PremiSys Output Board

TB1

K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16
Lit LED indicates energized relay.

TB5

| Relay 1 | N.O. COM N.C. |
| Relay 2 | N.O. COM N.C. |

Relay 2 (K2) Form C 5 A @ 28 VDC SPDT

Relay 1 (K1) Form C 5 A @ 28 VDC SPDT

Relay 9 (K9) Form C 5 A @ 28 VDC SPDT

Relay 10 (K10) Form C 5 A @ 28 VDC SPDT

| N.C. COM N.O. | Relay 9 |
| N.C. COM N.O. | Relay 10 |

| Relay 3 | N.O. COM N.C. |

Relay 4 (K4) Form C 5 A @ 28 VDC SPDT

Relay 3 (K3) Form C 5 A @ 28 VDC SPDT

Relay 11 (K11) Form C 5 A @ 28 VDC SPDT

Relay 12 (K12) Form C 5 A @ 28 VDC SPDT

| N.C. COM N.O. | Relay 11 |

| Relay 4 | N.O. COM N.C. |

TB2

Relay 5 (K5) Form C 5 A @ 28 VDC SPDT

Relay 13 (K13) Form C 5 A @ 28 VDC SPDT

TB6

| N.C. COM N.O. | Relay 12 |

TB3

Relay 6 (K6) Form C 5 A @ 28 VDC SPDT

TB7

Relay 14 (K14) Form C 5 A @ 28 VDC SPDT

| Relay 5 | N.O. COM N.C. |

| N.C. COM N.O. | Relay 13 |

| Relay 6 | N.O. COM N.C. |

Relay 7 (K7) Form C 5 A @ 28 VDC SPDT

Relay 15 (K15) Form C 5 A @ 28 VDC SPDT

| N.C. COM N.O. | Relay 14 |

| Relay 7 | N.O. COM N.C. |

Relay 8 (K8) Form C 5 A @ 28 VDC SPDT

Relay 16 (K16) Form C 5 A @ 28 VDC SPDT

| N.C. COM N.O. | Relay 15 |

| Relay 8 | N.O. COM N.C. |

TB4

| N.C. COM N.O. | Relay 16 |

TB8

Enclosure Tamper Alarm - CT (N.C.)

Power Failure Alarm - BA (N.C.)

TB9

If not wiring the Power Failure or Enclosure Tamper alarms you must short-wire the unused pins.

U1

LEDs......
A
B
CT
BA

TR+
TR-
Not Used
Not Used
Ground

2-Wire RS-485

TB10

Install jumper J1 to engage RS-485 EOL termination.

J1

2W
4W
J3

DIP Switch (S1)

1 2 3 4 5 6 7 8

+12VDC
Not Used
Ground

Power Supply

TB11

Set jumper J3 for 2-wire communication on TB10.

