

Uninterruptible power supply PC Combi UPS



Standards

Uninterruptible power supply
to UL 60950, UL 508

Safety:
EN 60950, EN 60950 (SELV), EN 60204 (PELV)

EMC:
EN 61000-6-3 (Interference emissions), EN 61000-6-2 (Interference immunity)

General Data

Rated input voltage: 100 - 240 Vac

Rated output voltage: 24 Vdc

Rated output current: 5 A

Recommended battery modules: 1.2 - 12 Ah

Ambient temperature: -25 °C to +70 °C

Protection index IP 20

Advantages

Combined power supply with charging and controlling unit

Fast tripping of conventional circuit breakers

Battery modules get detected automatically

Reliable signalling when there is low remaining life expectancy of connected battery modules

Extended life expectancy through temperature controlled battery management

Interface to visualise and adjust relevant data

Reliable supply of industrial PC's

Applications

The uninterrupted power supply Power Compact contains an economic DC 24V/5A power supply with basic specifications for industrial computer and also a loading and controlling unit for an ideal battery management.

Approvals



UL/CSA 60950 recognised (E213214), UL508 listed (E219022) Germanischer Lloyd prepared

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Uninterruptible power supply

PC Combi UPS



Typ	PC-1024-050-0
Electrical data	
Input	
Input rated voltage	100 - 240 Vac
Input voltage range	85 - 264 Vac (120 - 372 Vdc)
AC input derating	-1.5 % / Vac < 110 Vac
DC input derating	-1 % / Vdc < 150 Vdc
Rated frequency range	47 Hz - 63 Hz / 0 Hz
Input rated current (rated load)	1.96 A / 0.95 A (100 / 230 Vac)
Starting current limiter	< 30 A, NTC
Switch-on time	< 200 ms
Input fuse internal	4 A (time-lag)
Recommended back-up fuse (circuit breaker)	6 A, 10 A, 16 A, characteristic B, C
Transient surge voltage protection	Varistor
Output	
Output rated current	5.00 A
Tripping of LS circuit breakers	max. B4
Parallel connection	Only with redundancy module, max. 5 A output current
Serial operation	Yes
Ripple factor	typ. 50 mVss
Output rated voltage	24 Vdc
Over-voltage-protection	typ. 38 Vdc
Rated output voltage (normal mode)	24 Vdc
Rated output voltage (buffer mode)	24 Vdc
Output voltage range (mains operation)	23 - 28.5 Vdc
Output voltage range (battery operation)	Battery voltage - 0.5 V (27.5 - 19 Vdc)
Output voltage limiting (mains operation)	typ. 6.5 A, constant current
Output voltage limiting (battery operation)	typ. 5.5 A
Power losses in mains operation (nominal load, battery charged)	22 W (100 Vac) 17W (230 Vac)
Max. power losses in battery operation (stand-by/nominal load)	3.2 W / 5.2 W
Storage medium	
Remote shutdown	Yes
Buffer period	1, 2, 3, 5, 10, 15, 20 Min, PC-Mode, Maximum, Individual
Type of the storage medium	Accumulator, external
Reverse connection protection	Yes, (fuse in battery module trips)
Charging characteristic	3-stage charging process (I(UoU) charging characteristic)
Charging current	max. 0.6 A
End-of-charge voltage	26...29.5 V temperature-controlled, adjustable via interface
Check for presence of battery	1 per minute
Check remaining battery life	6 per hour
Deep discharge protection	19 Vdc
Warning threshold, battery almost flat	20.4 Vdc
Recommended battery modules	1.2 - 12 Ah
Parallel connection of battery modules	Yes, max. 3
Signaling	
Status indicator	3 LED green/yellow/red
Isolated group input	max. 30 V / 200 mA current limiting (in 3 separate signal outputs)
Alarm/Bat.Mode/Bat.Charge signal output	Relay, kill switch type, max. 30 V, function adjustable via interface
Announcements	



