Rev. April 2012

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Regulatory Notices

Intertek

40 B Commerce Way Totowa, NJ 07512

IDenticard Systems, Inc. Premysis Access Control System (w/two enclosures) Date of Test: 03/24/2008

VERIFICATION OF COMPLIANCE
Report No. 3144542NYM-002

Verification is hereby issued to the named APPLICANT and is VALID ONLY for the Equipment identified hereon for use under the rules and regulations listed below.

Equipment under Test:	IDenticard System
Model No.:	Premysis Access Control System (w/two enclosures)
Serial No.:	Not assigned
Applicant: **Contact**: **Address**:	IDenticard Systems, Inc. Mr. Aaron Henderson 40 Citation Lane PO Box 5349 Lancaster, PA 17606, USA
Tel. number: **Fax number**:	(717) 569-5797 (717) 569-2390
Applicable Regulation:	FCC 47CFR Part 15, Subpart B: Unintentional Radiators, Industry Canada ICES-003 Issue 4
Equipment Class:	Class B
Date of Test:	03/24/2008

We attest to the accuracy of this report:

Engineer: Walter Regal

Reviewer: Anatoly Getman
Senior Project Engineer

Mounting, Power and PC Requirements

Preparing the Site

You need the following:

- Dedicated power lines and grounded outlets
- Power conditioning equipment
- UPS system
- Static electricity protection
- LAN and/or WAN network connections if installing a client-server system or a system using TCP/IP for communications between the host computer and the system controller(s)

You can install and wire hardware before you install the PremiSys™ software.

Using Power-Conditioning Devices and Backup Power Sources

CAUTION! Power-conditioning equipment and filters must be used on all power lines connected to the PremiSys server PC and all other PremiSys equipment.

Use a regulating uninterruptible power supply (UPS) to power PremiSys system computers, controllers and boards. Along with providing 10-20 minutes of backup power for use in the event regular power fails, UPSes may protect against damage and data loss caused by power surges or voltage spikes. The UPS provides time to implement backup procedures necessary to maintain secure access during the power outage. A UPS is not intended to keep the system running for hours.

The backup batteries included with power supplies ordered from IDenticard are 12-VDC, 7 amp-hour batteries. Their backup duration depends on the current draw of the components in your system. As a general rule, however, these backup batteries can keep a system running longer than a UPS can.

Guard against minor voltage spikes, electrical noise and other power irregularities in your PremiSys system by connecting all hardware components through line-surge suppressors. An AC line filter that suppresses EMI, RFI and surge interference must be used. PremiSys hardware components, such as the One-Reader Board require a filtered power source.

CAUTION! These devices cannot protect against large power surges or preserve data in RAM if there is a total power failure.

Preparing PremiSys Server Computers

Please visit the IDenticard® Resource Center to learn the latest PC Requirements for PremiSys. Paste the URL below into your browser to see the specifications. This Web site

is protected by a login. Follow the instructions on the Login page to obtain a login if you do not now have one. Please read all of these specifications before you begin the installation or upgrade process for this version of PremiSys.

http://www.identicard.com/dmdocuments/PremiSys/v2.0/Prem_PC_Req.pdf

Follow the instructions on the PremiSys system CD box to run the PremiSys installation program. It is strongly recommended that you install the PremiSys server on a computer that is connected to the Internet. An Internet connection greatly simplifies the activation of the PremiSys licenses.

Mounting PremiSys Enclosures

Choosing the Enclosure Locations

IMPORTANT! Mount PremiSys enclosures in secure and easily accessible locations.

WARNING!

- **Do not mount any PremiSys enclosure within six feet of high-voltage transformers.**
- **Do not run high AC voltage into any enclosure.**
- **Do not mount ANY auxiliary power supplies, transformers, relays, etc., inside any PremiSys enclosure. We recommend the use of the Altronix® 10Amp P/S w/8 Isolated Outputs, which has its own enclosure. However, if this power supply is not used, any auxiliary power supplies (e.g., for door strikes, proximity readers, isolation relays, etc.) must be installed in separate enclosures.**
- **Ground the PremiSys enclosure to an earth ground.**

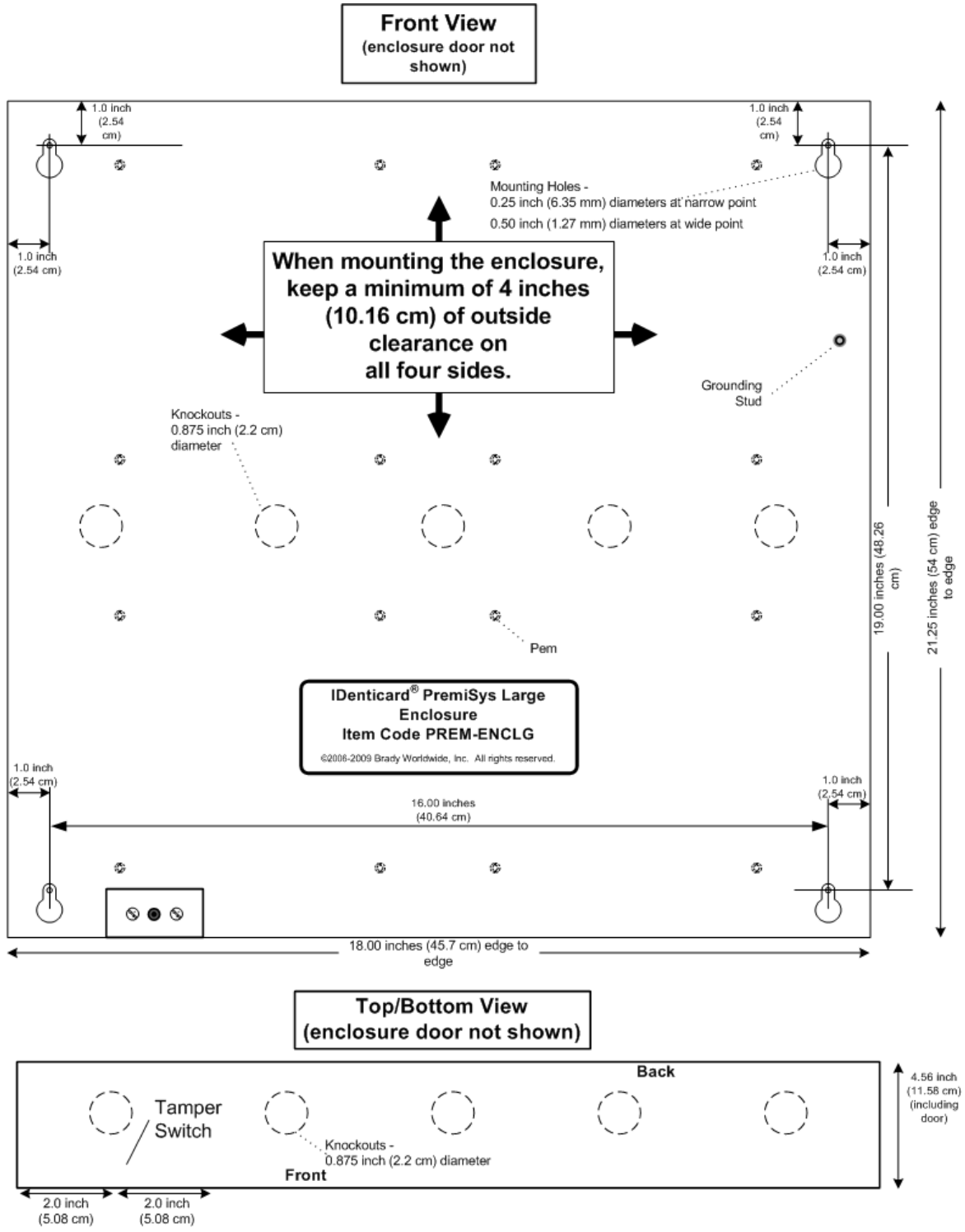
Keep these considerations in mind when choosing locations for enclosures:

- Enclosures containing PremiSys controllers should be near the power supply or supplies and where connections can easily be made to PremiSys components that are not in the same enclosure as the controller.
- PremiSys enclosures must be in areas protected from moisture and temperature extremes (see “Part C – PremiSys Hardware Component Specifications” in this manual for environmental specifications).
- Allow at least four inches of space around all enclosures to provide adequate space for incoming wires and cables that connect the reader, input and output boards.

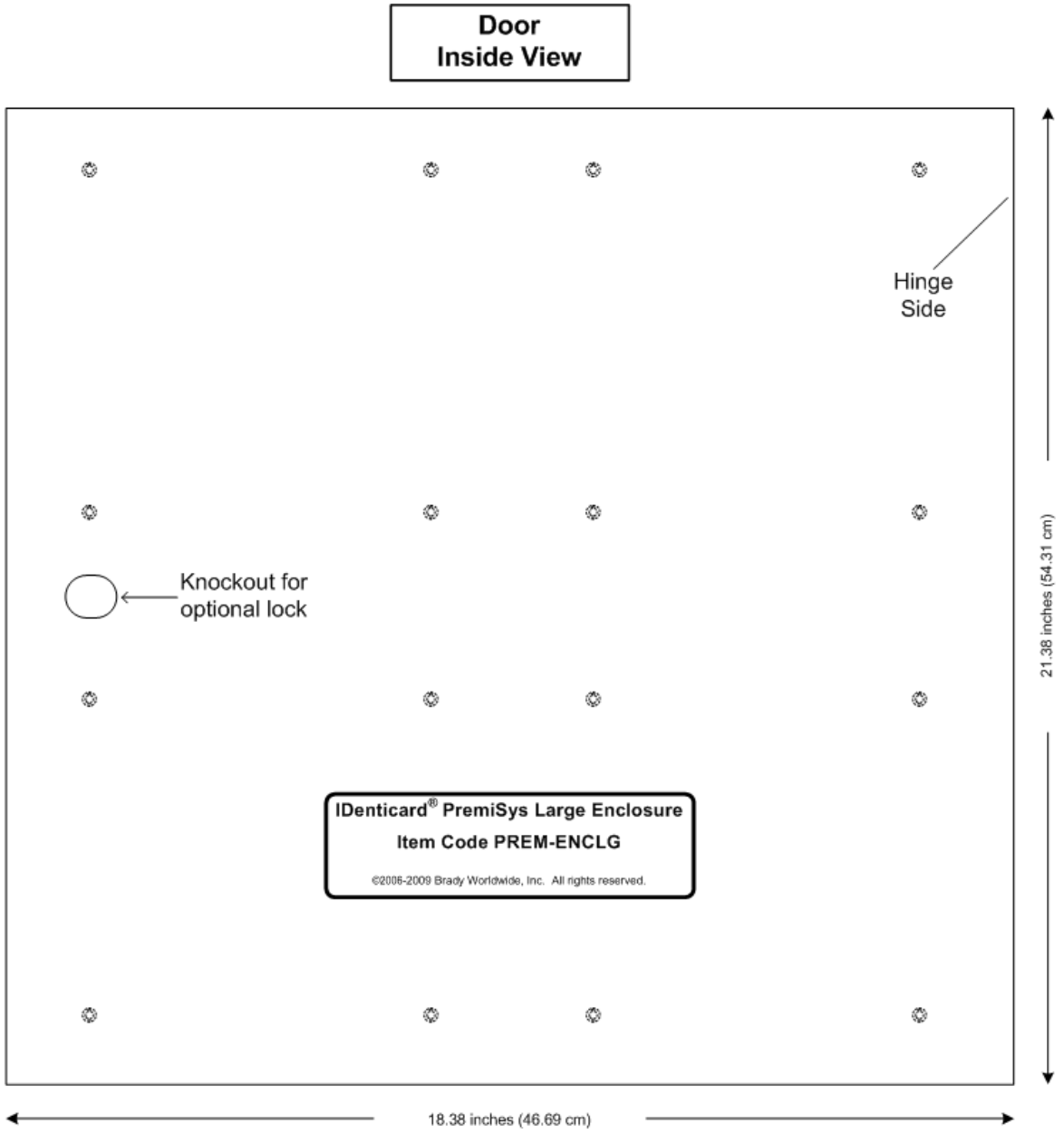
- When choosing the enclosure location, be sure to allow space for the enclosure door to swing open to the left of the enclosure.

IMPORTANT! Adhere to all applicable municipal, regional or national codes and industry standards in all wiring and installation procedures. Assess the constraints that any required conduit or cabling run equipment may have on enclosure placement.

Large Enclosure – Interior



Large Enclosure – Inside Door



Mounting the Large Enclosure

The Large Enclosure is depicted on the preceding pages, where its dimensions are shown. It has five knockout holes on its top, bottom and back wall for cable access and other wiring. All knockouts are 0.875 inches (2.2 cm) in diameter.

Enclosures are provided with set screws to secure the door. Optional door locks are available from IDenticard Systems for installation on enclosures.

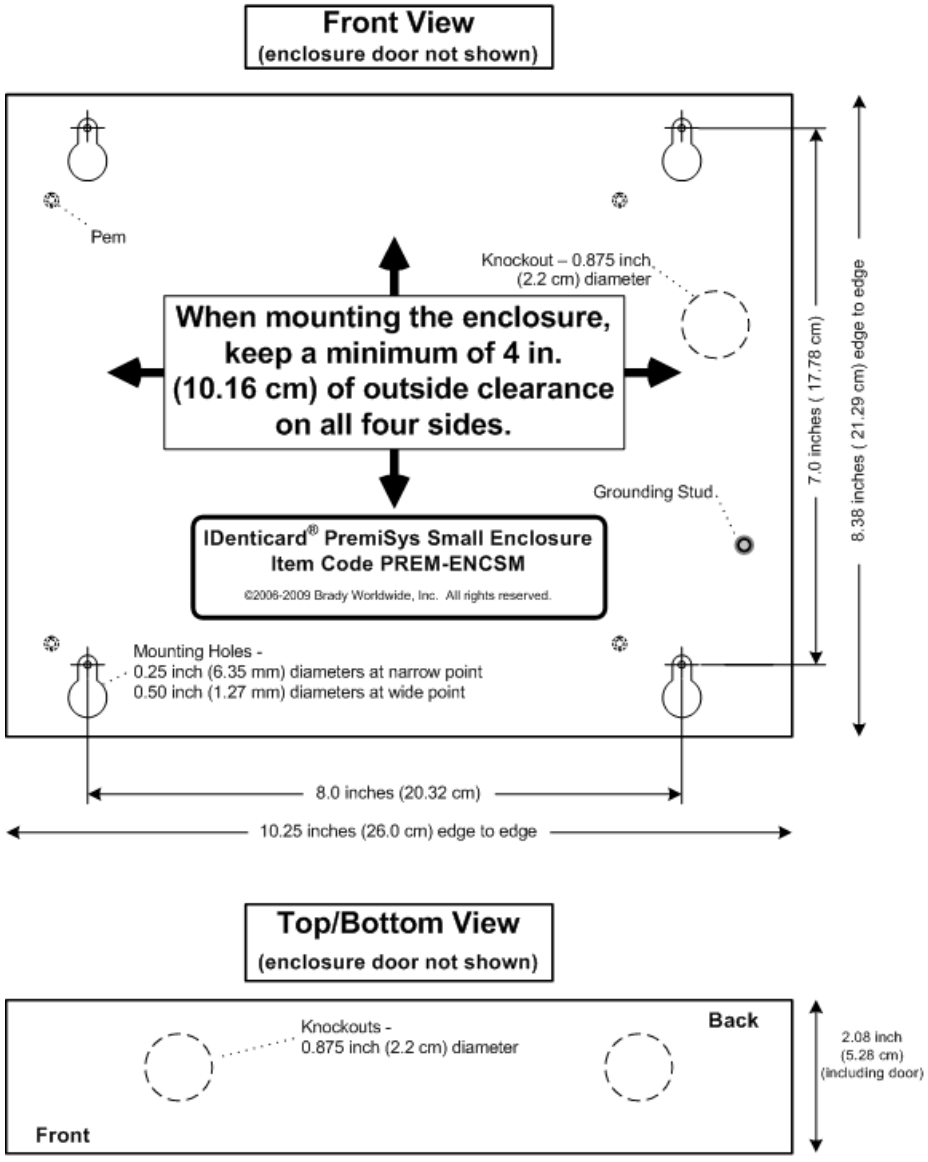
☑	**To mount a Large Enclosure:**
1.	Refer to the illustrations of the Large Enclosure for locations and dimensions of the four keyholes on its back. Mark the locations of the mounting holes on the wall and double-check their accuracy by placing the enclosure in position. Do all drilling with the enclosure removed from the wall. Never drill using the enclosure holes to guide the drill bit.
2.	Select your drill bit and fasteners as appropriate for the wall surface and the total weight to be secured. The enclosure weight is 17.8 pounds (8.1 kg). Add to this weight the total weight of all controllers and boards to be mounted inside the enclosure.
3.	Drill the four mounting holes in the wall.
4.	Punch out any knockouts you need on the back of the enclosure. Enlarge any of the holes, if needed. Affix any strain reliefs you need.
5.	Screw in anchors appropriate for the wall type so that the screw heads stand off from the wall slightly.
6.	Slip the wide part of the keyholes in the enclosure over the anchors and carefully slide the enclosure down to secure it. Check that all four points are securely held and then tighten the screws.

Large Enclosure Specifications

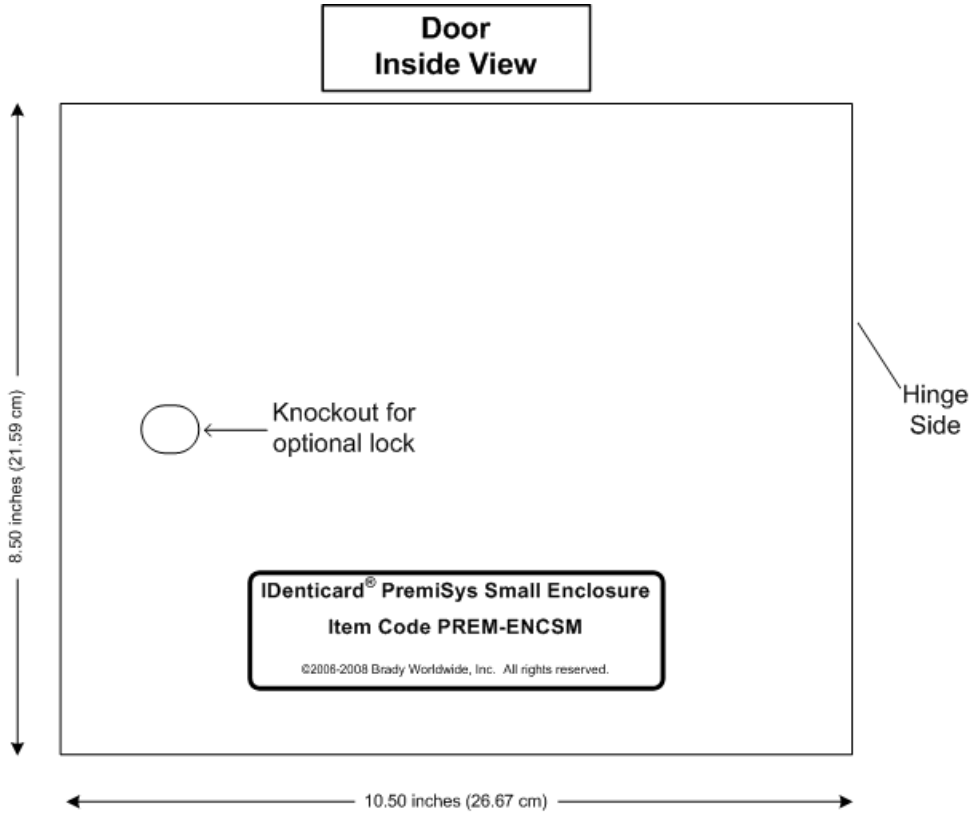
Dimensions and Weight of the Large Enclosure

Enclosure Width	18.38 inches (46.69 cm)
Enclosure Height	21.38 inches (54.31 cm)
Enclosure Depth	4.56 inches (11.58 cm)
Enclosure Weight	17.8 pounds (8.1 kg)

Small Enclosure – Interior



Small Enclosure – Door



Mounting the Small Enclosure

The Small Enclosure is depicted on the following pages, where its dimensions are shown. It has two knockout holes on its top and bottom and one on its back wall for cable access and other wiring. All knockouts are 0.875 inches (2.22 cm) in diameter.

Enclosures are provided with set screws to secure the door. Optional door locks are available from IDenticard Systems for installation on enclosures.

☑	**To mount a Small Enclosure:**
1.	Refer to the illustrations on the following pages for locations and dimensions of the four keyholes on the back of the small enclosure. Mark the locations of the mounting holes on the wall and double-check their accuracy by placing the enclosure in position. Do all drilling with the enclosure removed from the wall. Never drill using the enclosure holes to guide the drill bit.
2.	Select your drill bit and fasteners as appropriate for the wall surface and the total weight to be secured. The enclosure weight is 3.5 pounds (1.6 kg). Add to this weight the weight of the controller or board to be mounted.

3.	Drill the four mounting holes in the wall.
4.	Punch out the knockout on the back of the enclosure if you need it. Enlarge the hole, if needed. Affix a strain relief if you need it.
5.	Screw in anchors appropriate for the wall type so that the screw heads stand off from the wall slightly.
6.	Slip the wide part of the keyholes in the enclosure over the anchors and carefully slide the enclosure down to secure it. Check that all four points are securely held and then tighten the screws.

Small Enclosure Specifications

Dimensions and Weight of the Small Enclosure

Enclosure Width	10.50 inches (26.67 cm)
Enclosure Height	8.5 inches (21.59 cm)
Enclosure Depth	2.08 inches (5.28 cm)
Enclosure Weight	3.5 pounds (1.6 kg)

Preparing the PremiSys Power Supply

PremiSys components can be powered by the Altronix® 10Amp P/S w/8 Isolated Outputs Power Supply, the Ten-Amp Power Supply or the Three-Amp Power Supply.

These power supplies can incorporate optional backup batteries to maintain power to the system for a period of time to allow for an orderly shutdown of your PremiSys system. You are responsible for ensuring that your system has sufficient backup power. You cannot connect backup batteries directly to PremiSys controllers.

Altronix 10-Amp Power Supply w/8 Isolated Outputs

The PremiSys™ Altronix® 10Amp P/S w/8 Isolated Outputs is a power supply/controller module rated at 12 VDC and 10 amps supervised (AC & battery). It accepts 115VAC 60Hz 1.9 amp input voltage, has eight power-limited outputs and is UL Listed for Access Control System Units (UL 294). This power supply features eight independently controlled fail-safe and/or fail-secure power outputs.

The PremiSys Altronix 10Amp P/S w/8 Isolated Outputs Power Supply consists of these

parts:

- Enclosure
- Power Supply Board
- Power Control Board

An optional backup battery is available to allow for an orderly shutdown of your PremiSys system in the event of a power outage. You are responsible for ensuring that your system has sufficient backup power.

WARNING! The Altronix 10 Amp P/S w/8 Isolated Outputs Power Supply is intended for use in a PremiSys system to provide power for PremiSys hardware. This power supply can also be used to power door locks and other auxiliary hardware. Exercise care to comply with design and engineering standards to prevent, for example, flyback voltage from door strikes and other potential electromagnetic interference.

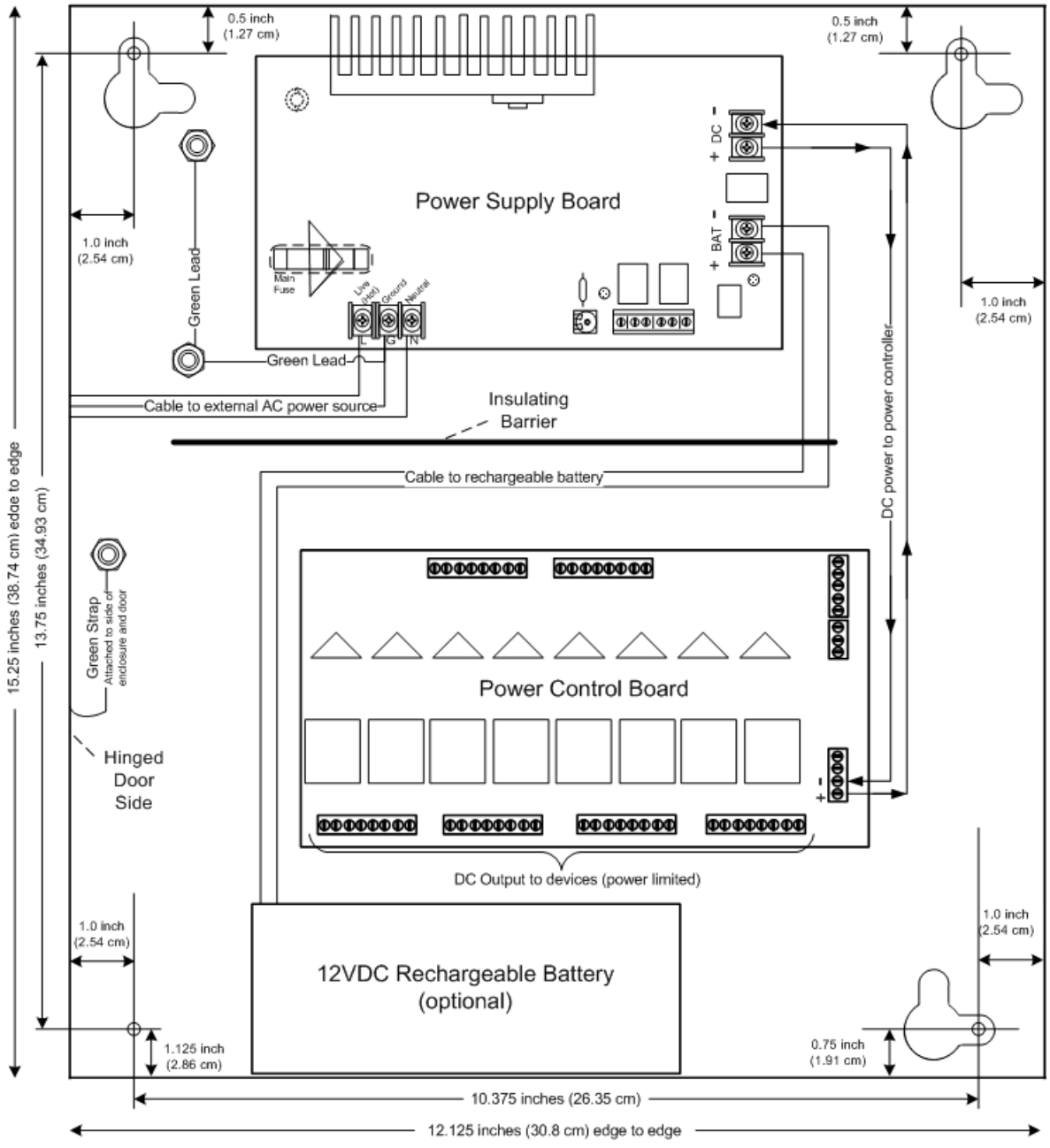
Use of other features of this power supply not supported within the PremiSys software is beyond the scope of any PremiSys system and this documentation. For complete instructions and specifications regarding the installation and use of this power supply refer to the manufacturer's documentation on its Web site:

http://altronix.com/index.php?pid=2&model_num=AL1012ULACMCB

Follow ALL requirements and cautions mentioned in that documentation. Guidelines given in this manual are not meant to substitute for those instructions.

DANGER! DO NOT POWER ANY CONTROLLER OR BOARD UNTIL ALL NECESSARY WIRING CONNECTIONS HAVE BEEN MADE AND ALL ENCLOSURES HAVE BEEN GROUNDED!
CAUTION! If you require a weatherproof housing for outdoor installation, you are responsible for verifying and ensuring that the housing you use is adequate and safe for use with PremiSys components.

Front Interior View of Altronix® Power Supply
(enclosure door not shown)



IDenticard® PremiSys Altronix® Power Supply

Item Code PREM-PS10ALT

Power Supply Specifications

FEATURES

- Eight independently controlled fail-safe and/or fail-secure power outputs.
- Automatic switch over to optional stand-by battery when AC fails – zero voltage drop
- Thermal and short circuit protection with automatic reset
- Filtered and electronically regulated output to the power controller
- LED indicators for AC input and DC output
- Room in enclosure for an optional 12-AH battery
- Built-in charger for sealed lead acid or gel-type batteries

SPECIFICATIONS

Certifications for the Ten-Amp Power Supply w/8 Isolated Outputs

UL Listed for Access Control System Units (UL 294) – UL File # BP6714
CUL Listed – Evaluated to CSA Standard C22.2, No.205-M1983 – Signal Equipment

Dimensions and Weight of the Ten-Amp Power Supply w/8 Isolated Outputs

Enclosure Width	12.0 inches (30.5 cm)
Enclosure Height	15.5 inches (39.4 cm)
Enclosure Depth	4.5 inch (11.5 cm)
Enclosure Weight with Power Supply and Power Controller	9.8 pounds (4.4 kg)

Environmental Specifications

CAUTION! The unit is designed for indoor use only.

Power Specifications

IMPORTANT! This unit provides power-limited output for Class 2, low-voltage devices.

Input Voltage to the Unit	Unswitched 115 VAC, 60 Hz, 1.9 A
Output Voltage from the Unit	12 VDC, 10 A total, output to 8 independently controlled fail-safe and/or fail-secure power outputs. Each output up to 2.5 A. Total output at all ports not to exceed 10A.

IMPORTANT!: You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements

CAUTION! A minimum of 0.25 inch spacing must separate all power-limited-wiring from non-power-limited wiring (AC input and battery wires).

AC Input	14 AWG (2.08 mm2) or larger
DC Output	18 AWG (0.823 mm2) or larger
Power-Limited Circuits	18 AWG (0.823 mm2) - 22 AWG (0.325 mm^2)

Backup Battery (Optional)

NOTE: Backup batteries must be purchased separately.

Voltage	12 VDC
Capacity	12 AH
Maximum charge current	0.7 amp

Fuses

Power Supply	Input fuse: 3.5 amp / 250 V
Power Controller	Main fuse: 10 amp

Indicators

Power Supply	One red, single-color LED indicating DC power status One green, single-color LED indicating AC power status
Power Controller	Eight red, single-color LEDs indicating energized relays One green, single-color LED indicating FACP alarm condition

Ten-Amp Power Supply

DANGER! DO NOT POWER ANY CONTROLLER OR BOARD UNTIL ALL NECESSARY WIRING CONNECTIONS HAVE BEEN MADE AND ALL ENCLOSURES HAVE BEEN GROUNDED!

CAUTION! Provide separate enclosures or housings for all non-PremiSys components such as additional relays, etc. Do not power non-PremiSys equipment or door hardware with this power supply. If you require a weatherproof housing for outdoor installation, you are responsible for verifying and ensuring that the housing you use is adequate and safe for use with PremiSys components.

The PremiSys Ten-Amp Power Supply (see detail illustration below) is a power supply/ charger module rated at 12 VDC and 10 amps supervised (AC & battery). It accepts 115 VAC, 60 Hz input, and has two power-limited outputs.

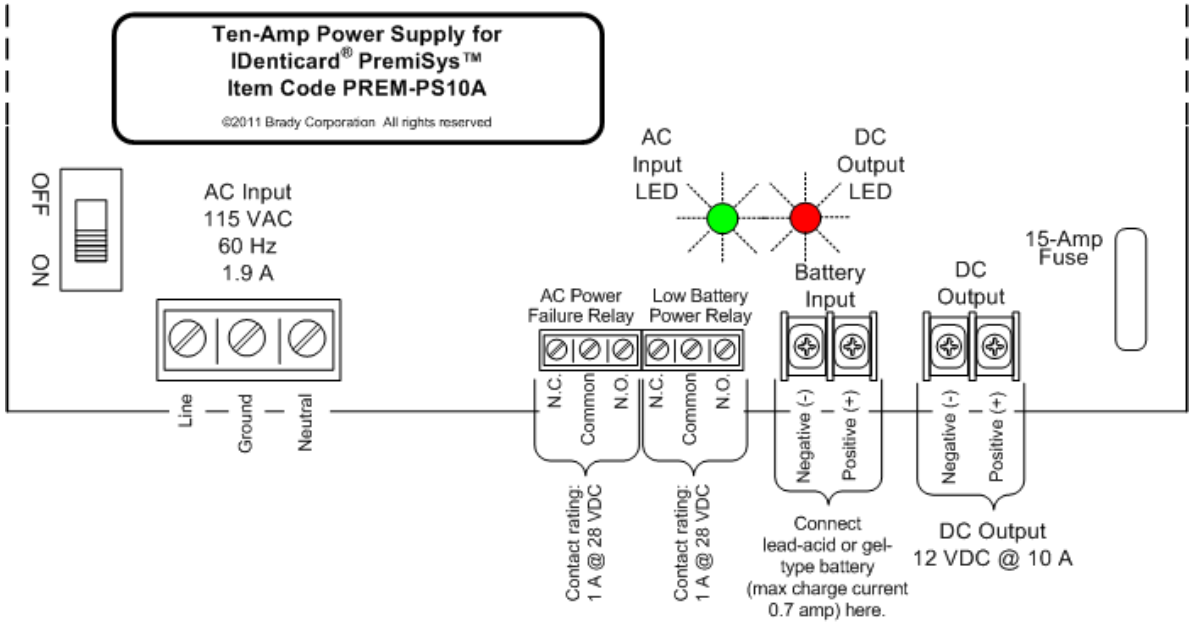
WARNING! Refer to the manufacturer's documentation on its Web site:

http://altronix.com/index.php?pid=2&model_num=OLS200

For complete instructions and specifications regarding the installation and use of this power supply! Follow ALL requirements and cautions mentioned in that documentation. Guidelines given in this manual are not meant to substitute for those instructions.

Connect relay wiring if used and the backup battery as instructed in the manufacturer's documentation. Refer to that documentation and the schematics for your controller in this manual to connect the DC wiring to the controller. When ready to power hardware, be sure switch on power supply is turned ON.

The AC-Input LED glows green when AC input power is normal. This LED is off when AC power is lost. The DC-Power LED glows red when main DC is on. This LED is off if there is no DC power output.



Ten-Amp Power Supply Specifications

Dimensions (approximate) and Weight of the Ten-Amp Power Supply

Board Width	8.1 inches (206 mm)
Board Height	4.1 inches (104 mm)
Board Depth	2.4 inch (61 mm)
Board Weight	13.1 ounces (371 g)

Power Specifications for the Ten-Amp Power Supply

AC Input Voltage Rating	115 VAC via three-pin terminal block for “Line,” “Neutral” and “Earth Ground”
DC Output Voltage Rating	12 VDC
Battery Type	Gel or lead-acid type only, 12 VDC, maximum charge rate 0.7 amp

Wiring Requirements for the Ten-Amp Power Supply

AC Power Input	Three-conductor, 12 AWG (3.309 mm2) to 18 AWG (0.823 mm2)
DC Power Output	Two-conductor, 18 AWG (0.823 mm2) or larger
Power-Limited Circuits	22 AWG (0.325 mm2) to 18 AWG (0.823 mm2)
AC Status Output Relay	Use wire and gauge as required by load.

Indicators on the Ten-Amp Power Supply

Visible	AC-Input indicator: one green LED DC-Power indicator: one red LED

Three-Amp Power Supply

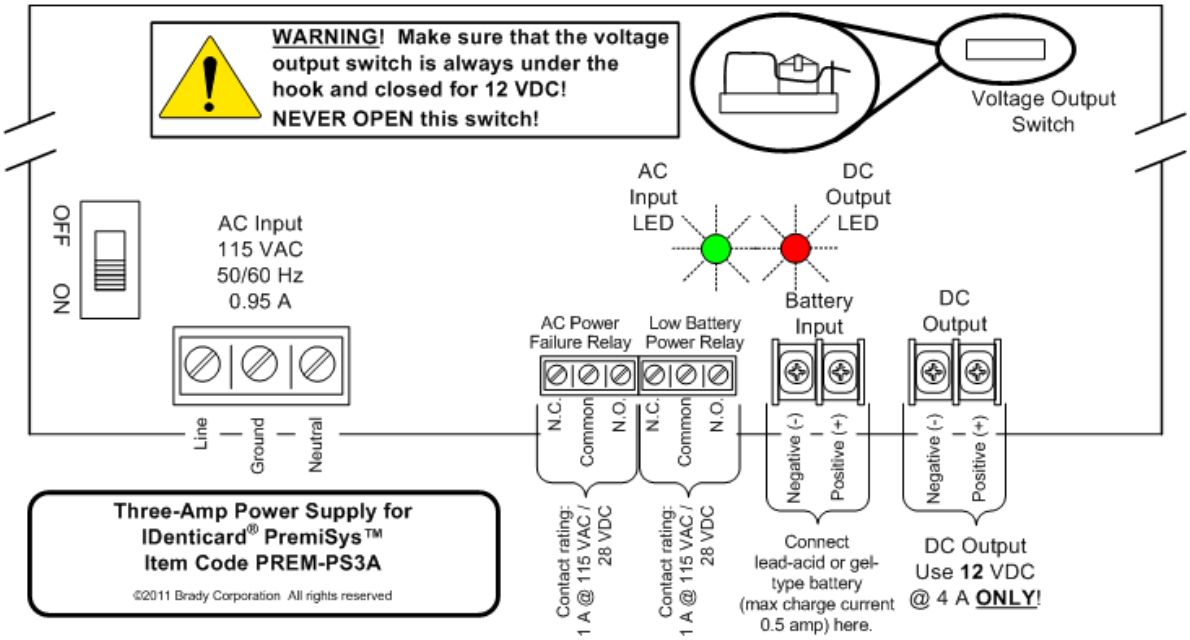
DANGER! DO NOT POWER ANY CONTROLLER OR BOARD UNTIL ALL NECESSARY WIRING CONNECTIONS HAVE BEEN MADE AND ALL ENCLOSURES HAVE BEEN GROUNDED!
CAUTION! Provide separate enclosures or housings for all non-PremiSys components such as additional relays, etc. Do not power non-PremiSys equipment or door hardware with this power supply. If you require a weatherproof housing for outdoor installation, you are responsible for verifying and ensuring that the housing you use is adequate and safe for use with PremiSys components.

The PremiSys Three-Amp Power Supply (see detail illustration below) is a power supply/charger module rated at 12 VDC and 4 amps supervised (AC & battery). It accepts 115 VAC, 50/60 Hz input, and has two power-limited outputs.

WARNING! Refer to the manufacturer's documentation on its Web site:
http://www.altronix.com/index.php?pid=2&model_num=OLS120
For complete instructions and specifications regarding the installation and use of this power supply! Follow ALL requirements and cautions mentioned in that documentation. Guidelines given in this manual are not meant to substitute for those instructions.

Connect relay wiring if used and the backup battery as instructed in the manufacturer's documentation. Refer to that documentation and the schematics for your controller in this manual to connect the DC wiring to the controller.

The AC-Input LED glows green when AC input power is normal. This LED is off when AC power is lost. The DC-Power LED glows red when main DC is on. This LED is off if there is no DC power output.



Three-Amp Power Supply Specifications

Dimensions (approximate) and Weight of the Three-Amp Power Supply

Board Width	7.6 inches (193 mm)
Board Height	4.2 inches (107 mm)
Board Depth	2.5 inch (64 mm)
Board Weight	10.5 ounces (298 g)

Power Specifications for the Three-Amp Power Supply

AC Input Voltage Rating	115 VAC via three-pin terminal block for "Line," "Neutral" and "Earth Ground"

DC Output Voltage Rating	12 VDC
Battery Type	Gel or lead-acid type only, 12 VDC, maximum charge rate 0.5 amp

Wiring Requirements for the Three-Amp Power Supply

AC Power Input	Three-conductor, 12 AWG (3.309 mm2) to 18 AWG (0.823 mm2)
DC Power Output	Two-conductor, 18 AWG (0.823 mm2) or larger
Power-Limited Circuits	22 AWG (0.325 mm2) to 18 AWG (0.823 mm2)
AC Status Output Relay	Use wire and gauge as required by load.

Indicators on the Three-Amp Power Supply

Visible	AC-Input indicator: one green LED DC-Power indicator: one red LED

Grounding

IMPORTANT! All controllers must be at the same ground potential.

Grounding is necessary to minimize the chance of damage, data loss or improper operation from electrical interference, including static electricity. Ground all enclosures to a good earth ground using a 12-gauge wire to connect the earth ground to the grounding lug inside the enclosures. The drain wires of all shielded cables should be grounded by connecting the wires to the grounding stud.

Detecting a Ground Loop

Taking steps to prevent ground loops are necessary when connecting controllers to boards or connecting boards to other boards. The Ethernet connections used among ACM Controllers eliminate the concern for ground loops when connecting ACM Controllers to each other.

Ground loops occur when there is a large difference in voltage between the local ground and a distant ground. This may result when controllers are located a great distance away from each other and are powered by separate electrical services, which is common in large buildings. A ground loop causes current to flow through the ground wire, which may burn it and interfere with data communications. If you connect a ground wire and see a spark, the current is too great and a ground loop exists. A ground loop can be detected with a VOM (volt-ohm meter) as detailed below:

1. With the VOM set on AC volts, check for voltage between the two grounds that you plan to connect. If there is a voltage of 5 volts or greater, there may be a ground

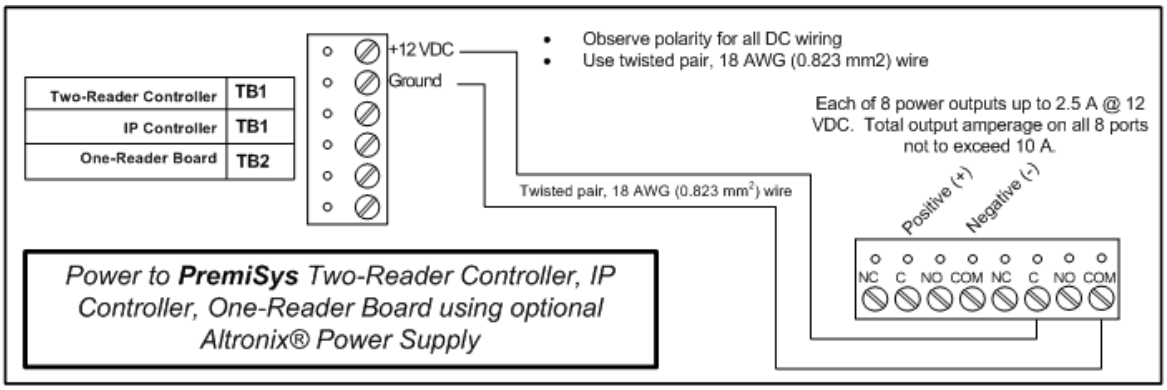
loop. Set the meter on DC volts and recheck.

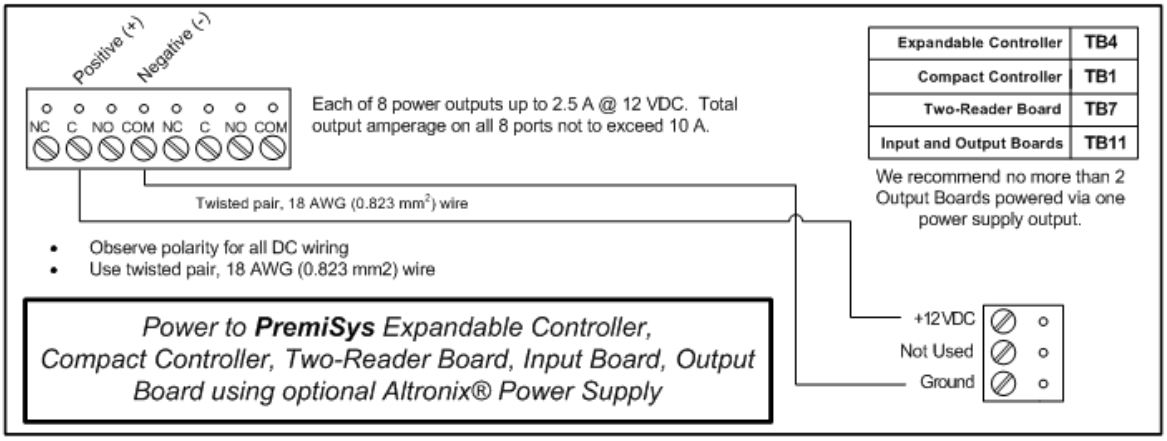
2. Connect the grounds, and watch for sparks. Sparks indicate a high current flow in the ground wire. If sparks occur, you may have chosen a poor ground for the controller enclosure. Options to remedy the situation:

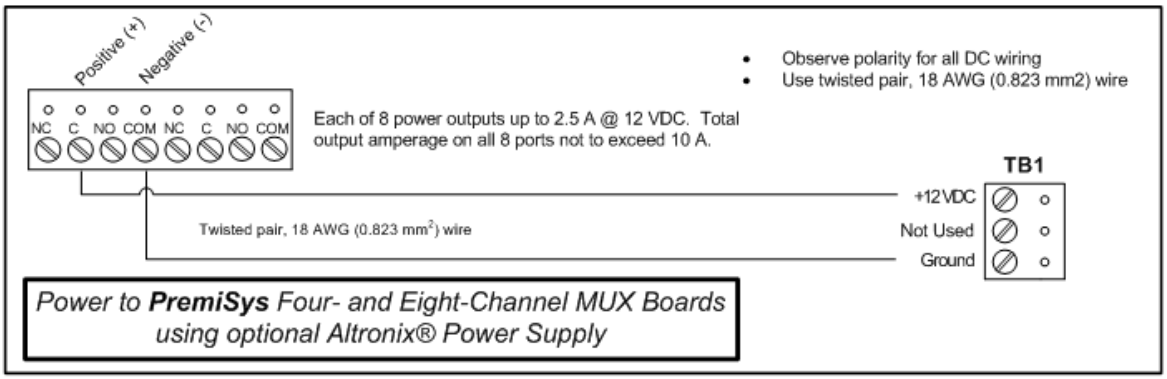
    - Check to see if there is an alternate ground and use that ground.
    - An improper ground at the electrical service entrance may be causing the ground loop. Contact an electrician or the electric company to see if it can be corrected.
    - If the problem cannot be resolved, "float" the controller by removing the local ground and use a ground from another controller.

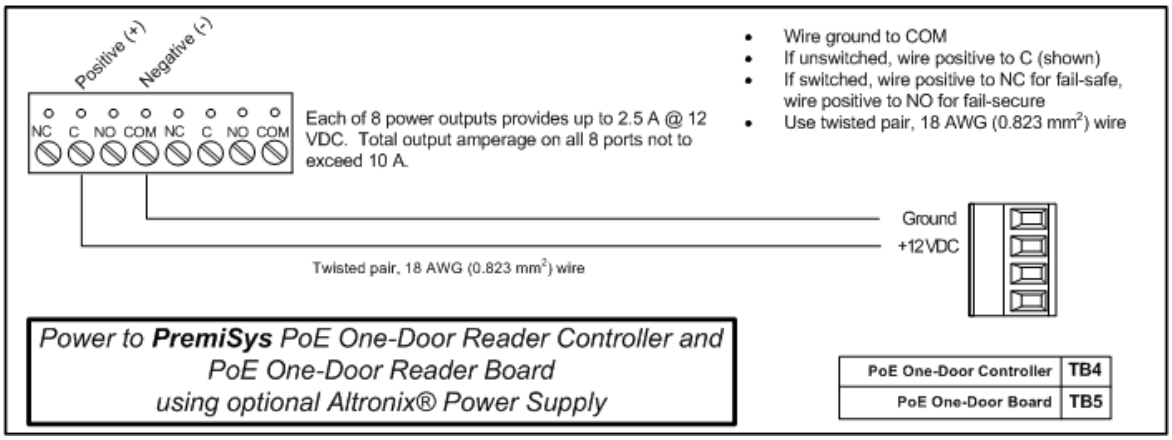
Connecting the Altronix 10-Amp Power Supply w/8 Isolated Outputs to PremiSys Controllers and Boards

IMPORTANT!: The Altronix Power Supply Control panel contains eight individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

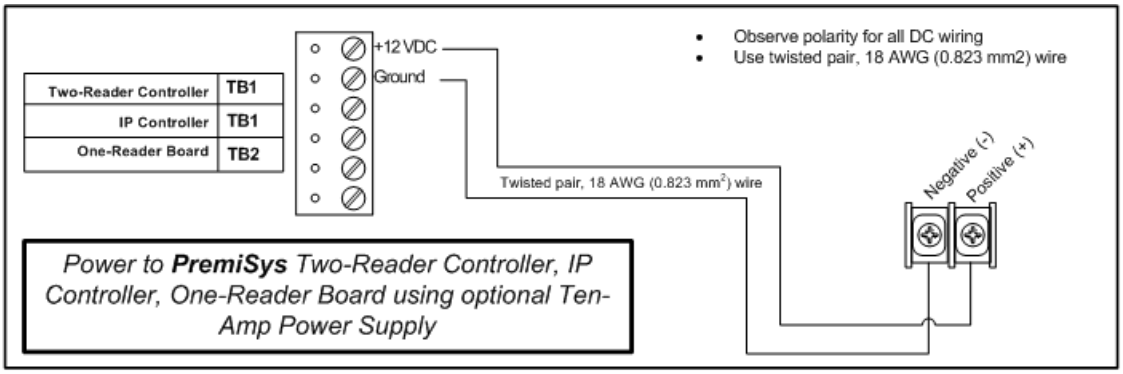

Two-Reader Controller TB1
IP Controller TB1
One-Reader Board TB2
+12 VDC
Ground
Observe polarity for all DC wiring
Use twisted pair, 18 AWG (0.823 mm2) wire
Each of 8 power outputs up to 2.5 A @ 12 VDC. Total output amperage on all 8 ports not to exceed 10 A.
Twisted pair, 18 AWG (0.823 mm²) wire
Positive (+)
Negative (-)
NC C NO COM NC C NO COM
Power to PremiSys Two-Reader Controller, IP Controller, One-Reader Board using optional Altronix® Power Supply

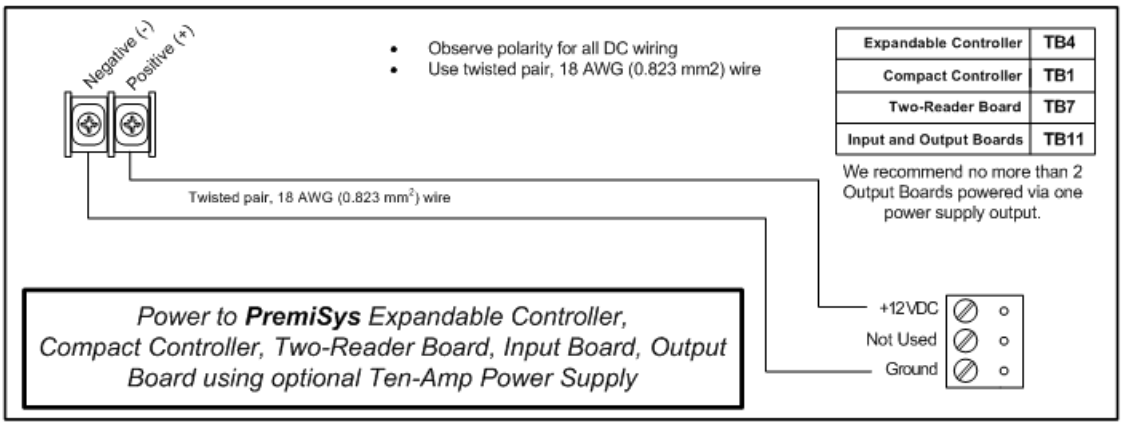

Positive (+)
Negative (-)
NC C NO COM NC C NO COM
Each of 8 power outputs up to 2.5 A @ 12 VDC. Total output amperage on all 8 ports not to exceed 10 A.
Twisted pair, 18 AWG (0.823 mm²) wire
Observe polarity for all DC wiring
Use twisted pair, 18 AWG (0.823 mm2) wire
Expandable Controller TB4
Compact Controller TB1
Two-Reader Board TB7
Input and Output Boards TB11
We recommend no more than 2 Output Boards powered via one power supply output.
+12 VDC
Not Used
Ground
Power to PremiSys Expandable Controller, Compact Controller, Two-Reader Board, Input Board, Output Board using optional Altronix® Power Supply

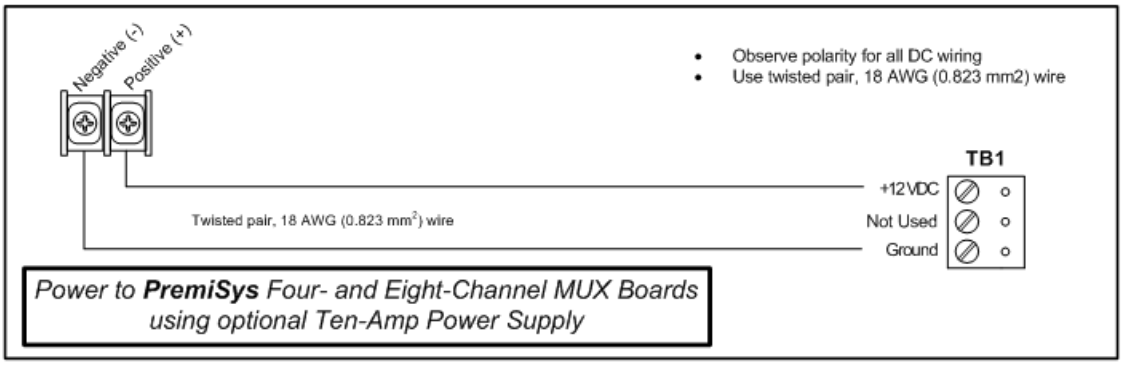

Positive (+)
Negative (-)
NC C NO COM NC C NO COM
Each of 8 power outputs up to 2.5 A @ 12 VDC. Total output amperage on all 8 ports not to exceed 10 A.
Observe polarity for all DC wiring
Use twisted pair, 18 AWG (0.823 mm2) wire
TB1
+12 VDC
Not Used
Ground
Twisted pair, 18 AWG (0.823 mm²) wire
Power to PremiSys Four- and Eight-Channel MUX Boards using optional Altronix® Power Supply

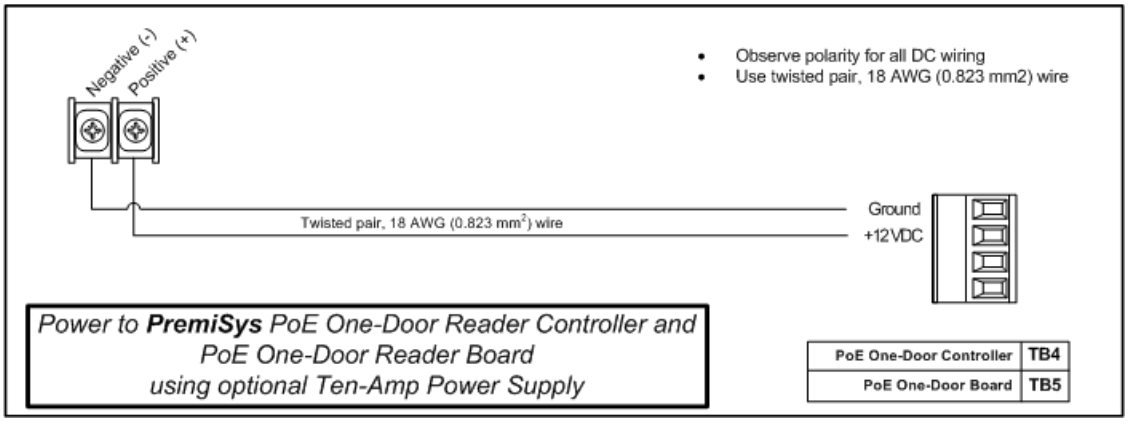

Positive (+)
Negative (-)
NC C NO COM NC C NO COM
Each of 8 power outputs provides up to 2.5 A @ 12 VDC. Total output amperage on all 8 ports not to exceed 10 A.
Wire ground to COM
If unswitched, wire positive to C (shown)
If switched, wire positive to NC for fail-safe, wire positive to NO for fail-secure
Use twisted pair, 18 AWG (0.823 mm²) wire
Ground
+12 VDC
Twisted pair, 18 AWG (0.823 mm²) wire
Power to PremiSys PoE One-Door Reader Controller and PoE One-Door Reader Board using optional Altronix® Power Supply
PoE One-Door Controller TB4
PoE One-Door Board TB5

Connecting the Ten-Amp Power Supply to PremiSys Controllers and Boards

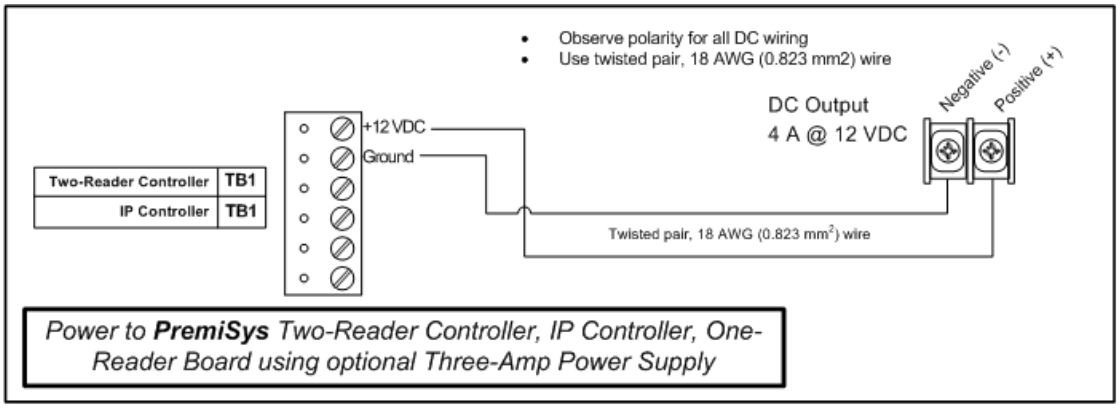


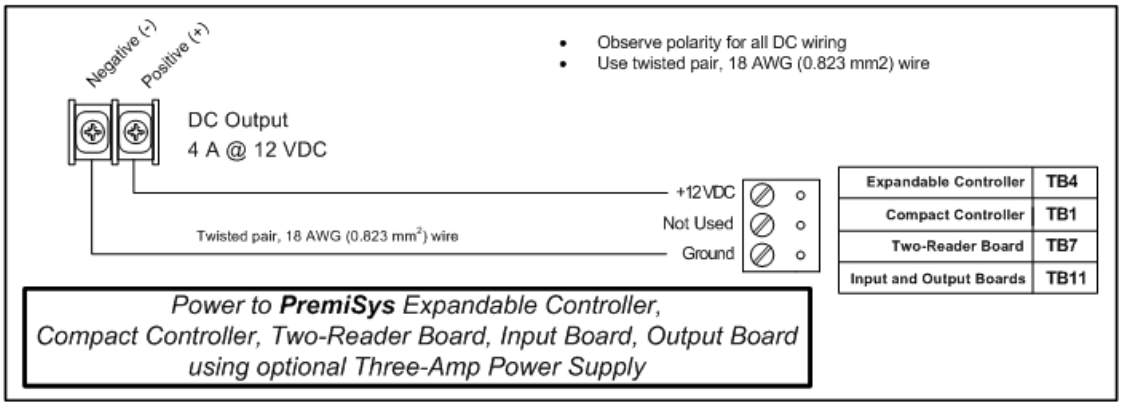


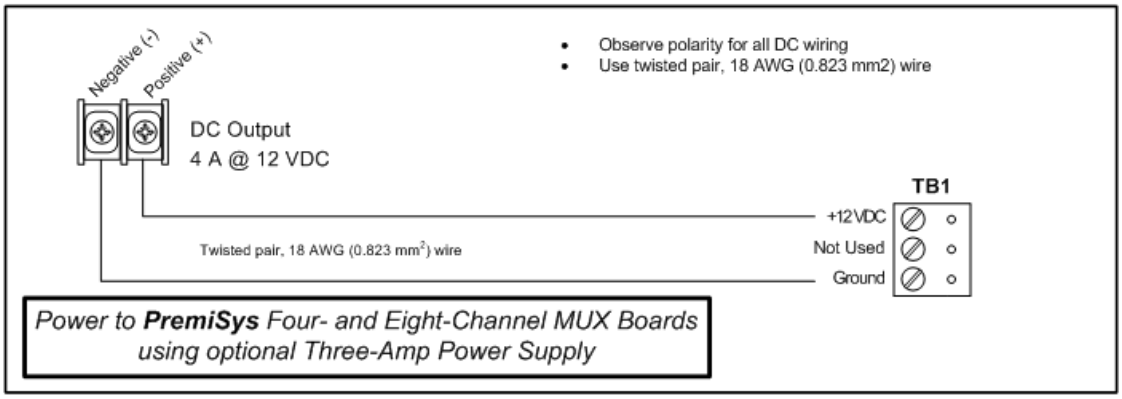


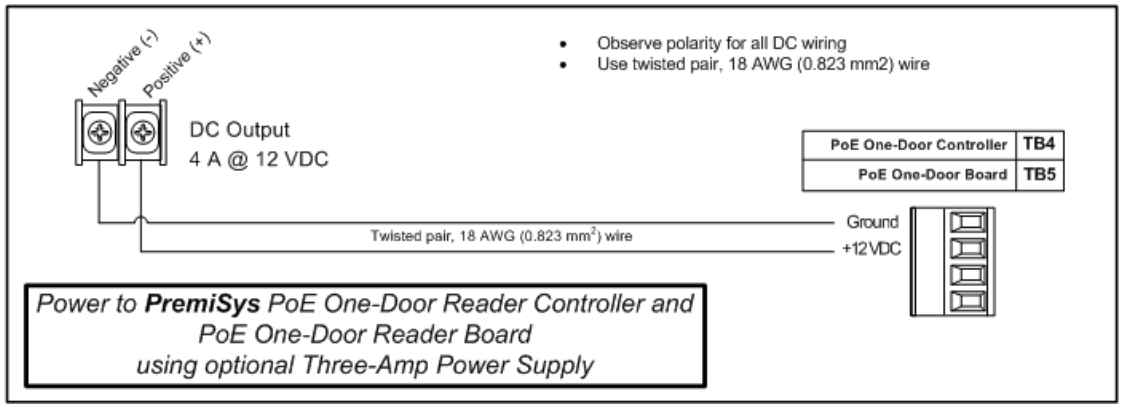


Connecting the Three-Amp Power Supply to PremiSys Controllers and Boards

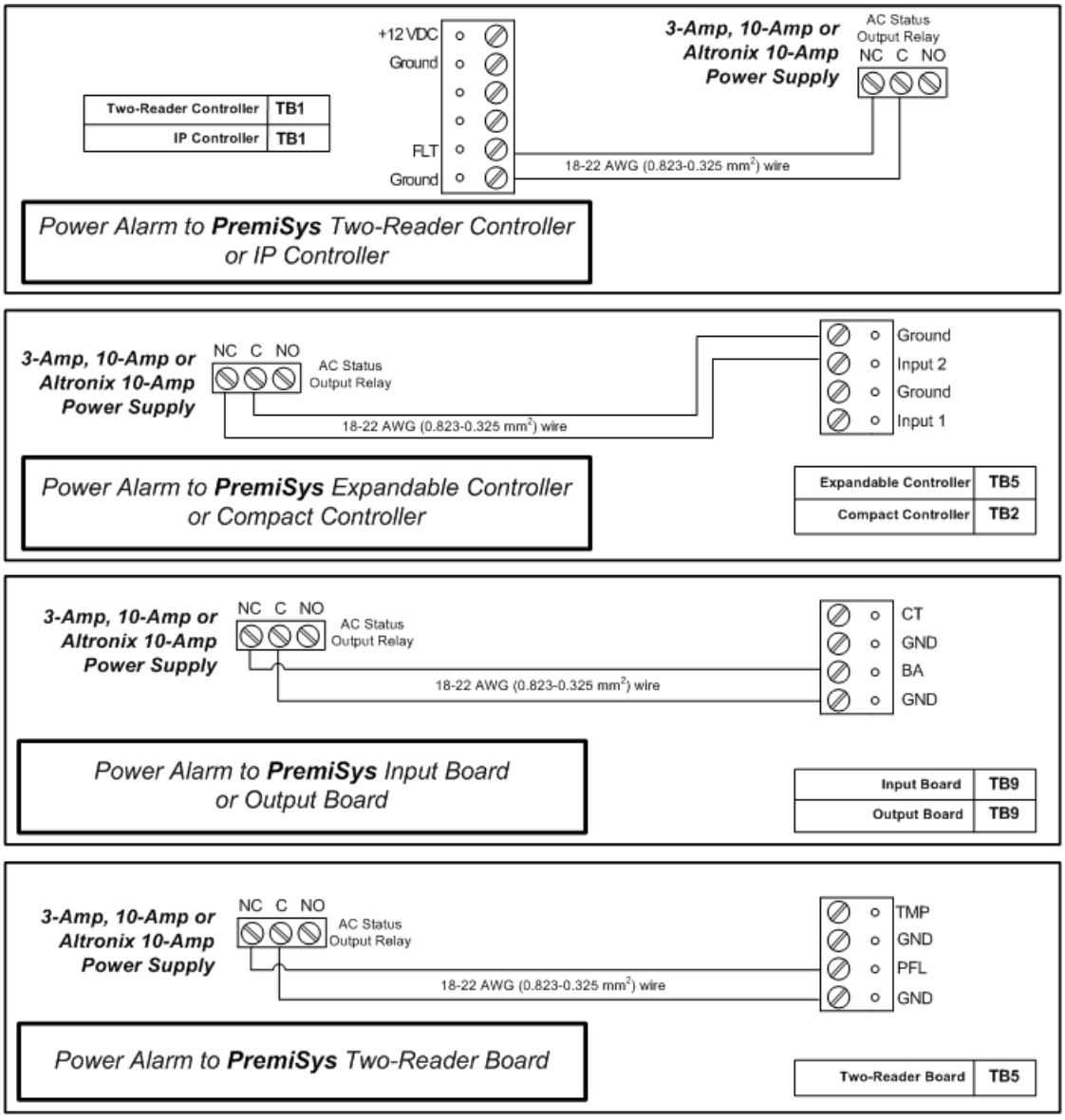








Connecting PremiSys Controllers and Boards to Monitor for UPS Power Loss



Note: The PremiSys One-Reader Board, the PoE One-Door Reader Board and the PoE One-Door Reader Controller do not have dedicated power alarm inputs.

Maintaining Batteries

The backup batteries connected to the power supplies should be maintained and replaced as instructed in the power-supply manufacturer's instructions.

Installing PremiSys Controllers and Boards

IMPORTANT! Complete all drilling for mounting and enlarge any knockout holes before installing controllers and boards in any enclosure. Never allow bits of metal from drilling, filing or punching to come into contact with controllers or boards.

A PremiSys™ system may consist of any of the hardware components and other equipment listed in the table below.

PremiSys controllers and boards must be mounted in PremiSys enclosures. The Network Card must be securely mounted directly on the controllers inside these enclosures. Install Network Cards on controllers before mounting controllers inside enclosures.

IP Controller	This controller offers optional built-in Ethernet communication to the host computer, along with nearly 18 MB total memory of which more than 15 MB is dedicated for card information. This controller offers optional redundant host communications using serial or Ethernet wiring.
Two-Reader Controller	This controller offers optional built-in Ethernet communication to the host computer along with two built-in reader ports, four outputs and eight inputs. It has more than 8 MB of total memory of which more than 6 MB is dedicated for card information. This controller offers optional redundant host communications using serial wiring.
PoE One-Door Reader Controller	This controller is a Power-over-Ethernet intelligent controller with an onboard Ethernet port and two reader ports designed for use as alternate or paired readers for one door. It incorporates two input points, two output relays and 16MB memory. Once the system databases are loaded into the controller memory, the PoE One-Door Reader Controller can perform interface and management functions independent of a host computer and without use of external I/O boards.
Expandable Controller	This controller has1 MB of memory expandable to 4 or 8 MB total memory and offers optional Ethernet communication using TCP/IP to the host computer, along with optional hardwired redundant host communications.

Compact Controller	This controller has 512 KB of memory (nonexpandable) and offers optional Ethernet communication using TCP/IP to the host computer.
Network Card	This card is plugged into the Expandable or Compact Controller to permit connection to the host over the Ethernet. The physical connection is via an RJ-45 (10/100Base-T) connector provided on the card. This card is programmed using a separate software utility.
PoE One-Door Reader Board	This board is a Power-over-Ethernet interface between any IDenticard® PremiSys controller and two card readers intended as alternate or paired readers for one door. The board also incorporates four input points and two output relays that can be used for door functions such as door-position monitoring, request-to-exit, a door lock and an alarm output. The PoE One-Door Reader Board supports ABA-and Wiegand-format readers in a wide variety of reader types, including smart-card and biometric readers, as well as keypads.
One-Reader Board	This board can connect to one reader, and provides two input points and two relays. The One-Reader Board's reader port supports connection to ABA and Wiegand format readers in a wide variety of reader types, including smart-card and biometric readers, as well as keypads.
Two-Reader Board	This board can connect to two readers, and provides eight input points and six relays. The Two-Reader Board's reader ports support connection to ABA and Wiegand format readers in a wide variety of reader types, including smart-card and biometric readers, as well as keypads.
Input Board	This board provides 16 supervised input points and two relays.
Output Board	This board provides 16 relays. Relays typically are used for door and elevator control as well as for general facility control.

Eight-Channel MUX Board & Four-Channel MUX Board	The MUX Boards are multiplexers that expand a single communications port on a controller into multiple data channels for connection to I/O boards in the system. Common uses are for star-topology wiring arrangements or home-run wiring. The Eight-channel MUX Board provides eight data channels for RS-485 communications. The Four-channel MUX Board provides four optically isolated data channels for RS-485 communications.
Three-Megabyte Expansion Card	Installing the Three-Megabyte Expansion Card on the Expandable Controller expands the RAM available on the controller from the 1-MB standard to a total of 4 MB.
Seven-Megabyte Expansion Card	Installing the Seven -Megabyte Expansion Card on the Expandable Controller expands the RAM available on the controller from the 1-MB standard to a total of 8 MB.
Large Enclosure	This enclosure has eight positions available for a controller and/or other boards and/or a power supply.
Small Enclosure	This enclosure can hold one controller or other board.
Three-Amp Power Supply	This power supply provides 12 VDC at 4 amps with provision for use of a backup battery. It accepts 115 VAC, 50/60 Hz input voltage and has a power-limited output.
Ten-Amp Power Supply	This power supply provides 12 VDC at 10 amps with provision for use of a backup battery. It accepts 115 VAC, 60 Hz input voltage and has a power-limited output.
Altronix® 10Amp P/S w/8 Isolated Outputs Power Supply	This power supply/controller module is rated at 12 VDC and 10 amps supervised (AC & battery). It accepts 115VAC 60Hz 1.9 amp input voltage, has eight power-limited outputs and is UL Listed for Access Control System Units (UL 294.) This power supply features eight independently controlled fail-safe and/or fail-secure power outputs.

The following components all have the same footprint and can be mounted directly onto the mounting pems in the Large and Small Enclosures:

- Two-Reader Controller
- Expandable Controller

- Two-Reader Board
- Input Board
- Output Board
- Four-Channel MUX Board
- Eight-Channel MUX Board

The IP Controller, Compact Controller and One-Reader Board each have smaller footprints and must be mounted onto a PremiSys Adapter Plate. This adapter plate is then mounted onto a set of four pems in a Large or Small Enclosure. You receive an adapter plate when an IP Controller or Compact Controller is ordered with a Large or Small Enclosure. Contact IDenticard Systems Customer Service at 800-233-0298 for additional adapter plates.

Use 6-32 screws (included) to secure all controllers or boards to pems in the enclosures or on the adapter plate.

The PoE One-Door Reader Controller and the PoE One-Door Reader Board must be mounted in three-gang junction boxes with optional magnetic tamper switches.

PremiSys Controller Feature Matrix

The chart below lists some of the features for PremiSys™ controllers. The " ✓ " indicates that the feature is available for the controller. See also the list of important notes below the chart.

IMPORTANT! Verify all jumper settings on the controllers. Also enter all necessary information in the software as indicated in the PremiSys Software Help Manual. The information configured on the controller hardware must match the information entered for each controller in the PremiSys software.

	IP Controller	Two-Reader Controller	PoE Controller
Host Communications:			
On-board Ethernet port	✓	✓	✓
RS-232 capable (4-wire)	✓	✓	
RS-485 capable (2-wire)	✓		
Serial redundancy capability	✓	✓	
Ethernet redundancy capability	✓		
Addressable via Web Configuration Manager	✓	✓	✓
I/O Board Communications:			
RS-485 capable (2-wire)	✓	✓	✓
Number of I/O ports available	2	1	1
Number of I/O boards connectable	64	32	16*

Memory:			
Standard total memory	32 MB	16 MB	16 MB
Firmware flash upgradeable	✓	✓	✓
Other Features:			
Dedicated power-loss input	✓	✓	
Dedicated tamper input	✓	✓	✓
On-board reader ports		✓	✓

*This number does not count the on-board I/O. See the sections of this manual treating connection of the PoE One-Door Reader Controller to various I/O boards for important details and restrictions.

IMPORTANT!

- **The number of controllers connectable to an Ethernet network is limited by the number of IP addresses available, capacity of the server, bandwidth of the network and any other factors that affect network capacity.**
- **RS-232 communications are limited to 50 total cable-feet (15 total cable-meters.)**
- **RS-485 communications are limited to 4000 cable-feet (1219 cable-meters) total copper, including drops, for all controllers on one channel.**
- **If you are using serial RS-232 you must create each controller under its own channel in the PremiSys software. See the topic "Understanding Channels" in the PremiSys Online Help for details.**
- **If you are using serial RS-232 you can connect only one controller per physical port on your PC.**
- **You must give each controller a physical address regardless of the type of host communication. Physical addresses for the IP, Two-Reader and PoE controllers are set via the Web Configuration Manager. See the topic in this manual titled "Configuring PremiSys Ethernet Controllers 114." Physical addresses for the Expandable and Compact controllers are set using their DIP switches. See the topics in this manual titled "Expandable Controller DIP Switches... 138" and "Compact Controller DIP Switches... 152," respectively.**
- **Ethernet communication requires an IP address. IP addresses for the IP and Two-Reader controllers are set via the Web Configuration Manager. IP addresses for Network Cards used on Expandable and Compact controllers are set via DeviceInstaller™ software. See the**

topic and subtopics in "Using a Network Card with PremiSys Software" in the PremiSys Online Help for details.

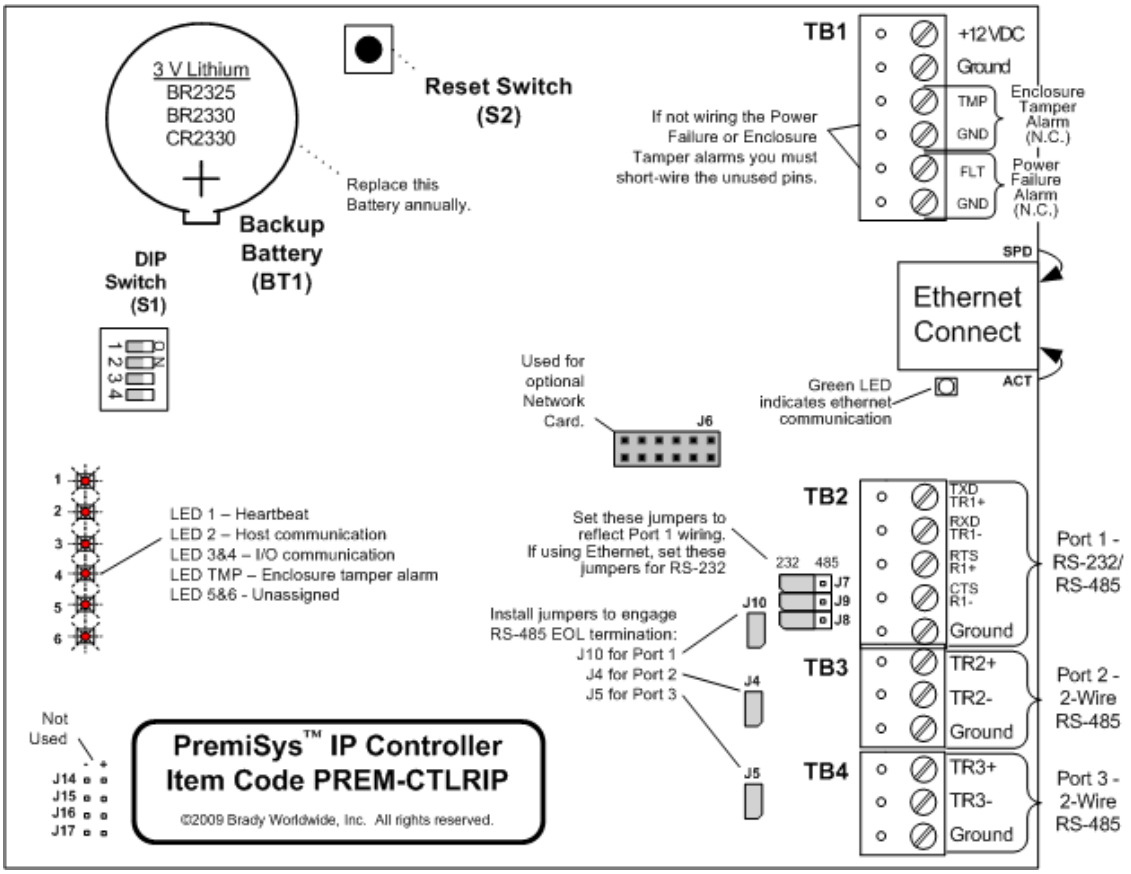
- Make sure that all Web Configuration Manager settings and all DIP switch settings on all controllers in the system are also entered in the relevant controller setup windows in the PremiSys software. See the topic and subtopics in "Understanding Controllers" in the PremiSys Online Help for details.
- When using the Network Card for Ethernet communications, if power to a controller is cycled off and then on you must press the reset button on the Network Card. See the topic in this manual titled "PremiSys Network Card 278" to view a drawing of the Network Card and the reset button location.

PremiSys Ethernet Controllers

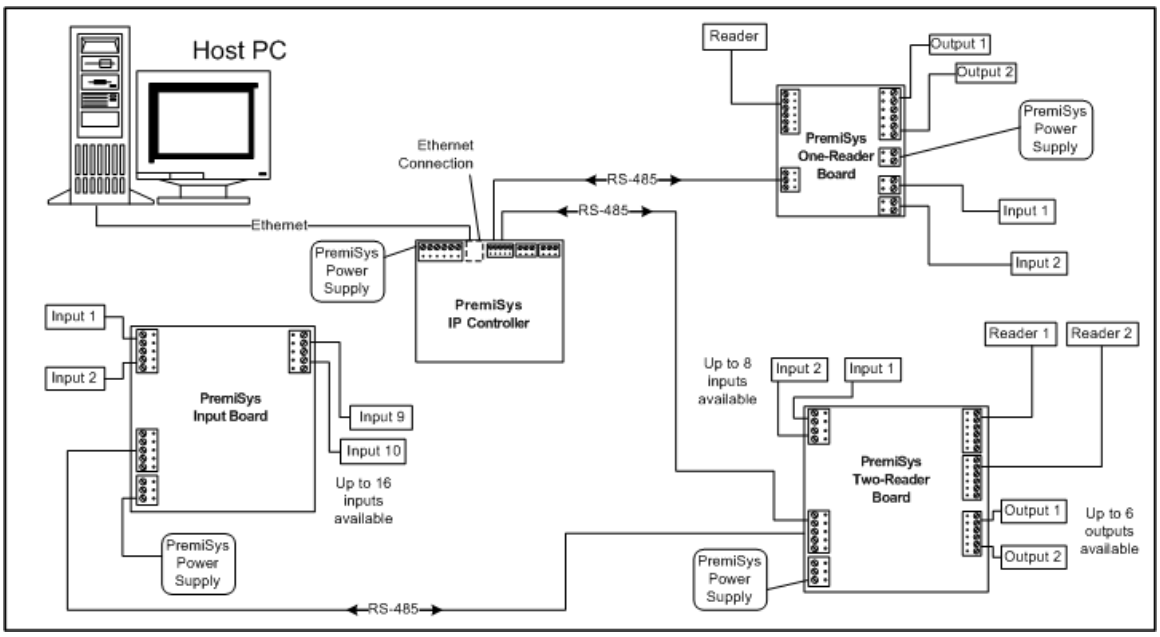
The PremiSys controllers in this section are equipped with embedded Ethernet ports. See the instructions in the section titled "Configuring PremiSys Ethernet Controllers 114" for instructions to log into, readdress, and change network settings for each of these Ethernet-style controllers.

- PremiSys IP Controller 43
- PremiSys Two-Reader Controller 64
- PremiSys PoE One-Door Reader Controller 89
- Configuring PremiSys Ethernet Controllers 114

PremiSys IP Controller



Sample General Configuration for a PremiSys IP Controller Connected to other PremiSys Boards, a Reader and Auxiliary Equipment



IP Controller Specifications

Certifications for the IP Controller

UL: recognized to UL 294: Access Control System Units - component
CE: EN55022, EN50082-1, IEC801-2, IEC801-3 and IEC801-4

Dimensions and Weight of the IP Controller

Controller Width	5.0 inches (127 mm)
Controller Height	6.0 inches (152.4 mm)
Controller Depth	1.0 inch (25 mm)
Controller Weight	4.1 ounces (115 g) (nominal)

Environmental Specifications for the IP Controller

Temperature	32°F to 158°F (0°C to 70°C) operating -67°F to 185°F (-55°C to 85°C) storage
Relative Humidity	0 to 95% RH noncondensing

Power Specifications for the IP Controller

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 – 24 VDC ± 10%, 300mA maximum 12 VDC @ 240mA (325mA with Network Card) nominal 24 VDC @ 135mA (175mA with Network Card) nominal
Memory Backup	Lithium coin cell, 3.0 V, type BR2325, BR2330, CR2330

IMPORTANT! Replace the coin cells (memory backup) used in the controllers annually. Use three-volt, lithium coin cell batteries of the types BR2325, BR2330 or CR2330 as replacements.

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the IP Controller

Power to IP Controller	Twisted pair, 18 AWG (0.823 mm^2).
Primary Port – Ethernet to Host	Category 5 cable
Port 1 – RS-485, RS-232 or Ethernet to Host	Ethernet Category 5 cable RS-232 Twisted pair, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 50 feet (15.2 meters) of wire, total copper, including drops RS-485 Twisted pair, 22 AWG (0.325 mm^2), with overall shield, 120 ohm Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
Port 2 – RS-485 to I/O boards	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
Port 3 – RS-485 to I/O boards	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
Alarm Inputs	Twisted pair, 30 ohms maximum

Communications Specifications for the IP Controller

Primary Port	Ethernet, 10/100Base-T interface
Port 1	Ethernet, 10/100Base-T interface; RS-232, DTE or Two-wire RS-485 2,400-38,400 bps, asynchronous 9,600-115,000 bps, asynchronous
Port 2 and Port 3	Two-wire RS-485 2,400-38,400 bps, asynchronous

Access-Control Specifications for the IP Controller

Memory	17.7 MB assigned as follows: 15.7 MB for card information 1 MB for configuration data 1MB for transactions
Alarm Inputs	Two unsupervised, dedicated alarm inputs for enclosure tamper and power loss

Indicators on the IP Controller

Visible	6 red, single-color LEDs 1 dual-color LED for Ethernet connection

IP Controller Jumper Settings

Jumpers	Set At	Selected
J7, J8, J9	232	Primary Port (Ethernet) is used or Port 1 is RS-232 or Ethernet
	485	Port 1 is RS-485
J10	OFF	Port 1 RS-485 EOL Terminator is not on
	ON	Port 1 RS-485 EOL Terminator is on
J4	OFF	Port 2 RS-485 EOL Terminator is not on
	ON	TR2 RS-485 EOL Terminator is on
J5	OFF	Port 3 RS-485 EOL Terminator is not on
	ON	Port 3 RS-485 EOL Terminator is on

IP Controller DIP Switches – Chart

See the section "Logging into the Configuration Manager for the First Time" 115 for more information on when and why you change DIP switch settings on a controller.

You can configure the operating mode of the controller by setting the DIP switches before you apply power to the controller. Avoid changing the switch settings while the PremiSys™ IP Controller is powered, except when noted to do so. If you do change a setting while the controller is powered, cycle power off, and then on again for the setting to take effect. However, there is a point in the bulk erasing process when power must never be cycled. See the instructions for bulk erasing for details. 133

IMPORTANT!: The first time you program this controller or after the controller has been bulk erased, the default communication parameters are in effect. The DIP switches may be set to "OFF, OFF, OFF, OFF" to program the controller. You then contact the controller using the default IP address "192.168.10.20" to program it. See the section titled "Configuring Ethernet Controllers 114" for complete information on how to program an Ethernet controller for use in your PremiSys system.

