

PVSE 230

Technical data



ECONOMY

PVSE 230/12-6	PVSE 230/12-10	PVSE 230/12-15
72 Watt	120 Watt	180 Watt

Single phase, primary switched mode power supply component for mounting on DIN 35 mm rails

Safety standards			
Safety	EN 60950, UL 60950, UL 508		
EMV	EN 61204-3 (product standard)		
Approvals			
UL	UL/CSA 60950 recognised, UL 508 listed/CSA 22.2 No. 107.1 3rd Ed. listed		
Environment			
Ambient temperature	-10° C to +70° C derating, 2.5 %/K > +55° C		
Storage temperature	-25° C to +85° C		
Cooling	AN (natural air convection cooling)		
Allowable humidity	30 to 85 % relative humidity, no dew		
Safety and protection			
HV test voltage	4.2 kVdc		
Construction	enclosed for installation in switching cabinets		
Protection index	IP 20 (to EN 60529)		
Safety class	prepared for safety class I		
Conductors	Use copper conductors only, rated 60° C or 60/75° C		
Installation	For installation in pollution degree 2 environment		
Feedback voltage	≤25 Vdc		
Input			
Rated input voltage	100–240 Vac		
Operating input voltage range	85–264 Vac (120–373 Vdc)		
Input voltage derating	5 % /Vac < 95 Vac		
Operating input voltage range	44 to 66 Hz		
Rated input current at 110/230 Vac at nominal load	0.86/0.51 Aac	1.7/0.97 Aac	1.9/0.9 Aac
In-crush current (cold)	<15 Ap		typ. rated input current
Active in-crush current limiter, optional	typ. rated input current		
Internal fuse	2 AT	4 AT	6.3 AT
External protection device (UL-recognised)	not necessary		
Recommended external protection	Circuit breakers 6 A, 10 A or 16 A, characteristics B, C		
Leakage current	typ. 1 mA		
Mains drop compensation at 110/240 Vac	10/70 ms	12/35 ms	30 ms
Over voltage protection	through varistor in primary circuit		
WAGO multi plug system	Series 231, ≤2,5 mm ²		
Output			
Rated output voltage	12 Vdc ±1 %		
Rated output voltage range	11–18 Vdc		
Rated output current at 24 Vdc	6 Adc	10 Adc	15 Adc
Real Power Boost	12 A for 4 s + 9 A for 2 s	20 A for 4 s + 15 A for 2 s	30 A for 4 s + 22,5 A for 2 s
Top Boost for 25 ms	21 Adc	60 Adc (40 Adc at U _{in} < 110 Vac)	60 Adc
Current limitation	typ. 1.1 × I _{rated}		
Efficiency	typ. 87 %	typ. 87 %	typ. 91 %
Max. power loss (idling/nominal load)	1,7/12,3 W	4,1/15,6 W	21/21 W
Residual ripple	typ. 70 mVpp		
Parallel operation	yes, for increased power		
Serial operation	yes, for increased voltage		
WAGO multi plug system	Serie 231 ≤2,5 mm ²		
Signaling			
Power Good (DC OK), LED	U _{out} > 20.4 Vdc: LED green lights, LED red off		
Power Good (DC OK), potential free	Relay contact, type switch over, 30 Vdc/1 A (240 Vac/0.5 A)	Relay contact, type switch over, 24 Vdc/1 A (120 Vac/0.5 A)	
Stand-by-input	active at 10 to 28.8 Vdc		
WAGO multi plug system	Series 733 ≤0.5 mm ²		
Mechanical data			
Dimensions W × H × T (without plug)	40 x 127 x 163 mm	57 x 127 x 163 mm	57 x 127 x 179 mm
Weight	0,8 kg	1,1 kg	1,3 kg
Order numbers			
Economy	PVSE 230/12-6	PVSE 230/12-10	PVSE 230/12-15
Connector for signaling	PV-CON (optional)		



ECONOMY

PVSE 230/24-3	PVSE 230/24-5	PVSE 230/24-10	PVSE 230/48-5
72 Watt	120 Watt	240 Watt	240 Watt

Single phase, primary switched mode power supply component for mounting on DIN 35 mm rails

