IQ-400 - Series Intelligent Access Control Systems

Installation Manual
33-10057-001
REV: C

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Revision C: August 2008

0.1 Board Diagrams

0.1.1 The IQ-400 Printed Circuit Board Wiring Diagram

NOTE: When communication via LAN, the PCB is referred to as an IQ400E
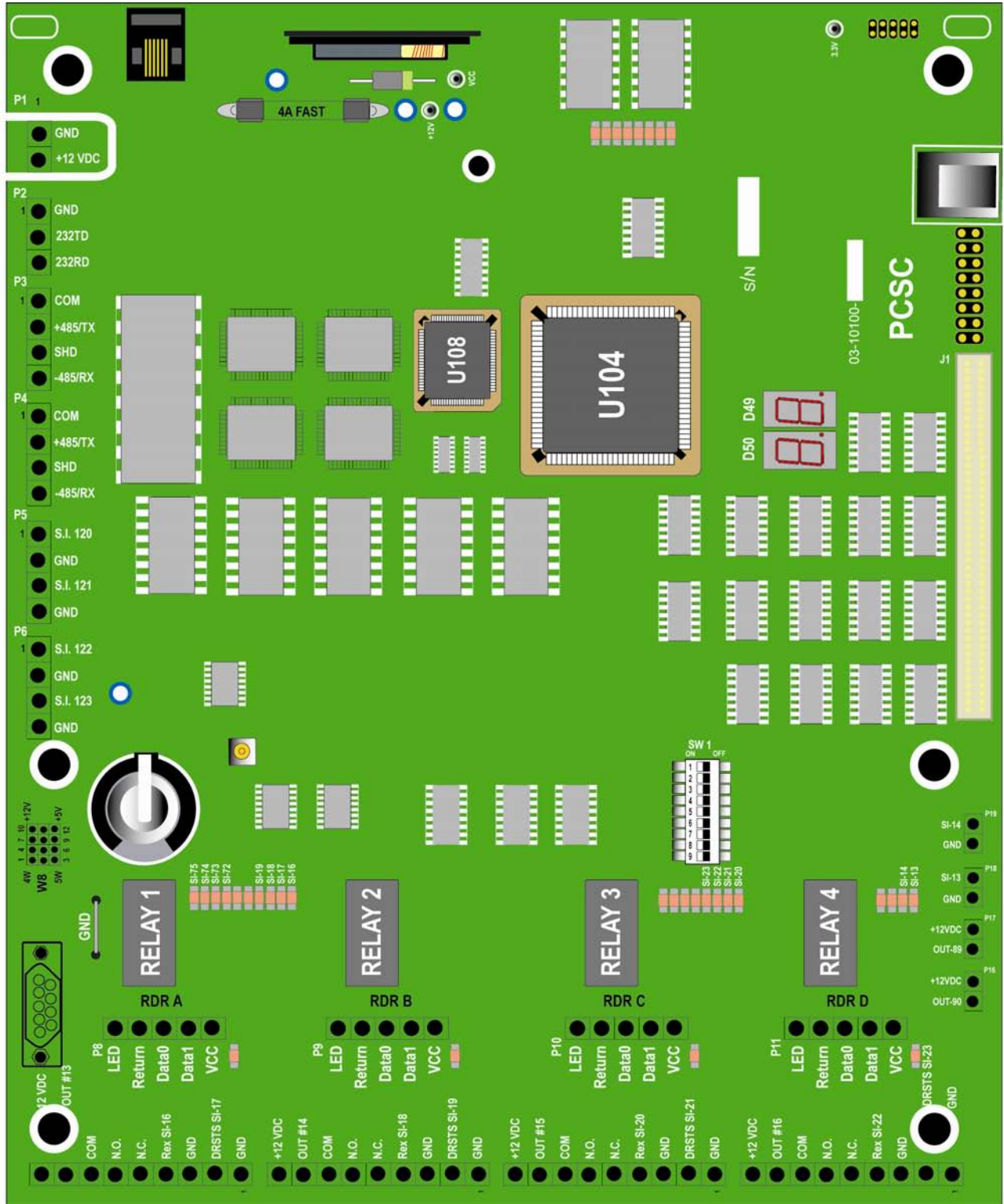
0.1.2 Four-Door Expansion Board
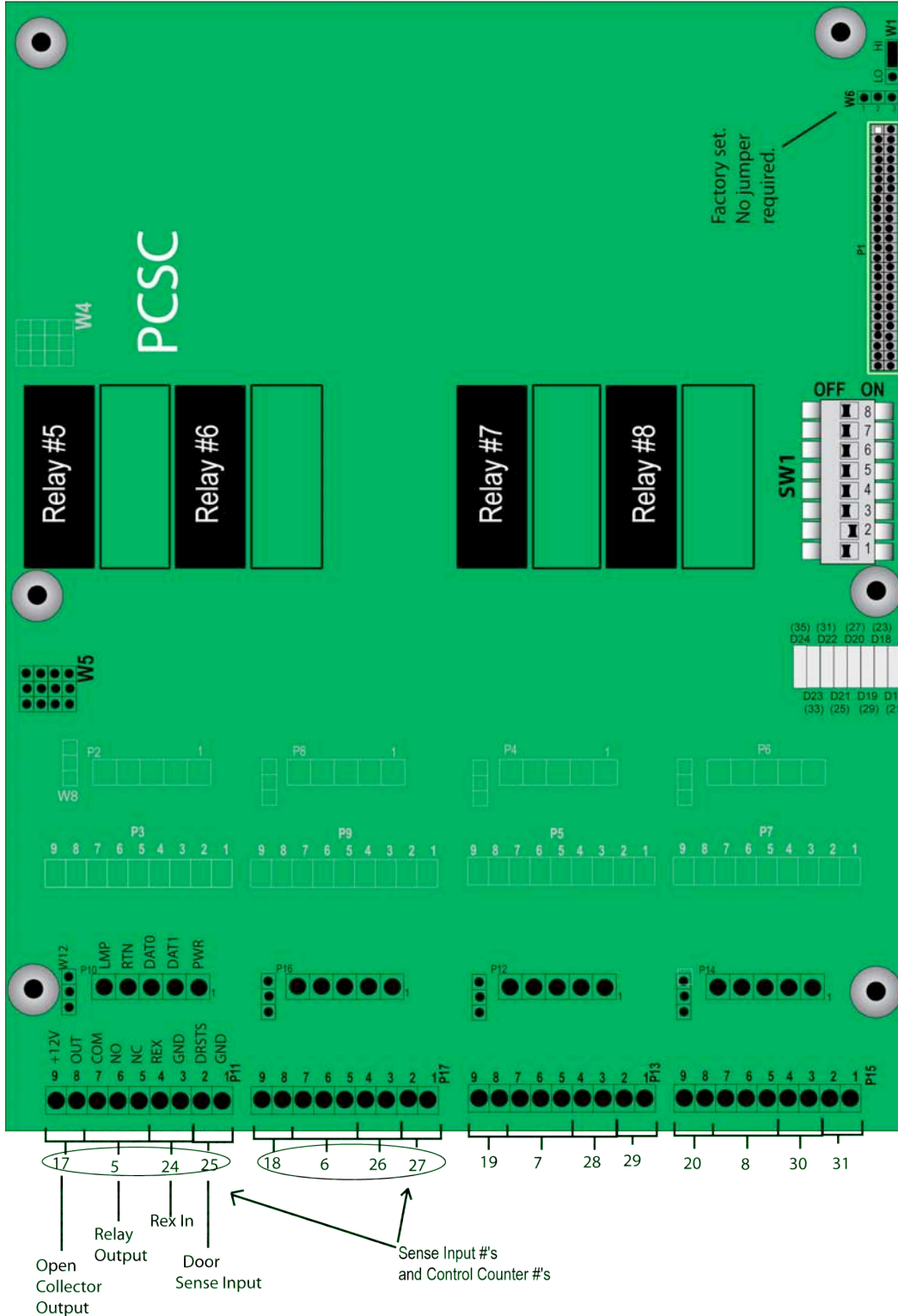
W1 Jumper is set across pins 2 and 3 in all Firmware except in 7.912-Q

Factory set. No jumper required.

PCSC

Relay #5 Relay #6 Relay #7 Relay #8

With power removed from the IQ Panel, set DIPswitches 2 and 5 ON, towards the edge of the circuit board. DIPswitch 2 identifies the expansion board as a 4 reader and DIPswitch 5 enables the supervision of the egress inputs. Apply power to the board.

Power to the 4 reader expansion boards is provided from the IQ panel via the 50-pin ribbon cable.

The egress inputs will also need to be identified as supervised in the LiNC-NET software.

Open Collector Output

Relay Output

Rex In

Door Sense Input

Sense Input #'s and Control Counter #'s

0.1.3 Eight-Door Expansion Board
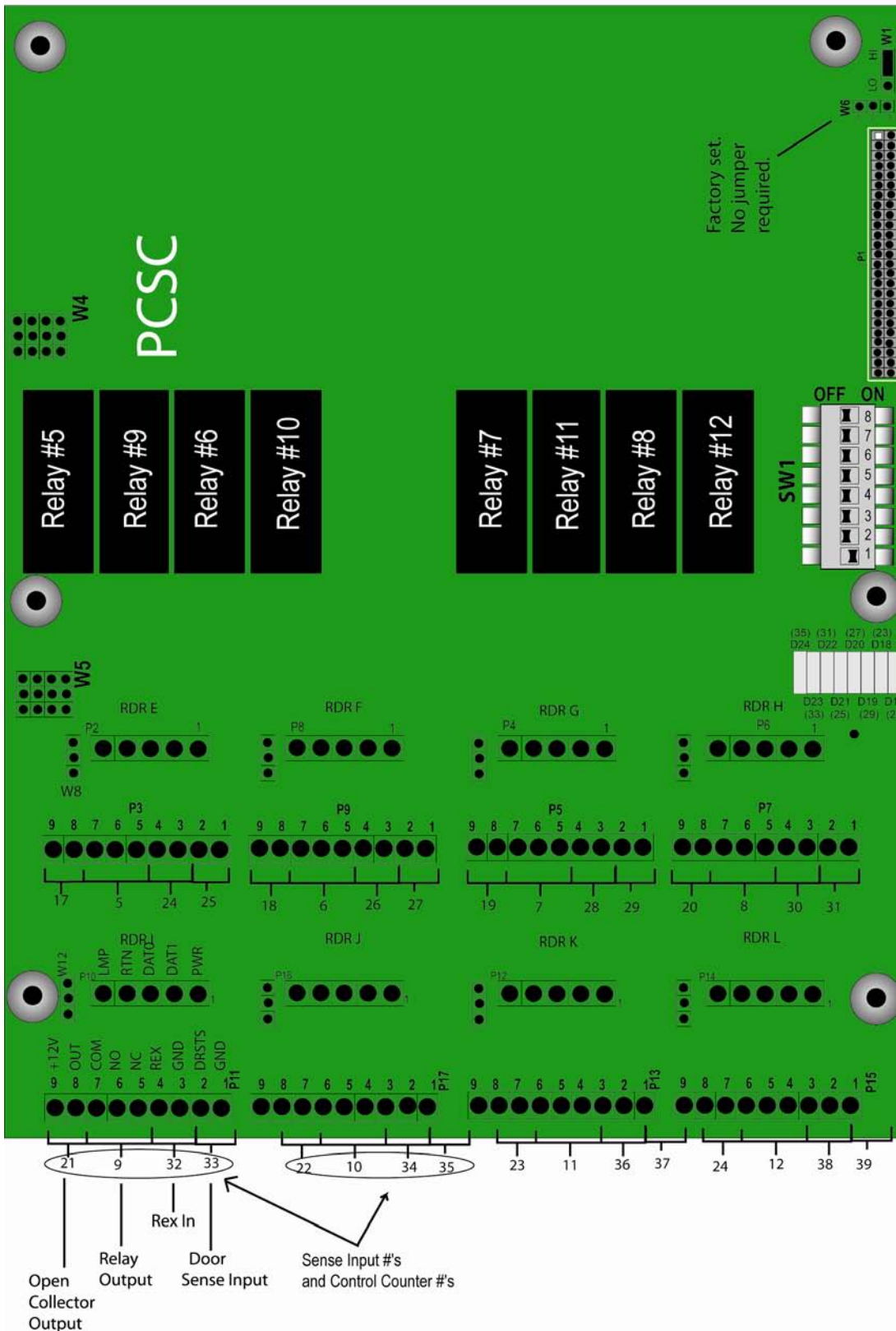
PCSC

Relay #5 Relay #9 Relay #6 Relay #10   Relay #7 Relay #11 Relay #8 Relay #12

W1 Jumper is set across pins 2 and 3 in all Firmware except in 7.912-Q

Factory set. No jumper required.

With power removed from the IQ Panel, set DIPswitches 1 and 5 ON, towards the edge of the circuit board. DIPswitch 1 identifies the expansion board as a 8 reader and DIPswitch 5 enables the supervision of the egress inputs. Apply power to the board.

Power to the 8 reader expansion boards is provided from the IQ panel via the 50-pin ribbon cable.

The egress inputs will also need to be identified as supervised in the LiNC-NET software.

RDR E   RDR F   RDR G   RDR H

RDR I   RDR J   RDR K   RDR L

LMP RTN DAT0 DAT1 PWR

+12V OUT COM NO NC REX GND DRSTS GND

21 9 32 33   22 10 34 35   23 11 36 37   24 12 38 39

Rex In

Open Collector Output

Relay Output

Door Sense Input

Sense Input #'s and Control Counter #'s

0.1.4 OUT Expansion Board
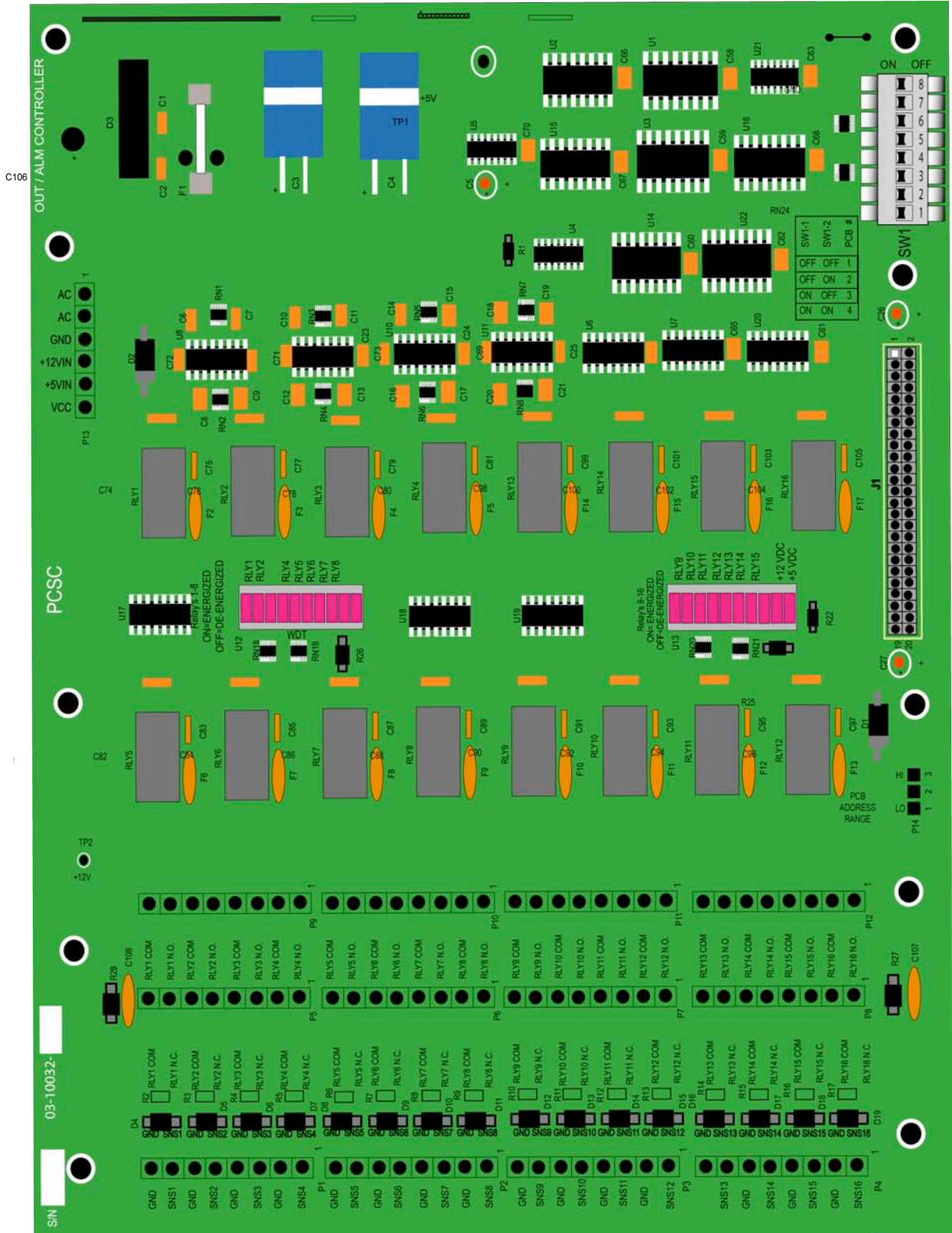
0.1.5 ALM Expansion Board
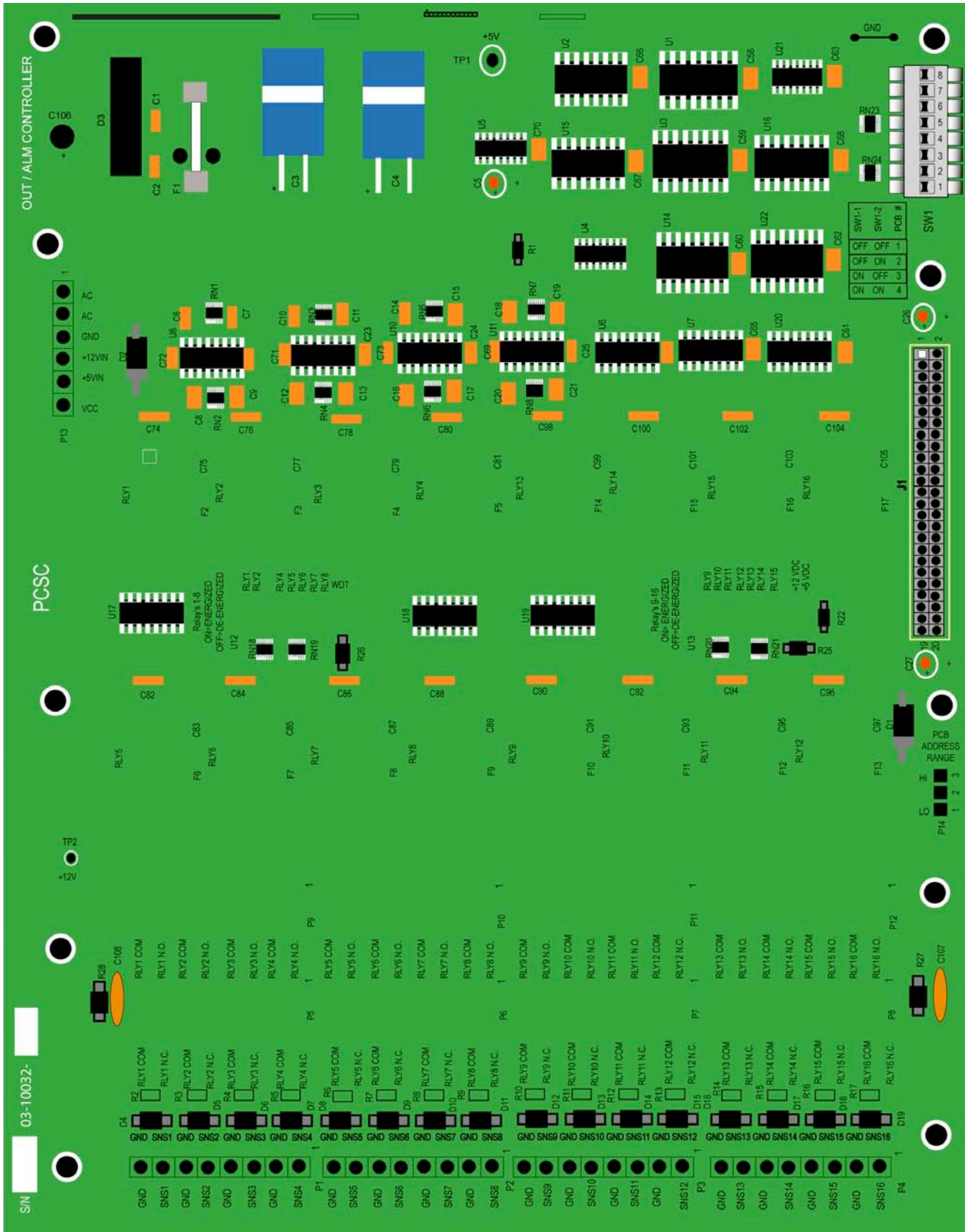
0.1.6 SAM Board

0.2 Table of Contents

The signal and power connector is a seven position detachable terminal block. The connections should be made as shown on the wiring diagram before power is applied. ST optical connectors are standard on the unit.

....
lxiv

Power required is 12VDC @ 200mA maximum. Internal regulators are included so unregulated 12 volt power may be used. The case of the unit is connected to signal ground.

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lxiv

There are no controls on the MX-485-2 and three indicators. The ON indicator will glow green when power is applied to the unit. The TX

and RX LEDs glow red to show activity on the data wires. The TX LED indicates the fiber modem is transmitting and the RX LED indicates reception of data.

To install the MX-485-2, it is necessary to mount the unit to a rigid service using #8 hardware in four places. Care should be taken when selecting a mounting location to avoid sharp bends in the connecting cables. Please note minimum bend radii of all fibers being used, to avoid fracturing the fiber optic core.

The 485-2 series has been designed to be a reliable link for the transmission of data over long distances. The loss budget of 15 dB on 16.2u fiber should allow up to 5 kilometers of transmission distance.

The power output specifications are measured with a logic low state on the bus. When the bus is in the high impedance state, the transmission LED is at a very low output level (<-36dBm). Logic levels are encoded using pulse width modulation. If the optical connection is lost, the output bus goes to the HiZ state.

1.0 Introduction

Welcome to the IQ-400, the newest generation of intelligent access control system from PCSC.

This manual explains IQ-400 installation and connection to a personal computer (PC) and an optional local printer. The IQ-400 Manual is divided up into six steps:

Step 1 - Unpacking the IQ-400

Step 2 - Installing Power

Step 3 - Wiring Your Readers

Step 4 - Reader Connections

Step 5 - Wiring Your Door(s)

Step 6 - Communicating with the IQ-400

Step 7 - Status Lights and Dealing with Communication Errors

Appendix: A - IQ-400 Specifications

Appendix B - Configuring the IQ-400 LAN for Version 0130 and above

Before turning on the IQ-400 or the PC, take a moment to read through this manual. It has been designed to allow you to move through the installation process.

NOTE The IQ-400 system is set up at the factory. Do NOT re-initialize the system unless other modules have been added.

The LiNC-NET Network Controller communicates on a multi-point RS485 communication cable (RS-232, MODEM and LAN communication are also available). You must address each IQ-400 with a unique ID number (1-111) in order to communicate to each IQ-400 panel. Numbering the IQ-400s should be in ascending order, but it is not required for operation.

NOTE   To be installed in accordance with NEC 70. Also should be installed in accordance with the Standard for Installation and Classification of Burglar and Holdup Alarm Systems, UL 681.Installation must meet all local, state, and federal regulations and codes for electrical installation. If these codes conflict with the installation methods described in this manual, please call your service representative.

UL LISTINGS   The IQ-400 control unit is UL listed to the standard for Access Control System Units, UL 294. The following card readers have been found compatible by UL with the IQ-400: PCSC Models BR-370 and BR-470; HID Models PR-234 and PRK-234; and AWID PR-732, 733.

NOTE: The US Robotics 33.6/56K Sportster modem (Section 7.4) and the LANtronix MSS1-T RS-232 Serial Terminal Server (Section 8.6) have not been evaluated by UL, and is not suitable for UL installations.

2.0 Unpacking the IQ-400

2.1 Unpacking the IQ-400

As you unpack the IQ-400, inspect it for missing items or damage. Contact the dealer for any irregularities. Keep ALL packing material for protection in return shipping.

2.2 Visual Inspection

1. ***Are all of the socketed integrated circuit chips seated in their sockets?***

   Socket ICs U104 and U108 are located in the center of the board in close vicinity to LEDs D50 and D49, the seven segment displays.

2. ***Are the door relays seated and latched into their sockets?***

   The Door Relays K1, K2, K3 and K4 are locked at the bottom center of the board.

3. ***Is the watch battery seated in its socket?***

   The lithium battery is located in socket BT1 located in the lower left side of the board near to the DB9 Connector P7.

4. ***Are all of the plug-on connectors affixed to their male header connectors?***

   Plugs on connectors are located along the left-hand edge of the board at plug P1-P2-P3-P4-P5-P6. Plugs on connectors are located along the bottom portion of the board at plug P8-P9-P10-P11-P12-13-P14-P15. Plugs on connectors are located along the lower right-hand edge of the board at plug P16-P17-P18-P19.

5. ***Is the fuse in place at socket F13 located in the upper left corner of the board?***

   A 4-Amp fast blow (3AG) fuse is required.
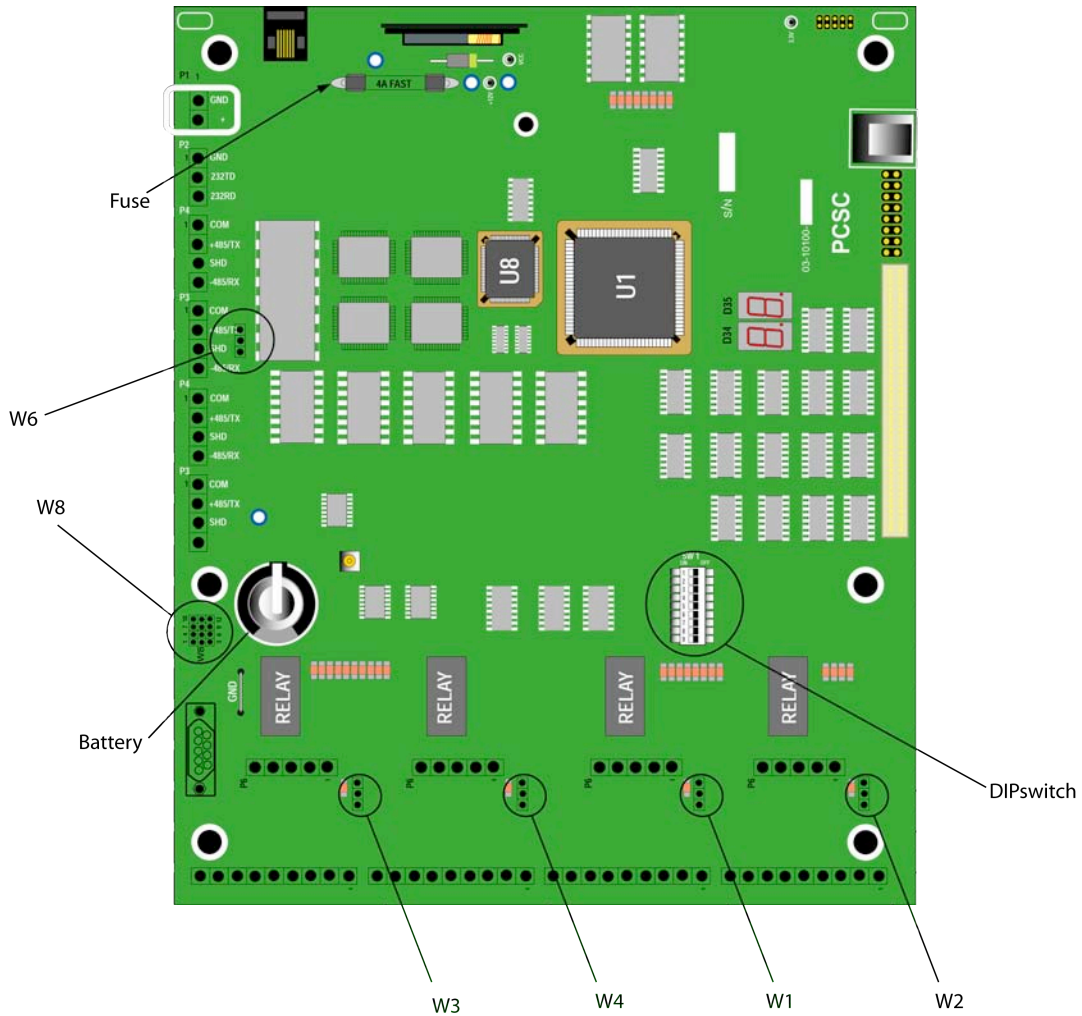
5. Are the jumpers in place at W1, W2, W3, W4, and W8?

- Jumper W8 is located in the LOWER LEFT side of the board and is set for 12 volt-4-wire, 12 volt-5-wire, or 5-volt-5-wire readers.

  1. Across Pins #1 and #2 = 5 Volt Card Reader

  2. Across Pins #2 and #3 = 12 Volt Card Reader

  3. Across Pins #4 and #5, #7 and #8, #10 and #11 = 5-wire Wiegand Data (Data0, Data1) Format

  4. Across Pins #5 and #6, #8 and #9, #11 and #12 =4-wire PCSC Data Format

- Jumper W2 is located in the LOWER RIGHT side of the board, to the left of Plug P16 and is set for 4 or 5 wire readers. (Must be set consistently with Data format set on W1, W3 and W4).

    5. Across Pins #1 and #2 = 5-wire Wiegand Data (Data0, Data1) format

    6. Across Pins #2 and #3 = 4-wire PCSC Data format

- Jumper W1 is located in the LOWER RIGHT (CENTER) side of the board, to the left of W2 and is set for 4 or 5 wire readers. (Must be set consistently with Data format set on W2, W3 and W4).

    7. Across Pins #1 and #2 = 5-wire Wiegand Data (Data0, Data1) format

    8. Across Pins #2 and #3 = 4-wire PCSC Data format

- Jumper W4 is located in the LOWER LEFT (CENTER) side of the board, to the left of W1 and is set for 4 or 5 wire readers.

    NOTE: It must be set consistently with data format set on W1, W2 and W3.

    9. Across Pins #1 and #2 = 5-wire Wiegand Data (Data0, Data1) format

    10. Across Pins #2 and #3 = 4-wire PCSC Data format

- Jumper W3 is located in the LOWER LEFT side of the board to the left of W4 and is set for 4 or 5 wire readers.

    NOTE: It must be set consistently with data format set on W1, W2 and W4.

    11. Across Pins #1 and #2 = 5-wire Wiegand Data (Data0, Data1) format

    12. Across Pins #2 and #3 = 4-wire PCSC Data format

50-pin Ribbon Cable Plug (J1)
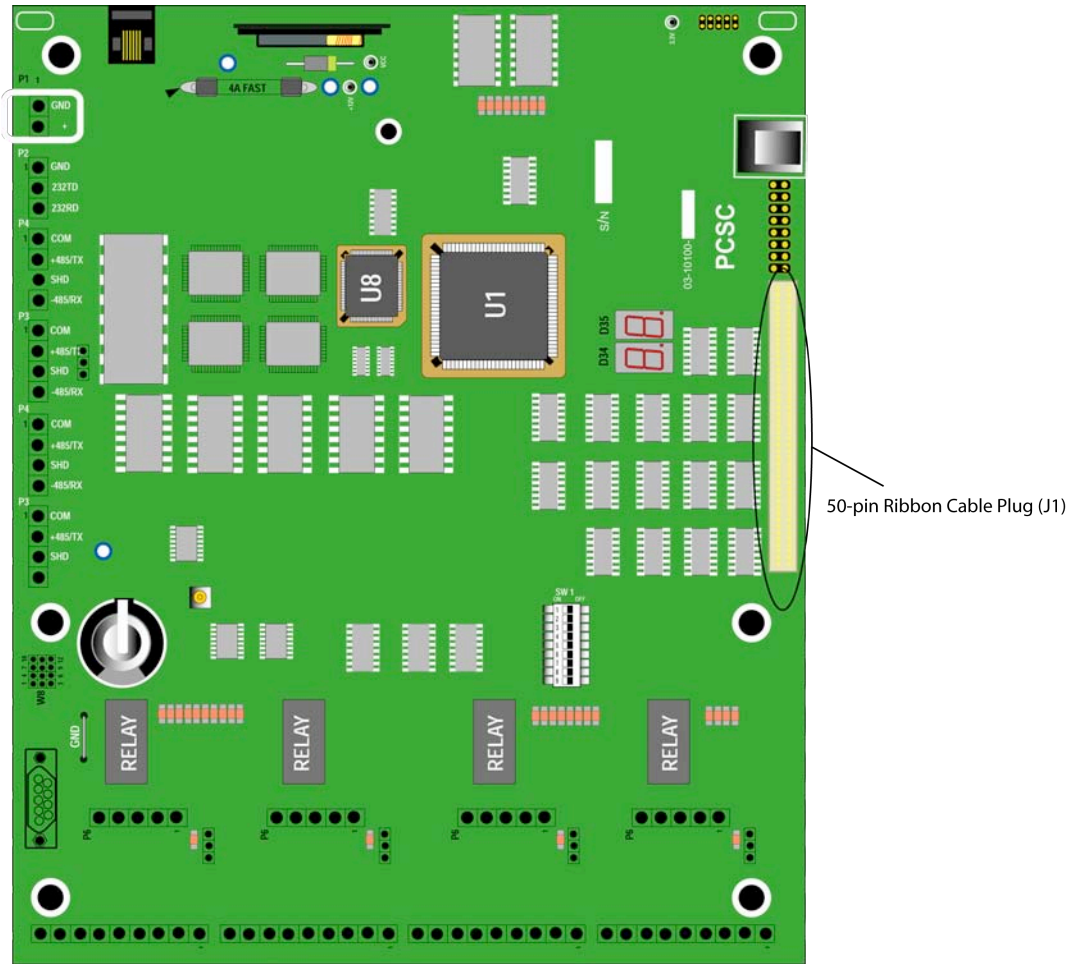
IQ-400 - Expansion Cable Plug

- *Is the 50-pin Expansion Bus Ribbon Cable connected to the IQ-400 at Plug J1?*

  The RED stripe on the edge of the ribbon cable should be connected to pin #1 of Plug J1.

- *Is the opposite end of the 50-pin Expansion Buss Ribbon Cable connected to a Peripheral Expansion Board at Plug P1?*

  The possible expansion boards are the new 4-door expansion PCB, 8-door PCB, OUT PCB, ALM PCB, SAM PCBs.

3.0 Installing Power

3.1 Installing Power

Shown below are the 3.0A and 6.0A PCSC power supplies. Both power supplies are shown in enclosures connected to an IQ-400 manual in a PCSC small enclosure.

3.1.1 Installing Power- 3.0 Amp
See **Figure 1** in **Section 3.1.3**.

> 12VDC power is connected to the circuit board at P1 in the upper left corner. Disconnect power mains from the supply until the wiring is secured.
>
> For installation, refer to the ESD SPS-3.6M2E or SPS-6.5M4 Power Supply installation instructions (P/N: SPS36instructions Rev: 04/15/02).

3.1.2 Installing Power- 6.0 Amp
See **Figure 2** in **Section 3.1.4**.

> 12VDC power is connected to the circuit board at P1 in the upper left corner. Disconnect power mains from the supply until the wiring is secured.
>
> For installation, refer to the ESD SPS-3.6M2E or SPS-6.5M4 Power Supply installation instructions (P/N: SPS36instructions Rev: 04/15/02).

> **NOTE:** Power supply cable connections are non power-limited outputs. For more information, please refer to the power supply installation manual.

3.1.3 Figure - PCSC 3.0 Amp Power Supply

18"

(small enclosure)

11.5"

Power LED

PCSC

U104

U108

RELAY

RELAY

RELAY

RELAY

GND +IN GND

P1 P2

9"

Multi-Output Supervised Power Supply/Charger
Model: PS-300/12 (12 vdc., 3.0A, 2 Outputs)
AC Input 85-260VAC, 75W
Output: 12VDC @ 3.0 Amps
Reserved Battery Charging: 300ma
Total Distributed Output: 12VDC; 3.0 Amps
Outputs: (2) 2.4A resettable PTC circuit breakers

AC FAIL
NO C NC

LOW BAT

- 1 - 2 +

DC

HIGH VOLTAGE
L N AC

3.0 Amp Power Supply

24VC 12VC

DC

CAUTION

PCSC

NOTE: All Outputs are Class 2 Power Limited, except for the AC Input, and the Power Supply DC Power Output 1.