	Switches			
Functions	**1**	**2**	**3**	**4**
Initial Configuration Mode - Use this setting after a bulk erase, when a bulk erase is needed. Normal Operating Mode - Use this setting after the controller is programmed and is ready for normal function.	Off	Off	Off	Off
Pre-Bulk-Erase Mode - Use this setting before beginning a bulk erase. See the instructions for bulk erasing for full details. 133	**On**	**On***	Off	Off

*After you initially program your controller communication settings through the Configuration Manager, you may leave SW1 and SW 2 "Off" unless you need to perform a bulk erase and go through the initial configuration again.

DIP Switch Examples

- SW1 is On - Default username and password CAN log into the Configuration Manager, regardless of the "Disable Web Server" setting.
- SW 1 is On and "Disable Web Server" is enabled - Custom usernames and passwords CANNOT log into the Configuration Manager.
- SW 1 is On and "Disable Web Server" is disabled - Custom usernames and passwords CAN log into the Configuration Manager.
- SW 1 is Off and "Disable Web Server" is disabled - Custom usernames and passwords CAN log into the Configuration Manager, the default username and password CANNOT log into the Configuration Manager.
- SW 1 is Off and "Disable Web Server" is enabled, NO username and passwords work can log into the Configuration Manager. To configure the controller while the Disable Web Server is selected you must move switch 1 to "On."

Note: See the PremiSys™ Online Help for instructions about setting other IP and communication addresses as well as other configurations.

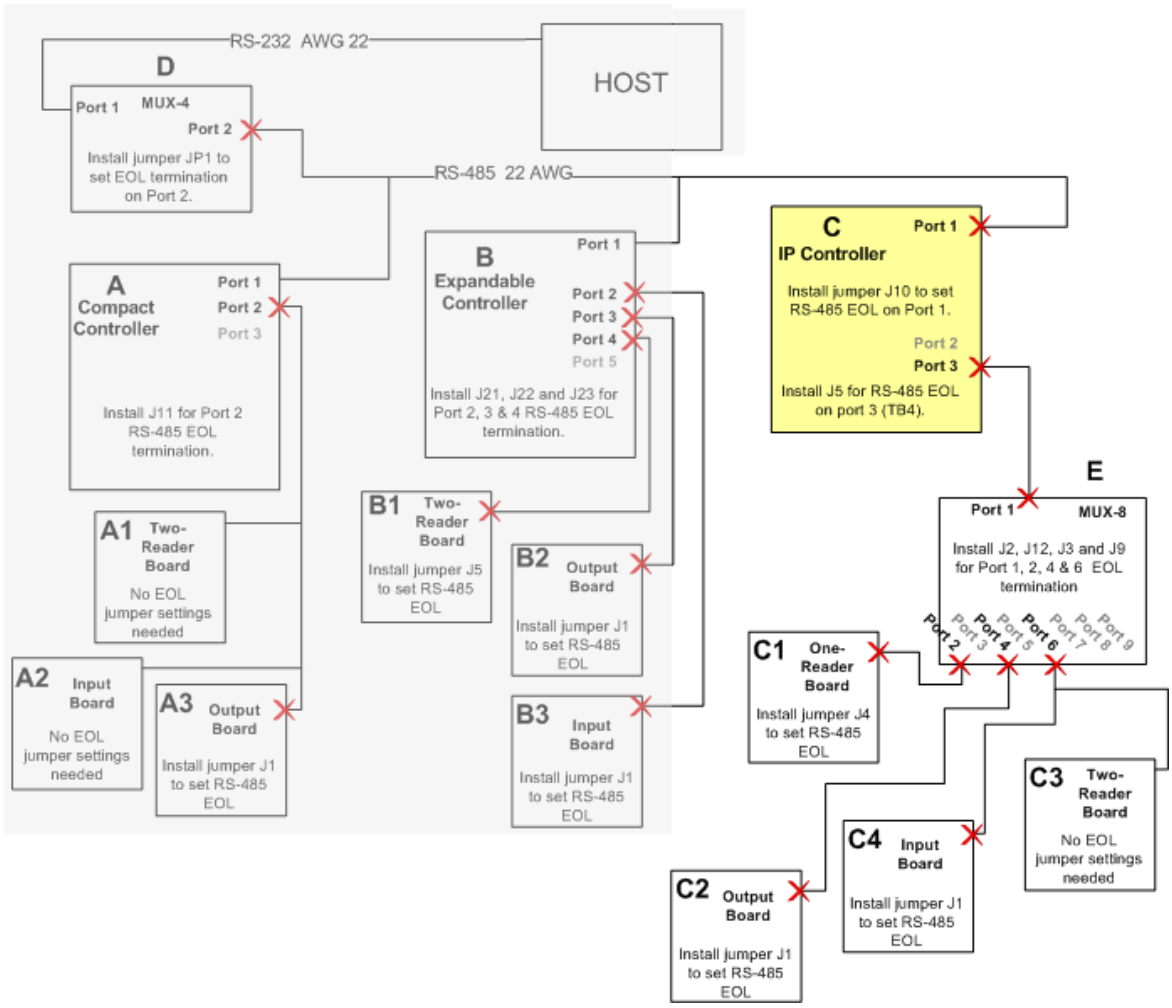
Setting End-of-Line (EOL) Resistance for the PremiSys IP Controller

Install jumpers J4 and J5 on the PremiSys™ IP Controller to set RS-485 EOL when needed for ports 2 and 3.

In the diagram below:

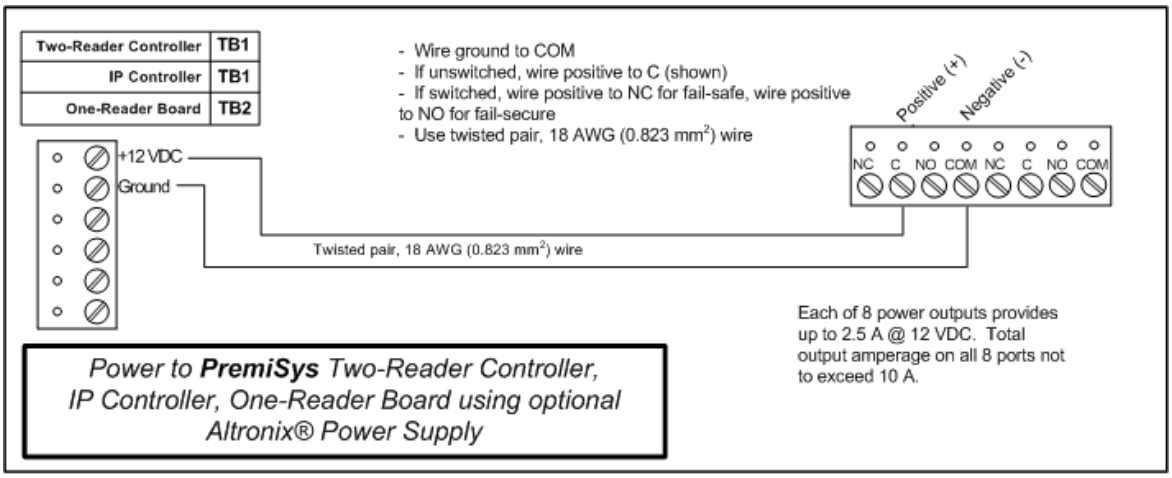
Controller “C”

- J10 is set because Controller C is the last controller in the serial line
- J5 is set because at least one I/O board (C1 through C4) is an end-of-line board on the controller's Port 3. In this example, C1, C2 and C4 are all end-of-line boards.

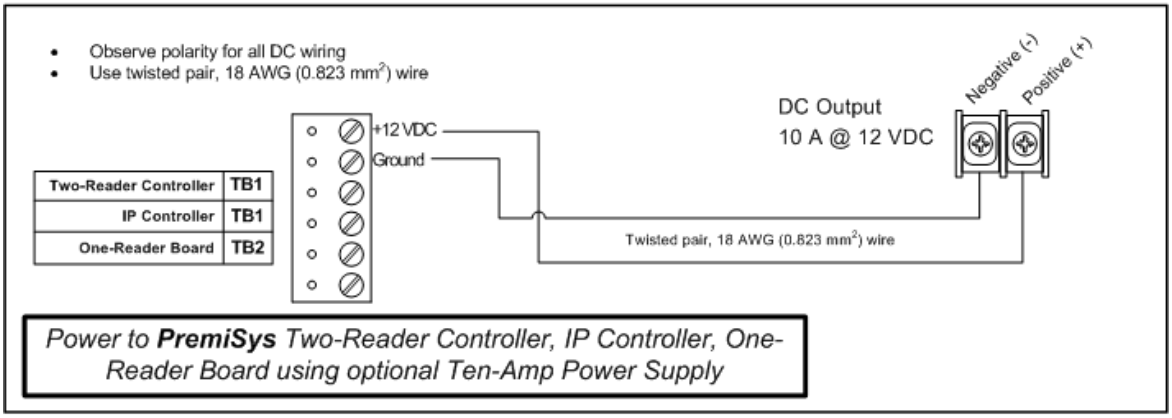


Wiring an IP Controller to a Power Supply

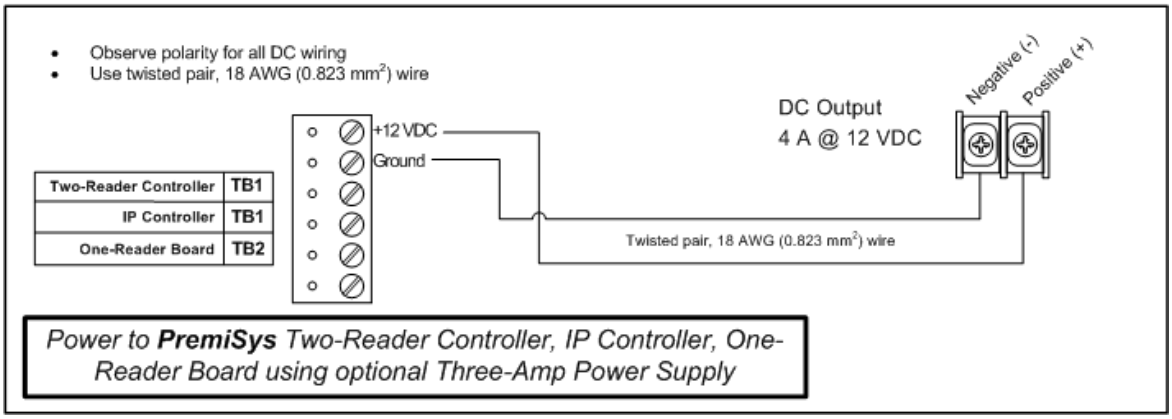
IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.



*Power to **PremiSys** Two-Reader Controller, IP Controller, One-Reader Board using optional Altronix® Power Supply*



*Power to **PremiSys** Two-Reader Controller, IP Controller, One-Reader Board using optional Ten-Amp Power Supply*



*Power to **PremiSys** Two-Reader Controller, IP Controller, One-Reader Board using optional Three-Amp Power Supply*

Power Specifications for the IP Controller

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 – 24 VDC ± 10%, 300mA maximum 12 VDC @ 240mA (325mA with Network Card) nominal 24 VDC @ 135mA (175mA with Network Card) nominal
Memory Backup	Lithium coin cell, 3.0 V, type BR2325, BR2330, CR2330

IMPORTANT! Replace the coin cells (memory backup) used in the controllers annually. Use three-volt, lithium coin cell batteries of the types BR2325, BR2330 or CR2330 as replacements.

Verifying power and operation:

When a controller is first powered up, the pattern of the LEDs' flashing indicates proper powering and response.

The IP Controller has red LEDs, 1-6 and D7 as well as one yellow and one green LED on the Ethernet port. See the schematic of the IP Controller 43 at the beginning of this section to view the location of the LEDs. See the table at the end of this topic for information indicating the status of the controller based on the LEDs.

- As you begin to power up, all LED's are off.
- While the controller is initializing, the LEDs have the following meanings:
- LEDs 1 through 6 are sequenced during initialization.
- LED's 1, 3, and 5 are turned ON for approximately 4 seconds after the hardware initialization has completed,
- The application code is then initialized. The amount of time the application takes to initialize depends on the size of the database, about 3 seconds without a card database. Each 10,000 cards will add about 3 seconds to the application initialization.

IMPORTANT! When LED's 1, 2, 3 and TMP flash at the same time, data is being read from or written to flash memory, do not cycle power when in this state.

If the sequence stops or repeats, perform one of the steps below.

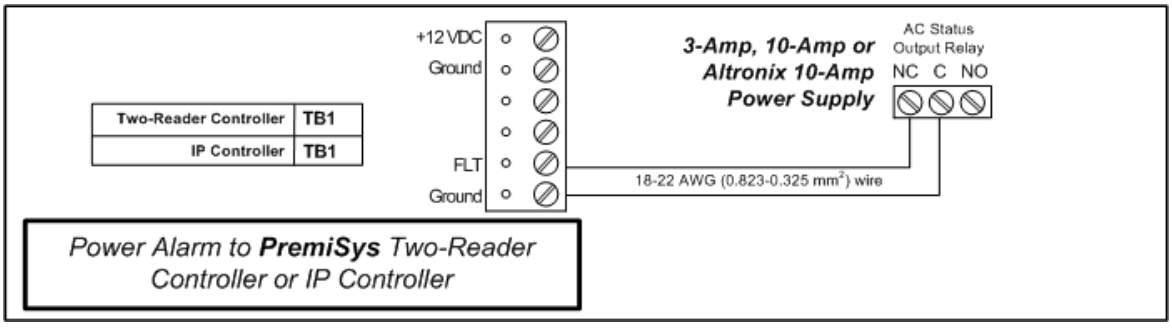
- Power-up and tag database as invalid:
  - Remove input power to the controller
  - Place an insulator under the battery clip and wait 5-10 seconds
  - Remove insulator and reapply input power.
- Power-up without loading database into RAM:
  - Remove input power to the controller
  - Set DIP switches to a default mode (in a default mode, the database is not loaded into RAM)
  - Reapply input power.
- Erase all of the configuration and databases (also erases card database for security reasons.) See "Bulk Erasing Ethernet Controllers 133" for instructions to erase all information on the controller.

If clearing the memory does not correct the initialization problem, contact technical support.

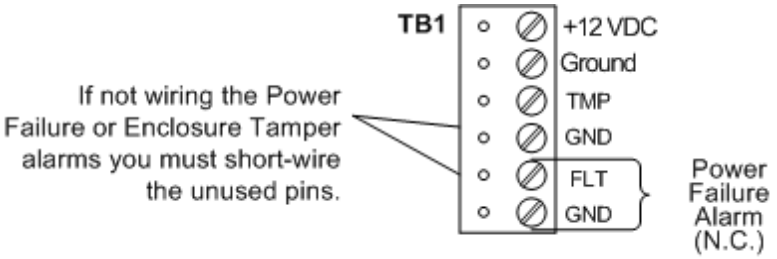
After initialization is complete the IP Controller's LEDs have the following meanings while in run mode:

LED	**ON**	**20/80 Flash**	**80/20 Flash**	**Double Flash**
1		Offline	Online	Low battery
2	Port 1 communication to host			
3	Port 2 communication to I/Os			
4	Port 3 communication to I/Os			
5	Unassigned			
6	Unassigned			
Ethernet Port LEDs	**OFF**		**ON**	**FLASH**
Red LED (D7)	No data transmitting		Data transmitting	
Yellow LED	10Mb/S Ethernet speed		100Mb/S Ethernet speed	N/A
Green LED	No link		Good link	Ethernet activity

Wiring an IP Controller to Monitor for UPS Power Loss

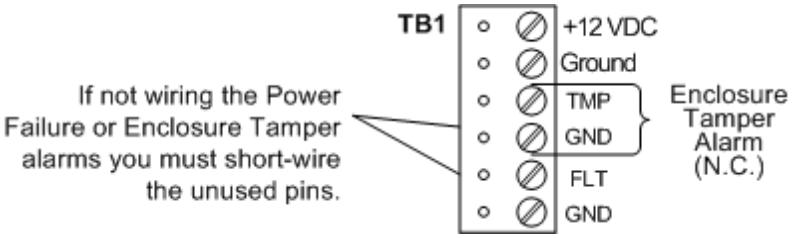


Alarm Inputs	Twisted pair, 30 ohms maximum



Wiring an IP Controller for Enclosure Tamper

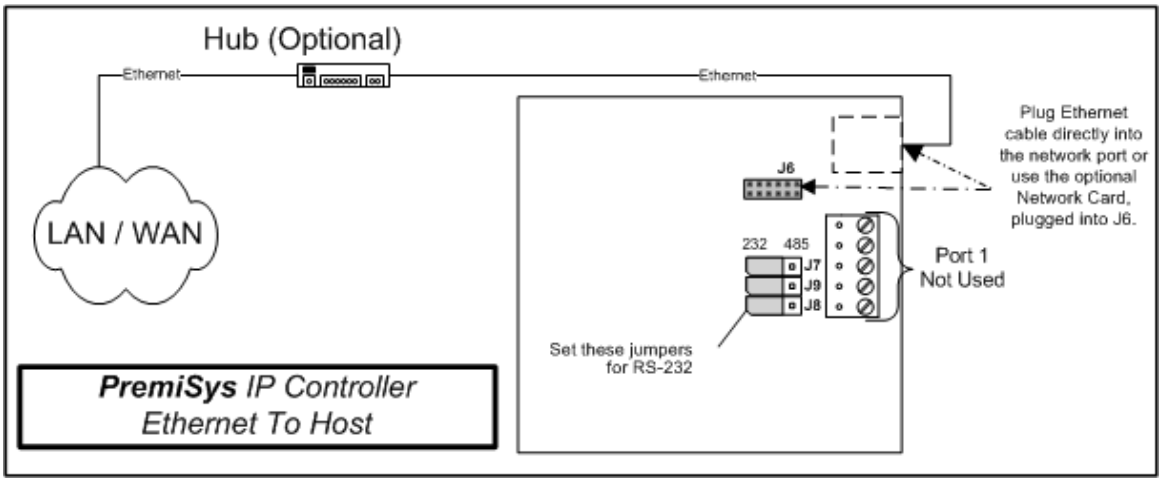
Alarm Inputs	Twisted pair, 30 ohms maximum



Wiring an IP Controller to the Host

IMPORTANT! Make sure that all pertinent jumper and DIP switch settings on all controllers in the system are also entered in the relevant controller setup window in the PremiSys™ software. See the PremiSys Online Help for details.

IP Controller via Ethernet to Host



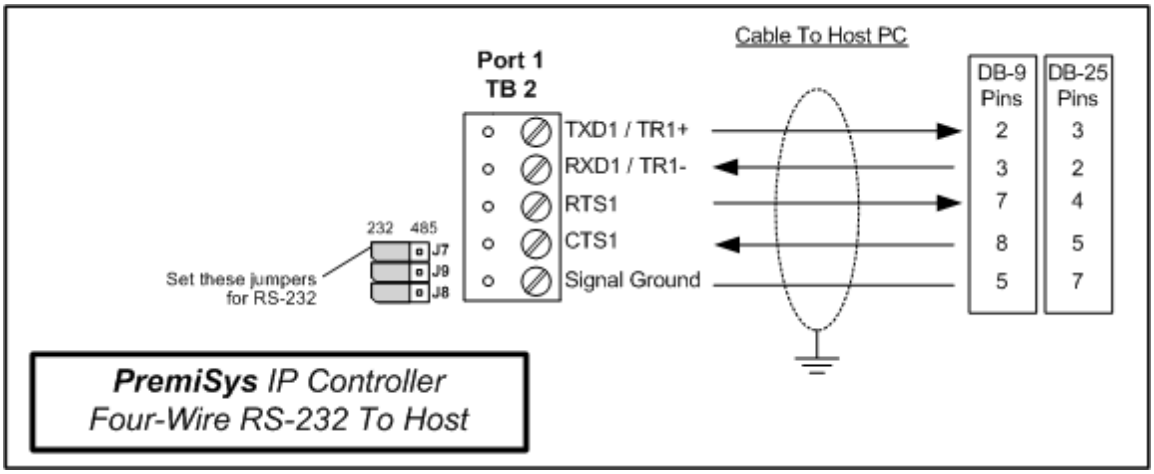
Primary Port	Cat 5 cable direct plug in

Notes:

- **The number of PremiSys IP Controllers you can connect to an Ethernet network is limited by the number of IP addresses available, capacity of the server, bandwidth of the network and any other factor that affects network capacity.**
- **The Ethernet can be directly plugged into the Primary Port on the IP Controller.**
- **Each controller connected via the Ethernet must be configured in the software to have its own channel.**
- **Be sure to set Jumpers J7, J8 and J9 for RS-232 when you use Ethernet communications.**

IP Controller via Four-Wire RS-232 to Host

RS-232 communications are limited to 50 total cable-feet (15 total cable-meters.)



TB2

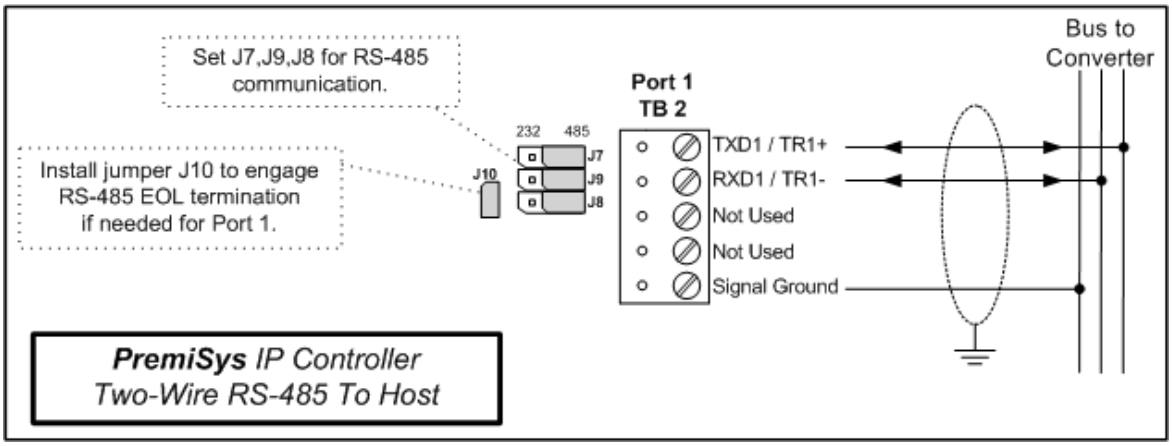
Port 1	GND
	CTS / R1-
	RTS / R1+
	RXD / TR1-
	TXD / TR1+

Notes:

- **You can connect one IP Controller per serial channel.**
- **Be sure to set Jumpers J7, J8 and J9 for RS-232 when you use RS-232 communications.**

IP Controller via Two-Wire RS-485 to Host

RS-485 communications are limited to 4000 cable-feet (1219 cable-meters) total copper, including drops for all controllers on one channel.



TB2

Port 1	GND
	CTS / R1-
	RTS / R1+
	RXD / TR1-
	TXD / TR1+

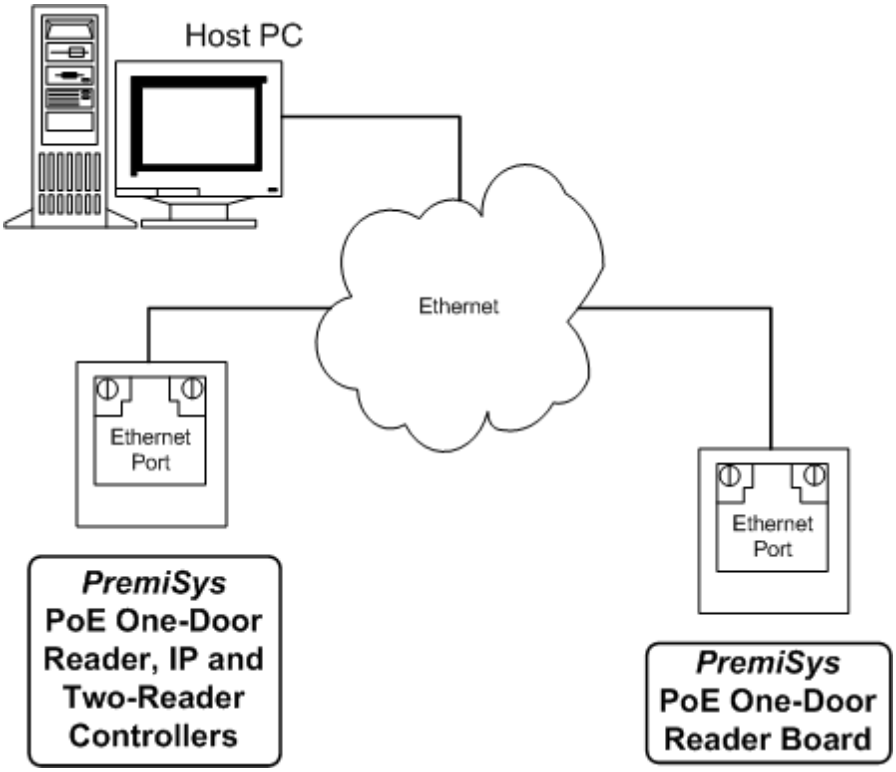
Notes:

- **You can connect one IP Controller per serial channel.**
- **Be sure to set Jumpers J7, J8 and J9 for RS-485 when you use RS-485 communications.**

Wiring an IP Controller to the PoE One-Door Reader Board

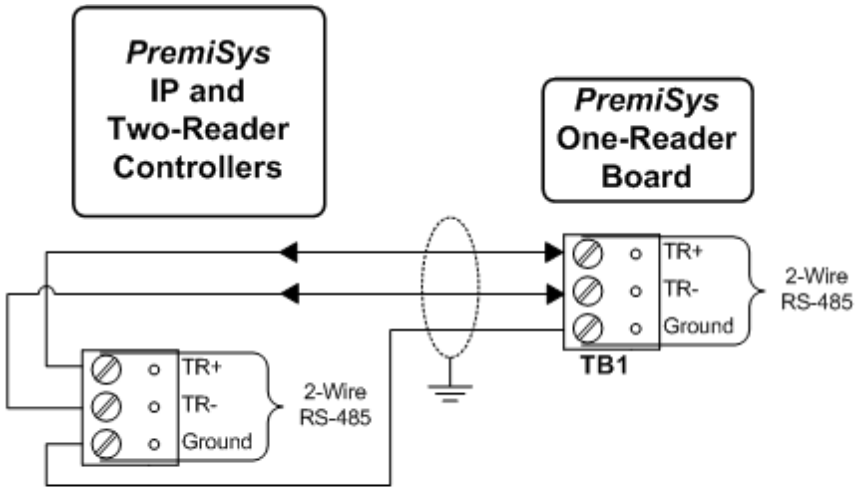
Communication from the PremiSys™ IP Controller to the PremiSys PoE One-Door Reader Board is handled via the Ethernet, while power to the board can be handled via the Ethernet or via a separate power supply.

Note: You can connect up to 32 PoE One-Door Reader Boards to one IP Controller.



IMPORTANT! You cannot address the PoE One-Door Reader Board using jumpers; you must assign a range of IP addresses to the Ethernet controller. The controller then assigns one of those IP addresses to the PoE One-Door Reader Board. Enter the MAC address of the PoE One-Door Reader Board when you add the board to your Ethernet controller through your PremiSys™ software. The controller links the MAC address to an IP address from the range of reserved IP address.

Wiring an IP Controller to the One-Reader Board



IP Controller	TB3 or TB4
Two-Reader Controller	TB3

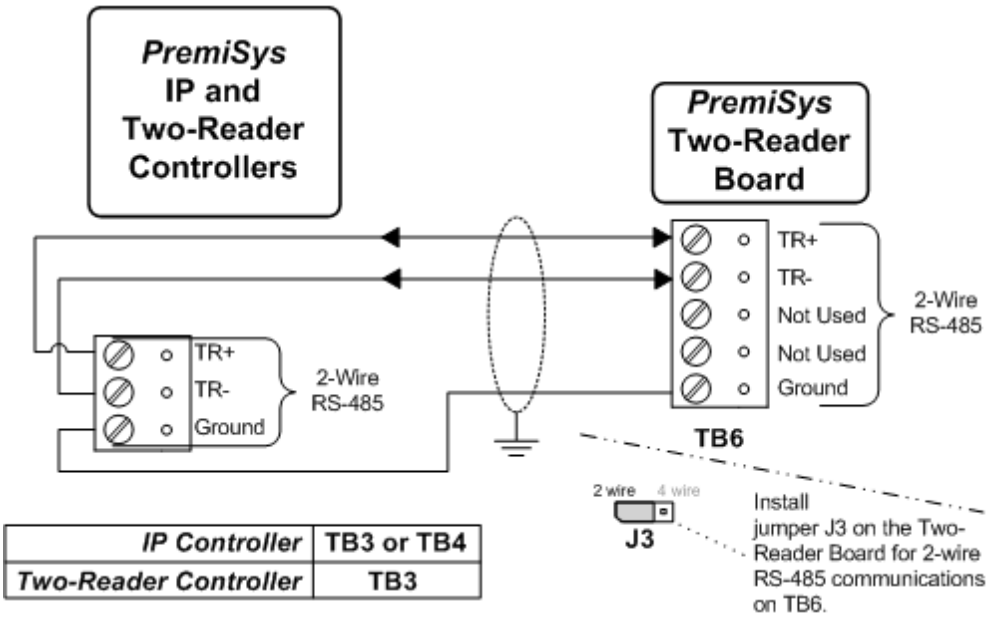
On the PremiSys™ IP Controller, terminal blocks TB3 (Port 2) and TB4 (Port 3) are used for connection to I/O boards.

Port 2 or 3 (TB 3 or 4) on the IP Controller – RS-485 to TB1 on the One-Reader board	Two-wire RS-485 2,400-38,400 bps, asynchronous Twisted pairs, 22 AWG (0.325 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops

Notes:

- **You can connect up to 32 I/O boards per port for a maximum of 64 I/O boards connectable to one IP Controller.**
- **All data wiring between the IP Controller and I/Os is two-wire RS-485.**

Wiring an IP Controller to the Two-Reader Board



IP Controller	TB3 or TB4
Two-Reader Controller	TB3

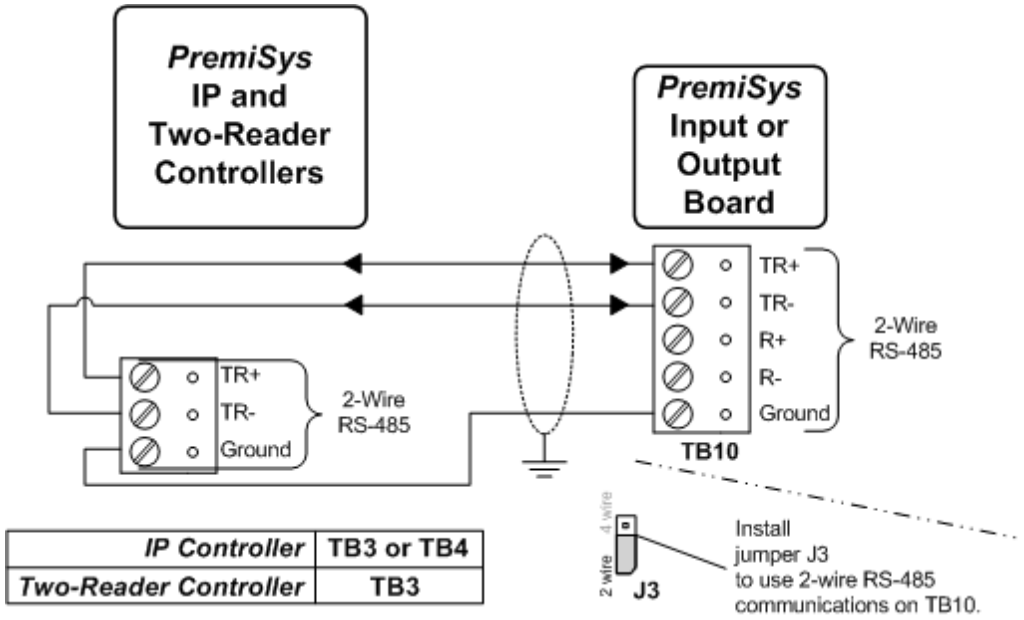
On the PremiSys™ IP Controller, terminal blocks TB3 (Port 2) and TB4 (Port 3) are used for connection to I/O boards.

Port 2 or 3 (TB 3 or 4) on the IP Controller – RS-485 to TB6 on the Two-Reader board	Two-wire RS-485 2,400-38,400 bps, asynchronous Twisted pairs, 22 AWG (0.325 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops

Notes:

- **You can connect up to 32 I/O boards per port for a maximum of 64 I/O boards connectable to one IP Controller.**
- **All data wiring between the IP Controller and I/Os is two-wire RS-485.**

Wiring an IP Controller to the Input Or Output Boards



IP Controller	TB3 or TB4
Two-Reader Controller	TB3

IMPORTANT! Install Jumper J3 exactly as illustrated here! You cannot use four-wire RS-485!

TB 10 - Input or Output Board	
TB10-1	TR+
TB10-2	TR-
TB10-3	Not Used
TB10-4	Not Used
TB10-5	Ground

On the IP Controller, terminal blocks TB3 (Port 2) and TB4 (Port 3) are used for connection to I/O boards.

Port 2 or 3 (TB 3 or 4) on the IP Controller – RS-485 to TB6 on the Two-Reader board	Two-wire RS-485 2,400-38,400 bps, asynchronous Twisted pairs, 22 AWG (0.325 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops

Notes:

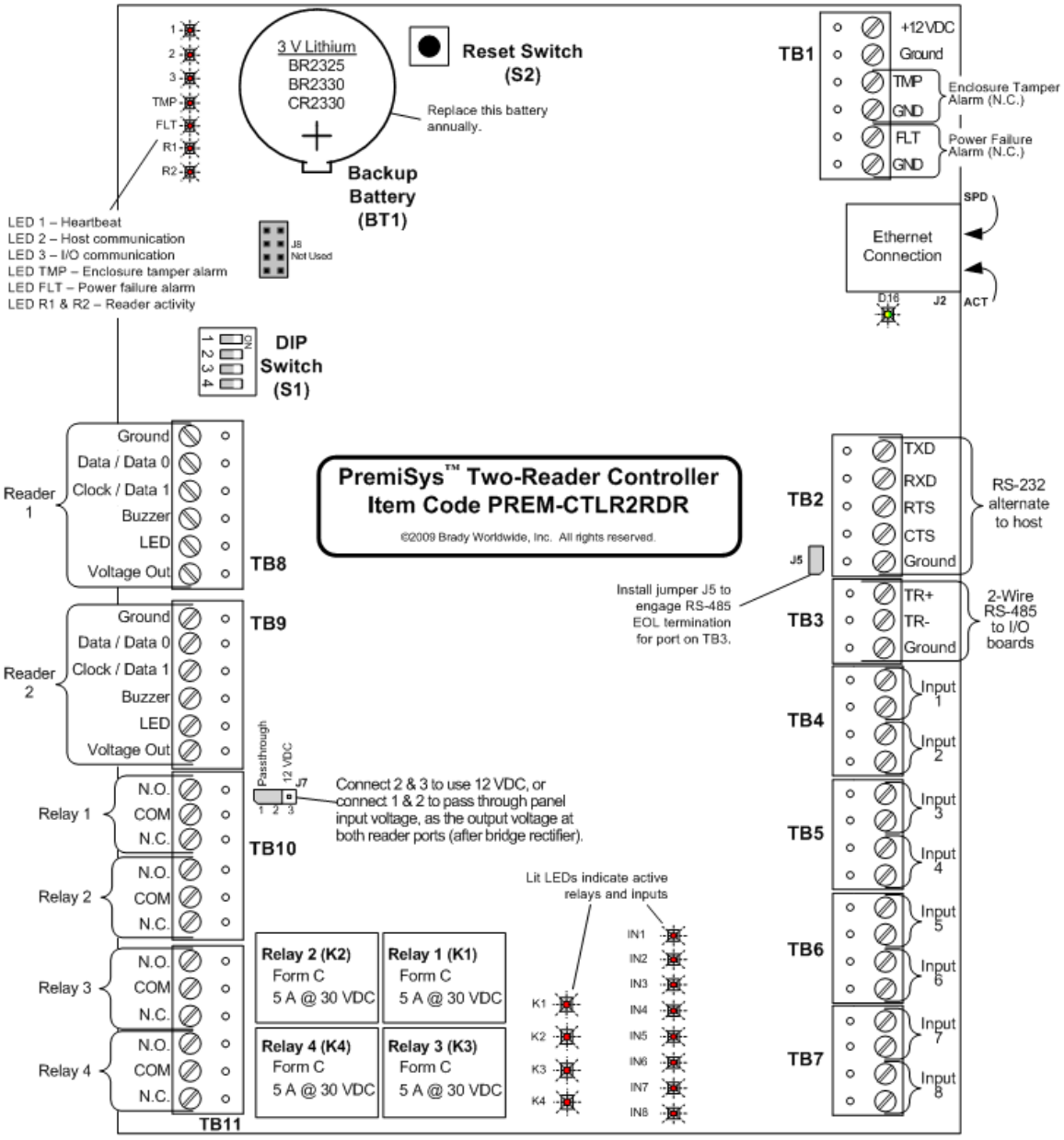
- **You can connect up to 32 I/O boards per port for a maximum of 64 I/O boards connectable to one IP Controller.**
- **All data wiring between the IP Controller and I/Os is two-wire RS-485.**

IP Controller LEDs

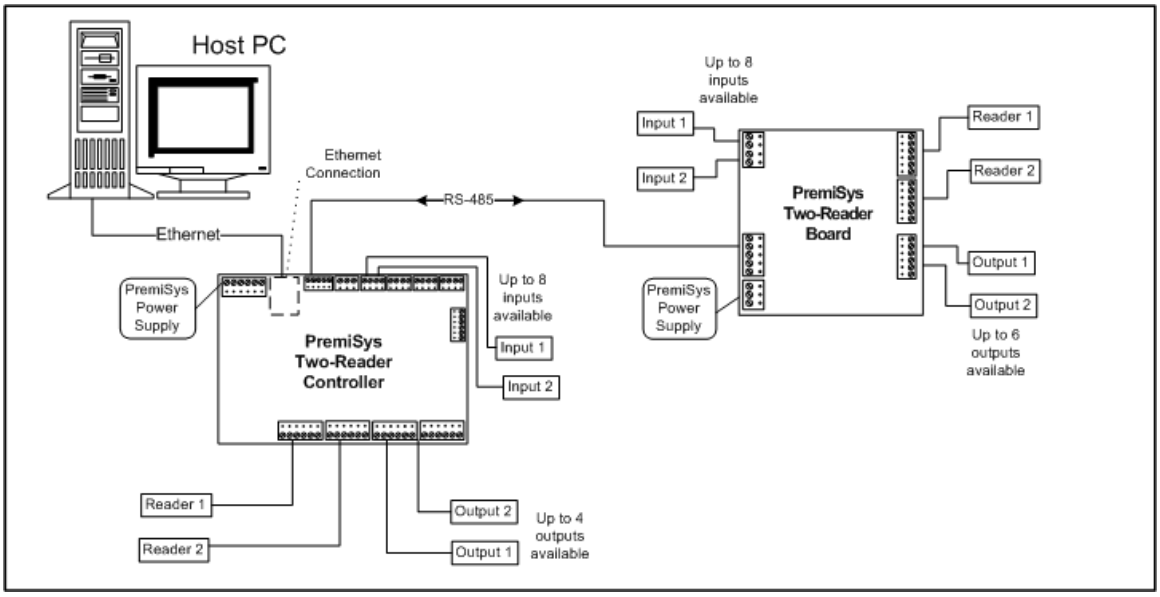
After initialization is complete the PremiSys™ IP Controller's LEDs have the following meanings while in run mode:

LED	**ON**	**20/80 Flash**	**80/20 Flash**	**Double Flash**
1		Offline	Online	Low battery
2	Port 1 communication to host			
3	Port 2 communication to I/Os			
4	Port 3 communication to I/Os			
5	Unassigned			
6	Unassigned			
Ethernet Port LEDs	**OFF**		**ON**	**FLASH**
Red LED (D7)	No data transmitting		Data transmitting	
Yellow LED	10Mb/S Ethernet speed		100Mb/S Ethernet speed	N/A
Green LED	No link		Good link	Ethernet activity

PremiSys Two-Reader Controller



Sample General Configuration for a PremiSys Two-Reader Controller Connected to a PremiSys Two-Reader Board, a Reader and Auxiliary Equipment



Two-Reader Controller Specifications

Certifications for the Two-Reader Controller

UL: recognized to UL 294: Access Control System Units - component
CE: EN55022, EN50082-1, IEC801-2, IEC801-3 and IEC801-4

Dimensions and Weight of the Two-Reader Controller

Controller Width	8.0 inches (203 mm)
Controller Height	6.0 inches (152.4 mm)
Controller Depth	1.0 inch (25 mm)
Controller Weight	9 ounces (255 g) (nominal)

Environmental Specifications for the Two-Reader Controller

Temperature	32°F to 158°F (0°C to 70°C) operating -67°F to 185°F (-55°C to 85°C) storage
Relative Humidity	0 to 95% RH noncondensing

Power Specifications for the Two-Reader Controller

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 – 24 VDC ± 10%, 500 mA maximum (reader current not included) 12 VDC @ 250mA (plus reader current) nominal 24 VDC @ 150mA (plus reader current) nominal
Memory Backup	Lithium coin cell, 3.0 V, type BR2325, BR2330, CR2330

IMPORTANT! Replace the coin cells (memory backup) used in the controllers annually. Use three-volt, lithium coin cell batteries of the types BR2325, BR2330 or CR2330 as replacements.

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the Two-Reader Controller

Power to Two-Reader Controller	Twisted pair, 18 AWG (0.823 mm^2).
Primary Port – Ethernet to Host	Category 5 cable
Port 1 – RS-232 or Ethernet to Host	Ethernet Category 5 cable RS-232 Twisted pair, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 50 feet (15.2 meters) of wire, total copper, including drops
Port 2 – RS-485 to I/O boards	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
Alarm Inputs	Twisted pair, 30 ohms maximum

Communications Specifications for the Two-Reader Controller

Primary Port	Ethernet, 10/100Base-T interface
Port 1	RS-232 9600; 19,200; 38,400 or 115,200 bps
Port 2	Two-wire RS-485 2,400-38,400 bps

Access-Control Specifications for the Two-Reader Controller

Memory	8.2 MB assigned as follows: 6.2 MB for card information 1 MB for configuration data 1MB for transactions
Alarm Inputs	Two unsupervised, dedicated alarm inputs for enclosure tamper and power loss

Indicators on the Two-Reader Controller

Visible	6 red, single-color LEDs 1 dual-color LED for Ethernet connection

Two-Reader Controller DIP Switches – Chart

See the section "Logging into the Configuration Manager for the First Time" 115 for more information on when and why you change DIP switch settings on a controller.

You can configure the operating mode of the controller by setting the DIP switches before you apply power to the controller. Avoid changing the switch settings while the PremiSys™ IP Controller is powered, except where noted to do so. If you do change a setting while the controller is powered, cycle power off, and then on again for the setting to take effect. However, there is a point in the bulk erasing process when power must never be cycled. See the instructions for bulk erasing for details. 133

IMPORTANT!: The first time you program this controller or after the controller has been bulk erased, the default communication parameters are in effect. The DIP switches may be set to "OFF, OFF, OFF, OFF" to program the controller. You then contact the controller using the default IP address "192.168.10.20" to program it. See the section titled "Configuring Ethernet Controllers 114" for complete information on how

to program an Ethernet controller for use in your PremiSys system.

	Switches			
Selection	**1**	**2**	**3**	**4**
Initial Configuration Mode - Use this setting after a bulk erase, when a bulk erase is needed. Normal Operating Mode - Use this setting after the controller is programmed and is ready for normal function.	Off	Off	Off	Off
Pre-Bulk-Erase Mode - Use this setting before beginning a bulk erase. See the instructions for bulk erasing for full details.	**On**	**On***	Off	Off

*After you initially program your controller communication settings through the Configuration Manager, you may leave SW1 and SW 2 "Off" unless you need to perform a bulk erase and go through the initial configuration again.

DIP Switch Examples

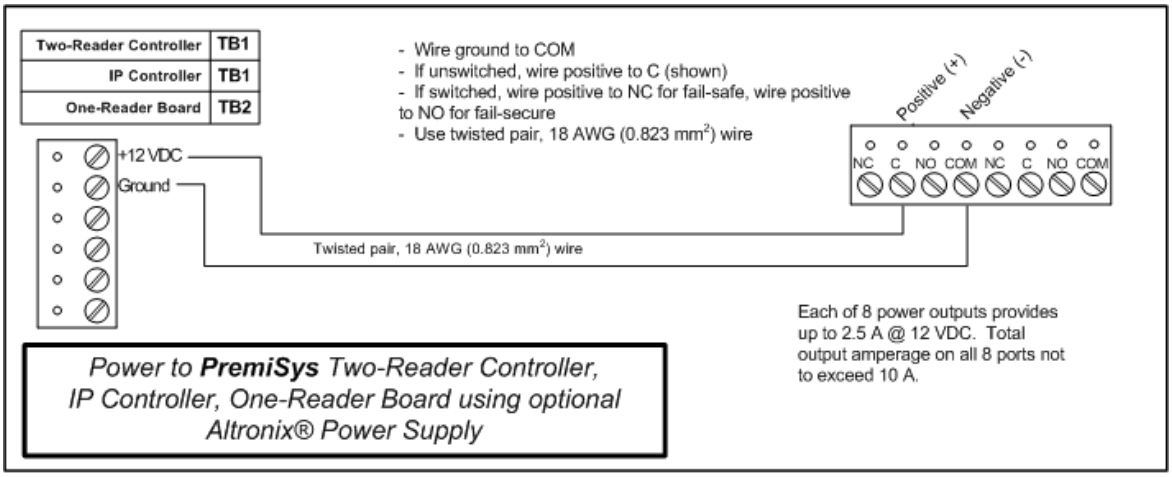
- SW1 is On - Default username and password CAN log into the Configuration Manager, regardless of the "Disable Web Server" setting.
- SW 1 is On and "Disable Web Server" is enabled - Custom usernames and passwords CANNOT log into the Configuration Manager.
- SW 1 is On and "Disable Web Server" is disabled - Custom usernames and passwords CAN log into the Configuration Manager.
- SW 1 is Off and "Disable Web Server" is disabled - Custom usernames and passwords CAN log into the Configuration Manager, the default username and password CANNOT log into the Configuration Manager.
- SW 1 is Off and "Disable Web Server" is enabled, NO username and passwords work can log into the Configuration Manager. To configure the controller while the Disable Web Server is selected you must move switch 1 to "On."

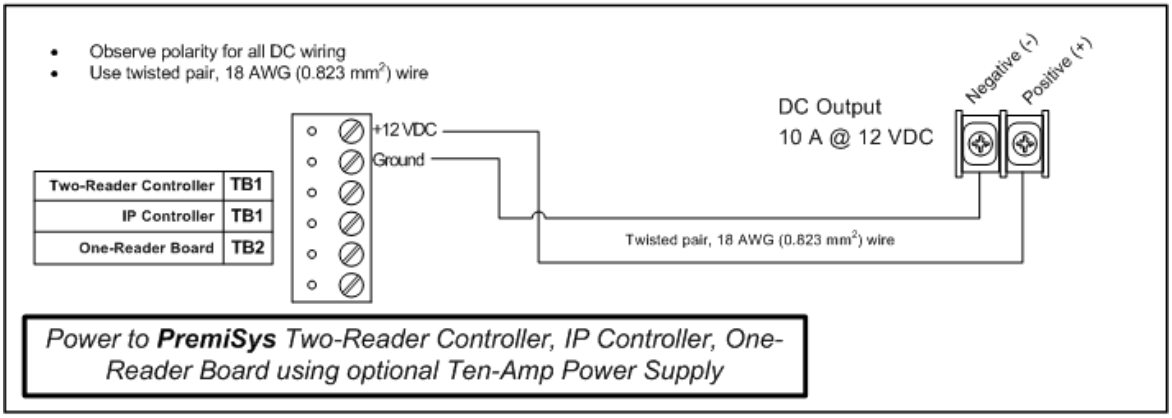
Note: See the PremiSys Online Help for instructions about setting other IP and communication addresses as well as other configurations.

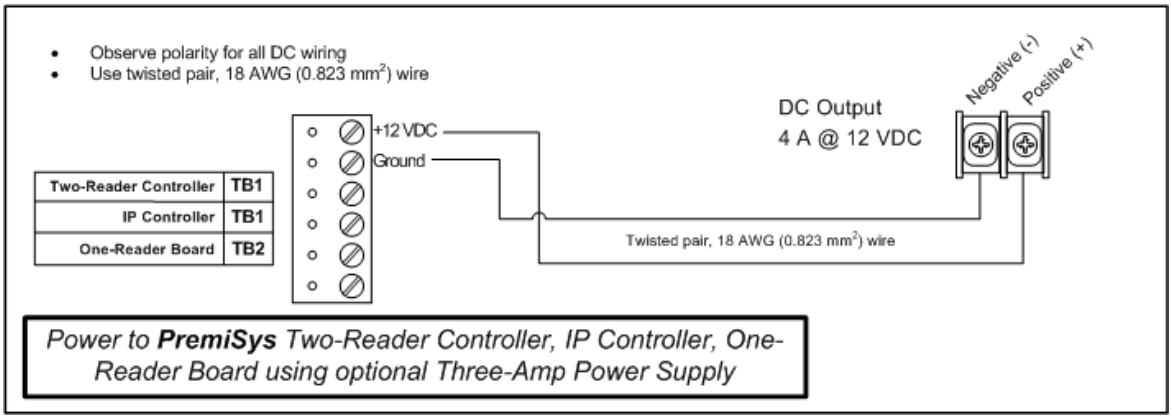
Two-Reader Controller Jumper Settings

Jumpers	Set At	Selected
J5	OFF	Port 2 RS-485 EOL Terminator is not on
	ON	Port 2 RS-485 EOL Terminator is on
J7	PASS	Pass-through voltage to reader ports
	12V	12VDC at reader ports

Wiring a Two-Reader Controller to a Power Supply







CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 – 24 VDC ± 10%, 300 mA (reader current not included) 12 VDC @ 250mA (plus reader current) nominal 24 VDC @ 150mA (plus reader current) nominal
Memory Backup	Lithium coin cell, 3.0 V, type BR2325, BR2330, CR2330

IMPORTANT! Replace the coin cells (memory backup) used in the controllers annually. Use three-volt, lithium coin cell batteries of the types BR2325, BR2330 or CR2330 as replacements.

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Verifying Power and Operation:

When a controller is first powered up, the pattern of the LEDs' flashing indicates proper powering and response.

The Two-Reader Controller has red LEDs, 1-3, TMP, FLT, R1, R2, IN1 – IN8 and D16 as well as one yellow and one green LED on the Ethernet port. See the schematic of the Two-Reader Controller 64 at the beginning of this section to view the location of the LEDs. See the table at the end of this topic for information indicating the status of the controller based on the LEDs.

As you begin to power up, all LED's are off.

While the controller is initializing, the LEDs have the following meanings:

- LED's 1, 2, 3, TMP, FLT, R1, R2, IN1, IN2, IN3, IN4, IN5, IN6, IN7 and IN8 are sequenced during initialization.
- LED's 1, 3, and TMP are turned ON for approximately 4 seconds after the hardware initialization has completed,
- The application code is then initialized. The amount of time the application takes to initialize depends on the size of the database, about 3 seconds without a card database. Each 10,000 cards will add about 3 seconds to the application initialization.

IMPORTANT! When LED's 1, 2, 3 and TMP flash at the same time, data is being read from or written to flash memory, do not cycle power when in this state.

If the sequence stops or repeats, perform one of the steps below.

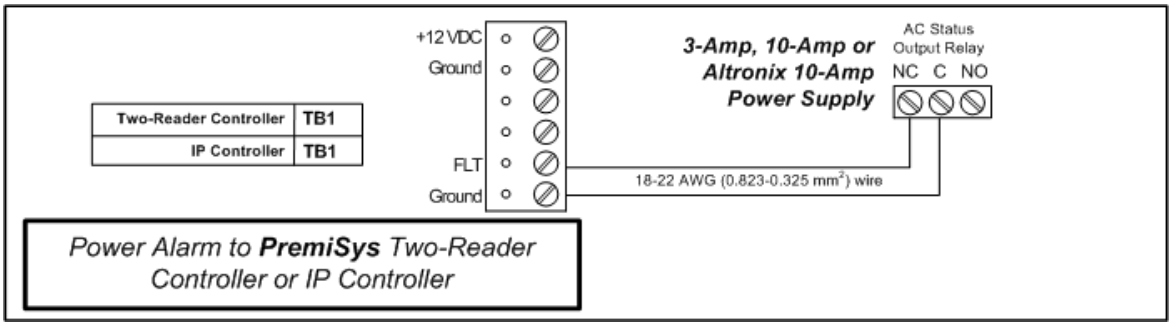
- Power-up and tag database as invalid:
  - Remove input power to the controller
  - Place an insulator under the battery clip and wait 5-10 seconds
  - Remove insulator and reapply input power.
- Power-up without loading database into RAM:
  - Remove input power to the controller
  - Set DIP switches to a default mode (in a default mode, the database is not loaded into RAM)
  - Reapply input power.
- Erase all of the configuration and databases (also erases card database for security reasons.) See "Bulk Erasing Ethernet Controllers 133" for instructions to erase all information on the controller.

If clearing the memory does not correct the initialization problem, contact technical support.

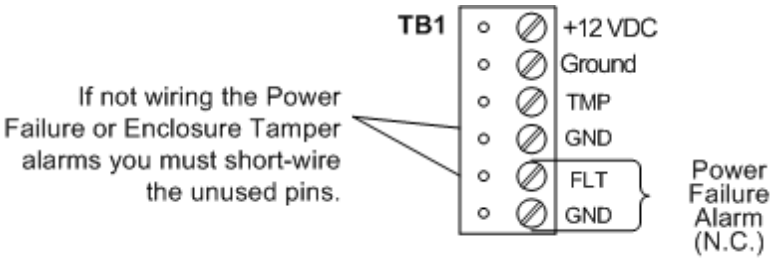
After initialization is complete the Two-Reader Controller's LEDs have the following meanings while in run mode:

Reader LEDs		**FLASH**	
R1	Clock/Data or D1/D0	Reader 1 receiving data	
	RS-485 Mode	Reader 1 transmitting data	
R2	Clock/Data or D1/D0	Reader 1 receiving data	
	RS-485 Mode	Reader 1 transmitting data	
Ethernet Port LEDs	**OFF**	**ON**	**FLASH**
Red LED (D16)	No data transmitting	Data transmitting	
Yellow LED	10Mb/S Ethernet speed	100Mb/S Ethernet speed	N/A
Green LED	No link	Good link	Ethernet activity
Inputs			
	OFF	**ON**	**FLASH**
IN1	Input 1 inactive	Input 1 active	Trouble on input 1
IN2	Input 2 inactive	Input 2 active	Trouble on input 2
IN3	Input 3 inactive	Input 3 active	Trouble on input 3
IN4	Input 4 inactive	Input 4 active	Trouble on input 4
IN5	Input 5 inactive	Input 5 active	Trouble on input 5
IN6	Input 6 inactive	Input 6 active	Trouble on input 6
IN7	Input 7 inactive	Input 7 active	Trouble on input 7
IN8	Input 8 inactive	Input 8 active	Trouble on input 8
	OFF	**ON**	
K1	Relay 1 de-energized	Relay 1 energized	
K2	Relay 2 de-energized	Relay 2 energized	
K3	Relay 3 de-energized	Relay 3 energized	
K4	Relay 4 de-energized	Relay 4 energized	

Wiring a Two-Reader Controller to Monitor for UPS Power Loss

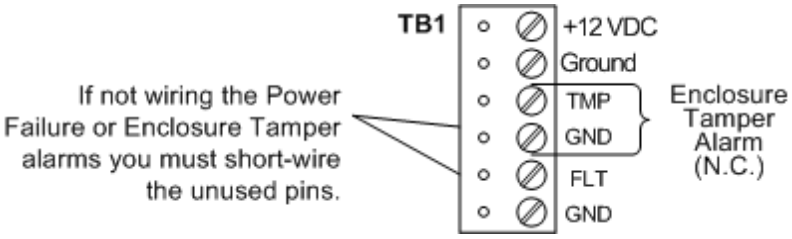


Alarm Inputs	Twisted pair, 30 ohms maximum



Wiring a Two-Reader Controller for Enclosure Tamper

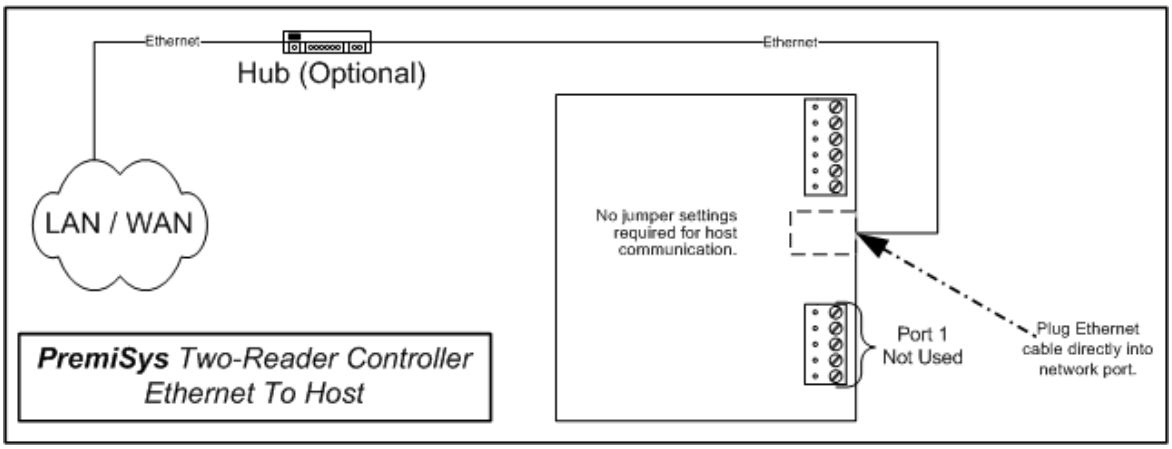
Alarm Inputs	Twisted pair, 30 ohms maximum



Wiring a Two-Reader Controller to the Host

IMPORTANT! Make sure that all pertinent jumper and DIP switch settings on all controllers in the system are also entered in the relevant controller setup window in the PremiSys™ software. See the PremiSys Online Help for details.

Two-Reader Controller via Ethernet to Host

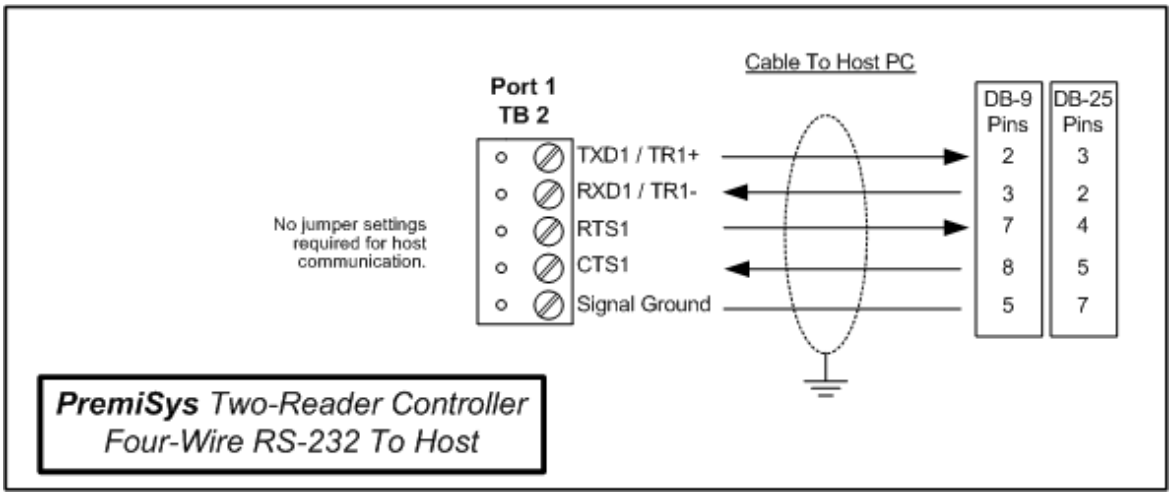


Notes:

- **The number of Two-Reader Controllers you can connect to an Ethernet network is limited by the number of IP addresses available, capacity of the server, bandwidth of the network and any other factor that affects network capacity.**
- **The Ethernet can be directly plugged into the Primary Port on the Two-Reader Controller.**
- **Each controller connected via the Ethernet must be configured in the software to have its own channel.**

Two-Reader Controller via Four-Wire RS-232 to Host

RS-232 communications are limited to 50 total cable-feet (15 total cable-meters.)



Primary Port – Ethernet to Host	Category 5 cable

Port 1 – RS-232 Host	Twisted pair, 22 AWG (0.325 mm2), with overall shield Maximum cable length: 50 feet (15.2 meters) of wire, total copper, including drops

Notes:

- **You can connect one Two-Reader Controller per serial channel.**
- **You cannot connect the Two-Reader Controller to the host via RS-485 and you cannot use a MUX board between the Two-Reader Controller and the host since the Two-Reader Controller does not accept RS-485 communication on Port 1, the host communication serial port.**

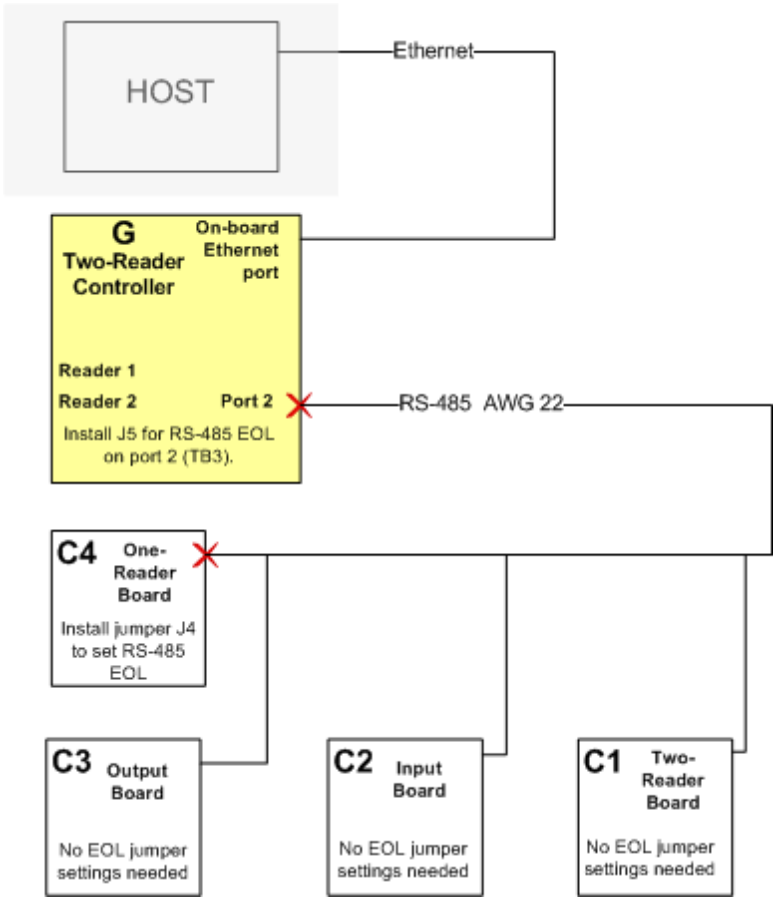
Setting End-of-Line (EOL) Resistance for the Two-Reader Controller

Install jumper J5 on the PremiSys™ Two-Reader Controller to set RS-485 EOL when needed for port 2 used to connect to auxiliary boards. The Two-Reader Controller does not have a jumper for EOL serial communication with the host.

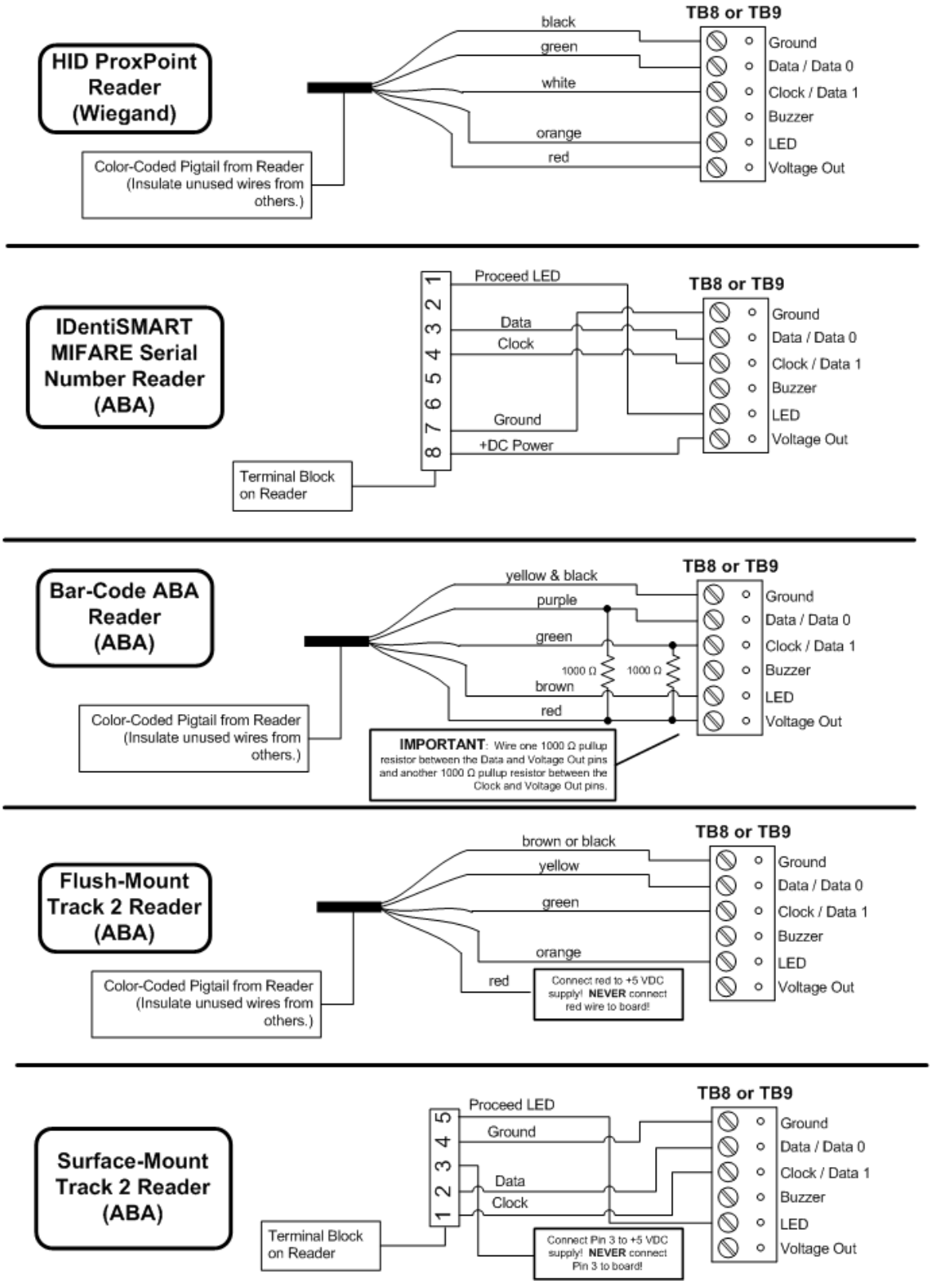
In the diagram below:

Controller “G”

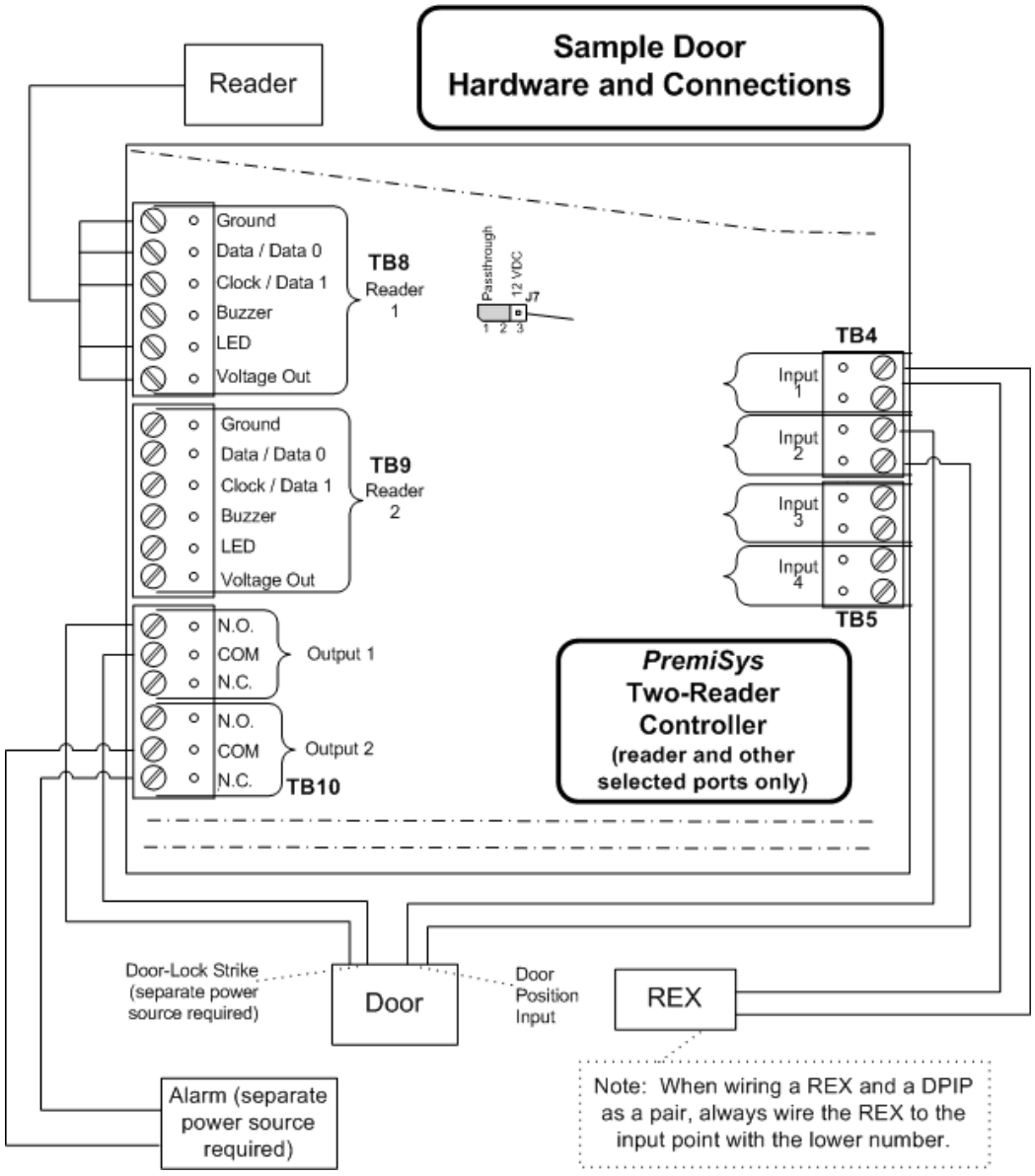
- Jumper J5 is set to signify there is an EOL board on Port 2. Board C4 is an end-of-line board on Port 2 of Controller G.


HOST
Ethernet
G
Two-Reader Controller
On-board Ethernet port
Reader 1
Reader 2
Port 2
Install J5 for RS-485 EOL on port 2 (TB3).
RS-485 AWG 22
C4
One-Reader Board
Install jumper J4 to set RS-485 EOL
C3
Output Board
No EOL jumper settings needed
C2
Input Board
No EOL jumper settings needed
C1
Two-Reader Board
No EOL jumper settings needed

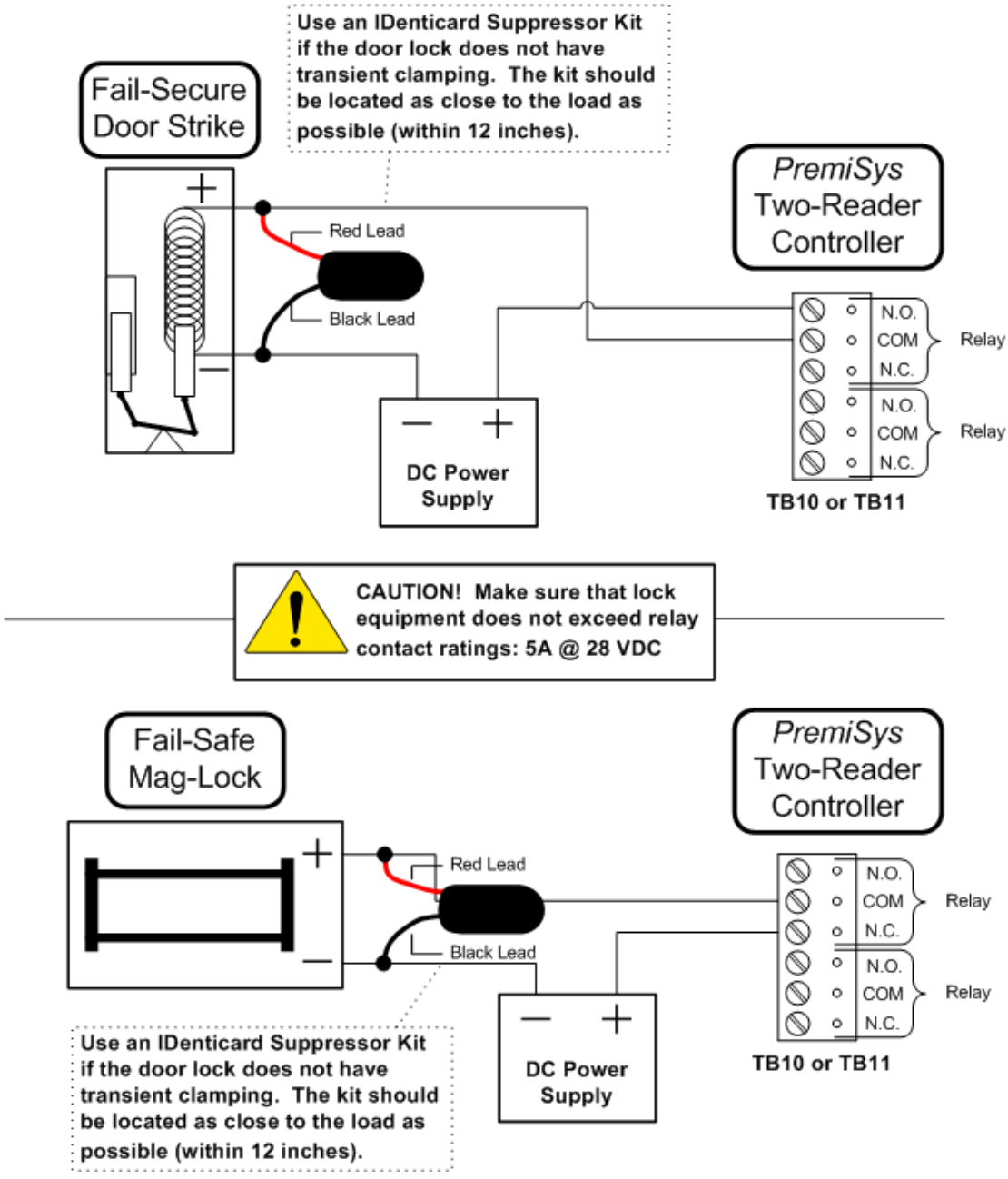
Wiring a Two-Reader Controller to Wiegand and ABA Readers



Wiring a Two-Reader Controller to Reader with Door Strike, REX, Alarm DPIP and Alarm Relay



Wiring a Two-Reader Controller to Door Strike and Magnetic Lock



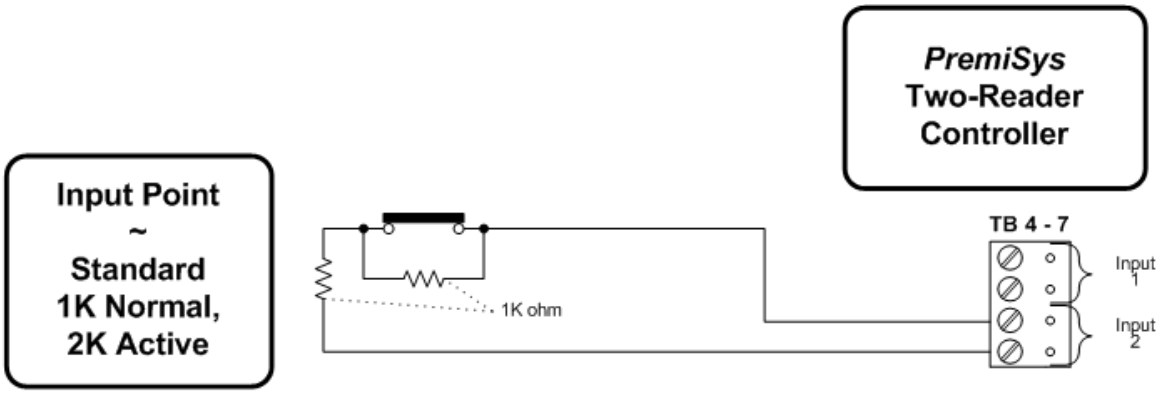
Wiring Supervised Input Points on the Two-Reader Controller

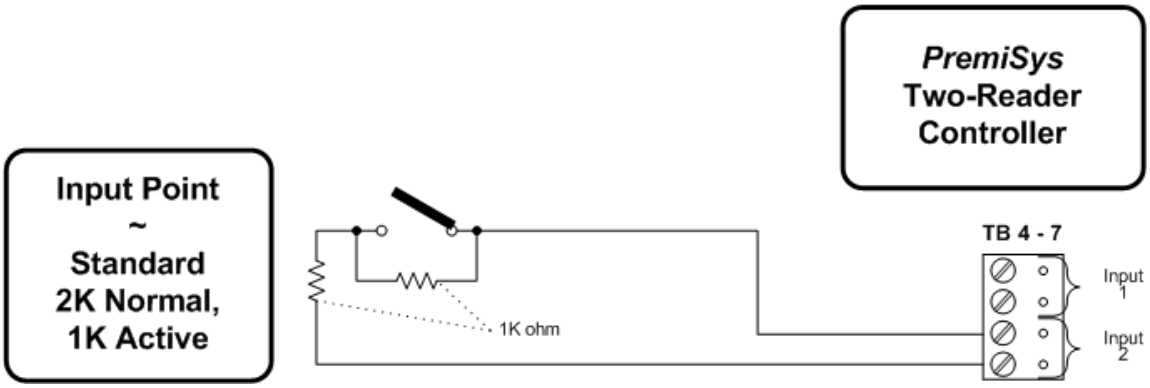
Supervised inputs such as these can be used for door-position input points or any other input that requires supervision.

PremiSys™ hardware supports only the standard “1 K normal, 2 K active” and “2 K normal, 1 K active” supervision modes depicted here.

IMPORTANT! Inputs on a single board are normally processed in ascending numeric sequence when they change state simultaneously or nearly simultaneously. Consequently, if wiring a REX input point and a door-position input point in a pair on a Two-Reader Controller, make sure that the door-position input point has a higher input number than the REX point paired with it.

Input circuits require one twisted pair per input and are rated at 30 ohms maximum.

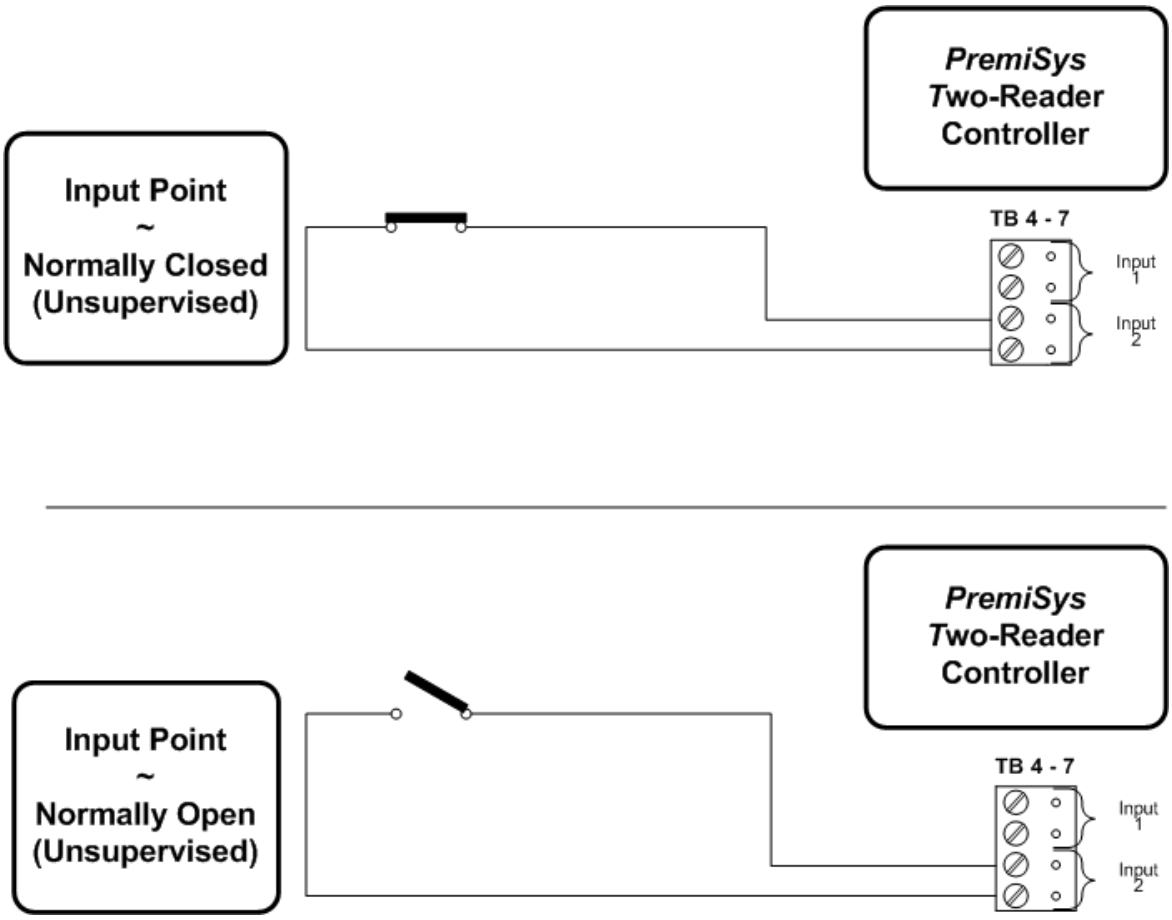




Wiring Unsupervised Input Points on the Two-Reader Controller

Unsupervised inputs such as these can be used for REXes, general-purpose input points or any other input that does not require supervision. See the topic "Wiring a Supervised Input Point to the PremiSys Two-Reader Controller 81" to wire inputs that require supervision.

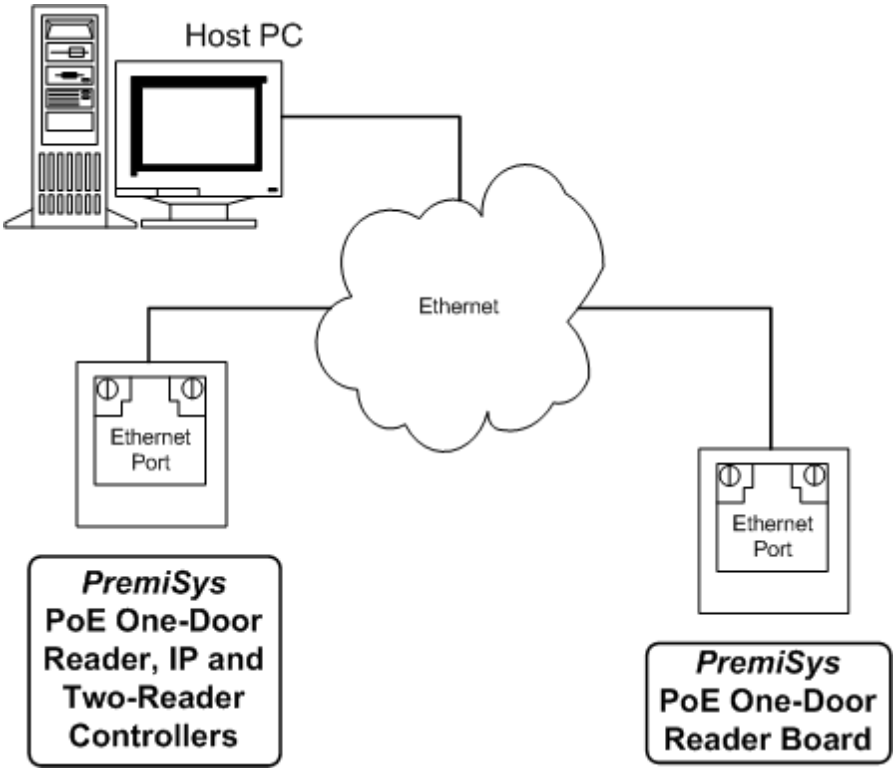
Input circuits require one twisted pair per input and are rated at 30 ohms maximum.



