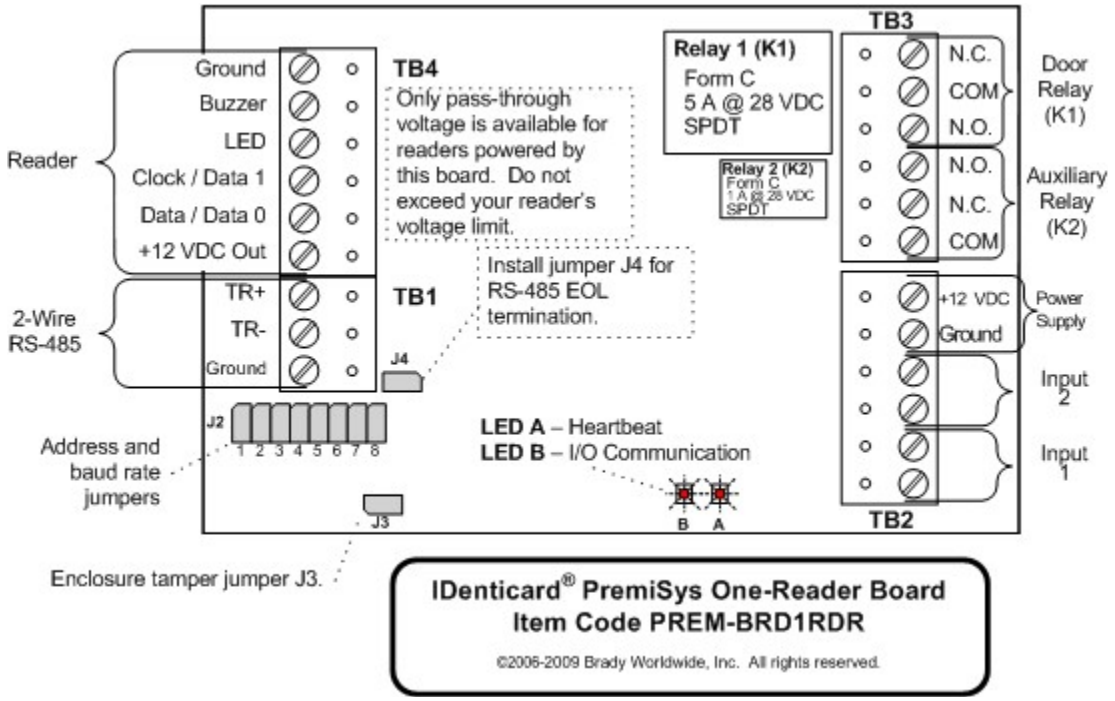
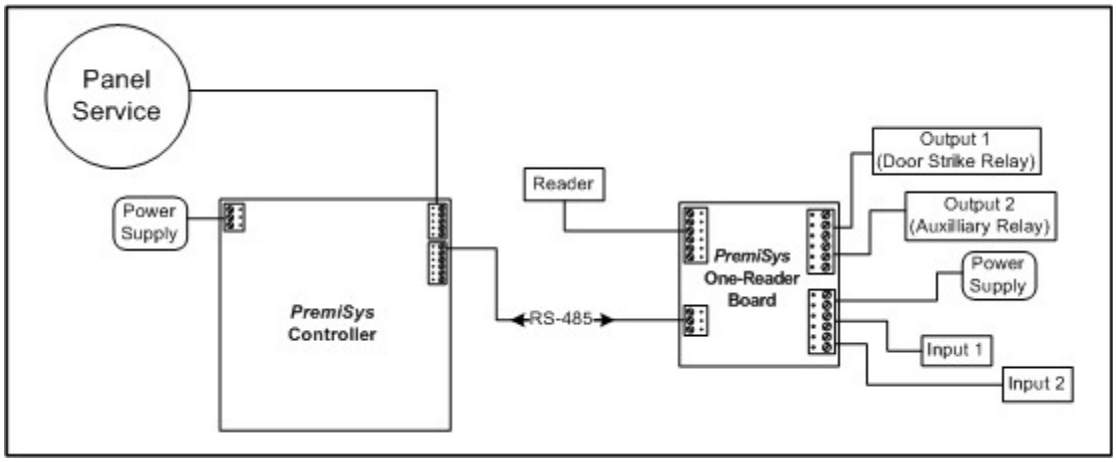
PremiSys One-Reader Board



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.

