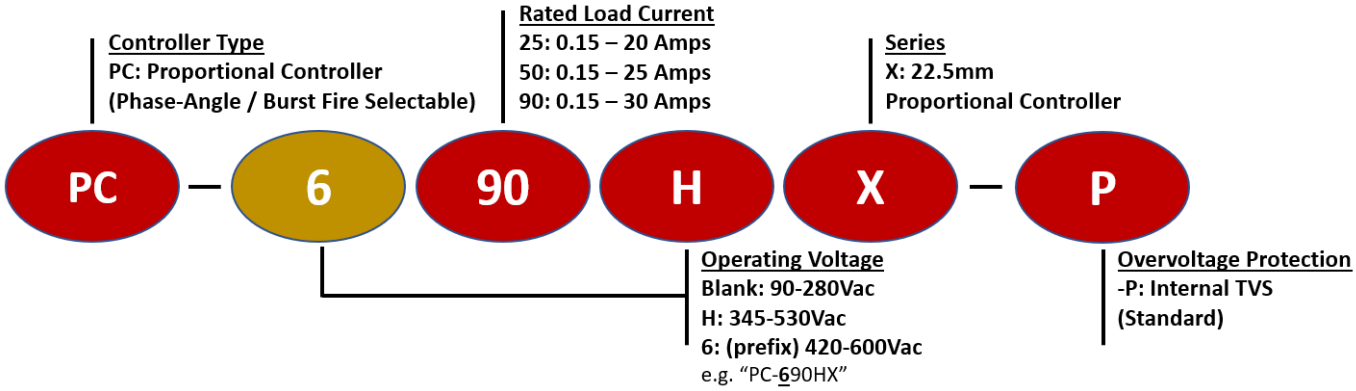
PC X Series

30 Amp Proportional Output Power Controller

- SCR output DIN mount proportional output solid-state power controller
- Selectable phase-angle or burst fire output
- Output ratings up-to 30 amps @ 40°C ambient temperature
- Internal over temperature protection
- Selectable analog input; 0-5Vdc, 0-10Vdc or 4-20mA (4-20mA input does not require auxiliary power supply)
- Compact, thermally efficient 22.5mm heat sink to maximize overall product life expectancy
- Direct-bond copper (DBC) substrate for superior thermal performance
- "Contactor" configuration with elevator screw terminals
- MTBF > 7 million hours (>800 years)
- Solid-state relay approvals include VDE/TÜV and CE

Series Nomenclature



Output Specifications

Part Number:	PC-25X-P	PC-90X-P	PC-50HX-P	PC-90HX-P	PC-690HX-P
Crydom Solid-State Relay Utilized*	PMP2425WP	PMP2490WP	PMP4850WP	PMP4890WP	PMP6090WP
Operating Voltage (Vrms; 45-65Hz)	90-280	90-280	345-530	345-530	420-600
Load Current Range (Amps RMS)	.15 - 20	.15 - 30	.15 - 25	.15 - 30	.15 - 30
Transient Overvoltage (Vpk)	600	600	1200	1200	1200
Max. 1 Cycle Surge Current (Apk; 50/60Hz)	286/300	1290/1350	716/750	1290/1350	1290/1350
Max. On-State Voltage Drop (Vrms)	1.15	1.15	1.15	1.15	1.15
Max I^2T for Fusing (A^2S; 50/60Hz)	409/375	8320/7593	2563/2353	8320/7593	8320/7593
Max. Off-State Leakage Current (mArms)	4.0	4.0	2.2	2.2	2.0
Min. Power Factor with Max. Load	0.7	0.7	0.7	0.7	0.7
Phase-Angle Control Range (%)	0-100	0-100	0-100	0-100	0-100
Burst Fire Distributive Time-Base Period	0-20 Cycles	0-20 Cycles	0-20 Cycles	0-20 Cycles	0-20 Cycles

*UL Recognized Components - E116949

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Input Specifications (Selectable on controller) *

0-10Vdc 4-20mA
0-5Vdc

* 8-30Vdc external power supply required for 0-5Vdc and 0-10Vdc control.