Wiring a Two-Reader Controller to the PoE One-Door Reader Board

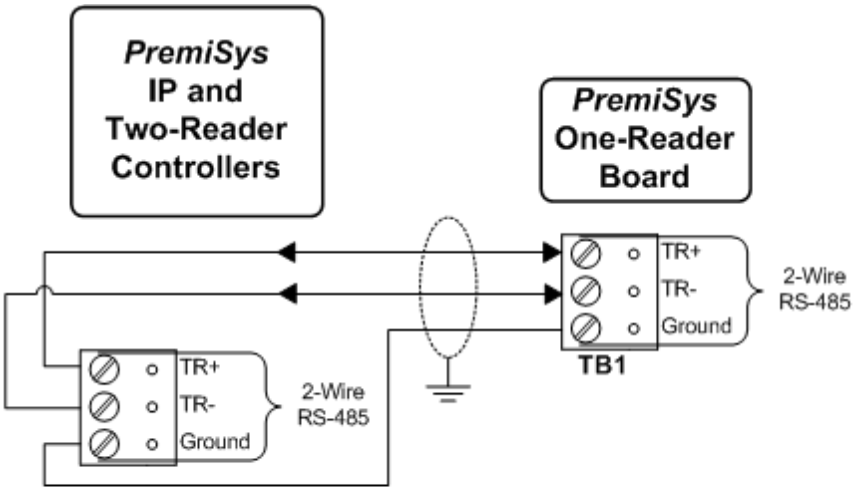
Communication from the PremiSys™ Two-Reader Controller to the PremiSys PoE One-Door Reader Board is handled via the Ethernet, while power to the board can be handled via the Ethernet or via a separate power supply.

Note: You can connect up to 32 PoE One-Door Reader Boards to one Two-Reader Controller.



IMPORTANT! You cannot address the PoE One-Door Reader Board using jumpers; you must assign a range of IP addresses to the Ethernet controller. The controller then assigns one of those IP addresses to the PoE One-Door Reader Board. Enter the MAC address of the PoE One-Door Reader Board when you add the board to your Ethernet controller through your PremiSys™ software. The controller links the MAC address to an IP address from the range of reserved IP address.

Wiring Two-Reader Controller to the One-Reader Board



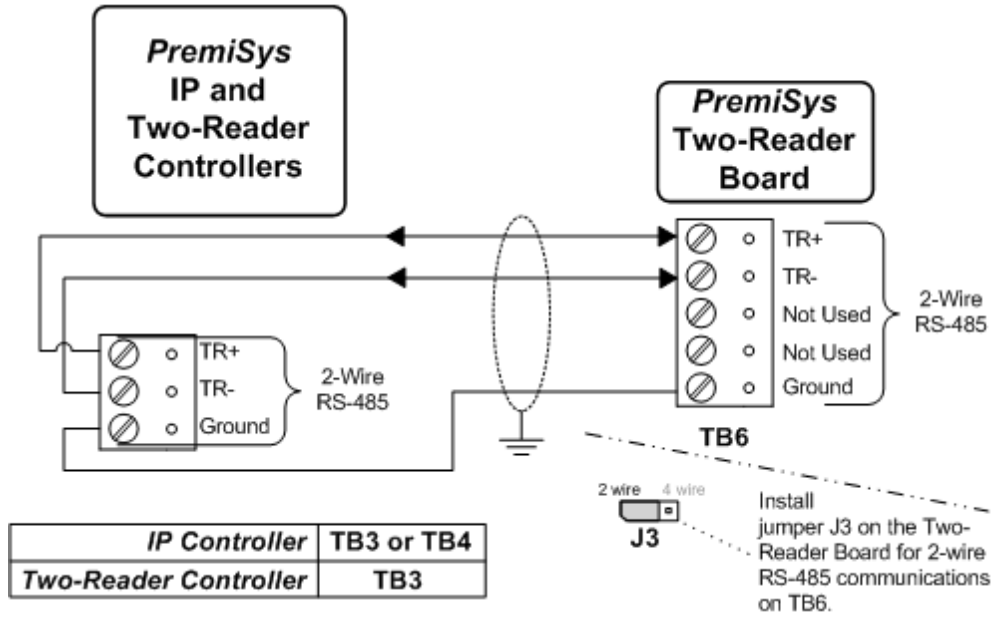
IP Controller	TB3 or TB4
Two-Reader Controller	TB3

Port 2 on the Two-Reader Controller – RS-485 to TB 1 on the One-Reader board	Two-wire RS-485 2,400-38,400 bps, asynchronous Twisted pairs, 22 AWG (0.325 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops

Notes:

- **You can connect up to 32 I/O boards to one Two-Reader Controller.**
- **All data wiring between the Two-Reader Controller and I/Os is two-wire RS-485.**

Wiring a Two-Reader Controller to the Two-Reader Board

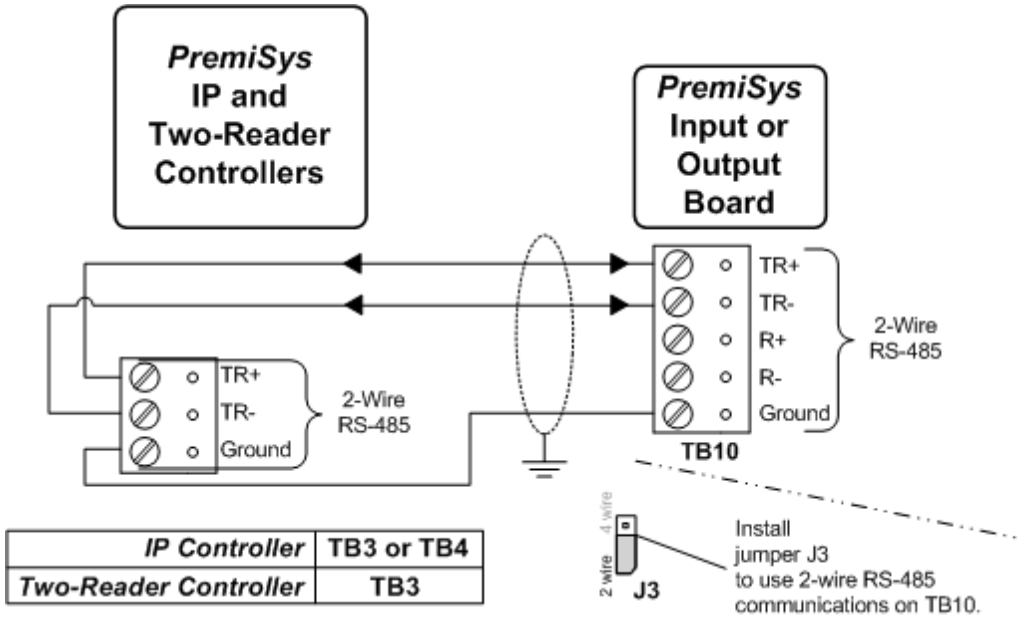


Port 2 on the Two-Reader Controller – RS-485 to TB 6 on the Two-Reader board	Two-wire RS-485 2,400-38,400 bps, asynchronous Twisted pairs, 22 AWG (0.325 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops

Notes:

- **You can connect up to 32 I/O boards to one Two-Reader Controller.**
- **All data wiring between the Two-Reader Controller and I/Os is two-wire RS-485.**

Wiring a Two-Reader Controller to the Input Or Output Boards



IMPORTANT! Install Jumper J3 exactly as illustrated here! Four-wire RS-485 cannot be used!

TB 10 - Input or Output Board	
TB10-1	TR+
TB10-2	TR-
TB10-3	Not Used
TB10-4	Not Used
TB10-5	Ground

Port 2 on the Two-Reader Controller – RS-485 to TB 10 on the Input or Output boards	Two-wire RS-485 2,400-38,400 bps, asynchronous Twisted pairs, 22 AWG (0.325 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops

Notes:

- **You can connect up to 32 I/O boards to one Two-Reader Controller.**

- **All data wiring between the Two-Reader Controller and I/Os is two-wire RS-485.**

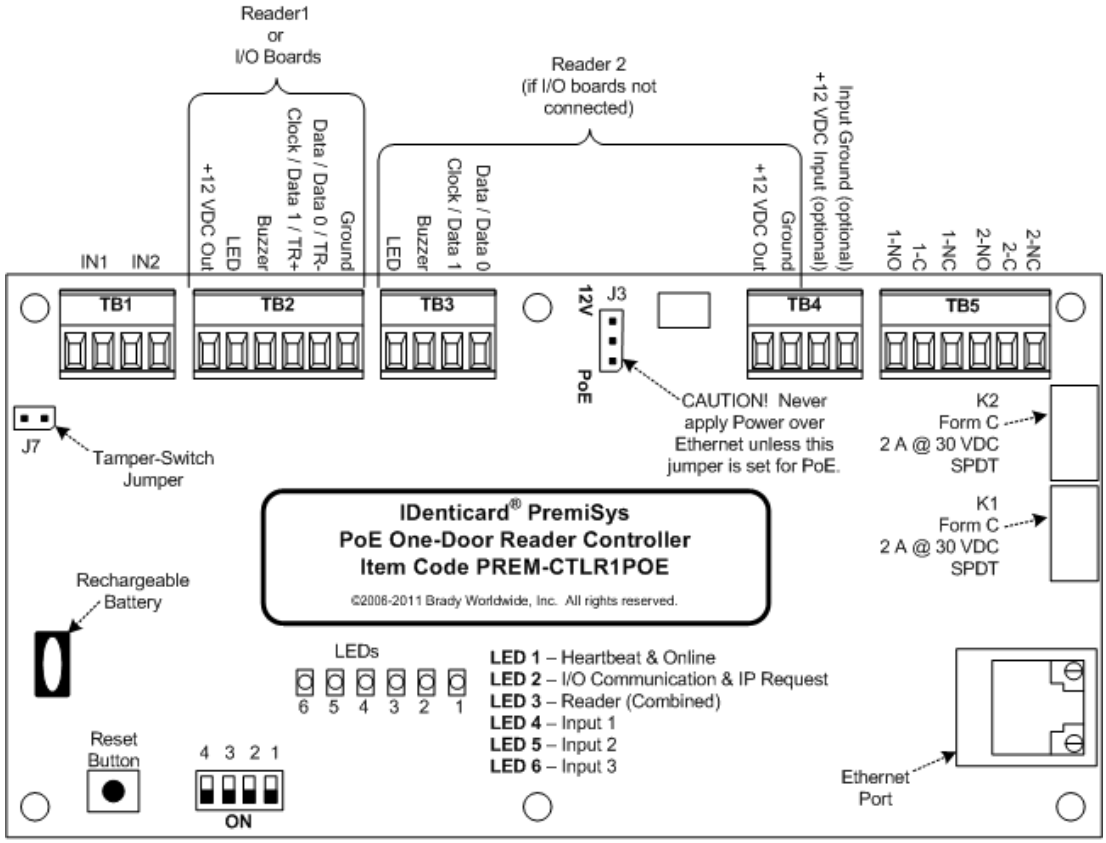
Two-Reader Controller LEDs

After initialization is complete the PremiSys™ Two-Reader Controller's LEDs have the following meanings while in run mode:

Reader LEDs		**FLASH**	
R1	Clock/Data or D1/D0	Reader 1 receiving data	
	RS-485 Mode	Reader 1 transmitting data	
R2	Clock/Data or D1/D0	Reader 1 receiving data	
	RS-485 Mode	Reader 1 transmitting data	
Ethernet Port LEDs	**OFF**	**ON**	**FLASH**
Red LED (D16)	No data transmitting	Data transmitting	
Yellow LED	10Mb/S Ethernet speed	100Mb/S Ethernet speed	N/A
Green LED	No link	Good link	Ethernet activity
Inputs			
	OFF	**ON**	**FLASH**
IN1	Input 1 inactive	Input 1 active	Trouble on input 1
IN2	Input 2 inactive	Input 2 active	Trouble on input 2
IN3	Input 3 inactive	Input 3 active	Trouble on input 3
IN4	Input 4 inactive	Input 4 active	Trouble on input 4
IN5	Input 5 inactive	Input 5 active	Trouble on input 5
IN6	Input 6 inactive	Input 6 active	Trouble on input 6
IN7	Input 7 inactive	Input 7 active	Trouble on input 7
IN8	Input 8 inactive	Input 8 active	Trouble on input 8
	OFF	**ON**	
K1	Relay 1 de-energized	Relay 1 energized	
K2	Relay 2 de-energized	Relay 2 energized	
K3	Relay 3 de-energized	Relay 3 energized	
K4	Relay 4 de-energized	Relay 4 energized	

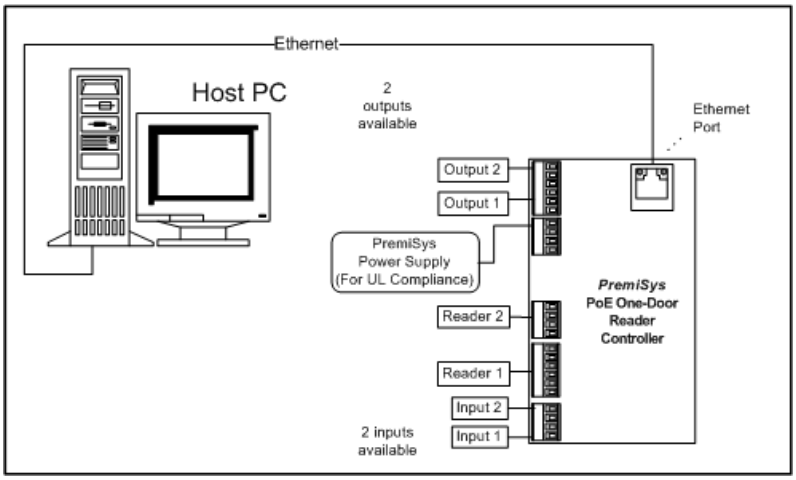
PremiSys PoE One-Door Reader Controller

Important note about I/O boards used with the PoE One-Door Reader Controller:
Connect downstream I/O boards to the RS-485 and ground pins on TB2. When using I/Os, Reader 2 effectively becomes Reader 1 and is the only reader that can be connected to the controller itself. In this case, the power and ground pins on TB2 can be used for the reader. The power and ground pins on TB4 are then available for auxiliary use.



Important note about powering door locks from the PoE One-Door Reader Controller:
Pins 1 and 2 on TB 4 can be used to power a door lock, as long as the strike is rated for 12 volts and the total current required on both ports (for the reader and door lock) does not exceed 650 mA. Cable gauge must be factored in when calculating the current requirements. Wiring a door lock, however, takes away this reader port, so only one reader can be connected (on TB2) when this option is used. Connecting a reader on the Reader 1 block prevents the connection of any downstream RS-485 I/Os.
So you cannot power a lock, connect downstream I/Os AND connect a reader, all on the same PoE One-Door Reader Controller.

Sample General Configuration for a PremiSys PoE One-Door Reader Controller Connected to a Reader and Auxiliary Equipment



PoE One-Door Reader Controller Specifications

Certifications for the PoE One-Door Reader Controller

UL: recognized to UL 294: Access Control System Units - component. [Note: For UL installations, power for PoE devices must be provided by a UL 294 listed source (12 VDC)]
CE: Compliant, FCC Part 15 Class A, NIST Certified Encryption

Dimensions and Weight of the PoE One-Door Reader Controller

	Without Bracket	With Bracket
Controller Width	5.5 inches (140 mm)	5.5 inches (140 mm)
Controller Height	2.75 inches (70 mm)	3.63 inches (92 mm)
Controller Depth	.75 inch (19 mm)	1.25 inch (32 mm)
Controller Weight	3.5 ounces (100 g) (nominal)	4.6 ounces (132 g) (nominal)

Environmental Specifications for the PoE One-Door Reader Controller

Temperature	32°F to 158°F (0°C to 70°C) operating -67°F to 185°F (-55°C to 85°C) storage

Relative Humidity	10% to 95% RH noncondensing

Power Specifications for the PoE One-Door Reader Controller

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage (two inputs)	PoE Power Input 12.95W, compliant to IEEE 802.3af OR 12 VDC ± 10%, 900 mA maximum Note: For UL installations, POE powered devices cannot be used at this time; power for these devices must be provided by a UL 294-listed source (12 VDC)
Relay Ratings (two relays)	2 A at 30 VDC
Relay Contact Type	Form C
Relay Configuration	Single-pole double-throw (SPDT)
Card Reader Power (each of two readers)	12 VDC ± 10%, from PoE, regulated 150 mA maximum each reader OR 12 VDC ± 10%, from 12-VDC power to controller (input voltage passed through), 150 mA maximum each reader
Auxiliary Device Power	12 VDC ± 10%, 650 mA maximum Note: This power is available on Pins 1 and 2 on TB4 and may be used to power a door strike, as long as the strike is rated for 12 volts and the total current required on both ports (reader and auxiliary) does not exceed 650 mA. Be certain to accommodate cable gauge when calculating current requirements.

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the PoE One-Door Reader Controller

Ethernet Connection to PremiSys Host PC	Category 5 cable
Connection to Relay-Controlled Devices	Use wire and gauge as required by load.
Connection to Input-Point Devices	One twisted pair per input, 30 ohms maximum
Connection to Reader	Six-conductor, 18 AWG. Maximum cable length: 500 feet (150 m), total copper
Connection to I/O Board(s)	RS-485, 24 AWG, twisted pair(s) with overall shield, 4000-foot (1,219 m) maximum, total copper, including drops

Communications Specifications for the PoE One-Door Reader Controller

To PremiSys Host PC	Category 5 cable via network

Access-Control Specifications for the PoE One-Door Reader Controller

Memory	1 MB battery-backed (rechargeable) Static Random Access Memory (SRAM) 16 MB Synchronous Dynamic Random Access Memory (SDRAM) 16 MB Flash-capable memory
Input - Dedicated	Optional magnetic tamper switch for enclosure tamper alarm
Inputs – Assignable	Two supervised input points with end-of-line (EOL) resistors, 1K / 2K ohm 1% ¼ watt standard
Reader LED Output	TTL-compatible; high > 3 V, low < 0.5 V; 5 mA source/sink maximum
Reader Data Inputs	TTL-compatible inputs

Indicators on the PoE One-Door Reader Controller

Visible	6 red, single-color LEDs 1 green and 1 yellow LED for Ethernet connection

PoE One-Door Reader Controller DIP Switches – Chart

See the section "Logging into the Configuration Manager for the First Time" 115 for more information on when and why you change DIP switch settings on a controller.

You can configure the operating mode of the controller by setting the DIP switches before you apply power to the controller. Avoid changing the switch settings while the PremiSys™ IP Controller is powered, except where noted to do so. If you do change a setting while the controller is powered, cycle power off, and then on again for the setting to take effect. However, there is a point in the bulk erasing process when power must never be cycled. See the instructions for bulk erasing for details. 133

IMPORTANT!: The first time you program this controller or after the controller has been bulk erased, the default communication parameters are in effect. The DIP switches may be set to "OFF, OFF, OFF, OFF" to program the controller. You then contact the controller using the default IP address "192.168.10.20" to program it. See the section titled "Configuring Ethernet Controllers 114" for complete information on how to program an Ethernet controller for use in your PremiSys system.

	Switches			
Selection	**1**	**2**	**3**	**4**

Initial Configuration Mode - Use this setting after a bulk erase, when a bulk erase is needed. Normal Operating Mode - Use this setting after the controller is programmed and is ready for normal function.	Off	Off	Off	Off
Pre-Bulk-Erase Mode - Use this setting before beginning a bulk erase. See the instructions for bulk erasing for full details.	**On**	**On***	Off	Off

*After you initially program your controller communication settings through the Configuration Manager, you may leave SW1 and SW 2 "Off" unless you need to perform a bulk erase and go through the initial configuration again.

DIP Switch Examples

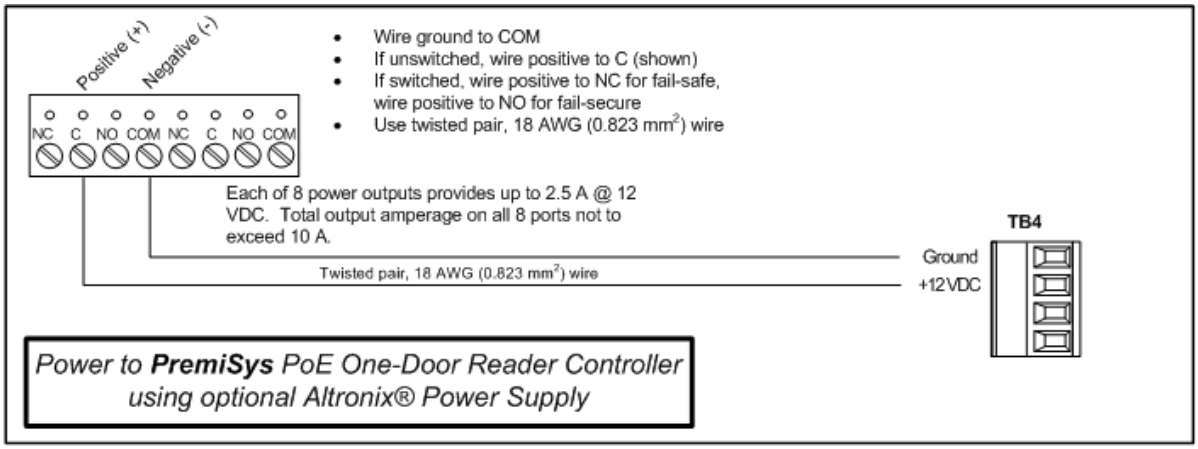
- SW1 is On - Default username and password CAN log into the Configuration Manager, regardless of the "Disable Web Server" setting.
- SW 1 is On and "Disable Web Server" is enabled - Custom usernames and passwords CANNOT log into the Configuration Manager.
- SW 1 is On and "Disable Web Server" is disabled - Custom usernames and passwords CAN log into the Configuration Manager.
- SW 1 is Off and "Disable Web Server" is disabled - Custom usernames and passwords CAN log into the Configuration Manager, the default username and password CANNOT log into the Configuration Manager.
- SW 1 is Off and "Disable Web Server" is enabled, NO username and passwords work can log into the Configuration Manager. To configure the controller while the Disable Web Server is selected you must move switch 1 to "On."

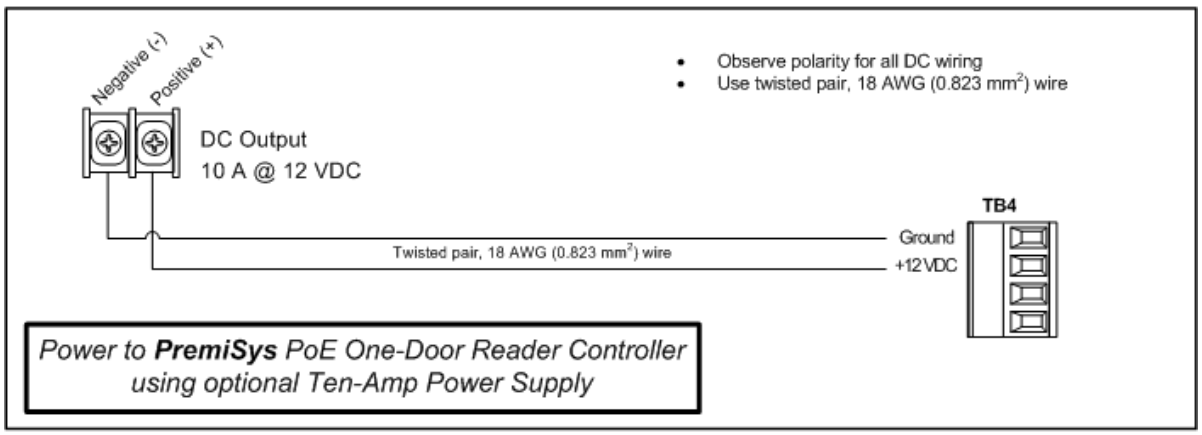
Note: See the PremiSys Online Help for instructions about setting other IP and communication addresses as well as other configurations.

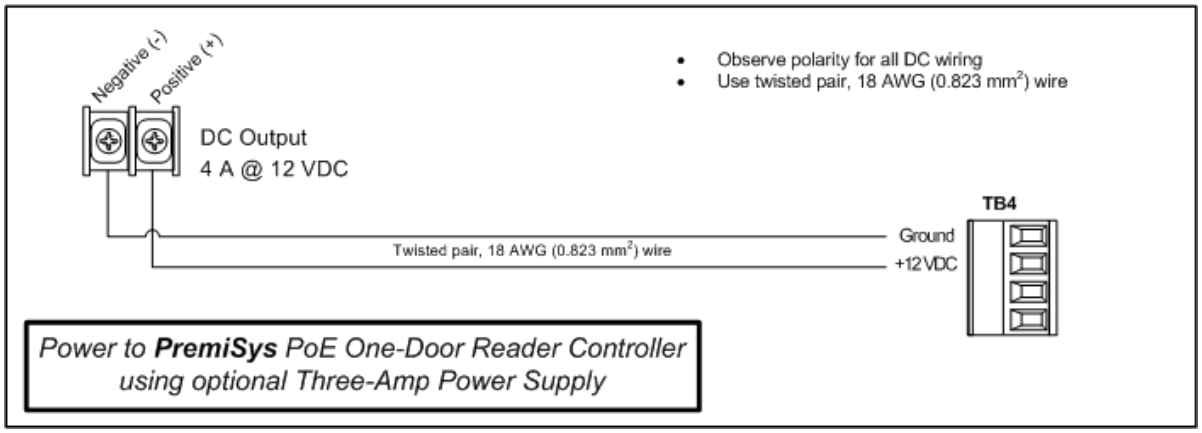
PoE One-Door Reader Controller Jumper Settings

Jumpers	Set At	Selected
J3	PoE	One-Door Reader Controller powered from the Ethernet connection
	12V	One-Door Reader Controller powered from an external 12-VDC power source connected to TB4-3 (VIN) and TB4-4 (GND)
J7	On	Enclosure tamper jumper

Wiring a PoE One-Door Reader Controller to a Power Supply







CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 – 24 VDC ± 10%, 300 mA (reader current not included) 12 VDC @ 250mA (plus reader current) nominal 24 VDC @ 150mA (plus reader current) nominal
Memory Backup	Embedded, rechargeable battery for SRAM backup

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Verifying Power and Operation:

When a controller is first powered up, the pattern of the LEDs' flashing indicates proper powering and response.

The PremiSys™ PoE One-Door Reader Controller has red LEDs, 1-3, TMP, FLT, R1, R2, IN1 – IN8 and D16 as well as one yellow and one green LED on the Ethernet port. See the schematic of the Two-Reader Controller 64 at the beginning of this section to view the location of the LEDs. See the table at the end of this topic for information indicating the status of the controller based on the LEDs.

As you begin to power up, all LED's are off.

While the controller is initializing, the LEDs have the following meanings:

- LED's 1, 2, 3, TMP, FLT, R1, R2, IN1, IN2, IN3, IN4, IN5, IN6, IN7 and IN8 are sequenced during initialization.
- LED's 1, 3, and TMP are turned ON for approximately 4 seconds after the hardware initialization has completed,
- The application code is then initialized. The amount of time the application takes to initialize depends on the size of the database, about 3 seconds without a card database. Each 10,000 cards will add about 3 seconds to the application initialization.

IMPORTANT! When LED's 1, 2, 3 and TMP flash at the same time, data is being read from or written to flash memory, do not cycle power when in this state.

If the sequence stops or repeats, perform one of the steps below.

- Power-up and tag database as invalid:
  - Remove input power to the controller
- Power-up without loading database into RAM:
  - Remove input power to the controller
  - Set DIP switches to a default mode (in a default mode, the database is not loaded into RAM)
  - Reapply input power.
- Erase all of the configuration and databases (also erases card database for security reasons.) See "Bulk Erasing Ethernet Controllers 133" for instructions to erase all information on the controller.

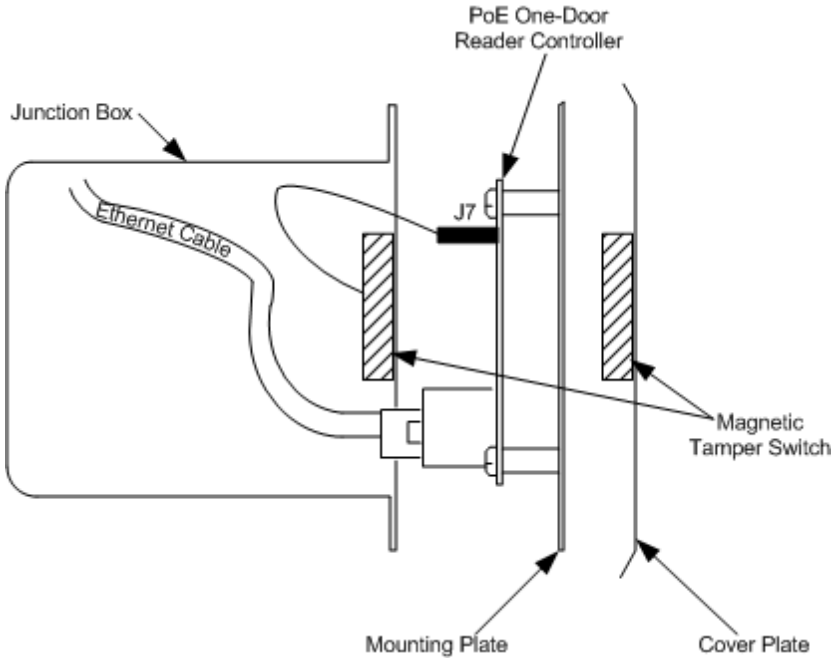
If clearing the memory does not correct the initialization problem, contact technical support.

After initialization is complete the PoE One-Door Reader Controller's LEDs have the following meanings while in run mode:

Reader LEDs		**FLASH**	
R1	Clock/Data or D1/D0	Reader 1 receiving data	
	RS-485 Mode	Reader 1 transmitting data	
R2	Clock/Data or D1/D0	Reader 1 receiving data	
	RS-485 Mode	Reader 1 transmitting data	
Ethernet Port LEDs	**OFF**	**ON**	**FLASH**
Red LED (D16)	No data transmitting	Data transmitting	
Yellow LED	10Mb/S Ethernet speed	100Mb/S Ethernet speed	N/A
Green LED	No link	Good link	Ethernet activity
Inputs			
	OFF	**ON**	**FLASH**
IN1	Input 1 inactive	Input 1 active	Trouble on input 1
IN2	Input 2 inactive	Input 2 active	Trouble on input 2
	OFF	**ON**	
K1	Relay 1 de-energized	Relay 1 energized	
K2	Relay 2 de-energized	Relay 2 energized	

Wiring a PoE One-Door Reader Controller for Enclosure Tamper

Wire a magnetic tamper switch to Jumper J7 on the PremiSys™PoE One-Door Reader Controller , as shown below, to activate an input point if the cover is removed.

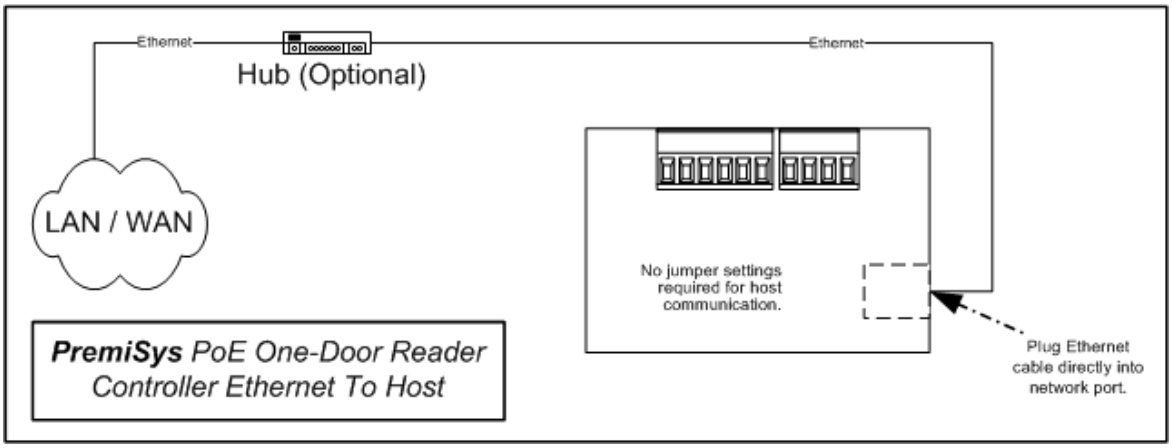


Alarm Inputs	Twisted pair, 30 ohms maximum

Wiring a PoE One-Door Reader Controller to the Host

IMPORTANT! Make sure that all pertinent jumper and DIP switch settings on all controllers in the system are also entered in the relevant controller setup window in the PremiSys™ software. See the PremiSys Online Help for details.

PoE One-Door Reader Controller via Ethernet to Host



Notes:

- **The number of PoE One-Door Reader Controllers you can connect to an Ethernet network is limited by the number of IP addresses available, capacity of the server, bandwidth of the network and any other factor that affects network capacity.**
- **The Ethernet can be directly plugged into the Primary Port on the PoE One-Door Reader Controller.**
- **Each controller connected via the Ethernet must be configured in the software to have its own channel.**

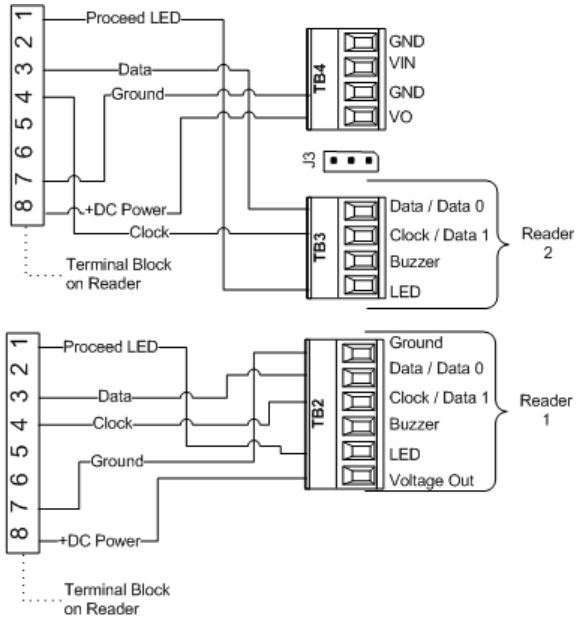
Primary Port – Ethernet to Host	Category 5 cable

Wiring a PoE One-Door Reader Controller to Wiegand and ABA Readers

IDentiSMART MIFARE Serial Number Reader (ABA)

The readers on the PoE One-Door Reader Controller are intended for use as paired or alternate readers to control one door.

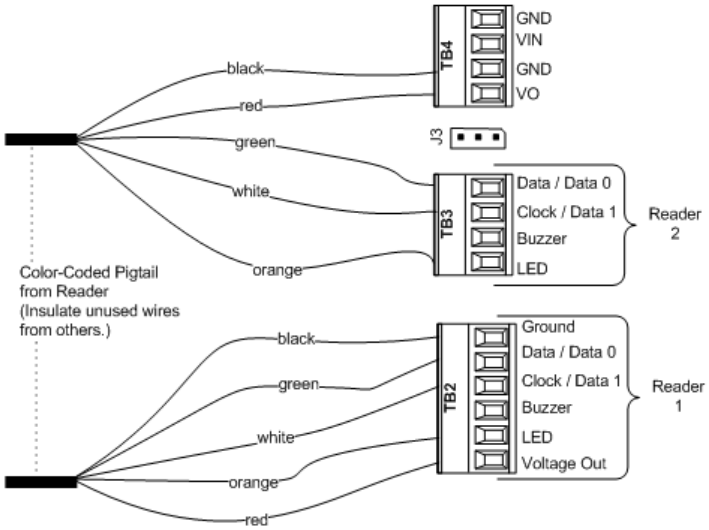
IDentiSMART MIFARE Serial Number Reader (ABA)



HID ProxPoint Reader (Wiegand)

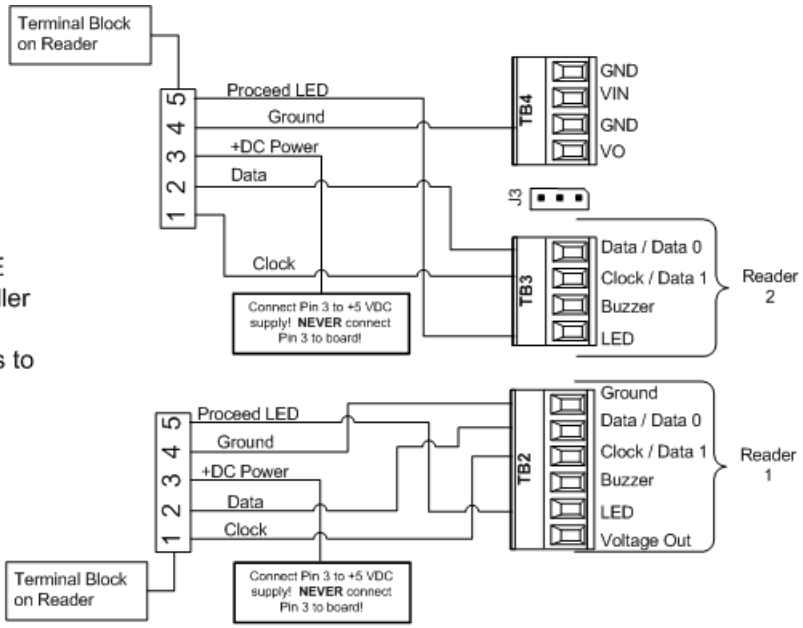
The readers on the PoE One-Door Reader Controller are intended for use as paired or alternate readers to control one door.

HID ProxPoint Reader (Wiegand)



Surface-Mount Track 2 Reader (ABA)

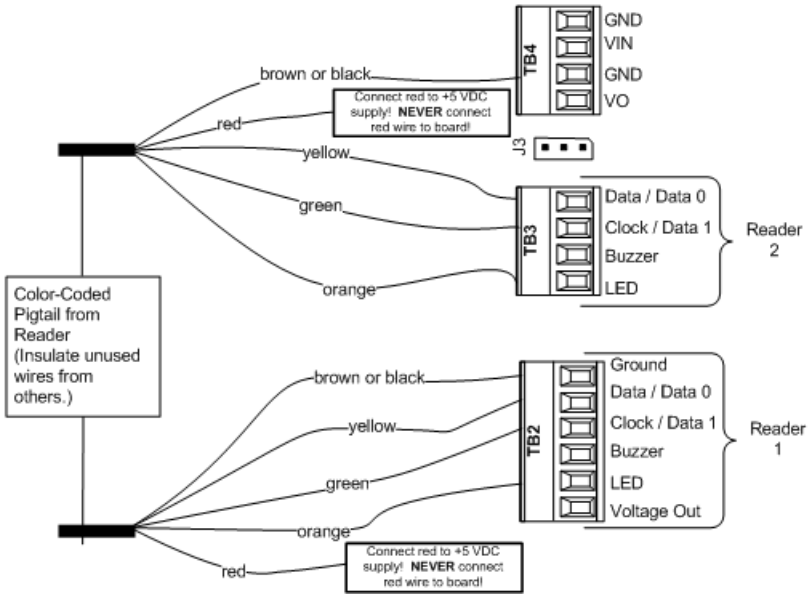
The readers on the PoE One-Door Reader Controller are intended for use as paired or alternate readers to control one door.



Surface-Mount Track 2 Reader (ABA)

Flush-Mount Track 2 Reader (ABA)

The readers on the PoE One-Door Reader Controller are intended for use as paired or alternate readers to control one door.

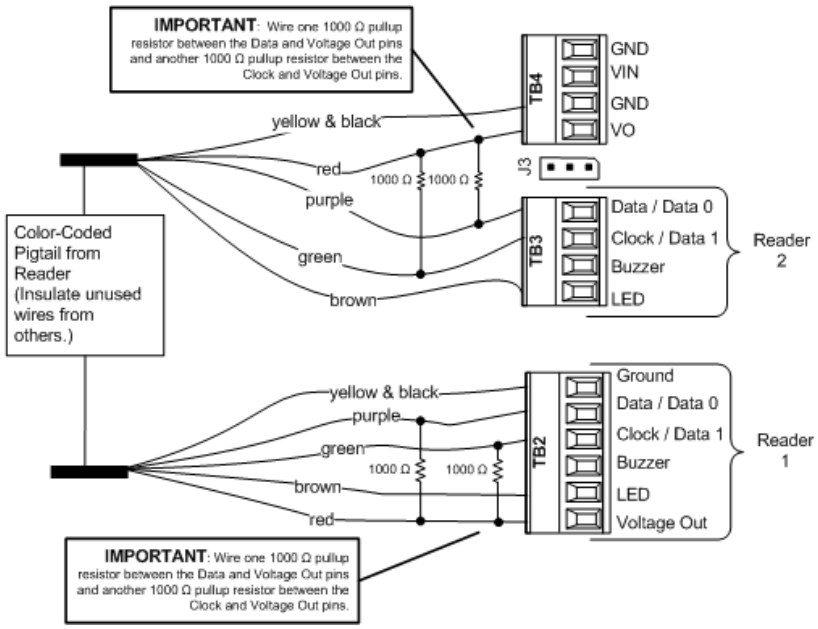


Flush-Mount Track 2 Reader (ABA)

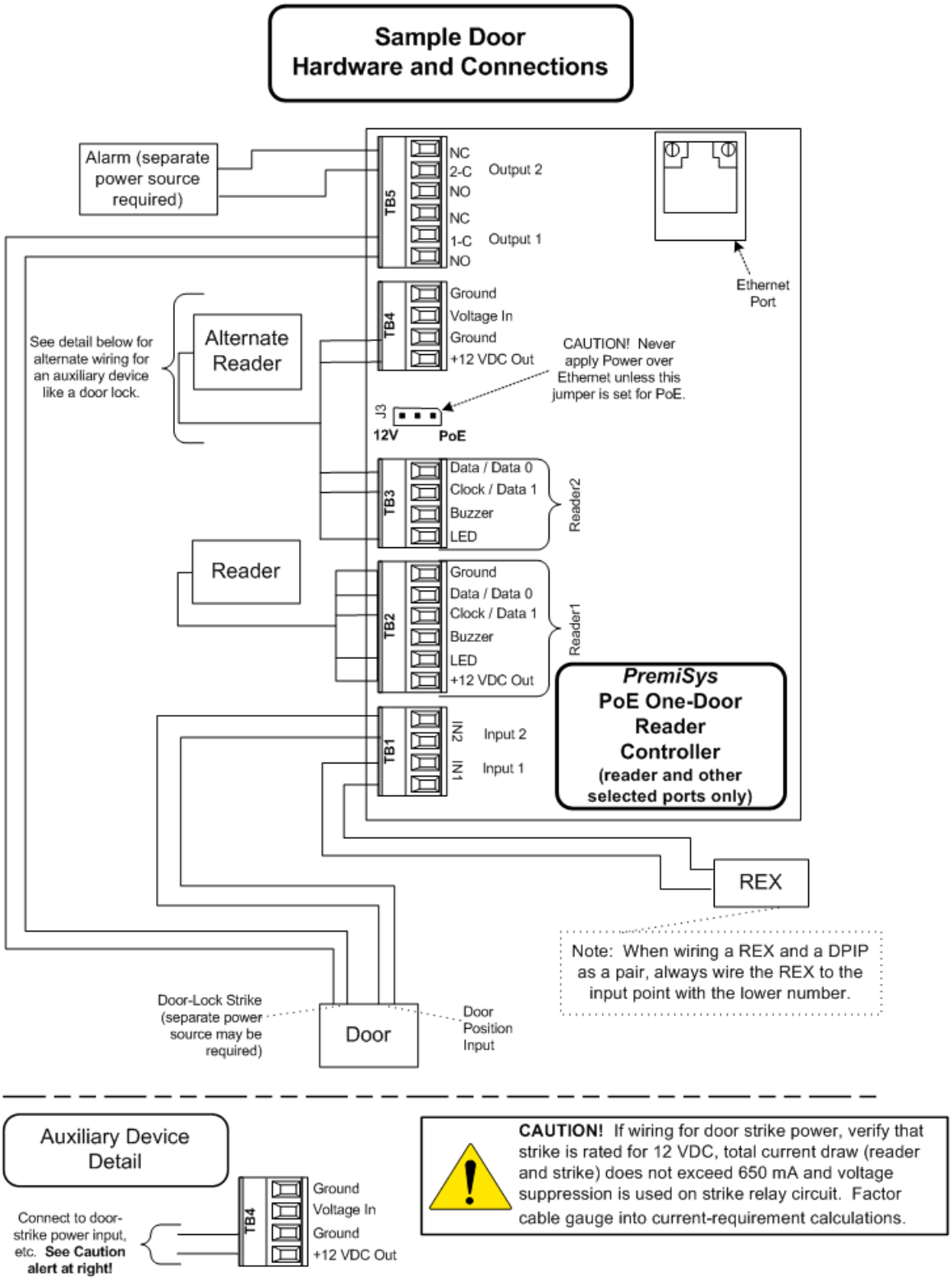
Bar-Code ABA Reader (ABA)

The readers on the PoE One-Door Reader Controller are intended for use as paired or alternate readers to control one door.

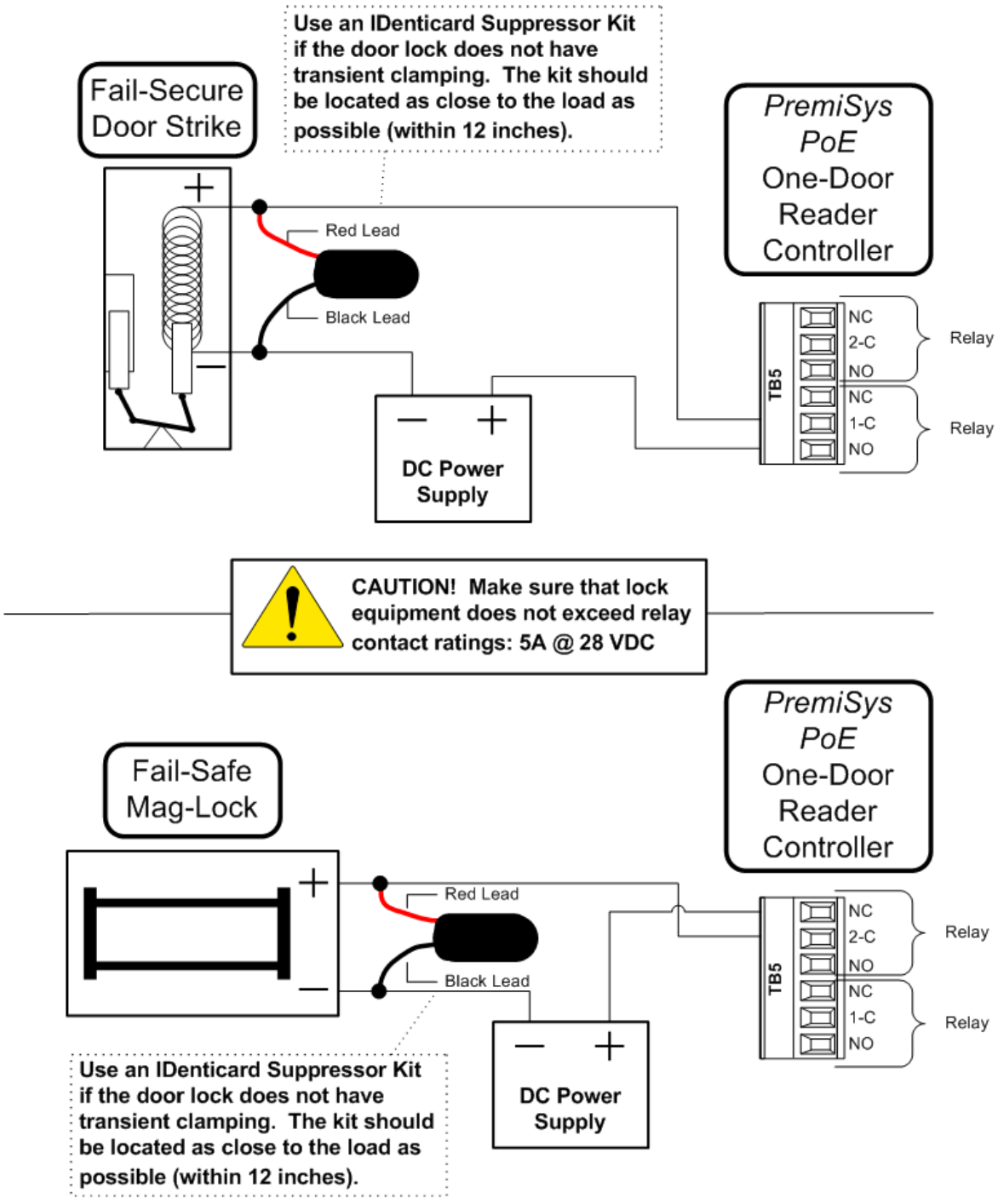
Bar-Code ABA Reader (ABA)



Wiring a PoE One-Door Reader Controller to Reader with Door Strike, REX, Alarm DPIP and Alarm Relay



Wiring a PoE One-Door Reader Controller to Door Strike and Magnetic Lock



See the previous page for guidelines on powering a door lock from the controller.

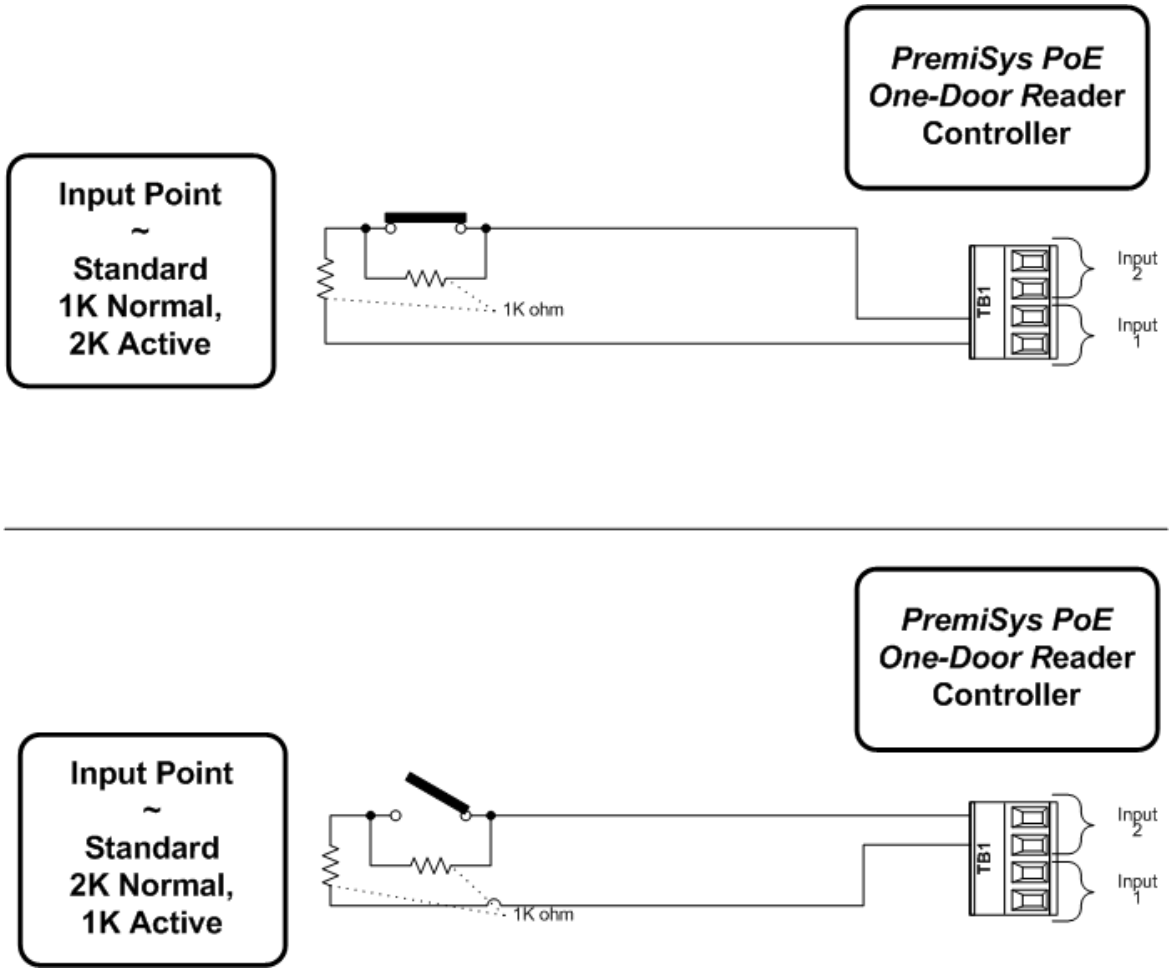
Wiring Supervised Input Points on the PoE One-Door Reader Controller

Supervised inputs such as these can be used for door-position input points or any other input that requires supervision.

PremiSys™ hardware supports only the standard “1 K normal, 2 K active” and “2 K normal, 1 K active” supervision modes depicted here.

IMPORTANT! Inputs on a single board are normally processed in ascending numeric sequence when they change state simultaneously or nearly simultaneously. Consequently, if wiring a REX input point and a door-position input point in a pair on a PoE One-Door Reader Controller, make sure that the door-position input point has a higher input number than the REX point paired with it.

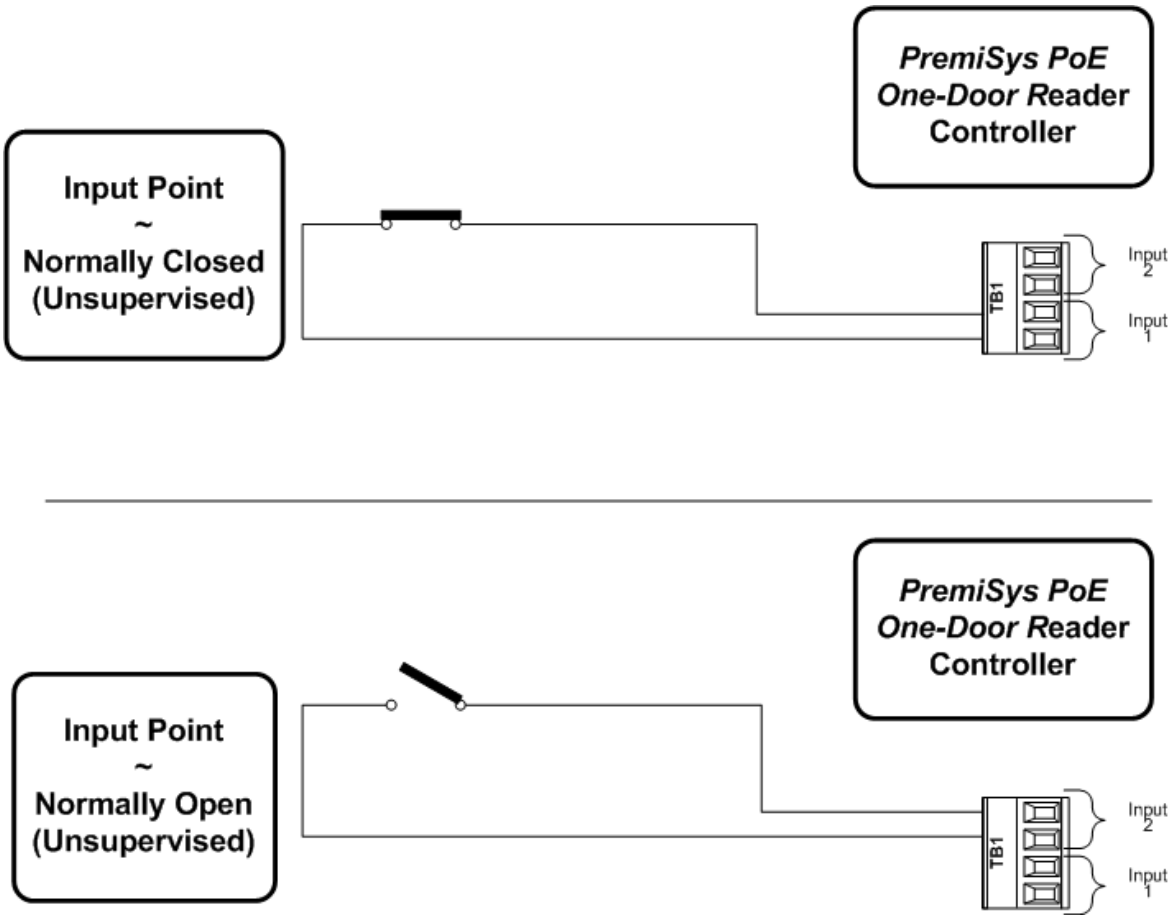
Input circuits require one twisted pair per input and are rated at 30 ohms maximum.



Wiring Unsupervised Input Points on the PoE One-Door Reader Controller

Unsupervised inputs such as these can be used for REXes, general-purpose input points or any other input that does not require supervision. See the topic "Wiring a Supervised Input Point to the PremiSys Two-Reader Controller 81" to wire inputs that require supervision.

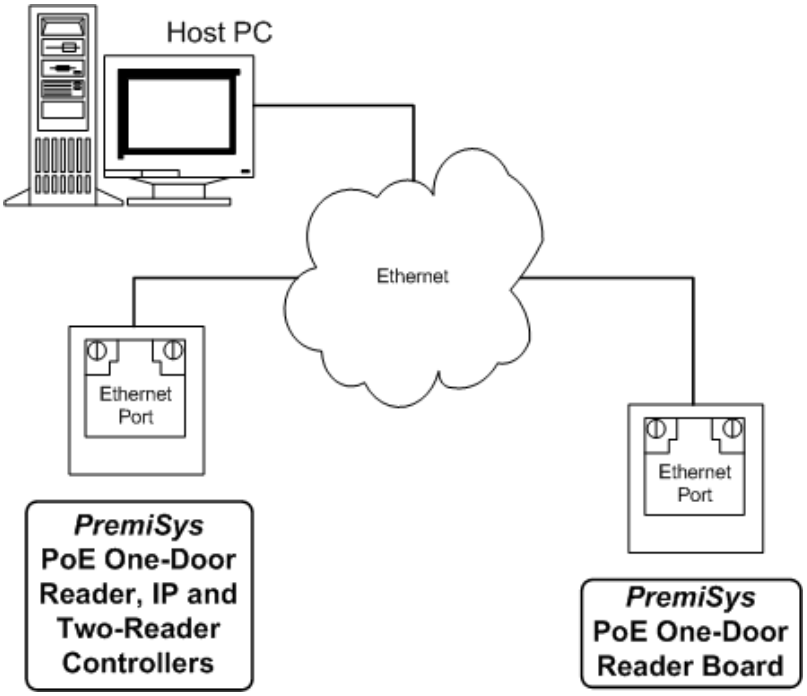
Input circuits require one twisted pair per input and are rated at 30 ohms maximum.



Wiring a PoE One-Door Reader Controller to the PoE One-Door Reader Board

Communication from the PremiSys™ Two-Reader Controller to the PremiSys PoE One-Door Reader Controller is handled via the Ethernet, while power to the board can be handled via the Ethernet or via a separate power supply.

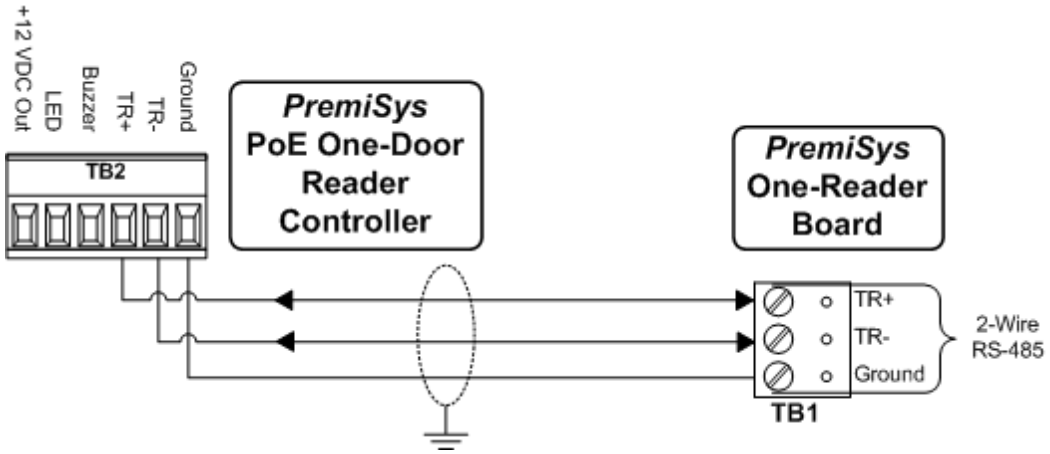
IMPORTANT! You can connect up to 16 PoE One-Door Reader Boards to a single PoE One-Door Reader Controller. The total number of possible doors (readers) that can be connected to one PoE One-Door Reader Controller is 17: 16 doors on PoE One-Door Reader Boards, plus one on-board door (reader) on the PoE One-Door Reader Controller.



IMPORTANT! You cannot address the PoE One-Door Reader Board using jumpers; you must assign a range of IP addresses to the Ethernet controller. The controller then assigns one of those IP addresses to the PoE One-Door Reader Board. Enter the MAC address of the PoE One-Door Reader Board when you add the board to your Ethernet controller through your PremiSys™ software. The controller links the MAC address to an IP address from the range of reserved IP address.

Wiring a PoE One-Door Reader Controller to the One-Reader Board

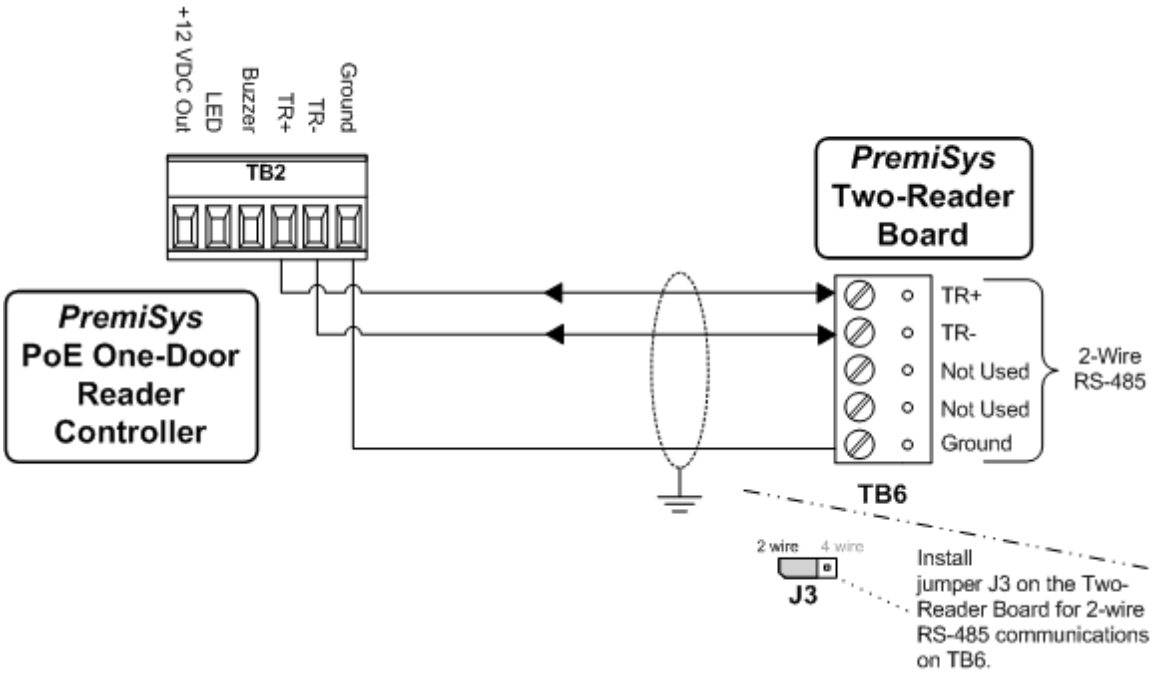
IMPORTANT! You can connect up to eight One-Reader Boards (or other downstream RS-485 I/O boards) to a single PoE One-Door Reader Controller. Once that limit is reached, up to eight PoE One-Door Reader Boards can be connected for a maximum total of 16 I/O boards. The maximum number of possible doors (readers) that can be available on one PoE One-Door Reader Controller is 17: 16 doors from all connected I/O boards, plus one on-board door (reader) on the PoE One-Door Reader Controller.



TB2 on the PoE One-Door Reader Controller – RS-485 to TB 1 on the One-Reader board	Two-wire RS-485 Twisted pair(s), 24 AWG (0.2047 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops

Wiring a PoE One-Door Reader Controller to the Two-Reader Board

IMPORTANT! You can connect up to <u>eight</u> Two-Reader Boards (or other downstream RS-485 I/O boards) to a single PoE One-Door Reader Controller. Once that limit is reached, up to eight PoE One-Door Reader Boards can be connected for a maximum total of 16 I/O boards. The maximum number of possible doors (readers) that can be available on one PoE One-Door Reader Controller is 17: 16 doors from all connected I/O boards, plus one on-board door (reader) on the PoE One-Door Reader Controller.

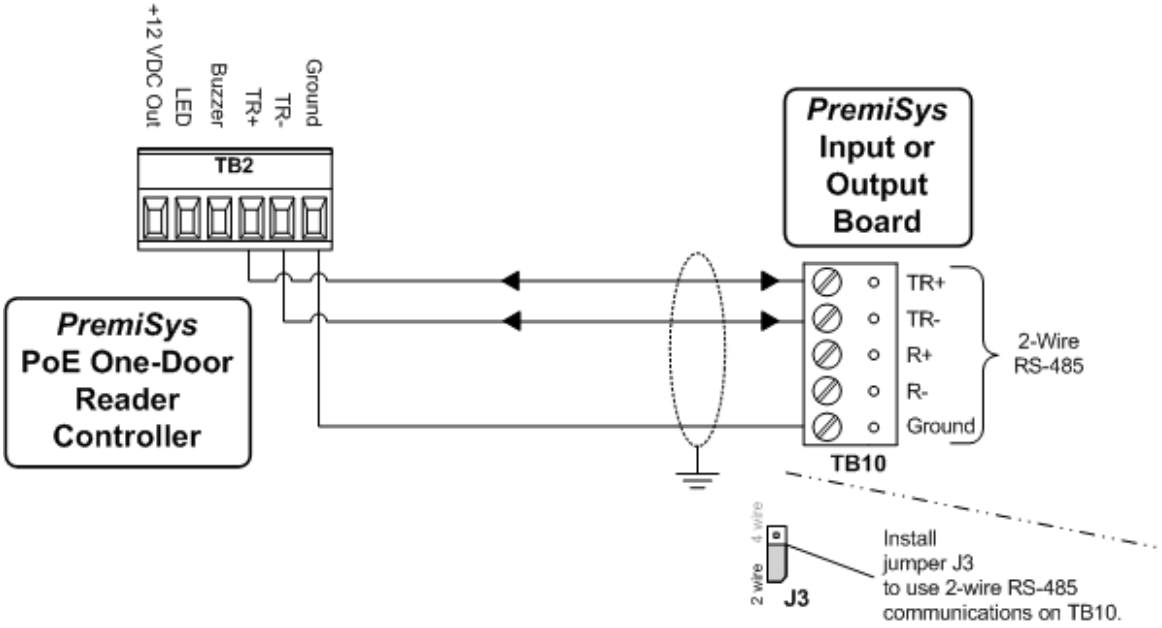


IMPORTANT! Install Jumper J3 exactly as illustrated here! Four-wire RS-485 cannot be used!

TB2 on the PoE One-Door Reader Controller – RS-485 to TB 6 on the Two-Reader board	Two-wire RS-485 Twisted pair(s), 24 AWG (0.2047 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops

Wiring a PoE One-Door Reader Controller to the Input Or Output Boards

IMPORTANT! You can connect up to <u>eight</u> Input or Output Boards (or other downstream RS-485 I/O boards) to a single PoE One-Door Reader Controller. Once that limit is reached, up to eight PoE One-Door Reader Boards can be connected for a maximum total of 16 I/O boards. (The maximum number of possible doors (readers) that can be available on one PoE One-Door Reader Controller is 17: 16 doors from all connected I/O boards, plus one on-board door (reader) on the PoE One-Door Reader Controller.)



IMPORTANT! Install Jumper J3 exactly as illustrated here! Four-wire RS-485 cannot be used!

TB 10 - Input or Output Board	
TB10-1	TR+
TB10-2	TR-
TB10-3	Not Used
TB10-4	Not Used
TB10-5	Ground

TB2 on the PoE One-Door Reader Controller – RS-485 to TB 10 on the Input or Output boards	Two-wire RS-485 Twisted pairs, 24 AWG (0.2047 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops

PoE One-Door Reader Controller LEDs

After initialization is complete the PremiSys™ PoE One-Door Reader Controller's LEDs have the following meanings while in run mode:

Ethernet	**OFF**	**ON**	**FLASH**

Port LEDs			
Yellow LED	10Mb/S Ethernet speed	100Mb/S Ethernet speed	N/A
Green LED	No link	Good link	Ethernet activity
LED			
1	Heartbeat and online status indicator		
2	"On" indicates I/O communication or IP address request		
3	"On" indicates reader activity on either reader		
4	"On" indicates Input Point 1 in Alarm		
5	"On" indicates Input Point 2 in Alarm		
6	"On" indicates Input Point 3 in Alarm (tamper-switch jumper)		

Configuring PremiSys Ethernet Controllers

Each Ethernet controller (IP, Two-Reader and PoE Controllers) that you install on the site's network must be have a unique IP address on that network. However, all Ethernet controllers come programmed from the factory with the same default address, so you must reprogram each controller with the unique IP address it requires. The IT personnel at the site need to provide the addresses that are available for use. They also need to let you know if there are subnet masks and default gateways to include as part of programming each controller.

This reprogramming is done by connecting each controller to the network one at a time and opening its Configuration Manager through a web browser on a client PC. You use the Configuration Manager built into each controller to assign a new, unique address and optionally set other parameters for the controller.

Your client PC needs to initially communicate with the Configuration Managers on the Ethernet controllers. So, the PC must have an IP address in the same subnet as the controller's default IP address and be compatible with your network's security settings. Use one of the two methods given below to achieve compatible PC-controller IP addresses and initially communicate with your Ethernet controller so that you can configure the controller for use with your PremiSys™ software on the network at the site.

- **On the network** - If your network allows your PC to communicate with the IP address 192.168.10.20, you can go ahead and connect to the controller over the network. This address is the default IP address given to all controllers at the factory.
- **Off the network** - If your network blocks communications with the IP address 192.168.10.20, you must connect to the controller from a PC that is **off** the network and use a Category 5 cable (you may use a standard or crossover cable) plugged

in directly between the PC and the controller. You must temporarily change the PC's IP address so that it is in the same subnet (192.168.10) as the controller's default address of 192.168.10.20 while you configure the controller. Consult Windows® documentation for instructions on temporarily changing the PC's IP address.

The complete PremiSys default communication parameters for the controllers are shown below.

PremiSys Default Communication Parameters:

Network: static IP address = 192.168.10.20
Communication address: 0
Primary Host port: IP server, no encryption, port 6005
Alternate Host port: Disabled

IMPORTANT!: These default communication parameters given above must be used the first time you program the controller or if you have bulk-erased the controller. To communicate with the controller using these default parameters you should set the controller's DIP switches to "OFF, OFF, OFF, OFF."

Logging into the Configuration Manager for the First Time

If you are configuring the controller for the first time or after a bulk erase, set the DIP switches to the "OFF, OFF, OFF, OFF" positions so that you can contact the controller using the default IP address and other default communication settings. For additional information about bulk erasing your controller, see the topic titled "Bulk Erasing the Ethernet Controllers 133."

Logging into the Configuration Manager Using the Default IP Address

To log into the Configuration Manager using the default IP address:

1. Do one of the following:
- Plug a Cat 5 cable connected to the system network into the Ethernet port on the controller, if your network allows your PC to communicate with the default controller IP address 192.168.10.20.
- If your network blocks communications with the default controller IP address 192.168.10.20, connect a Category 5 cable (or a crossover Category 5 cable) directly between the PC and the controller to bypass the network. You need to temporarily change your PC's IP address to be on the 192.168.10. subnet while you configure it. Revert to the

	original IP address of the PC after all controllers that need to be have been configured. (Consult Windows® documentation for instructions on temporarily changing and reverting to the PC's IP address.)
2.	Open a Web browser window and enter “http://192.168.10.20” (without the quotes) in the address bar of the browser.
3.	Press your keyboard’s Enter key. A window that displays an IDenticard logo opens.
4.	Click the link “Click here to log in”. The log in window appears. You may see a dialog box with a notice such as “There is a problem with the security certificate for the website…” You can disregard this alert. Click the option in this window that lets you continue opening the Web page.
5.	Enter the user name “admin” and the password “password” (both are case-sensitive) in the login window when it appears. The Home page for the Configuration Manager opens. NOTE: If you did a Bulk Erase or if you have never set up users for the configuration process, you see a window containing statements such as "The Default User Log-in is enabled," "No USERS are defined," and "The Default User Log-in switch is ON." Note that some of the statements are marked by "( )" or (X) where "X" indicates that the statement is true. This window is for informational purposes. At this point, just click “OK” to close the notification window.
6.	(Optional) Enter up to 250 characters in the Notes section. This section is commonly used for information concerning the installation, such as building location, etc. If you choose to enter notes, click “Save Notes” when you finish.
7.	You can now configure the controller's network and host communication settings and create users. See the following topics to define the configuration settings: • Configuring Settings on the Network Page 116 • Configuring Settings on the Host Communication Page 117 • Configuring Settings on the Users Page 124 • Configuring Settings on the Auto-Save Page 128 (This feature is currently not implemented.) • Configuring Settings on the Restore/Default Page 128 • Applying Settings 129

Configuring Network Page Settings

Changing the IP Address of the Controller

☑	**To change the IP address of the controller:**

1.	Click “Network” on the left side of the screen. The Network Settings page appears.
2.	Click to select the option button “Use Static IP configuration” and enter an IP address that has been approved by the site's network administrator and is compatible with the network’s subnet mask. Click in, or tab to, the Subnet Mask field to auto-populate it. You may need to enter a value in the Default Gateway field, but check with the site's network administrator to know for sure. NOTE – Note down the IP address that you enter in the IP Address field for this controller since you must later enter the address in the PremiSys software settings for this controller.
3.	Click the “Accept” button at the bottom of the Network settings window. NOTE – Clicking "Accept" does NOT save your changes and make your settings effective! Settings are saved only after you open the Apply Settings page and click the "Apply Settings, Reboot" button to apply these changes before you log out of the Configuration Manager. Go on to the next step.
4.	Go on to the Host Comm page of the Configuration Manager to further configure the controller if needed. When done, be sure to open the Apply Settings page and click the "Apply Settings, Reboot" button to apply your changes. **See the topic titled "Applying Settings 129."**

Configuring Host Comm Page Settings

IMPORTANT! If you are configuring any Ethernet controller to communicate to the host over the Ethernet without using redundancy, make no changes to the default settings for the communication address (which should be "0"); the connection type, which should be "IP Server;" or the alternate host port connection type, which should be "Disabled." If you do not need any of the other features provided on this page, you may disregard all settings here.

Selecting a Communication Address

	**To select a communication address:**
1.	Click “Host Comm” on the left side of the screen. The Host Communication page appears.

2. Leave the Communication Address field at the top of the window at the default "0" under the following circumstances:

- If you are using Ethernet for primary communications to the controller with no redundant communications (see alert above)
- If you are using Ethernet for primary communications and redundant communications to the controller
- If you are using Ethernet for primary communications to the controller and RS-232 for redundant communications

If you plan to use RS-485 (IP Controller only) for either your primary or redundant communications verify that the value in the Communication Address field is unique for the RS-485 loop. You may use any value from 0 through 7, but remember that every controller on an RS-485 loop must have a unique address.

IMPORTANT! The address that appears or is entered in the Communication Address field must also appear or be entered in the PremiSys software settings.

3. Click the drop-list in the Primary Host Port Connection Type field to select a type. See the topics farther down on this page that explain each of the possible selections. **For any controller connected via the Ethernet to the host PC always select "IP Server" here.** The "IP Client" connection-type option has not been implemented. Do not select it. Depending on your selection in the Connection Type field, other fields become available on the page.

IMPORTANT! This setting requires a matching setting for the channel as configured in the PremiSys software. For example, if you select a connection type of "IP Server," the Comm. Type setting for the corresponding channel in your PremiSys software must be "Network Out." See the PremiSys Online Help for additional information.

IP Server Connection Type

The IP Server connection type is available for the Primary Ethernet port.

☑	**To configure the IP server type:**
1.	Select "IP Server" as the communication type.
2.	Enter a number in the Port Number field or keep the default Port Number "6005". **IMPORTANT! The number that you enter in the Port Number field must also be entered or appear in the PremiSys software settings.**
3.	Select one of the following options: • "Allow All" – Allows the IDenticard Windows Service to communicate with this controller from any IP address. • "Authorized IP Address Required" – Allows the IDenticard Windows Service to communicate with this controller from only the IP address specified. If you select this option you must enter an IP address in the Authorized IP Address field. Talk to your network administrator if your network uses dynamic IP addressing (DHCP.)
4.	Click the "Accept" button at the bottom of the Network settings window. NOTE – Clicking "Accept" does NOT save your changes and make your settings effective! Settings are saved only after you open the Apply Settings page and click the "Apply Settings, Reboot" button to apply these changes before you log out of the Configuration Manager. Go on to the next step.
5.	Go on to the next page of the Configuration Manager that you need to further configure the controller. However, if you do not need to set up users or immediately restore the default Network and Host Comm settings, you have finished configuration.
6.	Click the Device Info link in the sidebar and verify that all four DIP switches are OFF. The IP address displays the **default** address, not your configured address, until you have applied your settings.
7.	Open the Apply Settings page and click the "Apply Settings, Reboot" button to apply your changes. **See the topic titled "Applying Settings 129."**

Serial RS-232 Connection Type

It is highly unlikely that you want to use RS-232 serial communications as primary communications for connecting to an Ethernet controller. However, if you do, follow these guidelines.

The Serial RS-232 connection type is used on Port 1 as either the Primary Port or as the Alternate Port. It is available for the IP Controller and the Two-Reader Controller.

☑	**To configure the serial RS-232 connection type:**
1.	Select "Serial RS-232" as the communication type.
2.	Select a baud rate in the Baud Rate field. The default is 9600. IMPORTANT – The number that you enter in the Baud Rate field must also be entered in the PremiSys software settings.
3.	Select an option in the Flow Control field. The default is "None." IMPORTANT – The selection that you make in the Flow Control field must also be entered in the PremiSys software settings.
4.	Click "Accept" to save your settings. IMPORTANT – Clicking "Accept" does NOT make your changes and settings effective! You MUST open the Apply Settings page and click the "Apply Settings, Reboot" button to apply these changes before you log out of the Configuration Manager. See the topic titled "Applying Settings 129."

Serial-Modem Connection Type

Do not select the Serial-Modem connection type.

Serial RS-485 Connection Type (IP Controller only)

It is highly unlikely that you want to use RS-485 serial communications as primary communications for connecting to an Ethernet controller. However, if you do, follow these guidelines.

The Serial RS-485 connection type is used on Port 1 as either the Primary Port or as the Alternate Port. It is available for only the IP Controller.

☑	**To configure the serial RS-485 connection type:**
1.	Select "Serial RS-485" as the communication type.
2.	Select a baud rate in the Baud Rate field. The default is 38400. IMPORTANT – The number that you enter in the Baud Rate field must also be entered in the PremiSys software settings.
3.	The Flow Control field default is "RTS Toggle" and cannot be changed. IMPORTANT – The selection in the Flow Control field must also be entered in the PremiSys software settings.
4.	Click "Accept" to save your settings. IMPORTANT – Clicking "Accept" does NOT make your changes and settings effective! You MUST open the Apply Settings page and click the "Apply Settings, Reboot" button to apply these changes before you log out of the Configuration Manager. See the topic titled "Applying Settings 129."

Serial-Cobox Connection Type (IP Controller only)

It is highly unlikely that you want to use a Network Card to connect an Ethernet controller. However, if you do, follow these guidelines.

The Network Card can be used as an Ethernet connection for the Alternate Port. It can be used with only the IP Controller. See also the topic "Using a Network Card with PremiSys Software" in the online Help file.

☑	**To configure the serial-Cobox connection type:**
1.	Select "Serial-Cobox" as the communication type.
2.	Select a baud rate in the Baud Rate field. The default is 38400. IMPORTANT – The number that you enter in the Baud Rate field must also be entered in the PremiSys software settings.
3.	The Flow Control field default is "RTS/CTS" and cannot be changed. IMPORTANT – The selection in the Flow Control field must also be entered in the PremiSys software settings.
4.	Click "Accept" to save your settings. IMPORTANT – Clicking "Accept" does NOT make your changes and settings effective! You MUST open the Apply Settings page and click the "Apply Settings, Reboot" button to apply these changes before you log out of the Configuration Manager. See the topic titled "Applying Settings 129."

Alternate Host Port Connection

The alternate host port is available on only the IP and Two-Reader Controllers.

☑	**To configure the Alternate Host port:**
1.	Select a communication type.
2.	Fill in the fields that appear, according to the communication type you selected. See the instructions above for each communication type.
3.	Click "Accept" to save your settings. IMPORTANT – Clicking "Accept" does NOT make your changes and settings effective! You MUST open the Apply Settings page and click the "Apply Settings, Reboot" button to apply these changes before you log out of the Configuration Manager. See the topic titled "Applying Settings 129."

Configuring User Page Settings

You can create a maximum of 10 user names for the Configuration Manager. These user names can be given different levels of authorization. Follow the steps below to create, edit and delete user names.

Creating User Names (Custom User Names)

☑	**To create a user name:**
1.	Click “Users” on the left side of the screen. The Users page appears.
2.	Click “New User” to add a username. The User Account window opens.
3.	Enter a four to ten character user name in the Username field.
4.	Click the drop-list in the Select account level field to select one of the following accessibility levels: • Level 1 - Allows the user to view and edit all pages in the Configuration Manager for this controller. • Level 2 - Allows the user to view these pages: Home, Network Settings, Host Communications, Device Info, and Log Out. The user cannot view other pages and cannot edit any configuration settings. • Level 3 - Allows the user to view these pages: Home, Device Info, and Log Out. The user cannot view other pages and cannot edit any configuration settings.
5.	Enter a six to ten character password in the Password field and also enter it in the Password again field.
6.	Enter up to 32 characters in the Notes field, if you want.
7.	Click “Save” to save the settings. The Users page reappears with the new user name displayed in the list.
8.	When finished configuring settings on the User Page, click “Submit” to save your changes. See the Alert below.

Editing User Names

☑	**To edit a user name:**
1.	Click “Users” on the left side of the screen. The Users page appears.
2.	Click to place a check in the check box next to a user name and then click “Edit.” The User Account window opens.
3.	Change the user name in the Username field, if you want.
4.	Click the drop-list in the Select account level field to change the selection to one of the following accessibility levels: • Level 1 - Allows the user to view and edit all pages in the Configuration Manager for this controller. • Level 2 - Allows the user to only view these pages: Home, Network Settings, Host Communications, Device Info, and Log Out. The user cannot view other pages and has no edit rights. • Level 3 - Allows the user to only view these pages: Home, Device Info, and Log Out. The user cannot view other pages and has no edit rights.
5.	Click to select one of the following options: • "Don't change password.” Skip to Step 6. • “Change password” and then enter the new six to ten character password in the fields titled “Password” and “Password again.”
6.	Edit or enter up to 32 characters in the Notes field, if you want.
7.	Click “Save” to save the settings. The Users page reappears with the new user name displayed in the list.
8.	When you have finished configuring settings on the User Page, click “Submit” to save your changes. See the Alert below.

