

The Schneider Electric solution for active harmonic filtering in industrial installations.

PB502824_R_eps



AccuSine PCS+ Specifications

Technical Specifications

Standard RMS output current ratings	60 A, 120 A, 200 A, 300 A - 380 V AC to 480 V AC 47 A, 94 A, 157 A, 235 A - 480-600 V AC 40 A, 80 A, 133 A, 200 A - 600-690 V AC
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Electrical System Characteristics

Nominal voltage	380-480 V AC; +10%/-15% 480-600 V AC; +10%/-15% 600-690 V AC; +10%/-15%
Nominal Frequency	50/60 Hz, ± 3 Hz auto sensing
Number of phases	3-phase, with or without neutral
Operation with single phase loads	Yes; no effect on neutral current

Technical Product Characteristics

Power electronics	IGBT; 3 level inverter
Topology	Digital harmonic FFT Digital reactive power
Losses	At 480 V AC < 3 %; at 690 V CA < 5 %
Current transformers (CT)	Any ratio with 1 or 5 ampere secondary Type 1 accuracy 50/60 or 400 Hz rated Grounded
Quantity of CT	2 or 3 for 3-wire electrical system 3 required for 4-wire electrical system
CT VA loading	15 m Ω
Spectrum cancellation	2 nd to 51 st , discrete; fully selectable per harmonic order (amplitude and on/off)
Control basis	Closed loop for new installations ⁽¹⁾ Open loop compatible for retrofit applications
CT Position	Closed Loop Control: Source sense (at mains) CT or Load sense CT for single unit ⁽²⁾ Open Loop Control: Load sense CT or source sense CT for single unit ⁽³⁾
Harmonic Attenuation	Closed Loop: < 3 % THD(i); max 20:1 THD(i) reduction with load harmonic current above 50 % of AccuSine PCS+ rating Open Loop: < 5 % TDD Requires 3 % or higher inductive impedance per nonlinear load
Harmonic Operational Features	% THDi set point % THDv set point
Harmonic avoidance	Output at specific harmonic order turned off if resonance or lack of impedance detected; or manually turned off
Parallel operation	Up to 10 units per set of CT (to 51st order), any size combination Backward compatibility with AccuSine PCS operated in parallel. Contact your SE sales office for applications of more than 10 units
Parallel operation options	Master/Master (masters receive mains CT) Master/Slave Multi-Master/multi-slave Same as AccuSine PCS for retrofits
Parallel sequence options	Lead/lag with unit rotation: one unit operates to full capacity before next unit turns on; timed rotation. Load Share: All operating units function at the same output percentage.
Parallel redundancy	Any unit with CT connections will automatically become master if the controlling master is taken offline. Automatic increase in output of all units to make up capacity of any offline unit.
Parallel HMI control	Any unit permits viewing and changing parameter settings of complete system or any other unit in parallel system
Parallel communications	Proprietary COM Bus between operating units
Power factor correction	Optimized unity PF, Leading (capacitive) or lagging (inductive) power factor (Cos ϕ) to target
Mains current balancing	Negative sequence current injected to balance fundamental current on the mains due to load imbalance (inherently corrects displacement PF (Cos ϕ))
Control response time	25 μ s
Harmonic correction time	2 cycles
Reactive correction time	1/4 cycle
Display	144 mm QVGA TFT 64k-color touchscreen
Languages	English
Operator interface	Magelis HMI STU touch panel screen
Display parameters	100's: includes THDi, THDv, oscilloscope for viewing many selected parameters, phasor diagrams, load power, measured currents for I _h , I _s , I _f , I _l neg seq, PF (Cos ϕ), injected currents for I _h , I _l reactive, I _l neg seq, etc.

(1) Default and preferred control method.

(2) Auxiliary CT required for paralleling of units with Load sense CT position.

(3) Auxiliary CT required for paralleling of units with Source (mains) sense CT position.

