INSTALLATION
INSTRUCTIONS

FOR

Load Master™ II B

AND

Load Master™ IV

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INSTALLATION MANUAL FOR MODEL 3131/3132

PLEASE READ ALL INSTRUCTIONS CAREFULLY AND COMPLETELY BEFORE ATTEMPTING INSTALLATION. Certain instructions will be followed by a WARNING or a CAUTION note. Failure to follow WARNING notes will result in equipment failure or damage and possible exclusion of claims under the terms of the warranty. These instructions are intended only as general guidelines to be used in conjunction with local and national electrical and building codes. This unit should be installed and serviced by qualified persons only.

Installation of both the 3131 and 3132 general purpose load control interfaces are covered in this manual. The 3131 is a 6 load system with four 30 amp relays on the main chassis and two pilot relays located on the control module. The 3132 is a 4 load system with two 30 amp relays on the main chassis and two pilot relays on the control module.

There is a difference in the enclosure size for the two models. The 3131 comes in a 10x12x4 enclosure and the 3132 in a 8x10x4. Except for slight differences in the high voltage wiring terminations, the procedures for installing the two systems are the same.

Refer to the installation and users manual supplied with plug-in control module for specific information on wiring of pilot loads and system operation. The overall system operation will vary between different models of plug-in modules.

Installation will proceed first with the mounting of the main enclosure. This will be followed by the installation of the current transformers, high voltage wiring connections and finally the low voltage wiring.

Figure 1.

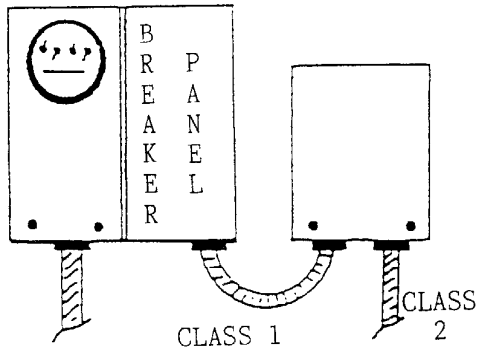
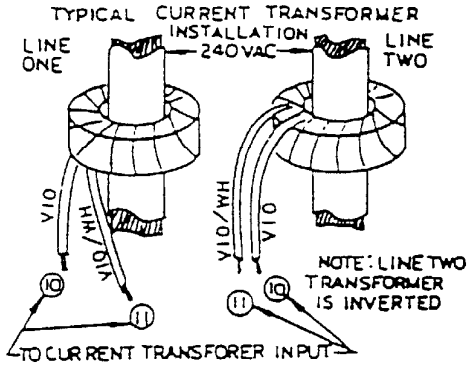


Figure 2.



MOUNTING THE 3131/3132 ENCLOSURE:

1) Locate a suitable position adjacent to the main breaker enclosure for the 3131/3132. Refer to figure 1. Leave sufficient space below the enclosure as all wiring will enter from the bottom.

2) First remove the cover of the enclosure. Next remove the bottom chassis screw and loosen the two top screws. The chassis and all internal components can now be removed. Carefully set the chassis aside.

3) Using the available mounting holes in the back, securely mount the enclosure with suitable hardware.

INSTALLING CURRENT TRANSFORMERS:

WARNING: CURRENT TRANSFORMERS SHOULD NEVER BE INSTALLED OVER ENERGIZED CONDUCTORS DUE TO THE RISK OF INJURY. CONTACT THE UTILITY COMPANY FOR ASSISTANCE IF CURRENT TRANSFORMERS MUST BE INSTALLED ON THE SERVICE ENTRANCE SIDE OF THE METER.

The current transformers supplied are toroid type design with 4' 18 AWG leads (PN 900006). Wires carring the current to be measured are passed through the hole in the center of the transformer. The ratio of the current passing through the center of the transformer and that induced to the leads is 200:1.

The current transformers are designed to be used on 400 amp or less service. The optimal placement is in the circuit breaker panel ahead of the circuit breakers. The current transformers must be placed on the main feeds in order to measure the total current. Installing current transformers outside the circuit breaker panel must be made in an acceptable enclosure. For an illustration of how to position the current transformers on the main feeds, see figure 2. CAUTION: If the transformers are out of phase (one reversed) there will be an error in current measurement.

WARNING: RISK OF ELECTRIC SHOCK. Energized current transformers produce high voltages when not properly terminated. Exercise caution when handling unterminated current transformer leads. For temporary termination connect the two current transformer leads together.

Both the 3131 and 3132 come from the factory with a terminating resistor installed for the current transformer. See figure 3 or 4 for the resistor location. The value and wattage of this resistor varies depending on the plug-in module supplied with the system. The following table indicates the standard resistor for each system.

SYSTEM DESCRIPTION	RESISTOR VALUE
3130 MODULE 0-200 AMP SERVICE, 48KW PEAK	1 OHM 1% 5 W
3130 MODULE 0-400 AMP SERVICE, 96KW PEAK	1 OHM 1% 10W
3128IF MODULE 0-100 AMP SERVICE, 24KW PK	4 OHM 1% 5 W
3128IF MODULE 0-150 AMP SERVICE, 36KW PK	4 OHM 1% 10W
3128IF MODULE 0-200 AMP SERVICE, 48KW PK	1 OHM 1% 5 W

WARNING: RISK OF ELECTRIC SHOCK. Do not overload the curreht transformer terminating resistor. If the service on which you are installing the system does not match the resistor rating, install the proper size termining resistor before connecting the current transformer. Failure to do so could result in failure of the terminating resistor and a possible shock hazzard.

