

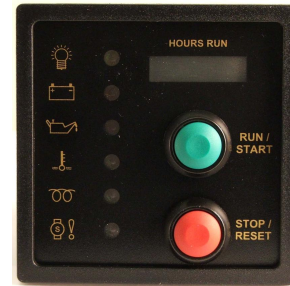


Tel: +44 (0) 1295 272 360  
Fax: +44 (0) 1295 264 766  
sales@capricorn-controls.com

# PSM720 - 002

Micro-processor based -- Push-button Start Module

- ◆ Compact 72mmsq DIN standard case ... just 90mm deep
- ◆ 6 to 36Vdc single range supply – no drop-out on cranking
- ◆ Dedicated channels for Low Oil Press and Cooling Fault
- ◆ IP67 Rated - for water and dust protection
- ◆ Optional Hours Run Counter
- ◆ Customer Specific hardware and software is available to order



## Operation

**RED BUTTON** - Press momentarily to stop the engine and reset all Shutdowns (!LED not lit). *Always ensure that the engine is stationary before restarting.*

**GREEN BUTTON** - Press momentarily to power the module (!LED pulsing), energising the fuel solenoid and activating the Preheat output for the pre-set time. As soon as the Preheat LED has extinguished, Press and hold the GREEN button to crank the engine (note: Starter output inhibited until the Preheat timer has elapsed). Release the Button to disengage the starter motor as soon as the engine 'fires'. The hold-off timer is now running. When the hold-off timer elapses the LOP and HET channels are enabled (!LED steady). Alternatively, if the engine fails to start after approx. 10 sec's cranking, release the Button, wait 10 sec's and try again. If the engine fails to start after three attempts, press the RED button to power-down the module (!LED not lit) and consult the engine

manufactures Handbook. Note: if the engine is continuously cranked for 12 sec or more, the module will trip on **Over-crank**, lighting the respective LED and locking out the Fuel & Starter. Alternatively, if the engine is stationary and is not cranked within the Protection Delay time from the end of the Pre-Heat time, the unit will shutdown on Low Oil Pressure.

A **Safety Circuit** ensures that the starter output is inhibited if any of the following conditions are true: Pre-Heat or Pulse outputs active; Low Oil Pressure not sensed; Engine shutdown on a fault condition.

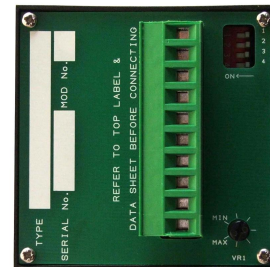
**Protection Delay and Excitation Timers** are held at reset while the Start Button is pressed so that they run from when the button is released and the engine is assumed to be running. The Excitation output is available during cranking and for a preset time after, in order to excite the charging alternator. The top LED flashes green to indicate power-on and changes to steady to indicate Protection On.

**First-up interlock** ensures that only the first shutdown fault will be

## Programming Switches

displayed.

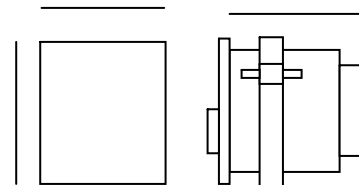
**Rear mounted controls** include a potentiometer and 4-way switch. These are read at power-up and being under software control, can be used for various functions to



Refer to side label for specific switch functions. If the label is unreadable or missing; please email, fax or telephone for assistance and quote the unit Serial Number. Refer to the Data Sheet before making or changing any connections.

