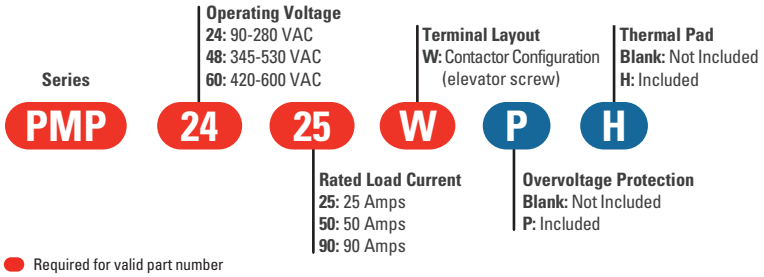
NOVA22

PMP Series Panel Mounted Proportional Control SSRs

Crydom PMP Series Solid State Relays were developed to offer precise control of the power delivered to an AC load in a standard 22.5 mm industrial package. Quick and easy installation is coupled with low drive power requirements and efficient, reliable power SCR output. This compact new design offers up to 90 ARMS in ambient temperatures of 40°C.

Be sure to visit the product series datasheet available at the Crydom website to complement this information. If you have questions or need additional information please contact Crydom Tech Support. Please read all instructions before using your Proportional Control Solid State Relay (SSR).

PART NUMBER NOMENCLATURE



Required for valid part number
For options only and not required for valid part number

MOUNTING INSTRUCTIONS

Choose one of the two mounting options and follow the instructions.

Mounting on Heat Sink

- Select adequate heat sink (see thermal derating curves in product series' datasheet).
- Be sure to use a thermal pad or thermal compound (0.006-0.008 in layer thickness recommended) between the SSR and the selected heat sink.
- SSR housing mounting holes have a diameter of 0.341 in (8.66 mm). Two screws are needed to mount the SSR onto a heat sink (See **fig.1**). Mounting screws are sold separately as HK8 and are suitable for all Crydom heat sinks. Otherwise, recommended screw size is 8-32 (socket) using an allen wrench (9/64 in) for the installation. Choose screw length considering mounting surface hole depth and SSR baseplate thickness of 0.125 in (3.2 mm).

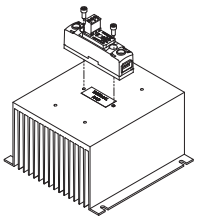


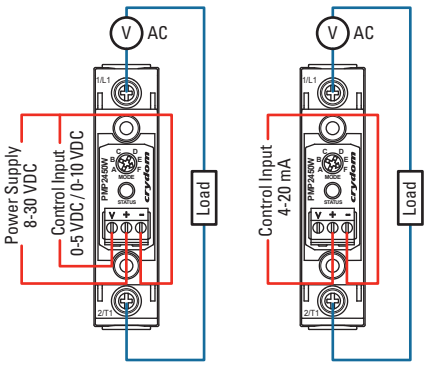
fig. 1 SSR mounted on HS053 heat sink

- Before applying full torque tighten down both screws until they contact the baseplate. Then, tighten them to 20 in-lb (2.2 Nm) min.
- For optimal thermal performance heat sink fins should be oriented vertically to promote natural convection airflow.

Mounting on Panel

- Locate the panel section on which the SSR will be mounted. Panel mount surface must provide adequate heat sinking capability, uncoated, clean, flat (0.004 in/in recommended) and preferably aluminum.
- Be sure to use a thermal pad or thermal compound (0.006-0.008 in layer thickness recommended) between the SSR and the panel.
- SSR housing mounting slots have a diameter of 0.341 in (8.66 mm). Two screws are needed (not included) to mount the SSR onto a panel. Mounting screws are sold separately as HK8. Otherwise, recommended screw size is 8-32 (socket) using allen wrench (9/64 in) for the installation. Choose screw length considering the mounting surface and that the SSR baseplate thickness is 0.125 in (3.2 mm).
- Before applying full torque tighten down both screws until they contact the baseplate. Then, tighten them to 20 in-lb (2.2 Nm) min.

WIRING DIAGRAMS



Terminals

Maximum recommended terminal screw torque input terminal: 5 in-lb (0.5 Nm)

Maximum recommended terminal screw torque load terminal: 18-20 in-lb (2.0-2.2 Nm)

Recommended wire sizes as shown in **TABLE 1**.

Important Considerations

Be sure to use input and output voltages within operating ranges.

LED provides status operation of the SSR, as shown in TABLE 4.