Battery-
12V sealed or wet lead acid battery with a minimum 4Ah capacity

14"

110 AC

3.1.4 Figure - PCSC 6.0 Amp Power Supply
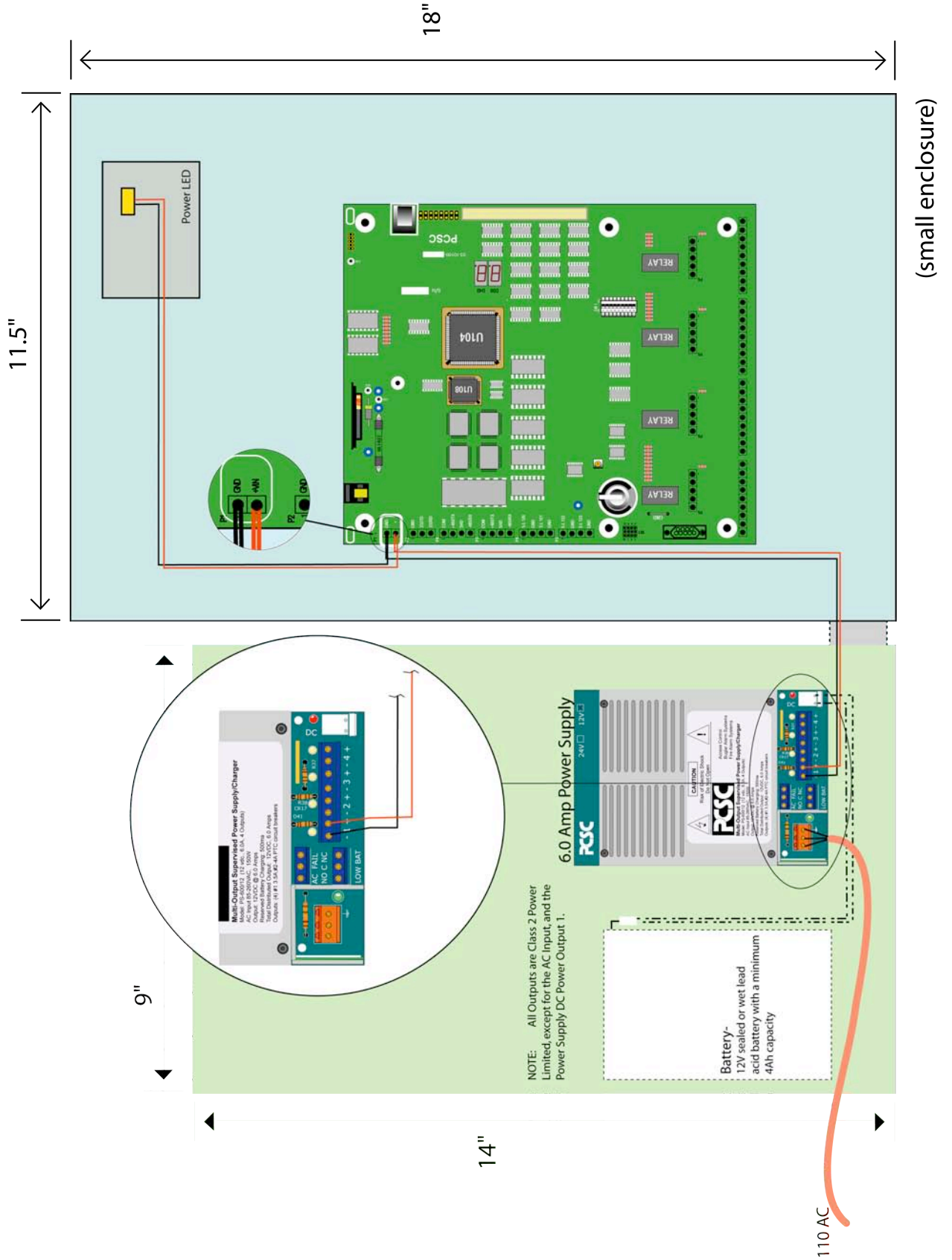
3.1.5 Resetting the IQ-400 to Default Values

In the event that the 3-volt watch battery is removed or loses its electrical charge, the IQ-400 must be reset. Follow the procedures below to restore the controller to the default values.

1. With power on, move all switches at dipswitch SW1 to the right, OFF (as printed on the circuit board).
2. Press the Reset button at S1.
3. The 10 LEDs (D39 – D48) will flash in waterfall effect and then stop. The 7-segment LEDs (D49 and D50) will show **8.8.** and then show a Hexadecimal number dependant on what version of firmware you have in the controller. The input LEDs will start a cascade and then flash when the reset process is complete, all 10 segments of the LED Array (D1) will turn OFF, and the seven segment LEDs will show a single line segment flashing in a circular pattern clockwise.
4. Refer to Section 7.3 [*Addressing Individual IQ-400s through the Dipswitch*] and begin addressing the IQ-400 by DIP switching the panel number (1-111).
5. Set the communication protocol by following the instructions on section 7.4 [*Setting MODEM or Direct Connect Configurations*].
6. The system is now set to the default values. Refer to Quick Setup Steps for page references.

4.0 Wiring Your Readers

4.1 Grounding Your Readers

PCSC has designed its products to withstand most inductive voltage spikes without effect. However, some noise found in power supplies and door strikes, in addition to static discharge, may cause the control unit to momentarily shut down, lockup, or in extreme cases, to become damaged. Unexplained lockups and intermittent system behavior are common symptoms of static or noise problems. If cycling power will remedy your problem, carefully follow these instructions:

1. Install MOVs (Metal Oxide Varistors, Siemens S10K30 or the equivalent) or reversed biased diodes (1N4004 - 1N4007) at each Door Strike. When installed, they will suppress most problem Door Strikes.

2. Readers should be properly earth-grounded for uninterrupted reads. Please be aware that operation is affected by the amount of static present during certain times of the year.

3. Properly grounding all readers and hardware, in addition to suppressing noise in the peripheral equipment, should allow for many problem free years of use with PCSC products.

4. In addition, PCSC recommends using a separate filtered, electronically regulated output, switchable power supply for door strikes.

5. Before installing the reader, please read the following instructions. *Damage may occur if this is disregarded*.

6. Installation must meet all local, state, and federal regulations and codes for electrical installation. If these codes conflict with the installation methods described in this manual, please call your service representative.

4.2 Properly Routing Your Cables

Do not route data and power cables in the same conduit. Crosstalk and transmission of electrical noise may result. The IQ-400 PCB's will become damaged if the power cable grounds to the data cable.

> **NOTE**: High Voltage and Low Voltage wiring must be routed separately and maintain a minimum spacing of 0.25 inches.

4.3 Grounding the Power and Data Lines

Each cable has a set of drain lines that can be attached on the Host or controller end of the cable to any screws mounted in the optional enclosures. If other non-metallic enclosures are used for controller housing, ensure that an alternative source for earth grounding is available.

4.3.1 Procedure

1. At the Reader side, it is important to be aware of both the static generated from the user end as well as electrical grounding from the data and power cabling. If at all possible, the reader mounting plate should be attached to a grounded junction box or to another source, if the junction box is non-metallic. This alleviates the possible damage caused by static electricity.

   > **NOTE** Leave the drain line taped back and floating at the reader site.

2. If grounding locally is not possible, connect drain wires to provided ESD (Electro Static Discharge) hardware at the Controller side (enclosure) or to earth grounded conduit. As each reader port is progressively farther away from the ESD hardware location (left rear side of the cabinet for IQ-400s), allow for enough drain line to reach the ESD hardware on the controller end of the cable. Allow enough strain relief to avoid touching other circuitry or creating excessive tension.

3. On a permanently-connected product, a terminal intended solely for the connection of an equipment grounding conductor shall be capable of securing a conductor of the size suitable for the particular application in accordance with the National Electrical Code, ANSI/NFPA 70-1993.

4. On a permanently-connected product, a wire binding screw intended for the connection of an equipment grounding conductor shall have a green colored head that is hexagonal, slotted, or both. A pressure wire connector intended for connection of such a conductor shall be plainly identified such as by being marked "G" "GR," "GROUND," or "GROUNDING," or the like, or by a marking on a wiring diagram provided on the product. The wire binding screw or pressure wire connector shall be secured to the frame or enclosure of the product and shall be located so that it is unlikely to be removed during service operations such as replacing fuses, resetting manual-reset devices, or the like.

5. If a pressure wire connector intended for grounding is located where it could be mistaken for a neutral conductor of a ground supply, it shall be identified by a marking ²EQUIPMENT GROUND² or with a green color identification, or both.

6. On a permanently-connected product, the surface of an insulated lead intended solely for the connection of an equipment grounding conductor shall be finished in a continuous green color or a continuous green color with one or more yellow stripes, and no other lead shall be so identified

Grounding the Cables- IQ-400 to Door Sense and Egress/PIR

Dimensions 40.6 cm x 14.6 cm x 54.6 cm

16"

5¾"

21½"

Door Sense

Door

Egress
or
Egress/PIR
(UL 294)

Cable shields should be connected
to the IQ-400 ESD grounding screws.

ESD grounding screws,
12 places (Large Cabinet)

Grounding the Cables- IQ-400 to Door Strike and Reader

**Junction Box (metal type recommended)
Earth-grounded**

11½ "

6"

18"

Reader

**Note: The ground shield
should be floating at
the reader end.**

Ground Back Plate

**3 twisted
pair, 22
AWG
stranded
cable w/
shield, 500
ft. max.**

Door

Door Strike

**Siemen
S10K30
MOV (Metal
Oxide
Varistor) or
equivalent**

**Reverse based diode
1N4004-1N4007 recommended**

12 VDC
Switchable
Power
Supply

Stud

(Small Cabinet)

Dimensions 29.2 cm x 15.2 cm x 45.7 cm

**Cable shields should be connected to the
Ultimate ESD grounding Stud**

ESD Grounding Stud

NOTE: The Small Enclosure that is described with Dimensions of 18"H x 6"D x 11"W has been previously Evaluated and Listed for use with UL 1076 and UL 294 Systems.

4.3.2 Proper Surge Protection for the IQ

PCSC Power Supply

Battery

12V sealed or
wet lead
acid battery
with a minimum
4Ah capacity

110 AC

NOTES

Wire type is 14 AWG Green, common chasis
ground to panel screw.

Customer-fabricated cable may extend to
4,000 feet.

AC Input : To 115 VAC/60 Hz Mains
connected to dedicated branch circuit.

Shield of wire goes to lug of panel common
chassis ground.

Protected   Unprotected

Proximity
Reader

Transient
Voltage
Surge
Protection

Sense Input

REX Push

Transient
Voltage
Surge
Protection

Unprotected   REX   Protected

Sense Input

Door Sense

Transient
Voltage
Surge
Protection

Unprotected   Door
Sense   Protected

DB-9 Connector Configuration

Unprotected   Protected   Protected   Unprotected

Yellow TX

2
1
3
9

Transient
Voltage
Surge
Protecton

Transient
Voltage
Surge
Protecton

1 GND
2 TX
3 GND
4 RX

RS-485 Com Port of
computer, 9-pin
female connector

At PC End   Blue RX   At IQ End   P2

IQ Series to PC/RS-485 w/ DB9 w/ Surge Protection

DB-25 Connector Configuration

Unprotected   Protected   Protected   Unprotected

Yellow TX

2
3
4
5
14
16

Transient
Voltage
Surge
Protecton

Transient
Voltage
Surge
Protecton

1 GND
2 TX
3 GND
4 RX

25-pin female
connector

At PC End   Blue RX   At IQ End   P2

IQ Series to PC/RS-485 w/ DB25 w/ Surge Protection

Grounding strip is
located in the rear
of the enclosure.

4.4 Grounding the Pin Pad or Reader

4.4.1 Procedure

1. Orient the mounting plate so that the protruding ears are on top and facing the back of the reader or PIN Pad. Attach the mounting plate to the junction box using two #6-32 x 3/8" flat head screws. The mounting plate should be earth ground either to a ground junction box or directly to an earth ground source (especially if the junction box is not metal).

2. Connect the cable to the rear of the reader at J1. Secure the shield drain lines to one of the grounding screws in the IQ-400 enclosure.

3. Place mounting holes on the back of the reader over the latches on the mounting plate, and then position the unit so that the cover is flush with the mounting plate.

4. Secure the unit to the mounting plate by inserting the special security fastener through the hole in the bottom of the reader. Tighten it using the security driver.

4.4.2 Grounding the Reader Mullion Mount

The reader may be attached to a glass or door mullion separator (either vertically or horizontally) by using the Mullion Bracket Adapter Kits (04-10170-001 for horizontal mounting, or 04-10171-001 for vertical mounting).

4.4.2.1 Procedure

1. At the IQ-400 end, secure the drain lines to one of the ESD grounding screws in the IQ-400 box. At the reader end, leave the drain line floating. The mullion adapter should be earth ground either to a grounded junction box or directly to an earth ground source (especially if the junction box is not metal).

2. Mount the reader to the J-box or mullion bracket.

5.0 Reader Connections

5.0.1. Reader Disconnect Resistors

If an external power supply and a reader disconnect feature is required, place a 470 Ohm – 1 Watt resistor (not supplied) at the reader.

> NOTE: For use in the following diagrams, resistors are shown connected to the boards. However, for best operation, resistors should be placed at the reader.

5.1 Reader Connections: BR-350 Readers: IQ-400 Board
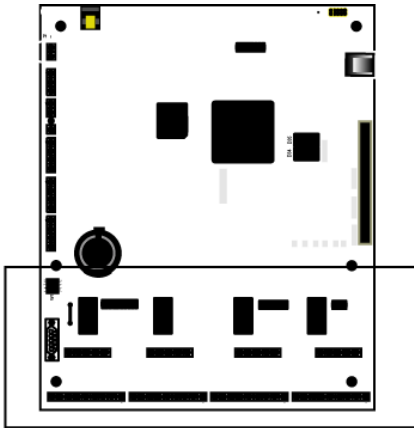
The IQ-400 supports Readers A, B, C and D.

**BR-350/450 with
a BP-250 Pin Pad
(+12 Volt, 4 wire setting)**
22AWG 2-pair, twisted, shielded
Cable, 2,000 ft. Max.
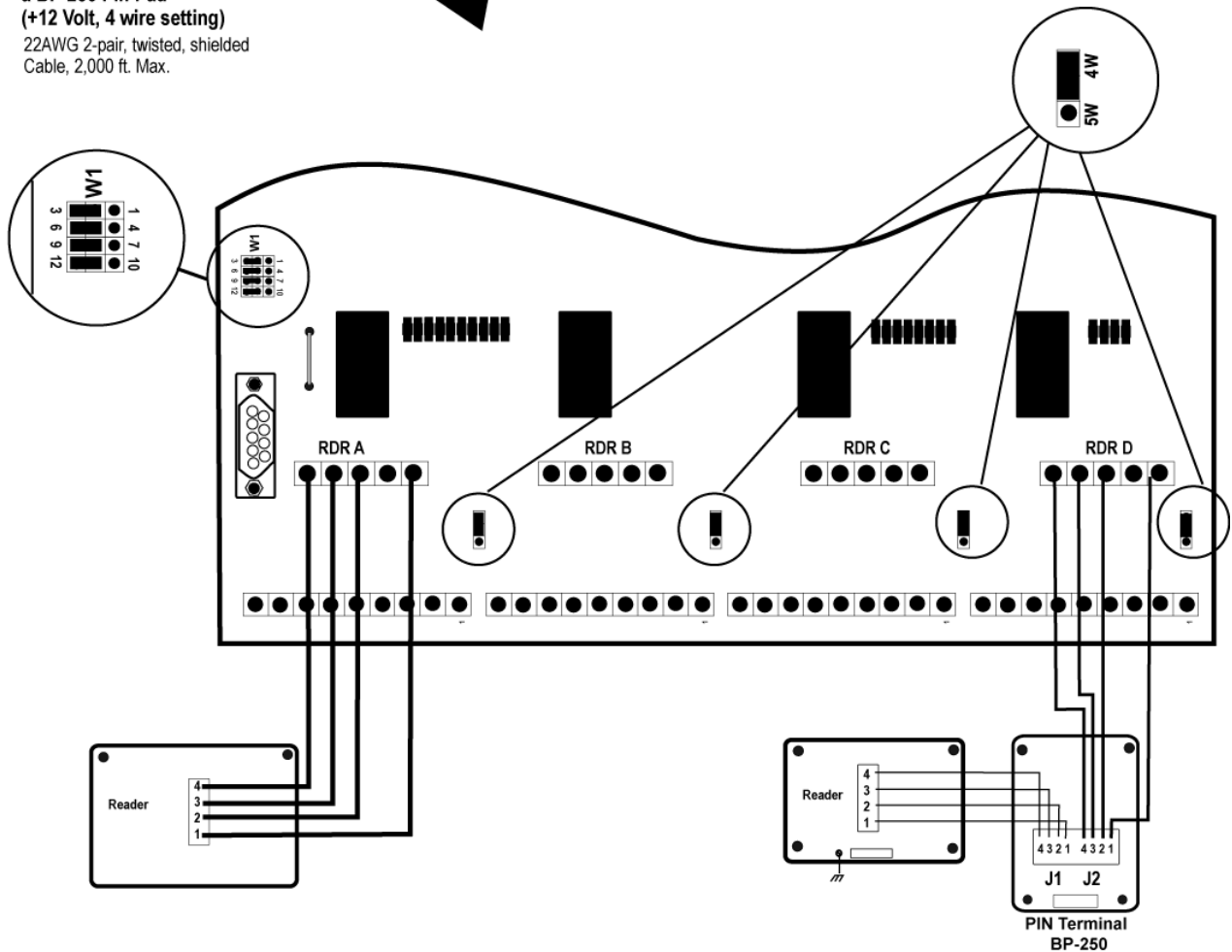
5.2 Reader Connections: BR-350 Readers: Expansion Board
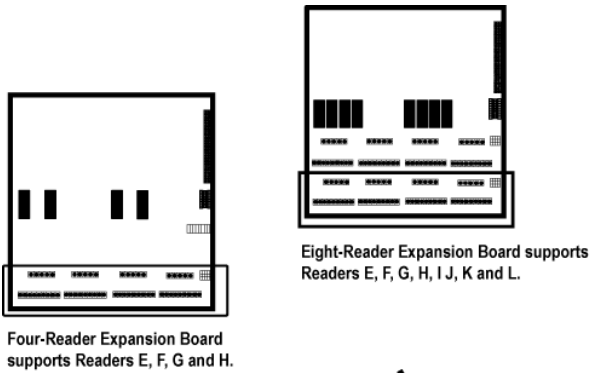
Eight-Reader Expansion Board supports
Readers E, F, G, H, I J, K and L.

Four-Reader Expansion Board
supports Readers E, F, G and H.

**BR-350 with
a BP-250 Pin Pad
(+12 Volt, 4-wire setting)**
22AWG 2-pair, twisted,
shielded Cable, 2,000 ft. Max.

D68 W13
1
2
3

W5
1 2 3 4
1
2
3

W12 RDR-E/I P10
W11 RDR-F/J P16
W14 RDR-G/K P12
W-13 RDR-H/L P14
W5

9 8 7 6 5 4 3 2 1   1 2 3 4 5 6 7 8 9   9 8 7 6 5 4 3 2 1   1 2 3 4 5 6 7 8 9

Reader
4
3
2
1

Reader
4
3
2
1

4 3 2 1   4 3 2 1
J1   J2

**PIN Terminal
BP-250**
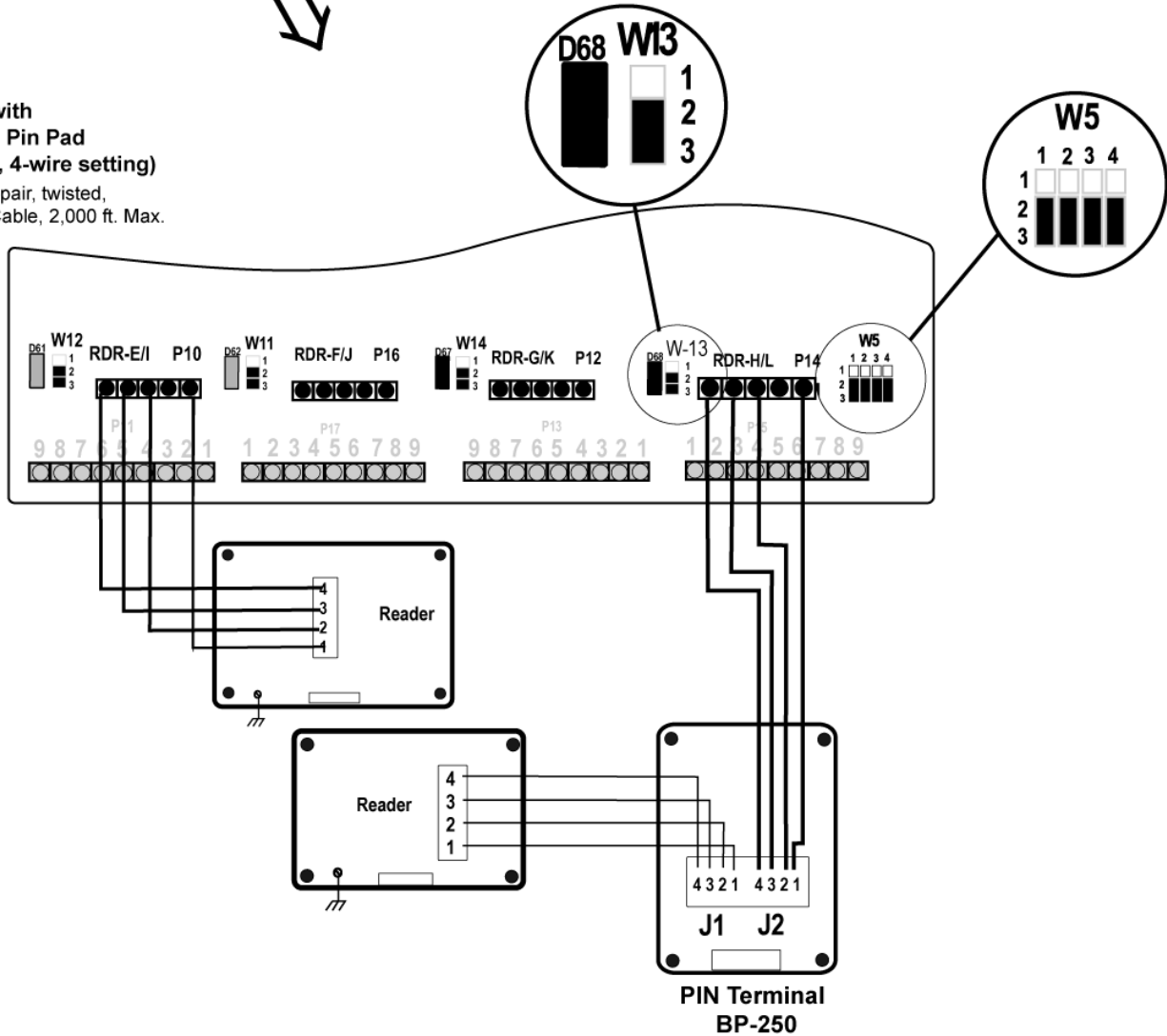
5.3 Reader Connections: BR-370 Readers: IQ-400 Board

The IQ-400 supports Readers A, B, C and D.

RDR A RDR B RDR C RDR D

**BR-370 with
a BP-270 Pin Pad
(+5 Volt, 5-wire setting)**
22AWG 3-pair, twisted,
shielded Cable, 500 ft. Max.

J1
Reader

J1
Reader

J1   J2

**PIN Terminal
BP-270**
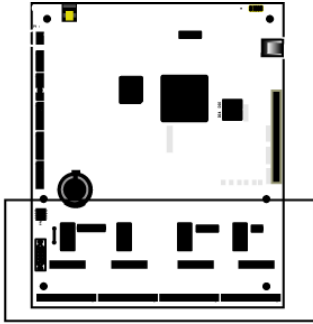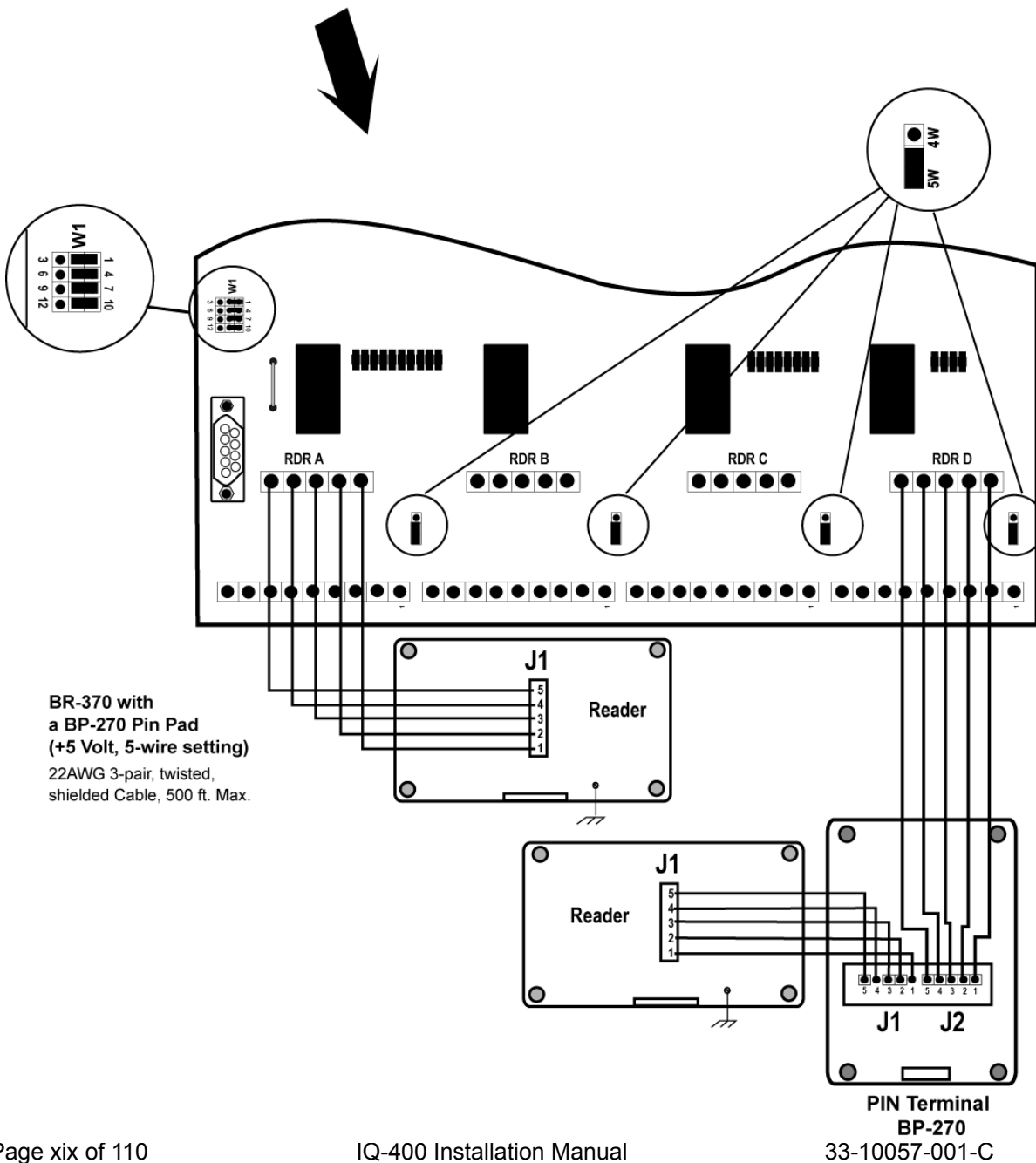
5.4 Reader Connections: BR-370 Readers: Expansion Board

Eight-Reader Expansion Board supports Readers E, F, G, H, I J, K and L.

Four-Reader Expansion Board supports Readers E, F, G and H.

BR-370 with
a BP-270 Pin Pad
(+5 Volt, 5-wire setting)

22AWG 3-pair, twisted,
shielded Cable, 500 ft. Max.

Reader

Reader

PIN Terminal
BP-270
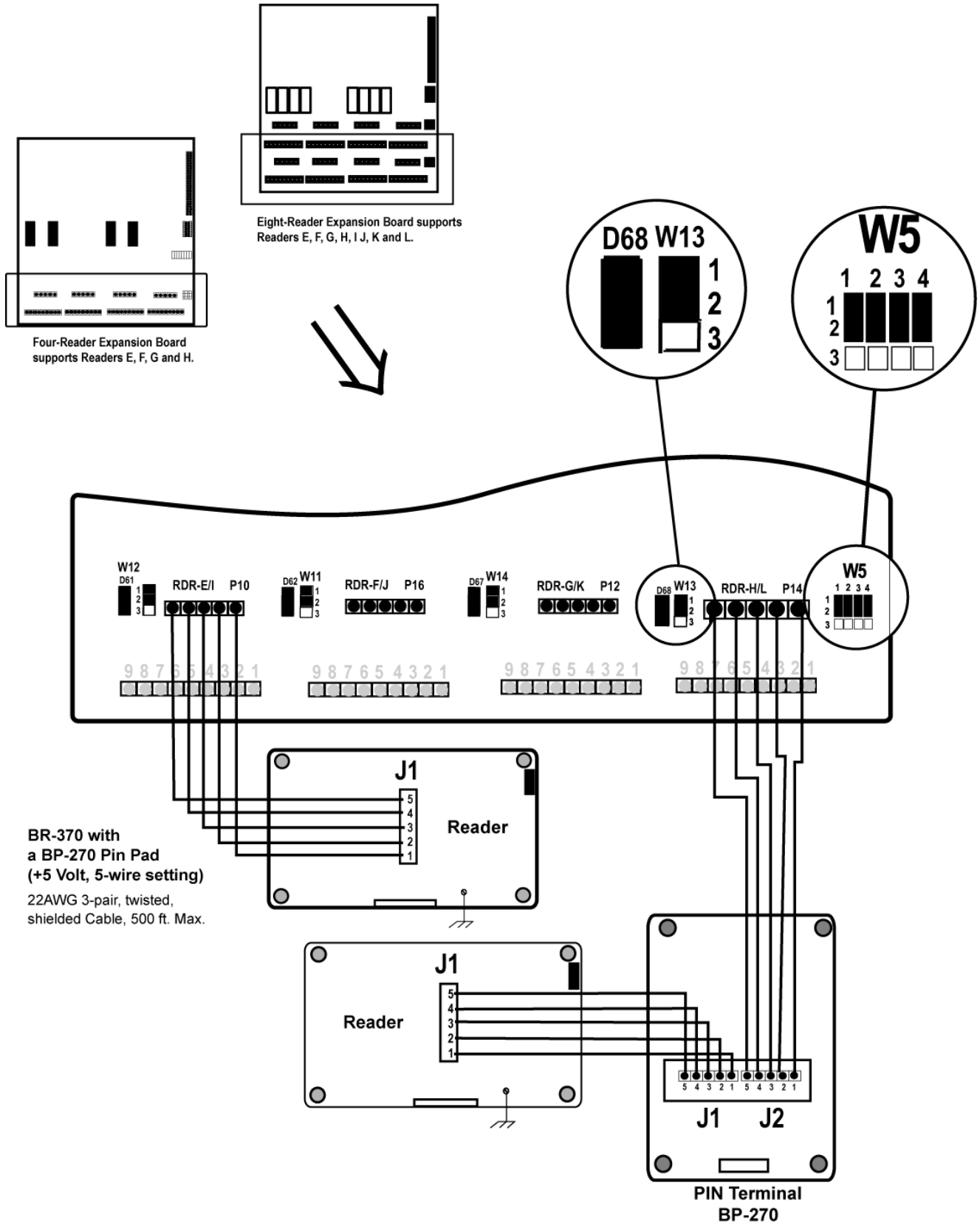
5.5 Reader Connections: PR233 MiniProx / PR-733/732: IQ-400 Board - Option 1
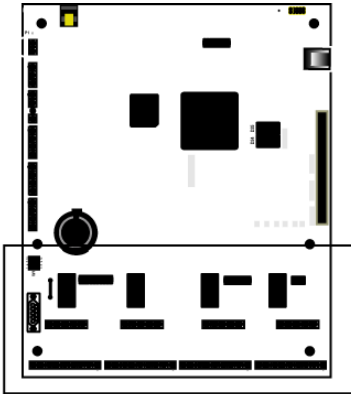
IQ-400 supports readers A, B, C, and D.

Option 1 - +12VDC Operation

The reader is powered by the +12VDC power supply. If a pin pad is used, it is powered by the IQ-400 module, which is set for +5VDC.

**Proximity Reader (+12 Volt setting)
with a PIN Terminal (+5 Volt setting)**
22 AWG 3-pair, twisted,
Shielded cable, 500 ft. max.

RDR A   RDR B   RDR C   RDR D

Proximity Reader

Proximity Reader

PIN Terminal 270

J1   J2

Orange- LED
Black- Gnd
Green- Data0
White- Data1
Red- +12VDC

Orange
Black
Green
White
Red

Power Supply

White- Data1
Green- Data0
Black- Gnd
Orange- LED
Red- +12VDC

Connects to the +12VDC Terminal of the power supply that operates the IQ-400 controller.
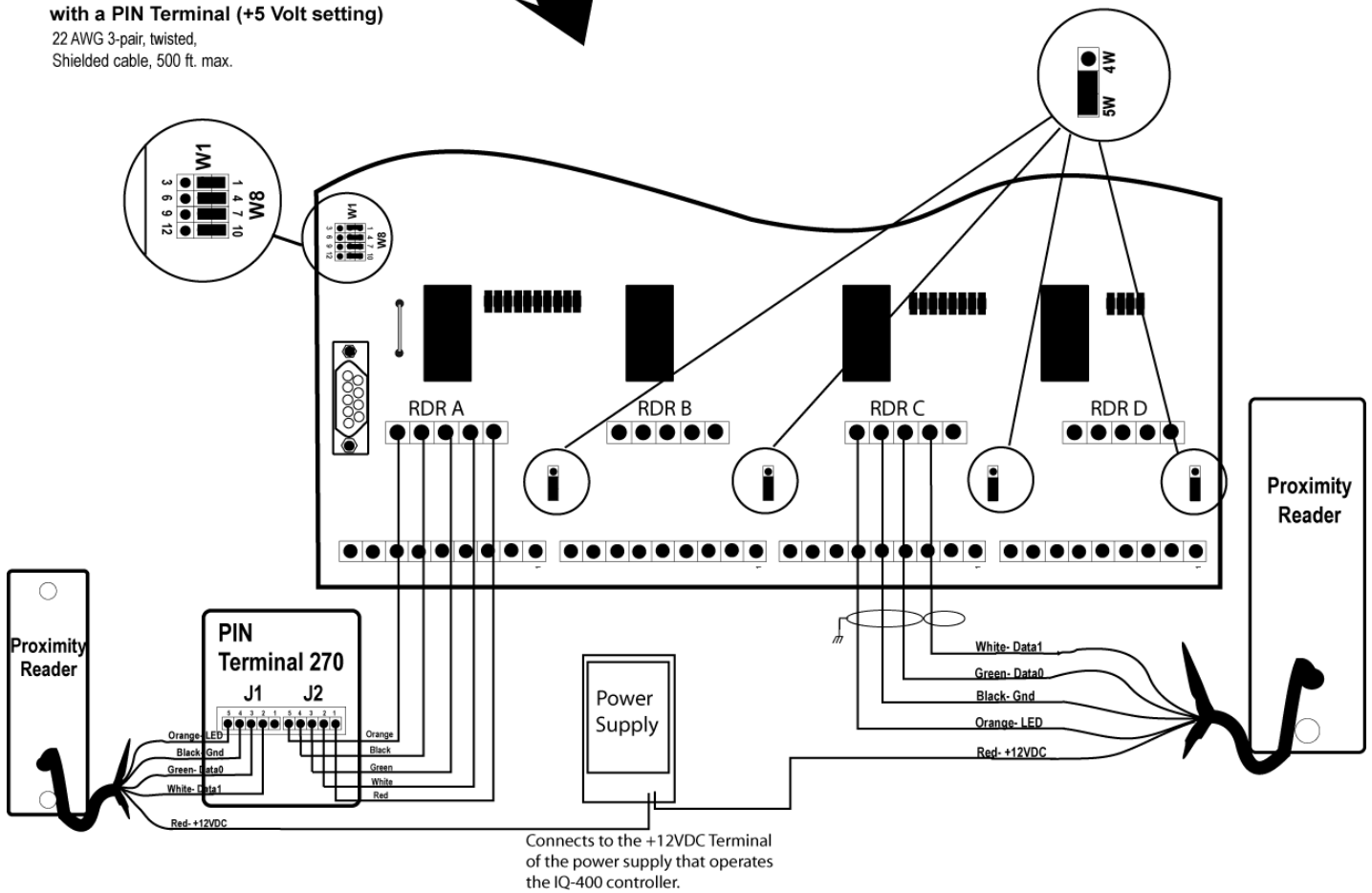
5.5 Reader Connections: PR233 MiniProx / PR-733/732: IQ-400 Board - Option 2
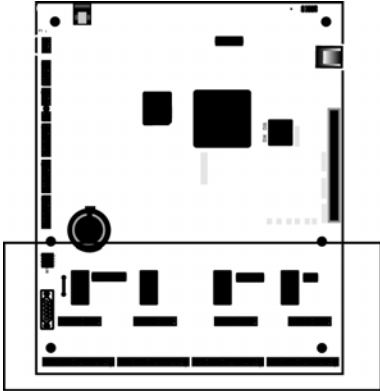
Option 2 - +5VDC Operation
The reader and the pin pad (if it is used), is powered by the IQ-400 module, which is set for +5VDC.

Proximity Reader with a PIN Terminal (+5 Volt, 5-wire setting)

22 AWG 3-pair, twisted, Shielded cable, 500 ft. max.

Proximity Reader

PIN Terminal BP-270

J1   J2

Orange- LED
Black- Gnd
Green- Data0
White- Data1
Red- +5VDC

Orange
Black
Green
White
Red

RDR A   RDR B   RDR C   RDR D

White- Data1
Green- Data0
Black- Gnd
Orange- LED
Red- +5VDC

Proximity Reader

Proximity Reader

4W
5W

5.6 Reader Connections: PR-233 Miniprox/ PR733/ 732: Expansion Board – Option 1
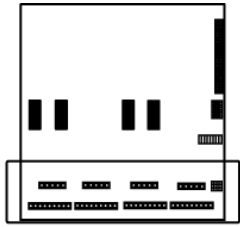
Four-Reader Expansion Board supports Readers E, F, G and H.
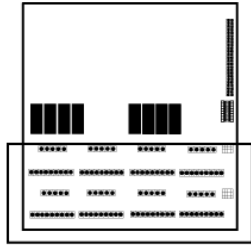
Eight-Reader Expansion Board supports Readers E, F, G, H, I J, K and L.

Option 1 - +12VDC Operation

The reader is powered by the +12VDC power supply. If a pin pad is used, it is powered by the IQ-400 module, which is set for +5VDC.