Safety standards				
Safety	EN 60950, UL 60950, UL 508			
EMV	EN 61204-3 (product standard)			
Approvals				
UL	UL/CSA 60950 recognised, UL 508 listed/CSA 22.2 No. 107.1 3rd Ed. listed			
Environment				
Ambient temperature	-10° C to +70° C derating, 2.5 %/K > +55° C			-10° C to +70° C derating, 2.5 %/K > +55° C
Storage temperature	-25° C to +85° C			
Cooling	AN (natural air convection cooling)			
Allowable humidity	30 to 85 % relative humidity, no dew			
Safety and protection				
HV test voltage	4.2 kVdc			
Construction	enclosed for installation in switching cabinets			
Protection index	IP 20 (to EN 60529)			
Safety class	prepared for safety class I			
Conductors	Use copper conductors only, rated 60° C or 60/75° C			
Installation	For installation in pollution degree 2 environment			
Feedback voltage	≤35 Vdc			
Input				
Rated input voltage	100–240 Vac			
Operating input voltage range	85–264 Vac (120–373 Vdc)			
Input voltage derating	5 %/Vac < 95 Vac	5 %/Vac < 95 Vac	0,55 %/Vac < 110 Vac	0,55 %/Vac < 110 Vac
Operating input voltage range	44 to 66 Hz			
Rated input current at 110/230 Vac (at nominal load)	0.86/0.51 Aac	1.7/0.97 Aac	2.5/1.2 Aac	2.5/1.2 Aac
In-crush current (cold)	<15 Ap		typ. rated input current	
Active in-crush current limiter, optional	typ. rated input current			
Internal fuse	2 AT	4 AT	6,3 AT	6,3 AT
External protection device (UL-recognised)	not necessary			
Recommended external protection	Circuit breakers 6 A, 10 A or 16 A, characteristics B, C			
Leakage current	typ. 1 mA			
Mains drop compensation at 110/240 Vac	10/70 ms	12/35 ms	24 ms	20 ms
Over voltage protection	through varistor in primary circuit			
WAGO multi plug system	Series 231, ≤2,5 mm ²			
Output				
Rated output voltage	24 Vdc ±1 %			48 Vdc ±1 %
Rated output voltage range	22–29.5 Vdc			
Rated output current at 24 Vdc	3 Adc	5 Adc	10 Adc	5 Adc
Real Power Boost	6 A for 4 s + 4.5 A for 2 s	10 A for 4 s + 7.5 A for 2 s	20 A for 4 s + 15 A for 2 s	10 A for 4 s + 7,5 A for 2 s
Top Boost for 25 ms	14 Adc	21 Adc	60 Adc	30 Adc
Current limitation	typ. 1.1 × I _{rated}			
Efficiency	typ. 87 %	typ. 87 %	typ. 91 %	typ. 91 %
Max. power loss (idling/nominal load)	1,7/12,3 W	4,1/15,6 W	21/21 W	21/21 W
Residual ripple	70 mVpp			
Parallel operation	yes, for increased power			
Serial operation	yes, for increased voltage			
WAGO multi plug system	Serie 231 ≤2,5 mm ²			
Signaling				
Power Good (DC OK), LED	U _{out} > 20.4 Vdc: LED green lights, LED red off			
Power Good (DC OK), potential free	Relay contact, type switch over, 30 Vdc/1 A (240 Vac/0.5 A)	Relay contact, type switch over, 24 Vdc/1 A (120 Vac/0.5 A)		
Stand-by-input	active at 10 to 28.8 Vdc			
WAGO multi plug system	Series 733 ≤0.5 mm ²			
Mechanical data				
Dimensions W × H × T (without plug)	40 x 127 x 163 mm	57 x 127 x 163 mm	57 x 127 x 179 mm	57 x 127 x 179 mm
Weight	0,8 kg	1,0 kg	1,3 kg	1,3 kg
Order numbers				
Economy	PVSE 230/24-3	PVSE 230/24-5	PVSE 230/24-10	PVSE 230/48-5
With active in-crush limiter	PVSE 230/24-3B	PVSE 230/24-5B	-	
Connector for signaling	PV-CON			

PVSE 400

Technical data



ECONOMY					
PVSE 400/24-10	PVSE 400/24-20	PVSE 400/24-40	PVSE 400/30-25A	PVSE 400/48-20	
240 Watt	480 Watt	960 Watt	750 Watt	960 Watt	
Primary switched mode supply, three phase primary switched mode power supply for mounting on DIN 35 mm rail					
Safety standards					
Safety		EN 60950, UL 60950, UL 508			
EMV		EN 61204-3 (product standard)			
Approvals					
UL		UL/CSA 60950 recognised UL 508 listed/CSA 22.2 No. 107.1 3rd Ed. listed		prepared	
Environment					
Ambient temperature		-10° C to +70° C, Derating -3 %/K > +50° C		-10° C bis +70° C, Derating -3 %/K > +50° C	
Storage temperature		-25° C to +85° C			
Cooling		AN (natural air convection cooling)			
Allowable humidity		30 to 85 % relative humidity, no dew			
Safety and protection					
HV test voltage		4,2 kVdc			
Construction		enclosed for installation in switching cabinets			
Protection index		IP 20 (to EN 60529)			
Safety extra-low voltage		EN 60950 (SELV) and EN 60204 (PELV)			
Safety class		prepared for safety class I			
Conductors		Use copper conductors only, rated 60° C or 60/75° C			
Installation		For installation in pollution degree 2 environment			
Feedback voltage		≤35 Vdc			
Input					
Rated input voltage		3 × 400–500 Vac			
Operating input voltage range		340–550 Vac (480–780 Vdc)			
Rated frequency range		50–60 Hz			
Rated input current at 340 Vac		0.6 Aac (24 Vdc/10 Adc)	1.0 Aac (24 Vdc/20 Adc)	2.0 Aac (24 Vdc/40 Adc)	2.0 Aac (24 Vdc/40 Adc)
In-crush current (cold)		<30 Ap			
Active in-crush current limiter, optional		typ. rated input current			
Internal fuse		3 × 1.6 AT	3 × 2.5 AT	3 × 3.2 AT	3 × 3.2 AT
External protection device (UL-recognised)		not necessary			
Recommended external protection		Motor protection switch, Setting value 1.6 A, Adj. range 1.6–2.5 A	Motor protection switch, Setting value 2.5 A, Adj. range 2.5–4.0 A	Motor protection switch, Setting value 3.2 A, Adj. range 2.5–4.0 A	Motor protection switch, Setting value 3.2 A, Adj. range 2.5–4.0 A
Leakage current		typ. 1 mA			
Mains drop compensation		typ. 10 ms (at rated voltage 3 × 400 Vac)			
Over voltage protection		through varistor in primary circuit			
WAGO multi plug system		Series 231, ≤2,5 mm ²			
Output					
Rated output voltage		24 Vdc ±1 %		30 Vdc ±1 %	
Rated output voltage range		22.8–28.8 Vdc			
Rated output current		10 Adc at 24 Vdc	20 Adc at 24 Vdc	40 Adc at 24 Vdc	20 Adc at 24 Vdc
Real Power Boost		100 % up to 4 Sek., 50 % up to 8 Sek.			
Top Boost		70 Adc for 50 ms	80 Adc for 50 ms	100 Adc for 50 ms	62 Adc for 50 ms
Current limitation		typ. 1.1 × I _{rated}			
Efficiency		typ. 91.7 %	typ. 92 %	typ. 93.1 %	typ. 92 %
Max. power loss (idling/nominal load)		7.8/19.92 W	8.3/38.4 W	7.0/66.2 W	5.2/4.7 W
Residual ripple		<150 mVpp			
Parallel operation		yes, for increased power			
WAGO multi plug system		Series 231 ≤2.5 mm ²		Series 831 ≤10.0 mm ²	
Signalling					
Power Good (DC OK), LED		U _{out} > 20.4 Vdc: LED green lights, LED red off		U _{out} > 25 Vdc: LED green lights, LED red off	U _{out} > 36 Vdc: LED green lights, LED red off
Power Good (DC OK), LED		Optional relay contact, type: switch over, switching capacity: 30 Vdc/1 A (240 Vac/0.5 A)			
WAGO multi plug system		Series 733 ≤0.5 mm ²			
Mechanical data					
Dimensions W × H × T (without plug)		57 × 127 × 179 mm	77 × 127 × 179 mm	128 × 127 × 205 mm	128 × 127 × 205 mm
Weight		1.0 kg	1.3 kg	2.5 kg	2.5 kg
Order numbers					
Economy		PVSE 400/24-10	PVSE 400/24-20	PVSE 400/24-40	PVSE 400/40-20
With power good signal, potential-free		PVSE 400/24-10A	PVSE 400/24-20A	PVSE 400/24-40A	PVSE 400/30-25A
With active in-crush limiter		PVSE 400/24-10B	PVSE 400/24-20B	PVSE 400/24-40B	–
With power good signal, potential-free and with active in-crush limiter		PVSE 400/24-10Z	PVSE 400/24-20Z	PVSE 400/24-40Z	–

