Simplex®

2001-8021 Fire Alarm and 2001-8022 Security

Module Interconnection Instructions

FA2-21-100
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CAUTION

ELECTRICAL HAZARD

Disconnect electrical power when making any internal adjustments or repairs. Installation and servicing should be performed by qualified Simplex Representatives.

MODULE INTERCONNECTION INSTRUCTIONS
FOR 2001-8021 FIRE ALARM AND 2001-8022 SECURITY

THE PURPOSE OF THIS PUBLICATION

Before certain 2001-8021 Fire Alarm and 2001-8022 Security panels can be installed at the customer location, special modifications to interconnect modules may have to be made. The purpose of these instructions is to explain to the TR when and how these modifications should be made.

DETERMINING WHEN SPECIAL MODIFICATIONS ARE REQUIRED

Generally, if a system contains only a Control Module and one or more Zone Modules and Signal Modules for general alarm use, then special modifications are **not** required.

However, if other modules (such as Coders, Timers, City, Aux. Relays, etc.) are used, or if other functions (selective signaling, coding, etc.) are desired, then special modifications **are** required. (Functions requiring special modifications are listed in the Index of System Function Diagrams on page 7.)

WHAT THESE SPECIAL MODIFICATIONS INVOLVE

Specifically, these special modifications entail installing module interconnect jumpers between jumper points (pads) on the panel motherboard and/or removing certain items (jumpers, diodes, etc.) from daughter card modules.

Shipped with each panel are six interconnect jumpers — three 10-inch jumpers (Part No. 564-058) and three 20-inch jumpers (Part No. 564-059). On each end of a jumper is a pin which is inserted into one of the many plate-through-hole (pads) on the motherboards.

Pads numbered 1 thru 114 are actually double pads (two holes etched together). There are also two sets of single pads referenced 1 thru 24 to terminal blocks TB1 and TB2.

Note: In some cases you may find only one hole of dual pad 61 usable.

WHERE TO FIND OUT WHAT MODIFICATIONS NEED TO BE MADE

There are two sections of diagrams in this publication, "Fire Alarm Function Diagrams" and "Security Function Diagrams." Each diagram explains the modifications required for a particular type of module use or system function.

Jumpers are shown on the diagrams in curved lines (straight lines indicate motherboard etching). With a few exceptions, the location of daughter board modules can vary from system to system. Therefore, pad numbers usually aren't shown on the function diagrams. However, the pads are referenced to the PC socket pins to which they are connected. After determining module locations for the system that you are working on, pad numbers can be determined by cross-referencing to the Module Interconnection Worksheet and Record packed with the equipment. (See "Example of Determining Required Modifications and Filling Out Worksheet.")

DOCUMENTS AND EQUIPMENT NEEDED

* Sales Data & Order Sheet — S2001-0037 (DC Fire Alarm), S2001-0040 (AC Fire Alarm), or S2001-0036 (DC Security)
* Module Interconnection Worksheet and Record
  The function diagrams in this publication
  Colored pencil or pen
* Interconnect jumpers (Part Nos. 564-058 and 564-059)
  Screwdriver
  Needle-nose pliers
  Side-cutting diagonal pliers
  Pencil soldering iron
  Solder

  * Items packed with panel

MODIFICATION PROCEDURE

1. Refer to the sales data and order form (S2001 sheet) packed with the equipment. Determine the types of modules, functions, and required programming.

2. Refer to the appropriate function diagrams in this publication's section on "Fire Alarm Function Diagrams" or "Security Function Diagrams" for modification instructions. (See "Example of Determining Required Modifications and Filling Out Worksheet".)

3. Fill out "Module Interconnection Worksheet and Record" in accordance with the instructions on the publication. (See "Example of Determining Required Modifications and Filling Out Worksheet.")

4. Pull out all daughter card modules and remove the card guide assembly from the box (4 screws).

5. If your system is a 2001-8021 AC Fire Alarm, certain pins from the AC Signal Harness (from AC Signal Module 2001-2077) must be soldered to motherboard pads. These connections are listed in the top-left corner of the wiring diagram for the 2001-3081 (Dwg. No. 841-390, sheet 1 of 8) packed with the equipment.

6. Refer to completed Worksheet and insert jumpers in proper pads. Don't solder them yet! For clarity sake, some jumpers are shown extended across the top of the motherboard in diagrams in this publication. However, you'll find more room to string jumpers along the bottom between the PC sockets and the terminals boards. (If you make a mistake, remove jumper by lightly compressing tip of jumper with needle-nose pliers and pulling tip straight out of pad.)

7. Refer to completed Worksheet and, where required, remove items from daughter card modules with side-cutting diagonal pliers.

8. Plug the daughter card modules in their assigned locations and, using end-of-line devices as required, give a power-on test to the panel to make sure the modifications have been made properly.

9. When the panel tests out properly, remove power, remove daughter cards and solder the interconnect jumpers in their pads using a pencil soldering iron.

CAUTION: Neatness counts! Be sure to avoid dripping solder elsewhere on the motherboard.

10. Reassemble panel and retest with power.

EXAMPLE OF DETERMINING REQUIRED MODIFICATIONS AND FILLING OUT WORKSHEET

Let's say that our system is a DC Fire Alarm and contains the following modules in the following locations (J1 thru J8):

J1 Control 2001-1007
J2 Meter 2001-1009
J3 City 2001-2044
J4 Dual Zone Initiate 2001-1019
J5 Class A Signal Circuit 2001-2075
J6 Dual Signal Circuit 2001-2076
J7 Auxiliary Relays 2001-3011
J8 OP/SP 2001-2060

If no special modifications are made, the system will operate general alarm in the following way:

Activating either of the two initiating zones will activate all three signal circuits
The meter will not function
There'll be no city connection
The auxiliary relays will not be functional
The OP/SP Module will give trouble

So we'll need to modify the system to make all modules functional. And let's say our system requires selective signaling and selective use of the auxiliary relays in the following way:

Zone 1 (Ckt. 1 of 2001-1019) activates Signal Ckt. 1 (2001-2075) and picks Aux. Relay 1 of 2001-3011

Zone 2 (Ckt. 2 of 2001-1019) activates Signal Ckt. 2 and 3 (Ckt. 1 and 2 of 2001-2076) and picks Aux. Relay 2 of 2001-3011

On page 5 is a sample "Module Interconnection Worksheet and Record" (Pub. No. 575-851) filled out to show the modifications necessary for our sample system. The interconnect jumpers have been numbered (#1, #2, #3, etc.) so that reference can be made to the following explanations.

First, we modify to make the meter functional. On page 8 in the section on "Fire Alarm Function Diagrams", the function diagram (1) shows the necessary modifications. Since the Control Module is always located in J1 and a Meter Module can only be located in J2, the pad numbers are already determined. So we draw on our Worksheet a jumper (#1) between pad 114 and pad 2 on the motherboard. (Notice that we don't need the other jumper, pad 112 to pad 105, since our meter is not a 2001-1008). We are also told in the function diagram to remove jumper JW3 on the motherboard, so we X out this jumper on the Worksheet. Since we don't remove anything from either the Control Module or Meter Module, we indicate "none" in the spaces for J1 and J2 at the lower left corner of the Worksheet.