IDenticard® PremiSys Output Board Item Code PREM-BRDOUT

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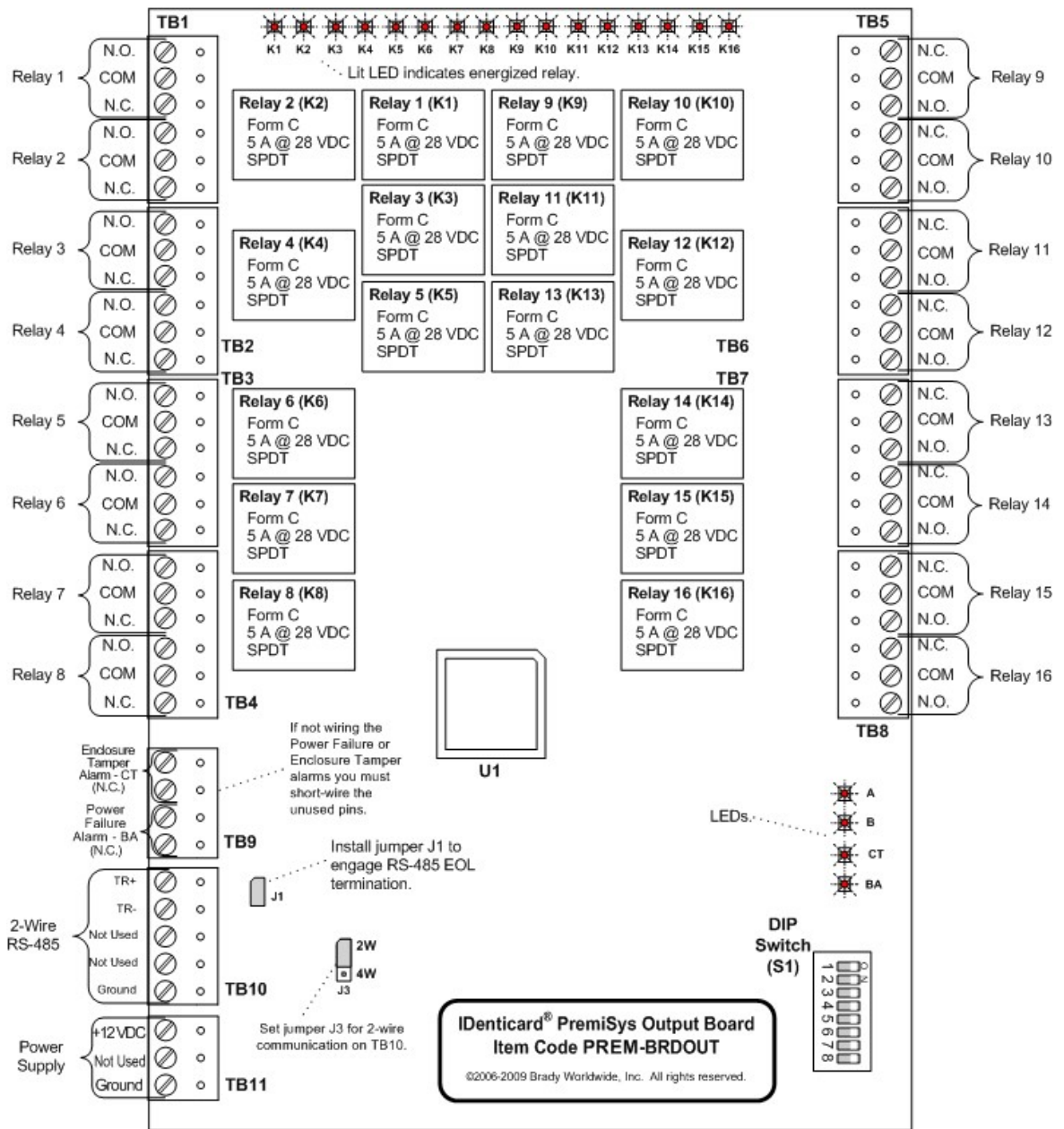