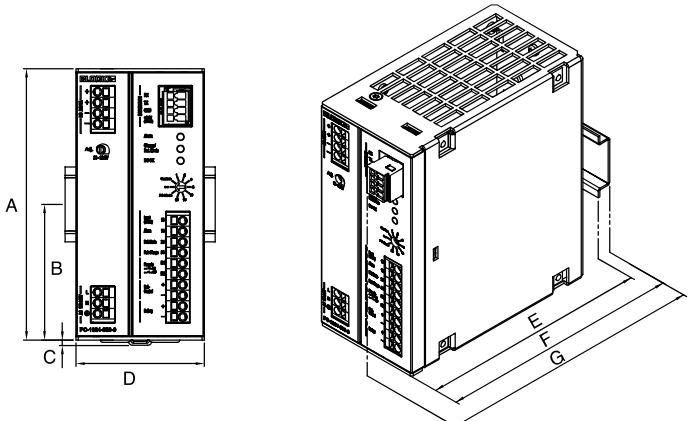
Uninterruptible power supply **PC Combi UPS**



Electrical data	Type	PC-1024-050-0
	Approvals	cURus, cULus, GL
	Environment	
	Ambient temperature	-25 °C ... +70 °C
	Storage temperature	-25 °C ... +85 °C
	Derating	-3 %/K > +50 °C
	Mounting position	horizontal for standard rail DIN TS35
	Type of cooling	natural convection
	Required minimum spacing (left/right)	0 mm
	Required minimum spacing (over/under)	50 mm
Safety and protection		
	Protection index	IP 20
	Safety class	I, with PE connection
	Resistance to reverse feed max.	35 Vdc
Order numbers		
Order Number	PC-1024-050-0	

Mechanical data	Typ	30												
		Terminals signalling (direct plug-in technology Push-in)	Terminals output (direct plug-in technology Push-in)	Terminals input (direct plug-in technology Push-in)	Terminals storage medium direct plug-in technology Push-in	Weight	Dimension picture (in mm)							
	PC-1024-050-0	max 2,5 mm ²	max 2,5 mm ²	max 2,5 mm ²	max 2,5 mm ²	0.8 kg	1	127	63.5	3	60	118.5	126	136

Dimension pictures





Uninterruptible power supply

PVUA



Standards

Uninterruptible power supply
to UL 60950, UL 508

Safety:
EN 60950, EN 60950 (SELV), EN 60204 (PELV)

EMC:
EN 61000-6-3 (Interference emissions), EN 61000-6-2 (Interference immunity)

General Data

Input rated voltage 24 Vdc
Output rated voltage 24 Vdc
Output rated current 10 - 20 A
Ambient temperature -25 °C to +60 °C
Efficiency up to 97 %
Protection index IP 20

Advantages

Electronic overcurrent and short-circuit protection
Active current limiting in the event of an error
Automatic detection of connected battery module
Reliable early warning signal when battery life expectancy is declining
Extended life expectancy through temperature controlled battery management
Service-friendly spring-loaded connector system
Isolated signal contact
Reverse polarity protection
Exhaustive discharge protection for batteries
Interface to visualise and adjust relevant data
Current and voltage monitoring
Active signal outputs for function monitoring
RS-232 interface
Reliable supply of industrial PC's

Applications

The charge- and control unit controls and monitors the battery module, warns reliably if the live expectancy of the battery is low and provides information on the charge status und the remaining time during buffering. All relevant data can be shown on the integrated display or accessed thought the build in data interface.

Approvals



UL/CSA 60950 recognised (E213214), UL508 listed (E219022)



