



## Technical Data

### On-Line UPS-system *proTECTO I* 5000-10000

*proTECTO I* is an On-line UPS-system in double conversion technology according to DIN EN 62040-3 (VFI-SS-111) with sinusoidal output voltage in each operation mode, LCD display, RS232 interface, USB connection, a slot for communication cards and Shutdown-Software for Windows NT / 2000 / XP / 2003 / Vista, Novell and Linux system software.

The operation modes On-Line, Line-Interactiv, Smart Active or „emergency supply“ (Standby) can be programmed with the software or selected manually with the display.

The back-up time of the systems can be increased by connecting additional external battery modules.

From the *proTECTO I* 6500 the systems can be connected single or three-phase at the input.



model	<i>proTECTO I</i>	5000	6000	6500	8000	10000
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rating						
rating in VA		5000	6000	6500	8000	10000
rating in W		4000	4800	5200	6400	8000

back-up time with standard batteries						
100 % load		11	9	8	8	6
50% load		26	21	19	20	16

input						
nominal voltage [single-phase]		220 / 230 / 240 V AC				
nominal voltage [three-phase]		- 380 / 400 / 415 V AC				
tolerance of frequency		0 till 280 V AC				
voltage range without battery operation						
	Maximum:	276 V AC				
	Minimum:	184 V AC at 100 % load 138 V AC at 50 % load				
switch-back on mains operation at:		190 V AC				
nominal frequency		50 Hz / 60 Hz $\pm$ 5 Hz				
maximum input current single-phase (nominal load, input voltage 180 V and battery charge)		30 A	36 A	30 A	38 A	46 A
Maximum input current three-phase (nominal load, input voltage 180 V and battery charge)		-	-	12 A	14 A	17 A



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<b>input</b>						
nominal current single-phase (nominal load, nominal voltage and battery charge)		24 A	28,5 A	23,4 A	29,5 A	36 A
nominal current three-phase (nominal load, nominal voltage and battery charge)		-	-	8	10	12
efficiency factor single-phase		≥ 0,98				
efficiency factor three-phase		-	≥ 0,95			
harmonic distortion (THDI) single-phase		≤ 6%				
harmonic distortion (THDI) three-phase		-	≤ 26%			
Hold-Up time (back-up time which can be realized without switching on the battery – no interruption of the output voltage occurs)		≥ 40 ms				
<b>output</b>						
nominal voltage		optional 220 / 230 / 240 V AC				
tolerance of output voltage – static		≤ 1,5 %				
tolerance of output voltage – dynamic (load impact from 0 to 100%)		≤ 5% above 20 ms				
waveform of the output voltage		Sinus				
nominal frequency		50 Hz or 60 Hz				
voltage distortion/ linear load		≤ 3%				
voltage distortion / non-linear load		< 6%				
crestfactor measured according to EN 50091-1 (peak current to RMS-current)		≥ 3 : 1				
efficiency of the system AC / AC		92 %				
<b>overload</b>						
normal operation 100 % < load < 110%		switch over to bypass after 2 sec. blockage after 120 sec.				
normal operation 110 % < load < 150%		switch over to bypass after 2 sec. blockage after 4 sec.				
normal operation load > 150%		switch over to bypass immediately blockage after 1 sec.				
battery operation 100 % < load < 110%		blockage after 60 sec.				
battery operation 110 % < load < 150%		blockage after 4 sec.				
battery operation load > 150%		blockage after 0,5 sec.				
<b>by - pass</b>						
accepted voltage range		180 bis 264 V AC				
accepted frequency range		selected frequency ± 5%				



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<b>battery</b>	
nominal voltage	240 V DC
number of modules	20
nominal capacity per module	7 Ah                      9 Ah
type	closed and maintenance-free
life duration	5 years (depending on environmental conditions)
recharge time	4 to 8 hours
battery test	automatic each 40 hours