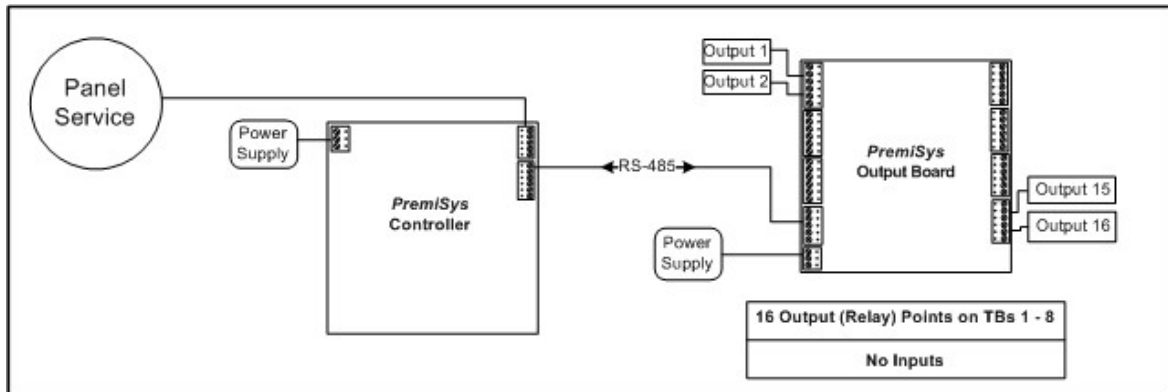### Sample General Configuration for a PremiSys Output Board Connected to a PremiSys Controller, a Reader and Auxiliary Equipment

