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INSTRUCTION MANUAL

LOAD MANAGER P

A battery protector for vehicles with equipment that
Is operated with the engine not running

MODEL# 091-141
INPUT: 12 Volts D.C.

MODEL# 091-141-24
INPUT: 24 Volts D.C.

3 YEAR WARRANTY

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INTRODUCTION

The model 091-141 LOAD MANAGER P is designed to disconnect loads when the battery voltage drops below a certain threshold. In addition a "Shutdown Timer" is provided so that the load is disconnected 1 to 2 hours after the engine is shutdown. This provides the ideal control for the computer or radio in police cars, rescue vehicles, command vehicles or any application where these devices might be used with the engine not running. If the operator forgets to shut down the computer or radio, the battery is protected, as the Load Manager P will turn off the power before the battery is drained.

12VDC Operation:
The factory pre-set voltage for shutdown is 11.0 volts, but can be potentiometer adjusted up to 12.85 volts. The factory pre-set shutdown time is 1 hour (when engine is not running). This time can also be potentiometer adjusted up to 2 hours.

24VDC Operation:
The factory pre-set voltage for shutdown is 22.0 volts, but can be potentiometer adjusted from 21.25 to 24.75 volts. The factory pre-set shutdown time is 1 hour (when engine is not running). This time can also be potentiometer adjusted up to 2 hours.

Shutdown Timer:
Enabled (factory default) when diode CR4 is installed on Printed Circuit Board Assembly (refer to Figure 3). Disabling the Shutdown Timer by removing CR4 will allow load power supply regardless of engine running/not running status. The load will, however, still be managed as a function of vehicle battery voltage per voltage shutdown described above.
The Load Manager Model Number will be followed by "DIS" if the Shutdown Timer is disabled at the factory per customer order.

PRINCIPLES OF OPERATION

The Load Manager P is basically a low voltage disconnect which removes power from the load when the voltage sensed drops below the preset threshold of 11.0 volts for 12VDC operation and 22.0 volts for 24VDC operation. A starter override is provided to prevent disabling the load while the engine is cranking. This eliminates re-booting the computer if cranking the engine drops the battery voltage below the threshold. When the device detects that the engine is not running a timer is started. After the set time has elapsed the load will be deenergized. If during the timing cycle, the battery voltage drops below its set point, the load will be immediately deenergized. Starting the engine at any time during the timing cycle will reset the timer. A block diagram appears in figure 1.

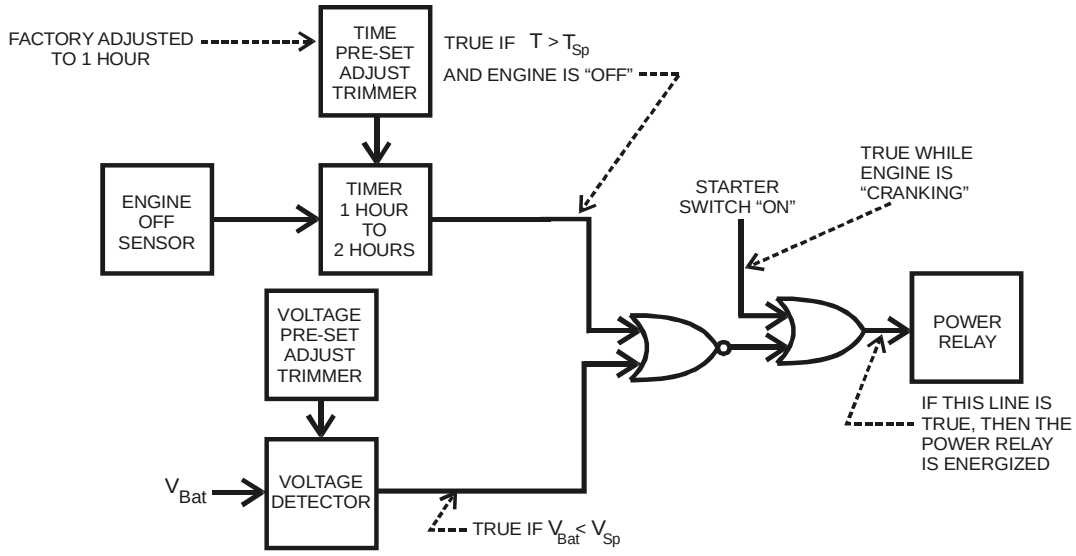


Figure 1

BLOCK DIAGRAM, LOAD MANAGER P

INSTALLATION

WIRING:

Figure 2 illustrates the wiring of the Load Manager P. Wire the unit using the wire gauges shown in figure 2.