Uninterruptible power supply **PVUA**



Electrical data	Typ	PVUA 24/24-10	PVUA 24/24-20	
Input				
Input rated voltage	24 Vdc	24 Vdc		
Input voltage range	18 - 29 Vdc	18 - 29 Vdc		
Current input (idle/charging/max.)	0.1 / 0.8 / 10.8 A	0.1 / 1.5 / 21.5 A		
Switching threshold for buffer mode	20 - 25.5 Vdc	20 - 25.5 Vdc		
Output				
Output voltage normal operation	typ. Uin - 1 Vdc (10 A)	typ. Uin - 1 Vdc (20 A)		
Output rated voltage, battery mode	typ. battery voltage - 1 Vdc (10 A)	typ. battery voltage - 1 Vdc (20 A)		
Output rated voltage	24 Vdc	24 Vdc		
Resistance to reverse feed max.	35 Vdc	35 Vdc		
Output rated current	10.00 A	20.00 A		
Internal fuse	15 A (slow-blow)	30 A (slow-blow)		
Overload behaviour	Constant current with cyclic shutdown	Constant current with cyclic shutdown		
Parallel connection	No	No		
Serial operation	No	No		
max. Power loss idling/nominal load	15 / 20 W	15 / 30 W		
Efficiency	typ. 95.4 %	typ. 96.3 %		
Storage medium				
Type of the storage medium	Accumulator, external	Accumulator, external		
Rated charging voltage	24 Vdc	24 Vdc		
Charge voltage range	26 to 29.5 Vdc	26 to 29.5 Vdc		
Temperaturnachführung der Ladespannung	automatical or manual	automatical or manual		
Charging current	max. 0.6 A	max. 1.0 A		
Recommended storage medium	24 Vdc / 1.2 Ah, 3.2 Ah, 7 Ah, 12 Ah	24 Vdc / 7 Ah, 12 Ah		
Signaling				
Operating status	LED green, LED red, LED yellow	LED green, LED red, LED yellow		
Potential free signal contact	Changeover contact, configurable	Changeover contact, configurable		
Active signal outputs	3 x 24 Vdc, 2 configurable	3 x 24 Vdc, 2 configurable		
Remote shutdown in buffer mode operation	Yes (break contact)	Yes (break contact)		
Display, interface	Yes, RS 232	Yes, RS 232		
Approvals				
Approvals	cURus, cULus	cURus, cULus		
Environment				
Ambient temperature	-10° C to +60° C	-10° C to +60° C		
Storage temperature	-25 °C to +85 °C	-25 °C to +85 °C		
Safety and protection				
Protection index	IP 20	IP 20		
Accessory				
Connector for signalling	PV-CON (optional)	PV-CON (optional)		
Adapter cable for interface	PV-KOK2 (optional)	PV-KOK2 (optional)		
Side DIN rail mounting	PV-TS35M (optional)	PV-TS35M (optional)		
Direct screw fastening plate for lateral mounting	PV-WB2 (optional)	PV-WB2 (optional)		
Order numbers				
Order Number	PVUA 24/24-10	PVUA 24/24-20		

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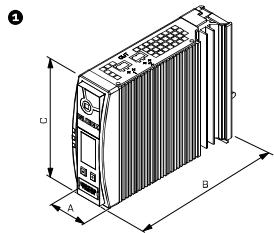


