

SELECT CARD

2000 User/ Installer Guide



Select Entry Systems



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1.0 INTRODUCTION

The SELECT ENGINEERED SYSTEMS "SelectCard" card access control system is a microprocessor based one reader card access system. It can add a second optional card reader for controlling access into restricted areas.

CARD TECHNOLOGIES:

- * WIEGAND CARD SWIPE, CARD INSERT OR KEY INSERT
- * OPTIONAL PROXIMITY OR BARIUM FERRITE READERS (CONTACT FACTORY)

CARD CAPACITY:

- * 4095 different facility codes available.
- * 4079 Card number storage.

1.1 STANDARD FEATURES:

- * NON-VOLATILE EEprom Memory of facility code and card numbers.
- * Simple programming with built-in LED display.
- * Individual card or group programming or deleting. **(BULK LOADING)**
- * Adjustable output relay time from 1 to 30 seconds.
- * Relay type form "C" rated for 2 amps at 48 volts ac or dc.
- * Request to exit switch input (REX or FREE OUT).
- * Automatic relock input.
- * Printer output for documentation with time and date.
- * Time of day clock (with internal battery backup).

1.2 EASE OF PROGRAMMING

VALIDATING OR DELETING A SINGLE CARD:

1. Press the RST button.
2. Use the INC button until desired card number is in the LED display.
If the card number is in memory the "VALID LED" will illuminate.
3. Press the INS button to validate the card number or press the DEL button to delete the card number.
4. If there are more cards to program, go to step 2.
5. Press the RST button when all complete.

ALTERNATE METHOD IF CARD IS AVAILABLE: (FOR BULK LOADING SEE PAGE 11)

1. Pass the card through card reader.
2. To validate the card, press the INS button and wait for the card number to show in the display then press the INS a second time. To delete the card, Press the DEL button and wait for the card number to show in the display then press the DEL a second time.
3. If there are more cards to do, go to step 1.
4. Press the RST button when all cards done.

- OPTIONAL FEATURES:**
- * Second reader input with second output relay with its own timer.
 - * Printer interface to connect to RS-232 DEVICE.
 - * 2 Access levels.
 - * Up to 10,000 cards.
 - * Anti-passback.

1.3 ENVIRONMENTAL CONSIDERATIONS:

Indoor or Outdoor? The magnetic readers are not usually recommended for outdoor use. It is better to use Wiegand type readers for outdoor installations where the reader will be exposed to the elements.

Distance? Wiegand readers can be up to 500 feet length of wire away from the controller. The optional printer interface can go up to 1000 feet length of wire using Belden # 8760 cable.

Housing? The basic SelectCard ONE PLUS 1 system comes with a surface mount box for the controller PC board and wiring connections, and a separate card reader element for mounting as the application requires. Optional housings for outdoor installations that incorporate reader element and controller PC board for post mounting with swipe or insert readers, or Wiegand is available from SES.

1.4 ELECTRICAL REQUIREMENTS:

Power? The SelectCard ONE PLUS 1 uses 12 volt ac 50/60 Hz. @ 300 ma. A 12 vac transformer is supplied with each purchase in the U.S. only, or the installer may elect to provide his own 12 volt 300 ma. DC supply. **HOWEVER, AC TRANSFORMER AND DC SUPPLY CAN NOT BE USED AT THE SAME TIME.**

Ground? Control unit must be connected to a good earth ground with at least # 16 ga. stranded wire. **A GOOD EARTH GROUND MUST** be connected from the units' metal enclosure (using the ground stud), Pin 1 on the power connector, and any shields from the readers and printer cables. This wire **MUST** be a minimum of 16 ga. connected to a ground rod or cold water pipe.

Cable? Reader cable for magnetic readers is Belden 9940 or equivalent. Cable for Wiegand and all other reader systems is Belden #9941 or equivalent. Printer cable is Belden #8760 or equivalent. Power is 2 conductor 18 ga. up to 500 feet. Ground is # 16 ga or larger gauge.

Relay capabilities? 48 volts AC or DC at 2 amps. Unit is shipped with N.O. contacts selected, but is jumper selected to N.C..

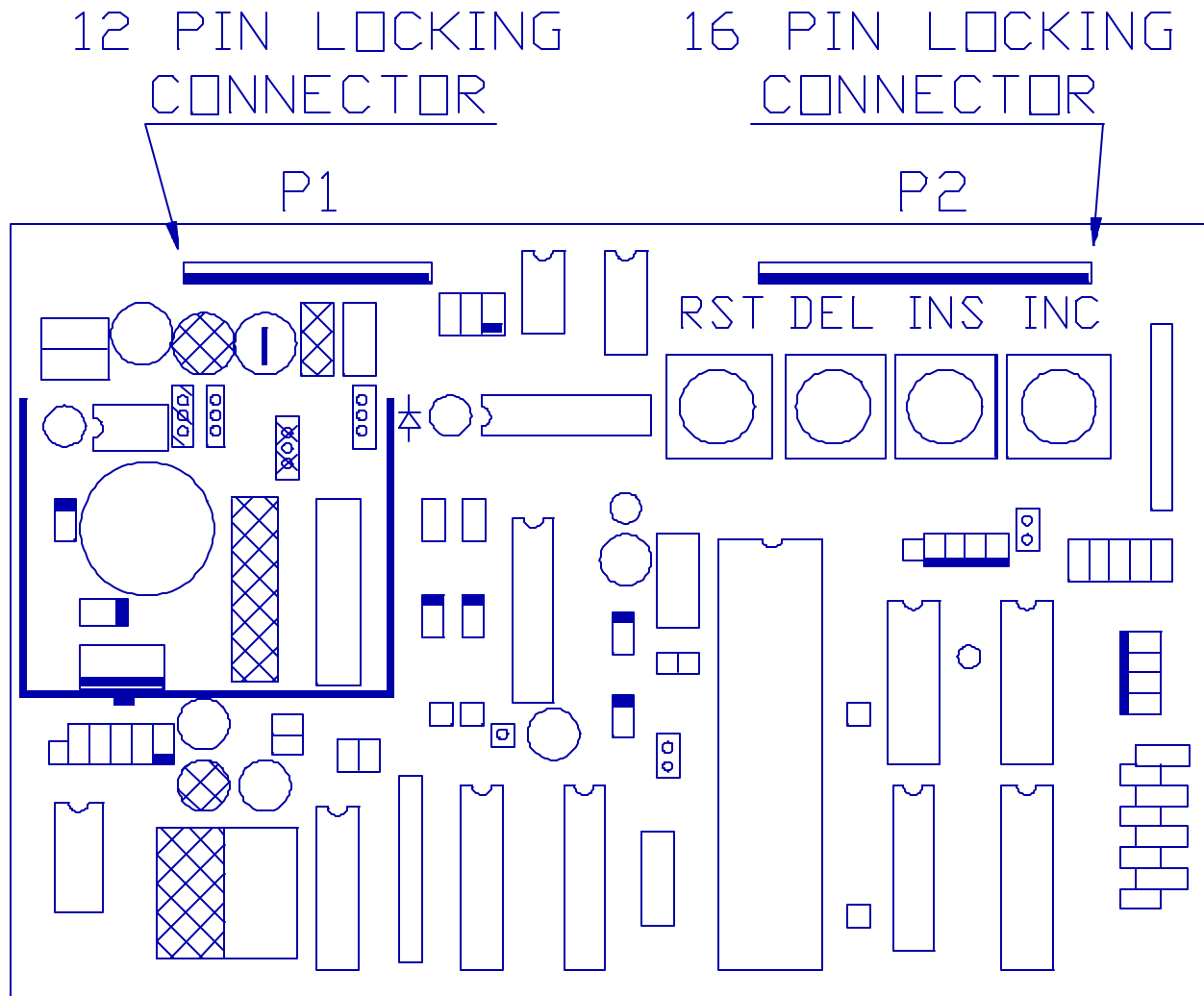
REX? Request to exit can be connected to any dry contact normally open circuit to allow operation of the control relay without a card.

Door Sense? This signal will terminate the remainder of the door open time left when this normally open signal is closed.