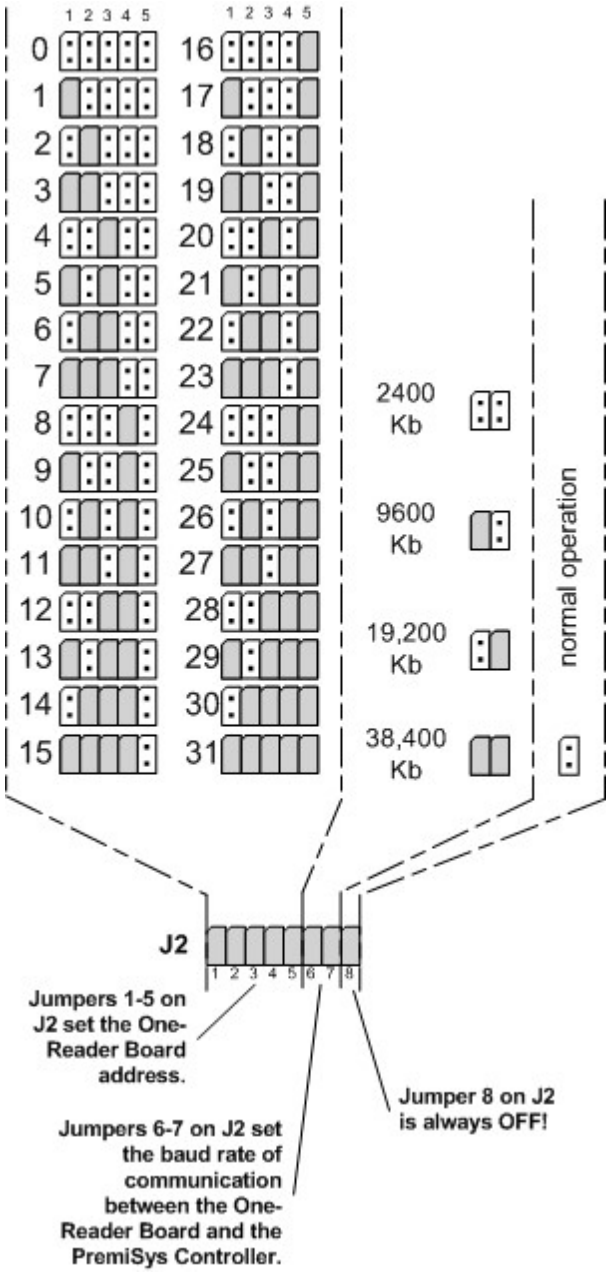
Access-Control Specifications for the One-Reader Board

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.

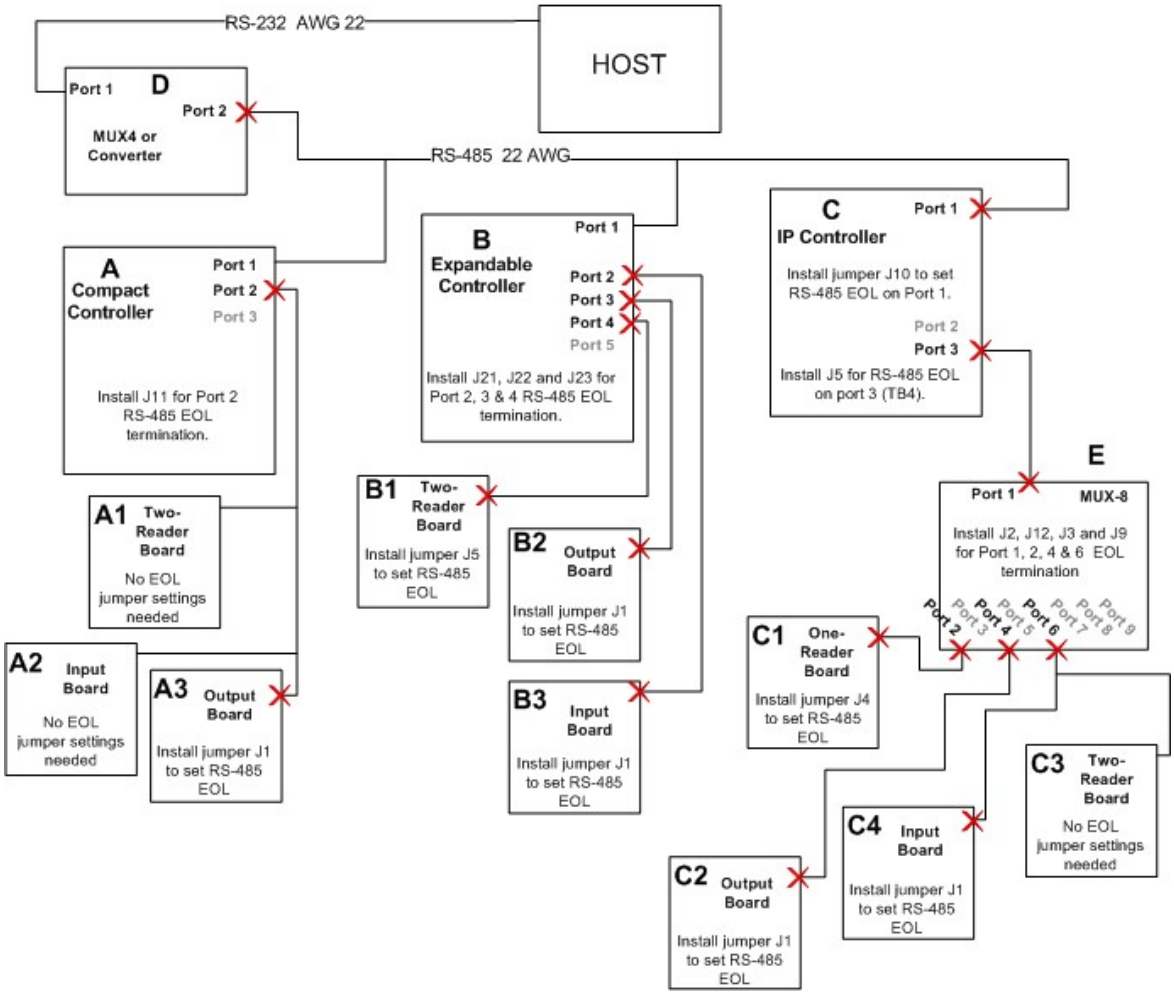
We suggest you install the jumpers in positions 6-7 to set a baud rate of 38,400 bps. Choose the rate that is used for your system. The recommended rate is 38,400 bps.