Uninterruptible power supply **PVUA**

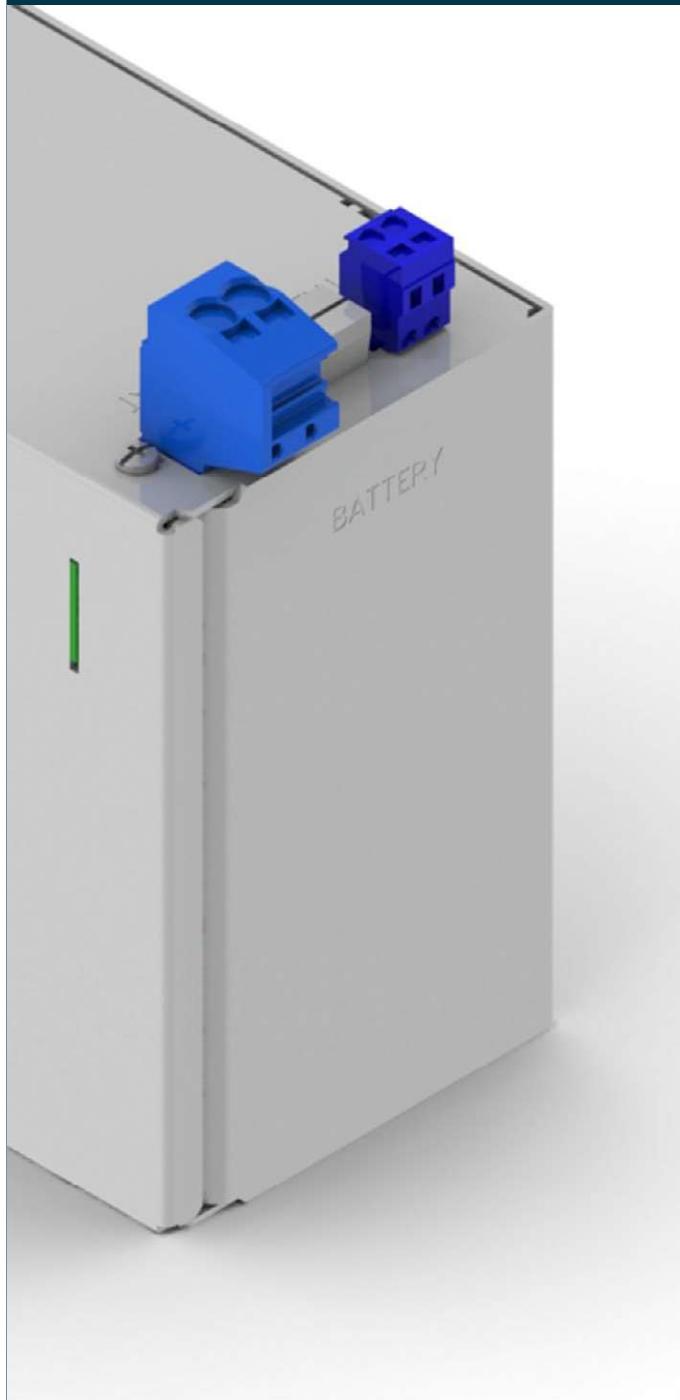


Mechanical data	Typ							Weight	Dimension picture (in mm)		
		Terminals input, (spring clamp terminal, pluggable)	Terminals output, (spring clamp terminal, pluggable)	Terminals signalling, (spring clamp terminal, pluggable)	Terminals storage medium, (spring clamp terminal, pluggable)	Mounting position	Fixing method		A	B	C
	PVUA 24/24-10	max. 2.5 mm ²	max. 2.5 mm ²	max. 0.5 mm ²	max. 2.5 mm ²	vertical	DIN Rail system TS35	0.80 kg	① 40	163.5	127
	PVUA 24/24-20	max. 10 mm ²	max. 10 mm ²	max. 0.5 mm ²	max. 10 mm ²	vertical	DIN Rail system TS35	0.80 kg	① 57	163.5	127

Dimension pictures



Battery module **PBAT**



General Data

- Input rated voltage 24 Vdc
- Output rated voltage 24 Vdc
- Protection index IP 20
- Ambient temperature -40 °C to +60 °C
- Lifetime 15 years / 20°C
- Battery module with pure lead rechargeable battery

Advantages

- Automatic detection of battery modules at UPS control unit
- Reliable early warning signal when battery life expectancy is declining
- Extended life expectancy through temperature controlled battery management
- Service-friendly spring-loaded connector system

Applications

Battery module for setting up a secure 24 VDC supply following mains failure

Standards

Approvals

UL 508 (E219022) prepared

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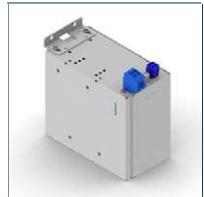
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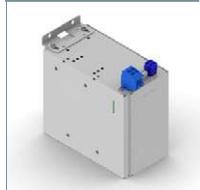
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Battery module **PBAT**



Typ		PBAT-1224-025-0	PBAT-1224-130-0	
Electrical data				
Input				
Input rated voltage	24 Vdc	24 Vdc		
Rated capacity	2.5 Ah	13.0 Ah		
Output				
Output rated voltage	24 Vdc	24 Vdc		
Output rated current	20 A	40 A		
Internal fuse	1x 25 AT	2x 25 AT		
Parallel connection	Yes	Yes		
Storage medium				
End-of-charge voltage	27 Vdc	27 Vdc		
Environment				
Ambient temperature	-40 °C...+60 °C	-40 °C...+60 °C		
Storage temperature	-40 °C...+60 °C	-40 °C...+60 °C		
Service life	15 years at +20 °C	15 years at +20 °C		
Latest commissioning (only accumulators)	6 months at +30 °C to +40 °C	6 months at +30 °C to +40 °C		
Safety and protection				
Protection index	IP 20	IP 20		
Safety class	III	III		
Order numbers				
Order Number	PBAT-1224-025-0		PBAT-1224-130-0	