Deleting User Names

NOTE: You cannot delete the default user login.

☑	**To delete user names:**
1.	Click “Users” on the left side of the screen. The Users page appears.
2.	Click to place a check in the check box next to one or more user names to select the user names you must delete.
3.	Click “Delete.” The user name disappears from the list. NOTE: This action is irreversible and there is no confirmation dialog. Once you click “Delete” the selected user name(s) are deleted.

Changing the Session Timer

The Session Timer allows you to increase or decrease the inactivity time users are allowed before they are automatically logged out of the configuration manager. The times are listed in 5-minute increments from 5 minutes to 60 minutes.

☑	**To change the session timer:**
1.	Click “Users” on the left side of the screen. The Users page appears.
2.	Click the drop-down arrow in the field titled Session Timer to select one of the available time options.
3.	Click “Save Session Timer” to save your session timer changes.

Changing the "Disable Web Server" Option

Disabling the Web server prevents users from accessing the Configuration Manager while the controller is in Normal Operating mode (all DIP switches set to "OFF.") Disabling the Web server helps secure your controller because you must move DIP switch 1 to the “ON” position to enable any users to access the Configuration Manager. See the "Important" alert below the step-by-step instructions below.

	To change the "Disable Web Server" option:
1.	Click “Users” on the left side of the screen. The Users page appears.
2.	Scroll to the bottom of the Users window and review the options displayed: • Disable Web Server – Select this option to prevent users from accessing the Configuration Manager while the controller is in Normal Operating mode (all DIP switches “OFF.”) • Disable SNMP – Not used. • Disable Bonjour • Enable Door Forced Open Filter NOTE – If you do not see these options check the DIP switch settings for your controller. DIP switch 1 must be in the “On” position for the “Disable” options to display on the “Users” page. (Click “Device Info” on the left side of the screen and review the DIP Switch information on the Device Information page that appears.)
3.	Click “Submit” to save your changes. See the Alert below.

CAUTION!
If you select the following settings:

- **"Disable Web Server" on the Users page of the Configuration Manager; and**
- **All DIP switches OFF,**

then no users can contact the Configuration Manager and make changes to your controller. (See the table below.) When you want to make changes to the controller, move DIP switch 1 to “On” and then log in as a user with edit rights (Account level 1.) After you make the necessary changes verify that the option “Disable Web Server” is selected on the Users page, apply the settings, wait for the controller to finish rebooting, and then move DIP switch 1 to the “Off” position. Do not

move the DIP switch while the controller is initializing or you may erase all information on the controller!

Configuring Auto-Save Page Settings

Do not use the Auto-Save options. They have not been implemented.

Configuring Restore/Default Page Settings

If you have been making configuration changes and decide that you do not want to keep those changes, you can restore the current settings (current before you made your changes) if you have not yet clicked the "Apply Settings, Reboot" button on the Apply Settings page.

If you want to return your controller's Network and Host Communication configurations to the PremiSys™ default settings you can restore the default.

These "Restore" options do not affect settings on the Home Page or Users Page. Changes you made on the Home and Users pages have already been saved and you cannot undo them (unless you Bulk Erase 133 the controller.)

Follow the steps below to restore your controller's configuration.

☑	**To restore default or current settings:**
1.	Click “Restore/Default” on the left side of the screen. The Restore Settings page appears. NOTE: The Users settings are not affected by a “Restore” process.
2.	Do one of the following: • Click “Restore Default” to return all Network and Host Communication settings for this controller to the original IDenticard default settings. • Click “Restore Current” to return the Network and Host Communication settings for this controller to the last applied settings. (Settings are applied when you click “Apply Settings, Reboot” on the Apply Settings page. If you have not yet applied settings during your session, the Network and Host Communication settings are returned to the values they had before you logged in.) NOTE: The Users settings are not affected by either “Restore” option.
3.	Log out to save the restored settings or return to the Network page or Host Communication page to edit the restored settings.

Applying Settings

You must click the "Apply Settings, Reboot" button on the Apply Settings page to save the currently configured Network and Host Communication settings.

Follow the steps below to apply the Network and Host Communications configurations.

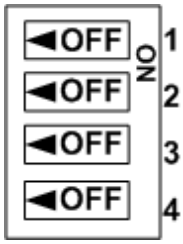
☑	**To apply Network and Host Communication configurations:**
1.	Click “Apply Settings” on the left side of the screen. The Apply Settings page appears.
2.	Click “Apply Settings, Reboot”. The controller begins to reboot. NOTE: The controller does not reboot until you click this button! An alert window opens asking you to close the alert window.
3.	Click “OK” to close the alert. You may also see another alert window asking if you want to close the browser window. Click “Yes” to close the browser window or "No" to keep the browser window open. Note: The Configuration Manager logs you out even if you click "No" and the browser window remains open.
4.	Place all DIP switches in the “OFF” position so that the controller is in normal run mode. Your host can now communicate with the controller through your network using the settings you configured. Read **ALL** alerts below. Note: You must also configure the hardware settings in your PremiSys software.

Notes:

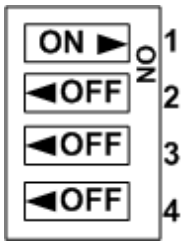
- **If you changed your PC’s IP address to match the default IP address of the controller, make sure you change your PC's IP address back to the subnet that matches your network.**
- **If you originally had to connect to the controller directly from your PC using a crossover Cat 5 cable, remember to reconnect the controller to your network using a regular Cat 5 cable.**
- **If you gave the controller an IP address on your network’s subnet and you selected “Allow All” in the Configuration Manager on the Host Communication page, you can now contact the controller’s Configuration Manager from any PC on the network. Or, if you restricted the access to specific PC’s on the subnet, those PC’s can now contact the Configuration Manager for this controller.**

If you previously applied settings in the Configuration Manager and you want to edit the controller's configuration settings, the DIP switch settings you must select depend on the configuration you previously applied to the controller. Since you (or another user) may previously have applied the "**Disable Web Server**" option, the table below indicates the controller's response if that option is turned on or off. See the topic titled "Configuring User Page Settings 124" for additional information about adding custom users and disabling the web server.

Configuration Manager Access Chart with DIPs in Normal Operating Mode Position

DIP Switches	Custom Users Configured	Disable Web Server Applied*	Access to Configuration Manager
	Yes	Yes	No users can log in. *Highest available level of configuration security but DIP switch "1" must be physically moved to the "ON" position for any user to configure the controller.*
		No	Custom users can log in. Disable Web Server options not available. *High level of configuration security. The default "Admin" user cannot log in to configure the controller. Custom users can log in but cannot change "Disable Web Server" options.*
	No	Yes	No users can log in. *Highest available level of configuration security but DIP switch "1" must be physically moved to the "ON" position for the default "Admin" user to configure the controller. No other users can log in.*
		No	Default "Admin" user can log in. Disable Web Server options not available. *DIP switch "1" must be physically moved to the "ON" position for the default "Admin" user to change "Disable Web Server" options.*

Configuration Manager Access Chart with DIP "1" in "ON" Position

DIP Switches	Custom Users Configured	Disable Web Server Applied*	Access to Configuration Manager
	Yes	Yes	Default user and custom users can log in. Disable Web Server options available. *Not as secure from configuration changes. The default "Admin" user and custom users can log in to configure the controller. All users can change "Disable Web Server" options.*
		No	Default user and custom users can log in. Disable Web Server options available. *The default "Admin" user and custom users can log in to configure the controller. All users can change "Disable Web Server" options.*
	No	Yes	Default user can log in. Disable Web Server options available. *The default "Admin" user can log in to configure the controller and can change "Disable Web Server" options.*
		No	Default user can log in. Disable Web Server options available. *The default "Admin" user can log in to configure the controller and can change "Disable Web Server" options.*

Bulk Erasing Ethernet Controllers

A bulk erase returns the controller's configuration settings to the default settings and erases all cardholder and application data stored on the controller.

Perform a bulk erase if:

- You want to be sure that you are starting with a blank database on an Ethernet controller
- You need to "start over" and redownload your database to an Ethernet controller - perform the bulk erase first

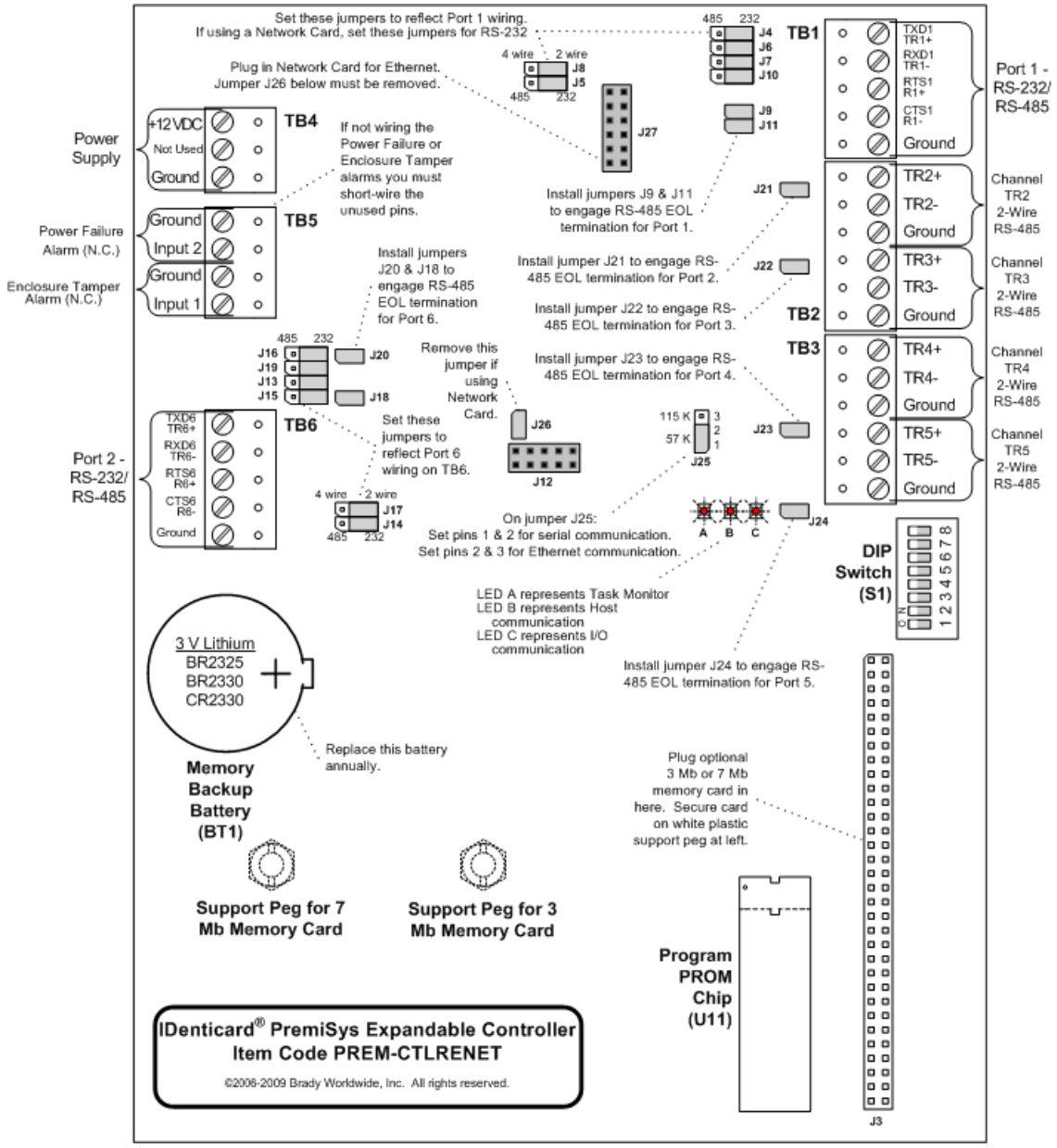
☑	**To bulk erase the controller:**
1.	Place DIP switches 1 & 2 in the "ON" position and 3 & 4 in the "OFF" position.
2.	If the controller is not powered, apply power to the controller. If it is already powered, briefly cut or pull power from the controller for a few moments, and then reapply power.
3.	Watch the LEDs and when LEDs 1 & 2 and LEDs 3 & 4 flash alternately at half second intervals, move DIP switch 1 to “Off.”
4.	Watch the LEDs and notice: **a.** LED 2 flashes at a two-second rate during the erase cycle. **b.** LEDs 1 & 4 flash for 10 seconds after memory has been erased. **c.** LED 1 displays a heartbeat.
5.	Move DIP switch 2 to “Off” when LED 1 displays a heartbeat. All DIP switches should now be OFF.
6.	Press the “Reset” switch on the controller, and watch the LEDs repeat their light cycles as described in Step 4. Wait for LED 1 to redisplay the heartbeat, which indicates that the controller is in the initial configuration mode. You can now use the default IP address (192.168.10.20) and port (6005) to contact the board through the Configuration Manager. See the topic "Logging into the Configuration Manager for the First Time 115" for additional information.

Other PremiSys Controllers

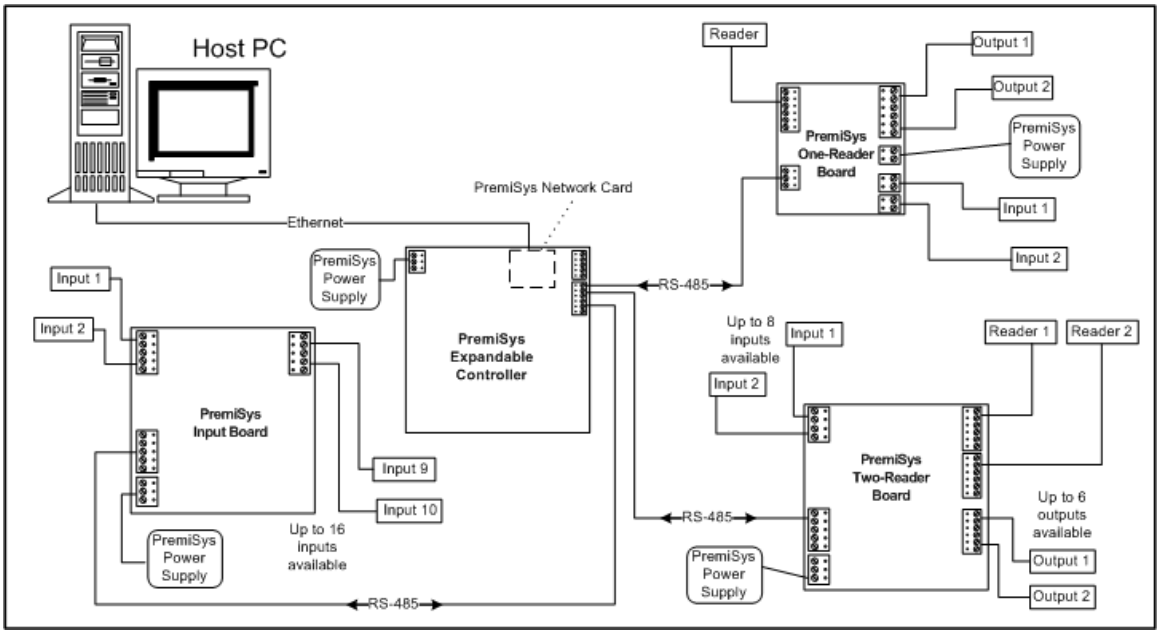
The PremiSys controllers in this section use serial communication unless they are equipped with an external Network Card for Ethernet communications.

- PremiSys Expandable Controller 134
- PremiSys Compact Controller 148

PremiSys Expandable Controller



Sample General Configuration for a PremiSys Expandable Controller Connected to other PremiSys Boards, a Reader and Auxiliary Equipment



Expandable Controller Specifications

Certifications for the Expandable Controller

UL: recognized to UL 294: Access Control System Units - component
CE: EN55022, EN50082-1, IEC801-2, IEC801-3 and IEC801-4

Dimensions and Weight of the Expandable Controller

Controller Width	8.0 inches (203 mm)
Controller Height	6.0 inches (152 mm)
Controller Depth	1.0 inch (25 mm)
Controller Weight	10 ounces (290 g) (nominal)

Environmental Specifications for the Expandable Controller

Temperature	32°F to 158°F (0°C to 70°C) operating -67°F to 185°F (-55°C to 85°C) storage
Relative Humidity	0 to 95% RH noncondensing

Power Specifications for the Expandable Controller

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 VDC ± 10%, 400 mA (550 mA with Network Card)
Memory Backup	Lithium coin cell, 3.0 V, type BR2325, BR2330, CR2330

IMPORTANT! Replace the coin cells (memory backup) used in the controllers annually. Use three-volt, lithium coin cell batteries of the types BR2325, BR2330 or CR2330 as replacements.

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the Expandable Controller

Power to Expandable Controller	Twisted pair, 18 AWG (0.823 mm^2).
Port 1 – RS-485, RS-232 or Ethernet to Host	Ethernet (requires a PremiSys Network Card) Category 5 cable RS-232 Twisted pair, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 50 feet (15.2 meters) of wire, total copper, including drops RS-485 Twisted pair, 22 AWG (0.325 mm^2), with overall shield, 120 ohm Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
Port 2 – RS-485 or RS-232 to Host	RS-232 Twisted pairs, 24 AWG (0.2047 mm^2), stranded with overall shield Maximum cable length: 50 feet (15.2 meters) of wire, total copper, including drops RS-485 Twisted pairs, 22 AWG (0.325 mm^2), with overall shield, 120 ohm Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
TR2 – RS-485 to I/O boards	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
TR3 – RS-485 to I/O boards	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
TR4 – RS-485 to I/O boards	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
TR5 – RS-485 to I/O boards	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
Alarm Inputs	Twisted pair, 30 ohms maximum

Communications Specifications for the Expandable Controller

Port 1	Ethernet (requires a PremiSys Network Card), 10/100Base-T interface; RS-232, DTE or Two-wire RS-485 2,400-38,400 bps, asynchronous
TR2 through TR5	Two-wire RS-485 2,400-38,400 bps, asynchronous
Port 2 (redundant)	RS-232, DTE or Two-wire RS-485 2,400-38,400 bps, asynchronous

Access-Control Specifications for the Expandable Controller

Memory	1 MB standard Optional plug-in 3 MB card for 4 MB total Optional plug-in 7 MB card for 8 MB total
Alarm Inputs	Two unsupervised, dedicated alarm inputs for enclosure tamper and power loss

Indicators on the Expandable Controller

Visible	3 red, single-color LEDs

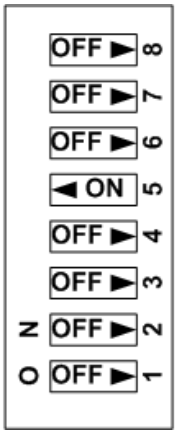
Expandable Controller DIP Switches – Chart with Sample Settings

	Switches							
Selection	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Address 0	Off	Off	Off					
Address 1	On	Off	Off					
Address 2	Off	**On**	Off					
Address 3	**On**	**On**	Off					
Address 4	Off	Off	**On**					
Address 5	**On**	Off	**On**					
Address 6	Off	**On**	**On**					
Address 7	**On**	**On**	**On**					
Port 2: No hardware handshake				Off				
Port 2: TX enabled by CTS				**On**				

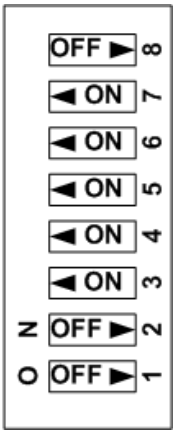
Port 1: No hardware handshake					Off			
Port 1: TX enabled by CTS					**On**			
115,200 bps						Off	Off	
9600 bps						**On**	Off	
19,200 bps						Off	**On**	
38,400 bps						**On**	**On**	
No password logon required								Off
Password logon required								**On**

Sample DIP Switch Settings

- The address of this Expandable Controller is 0 (S1-S3).
- Port 1 has hardware flow control (S5).
- Port 2 does not have hardware flow control (S4).
- The communication speed between the host PC and the Expandable Controller is 115,200 bpm (S6-S7).
- No password is required for the controller (S8).



- The address of this Expandable Controller is 4 (S1-S3).
- Port 1 has hardware flow control (S5).
- Port 2 has hardware flow control (S4).
- The communication speed between the host PC and the Expandable Controller is 38,400 bpm (S6-S7).
- No password is required for the controller (S8).



Expandable Controller Jumper Settings

Jumpers	Set At	Selected
J4, J5, J6, J7, J10	232	Port 1 is RS-232 or Ethernet
	485	Port 1 is RS-485
J26	OFF	Port 1, Ethernet
	ON	Port 1, Serial (RS-232 or RS-485)
J8	2W	Port 1 is 2-wire for RS-485 interface
	4W	Port 1 is 4-wire for RS-485 interface
J13, J14, J15, J16, J19	232	Port 2 is RS-232
	485	Port 2 is RS-485
J17	2W	Port 2 is 2-wire for RS-485 interface
	4W	Port 2 is 4-wire for RS-485 interface
J9, J11	OFF	Port 1 RS-485 EOL Terminator is not on
	ON	Port 1 RS-485 EOL Terminator is on
J18, J20	OFF	Port 2 RS-485 EOL Terminator is not on
	ON	Port 2 RS-485 EOL Terminator is on
J21	OFF	TR2 RS-485 EOL Terminator is not on
	ON	TR2 RS-485 EOL Terminator is on
J22	OFF	TR3 RS-485 EOL Terminator is not on
	ON	TR3 RS-485 EOL Terminator is on
J23	OFF	TR4 RS-485 EOL Terminator is not on
	ON	TR4 RS-485 EOL Terminator is on

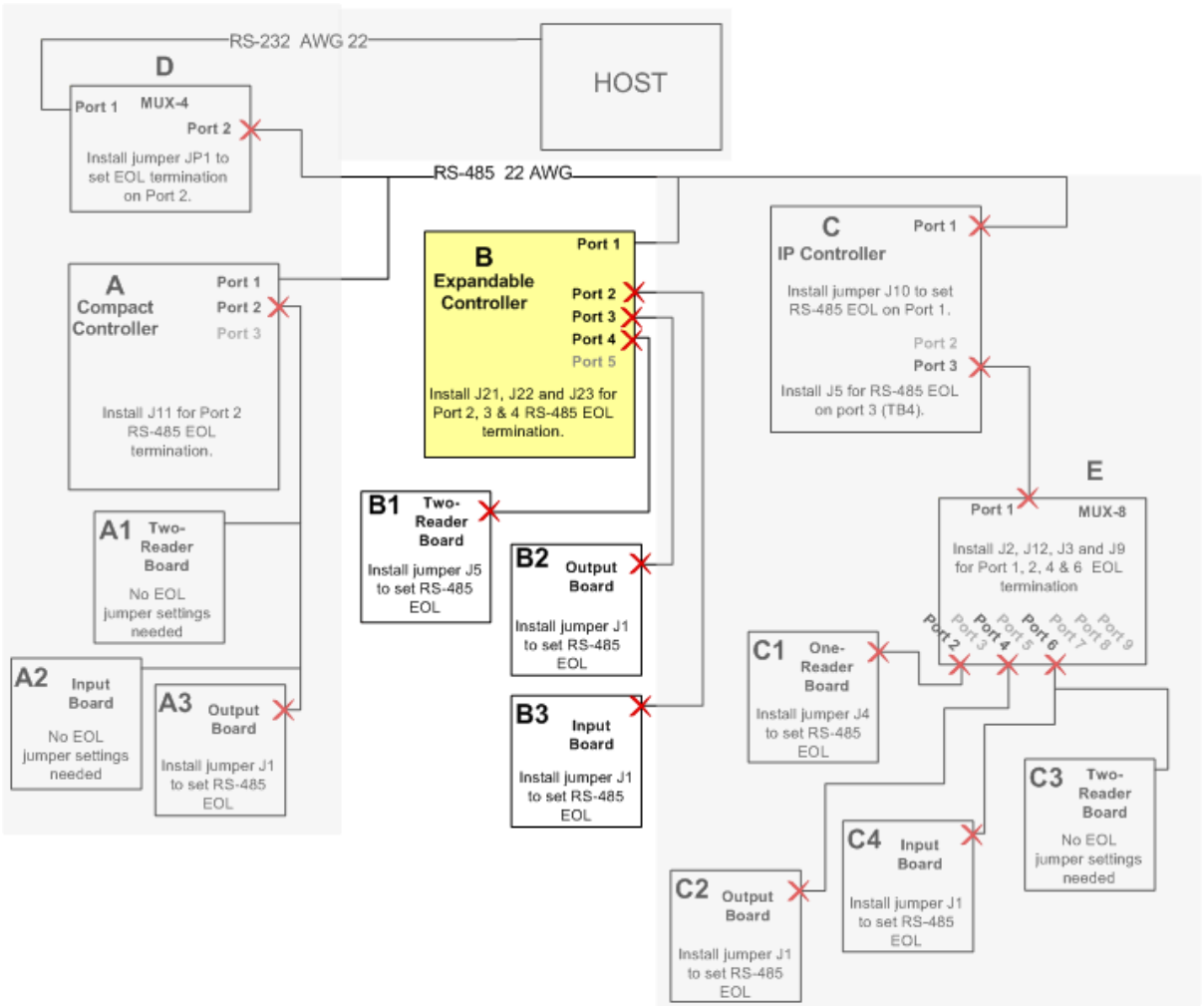
J24	OFF	TR5 RS-485 EOL Terminator is not on
	ON	TR5 RS-485 EOL Terminator is on
J25	1-2	Set pins 1 & 2 for Port 1 serial communication.
	2-3	Set pins 2 & 3 for Ethernet communication.

Setting End-of-Line (EOL) Resistance for the Expandable Controller

In the diagram below:

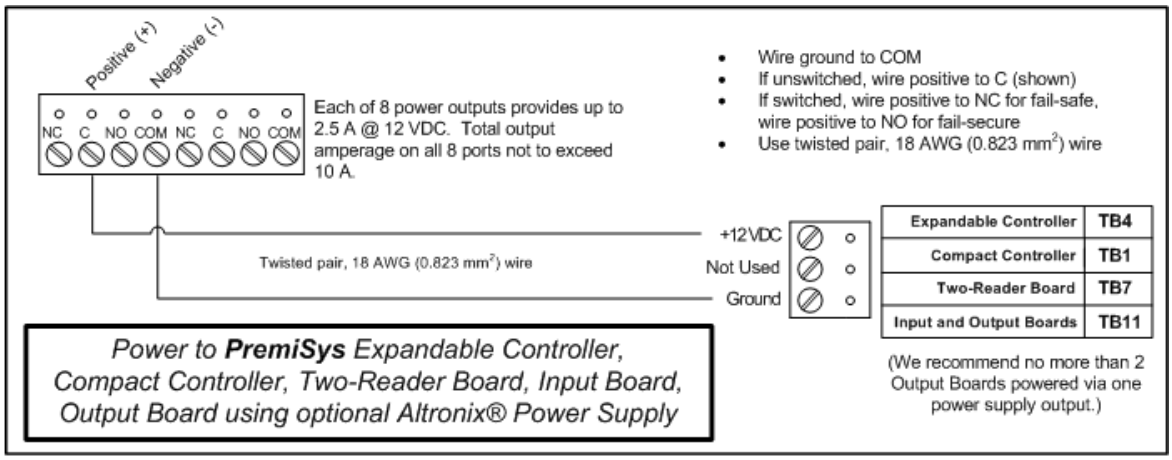
Controller B

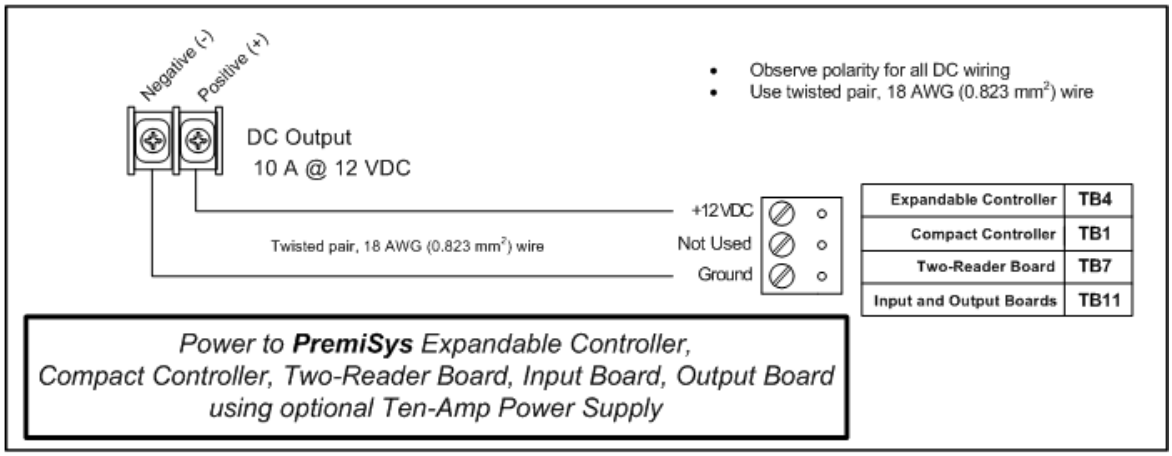
- Jumpers J21, J22, and J23 are set to indicate there are end-of-line boards on the controller's Ports 2, 3 and 4. In this example, B1, B2 and B3 are all end-of-line boards.
- Do not set J9 and J11 because Controller B is not the end-of-line for its serial line.

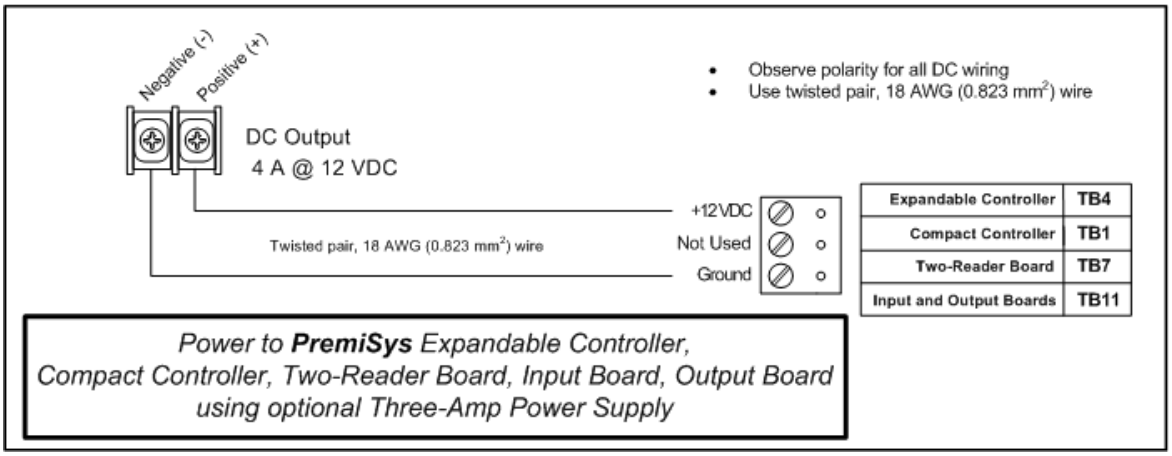


Wiring an Expandable Controller to a Power Supply

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.





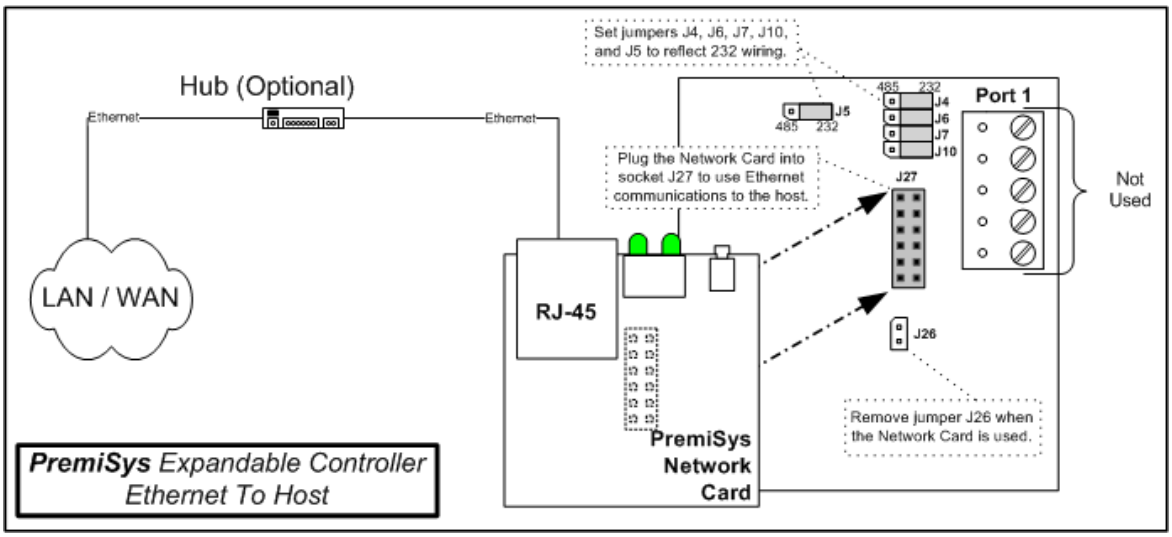


Wiring an Expandable Controller for Enclosure Tamper

TB 5		
Enclosure Tamper	TB5-3	Ground
	TB5-4	Input 1

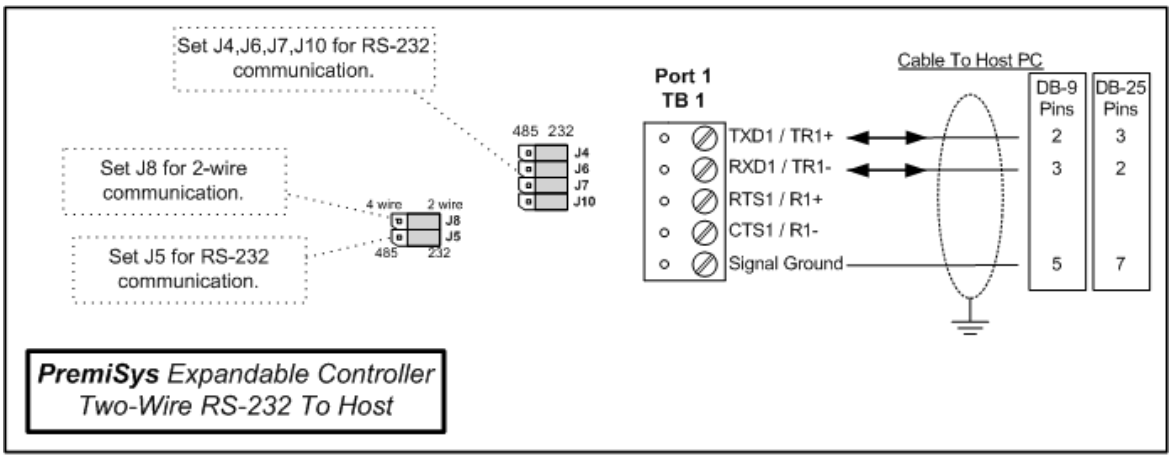
Wiring an Expandable Controller to the Host

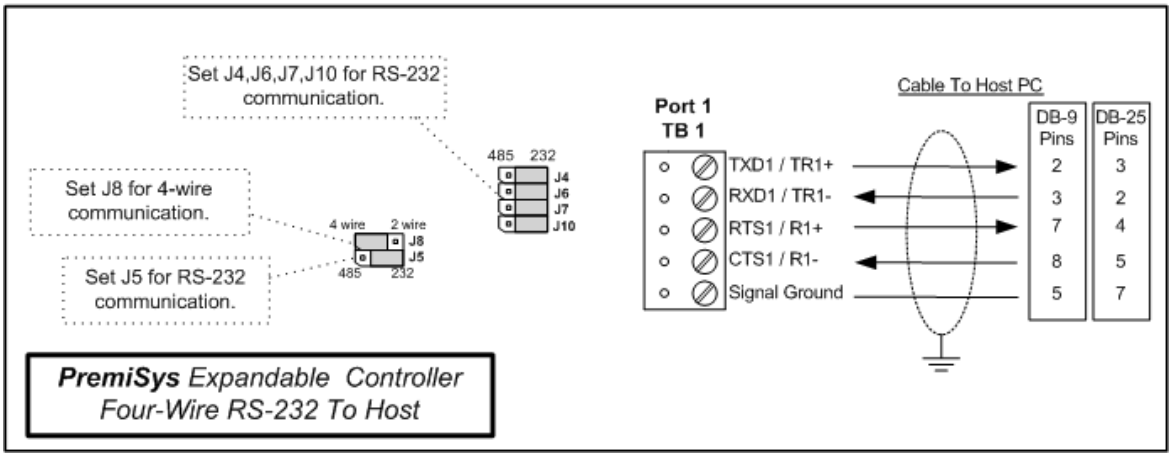
Expandable Controller via Ethernet to Host



Expandable Controller via Four-Wire RS-232 to Host

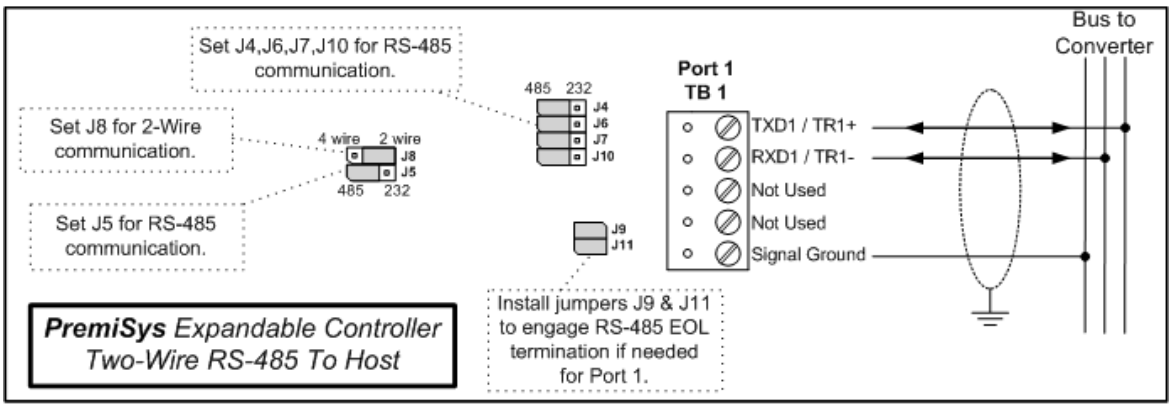
RS-232 communications are limited to 50 total cable-feet (15 total cable-meters.)

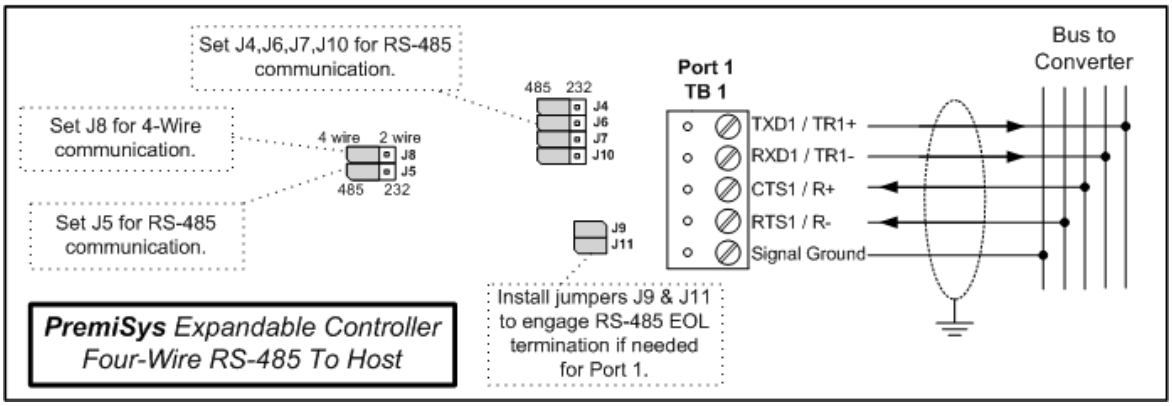




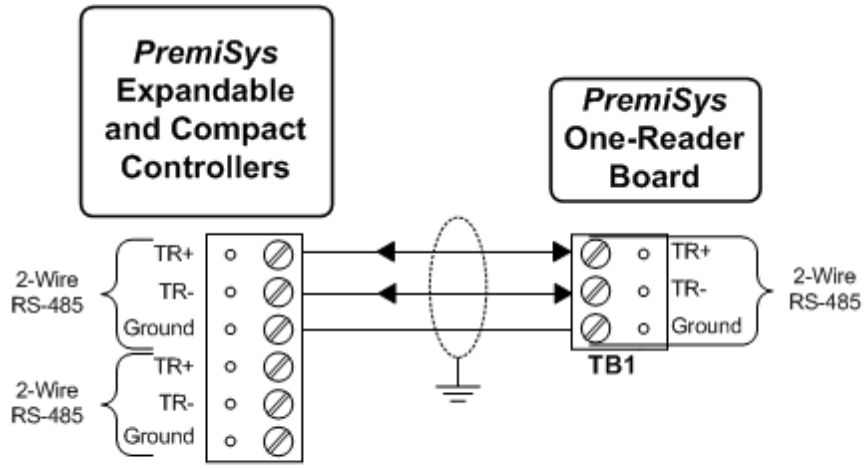
Expandable Controller via Two-Wire or Four-Wire RS-485 to Host

RS-485 communications are limited to 4000 cable-feet (1219 cable-meters) total copper, including drops for all controllers on one channel.



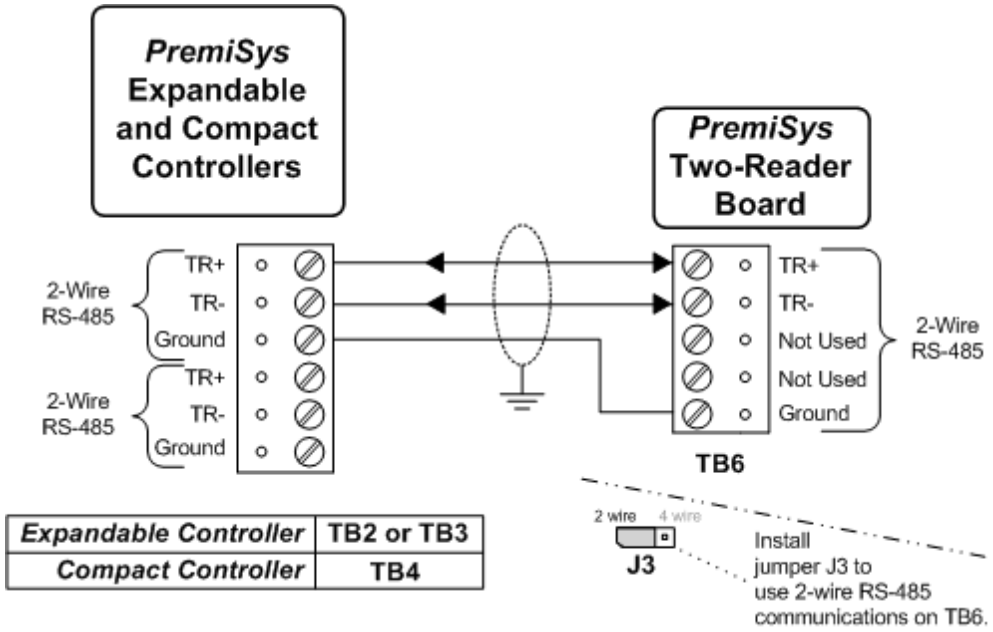


Wiring an Expandable Controller to the One-Reader Board



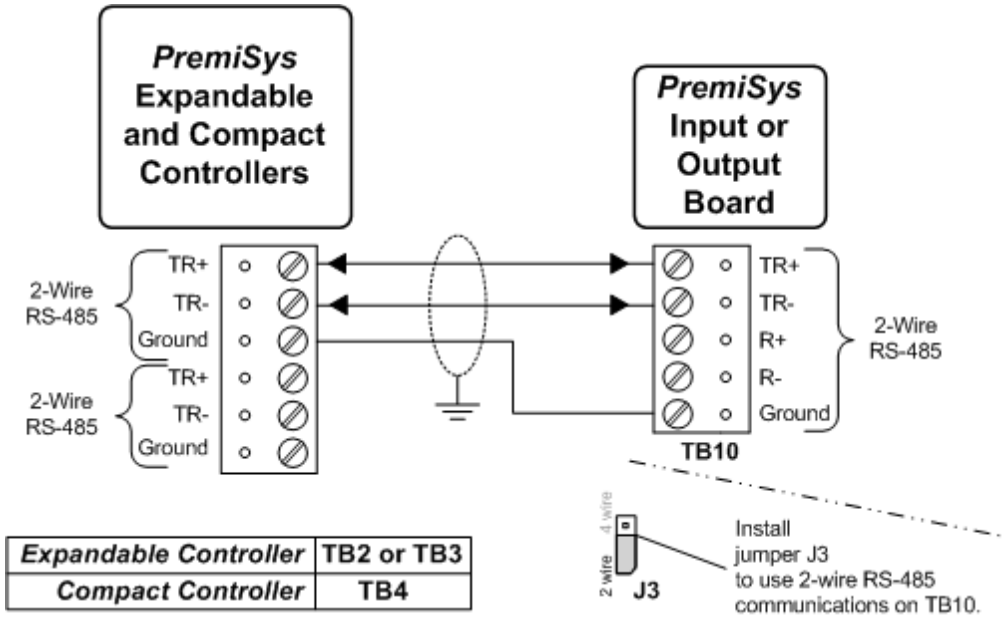
Expandable Controller	TB2 or TB3
Compact Controller	TB4

Wiring an Expandable Controller to the Two-Reader Board



Expandable Controller	TB2 or TB3
Compact Controller	TB4

Wiring an Expandable Controller to the Input Or Output Boards



Expandable Controller	TB2 or TB3
Compact Controller	TB4

IMPORTANT! Install Jumper J3 exactly as illustrated here! Four-wire RS-485 cannot be used!

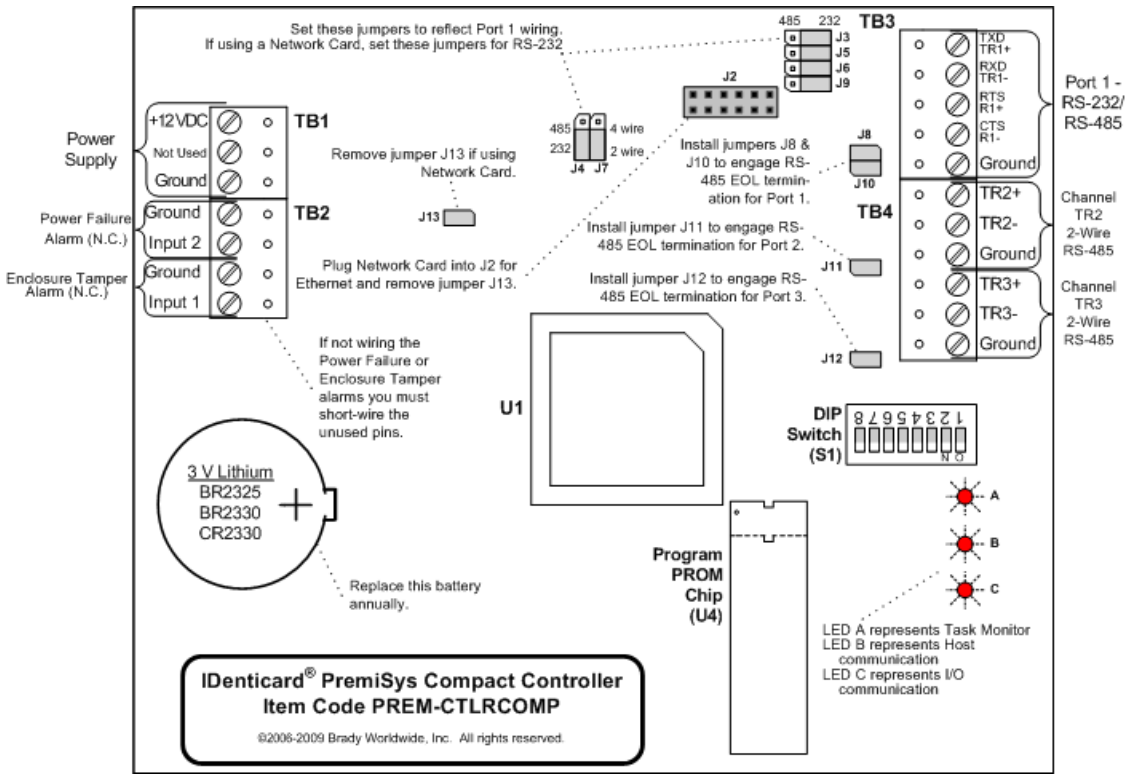
TB 10 - Input or Output Board	
TB10-1	TR+

TB10-2	TR-
TB10-3	Not Used
TB10-4	Not Used
TB10-5	Ground

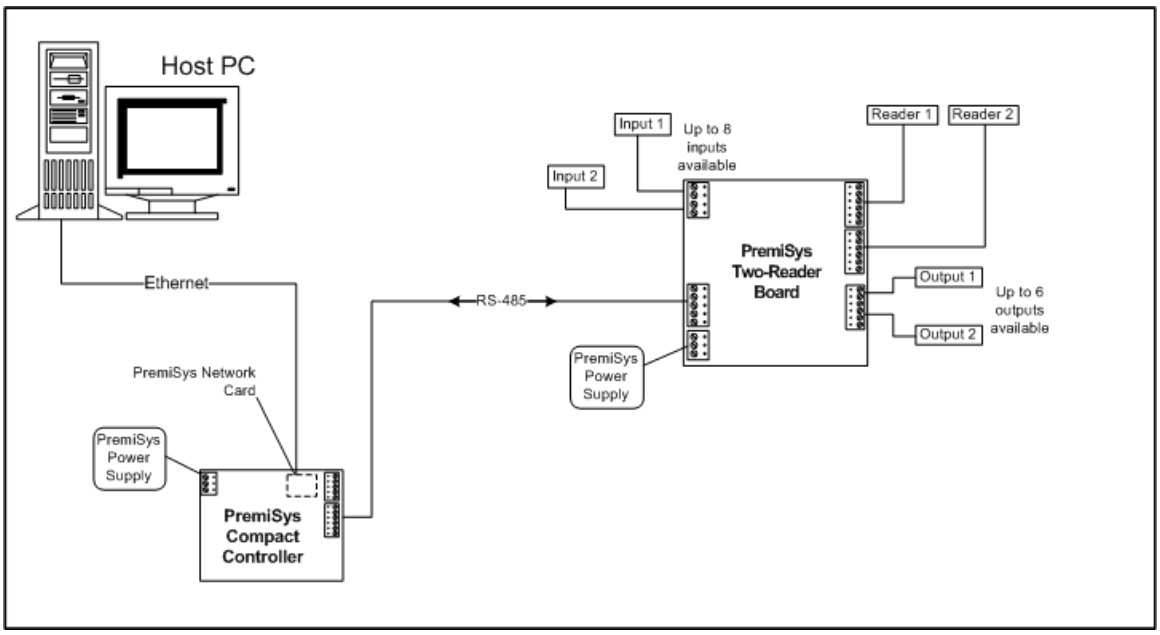
Expandable Controller LEDs

LED	On During Initialization	On During Operation
A	Initialization start	Task indicator
B	RAM test	Host communication indicator
C	RAM cleared	Auxiliary board communication indicator

PremiSys Compact Controller



Sample General Configuration for a PremiSys Compact Controller Connected to other PremiSys Boards, a Reader and Auxiliary Equipment



Compact Controller Specifications

Certifications for the Compact Controller

UL: recognized to UL 294: Access Control System Units - component
CE: EN55022, EN50082-1, IEC801-2, IEC801-3 and IEC801-4

Dimensions and Weight of the Compact Controller

Controller Width	6.0 inches (152 mm)
Controller Height	5.0 inches (127 mm)
Controller Depth	1.0 inch (25 mm)
Controller Weight	8 ounces (230 g) (nominal)

Environmental Specifications for the Compact Controller

Temperature	32°F to 158°F (0°C to 70°C) operating -67°F to 185°F (-55°C to 85°C) storage
Relative Humidity	0 to 95% RH noncondensing

Power Specifications for the Compact Controller

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 VDC ± 10%, 250 mA (400 mA with Network Card)
Memory Backup	Lithium coin cell, 3.0 V, type BR2325, BR2330, CR2330

IMPORTANT! Replace the coin cells (memory backup) used in the controllers annually. Use three-volt, lithium coin cell batteries of the types BR2325, BR2330 or CR2330 as replacements.

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the Compact Controller

Power to Compact Controller	Twisted pair, 18 AWG (0.823 mm^2).
Port 1 – RS-485, RS-232 or Ethernet to Host	Ethernet (requires a PremiSys Network Card) Category 5 cable RS-232 Twisted pair, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 50 feet (15.2 meters) of wire, total copper, including drops RS-485 Twisted pair, 22 AWG (0.325 mm^2), with overall shield, 120 ohm Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
TR2 – RS-485 to I/O boards	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
TR3 – RS-485 to I/O boards	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
Alarm Inputs	Twisted pair, 30 ohms maximum

Communications Specifications for the Compact Controller

Port 1	Ethernet (requires a PremiSys Network Card), 10/100Base-T interface; RS-232, DTE or Two-wire RS-485 2,400-38,400 bps, asynchronous
TR2 and TR3	Two-wire RS-485 2,400-38,400 bps, asynchronous

Access-Control Specifications for the Compact Controller

Memory	512 KB standard
Alarm Inputs	Two unsupervised, dedicated alarm inputs for enclosure tamper and power loss

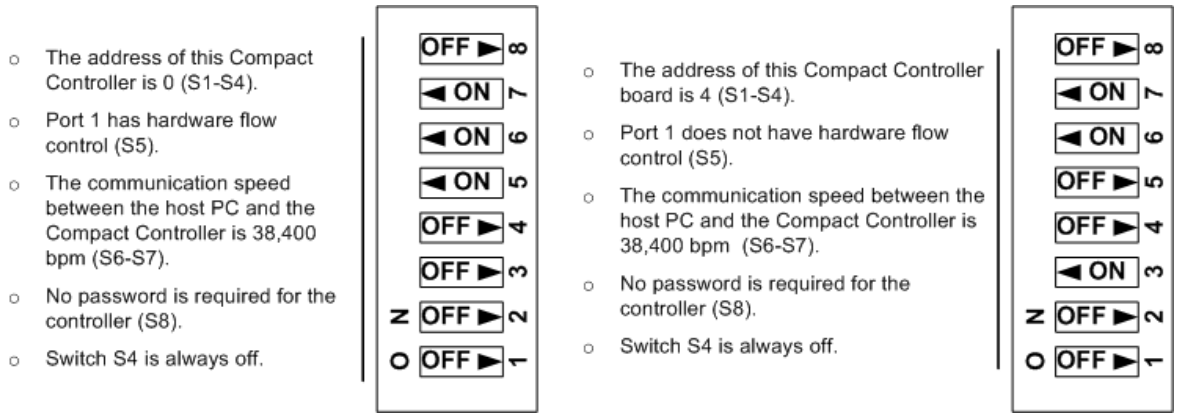
Indicators on the Compact Controller

Visible	3 red, single-color LEDs

Compact Controller DIP Switches – Chart with Sample Settings

	Switches							
Selection	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Address 0	Off	Off	Off	Off				
Address 1	**On**	Off	Off	Off				
Address 2	Off	**On**	Off	Off				
Address 3	**On**	**On**	Off	Off				
Address 4	Off	Off	**On**	Off				
Address 5	**On**	Off	**On**	Off				
Address 6	Off	**On**	**On**	Off				
Address 7	**On**	**On**	**On**	Off				
No hardware handshake					Off			
TX enabled by CTS					**On**			
2400 bps						Off	Off	
9600 bps						**On**	Off	
19,200 bps						Off	**On**	
38,400 bps						**On**	**On**	
No password logon required								Off
Password logon required								**On**

Sample DIP Switch Settings

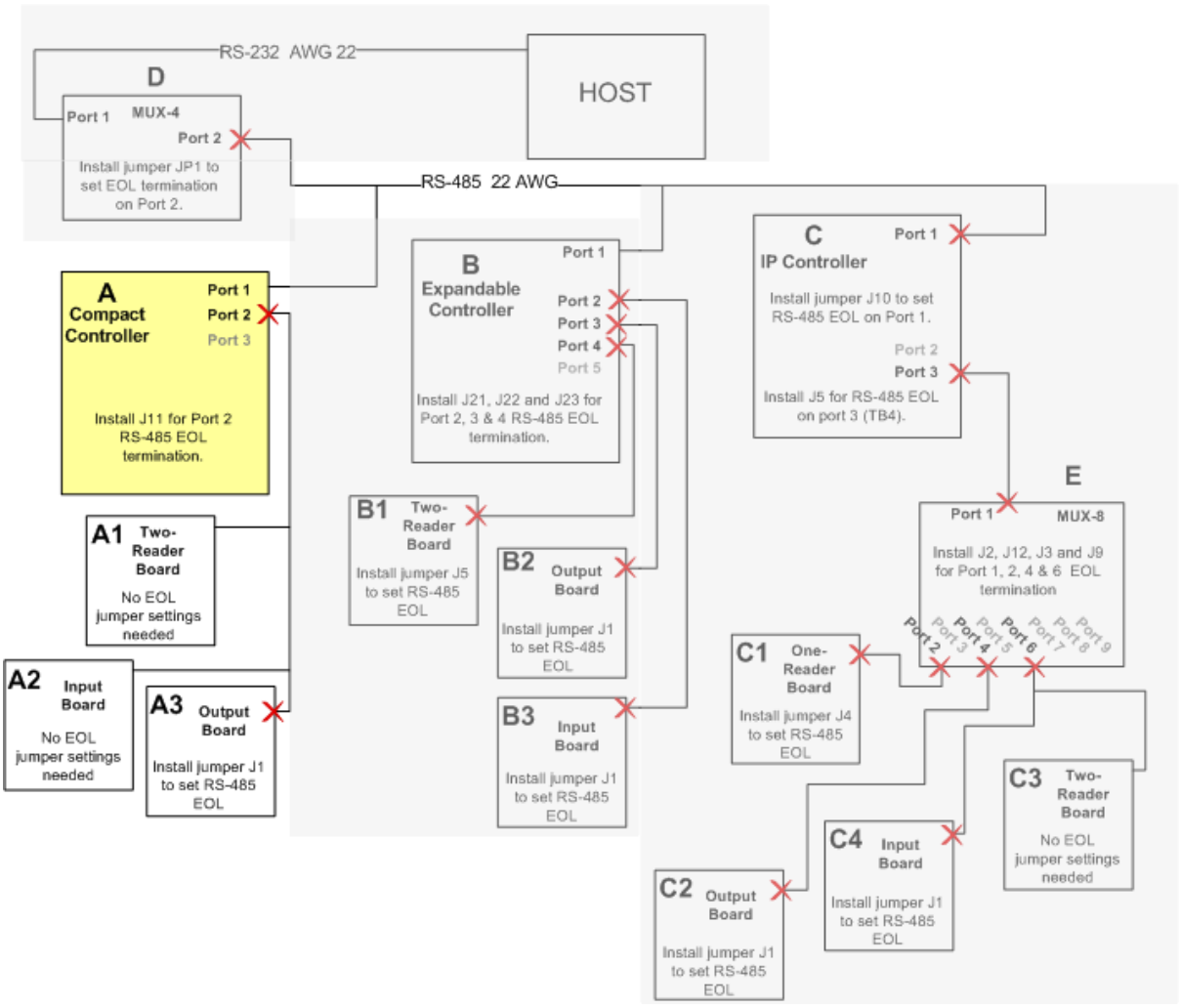


Setting End-of-Line (EOL) Resistance for the Compact Controller

In the diagram below:

Controller A

- Jumpers J11 is set to indicate there is an end-of-line board on the controller's Ports 2. In this example, A1 is the end-of-line board.



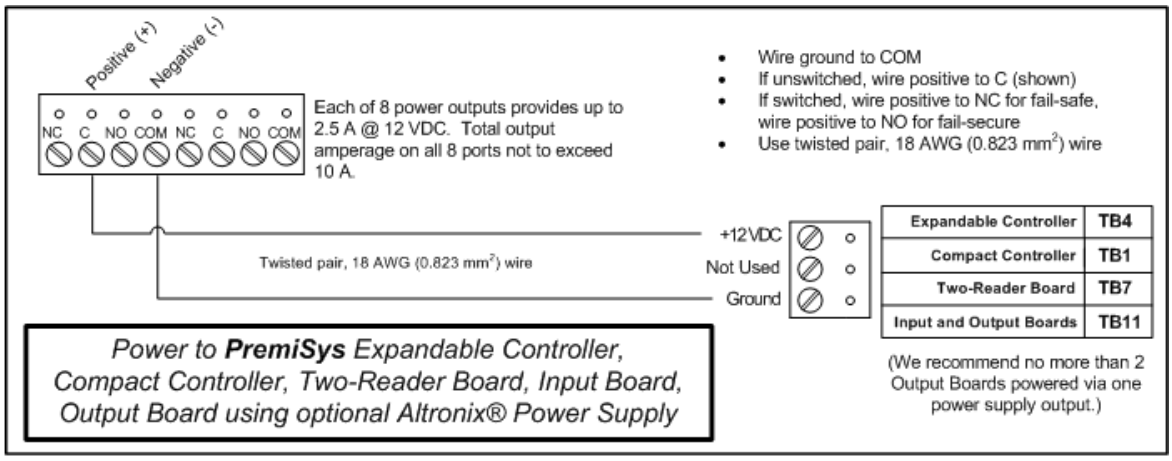
Compact Controller Jumper Settings

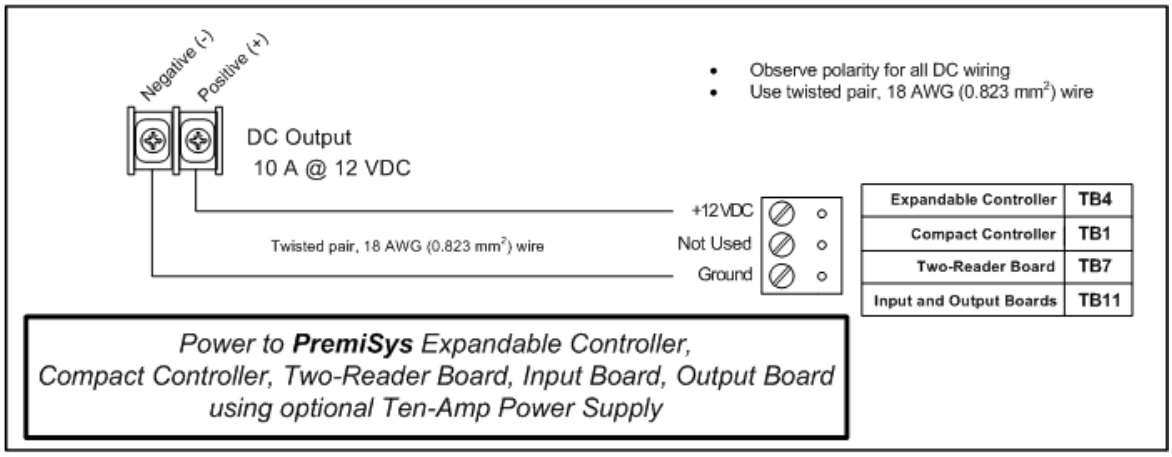
Jumpers	Set At	Selected
J3, J4, J5, J6, J9	232	Port 1 is RS-232 or Ethernet
	485	Port 1 is RS-485
J7	2W	Port 1 is 2-wire for RS-485 interface
	4W	Port 1 is 4-wire for RS-485 interface
J8, J10	OFF	Port 1 RS-485 EOL Terminator is not on
	ON	Port 1 RS-485 EOL Terminator is on
J11	OFF	TR2 RS-485 EOL Terminator is not on

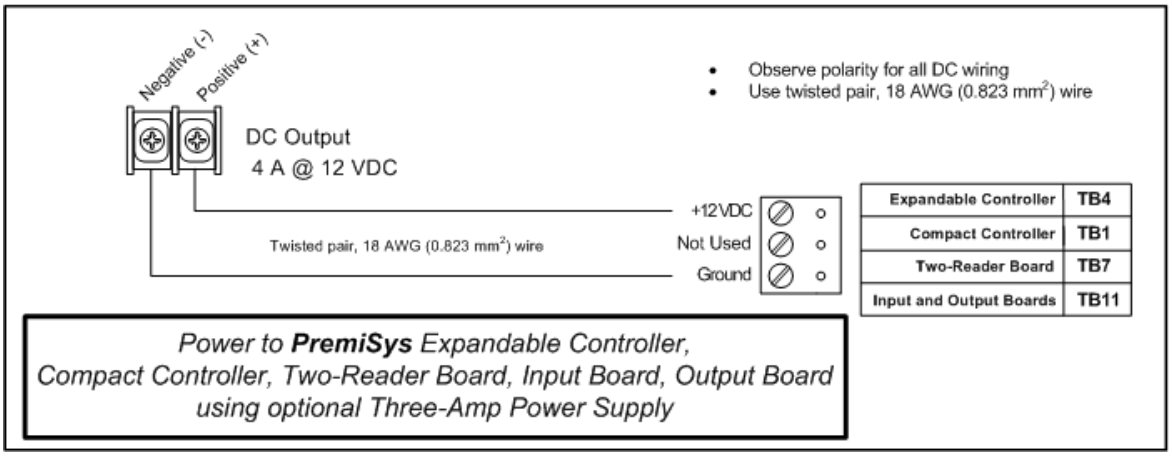
	ON	TR2 RS-485 EOL Terminator is on
J12	OFF	TR3 RS-485 EOL Terminator is not on
	ON	TR3 RS-485 EOL Terminator is on
J13	OFF	Port 1, Ethernet
	ON	Port 1, Serial (RS-232 or RS-485)

Wiring a Compact Controller to a Power Supply

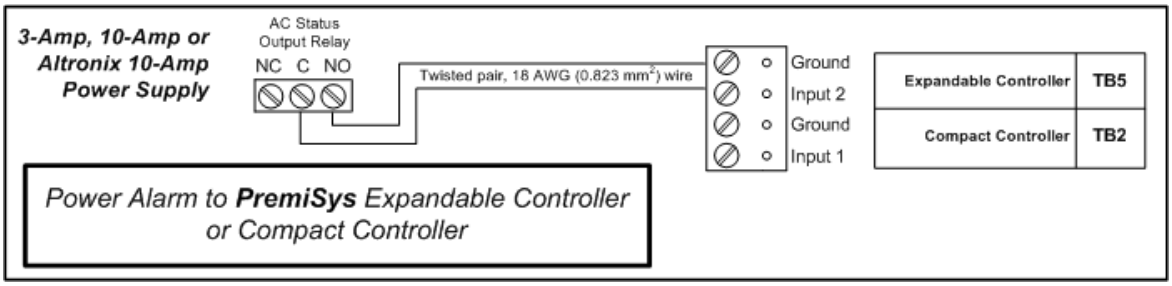
IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.


Positive (+)
Negative (-)
NC C NO COM NC C NO COM
Each of 8 power outputs provides up to 2.5 A @ 12 VDC. Total output amperage on all 8 ports not to exceed 10 A.
Wire ground to COM
If unswitched, wire positive to C (shown)
If switched, wire positive to NC for fail-safe, wire positive to NO for fail-secure
Use twisted pair, 18 AWG (0.823 mm²) wire
Twisted pair, 18 AWG (0.823 mm²) wire
+12VDC
Not Used
Ground
Expandable Controller TB4
Compact Controller TB1
Two-Reader Board TB7
Input and Output Boards TB11
(We recommend no more than 2 Output Boards powered via one power supply output.)
Power to PremiSys Expandable Controller, Compact Controller, Two-Reader Board, Input Board, Output Board using optional Altronix® Power Supply


Negative (-)
Positive (+)
DC Output
10 A @ 12 VDC
Observe polarity for all DC wiring
Use twisted pair, 18 AWG (0.823 mm²) wire
Twisted pair, 18 AWG (0.823 mm²) wire
+12VDC
Not Used
Ground
Expandable Controller TB4
Compact Controller TB1
Two-Reader Board TB7
Input and Output Boards TB11
Power to PremiSys Expandable Controller, Compact Controller, Two-Reader Board, Input Board, Output Board using optional Ten-Amp Power Supply


Negative (-)
Positive (+)
DC Output
4 A @ 12 VDC
Observe polarity for all DC wiring
Use twisted pair, 18 AWG (0.823 mm²) wire
Twisted pair, 18 AWG (0.823 mm²) wire
+12VDC
Not Used
Ground
Expandable Controller TB4
Compact Controller TB1
Two-Reader Board TB7
Input and Output Boards TB11
Power to PremiSys Expandable Controller, Compact Controller, Two-Reader Board, Input Board, Output Board using optional Three-Amp Power Supply

Wiring a Compact Controller to Monitor for UPS Power Loss



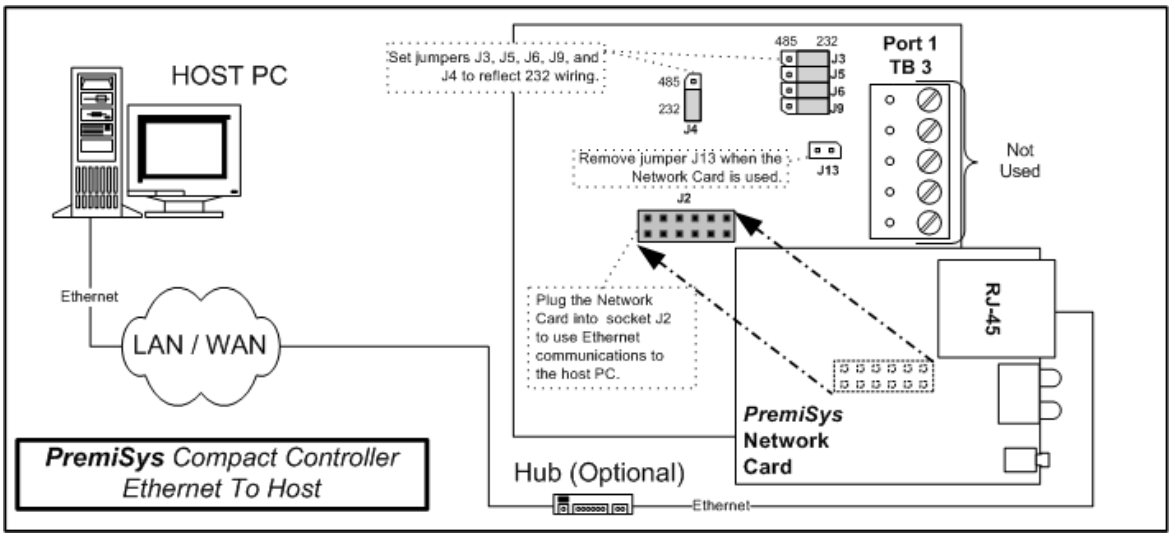
TB 2		
Power Failure	TB2-1	Ground
	TB2-2	Input 2

Wiring a Compact Controller for Enclosure Tamper

TB 2		
Enclosure Tamper	TB2-3	Ground
	TB2-4	Input 1

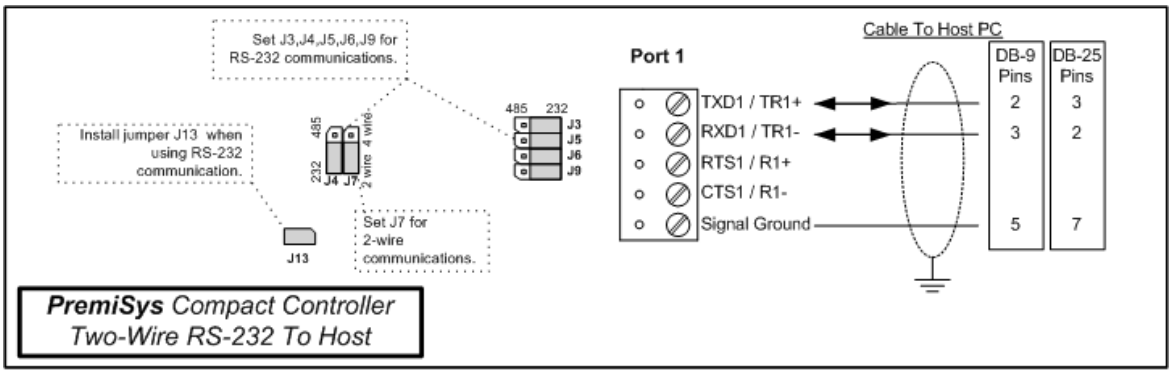
Wiring a Compact Controller to the Host

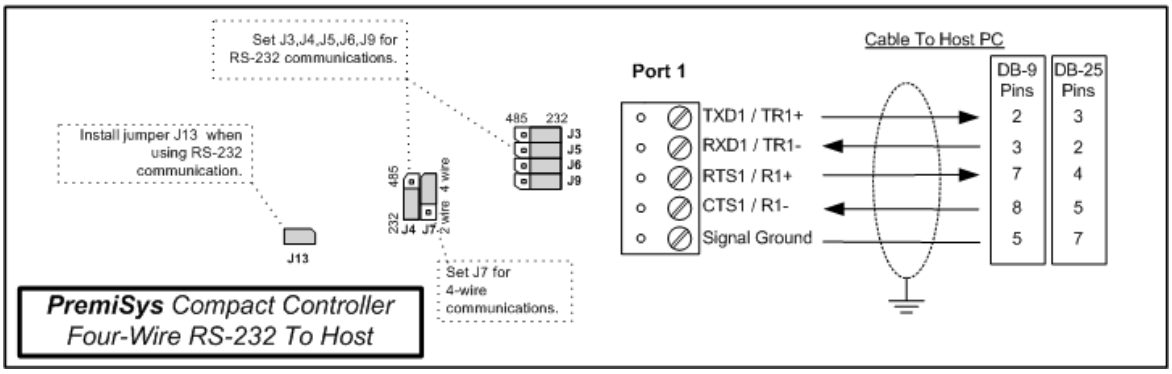
Compact Controller via Ethernet to Host



Compact Controller via Four-Wire RS-232 to Host

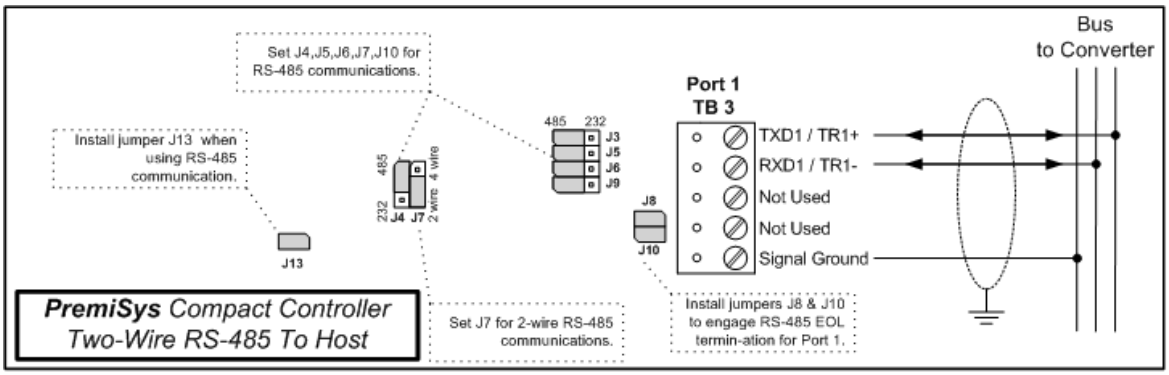
RS-232 communications are limited to 50 total cable-feet (15 total cable-meters.)

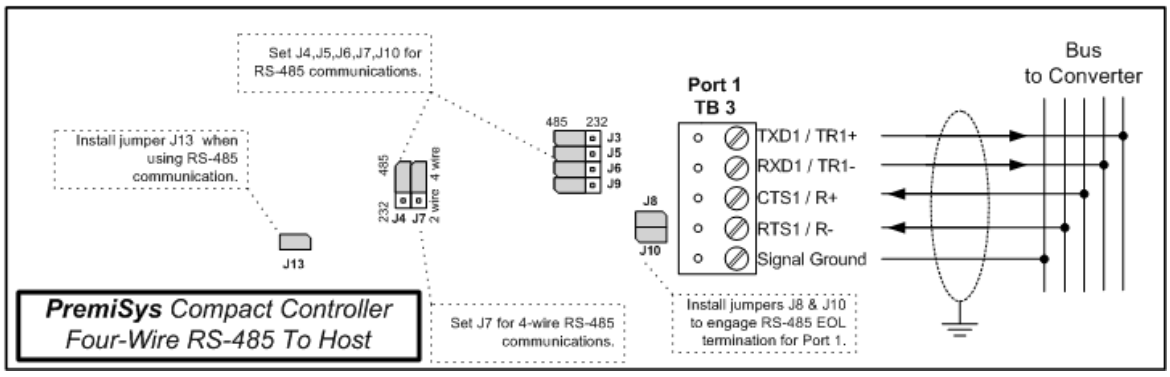

Set J3,J4,J5,J6,J9 for RS-232 communications.
Install jumper J13 when using RS-232 communication.
485
232
J4
J7
2 wire
4 wire
J3
J5
J6
J9
J13
Set J7 for 2-wire communications.
Port 1
TXD1 / TR1+
RXD1 / TR1-
RTS1 / R1+
CTS1 / R1-
Signal Ground
Cable To Host PC
DB-9 Pins
DB-25 Pins
2
3
3
2
5
7
PremiSys Compact Controller
Two-Wire RS-232 To Host


Set J3,J4,J5,J6,J9 for RS-232 communications.
Install jumper J13 when using RS-232 communication.
485
232
J4
J7
2 wire
4 wire
J3
J5
J6
J9
J13
Set J7 for 4-wire communications.
Port 1
TXD1 / TR1+
RXD1 / TR1-
RTS1 / R1+
CTS1 / R1-
Signal Ground
Cable To Host PC
DB-9 Pins
DB-25 Pins
2
3
3
2
7
4
8
5
5
7
PremiSys Compact Controller
Four-Wire RS-232 To Host

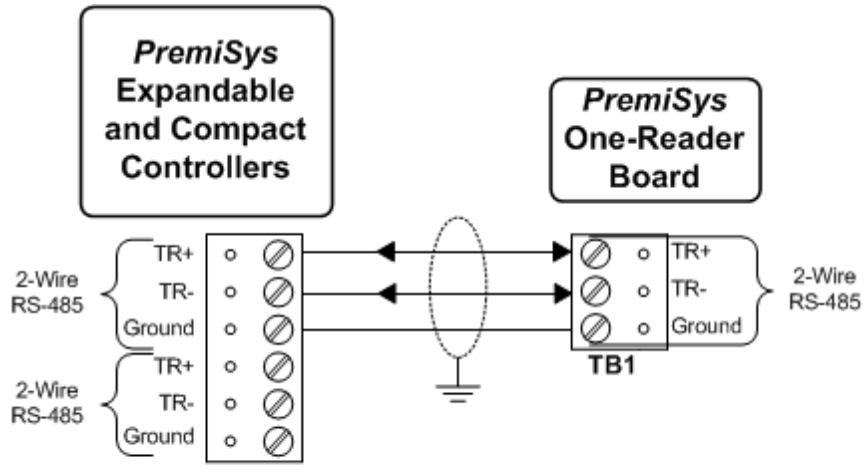
Compact Controller via Two-Wire or Four-Wire RS-485

RS-485 communications are limited to 4000 cable-feet (1219 cable-meters) total copper, including drops for all controllers on one channel.



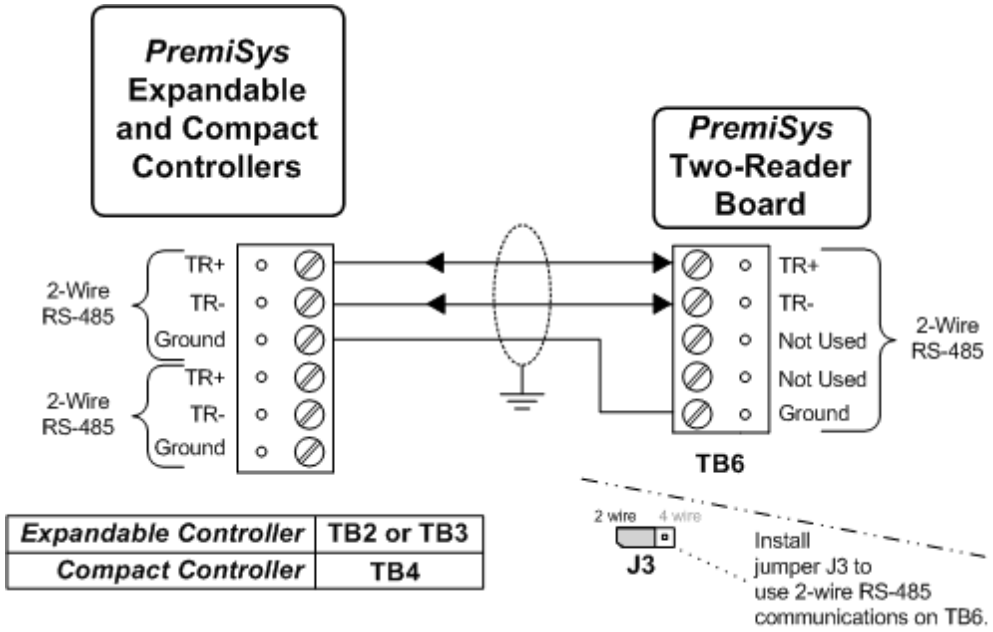


Wiring a Compact Controller to the One-Reader Board

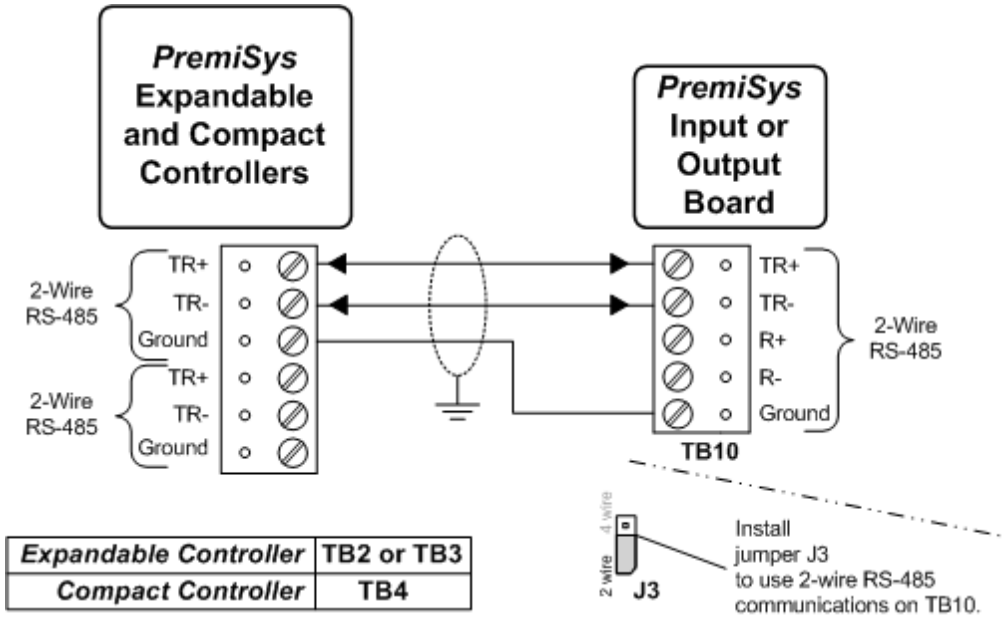


Expandable Controller	TB2 or TB3
Compact Controller	TB4

Wiring a Compact Controller to the Two-Reader Board



Wiring a Compact Controller to the Input Or Output Boards



IMPORTANT! Install Jumper J3 exactly as illustrated here! Four-wire RS-485 cannot be used!