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.

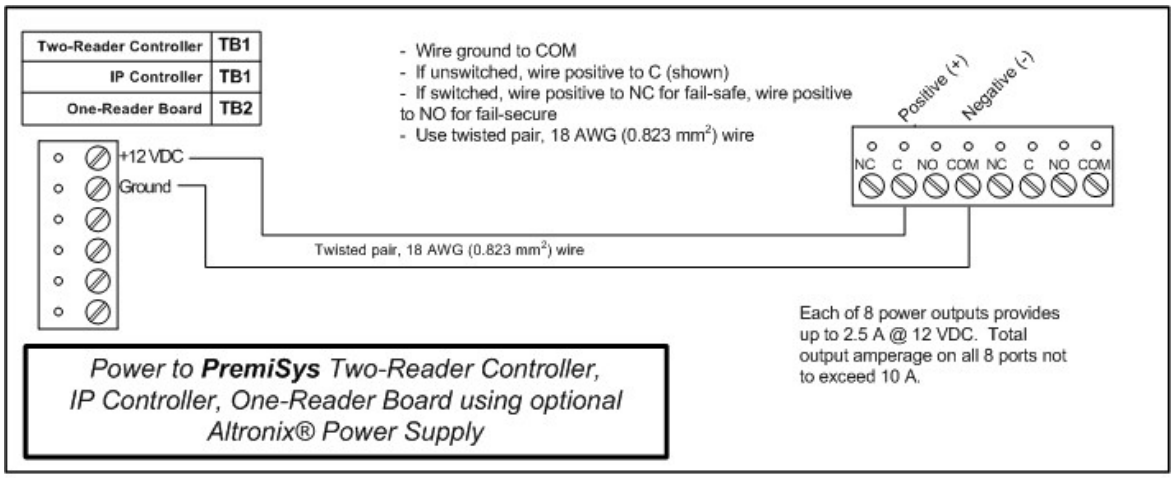
The PremiSys™ One-Reader Board can be powered with the 12 VDC supplied by any PremiSys power source. The input voltage supplied to the board is passed through to

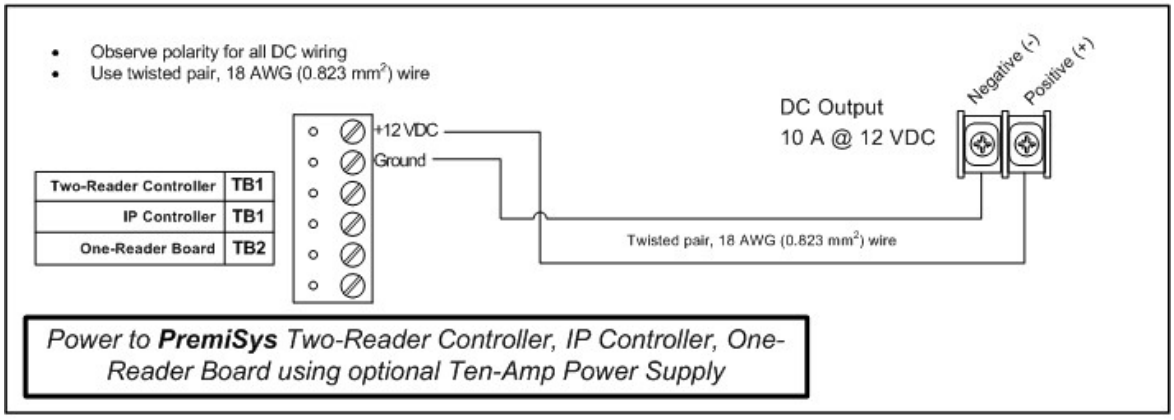
the reader terminal block. See the alerts below.