SELECTCARD ONE PLUS 1

2.0 UNPACKING THE SELECTCARD ONE PLUS 1

The system requires 12 vac 50/60 Hz. used to power only the SelectCard. It comes with a reader element for reading the cards, this manual, and the PC board mounted in the controller box (12 volt 20 va transformer supplied in U.S. only). The PC board looks like this:

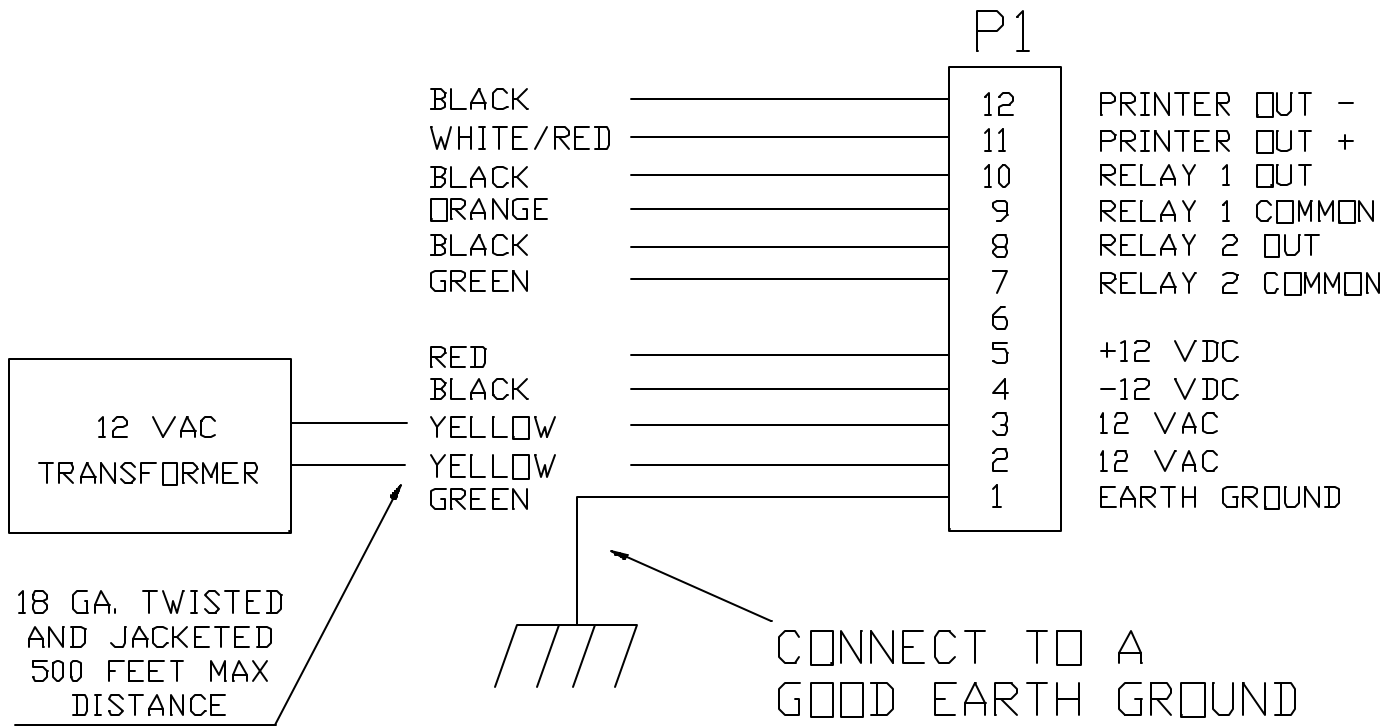


1 READER SELECTCARD PC BOARD

2.1 TESTING AND VERIFYING SYSTEM

The power connector is located near the upper left corner of the PC board. Attach AC power only to the two yellow wires on the power connector P1 position 2 and 3. Or connect DC power only to P1 position 5 (+ DC) and position 4 (-DC). See the power connections diagram on the next page.

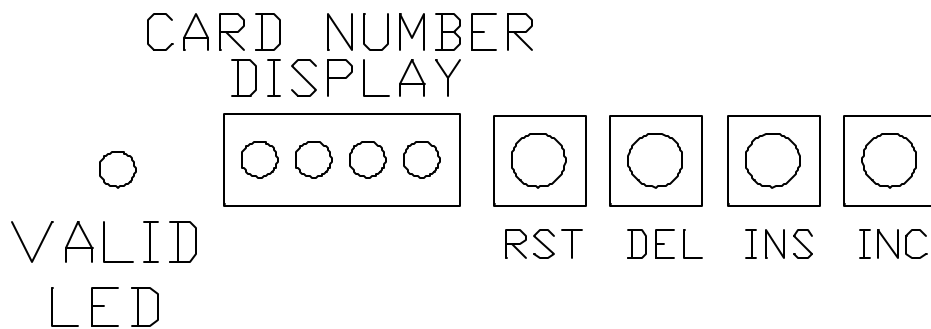
2.2 POWER CONNECTIONS



POWER CONNECTIONS

After attaching AC power, plug the transformer into an AC power outlet. The red valid led should light then go out, and the control relay will click on and turn off within 30 seconds.

Press the reset button marked RST. The red valid led should light again and go out. The relay will not be affected. See the following diagram:



VALID LED AND RESET BUTTON

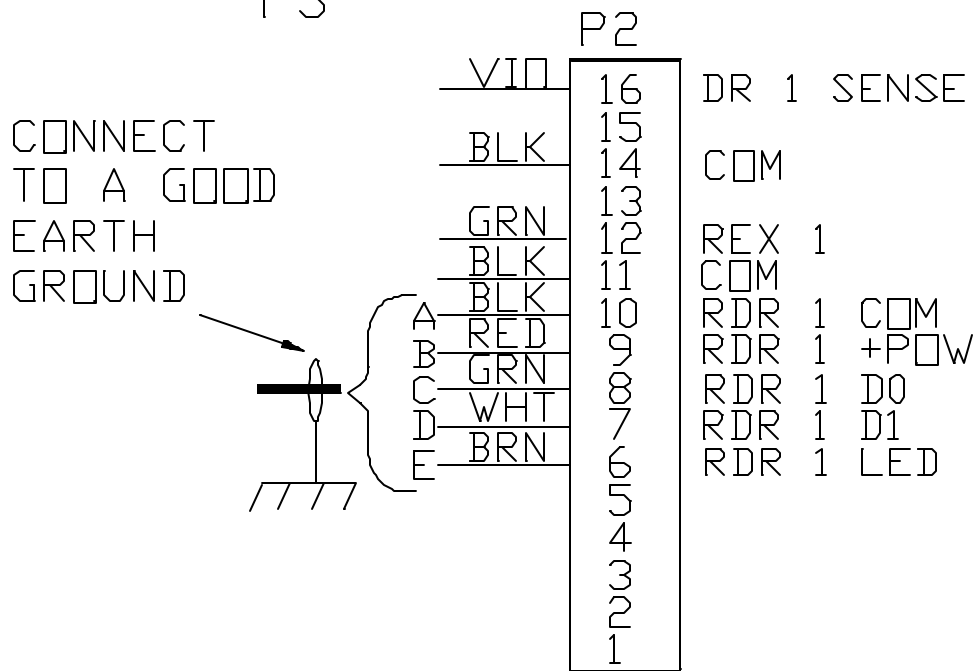
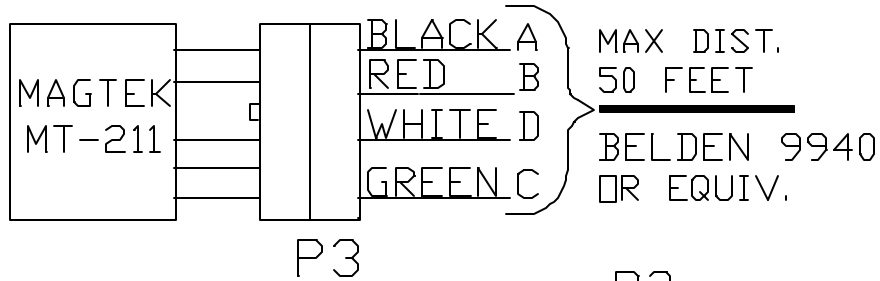
If you do not get this result, go to page 22 (In case of trouble . . .).

2.3 CARD READER CONNECTIONS

Next, unplug the transformer and wire the reader to the READER 1 wires on connector P2. Use the color code that matches the card reader that was purchased.

See this diagram for card reader connections:

TYPICAL MAG STRIPE READER



TYPICAL WIEGAND READER OR BARIUM FERRITE READER

CARD READER CONNECTIONS

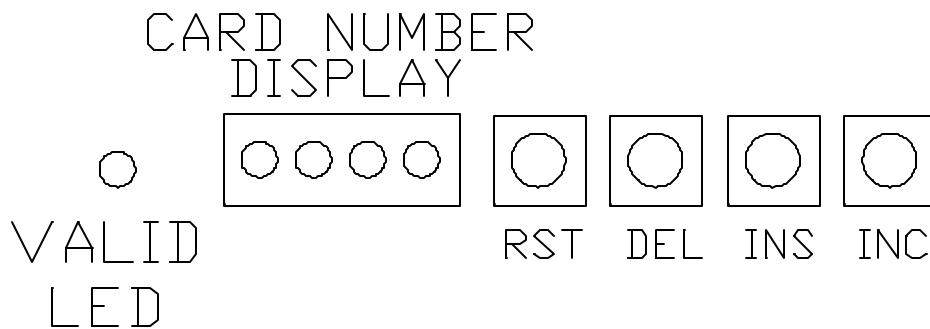
If you purchased a magnetic reader, wire from connector P2 to connector P3. (See previous diagram). Plug the reader into P3.

