

DC POWER MANAGEMENT



MDP-25
Page 67



Nav-Pac
Page 67



StartGuard
Page 67



DC Power
Conditioners &
Converters
Page 68



Auto Isolator
I & 3
Page 69



Load Manager P
Page 70



Power Timer
Page 70



Load Manager 1H
Page 71



Load Manager 1HP
Page 71



Load Manager
Page 72



Load Manager 2
Page 72



Soft Start
Page 73



Timer-X
Page 73



Auto Current &
Auto Current A
Page 74



Auto Current F &
Auto Current F - A
Page 75



UV - OV Relay &
OV Relay
Page 76



Low Voltage Alarm
Page 77



Alternate
Action Relay
Page 77



Time Delay Relay
Page 78



Relay Board 2 &
Relay Board 4
Page 78



Power Distribution
System - PDS - 100
Page 79

Mobile Data Power System

- Protects mobile computers against a system crash, lengthy reboot sequences, and loss of data
- Internal battery provides supplemental 12V to mobile data devices when a low vehicle battery is sensed: 5A for 60 mins., 10A for 20 mins., and 25A for 8 mins. and also contains a time out circuit to preserve battery
- Built in Multi-Stage filter provides clean power required by mobile electronics
- Provides a low output warning signals to mobile computers (such as Motorola® MW 800 series work stations)
- Internal three stage, temperature compensated charger maintains an internal 9A/H back-up battery in a fully charged stand-by state
- Heavy duty aluminum case with an access door for easy battery removal



Brand Conversion From NEWMAR

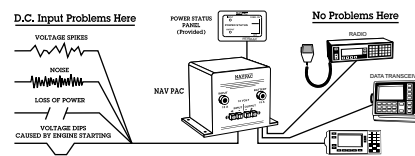
Part Number	Description	Dimensions			Wgt.
		L	W	H	
425-5750-0	MDP-25.0	8.00"	6.00"	5.75"	10

NAV-PAC™

- Provides long duration voltage stabilization, electronics on-line with internal battery which is maintained by vehicle battery
- Upon sensing low or loss of input, the internal battery continues to provide supplemental power: 8A for 15 mins., 12A for 8 mins., and 18A for 2 mins.
- Timer disconnects the output 15 minutes after the loss of the input
- Absorbs line "spikes" and filters out electrical interference
- Configuration with the front panel power switch optional



Part Number	Description	Dimensions			Wgt.
		L	W	H	
425-2988-0	NP-12, 20A	7.40"	6.20"	5.25"	6



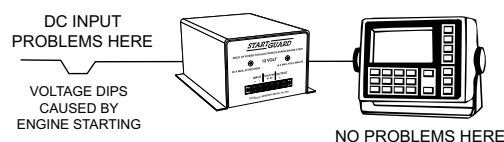
StartGuard™

- Provides momentary voltage stabilization to electronics during the engine start
- Prevents programmed memory dump and re-booting of the microprocessor based voice and data transmitters
- Internal battery is switched on-line to the electronics when the starter solenoid is engaged
- When the engine is running, **StartGuard™** goes off-line and the internal battery is re-charged by the alternator
- Input Voltage: 13.8 - 14.8VDC nominal, 15.5VDC max.
- Output: 20A max. for 1 min., 18A for 2 mins.
- Battery: 12VDC, sealed rechargeable 5A/H with a 5 - 7 year life (typical)



Brand conversion from NEWMAR

Part Number	Description	Dimensions			Wgt.
		L	W	H	
426-3222-0	NS-12-20	3.50"	4.90"	8.25"	6



Voltage Stabilizing Converters Constant Output Voltage from Variable Input

- Operate electronics at an optimal input voltage, even from nearly drained batteries
- Boost load voltage to compensate for any voltage drop in long wire runs from batteries
- Eliminate voltage drops during momentary high current drain from the batteries, i.e., during engine start
- Eliminate voltage fluctuation produced by charging sources
- Eliminate voltage overshoot resulting from the disconnection of high current loads