TABLE 1. Recommended Wire Sizes

Terminal Type	Wire Size (Solid / Stranded)	Wire Pull-Out Strength (lb)[N]
Output	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	28 AWG (0.09 mm²) [minimum]	2.2 [9.8]
	12 AWG (3.3 mm²) [maximum]	22 [98]

TABLE 2. Operation Mode (A)

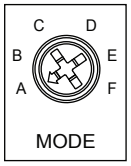
Parameter Selector Switch	Mode	Function
	A	Phase Angle, 0-5 VDC control
	B	Phase Angle, 0-10 VDC control
	C	Phase Angle, 4-20 mA control
	D	Burst Fire, 0-5 VDC control
	E	Burst Fire, 0-10 VDC control
	F	Burst Fire, 4-20 mA control

TABLE 3. Recommended Accessories

Hardware Kit	Heat Sink Part No.	Thermal Resistance [°C/W]	Thermal Pad	Lug Terminal
HK8	HS259DR	2.5	HSP-7	TRM0
	HS073	0.7		TRM6
	HS072	0.7		
	HS053	0.5		
	HS033	0.36		
	HS023	0.25		

General Notes

(A) The operation mode is detected during power up. Any changes done to the selector while the unit is powered will be ignored until next power up.

(B) UL approved rating is the one that intersects at 40°C.

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crydom Installation Sheet — Panel Mount

Status Chart

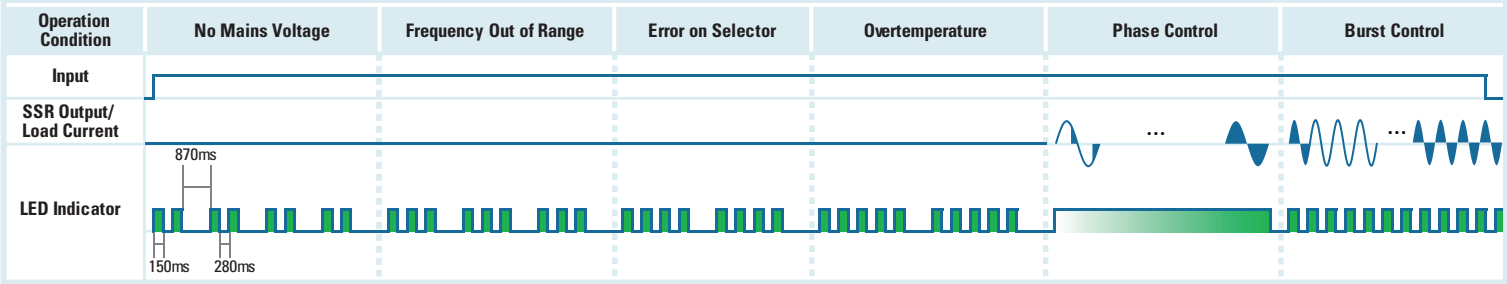


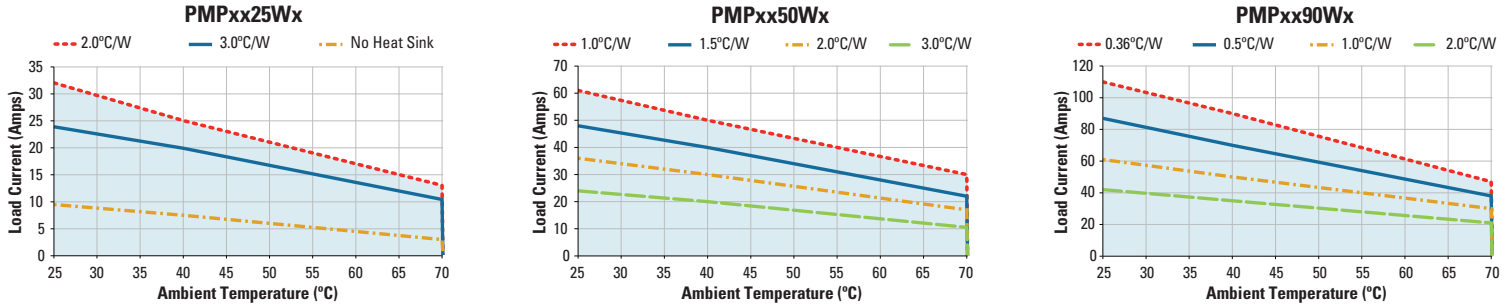
TABLE 4. LED Status

Status	LED Indicator	SSR Output
No Mains Voltage	Flashes twice intermittently	OFF
Frequency Out of Range	Flashes three times intermittenly	OFF
Error on Selector	Flashes four times intermittenly	OFF
Overtemperature	Flashes five times intermittenly	OFF
Phase Control	Varying brightness	ON
Burst Control	Varying frequency	ON

TABLE 5. Compatible Terminals

Terminals	Fork Lug	Ring Lug	Copper Lug	Copper Lug
Crydom Part No.			TRM0	TRM6
Width [W] in (mm)	0.45 (11.4)	0.45 (11.4)		
Stud Size Dia [D] (in)	#8 (0.168)	#8 (0.168)		
Wire Size AWG			6-0	14-6

DERATING CURVES (B)



ELEVATOR SCREW ("W" SUFFIX) CONSIDERATIONS

- The Elevator Screw option allows the screw and clamp to be raised out of the mating threads completely. This provides for the insertion and use of a ring or lug type wire terminal.
- A #2 Phillips head driver should be used with the Elevator Screws. If a powered driver is used, avoid speeds above 500 RPM.
- Cutting threads in the cover plastic as the screw elevates is key to the elevating feature. It has a finite life and therefore not recommended to be used more than 50 times during the product lifetime.
- Do not continue rotating the screw (in the elevating direction) once it freely rotates at the top of the plastic surface. The Elevator screw is capable of clearing 0.125 inches between the terminal and the bottom of the screw. Insertion of a terminal or lug thicker than 0.125 in is not recommended.
- When inserting the terminal ensure that the terminal hole is in line with the screw.
- During tightening, be certain that the terminal is seated flat within the cavity, and that the clamping washer is secure against the upper surface of the terminal.
- If fork terminations, spade lugs, or stranded wire are used, to prevent improper contact do not raise the elevator screw out of the mating threads.