Modification instructions for city connections are shown in function diagram (5) on page 10. The diagram indicates a jumper is needed between pin 5 of the City Module to pad 105 (pin 5) of the Control Module. Unlike the Control Module and a Meter Module, the location of a City Module

couldn't be predicted, so the function diagram doesn't show the pad number for pin 5 of the City Module. However, in our sample system, we know that the City Module is in location J3. So, we look for pin 5 of location J3 on our Worksheet and find that it is connected to pad 28. Thus, we draw on the Worksheet an interconnect jumper (#2) between pad 28 and pad 105. (Since our City Module is a 2001-2044, we don't need to add the jumper between pad 13 of the Control Module and pin J of the City Module.) The function diagram also indicates a jumper is needed between pin M of the City Module to pad 5 of the motherboard (located just to the right of location J1). Since the City Module is in location J3, pin M is connected to pad 37. So, we draw on the Worksheet an interconnect jumper (#3) between pad 5 and pad 37. Again, no items are to be removed on the modules, so we indicate "none" in the space next to J3 at the lower-left of the Worksheet.

Anytime an OP/SP Module is used, the loop between its pins J and M must be closed with an interconnect jumper as shown in function diagram (3) on page 10. Since an OP/SP Module can be located only in J8, the diagram shows the pad numbers. We draw the jumper (#4) between pad 100 and 102 on our Worksheet and indicate no items to be removed from the module in J8.

For our selective signaling functions, we refer to function diagrams (2a) for interconnection to the Signal Module 2001-2075 and (2b) for interconnecting to Signal Module 2001-2076 on page 9.

Our Box Module is a 2001-1019 and we want circuit 1 to activate signal circuit 1, which is in Signal Module 2001-2075. Function diagram (2a) shows that for this function we need an interconnect jumper from pin 5 of 2001-1019 to pin E of 2001-2075. With 2001-1019 located at J4 and 2001-2075 located at J5, our Worksheet tells us that pad 41 and pad 59 are the connecting points. Thus, we draw in jumper #5. We are also told to remove jumper A from 2001-2075, and we indicate this next to J5 at the lower-left on the Worksheet.

We want Zone 2 (circuit 2) of 2001-1019 to activate both signaling circuits of Signal Module 2001-2076. Function diagram (2b) shows that we need jumpers from pin M of 2001-1019 to pins 5 and M of 2001-2076. Considering our module locations (J4 and J6) and using our Worksheet, we can determine the pad locations and draw in our jumpers (#6 and #7). Notice that instead of jumpering from pad 50 to pad 67 and again from pad 50 to pad 76, we can daisy-chain from pad 50 to pad 67 to pad 76, as shown. We also note on the Worksheet the two jumpers that must be removed from the Signal Module in location J6.

Anytime an Auxiliary Relay Module 2001-3011 is used in a system, modifications have to be made to make the relays functional. We want to select relay K1 and K2 individually from our zones, so we use function diagram (12d) on page 16 for instructions.

To select relay K1 from zone (circuit) 1, we need a jumper from pin 5 of 2001-1019 to pin 5 of 2001-3011. And to select relay K2 from zone (circuit) 2, we need a jumper from pin M of 2001-1019 to pin M of 2001-3011. Considering our module locations (J4 and J7), we consult our Worksheet for pad locations and draw in our jumpers (#8 and #9). Jumpers to be removed from the Aux. Relay Module will depend on the choice to acknowledge or not acknowledge the relays, as explained in the instructions with diagram (12d). If it is decided, for example, that both relays should be nonacknowledgeable, then the removal of jumpers JW1 and JW2 should be noted on the Worksheet for location J7.

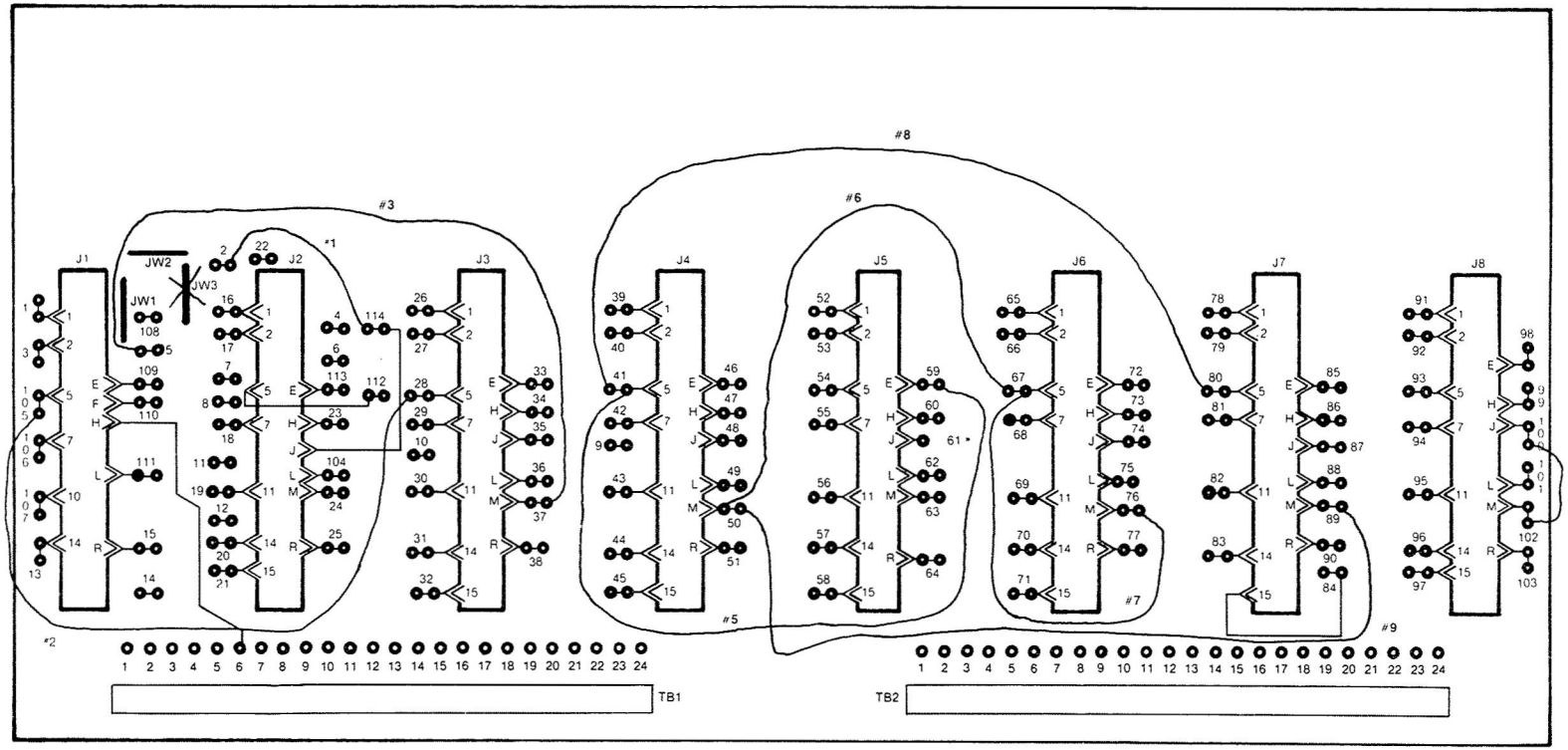
With the Worksheet completed, we are ready to begin making the modifications in accordance with the previously discussed step-by-step procedure.

MODULE INTERCONNECTION WORKSHEET AND RECORD
FOR 2001-8021 FIRE ALARM AND 2001-8022 SECURITY

Serial No. XXXX
Job ACME CORP.
Date SEPT. 4, 1982
Q.A. JP

INSTRUCTIONS:

- Fill in serial no. of panel, job name, date and inspector's name in spaces provided.
- Determine requirements for interconnect jumpers and items to be removed (if any) from daughter card modules (see Pub. No. FA2-21-100).
- Draw in interconnect jumpers (pad to pad) and list items to be removed in spaces provided.
- Use completed worksheet as reference when making modifications.
- Keep completed worksheet with system as permanent record. Retain a copy on file.