Brand Conversion From NEWMAR

Part Number	Description	Electrical Data			Dimensions			Wgt.
		Input Volts	Output Volts	Output Amps	L	W	H	
460-0123-0	12-12-3I	10-16	13.6	3	1.75"	3.5"	3.5"	1
460-1212-0	12-12-6I	10-16	13.6	6	1.75"	3.5"	3.5"	1
460-0610-0	12-12-12I	10-16*	13.6	12	14.0"	5.9"	4.25"	6
460-0617-0	12-12-35	10-16*	13.6	35	16.5"	6.8"	6.0"	12

* 11.5V minimum start-up voltage, then operates @ 10-16V from 1A minimum to full load, 24V models available, contact factory

Noise Filters

- Filters and regulates DC output to a constant 12V to power sensitive electronic equipment assuring noise free operation
- Regulated output is ideal for powering voltage sensitive loads that have difficulty operating from battery saver outputs



Part Number	Description	Electrical Data			Dimensions			Wgt.
		Input Volts	Output Volts	Output Amps	H	W	D	
091-137	Battery Saver Filter	12-15	13.8	3	5.10"	2.95"	1.55"	1
380-2010-1	PC-10, Noise Filter	12/24	12/24	10	1.38"	3.49"	2.99"	1
380-1258-1	PC-25, Noise Filter	12/24	12/24	25	2.08"	4.20"	3.23"	2

DC Converters

- Convert a 20V-50V input to a 12V output for powering communication equipment, on negative ground systems
- Ideal for powering voice and data electronics
- Rugged anodized aluminum case designed to survive in a high vibration environment onboard emergency and off-road vehicles
- 12V to 24V step-up converters also available



Brand Conversion From NEWMAR

Part Number	Description	Electrical Data			Dimensions			Wgt.
		Input Volts	Output Volts	Output Amps	L	W	H	
420-2403-0	24-12-3	17-32	13.6	3	1.75"	3.50"	3.50"	1
420-3826-0	32-12-6	20-50	13.6	6	10.40"	4.20"	2.80"	3
420-3550-0	32-12-10	20-50	13.6	10	11.00"	5.90"	4.50"	4
420-3535-0	32-12-15	20-50	13.6	15	11.00"	5.90"	4.50"	5
420-3544-0	32-12-25	20-50	13.6	25	14.00"	4.70"	6.00"	8
420-3545-0	32-12-35	20-50	13.6	35	16.00"	4.70"	6.00"	12
420-3536-0	32-12-50	20-50	13.6	50	18.10"	6.80"	6.20"	16

High Efficiency, No Diode Drop Eliminates Diode Isolator in 2 or 3 Battery System

Auto Isolator I Features

- System consists of a controller that detects when a vehicle's alternator is charging the main battery and then closes a solenoid to tie-in charge to an auxiliary battery
- When the engine is off or the charge voltage is no longer present, the solenoid opens to isolate the batteries
- Upon "cranking" the engine with a charged auxiliary battery, the solenoid is energized to parallel the batteries and provide a starting boost
- If the auxiliary battery is low, the controller senses that condition and the batteries are not paralleled
- Uses a solenoid rather than an isolation diode which typically causes a 0.7V drop, thus auxiliary battery receives full charge voltage
- The starting boost provided by the paralleled batteries is especially useful in cold weather or when the battery is low



Controller

Auto Isolator 3 Features

- System consists of a controller and two separate solenoids, for switching the batteries
- Allows a three battery system to be isolated from each other
- The system receives its power from the Battery one input or it can be switched ON/OFF
- When any of the three batteries go above 13.2V all three batteries are paralleled by the solenoids being energized, charging all three batteries and will disconnect the batteries when the voltage drops below 12.6V



Solenoid

Specifications

Auto Isolator I Controller: 091-139-CONT-12

Actuation Voltage: ≤ 13.3V (field adjustable)

Battery Load: 0.000125A

Output Current: 3A

Auto Isolator 3 Controller: 091-208-CONT-12

Volts to parallel, normal operation: 13.2 volts

Hysteresis: 0.60 volts (13.2 volts on - 12.6 volts off)