Proximity Reader (+12 Volt setting) with a PIN Terminal (+5 Volt setting)

22 AWG 3-pair, twisted, Shielded cable, 500 ft. max.

W5

22 AWG 3-pair, twisted, Shielded cable, 500 ft. max.

Proximity Reader

Red- +12VDC
Black- Gnd
Green- Data0
White- Data1
Orange- LED

Proximity Reader

PIN Terminal BP-270

J1   J2

Orange- LED
Black- Gnd
Green- Data0
White- Data1
Red- +12VDC

LED
Gnd
Data0
Data1
+5 VDC

Power Supply

Connects to the +12VDC Terminal of the power supply that operates the IQ-400 controller.
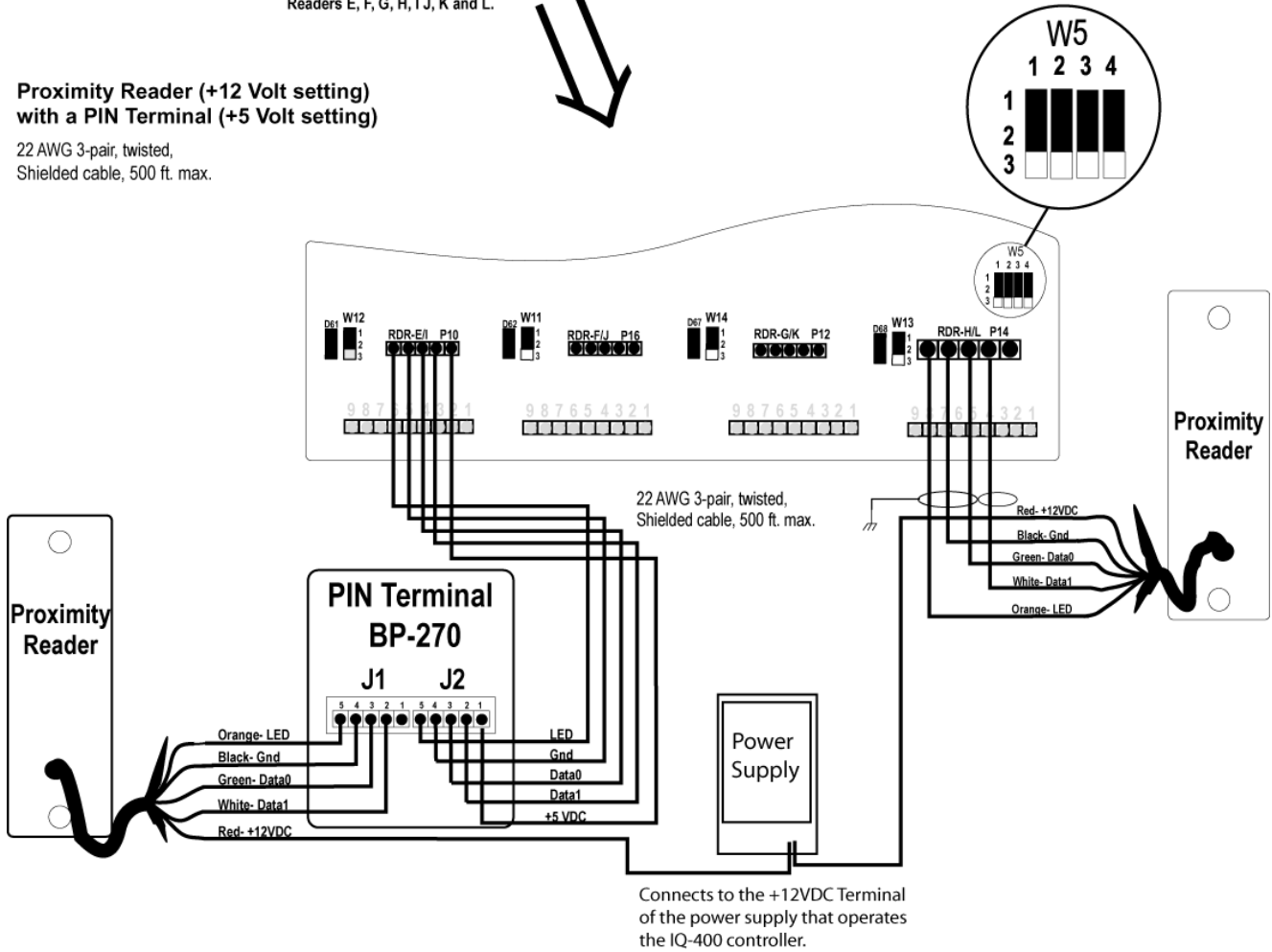
5.6 Reader Connections: PR-233 Miniprox / PR733 / 732: Expansion Board – Option 2

Four-Reader Expansion Board supports Readers E, F, G and H.
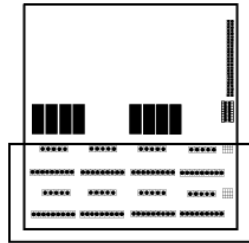
Eight-Reader Expansion Board supports Readers E, F, G, H, I J, K and L.

Option 2 - +5VDC Operation

The reader and the pin pad (if it is used), is powered by the Expansion module, which is set for +5VDC.

W5
1 2 3 4

Proximity Reader (+5 Volt Setting)
with a PIN Terminal (+5 Volt Setting)
22 AWG 3-pair, twisted,
Shielded cable, 500 ft. max.

RDR-E/I P10
RDR-F/J P16
RDR-G/K P12
RDR-H/L P14

Proximity Reader

Proximity Reader

Red- +5VDC
Black- Gnd
Green- Data0
White- Data1
Orange- LED

PIN Terminal BP-270
J1   J2

Orange- LED
Black- Gnd
Green- Data0
White- Data1
Red- +5VDC

LED
Gnd
Data0
Data1
+5 Volt
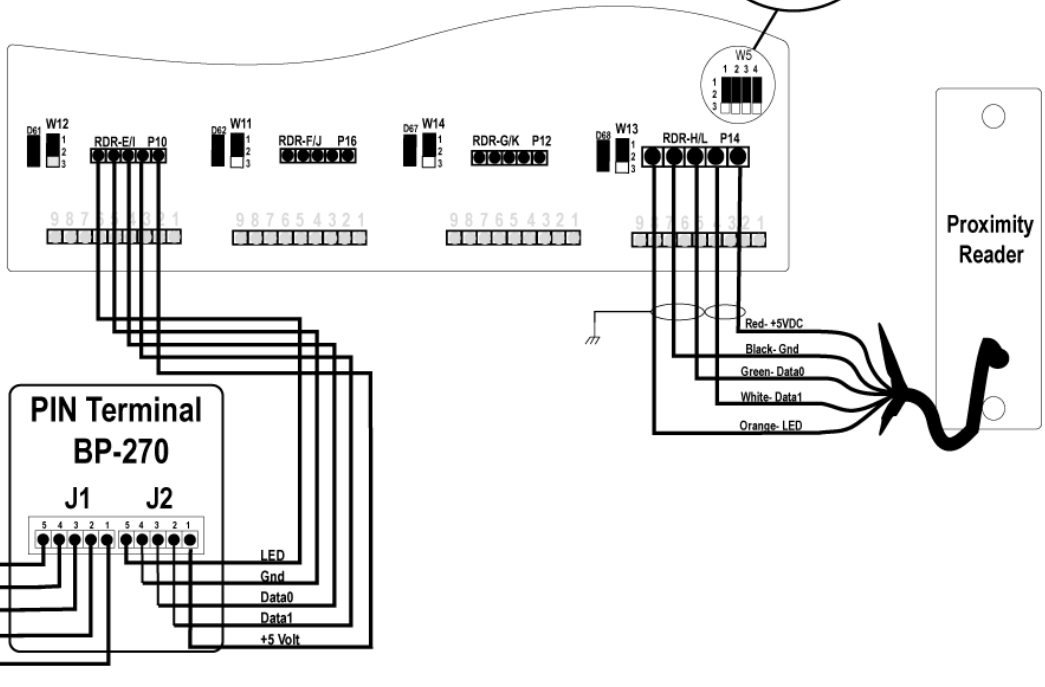
5.7 Reader Connections: PR-234 / PRK-234 ProxPro / PR736 / PRK-736: IQ-400 Board

IQ-400 supports readers A, B, C, and D.

**Proximity Reader (+12 Volt setting)
with a PIN Terminal (+5 Volt setting)**
22AWG 3-pair, twisted,
shielded Cable, 500 ft. Max.

W1

+5 Volt
5-Wire Setting

5W 4W

RDR A   RDR B   RDR C   RDR D

Option

If a Pin Pad is not being used, the proximity reader can connect to the +12VDC pin normally used for the open collector.

Power
Supply

+12VDC
Ground
DAT1
DAT0
RDR RTN
Grn-LED
Red-LED
Beeper
Hold
Tamper Common
Tamper Select

PRK-234
ProxPro
Reader

Connects to the +12VDC Terminal of the power supply that operates the IQ-400 controller.

+12VDC
Ground
DAT1
DAT0
RDR RTN
Grn-LED
Red-LED
Beeper
Hold
Tamper Common
Tamper Select

PR-234
ProxPro
Reader

**PIN Terminal
BP-270**

J1   J2

5.8 Reader Connections: PR-234 / PRK-234 ProxPro / PR736/ PRK-736: Expansion Board
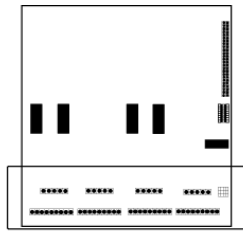
Four-Reader Expansion Board supports Readers E, F, G and H.

Eight-Reader Expansion Board supports Readers E, F, G, H, I J, K and L.

W5

1 2 3 4

1
2
3
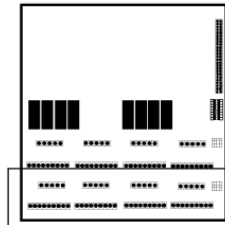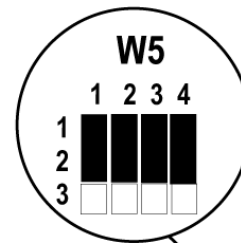
+5 Volt
5-Wire Setting

Proximity Reader (+12 Volt setting) with a PIN Terminal (+5 Volt setting)
22AWG 3-pair, twisted, shielded Cable, 500 ft. Max.

RDR-E/I   P10   D62 W12   RDR0-F/J   P16   W12   RDR-G/K   P12   D68 W12   RDR-H/L   P14   W5

1
2
3

D67

1
2
3

1
2
3

1 2 3 4

1
2
3

9 8 7 6 5 4 3 2 1   9 8 7 6 5 4 3 2 1   9 8 7 6 5 4 3 2 1   9 8 7 6 5 4 3 2 1

Option

If a Pin Pad is not being used, the proximity reader can connect to the +12VDC pin normally used for the open collector.

+12VDC
Ground
DAT1
DAT0
RDR RTN
Grn-LED
Red-LED
Beeper
Hold
Tamper Common
Tamper Select

PRK-234 ProxPro Reader

Power Supply

Connects to the +12VDC Terminal of the power supply that operates the IQ-400 controller.

+12VDC
Ground
DAT1
DAT0
RDR RTN
Grn-LED
Red-LED
Beeper
Hold
Tamper Common
Tamper Select

PR-234 ProxPro Reader

PIN Terminal BP-270

J1   J2

5 4 3 2 1   5 4 3 2 1

5.9 Reader Connections: PR-235 MaxiProx / PR-735: IQ-400 Board

IQ-400 supports readers A, B, C, and D.

Proximity Reader (+12 Volt setting)
with a PIN Terminal (+5 Volt setting)
22AWG 3-pair, twisted, shielded
Cable, 500 ft. Max.

+5 Volt
5-Wire Setting

470 Ohm, 1 Watt
Resistor

(Install at reader to
maintain supervision)

RDR A   RDR B   RDR C   RDR D

External Linear
Power Supply
12 or 24 VDC

Reader
12 Tamper Select
11 Tamper Common
10 Hold
9 Beeper
8 Red-LED
7 Grn-LED
6 Shield Ground
5 DAT1
4 DAT0
3 Ground
2 +DC
1 Buzzer

Orange - LED
White - Data1
Green - Data0
Black - GND
Red - Power

External Linear
Power Supply
12 or 24 VDC

Reader
12 Tamper Select
11 Tamper Common
10 Hold
9 Beeper
8 Red-LED
7 Grn-LED
6 Shield Ground
5 DAT1
4 DAT0
3 Ground
2 +DC
1 Buzzer

Black - GND
Red - Power

PIN Terminal
BP-270

J1   J2

Green - Data0
White - Data1
Black - GND
Orange - LED

5.10 Reader Connections: PR-235 MaxiProx / PR735: Expansion Board

Eight-Reader Expansion Board supports
Readers E, F, G, H, I J, K and L.

Four-Reader Expansion Board
supports Readers E, F, G and H.

W5
1 2 3 4

+5 Volt,
5-wire setting

W12
D68

**Proximity Reader (+12 Volt setting)
with a PIN Terminal (+5 Volt setting)**
22AWG 3-pair, twisted, shielded
Cable, 500 ft. Max.

W12 — D61 — RDR-E/I — P10

W12 — D62 — RDR-F/J — P16

P17

W12 — D67 — RDR-G/K — P12

W12 — D68 — RDR-H/L — P14

W5

P15

9 8 7 6 5 4 3 2 1

9 8 7 6 5 4 3 2 1

9 8 7 6 5 4 3 2 1

9 8 7 6 5 4 3 2 1

**PIN Terminal
BP-270**

J1   **J2**

5 4 3 2 1   5 4 3 2 1

470 Ohm, 1 Watt
Resistor

(Install at reader to
maintain supervision)

Orange - LED
White - Data1
Green - Data0
Black - GND
Red- Power

**MaxiProx
Reader**

12 Tamper Select
11 Tamper Common
10 Hold
9 Beeper
8 Red-LED
7 Grn-LED
6 Shield Ground
5 DAT1
4 DAT0
3 Ground
2 +DC
1 Buzzer

**External Linear
Power Supply
12 or 24 VDC**

Orange - LED
Black - GND
White - Data1
Green - Data0
Black - GND
Red- Power

**MaxiProx
Reader**

12 Tamper Select
11 Tamper Common
10 Hold
9 Beeper
8 Red-LED
7 Grn-LED
6 Shield Ground
5 DAT1
4 DAT0
3 Ground
2 +DC
1 Buzzer

**External Linear
Power Supply
12 or 24 VDC**

5.11 Reader Connections: Sensor Wiegand: IQ-400 Board

IQ-400 supports readers A, B, C, and D.

W1

+5 Volt,
5-wire Setting

RDR A   RDR B   RDR C   RDR D
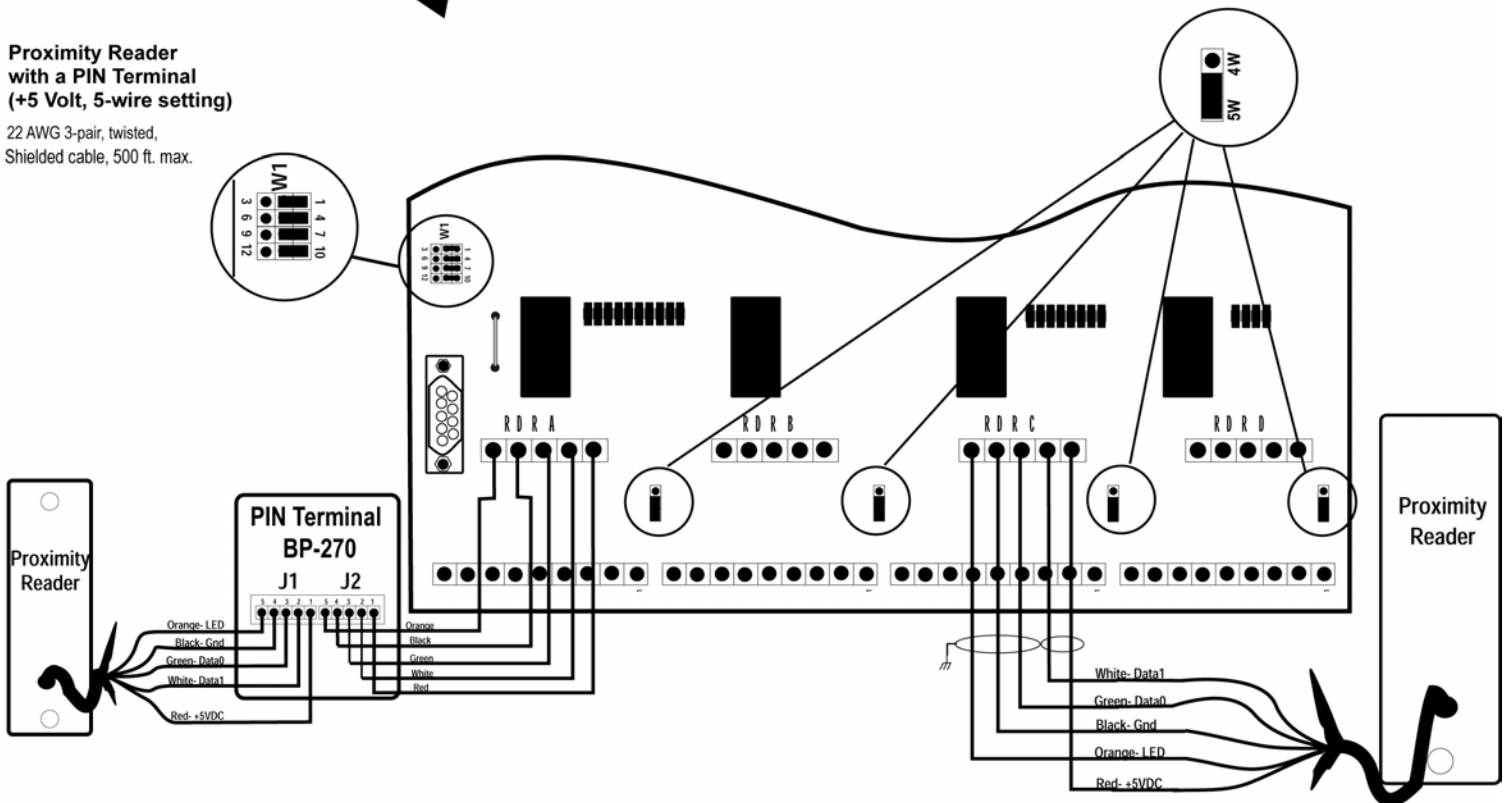
5
4
3
2
1

Sensor
Wiegand
Reader

**Sensor Weigand Reader (+5 Volt setting)
with a BP-270 PIN Terminal (+5 Volt setting)**
22AWG 3-pair, twisted, shielded
Cable, 500 ft. Max.

Sensor
Wiegand
Reader

5
4
3
2
1

5 4 3 2 1   5 4 3 2 1
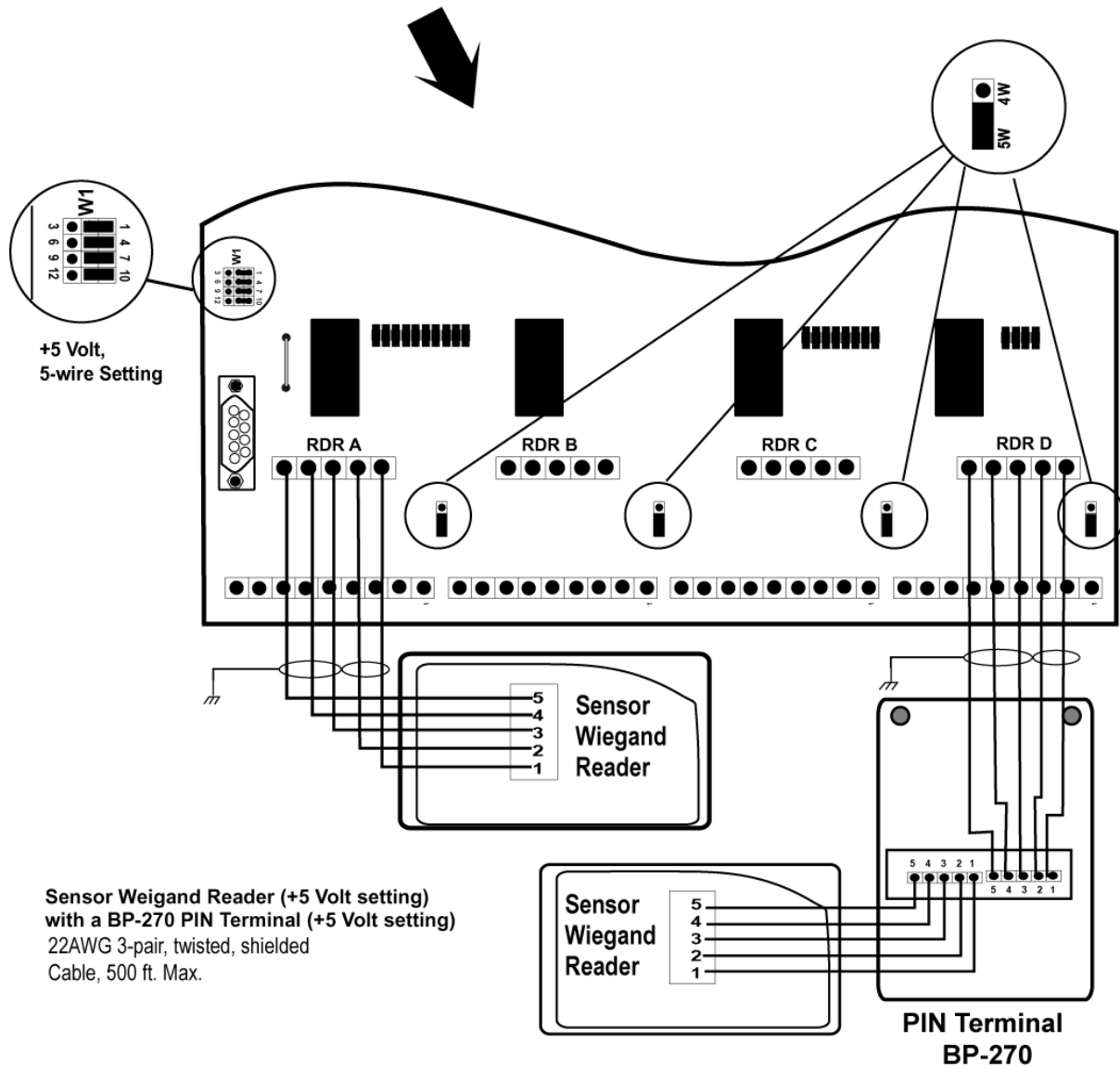
**PIN Terminal
BP-270**

5.12 Reader Connections: Sensor Wiegand: Expansion Board

Four-Reader Expansion Board supports Readers E, F, G and H.

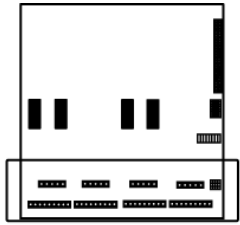Eight-Reader Expansion Board supports Readers E, F, G, H, I J, K and L.

W13

D68

1
2
3

(+5 Volt, 5-wire setting)

Sensor Weigand Reader (+5 Volt setting) with a BP-270 PIN Terminal (+5 Volt setting)
22AWG 3-pair, twisted, shielded cable, 500 ft. Max.

W12
1
2
3
RDR-E/I P10

W11
1
2
3
RDR-F/J P16

D67 W14
1
2
3
RDR-G/K P12

D68 W13
1
2
3
RDR-H/L P14

W5
1 2 3 4
1
2
3

9 8 7 6 5 4 3 2 1

9 8 7 6 5 4 3 2 1

9 8 7 6 5 4 3 2 1

9 8 7 6 5 4 3 2 1
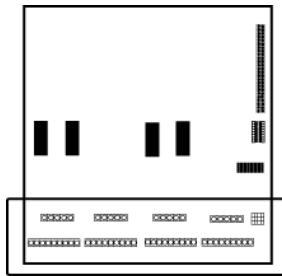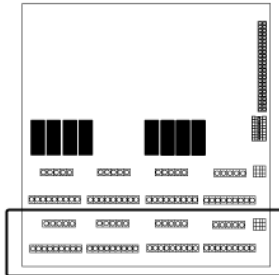
Sensor Wiegand Reader
5
4
3
2
1

Sensor Wiegand Reader
5
4
3
2
1

PIN Terminal 270
5 4 3 2 1 5 4 3 2 1
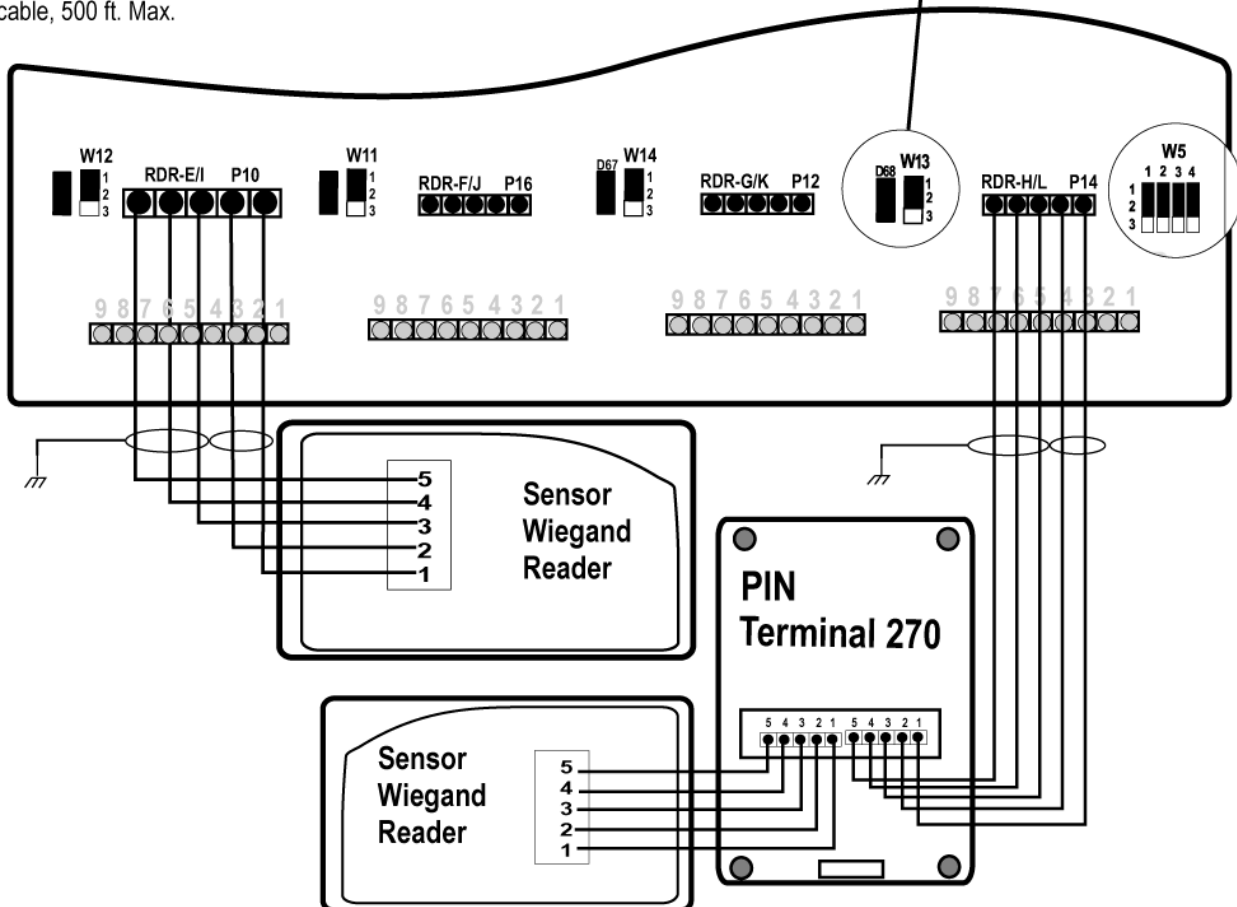
5.13 Reader Connections: VeriProx: IQ-400 Board
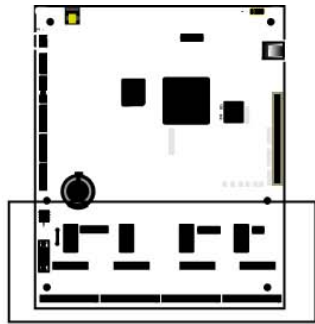
IQ-400 supports readers A, B, C, and D.

**Veriprox Reader
(+12 Volt, 5-wire setting)**
22 AWG 3-pair, twisted,
Shielded cable, 500 ft. Max.

470 Ohm
1 Watt
Resistor
(Not Supplied)

(Install at reader to
maintain supervision)

RDR A   RDR B   RDR C   RDR D

White - Data 1
Green - Data 0

Power Supply

Black - GND
Red - Power

This power supply also powers
the IQ-400 PCB

Wire color reflects the pin
assignments of the pigtail supplied
with the Veriprox Reader. The
DB15 HD female connector plugs
into the rear of the reader.
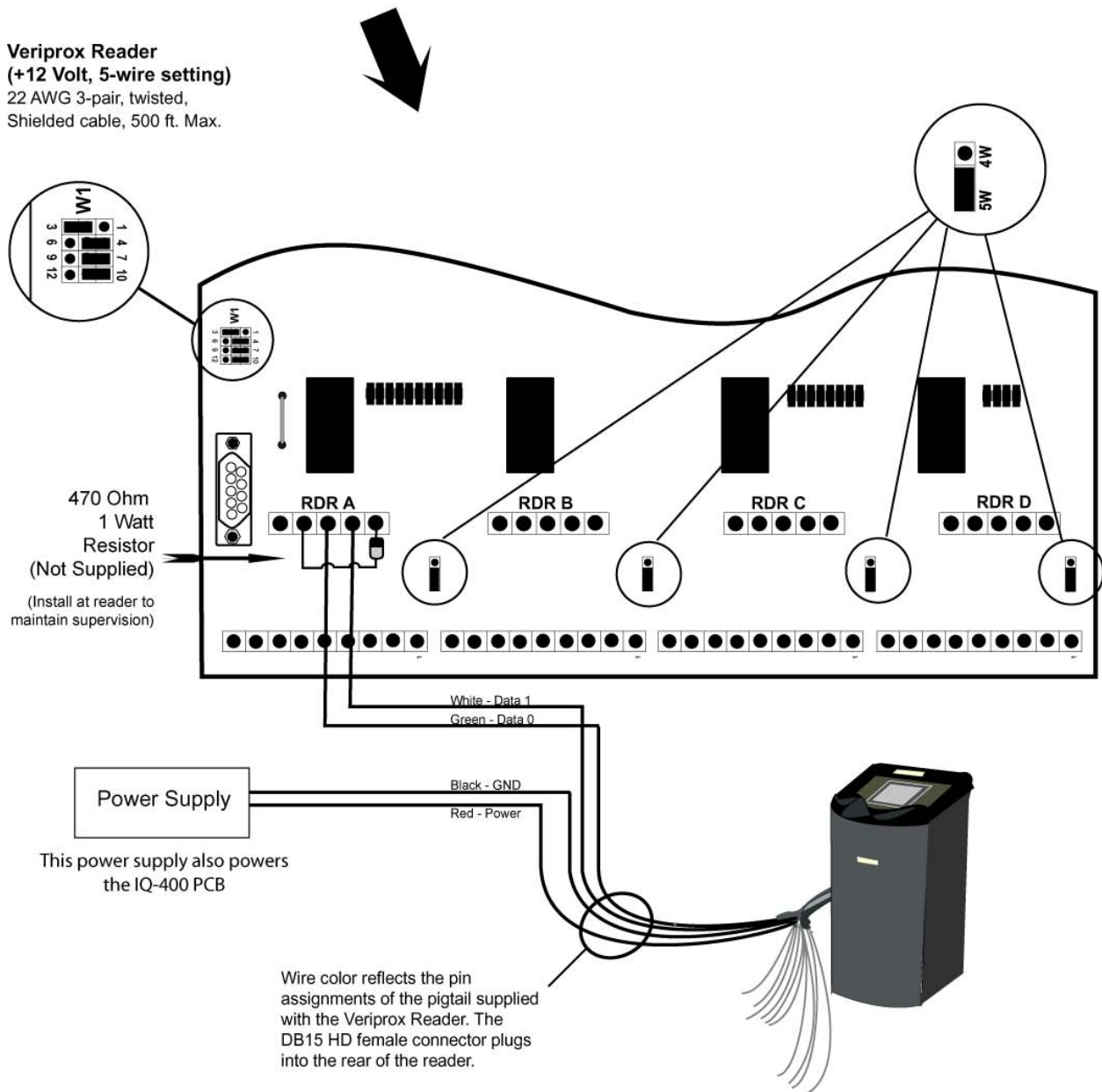
5.14 Reader Connections: VeriProx: Expansion Board
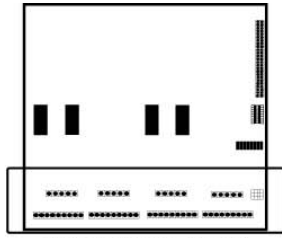
Four-Reader Expansion Board supports Readers E, F, G and H.

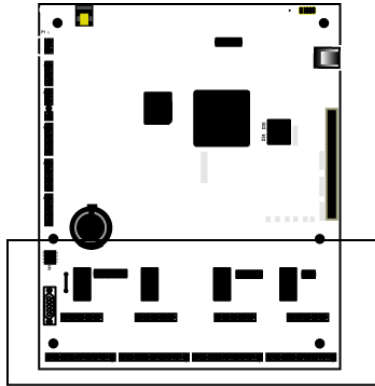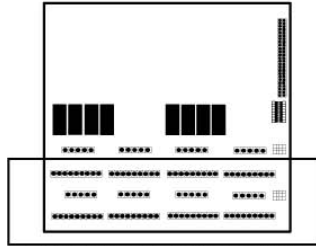Eight-Reader Expansion Board supports Readers E, F, G, H, I J, K and L.

Veriprox Reader
(+12 Volt, 5-wire setting)
22 AWG 3-pair, twisted,
Shielded cable, 500 ft. max.

W5
1 2 3 4

D61 W12
1
2
3

470 Ohm
1 Watt
Resistor
(Not Supplied)

(Install at reader to
maintain supervision)

D61 W12   RDR-E/I   P10   D62 W11   RDR-F/J   P16   D67 W14   RDR-G/K   P12   D68 W13   RDR-H/L   P14   W5

9 8 7 6 5 4 3 2 1   9 8 7 6 5 4 3 2 1   9 8 7 6 5 4 3 2 1   9 8 7 6 5 4 3 2 1

White - Data 1
Green - Data 0

Power Supply

Black - GND
Red - Power

This power supply also powers
the IQ-400 PCB

Wire color reflects the pin
assignments of the pigtail supplied
with the Veriprox Reader. The
DB15 HD female connector plugs
into the rear of the reader.

6.0 Wiring the Door(s)

Step 1. When power is interrupted from the IQ-400, the door relay **de-energizes** and continuity (conduction path) <u>exists</u> between the Common (Com.) and Normally Closed (N.C.) relay contacts. Should this loss-of-power situation arise, it must be determined whether the door(s) controlled by the IQ-400 will become unlocked (or a Fail-Safe environment), or locked (or a Fail-Secure environment).

Step 2. Refer to the two types of door hardware below and the circuit conditions that coincide with the state of the locks.

Case A. Door Strike hardware requires continuity to <u>unlock</u> (for strikes that require power to lock, follow the outline given for maglocks). This is provided by a closed circuit condition (Normally Closed [N.C.]).

Case B. Door Strike hardware does NOT require continuity to <u>lock</u> (for strikes that require power to lock, follow the outline given for maglocks). This is provided by an open circuit condition (Normally Open [N.O.]).

Case C. Magnetic lock hardware requires continuity to <u>lock</u>. This is provided by a closed circuit condition (Normally Closed [N.C.]).

Case D. Magnetic lock hardware does NOT require continuity to <u>unlock</u>. This is provided by an open circuit condition (Normally Open [N.O.]).

Step 3. For **Fail-Safe** operation, wire the appropriate door lock hardware to accommodate an **unlocked** condition upon interruption of IQ-400 power. This is implemented by:

- For door strikes, wire between the Common and Normally <u>Closed</u> Door Relay contacts.
- For Magnetic Locks, wire between the Common and Normally <u>Open</u> Door Relay contacts.

For **Fail-Secure** operation, wire the appropriate door lock hardware to accommodate a **locked** condition upon interruption of IQ-400 power. This is implemented by:

- For door strikes, wire between the Common and Normally <u>Open</u> Door Relay contacts.
- For Magnetic Locks, wire between the Common and Normally <u>Closed</u> Door Relay contacts.

NOTE For both conditions (Fail Safe and Fail Secure) it is presumed that Lock Power is battery backed.

Step 4. Next page

Step 4.   Program the quiescent (INACTIVE) state of the door output relay to provide a locked door state. For **Fail-Safe** environments, the quiescent state of the door output relay should be ENERGIZED. For **Fail-Secure** environments, it should be DE-ENERGIZED.

Consult the **LiNC-NET Administrator Manual's Door Overview/Hardware** section for programming information.

Open Collector Output: Open collector outputs are designed to drive an external relay. This technique can be used to control devices which exceed the relay capacity of those on board the IQ-400. The open collector outputs are capable of 100 mA current @ 12VDC.

