PICKER®

10 Through 60 Amp Three Phase Solid State Relay PCS24

FEATURES

- High Power Three Phase Solid State Relay
- SCR Output (530V Version), Triac Output (440V Version)
- Panel Mount
- Wide Range DC Input Control (4-32 VDC)
- LED Status Indicator
- Built in Snubber
- Zero Crossing or Random Turn On
- Removal Finger Safe Cover Optional
- RoHS Compliant
- Optional Phase Loss Protection

INPUT PARAMETERS (Ta = 30°C) cᴿᵁus Pending

Control Voltage Range	4 - 32 VDC With LED
Must Turn-On Voltage	4 VDC With LED
Must Turn-Off Voltage	1 VDC
Max. Input Current	35 mA
Max. Reverse Protection Voltage	-32 VDC

CROSS REFERENCES

Crydom: 53TP
Example: D53TP50D crosses to PCS24-D-480A-50ZSYL

OUTPUT PARAMETERS (Ta = 30°C)

	380 A	480 A
Load Voltage Range (VAC)	48 - 440	48 - 530
Max. Transient Voltage (V_{pk})	800	1,200
Max. Off-State Leakage Current	10 mA	
Max. On-State Voltage Drop	1.7 V_{RMS}	
Min. load Current	100 mA	
Max. Turn-On Time	Random	1 ms
	Zero Crossing	1/2 Cycle + 1ms
Max. Turn-Off Time	1/2 Cycle + 1ms	
Frequency Range	47 Hz to 63 Hz	
Min. Off-State dv/dt	200 V/us	
Min. Power Factor	0.5	

OUTPUT PARAMETERS Continued

Load Current Range*	0.2 - 10 A	0.2 - 15 A	0.2 - 25 A	0.2 - 40 A	0.2 - 50 A	0.2 - 60 A
Max. Surge Current (10 ms) (A_{pk})	100	150	250	400	500	600
Max. I^2t (10 ms, A^2s)	50	112	312	800	1,250	1,800

* Minimum current loading over range required to fully turn-on device

ORDERING INFORMATION

PCS24 | -D | -380A | -25 | Z | | L | P

Model:	**PCS24** (DC Input, AC Output)
Control Voltage:	**D**: 3-32 VDC Without LED, 4-32 VDC With LED
Load Voltage:	**380A**: 48 - 440 VAC, **480A**: 48 - 530 VAC
Load Current:	**10A**: 10 Amps, **15A**: 15 Amps, **25A**: 25 Amps **40A**: 40 Amps, **50A**: 50 Amps, **60A**: 60 Amps
Switching Type:	**Z**: Zero Crossing, **R**: Random Turn-On
Output Component:	**Nil**: Triac (380A Only), **S**: SCRs (480A Only)
Over Voltage Protection:	**Nil**: None, **Y**: With Varistor (MOV)
Status LED:	**L**: LED
Phase Loss Protection:	**Nil**: Without, **P**: With Phase Loss Protection**

**Phase Loss Protection: The input voltages are monitored. If one or two of the input line voltages drop to zero the phase loss circuitry engages and all three outputs drop to zero volts. This feature protects the motor which the SSR is switching. To indicate the Phase Loss Protection has engaged, the LED indicator will turn off. The LED indicator will only be lit if the solid state relay if functioning properly. The LED will not be lit if the Control Voltage drops to zero or if one of the Line In Voltages drops to zero.