Items removed from daughter card in module location:

J1 NONE
J2 NONE
J3 NONE
J4 NONE
J5 JMPR A
J6 JMPRS 15-16 & 29-30
J7 JW1 & JW2
J8 NONE

* When jumpering from pad 61 (at location J5), use only inside pad (pad connected to pin J). Daisy-chain jumpers as required.

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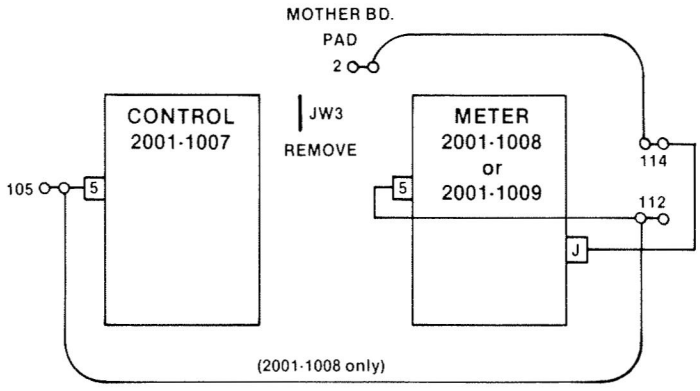
INDEX OF SYSTEM FUNCTION DIAGRAMS

Fire Alarm Functions

Security Functions

FIRE ALARM FUNCTIONS

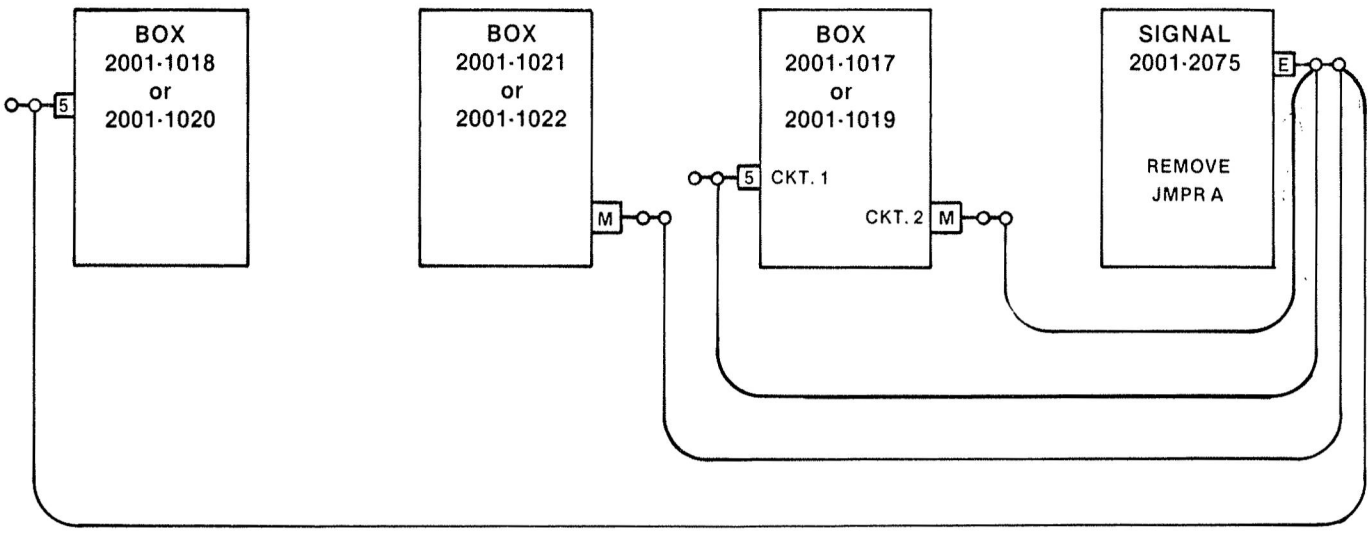
(1) METER MODULE — MONITOR A-BUS CURRENT



NOTE: If used, Meter Module is always located in daughter board location J2
Remove jumper JW3 on mother board.

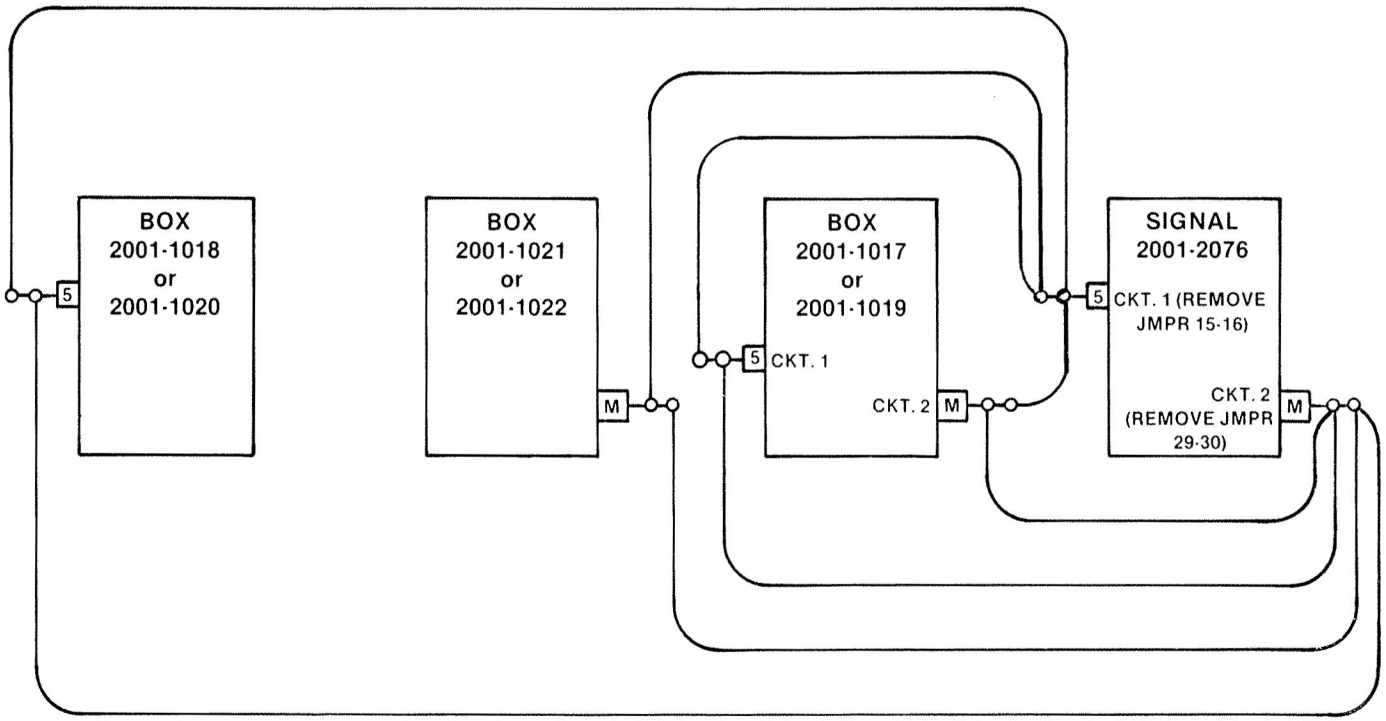
(2) SELECTIVE SIGNALING

(2a) WITH CLASS A SIGNAL MODULE (S) 2001-2075



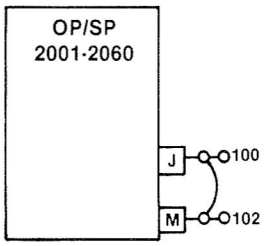
NOTE: Choose from above interconnect jumpers as required
Daisy-chain jumpers if necessary

