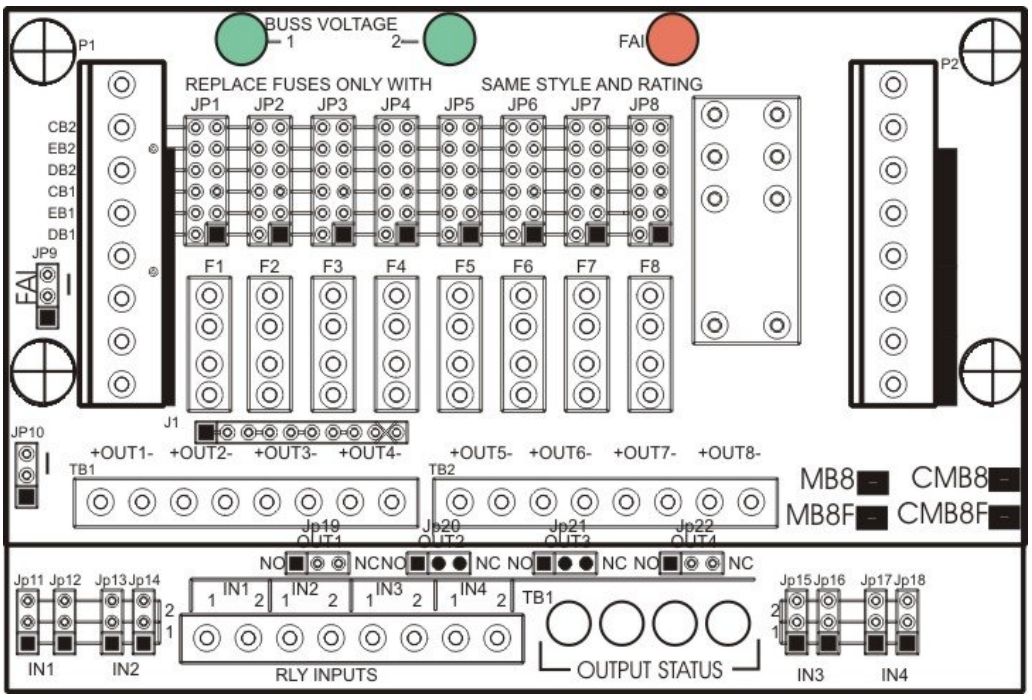



# Model CMB8(F)

## Controlled Multi-Buss Distribution Board

Operating and Installation Instructions



**AlarmSaf** 6 Ledgerock Way, Unit 7, Acton, MA 01720, USA, 978.658.6717, www.alarmsaf.com

# I. Warnings and Notices

I. WARNING - To reduce the risk of fire or electric shock, do not expose this product to rain or moisture

II. WARNING - This installation and all servicing should be made by qualified service personnel and should conform to all local codes

III. NOTICE - This equipment shall be installed in a manner which prevents unintentional operation from employees or other personnel working about the premises, by falling objects, by building vibration and by similar causes

IV. NOTICE - This equipment is not intended for use within the patient care areas of a Health Care Facility

# Table of Contents

# Section 1
# Introduction

The CMB8(F) Controlled Multi-Buss Distribution board combines an AlarmSaf MB8(F) distribution board with a control board for zones 1 through 4. It provides eight individually configurable outputs (four controlled, four uncontrolled) to any AlarmSaf power supply or accessory board with an ABC expansion port. It accepts inputs from one or two independent voltage sources, either of which is available at any output by jumper selection. Egress control is individually selectable by output for continuous power, activate on fire alarm, or disable on fire alarm. Fire alarm control is provided through the base power supply's FAI input. Outputs 1 through 4 may also be individually activated/deactivated remotely for applications such as lock control, etc.

- Eight Individually Configurable Outputs
- Zones One through Four accept control inputs for individual output activation / deactivation while maintaining FAI control if selected - Ideal for lock control
- Control inputs accept Dry Contact, Open Collector, or Voltage input
- Zones Five through Eight give continuous power (except on FAI, if selected) - Ideal for powering the readers, keypads, etc. used on the locks on outputs 1-4
- Available with Class-2 Power Limited outputs (CMB8) or Fused (non-power limited) outputs (CMB8F)
- One or two independent voltage inputs for dual voltage systems, or increased current capability in a single voltage system
- Each output is configurable for either voltage source and FAI control by simple jumper selection
- Each output is capable of supplying up to 3A (CMB8F) or 1.6A (CMB8) up to the maximum current capability of each voltage source
- Fused versions use easily obtainable ATM-3 automotive miniature blade fuses



**AlarmSaf** 6 Ledgerock Way, Unit 7, Acton, MA 01720, USA, 978.658.6717, www.alarmsaf.com

# Section 2
# Applicable Standards / Documents

## NFPA Standards

NFPA 72 National Fire Alarm Code
NFPA 70 National Electrical Code
NFPA 731 Standard for the Installation of Electronic Premises Security Systems

## Other

Applicable Local and State Building Codes
Requirements of the Local Authority Having Jurisdiction (LAHJ)

## Other Applicable AlarmSaf Documents

52-296: Beacon Power Supply Installation Manual
52-375: PS5-M Installation Manual
52-326: PD8(F) Accessory Board Installation Manual
52-350: SPS4 Accessory Board Installation Manual
52-352: MB8(F) Accessory Board Installation Manual

# Section 3
# System Overview

## 3.1 Electrical Ratings and Specifications

**Manufactured By**
AlarmSaf
6 Ledgerock Way, Unit 7
Acton, MA 01720
Tel: 978.658.6717; 800.987.1050
www.alarmsaf.com

### Model Numbers
CMB8, CMB8F

### Electrical Ratings

| | |
|---|---|
| Inputs | Two Power Inputs: 5-24VDC Nominal @ 14 Amps maximum per input<br>Four Control Inputs: 9-33VDC @ 3.3mA Maximum |
| Outputs | Eight Outputs: 1.6A (CMB8) or 3A (CMB8F) per output up to the maximum capability of each base power supply. Output voltages determined by base power supplies and jumper selections |
| Fuse Type (CMB8F only) | ATM-3 Automotive Miniature Blade-type |

### Product Use

When installed in accordance with all standards listed in Section 2 of this document and used with an appropriate listed supply, the CMB8(F) provides constant or controlled outputs, sourced from one of two voltage sources for powering devices such as (but not limited to) Mag Locks, Door Strikes, Card Readers, Smoke Dampers, 4-Wire Smoke detectors, etc.