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

Selection	Switches							
	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

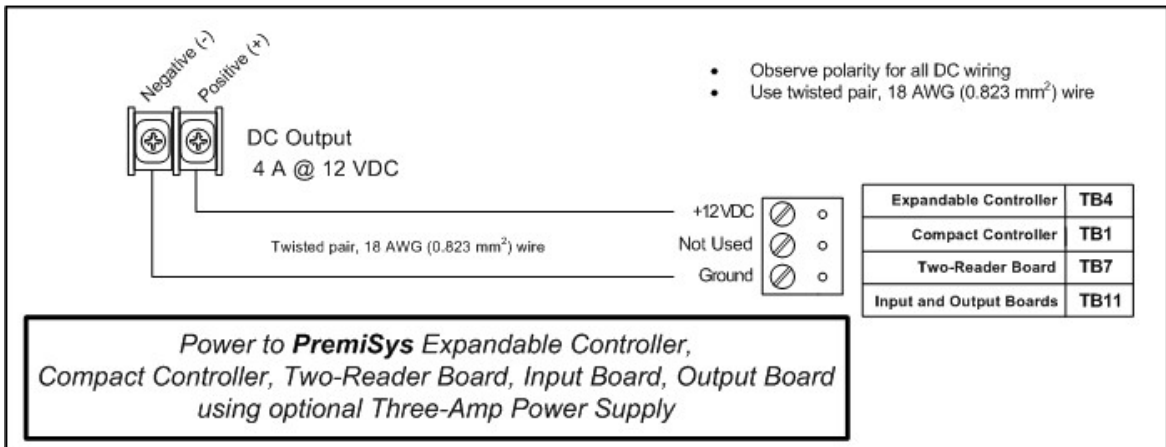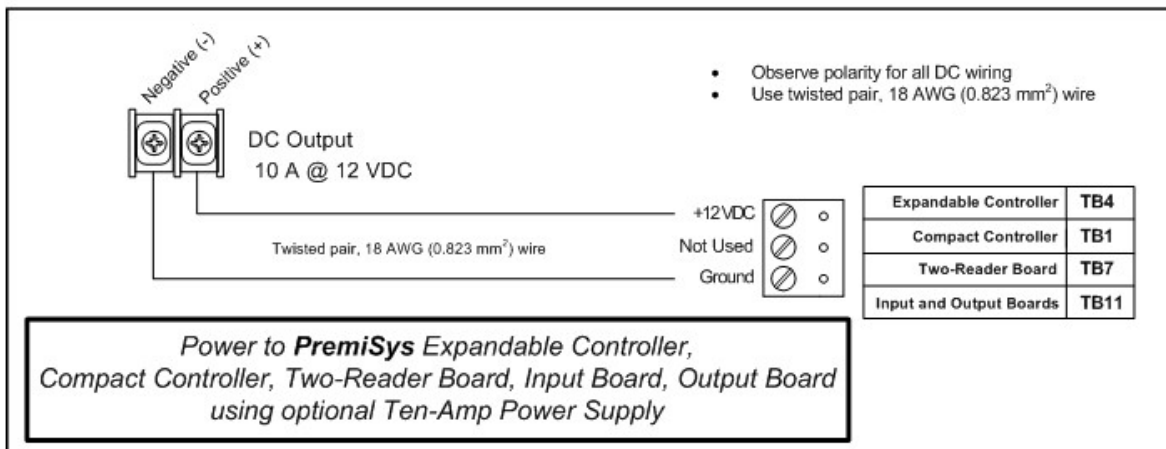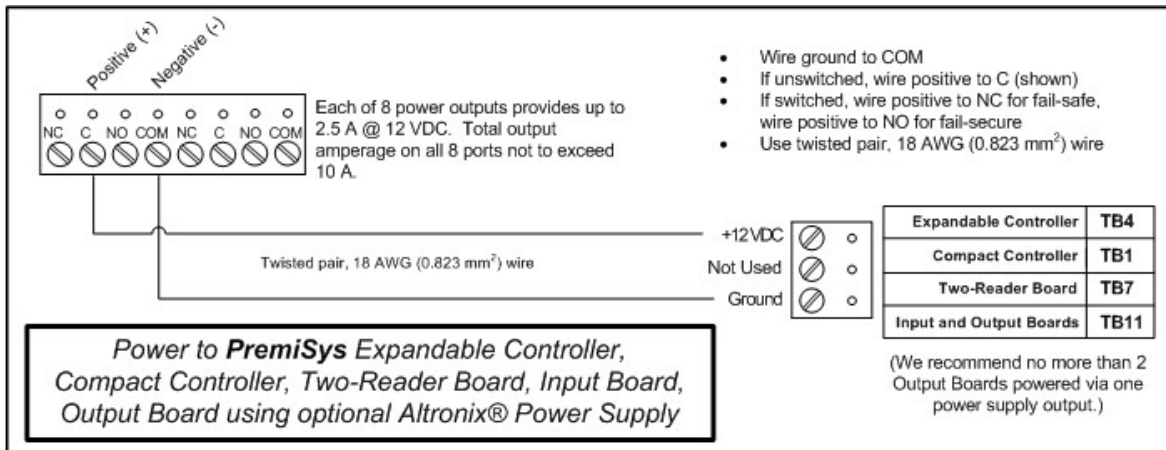If the Output Board is the last board on a bus, install jumper J1 to set RS-485 EOL.