HIGH VOLTAGE WIRING CONNECTIONS:

WARNING: RISK OF ELECTRIC SHOCK, DISCONNECT POWER TO ALL CIRCUITS WHICH ARE BEING SERVICED.

1) It is recommended that a seperate circuit breaker be installed in the main circuit breaker panel to supply power to the load controller. The circuit breaker must be rated not larger than 20 amps. If an existing circuit breaker is used, the interruption of the branch circuit must not create a hazzard or cause major inconvience to the homeowner. To insure proper operation of the load controller, the branch circuit should not be subject to frequent interruption.

2) Determine the wiring needed to connect the circuit breaker panel to the 3131/3132. There must be at least two #18 AWG wires for the current transformers, two #14 AWG for the 120 VAC supply neutral and hot and a #10 AWG for the bonding ground conductor. Depending on the number of high voltage loads controlled, two to eight #12 to #10 AWG conductors are required. It is recommended that the following color code and minimum wire gauge specifications be followed.

120 VAC CONTROLLER SUPPLY (HOT)	- #14 AWG - BLACK
CONTROLLER SUPPLY (NETURAL)	- #14 AWG - WHITE
BONDING GROUND CONDUCTOR	- #10 AWG - GREEN
CURRENT TRANSFORMER (SIGNAL)	- #18 AWG - VIOLET/WHITE
CURRENT TRANSFORMER (GROUND)	- #18 AWG - VIOLET/GREEN
CONTROLLED LOAD #1	- #12 AWG - YELLOW
CONTROLLED LOAD #4	- #12 AWG - BLUE
CONTROLLED LOAD #5 (3131 ONLY)	- #12 AWG - BROWN
CONTROLLED LOAD #6 (3131 ONLY)	- #12 AWG - ORANGE

3) Install weatherproof conduit between the bottom of the 3131/3132 and the circuit breaker panel. The size of the conduit required is based on the number of wires and wire gauge used. A chart is provided to assist in selecting the size of conduit.

# of WIRES and WIRE GAGE	CONDUIT
4-18,2-14,5-12 THHN/THWN ONLY	.75 IN
4-18,2-14,5-10	1 IN
4-18,2-14,9-12 THHN/THWN ONLY	1 IN
4-18,2-14,9-10	1.25 IN

Next cut the control wiring to the lengths needed. Feed the precut lengths of control wiring through the conduit.

Re-install the main chassis at this time.

4) Inside the 3131 connect the control wiring to terminals 1 through 13. Terminal connections are given below.

TERMINAL #	DESCRIPTION
1 & 2	LOAD #1

3 & 4	LOAD #4
5 & 6	LOAD #5
7 & 8	LOAD #6
9	BONDING GROUND TERMINAL
10	CURRENT TRANSFORMER GROUND
11	CURRENT TRANSFORMER SIGNAL
12	120 VAC SUPPLY NEUTRAL
13	120 VAC SUPPLY HOT

4A) Inside the 3132 connect the control wiring to terminals 1 through 9. Terminal connections are given below.

TERMINAL #	DESCRIPTION
1 & 2	LOAD #1
3 & 4	LOAD #4
5	CURRENT TRANSFORMER GROUND
6	CURRENT TRANSFORMER SIGNAL
7	120 VAC SUPPLY NETURAL
8	120 VAC SUPPLY HOT
9	BONDING GROUND TERMINAL

5) First make the supply connections including the grounding conductor and then make the load control connections at the individual circuit breakers. The current transformer connections are generally last.

6) A selection of either normally-closed or normally-open contacts are available on K1, K4, K5 and K6. From the factory, the 30 amp relays are wired for normally-closed operation. This can be changed by disconnecting the wires connected to the normally-closed relay contacts (1 & 3) and reconnecting to the normally-open contacts (4 & 6). See figure 5.
The normally-closed contacts are intended to control loads directly, where as the normally-open contacts will activate a remote relay or control device which will inturn control the load. An example would be a spa heater which requires a 60 amp contactor. The contactor would use a 120 or 240 VAC coil which would be controlled by the relay in the 3131/3132. When the relay is activated, the contactor is in turn activated, which in turn interrupts the circuit to the spa heater.

LOW VOLTAGE WIRING CONNECTIONS:

To determine the wiring requirements, see the installation manual for the plug-in module being used. The Low Voltage wiring is to enter through the bottom right knockout provided in the enclosure. A suitable type of strain relief or conduit fitting should be used.

LABELING:

Fill in the necessary information as indicated on the various labels. Use a permanent type ink. Supplementary labels are provided for the controlled devices. Place these in a conspicuous location such as in the circuit breaker panel and/or on the device itself.

After the system is fully operational, replace and secure the front cover.

A label with the installing company's name and telephone number is required to be placed on the outside of the box.