AccuSine PCS+

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Communications Capability	Modbus RTU, Modbus TCP/IP
Discrete input/outputs	4 input and 4 output dry contacts; assignable
Noise level (ISO3746)	<70 db at one meter from unit surface
Color	RAL7035 Enclosure; RAL7022 Plinth (floor standing units)
Earthing (Grounding) systems	Supports TT, TN, and IT grounding systems; Solidly, low, and high resistance grounded; ungrounded; corner grounded delta; high leg delta EMC filter ground switch for IT, high resistance ground or corner grounded systems

Environmental Conditions

Operating Temperature	60 A, 120 A & 200 A: IP00, IP20, UL Type Open, & UL Type 1 configurations -0 °C to 45 °C All others 0 °C to 40 °C Derate 2 % per degree °C to 50 °C
Relative humidity	to 95 %, noncondensing
Seismic rating	complies with IBC and ASCE7
Operating Altitude	1000 m (derate 1 %/100 m above), max 4800 m
Automatic rollback of output	Occurs whenever heatsink temperature sensor exceeds temperature limit
Ambient temperature shutdown	Absolute shutdown if air inlet temperature reaches 51 °C
Preset output limits (rms)	Programmable set limit due to altitude or ambient temperature - becomes fixed output limit
Storage (in original shipping container)	Temperature: -20 °C to 60 °C Relative humidity: to 95 %, noncondensing Clean, dry, and protected No conductive particles permitted
"Contaminant Levels - operating (IEC 60721-3-3)"	Chemical Class 3C2 Mechanical Class 3S2 No conductive particles permitted
"Contaminant levels - transport and storage (IEC 60721-3-3)"	Chemical Class 3C3 Mechanical Class 3S3 When stored in original shipping container No conductive particles permitted

Reference Standards

Design	CE EMC Certification IEC/EN 60439-1, EN 61000-6-4 Class A, EN 61000-6-2
Protection (enclosure)	IP00, IP20, IP31, IP54, UL Type 1, UL Type 2, UL Type 12, UL Type Open
Standards compliance/certification	cULus (UL508 , CSA 22.2 No. 14) CE Certified, ABS, Lloyds, other local standards

Installation

Wall mount	IP00, IP20, UL Type 1, & UL Type Open
Free Standing	IP31, IP54, UL Type 2, & UL Type 12
Circuit protection	IP00 and IP20 - external means required Free standing enclosures - Incoming circuit breaker or fused disconnect with mechanical door interlock
AIC Rating	to 415 V AC - 200 kA cULus; 125 kA IEC to 480 V AC - 200 kA cULus; 75 kA IEC to 600 V AC - 100 kA cULus; 100 kA IEC to 690 V AC - no cULus rating; 100 kA IEC
Cable entry	UL Type open, IP00, UL Type 1, and IP20 - bottom only Free standing - top and bottom entry through gland plates
PCBA protection	Conformal coating on all PCBAs Pollution Degree 2
Cooling configuration	Separate air plenums for heat sink section and PCBA section. Heat sink ('high heat plenum') input from bottom and exhaust out top. All components in high heat plenum rated IP54 or better => no filtering required. PCBA air supply must be clean and dry (filtering may be required). No conductive particles permitted.

Service provisions

HMI (Magelis STU)	Plain language output (no cryptic codes) USB port for upload of new software and download of operational records
Service port	USB port: commission, program, or diagnostics via a laptop computer when power is on or off; laptop provides power to control board when no unit power is present
Commissioning	On-board step-by-step process; CT automatic sizing, phase rotation, and polarity; external transformer ratio and phase shift; heat test, and more

Typical applications



Oil and gas

- Oil and gas platforms.
- Port cranes.
- Steel.
- Water/Wastewater.
- HVAC.



Water



Cement



HVAC

- Automotive.
- Process plants. Pulp and paper.
- Wind and solar farms.
- Lifts (ski or building).
- Marine vessels...