(2b) WITH CLASS B (DUAL CKT) SIGNAL MODULES (S) 2001-2076



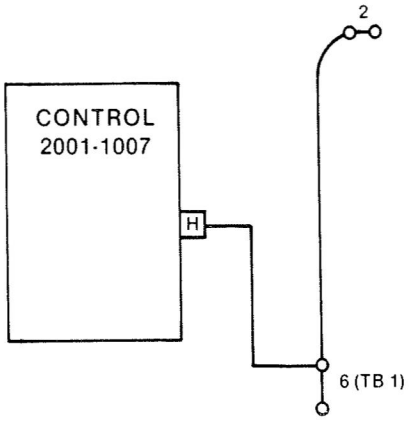
NOTE: Choose from above interconnect jumpers as required
Daisy-chain jumpers if necessary

(3) OP/SP MODULE — AC SUPERVISORY

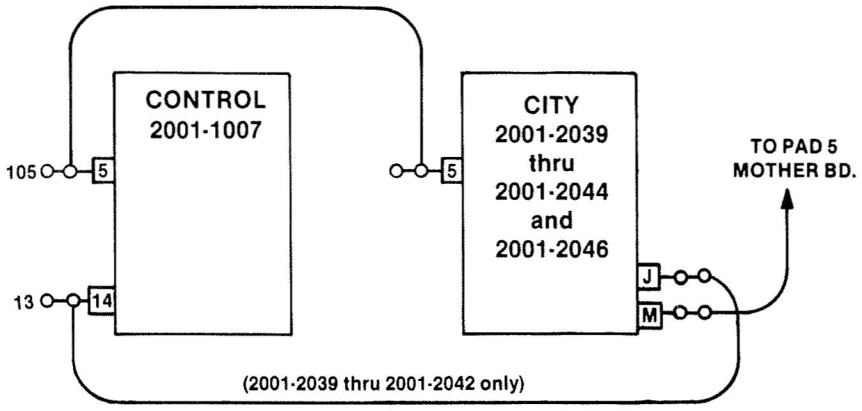


NOTE: If used, OP/SP Module is always located in daughter board location J8

(4) WATERFLOW SWITCH

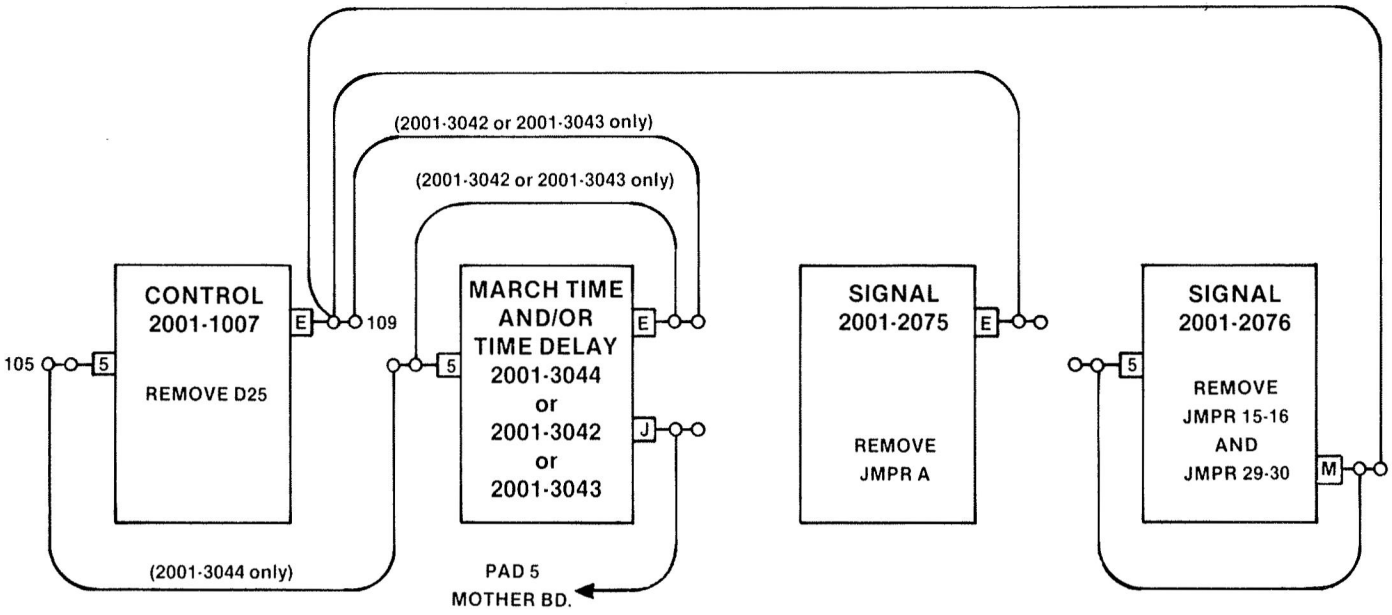


(5) CITY CONNECTION



NOTE: In a non-general-alarm system (a system that includes selective signaling, coding, march time, sprinkler supervisory, etc.), drill by disconnecting the city and manually activating a zone circuit.

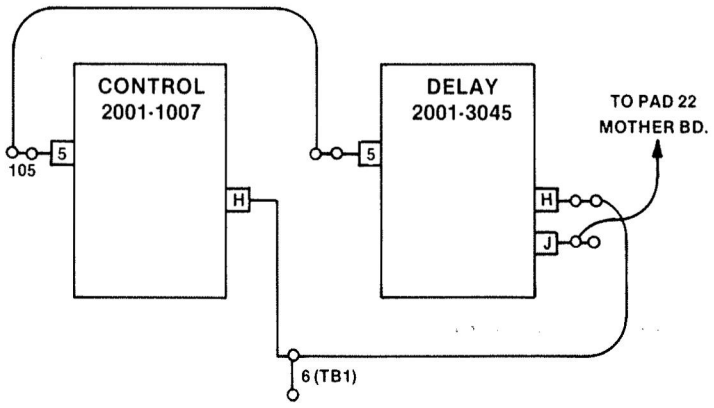
(6) MARCH TIME AND/OR TIME LIMIT CUTOUT



NOTE: Daisy-chain interconnect jumpers if necessary.

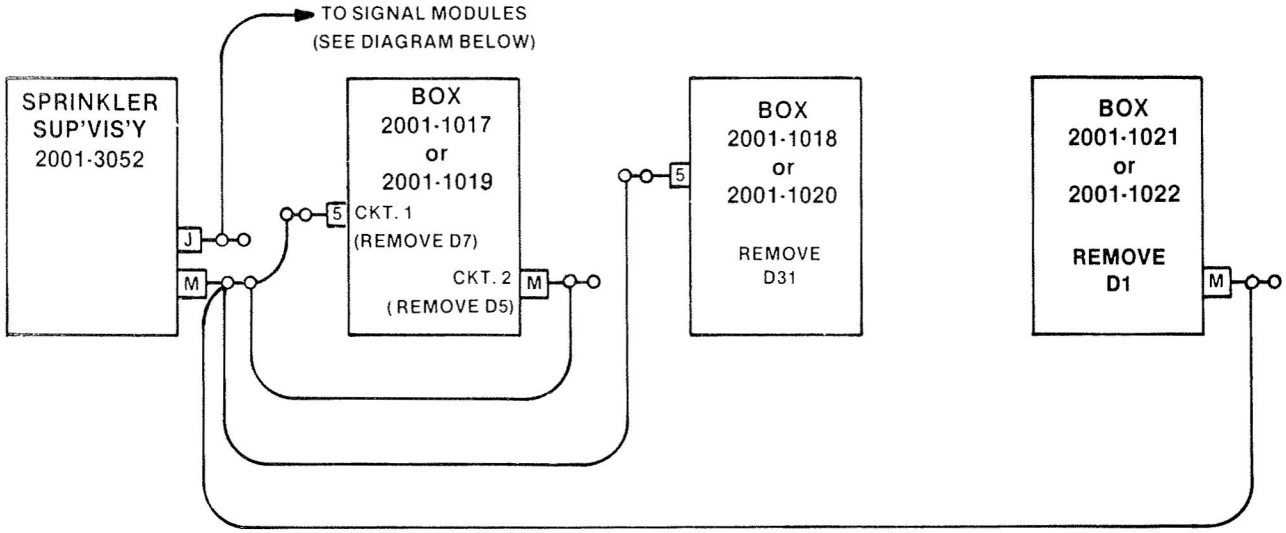
When system includes a Series AC Signal Module 2001-2077, remove jumper JW1 in 2001-2077 for March Time Coding.

