AUTOMATIC ENGINE CONTROL FOR DIESEL/GAS ENGINES

The **ECU-9957N** engine control provides complete automation and safety monitoring of a gas or diesel engine. The **ECU-9957N** controls the starter and fuel thus completely taking the operator out of the picture. A built in speed switch controls both starter disengagement and overspeed protection.

ECU-9957N

ONE VERSION FOR 12 OR 24 VDC

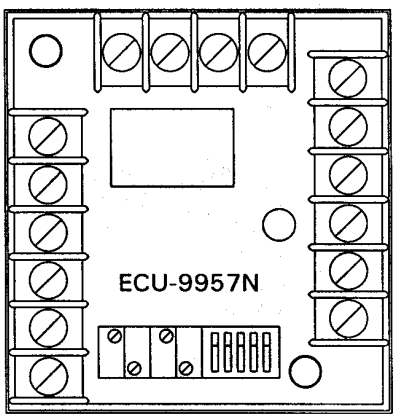
APPLICATIONS: Generator Control Panels, Automatic Engine Systems

FEATURES:

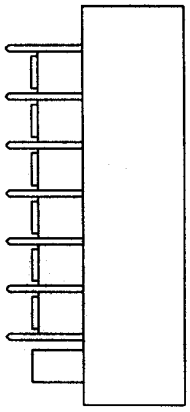
* Single or Multi-crank modes are field adjustable
* Built in speed switch
* Grounded or positive HWT/LOP inputs

NEW * Low oil pressure and high water temp override during cranking

* Wide temperature range -40C to +85C
* Epoxy encapsulated module for excellent field reliability
* 1 AMP Relays for annunciator outputs



BACK VIEW



SIDE VIEW

ECU-9957N A COMPLETE AUTOMATIC ENGINE CONTROL

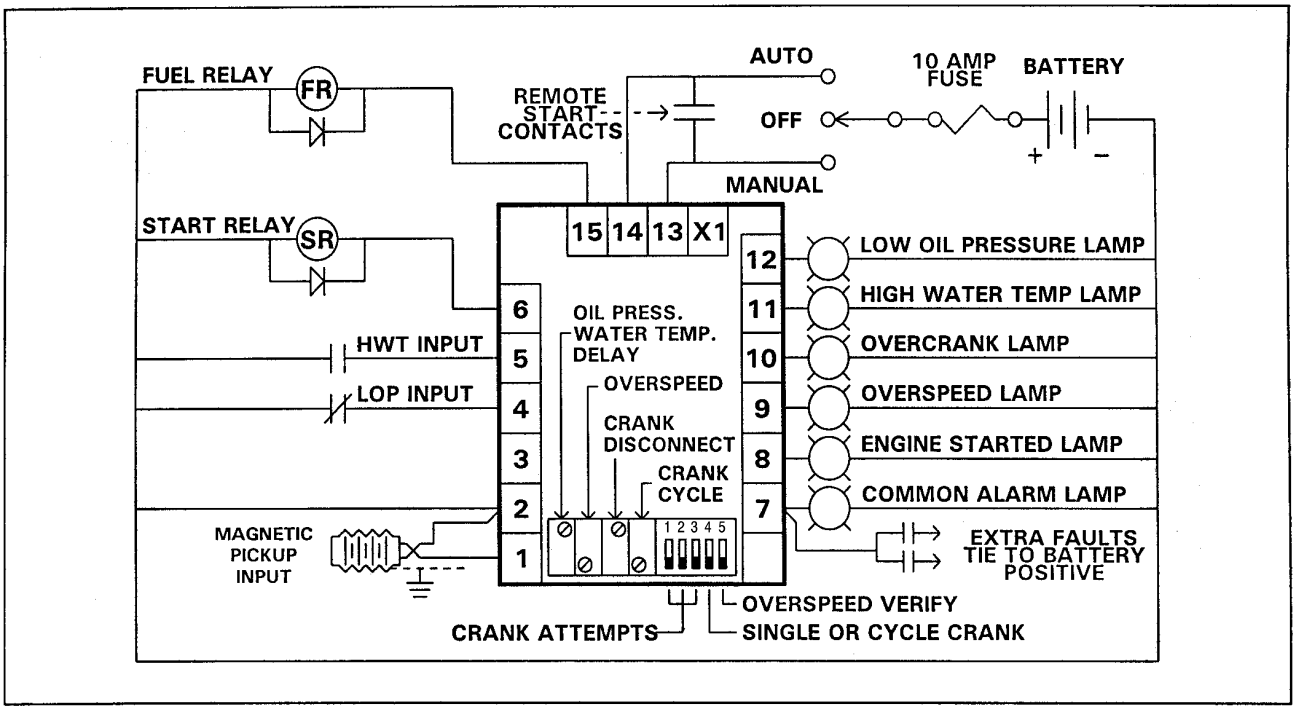
The ECU-9957N covers just about all the essential engine control functions that are asked for in most specifications.

The ECU-9957N automatically cranks, starts and monitors an engine for Overcrank, Overspeed, High Water Temperature and Low Oil Pressure. Any crank timing sequence is accomplished by using the multiple or single crank modes in conjunction with the timer adjustments. A built in speed switch uses a magnetic pickup to monitor engine speed for crank disconnect and overspeed. The bypass timer/logic assures Low Oil Pressure and High Water Temp override during the crank period and an additional adjustable period after crank disconnect befor shutdown actually occurs.

The ECU-9957N expands to as many faults as required by using the Engine Alarm Input/Output.