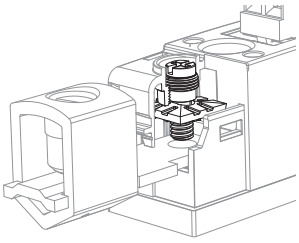


fig. 2 Elevator screw

⚠ DANGER / DANGER / GEFARH / PELIGRO / PERICOLO / 危险

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH • Turn off power supply before working on this equipment. **Failure to follow these instructions will result in death or serious injury.**	**RISQUE D'ELECTROCUTION, D'EXPLOSION OU D'ARC ELECTRIQUE** • Coupez l'alimentation avant de travailler sur cet appareil. **Le non-respect de ces instructions provoquera la mort ou des blessures graves.**	**STROMSCHLAG-, EXPLOSIONS- ODER LICHTBOGENGEFAHR** • Vor dem Arbeiten an dem Gerät dessen Stromversorgung abschalten. **Die Nichtbeachtung dieser Anweisungen führt zu Tod oder schwerer Körperverletzung.**
RIESGO DE ELECTROCUCIÓN, EXPLOSIÓN O ARCO ELÉCTRICO Desconecte toda alimentación antes de realizar el servicio. **Si no se siguen estas instrucciones provocará lesiones graves o incluso la muerte.**	**RISCHIO DI SCOSSA ELETTRICA, DI ESPLOSIONE O DI OFTALMIA DA FLASH** • Scollegare l'apparecchio dalla presa di corrente prima di qualsiasi intervento. **Il mancato rispetto di queste istruzioni provocherà morte o gravi infortuni.**	存在电击、爆炸或电弧闪烁危险 • 在操作此设备之前请先关闭电源。 若不遵守这些说明，可能会导致严重的人身伤害甚至死亡。

⚠ WARNING / AVERTISSEMENT / WARNUNG /ADVERTENCIA / AVVERTENZA / 警告

RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE • The product's side panels may be hot, allow the product to cool before touching. • Follow proper mounting instructions including torque values. • Do not allow liquids or foreign objects to enter this product. **Failure to follow these instructions can result in serious injury, or equipment damage.**	**RISQUE DE DOMMAGE MATERIEL ET DE SURCHAUFFE DU BOITIER** • Les panneaux latéraux du produit peuvent être chauds. Laisser le produit refroidir avant de le toucher. • Respecter les consignes de montage, et notamment les couples de serrage. • Ne pas laisser pénétrer de liquide ni de corps étrangers à l'intérieur du produit. **Le non-respect de cette directive peut entraîner, des lésions corporelles graves ou des dommages matériels.**	**GEFAHR VON MATERIALSCHÄDEN UND GEHÄUSEERHITZUNG** • Die Seitenwände können heiß sein. Lassen Sie das Produkt abkühlen, bevor Sie es berühren. • Beachten Sie die Montageanweisungen, • Führen Sie keine Flüssigkeiten oder Fremdkörper in das Produkt ein. **Die Nichtbeachtung dieser Anweisung kann Körperverletzung oder Materialschäden zur Folge haben.**
RIESGO DE DAÑOS MATERIALES Y DE SOBRECALENTAMIENTO DE LA UNIDAD • Los paneles laterales del producto pueden estar calientes. Esperar que el producto se enfríe antes de tocarlo. • Respetar las instrucciones de montaje, y en particular los pares de apretado. • No dejar que penetren líquidos o cuerpos extraños en el producto. **Si no se respetan estas precauciones pueden producirse graves lesiones, daños materiales.**	**RISCHIO DI DANNI MATERIALI E D'INVOLUCRO CALDO** • I pannelli laterali dell'apparecchio possono scottare; lasciar quindi raffreddare il prodotto prima di toccarlo. • Seguire le istruzioni di montaggio corrette. • Non far entrare liquidi o oggetti estranei in questo apparecchio. **La mancata osservanza di questa precauzione può causare gravi rischi per l'incolumità personale o danni alle apparecchiature.**	材料损坏和高温外壳的危险性 • 产品的一侧面板可能很热，在其冷却前请不要触碰。 • 遵照正确的安装说明，包括扭矩值。 • 请勿让液体及其他异物进入本产品。 如不能正确执行这些操作说明，极有可能造成严重人体伤害或者设备的损坏。

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