## 3.2 CMB8(F) Terminal and Connector Descriptions and Electrical Ratings

| Terminal / Connector | Description | Rating |
|---|---|---|
| P1 | ABC Input or Output | 5-24V Nominal at 14A per Buss (controlled by base supply(s) |
| P2 | ABC Input or Output | |
| | | |
| *TB1 - Outputs 1 through 4* | | |
| Out1 + | Output 1 + (Controlled) | 1.6A (CMB8) or 3A (CMB8F) maximum - Voltage determined by base supplies and jumper selection |
| Out1 - | Output 1 - (Controlled) | |
| Out2 + | Output 2 + (Controlled) | 1.6A (CMB8) or 3A (CMB8F) maximum - Voltage determined by base supplies and jumper selection |
| Out2 - | Output 2 - (Controlled) | |
| Out3 + | Output 3 + (Controlled) | 1.6A (CMB8) or 3A (CMB8F) maximum - Voltage determined by base supplies and jumper selection |
| Out3 - | Output 3 - (Controlled) | |
| Out4 + | Output 4 + (Controlled) | 1.6A (CMB8) or 3A (CMB8F) maximum - Voltage determined by base supplies and jumper selection |
| Out4 - | Output 4 - (Controlled) | |
| | | |
| *TB2 - Outputs 5 through 8* | | |
| Out5 + | Output 5 + | 1.6A (CMB8) or 3A (CMB8F) maximum - Voltage determined by base supplies and jumper selection |
| Out5 - | Output 5 - | |
| Out6 + | Output 6 + | 1.6A (CMB8) or 3A (CMB8F) maximum - Voltage determined by base supplies and jumper selection |
| Out6 - | Output 6 - | |
| Out7 + | Output 7 + | 1.6A (CMB8) or 3A (CMB8F) maximum - Voltage determined by base supplies and jumper selection |
| Out7 - | Output 7 - | |
| Out8 + | Output 8 + | 1.6A (CMB8) or 3A (CMB8F) maximum - Voltage determined by base supplies and jumper selection |
| Out8 - | Output 8 - | |
| | | |
| *TB3 - Zone Control Inputs - "RLY INPUTS"* | | |
| IN1-1 | Relay Input 1 See Section 3.5 | N/A |
| IN1-2 | | |
| IN2-1 | Relay Input 2 See Section 3.5 | N/A |
| IN2-2 | | |
| IN3-1 | Relay Input 3 See Section 3.5 | N/A |
| IN3-2 | | |
| IN4-1 | Relay Input 4 See Section 3.5 | N/A |
| IN4-2 | | |

## 3.2 CMB8(F) Terminal and Connector Descriptions and Electrical Ratings (continued)

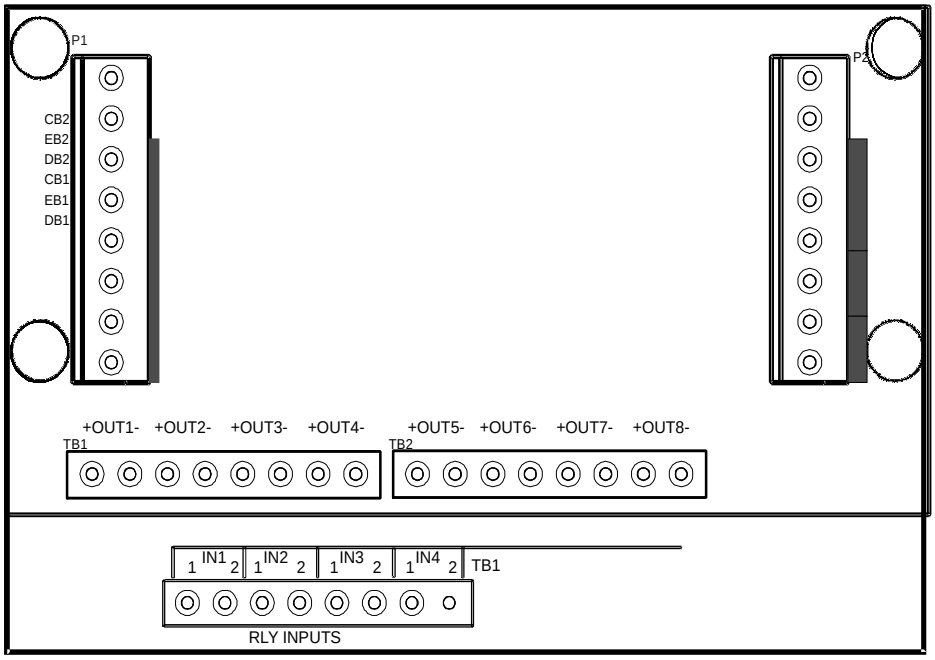



Fig 3.2.1

## 3.3 ABC Connectors and Harnesses

### 3.3.1 General Information

The ABC buss supplies the voltages (B1 and B2) and FAI control to compatible accessory boards. B1 is supplied through pins 5 and 6 while B2, if used, is supplied through pins 7 and 8 of each connector. By using the appropriate cables, one or two independent voltage sources can be connected to the CMB8(F) for distribution to its outputs. For more detailed information on the AlarmSaf ABC expansion port, see Appendix B, “About the Accessory Board Connector”.

Note: One of the voltage busses (B1 or B2) MUST be 12V or higher

### 3.3.2 Single Voltage Distribution

A single power source can be connected to the CMB8(F) by using an 8-6 cable (Order # 00523 or 00524) connected to pins 1 through 6 of one of the ABC connectors (P1 or P2).

### 3.3.3 Dual Voltage Distribution

3.3.3.1: If both source voltages are present on the ABC buss, use an 8-8 cable (Order # 00521 or 00522) connected to either ABC Connector on the CMB8(F) to provide both B1 and B2.