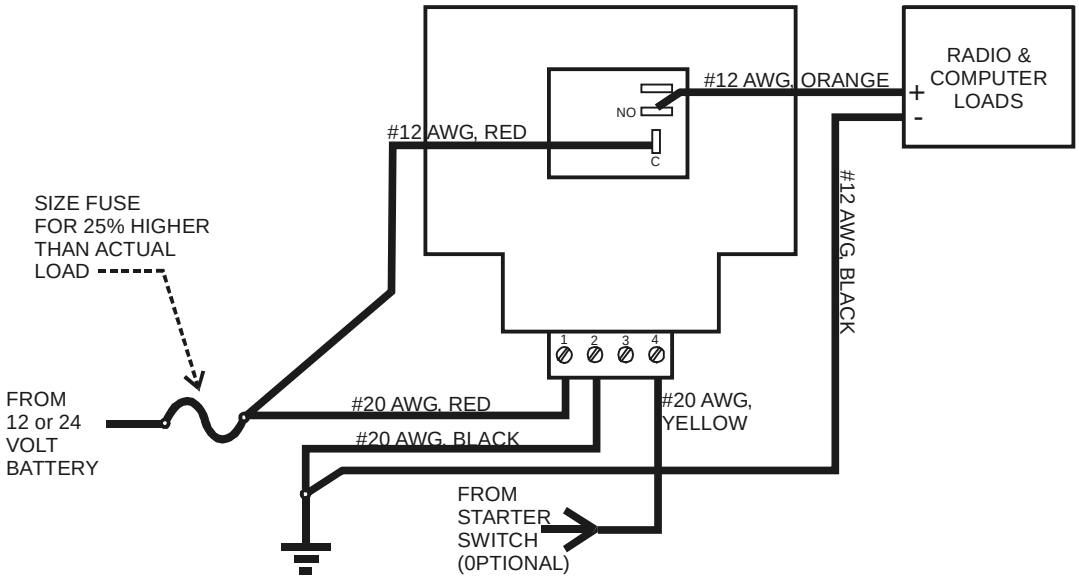


Figure 2

INSTALLATION WIRING, LOAD MANAGER P

ALIGNMENT:

Refer to Figure 3 for all component locations and measurement points.

12VDC Operation:
R102 is normally set maximum counter-clockwise for an 11.0 volt threshold. R102 can be adjusted in a clockwise direction to obtain a higher threshold voltage. Maximum clockwise is 12.85 volts.

24VDC Operation:
R102 is normally set approximately 70% of full counter-clockwise for a 22.0 volt threshold. R102 can be adjusted in a clockwise direction to obtain a higher threshold voltage. Maximum clockwise is 24.75 volts, maximum counter-clockwise is 21.25VDC.

R103 is normally set maximum counter-clockwise for a 1-hour time threshold. R103 can be adjusted in a clockwise direction to obtain a longer time threshold. Maximum clockwise is 2 hours.