If you purchased a Wiegand reader, wire it directly to P2. (See previous diagram). Plug the transformer in and run a card through the reader (insert or swipe as required). The code number of that card will appear for 1 second in the 4 digit display next to the red valid led and the red valid led may light as well.

2.4 CARD VALIDATION

To validate the card, run it through the reader and press the INS button. Wait for the card number to show in the display, then press the INS button a second time. The red valid led will light when the card number is in the display and the number is valid. Now press RST. The red valid led will light and then go out. The card number is now valid.

To delete a card, run it through the reader and press the DEL button until the card number shows in the display, then press DEL a second time. Notice that the red valid led does **NOT** light when the number is in the display and the card number is not valid. Now press RST. The red valid led will light and then go out. The card number is now invalid.



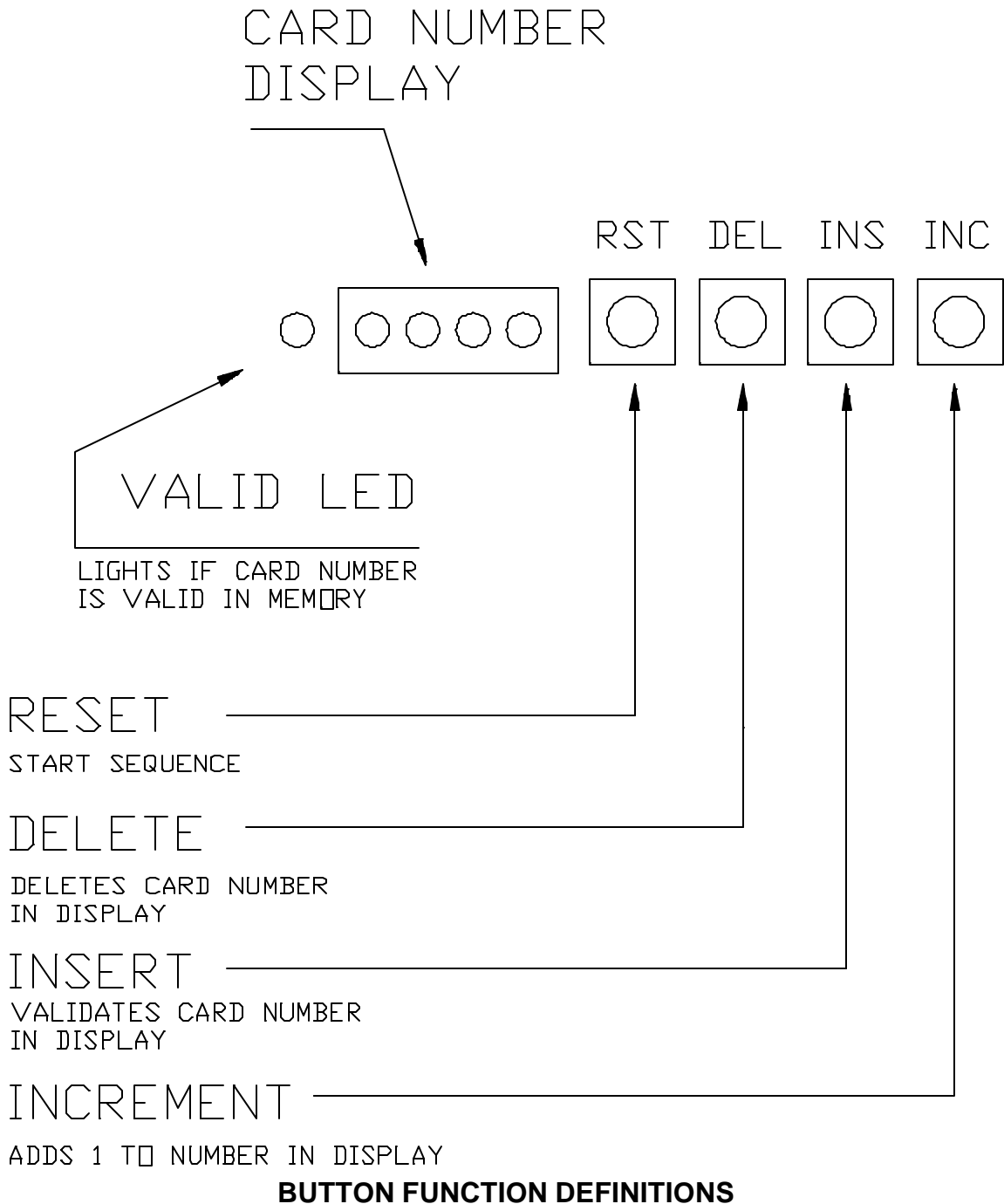
CARD VALIDATION

An alternative method of programming if the card number is known, is to press the reset (RST) button. The red valid led will light and then go out. Next press the increment (INC) button and the display will begin counting up by one number each time the button is pressed. When the desired number is reached, press and hold the insert (INS) button until the red valid led lights. The number is now valid. Press RST. The red valid led will light and go out.

To delete a card number, press the reset (RST) button. The red valid led will light and go out. Next press the increment (INC) button and the display will begin counting up by one number each time the button is pressed. When the desired number is reached, press and hold the delete (DEL) button until the red valid led goes out. The number is now invalid. Press RST. The red valid led will light and go out.

2.5 BUTTON FUNCTION DEFINITIONS

For an explanation of button functions see diagram below:

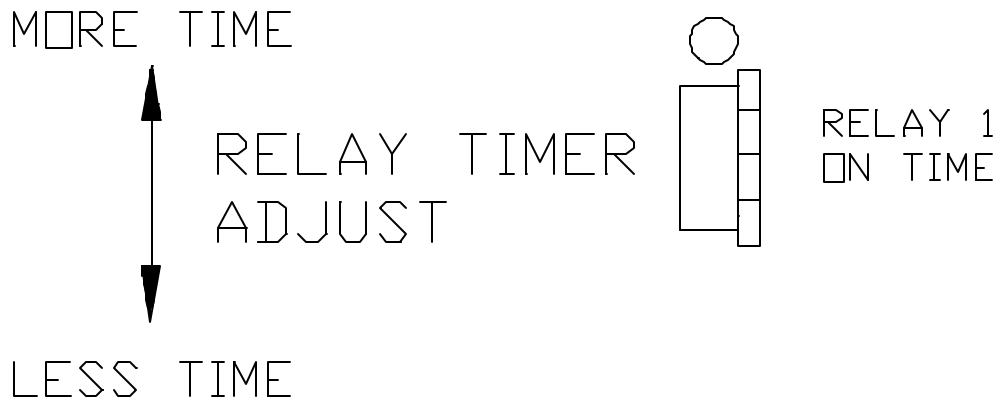
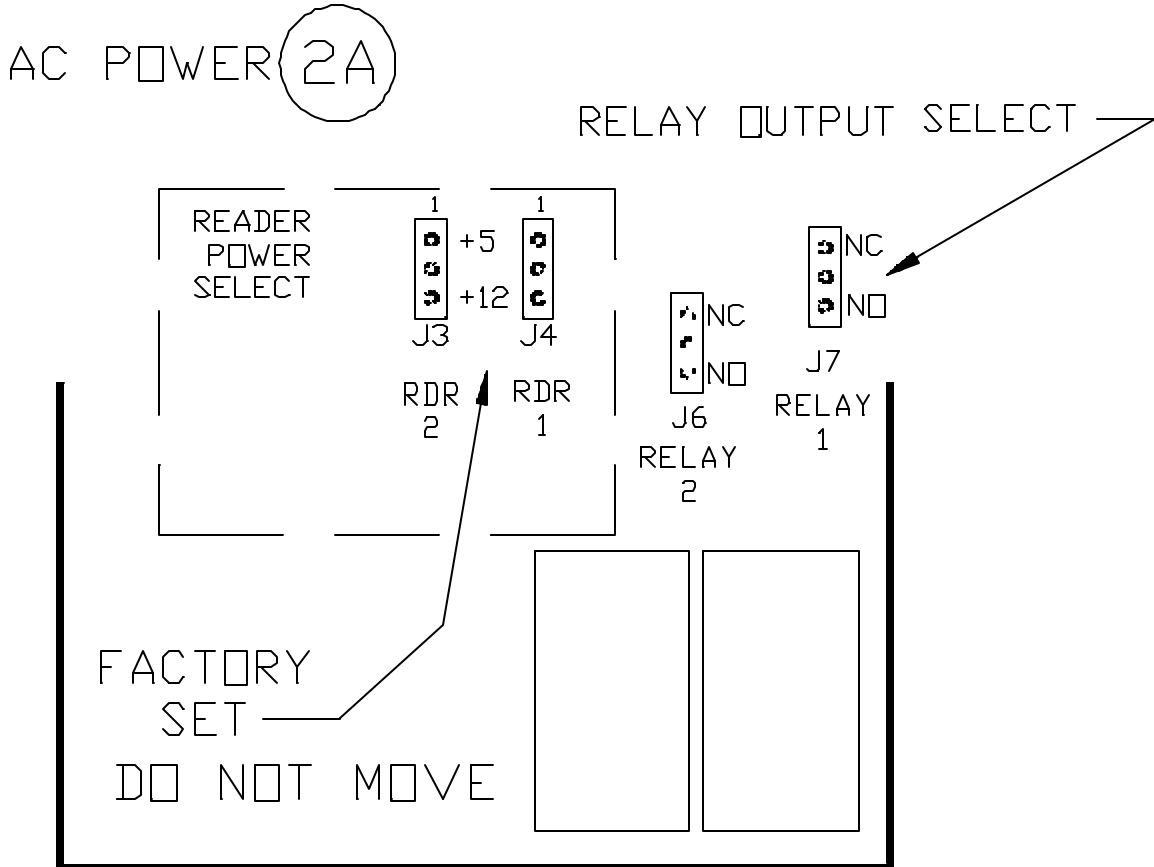


NOTE: If the INC button is pressed for longer than 1 second, the display will automatically increment at a rate of 20 numbers per second. This is useful for block programming in either insertion or deletion of card codes.