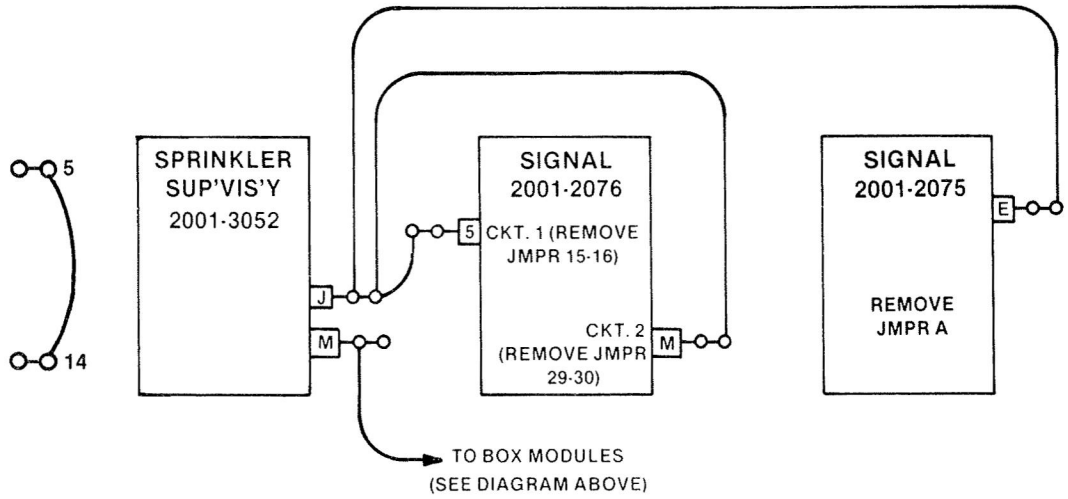
(7) 1 - MINUTE INHIBIT OF RESET AND SIGNAL SILENCE



(8) SELECTED CIRCUITS OF SYSTEM TO MONITOR SPRINKLER FLOW SWITCHES WITH SPECIAL CODED BELLS (NO SIGNAL ACKNOWLEDGE)

NOTE: Cannot be used when coding from panel (march time, selective, or master coding)





NOTE: The first diagram shows jumpers required to interconnect the sprinkler supervisory module (2001-3052) to any of various box modules.

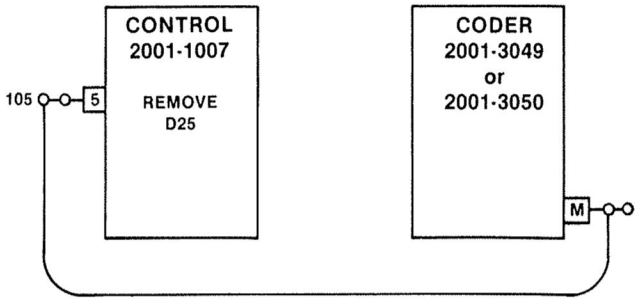
The second diagram shows jumpers required to interconnect the sprinkler supervisory module (2001-3052) to any of various signal modules.

No interconnect jumpers are needed between box modules and signal modules.

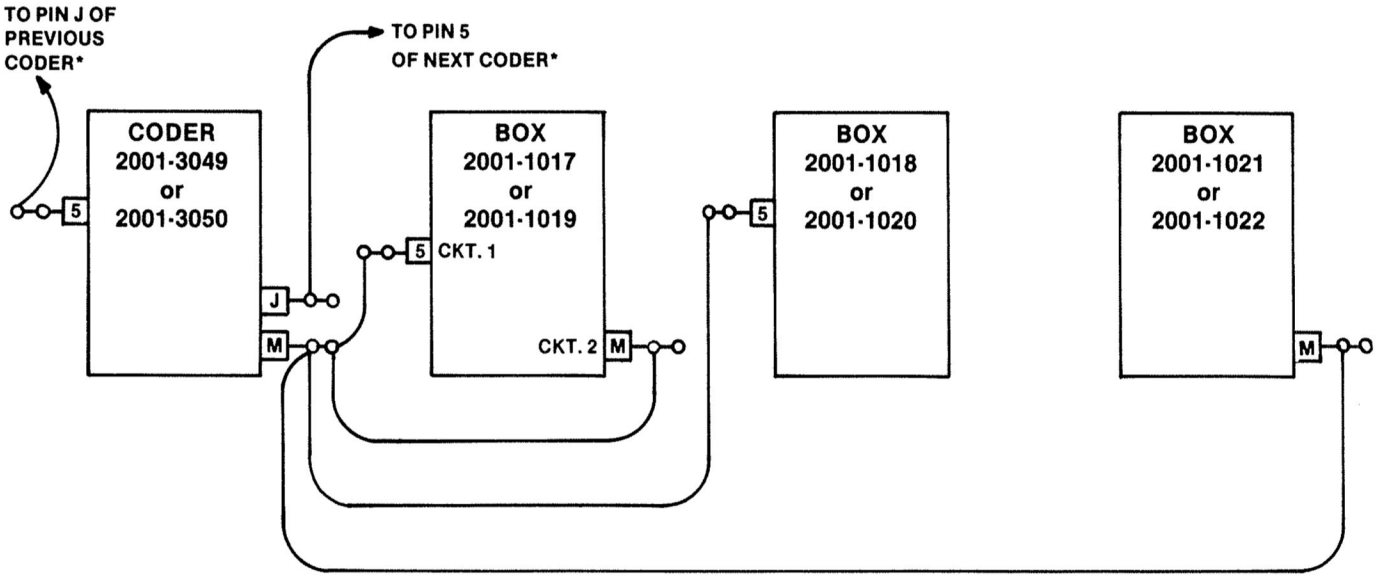
Install interconnect jumper between pads 5 and 14 on mother board as shown

Daisy-chain interconnect jumpers if necessary

(9) MASTER CODED SYSTEM (NO SIGNAL ACKNOWLEDGE)