TB 10 - Input or Output Board	
TB10-1	TR+

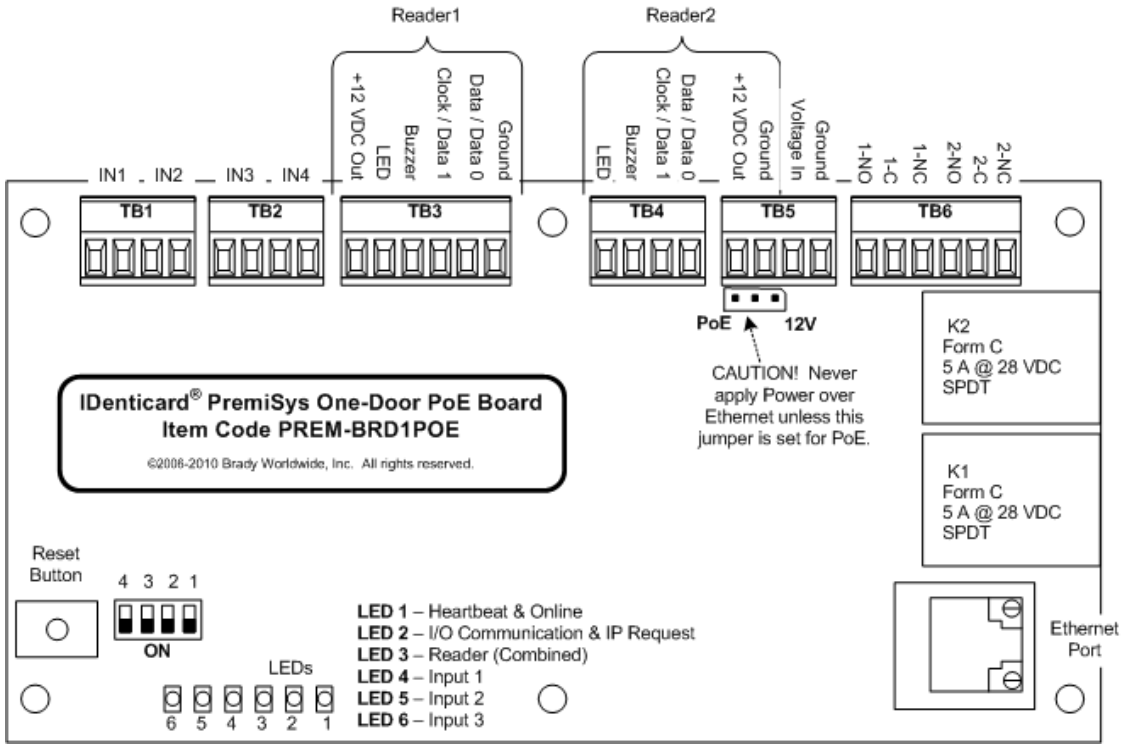
TB10-2	TR-
TB10-3	Not Used
TB10-4	Not Used
TB10-5	Ground

Compact Controller LEDs

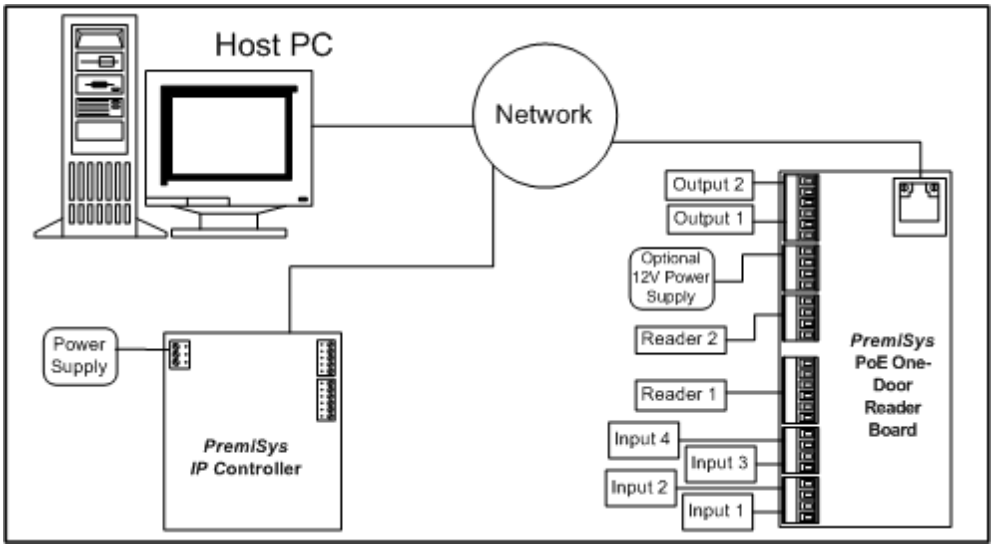
LED	On During Initialization	On During Operation
A	Initialization start	Task indicator
B	RAM test	Host communication indicator
C	RAM cleared	Auxiliary board communication indicator

PremiSys I/O Boards

PremiSys PoE One-Door Reader Board



Sample General Configuration for a PremiSys PoE One-Door Reader Board Connected to a PremiSys Controller, a Reader and Auxiliary Equipment



PoE One-Door Reader Board Specifications

Certifications for the PoE One-Door Reader Board

UL: recognized to UL 294: Access Control System Units - component

Dimensions and Weight of the PoE One-Door Reader Board

	Without Bracket	With Bracket
Board Width	5.5 inches (140 mm)	5.5 inches (140 mm)
Board Height	2.75 inches (70 mm)	3.63 inches (92 mm)
Board Depth	.75 inch (19 mm)	1.25 inch (32 mm)
Board Weight	4.2 ounces (119 g) (nominal)	5.3 ounces (150.25 g) (nominal)

Environmental Specifications for the PoE One-Door Reader Board

Temperature	-40°F to 167°F (-40°C to 75°C) operating 67°F to 185°F (-55°C to 85°C) storage
Relative Humidity	10% to 95% RH noncondensing

Power Specifications for the PoE One-Door Reader Board

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 – 24 VDC ± 10%, 500 mA maximum (reader current not included) 12 VDC @ 250mA (plus reader current) nominal 24 VDC @ 150mA (plus reader current) nominal
Memory Backup	Lithium coin cell, 3.0 V, type BR2325, BR2330, CR2330

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the PoE One-Door Reader Board

Power to PoE One-Door Reader Board	Category 5 cable to Ethernet port OR Twisted pair, 18 AWG (0.823 mm^2)
Primary Port – Ethernet to Host	Category 5 cable
Connection to Relay-Controlled Devices	Use wire and gauge as required by load
Connection to Input Point Devices	One twisted pair per input, 30 ohms maximum
Connection to Readers	TTL - Six-conductor, 18 AWG. Maximum cable length: 500 feet (150 m), total copper, including drops

Communications Specifications for the PoE One-Door Reader Board

To Controller	Ethernet, 10/100Base-T interface

Access-Control Specifications for the PoE One-Door Reader Board

Relay Pulse Time	1 to 255 seconds
Door-Position Held-Open Time	1 to 32,767 two-second units of time

Indicators on the PoE One-Door Reader Board

Visible	7 red, single-color LEDs, 1 green and 1 yellow Ethernet port LEDs

PoE One-Door Reader Board Jumper Settings

Jumper J5 on the PoE One-Door Reader Board is used to indicate the power source for the board.

Jumper	Setting	Selection
J5	1-2 On [PoE]	PoE Power Input 12.95W, compliant to IEEE 802.3af. Reader voltage is regulated to 12V.

	2-3 On [12V]	Optional Power Input from 12 VDC power supply. Reader voltage is passed through.

IMPORTANT! You cannot address the PoE One-Door Reader Board using jumpers; you must assign a range of IP addresses to the Ethernet controller. The controller then assigns one of those IP addresses to the PoE One-Door Reader Board. Enter the MAC address of the PoE One-Door Reader Board when you add the board to your Ethernet controller through your PremiSys™ software. The controller links the MAC address to an IP address from the range of reserved IP address.

Wiring a PoE One-Door Reader Board to a Power Supply

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

The PremiSys™ PoE One-Door Reader Board can be powered via the Ethernet or via either of the PremiSys 12-VDC power supplies.

Power to the readers via the PoE connection to the board is regulated at 12 VDC.

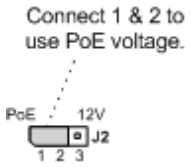
Power to the readers via a 12-VDC power supply connected to the board is passthrough voltage.

Exercise caution to be sure that the voltage supplied to the PoE One-Door Reader Board is not too great for the reader to handle. If you are connecting the PoE One-Door Reader Board to a reader that requires a voltage lower than 12 volts, you must use a resistor to lower the voltage going out of the reader port.

If you are connecting the PoE One-Door Reader Board to a reader that requires a voltage higher than 12 volts, use a separate power source wired directly to the reader to power it.

IMPORTANT! If your readers require less than 12 VDC you must use a resistor to reduce the power output to match the power requirements of your readers or use a separate power supply for the readers.

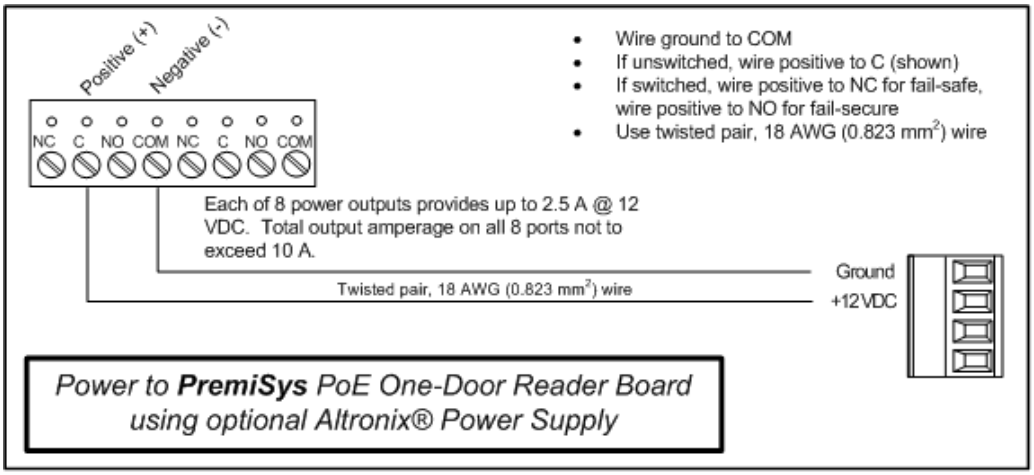
The voltage selection for power to the **board** is made using jumper J5 on the PoE One-Door Reader Board, as shown below (PoE selected):

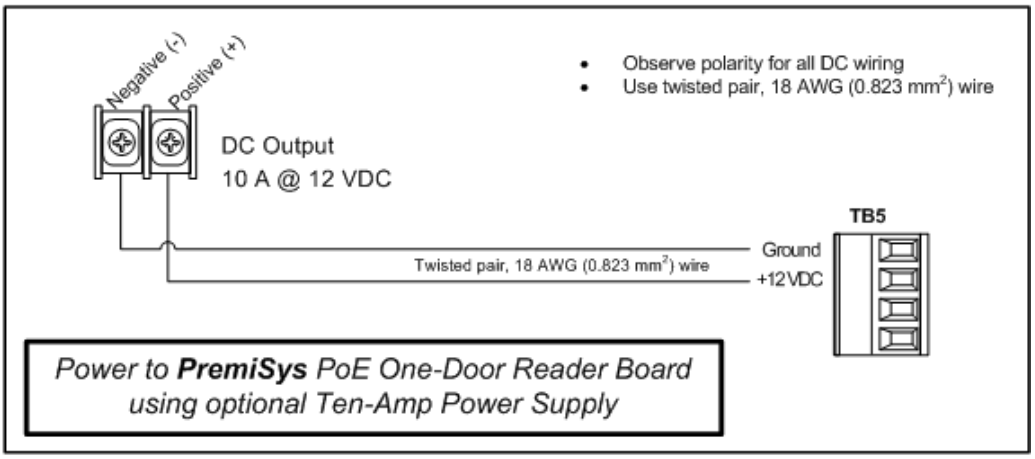


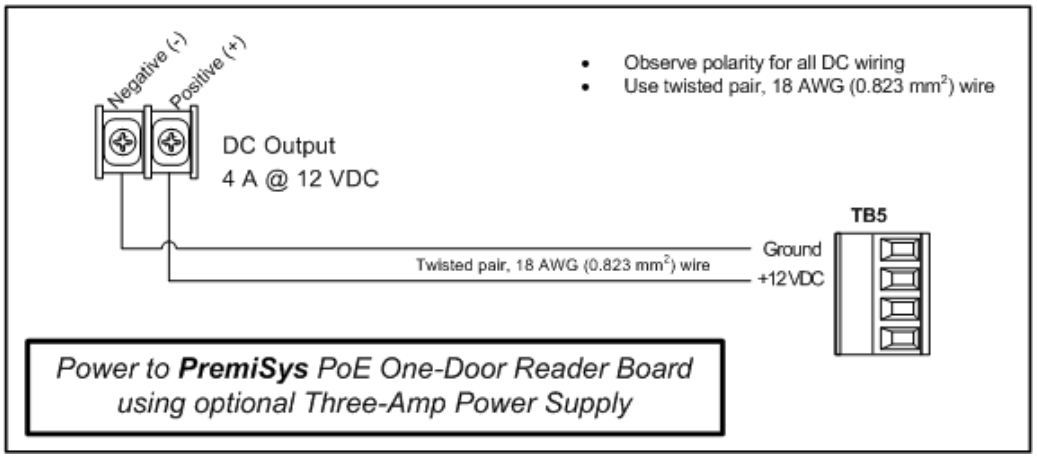
Connect the PoE One-Door Reader Board to your network using a category 5 cable to a PoE switch or a PoE injector on a regular switch. The power supplied to the board will be 48 VDC in either case.

Refer to the documentation enclosed with individual readers to determine if the readers must have their own separate power source and not be powered from the PoE One-Door Reader Board.

You may optionally power the PoE One-Door Reader Board using a separate 12 VDC power supply. If you choose this method wire the board as shown in the image below corresponding to the power supply you use.







The PoE One-Door Reader Board has 6 LEDs:

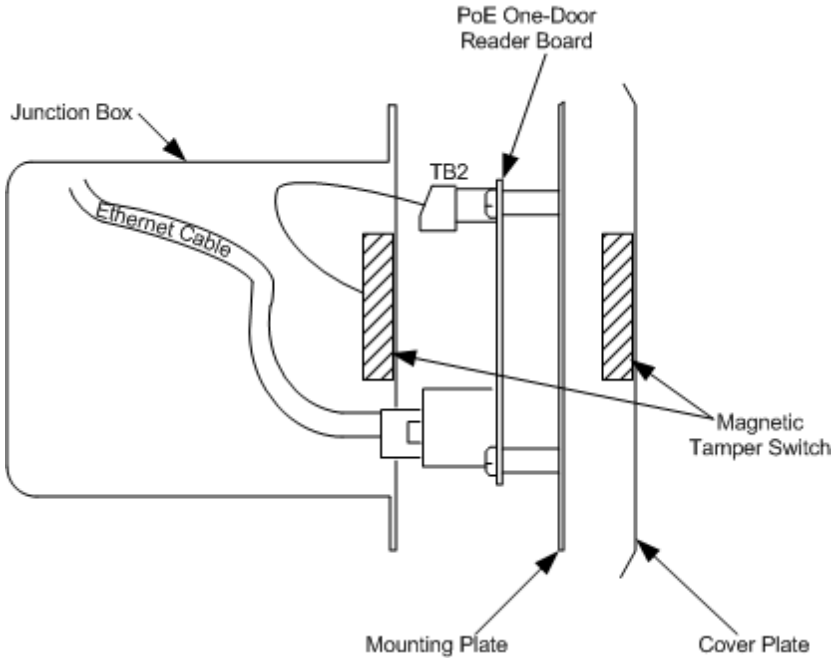
- **LED 1** indicates the heartbeat
- **LED 2** indicates communication activity and IP address request
- **LED 3** indicates activity on either of the two readers
- **LEDs 4, 5 and 6** indicate activity of the inputs 1, 2 and 3, respectively

Note: The PremiSys One-Door Reader Board does not have a dedicated power alarm input.

Wiring a PoE One-Door Reader Board Tamper Switch

You can wire a magnetic tamper switch to the PremiSys™ PoE One-Door Reader Board, as shown below, to activate an input point if the cover is removed. We recommend that you use input point 4 for this purpose.

Note that if you choose to use this board to control two separate doors (not recommended) you will not have an available input for use with the tamper switch.

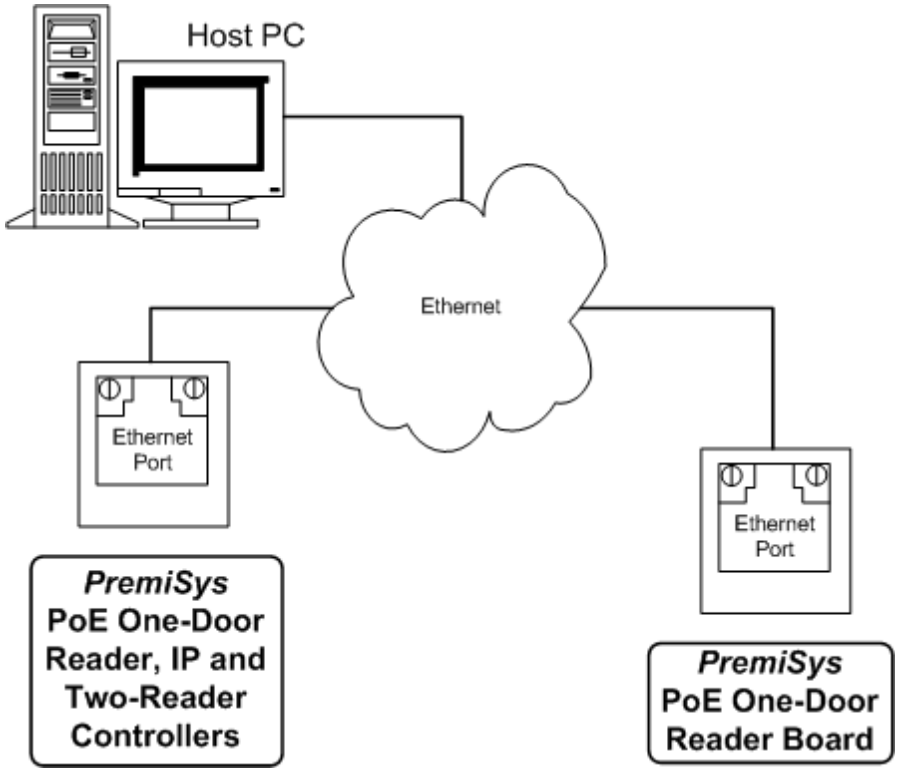


Wiring a PoE One-Door Reader Board to a Controller

Communication to the PremiSys™ PoE One-Door Reader Board is handled via the Ethernet, while power to the board can be handled via the Ethernet or via a separate power supply.

Note: Listed below are the maximum numbers of PoE One-Door Reader Boards you can connect to each of the named controllers. In parentheses are the maximum numbers of allowable doors (readers) on each controller:
IP Controller - 32 (64)
Two-Reader Controller - 32 (64)

PoE One-Door Reader Controller - 16 (17)

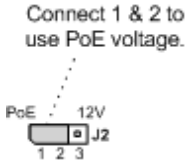


IMPORTANT! You cannot address the PoE One-Door Reader Board using jumpers; you must assign a range of IP addresses to the Ethernet controller. The controller then assigns one of those IP addresses to the PoE One-Door Reader Board. Enter the MAC address of the PoE One-Door Reader Board when you add the board to your Ethernet controller through your PremiSys™ software. The controller links the MAC address to an IP address from the range of reserved IP address.

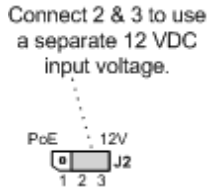
Wiring a PoE One-Door Reader Board to Wiegand and ABA Readers

The PremiSys™ PoE One-Door Reader Board can be powered through the Ethernet connection or by the 12 VDC supplied by any PremiSys power supply. The voltage selection is made using jumper J2 on the PoE One-Door Reader Board.

Since PoE voltage on the board is regulated to 12 V, selecting the jumper settings as shown below results in output of a nominal 12 V to the reader ports.



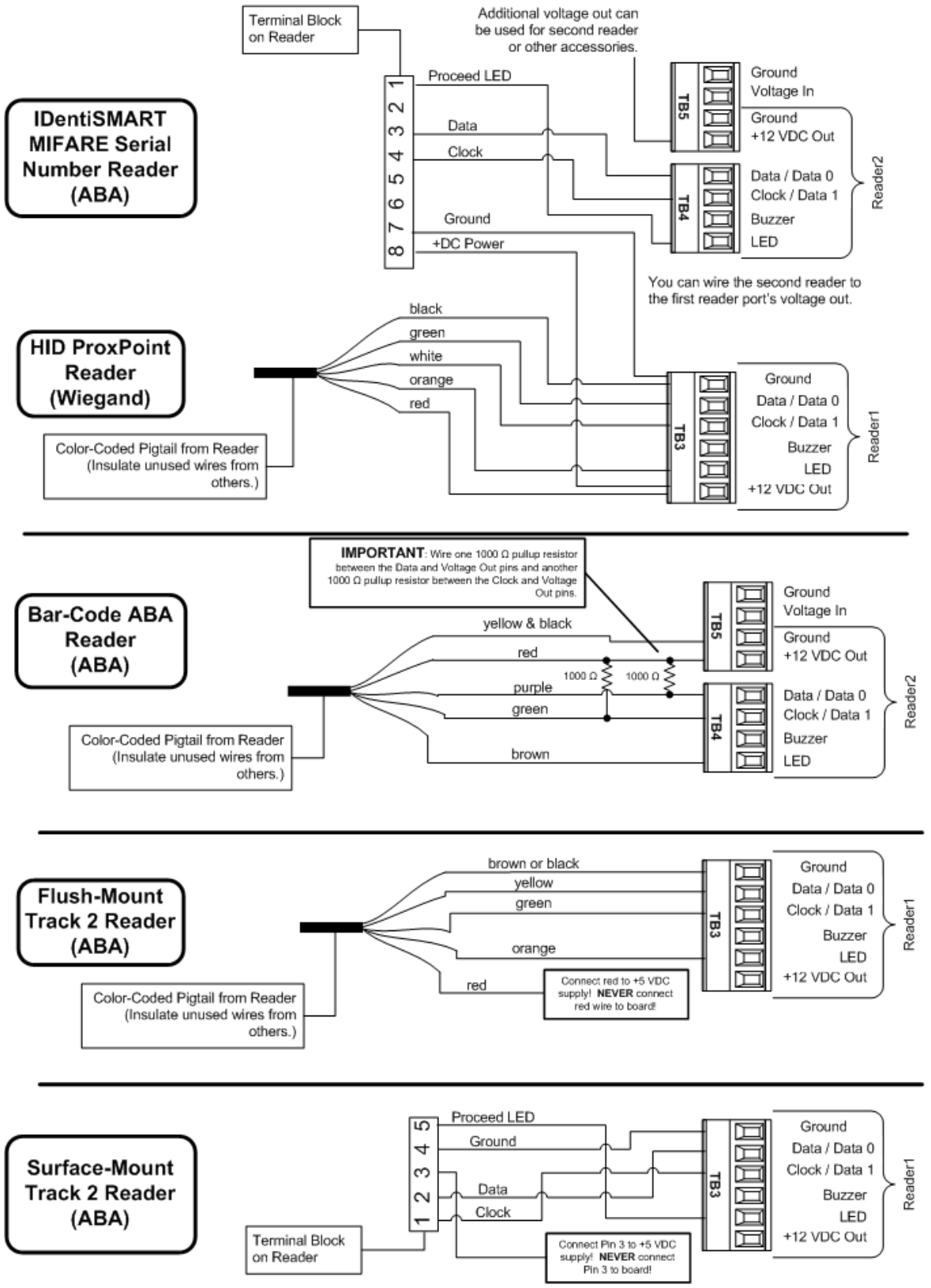
To power the readers from the board using a 12 VDC power supply to the board, select the jumper settings as shown below for passthrough voltage to the reader ports



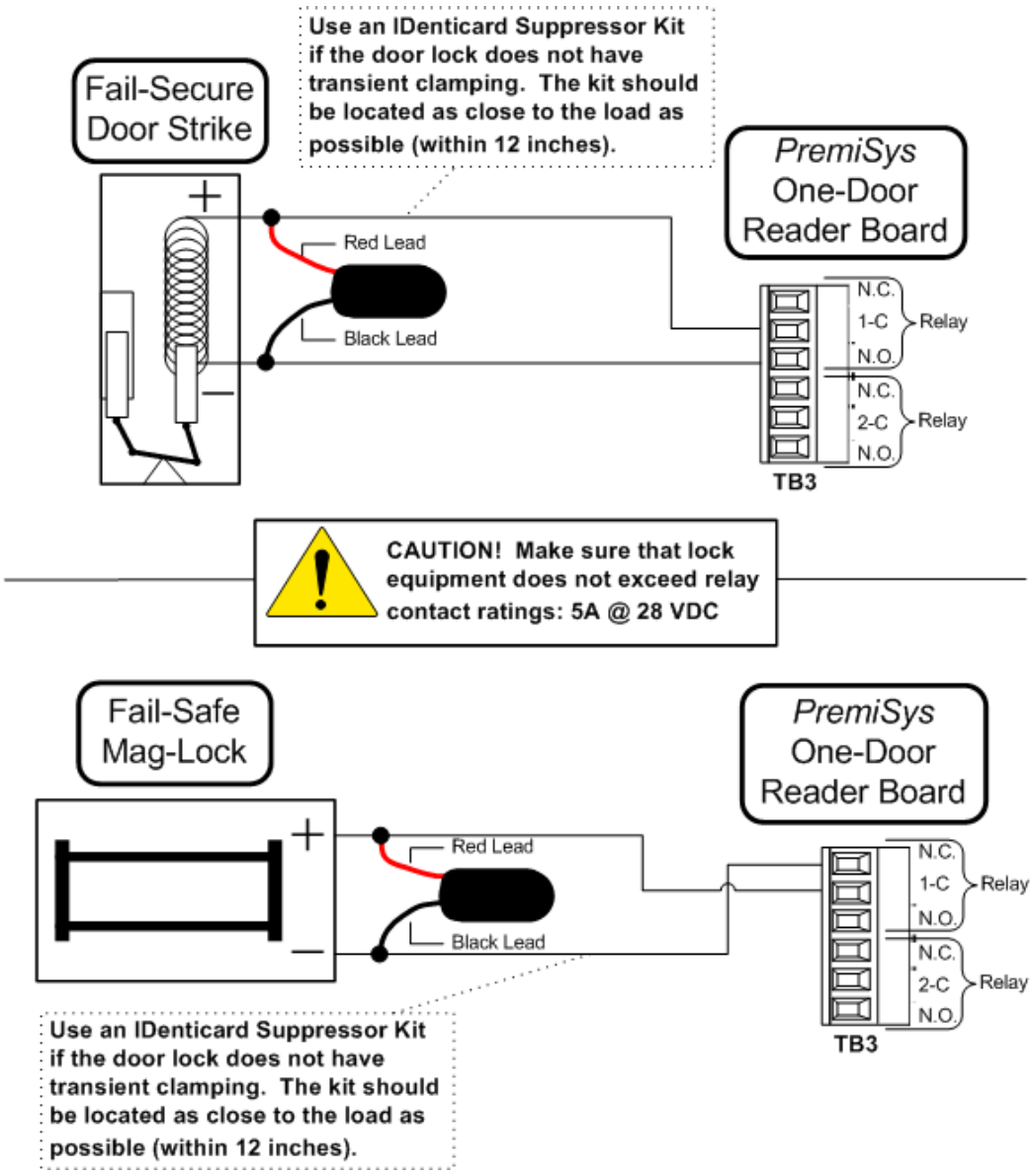
Exercise caution to be sure that the voltage supplied to the PoE One-Door Reader Board is not too great for the reader to handle.

Refer to the documentation enclosed with individual readers if the readers:

- Uses a “pigtail” cable as shown below. Always double-check the color-coding scheme of any reader using a pigtail. The scheme depicted in this illustration is a very common standard, but may not necessarily be universal.
- Must have their own separate power source and not be powered from the PoE One-Door Reader Board.


IDentiSMART MIFARE Serial Number Reader (ABA)
Terminal Block on Reader
Additional voltage out can be used for second reader or other accessories.
Proceed LED
Data
Clock
Ground
+DC Power
TB5
Ground
Voltage In
Ground
+12 VDC Out
TB4
Data / Data 0
Clock / Data 1
Buzzer
LED
Reader2
You can wire the second reader to the first reader port's voltage out.
HID ProxPoint Reader (Wiegand)
black
green
white
orange
red
Color-Coded Pigtail from Reader (Insulate unused wires from others.)
TB3
Ground
Data / Data 0
Clock / Data 1
Buzzer
LED
+12 VDC Out
Reader1
Bar-Code ABA Reader (ABA)
IMPORTANT: Wire one 1000 Ω pullup resistor between the Data and Voltage Out pins and another 1000 Ω pullup resistor between the Clock and Voltage Out pins.
yellow & black
red
purple
green
brown
1000 Ω
1000 Ω
Color-Coded Pigtail from Reader (Insulate unused wires from others.)
Flush-Mount Track 2 Reader (ABA)
brown or black
yellow
green
orange
red
Connect red to +5 VDC supply! NEVER connect red wire to board!
Color-Coded Pigtail from Reader (Insulate unused wires from others.)
Surface-Mount Track 2 Reader (ABA)
Proceed LED
Ground
Data
Clock
Connect Pin 3 to +5 VDC supply! NEVER connect Pin 3 to board!
Terminal Block on Reader

Wiring a PoE One-Door Reader Board to a Door Strike and Magnetic Lock



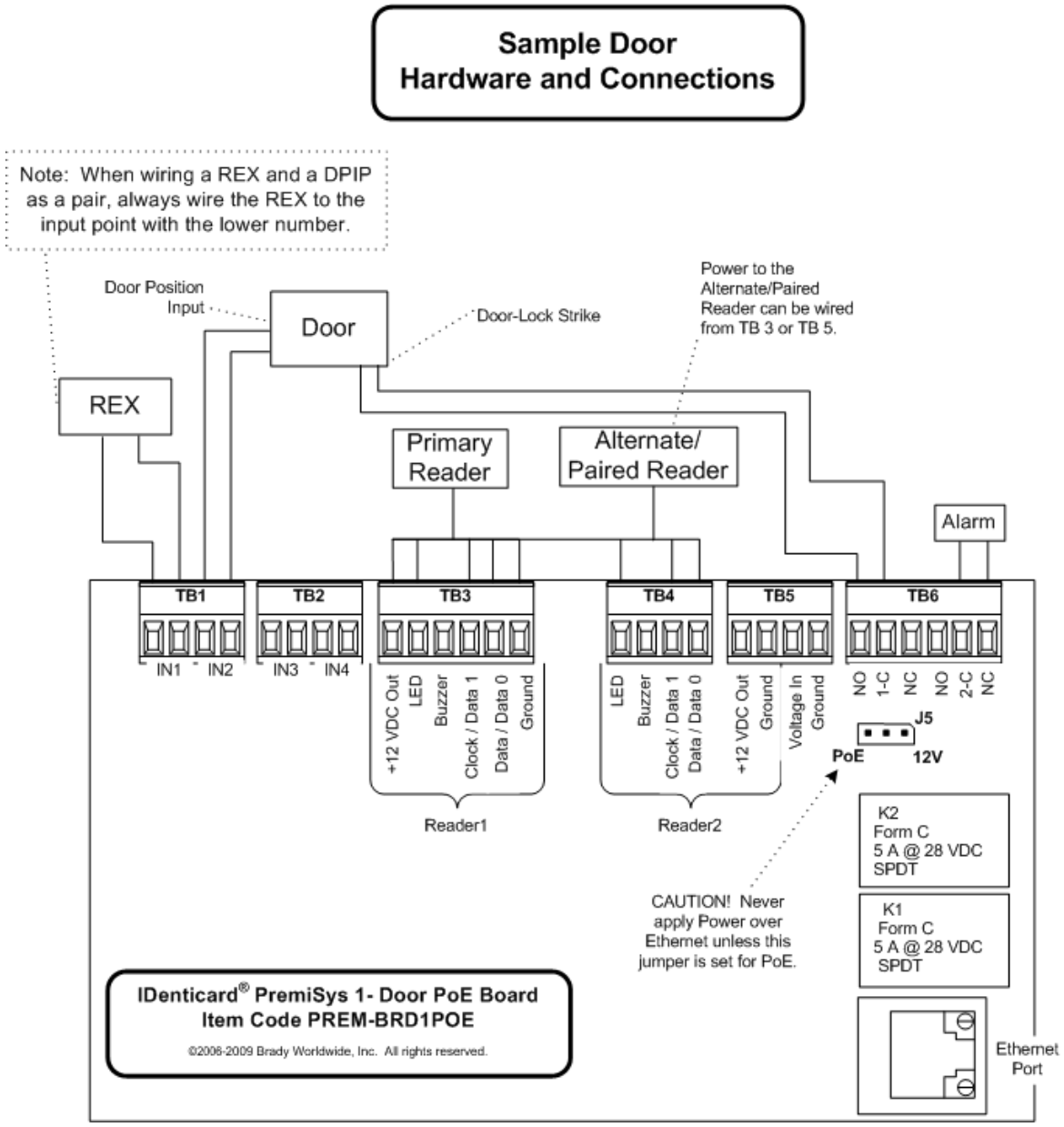
Wiring a PremiSys PoE One-Door Reader Board to Door Strike and Magnetic Lock (continued)

TB 3 (Output = Relay)	
TB3-1	Relay 1: Normally open
TB3-2	Relay 1: Common
TB3-3	Relay 1: Normally closed
TB3-4	Relay 2: Normally open
TB3-5	Relay 2: Common
TB3-6	Relay 2: Normally closed

Connecting Inputs and Relays on the PoE One-Door Reader Board

Relays may be wired normally open or normally closed, depending on the needs of the devices they are controlling.

You must specify the output configuration (normal action, inverted action) when you set up each relay in the software. See the PremiSys™ Online Help for details.


Sample Door
Hardware and Connections
Note: When wiring a REX and a DPIP as a pair, always wire the REX to the input point with the lower number.
Door Position Input
Door
Door-Lock Strike
Power to the Alternate/Paired Reader can be wired from TB 3 or TB 5.
REX
Primary Reader
Alternate/ Paired Reader
Alarm
TB1
TB2
TB3
TB4
TB5
TB6
IN1
IN2
IN3
IN4
+12 VDC Out
LED
Buzzer
Clock / Data 1
Data / Data 0
Ground
Reader1
Reader2
Voltage In
NO
1-C
NC
2-C
J5
PoE
12V
K2
Form C
5 A @ 28 VDC
SPDT
K1
Form C
5 A @ 28 VDC
SPDT
CAUTION! Never apply Power over Ethernet unless this jumper is set for PoE.
IDenticard® PremiSys 1- Door PoE Board
Item Code PREM-BRD1POE
©2006-2009 Brady Worldwide, Inc. All rights reserved.
Ethernet Port

IMPORTANT! Inputs on a single board are normally processed in ascending numeric sequence when they change state simultaneously or nearly simultaneously. Consequently, if wiring a REX input point and a door-position input point in a pair, make sure that the door-position input point has a higher input number than the REX point paired with it.

In the example illustrated above, the REX is wired to Input 1 and the door-position input point to Input 2. In this way, if the state changes on these points appear nearly simultaneously, the system will process the REX before the door-open state, and therefore prevent a false door-forced alarm, which would result if the points were processed in the reverse order.

If you cannot wire the points in the proper order, a means exists in the PremiSys software to override this processing. See the PremiSys Online Help for details.

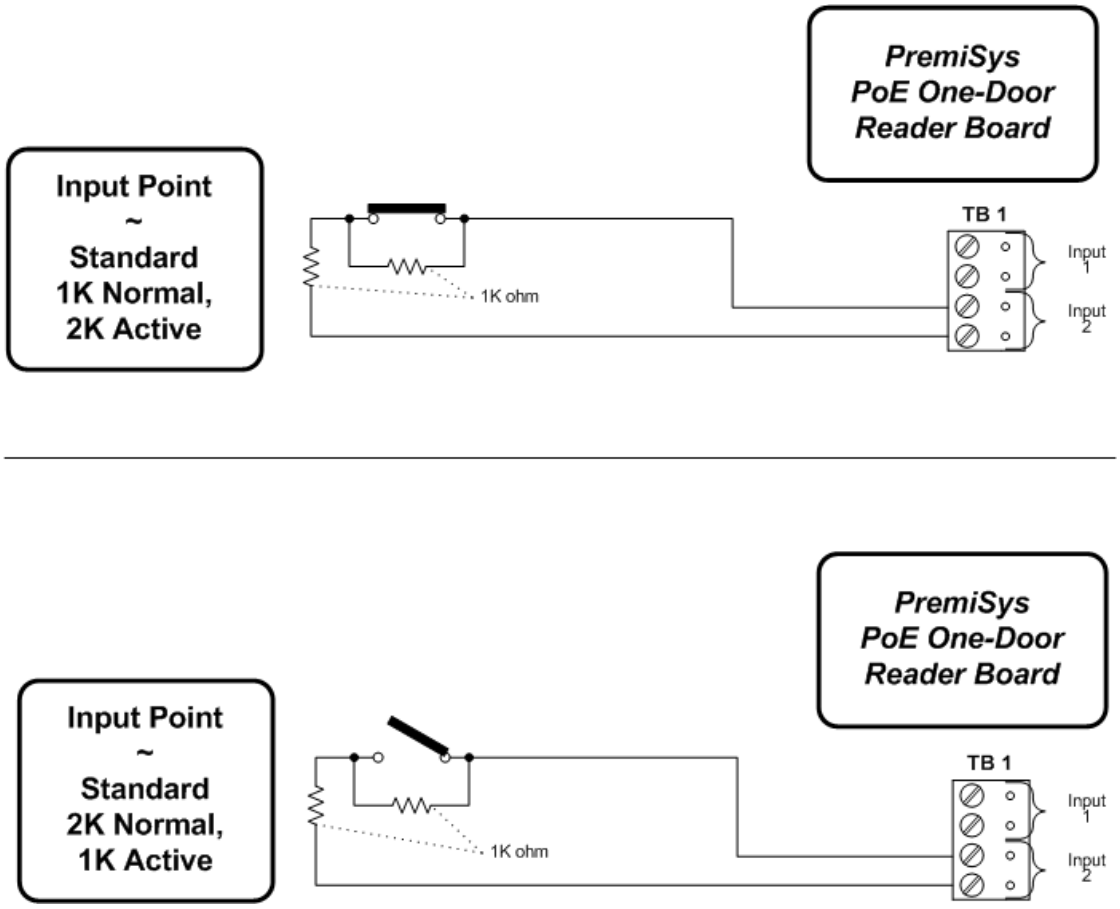
Wiring Supervised Input Points on the PoE One-Door Reader Board

Supervised inputs such as these can be used for door-position input points or any other input that requires supervision. See the topic "Wiring Unsupervised Input Points on the PremiSys PoE One-Door Reader Board 177" to wire inputs that do not require supervision.

PremiSys™ supports only the standard “1 K normal, 2 K active” and “2 K normal, 1 K active” supervision modes depicted here.

Input circuits require one twisted pair per input and are rated at 30 ohms maximum.

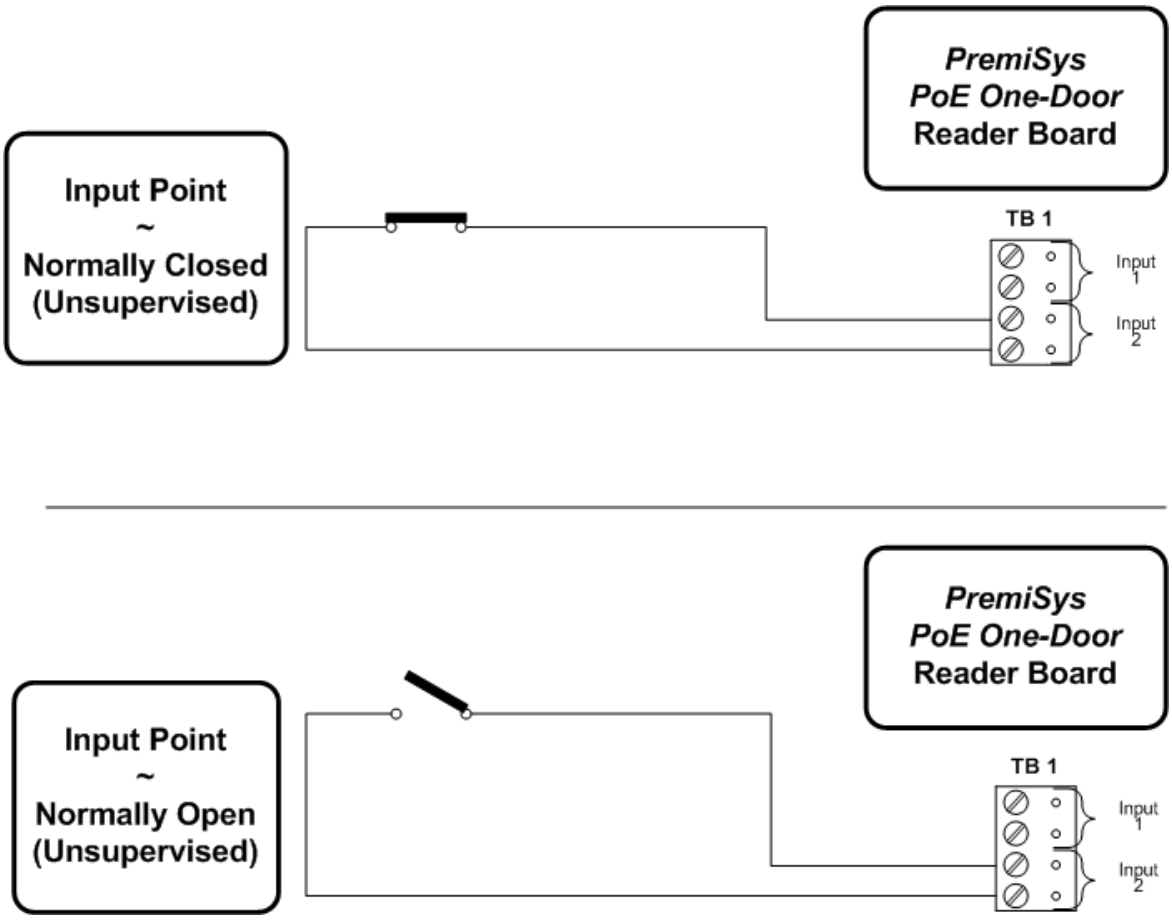
IMPORTANT! Inputs on a single board are normally processed in ascending numeric sequence when they change state simultaneously or nearly simultaneously. Consequently, if wiring a REX input point and a door-position input point in a pair on a PoE One-Door Reader Board, make sure that the door-position input point has a higher input number than the REX point paired with it.



Wiring Unsupervised Input Points on the PoE One-Door Reader Board

Unsupervised inputs such as these can be used for REXes, general-purpose input points or any other input that does not require supervision. See the topic "Wiring Supervised Input Points on the PremiSys PoE One-Door Reader Board 176" to wire inputs that require supervision.

Input circuits require one twisted pair per input and are rated at 30 ohms maximum.



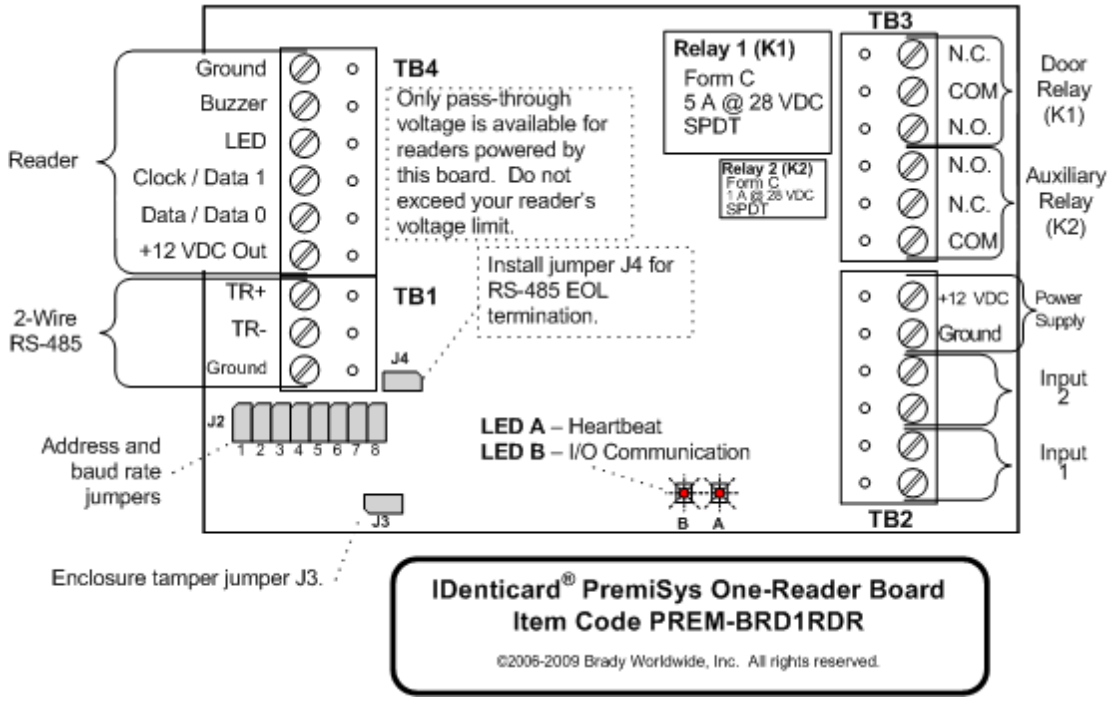
PoE One-Door Reader Board LEDs

ThePremiSys™ PoE One-Door Reader Board has 6 LEDs:

LED	
1	Heartbeat and online status indicator
2	"On" indicates I/O communication or IP address request
3	"On" indicates reader activity on either reader
4	"On" indicates Input Point 1 in Alarm
5	"On" indicates Input Point 2 in Alarm
6	"On" indicates Input Point 3 in Alarm

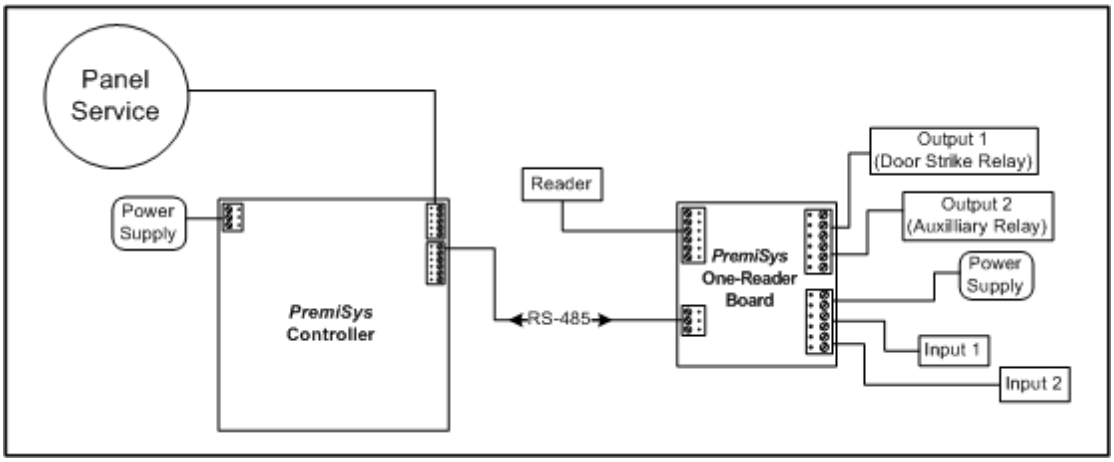
Note: Input Point 4 does not have a corresponding LED.

PremiSys One-Reader Board



CAUTION! Input voltage for the One-Reader Board is passed through to the reader!

Sample General Configuration for a PremiSys One-Reader Board Connected to a PremiSys Controller, a Reader and Auxiliary Equipment



One-Reader Board Specifications

Certifications for the One-Reader Board

UL: recognized to UL 294: Access Control System Units - component
CE: EN55022, EN50082-1, IEC801-2, IEC801-3 and IEC801-4

Dimensions and Weight of the One-Reader Board

Board Width	4.25 inches (108 mm)
Board Height	2.75 inches (70 mm)
Board Depth	1.4 inch (36 mm)
Board Weight	4 ounces (120 g) (nominal)

Environmental Specifications for the One-Reader Board

Temperature	-31°F to 167°F (-35°C to 75°C) operating -67°F to 185°F (-55°C to 85°C) storage
Relative Humidity	0 to 95% RH noncondensing

Power Specifications for the One-Reader Board

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

CAUTION! Input voltage for the One-Reader Board is passed through to the reader!

Input Voltage	12 VDC ± 10%, 150 mA maximum (plus reader current)
Relay Ratings	Door Relay (K1) 5.0 A at 28 VDC Auxiliary Relay (K2) 1.0 A at 28 VDC
Relay Contact Type	Form C
Relay Configuration	Single-pole double-throw (SPDT)
Inputs – Assignable	Two supervised input points with end-of-line (EOL) resistors, 1K / 2K ohm 1% ¼ watt standard
Input – Dedicated	One unsupervised, dedicated input point for enclosure tamper on jumper J2.
Card Reader Power	12 VDC ± 10% -- **See "Caution" alert above!**
Reader LED Output	TTL-compatible; high > 3 V, low < 0.5 V; 5 mA source/sink maximum
Reader Data Inputs	TTL-compatible inputs

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the One-Reader Board

Power to One-Reader Board	Twisted pair, 18 AWG (0.823 mm^2).
RS-485 Connection to PremiSys Controller	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
Connection to Relay-Controlled Devices	Use wire and gauge as required by load.
Connection to Input-Point Devices	One twisted pair per input, 30 ohms maximum
Connection to Reader	Six-conductor, 18 AWG. Maximum cable length: 500 feet (150 m), total copper, including drops

Communications Specifications for the One-Reader Board

To PremiSys Controller or MUX Board	Two-wire RS-485, via TB1, 2,400-38,400 bps.

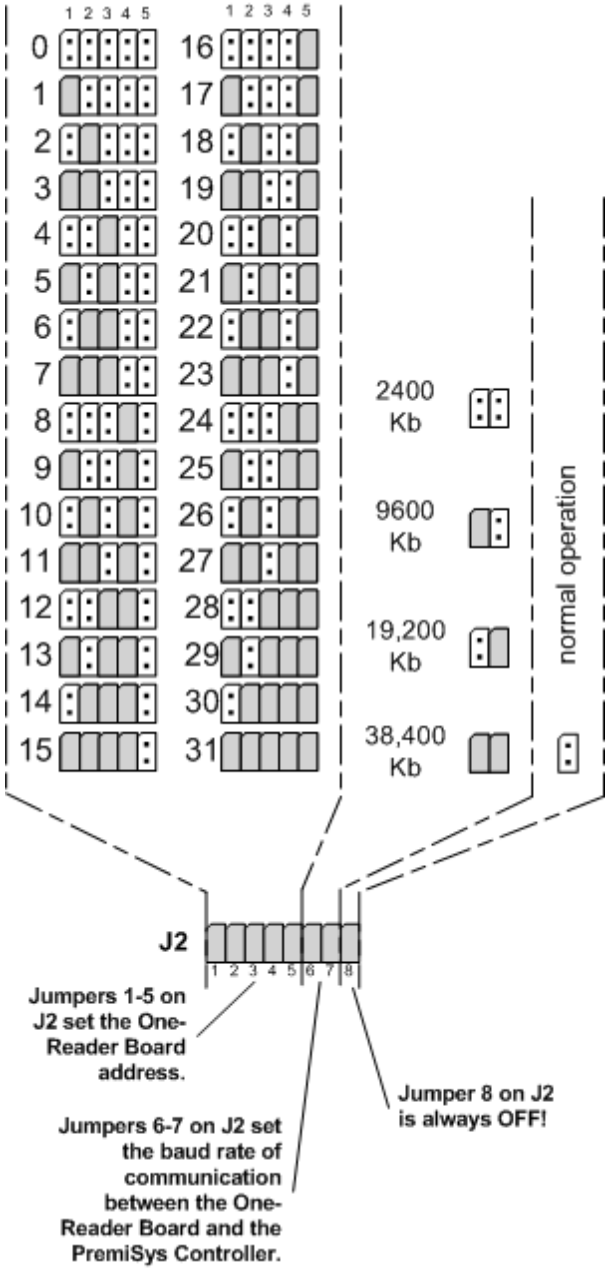
Access-Control Specifications for the One-Reader Board

Relay Pulse Time	1 to 255 seconds
Door-Position Shunt Time	1 to 255 seconds

Indicators on the One-Reader Board

Visible	2 red, single-color LEDs

One-Reader Board – Jumper Settings



In the drawing above, an address of “0” is set on the One-Reader Board by removing the jumpers from positions 1-5, on jumper J2. An address of “23” is set by removing only the jumper in position 4 and installing the jumpers on positions 1-3 and 5.

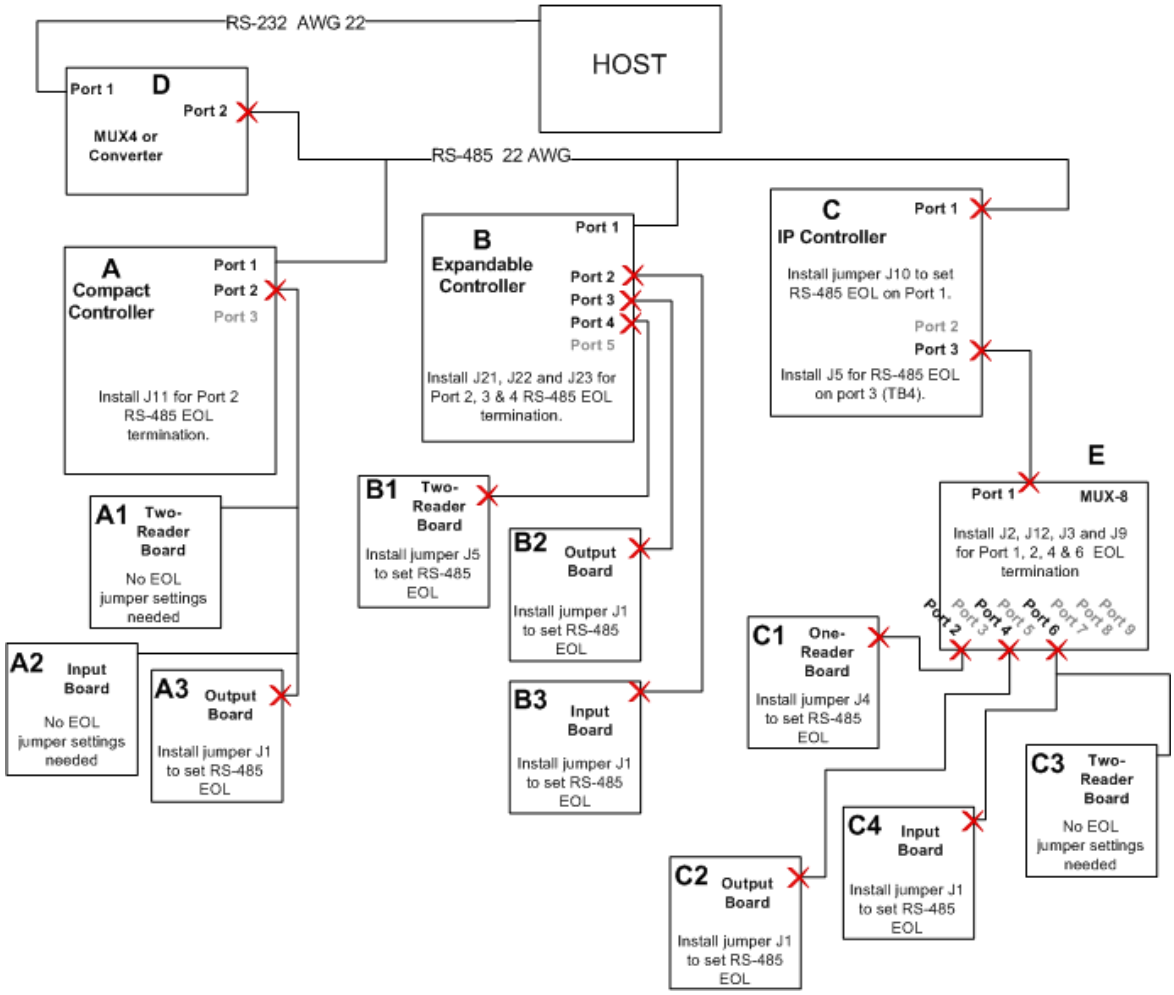
We suggest you install the jumpers in positions 6-7 to set a baud rate of 38,400 bps. Choose the rate that is used for your system. The recommended rate is 38,400 bps.

The jumper in position 8 should always be removed for normal operation.

Setting End-of-Line (EOL) Resistance for the One-Reader Board

If the PremiSys™ One-Reader Board is the last board in a run, install jumper J4 to set RS-485 EOL.

In the diagram below, boards A3, B1, B2, B3, C1, C2, and C3 should be set as end-of-line. The originating port on the associated controller should also be set for end-of-line.



Wiring a One-Reader Board to a Power Supply

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

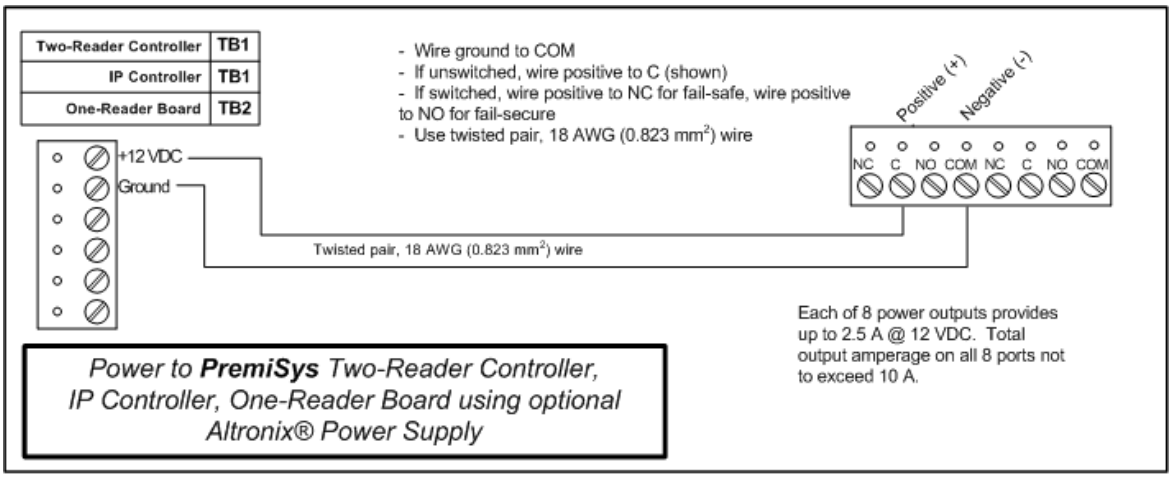
The PremiSys™ One-Reader Board can be powered with the 12 VDC supplied by any PremiSys power source. The input voltage supplied to the board is passed through to

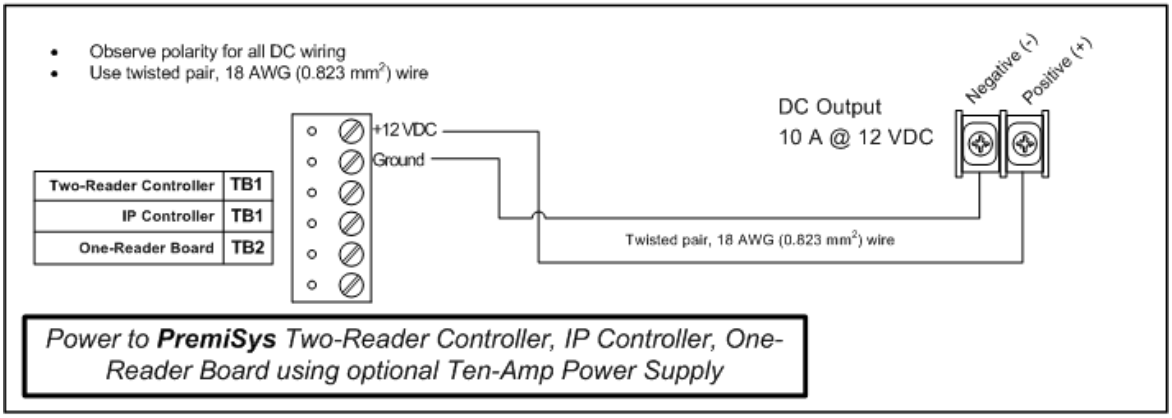
the reader terminal block. See the alerts below.

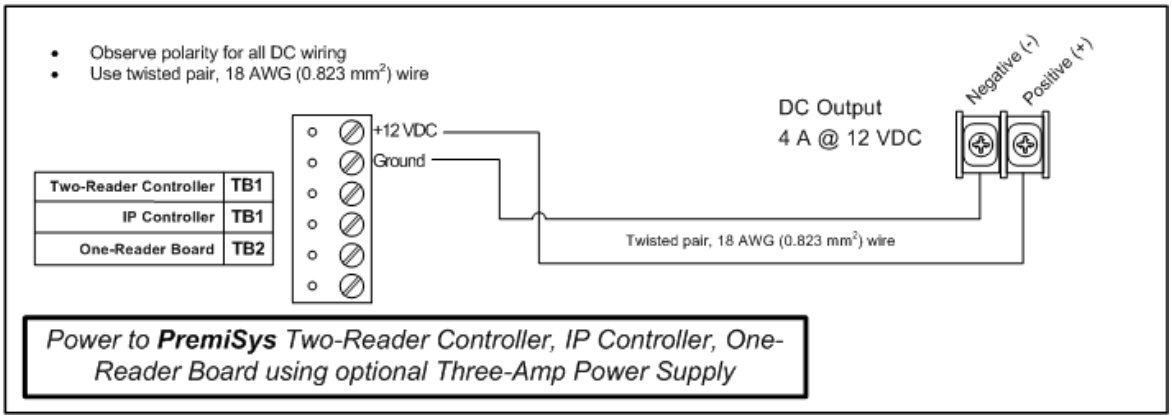
Exercise caution to be sure that the voltage supplied to the One-Reader Board is not too great for the reader to handle. Be sure as well that the reader is supplied sufficient voltage by the board.

If you are connecting the One-Reader Board to a reader that requires a voltage lower than 12V you must use a resistor to lower the voltage going out of the reader port.

Refer to the documentation enclosed with individual readers to determine if the readers must have their own separate power source and not be powered from the One-Reader Board.







CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

CAUTION! Input voltage for the One-Reader Board is passed through to the reader! If necessary, apply a resistor to lower the voltage to the reader.

Note: The PremiSys One-Reader Board does not have a dedicated power alarm input.

Input Voltage	12 VDC ± 10%, 150 mA maximum (plus reader current)
Relay Ratings	Door Relay (K1) 5.0 A at 28 VDC Auxiliary Relay (K2) 1.0 A at 28 VDC
Relay Contact Type	Form C
Relay Configuration	Single-pole double-throw (SPDT)
Inputs – Assignable	Two supervised input points with end-of-line (EOL) resistors, 1K / 2K ohm 1% ¼ watt standard
Input – Dedicated	One unsupervised, dedicated input point for enclosure tamper on jumper J2.
Card Reader Power	12 VDC ± 10% -- **See "Caution" alert above!**
Reader LED Output	TTL-compatible; high > 3 V, low < 0.5 V; 5 mA source/sink maximum
Reader Data Inputs	TTL-compatible inputs

The One-Reader Board has two LEDs, A and B, that indicate operation and communication of the board with the connected controller.

LED A indicates the heartbeat and online/offline status of the board as follows:

- If the board is offline, the LED cycles off for 800msec and on for 200msec.
- If the board is online, the LED cycles on for 800msec and off for 200msec.

LED B indicates communication activity on the RS-485 bus, not necessarily on the Input Board.

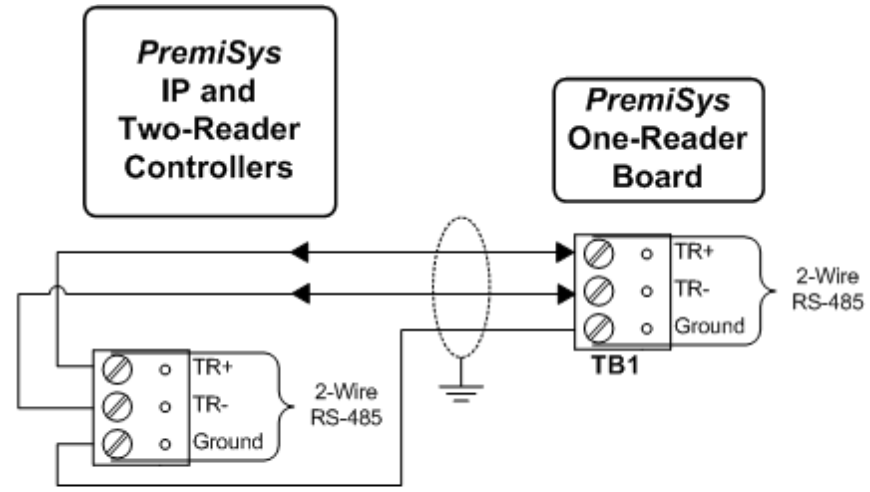
Wiring a One-Reader Board Enclosure Tamper

The PremiSys™ One-Reader Board comes with a ten-inch paired wire on a jumper. To wire this board to monitor enclosure tampering, connect or splice the free ends of the wire to a contact-closure device (not supplied) that will go "open" when the enclosure door is opened. Press the wired jumper onto location J3 on the board.

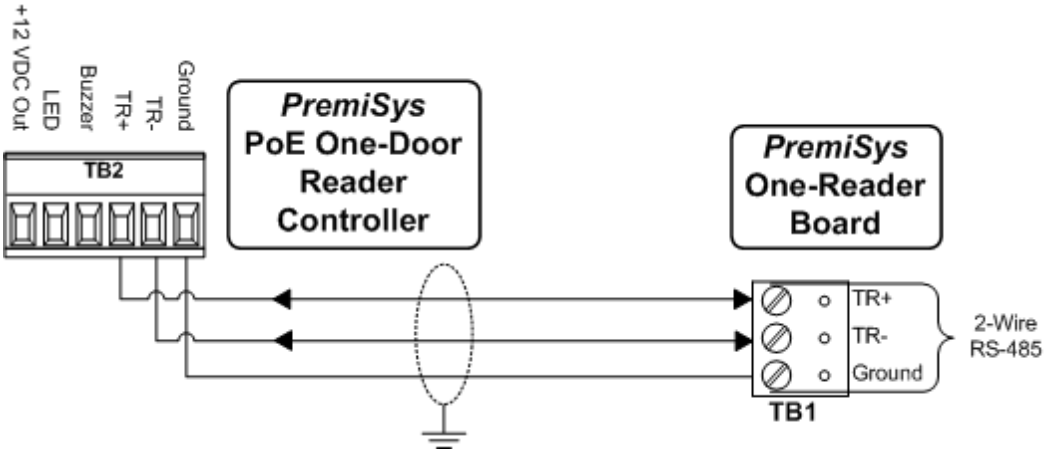
If you do not connect this wire to provide a tampering alert, twist the wires to short-wire the jumper and close the point. Alternatively, you can remove the wire and install a regular jumper as the short.

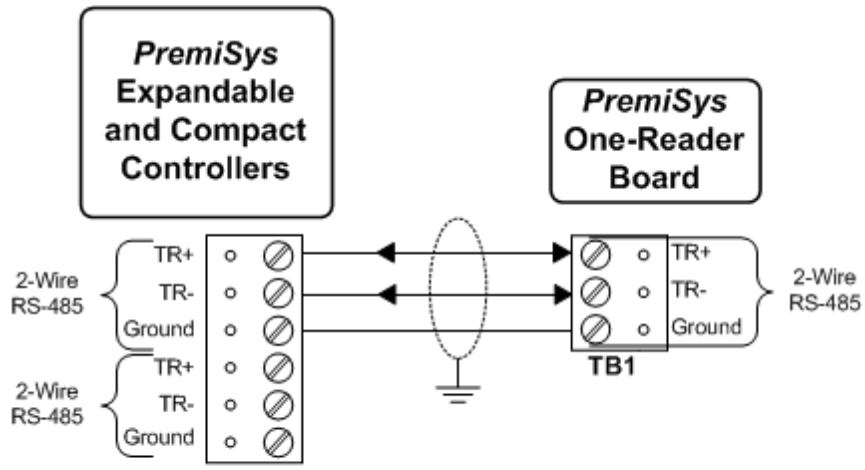
Wiring a One-Reader Board to a Controller

Note: Listed below are the maximum numbers of One-Reader Boards you can connect to each of the named controllers. In parentheses are the maximum numbers of allowable doors (readers) on each controller:
IP Controller - 64 (64)
Two-Reader Controller - 32 (64)
PoE One-Door Reader Controller - 8 (17)



IP Controller	TB3 or TB4
Two-Reader Controller	TB3





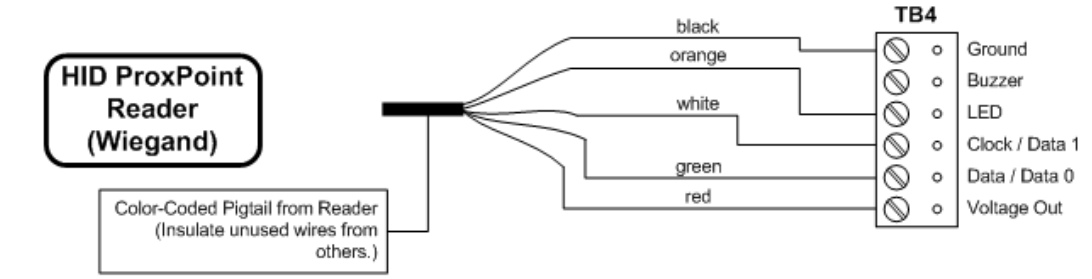
Expandable Controller	TB2 or TB3
Compact Controller	TB4

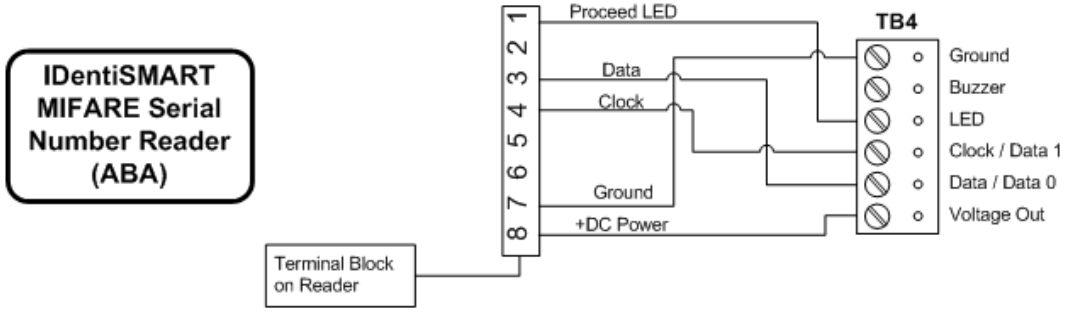
Wiring a One-Reader Board to Wiegand and ABA Readers

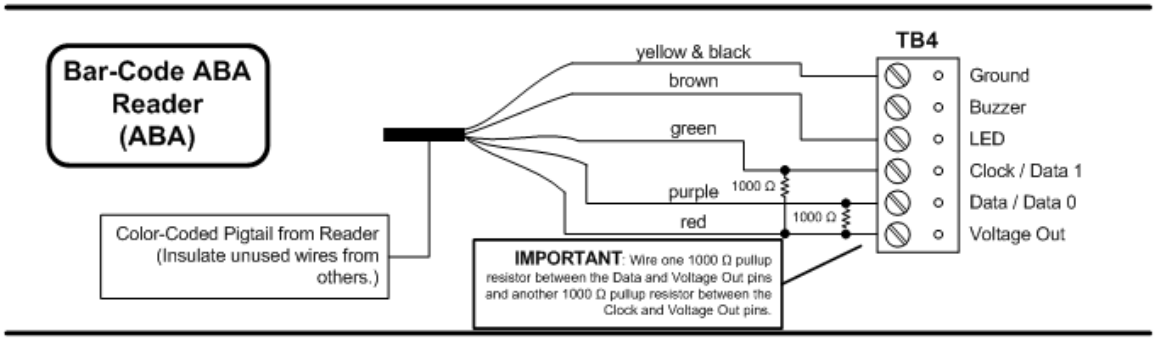
The PremiSys™ One-Reader Board can be powered with the 12 VDC supplied by any PremiSys power source. The input voltage supplied to the board is passed through to the reader terminal block. Exercise caution to be sure that the voltage supplied to the One-Reader Board is not too great for the reader to handle and that the reader is supplied sufficient voltage by the board.

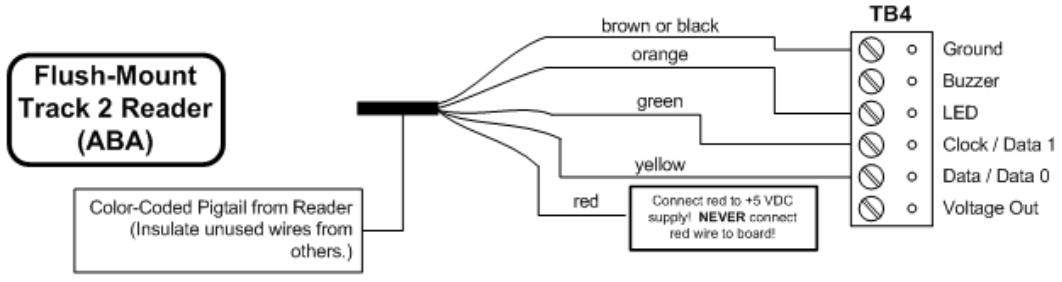
Refer to the documentation enclosed with individual readers if the readers:

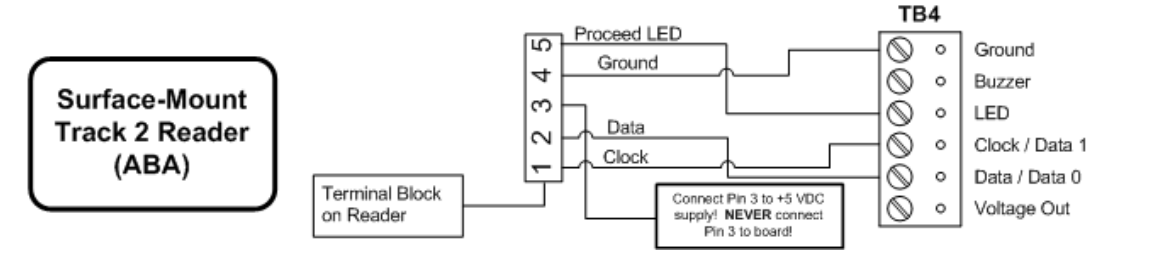
- Use a terminal block for connection to the board rather than a “pigtail” cable as shown below. Always double-check the color-coding scheme of any reader using a pigtail. The scheme depicted in this illustration is a very common standard, but may not necessarily be universal.
- Must have their own separate power source and not be powered from the One-Reader Board.







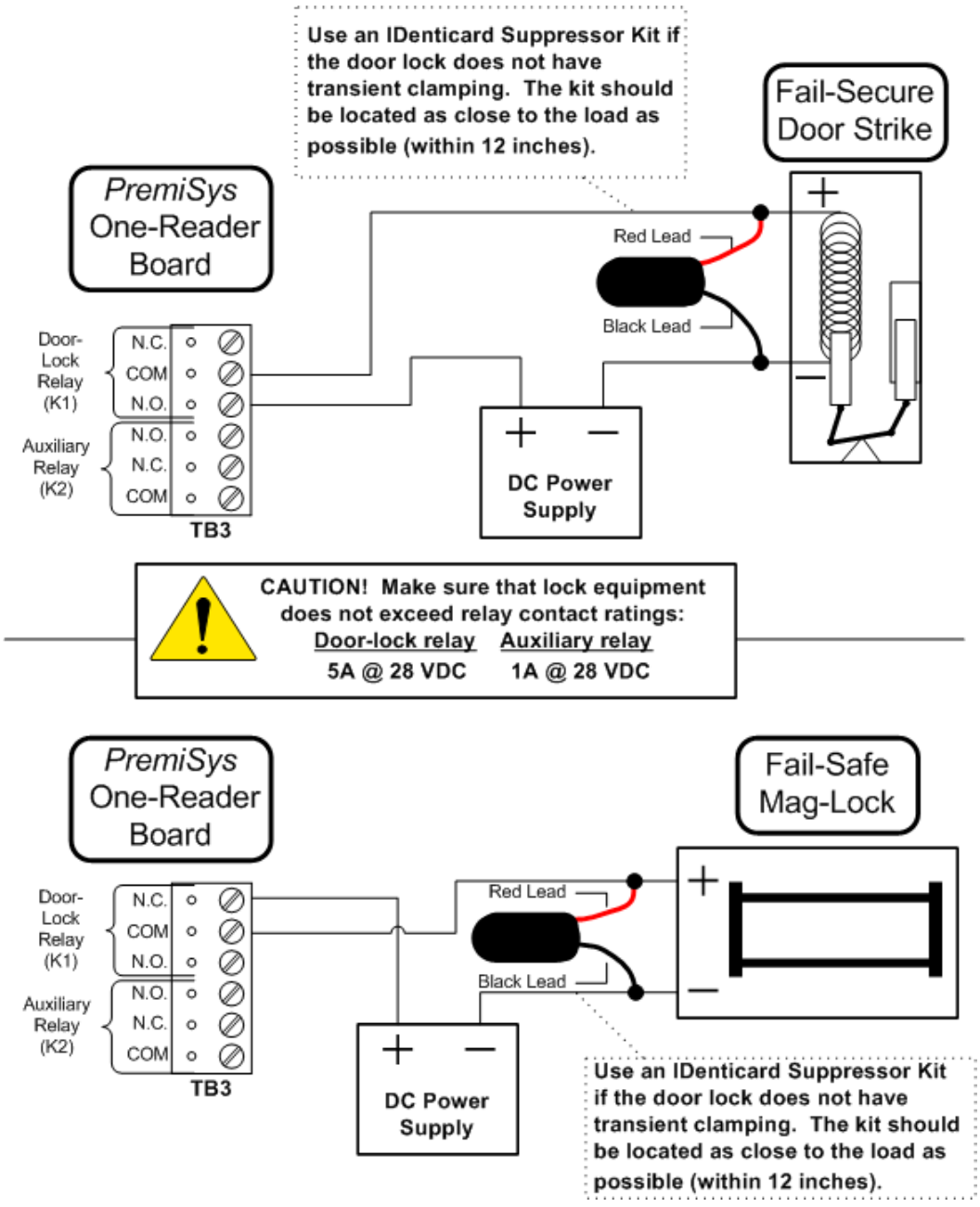




CAUTION! Input voltage for the One-Reader Board is passed through to the reader!

Reader	
TB4-1	Reader Ground
TB4-2	Buzzer
TB4-3	Proceed LED
TB4-4	Clock / Data 1
TB4-5	Data / Data 0
TB4-6	Voltage to reader

Wiring a One-Reader Board to Door Strike and Magnetic Lock



Auxiliary Relay	
TB3-1	Auxiliary Relay (K2): Common
TB3-2	Auxiliary Relay (K2): Normally closed
TB3-3	Auxiliary Relay (K2): Normally open

Door Relay	
TB3-4	Door Relay (K1): Normally open
TB3-5	Door Relay (K1): Common
TB3-6	Door Relay (K1): Normally closed

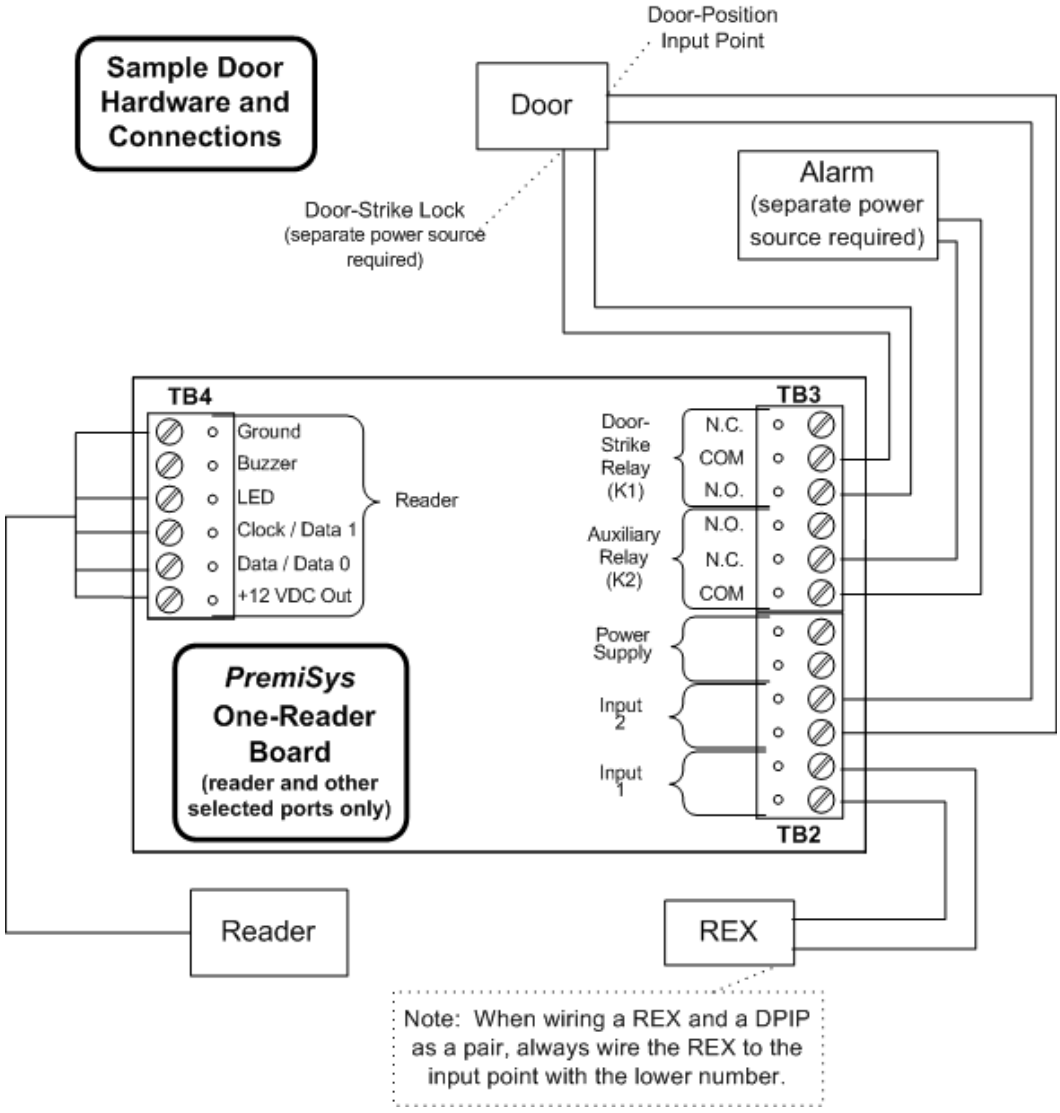
The two relays on the One-Reader Board are both Form C, dry-contact and single-pole double-throw (SPDT). However, each has different electrical specifications:

- The large "Door-Lock" relay, labeled “K1,” is rated at 5 A at 28 VDC and is suited for connection to the door lock.
- The small "Auxiliary" relay, labeled “K2,” is rated at 1 A at 28 VDC and is suited for connection to an auxiliary device, for instance, an audible alarm.

Other notes on relays:

- Relays may be wired normally open or normally closed, depending on the needs of the devices they are controlling. Any device switched by a relay should be powered from “outside” the PremiSys system.
- Specify the output configuration (normally open, normally closed, normal action, inverted action) when setting up each relay in the software. See the PremiSys Online Help for details.

Connecting Inputs and Relays on the One-Reader Board



In the example illustrated above, the REX is wired to Input 1 and the door-position input point to Input 2. In this way, if the state changes on these points appear simultaneously, the system will process the REX before the door-open state, and therefore prevent a door-forced alarm, which would result if the points were processed in the reverse order. If you cannot wire the points in the proper order, a means exists in the PremiSys software to override this processing. See the PremiSys Online Help for details.

IMPORTANT! Inputs on a single board are normally processed in ascending numeric sequence when they change state simultaneously or nearly simultaneously. Consequently, if wiring a REX input point and a door-position input point in a pair, make sure that the door-position input point has a higher input number than the REX point paired with it.