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.
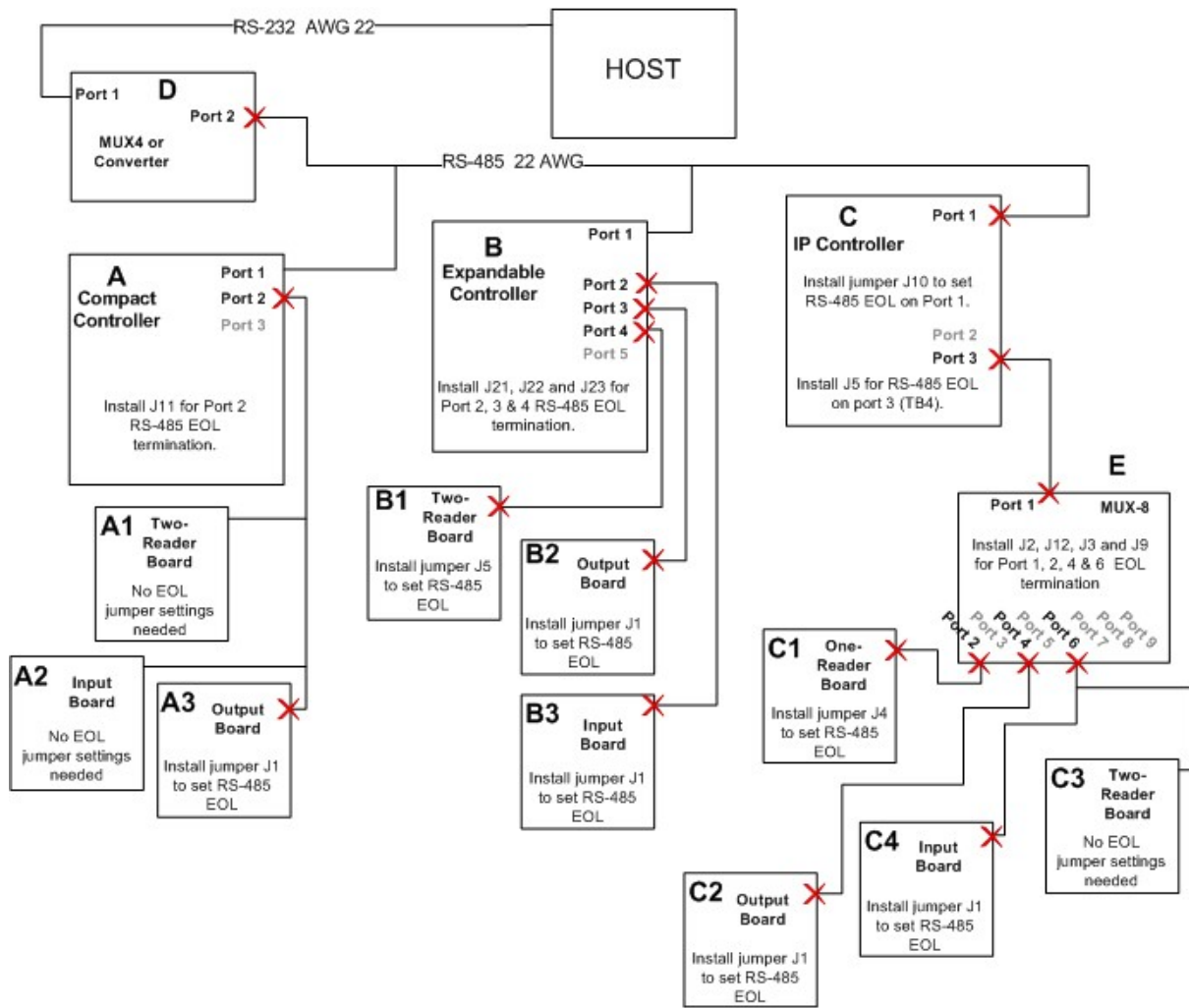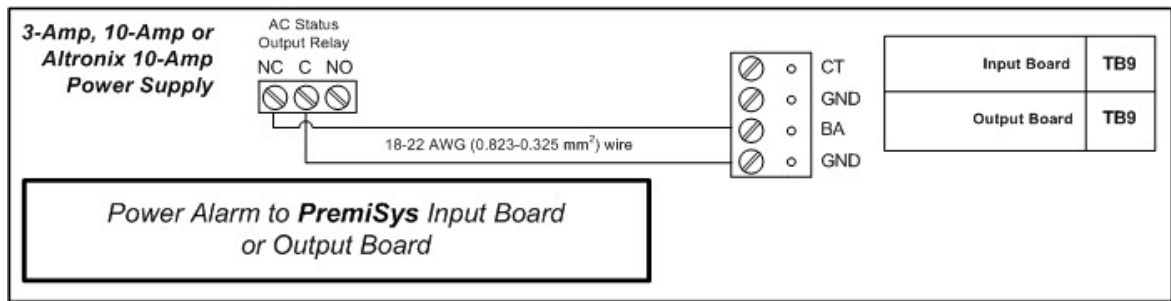
Wiring an Output Board to a Power Supply