6.1 Panel in a Fail-Safe Environment

Example of the IQ-400 with a Doorstrike in a Fail-Safe Environment
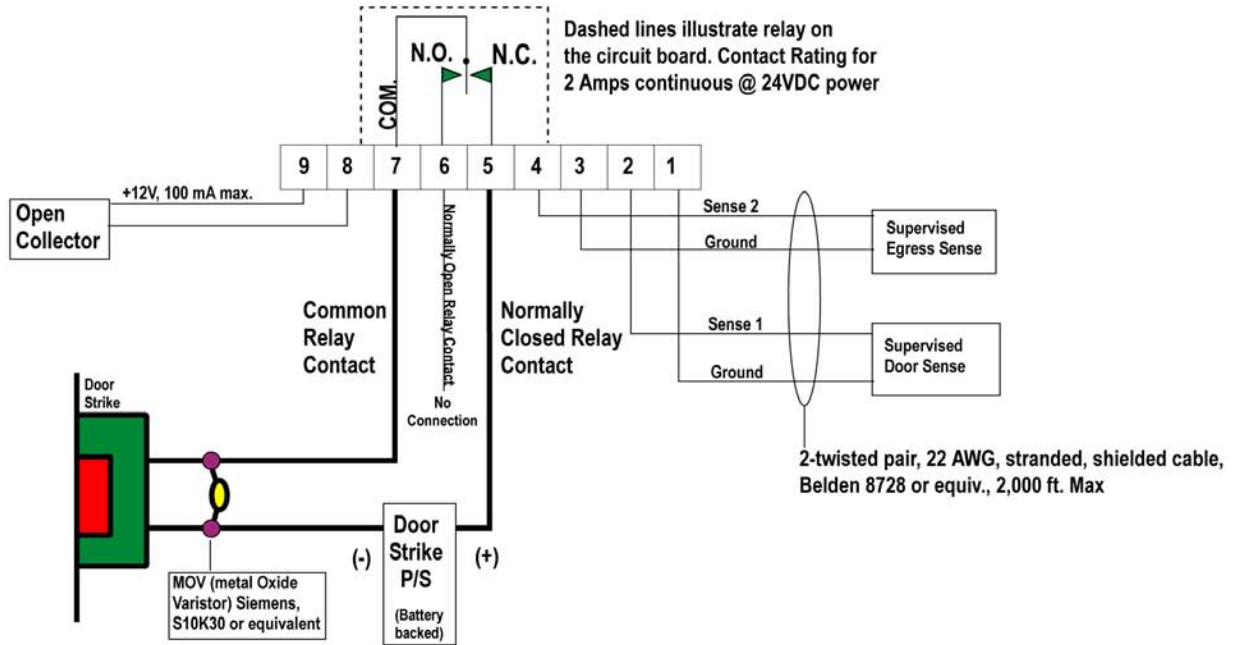
Example of the IQ-400 with a Maglock in a Fail-Safe Environment
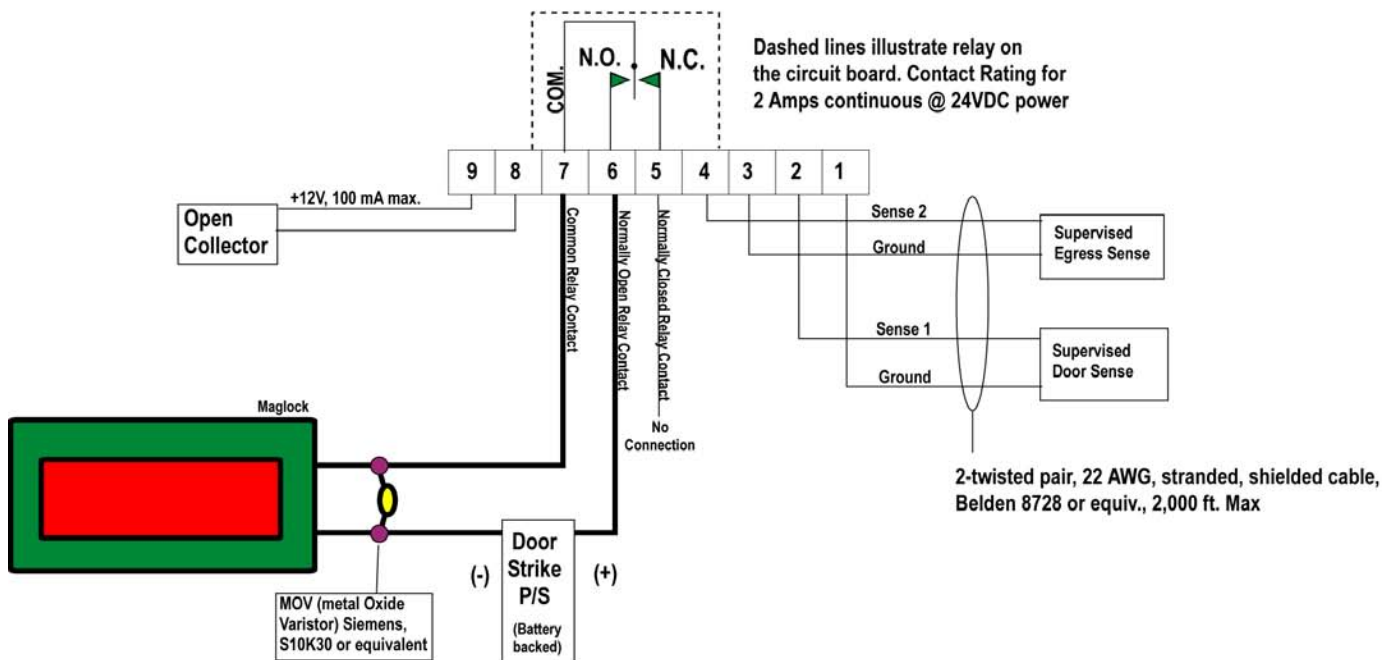
6.2 Panel in a Fail-Secure Environment

Example of the IQ-400 with a Doorstrike in a Fail-Secure Environment
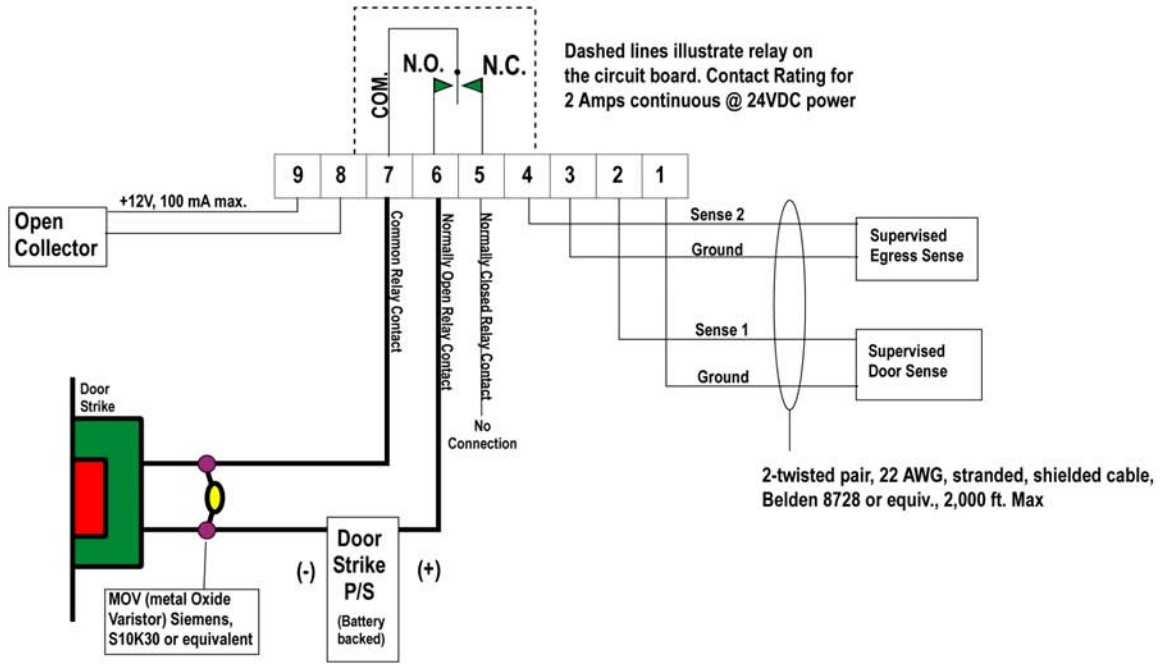
Example of the IQ-400 with a Maglock in a Fail-Secure Environment
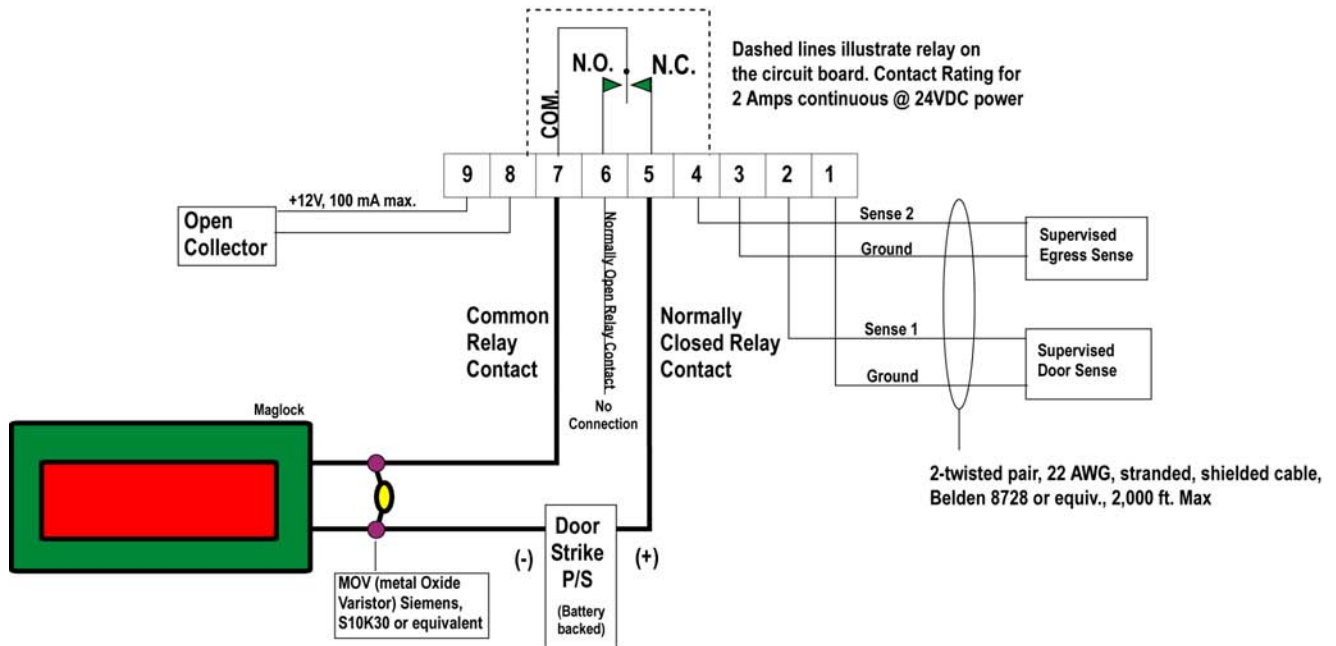
6.3 Expansion Board Door Lock/Strike
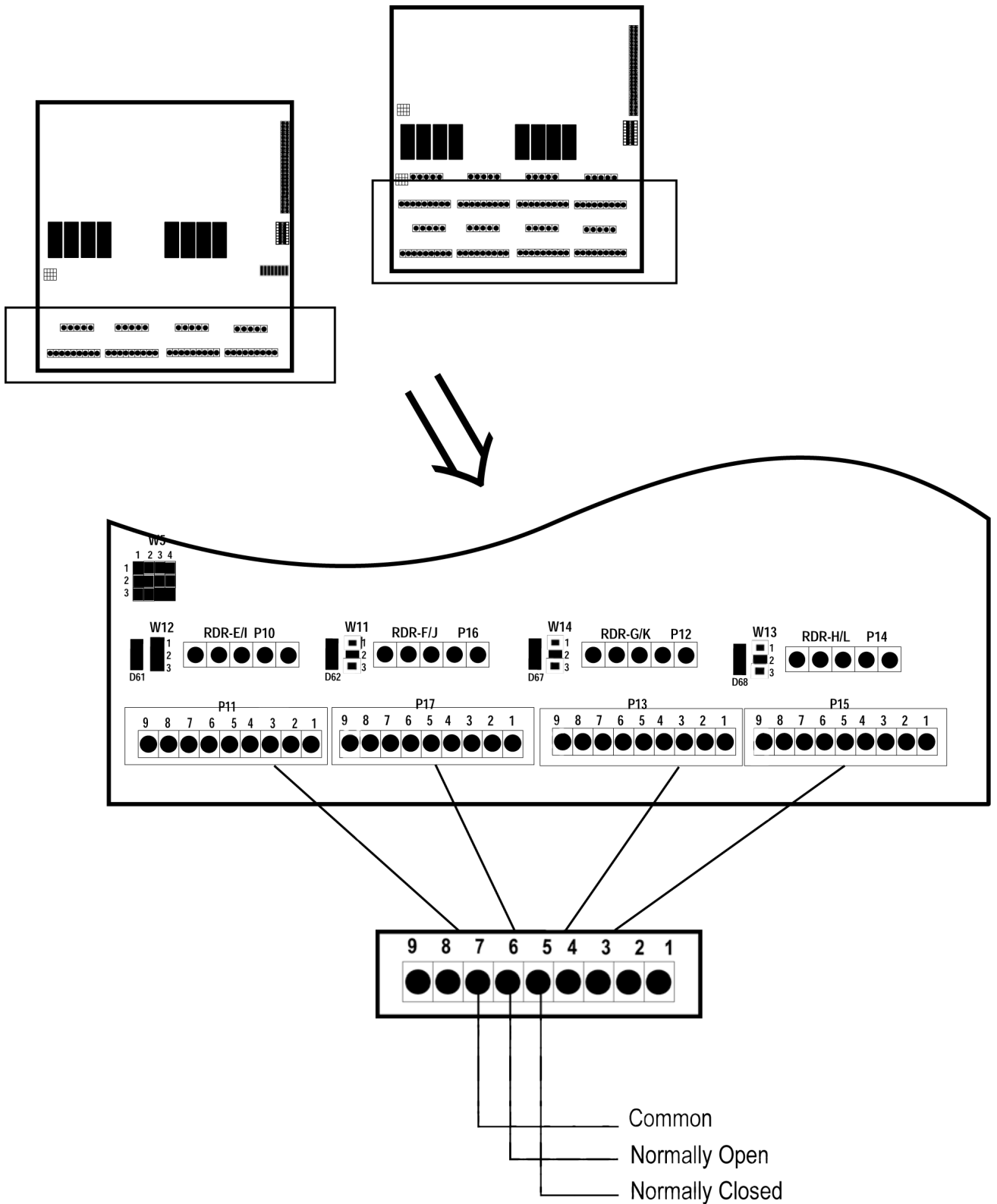
6.4 Expansion Board Open Collector

W5

W12 RDR-E/I P10   W11 RDR-F/J P16   W14 RDR-G/J P12   W13 RDR-H/I P14

D61   D62   D67   D68

P11
9 8 7 6 5 4 3 2 1

P17
9 8 7 6 5 4 3 2 1

P13
9 8 7 6 5 4 3 2 1

P15
9 8 7 6 5 4 3 2 1

9 8 7 6 5 4 3 2 1

Open Collector Output +12

Open Collector Output
(external Shunt/Local Alarm
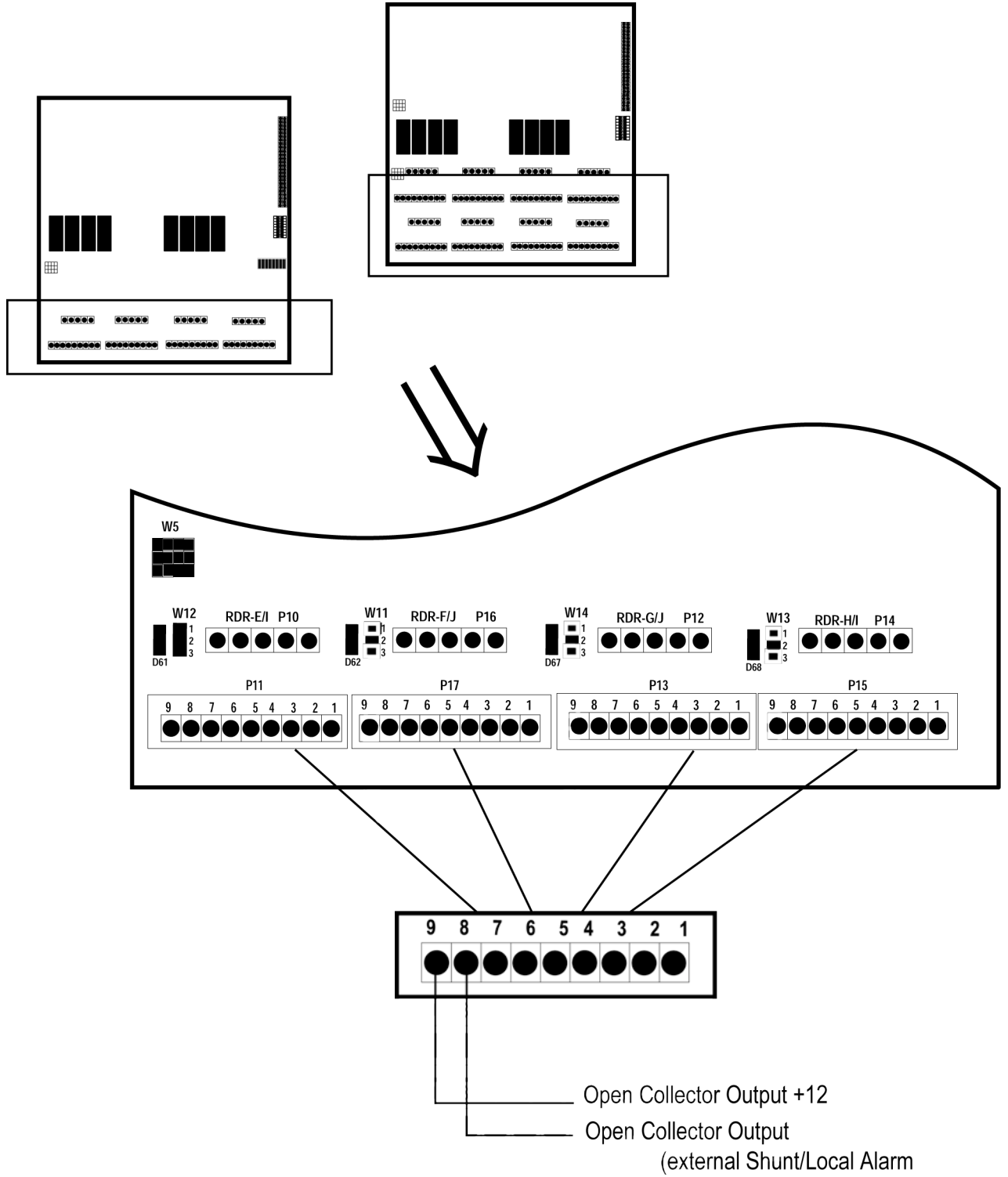
6.5 Egress Sense for IQ-400 and Expansion Boards

Supervised Egress Sense for the IQ-400

2-twisted pair, 22 AWG, stranded, shielded cable, Belden 8728 or equiv., 2,000 ft. Max

Plug P13 (S.I. #16) and P16 (S.I. #18) of IQ-400 PCB

9	8	7	6	5	4	3	2	1

Tamper-proof Area

180 Ohm

Sense 2

+ Input

N.O. Contact

300 Ohm

Ground

- Gnd

Common Contact

TYPICAL

NOTE	Resistors must be installed at the egress device
NOTE	Resistors are +/- 5% Tolerance @ 1/2 Watt.
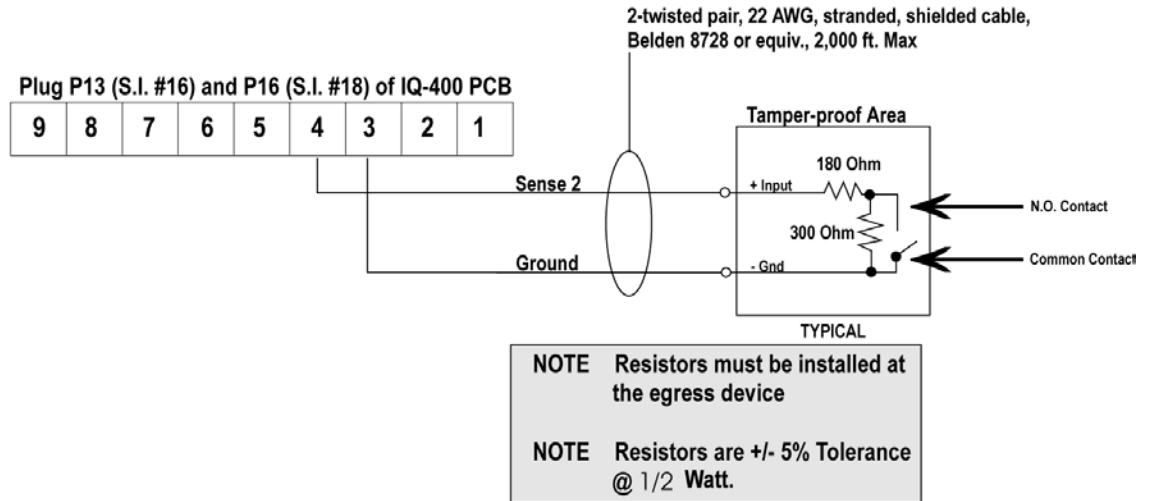
Unsupervised Egress Sense for the 4/8 Reader Expansion Module

2-twisted pair, 22 AWG, stranded, shielded cable, Belden 8728 or equiv., 2,000 ft. Max

4-reader Expan.= Plug P11-P15-P13-P15
8-reader Expan.= Plug P3-P17-P5-P7-P11-P17-P13-P15

9	8	7	6	5	4	3	2	1

Tamper-proof Area

Sense 2

+ Input

N.O. Contact

Ground

- Gnd

Common Contact

TYPICAL
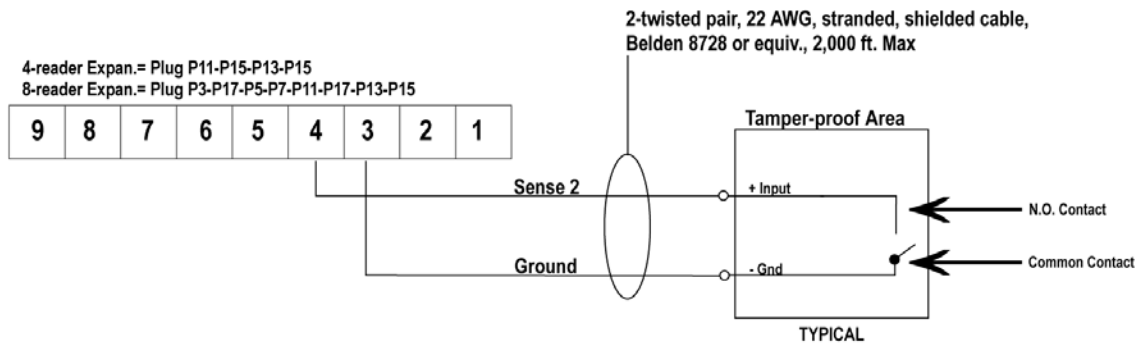
6.6 Door Sense for IQ-400 and Expansion Boards

Supervised Door Sense

Plug P12 (S.I. #17), P13 (S.I. #19), Plug P14 (S.I. #21) and P15 (S.I. #23) of IQ-400 PCB
4-reader Expan.= Plug P11-P17-P13-P15
8-reader Expan.= Plug P3-P9-P5-P7-P11-P17-P13-P15

9	8	7	6	5	4	3	2	1

2-twisted pair, 22 AWG, stranded, shielded cable, Belden 8728 or equiv., 2,000 ft. Max

Sense 2 — + Input

Ground — - Gnd

Tamper-proof Area

180 Ohm

300 Ohm

N.O. Contact

Common Contact

TYPICAL
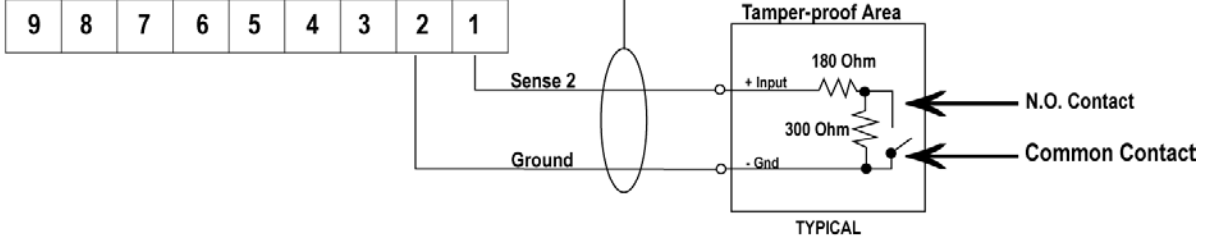
NOTE Resistors must be installed at the door switch

NOTE Resistors are +/- 5% Tolerance @ 1/2 Watt

NOTE   For UL Installations, the maximum number of alarm signals shall not exceed 1000.

6.6.1 Using the Ten Discrete LEDs

Twenty-two LED's, located across the lower section of the IQ-400 board, indicate the status of the supervised door circuits. Also the unsupervised tamper, supervised egress inputs, and supervised alarm inputs are annunciated in the LED's as listed below:
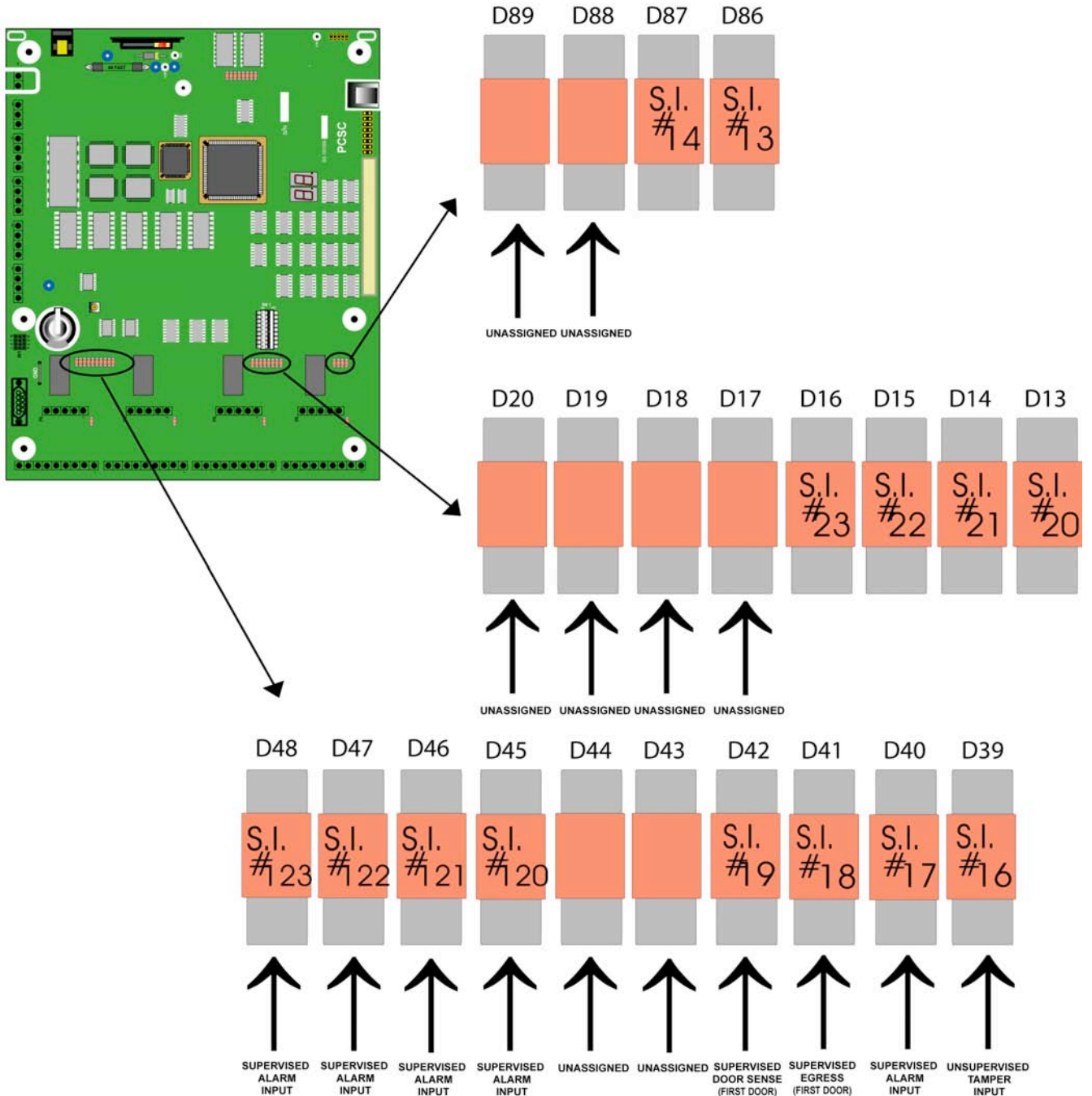
6.6.2 Expansion Board LED Arrays

4-Door Expansion Board (IQ-800)   **8-Door Expansion Board (IQ-1200)**
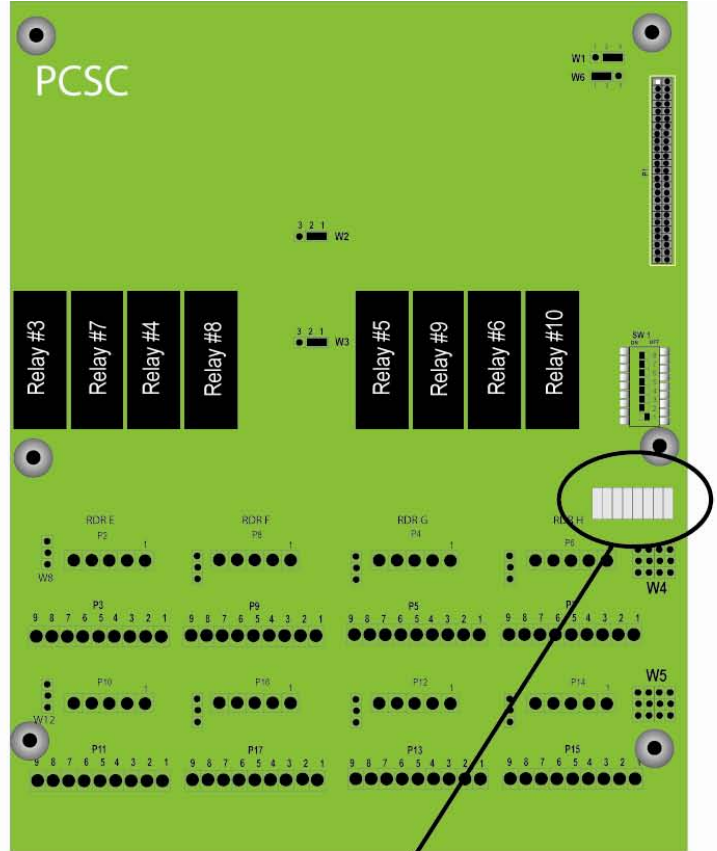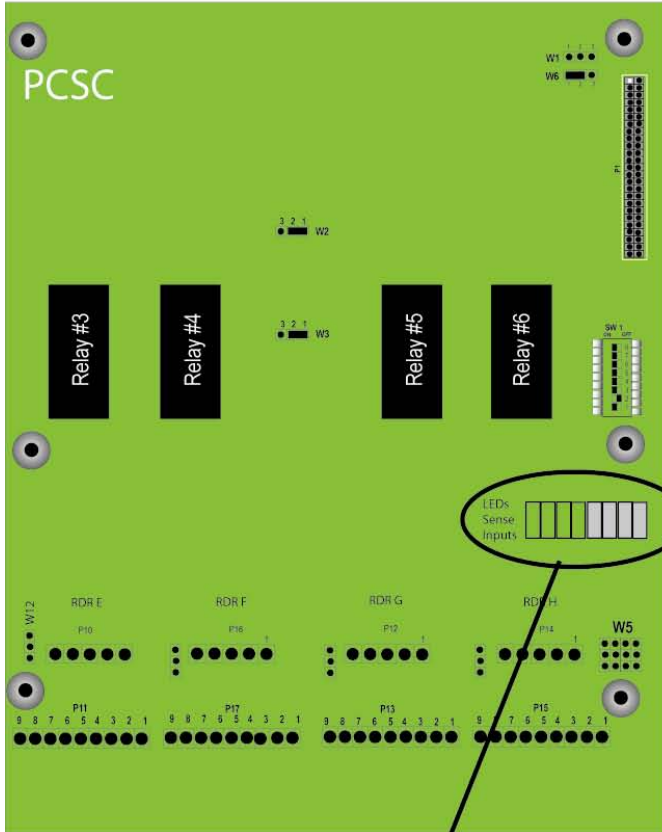
Numbers are the corresponding LED's assigned to reflect the current
status of each individual Sense Input (IQ-400 Firmware I4+07.010.02
series).

6.6.3 SAM Board LED Arrays

Plug P2
Pin 1 →

Plug P3
Pin 1 →

Plug P4
Pin 1 →

Plug P5
Pin 1 →

SENSE 2
GND
SENSE 1
GND
SENSE 4
GND
SENSE 3
GND
SENSE 6
GND
SENSE 5
GND
SENSE 8
GND
SNS 7
GND

LED 1

PCSC

SW1

Toggle SW-3 On and Off to start calibration.

03-10100-   REV

SUPERVISED ALARM MODULE

S/N

W1
1 LO
2
3 HI

W1 Switch

Factory set

W2
1 7X
2
3 FX

49   J1

COMPONENT SIDE

P1   GND

50   1

10 Segment LED - SAM 1

D18	D17	D16	D15	D14	D13	D12	D11	D10	D9
Circuit Voltage Indicator	NOT USED	S.I. #47	S.I. #46	S.I. #45	S.I. #44	S.I. #43	S.I. #42	S.I. #41	S.I. #40
SNS 10	SNS 9	SNS 8	SNS 7	SNS 6	SNS 5	SNS 4	SNS 3	SNS 2	SNS 1

LED to Connector Correspondence

SNS 1 = Sense 1
SNS 2 = Sense 2
SNS 3 = Sense 3
SNS 4 = Sense 4
SNS 5 = Sense 5
SNS 6 = Sense 6
SNS 7 = Sense 7
SNS 8 = Sense 8
SNS 9 = Not Used
SNS 10 = Circuit Voltage Indicator

10 Segment LED - SAM 2

D18	D17	D16	D15	D14	D13	D12	D11	D10	D9
Circuit Voltage Indicator	NOT USED	S.I. #55	S.I. #54	S.I. #53	S.I. #52	S.I. #51	S.I. #50	S.I. #49	S.I. #48
SNS 10	SNS 9	SNS 8	SNS 7	SNS 6	SNS 5	SNS 4	SNS 3	SNS 2	SNS 1

6.6.4 Status Chart For All LED Arrays

OFF	Circuit is normal/secure
ON	Circuit is in an alarm condition
Flashes 2 times per second	Fault condition. Open circuit
Flashes 1 time per second	Fault condition. Short circuit.
Flashes every ½ second	Circuit is NOT calibrated and NOT functional.

6.7 Supervised Sense Inputs for P5, P6 and P19 and Unsupervised Tamper at P18

Supervised User-Defined Sense Inputs at P5 and P6
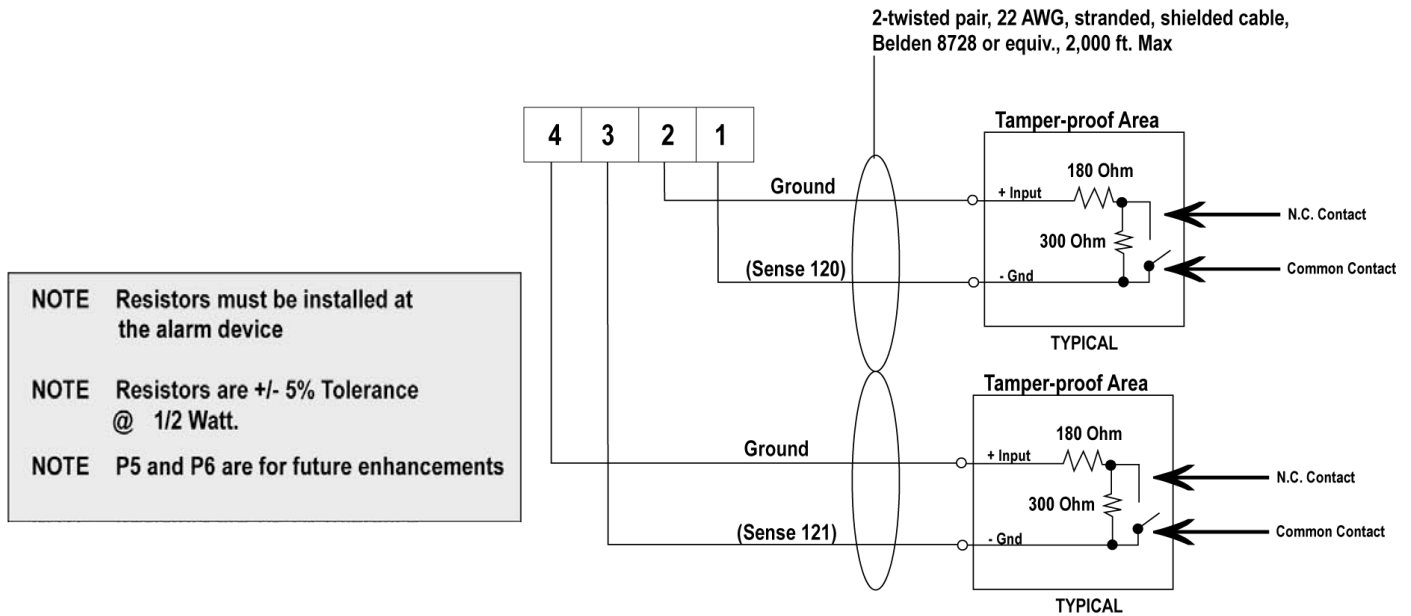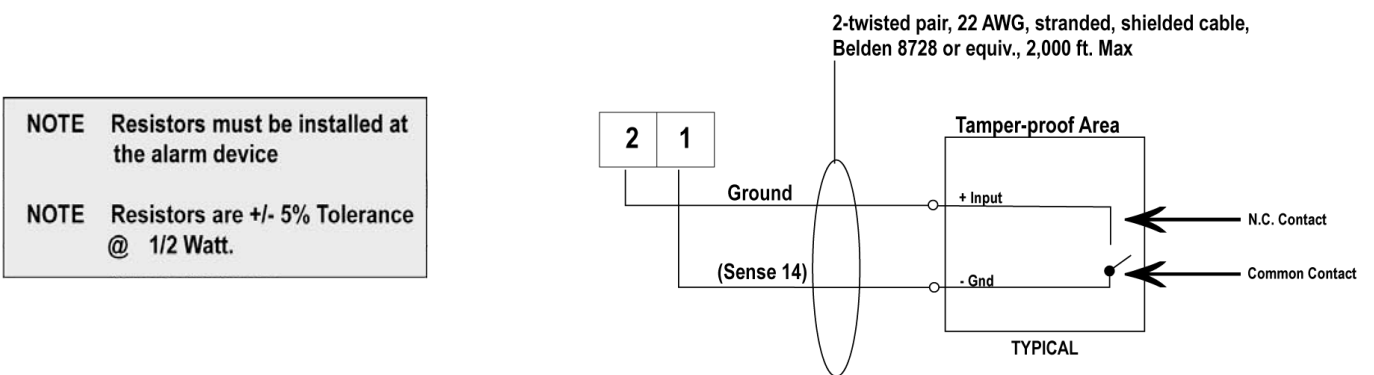
NOTE   Resistors must be installed at the alarm device

NOTE   Resistors are +/- 5% Tolerance @   1/2 Watt.

NOTE   P5 and P6 are for future enhancements

Unsupervised Tamper Sense Inputs at P19

NOTE   Resistors must be installed at the alarm device

NOTE   Resistors are +/- 5% Tolerance @   1/2 Watt.

Supervised User-Defined Sense Inputs at P6

2-twisted pair, 22 AWG, stranded, shielded cable,
Belden 8728 or equiv., 2,000 ft. Max

| 4 | 3 | 2 | 1 |

Ground

Tamper-proof Area

+ Input   180 Ohm

N.C. Contact

300 Ohm

(Sense 122)

- Gnd

Common Contact

TYPICAL

NOTE   Resistors must be installed at
the alarm device

NOTE   Resistors are +/- 5% Tolerance
@   1/2 Watt.