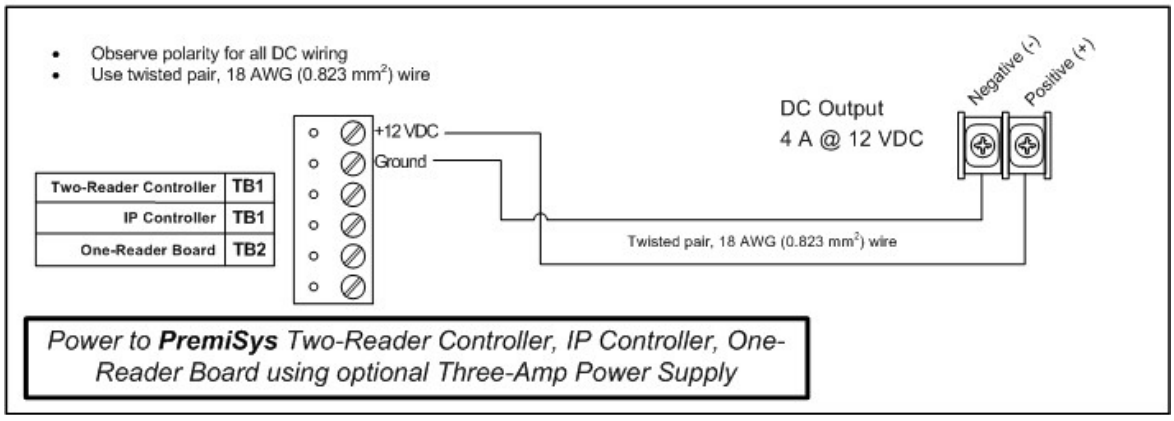
Exercise caution to be sure that the voltage supplied to the One-Reader Board is not too great for the reader to handle. Be sure as well that the reader is supplied sufficient voltage by the board.

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.

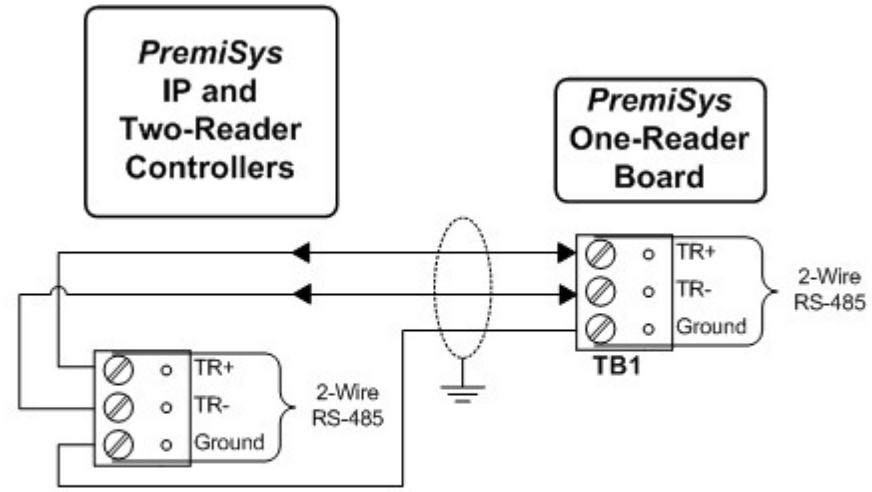
Wiring a One-Reader Board Enclosure Tamper

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.

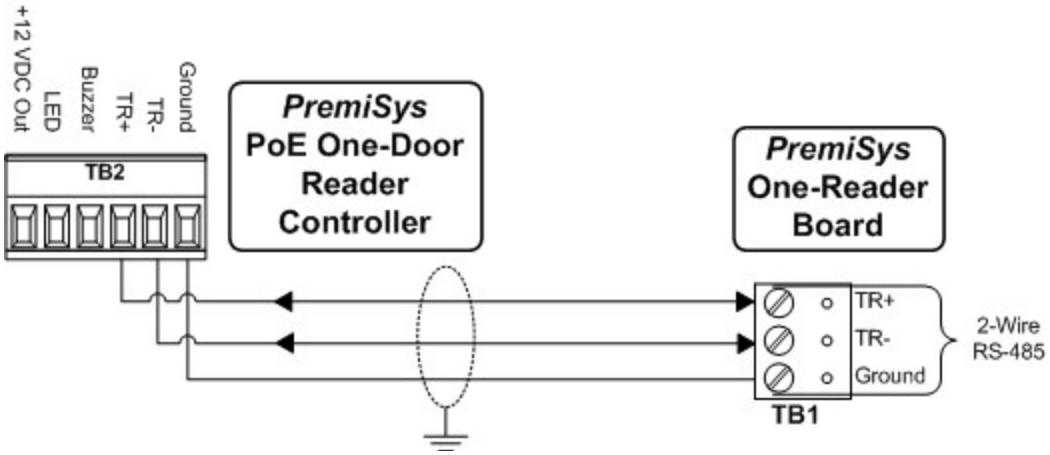
If you do not connect this wire to provide a tampering alert, twist the wires to short-wire the jumper and close the point. Alternatively, you can remove the wire and install a regular jumper as the short.

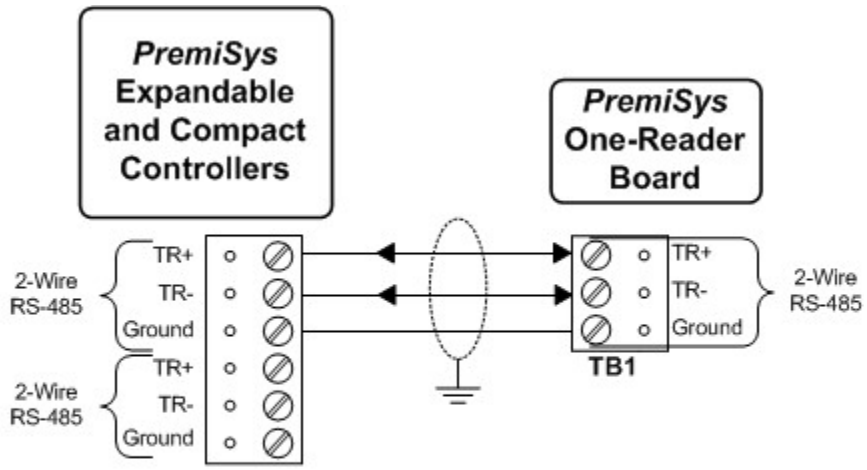
Wiring a One-Reader Board to a Controller