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Dimensions are listed for reference purposes only.
Specifications and Availability subject to change without notice.
PCS24 DC Input Rev A   1/30/2019   1 of 3

CHARACTERISTICS

Dielectric Strength	4,000 VAC, 1 min. Input to Output
Insulation Resistance	1000 MΩ at 500 VDC
Max. Capacitance	10pF (Input to Output)

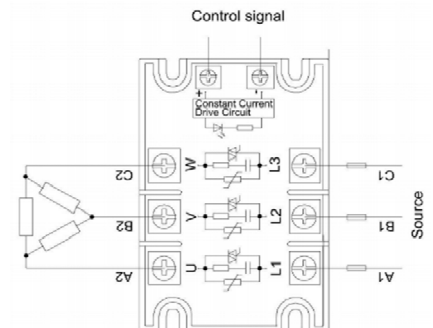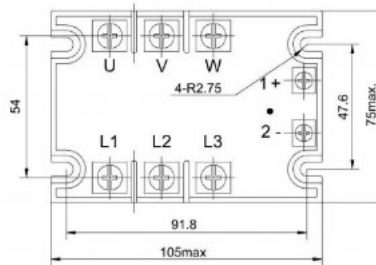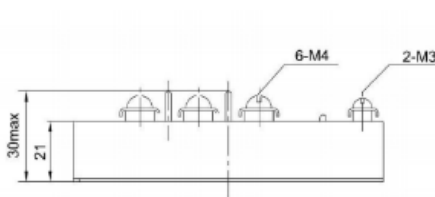| Operating Temperture	- 30°C to 80°C
Storage Temperature	- 30°C to 100°C
Relative Humidity	45% - 85%
Weight	Approx. 315 g

PRECAUTIONS

1)   When choosing a SSR, note the actual load current and ambient temperature and reference the Characteristic Curves below.
2)   SSR requires adequate heat sinking or other effective cooling measures.
3)   With ambient temperature above 35°C refer to the curve of Max. Load Current vs Ambient Temperature for load current derating.
4)   Apply heat-conducting silicon grease onto, or a thermal transfer pad into, the space between SSR and heat sink and screw the SSR firmly to the heat sink to avoid damage from overheating.
5)   Tighten the SSR terminal screws properly. We recommended screw installation torque as follows :
   M4 screw mounting torque range is (0.98-1.37)N • m,
   M3 screw mounting torque range is (0.56-0.98)N • m.
  Loose screws will damage the SSR with heat generated from connections. Also, excessive screw torque may damage the relay's internal components.
6)   It's recommended to use a heat sink matched to the Current Load. With any heat sink test that the SSR base temperature does not exceed 65°C.
7)   The Surge Current values listed are based on non-repetitive peak values. The standard value is 50% of the listed Surge Current. It is important that you test the relay in your application. Fusing or a snubber circuit may be required.
8)   When using the PCS24 relay with an inductive load, it is suggested to select random turn-on (i.e., a model with "R" letter). Motor loads may generate high transient voltages, test the relay in your application to ensure the output is not damaged.
9)   The maximum transient voltage value listed in this datasheet is the non-repetitive peak value. If the transient voltage in the application exceeds the nominal value, a R-C network, TVS diode or varistor is required across the output to prevent damage to the SSR.
10)   The PCS24 is not suitable for capacitive loads; if you must then do not choose products with varistor protection (i.e., a model with "Y" letter).
11)   Listed parameters are based on resistive loads. Do not use the relay beyond the described current, temperature, load or voltage limits as described in this data sheet.
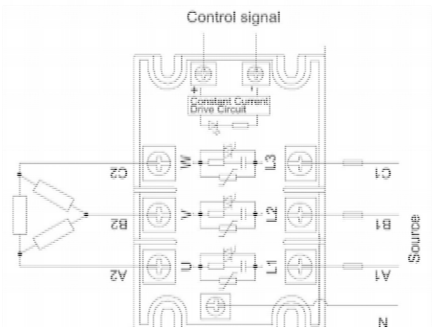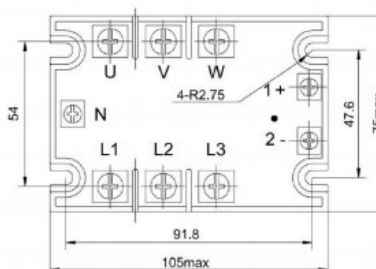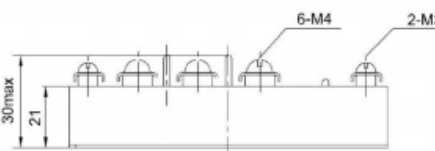
INSTRUCTIONS

1)   The heat sink and mounting surface need to be clean and smooth.
2)   Thermal grease or a thermal pad covering the entire bottom of the heat sink is required to ensure efficient heat transfer.
3)   Firm contact between the SSR and a heat conductive base is required thus the mounting torque needs to be set between 0.98 and 1.73 N•m.