Battery Load: 0.020A

Output Current: 3A

Auto Isolator I & 3 Solenoid: 091-139-SOL-12HO

Volts: 12V

Coil Current: .65A

Contact Rating: 200A cont./600A surge

Note that Auto Isolator 3 uses two of this solenoid

Part Number	Description	Dimensions			Wgt.
		H	W	D	
091-139-CONT-12	Auto Isolator I Controller	5.10"	2.95"	1.55"	0.5
091-208-CONT-12	Auto Isolator 3 Controller	5.10"	2.95"	1.55"	0.5
091-139-SOL-12HO	Auto Isolator I & 3 Solenoid	3.60"	3.30"	2.80"	2.0

Load Manager P

- Preserves the Charge in the vehicle battery by two functions:
 - Timer disconnects the electronic loads after the engine shuts down
 - Battery condition sensor disconnects the loads when critical low voltage is sensed
- Timer and low voltage activation set points are user adjustable



Features

- Prevents total discharge of the vehicle batteries caused by electronic loads left on after the vehicle is parked
- After the engine shuts down, the timer disconnects radios and computers after 1 - 2 hours (user selectable)
- Low voltage sense circuit activates the disconnect anytime critical low voltage is detected
- Sense circuit prevents nuisance disconnects caused by low voltage during the engine start sequence
- 30A high capacity disconnect relay manages multiple electronic loads

Part Number	Description	Electrical Data Specs		Load Shed Setpoint Range	Dimensions			Wgt
		DC Volts	DC Amps		L	W	H	
091-141	Load Manager P	12	30	11.00V to 12.85V*	1.55"	5.10"	2.95"	.5
091-141-24	Load Manager P, 24 Volt	24	30	21.25V to 24.75V*	1.55"	5.10"	2.95"	.5

*Factory Set to 11.00V / 22.00V

Power Timer

- Prevents dead batteries due to any accessories being left on and forgotten
- Programmable disconnect time limit: 15 minutes to 8 hours
- Weatherproof enclosed case



Features

- Dip switches on the top of the unit control time out programming
- LED's indicate output status
- 30A rating controls multiple auxiliary loads on the vehicle
- High and low voltage disconnect built-in
- Rugged construction; components epoxy potted for survival in vibration
- Optional ignition sense wiring restores the power immediately to radios when the ignition is activated, rather than having to start the engine

Part Number	Description	Electrical Data Specs		Time Out Range	Dimensions			Wgt
		DC Volts	DC Amps		L	W	H	
390-0030-5	Power Timer	12	30	15 Min. to 8 Hrs.	3.7"	4.30"	2.13"	.5

Load Manager 1H

- Monitors a 12V system and when detecting low voltage setpoint, disconnects the load
- Automatically reconnects the load when the battery recovers 1.4V above disconnect setpoint
- Preserves battery which prevents total discharge



Features

- Preserves the batteries from totally discharging by disconnecting loads when the critical low voltage is sensed
- Reconnect sequence requires 1.4V recovery above the disconnect set point ensuring the battery condition improves before the loads are re-applied
- Field adjustable set and reconnect points for specific vehicle configuration
- Green/Red LED's indicate normal or low voltage conditions
- Easy to install compact case

Part Number	Electrical Data				Dimensions			Wgt.
	Input Voltage	Amperage	Set Point	Adj. Range	L	W	H	
091-96-12	12	30	12.0 ± 0.05V	10.5 to 13V	2.63"	4.00"	1.50"	.25
091-96-24	24	30	24.0 ± 0.05V	21 to 26V	2.63"	4.00"	1.50"	.25

Load Manager 1HP

- Low voltage disconnect preserves the batteries from totally discharging by disconnecting loads when the critical low voltage is sensed
- Engine start sensor prevents nuisance disconnection due to low voltage occurring during the engine start



Features

- Monitors the battery and de-energizes up to a 75A load when the voltage drops to 11.5V
- Automatically reconnects when the battery recovers above 12.8V, ensuring the battery condition improvement before any loads are re-applied
- Encapsulated components for survival in high vibration and wet area applications