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





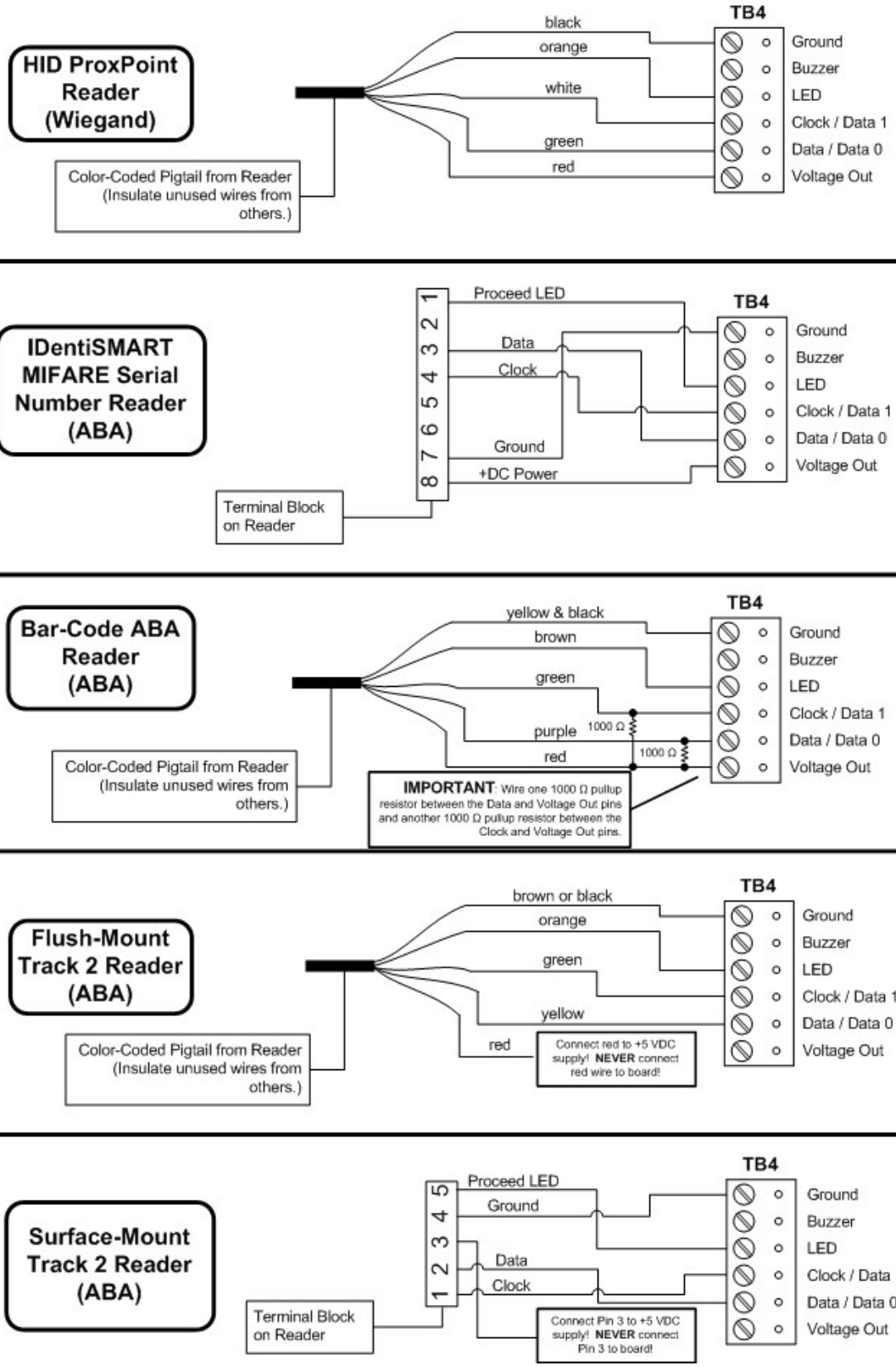
Expandable Controller	TB2 or TB3
Compact Controller	TB4

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:

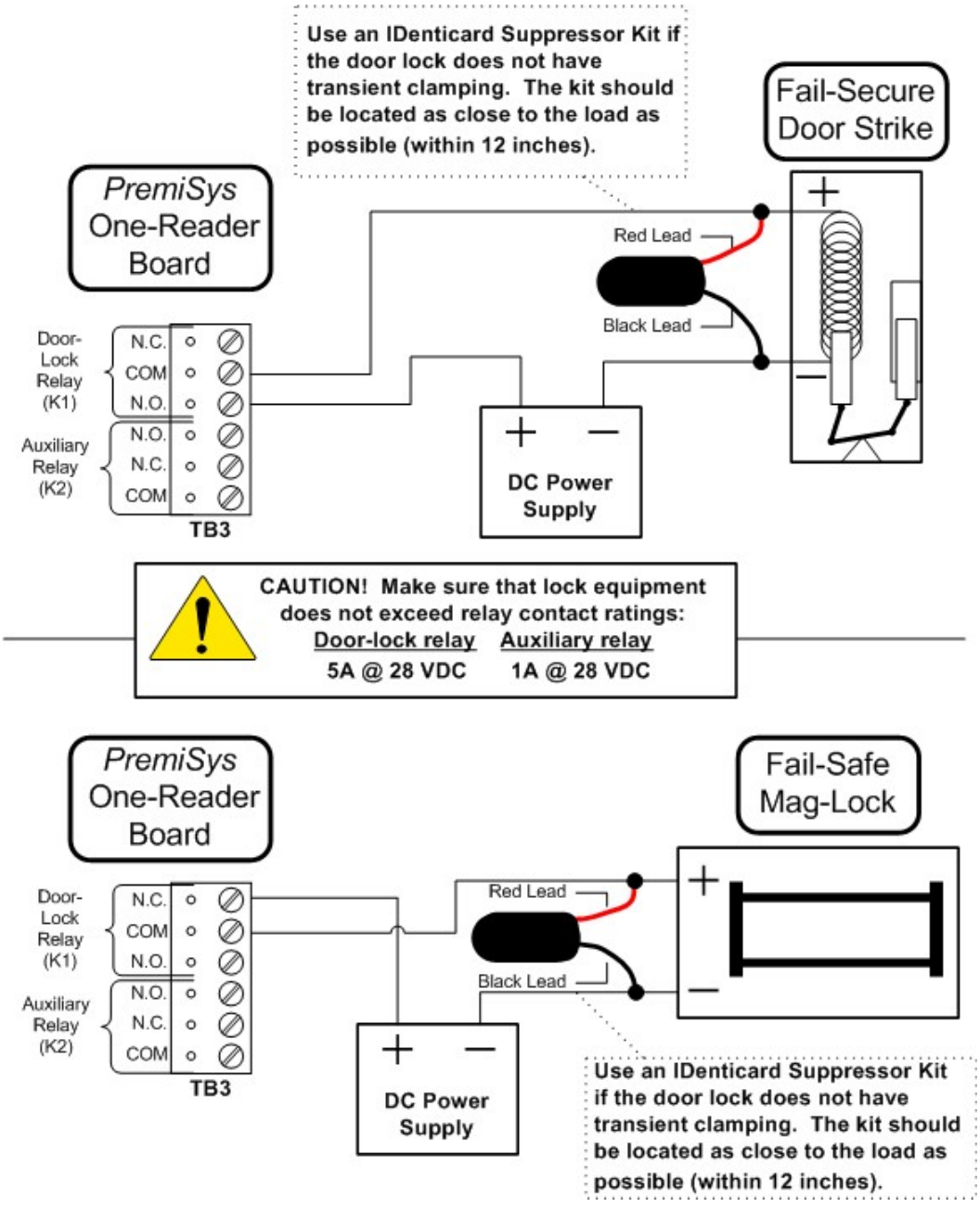
- Use a terminal block for connection to the board rather than a “pigtail” cable as shown below. Always double-check the color-coding scheme of any reader using a pigtail. The scheme depicted in this illustration is a very common standard, but may not necessarily be universal.
- Must have their own separate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


HID ProxPoint Reader (Wiegand)
Color-Coded Pigtail from Reader (Insulate unused wires from others.)
black
orange
white
green
red
TB4
Ground
Buzzer
LED
Clock / Data 1
Data / Data 0
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
brown
green
purple
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
orange
green
yellow
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!