(10) SELECTIVE ZONE CODED (NO SIGNAL ACKNOWLEDGE) — MAXIMUM OF FOUR CODERS



***Connect Coders with interconnect jumpers as follows:**

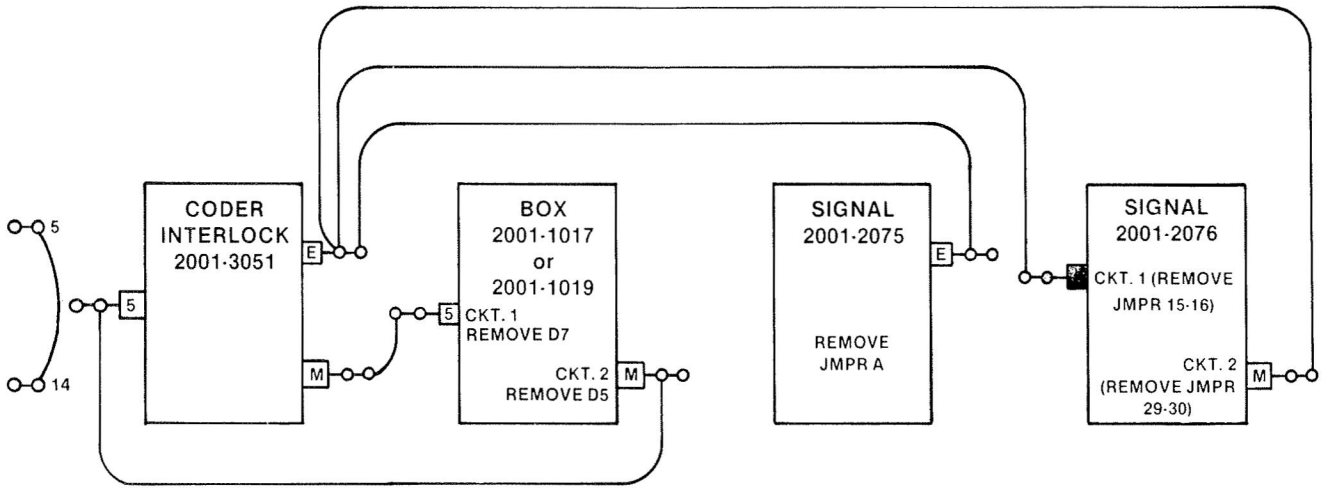
Coder 1 Pin J to Coder 2 Pin 5
Coder 2 Pin J to Coder 3 Pin 5
Coder 3 Pin J to Coder 4 Pin 5

NOTE: Daisy-chain interconnect jumpers if necessary

Remove D25 in Control Module 2001-1007 for all coding functions

(11) NON-INTERFERENCE BETWEEN TWO REMOTE CODED ZONES (NO SIGNAL ACKNOWLEDGE)

NOTE: Cannot be used when coding from panel (march time, selective, or master coding)

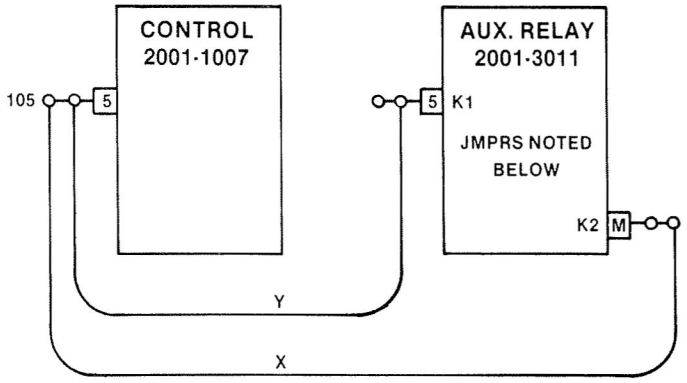


NOTE: Install interconnect jumper between pads 5 and 14 on mother board as shown
Daisy-chain interconnect jumpers if necessary

(12) AUXILIARY RELAY SECTION

Anytime an Auxiliary Relay Module 2001-3011 is used in a system, modifications must be made in order for the relays to serve any practical purpose. The next set of function diagrams (12a, 12b, 12c and 12d) will explain modifications required for most of the common applications. If other functions are desired, a wiring diagram of the 2001-3011 follows diagram (12d) so that required modifications can be determined.

(12a) AUXILIARY RELAYS — GENERAL ALARM (NON-CODED & NON-SELECTIVE)



Install interconnect jumpers X or Y and remove jumpers from Aux. Relay Module in accordance with acknowledge requirements as follows:

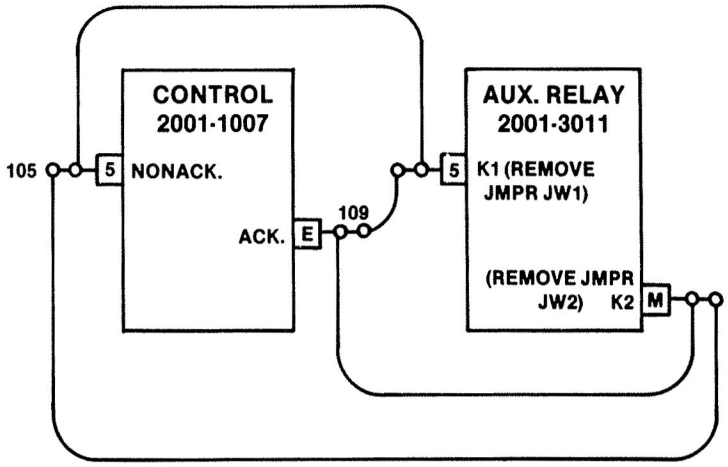
Both relays acknowledgeable—
No interconnect jumpers
Remove jumpers JW4 and JW6 from Aux. Relay Module

Both relays nonacknowledgeable—
Install both interconnect jumpers X and Y
Remove jumpers JW1 and JW2 from Aux. Relay Module

Relay K1 acknowledgeable, Relay K2 nonacknowledgeable—
Install interconnect jumper X
Remove jumpers JW2, JW3 and JW6 from Aux Relay Module

Relay K1 nonacknowledgeable, Relay K2 acknowledgeable—
Install interconnect jumper Y
Remove jumpers JW1, JW4 and JW5 from Aux. Relay Module

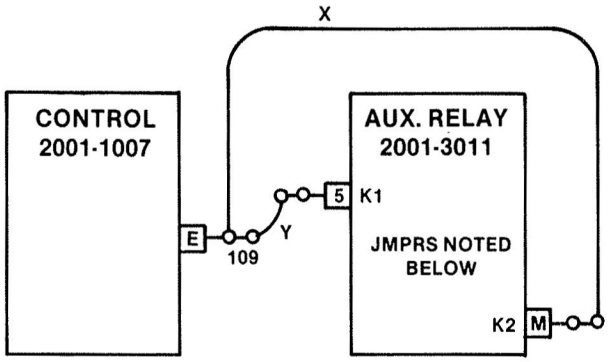
(12b) AUXILIARY RELAYS — NON-CODED, NON-SELECTIVE IN A CODED SYSTEM



Install interconnect jumpers from Control Module to Aux. Relay Module in accordance with acknowledge requirements.

At the Control Module, pad 105 (Pin 5) is a source of nonacknowledgeable +24 and pad 109 (Pin E) is a source of acknowledgeable +24.