Part Number	Electrical Data				Dimensions			Wgt.
	Input Voltage	Amperage	Set Point	Adj. Range	L	W	H	
091-167-12	12	75	11.5 ± 0.05V	10.5 to 13V	2.35"	3.10"	4.00"	.5

Load Manager

- Sends output signals in half second sequences to energize and disconnect up to seven control relays (five programmable)
- Applies the load to the system in a step fashion, allowing for voltage stabilization as equipment is added
- Automatically sheds loads sequentially when low voltage is sensed, maintaining proper voltage to high priority equipment



Features

- Assures loads are applied and removed gradually, smoothing voltage variation and preventing damage to any sensitive loads
- When activated by a master switch, load control signals are generated in sequential order in half second delays as programmed by the installer
- When the master switch is deactivated, loads are sequentially de-energized
- Monitors the vehicle for a low voltage condition and automatically sends a signal to sequentially disconnect up to five low priority loads which maintains the voltage to any critical equipment
- Manual override input provided
- Included: monitor panel alerts the operators when the load shedding has occurred due to low voltage
- 12V, 80 ohm signal output activates a standard vehicle lamp and auxiliary relays (lamp not included)

Part Number	Description	Electrical Data Specs		Load Shed Factory Set Point	Dimensions			Wgt
		DC Volts	DC Amps		L	W	H	
091-32	Load Manager, with Indicator	12	30	11.5V	1.63"	4.75"	3.50"	.5

Load Manager 2

- Prioritized sequential load shedding of two circuits as the battery voltage decays
- Dedicates the battery power to the critical equipment under low voltage conditions



Features

- Ensures the most essential equipment has power priority over the other loads when the batteries are low
- Sequential circuit sheds the low priority loads first, ensuring longer run time for any critical equipment. This unit automatically resets when the voltage recovers and reconnects the high priority load first
- Prevents total discharge of the battery by disconnecting all the loads at critical low voltage set points
- Adjustable disconnect activation voltage set point
- 30A rating per circuit, 60A total (12V/24V)

Part Number	Description	Electrical Data Specs		Load Shed Factory Set Point	Dimensions			Wgt
		DC Volts	DC Amps		L	W	H	
091-79	Load Manager 2	12	30	11.5V	1.63"	4.25"	3.50"	.5
091-79-24	Load Manager 2, 24V	24	30	24V	1.63"	4.25"	3.50"	.5

Soft Start

Features

- Automatically sequences lights ON/OFF
- Eliminates power surges and sags in the electrical system
- Controls lamp relays
- Easy installation



The **Soft Start** is a precision, solid-state controller, which sequentially switches “ON” seven loads at half second intervals. Individual switches (user provided), can select a combination of outputs. These switches may be used to turn the outputs “ON” or “OFF” at any time. Using a “Master Control” switch starts the sequential switching when it is turned “ON”. Similarly turning the “Master Control” switch “OFF” sequentially de-energizes the loads at half second intervals. A plug-in connector simplifies the installation.

Sequential switching of lamp loads is particularly important for vehicles with many lights. A Master switch that simultaneously controls a large number of lights can cause a voltage dip and overshoot which may damage sensitive electronic equipment. The **Soft Start** assures the loads are applied and removed gradually, smoothing voltage variation and preventing any damage to sensitive loads.

Part Number	Description	Dimensions			Wgt.
		L	W	H	
091-27	Soft Start	4.25"	3.50"	1.50"	2

Timer-X

Features

- May be used as:
 - Delay-on-Pull-In relay, DOPI
 - Delay-on-Drop-Out relay, DODO
 - Duty Cycle-Timer relay
- Timer utilizes switches for precise settings from 1 second to 99 hours
- 30A relay switches AC or DC loads
- Flexible triggering either +12V or ground
- Operates on DC or AC Power