SERVICING:

The relays are the only field servicable items on the 3131 or 3132 chassis. Both the card-edge connector and transformer require complete removal of the chassis for servicing. To easily test the components of the 3131/3132 the following items will be helpful:

1) Multimeter
2) 3128IF Interface Card
3) 3128IF Field Tester PN 900216

To determine if the 3131/3132 is defective perform the following test procedures.

1) Remove power before performing "checks" or service.
2) Remove field wiring connectors and existing module. Connect 3128IF Field Tester PN 900216 to the 3128IF and insert it into the card slot. Turn on power to main chassis. The 12 volt indicator should light. If not perform the following checks after first removing the 120 VAC supply.

A) Check for blown fuse on 3128IF. If this has occured, look for a short in one of the relay circuits.
B) Check field wiring connections on main chassis, specificaly the 120- VAC supply.
C) Check wiring to and from transformer. Transformer could be defective. Perform coil resistance check on primary and secondary of transformer. There is a nonreplacable thermal fuse in the primary of the transformer. This fuse can blow if a continuous load greater than 2.5 amps exist. The fuse on the 3128IF is to protect against direct shorts only. It is recommended to keep continuous loads to less than 2 amps for maximum reliability.
D) Check for continuity between card-edge terminals "A" and "1"; "C" and "3". These two sets of terminals provide primary disconnect for the transformer.

3) By depressing each of the switches #1 through #6 the appropriate relay should respond. You will hear a click when the relay energizes or de-energizes. The light emitting diodes indicate the state of relays K2 and K3. If buzzing of the relays occurs when one or all of the buttons are pushed perform all checks.

A) Check for contamination on the card-edge connector.
B) Check for loose connections on the relays.
C) One or more of the relays may be drawing excessive current if buzzing occurs. The fuse may also blow after a period of time. Look for a defective relay or relay coil circuit. Relay coil resistance should be 70 ohms minimum.
D) Transformer may be faulty.

If a relay is found to be defective, it can be easly replaced in the field without the removal of the chassis. Simply disconnect the wires at the

relay, remove the mounting screws. Install the new relay using the old mounting screws and reconnect the wires.

If the chassis must be removed for service, properly terminate all wires. Shorting the current transformer wires together is recommended to prevent high voltages. To remove the chassis remove the bottom mounting screw and loosen the top two. To have the chassis serviced, contact your local PENSAR dealer. If there is not a dealer in your area contact Electrosem, LLC 2600 South Hardy Drive, Tempe, Arizona 85282, 602-955-6566.

Carefully read through the instructions before attempting to install the system. For line voltage connections refer to the model 3131 or 3132 installation instructions.

You will find a terminal header located on the 3130 (fig. 6). It has 8 positions (HD-1). A mating connector is provided to facilitate field wiring connections. HD-1 provides the pinouts for the two onboard relays and filtered 12 VDC (fig. 7). All terminal connections are given below.

TERMINAL NO.	DESCRIPTION
HD-1,1	+12 VDC SUPPLY
HD-1,2	GROUND
HD-1,3	RELAY K3, COMMON CONTACT
HD-1,4	RELAY K3, NORMALLY OPEN CONTACT
HD-1,5	RELAY K3, NORMALLY CLOSED CONTACT
HD-1,6	RELAY K2, COMMON CONTACT
HD-1,7	RELAY K2, NORMALLY OPEN CONTACT
HD-1,8	RELAY K2, NORMALLY CLOSED CONTACT

The two onboard relays were intended for low voltage control circuits. Air conditioners and heating systems can be controlled by interrupting certain thermostat circuits. Large loads can be controlled by utilizing the 3130 power supply and driving slave relays. Often times it is recommended that slave relays be used when air conditioning systems are located more than 50 feet from the controller or when more than one circuit must be interrupted. Refer to the examples provided in figures 8 through 11.

Improving the heating and cooling system operation on systems without a time-delay fan relay is possible with the HARVEST AIRE thermostat optimiser. The HARVEST AIRE will provide 1.5 to 3 minutes of fan operation each time the heating/cooling system is cycled by the thermostat or load management system. Both energy savings and comfort are realized.

Figure 8 illustrates interrupting the 24 VAC supply to the thermostat. This circuit provides a simple yet effective method of controlling both the heating and cooling functions with out additional components. The HARVEST AIRE fan optimiser is shown wired for high impedance operation on the cooling and heating cycles.

The circuit in figure 8 should be used with non-electronic thermostats only. Breaking the 24 VAC works best for systems with electric heat strips and with most heat pumps. Some heat pump systems work best if just the cooling relay is interupted, figure 9. In figure 9 the HARVEST AIRE can not be used and the fan will run continously.

Figure 10 illustrates the use of remote pilot relays for independent

control of the heating, cooling and fan relays. This circuit also shows the HARVEST AIRE connected so as to operate in cooling and heating modes. The HARVEST AIRE sources about 25 Ma of current from the yellow lead and thus this configuration may not work in all systems. Often times this is determined through trial and error. If the air conditioning system relays chatter, buzz or do not release correctly, then wire the HARVEST AIRE for high inpedance operation.