3.3.3.2: If two independent power supplies are used, use one 8-6 cable (Order #00523 or 00524) from the first power supply to either ABC connector (P1 or P2) on the CMB8(F) for B1 and one 8-6 cable (Order #00523 or 00524) from the second power supply to the other ABC connector (P1 or P2) on the CMB8(F) for B2.

### 3.3.4 Cable Types

| Cable Type | Order # | Description | Length | Notes |
|---|---|---|---|---|
| 6-6 | 00519 | ABC-01 | 8 inches | Used with Beacon Power supply REV A02 or earlier ONLY |
| 6-6 | 00520 | ABC-02 | 18 inches | Used with Beacon Power supply REV A02 or earlier ONLY |
| 8-8 | 00521 | ABC-03 | 8 inches | Brown wire identifies Pin 1 |
| 8-8 | 00522 | ABC-04 | 18 inches | Brown wire identifies Pin 1 |
| 8-6 | 00523 | ABC-05 | 8 inches | Brown wire identifies Pin 3 on the 8 connector end & Pin 1 on the 6 connector end |
| 8-6 | 00524 | ABC-06 | 18 inches | Brown wire identifies Pin 3 on the 8 connector end & Pin 1 on the 6 connector end |

ABC-01: Used to connect a 6-pin ABC Beacon power supply to the first accessory board when the accessory board is located close to power supply.*
ABC-02: Used to connect a 6-pin ABC Beacon power supply to the first accessory board, when the accessory board is not located close to power supply.*
ABC-03: Used to connect the 8-pin ABC Beacon power supply accessory board to the first accessory board or to connect accessory board to accessory board over short distances.
ABC-04: Used to connect the 8-pin ABC Beacon power supply accessory board to the first accessory board or to connect accessory board to accessory board over long distances.
ABC-05: Short cable used to connect 8-pin ABC Beacon Power Supply to a 6-pin ABC accessory board such as the SPS4.
ABC-06: Long cable used to connect 8-pin ABC Beacon Power Supply to a 6-pin ABC accessory board such as the SPS4.

* *NOTE:* The ABC-01 and ABC-02 cables are used only on the older Beacon Power supply boards (PCB#: 38-118 REV A02 or earlier) that have a 6-pin ABC connector. *DO NOT USE* these cables on newer Beacon Power supply boards (PCB # 38-118 REV A03A or later) with 8-pin ABC connector boards or damage to the system could occur.

## 3.4 Output Terminals

The CMB8(F)'s output terminals (TB1 and TB2) provide power distributed from the B1 and B2 (if present) supplies. The voltage source and FAI activation selections for each output are made through each output's configuration jumper settings. See Section 5 for configuration jumper settings.

Each output is protected by either an ATM-3 fuse (CMB8F) or a 1.6A PTC (CMB8). If an output PTC is tripped, remove the output load by either removing the output wiring or by pulling the output's configuration jumper (note it's position before removing) for 30 seconds.

CAUTION : Observe the polarity of the CMB8(F) output terminals with respect to the load or damage to the load may occur.

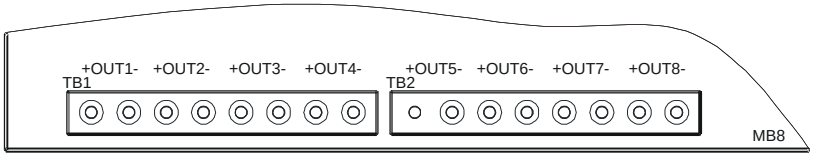



Figure 3.4.1

## 3.5 Input Terminals

The CMB8(F)'s input terminals (TB3) allow independent control of outputs 1 through 4. Each input can be independently selected for fail-safe or fail-secure, as well as for voltage input, dry contact, or open collector activation.

See section 5.1.4 for jumper settings and terminal connections

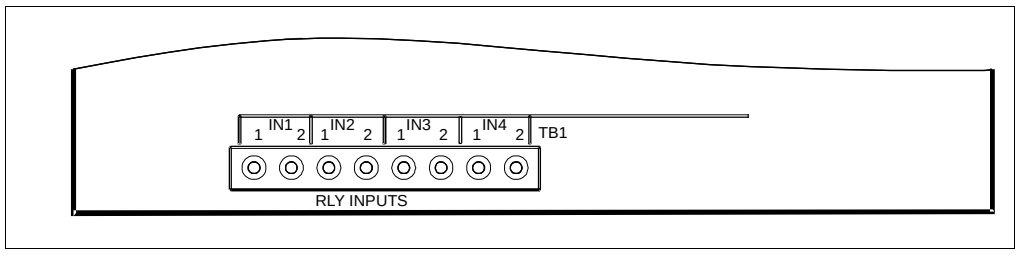



Figure 3.5.1

# Section 4
# Installation

## 4.1 Mounting

The CMB8(F) mounts to the back of a metal enclosure:

CAUTION: Remove all power from the system before installation

1. Install four 6-32 x 3/4" Female-Female standoffs on the appropriate mounting studs in the enclosure (the aluminum standoff, if present, is installed on the top left mounting stud).
2. Mount the CMB8(F) bottom board to the standoffs using the 6-32 x 1" Male-Female standoffs (the aluminum standoff, if present, is installed on the top left mounting stud).
3. Carefully plug the CMB8(F) top board onto the pins of the bottom board
4. Secure the top board to the bottom board with the 6-32 x 3/8" screws.
5. Connect ABC cable(s) appropriately (See section 3.3)