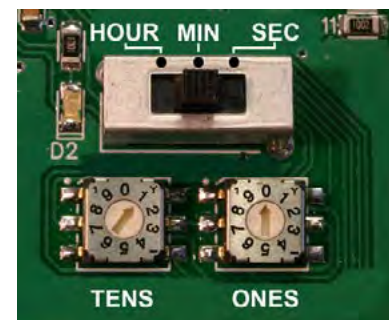


The precise TIMER-X universal timer may be operated in any of three modes, DOPI, DODO or CYCLE. The quartz crystal based timer intervals are easily and accurately set in the field using switches and a small screwdriver. The timer supports intervals in the broad range of 1 second to 99 hours. In the Cycle mode the ON and OFF times are independently controlled and may be set over the full range of time from 1 second to 99 hours. The heavy-duty, 30A, output relay provides both normally OPEN and normally CLOSED contacts and a red LED indicates when the relay is energized.

Flexible input triggering allows for either +12VDC or a contact closure to ground to initiate the timing cycle.

Part Number	Description	Dimensions			Wt.
		L	W	H	
091-214-12	Universal Timer, 12 Volt	4.75"	3.50"	1.60"	.5
091-214-24	Universal Timer, 24 Volt	4.75"	3.50"	1.60"	.5
091-214-120/240	120/240 VAC Adapter	N/A	N/A	N/A	.5

Timer Settings



Auto Current

Features

- Senses the current flowing in and provides a remote indication that a load is operating
- Simplifies vehicle wiring
- Single indicator activates from multiple inputs



The Auto Current detects current flow and closes a relay providing a remote indication. Designed for applications where a remote indicator/warning light must be illuminated when one or more lights or other loads are energized. By detecting load current, any lamp or other load will cause the indicator to illuminate. The indicator circuit may be completely isolated from the circuit being sensed, or may be operated from the same battery.

Note: Standard unit supplies +12V to the indicator. Available as -G for operating indicator by grounding.

Part Number	Description	Electrical Data			Switch Rating 12V	Dimensions			Wgt.
		Resistance Ohms	Min. Operating Amps	Max. Operating Amps		H	W	D	
091-22-2	Auto Current -2	0.01	1.0	30	5A	2.63"	4.00"	1.50"	.25
091-22-3	Auto Current -3	0.01	0.5	30	5A	2.63"	4.00"	1.50"	.25
091-22-5	Auto Current -5	0.02	0.25	10	5A	2.63"	4.00"	1.50"	.25
091-22-6	Auto Current -6	0.02	0.10	4	5A	2.63"	4.00"	1.50"	.25
091-22-100	Auto Current -100	0.0003	4	100	5A	2.63"	4.00"	1.50"	.25

Auto Current A

Features

- Senses current
- Auxiliary input, ground to operate
- Simplifies vehicle wiring
- Single indicator activates from many inputs



The Auto Current A is an Auto Current with auxiliary input, which when grounded causes the output relay to operate. When the output relay is operated, it cycles ON and OFF to create a signal. The Auto Current portion of this device senses current, permitting use as an open door detector. The auxiliary input may be connected to any number of switches in parallel. Closing any switch operates the Auto Current A in addition to the current sensing. This feature makes it ideal as a detector for a "DO NOT MOVE VEHICLE" indicator. As with the standard Auto Current, the sense terminals are wired in series with the power supplied to the compartment lights.

Note: Standard unit supplies +12V to indicator. Available as -G for operating indicator by grounding.

Part Number	Description	Electrical Data			Switch Rating 12V	Dimensions			Wgt.
		Resistance Ohms	Min. Operating Amps	Max. Operating Amps		H	W	D	
091-22-A	Auto Current -A	0.01	1.0	30	5A	2.63"	4.00"	1.50"	.25
091-22-A-6	Auto Current -A-6	0.2	0.10	4	5A	2.63"	4.00"	1.50"	.25

Auto Current F

Features

- Senses current flow
- Provides a remote indication
- Simplifies vehicle wiring
- Single indicator operated from many loads
- Produces flashing output signal to an indicator light



The Auto Current F detects current and closes a switch when the sensed current flows to provide a remote indication. Designed for applications where a remote indicator must be illuminated when one or more lights or other loads are energized. By detecting load current, any lamp or other load will cause the indicator to illuminate. The indicator circuit may be completely isolated from the circuit being sensed, or may be operated from the same battery. A timer flashes the indicator lamp at one second intervals providing a highly visible display.