PVSB 400

Technical data



BASIC			
PVSB 400/24-10	PVSB 400/24-20	PVSB 400/24-40	
240 Watt	480 Watt	960 Watt	
Primary switched mode supply, three phase primary switched mode power supply component for mounting on DIN 35 mm rail			
Safety standards			
Safety		EN 60950, UL 60950, UL 508	
EMV		EN 61204-3 (product standard)	
Approvals			
UL		UL/CSA 60950 recognised UL 508 listed/CSA 22.2 No. 107.1 3rd Ed. listed	
Environment			
Ambient temperature		-10° C to +70° C, Derating -3 %/K > +50° C	
Storage temperature		-25° C to +85° C	
Cooling		AN (natural air convection cooling)	
Allowable humidity		30 to 85 % relative humidity, no dew	
Safety and protection			
HV test voltage		4,2 kVdc	
Construction		enclosed for installation in switching cabinets	
Protection index		IP 20 (to EN 60529)	
Safety extra-low voltage		EN 60950 (SELV) and EN 60204 (PELV)	
Safety class		prepared for safety class I	
Conductors		Use copper conductors only, rated 60° C or 60/75° C	
Installation		For installation in pollution degree 2 environment	
Feedback voltage		≤35 Vdc	
Input			
Rated input voltage		3 × 400–500 Vac	
Operating input voltage range		340–550 Vac (480–780 Vdc)	
Rated frequency range		50–60 Hz	
Rated input current at 340 Vac		0.6 Aac (24 Vdc/10 Adc)	1.0 Aac (24 Vdc/20 Adc)
In-crush current (cold)		<30 Ap	
Active in-crush current limiter, optional		typ. rated input current	
Internal fuse		3 × 1.6 AT	3 × 2.5 AT
External protection device (UL-recognised)		not necessary	
Recommended external protection		Motor protection switch, Setting value 1.6 A, Adj. range 1.6–2.5 A	Motor protection switch, Setting value 2.5 A, Adj. range 2.5–4.0 A
Leakage current		typ. 1 mA	
Mains drop compensation		typ. 10 ms (at rated voltage 3 × 400 Vac)	
Over voltage protection		through varistor in primary circuit	
WAGO multi plug system		Series 231, ≤2,5 mm ²	
Output			
Rated output voltage		24 Vdc ±1 %	
Rated output voltage range		22.8–28.8 Vdc	
Rated output current		10 Adc at 24 Vdc	20 Adc at 24 Vdc
Real Power Boost		100 % up to 4 Sek., 50 % up to 8 Sek.	
Top Boost		70 Adc for 50 ms	80 Adc for 50 ms
Current limitation		typ. 1.1 × I _{rated}	
Efficiency		typ. 91.7 %	typ. 92 %
Max. power loss (idling/nominal load)		7.8/19.92 W	8.3/38.4 W
Residual ripple		<150 mVpp	
Parallel operation		yes, for increased power	
WAGO multi plug system		Series 231 ≤2.5 mm ²	
Signalling			
LED red		Fault, e.g. U _{out} < Power Good: LED lights	
LED yellow (configurable)		Warning, e.g. I _{out} > I _{rated} : LED lights	
LED green		U _{out} ≥ Power Good: LED lights	
Active switched outputs (configurable)		24 Vdc/≤25 mA	
Interface		RS-232	
WAGO multi plug system		Series 733 ≤0.5 mm ²	
Mechanical data			
Dimensions W × H × T (without plug)		57 × 127 × 179 mm	77 × 127 × 179 mm
Weight		1.0 kg	1.3 kg
Order numbers			
Basic		PVSB 400/24-10	PVSB 400/24-20
With active in-crush limiter		PVSB 400/24-10B	PVSB 400/24-20B