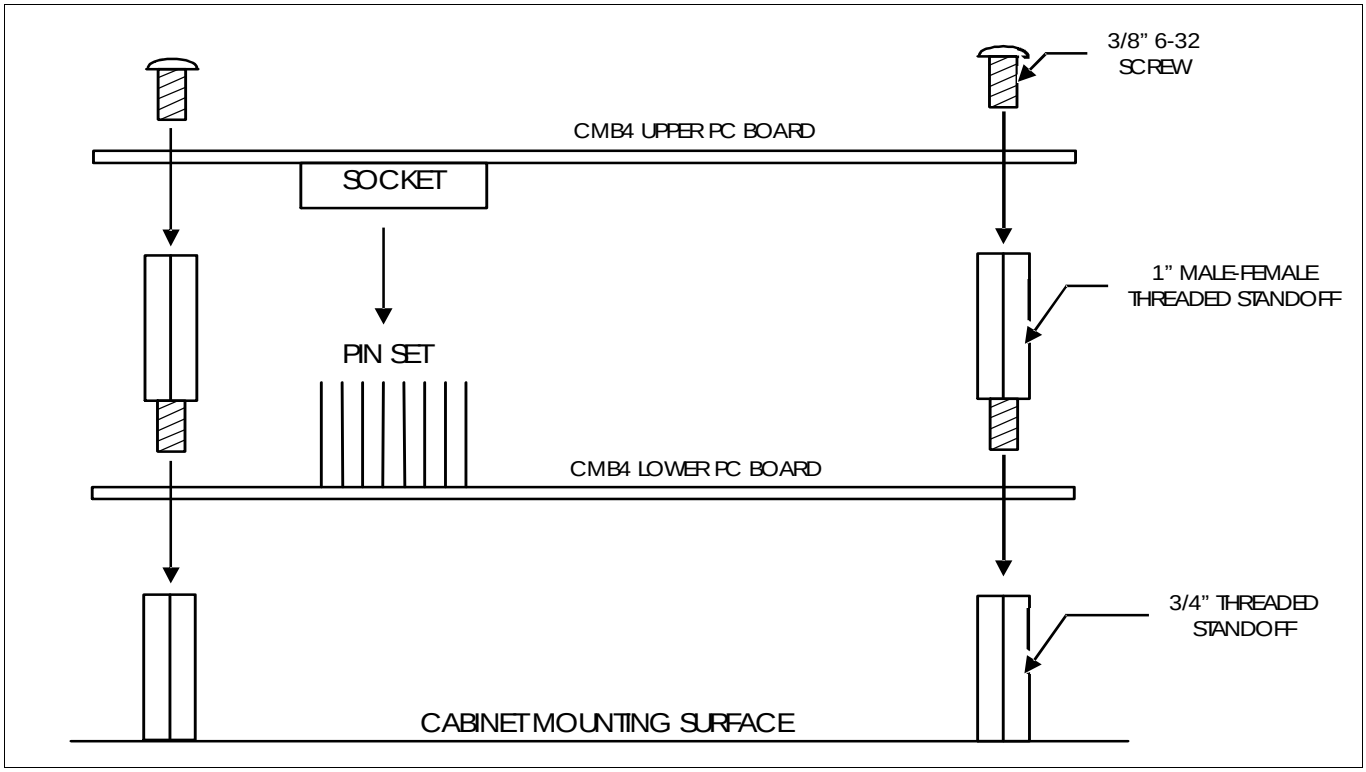



Figure 4.1.1

## 4.2 Wiring

### 4.2.1 Wire Routing

All wiring must be installed in accordance with NFPA70 [NEC760], NFPA72, and all local code requirements.

Power Limited wiring requires that power limited and non-power limited wiring remain physically separated. Any power limited circuit entering the enclosure must remain at least one quarter inch (¼") away from any non-power limited circuit wiring. Any power limited circuit wiring must enter and exit the enclosure through different knockouts than non-power limited circuit wiring.

Wiring within the enclosure should be routed around the perimeter of the cabinet. It should not be routed across the circuit boards. See the enclosure's documentation for complete wire routing instructions.

### 4.2.2 ABC Connector

See section 3.3

### 4.2.3 Output Wiring

Locate the output wiring terminal blocks (TB1 and TB2) on the top PC board and remove the terminal block from the header. Connect the wiring for the equipment to be powered to the terminal block. The PC board is labeled with the output numbers and polarity (See also Sections 3.2 and 3.4). Replace the terminal block on the header.

NOTE: Wire size for these terminals must be 22-14 AWG.

### 4.2.4 Control Input Wiring

Locate the input wiring terminal block (TB3) on the bottom PC board and remove the terminal block from the header. Connect the wiring from the control inputs to the terminal block. The PC board is labeled with the input numbers (See also Sections 3.2, 3.5, and 5.1.4). Replace the terminal block on the header.

NOTE: Wire size for these terminals must be 22-14 AWG.

## 4.3 Labeling

If the CMB8(F) was purchased separately from the power supply unit, the supplied label must be applied to the inside cover of the power supply's enclosure. The label shall not cover any ventilation holes or other labeling on the enclosure.

# Section 5
# Operating the CMB8(F)

## 5.1 Jumper Configuration

Before powering a system containing a CMB8(F), the jumpers must be set for proper operation. Failure to do so before applying power could damage the system.

| Jumper | Description | Settings | Factory Default |
|---|---|---|---|
| JP1 - JP8 | Output Voltage and FAI Control | 1 (CB2) - B2 Constant<br>2 (EB2) - B2 Enable on FAI<br>3 (DB2) - B2 Disable on FAI<br>4 (CB1) - B1 Constant<br>5 (EB1) - B1 Enable on FAI<br>6 (DB1) - B1 Disable on FAI | CB1 |
| JP9 | FAI Buss Join | Up - FAI Connected between P1 & P2<br>Down - FAI NOT connected between P1 & P2 | Down |
| JP10 | Fault Buss Join | Up - Fault Buss connected between P1 & P2<br>Down - Fault Buss NOT connected between P1 & P2 | Down |
| JP11 - JP18 | Input Mode Selection | See Below (Section 5.1.4) | Position 1 (Down) |
| JP19 - JP22 | Output Mode Selection | NO - Power is output when onboard relay is active<br>NC - Power is output when onboard relay is inactive | NO |

### 5.1.1 Output Voltage and FAI Control (JP1 through JP8)

These jumpers select the voltage source (B1 or B2 - See section 3.3) and FAI mode for each output. Jumper positions are numbered with position one being at the top (farthest away from the output terminals), and position six being at the bottom. Reference nomenclature is also provided on the PC board to the left of P1.

- Position 1 (CB2) - Constant power from the B2 buss is provided at the output. No action is performed when the system's FAI input is activated.
- Position 2 (EB2) - Power from the B2 buss is provided when the system's FAI input is activated.
- Position 3 (DB2) - Power from the B2 buss is provided when the system's FAI input is NOT active. Power to the output is dropped upon activation of the FAI input.
- Position 4 (CB1) - Constant power from the B1 buss is provided at the output. No action is performed when the system's FAI input is activated.
- Position 5 (EB1) - Power from the B1 buss is provided when the system's FAI input is activated.
- Position 6 (DB1) - Power from the B1 buss is provided when the system's FAI input is NOT active. Power to the output is dropped upon activation of the FAI input.