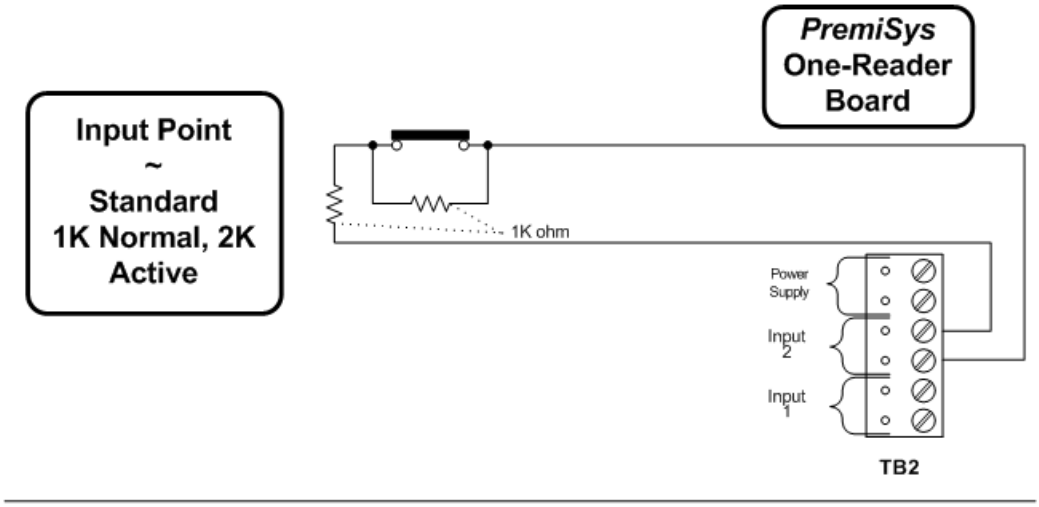
Wiring Supervised Input Points on the One-Reader Board

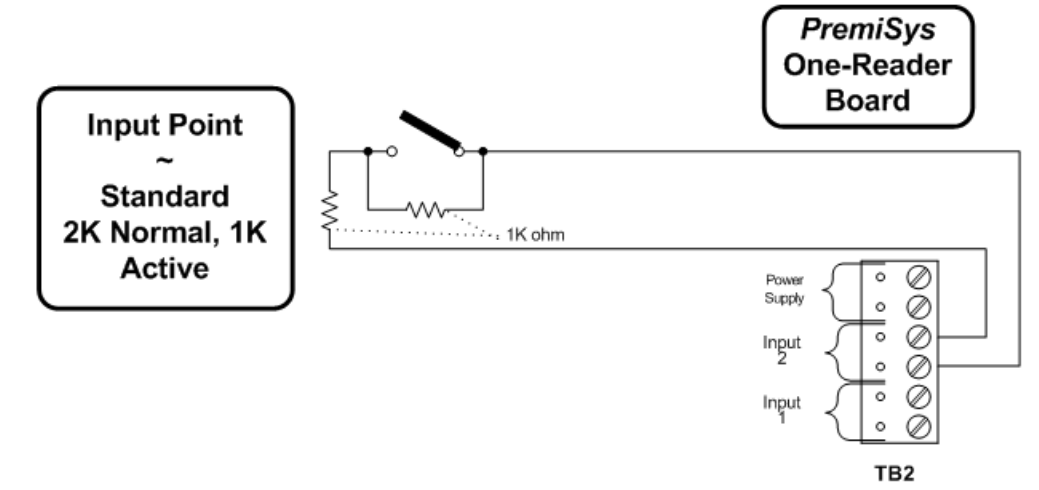
Supervised inputs such as these can be used for door-position input points or any other input that requires supervision.

PremiSys™ software supports only the standard “1 K normal, 2 K active” and “2 K normal, 1 K active” supervision modes depicted here.

Input circuits require one twisted pair per input and are rated at 30 ohms maximum.

IMPORTANT! Inputs on a single board are normally processed in ascending numeric sequence when they change state simultaneously or nearly simultaneously. Consequently, if wiring a REX input point and a door-position input point in a pair on a One-Reader Board, make sure that the door-position input point has a higher input number than the REX point paired with it.





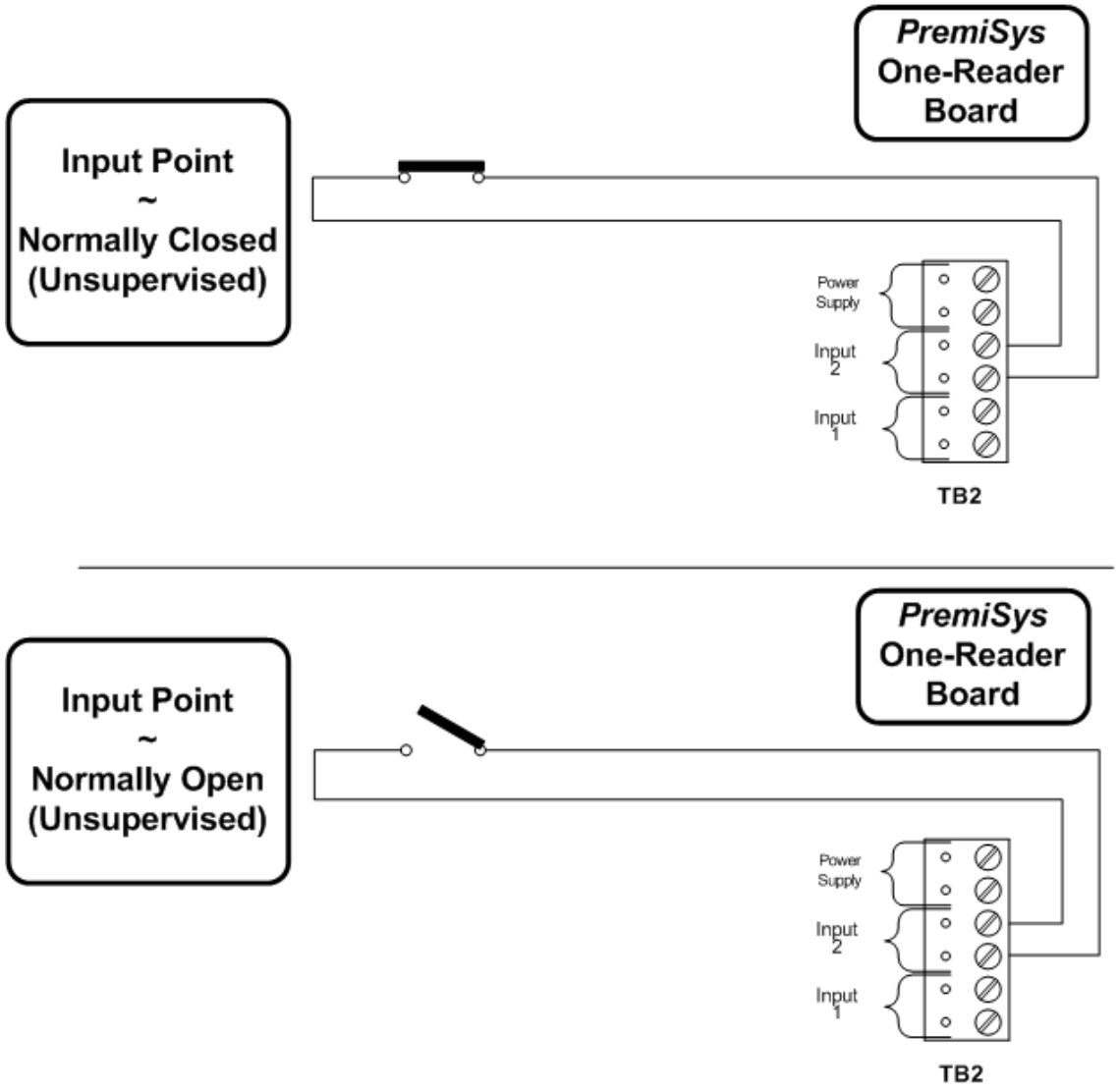
Connection to Input-Point Devices	One twisted pair per input, 30 ohms maximum

TB2	
TB2-1	Input 1
TB2-2	Input 1
TB2-3	Input 2
TB2-4	Input 2
TB2-5	Ground
TB2-6	+12 VDC

Wiring Unsupervised Input Points on the One-Reader Board

Unsupervised inputs such as these can be used for REXes, general-purpose input points or any other input that does not require supervision. See the topic "Wiring a Supervised Input Point to the PremiSys One-Reader Board 196" to wire inputs that require supervision.

Input circuits require one twisted pair per input and are rated at 30 ohms maximum.


PremiSys
One-Reader
Board
Input Point
~
Normally Closed
(Unsupervised)
Power
Supply
Input
2
Input
1
TB2
PremiSys
One-Reader
Board
Input Point
~
Normally Open
(Unsupervised)
Power
Supply
Input
2
Input
1
TB2

Connection to Input-Point Devices	One twisted pair per input, 30 ohms maximum

TB2	
TB2-1	Input 1
TB2-2	Input 1
TB2-3	Input 2
TB2-4	Input 2
TB2-5	Ground
TB2-6	+12 VDC

One-Reader Board LEDs

The PremiSys™ One-Reader Board has two LEDs, A and B, that indicate operation and communication of the board with the connected controller.

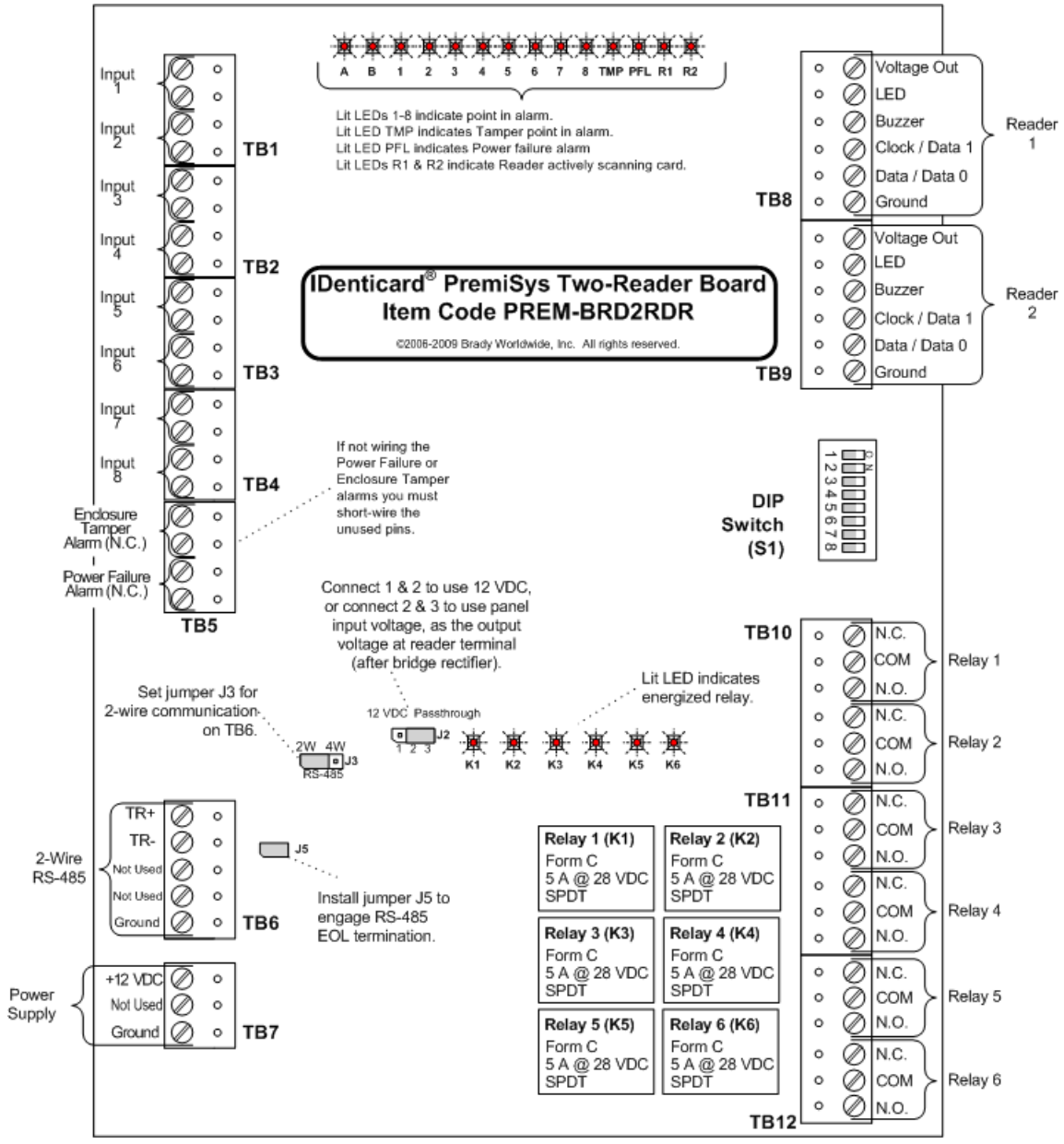
LED A indicates the heartbeat and online/offline status of the board as follows:

- If the board is offline, the LED cycles off for 800msec and on for 200msec.
- If the board is online, the LED cycles on for 800msec and off for 200msec.

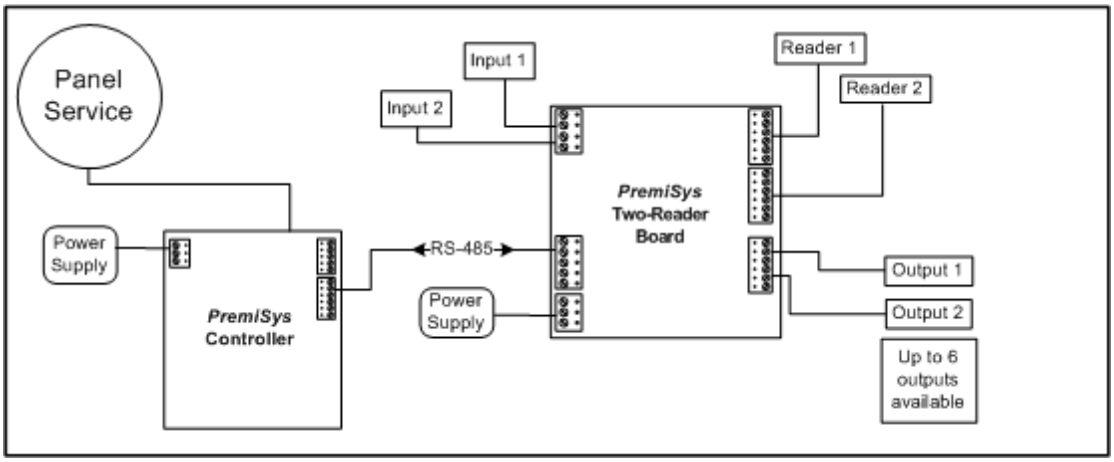
LED B indicates communication activity on the RS-485 bus, not necessarily on the Input Board.

LED	
A	Indicates heartbeat and online status
B	"On" indicates I/O communication

PremiSys Two-Reader Board



Sample General Configuration for a PremiSys Two-Reader Board Connected to a PremiSys Controller, a Reader and Auxiliary Equipment



Two-Reader Board Specifications

Certifications for the Two-Reader Board

UL: recognized to UL 294: Access Control System Units - component
CE: EN55022, EN50082-1, IEC801-2, IEC801-3 and IEC801-4

Dimensions and Weight of the Two-Reader Board

Board Width	8.0 inches (203 mm)
Board Height	6.0 inches (152 mm)
Board Depth	1.0 inch (25 mm)
Board Weight	11 ounces (312 g) (nominal)

Environmental Specifications for the Two-Reader Board

Temperature	32°F to 158°F (0°C to 70°C) operating -67°F to 185°F (-55°C to 85°C) storage
Relative Humidity	0 to 95% RH noncondensing

Power Specifications for the Two-Reader Board

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 VDC ± 10%, 550 mA peak
Relay Ratings (each of six relays)	5 A at 28 VDC, noninductive load
Relay Contact Type	Form C
Relay Configuration	Single-pole double-throw (SPDT)
Inputs – Assignable	Eight supervised input points with end-of-line (EOL) resistors, 1K / 2K ohm 1% ¼ watt standard
Input – Dedicated	Two unsupervised, dedicated input point for enclosure tamper and power loss.
Card Reader Power (each of two readers)	12 VDC ± 10%, regulated 125 mA maximum each reader (see "Important" alert above) or 12 VDC ± 10% (input voltage passed through), 125 mA maximum each reader
Reader LED Output	TTL-compatible; high > 3 V, low < 0.5 V; 5 mA source/sink maximum
Reader Data Inputs	TTL-compatible inputs

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the Two-Reader Board

Power to Two-Reader Board	Twisted pair, 18 AWG (0.823 mm^2).
RS-485 Connection to PremiSys Controller	Twisted pairs, 22 AWG (0.325 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
Connection to Relay-Controlled Devices	Use wire and gauge as required by load.
Connection to Input-Point Devices	One twisted pair per input, 30 ohms maximum
Connection to Reader	Six-conductor, 18 AWG. Maximum cable length: 500 feet (150 m), total copper, including drops

Communications Specifications for the Two-Reader Board

To PremiSys Controller or MUX Board	Two-wire RS-485, via TB1, 2,400-38,400 bps.

Access-Control Specifications for the Two-Reader Board

Relay Pulse Time	1 to 255 seconds
Door-Position Shunt Time	1 to 255 seconds

Indicators on the Two-Reader Board

Visible	20 red, single-color LEDs

Two-Reader Board DIP Switches – Chart

	Switches							
Selection	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Address 0	Off	Off	Off	Off	Off			
Address 1	**On**	Off	Off	Off	Off			
Address 2	Off	**On**	Off	Off	Off			

Address 3	**On**	**On**	Off	Off	Off			
Address 4	Off	Off	**On**	Off	Off			
Address 5	**On**	Off	**On**	Off	Off			
Address 6	Off	**On**	**On**	Off	Off			
Address 7	**On**	**On**	**On**	Off	Off			
Address 8	Off	Off	Off	**On**	Off			
Address 9	**On**	Off	Off	**On**	Off			
Address 10	Off	**On**	Off	**On**	Off			
Address 11	**On**	**On**	Off	**On**	Off			
Address 12	Off	Off	**On**	**On**	Off			
Address 13	**On**	Off	**On**	**On**	Off			
Address 14	Off	**On**	**On**	**On**	Off			
Address 15	**On**	**On**	**On**	**On**	Off			
Address 16	Off	Off	Off	Off	**On**			
Address 17	**On**	Off	Off	Off	**On**			
Address 18	Off	**On**	Off	Off	**On**			
Address 19	**On**	**On**	Off	Off	**On**			
Address 20	Off	Off	**On**	Off	**On**			
Address 21	**On**	Off	**On**	Off	**On**			
Address 22	Off	**On**	**On**	Off	**On**			
Address 23	**On**	**On**	**On**	Off	**On**			
Address 24	Off	Off	Off	**On**	**On**			
Address 25	**On**	Off	Off	**On**	**On**			
Address 26	Off	**On**	Off	**On**	**On**			
Address 27	**On**	**On**	Off	**On**	**On**			
Address 28	Off	Off	**On**	**On**	**On**			
Address 29	**On**	Off	**On**	**On**	**On**			
Address 30	Off	**On**	**On**	**On**	**On**			
Address 31	**On**	**On**	**On**	**On**	**On**			
2400 bps						Off	Off	
9600 bps						**On**	Off	
19,200 bps						Off	**On**	
38,400 bps						**On**	**On**	
Not used								Off

Two-Reader Board Jumper Settings

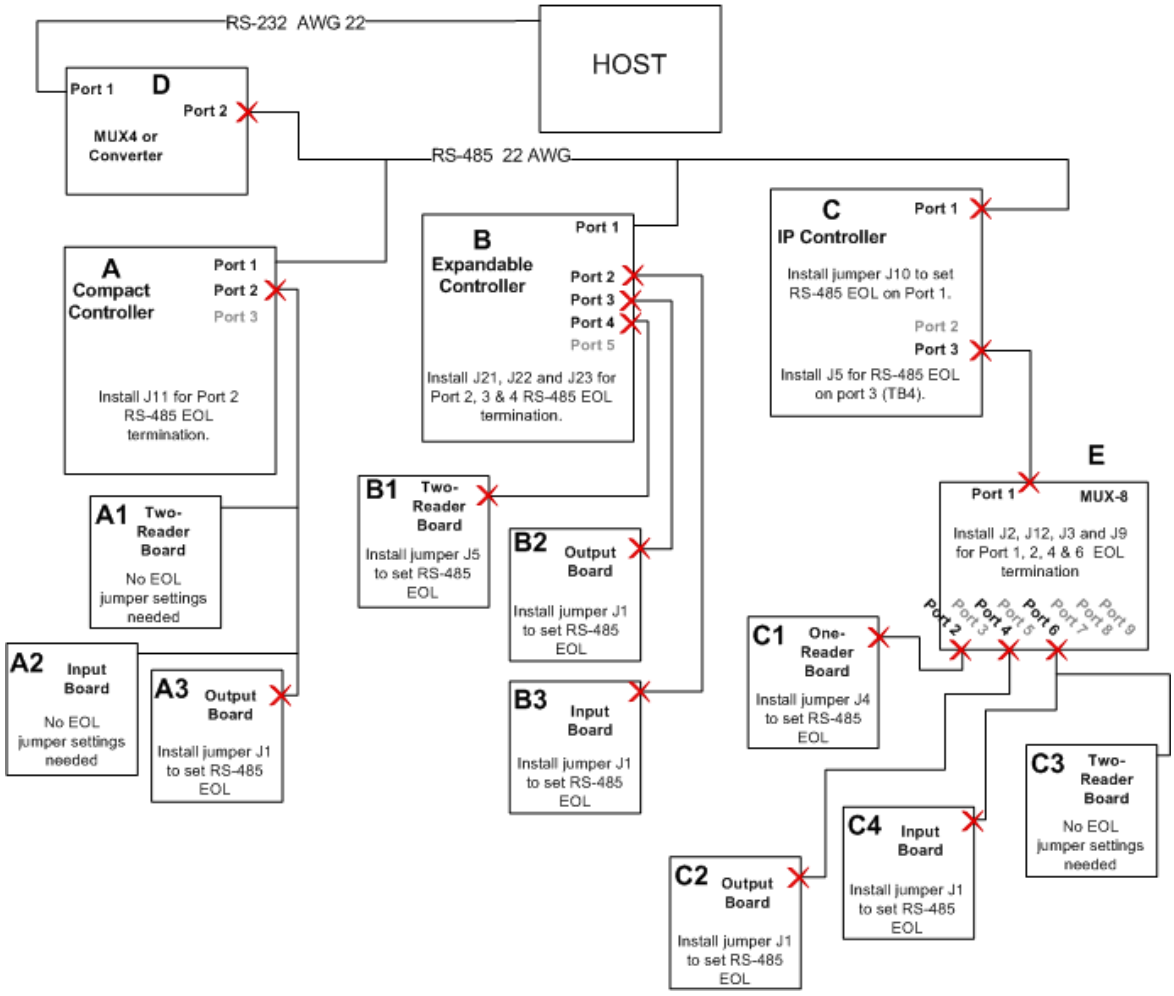
Jumper	Setting	Selection
J2	1-2 On [12V]	Regulated 12 VDC is supplied to reader ports.
	2-3 On [PT]	Input voltage at TB7 is “passed through” to reader ports.
J3	2W	Always choose this option to use two-wire RS-485 communications TB6.
	4W	Do not select this option. Four-wire RS-485 is not used.
J5,J6	Off	RS-485 EOL termination on TB6 is disabled.
	On	RS-485 EOL termination on TB6 is enabled.

IMPORTANT! You must provide at least 20 VDC of input voltage to the Two-Reader Board input to obtain 12 VDC at the reader port.

Setting End-of-Line (EOL) Resistance for the Two-Reader Board

If the PremiSys™ Two-Reader Board is the last board in a run, install jumpers J5 and J6 to set RS-485 EOL.

In the diagram below, boards A3, B1, B2, B3, C1, C2, and C3 should be set as end-of-line. The originating port on the associated controller should also be set for end-of-line.



Wiring a Two-Reader Board to a Power Supply

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

The Two-Reader Board can be powered with the 12 VDC supplied by any of the PremiSys™ power sources. To power the readers from the board, choose the "Pass-through" selection. Exercise caution to be sure that the voltage supplied to the Two-Reader Board is not too great for the reader to handle.

If you are connecting the Two-Reader Board to a reader that requires a voltage lower than 12V you must use a resistor to lower the voltage going out of the reader port.

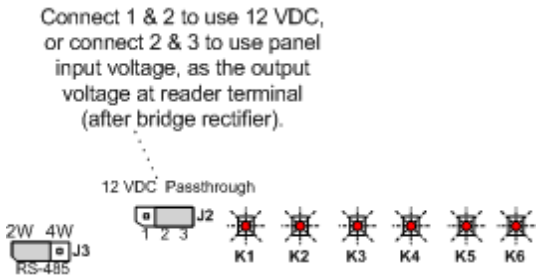
If you are connecting the Two-Reader Board to a reader that requires a voltage higher than 12V, set jumper J2 for "12VDC" but use a separate power source wired directly to

the reader to power it.

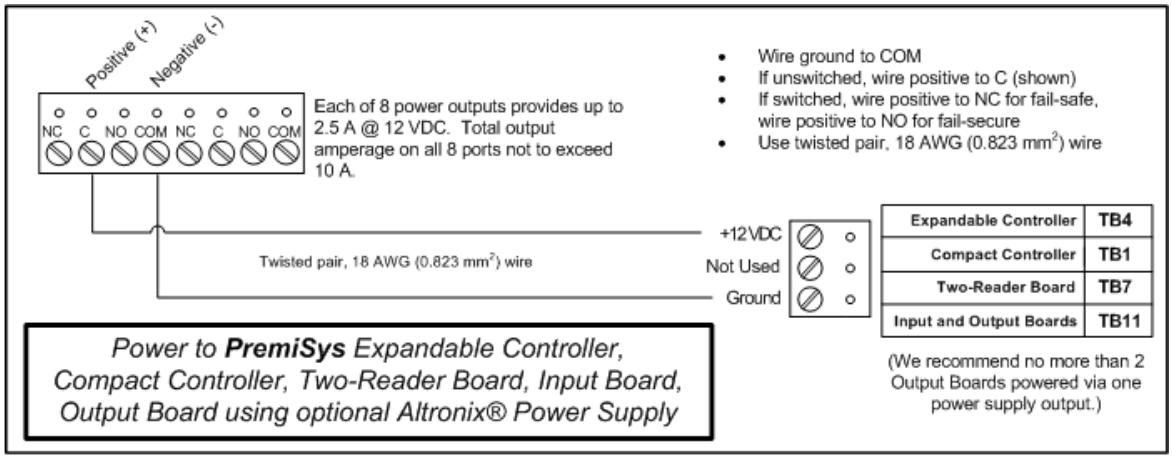
IMPORTANT! You may need to use a separate power supply to power your readers if:

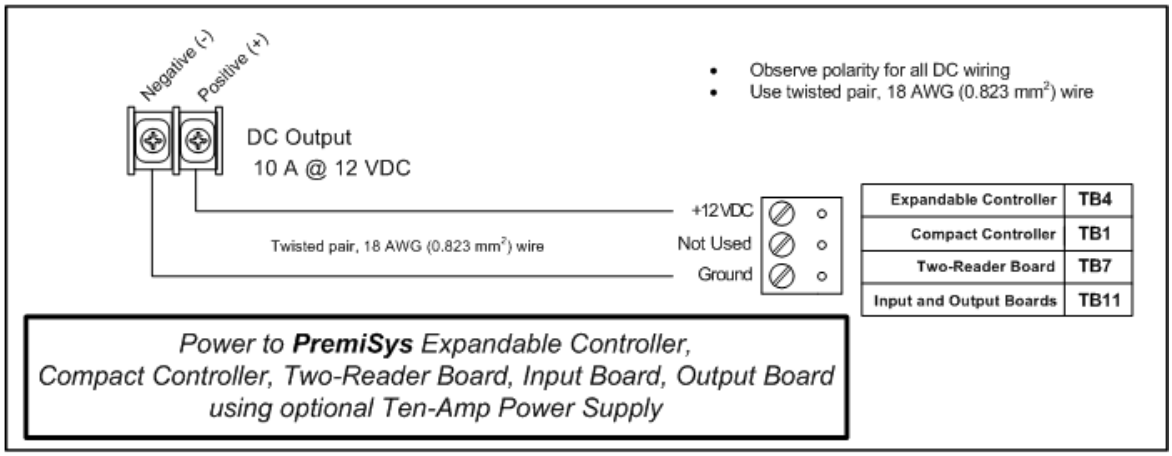
- **Your readers require 12 VDC or greater. You may be able to use the PremiSys Power Supply and get 12VDC at the readers when 12VDC is supplied to the board.**
- **Your readers require less than 12 VDC. In this case you must use a resistor to reduce the power output to match the power requirements of your readers.**

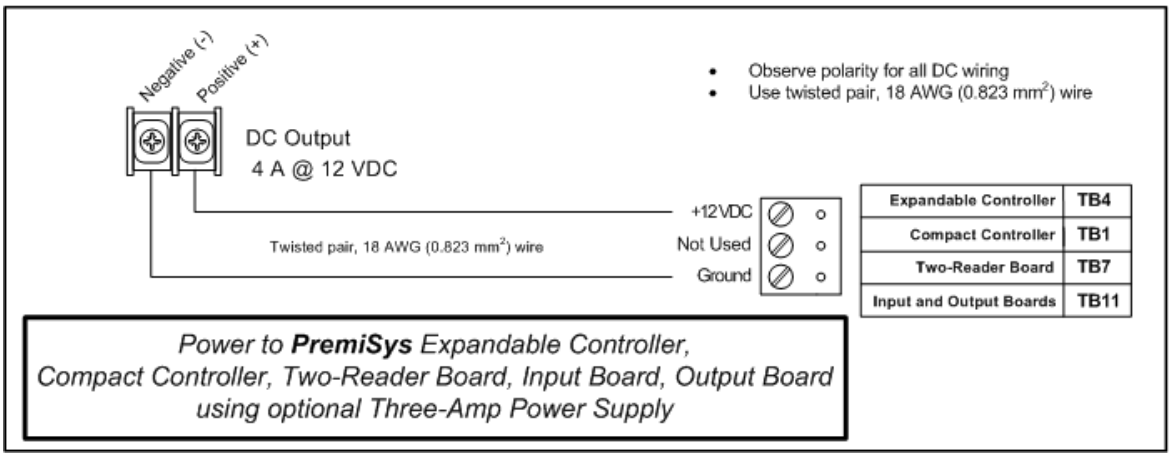
The voltage selection is made using jumper J2 on the Two-Reader Board:



Refer to the documentation enclosed with individual readers to determine if the readers must have their own separate power source and not be powered from the Two-Reader Board.


Positive (+)
Negative (-)
NC C NO COM NC C NO COM
Each of 8 power outputs provides up to 2.5 A @ 12 VDC. Total output amperage on all 8 ports not to exceed 10 A.
Wire ground to COM
If unswitched, wire positive to C (shown)
If switched, wire positive to NC for fail-safe, wire positive to NO for fail-secure
Use twisted pair, 18 AWG (0.823 mm²) wire
+12VDC
Not Used
Ground
Twisted pair, 18 AWG (0.823 mm²) wire
Expandable Controller TB4
Compact Controller TB1
Two-Reader Board TB7
Input and Output Boards TB11
(We recommend no more than 2 Output Boards powered via one power supply output.)
Power to PremiSys Expandable Controller, Compact Controller, Two-Reader Board, Input Board, Output Board using optional Altronix® Power Supply


Negative (-)
Positive (+)
DC Output
10 A @ 12 VDC
Observe polarity for all DC wiring
Use twisted pair, 18 AWG (0.823 mm²) wire
+12VDC
Not Used
Ground
Twisted pair, 18 AWG (0.823 mm²) wire
Expandable Controller TB4
Compact Controller TB1
Two-Reader Board TB7
Input and Output Boards TB11
Power to PremiSys Expandable Controller, Compact Controller, Two-Reader Board, Input Board, Output Board using optional Ten-Amp Power Supply


Negative (-)
Positive (+)
DC Output
4 A @ 12 VDC
Observe polarity for all DC wiring
Use twisted pair, 18 AWG (0.823 mm²) wire
+12VDC
Not Used
Ground
Twisted pair, 18 AWG (0.823 mm²) wire
Expandable Controller TB4
Compact Controller TB1
Two-Reader Board TB7
Input and Output Boards TB11
Power to PremiSys Expandable Controller, Compact Controller, Two-Reader Board, Input Board, Output Board using optional Three-Amp Power Supply

The Two-Reader Board has 20 LEDs:

- **LEDs** A and B indicate operation and communication of the board with the connected controller, as described below.
- **LEDs** R1 and R2 indicate the status of the board's readers, as described below.
- **LEDs** 1 through 8 indicate when the relevant input on the board goes into alarm, as described below.
- **LEDs** CT and PFL indicate the status of the dedicated inputs for cabinet tamper (CT) and power fault (PFL), as described below.

LED A indicates the heartbeat and online/offline status of the board as follows:

- If the board is **offline**, the LED cycles **off** for 800msec and **on** for 200msec.
- If the board is **online**, the LED cycles **on** for 800msec and **off** for 200msec.

LED B indicates communication activity on the RS-485 bus, not necessarily on the Two-Reader Board.

LEDs R1 and **R2** light to show activity at their respective readers.

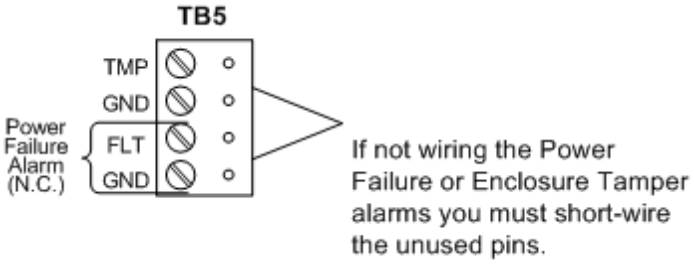
LEDs 1 through **8** flash every few seconds when the inputs are in a normal state. They glow steadily with an intermittent flash when their respective points go into alarm. They flash off and on several times every second when there is a fault (short) in the circuit. LEDs for points not in alarm continue to flash every few seconds when other points go into alarm.

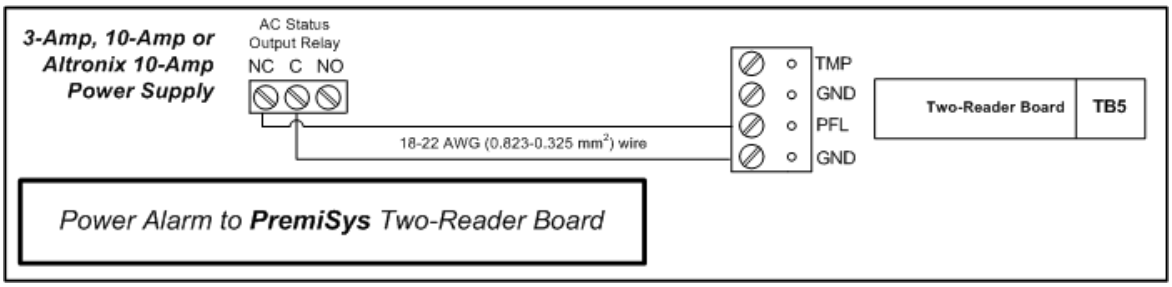
LEDs CT and **PFL** flash every few seconds when the inputs are in a normal state. They glow steadily with an intermittent flash when their respective points go into alarm.

LEDs K1 through **K6** remain unlit if their respective relays are inactive. If a relay is active, its LED glows steadily.

Wiring a Two-Reader Board to Monitor for UPS Power Loss

The PremiSys™ Two-Reader Board has dedicated inputs on terminal block 5 (see image below) for use as Enclosure Tamper and Power Failure Alarms. If these dedicated inputs are not wired for their intended use, install a shorting wire on each of them.

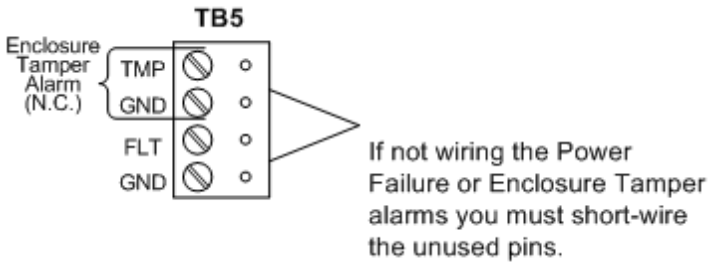




TB 5		
Power Failure	TB5-1	Ground
	TB5-2	Input 1

Wiring a Two-Reader Board Enclosure Tamper

The PremiSys™ Two-Reader Board has dedicated inputs on terminal block 5 (see image below) for use as Enclosure Tamper and Power Failure Alarms. If these dedicated inputs are not wired for their intended use, install a shorting wire on each of them.

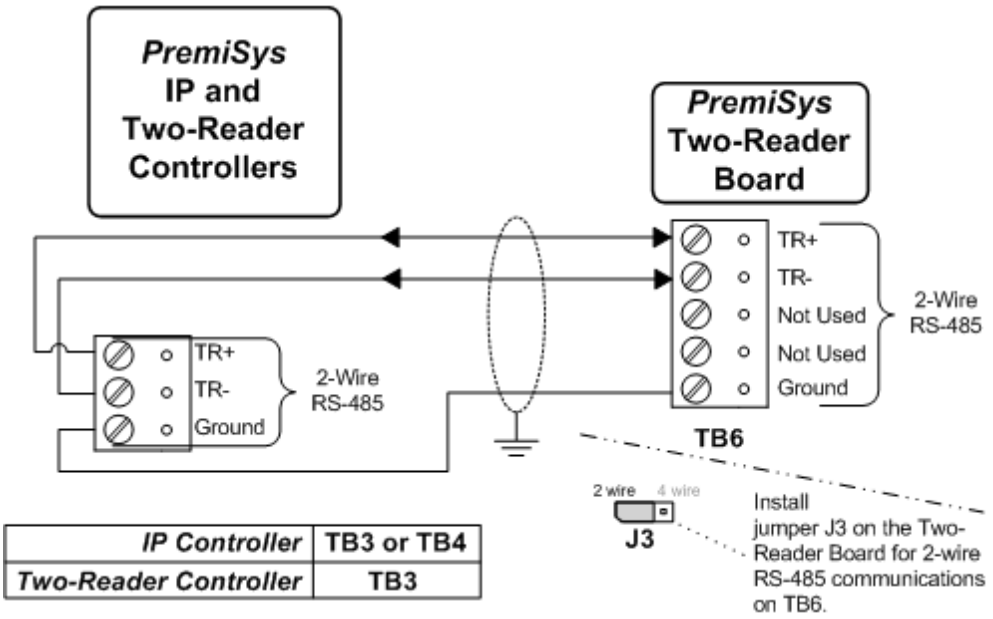


TB 5		
Enclosure Tamper	TB5-3	Ground
	TB5-4	Input 1

Wiring a Two-Reader Board to a Controller

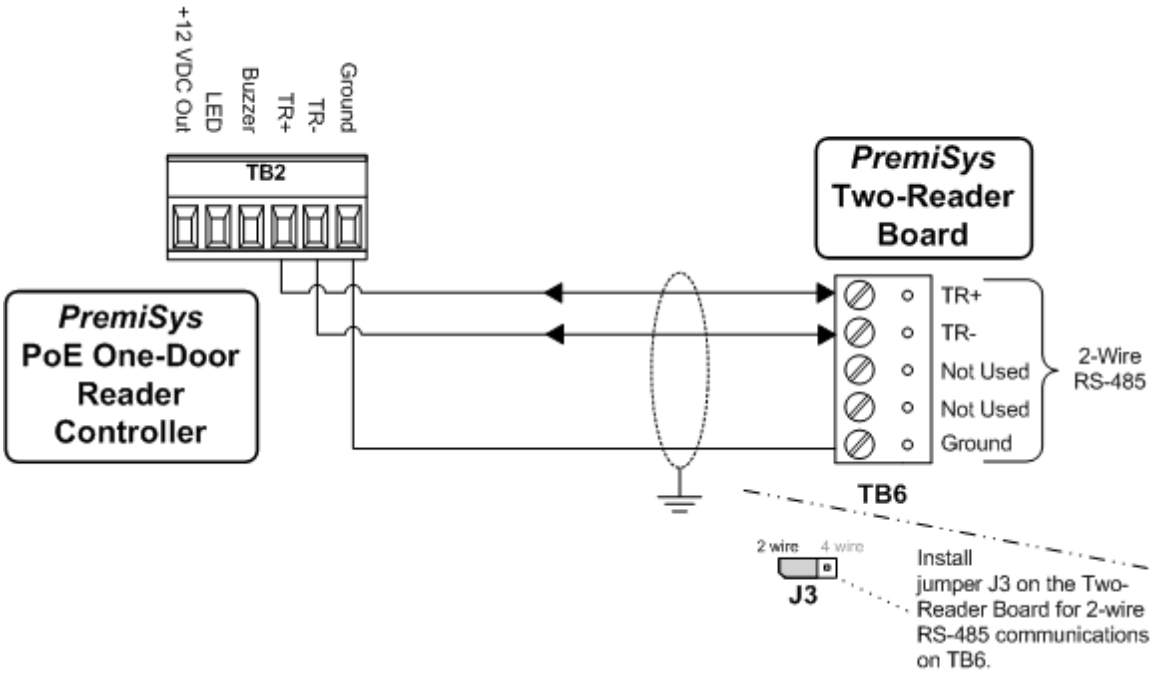
Note: Listed below are the maximum numbers of Two-Reader Boards you can connect to each of the named controllers. In parentheses are the maximum numbers of allowable doors (readers) on each controller:
IP Controller - 64 (64)

Two-Reader Controller - 32 (64)
PoE One-Door Reader Controller - 8 (17)

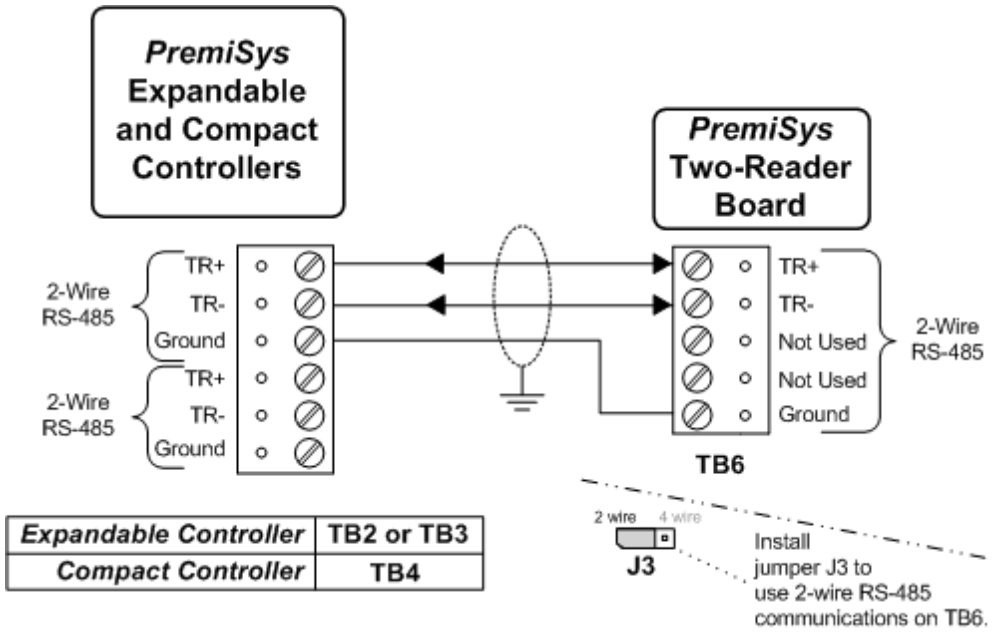


IP Controller	TB3 or TB4
Two-Reader Controller	TB3

IMPORTANT! Install Jumper J3 exactly as illustrated in the diagram above! Four-wire RS-485 cannot be used!



IMPORTANT! Install Jumper J3 exactly as illustrated in the diagram above! Four-wire RS-485 cannot be used!

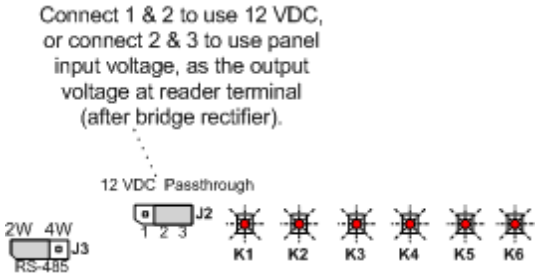


IMPORTANT! Install Jumper J3 exactly as illustrated in the diagram above! Four-wire RS-485 cannot be used!

Wiring a Two-Reader Board to Wiegand and ABA Readers

The Two-Reader Board can be powered with the 12 VDC supplied by any PremiSys™ power source. Then, to power the readers from the board, choose the selection in which the board-input voltage is passed through to the reader terminal block. Exercise caution to be sure that the voltage supplied to the Two-Reader Board is not too great for the reader to handle.

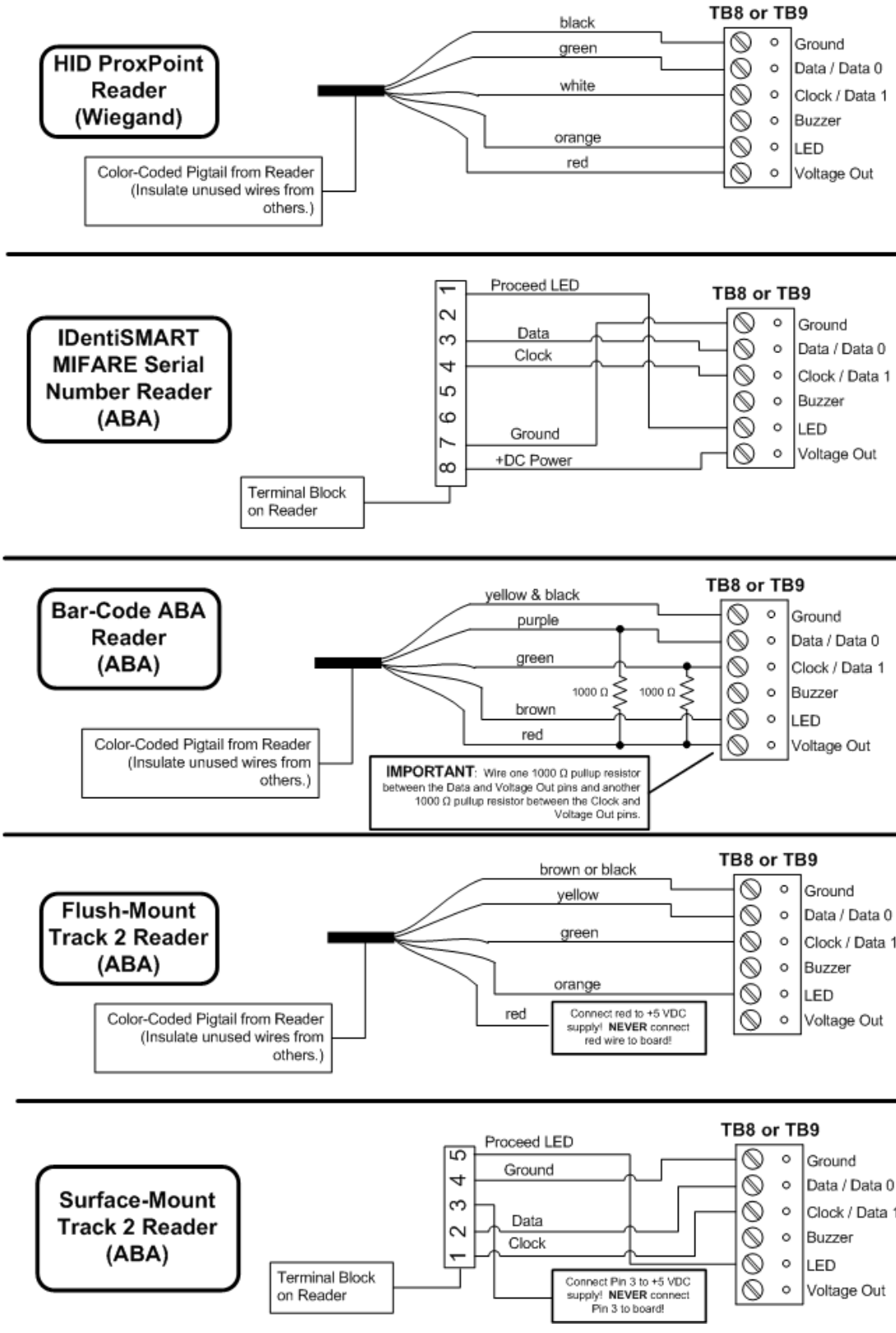
The voltage selection is made using jumper J2 on the Two-Reader Board.



Refer to the documentation enclosed with individual readers if the readers:

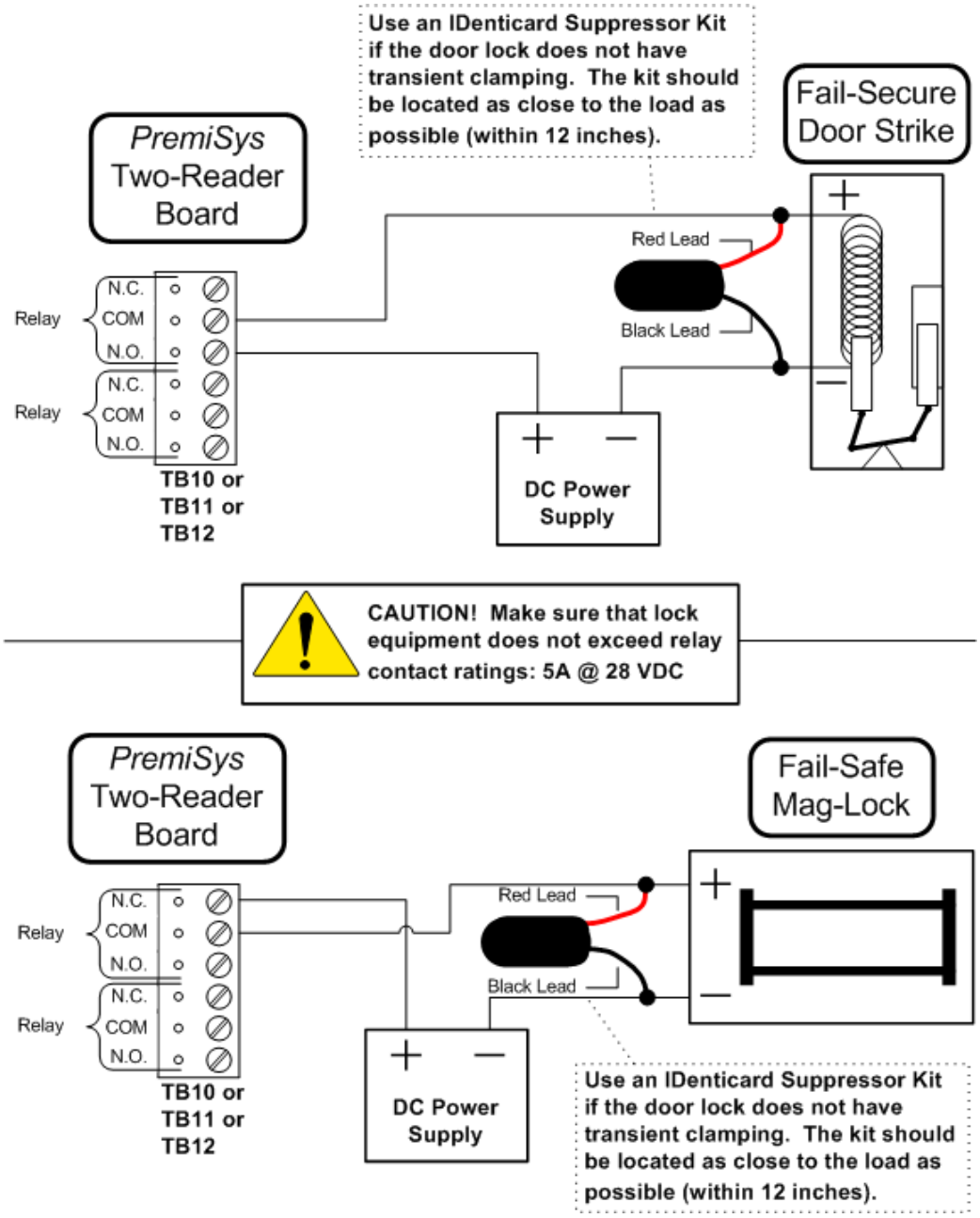
- Use a terminal block for connection to the board rather than a “pigtail” cable as shown below. Always double-check the color-coding scheme of any reader using a pigtail. The scheme depicted in this illustration is a very common standard, but may not necessarily be universal.
- Must have their own separate power source and not be powered from the Two-Reader Board.

IMPORTANT! When powering this board using either the Three-Amp or Ten-Amp Power Supplies, choose to pass the voltage through to the reader ports. You must provide at least 20 VDC of input voltage to the Two-Reader Board input to obtain regulated 12 VDC at the reader ports.


HID ProxPoint Reader (Wiegand)
Color-Coded Pigtail from Reader (Insulate unused wires from others.)
black
green
white
orange
red
TB8 or TB9
Ground
Data / Data 0
Clock / Data 1
Buzzer
LED
Voltage Out
IDentiSMART MIFARE Serial Number Reader (ABA)
Terminal Block on Reader
1 2 3 4 5 6 7 8
Proceed LED
Data
Clock
Ground
+DC Power
Bar-Code ABA Reader (ABA)
Color-Coded Pigtail from Reader (Insulate unused wires from others.)
yellow & black
purple
green
brown
red
1000 Ω
1000 Ω
IMPORTANT: Wire one 1000 Ω pullup resistor between the Data and Voltage Out pins and another 1000 Ω pullup resistor between the Clock and Voltage Out pins.
Flush-Mount Track 2 Reader (ABA)
Color-Coded Pigtail from Reader (Insulate unused wires from others.)
brown or black
yellow
green
orange
red
Connect red to +5 VDC supply! NEVER connect red wire to board!
Surface-Mount Track 2 Reader (ABA)
Terminal Block on Reader
1 2 3 4 5
Proceed LED
Ground
Data
Clock
Connect Pin 3 to +5 VDC supply! NEVER connect Pin 3 to board!

Reader 1		**Reader 2**	
TB8-1	Reader Ground	TB9-1	Reader Ground
TB8-2	Data / Data 0	TB9-2	Data / Data 0
TB8-3	Clock / Data 1	TB9-3	Clock / Data 1
TB8-4	Buzzer	TB9-4	Buzzer
TB8-5	Proceed LED	TB9-5	Proceed LED
TB8-6	Voltage to reader	TB9-6	Voltage to reader

Wiring a Two-Reader Board to Door Strike and Magnetic Lock



Wiring a PremiSys Two-Reader Board to Door Strike and Magnetic Lock (continued)

TB 10 (Output = Relay)		**TB 11** (Output = Relay)	
TB10-1	Relay 2: Normally open	TB11-1	Relay 4: Normally open
TB10-2	Relay 2: Common	TB11-2	Relay 4: Common
TB10-3	Relay 2: Normally closed	TB11-3	Relay 4: Normally closed
TB10-4	Relay 1: Normally open	TB11-4	Relay 3: Normally open
TB10-5	Relay 1: Common	TB11-5	Relay 3: Common
TB10-6	Relay 1: Normally closed	TB11-6	Relay 3: Normally closed

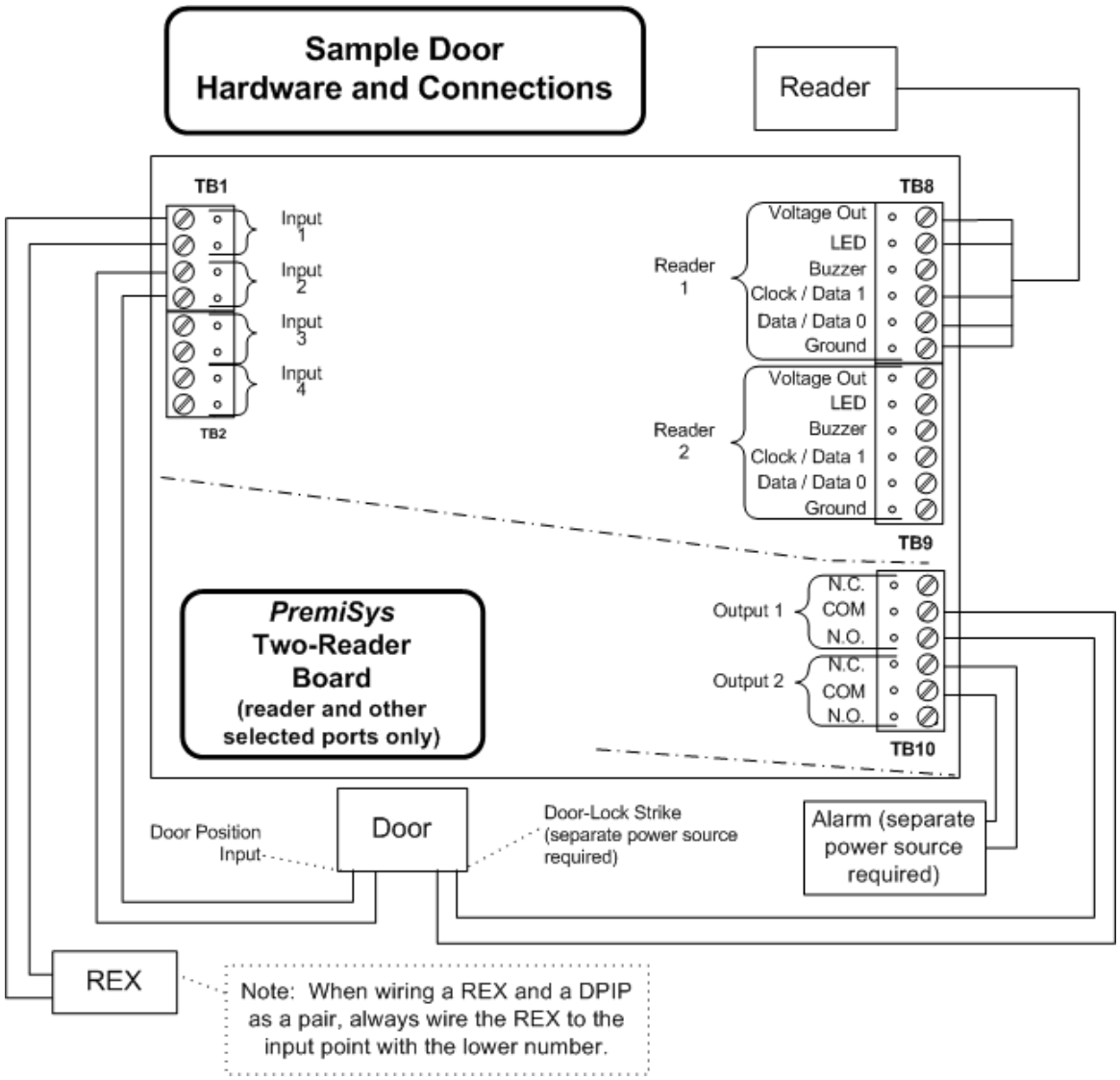
TB 12 (Output = Relay)	
TB12-1	Relay 6: Normally open
TB12-2	Relay 6: Common
TB12-3	Relay 6: Normally closed
TB12-4	Relay 5: Normally open
TB12-5	Relay 5: Common
TB12-6	Relay 5: Normally closed

Connecting Inputs and Relays on the Two-Reader Board

Relays may be wired normally open or normally closed, depending on the needs of the devices they are controlling.

Specify the output configuration (normally open, normally closed, normal action, inverted action) when setting up each relay in the software. See the PremiSys™ Online Help for details.

IMPORTANT! Any device switched by a relay should be powered from "outside" the PremiSys system.



IMPORTANT! Inputs on a single board are normally processed in ascending numeric sequence when they change state simultaneously or nearly simultaneously. Consequently, if wiring a REX input point and a door-position input point in a pair, make sure that the door-position input point has a higher input number than the REX point paired with it.

In the example illustrated above, the REX is wired to Input 1 and the door-position input point to Input 2. In this way, if the state changes on these points appear simultaneously, the system will process the REX before the door-open state, and therefore prevent a door-forced alarm, which would result if the points were processed in the reverse order.

If you cannot wire the points in the proper order, a means exists in the PremiSys

software to override this processing. See the PremiSys Online Help for details.

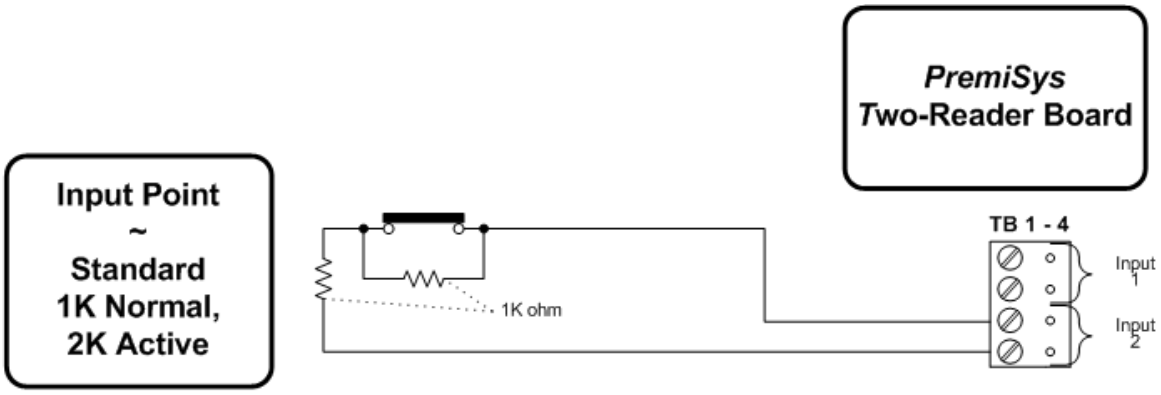
Wiring Supervised Input Points on the Two-Reader Board

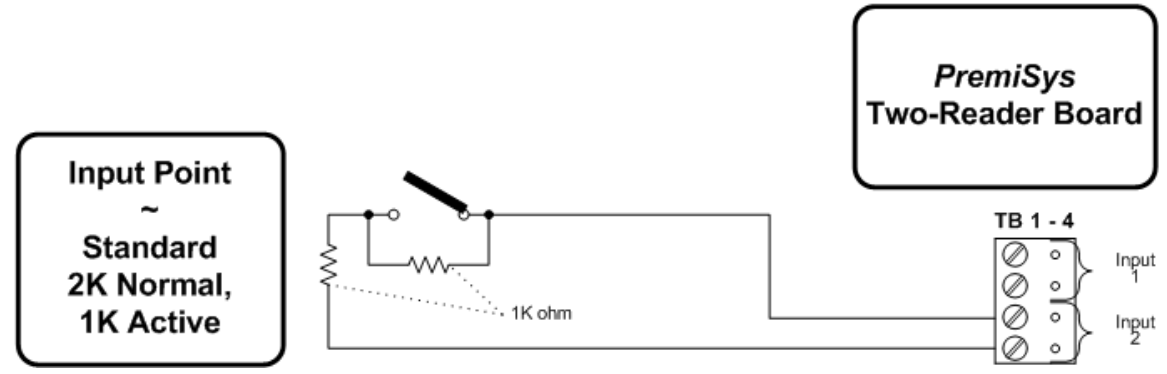
Supervised inputs such as these can be used for door-position input points or any other input that requires supervision. See the topic "Wiring Unsupervised Input Points on the PremiSys Two-Reader Board 220" to wire inputs that do not require supervision.

PremiSys™ supports only the standard “1 K normal, 2 K active” and “2 K normal, 1 K active” supervision modes depicted here.

Input circuits require one twisted pair per input and are rated at 30 ohms maximum.

IMPORTANT! Inputs on a single board are normally processed in ascending numeric sequence when they change state simultaneously or nearly simultaneously. Consequently, if wiring a REX input point and a door-position input point in a pair on a Two-Reader Board, make sure that the door-position input point has a higher input number than the REX point paired with it.





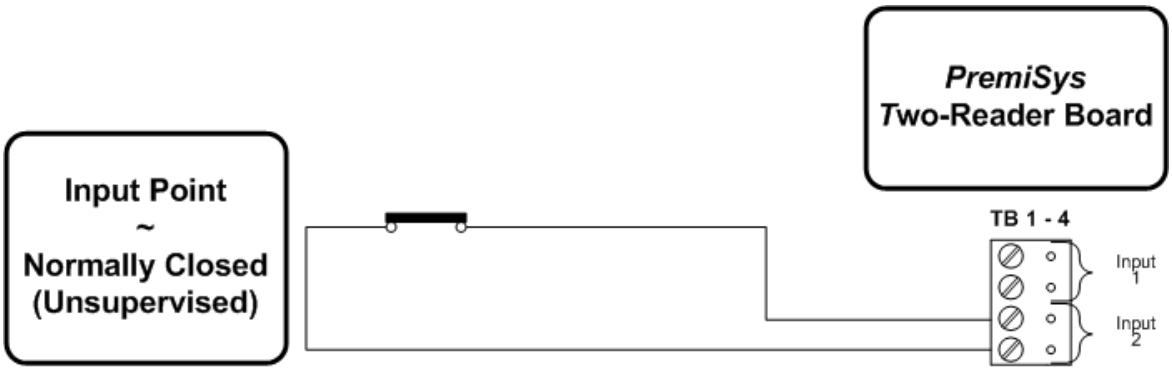
TB1		**TB2**	
TB1-1	Input 1	TB2-1	Input 3
TB1-2	Input 1	TB2-2	Input 3
TB1-3	Input 2	TB2-3	Input 4
TB1-4	Input 2	TB2-4	Input 4

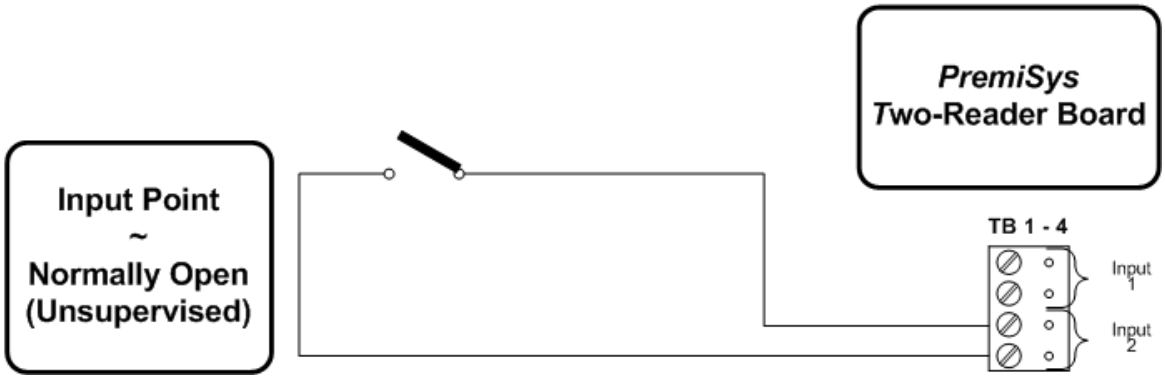
TB3		**TB4**	
TB3-1	Input 5	TB4-1	Input 7
TB3-2	Input 5	TB4-2	Input 7
TB3-3	Input 6	TB4-3	Input 8
TB3-4	Input 6	TB4-4	Input 8

Wiring Unsupervised Input Points on the Two-Reader Board

Unsupervised inputs such as these can be used for REXes, general-purpose input points or any other input that does not require supervision. See the topic "Wiring Supervised Input Points on the PremiSys Two-Reader Board 219" to wire inputs that require supervision.

Input circuits require one twisted pair per input and are rated at 30 ohms maximum.





TB1		**TB2**	
TB1-1	Input 1	TB2-1	Input 3
TB1-2	Input 1	TB2-2	Input 3
TB1-3	Input 2	TB2-3	Input 4
TB1-4	Input 2	TB2-4	Input 4

TB3		**TB4**	
TB3-1	Input 5	TB4-1	Input 7
TB3-2	Input 5	TB4-2	Input 7
TB3-3	Input 6	TB4-3	Input 8
TB3-4	Input 6	TB4-4	Input 8

Two-Reader Board LEDs

The Two-Reader Board has 20 LEDs:

LED			
A	Heartbeat and online status indicator		
B	"On" indicates I/O communication		
Input	**Flash every few seconds**	**Steady glow with intermittent flash**	**Multiple flashes every second**
1	Point 1 Alarm	Point 1 Normal	Point 1 Trouble
2	Point 2 Alarm	Point 2 Normal	Point 2 Trouble
3	Point 3 Alarm	Point 3 Normal	Point 3 Trouble
4	Point 4 Alarm	Point 4 Normal	Point 4 Trouble
5	Point 5 Alarm	Point 5 Normal	Point 5 Trouble
6	Point 6 Alarm	Point 6 Normal	Point 6 Trouble
7	Point 7 Alarm	Point 7 Normal	Point 7 Trouble
8	Point 8 Alarm	Point 8 Normal	Point 8 Trouble
	Flash	**On**	
Tamper	Enclosure secure	Enclosure tamper	

Power Fault	Power normal	Power lost
Reader		
Reader 1	"**On**" indicates Reader 1 port communication activity	
Reader 2	"**On**" indicates Reader 2 port communication activity	
Relay LED	**Off**	**On**
1	Relay 1 de-energized	Relay 1 energized
2	Relay 2 de-energized	Relay 2 energized
3	Relay 3 de-energized	Relay 3 energized
4	Relay 4 de-energized	Relay 4 energized
5	Relay 5 de-energized	Relay 5 energized
6	Relay 6 de-energized	Relay 6 energized

LEDs A and B indicate operation and communication of the board with the connected controller, as described below:

LED A indicates the heartbeat and online/offline status of the board as follows:

- If the board is **offline**, the LED cycles **off** for 800msec and **on** for 200msec.
- If the board is **online**, the LED cycles **on** for 800msec and **off** for 200msec.

LED B indicates communication activity on the RS-485 bus, not necessarily on the Two-Reader Board.

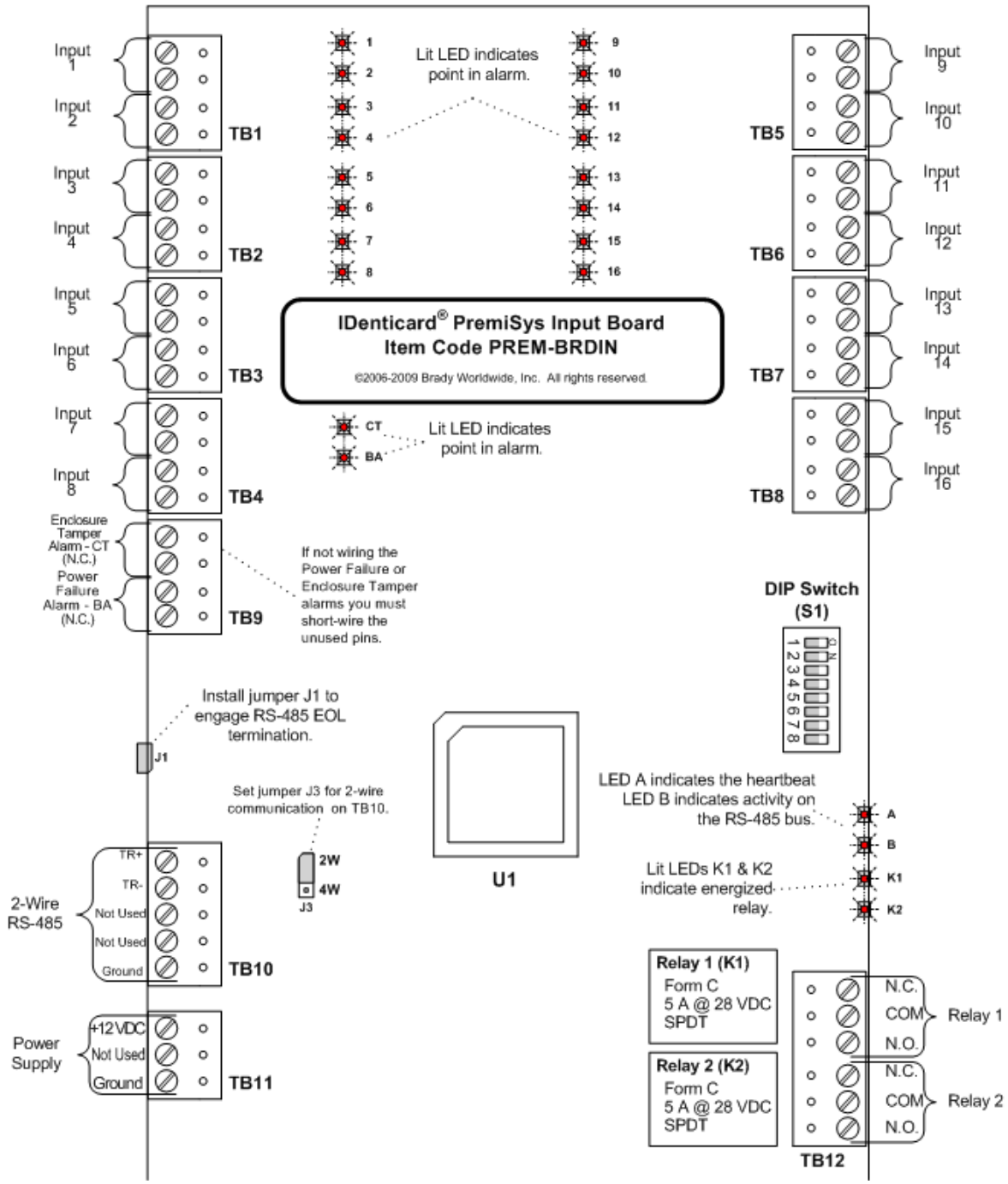
LEDs R1 and **R2** light to show activity at their respective readers.

LEDs 1 through **8** flash every few seconds when the inputs are in a normal state. They glow steadily with an intermittent flash when their respective points go into alarm. They flash off and on several times every second when there is a fault (short) in the circuit. LEDs for points not in alarm continue to flash every few seconds when other points go into alarm.

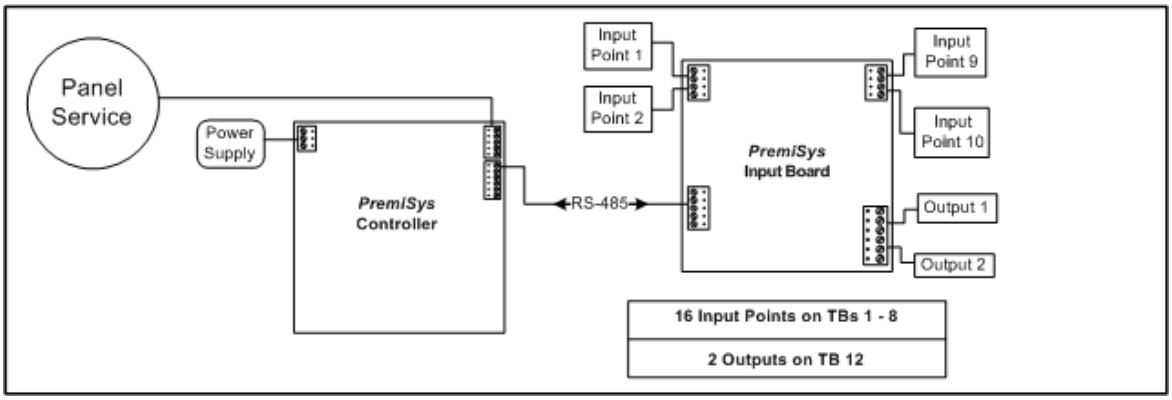
LEDs CT and **PFL** flash every few seconds when the inputs are in a normal state. They glow steadily with an intermittent flash when their respective points go into alarm.

LEDs K1 through **K6** remain unlit if their respective relays are inactive. If a relay is active, its LED glows steadily.

PremiSys Input Board



Sample General Configuration for a PremiSys Input Board Connected to a PremiSys Controller, a Reader and Auxiliary Equipment



Input Board Specifications

Certifications for the Input Board

UL: recognized to UL 294: Access Control System Units - component
CE: EN55022, EN50082-1, IEC801-2, IEC801-3 and IEC801-4

Dimensions and Weight of the Input Board

Board Width	8.0 inches (203 mm)
Board Height	6.0 inches (152 mm)
Board Depth	1.0 inch (25 mm)
Board Weight	9 ounces (290 g) (nominal)

Environmental Specifications for the Input Board

Temperature	32°F to 158°F (0°C to 70°C) operating -67°F to 185°F (-55°C to 85°C) storage
Relative Humidity	0 to 95% RH noncondensing

Power Specifications for the Input Board

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 VDC ± 10%, 350 mA, 300 mA nominal
Relay Ratings (each of two relays)	5 A at 28 VDC, noninductive load
Relay Contact Type	Form C
Relay Configuration	Single-pole double-throw (SPDT)

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the Input Board

Power to Input Board	Twisted pair, 18 AWG (0.823 mm^2).
RS-485 Connection to PremiSys Controller	Twisted pairs, 22 AWG (0.325 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
Connection to Relay-Controlled Devices	Use wire and gauge as required by load.
Connection to Input-Point Devices	One twisted pair per input, 30 ohms maximum

Communications Specifications for the Input Board

To PremiSys Controller or MUX Board	Two-wire RS-485, via TB1, 2,400-38,400 bps.

Access-Control Specifications for the Input Board

Inputs – Assignable	16 supervised inputs with end-of-line (EOL) resistors, 1K / 2K ohm 1% ¼ watt standard
Input – Dedicated	Two unsupervised, dedicated inputs for enclosure tamper and power loss.

Indicators on the Input Board

Visible	22 red, single-color LEDs

Input Board DIP Switches - Chart

	Switches							
Selection	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Address 0	Off	Off	Off	Off	Off			
Address 1	**On**	Off	Off	Off	Off			
Address 2	Off	**On**	Off	Off	Off			
Address 3	**On**	**On**	Off	Off	Off			
Address 4	Off	Off	**On**	Off	Off			

Address 5	**On**	Off	**On**	Off	Off			
Address 6	Off	**On**	**On**	Off	Off			
Address 7	**On**	**On**	**On**	Off	Off			
Address 8	Off	Off	Off	**On**	Off			
Address 9	**On**	Off	Off	**On**	Off			
Address 10	Off	**On**	Off	**On**	Off			
Address 11	**On**	**On**	Off	**On**	Off			
Address 12	Off	Off	**On**	**On**	Off			
Address 13	**On**	Off	**On**	**On**	Off			
Address 14	Off	**On**	**On**	**On**	Off			
Address 15	**On**	**On**	**On**	**On**	Off			
Address 16	Off	Off	Off	Off	**On**			
Address 17	**On**	Off	Off	Off	**On**			
Address 18	Off	**On**	Off	Off	**On**			
Address 19	**On**	**On**	Off	Off	**On**			
Address 20	Off	Off	**On**	Off	**On**			
Address 21	**On**	Off	**On**	Off	**On**			
Address 22	Off	**On**	**On**	Off	**On**			
Address 23	**On**	**On**	**On**	Off	**On**			
Address 24	Off	Off	Off	**On**	**On**			
Address 25	**On**	Off	Off	**On**	**On**			
Address 26	Off	**On**	Off	**On**	**On**			
Address 27	**On**	**On**	Off	**On**	**On**			
Address 28	Off	Off	**On**	**On**	**On**			
Address 29	**On**	Off	**On**	**On**	**On**			
Address 30	Off	**On**	**On**	**On**	**On**			
Address 31	**On**	**On**	**On**	**On**	**On**			
2400 bps						Off	Off	
9600 bps						**On**	Off	
19,200 bps						Off	**On**	
38,400 bps						**On**	**On**	
Not used								Off

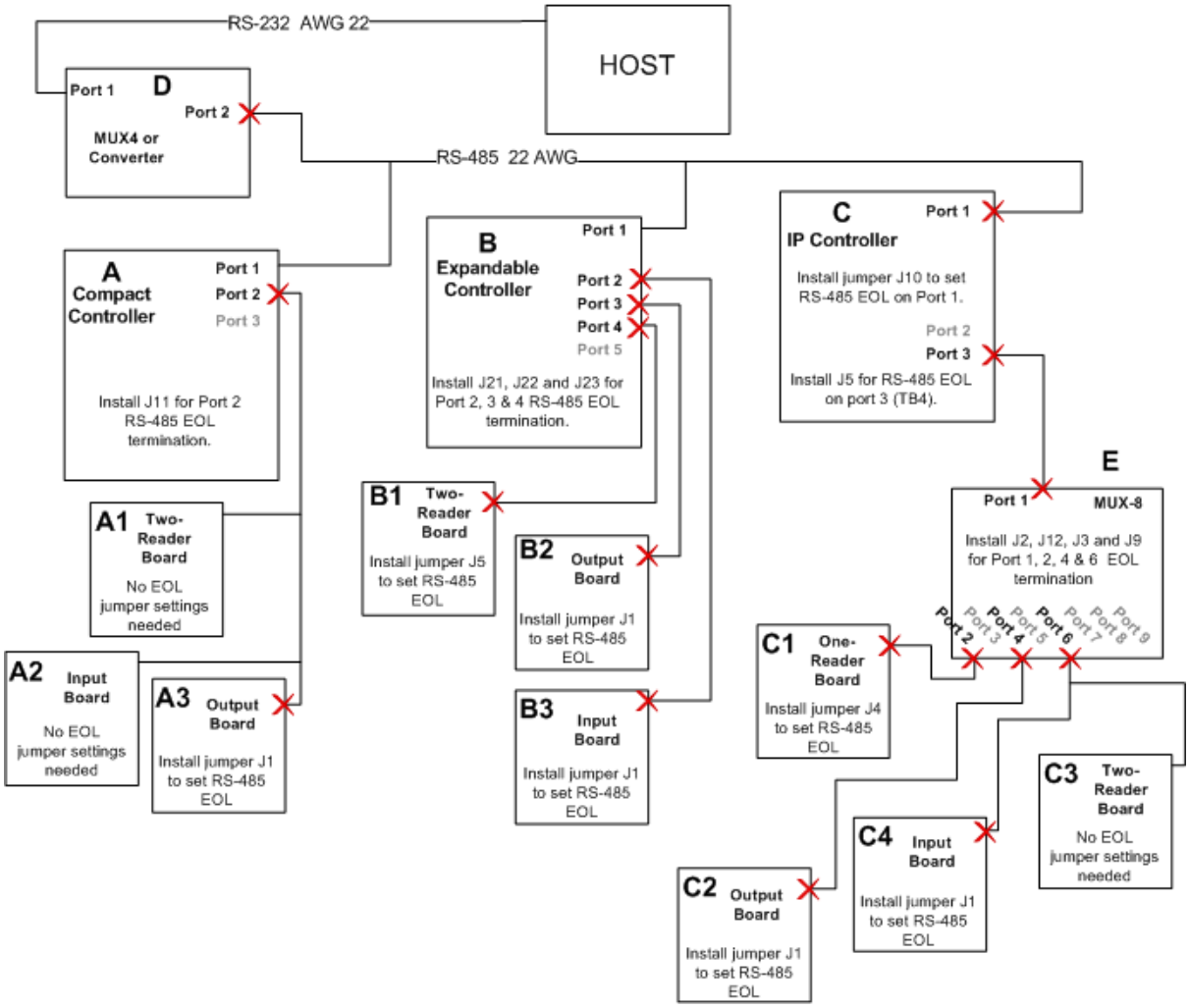
Wiring an Input Board Jumper Settings

Jumper	Setting	Selection
J1	Off	RS-485 EOL termination on TB10 is disabled.
	On	RS-485 EOL termination on TB10 is enabled.
J2	Off	RS-485 EOL termination on TB10 is disabled.
	On	RS-485 EOL termination on TB10 is enabled.
J3	2W	TB10 uses two-wire RS-485 communications
	4W	Not Used – Do not select

Setting End-of-Line (EOL) Resistance for the Input Board

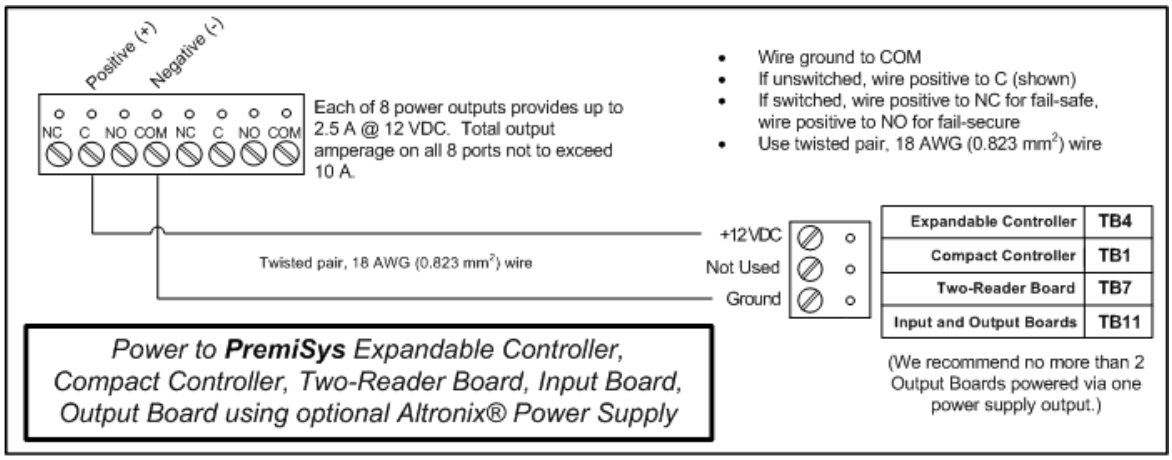
If the Input Board is the last board on a bus, install jumper J1 to set RS-485 EOL.