Note the polarity of the pilot relays in figure 10. These pilot relays include the required transient suppression diodes. Whenever the 3130 power supply is to be used to supply power to external 12 volt DC relays, the relays must incorporate transient suppression on their coils. Failure to provide transient protection will result in erratic controller operation.

The resistor in figure 10 is used with electronic thermostats. It provides a current path to ground and allows normal operation during shed cycles. If the resistor is not used premature failure of the thermostat battery may result. Two resistors, one on the "Y" and "W" thermostat terminals, may have to be used on some systems. Typical resistor value is 250 ohm 10%, 5 watt.

Figure 11 illustrates the use of a remote relay for air conditioning systems located more than 50 feet from the load controller.

The 3130 is protected with a 2.5 amp fast-blow fuse type AGC or equivalent. The intention of the fuse is to protect the 3130 but not necessarily external devices connected to it.

After all field wiring has been performed, the 3130 is installed in the card slot of the 3131 or 3132 enclosure and secured with two #6-32x3/8 screws (PN 900188). Refer to the owner's manual for correct operating instructions.

3128IF PLUG-IN INTERFACE MODULE

The 3128IF module is used to interface the LOAD MASTER IIB four or six channel load controller to the model 3131 or 3132 general purpose control interface. Carefully read through the instructions before attempting to install the system. For line voltage connections refer to the model 3131 or 3132 installation instructions.

You will find two terminal headers located on the 3128IF (fig. 12). One has 8 positions (HD-1) and the other 11 positions (HD-2). Two mating connectors are provided to facilitate field wiring connections. HD-1 provides the pinouts for the two onboard relays and filtered 12 VDC (fig. 7). HD-2 is used for the model IIB display terminal connections. All terminal connections are given below.

TERMINAL NO.	DESCRIPTION
HD-1,1	+12 VDC SUPPLY
HD-1,2	GROUND
HD-1,3	RELAY K3, COMMON CONTACT
HD-1,4	RELAY K3, NORMALLY OPEN CONTACT
HD-1,5	RELAY K3, NORMALLY CLOSED CONTACT
HD-1,6	RELAY K2, COMMON CONTACT
HD-1,7	RELAY K2, NORMALLY OPEN CONTACT
HD-1,8	RELAY K2, NORMALLY CLOSED CONTACT

COLORS IN PARENTHESES INDICATE MODEL IIB DISPLAY WIRING COLORS.

HD-2,1	12 VAC SOURCE (RED)	
HD-2,2	12 VAC SOURCE (RED)	
HD-2,3	+12 VDC (BLACK)	
HD-2,4	CURRENT TRANSFORMER SIGNAL GROUND (GREEN)	
HD-2,5	CURRENT TRANSFORMER SIGNAL (WHITE)	
	Six Load	Four Load
HD-2,6	RELAY K6 CONTROL (VIOLET)	N/A
HD-2,7	RELAY K5 CONTROL (GRAY)	N/A
HD-2,8	RELAY K4 CONTROL (ORANGE)	RELAY K4 CONTROL (ORANGE)
HD-2,9	RELAY K3 CONTROL (BROWN)	RELAY K3 CONTROL (BLUE)
HD-2,10	RELAY K2 CONTROL (BLUE)	RELAY K2 CONTROL (YELLOW)
HD-2,11	RELAY K1 CONTROL (YELLOW)	RELAY K1 CONTROL (BROWN)

The connections HD-2,6 through HD-2,11 can be interchanged to achieve alternative control strategies by changing priorities on the loads.

The terminals of the card-edge connector are described below. This information is for reference only and is not required for standard installations.

TERMINAL "A": 120 VAC supply (HOT or LINE)

TERMINAL "1": 120 VAC source (HOT or LINE)
This terminal is used to supply 120 VAC to the CLASS 2 transformer.

Terminal "1" is connected to terminal "A" through the circuit board. The circuit board, in a way, acts as a switch. Whenever the board is removed, the transformer is removed from the circuit.

TERMINAL "B": NOT USED

TERMINAL "2": NOT USED

TERMINAL "C": 120 VAC supply (NEUTRAL)

TERMINAL "3": 120 VAC source (NEUTRAL)
This terminal is used to supply 120 VAC to the CLASS 2 transformer. Terminal "3" is connected to terminal "C" through the circuit board. The circuit board, in a way, acts as a switch. Whenever the board is removed, the transformer is removed from the circuit.

TERMINAL "D": NOT USED

TERMINAL "4": NOT USED

TERMINAL "E": Relay K1 control.

TERMINAL "5": Relay K4 control.

TERMINAL "F": Relay K2 control.

TERMINAL "6": Relay K5 control. (6 Load Only)

TERMINAL "H": Relay K3 control.

TERMINAL "7": Relay K6 control. (6 Load Only)

TERMINAL "J": Not connected

TERMINAL "8": Not connected

TERMINAL "K": Analog ground.
This terminal provides a separate ground for analog or digital circuits.

TERMINAL "9": Current transformer input.
The current transformer connects to terminals "K" and "9". No terminating resistor is provided on the 3128IF. NOTE: Although the current is generally low, voltages to 100 VAC may be experienced, should the current transformer terminating resistor fail. This should be kept in mind when using this input.