## 5.1 Jumper Configuration (continued)

### 5.1.2 FAI Buss Join (JP9)

Placing this jumper in the “up” position connects the FAI buss between P1 and P2. If two separate power supplies are connected to P1 and P2, BOTH power supplies and the CMB8(F) will activate on an FAI input on either supply. This jumper should also be in the “up” position when one connector (P1 or P2) is used for power input, and the other connector is used as an output for further expansion.

Placing JP9 in the “down” position disconnects P1 from the FAI buss on the CMB8(F). FAI activation of the CMB8(F) MUST be performed through the supply connected to P2. An FAI activation on P1 will have no effect on the CMB8(F) with JP9 down.

### 5.1.3 Fault Buss Join (JP10)

Placing this jumper in the “up” position connects the fault buss between P1 and P2. If two separate power supplies are connected to P1 and P2, BOTH will show a trouble with a trouble on either supply. This jumper should also be in the “up” position when one connector (P1 or P2) is used for power input, and the other connector is used as an output for further expansion.

Placing JP10 in the “down” position disconnects P1 from the fault buss on the CMB8(F). This is useful if separation of faults between two supplies is desired.

### 5.1.4 Input Mode Selection (JP11 through JP18)

| Input Mode | Input 1 | | Input 2 | | Input 3 | | Input 4 | | See Section |
|---|---|---|---|---|---|---|---|---|---|
| | JP11 | JP12 | JP13 | JP14 | JP15 | JP16 | JP17 | JP18 | |
| Disable Input | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 5.1.4.1 |
| Dry Contact | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 5.1.4.2 |
| Open Collector or Dry Contact | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 5.1.4.3 |
| Dual Input | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 5.1.4.4 |

NOTE: “1” and “2” in the Input columns refer to “position 1” and “position 2” on the jumpers (as noted on the PC board). Position 1 refers to the jumper across the bottom two pins of the header, while Position 2 refers to the top two pins.

## 5.1 Jumper Configuration (continued)

5.1.4.1 Disable Input: When placed in this configuration, the input will have no effect on its corresponding output. If this zone's output mode is now placed in the "NC" position, the output will become the equivalent of outputs 5 through 8 (non-controlled other than FAI, if selected). If the zone's output mode is placed in the "NO" position, the output will be disabled.

5.1.4.2 Dry Contact or Positive Voltage Input: When placed in this configuration, the zone's output will change state when a contact closure is placed across Input Terminals A and B. An external positive voltage (common grounded with the CMB8(F)) connected to Input Terminal B will also change the zone's output state. In this configuration, the dry contact is switching the positive side of the zone control relay.

5.1.4.3 Open Collector, Dry Contact, or DC Common Input: When placed in this configuration, the zone's output will change state when a contact closure is placed across Input Terminals A and B, when an open collector output (common grounded with the CMB8(F)) connected to Input Terminal A activates, or when a DC common is applied to Input Terminal A. In this configuration, the dry contact or open collector is switching the negative side of the zone control relay.

5.1.4.4 Dual Input: When placed in this configuration, the zone's output will change state when either a DC common is placed on Input Terminal A or a positive voltage (common grounded with the CMB8(F)) is placed on Input Terminal B. This mode allows two independent trigger sources to activate the same output (i.e. One card reader inside the building, one outside the building).
In this configuration:

- Input Terminal A is a negative trigger input
- Input Terminal B is a positive trigger input

5.1.5 Output Mode Selection (JP19 through JP22): These jumpers determine whether the zones' output enables or disables upon activation of its input.

- When placed in the "NO" position (left), the output will activate when the zone's onboard relay is active.
- When placed in the "NC" position (right), the output will deactivate when the zone's onboard relay is active.