Ground

Tamper-proof Area

+ Input   180 Ohm

N.C. Contact

300 Ohm

(Sense 123)

- Gnd

Common Contact

TYPICAL

Unsupervised Tamper Sense Inputs at P18

2-twisted pair, 22 AWG, stranded, shielded cable,
Belden 8728 or equiv., 2,000 ft. Max

NOTE   Resistors must be installed at
the alarm device

NOTE   Resistors are +/- 5% Tolerance
@   1/2 Watt.

| 2 | 1 |

Ground

Tamper-proof Area

+ Input

N.C. Contact

(Sense 13)

- Gnd

Common Contact

TYPICAL
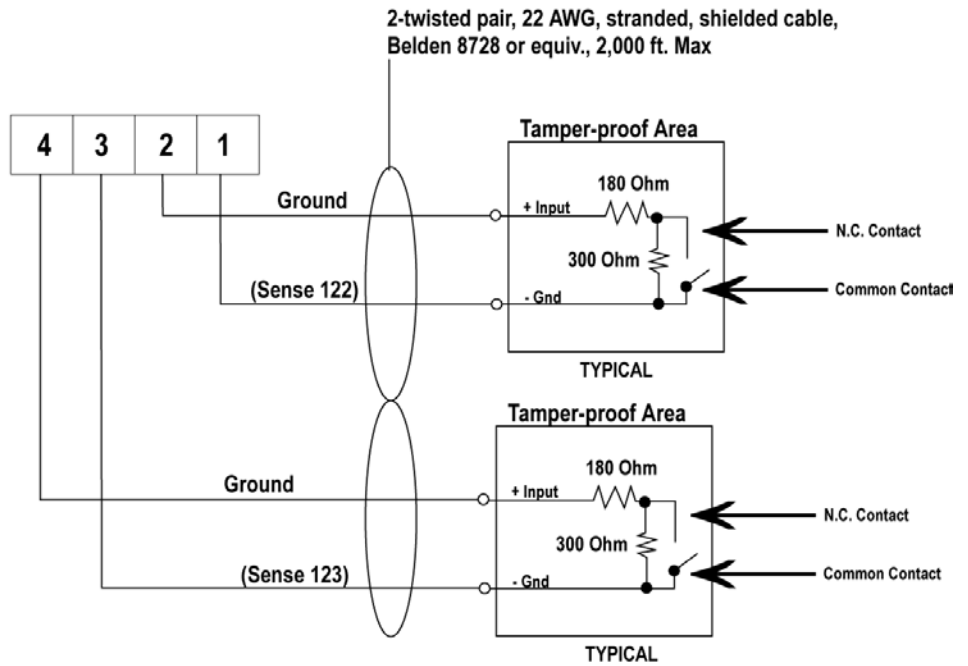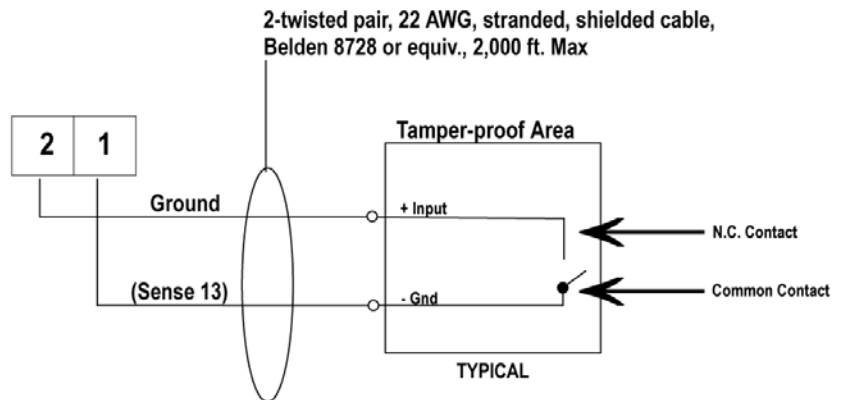
6.8 Expansion Board Supervised Door Senses and Supervised Request-to-Exit Sense Inputs
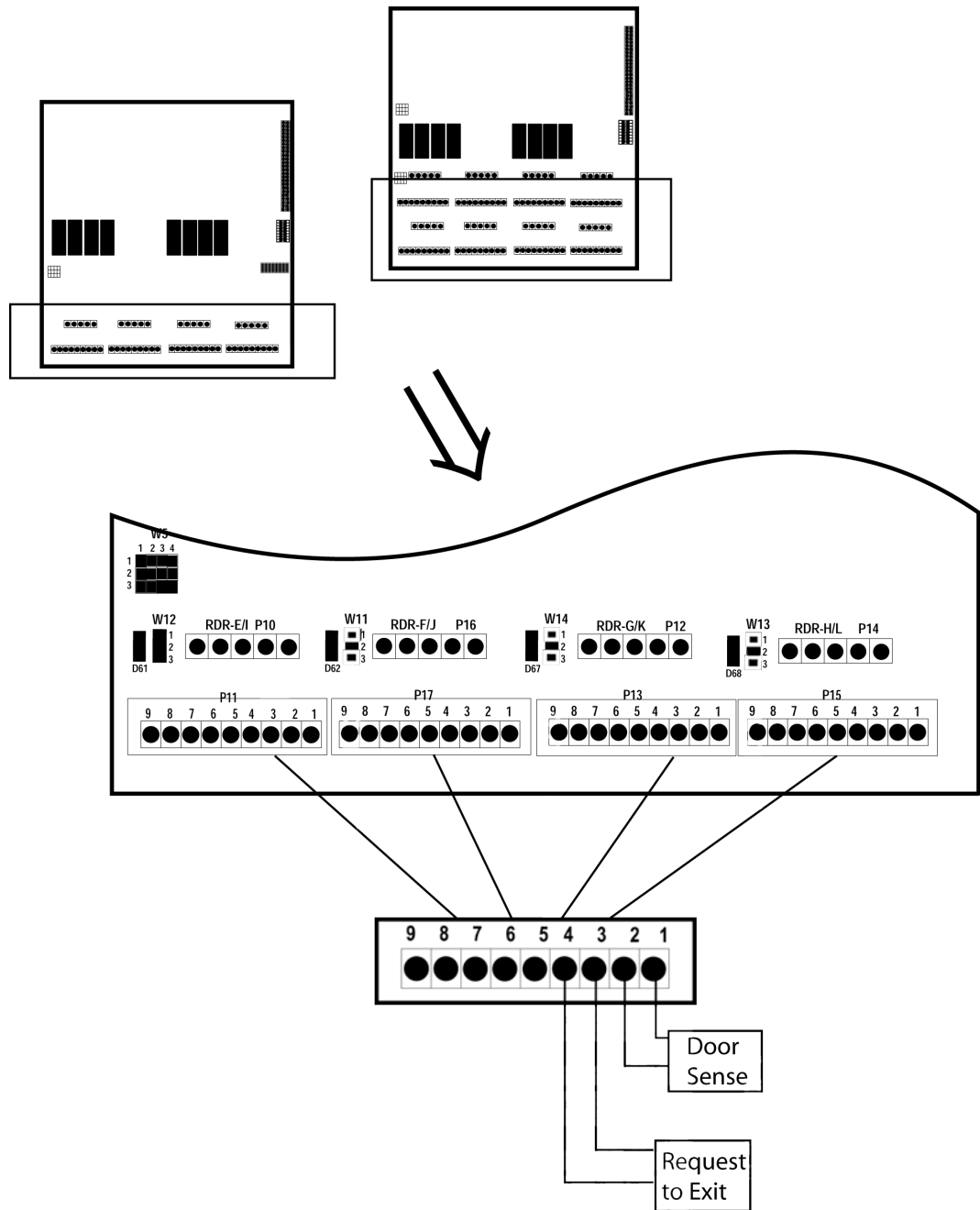
Install End-of-Line resistors at door switch/egress device (not at the IQ Panel end of the cable).

When the door is closed, continuity exists across the common (COM) and Normally closed (N.C.) switch contacts.

6.9 Expansion Board Supervised Door Sense Locations
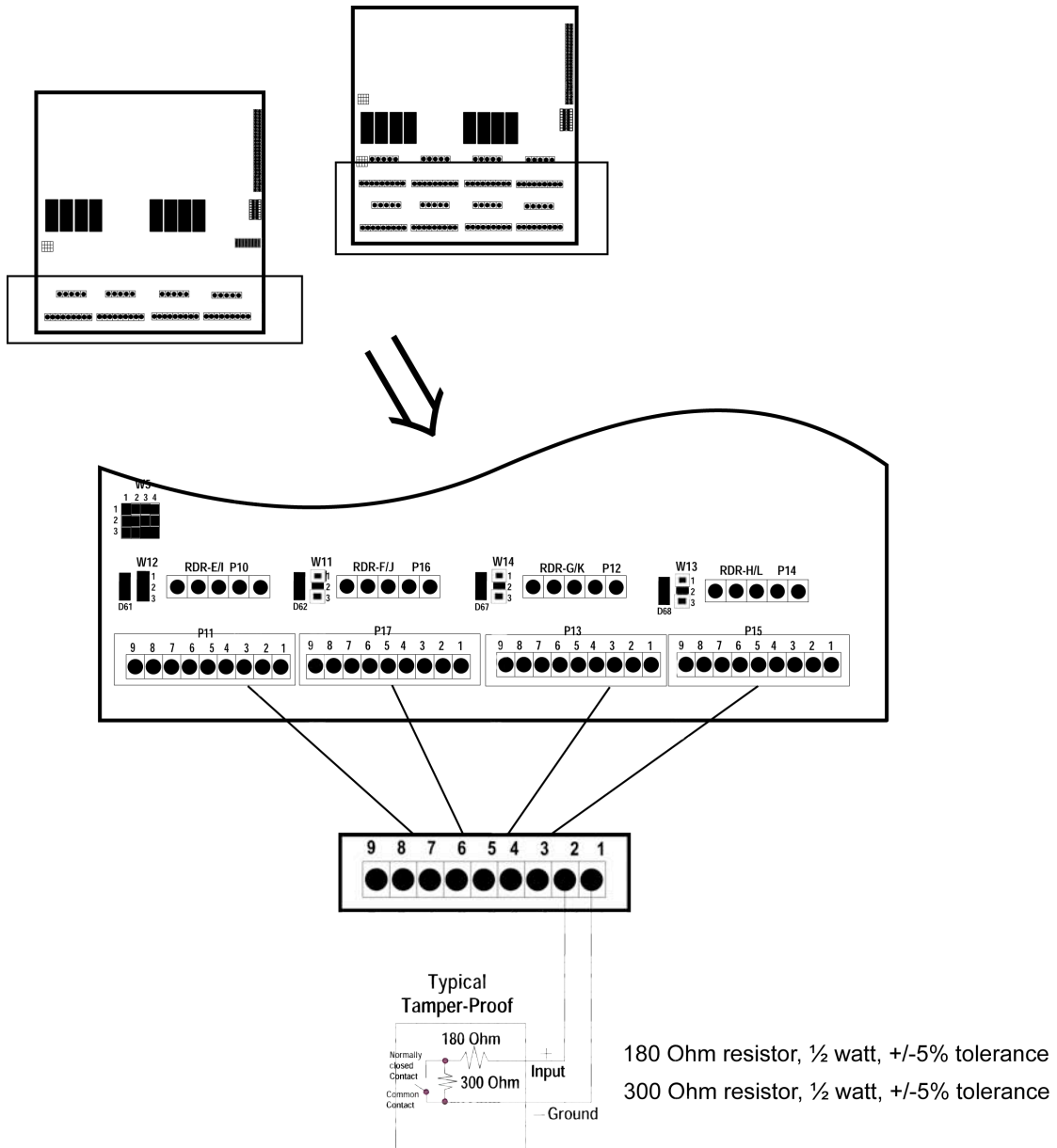
Install End-of-Line resistors at door switch/egress device (not at the IQ Panel end of the cable).

When the door is closed, continuity exists across the common (COM) and Normally closed (N.C.) switch contacts.

180 Ohm resistor, ½ watt, +/-5% tolerance

300 Ohm resistor, ½ watt, +/-5% tolerance

6.10 Installing Noise Suppression Devices

Install an MOV or diode (or both) at the lock to suppress noise and avoid problems related to spikes. Follow the instructions below and refer to the diagrams in section 6.1.

6.10.1 Procedure

The most effective location for a suppression device is at the source; in this case, at the door strike.

1. Remove the strike-locking device and find the wire connector that attaches the lock wires to the lock.

2. Install an MOV (Siemens S10K30 or equivalent) in parallel with the load. The MOV is a non-polarized device and will work with both AC and DC locks.

    > **NOTE** Use an additional MOV if you experience further noise at the strike.

    > **NOTE** For further protection on DC units, a reverse biased diode may be installed (We suggest types 1N4004 to 1N4007 be used) also in parallel with the load.

3. Note the wiring set-up of your particular system. Connections can be made either to the "normally open" (fail secure) contact or to the "normally-closed" (fail-safe) configuration whereby an isolation relay is used and a diode (or MOV) is added for noise suppression.

7.0 Communicating with the IQ-400

The IQ-400 can communicate over a dialup MODEM, an RS232 or an RS485 serial direct connection or LAN. In a multi-drop IQ-400 configuration, the IQ-400 <u>MUST</u> communicate via RS-485 protocol.

Reset Button
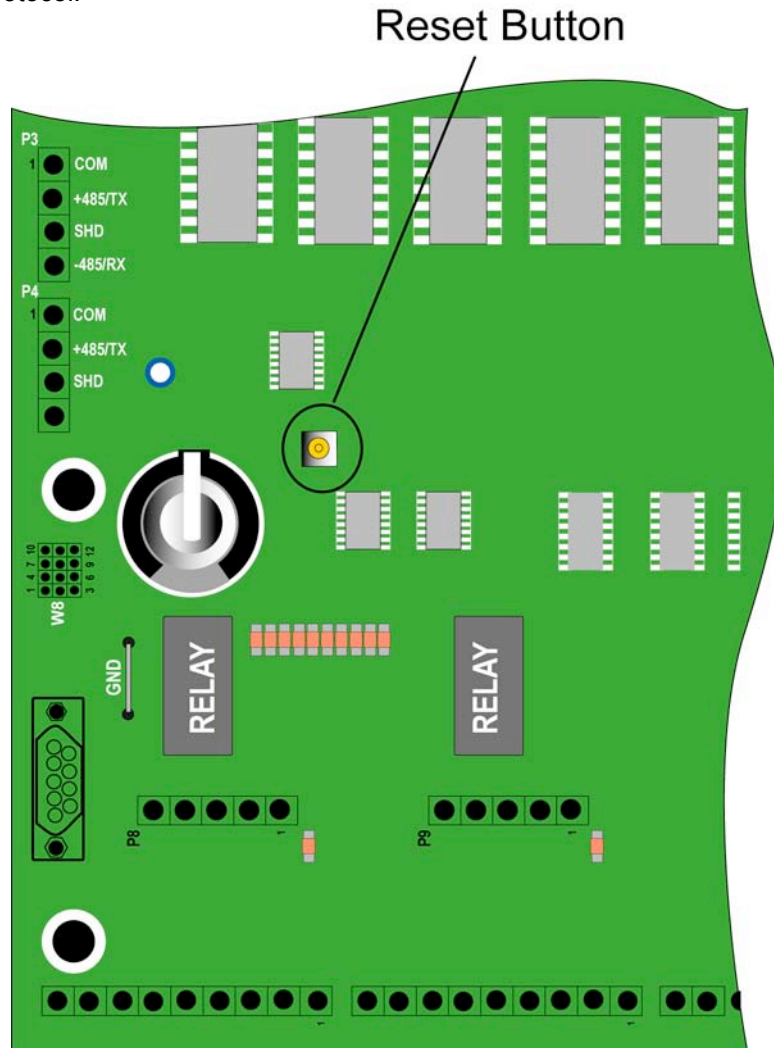
7.1 Reset the IQ-400 Panel

You may elect to install the supervisory resistors at this time or optionally wait until after on-line communication has been established to the LiNC-NET Host PC. Set dipswitches 1-8 (located at SW1) to **OFF** position as it is etched on the IQ-400 PCB. Hit the reset switch at S1. This will calibrate and reset data to default, <u>all</u> 14 of the supervised inputs on the IQ-400 PCB and the supervised Door Senses on the 4/8-Door Cluster PCBs.

7.2 Calibrating the IQ-400 Panel

Calibration Scan	Please check the LiNC-NET Calibrations Options page in the LiNC-NET Administrator Manual.

7.2.1 Calibrating the SAM 1 and SAM 2 boards

SAM sense inputs are calibrated only by toggling switch #3 of SW-1 ON and OFF for each SAM PCB.
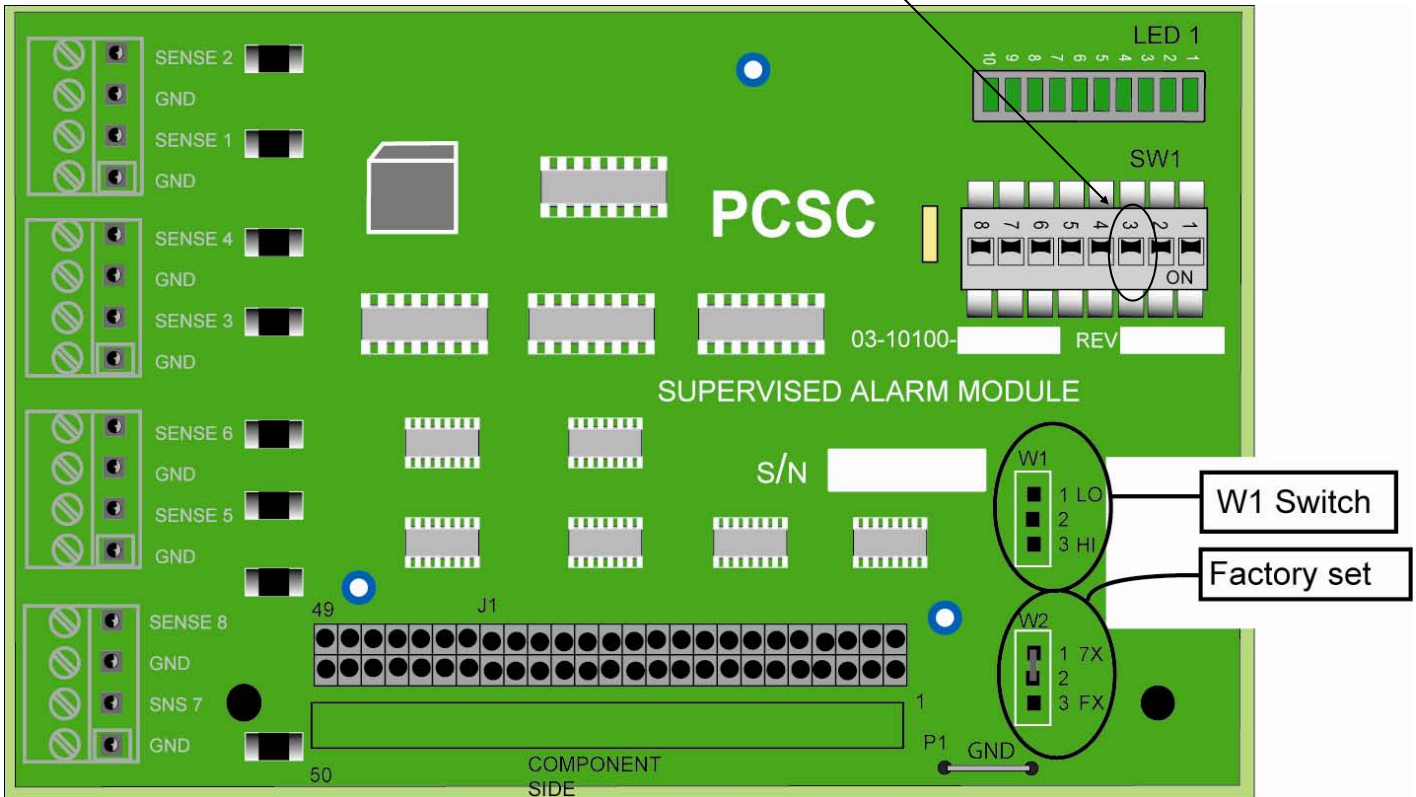
7.3 Addressing Individual IQ-400s through the Dipswitch

7.3.1 Dipswitching the IQ-400 Address (1-111)

The dipswitch is located at SW1, on the right-side of the board. There are eight switches. For the binary number one (1), flip the switch to the left. For zero (0), flip the switch to the right. The address in 10+ will be in Hexadecimal format.

IQ-400 Installation Manual 33-10057-001-C
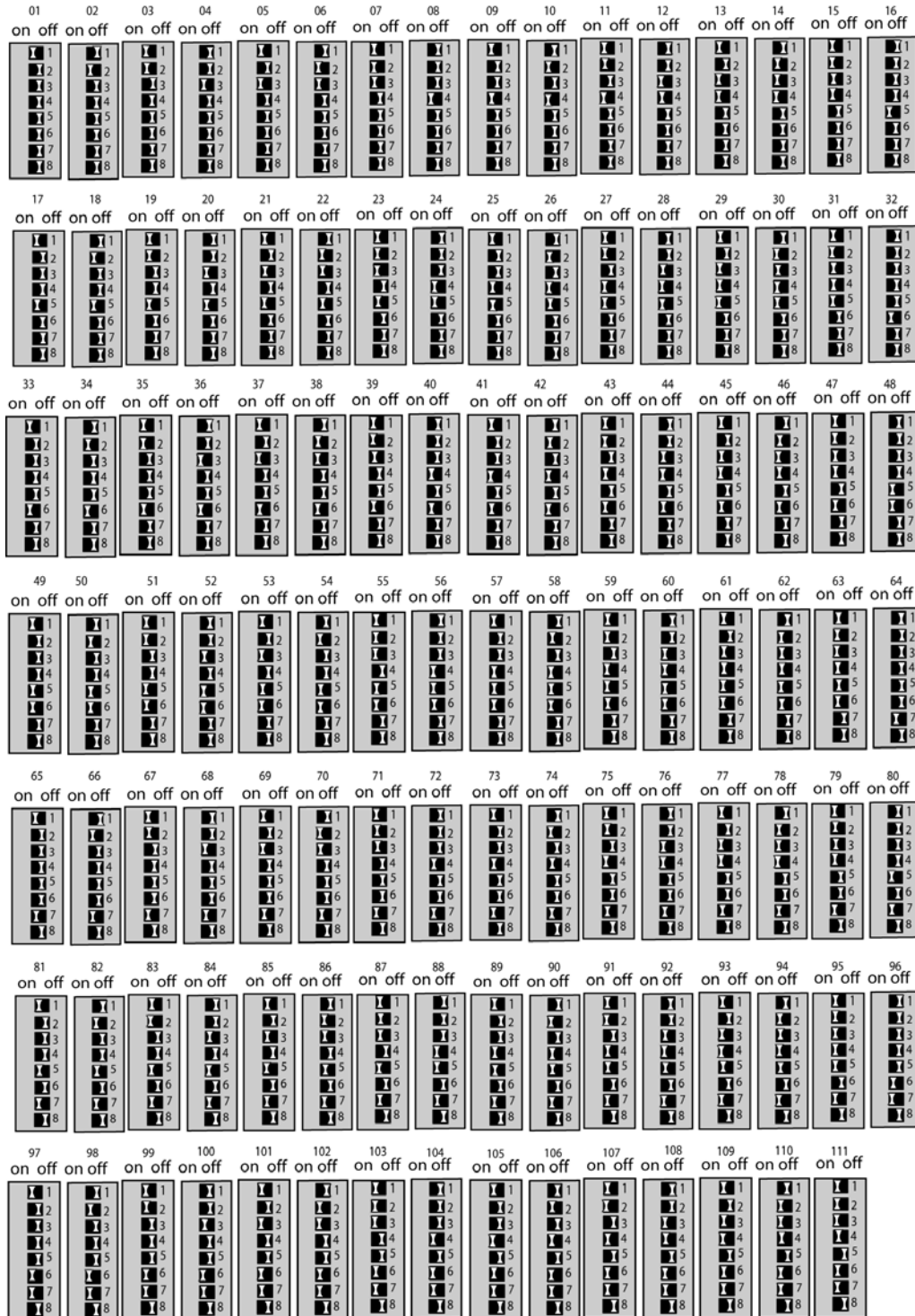
7.3.2 Software Addressing the IQ-400 Panel (Panels 112-200) Direct Connect

If a user set up includes more than 111 panels, it is necessary to address the panel through the LiNC-NET software as opposed to the Dipswitch on the panel itself. Every panel from 112 – 200 is manually set to 112, and then given a software address via LiNC-NET.

1. Set SW1 to address 112 on the IQ-400 panel and press the S1 button. The Dipswitch setting is: 5, 6, 7 = ON and 1, 2, 3, 4, 8 =OFF.
2. Open the ConFigUL program and define the following:
   1. Connection Type (**Direct Connect** or **LAN**)
   2. COM port
   3. Baud rate
3. Select the OPEN port button = **Open Port OK**
4. Enter **Panel #1** into the "**current panel number**" field.
5. Select the "**Inquire**" button = **OK**
6. Select the "**Logon**" button = **OK**
7. Enter the desired panel address from **112 – 200** in "New Panel number" window.
8. Select the "**change number**" button = **OK**
9. Select the "**Who's there**" button. The Inquire field will scan for the new panel address. (Who's There=200)
10. Select the "**Logoff**" button = **OK** then select "**Close Port**" and exit.
11. Start LiNC-NET and "**add**" the new panel ID number to your database.

SW1
On **1** Off **0**

1	▢ ◼
2	▢ ◼
3	▢ ◼
4	▢ ◼
5	◼ ▢
6	◼ ▢
7	◼ ▢
8	▢ ◼

Set #5, 6, 7 ON (left)

Set #1, 2, 3, 4 and 8 to OFF (right)
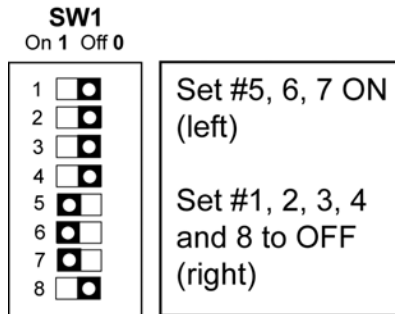
NOTE	Switch #8 is used to determine if the IQ-400 communicates via either direct connect or dial-up communications. Switch #8 is <u>only</u> used to determine if the connection is **Direct Connect** or **AutoDial**.
	The **ON/OFF** designation is in reference to the labels printed on the IQ-400 PCB. Not the switch itself!

7.4 Setting MODEM or Direct Connect Configurations

PCSC supports the US Robotics 33.6/56K Sportster model for MODEM communication. It is recommended that the MODEM be powered up via an U.P.S. (Uninterruptible Power Supply).

> **NOTE**: The US Robotics 33.6/56K Sportster has not been evaluated by UL, and is not suitable for UL installations.

To set up the IQ-400 for **MODEM** communication, configure the Dipswitch settings at SW1, as follows:

Example: MODEM connection (IQ-400, panel address is #1)

SW1

On **1**   Off **0**

Set # 1 to ON (left), 2 through 7 to OFF (right). Set # 8 to ON (left).

Set the configuration and press the Reset button at S1. After the sequence of LEDs displays, set the IQ-400 ID number (see DIP Switching the IQ-400 Number). On the back of the **US Robotics modem**, locate the DIP switch. Set 1, 5 and 6 in the **up** position and 2, 3, 4, 7 and 8 in the **down** position.

> **NOTE**   AT SW1, switch #8 must remain in the ON position (left) for **MODEM** communication.

To set up the IQ-400 for **direct connect** communication (default), configure the Dipswitch settings at SW1, as follows:

Example: Direct connection (IQ-400, Panel address is #1)

SW1

On **1**   Off **0**

Set # 1 to ON (left), 2 through 8 to OFF (right).

Set the configuration and press the Reset button at S1. After the reset, set the IQ-400 ID number (see DIP Switching the IQ-400 Number).

> **NOTE**   At SW1, switch #8 must remain in the OFF position (right) for **Direct Connect** communication.

To communicate from an IQ-400 to the MODEM, two cables must be fabricated: one from the MODEM to the IQ-400 and another for the PC host to the MODEM. See the diagrams under Cable Requirements.

> **NOTE**   The **ON/OFF** designation is in reference to the labels printed on the IQ-400 PCB. Not the switch itself!

7.4.1 Ensuring Proper Configuration of the MODEM

To ensure that the MODEM retains the set configuration, the user should utilize HyperTerminal at the Host PC. The HyperTerminal program will set the configuration in the MODEM for constant uninterrupted use with the IQ-400. In the following procedure, the Init String will be written into the NOVRAM and therefore a power loss to the MODEM ONLY will not result in a continuous loop.

- Set switches 1, 5, 6, and 7 in the U.S Robotics Sportster MODEM (14.4K, 28.8, 33.6, or 56K) to **Up**. All other switches should be **Down**.

- Connect the MODEM to the PC using a standard PC to MODEM cable.

- From the PC (Win95/98/NT) access HyperTerminal by entering the following commands:

    1. Click on **Start: Programs: Accessories**, and then**, HyperTerminal**. The **Connection Description** dialog box will now appear.

    2. Type in a name for the connection (for example: **MODEM TEST**). Click on a corresponding icon from the list. Click on the **OK** button.

    3. The **Connect To** dialog box will now appear. The proper communications port used to communicate to the external MODEM is now selected within the **Connect Using** field (for example: **COM2**). Click on the **OK** button.

    4. The **COM# Properties** dialog box will now appear. Select **9600** in the bits per second field. Select **8** in the **Data Bits** field, **None** in the **Parity** field, **1** in the **Stop Bits** field, and **Hardware** in the **Flow control** field. Click on the **OK** button. The screen will now clear and the cursor will be at the top left corner of the **HyperTerminal** window. Type **ATV1 E1** and press **Enter**. The MODEM will respond with **OK**.

    5. Type **ATI3** and press **Enter** to display the type of MODEM connected, followed by **OK**.

    6. Type **ATI4** and press **Enter** to display the MODEM's current settings, followed by **OK**.

    7. Type **ATI5** and press **Enter** to display the MODEM's NVRAM settings, including any stored telephone numbers, followed by **OK**.

    8. Type **ATEVQHSØ=1X&DØ** and press **Enter**. The MODEM will respond by changing the **A** in the previous String to a **Ø** (zero).

    9. Type **AT&WØYØ** and press **Enter**. No visual indication will be displayed as the MODEM was configured in the previous step to use **Numeric Result Codes**.

    10. Type **ATZ** and press **Enter**. As in the previous step, no visual indication will be displayed.

    11. Click on **File**, then **Save**, to save the configuration file.

    12. Click on **File**, **Exit**, then **Yes**, to disconnect from the MODEM and exit **HyperTerminal**.

    13. Power down the MODEM and turn switch **1**, **5**, and **6** up. All others should be down. Connect the MODEM to the IQ-400. Perform functional testing.

7.4.2 Establishing a Proper Connection with a MODEM Cable

To communicate from an IQ-400 to a MODEM, two cables must be fabricated: one from the MODEM to the IQ-400 and another for the PC host to the MODEM. Cabling should be 22 AWG, 9-conductor, UL2576 and up to 6 feet in length.

> **NOTE**: PCSC performs Autodial Testing with US Robotics Sportster (Internal and External) 33.6 Fax Modems.

See the following diagrams:

PC to Modem Cable, p/n04-10291-**001**				
	PC (DTE) 2		Modem (DCE) 1	
			1	
Signal GND	5	———	7	Signal GND
RI	9	———	22	RI
DTR	4	———	20	DTR
DCD	1	———	8	DCD
DSR	6	———	6	DSR
RTS	7	———	4	RTS
CTS	8	———	5	CTS
TXD	3	———	2	RXD
RXD	2	———	3	TXD
9-pin female connector DB-9			25-pin male connector DB-25	

IQ Series to Modem Cable, p/n 04-10323-**101**				
	Modem	6 ft. max.	IQ @ P2	
RXD	2	———	2	TxD
TXD	3	———	3	RxD
GND	7	———	1	Sig Gnd
DSR	6		3- pin terminal block connector	
DTR	20			
25- pin male connector DB-25				
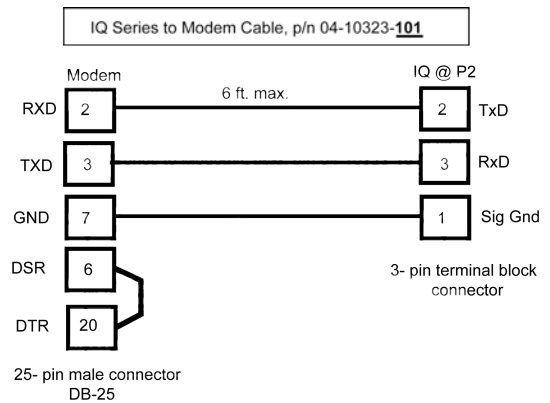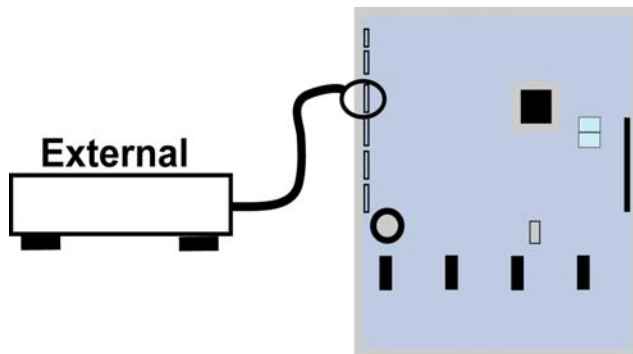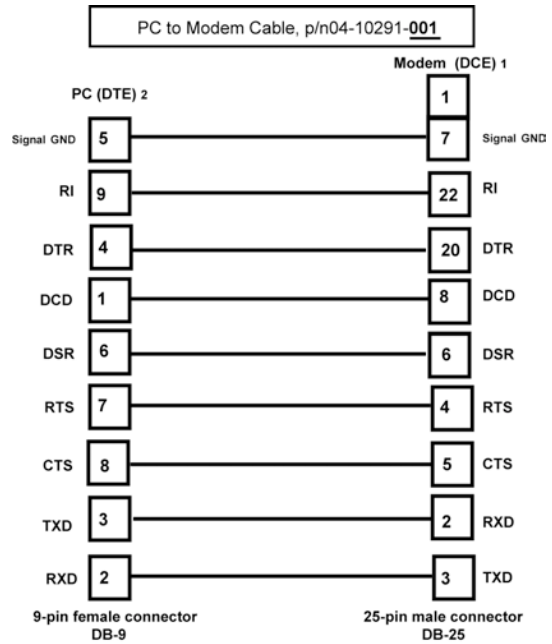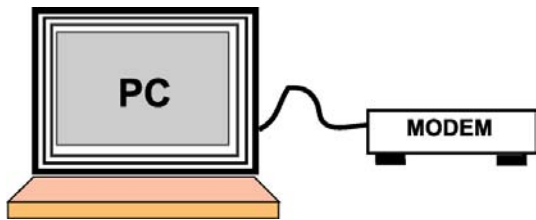
7.5 Changing the Baud Rate

1. Request the IQ-400 off-line in the **Define Panel Online Status** screen in the LiNC-NET software.
2. Change the baud rate in the **Host Computer Setup** menu in the LiNC-NET Software.
3. Log off and back onto the system.
4. Set the switch (SW1) setting for the Baud rate and press the S1 Reset button. (Refer to page 58).
5. Change the SW1 switch setting back to the IQ-400 number.
6. Request the IQ-400 on-line in the Define Micro-LPM status screen in the LiNC-NET software.

NOTE Presently the IQ-400 only supports communication at 9600 BPS.
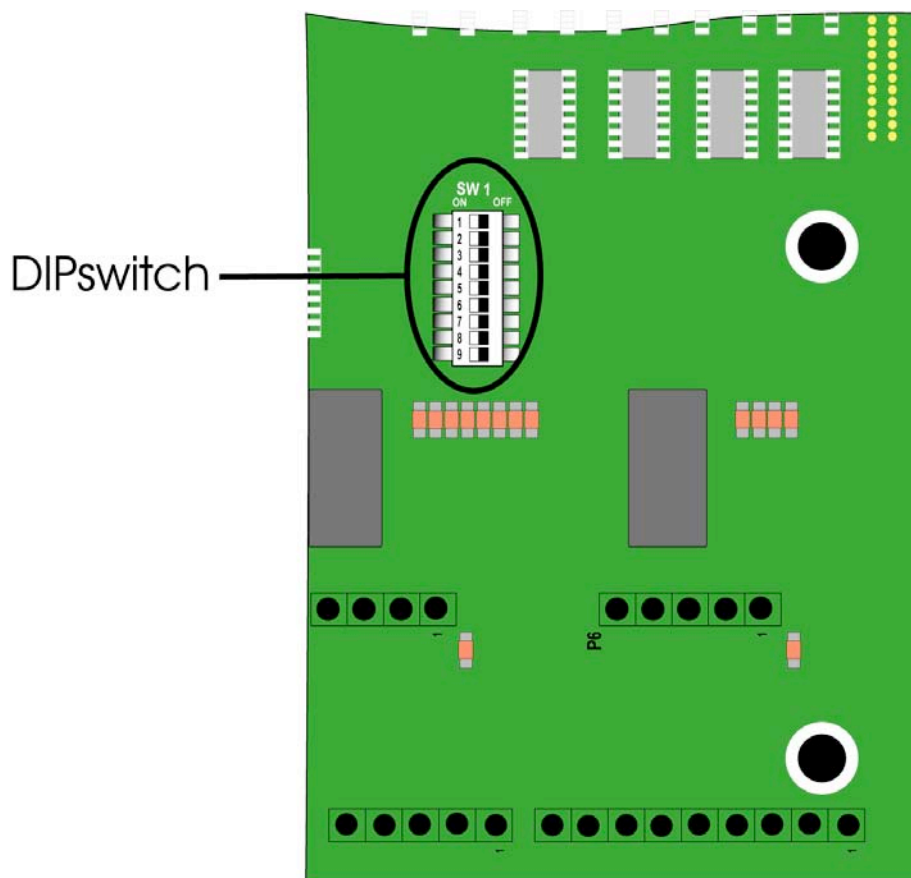
Setting the Baud Rate for Direct Connect @ 9600 bps
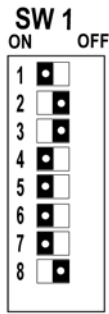
SW 1
ON   OFF

1
2
3
4
5
6
7
8

Set switches as illustrated to the left at SW-1 and then push the Reset button S1.

Then place the SW-1in position to represent the Communications Address of the panel.

Push the Reset button S1.The Panel is now ready to communicate to the LiNC-NET host at the new baud rate.

Setting the Baud Rate for Direct Connect @ 4800 bps
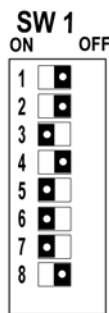
SW 1
ON   OFF

1
2
3
4
5
6
7
8

Set switches as illustrated to the left at SW-1 and then push the Reset button S1.

Then place the SW-1in position to represent the Communications Address of the panel.

Push the Reset button S1. The Panel is now ready to communicate to the LiNC-NET host at the new baud rate.