2.6 SET RELAY AND ADJUST TIMER

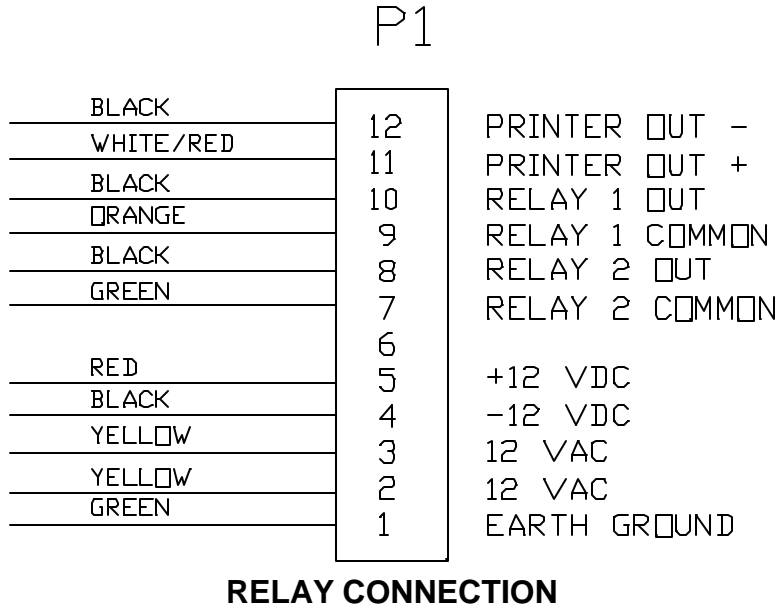
See diagram below to select jumper for normally open or normally closed. It is shipped from the factory as normally open.

Run a validated card through the reader and adjust the white nylon wheel to the desired time. The range is 1 to 30 seconds.



SET RELAY / TIME

2.7 RELAY CONNECTIONS



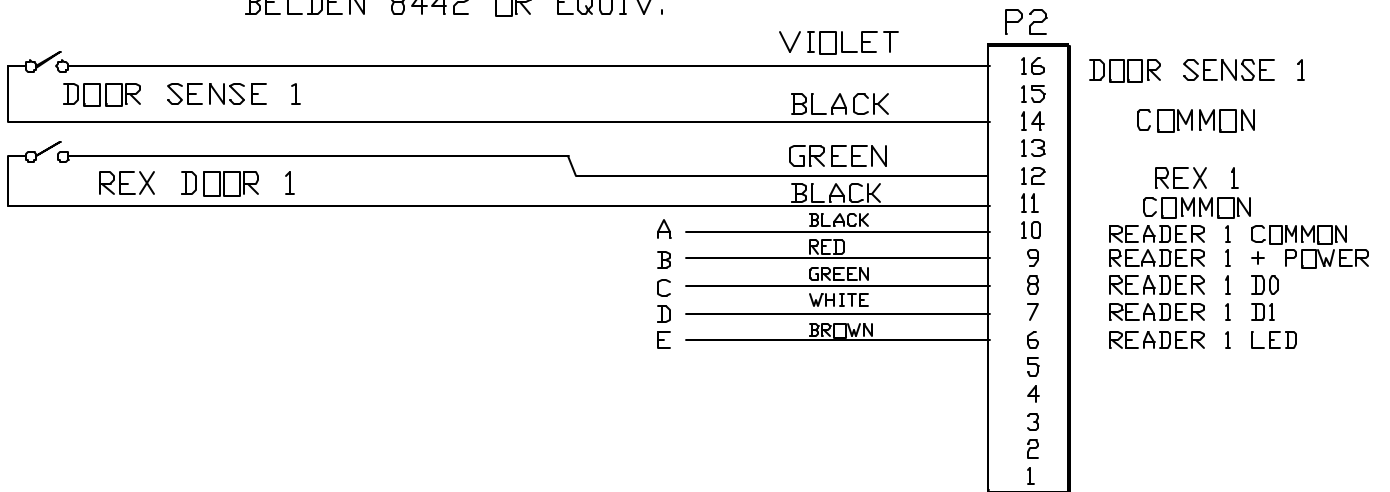
2.8 REQUEST EXIT AND DOOR SENSE CONNECTIONS

On connector P2, the REX (request to exit) P2 11 and 12 (green and black), when closed will energize the relay just like a valid card would. The relay will stay energized as long as the REX input contacts are held closed.

NOTE: the timeout will start **AFTER** the contacts are opened.

On connector P2, the Door 1 sense P2 14 and 16 (black and violet) will immediately stop the remainder of the relay time out when closed. See diagram below:

22 GA. TWISTED, STRANDED & JACKETED
BELDEN 8442 OR EQUIV.



REX 1, DOOR SENSE 1

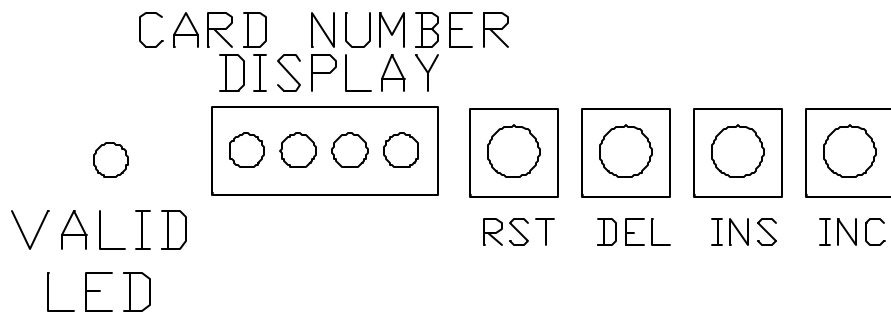
3.0 PROGRAMMING THE SYSTEM

3.1 VALIDATING OR DELETING A SINGLE CARD:

1. Press the RST button. (Red led will light and go out).
2. Use the INC button until desired card number is in the LED display. If the card numbers in memory the "VALID LED" will illuminate.

NOTE: If the INC button is pressed for longer than 1 second, the display will auto increment at a rate of 20 numbers per second.

3. Press the INS button to validate the card number or press the DEL button to delete the card number.
4. If there are more cards to program, go to step 2.
5. Press the RST button when all complete.



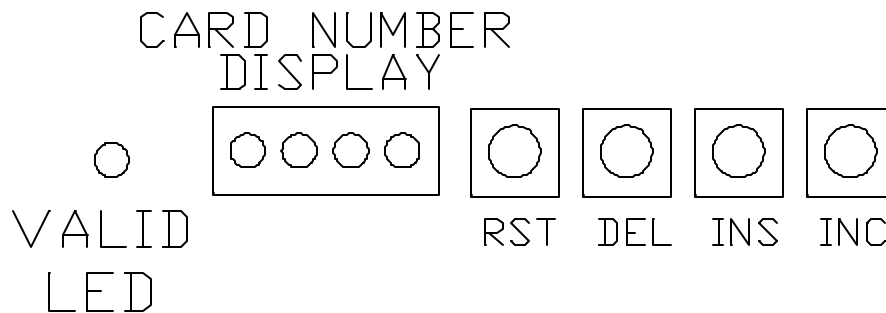
VALIDATING OR DELETING CARD

3.2 ALTERNATE METHOD IF CARD IS AVAILABLE

1. Pass the card through either card reader.
2. To validate the card, Press the INS button and wait for the card number to show in the display then press the INS a second time. To delete the card, Press the DEL button and wait for the card number to show in the display then press the DEL a second time.
3. If there are more cards to program, go to step 1.
4. Press the RST button when all done.