<b>display</b>	
LED display for	normal operation output on inverter battery operation mains present input- / output- / battery voltage recharge current state of recharge of the battery internal temperature remaining back-up time output load operating status

<b>operating elements</b>	
switch	main switch
button	ON
button	Stand by
button	selection display
switch	commutation on by-pass

<b>interfaces</b>	
Sub-D 9 Pin	RS 232 interface and potential-free messages for battery operation and battery nearly discharged
USB	serial interface
Slot	slot for: SNMP card, 2. serial interface or J-Bus

<b>connections</b>	
input	terminals
output	terminals + 2 x IEC 10 A (Powershare)
DC connection	for battery extension



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<b>protection</b>						
protective systems	over voltage – short-circuit - overvoltage – low voltage heat – deep discharge protection of the batteries					
surge voltage stability	IEC 801-5 6 KV 1.2 / 50 µsec; 3 KA 8/20 µsec; 300 Joule					
<b>norms</b>						
safety	EN 62040-1-1; EEC regulation 73/23					
EMV / RFI	EN 62040-2; EEC regulation 2006/95/EC					
operation requirements	EN 62040 – 3 VFI-SS-111					
<b>environmental conditions</b>						
environmental temperature	0 bis 40 °C					
noise level in 1m distance	< 45 dB(A)					
<b>cabinet</b>						
material	steel sheet / front plastics					
colour	Metallic grey RAL 7016					
protective system	IP 20					
<b>dimensions</b>						
dimensions (h x w x d) as tower-version	615 x 282 x 785 mm					
<b>weight</b>						
weight in kg	89	90	91	94	95	
<b>delivery</b>						
manual	yes					
Battery fuses 14 x 51 mm, 50 A, 400 V	2					
Bridging for input terminals	-	yes				
connection cable	RS232 9-pin					
CD	PowerShield <sup>3</sup> Shutdown Software					



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#### options

<b>battery extension modul</b>	<b>Typ BB 240-A3-A 7Ah</b>					
increase of the back-up time on	30 min	25 min	20 min	18 min	12 min	
dimensions (h x w x d) in mm	615 x 282 x 785					
weight in kg	82					

<b>battery extension modul</b>	<b>Typ BB 240-A6-A 12Ah</b>					
increase of the back-up time on	39 min	34 min	30 min	24 min	16 min	
dimensions (h x w x d) in mm	615 x 282 x 785					
weight in kg	107					

<b>battery extension modul</b>	<b>Typ BC 240-M1-A 2 x 7Ah</b>					
increase of the back-up time on	42 min	34 min	32 min	27 min	21 min	
dimensions (h x w x d) in mm	615 x 282 x 785					
weight in kg	130					

<b>battery extension modul</b>	<b>Typ BC 240-M5-A 2 x 9Ah</b>					
increase of the back-up time on	52 min	42 min	38 min	32 min	25 min	
dimensions (h x w x d) in mm	615 x 282 x 785					
weight in kg	134					

#### a combination with several battery extension modules is possible.

Increase of the back-up time:	On request
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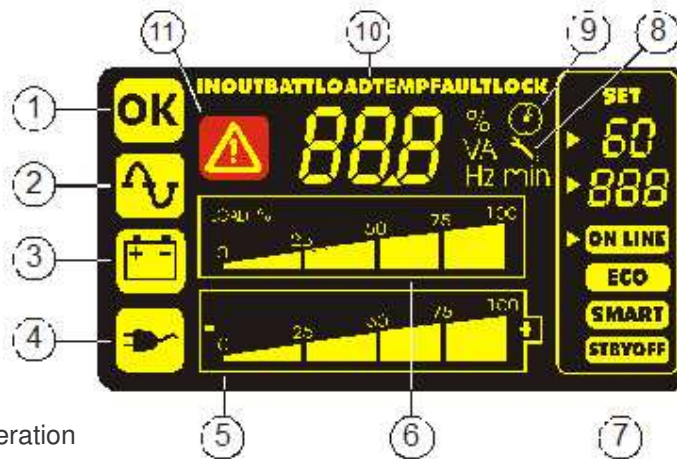
<b>software</b>	
network version of PowerShield2 Shutdown-Software for Windows NT/2000/XP/3000, Vista, Novell, UNIX and Linux system software	X