Setting the Baud Rate for Direct Connect @ 2400 bps
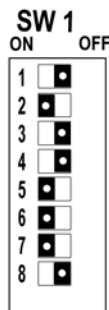
SW 1
ON   OFF

1
2
3
4
5
6
7
8

Set switches as illustrated to the left at SW-1 and then push the Reset button S1.

Then place the SW-1in position to represent the Communications Address of the panel.

Push the Reset button S1. The Panel is now ready to communicate to the LiNC-NET host at the new baud rate.

Setting the Baud Rate for Direct Connect @ 1200 bps
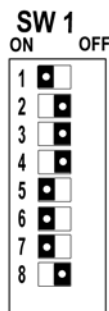
SW 1
ON   OFF

1
2
3
4
5
6
7
8

Set switches as illustrated to the left at SW-1 and then push the Reset button S1.

Then place the SW-1in position to represent the Communications Address of the panel.

Push the Reset button S1. The Panel is now ready to communicate to the LiNC-NET host at the new baud rate.

7.6 Direct Connecting with One IQ-400

The PC Host is connected to the IQ-400 by means of a cable designed for either RS-485 or RS-232 communication. The following diagrams illustrate the RS-485 and RS-232 DB9 or DB25 connector's options available.

> **NOTE**: For UL 1076 installations, refer to the LiNC-NET Admin Guide.

Wiring Diagram- IQ-400 to PC, RS-485 Connector
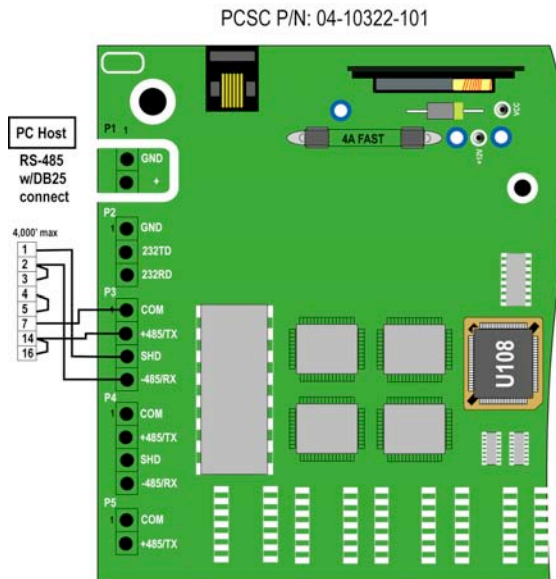
w/ DB25 Connector   **w/ DB9 Connector**
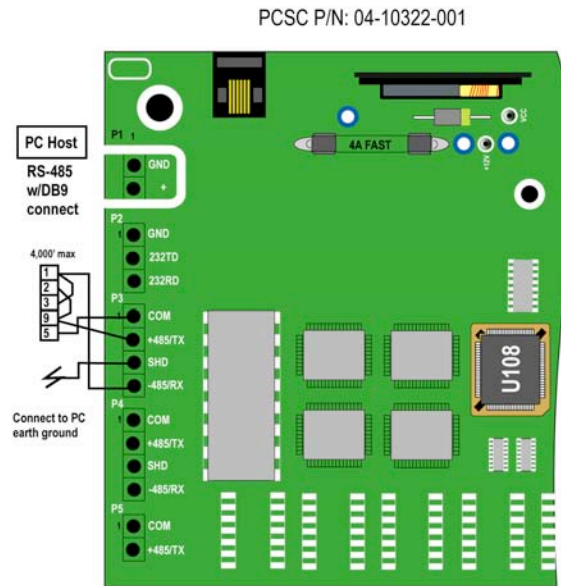
**IQ-400 to PC, RS-485 w/ DB25
Connector, Optically Isolated,
PCSC P/N 04-10322-101**
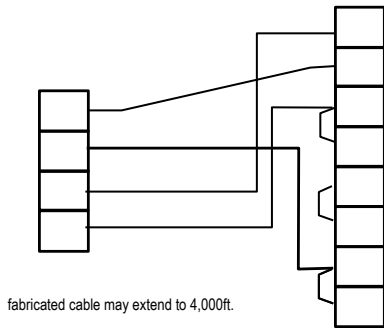
**IQ-400 to PC, RS-485 w/ DB9
Connector, Optically Isolated,
PCSC P/N 04-10322-001**

fabricated cable may extend to 4,000ft.

fabricated cable may extend to 4,000ft.
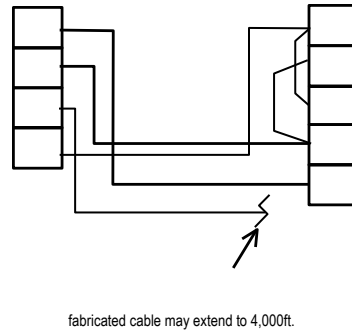
7.6.1 Wiring Diagram- IQ-400 to PC, RS-232 w/DB9 Connector
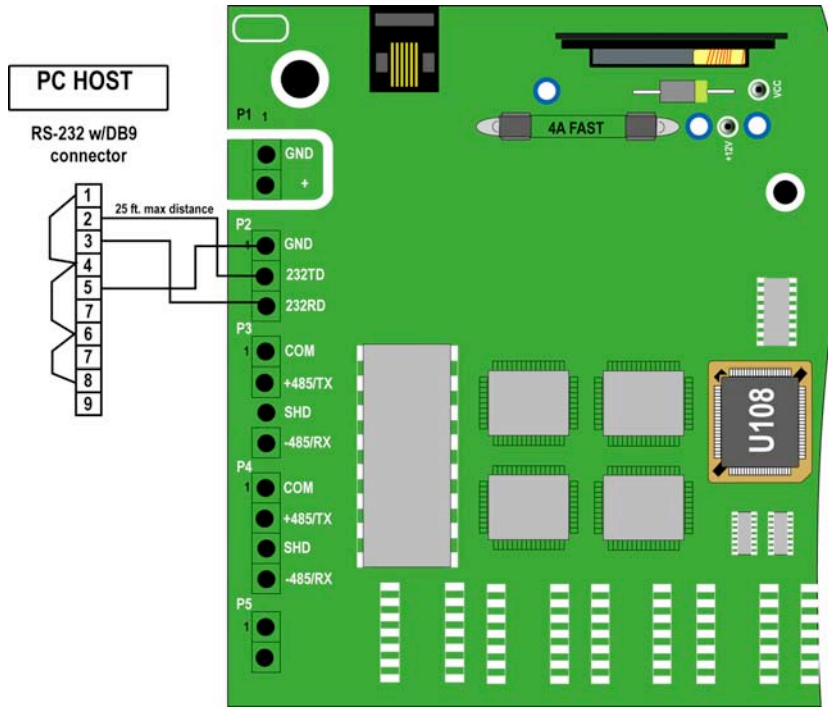
PCSC P/N: 04-10318-101

7.6.2 Wiring Diagram – IQ 400 to PC, RS -232 w/ DB25 Connector
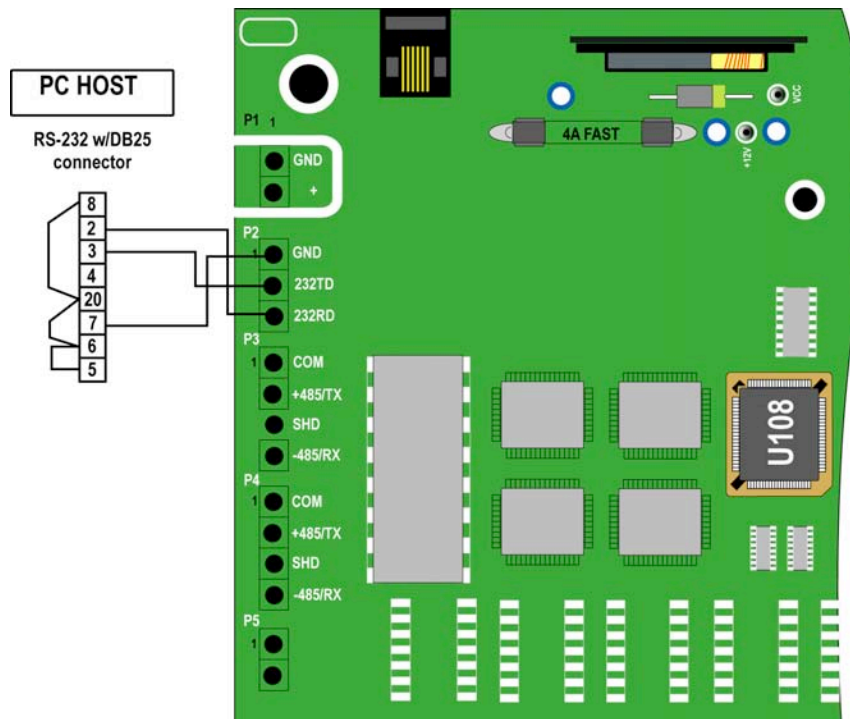
PCSC P/N: 04-10318-001

7.7 RS-232 Cable Connections

**IQ-400 to PC, Cable RS-232 w/
DB25 Connector
PCSC p/n 04-10318-101**
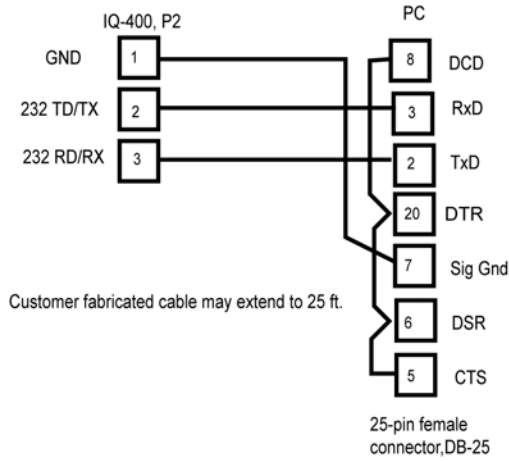
**IQ-400 to PC Cable RS-232 w/
DB9 Connector
PCSC p/n 04-10318-001**
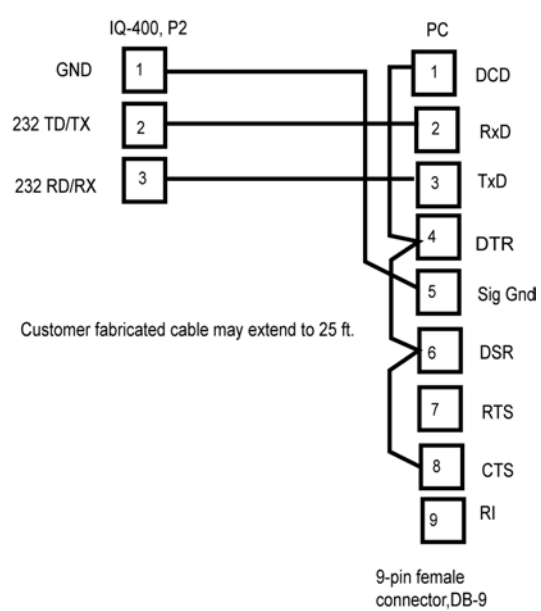
NOTE: For UL 1076 requirements, the RS-232 cable shall not extend beyond 20 ft., and the cable shall stay within the same room.

7.8 Communicating with Multiple IQ-400s (via RS-485)

Once the PC host is connected to one IQ-400, the next IQ-400 can be connected by wiring from P3 from the first IQ-400 to P4 in the next IQ-400. This format can be repeated in up to 16 IQ-400s. In addition, any combination of MicroLPMs and IQ-400s can be configured up to the 16 total limit on a single RS485 channel. LiNC-NET supports up to 4 channels (total of 64 IQ-400/ MicroLPMs). See the next page for the IQ-400 to MicroLPM wiring connection.

> **NOTE**: For UL 1076 installations, refer to the Linc-Net Admin Guide.

7.8.1 Wiring Diagram of Multiple IQ-400s and Other Panels

Wiring is 2-twisted, stranded, pair, 22AWG cable, with overall shield, 4000 ft. max. to last IQ to Micro LPM
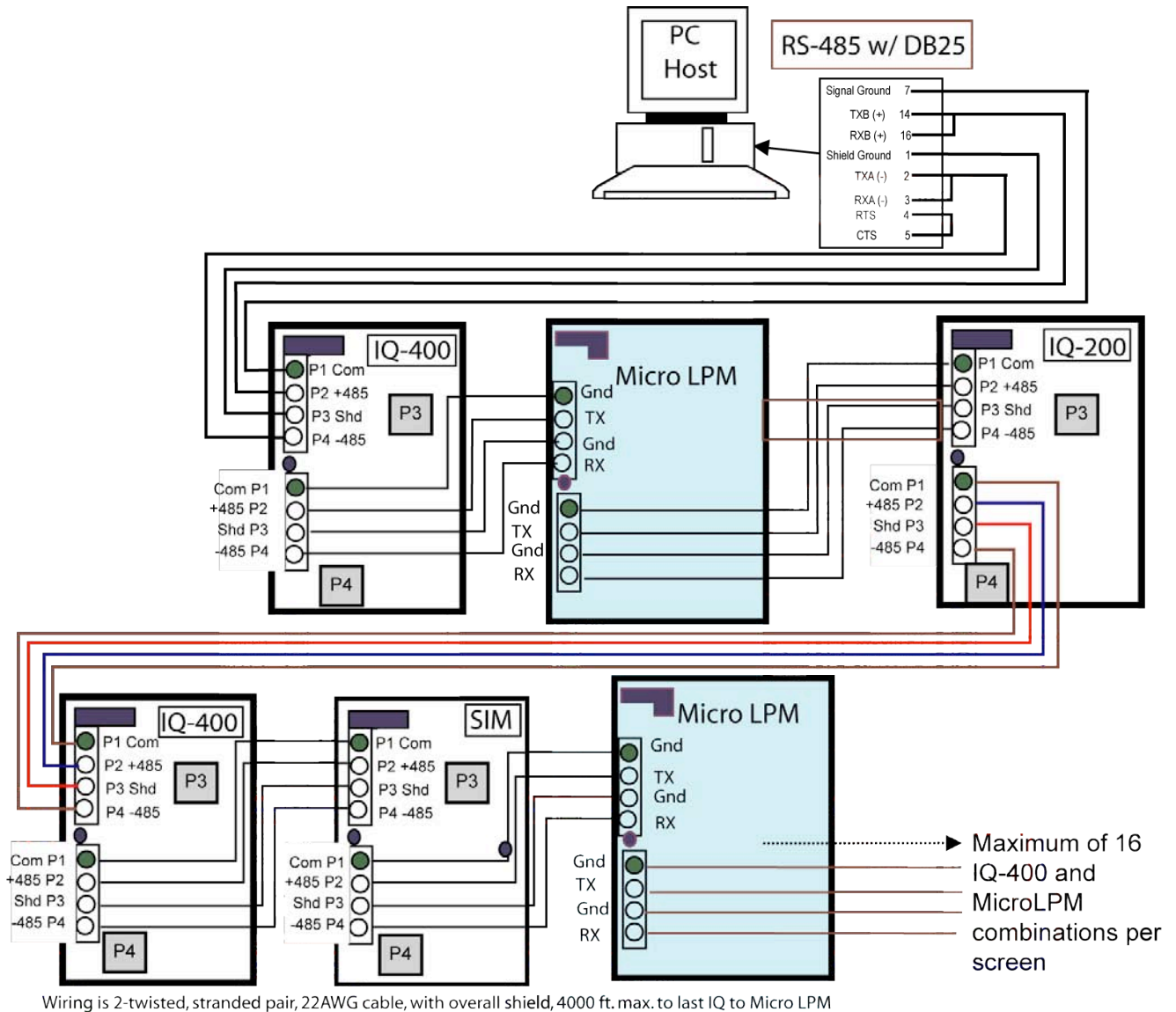
NOTE   At the last panel in the loop (if a Micro LPM) install a 120 Ohm 1/2 watt Resistor at Plug P3 between pins 2 and 4. Or (if the last panel is an IQ) set Jumper at W6 across pins 2 and 3. Refer to Micro LPM Installation Manual P/N: 33-10019-001 for more information.

7.9 Real Time Serial Printing with the IQ-400

To print from an IQ-400, a cable must be fabricated: a 9-pin female connector at the IQ-400-end to either a 9-pin or 25-pin male connector at the printer end. Cabling should be 22 AWG, 2-twisted pair, and up to 6 feet in length. See the following diagrams. The baud rate for the printer is 9600 bits per second at the IQ-400. Connect the IQ-400 end of the cable to P7.

```
            IQ-400 to Printer Cable DB-25 to DB-9
                  PCSC P/N 04-10324-001

   RS 232 Serial Printer                  IQ-400 @ P7

                       6 ft. max.
   TX   [ 2 ]──────────────────────────[ 2 ]   RX

   RX   [ 3 ]──────────────────────────[ 3 ]   TX

   RTS  [ 4 ]──────────────────────────[ 8 ]   CTS

   GND  [ 7 ]──────────────────────────[ 5 ]   Sig Gnd

      25-pin male                    9-pin female
      connector, DB-25               connector, DB-9
```
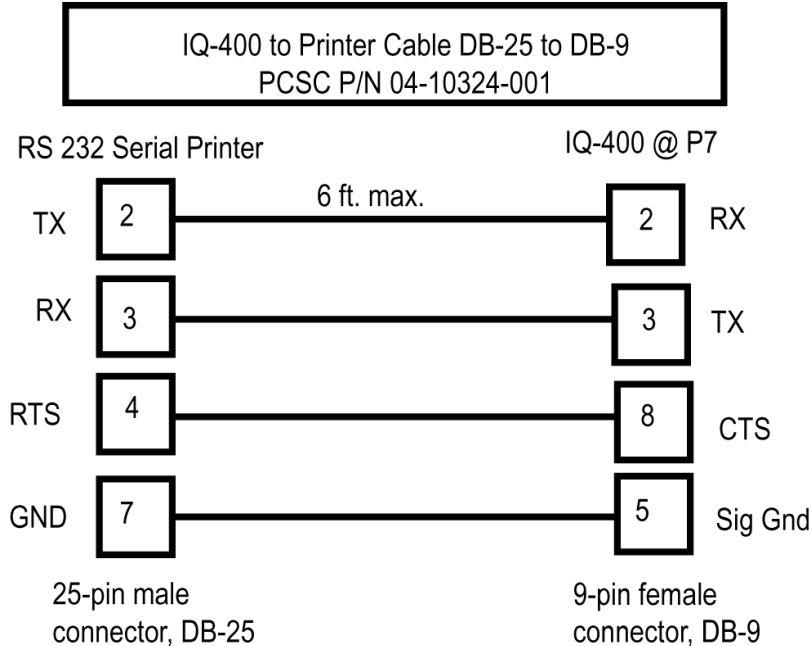
Cable Configuration for Capturing Real Time Transactions to PC in HyperTerminal

```
            IQ-400 to Printer Cable DB-25 to DB-9
                  PCSC P/N 04-10324-001

   RS 232 Serial Printer                  IQ-400 @ P7

                       6 ft. max.
   TX   [ 2 ]──────────────────────────[ 2 ]   RX

   RX   [ 3 ]──────────────────────────[ 3 ]   TX

   GND  [ 7 ]──────────────────────────[ 5 ]   Sig Gnd

      25-pin male                    9-pin female
      connector, DB-25               connector, DB-9
```
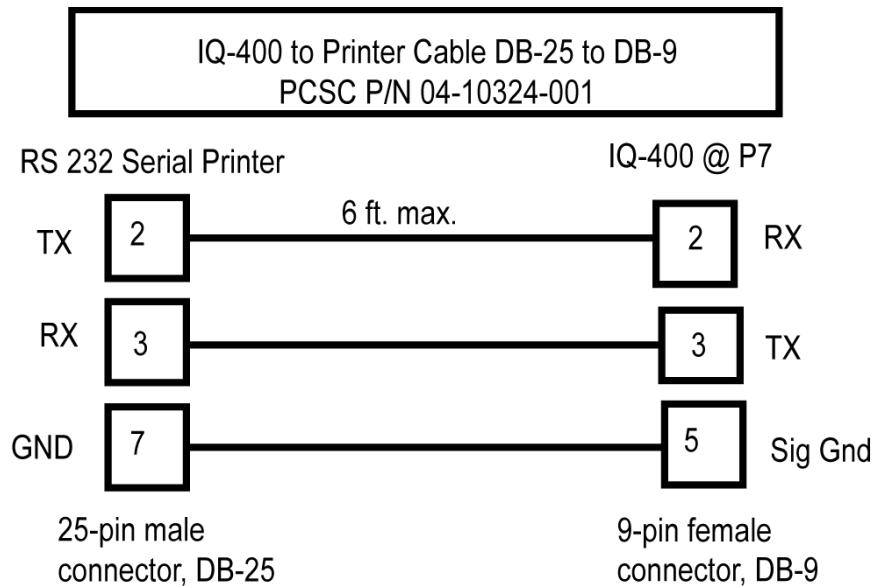
7.10 PC Host to IQ-400 Communication Using Fiber Optics (RS-485 Protocol)

PCSC has tested two fiber optics systems for communication between the PC host and the IQ panels. Both were found to be acceptable and compatible with the IQ-400. It is recommended that other systems available on the market should be equivalent to the specifications inherent in the two products tested. PCSC does not endorse or specify either of these 2 systems. Any communication links beyond the normal wiring of the IQ system is the responsibility of the fiber optics company and the installer. Refer to the installation instructions of the fiber optics system you are using. The information listed below is a general description of how one supplier, American Fibertek, communicates via fiber optics data links, to the PC host and the IQ panel.

7.10.1 Product Description

The MX-485-2 is a remote mountable module that converts two-wire RS-485 data signals into modulated light for coupling into fiber optic cables. The unit transmits and receives high and low logic level data and the HiZ bus state through duplex fiber optic cables. Any EIA RS-485 protocol signals up to 19.2 Kbaud may be transmitted over fiber optics cable by using two 485-2 series units. Designed primarily to be used with inexpensive 50u fiber cable, the 485-2 series may also be used with 62.5u fiber.

7.10.1.1 Connector

The signal and power connector is a seven position detachable terminal block. The connections should be made as shown on the wiring diagram before power is applied. ST optical connectors are standard on the unit.

7.10.1.2 Power Supply

Power required is 12VDC @ 200mA maximum. Internal regulators are included so unregulated 12 volt power may be used. The case of the unit is connected to signal ground.

7.10.1.3 Controls and Indicators

There are no controls on the MX-485-2 and three indicators. The ON indicator will glow green when power is applied to the unit. The TX and RX LEDs glow red to show activity on the data wires. The TX LED indicates the fiber modem is transmitting and the RX LED indicates reception of data.

7.10.2 Installation

To install the MX-485-2, it is necessary to mount the unit to a rigid service using #8 hardware in four places. Care should be taken when selecting a mounting location to avoid sharp bends in the connecting cables. Please note minimum bend radii of all fibers being used, to avoid fracturing the fiber optic core.

7.10.2.1 PC Host to IQ-400 using Fiber Optics Converter Modules (RS485 Protocol)
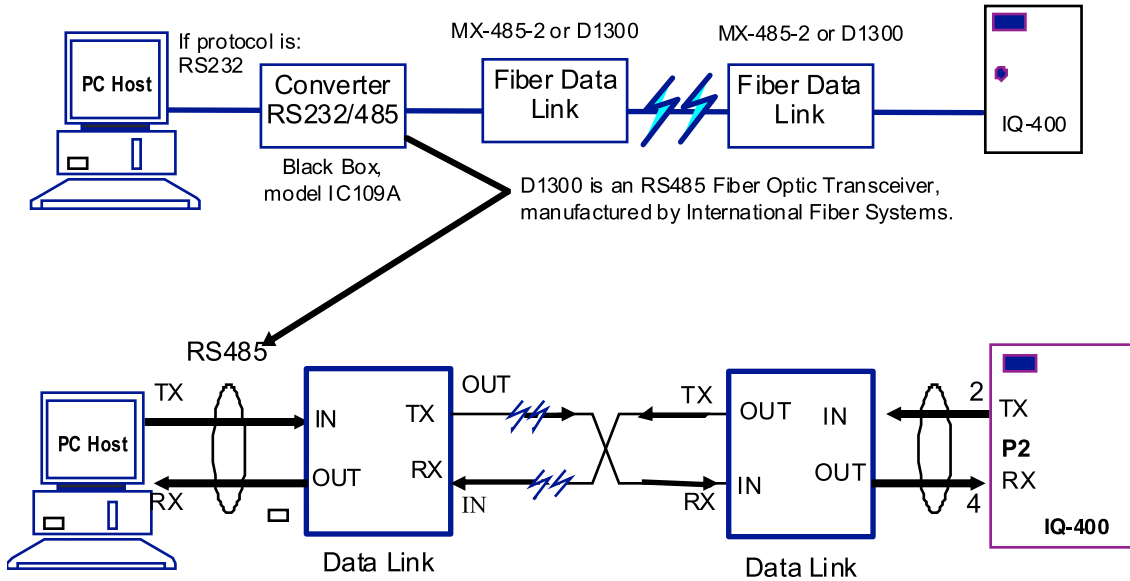
7.10.2.2 PC Host to Multiple IQ-400s Using Fiber Optics Repeater Modules (RS-485 Protocol)
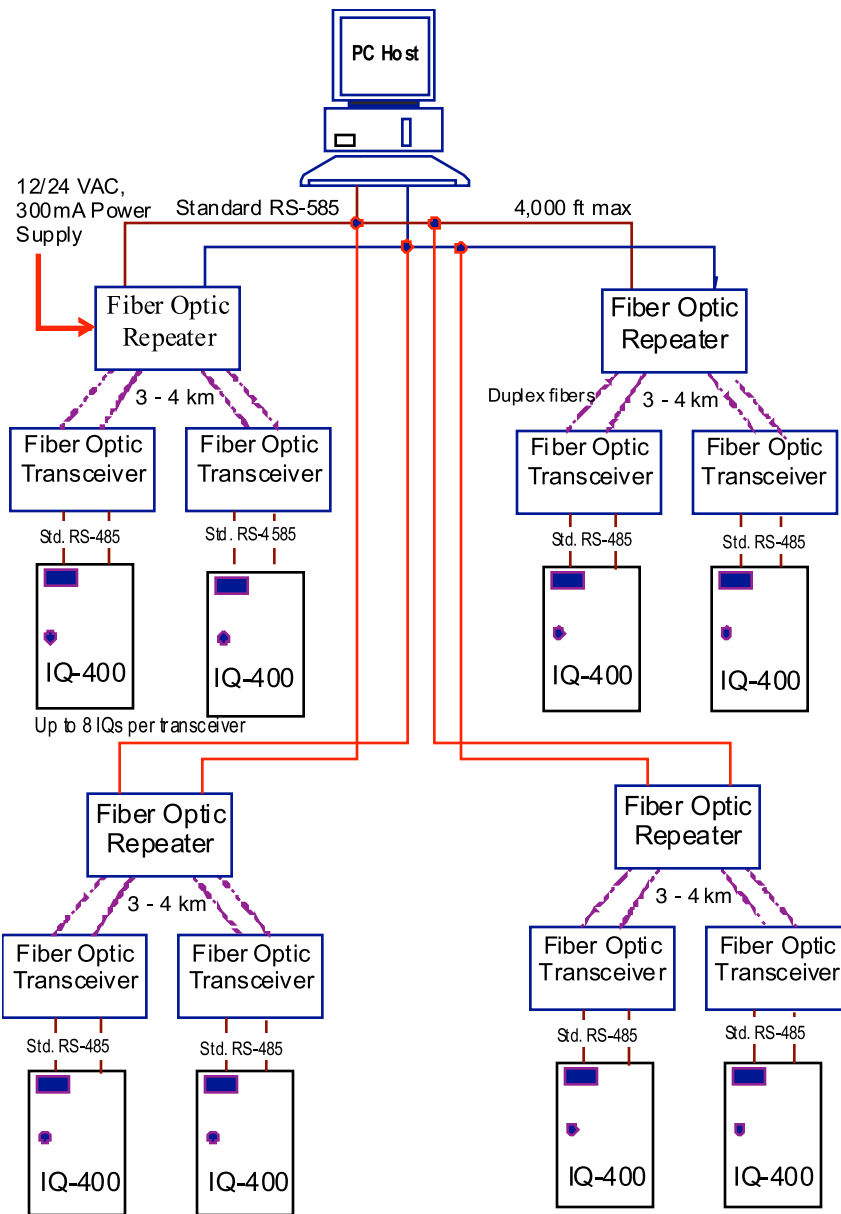
American Fibertek's MX-485-2 can be used as 2-port module (Repeater) and transceiver. D2300 model is required as 2-port star repeater and the D1300 as the transceiver in an IFS system.

NOTE: The MX-485-2 and D1300 have not been evaluated by UL, and is not suitable for UL installations.

7.10.3 Optical Transmission

The 485-2 series has been designed to be a reliable link for the transmission of data over long distances. The loss budget of 15 dB on 16.2u fiber should allow up to 5 kilometers of transmission distance.

The power output specifications are measured with a logic low state on the bus. When the bus is in the high impedance state, the transmission LED is at a very low output level (<-36dBm). Logic levels are encoded using pulse width modulation. If the optical connection is lost, the output bus goes to the HiZ state.

IFS (International Fiber Systems, Inc.) also follows similar specifications in their D1300 and D2300 series of RS-485 (Tri-state) fiber optics transceivers and repeaters. The following diagram illustrates the basic wiring connection using either of the 2 systems. Refer to the installation instructions of the specific supplier for more information.

> **NOTE**: The MX-485-2, D2300 and D1300 have not been evaluated by UL, and is not suitable for UL installations.

8.0 Status Lights and Dealing with Communication Errors

8.1 Status Lights

The IQ-400 circuit board has multiple LEDs. The status of the LED defines a certain activity or phase of IQ-400 functions. Card processing and door sense status is also indicated by the LEDs.

LED D76 is the Power ON Indicator

7-Segment LED's D49 and D50 indicate a CPU or Access Card Reader Error.

LED's D39 - D48, D13 - D20, and D86 - D89 indicates Status for all supervised sense inputs.

LED's D57 - D60 strobes (blinks momentarily) when a Card Reader transfers data to the IQ-400 for processing
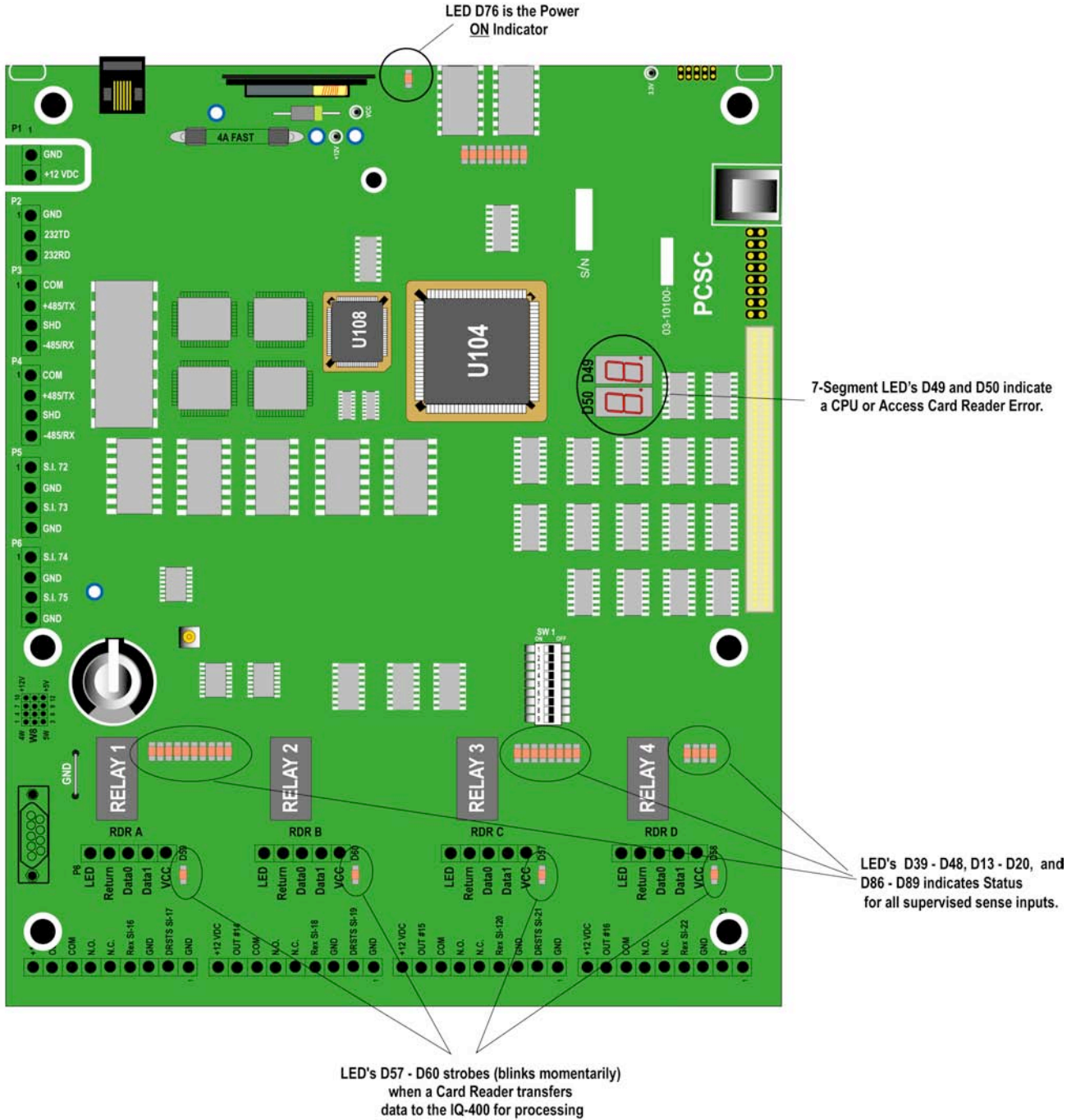
8.2 Communication Errors

Message at the PC	What to Do
IQ-400 is not responsive	Verify the following:

1. The red DC Power Indicator LED (D2) is ON.
2. Verify that the ID number corresponds to the IQ-400 at the PC. (Check settings of switches at SW1).
3. Check cabling. (RS232/MODEM/RS485/Terminal Server).
4. Remove the Battery for 5 minutes. Reinsert battery and restart IQ-400 panel.

8.2.1 LED Fatal Error Display Codes

(Please CALL your PCSC representative.)

E1   ROM error detected- Probable PCB failure.
E2   RAM error detected- Probable PCB failure. Verify that the IC at U108 is seated properly.
E4   Packet addressing error- IQ-400 failure
E5   Packet queuing error- IQ-400 failure.
E7   Terminal number configuration error- Readdress IQ-400.
ED   Database invalid- **RESET** and configure IQ-400 address
EE   Stray jump- Probable IQ-400 PCB failure.
EF   Execution of int vector- Probable IQ-400 PCB failure.

8.2.2 Error Codes

The seven-segment LEDs, D49 and D50, will indicate certain errors that can occur when processing cards. They also can communicate "fatal" errors that could occur. The following chart describes different error codes that are displayed by the seven-segment LEDs:

D Warning Error	Display Codes	Possible Problem	What to Do
C0 Card Error:	Parity check fail	Bad Card or dirty reader head	Clean reader head and re-try
C1 Card Error:	LRC check failed	Bad Card or dirty reader head	Clean reader head and re-try
C5 Card Error:	data length mismatch	Check for correct format type	Verify that the correct reader technology is specified
CC Card Error:	data conversion	Check for correct format type	Verify that the correct reader technology is specified
CE Card Error:	end-code not found	Bad card or dirty reader head	Clean reader head and re-try
CF Card Error:	facility code	The site code is invalid for this site	Load correct facility code or check cards
EC Hardware	Configuration error	The IQ-400 is not configured correctly	In LiNC-NET for Windows, select the Panel Setup icon and the Hardware file-tab to verify that the extension adapters are selected for this IQ-400.