3.3 GROUP VALIDATING OR DELETING CARDS (BULK LOADING)

1. Press the RST button. (Red led will light and go out).
2. Use the INC button until LOWEST card number is in the LED display. If the card number is in memory the "VALID LED" will illuminate.
3. Press AND HOLD the INS button to validate the card numbers or press AND HOLD the DEL button to delete the card numbers.
4. WHILE HOLDING THE RESPECTIVE button, press the INC button until the highest card number is in the display.
5. Release the INS or DEL button.
6. Press the RST button when all done.



GROUP PROGRAMMING

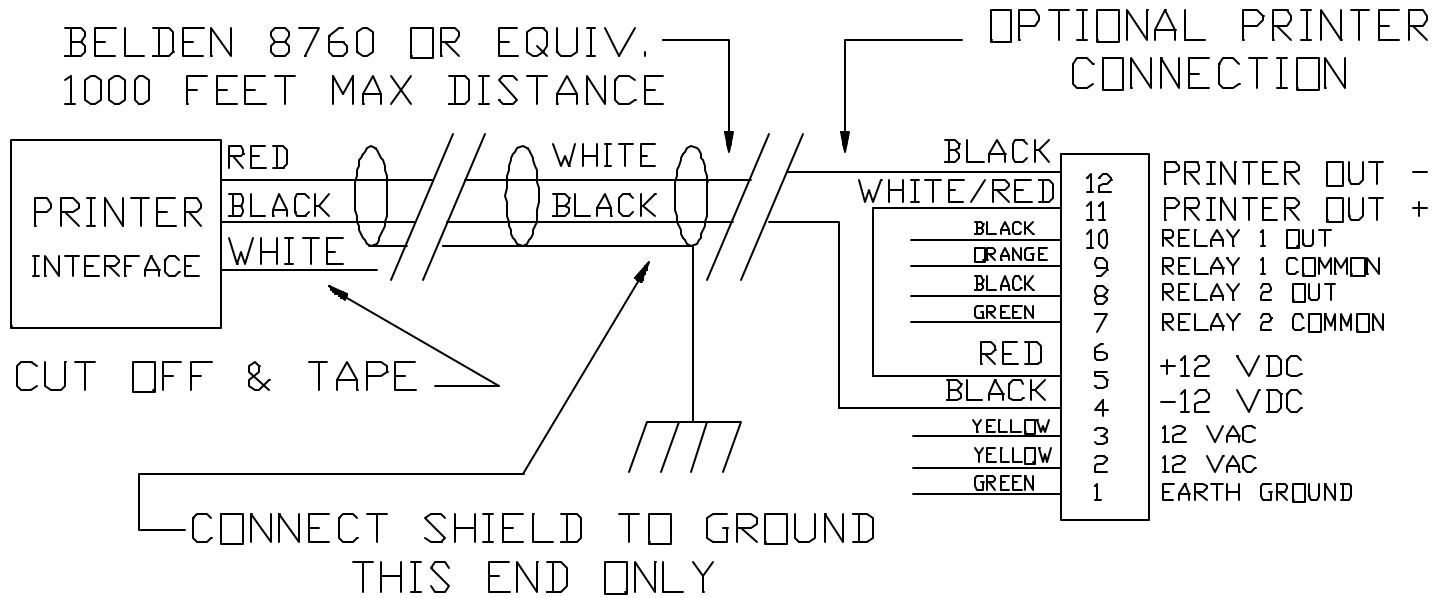
3.4 ALTERNATE METHOD IF YOU HAVE THE LOWEST NUMBER CARD.

1. Pass the card through either card reader.
2. Press AND HOLD the INS button to validate the card numbers, or press AND HOLD the DEL button to delete the card numbers.
3. WHILE HOLDING THE RESPECTIVE button, press the INC button until the highest card number is in the display.
4. Release the INS or DEL button.
5. Press the RST button when all done.

4.0 OPTIONAL PRINTER HOOK UP

4.1 OPTIONAL PRINTER COMMUNICATIONS

The printer communications link is 8 bit ASCII, no parity 1200 baud current loop. If a printer is to be connected to the system, the optional printer interface **MUST** be used between the Selectcard and the printer. See drawing below for printer connections.

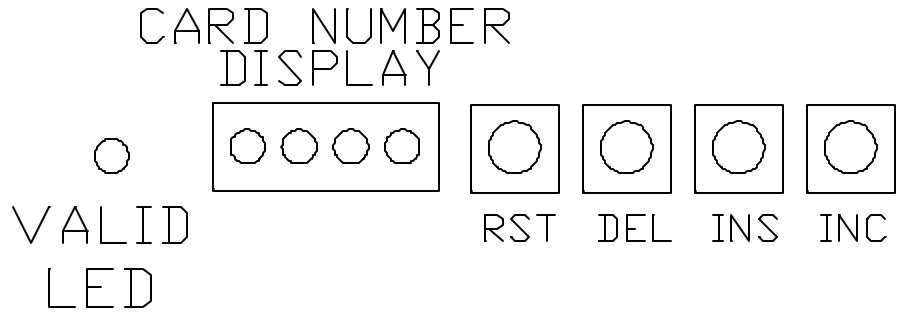


PRINTER CONNECTIONS

Connect the optional printer interface to connector P1 as shown above. Plug the printer interface into the printer and plug in the printer. Load paper in the printer. Install jumper J8 after installation is complete.

4.2 PRINTING A REPORT ON THE PRINTER:

1. Press RST and INS buttons together.
2. Release RST button then release INS button.
3. The printer will print the report until last number is accessed.



PRINT REPORT

4.3 OPTIONAL PRINTER MESSAGES

NOTE: If the clock has been set (see page 15 for setting clock), the printer will print:
mm/dd hh:mm MONTH/DAY HOUR:MIN

If the clock has NOT been set, the printer will print:
* no clock *

4.4 POWER-UP MESSAGES:

SELECTCARD date & time

READER TYPE X date & time

IF X = M system set for mag reader

IF X = W system set for WIEGAND reader

4.5 RUN TIME MESSAGES:

xxxx = card number, n = reader number

CARD # xxxx RDR n date & time If valid card used

INVALID CARD # xxxx RDR n date & time If invalid card used

4.6 REPORT:

SELECTCARD date & time

FAC # xxxx

Facility code of unit

VALID CARDS:

xxxx

Valid card numbers

xxxx

xxxx

XXXX

XXXX

END REPORT

4.7 PROGRAMMING MESSAGES:

CARD # xxxx now valid date & time If validating 1 card.

CARD # xxxx now deleted date & time If deleting 1 card.

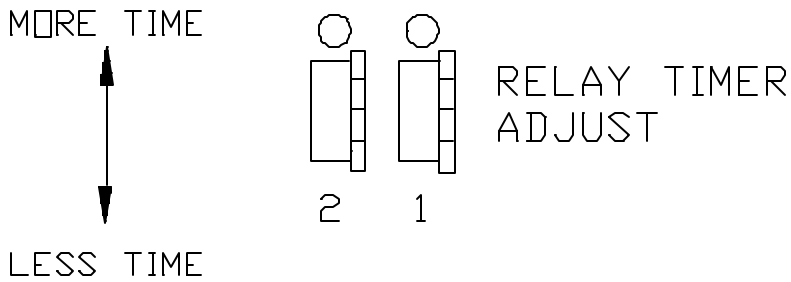
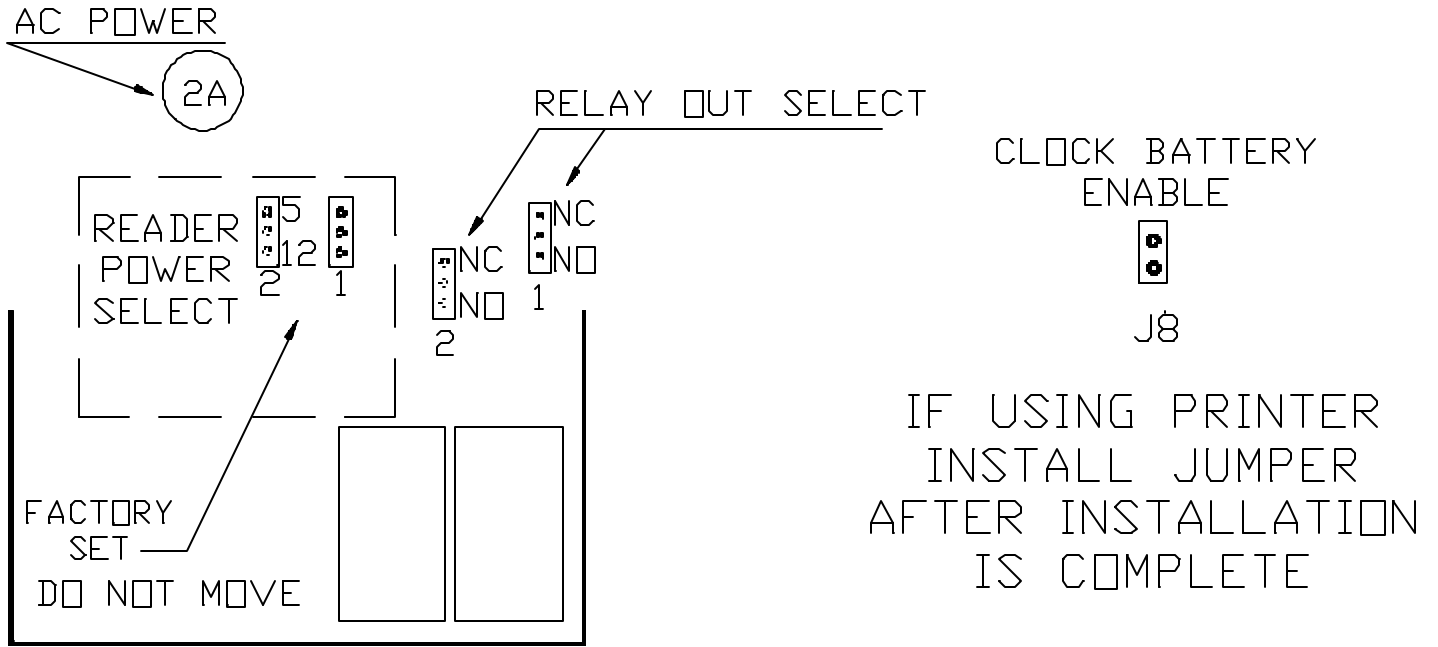
5.0 ENABLING THE CLOCK BATTERY