TERMINAL "L": +12 VDC source for relays
This terminal sources +12 to +15 VDC to each of the relays K1 through K6. The output is filtered but not regulated and therefore is subject to transients above 15 volts.

TERMINAL "10": +12 VDC source for relays

This terminal sources +12 to +15 VDC to each of the relays K1 through K6. The output is filtered but not regulated and therefore is subject to transients above 15 volts.

TERMINAL "M": 12 VAC input

Terminal "M" in conjunction with terminal "N" provides the 12 VAC input to the control module. It is designed to supply up to 2.5 amps at 12 volts. This supply is classified as Class 2 and the transformer is protected with a thermal fuse. It is recommended that control modules incorporate a secondary fuse to protect the transformer in case of shorts.

TERMINAL "11": Connected to terminal "M".

TERMINAL "N": 12 VAC input

Terminal "N" in conjunction with terminal "M" provides the 12 VAC input to the control module. It is designed to supply up to 2.5 amps at 12 volts. This supply is classified as Class 2 and the transformer is protected with a thermal fuse. It is recommended that control modules incorporate a secondary fuse to protect the transformer in case of shorts.

TERMINAL "12": Connected to terminal "N".

The two onboard relays were intended for low voltage control circuits. Air conditioners and heating systems can be controlled by interrupting certain thermostat circuits. Large loads can be controlled by utilizing the 3128IF power supply and driving slave relays. Often times it is recommended that slave relays be used when air conditioning systems are located more than 50 feet from the controller or when more than one circuit must be interrupted. Refer to the examples provided in figures 8 through 11.

Improving the heating and cooling system operation on systems without a time-delay fan relay is possible with the HARVEST AIRE thermostat optimiser. The HARVEST AIRE will provide 1.5 or 3 minutes of fan operation each time the heating/cooling system is cycled by the thermostat or load management system. Both energy savings and comfort are realized.

Figure 8 illustrates interrupting the 24 VAC supply to the thermostat. This circuit provides a simple yet effective method of controlling both the heating and cooling functions without additional components. The HARVEST AIRE fan optimizer is shown wired for high impedance operation on the cooling and heating cycles.

The circuit in figure 8 should be used with non-electronic thermostats only. Breaking the 24 VAC works best for systems with electric heat strips and with most heat pumps. Some heat pump systems work best if just the cooling relay is interupted, figure 9. In figure 9 the HARVEST AIRE can not be used and the fan will run continously.

Figure 10 illustrates the use of remote pilot relays for independent control of the heating, cooling and fan relays. This circuit also shows the HARVEST AIRE connected so as to operate in cooling and heating modes. The HARVEST AIRE sources about 25 Ma of current from the yellow lead and thus this configuration may not work in all systems. Often times this is determined through trial and error. If the air conditioning system relays chatter, buzz or do not release correctly, then wire the HARVEST AIRE for high impedance operation.

Note the polarity of the pilot relays in figure 10. These pilot relays include the required transient suppression diodes. Whenever the 3128IF power supply is to be used to supply power to external 12 volt DC relays, the relays must incorporate transient suppression on their coils. Failure to provide transient protection will result in erratic controller operation.

The resistor in figure 10 is used with electronic thermostats. It provides a current path to ground and allows normal operation during shed cycles. If the resistor is not used premature failure of the thermostat battery may result. Two resistors, one on the "Y" and "W" thermostat terminals, may have to be used on some systems. Typical resistor value is 250 ohm 10%, 5 watt.

Figure 11 illustrates the use of a remote relay for air conditioning systems located more than 50 feet from the load controller.

The 3128IF is protected with a 4 amp fast-blow fuse type AGC or equivalent. The intention of the fuse is to protect the 3128IF but not necessarily external devices connected to it. A smaller fuse can be used if desired, however, fuses less than 1.5 amp should be avoided.

After all field wiring has been performed, the 3128IF is installed in the card slot of the 3131 or 3132 enclosure and secured with two #6-32x3/8 screws

SERVICING:

Aside from the power supply fuse, there are no user serviceable components on the 3128IF. To determine if the 3128IF is defective perform the following test procedures:

1) Remove power before performing "checks" or service.
2) Remove field wiring connectors and connect 3128IF Field Tester PN. Turn on power to main chassis. The 12 volt indicator should light. If not, perform the following checks after first removing the 120 VAC supply.
   A) Check for blown fuse on 3128IF.
   B) Check field wiring connections on main chassis.
   C) Check wiring to and from transformer. Transformer could be defective. Perform coil resistance check on primary and secondary of transformer. There is a nonreplacable thermal fuse in the primary of the transformer. This fuse can blow if a continuous load greater than 2.5 amps exist. The fuse on the 3128IF is to protect against direct shorts only. It is recommended to keep continuous loads to less than 2 amps for maximum reliability.

D) Check for continuity between card-edge terminals "A" and "1"; "C" and "3". These two sets of terminals provide primary disconnect for the transformer.

3) By depressing each of the switches #1 through #6 the appropriate relay should respond. You will hear a click when the relay energizes or de-energizes. The light emitting diodes indicate the state of relays K2 and K3. If buzzing of the relays occurs when one or all of the buttons are pushed, perform all checks.
   A) Check for contamination on the card-edge connector.
   B) Check for loose connections on the relays.
   C) Check capacitor and rectifier bridge if buzzing occurs. Buzzing indicates a bad capacitor or defective rectifier bridge.