Building



Wind mills

Harmonic and PF Correction - 380-480 V models, 50/60 Hz							
Rated current	Frequency (Hz)	Reference Number	Enclosure Information			Frame ⁽¹⁾	Weight kg
			Rating	Style	Cable entry		
60	50/60	PCSP060D5IP00	IP00 (UL Type Open)	Wall Mount	Bottom	1	88
		PCSP060D5N2	UL Type 2	Floor Standing	Top or Bottom	2	277
		PCSP060D5IP31	IP31				
		PCSP060D5N12	UL Type 12				
		PCSP060D5IP54	IP54				
120	50/60	PCSP120D5IP00	IP00 (UL Type Open)	Wall Mount	Bottom	3	113
		PCSP120D5N2	UL Type 2	Floor Standing	Top or Bottom	4	287
		PCSP120D5IP31	IP31				
		PCSP120D5N12	UL Type 12				
		PCSP120D5IP54	IP54				
200	50/60	PCSP200D5IP00	IP00 (UL Type Open)	Wall Mount	Bottom	5	171
		PCSP200D5N2	UL Type 2	Floor Standing	Top or Bottom	6	397
		PCSP200D5IP31	IP31				
		PCSP200D5N12	UL Type 12				
		PCSP200D5IP54	IP54				
300	50/60	PCSP300D5IP00	IP00 (UL Type Open)	Wall Mount	Bottom	7	210
		PCSP300D5N2	UL Type 2	Floor Standing	Top or Bottom	8	422
		PCSP300D5IP31	IP31				
		PCSP300D5N12	UL Type 12				
		PCSP300D5IP54	IP54				

Note:

60 A IP20/UL Type 1 configuration requires ordering two items: PCSP060D5IP00 and PCSPWMKIT60A; adds 232 mm to length and 8.7 kg.
 120 A IP20/UL Type 1 configuration requires ordering two items: PCSP120D5IP00 and PCSPWMKIT120A; adds 232 mm to length and 9.3 kg.
 200 A IP20/UL Type 1 configuration requires ordering two items: PCSP200D5IP00 and PCSPWMKIT200A; adds 273 mm to length and 8.6 kg.
 300 A IP20/UL Type 1 configuration requires ordering two items: PCSP300D5IP00 and PCSPWMKIT300A; adds 273 mm to length and 8.6 kg.

Harmonic and PF Correction - 480-600 V models, 50/60 Hz							
Rated current	Frequency (Hz)	Reference Number	Enclosure Information			Frame ⁽¹⁾	Weight kg
			Rating	Style	Cable entry		
47	50/60	PCSP047D6N2	UL Type 2	Floor Standing	Top or Bottom	9	460
		PCSP047D6IP31	IP31				
		PCSP047D6N12	UL Type 12				
		PCSP047D6IP54	IP54				
94	50/60	PCSP094D6N2	UL Type 2	Floor Standing	Top or Bottom	9	498
		PCSP094D6IP31	IP31				
		PCSP094D6N12	UL Type 12				
		PCSP094D6IP54	IP54				
157	50/60	PCSP157D6N2	UL Type 2	Floor Standing	Top or Bottom	10	653
		PCSP157D6IP31	IP31				
		PCSP157D6N12	UL Type 12				
		PCSP157D6IP54	IP54				
235	50/60	PCSP235D6N2	UL Type 2	Floor Standing	Top or Bottom	10	757
		PCSP235D6IP31	IP31				
		PCSP235D6N12	UL Type 12				
		PCSP235D6IP54	IP54				

(1) See pages 12 to 14.

Selection Table

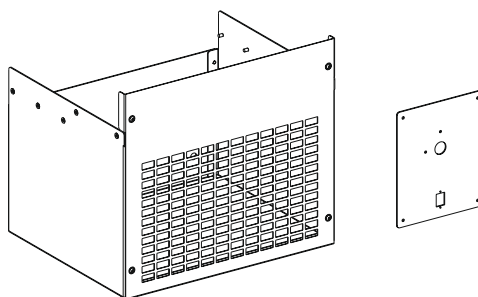
Harmonic and PF Correction - 600-690 V models, 50/60 Hz								
Rated current	Frequency (Hz)	Reference Number	Enclosure Information			Frame ⁽¹⁾	Weight kg	
			Rating	Style	Cable entry			
40	50/60	PCSP040D7N2	UL Type 2	Floor Standing	Top or Bottom	9	483	
		PCSP040D7IP31	IP31					
		PCSP040D7N12	UL Type 12					494
		PCSP040D7IP54	IP54					
80	50/60	PCSP080D7N2	UL Type 2	Floor Standing	Top or Bottom	9	533	
		PCSP080D7IP31	IP31					
		PCSP080D7N12	UL Type 12					542
		PCSP080D7IP54	IP54					
133	50/60	PCSP133D7N2	UL Type 2	Floor Standing	Top or Bottom	10	708	
		PCSP133D7IP31	IP31					
		PCSP133D7N12	UL Type 12					730
		PCSP133D7IP54	IP54					
200	50/60	PCSP200D7N2	UL Type 2	Floor Standing	Top or Bottom	10	826	
		PCSP200D7IP31	IP31					
		PCSP200D7N12	UL Type 12					839
		PCSP200D7IP54	IP54					

⁽¹⁾ See pages 12 to 14.