## 5.1 Jumper Configuration (continued)

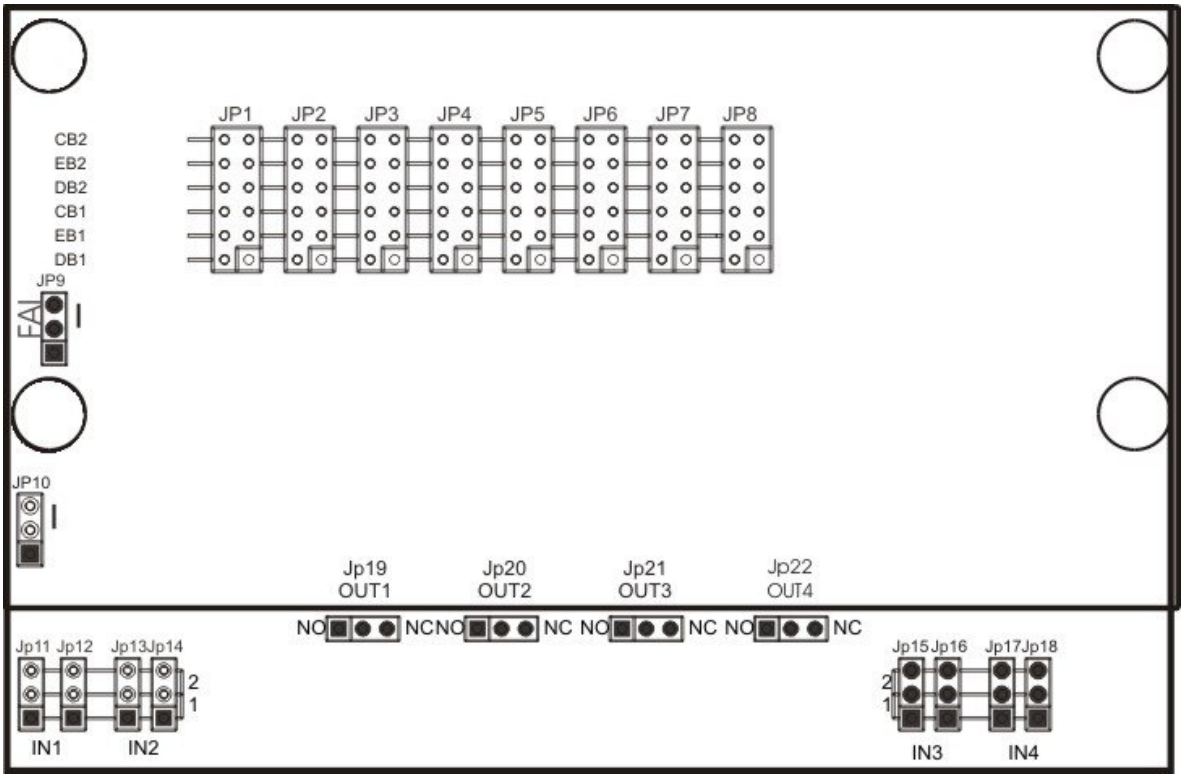



Figure 5.1.1

## 5.2 Visual Indicators

The CMB8(F) has seven LEDs to indicate it's status:

- Buss Voltage 1 (D4) - Indicates that voltage is present on the B1 buss when lit
- Buss Voltage 2 (D3) - Indicates that voltage is present on the B2 buss when lit
- FAI (D10) - Indicates that the CMB8(F) is receiving an FAI signal from the power supply(s) when lit

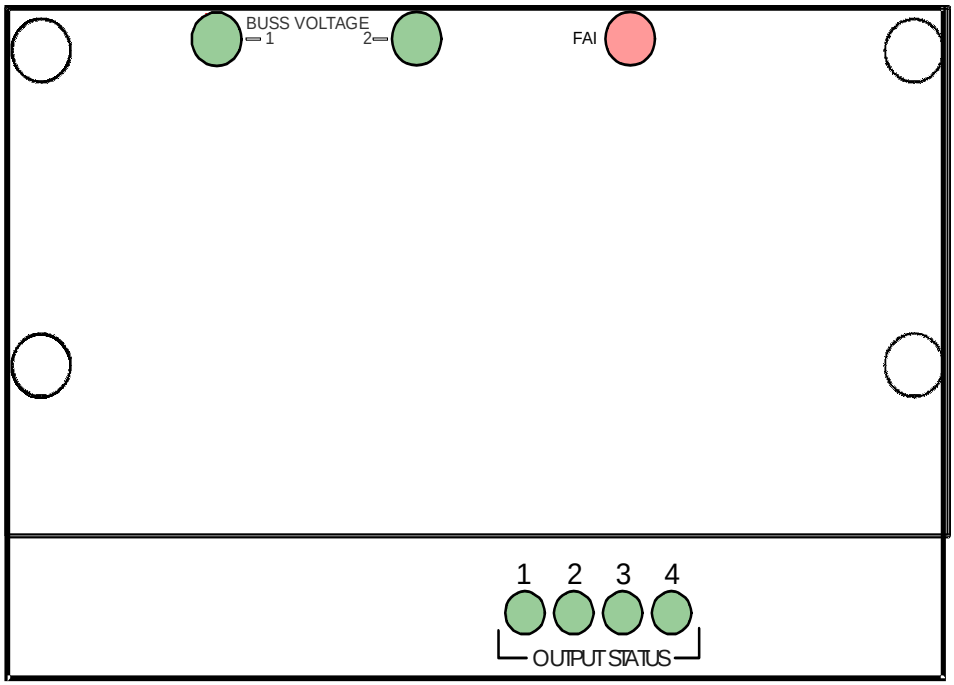



Figure 5.2.1

- Output Status 1 (D18) - Indicates that voltage is present at output number one
- Output Status 2 (D19) - Indicates that voltage is present at output number two
- Output Status 3 (D20) - Indicates that voltage is present at output number three
- Output Status 4 (D21) - Indicates that voltage is present at output number four

## 5.3 Troubleshooting

| Condition | Possible Cause | Solution |
|---|---|---|
| No voltage on output | Jumper settings incorrect | Verify proper jumper settings |
| | Missing or incorrectly set jumper | Verify jumpers present and in the correct position |
| | No voltage supply | Verify the power supply |
| | Blown output fuse (CMB8F) | Check output wiring and replace fuse |
| | Tripped output PTC (CMB8) | Check output wiring and remove load for 30 seconds |
| | Input not in correct state (Zones 1 through 4 only) | Verify correct state of input and input configuration |
| | FAI Activated | Verify that FAI is not activated on the base power supply |
| Zone Inputs not operating as expected | Improper Jumper Settings | Verify proper input and output jumper settings |
| | Input not being activated | Verify contact / voltage / open collector being used to activate the input is |
| | FAI Activated | Verify that FAI is not activated on the base power supply |
| Incorrect voltage on output | Incorrect voltage buss selected | Verify proper jumper settings |
| | Power supply outputting incorrect voltage | Check power supply |
| Buss Voltage 1 LED not lit | No voltage on B1 Buss | Check B1 power supply and ABC cable |
| Buss Voltage 2 LED not lit | No voltage on B2 Buss | Check B2 power supply and ABC cable |
| Buss Voltage or output state LEDs show different brightness | Normal | This is normal - LED brightness varies with input voltage |
| FAI LED lit | FAI activated on power supply | Check FAI input on system |
| FAI LED not lit | FAI not activated on power supply | FAI LED only lights when FAI activated on system |
| When one power supply goes into fault, the other supply does/doesn't go into fault | Fault Buss Join jumper (JP10) incorrectly set | Set jumper as desired - See Section 5.1.3 |
| When one power supply's FAI activates, the other supply does/doesn't activate | FAI Buss Join jumper (JP9) incorrectly set | Set jumper as desired - See Section 5.1.2 |

# Section 6
# Specifications

## 6.1 Electrical Specifications

| | |
|---|---|
| 6.1.1 Input Voltage (B1 and B2) | 0-24VDC Nominal<br>*Note: One of the voltage busses (B1 or B2) MUST be 12V or higher* |
| 6.1.2 Input Current (B1 and B2) | 14A maximum per buss |
| 6.1.3 Battery Requirements | 0.01A in addition to output current for each buss. An additional 0.03A will be drawn from the buss with the greater voltage upon an FAI activation. |