If the 3128IF plug-in module is found to be defective, contact your local PENSAR dealer. If there is not a dealer in your area contact Electrosem, LLC 2600 South Hardy Drive, Tempe, Arizona 85282, 602-955-6566.

MODEL 3128 INSTALLATION INSTRUCTIONS

Carefully read through the instructions before attempting to install the system.

CAUTION: Static electricity can cause damage to the solid state components of the 3128. Always ground yourself to the metal chassis before touching any component on the circuit board.

To mount the 3128 load controller, first remove the plastic case. The case is secured to the base with four #4 screws. Select a location on the wall at eye level. Place a 1" hole in the wall for the connecting cable to the 3131 or 3132 interface.

A maximum of 11 conductors are required to connect the six load version of the 3128. All wiring should be 18 AWG or larger and have the proper type of insulation for the application. Thermostat wire is suitable for most applications. The 3128 wiring schedule is given below.

COLOR CODE	CIRCUIT
RED (1)	12 VOLTS AC INPUT
RED (2)	12 VOLTS AC INPUT
GREEN	CURRENT TRANSFORMER COMMON
WHITE	CURRENT TRANSFORMER SIGNAL
BLACK	+12 VOLTS DC OUTPUT COMMON TO ALL RELAYS
YELLOW	LOAD #1 (3128-3 6-LOAD)
	LOAD #2 (3128-4 4-LOAD)
BLUE	LOAD #2 (3128-3 6-LOAD)
	LOAD #3 (3128-4 4-LOAD)
BROWN	LOAD #3 (3128-3 6-LOAD)
	LOAD #1 (3128-4 4-LOAD)
ORANGE	LOAD #4 (3128-3 6-LOAD)
	LOAD #4 (3128-4 4-LOAD)
GRAY	LOAD #5 (3128-3 6-LOAD)
VIOLET	LOAD #6 (3128-3 6-LOAD)

After the wires have been connected mount the 3128 to the wall with four #6 screws.

Insure that the proper current transformer terminating resistor is installed in the 3131 or 3132 interface. If the 1 ohm resistor is selected, there must be a "A" suffix on the model number. If in question, contact the factory.

There are four switches numbered 1 through 4 located on the left side of the circuit board. These switches set in varying combinations offer a wide variety of energy management programs. The switch descriptions are given below.

SWITCH #1: 1 A/C <ON--/--OFF> 2 A/C

When switch #1 is in the ON position, load 2 for six load systems or load 3 for four load systems is bypassed and always kept restored.

SWITCH #2: ROTATE <ON--/--OFF> FIXED

Rotate provides equal priority for loads 1 through 4 and fixed priority for loads 5 and 6. The FIXED mode gives priority to loads in order of their number. This is not a rigid FIXED mode. If a load must be shed, the first available load will be shed. Upon restore, the highest priority load available for restore will be restored.

SWITCH #3: 0-15 KWH <ON--/--OFF> 0-31 KWH

This switch selects the range of demand control set by the user adjusted thumbwheel control.

SWITCH #4: LOAD 6 DELAY <ON--/--OFF> NO DELAY

For six load systems only, this will insure that load five is restored 15 minutes before load six and load six is always shed before load five.

For four load systems only, this switch in the on position, will rotate loads one, two, and three in priority and load four will always be the lowest priority. This only works when the unit is operating in the Rotate Mode (switch 2 is on).

After the switches have been set make the wiring connections at the 3131 or 3132 interface. Carefully replace the plastic cover and complete the installation of the balance of the system.

Refer to the "LOADMASTER IIB OWNER'S MANUAL" for operating instructions.