PVSL 400

Technical data



LINE		
PVSL 400/24-10	PVSL 400/24-20	PVSL 400/24-40
240 Watt	480 Watt	960 Watt
Primary switched mode supply, three phase primary switched mode power supply component for mounting on DIN 35 mm rail		

Safety standards			
Safety	EN 60950, UL 60950, UL 508		
EMV	EN 61204-3 (product standard)		
Approvals			
UL	UL/CSA 60950 recognised UL 508 listed/CSA 22.2 No. 107.1 3rd Ed. listed		
Environment			
Ambient temperature	-10° C to +70° C, Derating -3 %/K > +50° C	-10° C to +55° C, Derating -5 %/K > +45° C 400 to 500 Vac, Derating -0,5 Adc/10 Vac > 440 Vac	
Storage temperature	-25° C to +85° C		
Cooling	AN (natural air convection cooling)		
Allowable humidity	30 to 85 % relative humidity, no dew		
Safety and protection			
HV test voltage	4,2 kVdc		
Construction	enclosed for installation in switching cabinets		
Protection index	IP 20 (to EN 60529)		
Safety extra-low voltage	EN 60950 (SELV) and EN 60204 (PELV)		
Safety class	prepared for safety class I		
Conductors	Use copper conductors only, rated 60° C or 60/75° C		
Installation	For installation in pollution degree 2 environment		
Feedback voltage	≤35 Vdc		
Input			
Rated input voltage	2/3 × 400–500 Vac		
Operating input voltage range	340–550 Vac (480–780 Vdc)		
Rated frequency range	50–60 Hz		
Rated input current at 340 Vac	0,6 Aac (24 Vdc/10 Adc)	1,0 Aac (24 Vdc/20 Adc)	2,0 Aac (24 Vdc/40 Adc)
In-crush current (cold)	<30 Ap		
Active in-crush current limiter, optional	typ. rated input current		
Internal fuse	3 × 1,6 AT	3 × 2,5 AT	3 × 3,2 AT
External protection device (UL-recognised)	not necessary		
Recommended external protection	Motor protection switch, Setting value 1,6 A, Adj. range 1,6–2,5 A	Motor protection switch, Setting value 2,5 A, Adj. range 2,5–4,0 A	Motor protection switch, Setting value 3,2 A, Adj. range 2,5–4,0 A
Leakage current	typ. 1 mA		
Mains drop compensation	typ. 10 ms (at rated voltage 3 × 400 Vac)		
Over voltage protection	through varistor in primary circuit		
WAGO multi plug system	Series 231, ≤2,5 mm ²		
Output			
Rated output voltage	24 Vdc ±1 %		
Rated output voltage range	22,8–28,8 Vdc		
Rated output current	10 Adc at 24 Vdc	20 Adc at 24 Vdc	40 Adc at 24 Vdc
Real Power Boost	100 % up to 4 Sek., 50 % up to 8 Sek.		
Top Boost	70 Adc for 50 ms	80 Adc for 50 ms	100 Adc for 50 ms
Current limitation	typ. 1.1 × I _{rated}		
Efficiency	typ. 91,7 %	typ. 92 %	typ. 93,1 %
Max. power loss (idling/nominal load)	7,8/19,92 W	8,3/38,4 W	7,0/66,2 W
Residual ripple	<150 mVpp		
Parallel operation	yes, for increased power		
WAGO multi plug system	Series 231 ≤2,5 mm ²	Series 831 ≤10,0 mm ²	
Signalling			
LED red	Fault, e.g. U _{out} < Power Good: LED lights		
LED yellow (configurable)	Warning, e.g. I _{out} > I _{rated} : LED lights		
LED green	U _{out} ≥ Power Good: LED lights		
Active switched outputs (configurable)	24 Vdc/≤25 mA		
Interface	RS-232		
WAGO multi plug system	Series 733 ≤0,5 mm ²		
Mechanical data			
Dimensions W × H × T (without plug)	57 × 127 × 179 mm	77 × 127 × 179 mm	128 × 127 × 205 mm
Weight	1,0 kg	1,3 kg	2,5 kg
Order numbers			
Line	PVSL 400/24-10	PVSL 400/24-20	PVSL 400/24-40
With active in-crush limiter	PVSL 400/24-10B	PVSL 400/24-20B	PVSL 400/24-40B

PVFE 24

Technical data



ECONOMY			
PVFE 24/24-12	PVFE 24/24-20	PVFE 24/24-24	PVFE 24/24-40
Electronic fuse with two channels for mounting on DIN 35 mm rail		Electronic fuse with four channels for mounting on DIN 35 mm rail	