Note: Standard unit supplies +12V to an indicator. Available as -G for operating indicator by grounding.

Part Number	Description	Electrical Data			Switch Rating 12V	Dimensions			Wgt.
		Resistance Ohms	Min. Operating Amps	Max. Operating Amps		L	W	H	
091-22F-2	Auto Current F-2	0.01	1.0	30	5A	2.63"	4.50"	1.50"	.25
091-22F-3	Auto Current F-3	0.01	0.5	30	5A	2.63"	4.50"	1.50"	.25
091-22F-5	Auto Current F-5	0.02	0.25	10	5A	2.63"	4.50"	1.50"	.25
091-22F-6	Auto Current F-6	0.02	0.10	4	5A	2.63"	4.50"	1.50"	.25
091-22-100-F	Auto Current F-100	0.0003	4	100	5A	2.63"	4.50"	1.50"	.25

Auto Current F-A

Features

- Senses current
- Auxiliary input, ground to operate
- Provides remote indication
- Simplifies vehicle wiring
- Flashing output to a warning indicator light
- Single indicator operated from multiple inputs



The Auto Current F-A is an Auto Current F with an auxiliary input, which when grounded causes the output relay to operate. When the output relay is energized, it cycles ON and OFF producing a flashing signal. The Auto Current portion senses the current permitting use as open door detector. The auxiliary input may be connected to any number of switches in parallel. Closing any switch or current sensing operates the Auto Current F-A. This feature makes it ideal as a detector for a door open "DO NOT MOVE VEHICLE" indicator. As with the standard Auto Current, these sense terminals are wired in series with the power supplied to the compartment lights.

Note: Standard unit supplies +12V to the indicator. Available as -G for operating indicator by grounding.

Part Number	Description	Electrical Data			Switch Rating 12V	Dimensions			Wgt.
		Resistance Ohms	Min. Operating Amps	Max. Operating Amps		L	W	H	
091-22F-A	Auto Current F-A	0.01	1.0	30	5A	2.63"	4.50"	1.50"	.25
091-22F-A-6	Auto Current F-A-6	0.2	0.10	4	5A	2.63"	4.50"	1.50"	.25

UV OV Relay

Features

- Monitors system battery voltage
- Detects under voltage and warns of a possible dead battery
- Programmable switches set under voltage trip point
- Detects over voltage and warns of possible battery boil over
- Provides relay contacts for over voltage and under voltage



The UV-OV Relay Precise - programmable voltage detector monitors battery voltage and detects both over voltage and under voltage conditions. The under voltage trip point is programmed by the use of 3 dip switches, which provide possible settings ranging from 11.44V to 13.01V. Over voltage trip point programming is done with 8 possible settings ranging from 13.66V to 15.06V. These dip switches are easily accessed by removing a snap-on cover at the top of the unit. Heavy duty, relay contacts are provided for both conditions which may be wired to warning devices indicating abnormal conditions. Three LED indicators are provided under the snap-on cover for system troubleshooting, yellow for under voltage, green for normal, and red for over voltage.

Part Number	Description	DC Volts	Under Voltage Program Range	Over Voltage Program Range	Dimensions			Wgt.
					L	W	H	
091-45	UV OV Relay	10 to 17	11.44 to 13.01V	13.66 to 15.06V	1.50"	3.50"	4.25"	.5

OV Relay

Features

- Monitors battery system voltage
- Detects over voltage and warns of a potential battery overcharge/boil over
- Relay contacts close upon over voltage being sensed, and ties to an alarm
- Easy installation



The 091-108-012 Over Voltage Relay continuously monitors the voltage of the battery. The unit is factory set to actuate at 17V, reset at 14V, and may be adjusted to other voltage trigger points. The output relay is capable of switching 30A, and both "Normally Open" and "Normally Closed" contacts are provided.