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

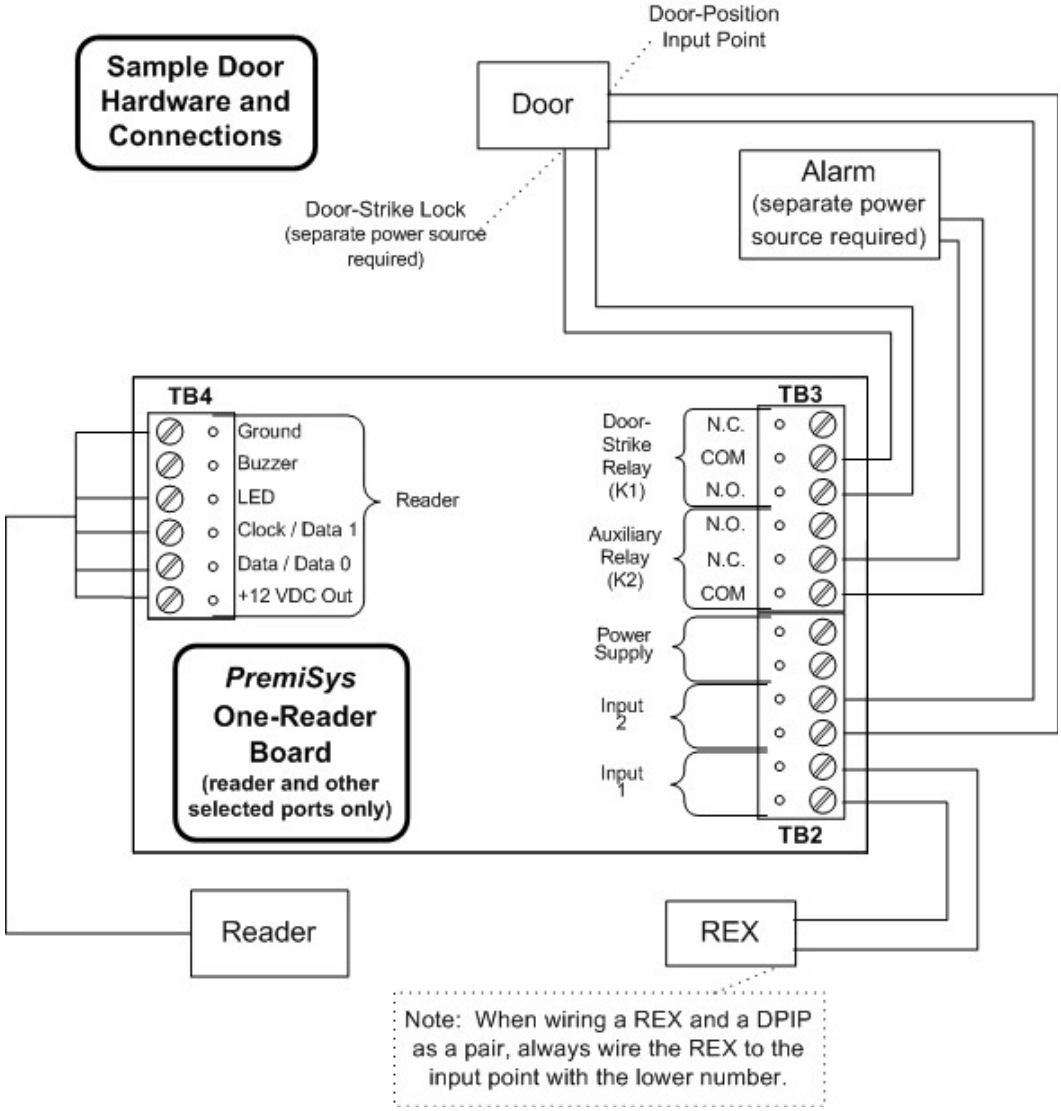
The two relays on the One-Reader Board are both Form C, dry-contact and single-pole double-throw (SPDT). However, each has different electrical specifications:

- 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.

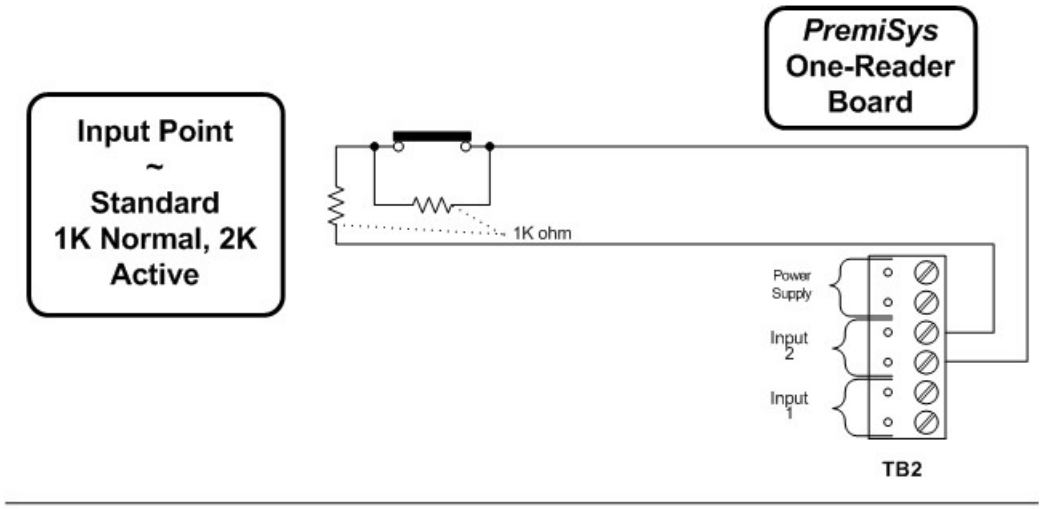
Wiring Supervised Input Points on the One-Reader Board