AccuSine+ Wall Mount Conversion Kit

- Converts IP00 (UL Type Open) to IP20 (UL Type 1) wall mounted enclosed assemblies.
- Includes HMI mounting plate and cable entry enclosure for mounting on the bottom of the IP00 assemblies.

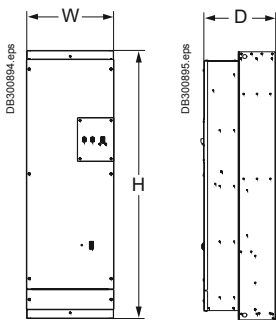
Wall mount kit reference	Assembled dimensions - IP20				IP20 assembly	Cable entry enclosure
	Unit rating (A)	Height	Width	Depth	Weight (kg)	Weight (kg)
PCSPWMKIT60A	60	1530	421	349	97.3	8.7
PCSPWMKIT120A	120	1730	421	384	122.0	9.3
PCSPWMKIT300A	200	1642	575	435	180.0	8.6
PCSPWMKIT300A	300	1882	575	435	218.6	8.6



Unit dimensions and installation guidelines for AccuSine PCS+ and AccuSine PFV+

Frame size figure	Exterior dimensions		
	Height mm	Width mm	Depth mm
1	1300	421	349
2	2092	800	500
3	1400	421	384
4	2089	800	500
5	1323	582	438
6	2089	900	600
7	1560	582	438
8	2092	900	600
9	2100	1300	500
10	2100	1400	600