## 6.2 Temperature Specifications

| | |
|---|---|
| 6.2.1 Ambient Temperature Range | 0ºC to 49ºC (32ºF to 120ºF) |
| 6.2.2 Ambient Humidity | 93% at 32ºC (90ºF) Maximum |

## 6.3 Mechanical Specifications

| | |
|---|---|
| 6.3.1 Weight | 0.38 LBS (Not including hardware or cables) |
| 6.3.2 Size | 4.80”L x 3.35”W x 1.90”H<br>*Note: Width includes terminal block overhang of 0.2”* |

6.3.3 CAD Drawing

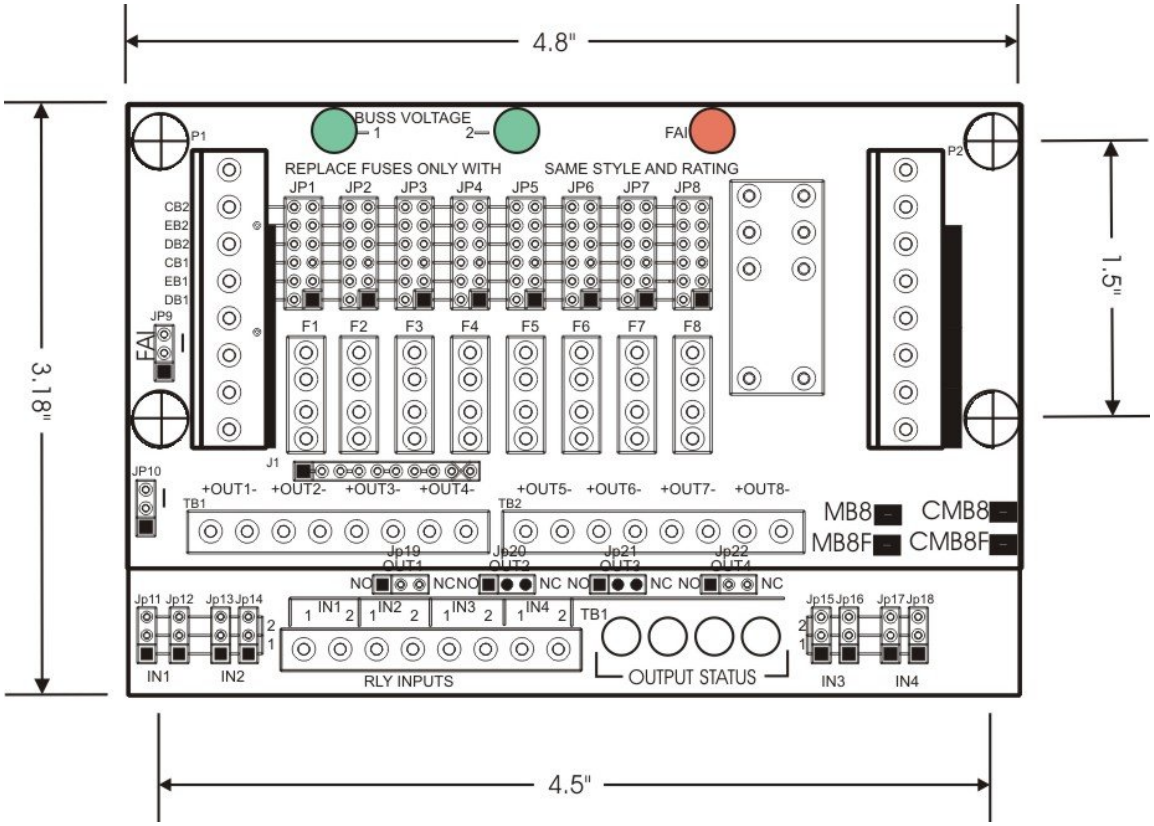
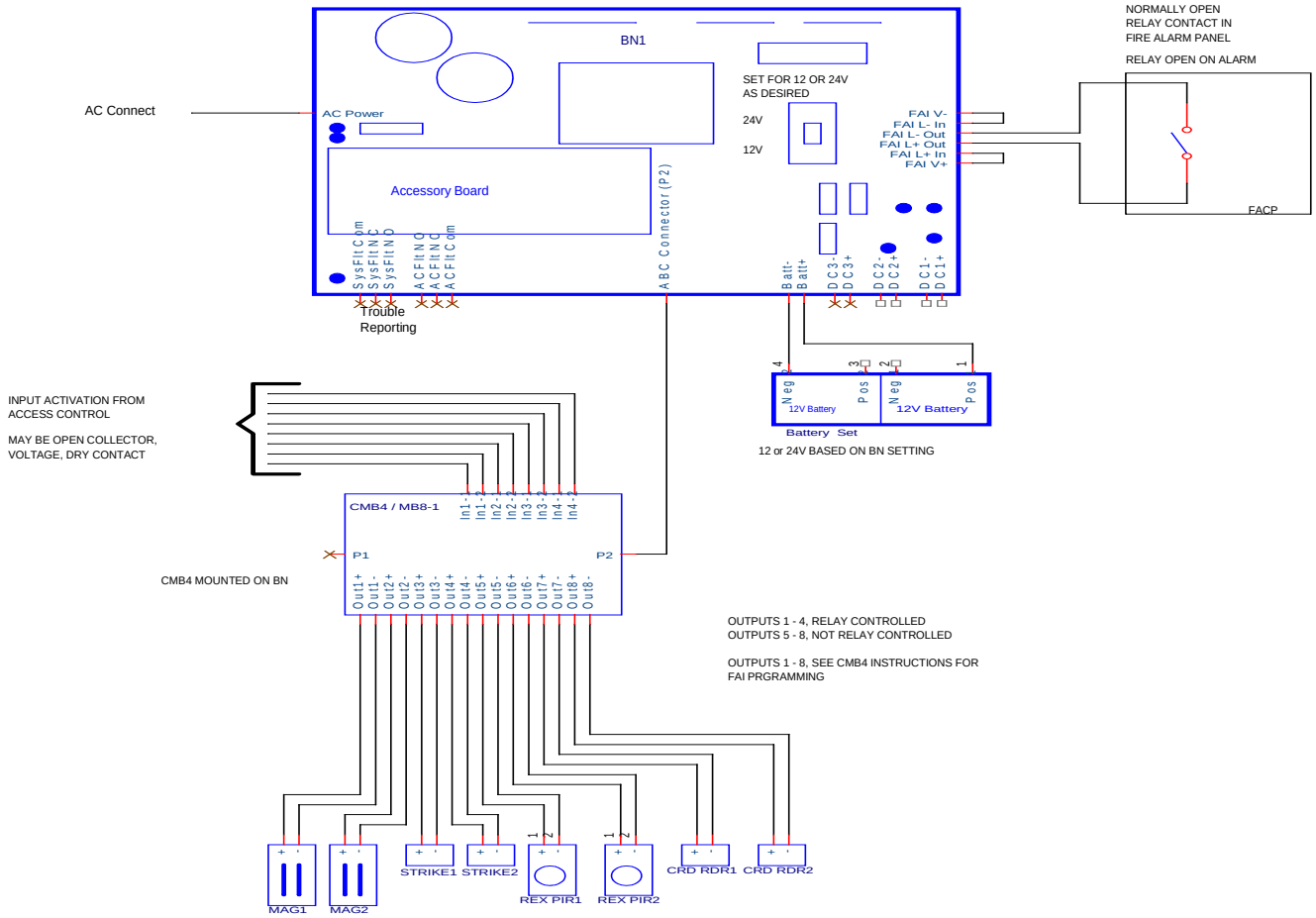