Safety standards				
Safety	EN 60950, UL 508			
EMC	EN 61000-6-2 and EN 61000-6-3 (generic standard)			
Approvals				
UL	UL 60950, UL 508			
Environment				
Ambient temperature	-10 °C to +60 °C			
Storage temperature	-25 °C to +85 °C			
Cooling	Natural air convection cooling			
Allowable humidity	30 to 85% relative humidity, no dew			
Safety and protection				
HV test voltage	500 Vdc (clamps to case)			
Construction	enclosed for installation in switching cabinets			
Protection index	IP 20 (to EN 60529)			
Safety extra-low voltage	EN 60950 (SELV) and EN 60204 (PELV)			
Safety class	III			
Reverse connection protection	no			
Input				
Designated input voltage	24 Vdc			
Voltage range	18 to 30 Vdc			
Remote-on input	repeat switch on between 18 and 30 Vdc for min. 50 ms			
Over voltage protection (transient)	through varistor at input			
WAGO Multi Connection System (+)	series 831, ≤10 mm ²			
WAGO Multi Connection System (signal,-)	series 231, ≤2,5 mm ²			
Output				
Designated output voltage	24 Vdc			
Voltage drop per channel at 6 A/10 A	140 mV/-	140 mV/240 mV	120 mV/-	120 mV/240 mV
Designated output current	1 bis 6 A (adjustable in 1 A steps)	1 bis 10 A (adjustable in 1 A steps)	1 bis 6 A (adjustable in 1 A steps)	1 bis 10 A (adjustable in 1 A steps)
Efficiency	typ. 96 %			
Max. power loss idling/nominal load	2 W/4 W (2 channels)		2 W/12 W (4 channels)	
Maximum turn on capacity	typ. 10.000 µF per 1 A rated current			
Feedback voltage	≤33 Vdc			
Internal fuse	6,3 AT per channel	15 AT per channel	6,3 AT per channel	15 AT per channel
Parallel operation of the individual channels	not permitted			
Series connection of several modules	not permitted			
WAGO Multi Connection System	series 231, ≤2,5 mm ²			
Signalling				
LED	green/yellow/red			
Potential free signal contact (configurable)	relay contact, type: switch over: 30 Vdc/1A (240 Vac/0,5 A)			
Active switched outputs (configurable)	24 Vdc/≤25 mA			
Interface	RS-232			
WAGO Multi Connection System	series 733, ≤0,5 mm ²			
Various				
Dimensions width x height x depth	40 x 127 x 163 mm			
Weight	0,8 kg			
Order numbers				
Standard (2 channels)	PVFE 24/24-12	PVFE 24/24-20	PVFE 24/24-24	PVFE 24/24-40
connector for signaling, optional	PV-CON			

PVFB 24

Technical Data



BASIC

PVFB 24/24-32

Electronic fuse with 4 channels for mounting on DIN 35 mm rails

Standards	
Safety	EN 60950, UL 1077
EMC	EN 61000-6-2 and EN 61000-6-3 (generic standard)
Approvals	
UL	UL 60950, UL 508
Environment	
Ambient temperature	-10° C to +60° C
Storage temperature	-25° C to +85° C
Cooling method	Natural air convection cooling
Allowable humidity	30 to 85% relative humidity, no dew
Safety and protection	
HV test voltage	500 Vdc (clamps to cage)
Construction	Enclosed for installation in switching cabinets
Protection index	IP 20 (to EN 60529)
Safety extra-low voltage	EN 60950 (SELV and EN 60204 (PELV)
Safety class	III
Reverse connection protection	no
Input	
Designated input voltage	24 Vdc
Voltage range	18 to 30 Vdc
Overvoltage protection (transient)	through varistor at input
WAGO multi-connector system (++)	Serie 831, ≤10 mm ²
WAGO multi-connector system (+-)	Serie 231, ≤2.5 mm ²
Output	
Designated output voltage	24 Vdc
Voltage drop per channel at 8 A	140 mV
Designated output current	1-8 A (adjustable in 1 A steps)
Trip-Time	Typ. 100 ms (depending on rated current from 0.1 to 1.5 sec.)
Aktive current limiting	typ. 1,5 × rated current
Efficiency	typ. 96 %
max. power loss (idling/nominal load)	2 W/8.2 W
Maximal turn on capacity	typ. 20.000 µF
Feedback voltage	≤33 Vdc
Internal fuse	15 AT per channel
Parallel option of individual channels	Not permitted
Series connection of several modules	Not permitted
WAGO multi-connector system	Serie 231, ≤2.5 mm ²
Signaling	
LED	green/yellow/red
Active switched output (configurable)	24 Vdc/≤25 mA
Interface	RS-232
WAGO multi-connector system	Serie 733, ≤0.5 mm ²
Various	
Dimensions W x H x D (without plug)	40 × 127 × 163 mm
Weight	0.8 kg
Order number	
	PVFB 24/24-32