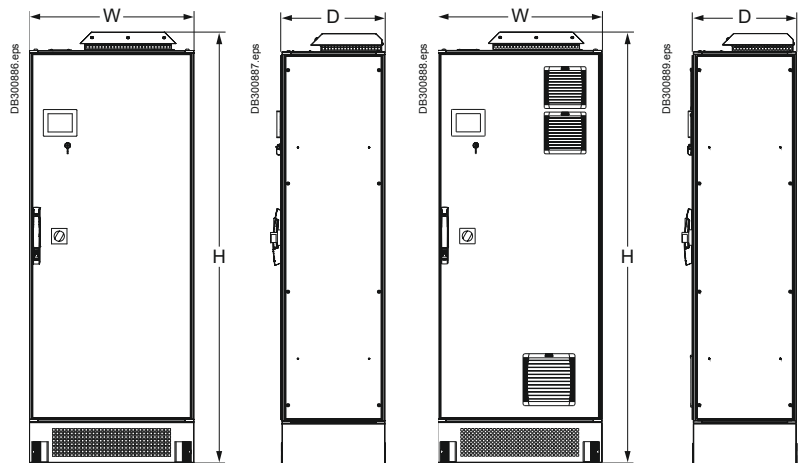
Frame size 1



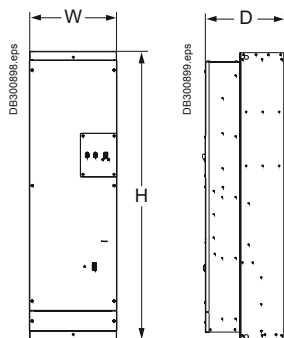
Frame size 2

IP31

IP54



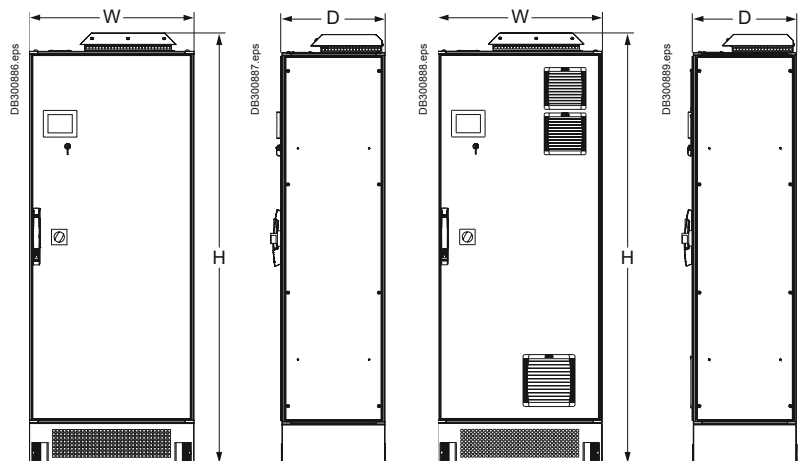
Frame size 3



Frame size 4

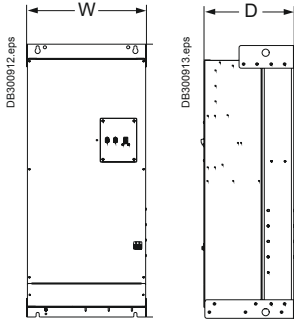
IP31

IP54



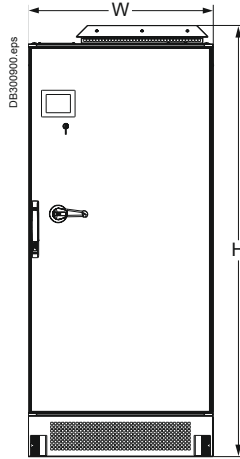
Unit dimensions and installation guidelines for AccuSine PCS+ and AccuSine PFV+