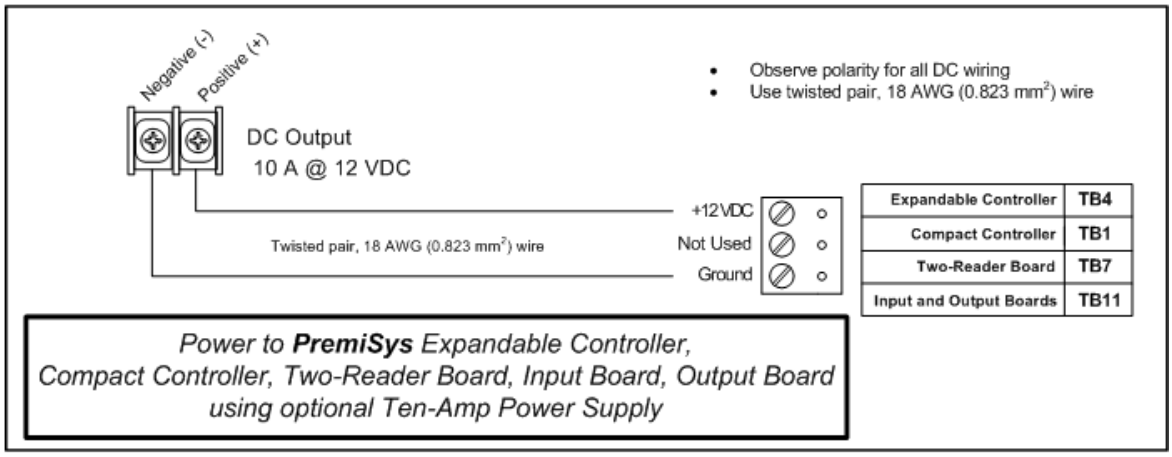
In the diagram below, boards A3, B1, B2, B3, C1, C2 and C3 should be set as end-of-line. The originating port on the associated controller should also be set for end-of-line.

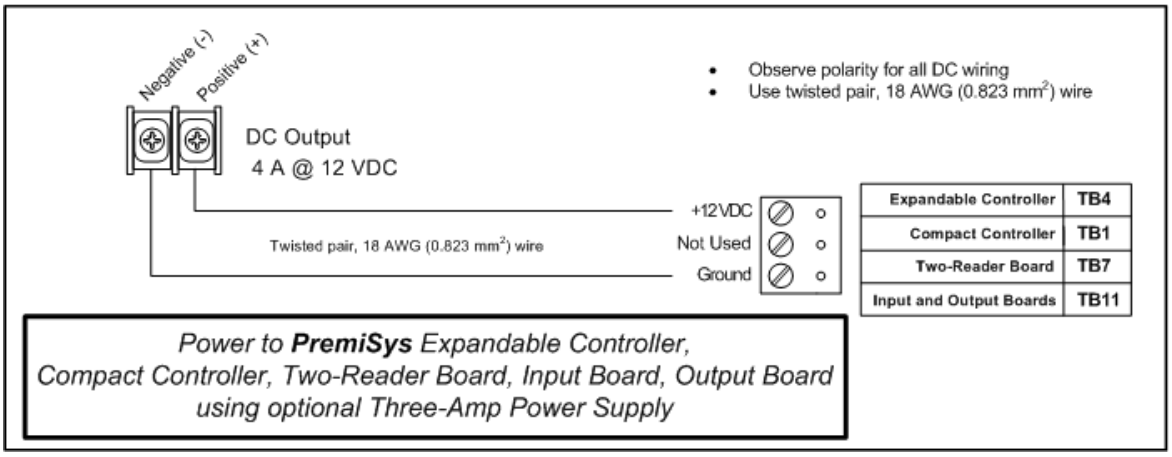


Wiring an Input Board to a Power Supply

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.



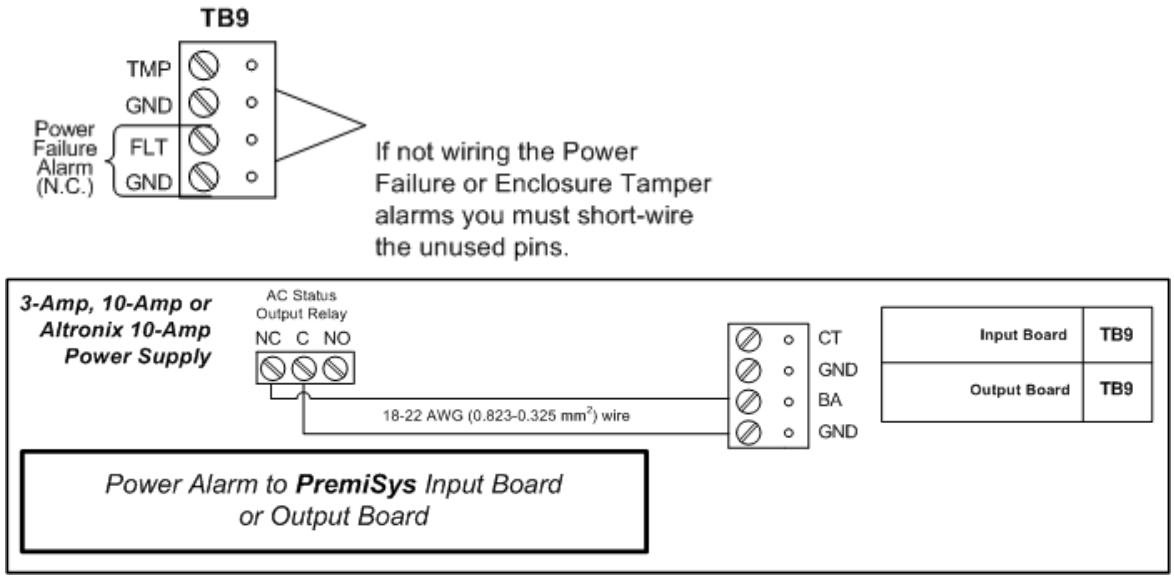




Wiring an Input Board to Monitor for UPS Power Loss

The PremiSys™ Input Board has dedicated inputs on terminal block 9 for use as Enclosure Tamper and Power Failure Alarms. If these dedicated inputs are not wired for their intended use, install a shorting wire on each of them.

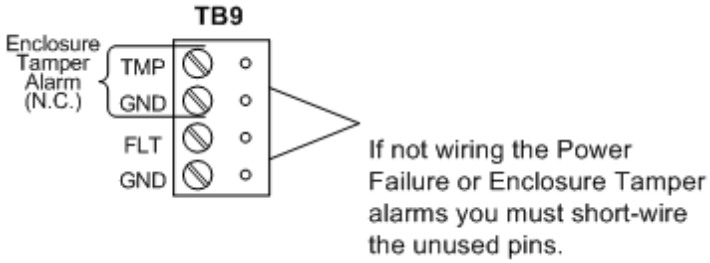
TB 9		
Power Failure	TB9-3	Input
	TB9-4	Return



Wiring an Input Board Enclosure Tamper

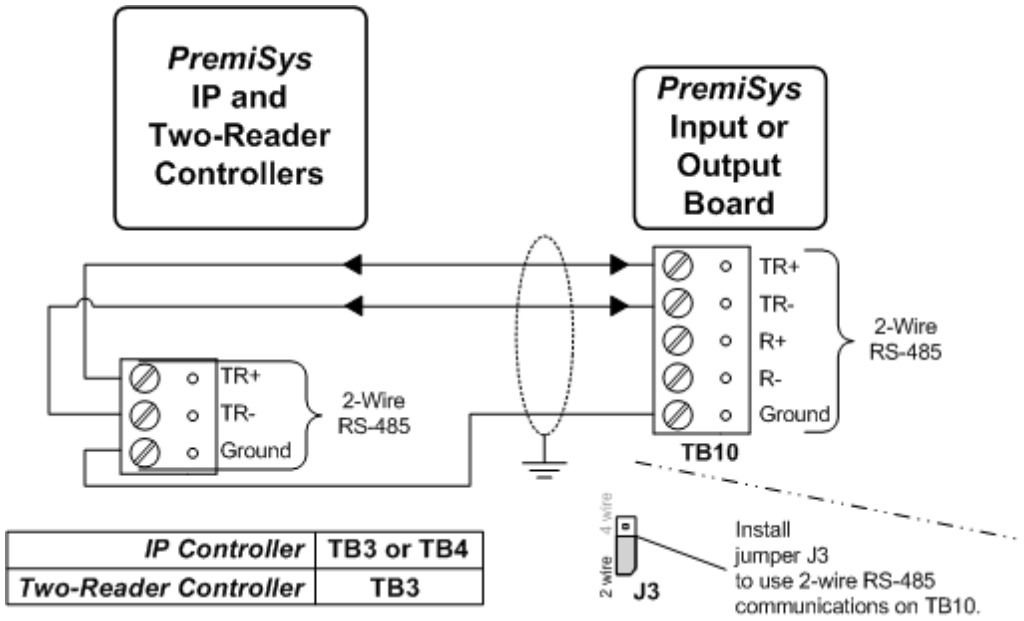
The PremiSys™ Input Board has dedicated inputs on terminal block 9 for use as Enclosure Tamper and Power Failure Alarms. If these dedicated inputs are not wired for their intended use, install a shorting wire on each of them.

TB 9		
Enclosure Tamper	TB9-1	Input
	TB9-2	Return



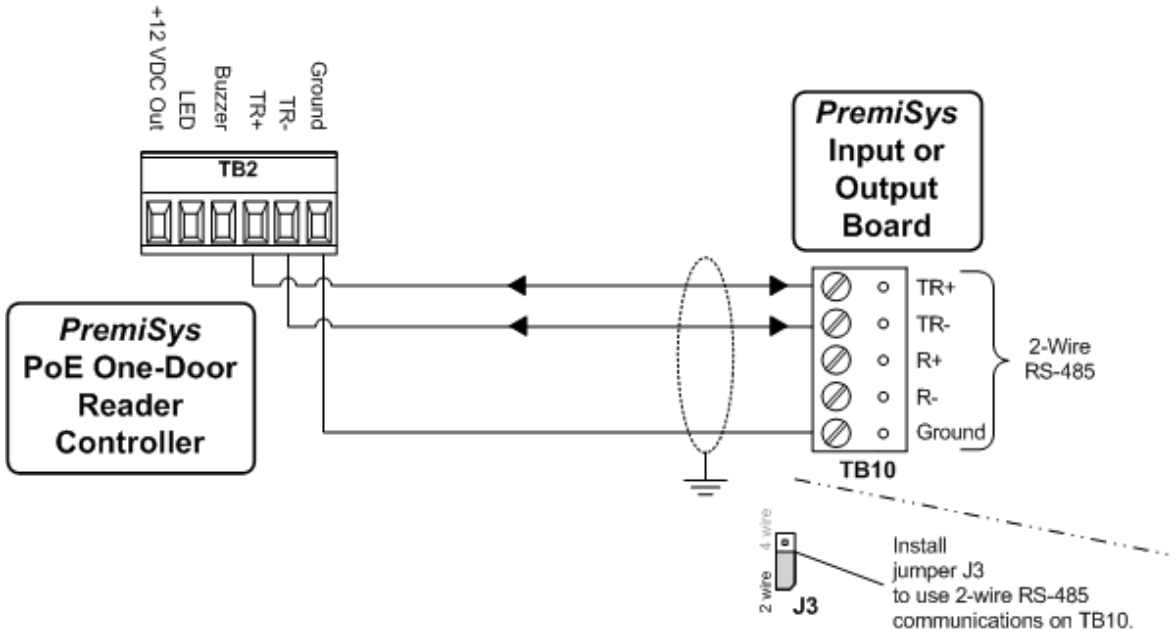
Wiring an Input Board to a Controller

Note: Listed below are the maximum numbers of Input Boards you can connect to each of the named controllers:
IP Controller - 64
Two-Reader Controller - 32
PoE One-Door Reader Controller - 8

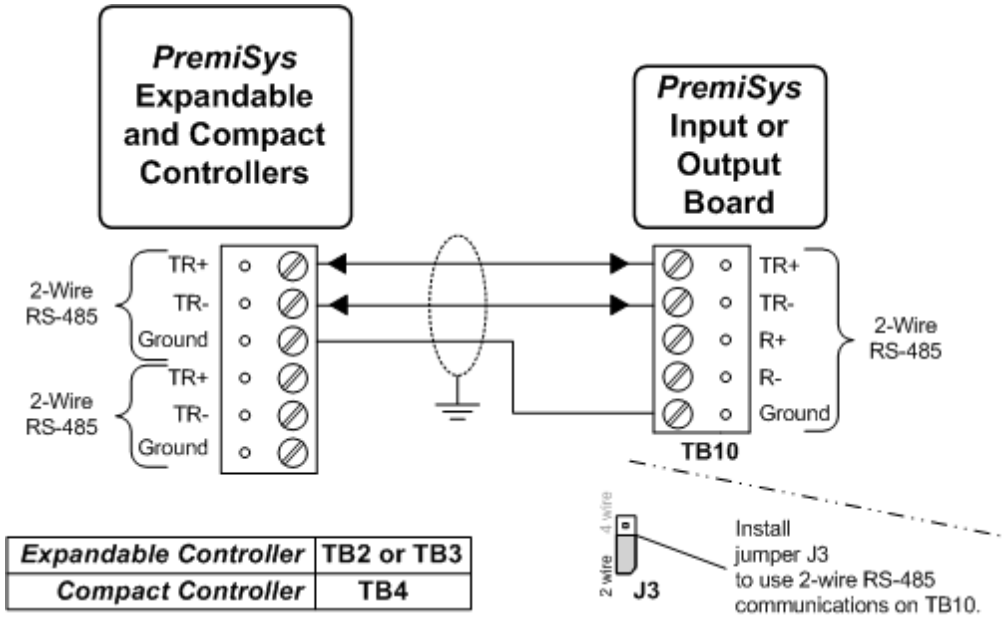


IP Controller	TB3 or TB4
Two-Reader Controller	TB3

IMPORTANT! Install Jumper J3 exactly as illustrated in the diagram above! Four-wire RS-485 cannot be used!



IMPORTANT! Install Jumper J3 exactly as illustrated in the diagram above! Four-wire RS-485 cannot be used!



Expandable Controller	TB2 or TB3
Compact Controller	TB4

IMPORTANT! Install Jumper J3 exactly as illustrated in the diagram above! Four-wire RS-485 cannot be used!

Connecting Input Points on an Input Board

Inputs may be wired with normally open or normally closed contact points. They may or may not incorporate two types of supervision. Specify the input configuration (normally open, normally closed, two supervision types) when setting up each input point in the software. See the PremiSys™ Online Help for details.

See the topic "Wiring Supervised Inputs on the PremiSys Input Board"237 to see how to wire inputs that require supervision. See the topic "Wiring Unsupervised Inputs on the PremiSys Input Board238" to see how to wire inputs that do not require supervision.

IMPORTANT! Inputs on a single board are normally processed in ascending numeric sequence when they change state simultaneously or nearly simultaneously. Consequently, if wiring a REX input point and a door-position input point in a pair on an Input Board, make sure that the door-position input point has a higher input number than the REX point paired with it.

TB1		**TB2**	
TB1-1	Input 1	TB2-1	Input 3
TB1-2	Input 1	TB2-2	Input 3
TB1-3	Input 2	TB2-3	Input 4
TB1-4	Input 2	TB2-4	Input 4

TB3		**TB4**	
TB3-1	Input 5	TB4-1	Input 7
TB3-2	Input 5	TB4-2	Input 7
TB3-3	Input 6	TB4-3	Input 8
TB3-4	Input 6	TB4-4	Input 8

TB5		TB6	
TB5-1	Input 9	TB6-1	Input 11
TB5-2	Input 9	TB6-2	Input 12
TB5-3	Input 10	TB6-3	Input 12
TB5-4	Input 10	TB6-4	Input 12

TB7		TB8	
TB7-1	Input 13	TB8-1	Input 15
TB7-2	Input 13	TB8-2	Input 15
TB7-3	Input 14	TB8-3	Input 16
TB7-4	Input 14	TB8-4	Input 16

Wiring Supervised Inputs on the Input Board

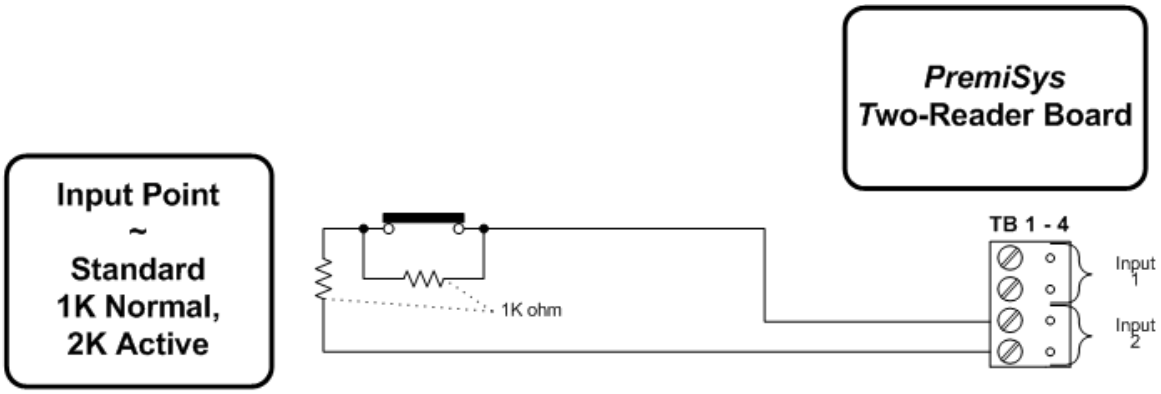
Supervised inputs such as these can be used for door-position input points or any other input that requires supervision. Inputs may be wired with normally open or normally closed contact points. They may incorporate two types of supervision. Specify the input configuration (normally open, normally closed, two supervision types) when setting up each input point in the software. See the PremiSys™ Online Help for details.

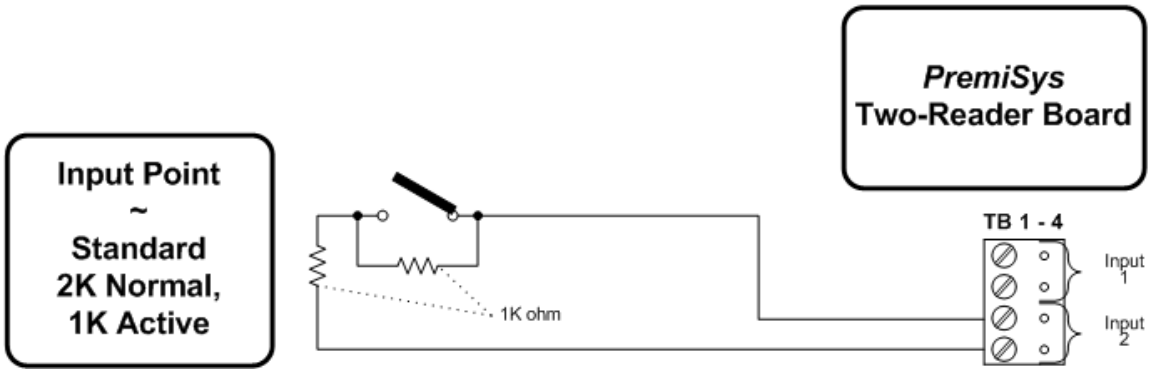
See the topic "Wiring Unsupervised Input Points on the PremiSys Input Board 238" to wire inputs that do not require supervision.

IMPORTANT! Inputs on a single board are normally processed in ascending numeric sequence when they change state simultaneously or nearly simultaneously. Consequently, if wiring a REX input point and a door-position input point in a pair on an Input Board, make sure that the door-position input point has a higher input number than the REX point paired with it.

Input circuits require one twisted pair per input and are rated at 30 ohms maximum.

IMPORTANT! PremiSys supports only the standard "1 K normal, 2 K active" and "2 K normal, 1 K active" supervision modes depicted here.





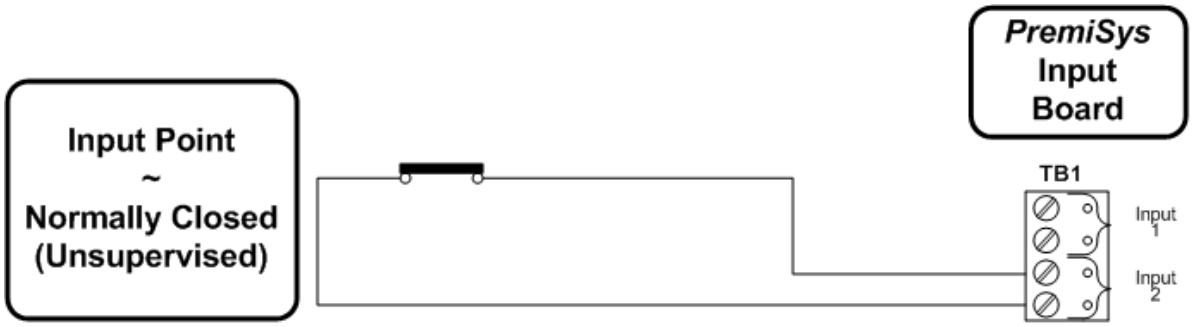
Wiring Unsupervised Inputs on the Input Board

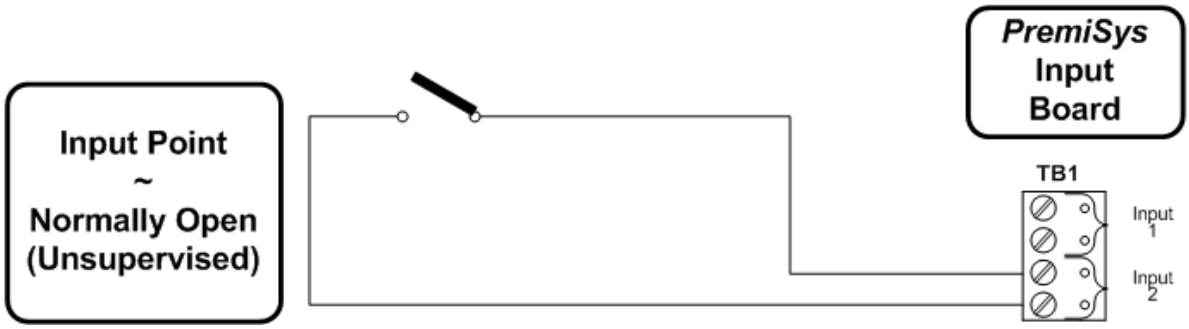
Unsupervised inputs such as these can be used for REXes, general-purpose input points or any other input that does not require supervision. Specify the input configuration (normally open, normally closed, two supervision types) when setting up each input point in the software. See the PremiSys™ Online Help for details.

See the section "Wiring Supervised Inputs on the PremiSys Input Board 237" to see how to wire inputs that require supervision.

IMPORTANT! Inputs on a single board are normally processed in ascending numeric sequence when they change state simultaneously

or nearly simultaneously. Consequently, if wiring a REX input point and a door-position input point in a pair on an Input Board, make sure that the door-position input point has a higher input number than the REX point paired with it.





Relays on an Input Board

TB12 (Relay = Output)	
TB12-1	Relay 2: Normally open
TB12-2	Relay 2: Common
TB12-3	Relay 2: Normally closed
TB12-4	Relay 1: Normally open
TB12-5	Relay 1: Common
TB12-6	Relay 1: Normally closed

Input Board LEDs

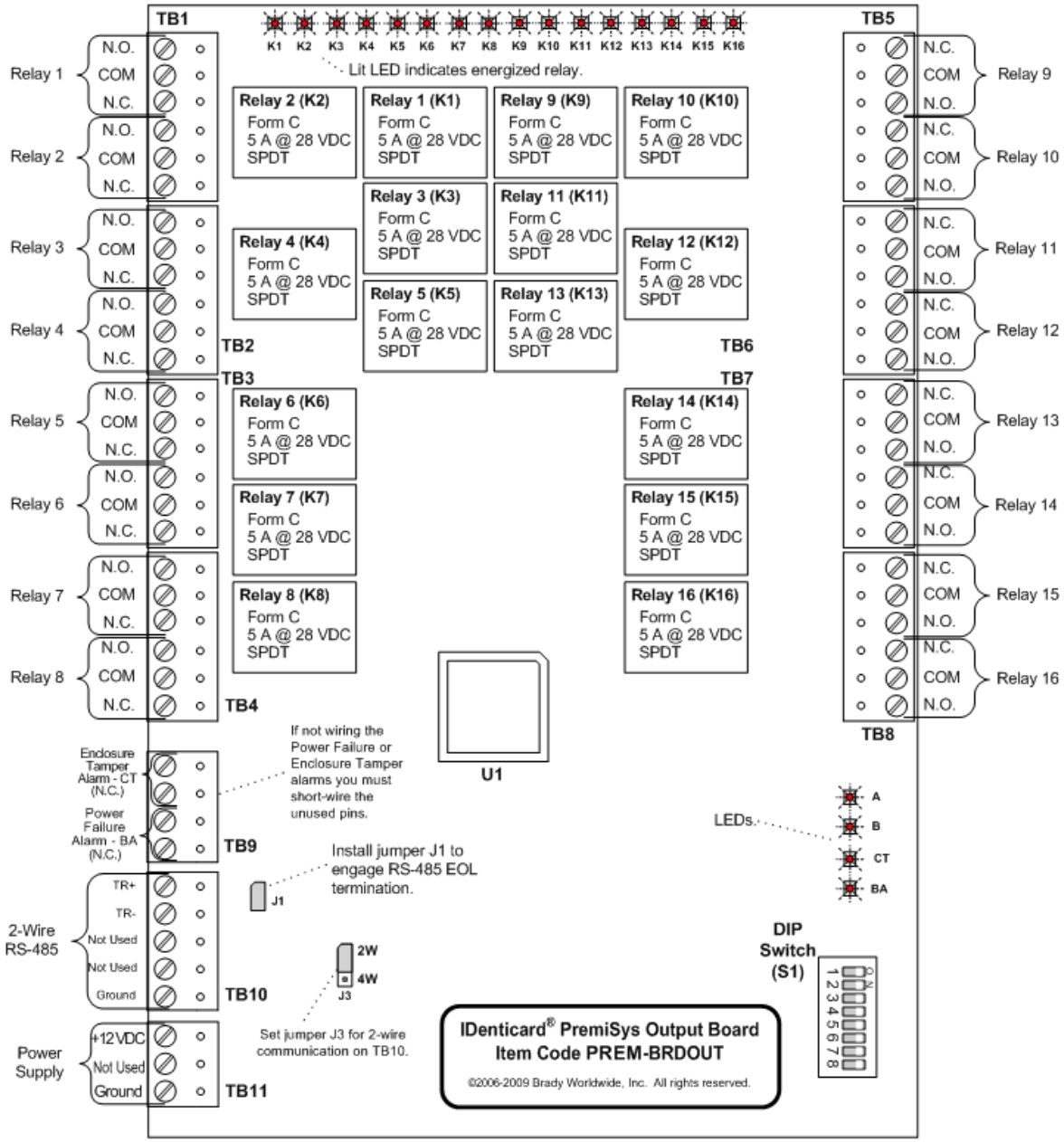
The PremiSys™ Input board has 22 LEDs.

- LEDs A and B indicate operation and communication of the board with the connected controller, as described below.
- LEDs K1 and K2 indicate the status of the board's relays, as described below.
- LEDs 1 through 16 indicate when the relevant input on the board goes into alarm, as described below.
- LEDs CT and BA indicate the status of the dedicated inputs for cabinet tamper (CT) and power fault (BA), as described below.

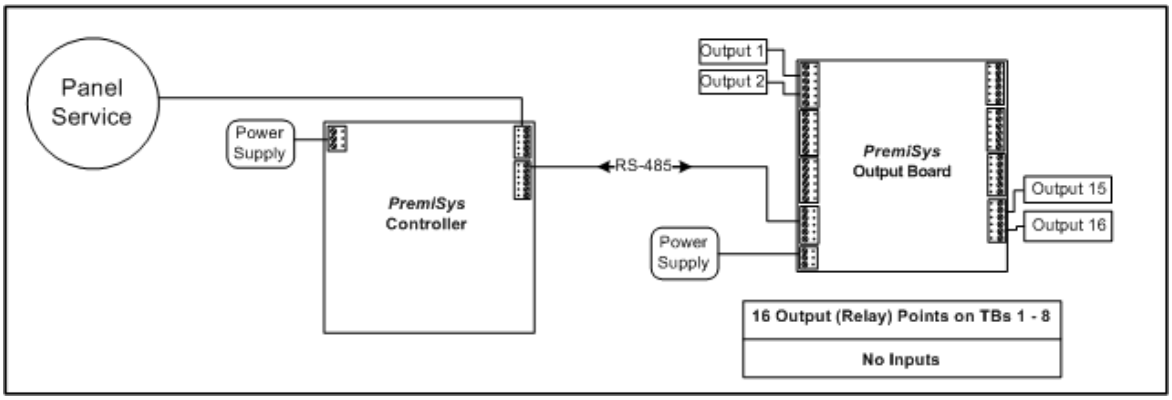
Communication Host LED		
A	Heartbeat and online status indicator:	
	80/20 Off	**80/20 On**
	Offline	Online
Communication I/O LED		
B	I/O communication activity on the bus, not necessarily on this board.	
Input LED	**Flash on every few seconds**	**Flash off every few seconds**
1	Normal	Alarm
2	Normal	Alarm
3	Normal	Alarm
4	Normal	Alarm
5	Normal	Alarm
6	Normal	Alarm
7	Normal	Alarm
8	Normal	Alarm
9	Normal	Alarm
10	Normal	Alarm

11	Normal	Alarm
12	Normal	Alarm
13	Normal	Alarm
14	Normal	Alarm
15	Normal	Alarm
16	Normal	Alarm
Enclosure and Power	**Flash on every few seconds**	**Flash off every few seconds**
CT	Enclosure secure	Enclosure tampered
BA	Power normal	Power lost
Relay LED	**Off**	**On**
K1	Relay 1 de-energized	Relay 1 energized
K2	Relay 2 de-energized	Relay 2 energized

PremiSys Output Board



Sample General Configuration for a PremiSys Output Board Connected to a PremiSys Controller, a Reader and Auxiliary Equipment



Output Board Specifications

Certifications for the Output Board

UL: recognized to UL 294: Access Control System Units - component
CE: EN55022, EN50082-1, IEC801-2, IEC801-3 and IEC801-4

Dimensions and Weight of the Output Board

Board Width	8.0 inches (203 mm)
Board Height	6.0 inches (152 mm)
Board Depth	1.0 inch (25 mm)
Board Weight	14 ounces (454 g) (nominal)

Environmental Specifications for the Output Board

Temperature	32°F to 158°F (0°C to 70°C) operating -67°F to 185°F (-55°C to 85°C) storage
Relative Humidity	0 to 95% RH noncondensing

Power Specifications for the Output Board

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 VDC ± 10%, 1.1 A, 850 mA nominal
Relay Ratings (each of 16 relays)	5 A at 28 VDC, noninductive load
Relay Contact Type	Form C
Relay Configuration	Single-pole double-throw (SPDT)

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the Output Board

Power to Output Board	Twisted pair, 18 AWG (0.823 mm^2).
RS-485 Connection to PremiSys Controller	Twisted pairs, 22 AWG (0.325 mm2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
Connection to Relay-Controlled Devices	Use wire and gauge as required by load.
Connection to ERM II	One twisted pair per input, 30 ohms maximum

Communications Specifications for the Output Board

To PremiSys Controller or MUX Board	Two-wire RS-485, via TB1, 2,400-38,400 bps.

Access-Control Specifications for the Output Board

Input – Dedicated	Two unsupervised, dedicated inputs for enclosure tamper and power loss.
Relay Pulse Time	0 to 255 seconds
Door-Position Shunt Time	0 to 255 seconds

Indicators on the Output Board

Visible	20 red, single-color LEDs

Output Board DIP Switches - Chart

	Switches							
Selection	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Address 0	Off	Off	Off	Off	Off			
Address 1	**On**	Off	Off	Off	Off			
Address 2	Off	**On**	Off	Off	Off			
Address 3	**On**	**On**	Off	Off	Off			

Address 4	Off	Off	**On**	Off	Off			
Address 5	**On**	Off	**On**	Off	Off			
Address 6	Off	**On**	**On**	Off	Off			
Address 7	**On**	**On**	**On**	Off	Off			
Address 8	Off	Off	Off	**On**	Off			
Address 9	**On**	Off	Off	**On**	Off			
Address 10	Off	**On**	Off	**On**	Off			
Address 11	**On**	**On**	Off	**On**	Off			
Address 12	Off	Off	**On**	**On**	Off			
Address 13	**On**	Off	**On**	**On**	Off			
Address 14	Off	**On**	**On**	**On**	Off			
Address 15	**On**	**On**	**On**	**On**	Off			
Address 16	Off	Off	Off	Off	**On**			
Address 17	**On**	Off	Off	Off	**On**			
Address 18	Off	**On**	Off	Off	**On**			
Address 19	**On**	**On**	Off	Off	**On**			
Address 20	Off	Off	**On**	Off	**On**			
Address 21	**On**	Off	**On**	Off	**On**			
Address 22	Off	**On**	**On**	Off	**On**			
Address 23	**On**	**On**	**On**	Off	**On**			
Address 24	Off	Off	Off	**On**	**On**			
Address 25	**On**	Off	Off	**On**	**On**			
Address 26	Off	**On**	Off	**On**	**On**			
Address 27	**On**	**On**	Off	**On**	**On**			
Address 28	Off	Off	**On**	**On**	**On**			
Address 29	**On**	Off	**On**	**On**	**On**			
Address 30	Off	**On**	**On**	**On**	**On**			
Address 31	**On**	**On**	**On**	**On**	**On**			
2400 bps						Off	Off	
9600 bps						**On**	Off	
19,200 bps						Off	**On**	
38,400 bps						**On**	**On**	
Not used								Off

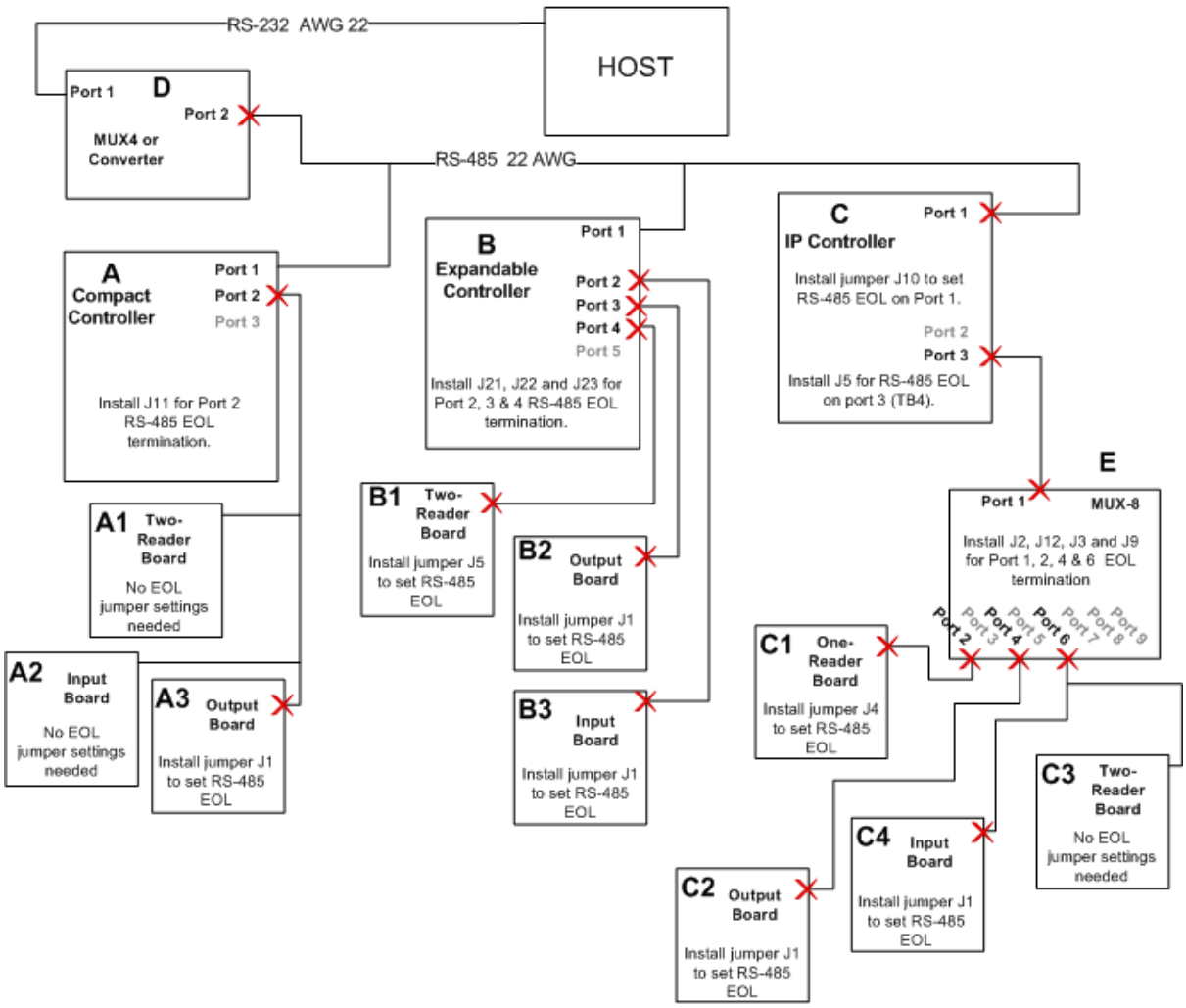
Wiring an Output Board Jumper Settings

Jumper	Setting	Selection
J1	Off	RS-485 EOL termination on TB10 is disabled.
	On	RS-485 EOL termination on TB10 is enabled.
J2	Off	RS-485 EOL termination on TB10 is disabled.
	On	RS-485 EOL termination on TB10 is enabled.
J3	2W	TB10 uses two-wire RS-485 communications
	4W	Not Used – Do not select

Setting End-of-Line (EOL) Resistance for the Output Board

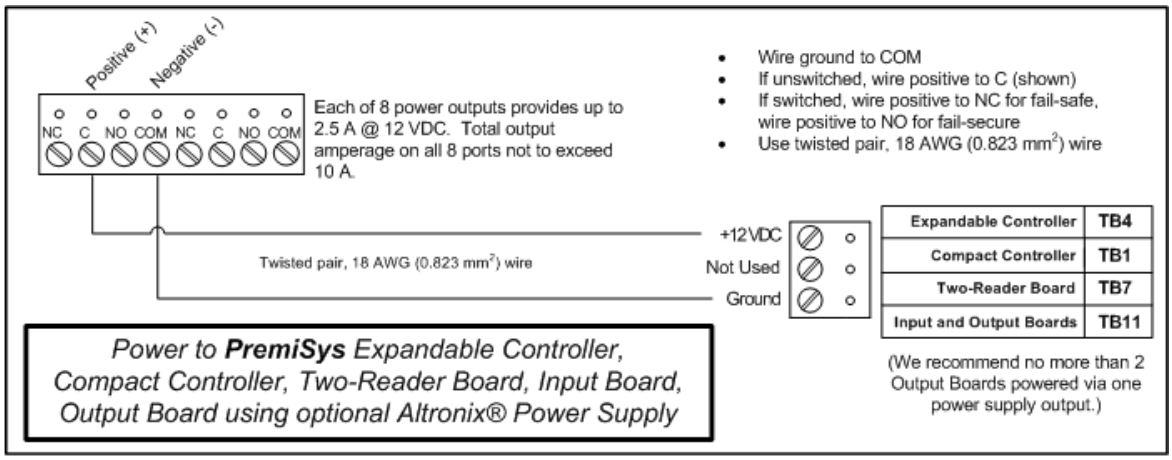
If the Output Board is the last board on a bus, install jumper J1 to set RS-485 EOL.

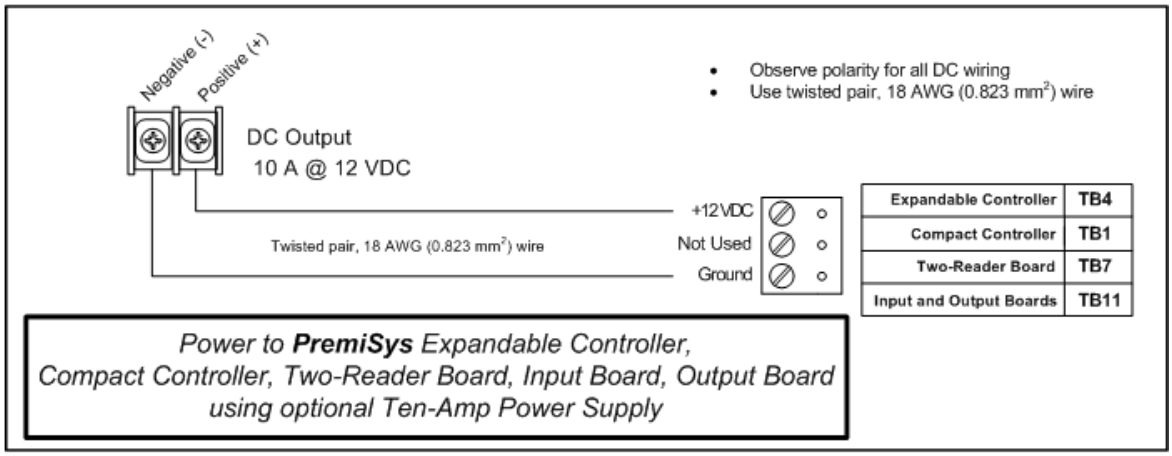
In the diagram below, boards A3, B1, B2, B3, C1, C2 and C3 should be set as end-of-line. The originating port on the associated controller should also be set for end-of-line.

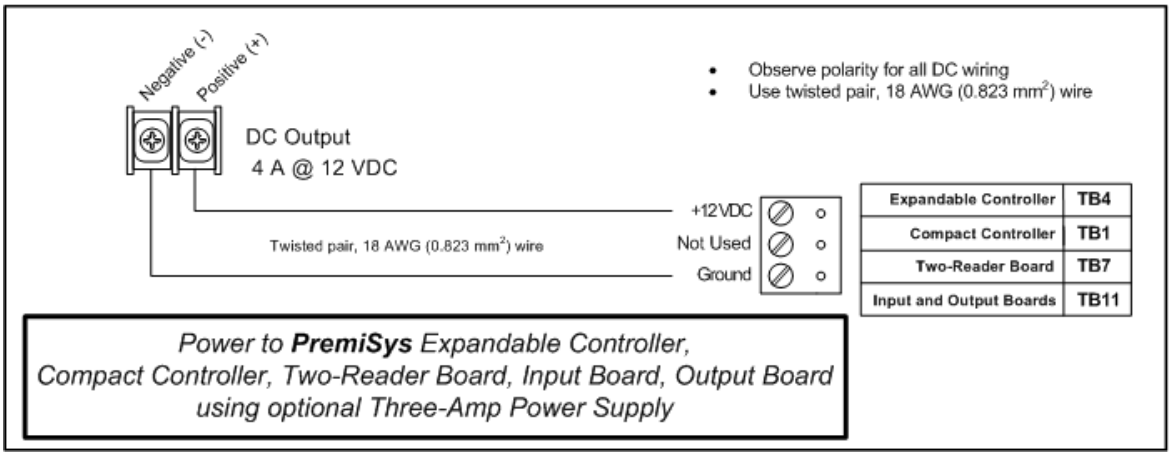


Wiring an Output Board to a Power Supply

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.



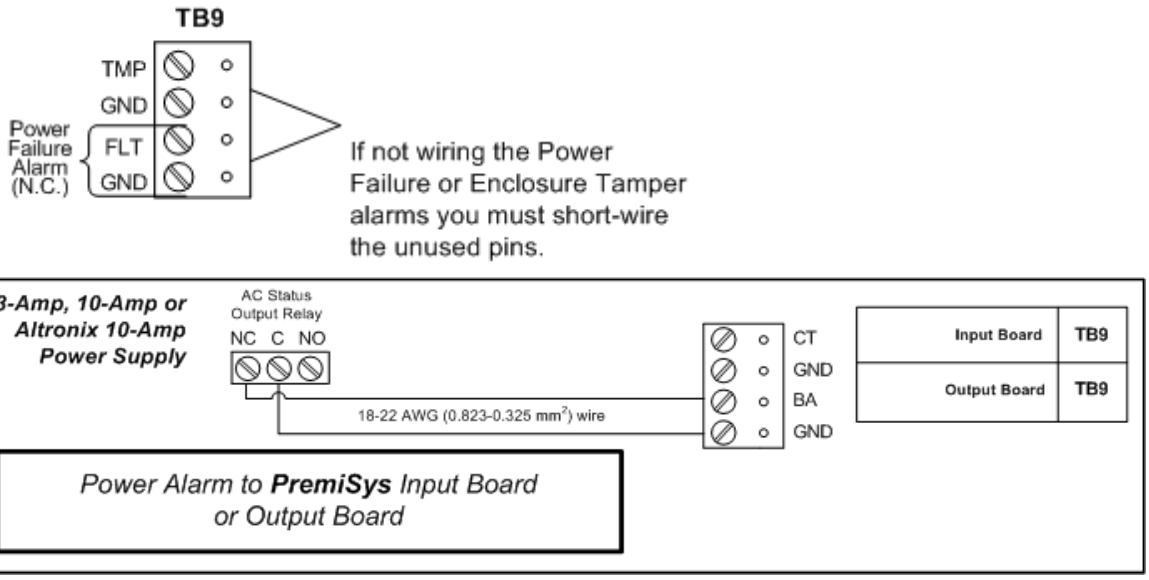




Wiring an Output Board to Monitor for UPS Power Loss

The PremiSys™ Output Board has dedicated inputs on terminal block 9 for use as Enclosure Tamper and Power Failure Alarms. If these dedicated inputs are not wired for their intended use, install a shorting wire on each of them.

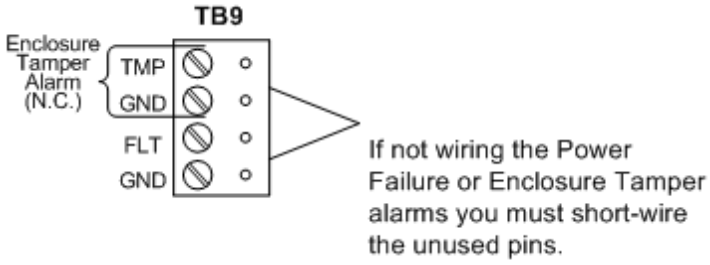
TB 9		
Power Failure	TB9-3	Input
	TB9-4	Return



Wiring an Output Board Enclosure Tamper

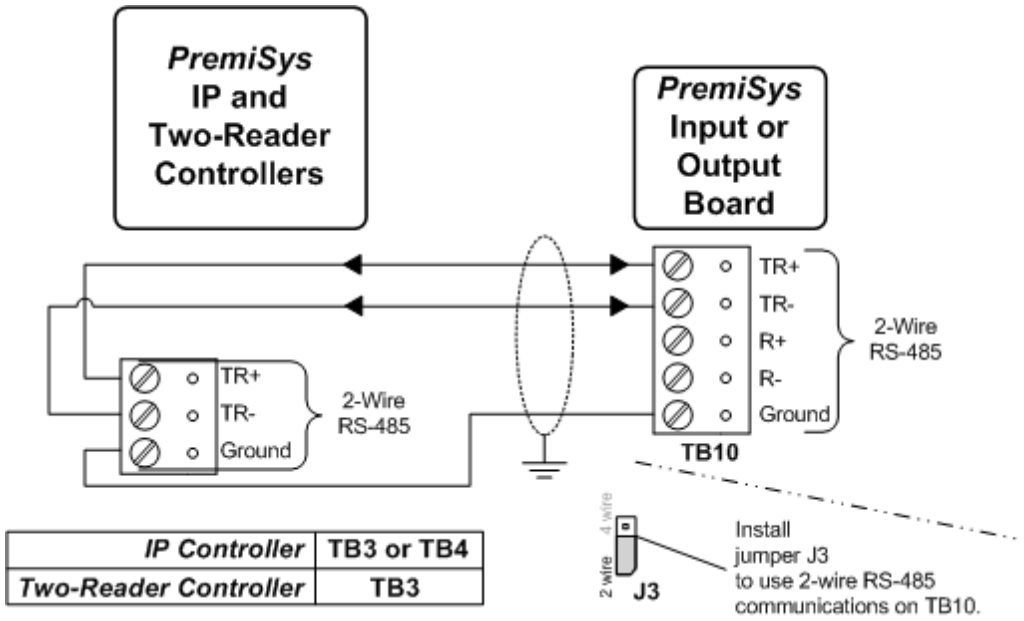
The PremiSys™ Output Board has dedicated inputs on terminal block 9 for use as Enclosure Tamper and Power Failure Alarms. If these dedicated inputs are not wired for their intended use, install a shorting wire on each of them.

Enclosure Tamper	TB9-1	Input
	TB9-2	Return

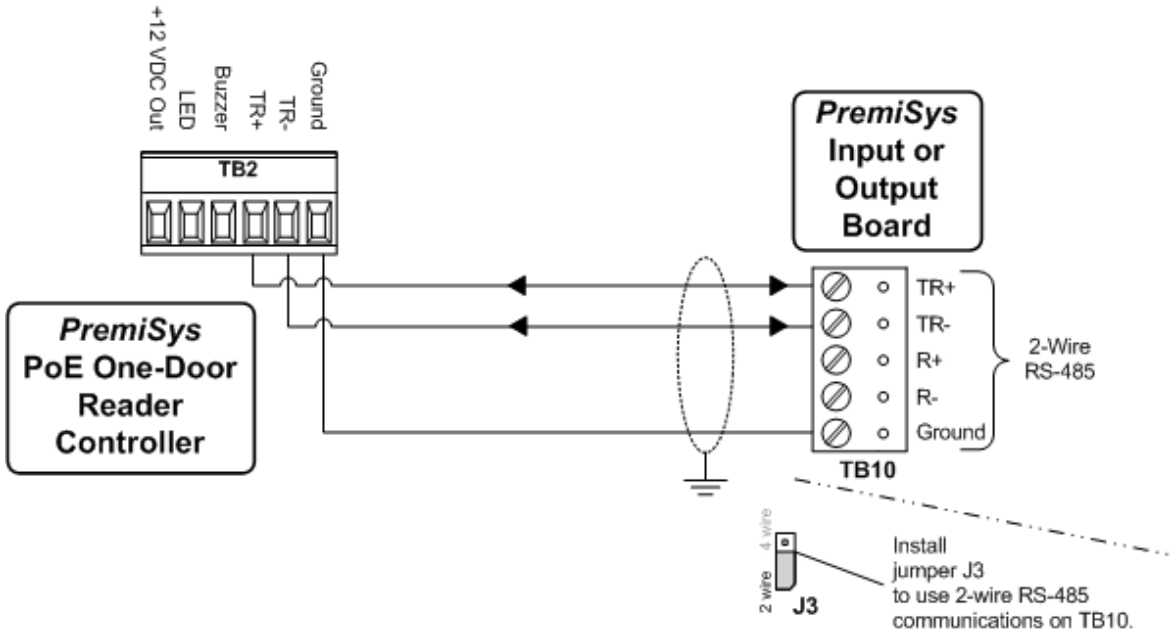


Wiring an Output Board to a Controller

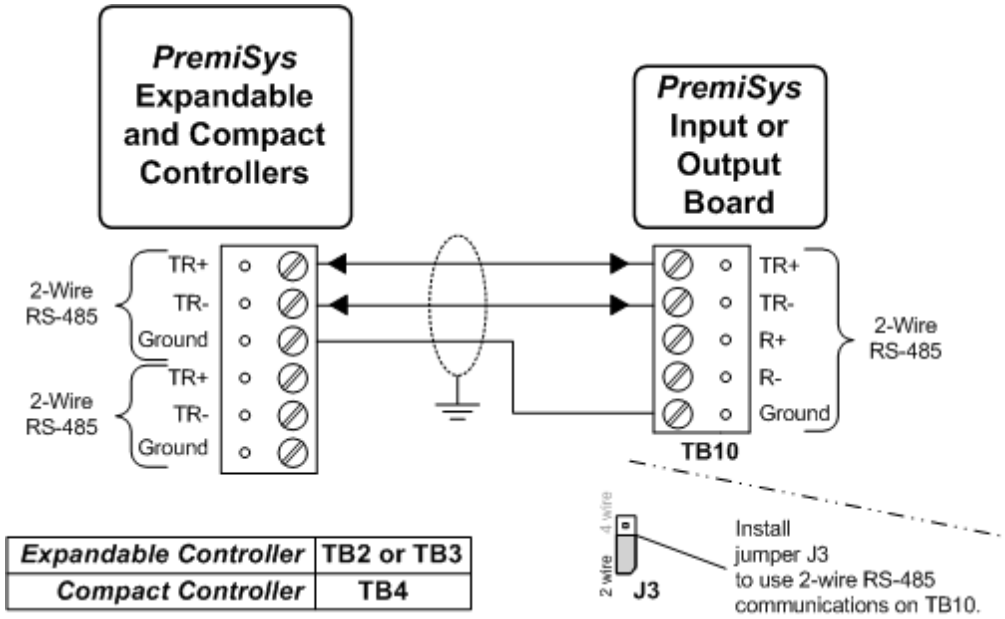
Note: Listed below are the maximum numbers of Output Boards you can connect to each of the named controllers:
IP Controller - 64
Two-Reader Controller - 32
PoE One-Door Reader Controller - 8



IMPORTANT! Install Jumper J3 exactly as illustrated in the diagram above! Four-wire RS-485 cannot be used!



IMPORTANT! Install Jumper J3 exactly as illustrated in the diagram above! Four-wire RS-485 cannot be used!



Expandable Controller	TB2 or TB3
Compact Controller	TB4

IMPORTANT! Install Jumper J3 exactly as illustrated in the diagram above! Four-wire RS-485 cannot be used!

Connecting Relays on an Output Board

Relays may be wired normally open or normally closed, depending on the needs of the devices they are controlling. Any device switched by a relay should be powered from "outside" the PremiSys™ system.

Specify the output configuration (normally open, normally closed, normal action, inverted action) when setting up each relay in the software. See the PremiSys Online Help for details.

TB1		**TB2**	
TB1-1	Relay 1: Normally Open	TB2-1	Relay 3: Normally Open
TB1-2	Relay 1: Common	TB2-2	Relay 3: Common
TB1-3	Relay 1: Normally closed	TB2-3	Relay 3: Normally closed
TB1-4	Relay 2: Normally open	TB2-4	Relay 4: Normally open
TB1-5	Relay 2: Common	TB2-5	Relay 4: Common
TB1-6	Relay 2: Normally closed	TB2-6	Relay 4: Normally closed

TB3		**TB4**	
TB3-1	Relay 5: Normally Open	TB4-1	Relay 7: Normally Open
TB3-2	Relay 5: Common	TB4-2	Relay 7: Common
TB3-3	Relay 5: Normally closed	TB4-3	Relay 7: Normally closed
TB3-4	Relay 6: Normally open	TB4-4	Relay 8: Normally open
TB3-5	Relay 6: Common	TB4-5	Relay 8: Common
TB3-6	Relay 6: Normally closed	TB4-6	Relay 8: Normally closed

TB5		**TB6**	
TB5-1	Relay 9: Normally Open	TB6-1	Relay 11: Normally Open
TB5-2	Relay 9: Common	TB6-2	Relay 11: Common
TB5-3	Relay 9: Normally closed	TB6-3	Relay 11: Normally closed
TB5-4	Relay 10: Normally open	TB6-4	Relay 12: Normally open
TB5-5	Relay 10: Common	TB6-5	Relay 12: Common
TB5-6	Relay 10: Normally closed	TB6-6	Relay 12: Normally closed

TB7		**TB8**	
TB7-1	Relay 13: Normally Open	TB8-1	Relay 15: Normally Open
TB7-2	Relay 13: Common	TB8-2	Relay 15: Common
TB7-3	Relay 13: Normally closed	TB8-3	Relay 15: Normally closed
TB7-4	Relay 14: Normally open	TB8-4	Relay 16: Normally open
TB7-5	Relay 14: Common	TB8-5	Relay 16: Common
TB7-6	Relay 14: Normally closed	TB8-6	Relay 16: Normally closed

Output Board LEDs

The Output Board has 20 LEDs.

- LEDs A and B indicate operation and communication of the board with the connected controller, as described below.
- LEDs 1 through 16 indicate when the relevant relay on the board is activated.
- LEDs CT and BA indicate the status of the dedicated inputs for cabinet tamper (CT) and power fault (BA), as described below.

Communication Host LED		
A	Heartbeat and online status indicator:	
	80/20 Off	**80/20 On**
	Offline	Online

Communication I/O LED	
B	I/O communication activity on the bus, not necessarily on this board.

Relay LED	On	Off
1	Energized	De-energized
2	Energized	De-energized
3	Energized	De-energized
4	Energized	De-energized
5	Energized	De-energized
6	Energized	De-energized
7	Energized	De-energized
8	Energized	De-energized
9	Energized	De-energized
10	Energized	De-energized
11	Energized	De-energized
12	Energized	De-energized
13	Energized	De-energized
14	Energized	De-energized
15	Energized	De-energized
16	Energized	De-energized

Enclosure and Power	Flash on every few seconds	Flash off every few seconds
CT	Enclosure secure	Enclosure tampered
BA	Power normal	Power lost

PremiSys MUX Boards

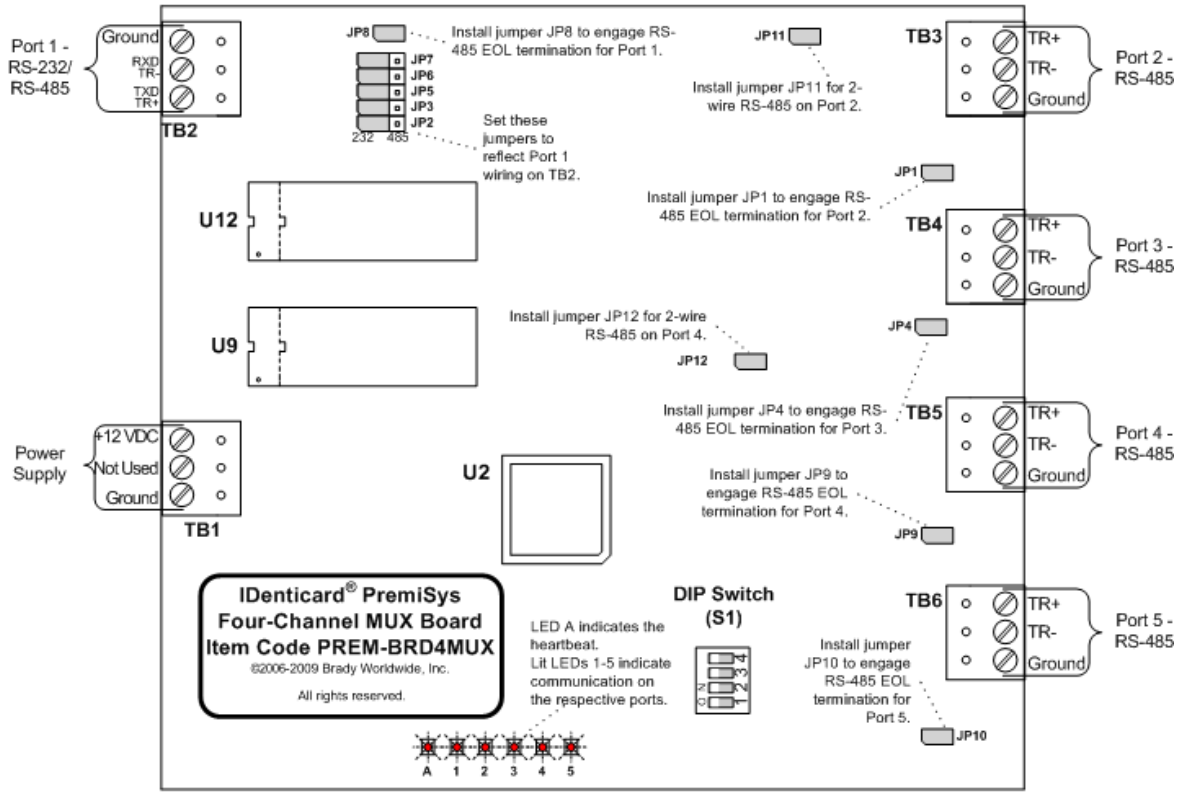
The two multiplexers that can be used in a PremiSys™ system – the Four-Channel MUX Board and Eight-Channel MUX Board – have more than one function. The primary function is to expand a single data-communication port to either four or eight communication ports. This capability makes star-wiring configurations easier and facilitates wiring clusters of boards at a distance from a server PC or controller.

MUX Boards are often installed between a controller and the I/O boards it is to control and monitor. However, because MUX boards can also be installed between the Server PC and a controller, the Four-Channel MUX Board can serve as a RS-232-to-RS-485 converter. The Four-Channel MUX Board features optical isolation, so it is better suited for use as a converter. The Eight-Channel MUX Board does not have optical isolation capability.

Notes:

- **The MUX boards cannot communicate to any board or controller that cannot receive communications via RS-485. You cannot use a MUX board between the Host and Two-Reader Controller or One-Door Reader Controller since those controllers cannot receive communications via an RS-485 connection.**
- **You cannot use the MUX boards between a controller and a One-Door Reader Board because the One-Door Reader Board cannot receive communications via an RS-485 connection.**
- **Do not connect a MUX board to another MUX board.**

Four-Channel MUX Board



Four-Channel MUX Board Specifications

Certifications for the Four-Channel MUX Board

UL: recognized to UL 294: Access Control System Units - component
CE: EN55022, EN50082-1, IEC801-2, IEC801-3 and IEC801-4

Dimensions and Weight of the Four-Channel MUX Board

Board Width	6.0 inches (152 mm)
Board Height	5.0 inches (127 mm)
Board Depth	1.0 inch (25 mm)
Board Weight	4 ounces (113 g) (nominal)

Environmental Specifications for the Four-Channel MUX Board

Temperature	32°F to 158°F (0°C to 70°C) operating -67°F to 185°F (-55°C to 85°C) storage
Relative Humidity	0 to 95% RH noncondensing

Power Specifications for the Four-Channel MUX Board

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 VDC ± 15%, 300 mA

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the Four-Channel MUX Board

Power to Four-Channel MUX Board	Twisted pair, 18 AWG (0.823 mm^2).
RS-485 Connections	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
RS-232 Connections	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops

Communications Specifications for the Four-Channel MUX Board

Port 1	RS-232 or Two-wire RS-485 via TB2, to controller or Host PC
Ports 2 and 4 (TB3 and TB5, respectively)	Two-wire RS-485 (each port is used for transmitting and receiving data)
Ports 3 and 5 (TB4 and TB6, respectively)	Two-wire RS-485 (each port is used for transmitting and receiving data)

Indicators on the Four-Channel MUX Board

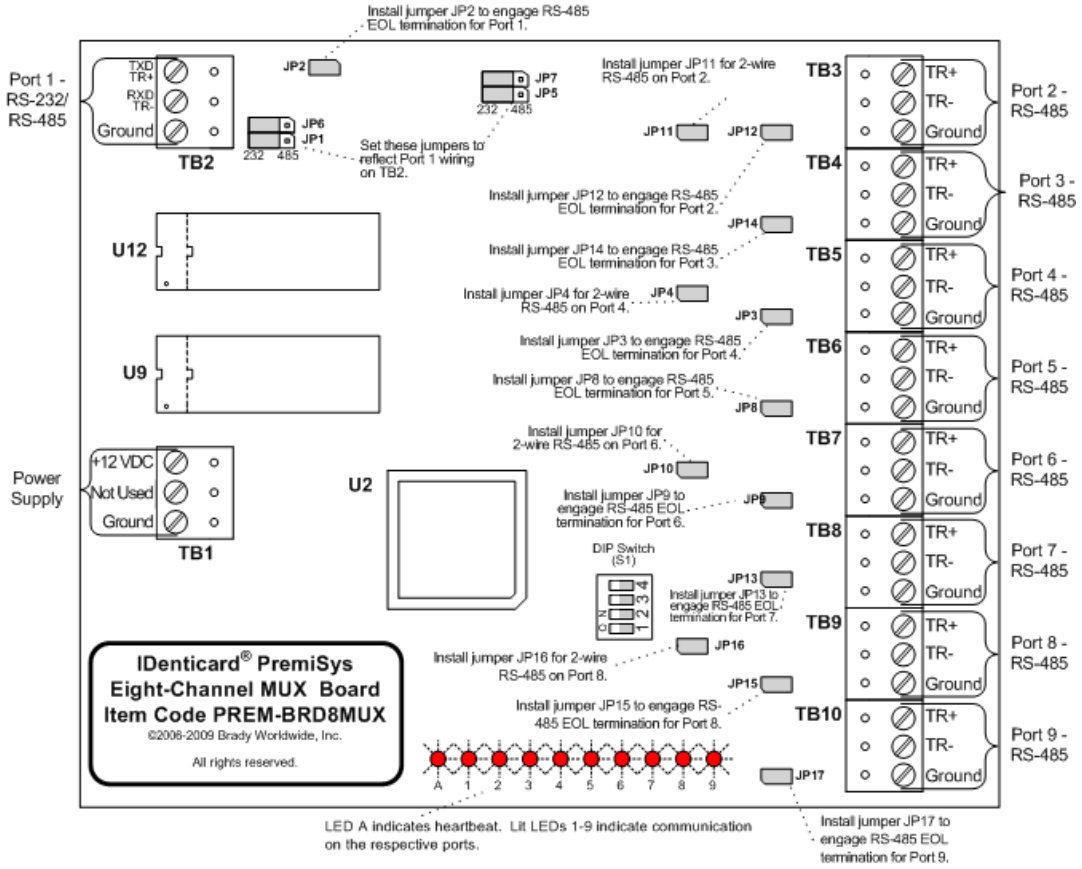
Visible	6 red, single-color LEDs

Four-Channel MUX Board Jumper Settings

Jumper	Setting	Selection
J1	Off	RS-485 EOL termination on Port 2 is disabled.
	On	RS-485 EOL termination on Port 2 is enabled.
J2,J3,J5, J6,J7	RS-232	Port 1 uses RS-232
	RS-485	Port 1 uses RS-485
J4	Off	RS-485 EOL termination on Port 3 is disabled.
	On	RS-485 EOL termination on Port 3 is enabled.
J8	Off	RS-485 EOL termination on Port 1 is disabled.

	On	RS-485 EOL termination on Port 1 is enabled.
J9	Off	RS-485 EOL termination on Port 4 is disabled.
	On	RS-485 EOL termination on Port 4 is enabled.
J10	Off	RS-485 EOL termination on Port 5 is disabled.
	On	RS-485 EOL termination on Port 5 is enabled.
J11	On	This jumper should always be installed for two-wire RS-485 communications on Port 2.
J12	On	This jumper should always be installed for two-wire RS-485 communications on Port 4.

Eight-Channel MUX Board



Eight-Channel MUX Board Specifications

Certifications for the Eight-Channel MUX Board

UL: recognized to UL 294: Access Control System Units - component
CE: EN55022, EN50082-1, IEC801-2, IEC801-3 and IEC801-4

Dimensions and Weight of the Eight-Channel MUX Board

Board Width	6.0 inches (152 mm)
Board Height	5.0 inches (127 mm)
Board Depth	1.0 inch (25 mm)
Board Weight	5.57 ounces (158 g) (nominal)

Environmental Specifications for the Eight-Channel MUX Board

Temperature	32°F to 158°F (0°C to 70°C) operating -67°F to 185°F (-55°C to 85°C) storage
Relative Humidity	0 to 95% RH noncondensing

Power Specifications for the Eight-Channel MUX Board

CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Input Voltage	12 VDC ± 15%, 300 mA

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.

Wiring Requirements for the Eight-Channel MUX Board

Power to Eight-Channel MUX Board	Twisted pair, 18 AWG (0.823 mm^2).
RS-485 Connections	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops
RS-232 Connections	Twisted pairs, 22 AWG (0.325 mm^2), with overall shield Maximum cable length: 4000 feet (1219 meters) of wire, total copper, including drops

Communications Specifications for the Eight-Channel MUX Board

Port 1	RS-232 or Two-wire RS-485 via TB2, to controller or Host PC
Ports 2 and 4 (TB3 and TB5, respectively)	Two-wire RS-485 (each port is used for transmitting and receiving data)
Ports 3 and 5 (TB4 and TB6, respectively)	Two-wire RS-485 (each port is used for transmitting and receiving data)
Ports 6 and 8 (TB7 and TB9, respectively)	Two-wire RS-485 (each port is used for transmitting and receiving data)
Ports 7 and 9 (TB8 and TB10, respectively)	Two-wire RS-485 (each port is used for transmitting and receiving data)

Indicators on the Eight-Channel MUX Board

Visible	10 red, single-color LEDs

Eight-Channel MUX Board Jumper Settings

Jumper	Setting	Selection
J1, J5, J6, J7	232	Port 1 uses RS-232
	485	Port 1 uses RS-485
J2	Off	RS-485 EOL termination on Port 1 is disabled.
	On	RS-485 EOL termination on Port 1 is enabled.

J3	Off	RS-485 EOL termination on Port 4 is disabled.
	On	RS-485 EOL termination on Port 4 is enabled.
J4	On	This jumper should always be installed for two-wire RS-485 communications on Port 4.
J8	Off	RS-485 EOL termination on Port 8 is disabled.
	On	RS-485 EOL termination on Port 8 is enabled.
J9	Off	RS-485 EOL termination on Port 6 is disabled.
	On	RS-485 EOL termination on Port 6 is enabled.
J10	On	This jumper should always be installed for two-wire RS-485 communications on Port 6.
J11	On	This jumper should always be installed for two-wire RS-485 communications on Port 2.
J12	Off	RS-485 EOL termination on Port 2 is disabled.
	On	RS-485 EOL termination on Port 2 is enabled.
J13	Off	RS-485 EOL termination on Port 7 is disabled.
	On	RS-485 EOL termination on Port 7 is enabled.
J14	Off	RS-485 EOL termination on Port 3 is disabled.
	On	RS-485 EOL termination on Port 3 is enabled.
J15	Off	RS-485 EOL termination on Port 8 is disabled.
	On	RS-485 EOL termination on Port 8 is enabled.
J16	On	This jumper should always be installed for two-wire RS-485 communications on Port 8.
J17	Off	RS-485 EOL termination on Port 9 is disabled.
	On	RS-485 EOL termination on Port 9 is enabled.

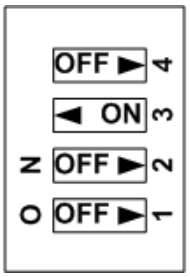
Four- and Eight-Channel MUX Board DIP Switches – Chart

	Switches			
Selection (Turn-Around Delay, Approximate)	**S1**	**S2**	**S3**	**S4**
300 bps (35 msec)	Off	Off	Off	Off
1200 bps (9.58 msec)	**On**	Off	Off	Off
2400 bps (4.79 msec)	Off	**On**	Off	Off
4800 bps (2.50 msec)	**On**	**On**	Off	Off
9600 bps (1.25 msec)	Off	Off	**On**	Off

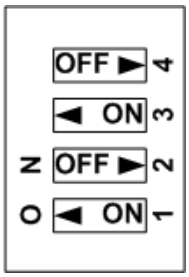
19,200 bps / 38,400 bps normal (625 µsec)	**On**	Off	**On**	Off
38,400 bps fast turn (365 µsec)	Off	**On**	**On**	Off
38,400 bps fast turn (365 µsec)	**On**	**On**	**On**	Off

Sample DIP Switch Settings

This 4-Channel or 8-Channel MUX is set to communicate at 9600 bps with a turnaround delay of 1.25 msec.



This 4-Channel or 8-Channel MUX is set to communicate at 19,200 bps or 38,400 bps with a turnaround delay of (625 µsec).



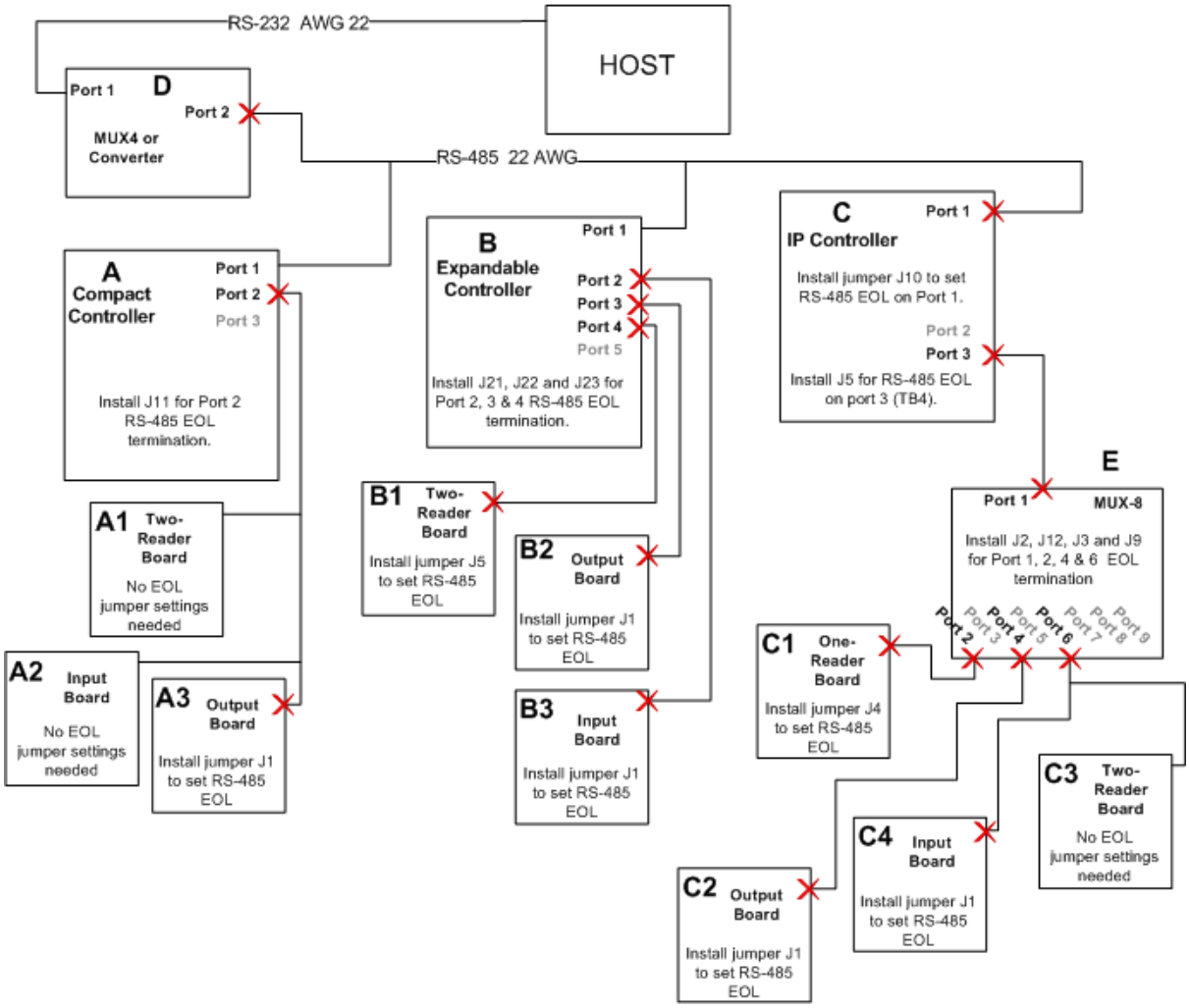
Setting End-of-Line (EOL) Resistance for the MUX Boards

If the MUX Board is the last board in a run (the run does not include the MUX board's auxiliary boards,) install jumper J8 to set RS-485 EOL for Port 1.

The Eight-Channel Board "E," shown below, is the end of the line from controller "C." Since it is not advised to connect one MUX board to another MUX board, any MUX board installed downstream from a controller is the last MUX board in any run. Install jumper JP8 to set RS-485 EOL on Port 1 of board "E."

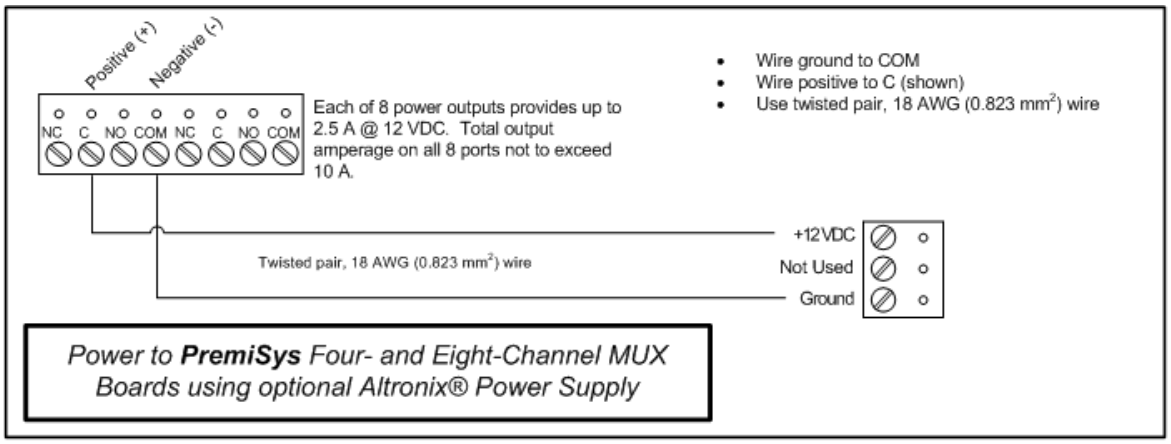
Board "D" below is a Four-Channel MUX Board and is connected between the host PC and a controller. Do not set the RS-485 EOL jumper because this MUX is not the end of the line.

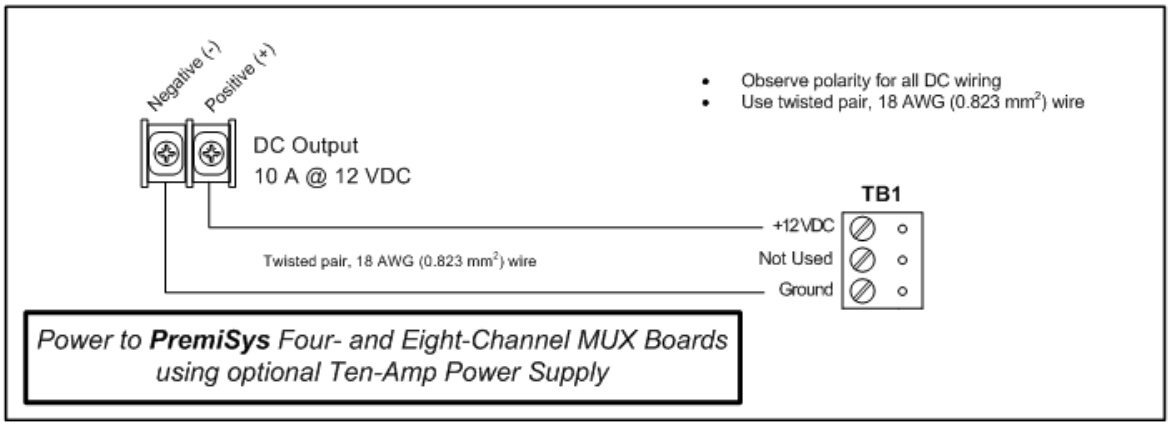
On the Four-Channel MUX below (labeled “D”) only Port 2 is used for downstream communication so only jumper JP1 must be set.

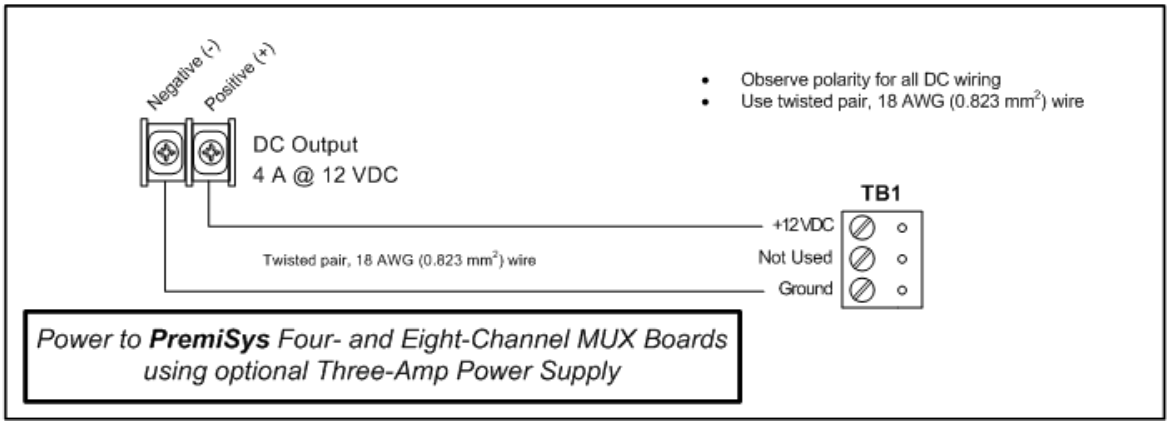


Wiring a MUX Board to a Power Supply

IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed 2.5 A per output port and that the total current draw on the power supply does not exceed 10 A.







CAUTION! The processor in this component is intended for use only in a Class 2, low-voltage circuit!

Four-Channel MUX Board LEDs

The Four-Channel MUX Board has six LEDs, A and 1-5, that indicate operation and communication of the board with the connected controller and auxiliary boards. See the

chart below.

LED		
A	Heartbeat and online status indicator:	
	80/20 Off	**80/20 On**
	Offline	Online
Port LED	**On**	**Off**
1	Data received	No data
2	Data received	No data
3	Data received	No data
4	Data received	No data
5	Data received	No data

Eight-Channel MUX Board LEDs

The Eight-Channel MUX Board has ten LEDs, A and 1-9, that indicate operation and communication of the board with the connected controller and auxiliary boards. See the chart below.

LED		
A	Heartbeat and online status indicator:	
	80/20 Off	**80/20 On**
	Offline	Online
Port LED	**On**	**Off**
1	Data received	No data
2	Data received	No data
3	Data received	No data
4	Data received	No data

5	Data received	No data
6	Data received	No data
7	Data received	No data
8	Data received	No data
9	Data received	No data

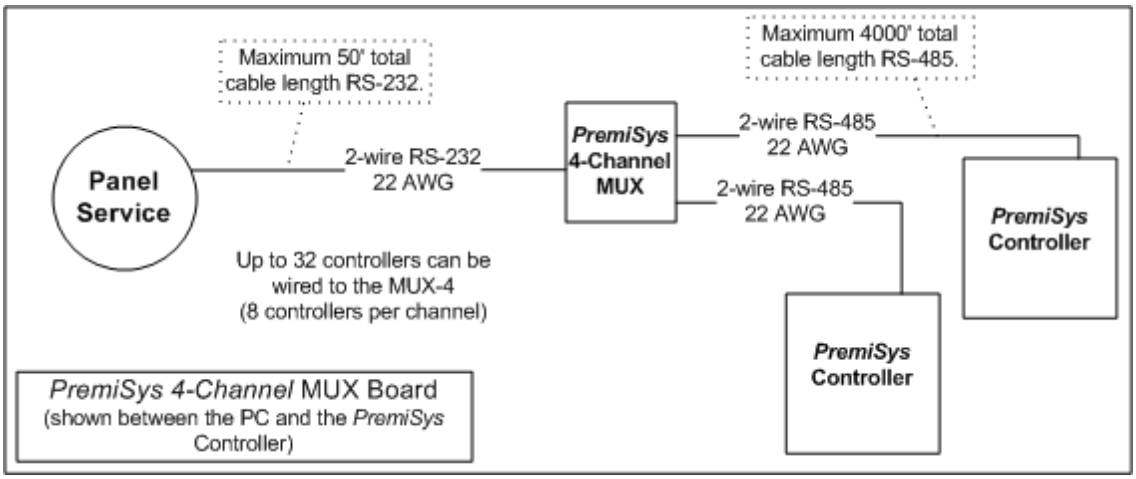
Communications to Host

You can install a Four-Channel MUX Board between the Server PC and controllers to serve as a RS-232-to-RS-485 converter. The illustration below shows a general schematic of such an arrangement. Note the wiring distance restrictions given in the drawing.