Power Supply Specifications

Description	Specification
Supply Voltage Range (Vdc)	8-30
Maximum Supply Current (mA)	30
Overvoltage Protection	Limited to 35Vdc for 60 seconds
Reverse Polarity Protection	Yes

Input Specifications

Description	Voltage Control	Current Control
Valid Input Voltage or Current	0-5 or 0-10 Vdc	4-20mA
Maximum Allowable Input Voltage or Current	30Vdc	35mA
Maximum Reverse Voltage or Current	-30Vdc	-35mA
Pick Up Voltage or Current	0.4Vdc	4.3mA
Dropout Voltage or Current	0.1Vdc	4mA
Nominal Input Impedance (Ohms)	28.8k	230 @ 20mA
Maximum Initialization Time	5 Cycles	5 Cycles
Response Time	1 Cycle	1 Cycle

General Specifications

Description	Specification
Dielectric Strength (Input/Output/Heat Sink)	4,000 Vrms
Ambient Operating Temperature Range	-25 to +70 °C
Weight	0.8 lbs (363 g)
Solid State Relay Housing Material	UL94 V-0 Polymers
Heat Sink Material	Aluminum
Input Terminal Screw Torque Range (in-lb/Nm)	5.0 / 0.5
Load Terminal Screw Torque Range (in-lb/Nm)	18-20 / 2.0-2.2
Minimum / Maximum Output Terminal Wire Size	2 x 20 AWG / 2 x 8 AWG (0.75mm^2 – 10mm^2)
Minimum / Maximum Input Terminal Wire Size	28 AWG / 12 AWG (0.09mm^2 – 3.3mm^2)
MTBF (Mean Time Between Failures) @ 40°C ambient	~11 Million Hours (>1,300 years)
MTBF (Mean Time Between Failures) @ 60°C ambient	~7 Million Hours (>800 years)