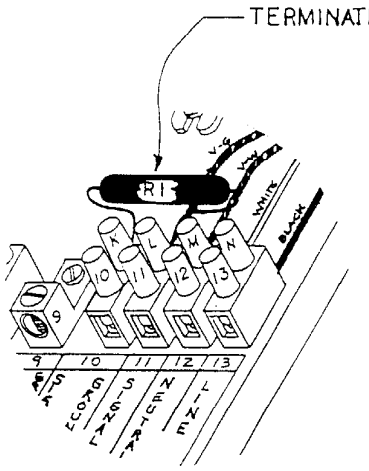


FIG. 3
6 LOAD

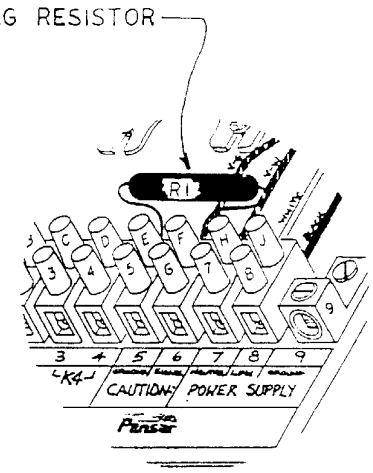


FIG. 4
4 LOAD

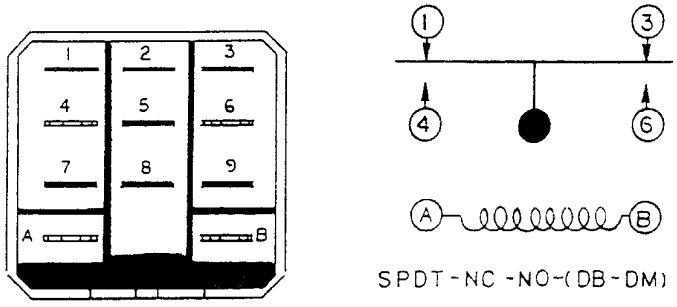


FIGURE 5

FIGURE 6

MODEL 3130 CIRCUIT CARD

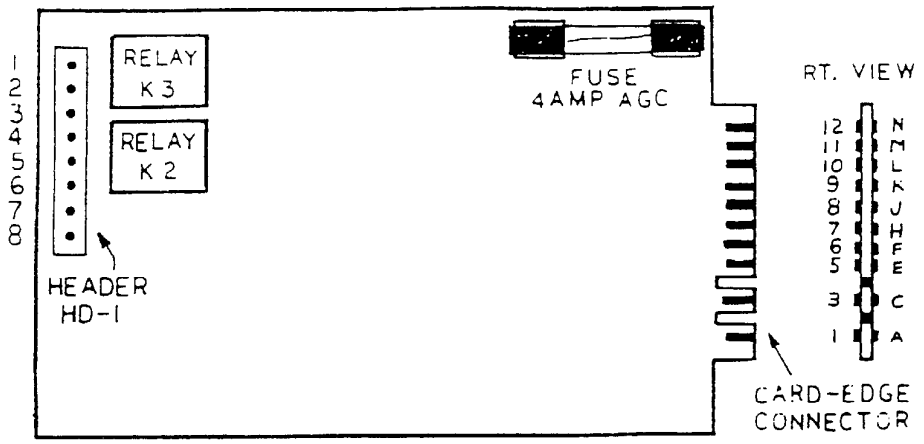


FIG. 7

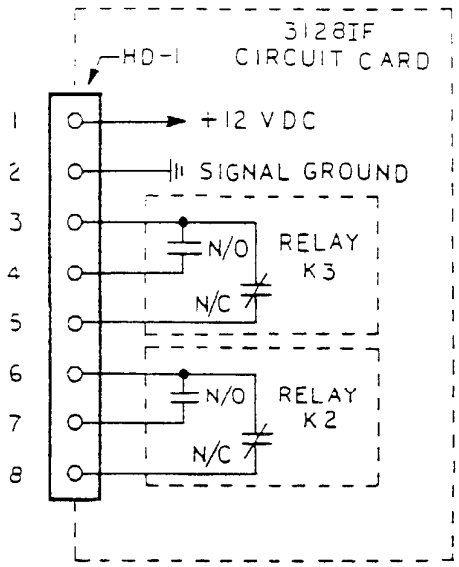