Part Number	Description	Electrical Data				Dimensions			Wgt.
		DC Volts	DC Amps	Input Amps Relay ON	Input Amps Relay OFF	L	W	H	
091-108-012	OV Relay	12	30	.08	.015	1.55"	4.50"	2.95"	.25

Low Voltage Alarm / 1901

Features

- Detects low battery voltage
- Programmed 120 second time delay
- High current relay, 30A
- Operates any indicator or alarm
- Meets NFPA 1901 requirements



The Low Voltage Alarm / 1901 detects when battery voltage drops below a threshold and remains low for 120 seconds. At that time, a relay is energized activating a low voltage indicator or alarm. Available for either 12V or 24V electrical systems, the unit contains LED indicators: to aid in installation and test. A green indicator is illuminated whenever the voltage is normal. When the voltage drops below the setpoint and remains low for 120 seconds, the green LED is extinguished and the red LED illuminates. The setpoint and time delay features meet the requirements of NFPA 1901, paragraph 9-3-3. Voltage setpoint is adjustable to meet special requirements

Easily installed, the Low Voltage Alarm requires only two wires to sense the battery voltage. The 30A contacts on the relay provide ample capacity to operate the low voltage alarm and indicator. Availability of a normally closed contact in addition to the normally open contact permits a wide variety of connections in the load circuit.

Part Number	Description	Electrical Data		Load Shed Factory Set Point	Dimensions			Wgt.
		DC Volts	DC Amps		L	W	H	
091-85-12	Low Voltage Alarm, 12V	12	30	11.8V	2.95"	5.10"	1.55"	.25
091-85-24	Low Voltage Alarm, 24V	24	30	23.6V	2.95"	5.10"	1.55"	.25
091-85-12/24	Low Voltage Alarm, 12V/24V	12/24	30	11.6V/23.2V	2.95"	5.10"	1.55"	.25

Alternate Action Relay

Features

- Remotely control a load from multiple locations
- 30A contacts
- Signal output to indicator light identifies position of relay
- Easy installation



The Alternate Action Relay allows remote turn ON/OFF by grounding an input to the relay. The application of a ground energizes the relay and turns the load "ON". A second input to the same terminal de-energizes the relay and turns the load "OFF". Both inputs may come from the same switch or from any number of switches in parallel. A load may be turned "ON" from one location and turned "OFF" from another. An output signal on the Alternate Action Relay operates a remote indicator to indicate when the load is energized.

Part Number	Description	Electrical Data		Dimensions			Wgt.
		DC Volts	DC Amps	L	W	H	
091-98-12	Alternate Action Relay	12	30	2.63"	4.00"	1.50"	.25

Time Delay - DODO

Features

- 30A contacts
- Relay closes immediately and remains closed for a period of time after being de-energized
- Field adjustable time delay
- Easy installation



Time Delay Relay keeps a load energized for a set time interval after the load is de-energized. A typical application is to take control of the vehicle interior lighting to permit operators time for cleaning or maintenance. Both normally open and normally closed output contacts are provided (30A). The device requires three input connections: +12V power, ground and a +12V signal. When the signal is applied, the relay closes immediately. When the signal is removed, the relay remains energized for the designated time. Five models are available ranging in delay times from 2 seconds to 60 minutes. Time delay on each model is field adjustable with a defined range to match the application.