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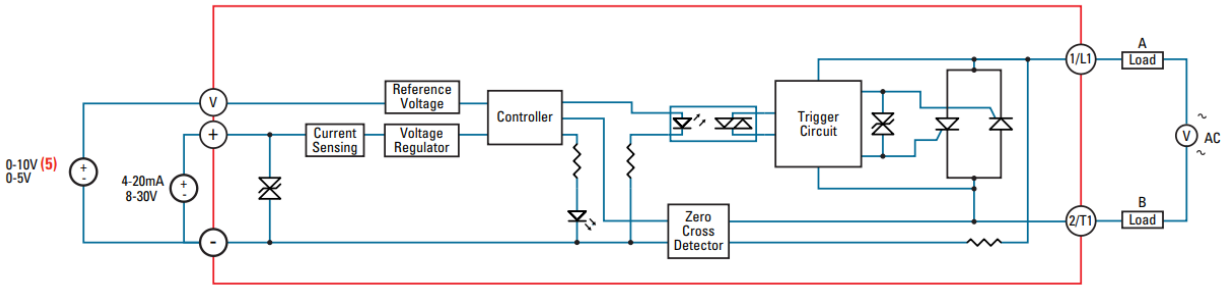
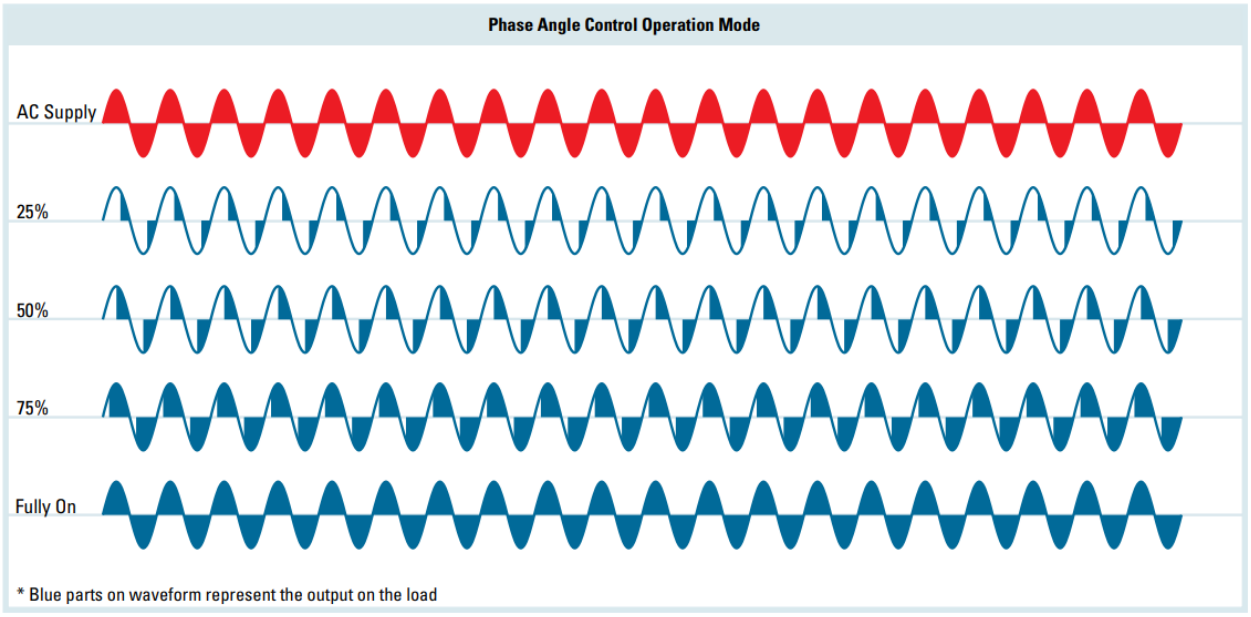
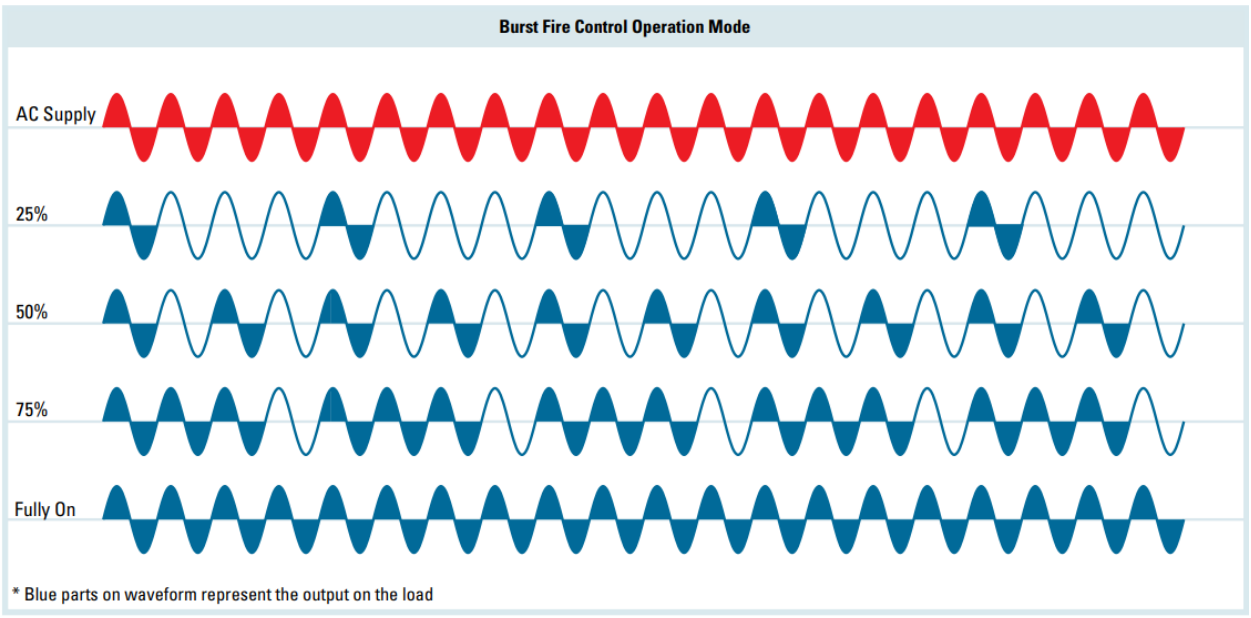
EQUIVALENT CIRCUIT BLOCK DIAGRAM/WIRING DIAGRAM