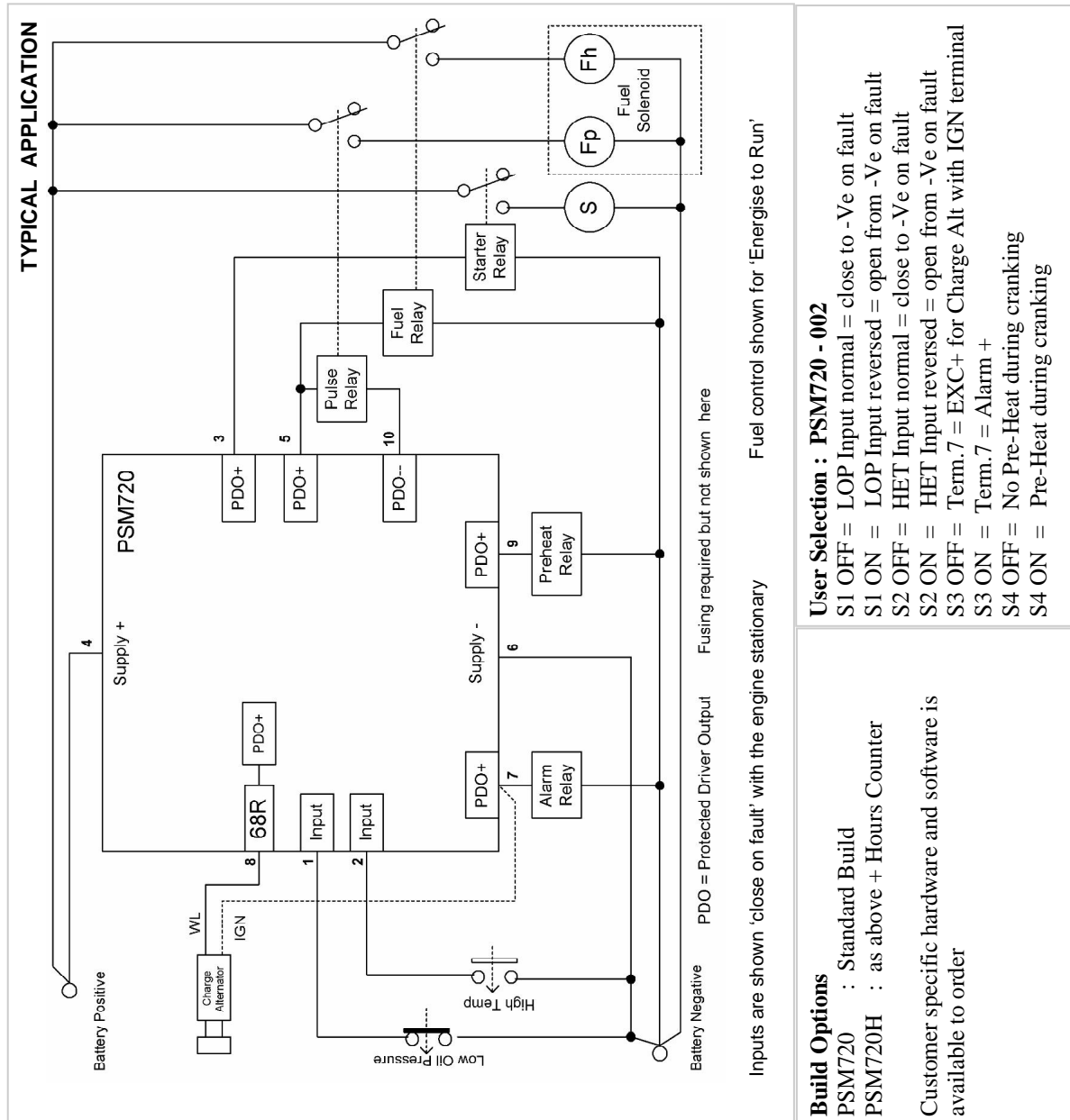
Ch	Function	Protection Delay	Shut-Down	LED
1	Protection delay	---	---	Green Pulsing
	Protection on	---	---	Green
2	Charge Fail	---	---	Red
3	Low Oil Press'	Yes	Yes	Red
4	High Engine Temp'	Yes	Yes	Red
5	Pre-Heat	---	---	Red
6	Over-Crank	---	Yes	Red

## Dimensions



Front Face = 72mm sq  
Panel cut-out = 68mm sq  
Depth behind panel = 90mm

Supplied complete with mounting sleeve and connector. Panel Gasket available to order



**SPECIFICATION**

Nominal Supply	9V to 33Vdc	Burden = 50mA at 12Vdc
Maximum Supply	36Vdc	Ambient Temperature -20°C to +55°C Operating
Minimum Supply	<8Vdc	-40°C to +70°C Storage
Input response	100 ms	Excitation time-out 10 s
Over-Crank time-out	12 s	Protection Delay 15 s
Fuel Pulse Timer	1 s	Pre-Heat Timer 0 - 25s adjustable by VR1

Fuel Relay +Ve output : 700mA protected driver, current Limited to 1A (PDO+)

Start Solenoid Relay +Ve output : 700mA protected driver, current Limited to 1A (PDO+)

Alarm Relay +Ve output : 700mA protected driver, current Limited to 1A (PDO+)

Pre-Heat Relay -Ve output : 700mA protected driver, current Limited to 1A (PDO+)

Fuel Pulse Relay -Ve output : 700mA protected driver, current Limited to 1A (PDO-)