Part Number	Description	Electrical Data		Settings			Dimensions			Wgt.
		DC Volts	DC Amps	Min.	Max.	Set Point	L	W	H	
091-103-012-A	Time Delay Relay - A	12	30	1.5 min.	6 min.	3 min.	2.63"	4.50"	1.50"	.25
091-103-012-B	Time Delay Relay - B	12	30	6 min.	27 min.	15 min.	2.63"	4.50"	1.50"	.25
091-103-012-C	Time Delay Relay - C	12	30	12 min.	60 min.	30 min.	2.63"	4.50"	1.50"	.25
091-103-012-D	Time Delay Relay - D	12	30	4 sec.	15 sec.	10 sec.	2.63"	4.50"	1.50"	.25
091-103-012-E	Time Delay Relay - E	12	30	2 sec.	3.3 sec.	2 sec.	2.63"	4.50"	1.50"	.25
091-103-012-F	Time Delay Relay - F	12	30	.5 sec.	1.8 sec.	1 sec.	2.63"	4.50"	1.50"	.25

Relay Board 2 and Relay Board 4

Features

- Available with two or four relays
- 30A contacts
- LED's indicate when the relay is energized
- Normally closed and open contacts
- Use with a Load Manager
- Easy installation



Choose either a two or four relay that simplifies installation and wiring. Relays are mounted and energized individually from the power supplied through the terminal strip. LED indicators adjacent to each relay illuminate whenever the relay is energized. Load circuits are connected directly to the top of the relays with 1/4 inch quick disconnect terminals. By installing this one assembly, the complexity of mounting multiple individual relays is reduced and much of the wiring to the relay coils are eliminated. Operation by either supplying voltage to the relay or grounding the relay coil. Models are available in 12V/24V.

Part Number	Description	# of Relays	Electrical Data		Com. Connection	Input to Operate	Dimensions			Wgt.
			DC Volts	DC Amps			L	W	H	
091-32-029N-12	2 Relay Board	2	12	30 per relay	12V	Ground	1.45"	3.75"	2.60"	.25
091-32-029P-12	2 Relay Board	2	12	30 per relay	Ground	12V	1.45"	3.75"	2.60"	.25
091-32-029N-24	2 Relay Board	2	24	30 per relay	24V	Ground	1.45"	3.75"	2.60"	.25
091-32-029P-24	2 Relay Board	2	24	30 per relay	Ground	24V	1.45"	3.75"	2.60"	.25
091-32-024N-12	4 Relay Board	4	12	30 per relay	12V	Ground	1.55"	3.50"	4.75"	.5
091-32-024P-12	4 Relay Board	4	12	30 per relay	Ground	12V	1.55"	3.50"	4.75"	.5
091-32-024N-24	4 Relay Board	4	24	30 per relay	24V	Ground	1.55"	3.50"	4.75"	.5
091-32-024P-24	4 Relay Board	4	24	30 per relay	Ground	24V	1.55"	3.50"	4.75"	.5

100A Power Distribution System Simplifies Wiring of Electronic Accessories

Features

- Quick and easy way to connect, protect, and program power to emergency vehicle accessories
- Provides six dedicated fused circuits configured in three load groups to power radios, emergency lights, sirens, video, MDT, radar, and more
- Flexible circuit activation/deactivation allows installer to set battery power use priority independently per two circuit load group:
 - Powered only with ignition
 - Timed disconnect
 - Always ON, with load group LVD
 - Always ON, with NO load group LVD
- Each circuit is fuse protected with a LED indicator which identifies the blown fuse position, simplifying troubleshooting
- Master low voltage disconnect protects batteries from an extreme discharge
- Heavy duty studs for battery connections
- Screw terminals for secure load connections
- Increase circuit capacity by wiring multiple PDS using parallel busing kit



Specifications

Input: 12V, neg. ground

Power Consumption: Idle: 8mA, Active: 180 mA/circuit

Maximum Load per PDS: 100A, 20A max. per fuse position

Maximum Load Per System: 3 PDS wired in parallel, 18 circuits

Fuse Type: ATC/ATO (not included)

Programmable Shutdown per Load Group: 2 mins.-13 hours

Disconnect Range: 11.8-10.6VDC

Master Low Voltage Disconnect: @ 10.5V (factory programmable 10.0-11.8V)

Case: Powdercoated aluminum

Bus: Nickel plated copper

Protective Cover: Top panel connections and switches

Part Number	Description	Circuits	Max Loads	Dimensions			Wgt.
				L	W	H	
390-5711-0	PDS-100	6	100A Total, 20A Per Position	6.20"	5.20"	2.00"	2