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### On-Line UPS-system *proTECTO I 5000-10000*

#### Display proTECTO I 5000 - 10000



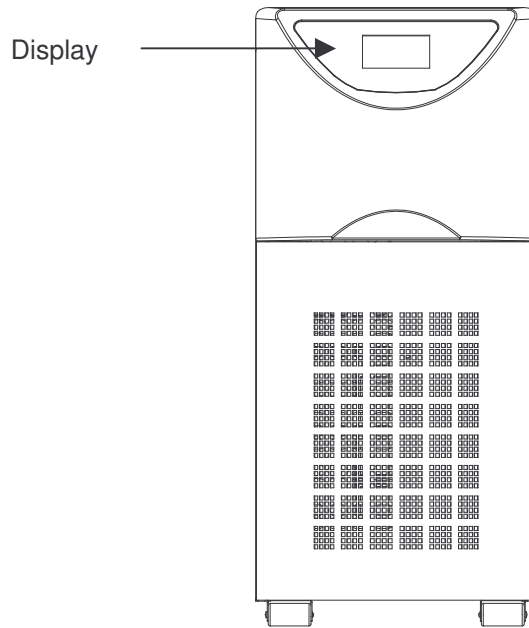
- ① normal operation
- ② mains operation
- ③ battery operation
- ④ bypass operation
- ⑤ status of the load
- ⑥ display for state of charge
- ⑦ operation mode
- ⑧ request of maintenance
- ⑨ Timer
- ⑩ measured value
- ⑪ stand-by / alarm