(12c) AUXILIARY RELAYS — CODED NON-SELECTIVE



Install interconnect jumpers X and Y and remove jumpers from Aux. Relay Module in accordance with acknowledge requirements as follows:

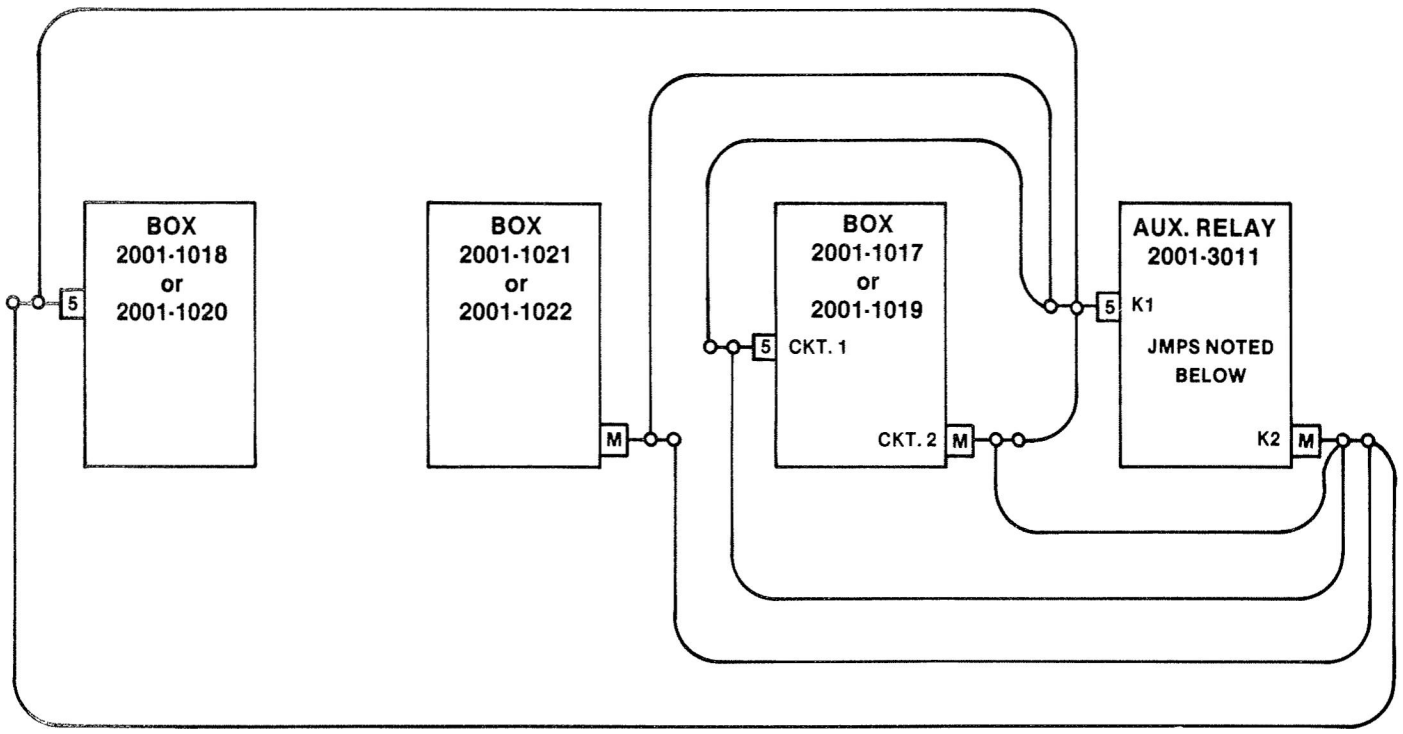
Both relays acknowledgeable—
Install both interconnect jumpers X and Y
Remove jumpers JW1, JW2, JW4 and JW6 from Aux. Relay Module

Both relays nonacknowledgeable—
No interconnect jumpers
Remove jumpers JW4 and JW6 from Aux. Relay Module

Relay K1 acknowledgeable, Relay K2 nonacknowledgeable
Install interconnect jumper Y
Remove jumpers JW1, JW4 and JW6 from Aux. Relay Module

Relay K1 nonacknowledgeable, Relay K2 acknowledgeable
Install interconnect jumper X
Remove jumpers JW2, JW4 and JW6 from Aux. Relay Module

(12d) AUXILIARY RELAYS — SELECTIVE IN CODED OR NON-CODED SYSTEM



NOTE: Daisy-chain interconnect jumpers if necessary

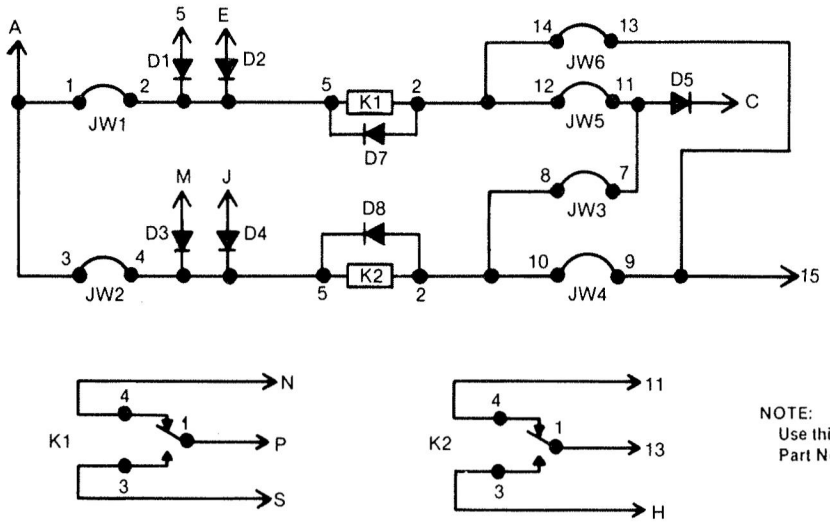
Install interconnect jumpers in accordance with type (s) of Box Module(s) used to select relay(s) K1 and/or K2 in the Aux. Relay Module.

Remove Aux. Relay Module jumpers in accordance with following options:

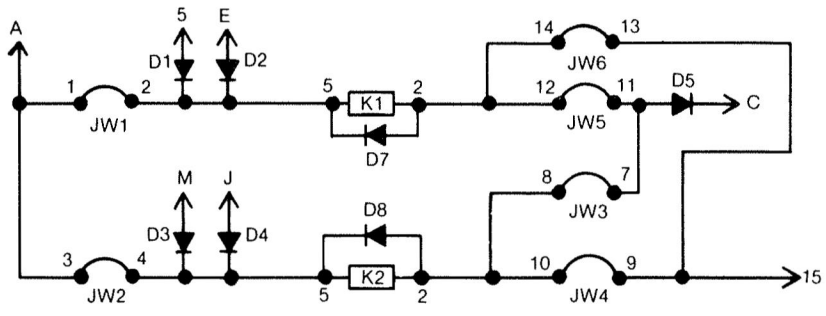
Coded system:
- Both relays coded — Remove jumpers JW1, JW2, JW4 & JW6
- Neither relay coded — Remove jumpers JW1 & JW2
- K1 coded, K2 not coded — Remove jumpers JW1, JW2, JW3 & JW6
- K1 not coded, K2 coded — Remove jumpers JW1, JW2, JW4 & JW5

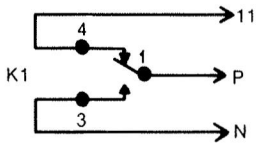
Non-coded system:
- Both relays acknowledgeable — Remove jumpers JW1, JW2, JW4 & JW6
- Both relays nonacknowledgeable — Remove jumpers JW1 & JW2
- K1 ack., K2 nonack. — Remove jumpers JW1, JW2, JW3 & JW6
- K1 nonack., K2 ack. — Remove jumpers JW1, JW2, JW4 & JW5

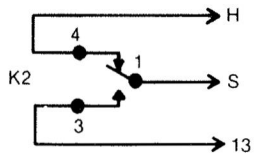
AUXILIARY RELAY MODULE 2001-3011



NOTE:
Use this diagram for modules marked Part No. 556-556B or earlier







NOTE:
Use this diagram for modules marked part no. 556-556C or later.