PVUA 24

Technical Data



PVUA 24/24-10

PVUA 24/24-20

Management Module for accumulators for mounting DIN 35 rail

Standards	
Safety	EN 60950, UL 60950, UL 508
EMC	EN 61000-6-2 and EN 61000-6-3 (generic standard)
Approvals	
UL (pending)	UL/CSA 60950 recognised UL 508 listed
Environment	
Ambient temperature	-10° C to +60° C
Storage temperature	-25° C to +85° C
Cooling	Natural air convection cooling
Allowable humidity	30 to 85% relative humidity, no dew
Safety and protection	
HV test voltage	500 Vdc (clamps to case)
Type	enclosed for installation in switching cabinet
Protection index	IP 20 (to EN 60529)
Safety extra-low voltage	EN 60950 (SELV and EN 60204 (PELV)
Safety class	III
Reverse connection protection	Yes
Parallel operation	Yes, to increase buffer time (temperature measuring for only one battery module)
Input	
Rated input voltage	24 Vdc
Operating input voltage range	22 to 29 Vdc
Input current at 24 Vdc (standby/charging process/max.)	0,1 A/0,8 A/10,8 A
WAGO multi-connector system	Serie 231, ≤2.5 mm ² Serie 831, ≤10 mm ²
Output	
Rated output voltage	24 Vdc
Operating output voltage (normal operation)	U _{in} -0,5 Vdc U _{in} -1 Vdc
Operating output voltage (buffer operation)	battery voltage -0,5 Vdc battery voltage -1 Vdc
Operating output current	10 A 20 A
Over current protection with hiccup mode	typ. 11-14 A typ. 22-26 A
Remote power off (buffer operation)	yes
Wirkungsgrad	typ. 95 %
Max. power loss idling/nominal load	15 W/20 W 15 W/30 W
Feedback voltage	≤35 Vdc
WAGO multi-connector system	Serie 231, ≤2.5 mm ² Serie 831, ≤10 mm ²
Storage medium	
Rated voltage	24 Vdc
Charging voltage upper level	26 to 29,5 Vdc (adjustable or temperature controlled)
Charging current	≤0,6 A ≤1,0 A
Recommended storage medium	PVA 24/3,2Ah, PVA 24/7Ah, PVA 24/12 Ah PVA 24/7Ah, PVA 24/12 Ah
WAGO multi-connector system	Serie 231, ≤2.5 mm ² Serie 831, ≤10 mm ²
Signalling	
LED	green/yellow/red
Potential free signal contact (configurable)	Relay contact, type changeover, 30 Vdc/1 A (240 Vac/0,5 A)
Active switched outputs (configurable)	24 Vdc/≤25 mA
Interface	RS-232
WAGO multi-connector system	Serie 733, ≤0,5 mm ²
Various	
Dimensions W x H x D (without plug)	40 × 127 × 163 mm 57 × 127 × 179 mm
Weight	0.8 kg 1.2 kg
Order number	
	PVUA 24/24-10 PVUA 24/24-20
Connector for signaling	PV-CON (optional)

PVA 24

Technical data



	PVA 24/3,2Ah	PVA 24/7Ah	PVA 24/12Ah
PVA 24 are maintenance-free lead gel rechargeable batteries for use with PVUA 24			
General data			
Ambient temperature	-10° C to +40° C		
Storage	-25° C to +50° C		
Protection index	IP 20		
Safety class	III		
Safety	Batteries VdS inspected		
Service Life	5 years at 20° C, 4 years at 30° C, 2 years at 40° C		
Electrical data			
Nominal voltage	24 Vdc		
Nominal capacity	3.2 Ah	7 Ah	12 Ah
Max. loading current	0.8 A	1.8 A	3 A
End-of-charge voltage (at 25 °C)	27 Vdc		
Typ. buffer time at 10 A current requirement	6 min	20 min	46 min
Typ. buffer time at 20 A current requirement	-	5 min	22 min
Nominal output current	12 A	21 A	21 A
Output fuse, internal	15 AT	21 AT	25 AT
Connection in parallel	yes to increase the buffer time		
Resistor for temperature measurement	NTC K164/4,7 KΩ		
Mechanical data			
WAGO multi plug system (In/Output)	Series 231, ≤2,5 mm ²	Series 831, ≤10 mm ²	
WAGO multi plug system (temperature measurement)	Series 231, ≤2,5 mm ²		
Mounting	Direct screw mounting		
Dimension (width x height x depth)	73 x 165 x 175,5	86 x 236 x 217,5	120,5 x 236 x 217,5 mm
Weight	4,2 kg	6,5 kg	10,6 kg
Order number			
	PVA 24/3,2Ah	PVA 24/7Ah	PVA 24/12Ah

PVUC 24

Technical data



	PVUC 24/24-10	PVUC 24/24-20
Capacitive buffer module for mounting on DIN 35 mm rail		
Standards		
Safety	EN 60950, UL 60950, UL 508	
EMC	EN 61000-6-2 and EN 61000-6-3 (generic standard)	
Safety extra-low voltage	EN 60950 (SELV) and EN 60204 (PELV)	
Approvals		
UL	UL 60950/UL 508	
Environment		
Ambient temperature	-10° C to +50° C	
Storage temperature	-10° C to +60° C	
Lifetime expectancy	typ. 87,000 h (at 25° C operational temperature) typ. 30,500 h (at 40° C operational temperature)	
Cooling	AN (natural air convection cooling)	
Allowable humidity	30–85% relative humidity, no dew	
Safety and protection		
HV test voltage	500 Vdc (clamps to case)	
Construction	enclosed for installation in switching cabinet	
Protection index	IP 20 (to EN 60529)	
Safety class	III	
Reverse connection protection	Yes	
Input		
Designated input voltage	24 Vdc	
Voltage range	20 to 30 Vdc	
Charging time	Typ. 5 minutes	
Threshold level (adjustable)	20 to 24 Vdc	
Input current (ready/charging process/max.)	60 mA/1,0 A/11 A	60 mA/1,0 A/22 A
Connections: WAGO multi-connector system	Series 231 ≤2,5 mm ²	Series 831 ≤10 mm ²
Output		
Designated output voltage	24 Vdc	
Output voltage, normal operation	U _{in} -0,5 Vdc (at 10 A)	U _{in} -1 Vdc (at 20 A)
Output voltage, buffer operation	20,4 to 24 Vdc (adjustable)	
Output current	10 A	20 A
Typ. buffer time at nominal current	0,4 s	0,4 s
Overcurrent protection (buffer operation)	electronic, typ. 11 A	electronic, typ. 22 A
Feedback voltage	≤35 Vdc	
Parallel connection option	Yes	
Power losses	1,5 W/6,5 W	1,5 W/15 W
Connections: WAGO multi-connector system	Series 231 ≤2,5 mm ²	Series 831 ≤10 mm ²
Signalling		
Power Good at output (DC OK), LED	U _{out} > approx. 20 Vdc: green LED lights up, red LED turns off	
DC OK and and capacitors charged, floating contact	Relay contact, type: changeover contact, switching capacity: 30 Vdc/1 A (240 Vac/0,5 A)	
Charging of internal capacitors, LED	charging: yellow LED lights up	
Connections: WAGO multi-connector system	Series 231 ≤2,5 mm ²	
Various		
Dimensions W x H x D (without connecting plug)	57 x 127 x 179 mm	
Weight	1,0 kg	
Order number	PVUC 24/24-10	PVUC 24/24-20