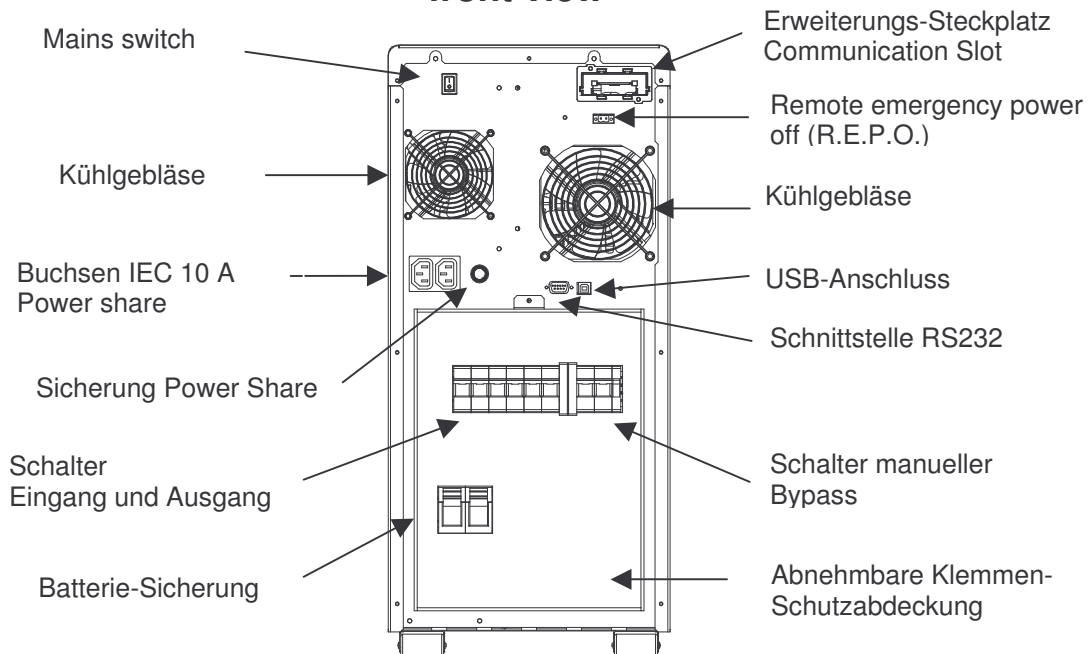
## Technische Daten

### On-Line USV-Anlage *proTECTO I 5000-10000*

view of the UPS



front view



rear view



## Technische Daten

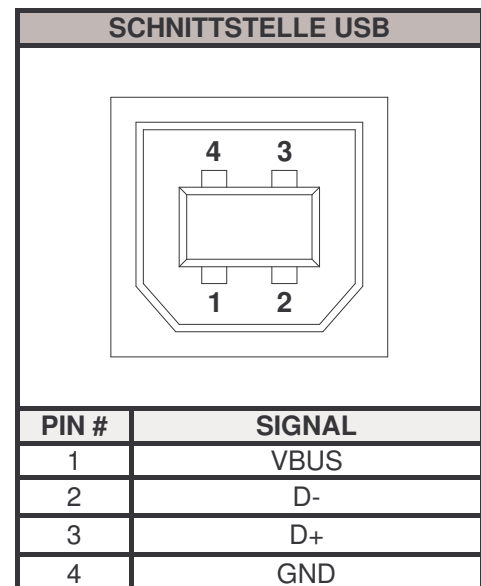
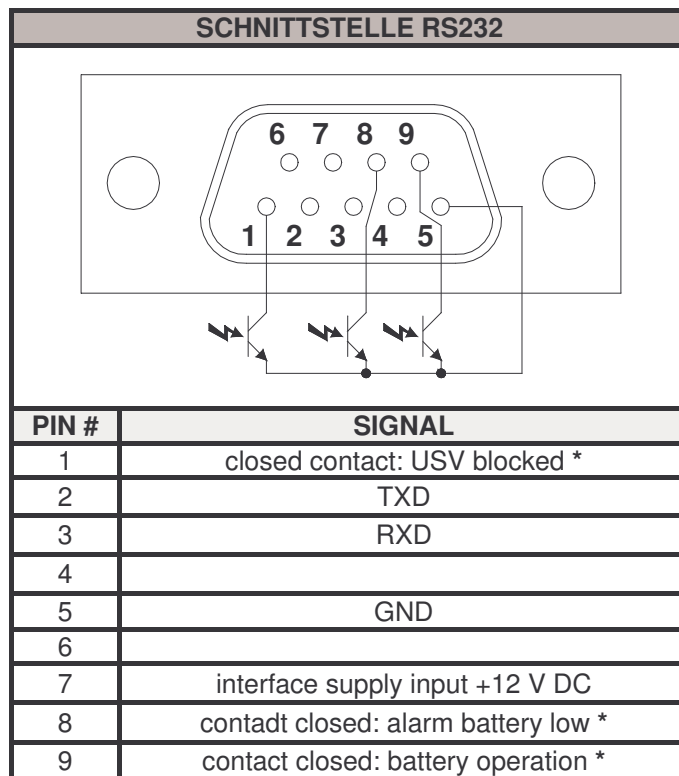
### On-Line USV-Anlage *proTECTO I 5000-10000*

#### interfaces *proTECTO I 5000 - 10000*

On the rear side of the UPS (see view *UPS*) the following communication interfaces are present:

- interface RS232
- interface USB
- extension slot for additional interface cards COMMUNICATION SLOT

#### interfaces RS232 und USB



\* optoisolated contact max. +30Vdc / 10mA





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### On-Line USV-Anlage *proTECTO I 5000-10000*

#### communication slot

The UPS includes an extension slot for optional communication cards (see picture beside), which enables the unit to communicate by using the main communication standards.

Some examples:

- second interface RS232
- serial interface doubler
- Ethernet mains agent with TCP/IP, HTTP and SNMP journal
- interface RS232 + RS485 with JBUS / MODBUS journal