Example #1 Error Code "CF"
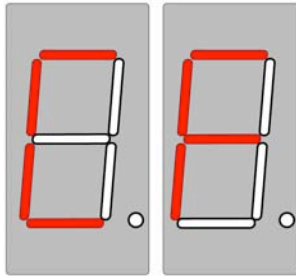
Example #2 Error Code "C5"
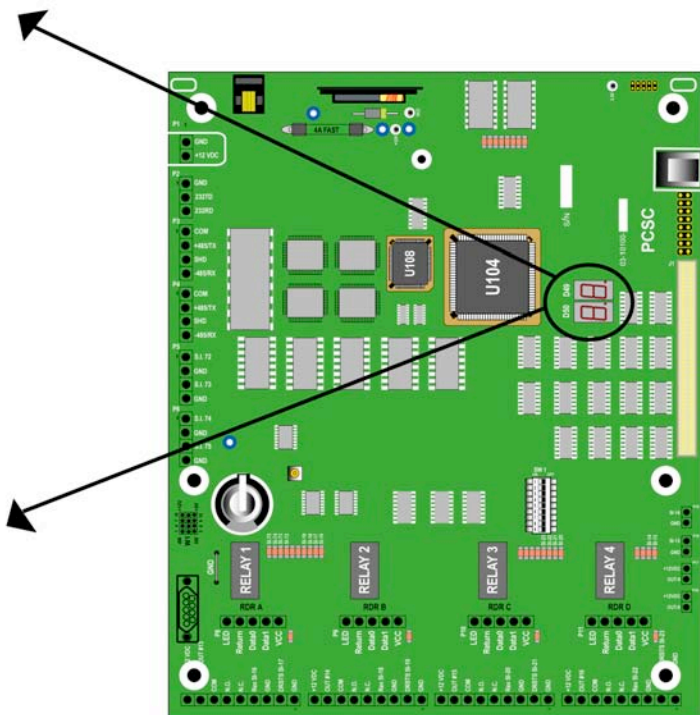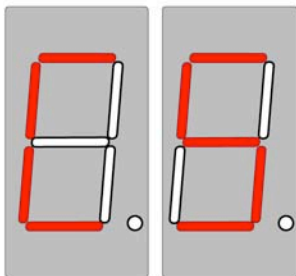
8.3 Control Counters and Sense Input Numbers for Output Control PCB

Control Counters and Sense Input Numbers for Output Control PCB P/N 03-10032-201

Unsupervised Sense Input Numbers
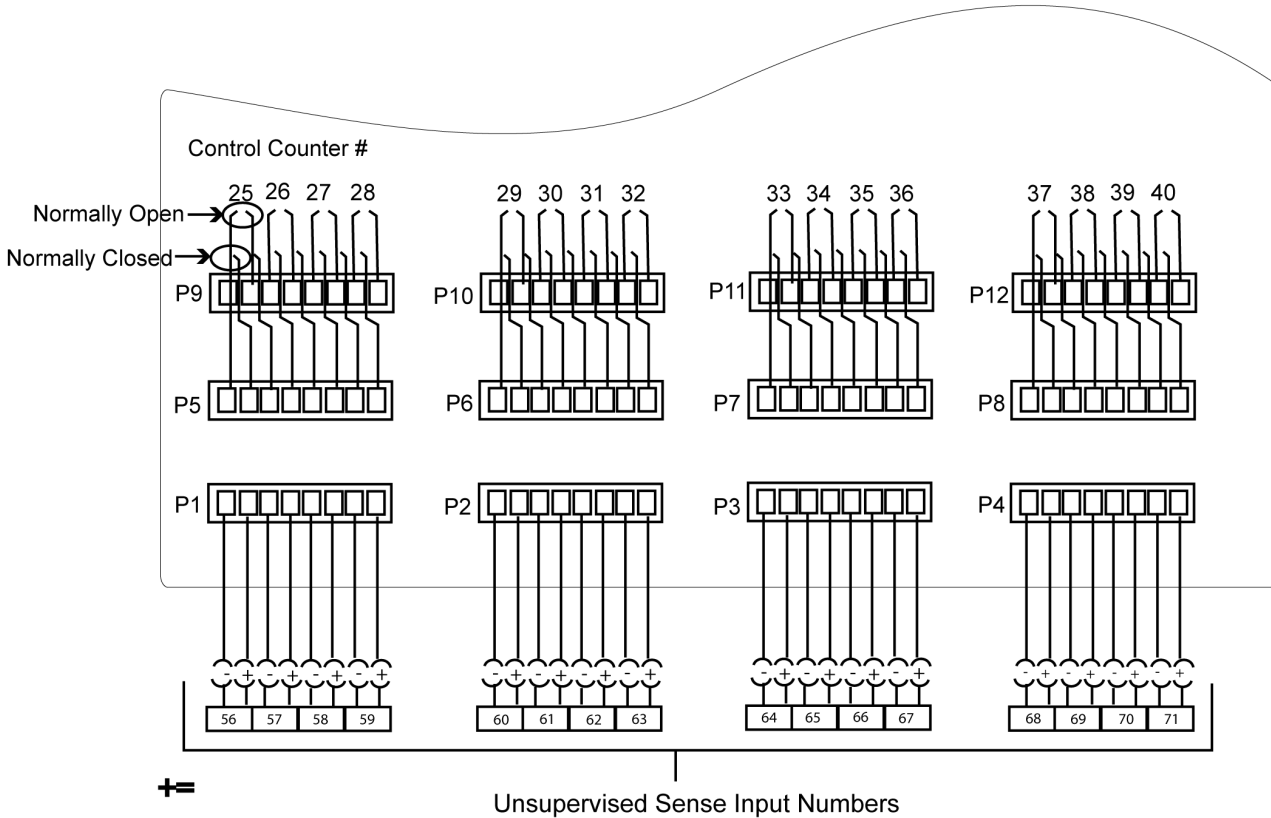
Sense Input Numbers for ALM (ALarm Monitor) PCB P/N 03-10032-301

Unsupervised Sense Input Numbers
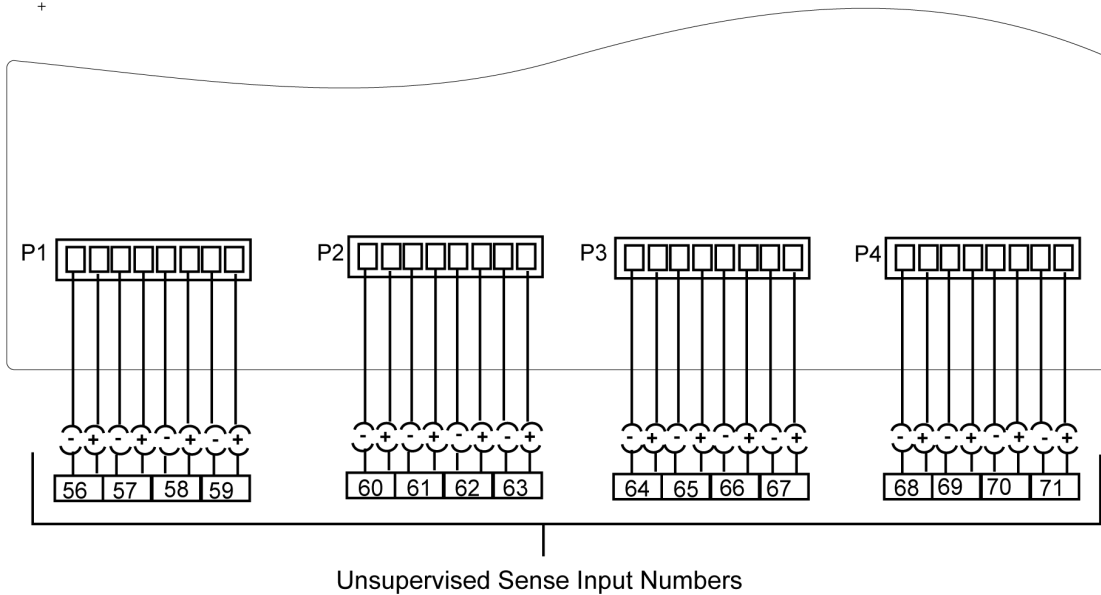
NOTE	Addressing of the Output/ALM PCB is done via switch SW-1. All eight switches should be in the OFF (0) position. Also, Jumper P-14 should be across pins #2 and #3 (HIGH PCB Address Range)

Sense Input Numbers on the Supervised Alarm Module

SAM-1, P/N 03-10056-101

| 4 3 2 1 | 4 3 2 1 | 4 3 2 1 | 4 3 2 1 |

P2 P3 P4 P5

| 41 | 40 | 43 | 42 | 45 | 44 | 47 | 46 |

Supervised Sense Input

Tamper Proof Area
180 Ohm
+ Input
300 Ohm
- Grd
TYPICAL

$180\Omega \times 300\Omega$
1/2 Watt Resistors
+/- 5% Tolerance

Tamper Proof Area
Ω
+
Ω
-
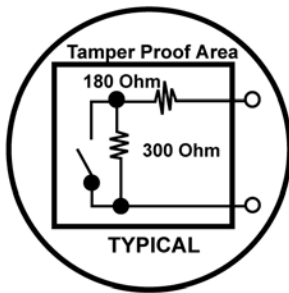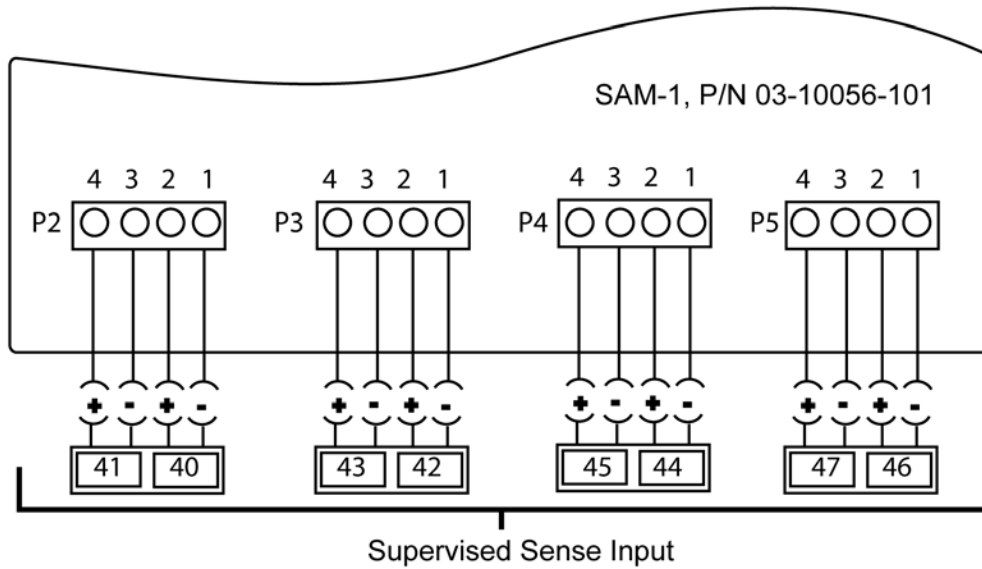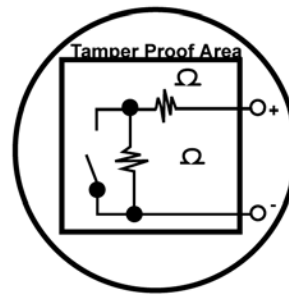
$1k\Omega \times 1k\Omega$
1/2 Watt Resistors
+/- 5% Tolerance

NOTE: Panels SAM 1 and SAM 2 are calibrated by toggling switch #3 at SW1 on each panel.

SAM-2, P/N 03-10056-003

| 4 3 2 1 | 4 3 2 1 | 4 3 2 1 | 4 3 2 1 |

P2 P3 P4 P5

| 49 | 48 | 51 | 50 | 53 | 52 | 55 | 54 |

Supervised Sense Input
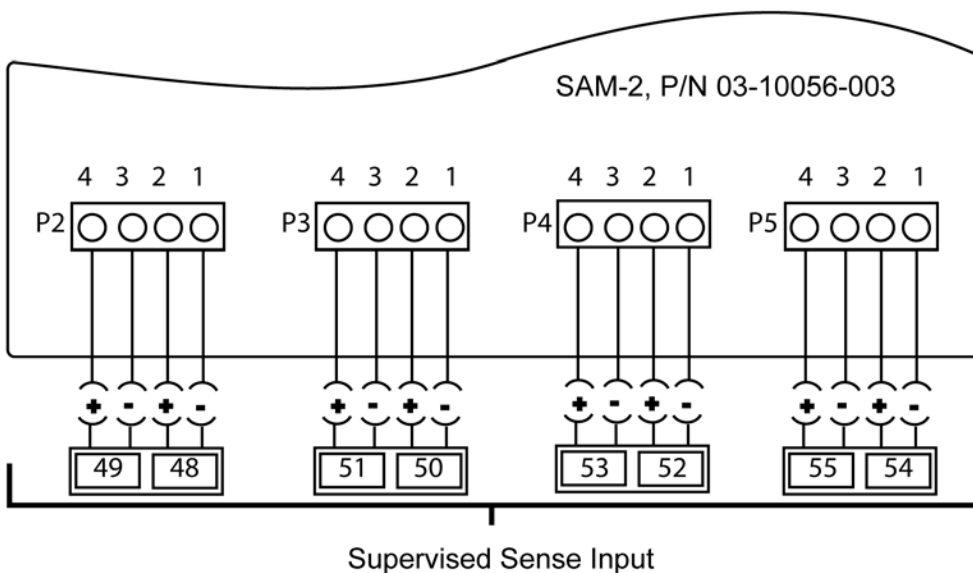
8.4 Proper Setting of SAM 1 and SAM 2

In a system that uses SAM 1 as a stand-alone, the W1 switch must be set to LOW (Pins 2-3).

In a system that uses both SAM 1 and SAM 2 together, SAM 1 needs to be set to LOW (Pins 2-3) and SAM 2 needs to be set to HIGH (Pins 1-2).

10 Segment LED - SAM 1

D18	D17	D16	D15	D14	D13	D12	D11	D10	D9
Circuit Voltage Indicator	NOT USED	S.I. #47	S.I. #46	S.I. #45	S.I. #44	S.I. #43	S.I. #42	S.I. #41	S.I. #40
SNS 10	SNS 9	SNS 8	SNS 7	SNS 6	SNS 5	SNS 4	SNS 3	SNS 2	SNS 1

LED to Connector Correspondence

SNS 1 = Sense 1
SNS 2 = Sense 2
SNS 3 = Sense 3
SNS 4 = Sense 4
SNS 5 = Sense 5
SNS 6 = Sense 6
SNS 7 = Sense 7
SNS 8 = Sense 8
SNS 9 = Not Used
SNS 10 = Circuit Voltage Indicator

10 Segment LED - SAM 2

D18	D17	D16	D15	D14	D13	D12	D11	D10	D9
Circuit Voltage Indicator	NOT USED	S.I. #55	S.I. #54	S.I. #53	S.I. #52	S.I. #51	S.I. #50	S.I. #49	S.I. #48
SNS 10	SNS 9	SNS 8	SNS 7	SNS 6	SNS 5	SNS 4	SNS 3	SNS 2	SNS 1

8.5 IQ Systems Upgrades and Capacities

Model	Readers	Supervised Reader Detect	Door Relay Outputs	Auxiliary Relay Outputs	External Shunt/ Local Alarm Transistor Outputs	Auxiliary Transistor Outputs	Supervised Door Sense Inputs	Supervised Egress Sense Inputs	Unsupervised Egress Sense Inputs	Supervised Auxiliary Sense Inputs	Unsupervised Tamper Sense Inputs	Unsupervised Auxiliary Sense Inputs
IQ200	2	2	2	0	2	2	2	2	0	5	1	0
IQ200/OUT	2	2	2	16	2	2	2	2	0	5	1	16
IQ200/ALM	2	2	2	0	2	2	2	2	0	5	1	16
IQ200/SAM	2	2	2	0	2	2	2	2	0	5	1	0
IQ200/ SAM2	2	2	2	0	2	2	2	2	0	5	1	0
IQ400	4	4	4	0	4	2	4	4	0	5	1	0
IQ400/OUT	4	4	4	16	4	2	4	4	0	5	1	16
IQ400/ALM	4	4	4	0	4	2	4	4	0	5	1	16
IQ400/SAM	4	4	4	0	4	2	4	4	0	13	1	0
IQ400/ SAM2	4	4	4	0	4	2	4	4	0	21	1	0
IQ600	6	6	6	0	6	2	6	6	0	5	1	0
IQ600/OUT	6	6	6	16	6	2	6	6	0	5	1	16
IQ600/ALM	6	6	6	0	6	2	6	6	0	5	1	16
IQ600/SAM	6	6	6	0	6	2	6	6	0	5	1	0
IQ600/ SAM2	6	6	6	0	6	2	6	6	0	5	1	0
IQ1000	10	10	10	0	10	2	10	10	0	5	1	0
IQ1000/ OUT	10	10	10	16	10	2	10	10	0	5	1	16
IQ1000/ ALM	10	10	10	0	10	2	10	10	0	5	1	16
IQ1000/ SAM	10	10	10	0	10	2	10	10	0	5	1	0
IQ1000/ SAM2	10	10	10	0	10	2	10	10	0	5	1	0
IQ1200	12	12	12	0	12	2	12	12	0	5	1	0
IQ800	8	8	8	0	8	2	8	8	0	5	1	0
IQ800/OUT	8	8	8	16	8	2	8	8	0	5	1	16
IQ800/ALM	8	8	8	0	8	2	8	8	0	5	1	16
IQ800/SAM	8	8	8	0	8	2	8	8	0	5	1	0
IQ800/SM2	8	8	8	0	8	2	8	8	0	5	1	0

*Form C Dry Contact- Relay comprised of normally open (N.O.), normally closed (N.C.) and common (COM) contacts which are available for connection. Contacts are rated at two amps, 12/24 VDC continuous power.

8.6 RS-232/485 Terminal Servers

8.6.1 IQ Server Controller to LANtronix UDS-1100 Terminal Server Wiring Diagram for RS-232

The cable between the UDS-1100 and the IQ controller will require a 25 PIN male connector for the terminal server side and flying leads for the IQ controller side.

25 PIN Female Connector on the UDS-1100

3 PIN RS-232 Connector on the IQ Controller (P2)

Lantronix UDS-1100
RS-232 & RS-485
Terminal Server
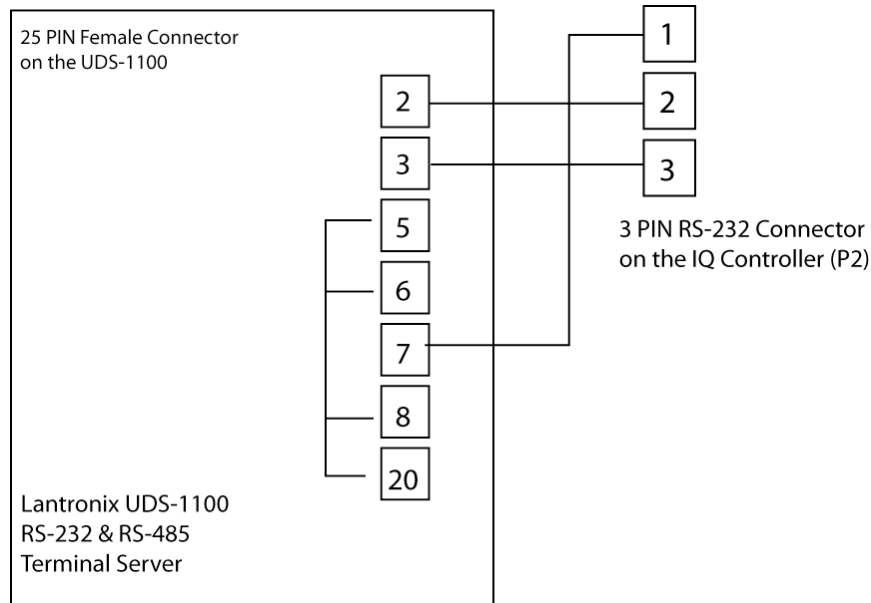
8.6.2 IQ Server Controller to LANtronix UDS-1100 Terminal Server Wiring Diagram for RS-485

The cable between the UDS-1100 and the IQ controller will require a 25 PIN male connector for the terminal server side and flying leads for the IQ controller side.

25 PIN Female Connector on the UDS-1100

1 GND
2 +485
3 SHD (not used)
4 -485

IQ Controller
RS-485 Terminal Block (P4)

Lantronix UDS-1100
RS-232 & RS-485
Terminal Server
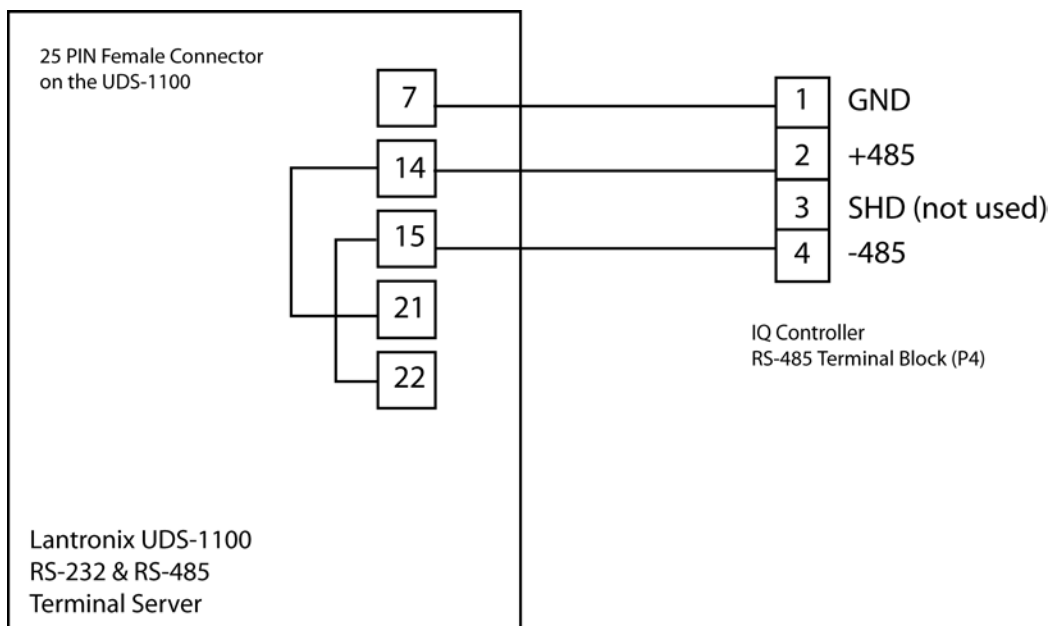
8.6.3 IQ Server Controller to the EasySync USB Converter

RS-485 2-Wire (Half Duplex) Signal Pin-outs of Terminal Block (TB1)

Pin 1 = Data - (A)
Pin 2 = Data + (B)
Pin 6 = GND

USB

6 5 4 3 2 1

PWR
RxD
TxD

SW   Serial

P1
1 GND
   +

P2
1 GND
   232TD
   232RD

P4
1 COM
   +485/TX
   SHD
   -485/RX

P3
1 COM
   +485/TX
   SHD
   -485/RX

PCSC Panel
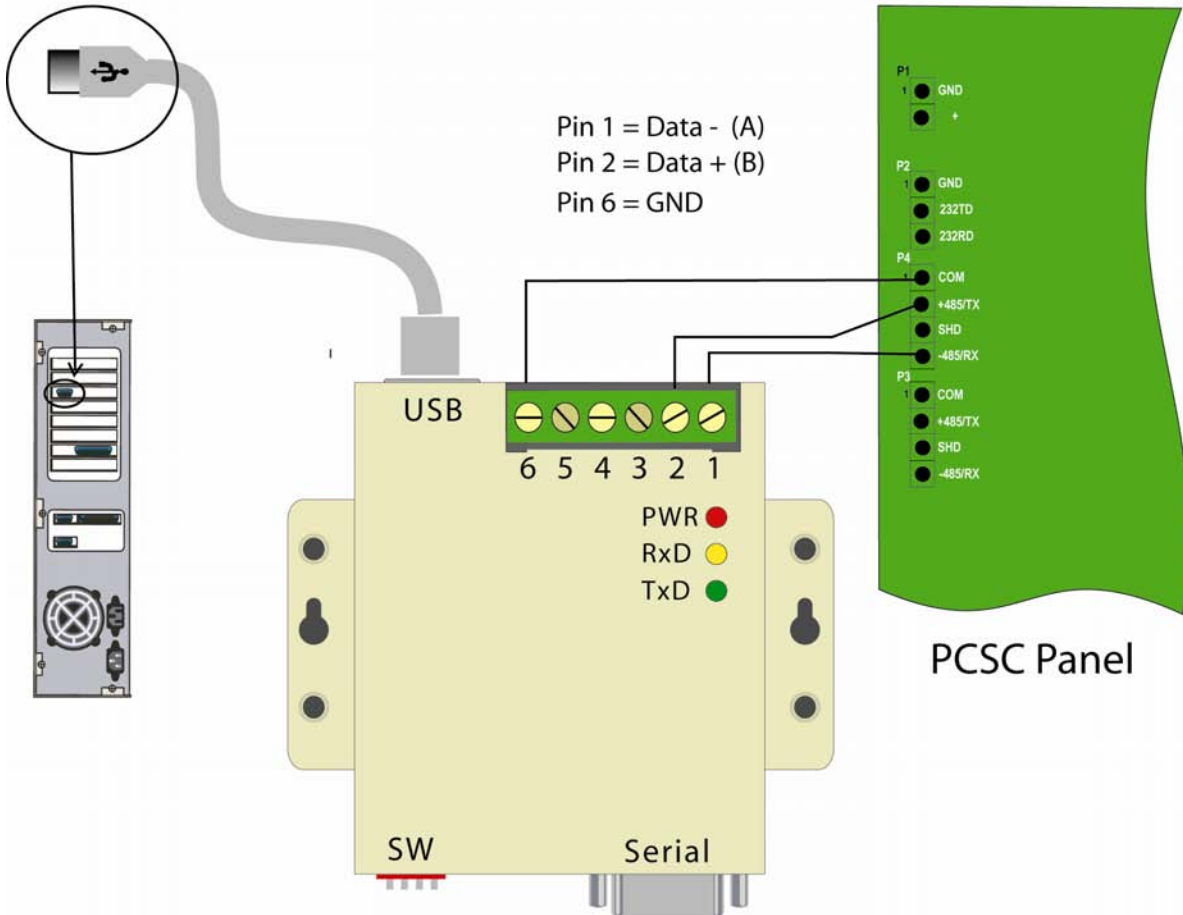
8.7 RS-232-485/422 Converters: Printed Circuit Board Layout

W8 A-B = 2 WIRE
B-C = 4 WIRE

W 16

A B C D E

W8

A B C

P2

Pin 4
Pin 2

TA
TB
RA
RB

ON

ON

W9

A   30 msec
B   10 msec
C   0 msec
D   ON

A-B + RTS/CTS
B-C = RTS/CTS/CD

W5

A
B
C

DCE

J1

XWIA

W15

A B C

A B C D E

W17

S1

W15 A-B = RTS/CD ENABLED
B-C = DATA ENABLED
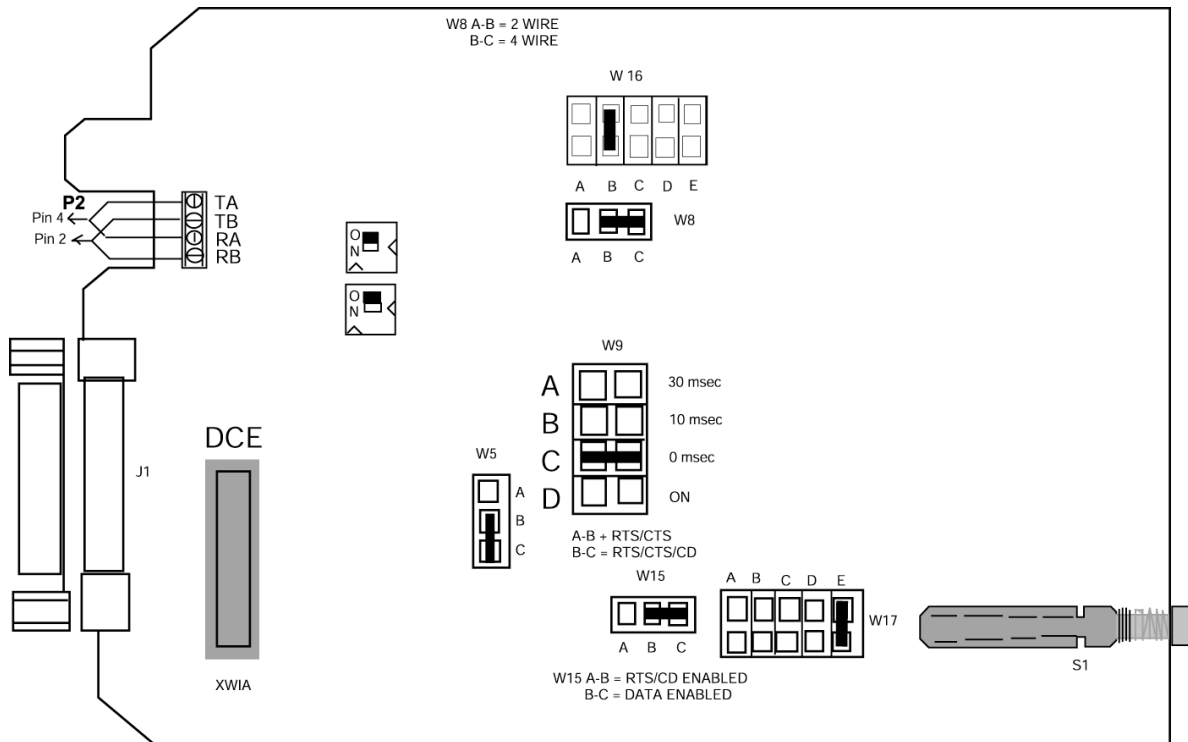
8.8 User Selectable Options

Underlined settings are for LiNC-NET <u>User -Selectable Options</u>.
An asterisk (*) designates the factory preset jumper settings.

XWIA	<u>DCE*</u>	
XWIB	DTE	
W8	A-B	4-wire
	<u>B-C*</u>	2-wire
W15	A-B	<u>RTS/CD enabled</u>
	<u>B-C*</u>	Data enabled (Maximum speed is 64K)
W5	A-B	<u>RTS/CTS* delay (normal)</u>
	<u>B-C*</u>	RTS/CTS/CD delay (CTS inhibited if CD is present when RTS is raised.
		RTS/CTS delay (The time before the RS-485 driver is enabled and CTS is asserted after RTS is asserted. The RS-485 driver is always enabled.)

W9		
	A	30 msec
	B	10 msec
	<u>C*</u>	**<u>0 msec</u>**
	D	ON
W17		When W15 is in the B-C (Data Enabled) position, this is the time the RS-485 driver remains enabled after a low-to-high transition on the DATA line to prevent disabling the driver in the middle of a character.
	A	70 msec
	B	7 msec
	C	2 msec
	D	0.7 msec
	<u>E*</u>	**<u>0.15 msec</u>**
W16		Turnaround delay (When W8 is in the B-C [2 wire] position, this is the time after the driver is disabled and *before* the receiver is enabled.)
	A	0 msec
	<u>B*</u>	**<u>msec</u>**
	<u>C*</u>	<u>msec</u>
	D	5 msec
	E	35 msec

> **NOTE** If the converter is configured Data Enabled (W15, position B-C) and 2-wire (W8, position B-C), then delays from W17 and W16 are cumulative.

S1	**<u>OUT*</u>**	**<u>Normal</u>**
	IN	Loopback
S2	**<u>OFF*</u>**	**<u>RS-485 Receiver Unterminated</u>**
	ON	RS-485 Terminated
S3	**<u>OFF*</u>**	**<u>Line Bias Off</u>**

ON   Line Bias On (The Carrier Detect light will come on. Default is +5 volts.)

TB1   4-wire terminal block

W19   (Open) - Not jumpered.

8.9 Point Definitions

8.9.1 Sense Inputs

8.9.1.1 IQ-400 Point Definitions – Sense Inputs

IQ (P/N 03-10111-201)

Designation	Location
S1	P8, Reader a
S2	P9, Reader b
S3	P10, Reader c
S4	P11, Reader d

IQ (P/N 03-10111-201)

S13 through S23 are located on the IQ-400.

Designation	Location
S13	P18, pin 1, 2
S14	P19, pin 1, 2
S16	P12, pin 3, 4
S17	P12, pin 1, 2
S18	P13, pin 3, 4
S19	P13, pin 1, 2
S20	P14, pin 3, 4
S21	P14, pin 1, 2
S22	P15, pin 3, 4
S23	P15, pin 1, 2

IQ (P/N 03-10111-201)

S120 through S123 are located on the IQ-400.

Designation	Location
S120	P5, pin 1, 2
S121	P5, pin 3, 4
S122	P6, pin 1, 2
S123	P6, pin 3, 4

IQ SAM/1st SAM Board (P/N 03-10056-201)

1st SAM PCB is used in:
IQ-400/SAM
IQ-400/SAM2
IQ-800/SAM
IQ-400/SAM2

Designation	Location
S40	P2, pin 1, 2,
S41	P2, pin 3, 4
S42	P3, pin 1, 2
S43	P3, pin 3, 4
S44	P4, pin 1, 2
S45	P4, pin 3, 4
S46	P5, pin 1, 2
S47	P5, pin 3, 4

IQ SAM/2nd SAM Board (P/N 03-10056-201)

2nd SAM PCB is used in:

IQ-800/SAM
IQ-800/SAM2

Designation	Location
S48	P2, pin 1, 2,
S49	P2, pin 3, 4
S50	P3, pin 1, 2
S51	P3, pin 3, 4
S52	P4, pin 1, 2
S53	P4, pin 3, 4
S54	P5, pin 1, 2
S55	P5, pin 3, 4

IQ/OUT/ALM*

Designation	Location
S56	P1, pin 7, 8
S57	P1, pin 5, 6
S58	P1, pin 3, 4
S59	P1, pin 1, 2
S60	P2, pin 7, 8
S61	P2, pin 5, 6
S62	P2, pin 3, 4
S63	P2, pin 1, 2
S64	P3, pin 7, 8
S65	P3, pin 5, 6
S66	P3, pin 3, 4
S67	P3, pin 1, 2
S68	P4, pin 7, 8
S69	P4, pin 5, 6
S70	P4, pin 3, 4
S71	P4, pin 1, 2

*Sense inputs 56 through 71 are located on the ALM PCB (P/N 03-10032-301) in an IQ/ALM.

The same sense inputs are also used in the OUTPUT PCB (P/N 03-10032-201F) in an IQ/OUT.

8.9.1.2 IQ-800 Series Point Definitions – Sense Inputs

4-Reader Cluster Board (P/N 03-10102-301)

	Designation	Location
S5 through S8 are located on the 4-Reader Expansion PCB.	S5	P10, Reader e
	S6	P16, Reader f
	S7	P12, Reader g
	S8	P14, Reader h

4-Reader Expansion Board (P/N 03-10102-301)

	Designation	Location
S24 through S31 are located on the 4-Reader Expansion PCB.	S24	P11, pin 3, 4
	S25	P11, pin 1, 2
	S26	P17, pin 3, 4
	S27	P17, pin 1, 2
	S28	P13, pin 3, 4
	S29	P13, pin 1, 2
	S30	P15, pin 3, 4
	S31	P15, pin 1, 2

IQ SAM/1st SAM Board (P/N 03-10056-201)

	Designation	Location
1st SAM PCB is used in: IQ-400 SAM IQ-400 SAM2 IQ-800 SAM IQ-800 SAM2	S40	P2, pin 1, 2,
	S41	P2, pin 3, 4
	S42	P3, pin 1, 2
	S43	P3, pin 3, 4
	S44	P4, pin 1, 2
	S45	P4, pin 3, 4
	S46	P5, pin 1, 2
	S47	P5, pin 3, 4

IQ SAM/2nd SAM Board (P/N 03-10056-201)

	Designation	Location
2nd SAM PCB is used in: IQ-400 SAM2 IQ-800 SAM2	S48	P2, pin 1, 2,
	S49	P2, pin 3, 4
	S50	P3, pin 1, 2
	S51	P3, pin 3, 4
	S52	P4, pin 1, 2
	S53	P4, pin 3, 4
	S54	P5, pin 1, 2
	S55	P5, pin 3, 4

IQ/OUT/ALM*

Designation	Location
S56	P1, pin 7, 8
S57	P1, pin 5, 6
S58	P1, pin 3, 4
S59	P1, pin 1, 2
S60	P2, pin 7, 8
S61	P2, pin 5, 6
S62	P2, pin 3, 4
S63	P2, pin 1, 2
S64	P3, pin 7, 8
S65	P3, pin 5, 6
S66	P3, pin 3, 4
S67	P3, pin 1, 2
S68	P4, pin 7, 8
S69	P4, pin 5, 6
S70	P4, pin 3, 4
S71	P4, pin 1, 2

*Sense inputs 56 through 71 are located on the ALM PCB (P/N 03-10032-301) in an IQ/ALM.

The same sense inputs are also used in the OUTPUT PCB (P/N 03-10032-201) in an IQ/OUT.

8.9.1.3 IQ-1200 Series Point Definitions – Sense Inputs

8-Reader Expansion Board (P/N 03-10102-201E)

Designation	Location
S5	P2, Reader e
S6	P8, Reader f
S7	P4, Reader g
S8	P6, Reader h
S9	P10, Reader i
S10	P16, Reader j
S11	P12, Reader k
S12	P14, Reader l

8-Reader Expansion Board (P/N 03-10102-201E

S24 through S39 are located on the 8-Reader Expansion Board.

Designation	Location
S24	P3, pin 3, 4
S25	P3, pin 1, 2
S26	P9, pin 3, 4
S27	P9, pin 1, 2
S28	P5, pin 3, 4
S29	P5, pin 1, 2
S30	P7, pin 3, 4
S31	P7, pin 1, 2
S32	P11, pin 3, 4
S33	P11, pin 1, 2
S34	P17, pin 3, 4
S35	P17, pin 1, 2
S36	P13, pin 3, 4
S37	P13, pin 1, 2
S38	P15, pin 3, 4
S39	P15, pin 1, 2

8.9.2 Outputs

8.9.2.1 IQ-400 Series Point Definitions – Outputs

IQ-400 (P/N: 03-10111-201)

IQ Form C Relay	Connector	Common	Normally Open	Normally Closed
01	P12	Pin 7	Pin 6	Pin 5
02	P13	Pin 7	Pin 6	Pin 5
03	P14	Pin 7	Pin 6	Pin 5
04	P15	Pin 7	Pin 6	Pin 5

IQ Open Collector	Connector		+12VDC Output	Open Collector Output
13	P12		Pin 9	Pin 8
14	P13		Pin 9	Pin 8
15	P14		Pin 9	Pin 8
16	P15		Pin 9	Pin 8

IQ-400/OUT (P/N: 03-1032-201F)

IQ OUT/ ALM Form C Relay	Connector	Common	Normally Closed	Connector	Common	Normally Open
25	P5	Pin 8	Pin 7	P9	Pin 8	Pin 7
26	P5	Pin 6	Pin 5	P9	Pin 6	Pin 5
27	P5	Pin 4	Pin 3	P9	Pin 4	Pin 3
28	P5	Pin 2	Pin 1	P9	Pin 2	Pin 1
29	P6	Pin 8	Pin 7	P10	Pin 8	Pin 7
30	P6	Pin 6	Pin 5	P10	Pin 6	Pin 5
31	P6	Pin 4	Pin 3	P10	Pin 4	Pin 3
32	P6	Pin 2	Pin 1	P10	Pin 2	Pin 1
33	P7	Pin 8	Pin 7	P11	Pin 8	Pin 7
34	P7	Pin 6	Pin 5	P11	Pin 6	Pin 5
35	P7	Pin 4	Pin 3	P11	Pin 4	Pin 3
36	P7	Pin 2	Pin 1	P11	Pin 2	Pin 1

8.9.2.2 IQ-800 Series Point Definitions – Outputs

4-Reader Expansion PCB (P/N: 03-10102-301E)

IQ Form C Relay	Connector	Common	Normally Open	Normally Closed
05	P11	Pin 7	Pin 6	Pin 5
06	P17	Pin 7	Pin 6	Pin 5
07	P13	Pin 7	Pin 6	Pin 5
08	P15	Pin 7	Pin 6	Pin 5

IQ Open Collector	Connector		+12VDC Output	Open Collector Output
17	P11		Pin 9	Pin 8
18	P17		Pin 9	Pin 8

IQ-800/OUT (P/N: 03-10032-201F)

IQ OUT/ ALM Form C Relay	Connector	Common	Normally Closed	Connector	Common	Normally Open
25	P5	Pin 8	Pin 7	P9	Pin 8	Pin 7
26	P5	Pin 6	Pin 5	P9	Pin 6	Pin 5
27	P5	Pin 4	Pin 3	P9	Pin 4	Pin 3
28	P5	Pin 2	Pin 1	P9	Pin 2	Pin 1
29	P6	Pin 8	Pin 7	P10	Pin 8	Pin 7
30	P6	Pin 6	Pin 5	P10	Pin 6	Pin 5
31	P6	Pin 4	Pin 3	P10	Pin 4	Pin 3
32	P6	Pin 2	Pin 1	P10	Pin 2	Pin 1
33	P7	Pin 8	Pin 7	P11	Pin 8	Pin 7
34	P7	Pin 6	Pin 5	P11	Pin 6	Pin 5
35	P7	Pin 4	Pin 3	P11	Pin 4	Pin 3
36	P7	Pin 2	Pin 1	P11	Pin 2	Pin 1
37	P8	Pin 8	Pin 7	P12	Pin 8	Pin 7

8.9.2.3 IQ-1200 Series Point Definitions – Outputs

8-Reader Expansion PCB (P/N: 03-10102-201E)

IQ Form C Relay	Connector	Common	Normally Open	Normally Closed
05	P3	Pin 7	Pin 6	Pin 5
06	P9	Pin 7	Pin 6	Pin 5
07	P5	Pin 7	Pin 6	Pin 5
08	P7	Pin 7	Pin 6	Pin 5
09	P11	Pin 7	Pin 6	Pin 5
10	P17	Pin 7	Pin 6	Pin 5
11	P13	Pin 7	Pin 6	Pin 5
12	P15	Pin 7	Pin 6	Pin 5

IQ Open Collector	Connector	+12VDC Output	Open Collector Output
17	P3	Pin 9	Pin 8
18	P9	Pin 9	Pin 8
19	P5	Pin 9	Pin 8
20	P7	Pin 9	Pin 8

9.0 Appendix A - IQ-400 Specifications

9.1 IQ-400 Features

2 Auxiliary Powered Outputs (cc# 89, 90)
1 Unsupervised Tamper Sense Input (S13)
4 Reader Ports:
-5-wire Wiegand interface
-4-wire PCSC Proprietary
4 Form C Door Strike Outputs
(2 Amps @ 24 VDC)
(cc# 1, 2, 3 and 4) 2 Amps continuous power @12/24 VDC
4 Door Left Open Outputs (or 4 External Shunt Options) (cc# 13, 14, 15 and 16)
4 Supervised Door Senses (S17, 19, 21, 23)
5 User Defined Sense Inputs (S14, S120, S121, S122, S123)
4 Request to Exit Inputs (S16, 18, 20, 21)
Battery Backed Clock Calendar
Flash RAM 128K standard (up to 256K)
Battery Backed RAM 256K standard (up to 512K)
LEDs for:
Power, alarm, on-line diagnostics
Reader Data [Error code, door status]
Tamper detect (S13)
Type of Communications: RS-232, RS-485, LAN

9.1.1 System Capacities

Cardholder Capacity: 8,000 (20,000 w/Memory Expansion)
Time Periods: 32
Holiday Time Periods: 32
Holiday List: 366 Days (Leap Year)
History Transactions: 4,000 regardless of memory size

9.1.2 Electrical Ratings

Power: 12VDC
Draw: 524mA @ 13.65V
Relay Contacts   2 A @ 24 VDC

Data0/Data1   5 Vdc @ 0 mA for Logic 1
                       0 Vdc @ 5mA for Logic 0
Card Reader Draw: 100mA @ 12 VDC

Alarm Point Voltage   5.0 Vdc @ 0.0 mA when Sense Input is in Open Circuit Physical State.
& Tamper Voltage   0.0 Vdc @ 5.0 mA when Sense Input is in Short Circuit Physical State.
                          1.6 Vdc @ 3.4 mA when Sense Input is in Alarm Physical State.
                          0.9 Vdc @ 4.1 mA when Sense Input is in Normal Physical State.