PVRE 24

Technical data



ECONOMY
PVRE 24/24-20
Redundancy module for mounting on DIN 35 mm rails

Standards	
Safety	EN 60950, UL 60950, UL 508
EMC	EN 61000-6-2 and EN 61000-6-3 (generic standard)
Approvals	
UL	UL 60950 UL 508
Environment	
Ambient temperature	-10° C to +60° C
Storage temperature	-25° C to +85° C
Cooling method	Natural air convection cooling (vertically fitting)
Allowable humidity	30 to 85 % relative humidity, no dew
Safety and protection	
HV test voltage	500 Vdc (clamps to case)
Construction	enclosed for installation in switching cabinets
Protection index	IP 20 (to EN 60529)
Safety extra-low voltage	EN 60950 (SELV) and EN 60204 (PELV)
Safety class	III
Input	
Designated input voltage	24 Vdc
Voltage range	18 to 30 Vdc
Rated input current	2 x 20 A/1 x 40 A
Reverse connection protection	yes
WAGO Multi Connection System	Series 831, ≤10.0 mm²
Output	
Rated output voltage	24 Vdc
Voltage drop input/output	0.6 V
Rated output current	40 A
Efficiency	>97 %
Max. power loss (idling/nominal load)	1.5 W/14 W (20 A), 1.5 W/26 W (40 A)
Feedback voltage	≤33 Vdc
Internal fuse	no
Parallel operation individual channels	yes
WAGO Multi Connection System	Series 831, ≤10.0 mm²
Signalling	
LED	green/yellow/yellow
Potential free signal contact (configurable)	Relay contact, type: switch over 30 Vdc/1 A (240 Vac/0.5 A)
WAGO Multi Connection System	Series 231, max. 2.5 mm²
Various	
Dimensions W x H x D (without plug)	40 x 127 x 163 mm
Weight	0.8 kg
Order numbers	
	PVRE 24/24-20

