capacitance or is discharged

POSSIBLE COUNTERMEASURE

1. Connect battery pack
2. Charge battery pack or replace it

FAILURE

NO SOFTWARE COMMUNICATION

POSSIBLE CAUSE

1. Wrong COM-Port in RUPS 2000 is set
2. No USB driver is installed for HNPS9-520P-USB

POSSIBLE COUNTERMEASURE

1. Adjust COM-Port
2. Install driver

FAILURE

PC SWITCHES OFF IN UPS OPERATION

POSSIBLE CAUSE

1. The back-up time in the UPS software was set too high
2. Battery pack has not enough capacitance or is discharged

POSSIBLE COUNTERMEASURE

1. Check back-up time
2. Check battery pack

FAILURE

PC DOES NOT SWITCH OFF AFTER WINDOWS® SHUTDOWN

POSSIBLE CAUSE

1. ACPI function is not activated
2. Is a wrong interface cable installed?

POSSIBLE COUNTERMEASURE

1. Activate ACPI function in BIOS and operating system
2. Check interface cable

H Scope of delivery

Immediately after receiving your goods, check whether there is any delivery damage. Damaged packaging can be a sign of this.

QUANTITY	DESCRIPTION
1x	Device HNSP9-520P-USB
1x	DC output cable harness

I Optional available accessories

BP-2425N (CYCLON-Battery pack 24 V / 2.5 Ah / 5 1/4" form)

RUPS 2000-B1 (UPS Management Software, CD-ROM)

ENSP3-REBOOT (Automatic Startup PC board)

ENSP3-USB-INT (Holder for internal USB interface)

J Disposal

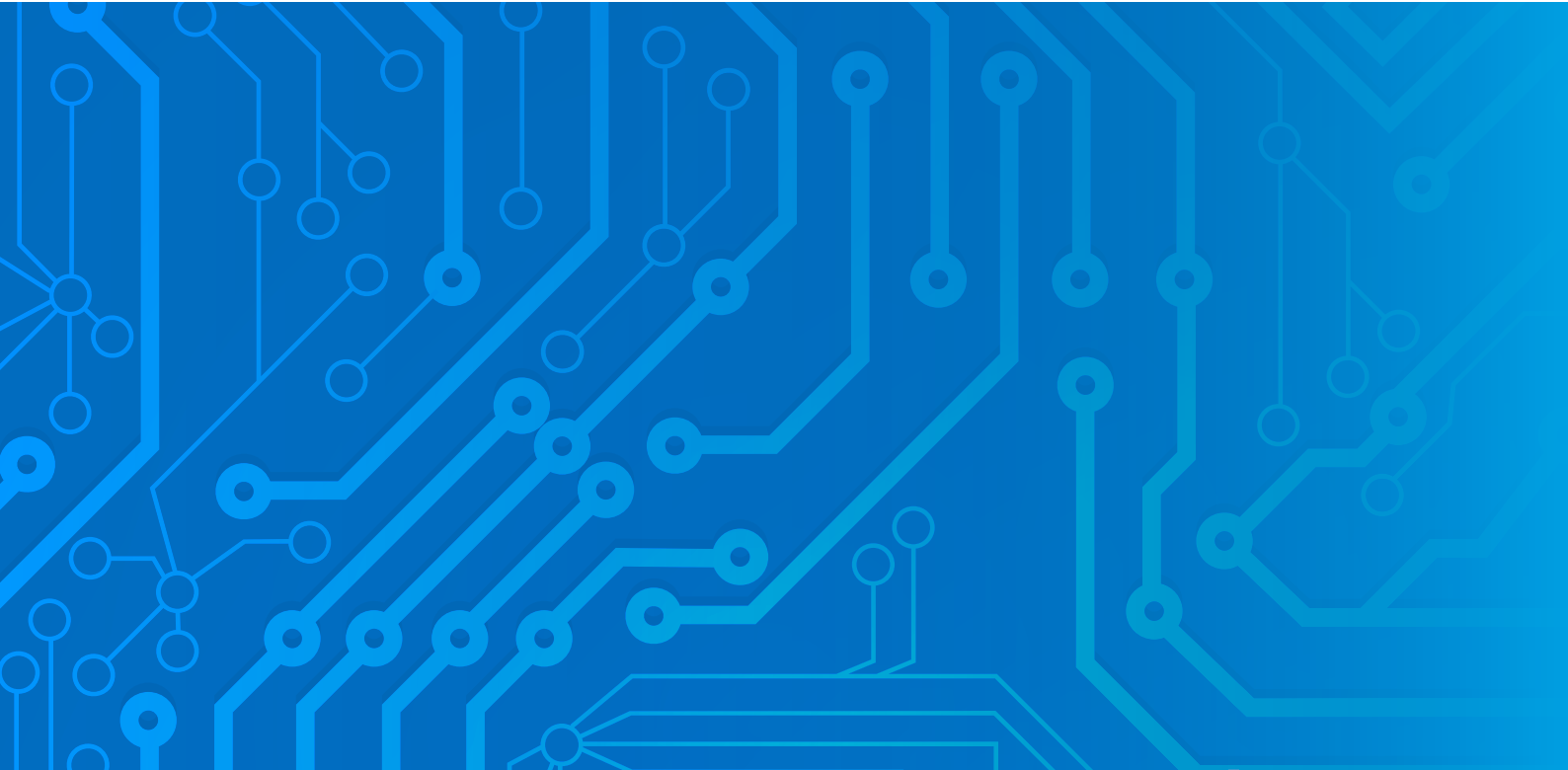
Electric and electronic devices must not be disposed with domestic waste! Please consider to each country's own regulation about recycling and disposal of used batteries at the end of their lifetime or resending to any recycling organization.



K Disclaimer

We, the Bicker Elektronik GmbH, have checked the contents of this document for compliance with the hardware and software described. Nevertheless, deviations can not be ruled out, so we assume no liability for the complete agreement. The information in this publication is checked regularly, necessary corrections are included in the updated versions.

Suggestions for improvement as well as tips and criticism are always welcome.



Subject to errors and technical modifications!
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Status as at: 25.09.2023 – Revision 1-0



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