ENGINEERING CONCEPTS UNLIMITED, INC.
P.O. Box 250 - 8950 Technology Drive - Fishers, IN 46038

SAMPLE ECU-9957N APPLICATION:
AUTOMATIC ENGINE CONTROL OF DIESEL/GAS ENGINE

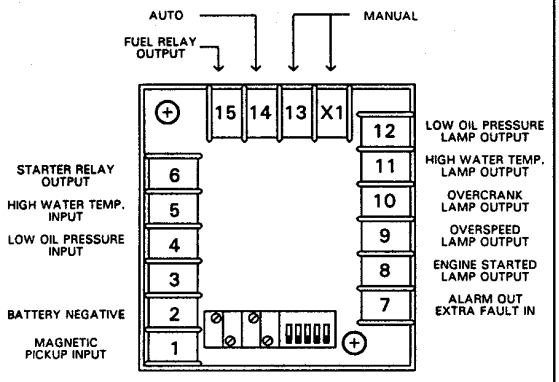


The above illustrates the ECU-9957N engine control with an energized to run engine. Placing the control switch in MANUAL or closure of the Remote Start Contacts while in AUTO initiates the Crank mode. The Fuel and Starter Relays are energized causing the engine to begin cranking. If the engine does not start in the allotted time, as determined by the Crank Cycle Adjust and Dip Switch setting, the Overcrank Fault occurs, and the Fuel and Starter Relays are turned off. If during cranking the internal speed switch detects a speed equal to or above the Crank Disconnect Adjustment Setting the Starter Relay turns off, the LOP/HWT delay timer is initiated. After this delay period if the LOP or HWT switch closes the engine will shutdown immediately. If the internal speed switch detects a speed equal to or above the Overspeed Adjustment Setting the engine is shutdown immediately. To stop the engine or to clear a fault condition place the control switch in the Off position.

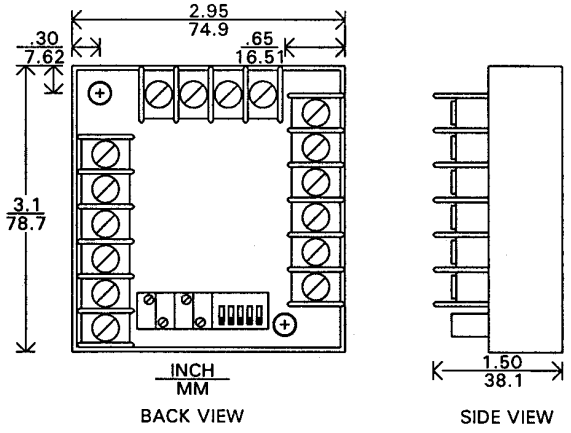
SPECIFICATIONS:

VOLTAGE RANGE - 9 TO 28 VOLTS
MAGNETIC PICKUP - 250 TO 8500 HERTZ
STARTER AND FUEL OUTPUTS - 5 AMPS MAX
LAMP OUTPUTS (TOTAL) - 1 AMP MAX

ECU-9957N TERMINAL OUT



PHYSICAL DIMENSIONS



Mounting holes will accept No.8 or No.6 screws.

ORDERING INFORMATION:
ORDER BY SPECIFYING: ECU-9957N

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All adjustments are completed at the factory before delivery to you. However, these procedures are included here in case adjustment is required (if control is replaced). These are shown in the diagram at the top of page 2 “Sample ECU–9957N Application: Automatic Engine Control of Diesel/Gas Engine”.

Crank Adjustment Procedure

1. **Crank Control Switches 1–5**
   Set Crank Attempts (1–3) to OFF.
   Set Single or Cycle Crank (4) to ON (Single).
   Set Overspeed Verify (5) to OFF.
2. **Crank Disconnect** (When the Starter disengages)
   For new control, turn adjust screw 30 turns counter clockwise then 3 turns clock wise. Try to start the engine. It should crank and stop quickly. The engine started LED will be ON. Turn adjust screw 1 turn clockwise and restart the engine. Repeat the adjustment until the engine starts reliably.
3. **Overspeed** (Safety Trip point)
   Adjust the crank disconnect first. For new control, turn adjust screw 30 turns counter clockwise. Set Switch 5 to ON. Start the engine. It should crank and start. The engine started LED will be ON. Turn the Overspeed adjustment counterclockwise until the engine control shuts down the engine in an Overspeed fault. Set Switch 5 to OFF.
4. **Oil Press. Water Temp. Delay** (When the engine stops after fault)
   For new control, turn adjust screw 30 turns counter clockwise. This allows a 1 second delay. Fault delay begins after the engine has started. The purpose of the delay is to allow time for oil pressure to build adequately before the oil pressure monitor starts checking the oil pressure sender. High water temperature is also ignored during the fault delay time to allow engine coolant to circulate in the engine.
5. **Crank Cycle** (Sets the Starter ON Time)
   For new control, turn adjust screw 30 turns counter clockwise then 3 turns clock wise. This allows 1 second of engine cranking (starting motor ON) time. Each turn up adds about 1 second to the crank time. Adjusting the crank time automatically sets the rest time to the same value.
6. Crank Attempts (Switches 1–3) Set to the desired number of crank attempts before fault.

1	2	3	Cycles
Off	Off	Off	1
Off	On	Off	2
On	Off	Off	3
On	On	Off	4
Off	Off	On	5
Off	On	On	6
On	Off	On	7
On	On	On	8

7. Single or Cycle Cranks (Switch 4)
   On Single Crank
   Off Multiple Cranks
8. Overspeed Verify (Switch 5)
   On Produces a 13% increase in speed error without changing engine speed. With engine operating at rated speed, setting this switch to ON should cause the engine to shutdown with an Overspeed fault.
   Off True engine speed is monitored. Set to OFF for normal operation.