Frame size 5

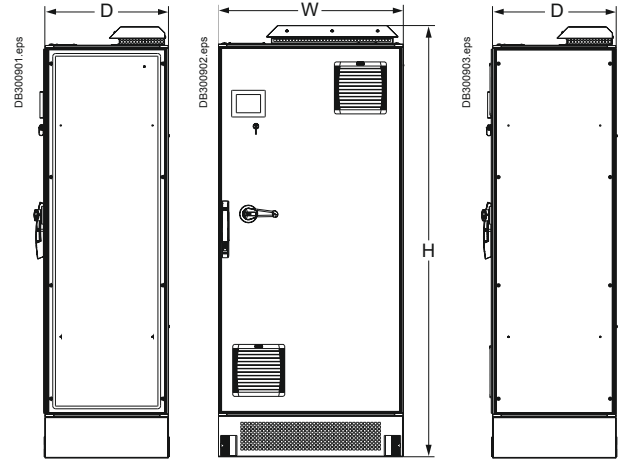


Frame size 6

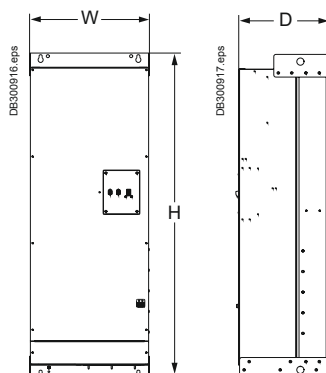
IP31



IP54

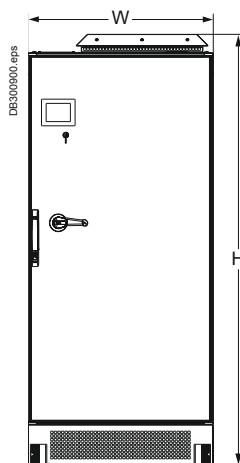


Frame size 7

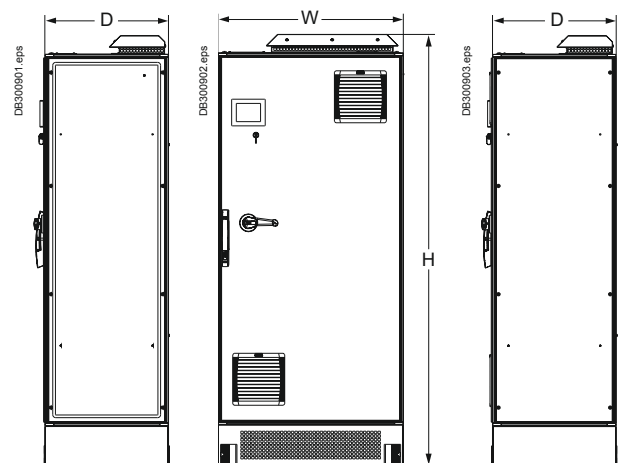


Frame size 8

IP31

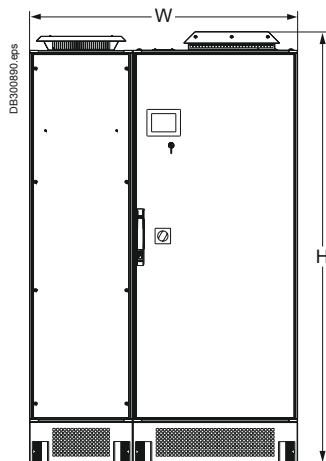


IP54

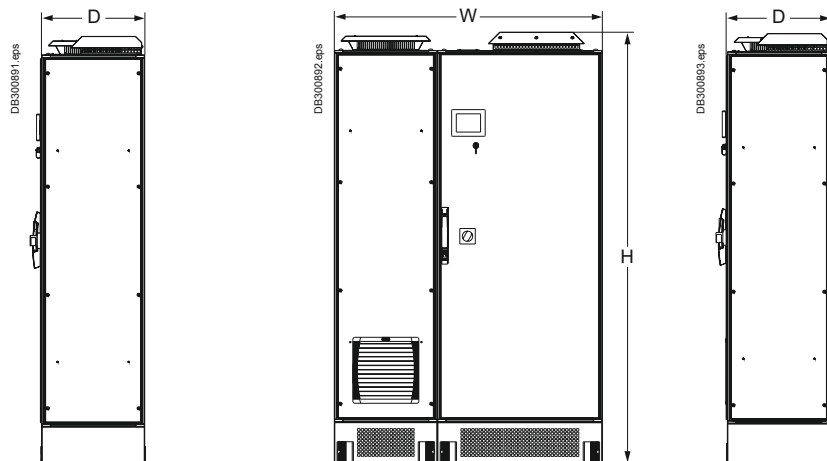


Frame size 9

IP31



IP54

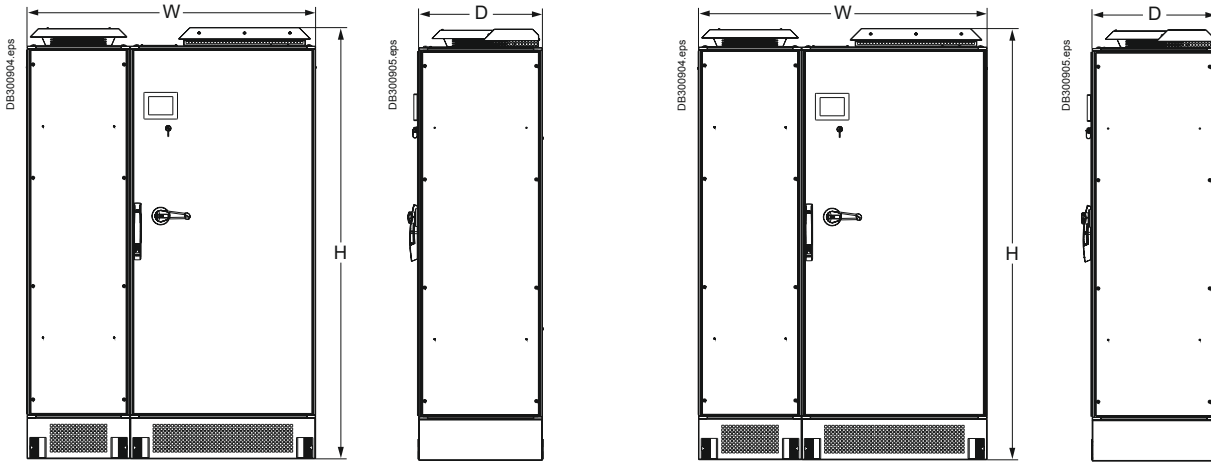


Unit dimensions and installation guidelines for AccuSine PCS+ and AccuSine PFV+

Frame size 10

IP31 600 V AC

IP31 690 V AC



IP54 600 V AC

IP54 690 V AC