DIMENSIONS (mm)
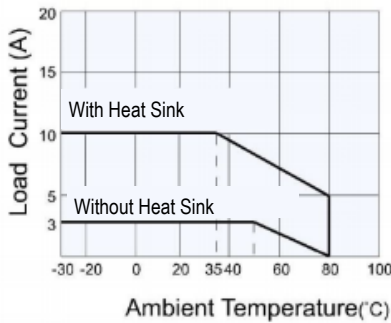
Non Phase loss Protection

With Phase loss Protection

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ACCESSORIES

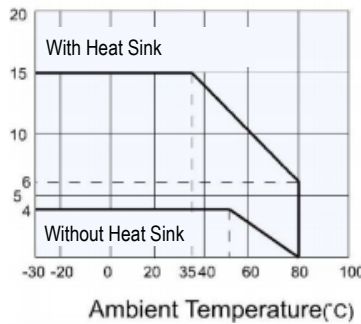| Heat Transfer Pad	HTP300
Protective Cover	SSR300
Heat Sinks	

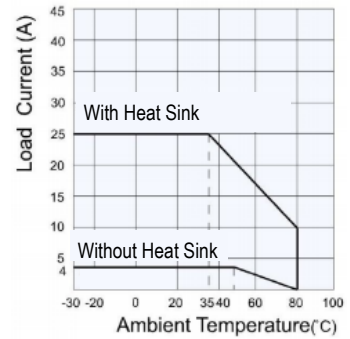**ACCESSORIES SOLD SEPERATELY**

CHARACTERISTIC CURVES

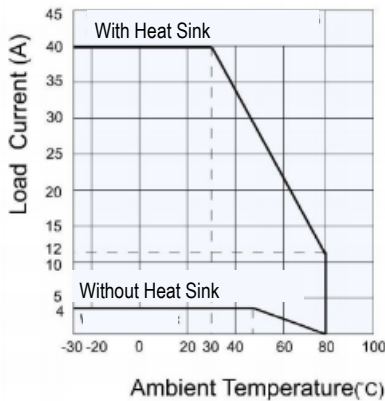Max. Load Current vs. Ambient Temperature(10A)

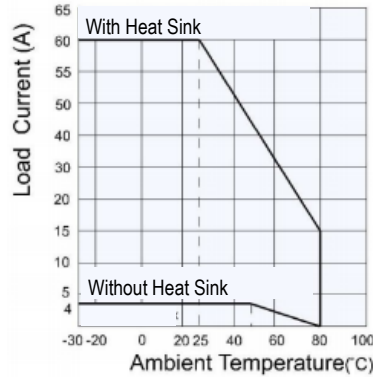Max. Load Current vs. Ambient Temperature(15A)

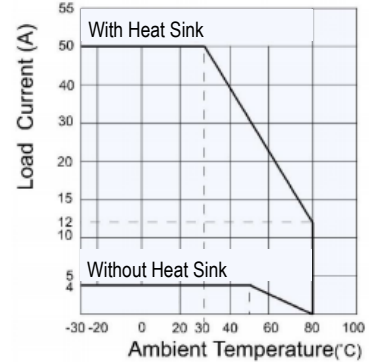Max. Load Current vs. Ambient Temperature(25A)

Max. Load Current vs. Ambient Temperature(40A)

Max. Load Current vs. Ambient Temperature(60A)

Max. Load Current vs. Ambient Temperature(50A)

Max. Permissible Non-repetitive Peak Surge Current vs. Continuance Time

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