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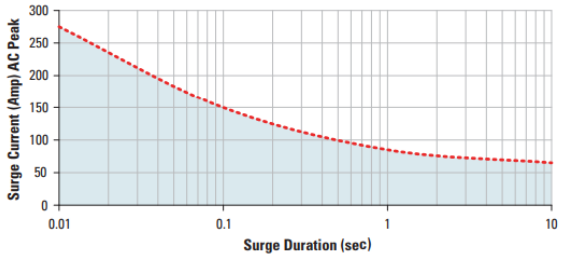
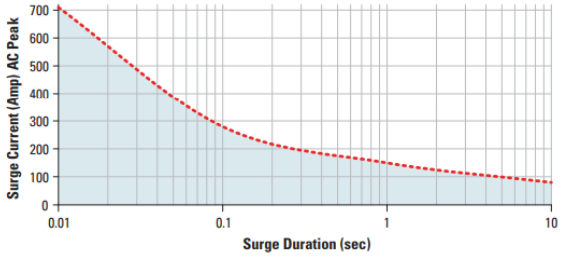
Single-Pulse Surge Current Curves

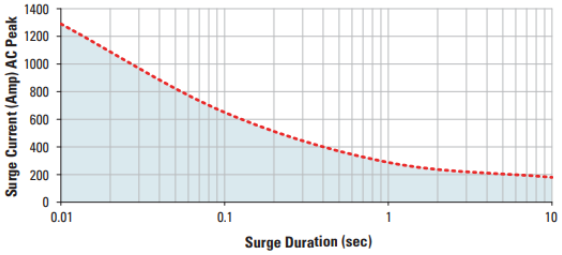
PC-x25xx



PC-x50xx

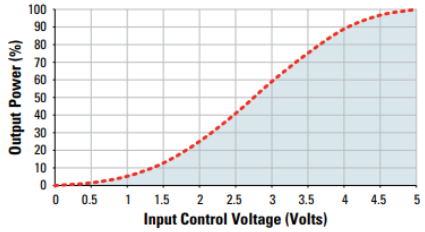


PC-x90xx

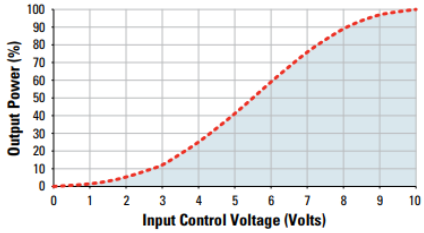


Transfer Characteristics

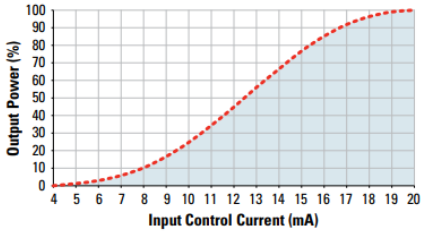
Phase Angle Control, 0-5 VDC Input



Phase Angle Control, 0-10 VDC Input



Phase Angle Control, 4-20 mA Input



Burst Fire Control (All Input Options)

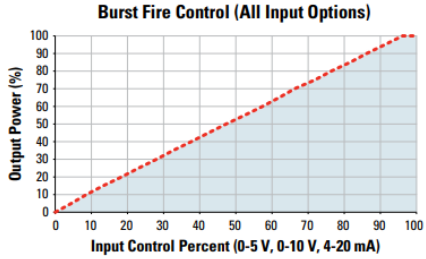


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TABLE 1. Recommended Torque and Wire Sizes