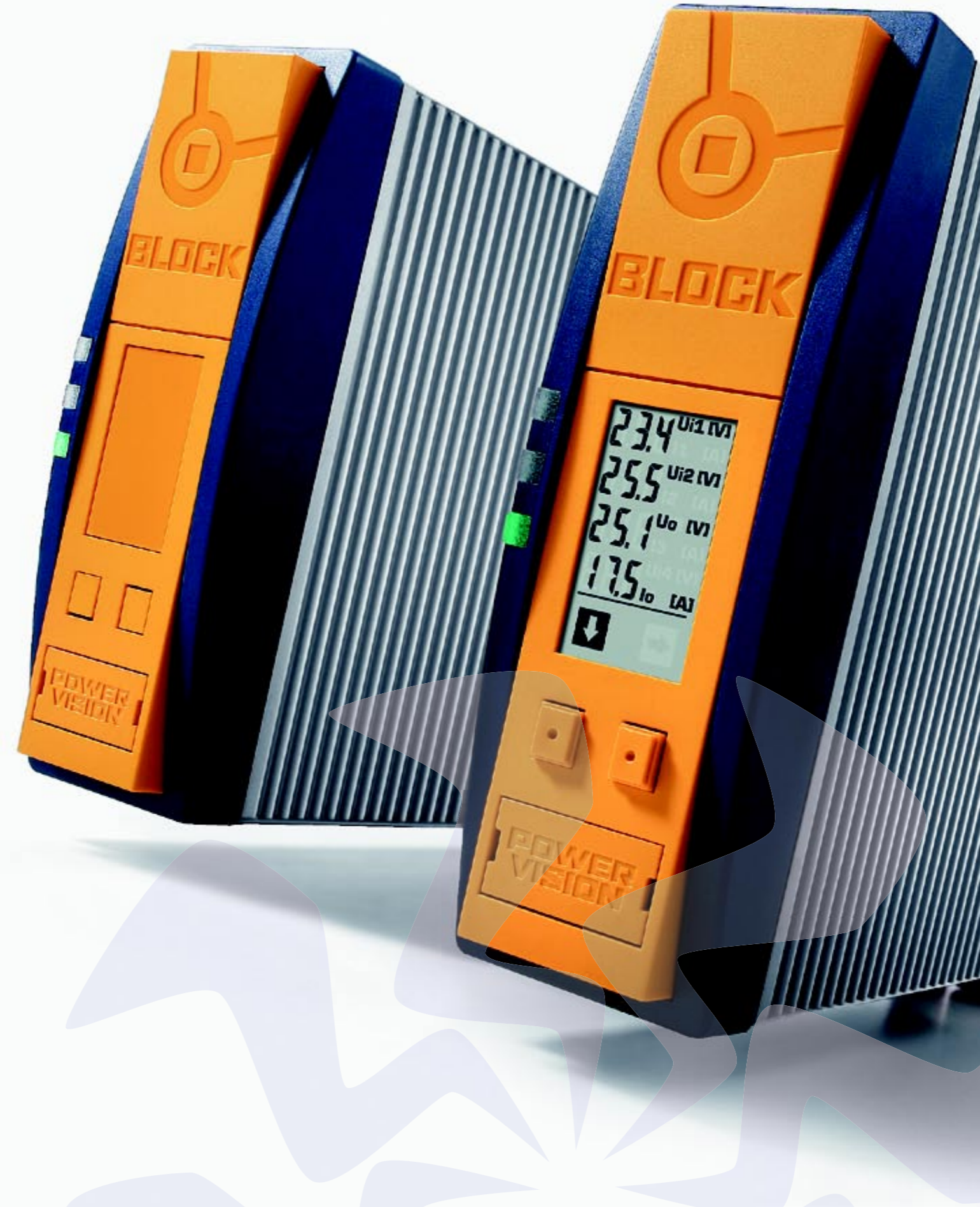
PVRB 24

Technical Data



BASIC
PVRB 24/24-20
Redundancy module with 2 channels for 24 V supplies, for TH35 rail mounting or screw mounting

Standards	
Safety	EN 60950, UL 60950, UL 508
EMC	EN 61000-6-2 and EN 61000-6-3 (generic standard)
Approvals	
UL (pending)	UL/CSA 60950 recognised UL 508 listed
Environment	
Ambient temperature	-10° C to +60° C
Storage temperature	-25° C to +85° C
Cooling method	Natural air convection cooling (vertically fitting)
Allowable humidity	30 to 85 % relative humidity, no dew
Safety and protection	
HV test voltage	500 Vdc (clamps to case)
Construction	enclosed for installation in switching cabinets
Protection index	IP 20 (to EN 60529)
Safety extra-low voltage	EN 60950 (SELV) and EN 60204 (PELV)
Safety class	III
Electrical data	
Rated voltage	24 Vdc
Range	18-30 Vdc
Voltage (max. permissible)	39 V (transient)
Connections: WAGO multi-connector system	Serie 831, ≤10.0 mm² (+), Serie 231, ≤2.5 mm² (-)
Rated current per input and output	20 A
Maximum current per input and output	30 A (40 A for 5 s real power boost)
Parallel connection	Yes, as long as the maximum current at the output does not exceed the maximum permissible value.
Reverse polarity protection	Yes
Efficiency	>97 %
Signalling	
Red LED	Error: U _{out} < DC OK: LED lights up
Yellow LED	Warning: E.g. U _{in1} or U _{in2} failed: LED lights up
Green LED	U _{out} ≥ DC OK: LED lights up
Active switching outputs (configurable)	24 Vdc/≤25 mA
Interface	RS-232
Isolated signal contact	Relay contact, Type: changeover, 30 Vdc/1 A (240 Vac/0.5 A)
Connections: WAGO multi-connector system	Serie 733, ≤0.5 mm² (active switching outputs, RS-232), Serie 231, max. 2.5 mm² (isolated signal contact)
Various	
Dimensions W x H x D (without plug)	40 x 127 x 163
Weight	0.8 kg
Order number	PVRB 24/24-20



Real Power Boost: Reliable starting of heavy loads thanks to huge power reserves ►►Page 40



Top Boost: Transient current rise makes possible the selective tripping of circuit breakers at 24 Vdc ►►Page 41



LED signalling: Colour-coded LEDs provide information about the operational status of the device



Parallel connection option: For increased power and redundancy



2-phase operation: Error-free function 3-phase devices even if one phase fails irreparably



Active inrush current limiting: Actively limits the inrush current of the devices to the rated input current



Active current limiting in the event of an error: Current limiting is activated in the event of an overload at the device output



RS-232 interface: Used to set the device parameters and to visualise relevant operating data ►►Page 43



DC current and voltage monitoring: Permanent current and voltage monitoring at 24 Vdc



Configurable overcurrent behaviour: Implementation of output characteristic for optimum dimensioning of the entire system ►►Page 42



Display: Used to set the device parameters and visualise operating data.



Active signal outputs: 24 Vdc signal outputs for remote monitoring



AC power input monitoring: Permanent monitoring of voltage, frequency and phase sequence direction on the primary side



Stabilised output voltage: Stabilised and configurable output voltage



Non-stabilised output voltage: Output voltage which is dependent upon the input voltage and the load ratios of the power supply



Isolated DC OK signal contact: Isolated changeover contact for remote monitoring of the output voltage



Isolated signal contact: Isolated signal contact for remote monitoring



Timer functions: Precisely timed control of important functions such as the hour counter, delayed switching in or time-driven overcurrent characteristics



Fault memory: Faults can be diagnosed directly on the device ►►Page 43



High degree of installation flexibility: The devices are available in two different installation versions with a variety of mounting options ►►Page 40



Inclusive of software: Free software for parameter setting and visualisation