PIN A...Resettable +24 from Control Module

PIN C...-OV alarm activate signal (acknowledgeable if noncoded, nonacknowledgeable if coded)

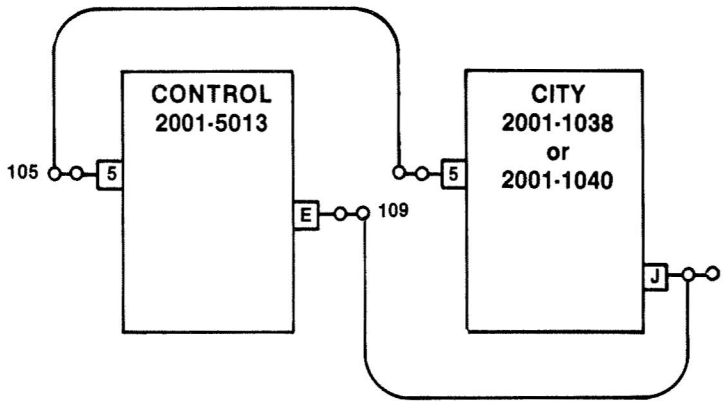
PINS 5 & E...+24 jumpered in to relay K1 from:
Box Modules for selecting K1
Control Module for ack/nonack options

PINS M & J...+24 jumpered in to relay K2 from:
Box Module for selecting K2
Control Module for ack/nonack options

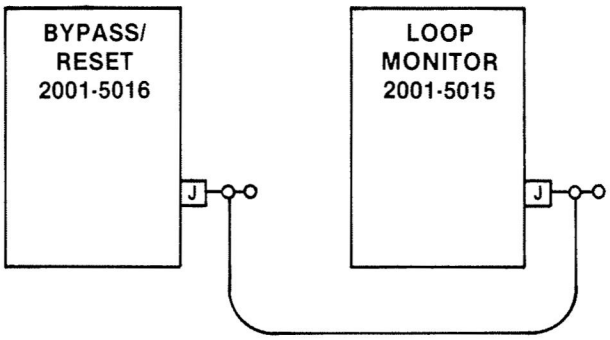
NOTE: Although the interconnect diagrams for the Auxiliary Relay functions show jumpers to only pins 5 and M, pin E serves the same purpose as pin 5...and pin J serves the same purpose as pin M, as indicated above.

SECURITY FUNCTIONS

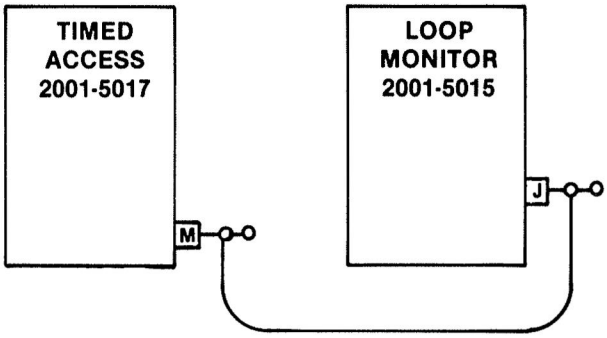
(1) CITY TIE — REVERSED POLARITY CONNECTION



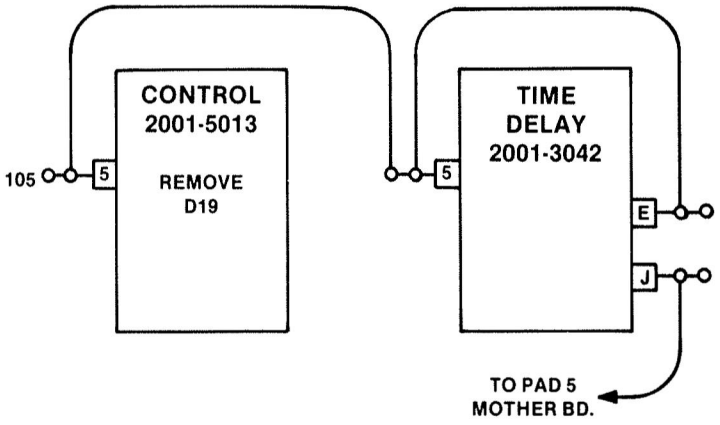
(2) SUPERVISED ZONE BYPASS



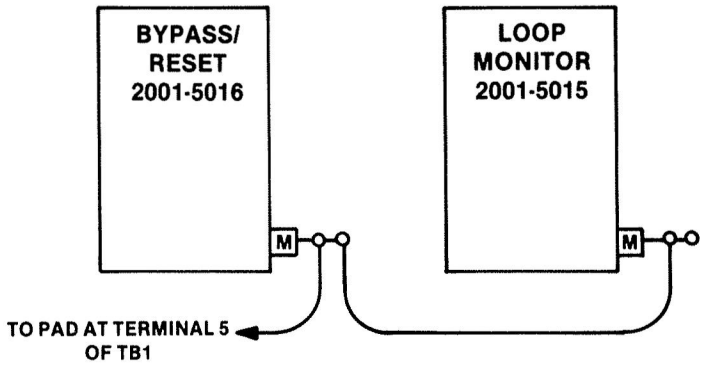
(3) TIMED EXIT/ENTRANCE



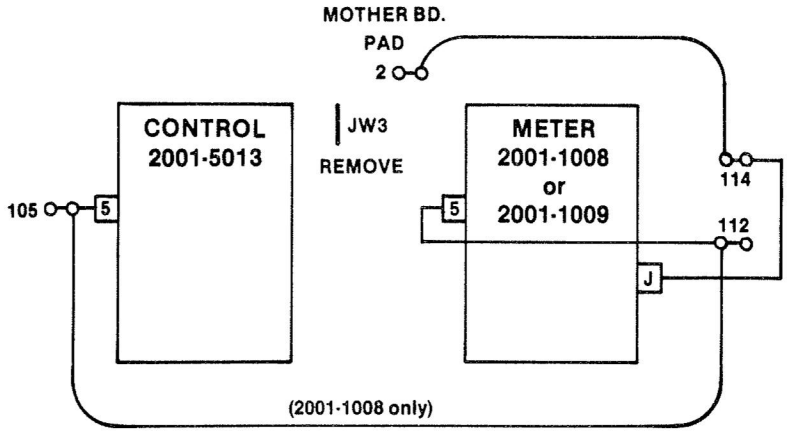
(4) TIMED SIGNALS — TIME LIMIT CUTOUT



(5) SUPERVISED ZONE RESET



(6) METER MODULE — MONITOR A-BUS CURRENT

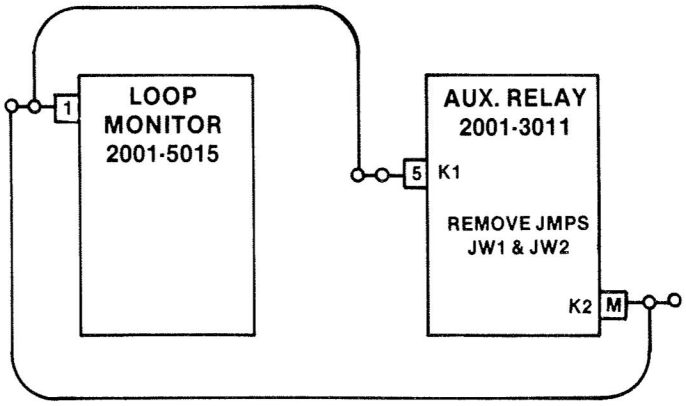


(7) AUXILIARY RELAYS

(7a) AUXILIARY RELAY — GENERAL ALARM

NO INTERCONNECT JUMPERS REQUIRED

(7b) AUXILIARY RELAY — SELECTIVE (ALARM)



INSTALL INTERCONNECT JUMPERS IN ACCORDANCE WITH NEED TO SELECT RELAY K1 AND/OR K2

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