The clock battery keeps the time and date current, and does not have to be reset after every momentary lapse of power.

It is only required if used with the optional printer.

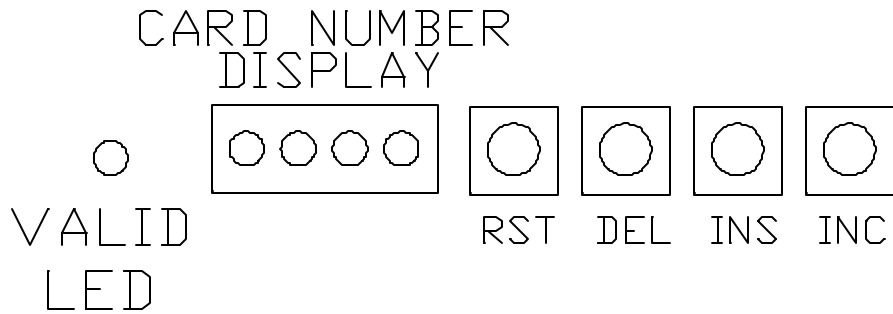
See this diagram for jumper location:

SELECTCARD ONE PLUS 1



BATTERY JUMPER LOCATION

See section 5.1 for setting the time and date.



SETTING CLOCK

5.1 SETTING THE INTERNAL CLOCK:

(only used if a printer is connected).

NOTE: The hours of the clock is set in 24 hour (military) format.

1. Press the RST and DEL buttons together (See above diagram).
2. Release RST button then release DEL button. **DISPLAY SHOWS:**
3. Display will show. 0000
4. Use INC button until month is in the display. 0011 = NOVEMBER
5. Press INS key.
6. Display will show. 1000
7. Use INC button until day is in the display. 1015 = 15th day
8. Press INS key.
9. Display will show. 2000
10. Use INC button until hour is in the display. 2008 = 8 am
11. Press INS key.
12. Display will show. 3000
13. Use INC button until minute is in the display. 3047 = 47 minutes
14. Setting the clock is done.
15. If a mistake is made you **MUST** go back to step 1.

SELECTCARD ONE PLUS 1

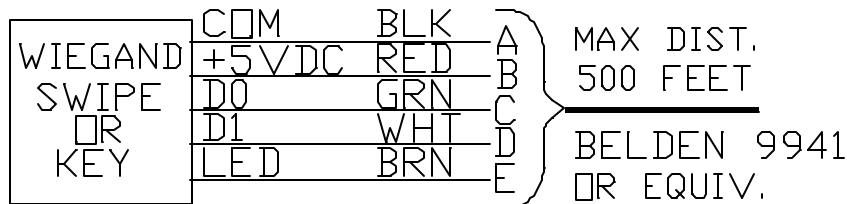
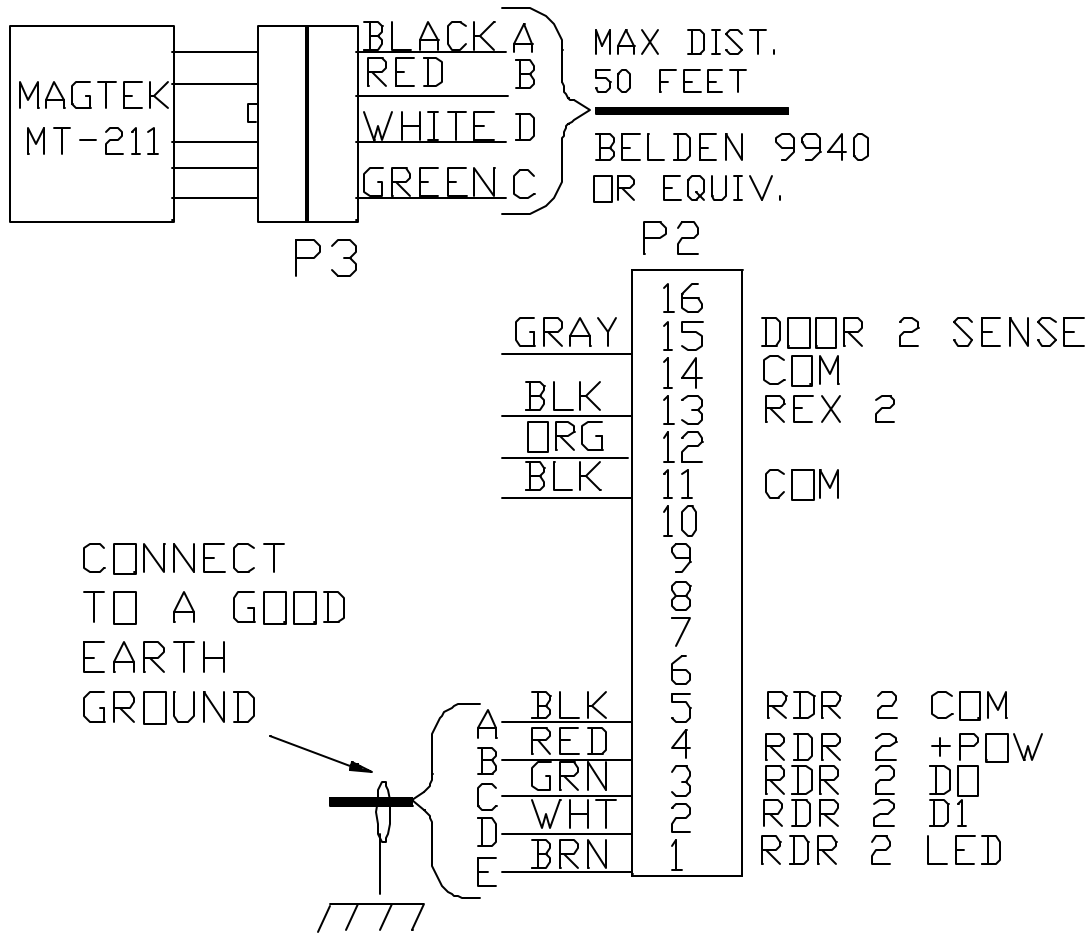
6.0 OPTIONS

6.1 OPTIONAL SECOND READER CONNECTIONS

If a second reader has been purchased, this diagram provides all the secondary functions of the controller. The operation of all options, such as request to exit (REX), door sense, relay output selection and relay timer adjust is identical to the primary reader functions.