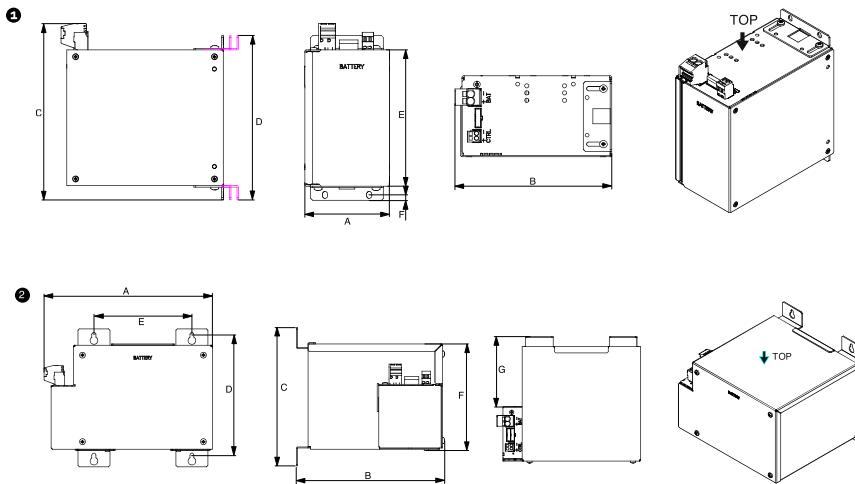
Battery module **PBAT**

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Mechanical data	Typ	Fixing method	Terminals Output	Terminals Input	Temperature sensor/ communication connection	Weight	Width	Dimension picture [in mm]					
								A	B	C	D	E	F
PBAT-1224-025-0	Direct screw fastening (optional)	Wago series 831, max. 10 mm ²	Wago series 831, max. 10 mm ²	Wago Series 231, 5 mm ²	3.80 kg	86 mm	❶	86	166	180.7	168	139	5.5
PBAT-1224-130-0	Direct screw joint	Wago series 831, max. 10 mm ²	Wago series 831, max. 10 mm ²	Wago series 231, 2.5 mm ²	12.30 kg	226 mm	❷	226.5	199.5	186.5	163	132	144
													110.7

Dimension pictures



Battery module **PVA**



General Data

Input rated voltage 24 Vdc
Output rated voltage 24 Vdc
Capacity 3.2 - 12 Ah
Ambient temperature -10 °C to +40 °C
Protection index IP 20

Advantages

Automatic detection of connected battery module
Reliable early warning signal when battery life expectancy is declining
Extended life expectancy through temperature controlled battery management
Service-friendly spring-loaded connector system

Applications

Battery module for building a secure 24 Vdc power supply in case of power failure.

Approvals



UL 508 (E219022)

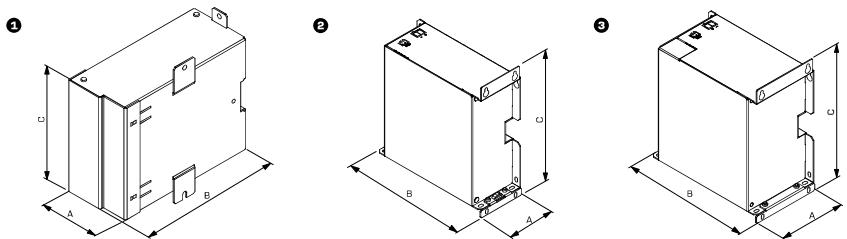


Battery module **PVA**

Type	PVA 24/3,2Ah	PVA 24/7Ah	PVA 24/12Ah
Input			
Input rated voltage			
Input rated voltage	24 Vdc	24 Vdc	24 Vdc
Rated capacity	3.2 Ah	7.0 Ah	12.0 Ah
Output			
Output rated voltage	24 Vdc	24 Vdc	24 Vdc
Output rated current	max. 20.00 A	max. 40.00 A	max. 40.00 A
Internal fuse	25 A (slow-blow)	2 x 25 A (slow-blow)	2 x 25 A (slow-blow)
Parallel connection	Yes	Yes	Yes
Environment			
Ambient temperature	-10 °C to +40 °C	-10 °C to +40 °C	-10 °C to +40 °C
Storage temperature	-20 °C to +40 °C	-20 °C to +40 °C	-20 °C to +40 °C
Service life	5 years at +20 °C	5 years at +20 °C	5 years at +20 °C
Latest commissioning (only accumulators)	6 months at +30 °C to +40 °C	6 months at +30 °C to +40 °C	6 months at +30 °C to +40 °C
Safety and protection			
Protection index	IP 20	IP 20	IP 20
Safety class	III, without PE connection	III, without PE connection	III, without PE connection
Order numbers			
Order Number	PVA 24/3,2Ah	PVA 24/7Ah	PVA 24/12Ah