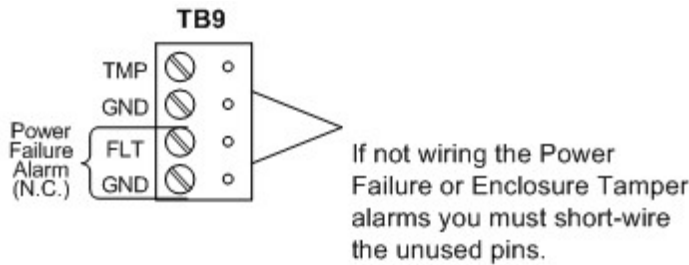IMPORTANT! The Altronix® Power Supply Control panel contains 8 individual power outputs. Each output can supply up to 2.5 A @ 12 VDC. However, the total output amperage on all 8 ports cannot exceed 10 A. You must determine the load of each board in the loop to ensure that the current draw does not exceed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

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 mm^2) wire

Twisted pair, 18 AWG (0.823 mm^2) 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 mm^2) wire

Twisted pair, 18 AWG (0.823 mm^2) 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 mm^2) wire

Twisted pair, 18 AWG (0.823 mm^2) 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 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.
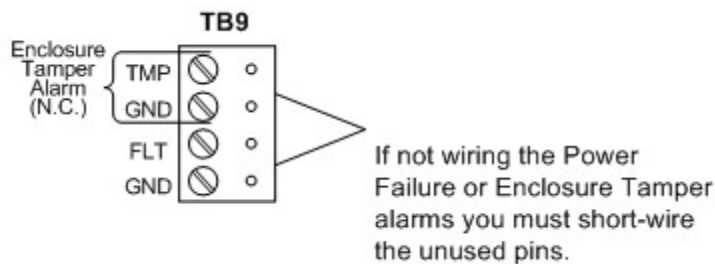
TB 9		
Power Failure	TB9-3	Input
	TB9-4	Return

TB9

TMP
GND
Power Failure Alarm (N.C.) → FLT
GND

If not wiring the Power Failure or Enclosure Tamper alarms you must short-wire the unused pins.

3-Amp, 10-Amp or Altronix 10-Amp Power Supply

AC Status Output Relay
NC C NO

18-22 AWG (0.823-0.325 mm²) wire

CT
GND
BA
GND

Input Board	TB9
Output Board	TB9

*Power Alarm to **PremiSys** Input Board or Output Board*

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

TB9

Enclosure Tamper Alarm (N.C.) → TMP
GND
FLT
GND

If not wiring the Power Failure or Enclosure Tamper alarms you must short-wire the unused pins.
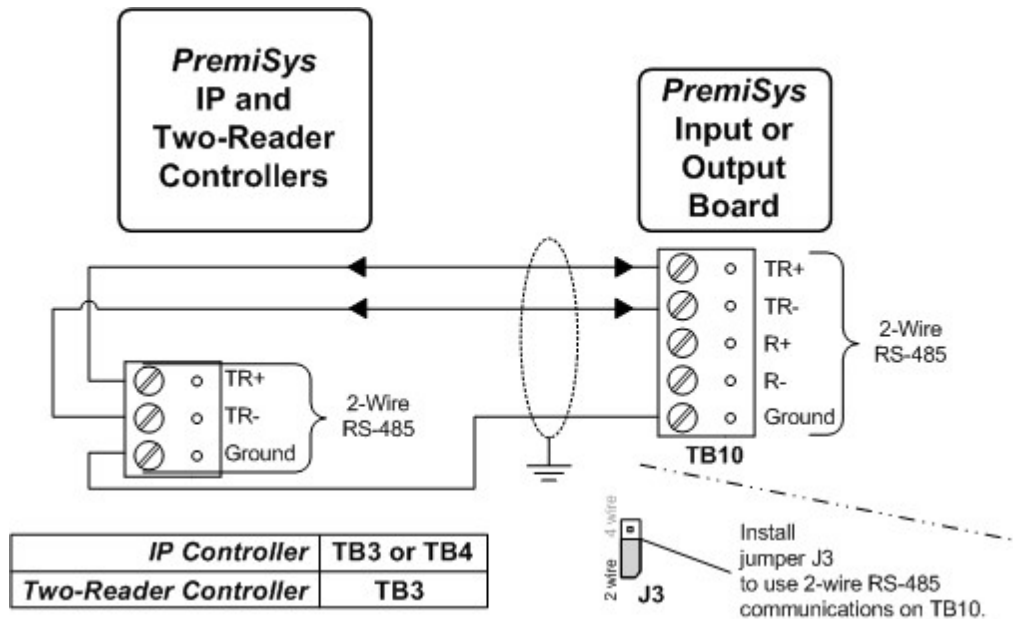
Wiring an Output Board to a Controller