See diagram for all second reader connections:

TYPICAL MAG STRIPE READER

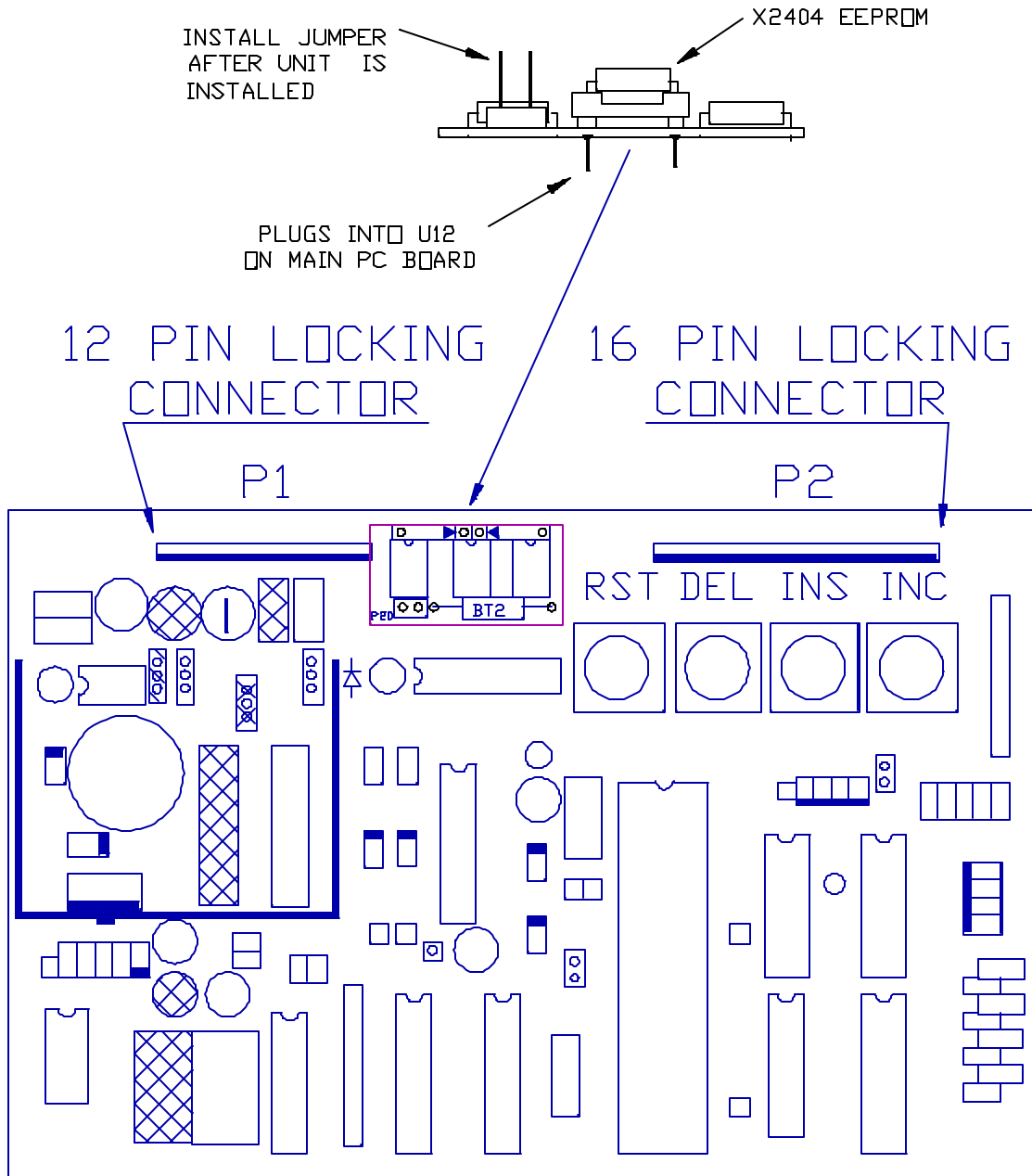


TYPICAL WIEGAND READER

OR BARIUM FERRITE READER

OPTIONAL SECOND READER CONNECTIONS

6.2 OPTIONAL ANTI-PASSBACK



The optional Anti-Passback feature is configured as TRUE anti-passback. Once a card is used in card reader 1 to enter a building, the card MUST be used in card reader 2 to exit the building. If the same card is used twice in succession on the same reader, the user will NOT have access.

If the optional printer is installed and anti-passback is violated, a "PASSBACK VIOL. CARD NO. xxxx RDR x" will be printed.

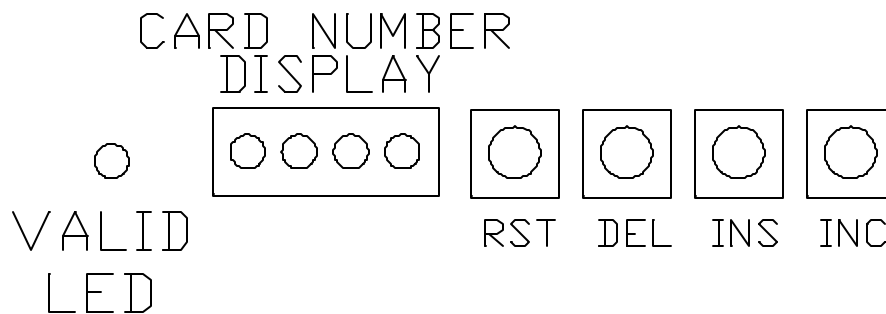
SELECTCARD ONE PLUS 1

The optional Anti-Passback feature relies on battery backed RAM memory to operate. After the Selectcard has been installed, place the jumper P-20 provided on the pins to enable the battery. P-20 is located on the small pc board between the two large connectors at the top of the main pc board (see diagram previous page).

It is possible to clear the anti-passback memory storage of any cards that have entered the building through reader 1. This will not erase card numbers that have been validated in the system, only the cards that have entered through reader 1.

To clear anti-passback memory, press RESET and INC buttons simultaneously. Release the RESET, then after the 4 digit display goes blank, release the INC button. After approximately 5 seconds, the 4 digit display will flash and the "VALID" led will go out. The SelectCard is ready to operate. If the optional printer is attached, the "CLG MEM" message will be printed. After 5 seconds, the "MEM CLD" message will print.

To print or display all cards that are in the system (i.e., used reader 1 to enter building, but have not used reader 2 to leave), follow this procedure:



1. Press RESET, INS and INC simultaneously.
2. Release the RESET button.
3. After 4 digit display goes blank, release both INS and INC buttons.

The 4 digit display will scan through memory. If a card is found that is in the system, the display will stop on that number for a half second. If the printer is connected the card numbers will be printed.

6.3 OPTIONAL ACCESS LEVELS

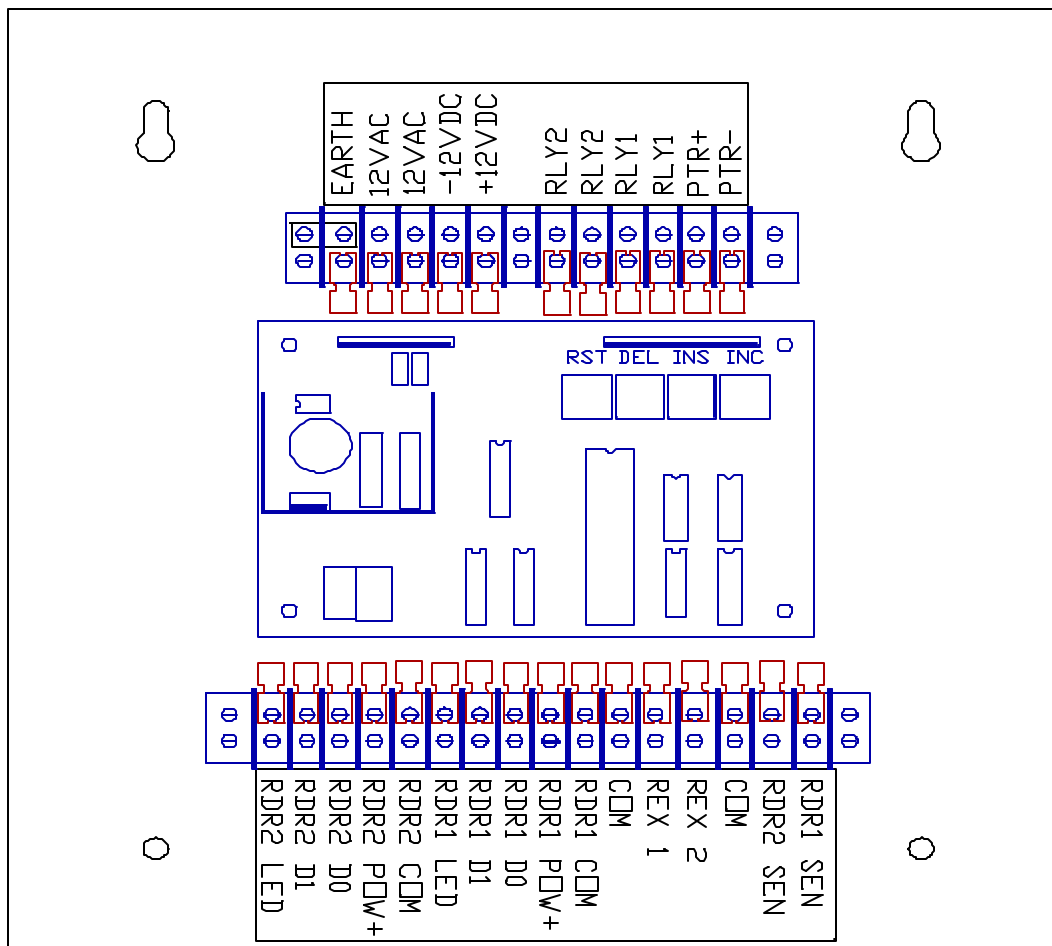
The access level option may be purchased as a 2000 or 5000 card system. A card may be validated to activate reader relay number 1, reader relay number 2 or both reader relay relays. If a card is used to access a reader relay in which it is not valid, a message will be printed (on the optional printer) that says: "ACCLEV VIOL. CARD NO. xxxx RDR x."