FIG. 8

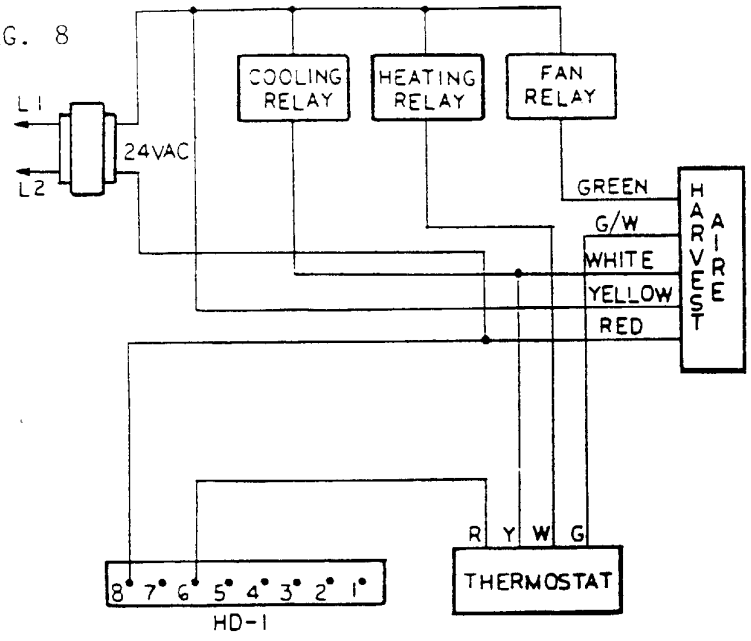


FIG. 9

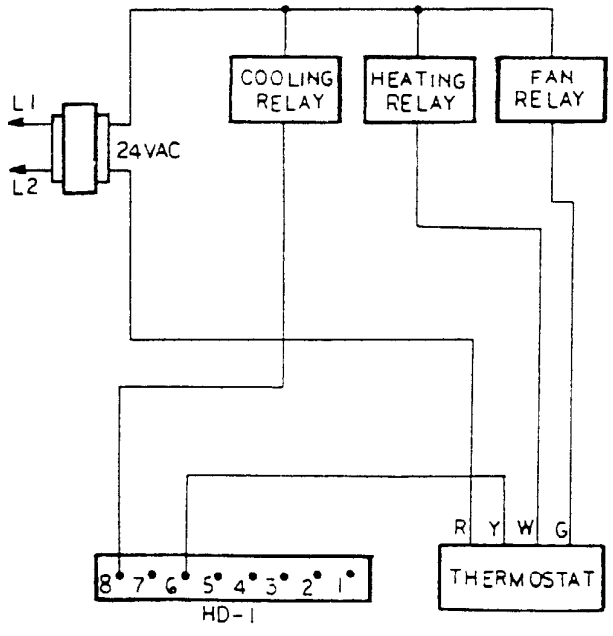


FIG. 10

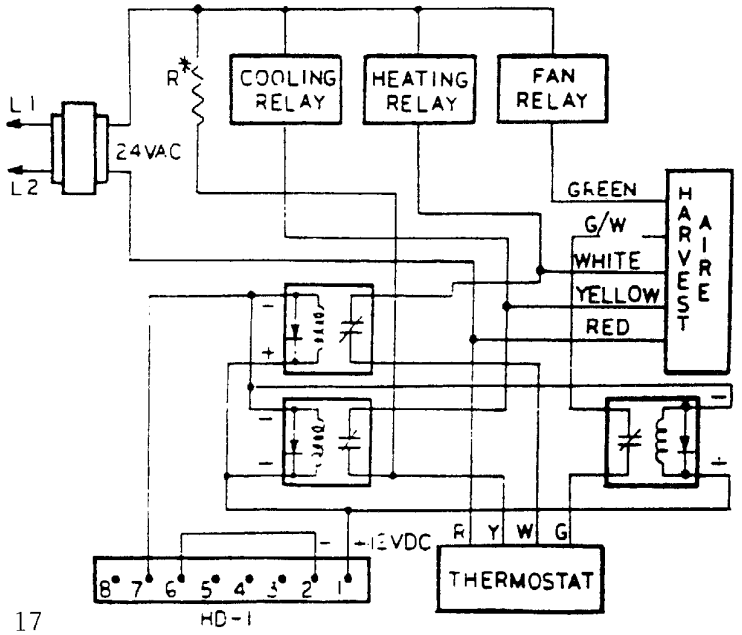
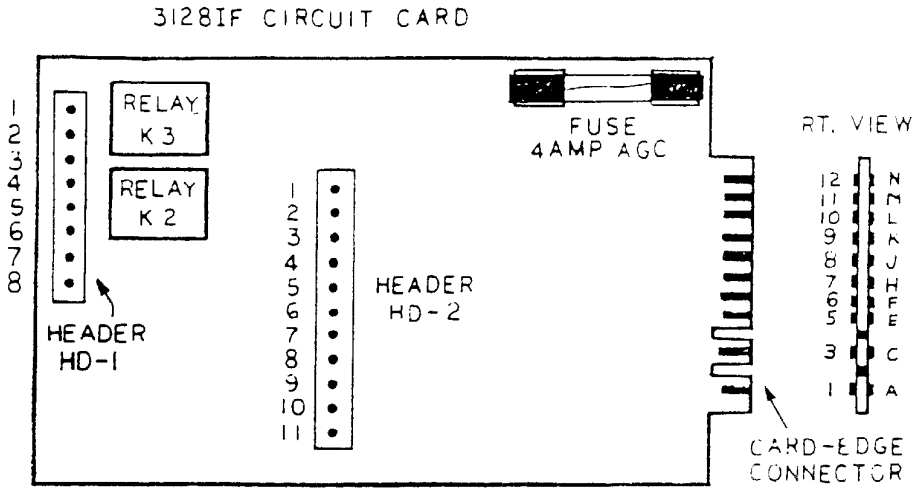


FIGURE 11



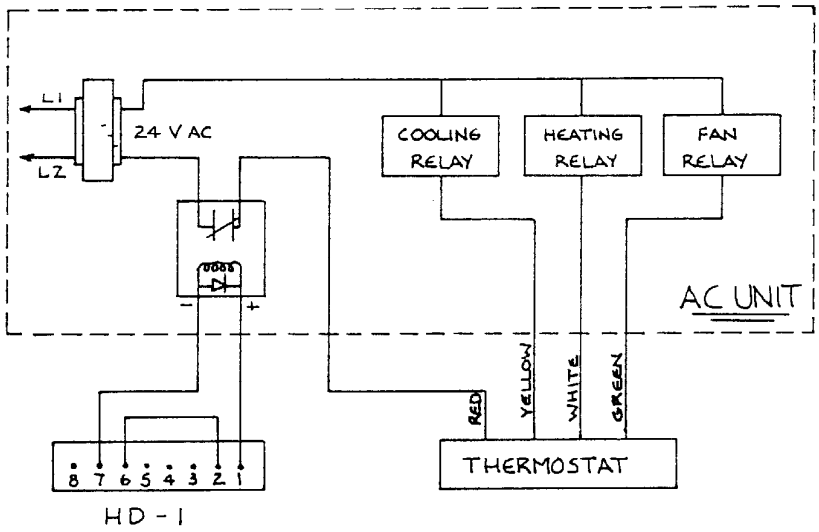


FIGURE 12