Mechanical data	Typ	Terminals input / output (spring clamp terminal, pluggable)	Terminals temperature measurement, (spring clamp terminal, pluggable)	Fixing method	Weight	Dimension picture (in mm)			
						A	B	C	
	PVA 24/3,2Ah	max. 2.5 mm ²	max. 2.5 mm ²	Straps at the case	4.0 kg	①	73	175.5	165
	PVA 24/7Ah	max. 10 mm ²	max. 2.5 mm ²	Straps at the case	7.1 kg	②	217.5	86	236
	PVA 24/12Ah	max. 10 mm ²	max. 2.5 mm ²	Straps at the case	10.6 kg	③	120.5	217.5	236

Dimension pictures



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Battery module **PVAF**



General Data

Input rated voltage 24 Vdc
Output rated voltage 24 Vdc
Capacity 0.8 - 12 Ah
Ambient temperature -10 °C to +40 °C
Protection index IP 20

Advantages

Automatic detection of battery modules at UPS control unit
Reliable early warning signal when battery life expectancy is declining
Extended life expectancy through temperature controlled battery management
Service-friendly spring-loaded connector system

Applications

Battery module for building a secure 24 Vdc power supply in case of power failure.

Approvals



UL 508 (E219022)

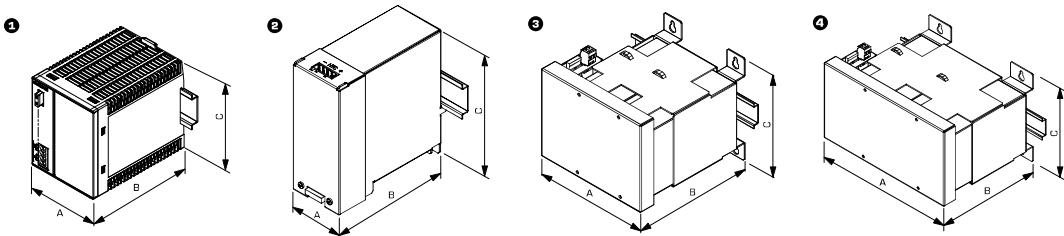


Battery module **PVAF**

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Type	PVAF 24/0,8Ah	PVAF 24/1,2Ah	PVAF 24/3,2Ah	PVAF 24/7Ah	PVAF 24/12Ah
Electrical data					
Input					
Input rated voltage	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Rated capacity	0.8 Ah	1.2 Ah	3.2 Ah	7.0 Ah	12.0 Ah
Output					
Output rated voltage	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Output rated current	max. 5 A	max. 7.50 A	max. 20 A	max. 40 A	max. 40 A
Internal fuse	10 A (slow blow)	15 A (slow blow)	25 A (slow blow)	2x25 A (slow-blow)	2x25 A (slow-blow)
Parallel connection	Yes	Yes	Yes	Yes	Yes
Environment					
Ambient temperature	-10 °C to +40 °C	-10 °C to +40 °C	-10 °C to +40 °C	-10 °C to +40 °C	-10 °C to +40 °C
Storage temperature	-20 °C to +40 °C	-20 °C to +40 °C	-20 °C to +40 °C	-20 °C to +40 °C	-20 °C to +40 °C
Service life	5 years at 20 °C	5 years at 20 °C	5 years at 20 °C	5 years at 20 °C	5 years at 20 °C
Latest commissioning (only accumulators)	6 months at 30 - 40 °C	6 months at 30 - 40 °C	6 months at 30 - 40 °C	6 months at 30 - 40 °C	6 months at 30 - 40 °C
Safety and protection					
Protection index	IP 20	IP 20	IP 20	IP 20	IP 20
Order numbers					
Order Number	PVAF 24/0,8Ah	PVAF 24/1,2Ah	PVAF 24/3,2Ah	PVAF 24/7Ah	PVAF 24/12Ah
Mechanical data					
30					
Terminal and mounting					
Terminals input / output (spring clamp terminal, pluggable)	max. 2.5 mm ²	max. 2.5 mm ²	max. 2.5 mm ²	max. 10 mm ²	max. 10 mm ²
Terminals temperature measurement, (spring clamp terminal, pluggable)	max. 2.5 mm ²	max. 2.5 mm ²	max. 2.5 mm ²	max. 2.5 mm ²	max. 2.5 mm ²
Fixing method	DIN Rail system TS35	DIN Rail system TS35	DIN Rail system TS35, screwed mounting	Straps at the case	Straps at the case
Measures and weights					
Weight	1.0 kg	1.8 kg	3.9 kg	5.9 kg	10.2 kg
Dimension picture (in mm)	①	②	③	④	
A	72	55	80	163	230
B	103.5	136	170.5	173.5	173.5
C	90	126.6	145	145	145