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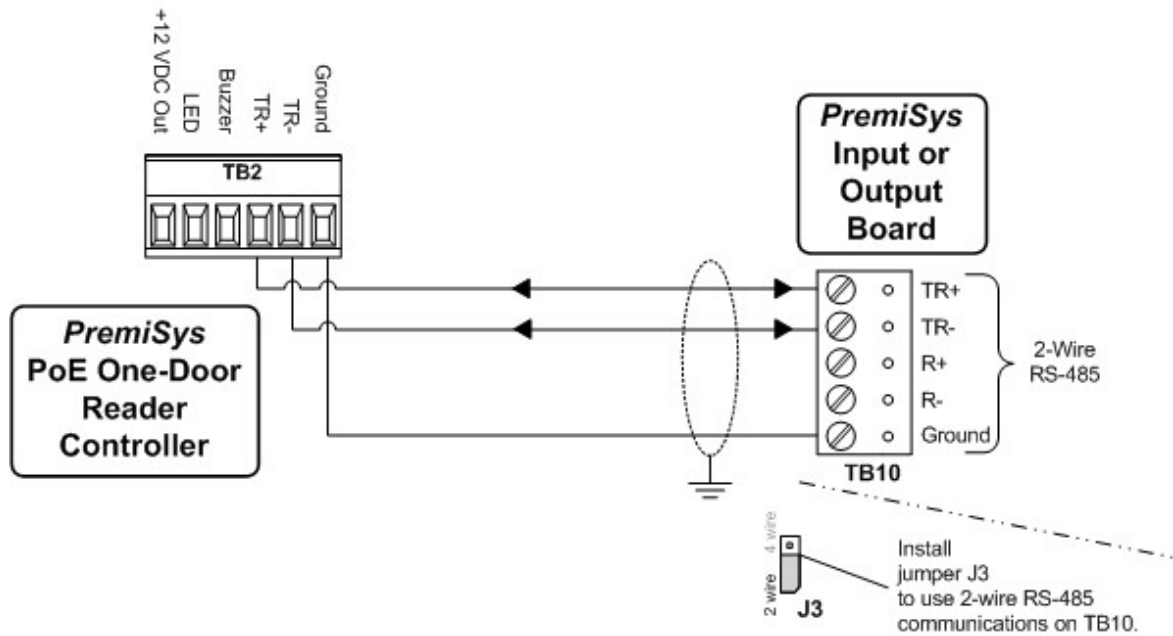IP Controller - 64
Two-Reader Controller - 32
PoE One-Door Reader Controller - 8

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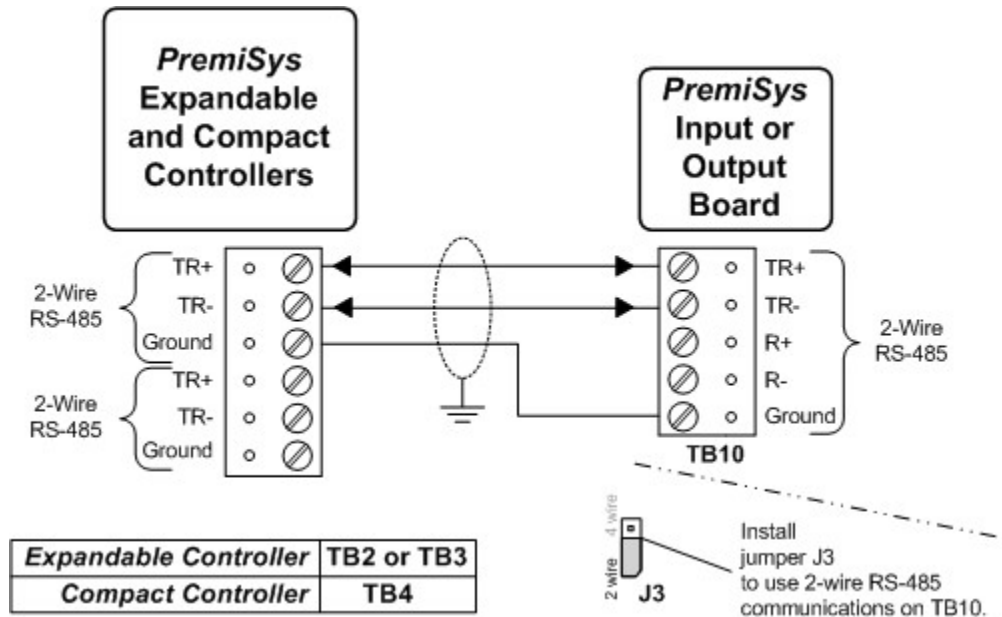
IMPORTANT! Install Jumper J3 exactly as illustrated in the diagram above! Four-wire RS-485 cannot be used!

Connecting 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		
	Heartbeat and online status indicator:	
A	**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