9.1.3 Spare Parts- IQ-400 PCB

Part Number	Description	Designation
81-09009	3V Lithium Battery	BT1
78-01001	4A 250V 1/4 x 1/4, 3AG Fuse	F1
83-02082	5-pin Plug Connector	P8, P9, P10, P11
83-02083	2-pin Plug Connector	P1, P16, P17, P18, P19
83-02084	4-pin Plug Connector	P3, P4, P5, P6
83-02085	3-pin Plug Connector	P2
83-02086	9-pin Plug Connector	P12, P13, P14, P15
79-03022	DPST Relay	K1, K2, K3, K4
83-02007	Jump Connector	For W1 – W9

9.2 IQ 4-Reader Expansion Module (P/N: 03-10102-301E)

The IQ-400 4-reader system can be expanded to an 8-reader system by installing the 4-Reader Expansion Module. The circuit board (Part # 03-10102-10X) can be mounted below the circuit board in the larger enclosures available from PCSC. Once mounted, the circuit board is connected to the IQ-400 by installing a 50-pin ribbon expansion cable from P1 on the 4-reader module to J1 on the IQ-400.

The 4-Reader Expansion Module allows the user to connect up to 4 additional readers to the IQ-400. Each of the reader interfaces support either a PCSC proprietary reader (4-wire interface), or a Wiegand reader (5-wire interface). The Expansion Module also provides an additional 4 interfaces for each of the readers and the associated doors. These include the following:

- Multilevel door sense inputs (Supervised door sense inputs)
- Reader Present inputs (Reader connected/disconnected)
- Request to Exit inputs (Unsupervised egress inputs)
- Relay contacts for door control outputs (Form C dry contacts rated for 2.0 Amps @ 12/24VDC continuous power)
- Door shunt outputs (Open Collector output rated for +12 VDC @ 100mA)
- Door Shunt/Local Alarm

9.2.1 Electrical Ratings

Power:	12VDC
Draw:	160mA @ 12V
Relay Contacts	2 A @ 24 VDC
Data0/Data1	5 Vdc @ 0 mA for Logic 1
	0 Vdc @ 5mA for Logic 0
Card Reader Draw:	100mA @ 12 VDC
Alarm Point Voltage	5.0 Vdc @ 0.0 mA when Sense Input is in Open Circuit Physical State.
& Tamper Voltage	0.0 Vdc @ 5.0 mA when Sense Input is in Short Circuit Physical State.
	1.6 Vdc @ 3.4 mA when Sense Input is in Alarm Physical State.
	0.9 Vdc @ 4.1 mA when Sense Input is in Normal Physical State.

9.2.2 Power Supply

The 4-reader Expansion Module requires +5VDC for all logic. Relays, output drivers, etc. require a +12VDC supply. The +5VDC and +12VDC is provided to the module via the 50-pin expansion cable, which connects plug P1 of the 4-door cluster PCB (P/N 03-10102-301E) to plug J1 of the IQ-400 board, (P/N 03-10111-201).

9.2.3 Door Sense LEDs

4 LEDs located at D17, D18, D19, and D20 indicate the status of the Door circuits. Resistors <u>must</u> be installed at the door contacts, the switches in place, door closed (normal state), and the lines calibrated, in order for the supervised inputs to function. See Step 4 for installation and calibration procedure.

LED Status Chart (for IQ-400 firmware I4+07.010.02 series):

- Sense Input #25 LED is D17
- Sense Input #27 LED is D18
- Sense Input #29 LED is D19
- Sense Input #31 LED is D20

> **NOTE**   LEDs D21-D24 are not used in the IQ-800.

OFF	Circuit is in normal/secure state
ON	Circuit is in an alarm condition state
Blinks once every 2 seconds	Fault condition. Open circuit state
Blinks 1 time/second	Fault condition. Short circuit state
Blinks 4 times/second	Circuit is NOT calibrated and NOT in a functional state

9.2.4 Four-Reader Expansion Board- Active LEDs (P/N: 03-10102-301E)

4 LEDs located at D61, D62, D67, D68 indicate the status of the Reader circuits. When the LED blinks momentarily after a card swipe, the system is processing the card data. The LED is normally off.

Reader LED Status:

- **Reader E LED is D61**
- **Reader F LED is D62**
- **Reader G LED is D67**
- **Reader H LED is D68**

9.2.5 Jumpers

Reader type is selected by the use of jumpers located in between the reader ports at W5 and W11-W14. Refer to each diagram of reader-types on Section 5.0 [*Reader Connections*] for the proper setting of these jumpers. Four other jumpers, located at W1, W2, W3, W6 and W15, designate chip selection, and are set at the factory. They should not be changed unless directed by technical support.

The setting of the four jumpers at W5 (*4W* or *5W*) determines how the jumpers next to each reader port is set. Also, when using a 5-wire, 12VDC reader, you can control the voltage at PIN 1, by moving the leftmost jumpers at W5 in conjunction with the reader port jumper setting (see Section 9.11.2 – next page).

9.2.5.1 Four-Reader Expansion Board (P/N: 03-10102-301E) - Jumper Selections

There are five jumper units located on the 4-Reader Expansion PCB circuit board. The settings are shown below.

- W1 at Pins 2 and 3 = PCB addressed to High Address Range
- W1 at Pins 1 and 2 = PCB addressed to Low Address Range

PIN Designation Chart

10	7	4	1
11	8	5	2
12	9	6	3

← **W5**

- W5 (for Readers **e-h**)
  - At pins 1 and 2, 4 and 5, 7 and 8, 10 and 11= Wiegand 5-Wire 5 volt card readers
  - At pins 2 and 3, 4 and 5, 7 and 8, 10 and 11= Wiegand 5-Wire 12 volt card readers
  - At pins 2 and 3, 5 and 6, 8 and 9, 11 and 12= PCSC 4-Wire 12 volt card readers
- W6 – Reader T/O
  - At pins 1 and 2 = 32 ms (PCSC Factory Set. Do <u>not</u> modify)
  - At pins 2 and 3 = 64 ms
- W11-W14 Reader Data Format
  - At pins 1 and 2 = Wiegand 5-wire (Data 1's and Data 0's) format
  - At pins 2 and 3= PCSC 4-wire (proprietary) format
- SW1 Switch Settings (to configure PCB for doors 5-8)
  - Switch 2 = OFF
  - Switches 1,3,4,6,7,8 = ON = 4 Reader PCB
  - Switch 5 = ON to enable Supervision Option of ALL Egress Sense Inputs (#24, 26, 28, and 30).
  - Switch 5 = OFF to disable Supervision of ALL Egress Sense Sense Inputs (#24, 26, 28, and 30).

NOTE   Supervised Egress Option requires i4+07.010.02 series (or newer) IQ-400 firmware.

9.3 IQ-800 Features (IQ-400 plus 4-Reader Expansion Module)

9.3.1 Two Auxiliary (Powered) Outputs (cc# 89, 90)

8 Reader Ports:
(Wiegand electrical interface for PCSC and OEM card readers) (Readers a-h)
8 Form C Door Strike Outputs (2.0 amps @ 12/24 VDC continuous power)
8 Door Left Open Outputs (or 8 External Shunt Options)
8 Supervised Door Senses (17, 19, 21, 23, 25, 27, 29, 31)
5 Supervised User-Defined (Auxiliary) Sense Inputs (S14, S120, S121, S122, S123)
8 Supervised Request to Exit Inputs (16, 18, 20, 22, 24, 26, 28, 30)
Battery Backed Clock Calendar
Flash RAM 128K standard (up to 256K)
Battery-Backed RAM 256K standard (up to 512K)
LEDs for:
Power, alarm, on-line diagnostics Reader Data [Error code, Door Status]
Unsupervised Tamper detect (S13)

9.3.2 System Capacities

Cardholder Capacity:	8,000 (20,000 w/ Memory Expansion)
Time Periods:	32
Holiday Time Periods:	32
Holiday List:	366 Days (Leap Year)
History Transactions:	4,000 regardless of memory size
Enclosure Dimensions:	18"H x 11.5"W x 6"D (45.7cm x 29.2cm x 15.2cm)
Weight:	38 lbs. (17.3kg)
Power:	12VDC
Draw:	3 amp @ 12VDC
Temperature:	32°F to 115°F (0°C to 46°C)
Communications:	RS485 standard
	RS232 standard
	Dial-up standard
	Ethernet optional

9.3.3 Electrical Ratings

Power:	12VDC
Draw:	660mA @ 13.65V
Relay Contacts	2 A @ 24 VDC
Data0/Data1	5 Vdc @ 0 mA for Logic 1
	0 Vdc @ 5mA for Logic 0
Alarm Point Voltage	5.0 Vdc @ 0.0 mA when Sense Input is in Open Circuit Physical State.
& Tamper Voltage	0.0 Vdc @ 5.0 mA when Sense Input is in Short Circuit Physical State.
	1.6 Vdc @ 3.4 mA when Sense Input is in Alarm Physical State.
	0.9 Vdc @ 4.1 mA when Sense Input is in Normal Physical State.

9.3.4 Spare Parts- 4-Reader Expansion Board (P/N: 03-10102-301E)

Part Number	Description	Designation
83-02082	5-pin Plug Connector	P10, P12, P14, P16
83-02086	9-pin Plug Connector	P11, P13, P15, P17
79-03022	DPST Relay	K5- K8
83-2007	Jump Connector	W1-W3, W5-W6, W11-W15

9.4 IQ 8-Reader Expansion Module (P/N: 03-10102-201E)

The IQ-400 4-reader system can be expanded to a 12-reader system by installing the 8-Reader Expansion Module. The 8-Reader Expansion board can be mounted below the IQ-400 in the larger enclosures available from PCSC. Once mounted, the 8-Reader Expansion board is connected to the IQ-400 by installing a 50-pin ribbon expansion cable from P1 on the 8-reader Expansion board to J1 on the IQ-400. The 8-Reader expansion board allows the user to connect up to 8 additional readers to the IQ-400. Each of the reader interfaces support either a PCSC proprietary reader (4-wire interface), or a Wiegand reader (5-wire interface). The Expansion board also provides 8 additional interfaces for each of the readers and the associated doors. These include the following:

- Multilevel Door Sense Inputs (Supervised door sense inputs)
- Reader Present inputs (Reader connected/disconnected)
- Request to Exit inputs (Supervised Egress Inputs)
- Relay contacts for door control outputs (Form C dry contacts rated for 2.0 Amps @ 12/24VDC continuous power)
- Door shunt/Local Alarm/Outputs (Open Collector output rated for +12 VDC @ 100mA)

9.4.1 Electrical Ratings

Power:	12VDC
Draw:	160mA @ 12V
Relay Contacts	2 A @ 24 VDC
Data0/Data1	5 Vdc @ 0 mA for Logic 1
	0 Vdc @ 5mA for Logic 0
Card Reader Draw:	100mA @ 12 VDC
Alarm Point Voltage	5.0 Vdc @ 0.0 mA when Sense Input is in Open Circuit Physical State.
& Tamper Voltage	0.0 Vdc @ 5.0 mA when Sense Input is in Short Circuit Physical State.
	1.6 Vdc @ 3.4 mA when Sense Input is in Alarm Physical State.
	0.9 Vdc @ 4.1 mA when Sense Input is in Normal Physical State.

9.4.2 Power Supply

The 8-reader Expansion Module requires +5VDC for all logic. Relays, output drivers, etc. require a +12VDC supply. The +5VDC and +12VDC is provided to the module via the 50-pin expansion cable, which connects plug P1 of the 8-door cluster PCB (P/N 03-10102-201E) to plug J1 of the IQ-400 board, (P/N 03-10111-201). The Variable Ambient Test will be for Indoor, 0 to 49 Degrees C, and 85% Relative Humidity @ 30 Degrees C.

9.4.3 Door Sense LEDs

8 LEDs located at D17, D18, D19, D20, D21, D22, D23, and D24 indicate the status of the Door circuits. Resistors <u>must</u> be installed at the door contacts, the switches in place, door closed (normal state), and the lines calibrated, in order for the supervised inputs to function. See Section 2.2.5.1.2 [*Proper Point by Point Calibration*] of the LiNC-NET Administrator Guide (P/N: 38-10055-001) for calibration procedure.

LED Status Chart:
- Sense Input #25 LED is D17
- Sense Input #27 LED is D18
- Sense Input #29 LED is D19
- Sense Input #31 LED is D20
- Sense Input #33 LED is D21
- Sense Input #35 LED is D22
- Sense Input #37 LED is D23
- Sense Input #39 LED is D24

OFF	Circuit is in normal/secure state
ON	Circuit is in an alarm condition state
Blinks once every 2 seconds	Fault condition. Open circuit state
Blinks 1 time/second	Fault condition. Short circuit state
Blinks 4 times/second	Circuit is NOT calibrated and NOT in a functional state

9.4.4 Eight-Reader Expansion Board (P/N: 03-10102-201E) - Active LEDs

Eight LEDs located at D49, D50, D55, D56, D61, D62, D67, D68 indicate the status of the Reader circuits. When the LED blinks momentarily after a card swipe, the system is processing the card data. The LED is normally off.

Reader LED Status:

- **Reader E LED is D49**
- **Reader F LED is D50**
- **Reader G LED is D55**
- **Reader H LED is D56**
- **Reader I LED is D61**
- **Reader J LED is D62**
- **Reader K LED is D67**
- **Reader L LED is D68**

9.4.5 Jumpers

Reader type is selected by the use of jumpers located in between the reader ports at W4-W5 and W7-W14. Refer to each diagram of reader-types in Section 5 [*Reader Connections*] for the proper setting of these jumpers. Four other jumpers, located at W1, W2, W3, W6, and W15 designate chip selection, and are set at the factory. They should not be changed unless directed by technical support.

The setting of the jumpers at W4 and W5 (*4W* or *5W*) determines how the jumpers next to each reader port is set. Also, when using a 5-wire, 12VDC reader, you can control the voltage at PIN 1, by moving the #3 jumpers at W4 and W5 in conjunction with the reader port jumper setting.

9.4.5.1 Eight-Reader Expansion Board (P/N: 03-10102-201E) - Jumper Selections

There are five jumper units located on the 8-Reader expansion PCB circuit board. The settings are shown below.

- W1 at Pins 2 and 3 = PCB addressed to the High Address Range
- W1 at Pins 1 and 2 = PCB addressed to the Low Address Range

PIN Designation Chart
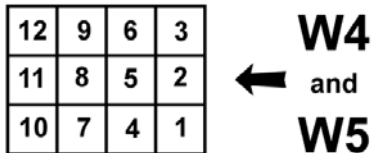
- W4 (for Readers **e-h**)
  - At pins 1 and 2, 4 and 5, 7 and 8, 10 and 11= Wiegand 5-Wire 5 volt card readers
  - At pins 2 and 3, 4 and 5, 7 and 8, 10 and 11= Wiegand 5-Wire 12 volt card readers
  - At pins 2 and 3, 5 and 6, 8 and 9, 11 and 12= PCSC 4-Wire 12 volt card readers
- W5 (for Readers **i-l**)
  - At pins 1 and 2, 4 and 5, 7 and 8, 10 and 11= Wiegand 5-Wire 5 volt card readers
  - At pins 2 and 3, 4 and 5, 7 and 8, 11 and 12= Wiegand 5-Wire 12 volt card readers
  - At pins 2 and 3, 5 and 6, 8 and 9, 11 and 12= PCSC 4-Wire 12 volt card readers
- W6 – Reader T/O
  - At pins 1 and 2 = 32 ms (PCSC Factory Set. Do <u>not</u> modify)
  - At pins 2 and 3 = 64 ms
- W7-W14 Reader Data Format
  - At pins 1 and 2 = Wiegand 5-wire (Data 1's and Data 0's) format
  - At pins 2 and 3= PCSC 4-wire (proprietary) format
- SW1 Switch Settings (to configure PCB for doors 5-12)
  - Switch 1 = OFF
  - Switches 2,3,4,5,6,7,8 = ON = 8 Reader PCB
  - Switch 5 = ON to enable Supervision Option of ALL Egress Sense Inputs (#24, 26, 28, 30, 32, 34, 36 and 38).
  - Switch 5 = OFF to disable Supervision of ALL Egress Sense Sense Inputs (#24, 26, 28, 30, 32, 34, 36 and 38).

| **NOTE** | Supervised Egress Option requires i4+07.010.02 series (or newer) IQ-400 firmware. |

9.5 IQ-1200 Features (IQ-400 plus 8-Reader Expansion Module)

2 Auxiliary (Powered) Outputs (cc# 89, 90)
12 Reader Ports:
(Wiegand electrical interface for PCSC and OEM card readers) (readers a-l)
12 Form C Door Strike Outputs (2.0 amps @ 12/24 VDC continuous power)
12 Door Left Open Outputs (or 12 External Shunt Options)
12 Supervised Door Senses (17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39)
5 Supervised User-Defined (Auxiliary) Sense Inputs (S14, S120, S121, S122, S123)
12 Supervised Request to Exit Inputs (16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38)
Battery Backed Clock Calendar
Flash RAM 128K standard (up to 256K)
Battery-Backed RAM 256K standard (up to 512K)
LEDs for: Power, alarm, on-line diagnostics Reader Data [Error code, door status]
Unsupervised Tamper detect (S13)

9.5.1 System Capacities

Cardholder Capacity:	8,000 (20,000 w/ Memory Expansion)
Time Periods:	32
Holiday Time Periods:	32
Holiday List:	366 Days (Leap Year)
History Transactions:	4,000 regardless of memory size
Enclosure Dimensions:	18"H x 11.5"W x 6"D (45.7cm x 29.2cm x 15.2cm)
Weight:	38 lbs. (17.3kg)
Power:	12VDC
Draw:	3 amp @ 12VDC
Temperature:	32°F to 115°F (0°C to 46°C)
Communications:	RS485 standard
	RS232 standard
	Dial-up standard
	Ethernet optional

9.5.2 Electrical Ratings

Power:	12VDC
Draw:	920mA @ 13.65V
Relay Contacts	2 A @ 24 VDC
Data0/Data1	5 Vdc @ 0 mA for Logic 1
	0 Vdc @ 5mA for Logic 0
Alarm Point Voltage	5.0 Vdc @ 0.0 mA when Sense Input is in Open Circuit Physical State.
& Tamper Voltage	0.0 Vdc @ 5.0 mA when Sense Input is in Short Circuit Physical State.
	1.6 Vdc @ 3.4 mA when Sense Input is in Alarm Physical State.
	0.9 Vdc @ 4.1 mA when Sense Input is in Normal Physical State.

9.5.3 Spare Parts- 8-Reader Expansion Board (P/N: 03-10102-201F)

Part Number	Description	Designation
83-02082	5-pin Plug Connector	P2, P4, P6, P8, P10, P12, P14, P16
83-02086	9-pin Plug Connector	P3, P5, P7, P9, P11, P13, P15, P17
79-03022	DPST Relay	K1- K8
83-2007	Jump Connector	W1-W15

9.6 OUT PCB Features (P/N: 03-10032-201F)

16 Form C Relay Dry Contact Outputs (2.0 amps @ 12/24 VDC continuous power)
16 Unsupervised Sense Inputs (Alarm points 56-71)

LEDs for: status, +5Vdc, +12VDC

Supervised Tamper detect (S13)

9.6.1 System Capacities

Enclosure Dimensions:	18"H x 11.5"W x 6"D	(45.7cm x 29.2cm x 15.2cm)
Weight:	38 lbs. (17.3kg)	
Temperature:	32°F to 115°F (0°C to 46°C)	
Communications:	50-pin Ribbon Cable	

9.6.2 Electrical Ratings

Sense Inputs	Open Switch	0.0 mA @ 12 VDC
	Closed Switch	1.3 mA @ 0.0 VDC
Power:	12VDC	
Draw:	974mA @12V	
Relay Contacts	2 A @ 24 VDC	

9.6.3 Spare Parts- OUT PCB

Part Number	Description	Designation
83-02083	2-pin Plug Connector	P13 (Pins 5-6)
83-02084	4-pin Plug Connector	P1- P12 (two connectors per plug), P13 (Pins 1-4)
79-03022	DPST Relay	K1- K16
83-2007	Jump Connector	P14

9.7 ALM PCB Features (P/N:P 03-10032-301)

16 Unsupervised Sense Inputs (Alarm points 56-71)

LEDs for: status, +5Vdc, +12Vdc

9.7.1 System Capacities

Enclosure Dimensions: 18"H x 11.5"W x 6"D   (45.7cm x 29.2cm x 15.2cm)
Weight: 38 lbs. (17.3kg)
Temperature: 32°F to 115°F (0°C to 46°C)
Communications: 50-pin Ribbon Cable

9.7.2 Electrical Ratings

Sense Inputs   Open Switch   0.0 mA @ 12 VDC
    Closed Switch   1.3 mA @ 0.0 VDC
Power: 12VDC
Draw: 160mA @ 12V

9.7.3 Spare Parts- ALM PCB (P/N: 03-10032-301)

Part Number	Description	Designation
83-02083	2-pin Plug Connector	P13 (Pins 5-6)
83-02084	4-pin Plug Connector	P1- P4 (two connectors per plug), P13 (Pins 1-4)
83-2007	Jump Connector	P14

9.8 SAM Board

LEDs for: status, +5Vdc, +12Vdc

9.8.1 System Capacities

Enclosure Dimensions:	18"H x 11.5"W x 6"D (45.7cm x 29.2cm x 15.2cm)
Weight:	38 lbs. (17.3kg)
Temperature:	32°F to 115°F (0°C to 46°C)
Communications:	50-pin Ribbon Cable

9.8.2 Electrical Ratings

Sense Inputs	Open Switch 0.0 mA @ 13.2 VDC
	Closed Switch 1.3 mA @ 0.0 VDC
Power:	12VDC
Draw:	90mA @ 12V

9.8.3 Spare Parts- SAM PCB

Part Number	Description	Designation
83-02083	2-pin Plug Connector	P13 (Pins 5-6)
83-02084	4-pin Plug Connector 1-4)	P1- P4 (two connectors per plug), P13 (Pins 1-4)
83-2007	Jump Connector	P14

9.9 Cable Requirements and Maximum Lengths

9.9.1 Communication-

Type of Technology	Type of 22awg Stranded Wire	Maximum Distance	Max. Distance w/PIN Pad (BP-250)
IQ-400	2-pair, twisted, w/ overall shield	To the last IQ-400 (4,000 ft (1,219 m)	

9.9.2 Readers
4-wire PCSC-

Type of Technology	Models	Type of 22awg Stranded Wire	Maximum Distance	Max. Distance w/PIN Pad (BP-250)
ProTech	BR-350	2-pair, twisted, w/ overall shield	2000 ft. (667 m)	2000 ft. (667 m)

5-wire Wiegand-

Type of Technology	Models	Type of 22awg Stranded Wire	Maximum Distance	Max. Distance w/PIN Pad (Bp-270)
ProTech	BR-370	3-pair, twisted, w/ overall shield	500 ft. (192 m)	500 ft. (192 m)
Proximity	All models	3-pair, twisted, w/ overall shield	500 ft. (192 m)	500 ft. (192 m)
Biometric	All models	3-pair, twisted, w/ overall shield	500 ft. (192 m)	500 ft (192 m)
Bar Code	All models	3-pair, twisted, w/ overall shield	500 ft. (192 m)	500 ft (192 m)
Vehicle ID	VR-670	3-pair, twisted, w/ overall shield	500 ft. (192 m)	500 ft (192 m)

2-pair twisted and shielded cable recommended brands are:
Belden 8728   Olympic 3030   Alpha 2404 or 2212

3-pair twisted and shielded cable recommended brands are:
Belden 8777   Alpha 6010C   WPW D431

NOTE All data communications cables must reside in a separate electrical conduit. Absolutely NO high voltage or AC power cables allowed within data conduits.

9.10 Tool Requirements

Cable Connection Tool

On the IQ-200 circuit board, a standard screwdriver is required for securing cabling connections.

9.11 Controller Specifications

Microprocessor

The IQ-400 Controller is based on a 80C188EB microprocessor, operating at 16 MHz. The 80C188EB is a 16-bit processor (internal operation) with an eight-bit data bus. A 20-bit address bus provides a 1M Byte addressing range. Other features include three internal 16-bit timers, interrupt controller (8529 equivalent), multiple programmable chip select decoders with programmable wait states, and two serial communication channels.

LEDs and Dipswitches

30 discrete LEDs are provided which the microprocessor software can individually control. Eight general-purpose switches are provided for use by the microprocessor software, and are utilized for mode control, configuration setting, ID selection, etc. In addition, a Power ON LED and four "Reader Active" LEDs are provided.

Two Seven-Segment LED Display

Error codes are displayed in Hexadecimal format. Refer to the error code section for listing of codes and their meanings.

Real Time Clock

A real time clock (DS1302) with battery backup is provided for time of day information.

Serial Communication

Two serial communication ports are provided by the IQ-400 controller.

- RS-485: Four wire (twisted pair) interface which is optically isolated from the controller.

    - Provision for installing a termination resistor is provided.

- RS-232: At P7 (RS232 DB9 – Real Time Printer Port). At P2 (RS232 Direct Connect) – standard RS232 interface. Jumper W6 adds/removes an onboard 120Ω End-of-Line Termination Resistor.

Power Supply

The IQ-400 controller requires +5VDC *for all logic*. Relays, output drivers, etc. require a +12VDC supply. An on-board dc-dc converter accepts an external voltage source of 10-26VDC, and converts this unregulated source to the required +5VDC. For an input voltage range of 10-15 volts, the "+12VDC" converts this voltage source to the required +12VDC. For more information, please refer to the ESD power supply installation manual.

Battery Back-up Requirements

A 12 AH battery is recommended as a back-up to the power supply, because it is the largest battery that will fit in the enclosure. The battery should be connected to the power supply charger in accordance with the manufacturer's instructions. Refer to ESD SPS-3.6M2E, or SPS-6.5M4 Power Supply installation instructions (P/N: SPS36instructions Rev: 04/15/02) for determining battery backup size.

Factory Settings

At the factory the IQ-400 is set as IQ-400 #1, communications as direct connect (RS232/RS485) @ 9600 baud, with 120 Ohm resistor termination disabled (W6 jumper set at 1-2).

9.12 Maintenance Requirements

The following items require testing and/or maintenance to be performed on the SIM at least once a year.

- Fuse Replacement
- PCB Back Up Memory Battery Replacement
- Power Supply Back Battery Replacement.

9.12.1 Fuse Replacement Method:

1. Disconnect all power from board.
2. Carefully remove fuse from board using proper tools.
3. Replace only with same rated fuse or 250 V, 4A 3AG.

WARNING: For Continued Protection Against The Risk Of Fire, Replace Only With Same Type And Rating Of Fuse.

9.12.2. Back-Up Memory Battery Replacement

1. Disconnect all power from board.
2. Remove Battery from PCB
3. Replace only with only the same type battery as specified battery, see Spare Parts Section for battery Part Number.

WARNING: Replacing with the incorrect battery may cause damage the PCB, and void warranty.

9.12.3 Power Supply Back Battery Replacement

1. Check battery condition at least once a year,
2. Replace every 3-5 years with a UL Recognized Sealed Lead Acid batteries, 12 V dc.

10.0 Appendix B – Configuring the IQ-400E

10.1 Configuring the IQ-400E for Version 0130 and above

The following Configuration Instructions are for updating the IQ-400E (PCSC Part #: 03-10108-xxx) TCP/IP Configuration.

> **NOTE**: These instructions can be used for a standard IQ-400 (p/n - 03-10111-002 in conjunction with an IQ LAN (p/n - 03-10108-001). If this combination is used, the panel number in the IQ LAN and the IQ-400 PCB must match.

> **NOTE**: The LANtronix MSS1-T RS-232 Serial Server has not been evaluated by UL, and is not suitable for UL installations.

> **NOTE**: The IQ-LAN (p/n - 03-10108-001) has not been evaluated by UL, and is not suitable for UL installations.

10.1.1 Required Equipment:
1. PC or Notebook computer with a NIC
2. Web Browser (IE 5 or greater or Netscape 5 or greater.)
3. Ethernet Cross Over cable (example: Unicom E5DD-C414-WT-10TR) or attached to a hub
4. IQ-400E – 03-10111-002/E

10.1.2 Required Information:
1. LiNC-NET Host IP Address
2. IP Address – This is the unique IP Address for each IQ-400E.
3. Any Gateway information.

10.1.3 Required firmware:
1. IQ-400E panel firmware: ix+xx.xxx.xx or greater

10.2 Configuring your Host Computer

1. Change host IP to be **192.168.168.3** in your computer's TCP/IP settings - This is the default Host IP address that the IQ-400E uses for setup:
   a. Right mouse click on "My Network Places"
   b. Select: **Properties**
   c. Right mouse click on "Local Area Connection"
   d. Highlight **Internet Protocol [TCP/IP]** and Press the **Properties** button.
   e. You will need to verify that you have "Use the following IP address" selected.
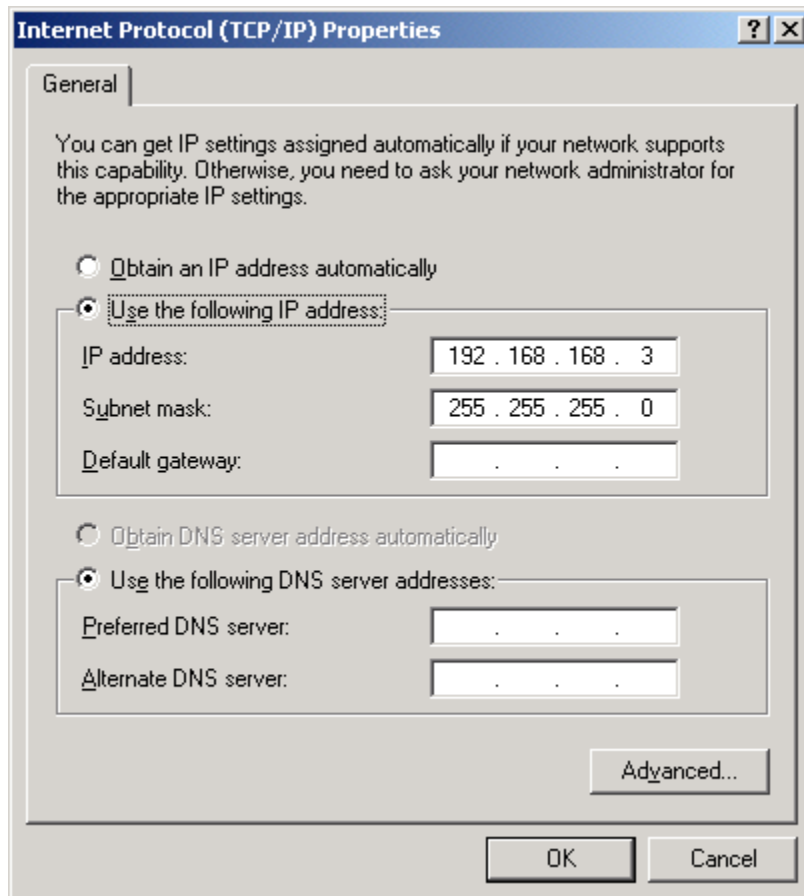
   f. Enter **192.168.168.3** for the I.P. address
   g. Enter **255.255.255.0** for the Subnet mask
   h. Press the **OK** button
   i. Reboot the host computer if necessary. Depending on you system you may or may not have to do this.

10.3 Configuring IQ-400E VIA the TCP/IP Configurator

Use a Web Browser to configure and view the IQ-400E Configuration Information (IE 5 or greater, or Netscape 5 or greater). You will need to know the following information, IQ0400E IP address - **192.168.168.32**, Logon Name - **admin**, and Logon Password – **PYMTF**

The following steps are for connecting and changing the TCP/IP Configuration.

1. Connect your Cross Over cable from your host to the IQ-400E.

> **NOTE:** Once you have powered up the IQ-400E and have successfully made a connection to the Host, the panel R45 connectors Green LED will turn ON. You will also see the Yellow LED strobe when it is trying to communicate to the Host.

2. Open your Browser (e.g. Internet Explorer, Netscape, etc.)
3. Request the configuration form by entering the following in the "Address" field of the Browser. http://192.168.168.32
4. An html form will appear (figure on next page).

10.3.1 TCP/IP Configuration

6. Change the appropriate values:

    a. **Panel Number** – This must match the IQ-400E panel number.

    b. **Host IP** – This is the LiNC-NET Host IP

    c. **Our IP** - This is the IQ-400E address

6. Enter the Logon Name – **admin**

7. Enter Logon Password – **PYMTF**

8. Click on the **Update** button. The following screen(s) will appear depending on the field you have changed.

TCP/IP Configuration

Logon Name (Up to 20 characters) admin

Logon Password (up to 10 characters) •••••

Name	Value	Description
Panel Number	1	Our Panel Number (0 to 256).
Host IP	192.168.168.1	TCP/IP Host IP address (e.g. 192.165.120.112). If 0 than any host may connect to the IQET.
Our IP	192.168.168.32	TCP/IP address for this device (e.g. 192.165.120.44).
Our MPM Port	3001	0 to 9999 (e.g. 5500). This is the Our MPM Message TCP port.
Our Bulk Port	3002	**Resetting critical parameters . . .** ort.
MASK IP	255.255.255.0	Network MASK IP address (e.g., 255.255.255.0).
Gateway IP	0.0.0.0	Gateway IP address (e.g., 192.165.120.2).
Response Timeout	5	If response will not occur in 99999 ms (e.g., 47), delay response will be sent.
Connection Timeout	12000	If no data is received from the host in 99999 ms (e.g., 20000), the IQET will be restarted.
PCSC Serial #		Our device serial number.
Login Name		Enter up to a 20 char. new Login Name if desired.
Password		Enter up to a 10 char. new Login Password if desired.

Enter "Y" if messages are to be broadcast to port 1504 N

Version #   0124

MAC Address 00 50 C2 0C F0 11

9. Close the Browser. You will have to change your Host IP to match the Host IP address just entered in the TIP/IP Configuration

10. Re-open the Browser. Call out the new IQ-400E address. You should now see all of the updated information.

NOTE: Once you have changed the Host IP in the IQ-400E, the host IP must match. If they do not then you will not be able to view the TCP/IP configuration information.

Update IQ panel firmware – Reference IQ-Series Downloader Installation Instructions Technical Bulletin (P/N: 39-10050-001).

NOTE: Updating the firmware will void the UL Listing, and will not be suitable for UL Installations.

10.4 Resetting the IQ-400E

If the IQ-400E panel is accidentally set to an incorrect (and/or unknown) IP address, it is possible to reset the panel to its original default IP address.

1. Power off the IQ-400E board.

2. Reset SW1 DIPswitch to (11101110)

3. Power up the board. The IQ-400E board LED Array will initially show 8.8., then 8.6., then 8.8. once again –board is now reset. The board reset has created the following default values:

   a. Logon is "**admin**"

   b. Password is "**PYMTF**"

   c. "Host IP" is reset to '**0**'

   d. "Our IP" is reset to **192.168.168.32**

3. Using your Internet browser, type in the IP address **192.168.168.32**. The IQ LAN module should be in default mode.

   > **NOTE** Your computer's TCP/IP has to be set to the 192.168.168.xxx for proper communication to the panel.

4. See page 104, steps 5 through 8, for proper resetting of the TCP/IP configuration for the board.

   > **NOTE** When reset, the LAN module will default to Panel 1 and the default address.

End of Manual
PCSC, Inc.
August 2008