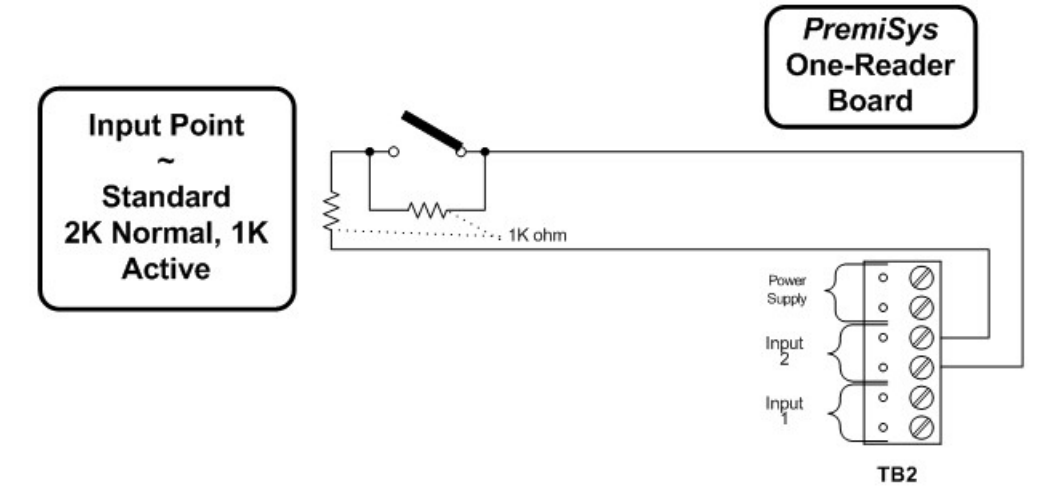
Supervised inputs such as these can be used for door-position input points or any other input that requires supervision.

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.





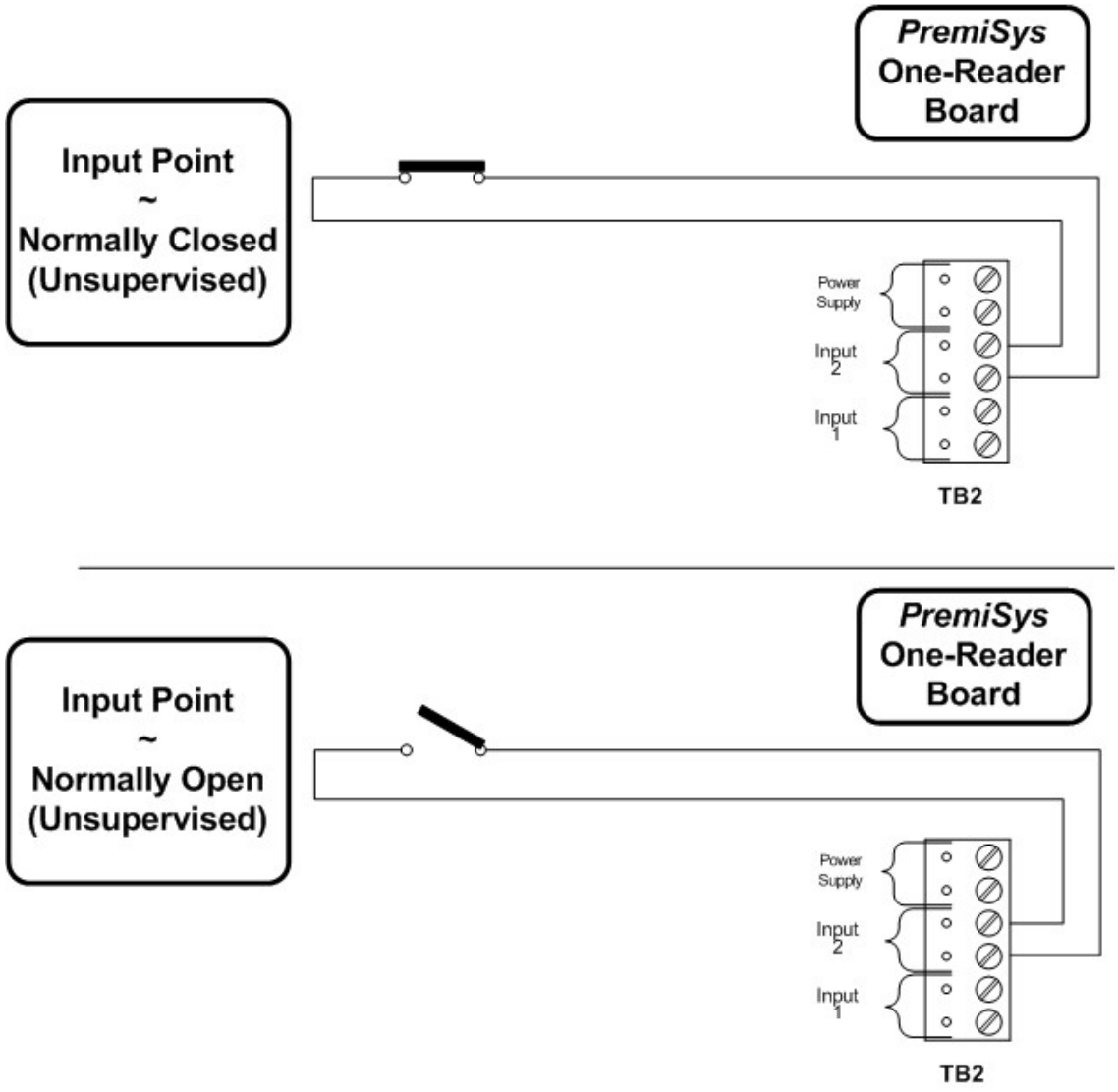
Connection to Input-Point Devices	One twisted pair per input, 30 ohms maximum

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