You can connect up to 8 controllers per channel on the Four-Channel MUX Board, for a total of 32 controllers.

Although the Eight-Channel MUX Board can be used as a converter, the Four-Channel MUX Board features optical isolation, and so is better suited for use as a converter. The Eight-Channel MUX Board does not have optical isolation capability and is not recommended for use between the Server PC and the controllers.

The illustration below shows a general schematic of a Four-Channel MUX Board wired between the Server PC and controllers. Note the wiring distance restrictions given in the drawing.



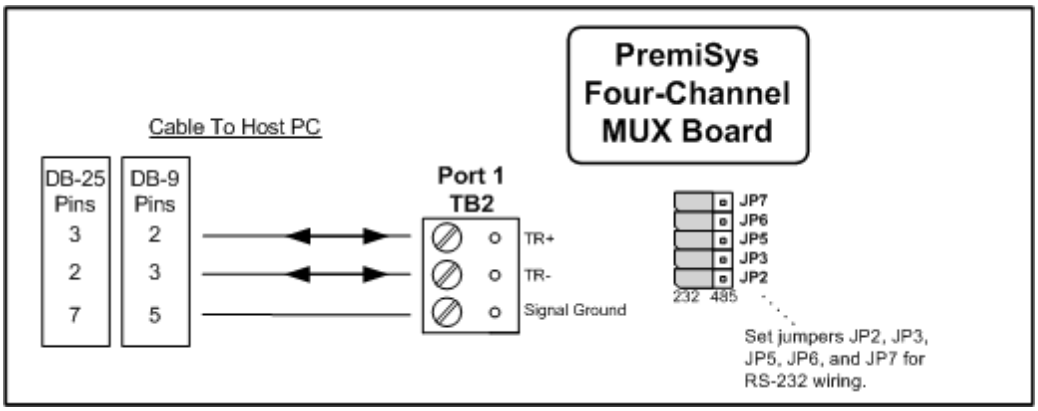
Notes:

- **The MUX boards cannot communicate to any board or controller that cannot receive communications via RS-485. You cannot use a MUX board between the Host and Two-Reader Controller or One-**

Door Reader Controller since those controllers cannot receive communications via an RS-485 connection.

- You cannot use the MUX boards between a controller and a One-Door Reader Board because the One-Door Reader Board cannot receive communications via an RS-485 connection.
- Do not connect a MUX board to another MUX board.

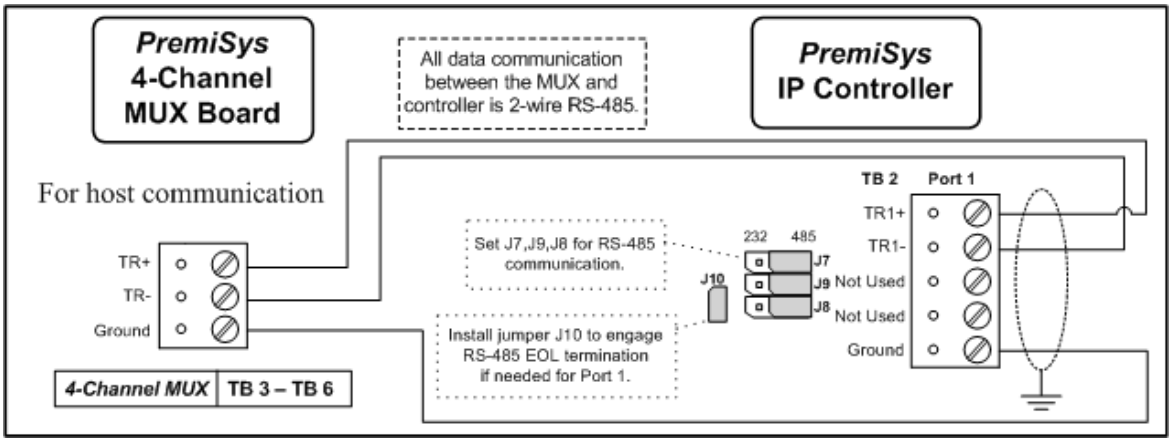
Wiring PremiSys Four-Channel MUX Boards to the PremiSys Host

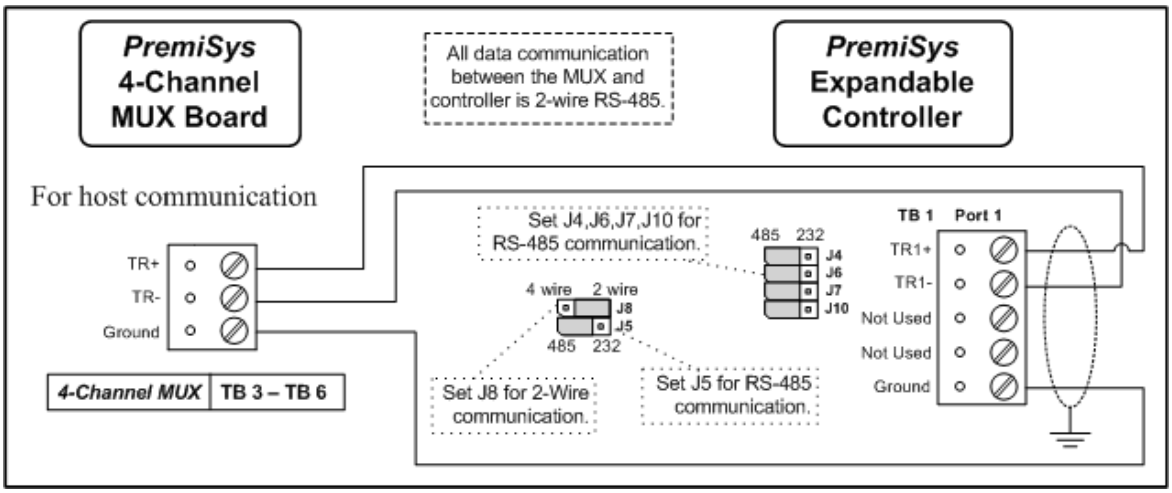


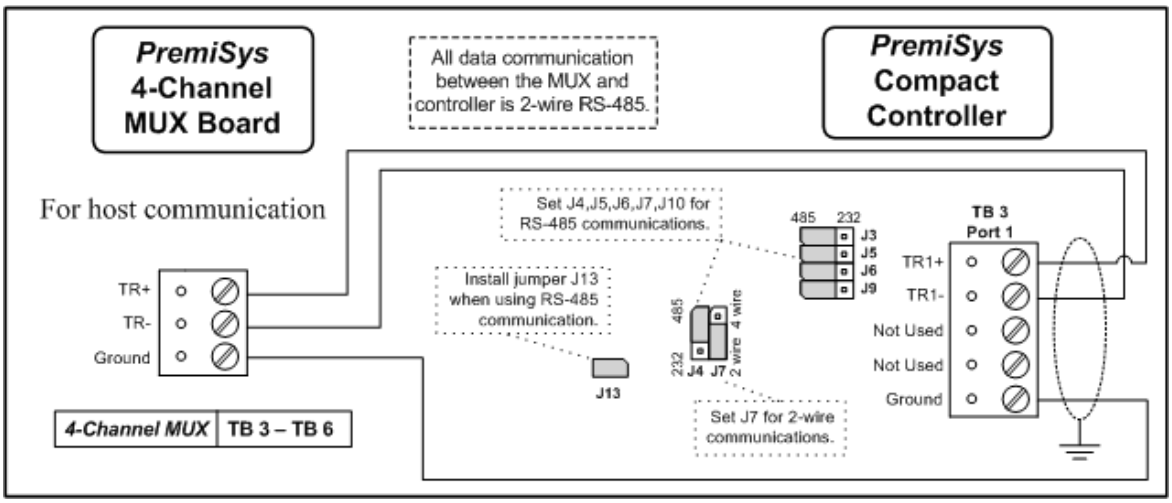
Notes:

- The MUX boards cannot communicate to any board or controller that cannot receive communications via RS-485. You cannot use a MUX board between the Host and Two-Reader Controller or One-Door Reader Controller since those controllers cannot receive communications via an RS-485 connection.
- You cannot use the MUX boards between a controller and a One-Door Reader Board because the One-Door Reader Board cannot receive communications via an RS-485 connection.
- Do not connect a MUX board to another MUX board.

Wiring PremiSys Four-Channel MUX Boards to PremiSys Controllers







Notes:

- **The MUX boards cannot communicate to any board or controller**

that cannot receive communications via RS-485. You cannot use a MUX board between the Host and Two-Reader Controller or One-Door Reader Controller since those controllers cannot receive communications via an RS-485 connection.

- **You cannot use the MUX boards between a controller and a One-Door Reader Board because the One-Door Reader Board cannot receive communications via an RS-485 connection.**
- **Do not connect a MUX board to another MUX board.**

Communications to I/O Boards

The Four-Channel and Eight-Channel MUX Boards are both suitable for controller-to-reader boards and I/O boards. IDenticard Systems, Inc. does not recommend the Eight-Channel MUX for host-to-controller communications because it is not optically isolated.

The maximum 4000-foot (1219-meter) wiring distance always includes the wiring needed between the controller and the MUX board. For example, in the diagram below, if the cable between the controller and MUX board is 500 feet (152.4 meters), the run from the MUX board to the first I/O can be up to 3500 feet (91.4 meters).

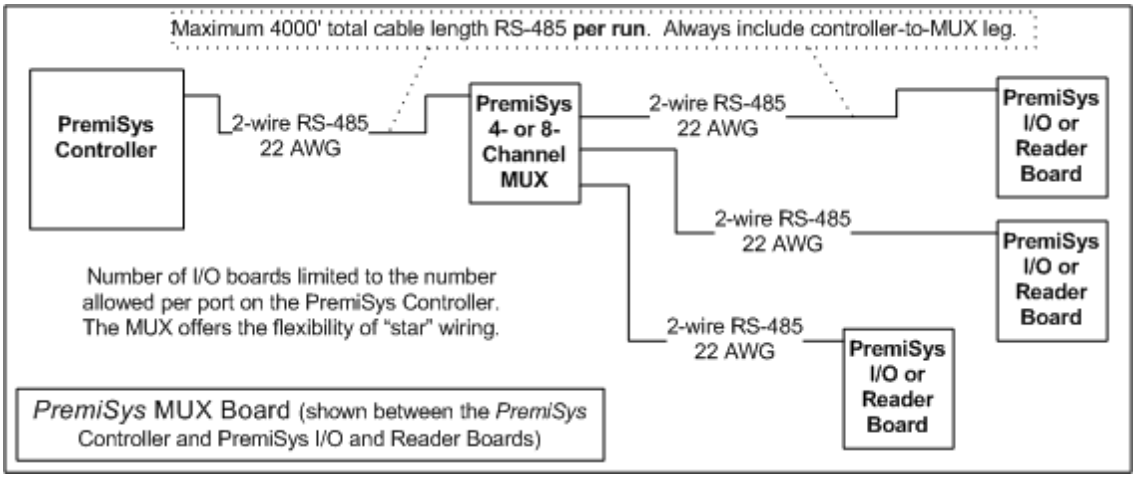
The cabling distances are per run. To use the illustrated sample again, each of the cables to the three I/O boards can be up to 3500 feet (91.4 meters).

There are jumper and DIP-switch settings that must be made. See the following topics for additional information:

- PremiSys Four-Channel MUX Board Jumper Settings 259
- PremiSys Eight-Channel MUX Board Jumper Settings 262
- PremiSys Four- and Eight-Channel MUX Board DIP Switches - Chart 263

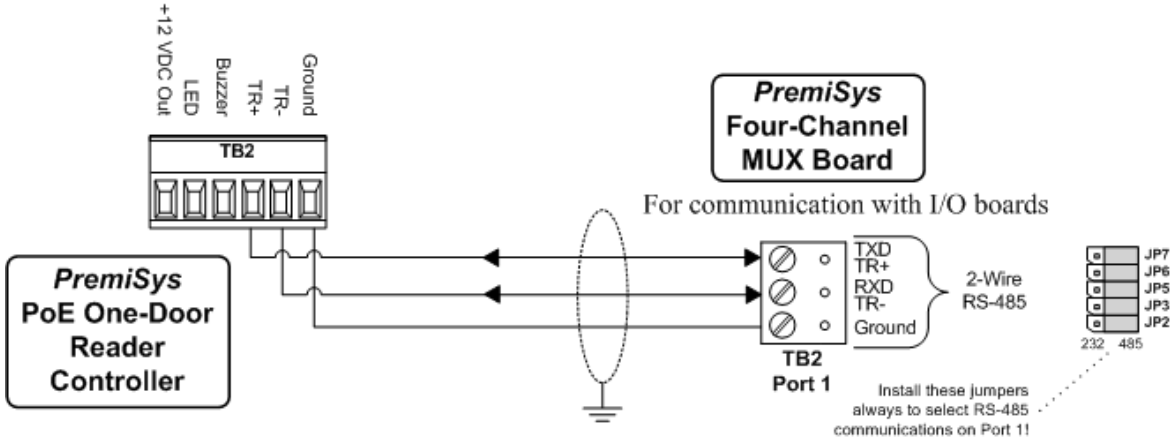
MUX Boards are not addressed using a DIP switch or jumpers and they are not configured in the PremiSys software.

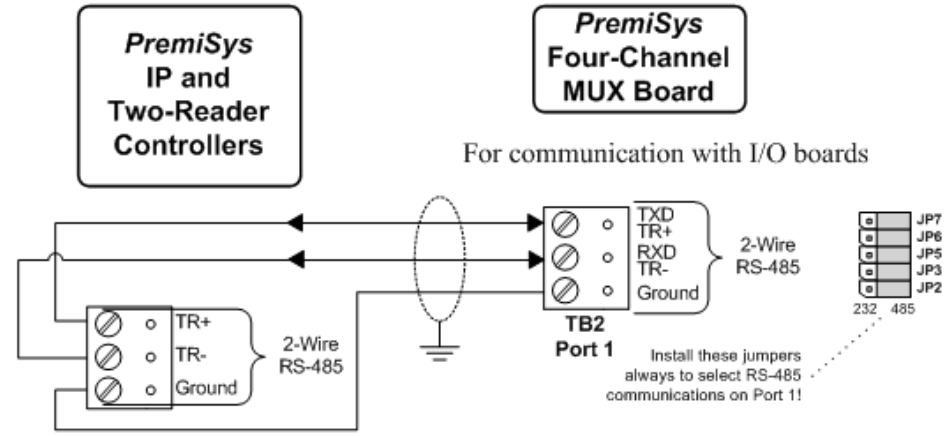
Note: The MUX Boards can accept only two-wire RS-485 communication.



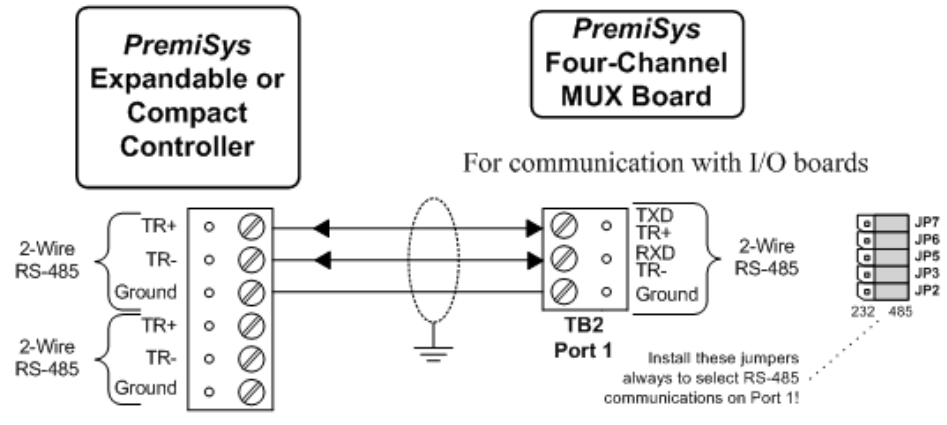
Wiring PremiSys Controllers to the Four- Channel MUX Board

You can use the PremiSys Four-Channel MUX board between the controller and its downstream input, output and reader boards. The schematics below show the wiring from the controllers to a Four-Channel MUX.





IP Controller	TB3 or TB4
Two-Reader Controller	TB3



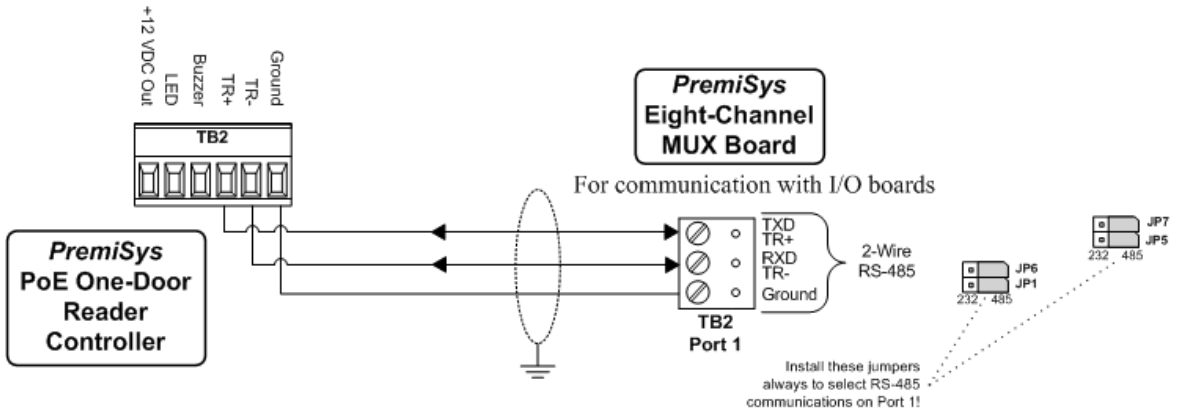
Expandable Controller	TB2 or TB3
Compact Controller	TB4

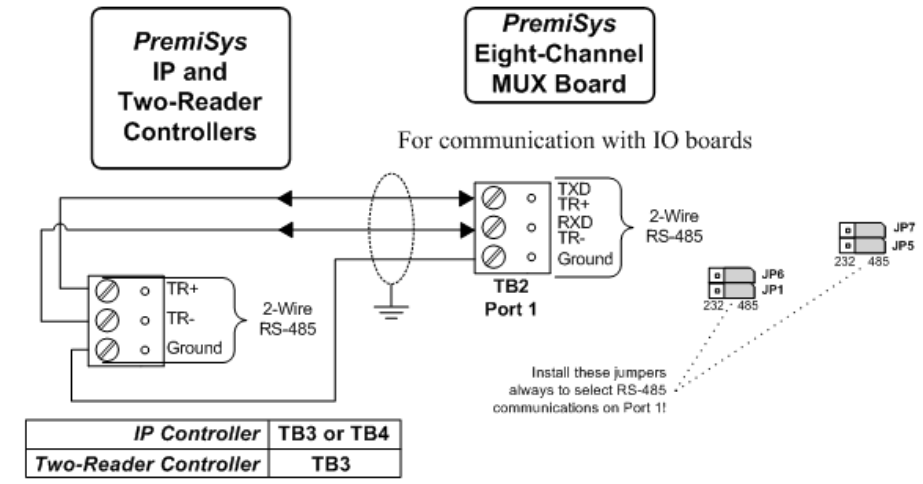
Notes:

- **The MUX boards cannot communicate to any board or controller that cannot receive communications via RS-485. You cannot use a MUX board between the Host and Two-Reader Controller or One-Door Reader Controller since those controllers cannot receive communications via an RS-485 connection.**
- **You cannot use the MUX boards between a controller and a One-Door Reader Board because the One-Door Reader Board cannot receive communications via an RS-485 connection.**
- **Do not connect a MUX board to another MUX board.**

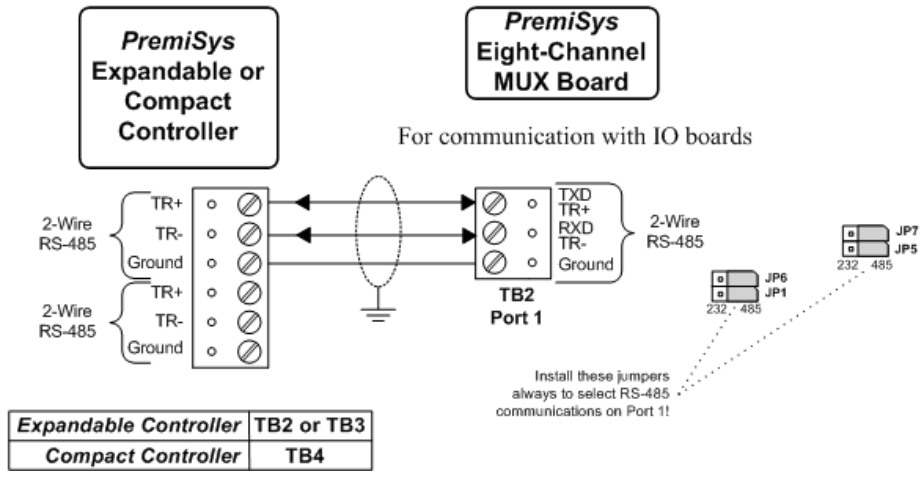
Wiring PremiSys Controllers to the Eight-Channel MUX Board

You can use the PremiSys Eight-Channel MUX board between the controller and its downstream input, output and reader boards. The schematics below show the wiring from the controllers to an Eight-Channel MUX.





IP Controller	TB3 or TB4
Two-Reader Controller	TB3



Expandable Controller	TB2 or TB3
Compact Controller	TB4

Notes:

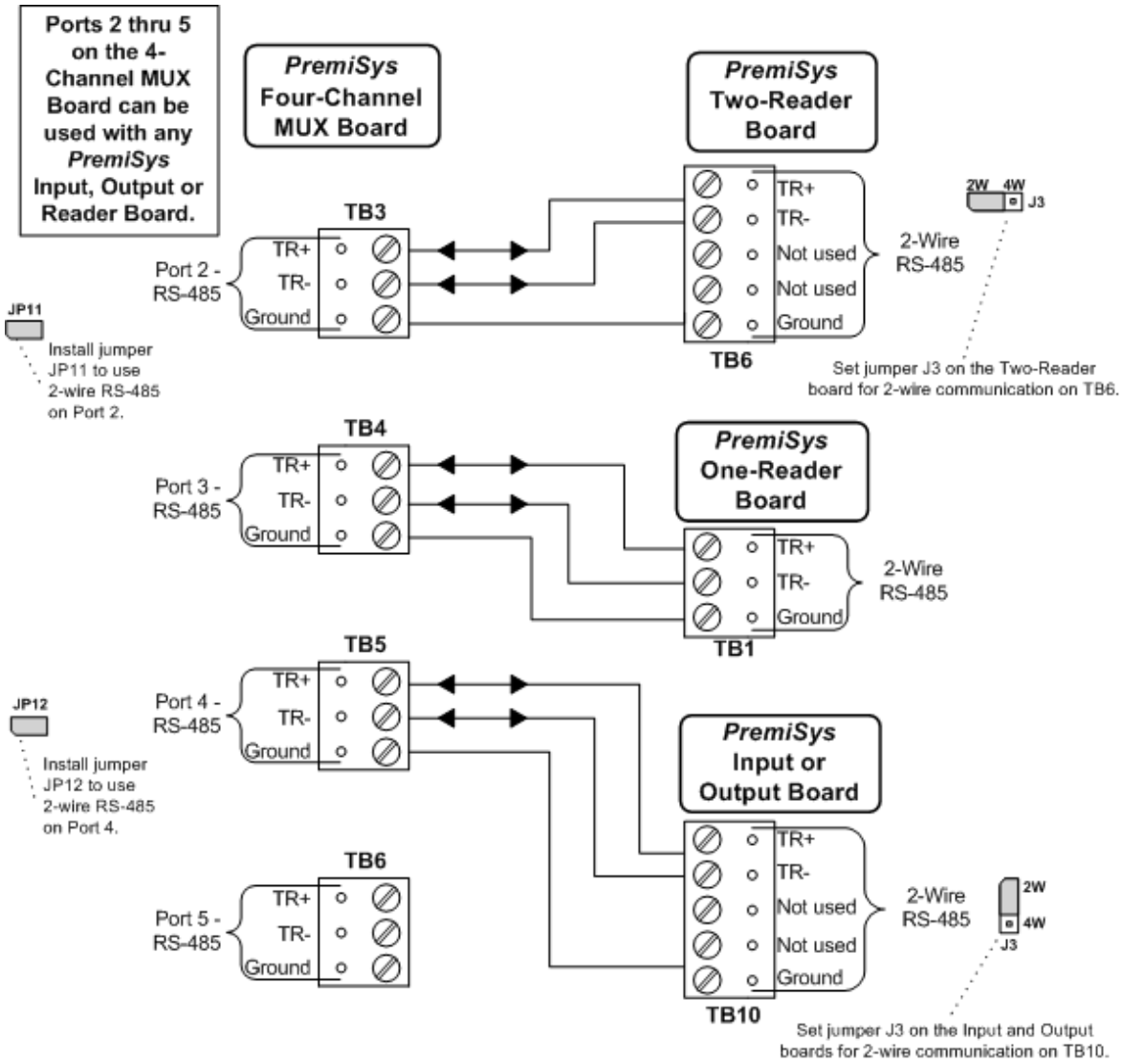
- **The MUX boards cannot communicate to any board or controller that cannot receive communications via RS-485. You cannot use a MUX board between the Host and Two-Reader Controller or One-Door Reader Controller since those controllers cannot receive**

communications via an RS-485 connection.

- You cannot use the MUX boards between a controller and a One-Door Reader Board because the One-Door Reader Board cannot receive communications via an RS-485 connection.
- Do not connect a MUX board to another MUX board.

Wiring PremiSys Four-Channel MUX Board to One-Reader, Two-Reader, Input or Output Boards

You can use the PremiSys Four-Channel MUX board between the controller and its downstream input, output and reader boards. The schematics below show the wiring from the Four-Channel MUX board to reader, input and output boards.



Notes:

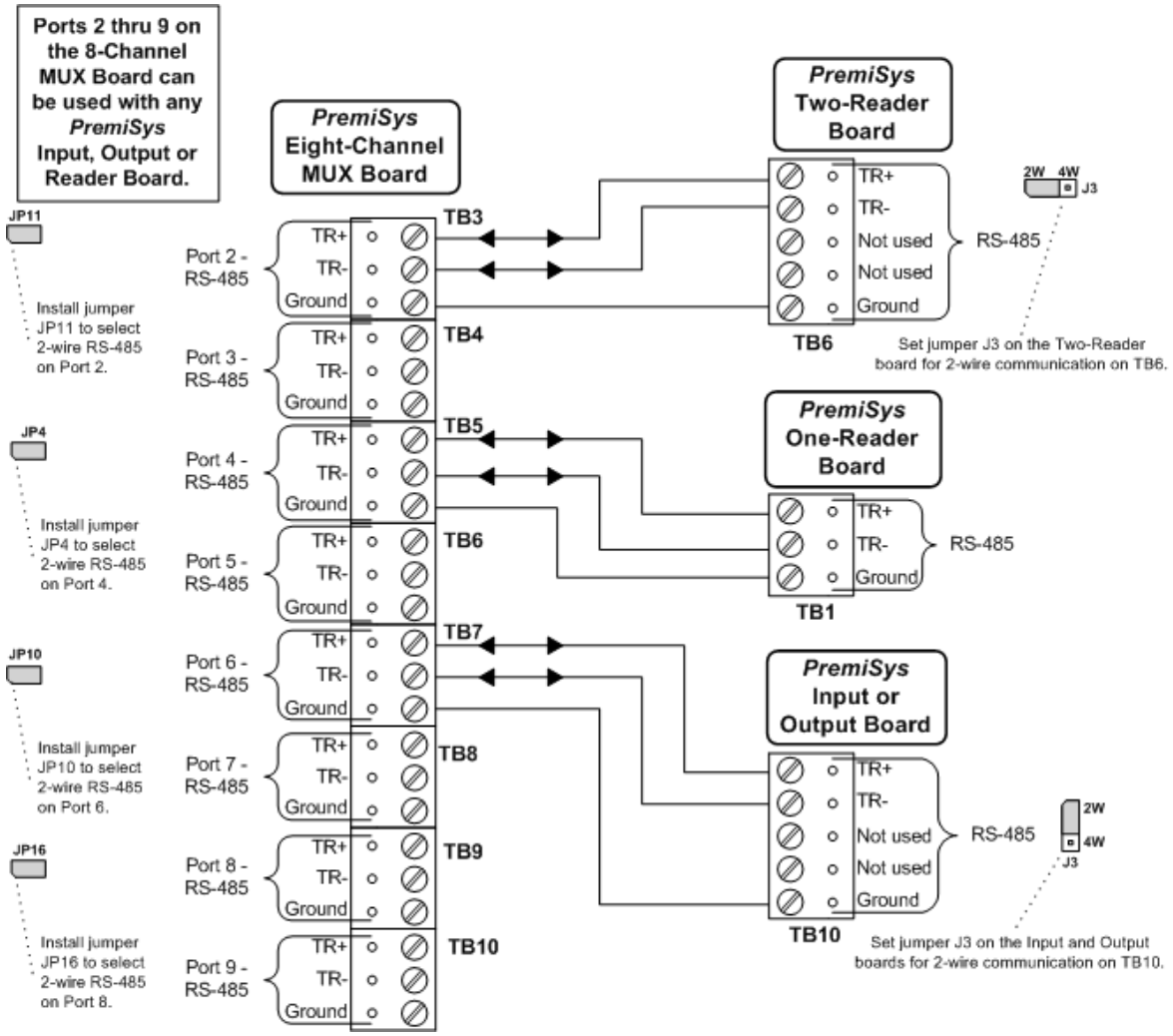
- The MUX boards cannot communicate to any board or controller that cannot receive communications via RS-485. You cannot use a

MUX board between the Host and Two-Reader Controller or One-Door Reader Controller since those controllers cannot receive communications via an RS-485 connection.

- You cannot use the MUX boards between a controller and a One-Door Reader Board because the One-Door Reader Board cannot receive communications via an RS-485 connection.
- Do not connect a MUX board to another MUX board.

Wiring PremiSys Eight-Channel MUX Board to One-Reader, Two-Reader, Input or Output Boards

You can use the PremiSys Eight-Channel MUX board between the controller and its downstream input, output and reader boards. The schematics below show the wiring from the Eight-Channel MUX board to reader, input and output boards.



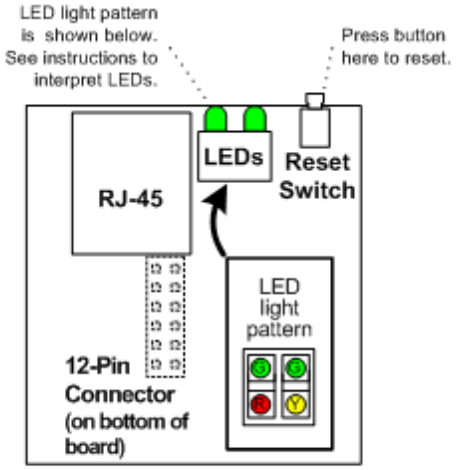
Notes:

- The MUX boards cannot communicate to any board or controller that cannot receive communications via RS-485. You cannot use a

MUX board between the Host and Two-Reader Controller or One-Door Reader Controller since those controllers cannot receive communications via an RS-485 connection.

- You cannot use the MUX boards between a controller and a One-Door Reader Board because the One-Door Reader Board cannot receive communications via an RS-485 connection.
- Do not connect a MUX board to another MUX board.

PremiSys Network Card



Network Card Reset Switch	
Out	**In** (Pressed)
Normal operation	Board resets

Network Card Specifications

Dimensions and Weight of the Network Card

Card Width	1.935 inches (49.2 mm)
Card Height	1.575 inches (44.3 mm)
Card Depth	0.885 inch (22.5 mm)

Card Weight	0.7 ounces (19.8 g)

Environmental Specifications for the Network Card

Temperature	32°F to 158°F (0°C to 70°C) operating -40°F to 185°F (-40°C to 85°C) storage
Relative Humidity	0 to 95% RH noncondensing

Power Specifications for the Network Card

Input Voltage	5 VDC ± 5% at 200 mA, regulated

Communications Specifications for the Network Card

To PremiSys Controller or MUX Board	Two-wire RS-485, via TB1, 2,400-38,400 bps.
To Host PC	Ethernet (Version 2.0/IEEE 802.3), via RJ-45 10/100Base-T connector
Data Rates	300 bps to 115.2 Kbps
Serial Line Formats	7 or 8 data bits 1 or 2 stop bits Odd, even or none parity
Modem Control	DTR, DCD, CTS, RTS
Flow Control	XON/XOFF (software), XON/XOFF Pass Characters to Host CTS/RTS (hardware) None

Indicators on the Network Card

Visible	One green for Channel 1 (steady for idle, blinking for active) One yellow for Channel 2 (steady for idle, blinking for active) One red for diagnostics One green for network link

Installing Network Cards on Controllers

A Network Card must be installed on the Expandable or Compact Controllers to provide an RJ-45 connector on the controller, when TCP/IP is used for host-controller communications.

The Network card cannot be mounted on a controller that is mounted in an enclosure. Whenever possible, plug in and mount the card on the controller before mounting the controller in the enclosure. Power down and remove the controller from the enclosure when a Network Card must be mounted on a controller already in service.

CAUTION! Never install a Network Card on a controller that is powered. Always disconnect the power supply to the controller before installing the Network Card.

The Network Card has twelve pins on its underside that plug into a connector on the controllers. The card has three through holes for mounting. One hole is next to the RJ-45 connector. It is not used. The other two holes are at the other end of the card in its corners. They are used. Follow the steps below to install a Network Card on a

controller.

☑	**To install a Network Card on a controller:**
1.	Cut power to the controller, if it is powered. Remove it from the enclosure if it is already mounted.
2.	Align carefully the twelve pins on the underside of the card with the socket on the controller. Gently press the card down into the socket.
3.	Insert a 4-40 screw up from the bottom of the controller through one of the holes in the end of the card, and then up through a spacer and finally up through the card itself.
4.	Screw on a nut and gently tighten to secure the card to the controller.
5.	Repeat Steps 3 and 4, using the other hole in the end of the card.

Network Card LEDs

LED	Blinking	Lit Steadily
Top-left green (1)	Channel 1 active	Channel 1 idle
Top-right green (4)	N/A	Network port connected
Red (3)	Diagnostics	Diagnostics
Yellow (2)	Channel 2 active	Channel 2 idle

IDentiPASS Conversions

If you are an IDentiPASS™ customer you can convert your system to a PremiSys™ system with minor modifications to your current hardware. In most cases you will not need to rewire your whole system but you will need to change a few connections.

IMPORTANT! All firmware and application-chip software installed on Series 9000 hardware is copyrighted © 2010 by IDenticard Systems.

In a PremiSys system, the Series 9000™ Panel functions as a reader board and is now referred to as a 9000 Four-Reader Board (or Two-Reader Board). You will not need to rewire your readers to new reader boards. A Four-Reader Board can include an expansion card so it can ultimately contain eight doors.

To convert your system to PremiSys software you need:

- PremiSys software.

- One or more PremiSys controllers.
- New firmware and application chips for any Series 9000 boards you plan to use with your new PremiSys system.

You must also:

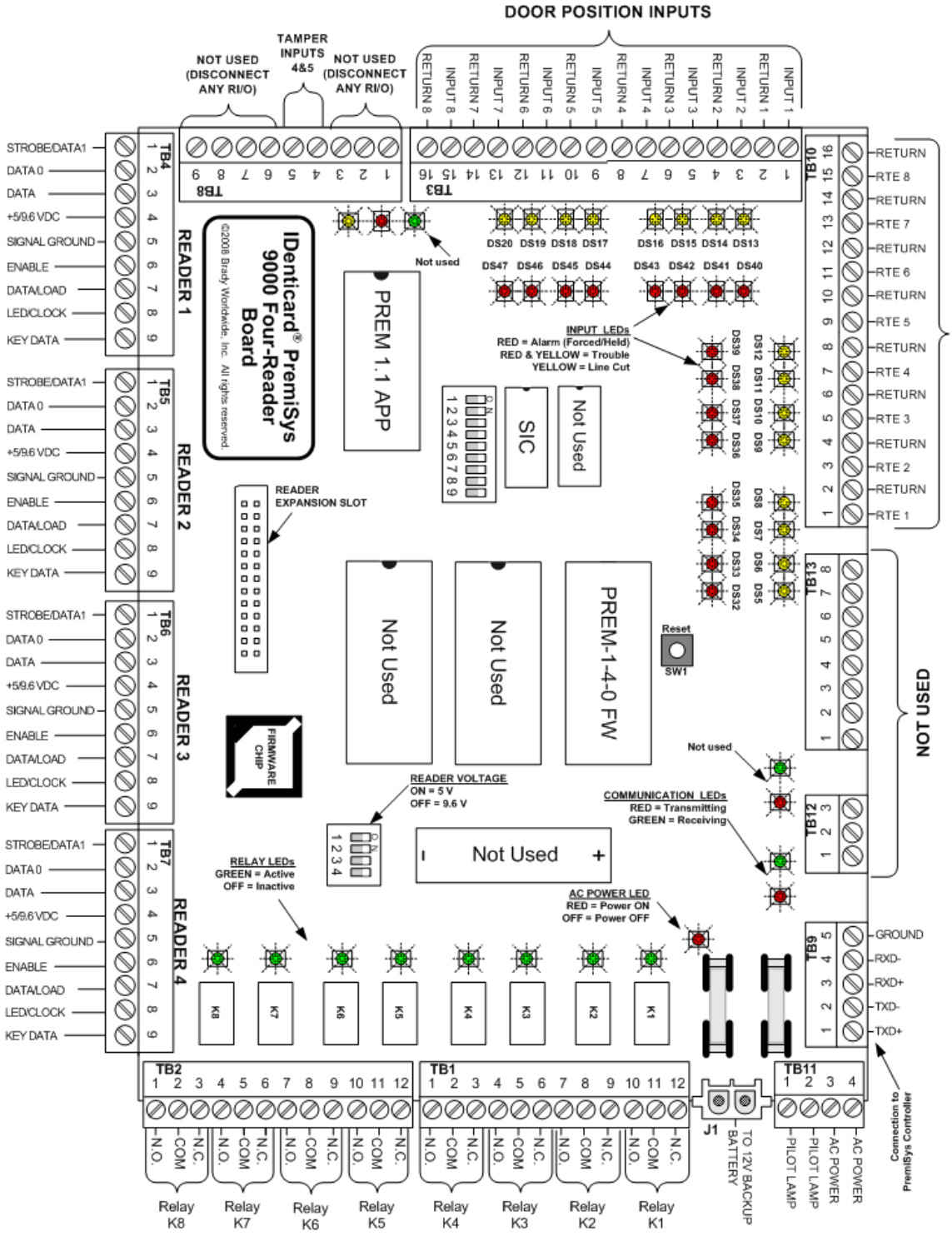
- Disconnect your current Series 9000 Panels from their host computer(s) and/or NetLinks.
- Wire your current Series 9000 Panel(s) to your new PremiSys controller(s).
- Disconnect your current RI/O boards from your Series 9000 Panel(s) and wire them to your new PremiSys controller(s).
- Readdress all boards as needed to conform to PremiSys addressing standards.
- Reconfigure the DIP-switch or jumper settings on the affected controllers to reflect that communications with the 9000 reader boards are at 9600 baud. You need to reconfigure these settings on any controllers currently set to use a baud rate greater than 9600.

The topics within this section will help you understand how your Series 9000 hardware works as part of a PremiSys system. DIP switch charts are included to help you configure hardware addresses.

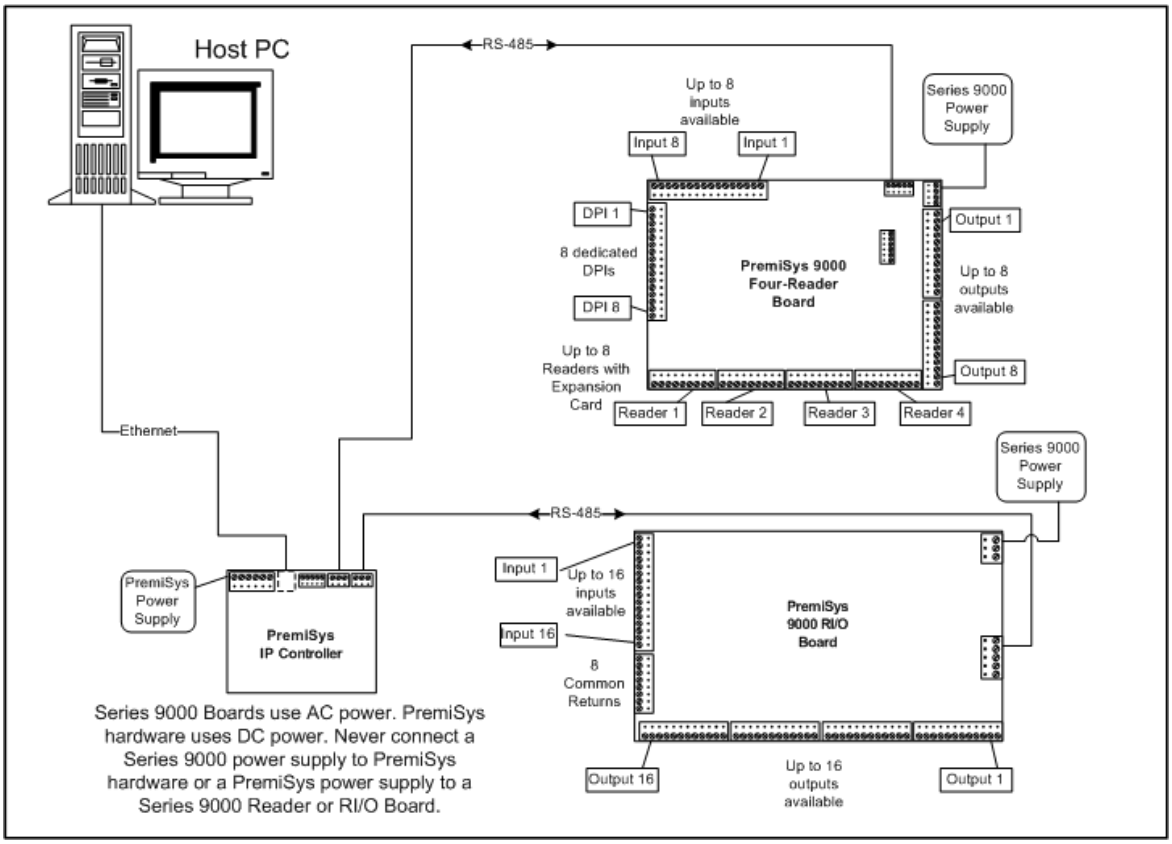
See also the PremiSys Help Manual that installs as part of your PremiSys software for additional information about Series 9000 hardware settings in the software.

WARNING! Never power any PremiSys component from a Series 9000 power supply. Series 9000 boards use AC power! PremiSys components use DC power.

PremiSys Series 9000 Four-Reader Board



Sample PremiSys Configuration with a Series 9000 Reader Board



IMPORTANT! You can configure a maximum of 64 readers per PremiSys controller.

Wiring a Series 9000 Reader Board to a PremiSys Controller

Note: The Series 9000™ Reader Board is connected to the PremiSys controller via 2-wire RS-485 as shown in the diagram below. Do not connect 9000 Reader boards so that the number of readers exceeds 64 on a single IP Controller or single Two-Reader Controller, or 16 on a single PoE One-Door Reader Controller.

Wire your current Series 9000 Panel(s) to your new PremiSys controller(s). You must also disconnect your current RI/O boards from your Series 9000 Panel(s) and wire them to your new PremiSys controller(s).292

You can wire any Series 9000 hardware to any PremiSys controller (or to MUX boards connected downstream from a controller).

However, connecting Series 9000 hardware to an **IP Controller** automatically changes the baud rate used between the controller and the board(s).

Forcing the Baud Rate on IP Controllers

The 9000 Reader Board communicates only at 9600 baud with any controller. When one or more 9000 Reader Boards are connected specifically to one or both of the ports of an **IP Controller**, PremiSys detects these reader boards and automatically forces the baud rate on that port to 9600. Even if 38,400 is selected as the baud rate in the I/O Type drop-down box on the IP Controller's configuration page, the actual baud rate on the port to which the 9000 Reader Board is connected is 9600. An alert appears in the configuration window as a reminder to the user. Take note of the following:

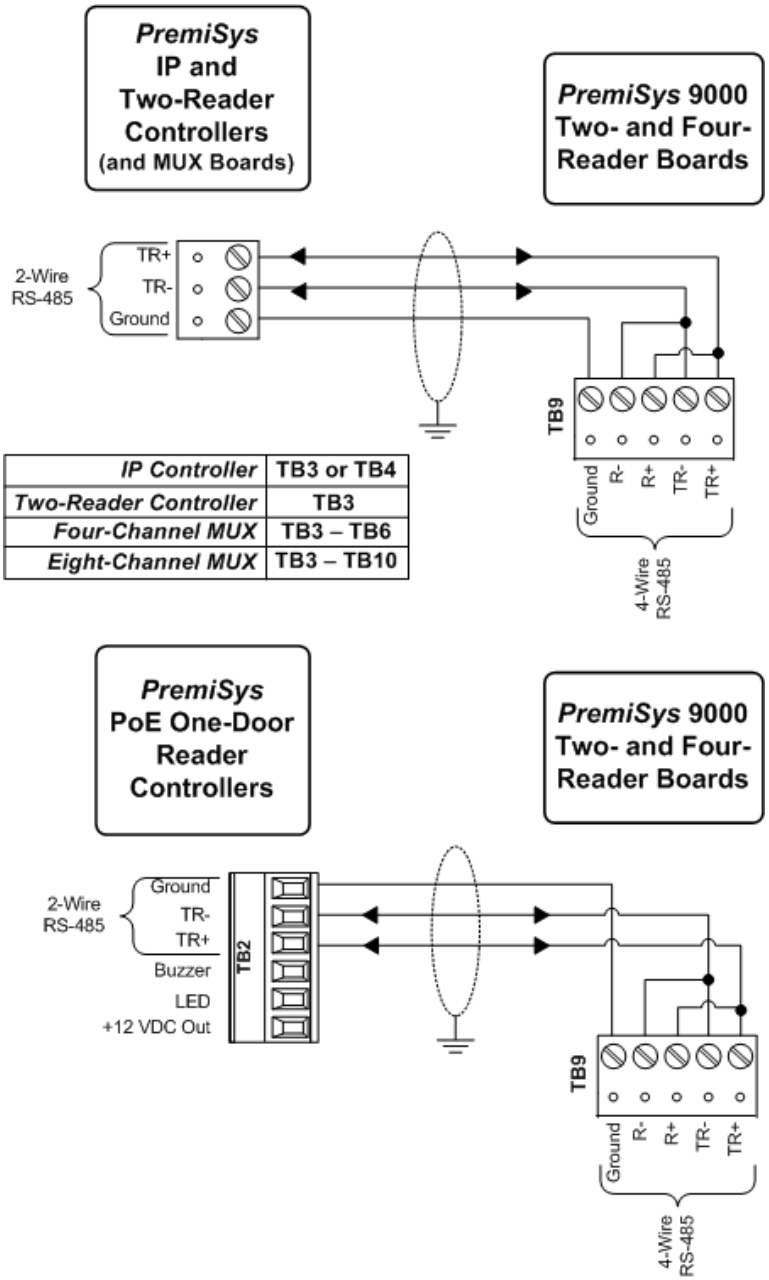
- If **only** 9000 Reader Boards are to be connected **to both ports** on an IP Controller, you can select "9600 bps" as the baud rate setting in the I/O Baud Rate field. Or you do not have to, since the software automatically forces the baud rate setting to 9600 on both ports when the 9000 Reader Boards are connected.
- If 9000 Reader Boards are to be connected **to only one port** on an IP Controller, keep the baud rate setting at 38,400 bps. In this way, the 9000 Reader Boards can communicate at 9600 as a result of the forcing of 9600 baud on that port, and other I/O boards connected to the **other** port can continue to use 38,400 baud.

IMPORTANT! The baud rate is NOT forced on Two-Reader Controllers or PoE One-Door Reader Controllers when they are connected to 9000 Reader Boards. You MUST change the value in the I/O Baud Rate field to "9600 bps" for both of these controllers when 9000 Reader Boards are connected to them.

You may need to readdress your 9000 Reader Boards so that they meet the PremiSys addressing standards as explained in the topic "Understanding DIP Settings for PremiSys Series 9000 Reader Boards 286."

RS-485 communications are limited to 4000 cable-feet (1219 cable-meters) total copper, including drops, to all I/O boards per I/O port on the controller.

IMPORTANT! You can connect up to eight 9000 Four- or Two-Reader Boards (or other downstream RS-485 I/O boards) to a single PoE One-Door Reader Controller. Once that limit is reached, up to eight PoE One-Door Reader Boards can be connected for a maximum total of 16 I/O boards. The maximum number of possible doors (readers) that can be available on one PoE One-Door Reader Controller is 17: 16 doors from all connected I/O boards, plus one on-board door (reader) on the PoE One-Door Reader Controller.



Understanding DIP Settings for PremiSys Series 9000 Reader Boards

You may need to readdress your Series 9000 Reader Boards to use PremiSys™ addressing. In IDentiPASS, Series 9000 Reader boards could use addresses 1 through 64. You must now use only addresses 0 through 31 for those boards. See the alert below.

You can connect up to 32 Reader and I/O boards to a port on a PremiSys controller. If you are using either a PremiSys IP or Expandable Controller you have two ports and

each port can support up to 32 Reader and I/O boards.

IMPORTANT! The first five DIP switches on the 9000 Reader Boards are used for addressing in a PremiSys system. You must use only addresses 0 through 31 for all Series 9000 Reader Boards you convert to a PremiSys system. Use one of the addresses from the chart in the topic titled "DIP Settings for Converted Series 9000 Reader Boards 287." Switch 6 is set to the On position to select 9600 baud communication with the controller. Switches 7, 8 (and 9 if present) are not used in PremiSys software and their settings on a Series 9000 Reader Board do not matter.

You must not duplicate an address that is used by another board that communicates to the same PremiSys controller using the same port (termed MSP ports in PremiSys software). Remember that your Series 9000 Panel is now a Series 9000 Reader Board in your PremiSys system and as such must not be addressed using the same address as any other board wired to the same port on the controller. If your PremiSys controller (for example the IP Controller) has two ports you can use the same address for two boards on the same controller but they must communicate through different ports on the controller.

Note that even though you may address a maximum of 32 reader and I/O boards per physical port on a PremiSys controller, each controller supports a maximum of 64 readers. If your Series 9000 Four-Reader Board contains a Reader Expansion Card and you are utilizing all eight readers, you can connect a total of eight such boards to one PremiSys controller.

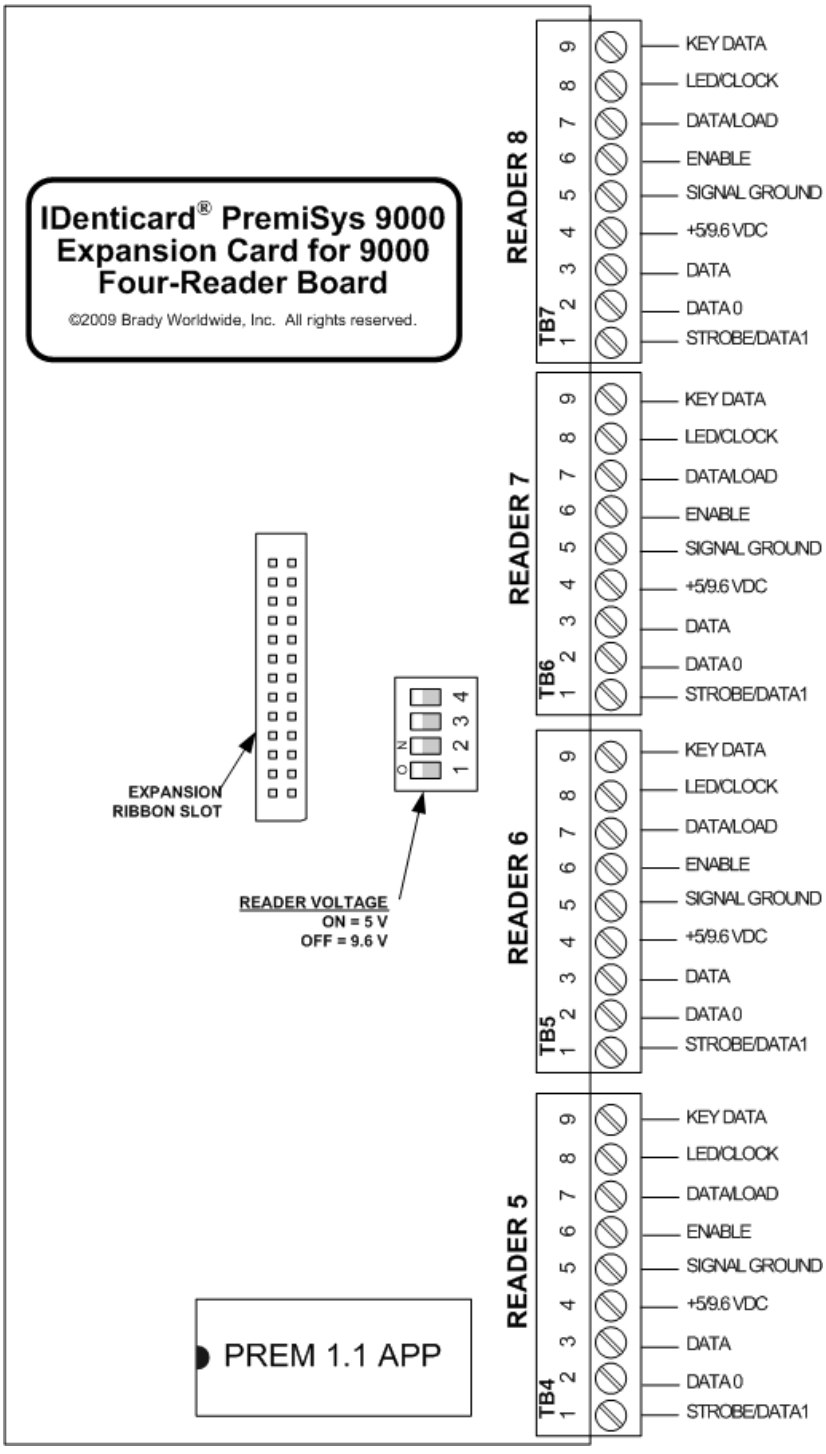
See the topic "DIP Settings for Converted Series 9000 Reader Boards 287" for a chart outlining specific DIP switch address settings.

DIP Settings for Converted Series 9000 Reader Boards

	Switches									
Address in a 9000 System	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Address in a PremiSys System**
1 (or 33)	**On**	**On**	**On**	**On**	**On**	**On**				**31**
2 (or 34)	Off	**On**	**On**	**On**	**On**	**On**				**30**

3 (or 35)	**On**	Off	**On**	**On**	**On**	**On**				**29**
4 (or 36)	Off	Off	**On**	**On**	**On**	**On**				**28**
5 (or 37)	**On**	**On**	Off	**On**	**On**	**On**				**27**
6 (or 38)	Off	**On**	Off	**On**	**On**	**On**				**26**
7 (or 39)	**On**	Off	Off	**On**	**On**	**On**				**25**
8 (or 40)	Off	Off	Off	**On**	**On**	**On**				**24**
9 (or 41)	**On**	**On**	**On**	Off	**On**	**On**				**23**
10 (or 42)	Off	**On**	**On**	Off	**On**	**On**				**22**
11 (or 43)	**On**	Off	**On**	Off	**On**	**On**				**21**
12 (or 44)	Off	Off	**On**	Off	**On**	**On**				**20**
13 (or 45)	**On**	**On**	Off	Off	**On**	**On**				**19**
14 (or 46)	Off	**On**	Off	Off	**On**	**On**				**18**
15 (or 47)	**On**	Off	Off	Off	**On**	**On**				**17**
16 (or 48)	Off	Off	Off	Off	**On**	**On**				**16**
17 (or 49)	**On**	**On**	**On**	**On**	Off	**On**				**15**
18 (or 50)	Off	**On**	**On**	**On**	Off	**On**				**14**
19 (or 51)	**On**	Off	**On**	**On**	Off	**On**				**13**
20 (or 52)	Off	Off	**On**	**On**	Off	**On**				**12**
21 (or 53)	**On**	**On**	Off	**On**	Off	**On**				**11**
22 (or 54)	Off	**On**	Off	**On**	Off	**On**				**10**
23 (or 55)	**On**	Off	Off	**On**	Off	**On**				**9**
24 (or 56)	Off	Off	Off	**On**	Off	**On**				**8**
25 (or 57)	**On**	**On**	**On**	Off	Off	**On**				**7**
26 (or 58)	Off	**On**	**On**	Off	Off	**On**				**6**
27 (or 59)	**On**	Off	**On**	Off	Off	**On**				**5**
28 (or 60)	Off	Off	**On**	Off	Off	**On**				**4**
29 (or 61)	**On**	**On**	Off	Off	Off	**On**				**3**
30 (or 62)	Off	**On**	Off	Off	Off	**On**				**2**
31 (or 63)	**On**	Off	Off	Off	Off	**On**				**1**
32 (or 64)	Off	Off	Off	Off	Off	**On**				**0**

PremiSys Series 9000 Reader Expansion Card



Wiring REX on Series 9000 Reader Boards

It is possible to replicate in PremiSys a request-to-exit scenario that is frequent in IDentiPASS. In this scenario, upon an REX, the door position point is shunted without

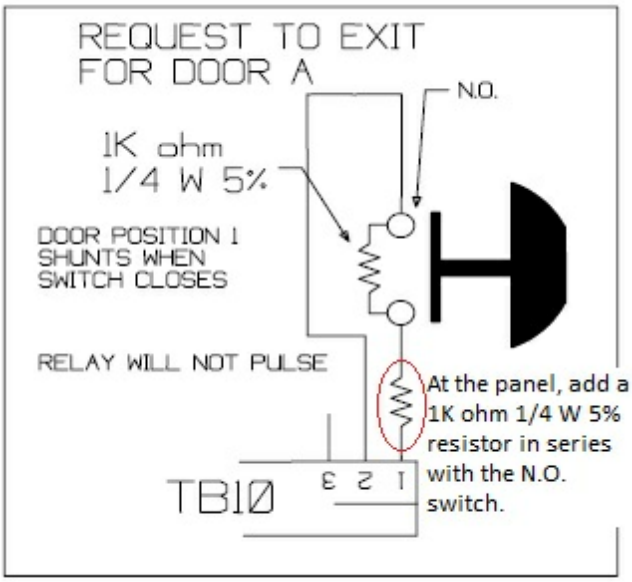
the door being unlocked. This wiring option is used for exits that IDentiPASS simply monitors but does not control. One example is where a motion sensor is used as the REX.

In this scenario, a normally open (N.O.) switch is wired in parallel with a 1K-ohm resistor. The result is that the RTE shunts the door position input point but does not unlock the door when the switch closes. So there are two issues to take care of to make this happen:

- A wiring adjustment in the hardware
- A setting in the door configuration in the software

Adding a New Resistor to the REX Circuit

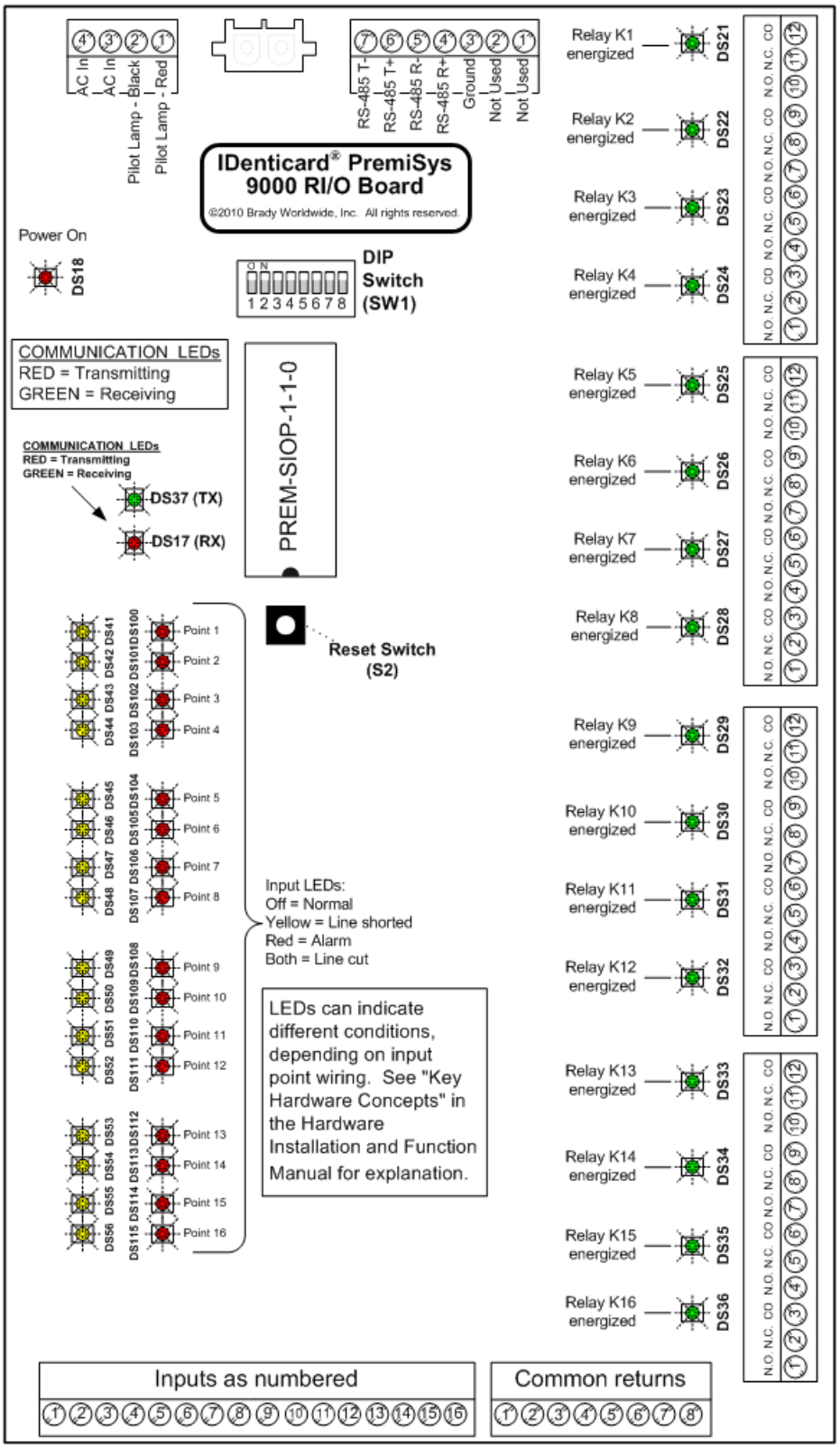
The wiring adjustment is diagrammed and explained below.



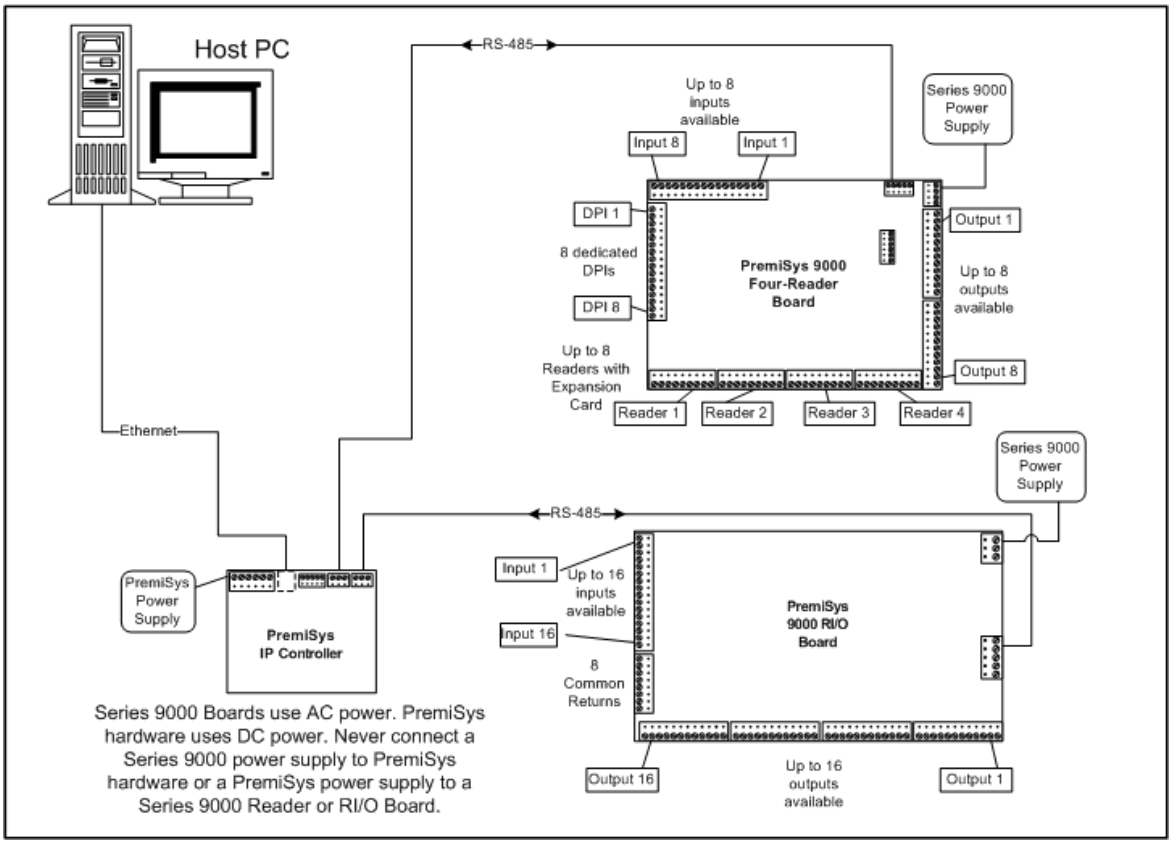
Adjusting the Door Configuration

To prevent the relay from firing, open the Door Properties window for this door in PremiSys. Click the "Control" tab and check the "Quiet Exit" check box. Checking this box keeps the lock from activating when the motion sensor is tripped, but the door position input point is still shunted.

PremiSys Series 9000 RI/O Board



Sample PremiSys Configuration with a Series 9000 RI/O Board



IMPORTANT! You can configure a maximum of 64 readers per PremiSys controller.

Wiring a Series 9000 RI/O Board to a PremiSys Controller

Disconnect your current RI/O boards from your Series 9000 Panel(s) and wire them to your new PremiSys controller(s). You can also wire RI/O boards to MUX boards connected downstream from a controller.

WARNINGS!

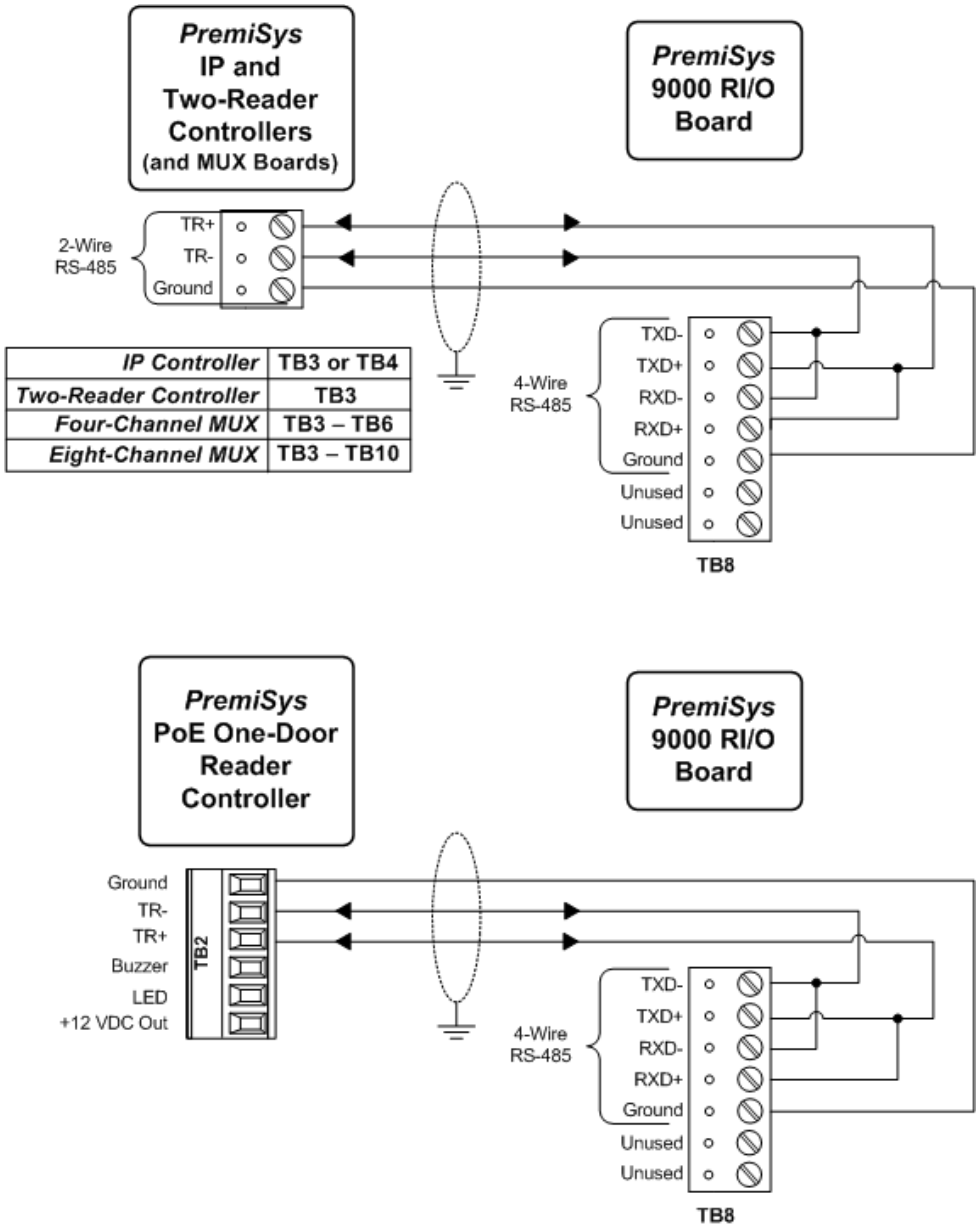
- **Non-ETL listed RI/O boards cannot be used in a PremiSys system. Disconnect all such RI/O boards and replace them with PremiSys Input and Output boards.**
- **Any ETL-listed RI/O boards that are wired using the three-wire configuration ("current loop") MUST be rewired to use RS-485 as shown in the diagram below.**

You must readdress your Series 9000 RI/O Boards so that they meet the PremiSys

addressing standards as explained in the topic "Understanding DIP Settings for PremiSys Series 9000 RI/O Boards 294."

RS-485 communications are limited to 4000 cable-feet (1219 cable-meters) total copper, including drops, to all I/O boards per I/O port on the controller.

IMPORTANT! You can connect up to eight 9000 RI/O Boards (or other downstream RS-485 I/O boards) to a single PoE One-Door Reader Controller. Once that limit is reached, up to eight PoE One-Door Reader Boards can be connected for a maximum total of 16 I/O boards. (The maximum number of possible doors (readers) that can be available on one PoE One-Door Reader Controller is 17: 16 doors from all connected I/O boards, plus one on-board door (reader) on the PoE One-Door Reader Controller.)



Understanding DIP Settings for PremiSys Series 9000 RI/O Boards

You must readdress your Series 9000 RI/O Boards to use PremiSys™ addressing. In IDentiPASS, Series 9000 RI/O boards were limited to addresses 1 through 4. You may now use addresses 0 through 31 for those boards. See the alert below.

You can connect up to 32 Reader and I/O boards to a port on a PremiSys controller. If you are using a PremiSys controller with two ports, for example the IP Controller, each port can support up to 32 Reader and I/O boards in combination.

IMPORTANT! The first five DIP switches on the Series 9000 RI/O Boards are used for addressing in a PremiSys system. You may use addresses 0 through 31 for all Series 9000 RI/O Boards you convert to a PremiSys system. Use one of the addresses in the chart shown in the topic titled "DIP Settings for Converted Series 9000 RI/O Boards 295." Switches 6 and 7 are not used in PremiSys software and their settings on a Series 9000 RI/O Board do not matter. However, Switch 8 MUST be ON.

You must not duplicate an address that is used by another board that communicates to the PremiSys controller using the same port (termed MSP ports in PremiSys software.) Remember that your Series 9000 Panel is now a PremiSys Series 9000 Reader Board and as such must not be addressed using the same address as any other board wired to the same port on the PremiSys controller. If your PremiSys controller (for example the IP Controller) has two ports you can use the same address for two boards on the same controller but they must communicate through different ports on the controller.

Note that even though you may address a maximum of 32 reader and I/O boards per physical port on a PremiSys controller, each controller supports a maximum of 64 readers. If your Series 9000 Four-Reader Board contains a Reader Expansion Card and you are utilizing all eight readers, you can connect a total of eight such boards to one PremiSys controller.

See the topic "DIP Settings for Converted Series 9000 RI/O Boards 295" for a chart outlining specific DIP switch address settings.

DIP Settings for Converted Series 9000 RI/O Boards

	Switches							
Selection	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Address 0	Off	Off	Off	Off	Off			**On**
Address 1	**On**	Off	Off	Off	Off			**On**
Address 2	Off	**On**	Off	Off	Off			**On**
Address 3	**On**	**On**	Off	Off	Off			**On**
Address 4	Off	Off	**On**	Off	Off			**On**

Address 5	**On**	Off	**On**	Off	Off			**On**
Address 6	Off	**On**	**On**	Off	Off			**On**
Address 7	**On**	**On**	**On**	Off	Off			**On**
Address 8	Off	Off	Off	**On**	Off			**On**
Address 9	**On**	Off	Off	**On**	Off			**On**
Address 10	Off	**On**	Off	**On**	Off			**On**
Address 11	**On**	**On**	Off	**On**	Off			**On**
Address 12	Off	Off	**On**	**On**	Off			**On**
Address 13	**On**	Off	**On**	**On**	Off			**On**
Address 14	Off	**On**	**On**	**On**	Off			**On**
Address 15	**On**	**On**	**On**	**On**	Off			**On**
Address 16	Off	Off	Off	Off	**On**			**On**
Address 17	**On**	Off	Off	Off	**On**			**On**
Address 18	Off	**On**	Off	Off	**On**			**On**
Address 19	**On**	**On**	Off	Off	**On**			**On**
Address 20	Off	Off	**On**	Off	**On**			**On**
Address 21	**On**	Off	**On**	Off	**On**			**On**
Address 22	Off	**On**	**On**	Off	**On**			**On**
Address 23	**On**	**On**	**On**	Off	**On**			**On**
Address 24	Off	Off	Off	**On**	**On**			**On**
Address 25	**On**	Off	Off	**On**	**On**			**On**
Address 26	Off	**On**	Off	**On**	**On**			**On**
Address 27	**On**	**On**	Off	**On**	**On**			**On**
Address 28	Off	Off	**On**	**On**	**On**			**On**
Address 29	**On**	Off	**On**	**On**	**On**			**On**
Address 30	Off	**On**	**On**	**On**	**On**			**On**
Address 31	**On**	**On**	**On**	**On**	**On**			**On**

Readdressing and Renaming in Series 9000 RI/O Boards

After you connect Series 9000 RI/O Boards to your controllers, be sure to take care of the following:

- Readdress the boards using their DIP switches. as needed. 294
- Enter any new addresses for the boards in the software.

- Adjust your numbering of the relays and inputs, if you need to in your system. In IDentiPASS, relays and inputs on the four RI/Os connected to a single Series 9000 Panel were numbered 9-24, 25-40, 41-56 and 57-72. However, in the PremiSys software, the points on each board are numbered 1-16 by default.

Creating Schlage Lock Interfaces

PremiSys™ can interface with Schlage® AD-400 electronic locks. All activity at the door, including access-granted events, forced doors, card presentations, etc., is handled by the PremiSys system.

The PremiSys system communicates with the lock via the Schlage PIM400-485 Panel Interface Module (PIM). The PIM is used to communicate wirelessly with the installed locks.

A single PIM can communicate to up to 16 AD-400 electronic locks. Up to 16 PIMs connected in a multidrop fashion can be connected to the two ports of an IP Controller, with a maximum of eight PIMs per port. Each controller supports a maximum of 64 AD-400 electronic locks, distributed over a maximum of 16 PIMs. Systems running PremiSys, as opposed to PremiSys Pro, handle a maximum of 40 AD-400 electronic locks. A PIM communicates only to doors in a PremiSys system.

Each PIM must be programmed with a unique address using the Schlage Handheld Device. Each electronic lock communicating with a PIM on a multidrop run must be given a unique address also.

CAUTION! You must install the AD-400 locks and and fully program the PIMs before starting to connect them to your PremiSys system. Be certain to follow all of the manufacturer's instructions that were shipped with the lock to ensure a complete lock installation before beginning integration with the PremiSys system.

Requirements before integration with PremiSys system can start

- The lock(s) must be completely and properly installed on the door(s) in accordance with the manufacturer's instructions.
- The PIM must be mounted and wired for power in accordance with the manufacturer's instructions and all applicable codes and standards.
- The PIM must be programmed using the Schlage Handheld Device in accordance with the manufacturer's instructions.

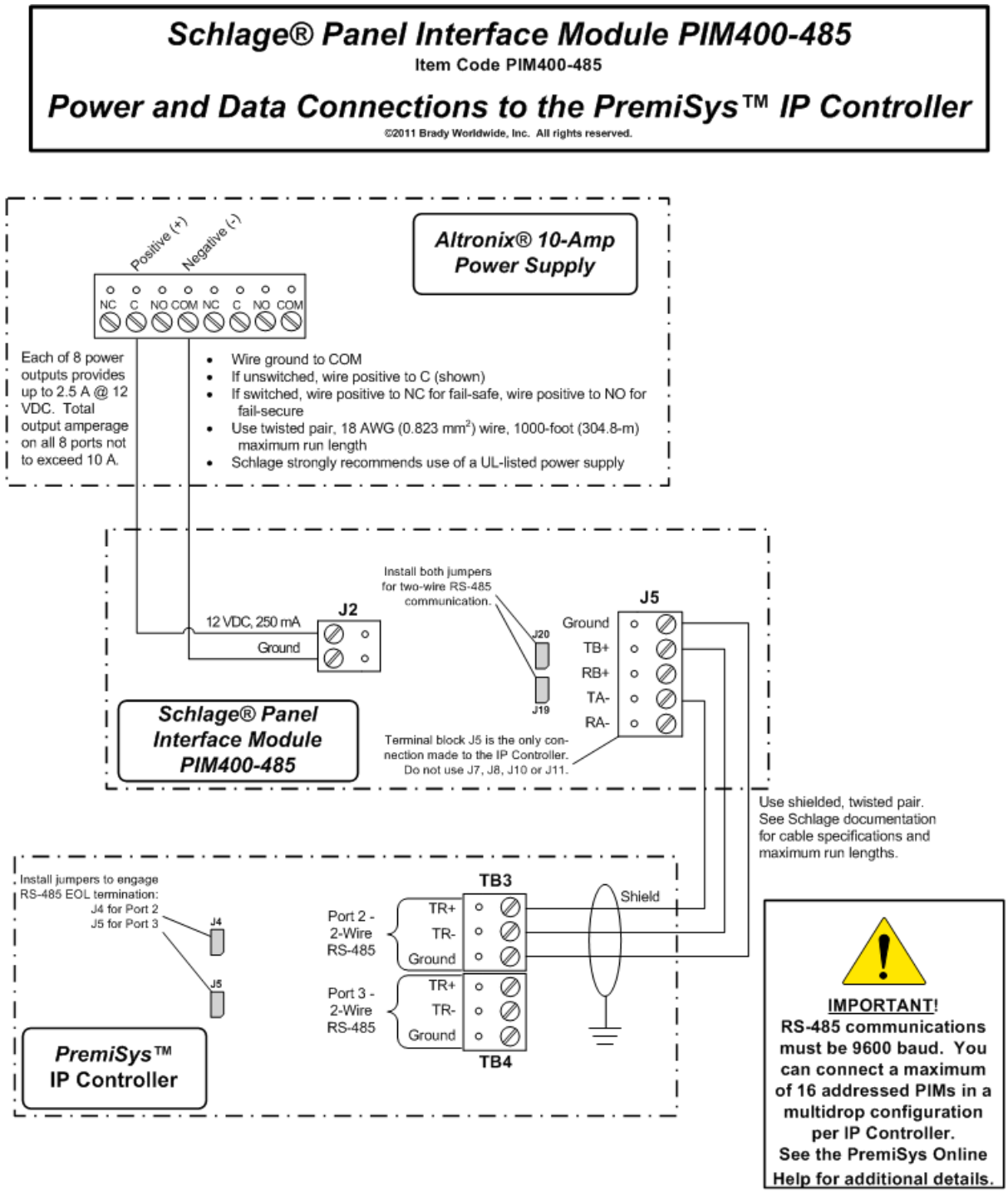
Requirements that Schlage locks place on PremiSys installations

- PIMs can be connected **only** to **PremiSys IP Controllers** using Mercury firmware version 1.11.5 or later.
- **PIMs cannot be mixed with other I/O boards on one port.** Once a PIM is connected to a port, no other I/O board type can be connected on the cable run connected to that port.
- **An IP Controller port used to communicate to the PIM communicates at 9600 baud.** The PremiSys software detects when PIMs are connected to a port and automatically forces the baud rate to 9600 baud on that port, if it is not already set for that rate. Only the port to which the PIM is connected is shifted to 9600 baud. The other port can communicate at the rate selected as part of the controller configuration in the PremiSys software. If PIMs are connected to both ports, both ports are shifted to 9600 baud, if they are not already set for that rate.
- **A maximum of 16 PIMs can be connected per IP Controller.** No more than **eight** PIMs can be connected **per port** on the IP Controller.

Wiring a PIM to an IP Controller

WARNING! Do not begin to wire the PIM to the IP Controller until you have disconnected power from the IP Controller and removed its coin-cell battery. See the instructions that came with this Schlage® product before beginning to wire the PIM.

CAUTION! You must install the AD-400 locks and fully program the PIMs before starting to connect them to your PremiSys system. Be certain to follow all of the manufacturer's instructions that were shipped with the lock to ensure a complete lock installation before beginning integration with the PremiSys system.



Installing Doors, Monitor Points and Control Points

Doors

Schlage® AD-400 electronic locks provide all the hardware the door needs, including the lock, reader and door-position point. These components have the same function in

the PremiSys system as would similar hardware installed individually at a door.

CAUTION! You must install the AD-400 locks and and fully program the PIMs before starting to connect them to your PremiSys system. Be certain to follow all of the manufacturer's instructions that were shipped with the lock to ensure a complete lock installation before beginning integration with the PremiSys system.

The lock, reader and door-position point that are part of the Schlage lock are configured as part of the **door** setup in the software. They are not included in the inputs, outputs and readers that appear in the software.

See the Online PremiSys Help and search for the word "Schlage" for more details.

You cannot configure elevators, alternate readers or alternate REXes on a PIM.

Monitor Points and Control Points

IMPORTANT! The terminal blocks at J8, J7, J10 and J11 on the PIM are NOT used in the PremiSys system. Do not connect anything to them. Their points cannot be configured or used to provide the PremiSys system with monitor points and control points.

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