Terminal	Max. Screw Torque [in-lb (Nm)]	Wire Size (Solid / Stranded)	Wire Pull-Out Strength (lb)[N]
Output	18-20 (2.0-2.2)	2 x 20 AWG (0.75 mm²) [minimum]	25 [111]
		2 x 10 AWG (6 mm²)	80 [355]
		2 x 8 AWG (10 mm²) [maximum]	90 [400]
Input	5 (0.5)	28 AWG (0.09 mm²) [minimum]	2.2 [9.8]
		12 AWG (3.3 mm²) [maximum]	22 [98]

TABLE 2. Operation Mode

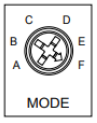
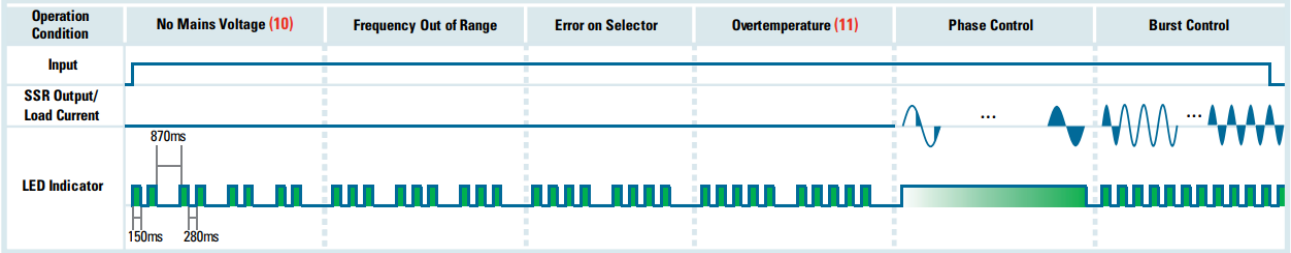
Parameter Selector Switch	Mode	Function
	A	Phase Angle, 0-5 VDC control
	B	Phase Angle, 0-10 VDC control
	C	Phase Angle, 4-20 mA control
	D	Burst Fire, 0-5 VDC control
	E	Burst Fire, 0-10 VDC control
	F	Burst Fire, 4-20 mA control

TABLE 3. LED Status

Status	LED Indicator	SSR Output
No Mains Voltage (10)	Flashes twice intermittenly	OFF
Frequency Out of Range	Flashes three times intermittenly	OFF
Error on Selector	Flashes four times intermittenly	OFF
Overtemperature (11)	Flashes five times intermittenly	OFF
Phase Control	Varying brightness	ON
Burst Control	Varying pulsing rate	ON

Status Chart



Approvals

c US E116950 IEC CE RoHS emc

Conformances

United States Standard for Industrial Control Equipment - UL 508 and Canadian Standard Association for Industrial Control Equipment – C22.2 No. 14.	
Vibration Resistance	IEC 60068-2-6: Amplitude Range 10-55 Hz, Displacement 0.75 mm
Shock Resistance	IEC 60068-2-27: Peak Acceleration 15g, Duration 11ms.

Electromagnetic Compatibility

Generic Standard	Immunity Tests	Test Specification Level		Performance
IEC 61000-6-2 Immunity for Industrial Environments	Electrostatic Discharge IEC 61000-4-2	8kV air discharge		Criterion A
		6kV contact discharge		Criterion A
	Fast transients (burst) IEC 61000-4-4	Output	2kV, 5kHz, 100kHz	Criterion B
		Input	1kV, 5kHz, 100kHz	Criterion B
	Surge IEC 61000-4-5	Output	1kV Line to Line	Criterion B
			2kV Line to Earth	Criterion B
		Input Power Supply	500 VDC +/-	Criterion A

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