To validate a card to access reader 1 follow the instructions in section 3.0 "Programming the System." To validate a card to access reader 2, add 2000 to the card number. For a 5000 card system, add 5000 to the card number. For a card to access both readers, the card number must be validated twice, once for each reader.

If the optional printer is connected to the system, and a card report is desired, follow the instructions in section 4.2 "Printing A Report On The Printer." For a 2000 card system, numbers between 1 and 1999 are valid for reader 1. Card numbers between 2000 and 3999 are valid for reader 2. For a 5000 card system, numbers between 1 and 4999 are valid for reader 1. Card numbers between 5000 and 9999 are valid for reader 2.

6.4 OPTIONAL MOUNTING BOX

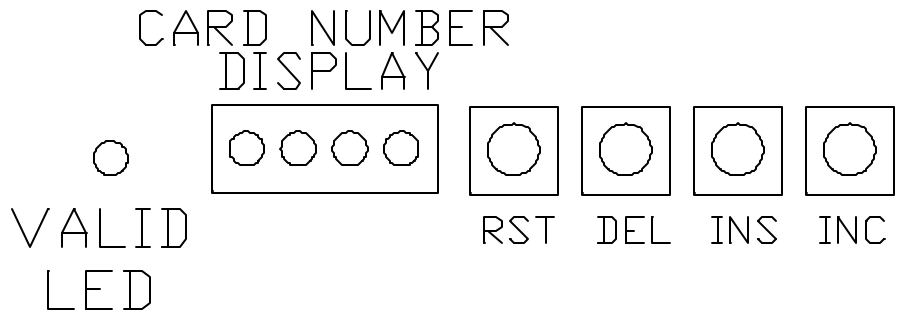
An optional 11" X 11" X 3.5" box is available for applications requiring more space. It is also useful when used with other equipment as a junction box.



OPTIONAL MOUNTING BOX

7.0 DISPLAYING A CARD NUMBER IN THE LED DISPLAY

1. If you wish to read a card's number, pass the card through the card reader. The number of the card will be displayed on the LED display for 1/2 second.
2. If the card is valid in memory, the "VALID LED" will light.



PRINTING REPORT ON DISPLAY

7.1 PRINTING A REPORT ON THE DISPLAY

(To review valid cards on the display).

1. Press RST and INS buttons together (See above diagram).
2. Release RST button then release INS button.
3. If the printer is connected it will print a report.
4. The display will start counting up from 0 at a fast rate and if a valid card is in memory the display will stop for 1/2 second displaying the valid number, then continue. The display will continue until card number 4079 is reached and will then go blank.
5. Report is done.

8.0 INSTALLATION OF THE SYSTEM

1. Install the control electronics in a convenient location.
2. Install the card readers using the wire specified.
3. CONNECT A GOOD EARTH GROUND TO THE UNIT.
4. If a printer is to be used with the unit, install the wiring as shown in drawing in section 4.0 on page 12.
5. Install and connect the 12 Volts AC required by the unit.
6. Change the output relay's configuration if required.
7. Power up the system and press the INC button. The LED display will show 0000, and if the printer is connected the HEADER or POWER-UP MESSAGE will be printed.
(See page 13 section 4.4).

8.1 ADJUSTMENTS

1. Using the REX input or after programming a card, activate the output relay and adjust it's on time as needed.
2. If the optional PRINTER is connected to the system INSTALL the battery jumper on J8 (See Section 5.0).
3. Set the clock as instructed on page 15 (Section 5.1).

8.2 FINAL SYSTEM CHECK OUT

1. Following the instructions (page 10), program cards into the system.
2. Run the cards through the reader to check the cards and reader.
3. If the REX and DOOR sense inputs are used, activate them for correct operation.
4. If the optional printer is connected to the system, inspect the printout for proper documentation.

SELECTCARD ONE PLUS 1

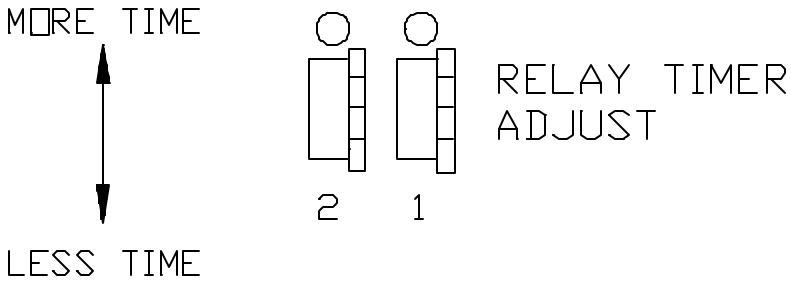
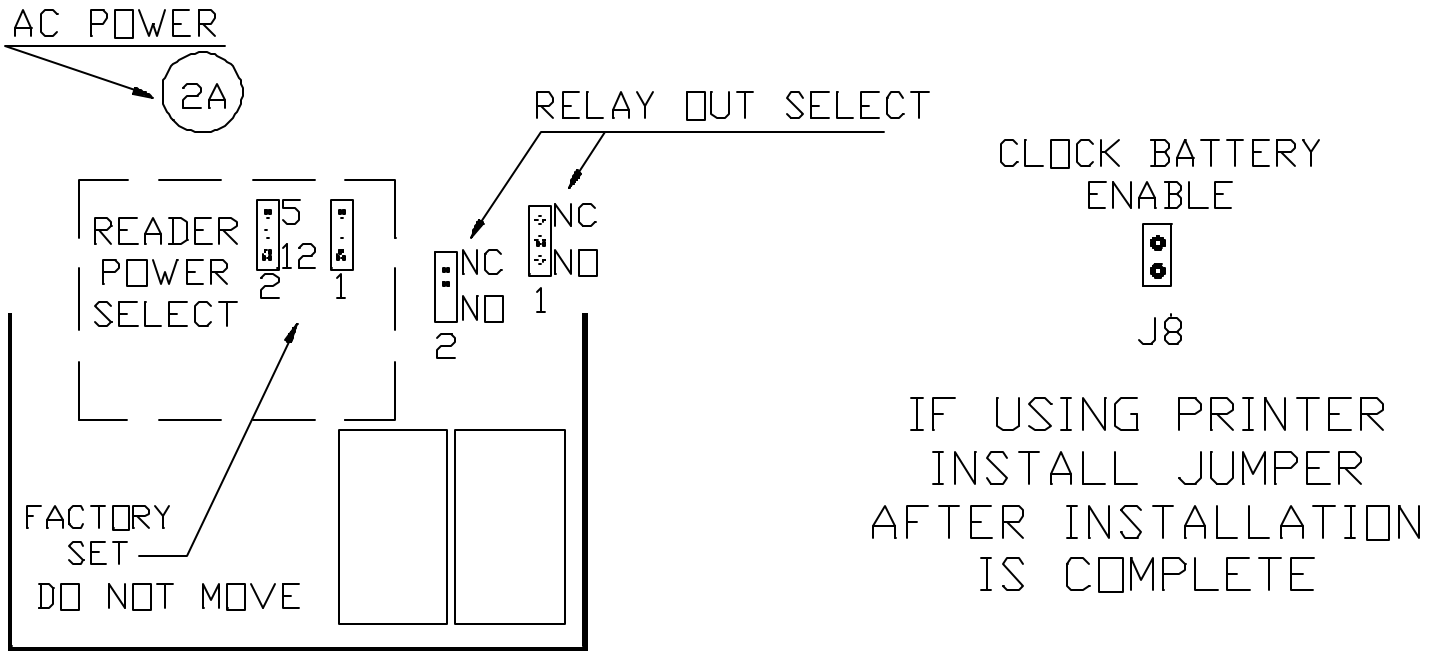
9.0 IN CASE OF TROUBLE . . .

1. CHECK ALL CONNECTIONS.
2. CHECK FOR CORRECT VOLTAGE AT TRANSFORMER (SHOULD BE 12 VOLTS AC).
3. VERIFY POWER IS LIVE.
4. CHECK UNIT IS CORRECTLY GROUNDED.
5. CHECK AC INPUT FUSE (SHOULD BE 2 AMP FUSE).
6. CHECK RELAY OUTPUT FOR DESIRED CONTINUITY.
7. CHECK RELAY SELECT JUMPERS.
8. CHECK READERS FOR CLEAR PATH FOR CARDS.
9. CHECK THAT ALL PLUG IN COMPONENTS ARE SECURELY SEATED.

(See diagram in section 9.1).

ERROR CODE ON DISPLAY	ERROR TYPE
ccc1	START PARITY BAD (CARD SUSPECT)
ccc2	RESERVED BY SES
ccc3	FACILITY CODE PROBLEM
ccc4	ENDING PARITY BAD (CARD SUSPECT)
ccc5	CARD NUMBER TOO LARGE (2K ACCESS LEVELS ONLY)
ccc6	ANTI-PASSBACK VIOLATION OR ACCESS LEVEL VIOLATION

9.1 FUSE LOCATION



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