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Micro-processor based Key-start Modules

The KSM7200 series provide manual start and engine protection. Housed in a custom designed 72mm sq DIN standard module it can be easily mounted into almost any control panel or switch box for use in a wide range of engine applications. Dedicated fault channels are provided for Low Oil Pressure (OIL) and Cooling Fault (TEMP). The two Auxiliary channels are user programmable and have a slide-in label. The fuel control output provides engine shutdown and alarm functions, via an external relay.



Operation

Turn the key from OFF (O) to RUN (I) to power the module, energise the fuel solenoid and start the Protection Delay timer. Turning the key from RUN to START (II) energises the start solenoid to crank the engine. As soon as the engine 'fires', release the key to the RUN position. Both the Protection Delay and Excitation Timers are now running. If the engine does not 'fire' after 10 sec's cranking, return the key to the OFF position and allow the engine to rest for 10 sec's before attempting a re-start. If the engine is not running after two re-starts, return the key to the OFF position and consult the engine manufacturer's handbook. Note: the OIL, TEMP and both AUX channels are not enabled until the Protection Delay Timer has elapsed, allowing the engine parameters to stabilize. Both the **Protection Delay** and **Excitation Timer** are held at reset while the Keyswitch is in position II (cranking) so that the timers effectively run from when the engine

fires. The top LED lights green to indicate 'Protection On'. If selected, the Excitation output is available for a preset time, to excite the charging alternator.

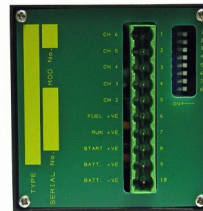
First-up interlock ensures that only the first shutdown fault will be displayed. Note: some channels may be active as soon as the unit is powered while others are subject to the Protection Delay timer.

RUN+ is directly connected to the RUN position on the internal key-switch. As an Input it allows the unit to be powered from a remote switch, even if the local Keyswitch is in the OFF position although external activation of the Starter will also be required. As an output RUN+ provides a switched +Ve for external circuits or can be used to power the Fuel solenoid if the engine is not to shutdown on a fault condition.

The **Slide-in Label** allows last minute changes to the wording of the two auxiliary channels and can even be changed or even hand written on-site if required.

The **Programming Switches** are under software control and can therefore be used for various functions to meet specific customer requirements. The switch positions are read at power-up and a transfer routine i.e. CCL004, dictates their specific operation

Programming Switches



Rear view with connector removed

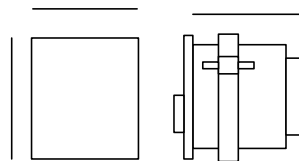
Switches S1 - S8 allow in-field programming without the need for specialist tools.

Refer to side label for specific switch functions. If the label is unreadable, please email the unit Serial Number.

PROGRAMMABLE FUNCTIONS for KSM7200-CCL004

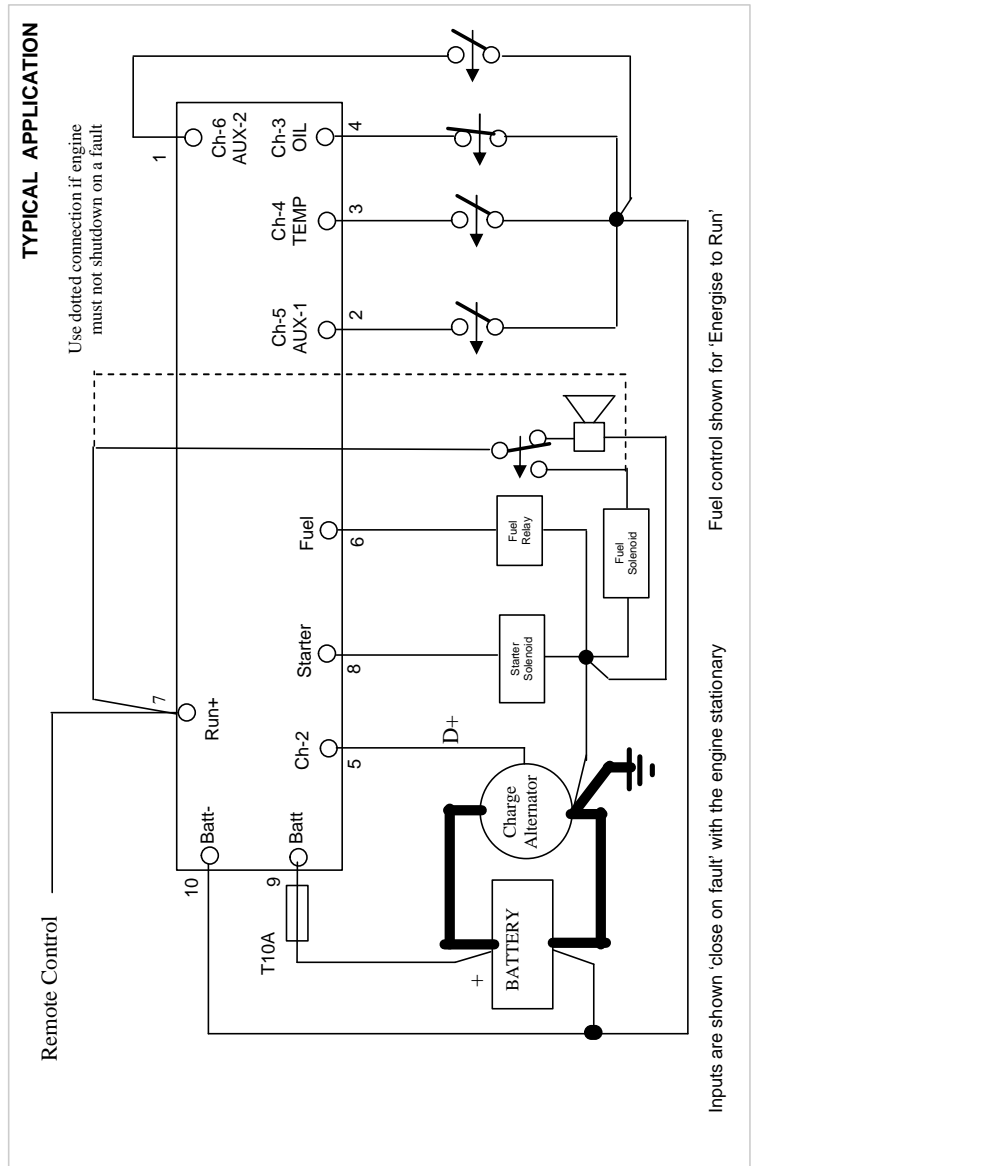
Term. No.	Function	Select	Prot' Delay	Input Rev'	Shut-Down	LED Position
--	Over-Crank	S1	---	---	Yes	1
5	Charge Fail	---	---	---	No	2
4	Low Oil Press.	---	Yes	S2 on	Yes	3
3	Cooling Fault	---	Yes	S3 on	Yes	4
2	Aux-1	---	S6 on	S4 on	Yes	5
1	Aux-2	---	S7 on	S5 on	Yes	6
5	Excitation Output	S8	---	---	---	---
Over-Crank timer = 12 s		Protection Delay = 15 s				
Excitation timer = 10 s		Input Response = 100mS				

Dimensions



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

Supplied complete with mounting sleeve, connector and two keys.



SPECIFICATION		
Nominal Supply	9V to 30Vdc	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
RUN+ Output	10A resistive. (De-rate to 14% (1.4A) continuous for Inductive Load)	
FUEL + Output	700mA current limited to 1A to drive an external relay.	
START+ Output	16A resistive. (De-rate to 14% (2.2A) continuous for Inductive Load)	