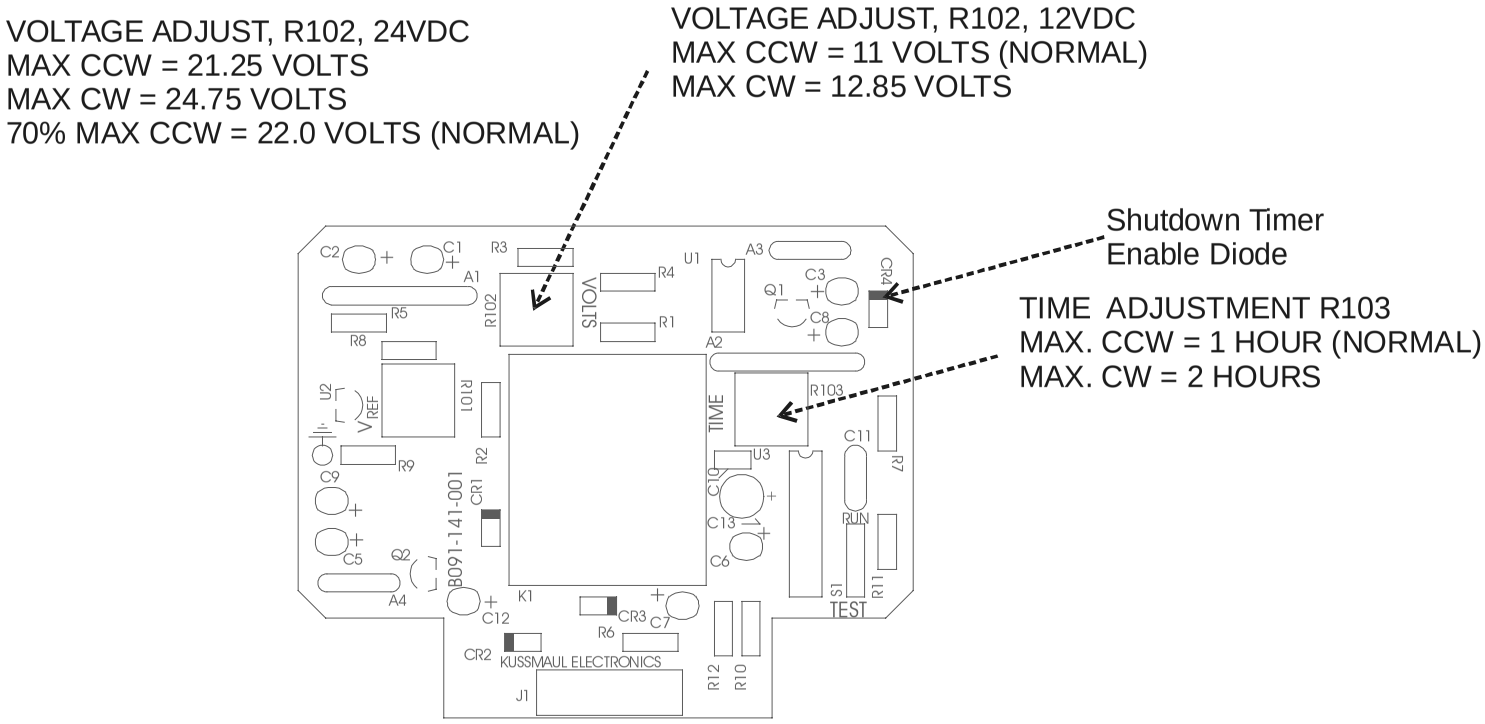


Figure 3

ALIGNMENT & PROGRAMMING, LOAD MANAGER P

SPECIFICATION AND OUTLINE

Temperature Environment: 0 to 50 deg C.

Main Input Power: 12VDC Battery, [24VDC Battery]

Input Current: 90 [40] milliamperes, relay ON
9 [5] milliamperes, relay OFF

Load Output Power: 12VDC @ 30 amperes maximum.
[14VDC @ 30 Amperes maximum]

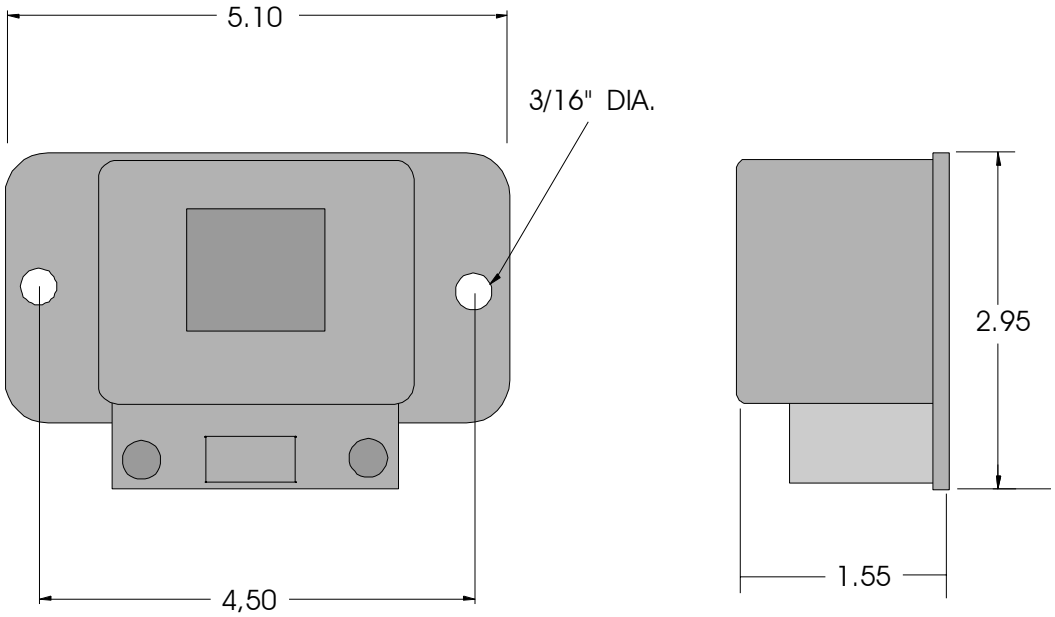
Low Voltage Dropout of Load: 11.0 to 12.85 volts (potentiometer adjustable, Factory set for 11 volts).
[21.25 to 24.75 volts (potentiometer adjustable, Factory set for 22.0 volts)]

Load Power Restoration Voltage: .5 [.75] volt higher than the Low Voltage dropout of load.

Time Dropout of Load: 1 to 2 hours (potentiometer adjustable, factory set for 1 hour).

Starter Inhibit: The Load will not drop out due to low voltage while the engine is being started.

Weight: 0.5 lbs



OUTLINE, LOAD MANAGER P

INSTALLATION RECORD & WARRANTY

Date Installed_____

Installed By_____

Vehicle Identification_____

Vehicle Owner_____

WARRANTY

All products of Kussmaul Electronics Company Inc. are warranted to be free of defects of material or workmanship. Liability is limited to repairing or replacing at our factory, without charge, any material or defects that become apparent in normal use within 3 years from the date the equipment was shipped. Equipment is to be returned, shipping charges prepaid and will be returned, after repair, shipping charges paid.

Kussmaul Electronics Company, Inc. shall have no liability for damages of any kind to associated equipment arising from the installation and /or use of the Kussmaul Electronics Company, Inc. products. The purchaser, by the acceptance of the equipment, assumes all liability for any damages which may result from its installation, use or misuse, by the purchaser, his or its employees or others.