Dimension pictures



Buffer module **PVUC**



General Data

Input rated voltage 24 Vdc
Output rated voltage 24 Vdc
Output rated current 10 - 20 A
Ambient temperature -10 °C to +60 °C
Efficiency typ. 97 %
Protection index IP 20

Advantages

Electronic overcurrent and short-circuit protection
Reverse polarity protection
Configurable switch-in threshold
3 LEDs for signalling purposes
Isolated signal contact
Service-friendly spring-loaded connector system
Parallel connection option
Decoupled output
Panel installation on mounting rails

Applications

Maintenance-free buffer module to secure the power supply during short power interruptions.

Sample application



Standards

Service-free buffer module
to UL 508

Safety:
EN 60950, EN 60950 (SELV), EN 60204 (PELV)

EMC:
EN 61000-6-3 (Interference emissions), EN 61000-6-2 (Interference immunity)

Approvals



UL 508 (E219022)



Buffer module **PVUC**



Typ	PVUC 24/24-10	PVUC 24/24-20	
Electrical data			
Input			
Input rated voltage	24 Vdc	24 Vdc	
Input voltage range	20 - 30 Vdc	20 - 30 Vdc	
Current input (idle/charging/max.)	60 mA / 1 A / 11 A	60 mA / 1 A / 22 A	
Switching threshold for buffer mode	20 - 24 Vdc	21 - 24 Vdc	
Output			
Output rated voltage	24 Vdc	24 Vdc	
Output voltage normal operation	typ. Uin - 0.5 Vdc (10 A)	typ. Uin - 1 Vdc (20 A)	
Output rated voltage, battery mode	20 - 24 Vdc (adjustable)	20 - 24 Vdc (adjustable)	
Resistance to reverse feed max.	35 Vdc	35 Vdc	
Output rated current	10.00 A	20.00 A	
Buffer period	0.4 s (10 A) / 6.3 s (1 A)	0.4 s (20 A) / 15.5 s (1 A)	
Charging time	typ. 5 minutes	typ. 5 minutes	
Internal fuse	No	No	
Overload behaviour	Constant current (typ. 11 A)	Constant current (typ. 22 A)	
Parallel connection	Yes	Yes	
Serial operation	No	No	
max. Power loss idling/nominal load	1.5 / 6.5 W	1.5 / 15 W	
Efficiency	typ. 97 %	typ. 97 %	
Storage medium			
Type of the storage medium	Capacitors, internal	Capacitors, internal	
Signaling			
Operating status	LED green, LED red, LED yellow	LED green, LED red, LED yellow	
Potential free signal contact	Changeover contact	Changeover contact	
Active signal outputs	No	No	
Display, interface	No	No	
Approvals			
Approvals	cULus	cULus	
Environment			
Ambient temperature	-10 °C to +60 °C	-10 °C to +60 °C	
Storage temperature	-25 °C to +85 °C	-25 °C to +85 °C	
Safety and protection			
Protection index	IP 20	IP 20	
Safety class	III, without PE connection	III, without PE connection	
Reverse connection protection	Yes	Yes	
Accessory			
Side DIN rail mounting	PV-TS35M (optional)	PV-TS35M (optional)	
Direct screw fastening plate for lateral mounting	PV-WB2 (optional)	PV-WB2 (optional)	
Order numbers			
Order Number	PVUC 24/24-10	PVUC 24/24-20	

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Buffer module **PVUC**



Mechanical data	Typ											
		Terminals input, (spring clamp terminal, pluggable)	Terminals output, (spring clamp terminal, pluggable)	Terminals signalling, (spring clamp terminal, pluggable)	Mounting position	Fixing method	Weight	Dimension picture (in mm)				
		A	B	C	D						E	
PVUC 24/24-10	max. 2.5 mm ²	max. 2.5 mm ²	max. 2.5 mm ²	vertical	DIN Rail system TS35	1 kg	1	57	179.5	127	76	12.5
PVUC 24/24-20	max. 10 mm ²	max. 10 mm ²	max. 2.5 mm ²	vertical	DIN Rail system TS35	1 kg	1	57	179.5	127	76	12.5

Dimension pictures