Figure 6.3.1

# Appendix A
# Sample Application

## Single Voltage Power Management With The CMB8(F)




The BN power supply is configured to provide either 12 or 24 VDC to one CMB8(F) power distribution module.

The CMB8(F) will split the 12 or 24VDC into four individually protected relay controlled outputs for use in powering locks or door strikes, and four individually protected outputs for use in powering auxiliary equipment such as REX PIRs, keypads, egress timers, or readers and allow the user to program any output for response to the fire alarm interface. The CMB8(F) provides the ability to program any or all of the outputs for continuous output, disable output on FAI, or enable output on FAI.

The diagram illustrates a common two door system with two, FAI controlled, maglocks used for the egress doors, two door strikes used for internal access control and a mix of auxiliary power needs such as cameras, keypads, and REX PIRs.

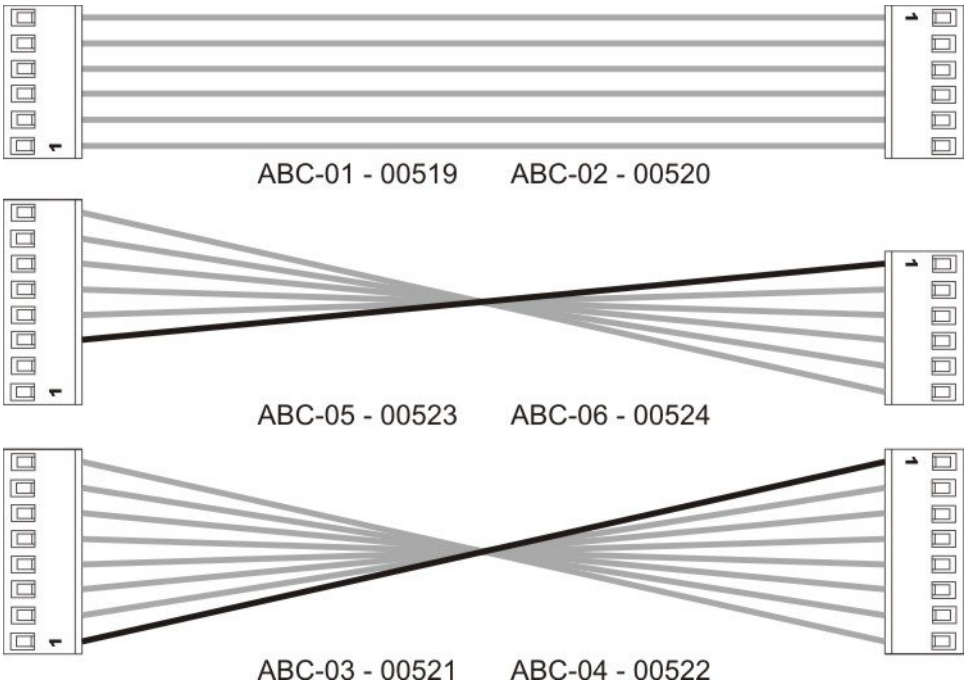
The CMB8 should be used for Class 2 power limited service. The CMB8F should be used if fuse protection is desired.

# APPENDIX B, PAGE 1

## About the Accessory Board Connector

The AlarmSaf Accessory Board Connector (ABC) allows plug-in system expansion using compatible AlarmSaf accessory boards. The ABC is capable of carrying both primary and secondary voltages (if applicable), DC common, fault status, and fire alarm interface status. Products can be daisy-chained together, maintaining voltage, fault, FAI, and DC common continuity throughout the chain.

NOTE: There are 6-pin and 8-pin versions of the ABC. The 6-pin version carries ONLY a single voltage while the 8-pin version can carry two independent voltages for dual voltage systems.




6-Pin and 8-Pin Accessory Board Connectors

* *NOTE:* The ABC-01 and ABC-02 cables are used only on the older Beacon Power supply boards (PCB#: 38-118 REV A02 or earlier) that have a 6-pin ABC connector. ***DO NOT USE*** these cables on newer Beacon Power supply boards (PCB # 38-118 REV A03A or later) with 8-pin ABC connector boards or damage to the system could occur.

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## About the Accessory Board Connector (continued)

### Voltage Busses (B1 and B2)

The voltage busses (B1 and B2) are carried on pins 5-8 of the ABC. B1 is the primary voltage, and should typically be the higher of the two voltages in a dual voltage system. The B1 and B2 (if used) voltages are distributed through the accessory boards connected to the ABC. See the documentation for the particular accessory boards being used for details on how to utilize the B1 and/or B2 voltages. Note that 6-pin ABC connectors can carry only the B1 voltage, while 8-pin ABC connectors can carry both B1 and B2. In order for the B2 voltage to be present, a second power supply must be included in the system (AC to DC or DC to DC).

CAUTION: If more than one power supply is connected to any of the voltage busses, the system will not operate properly and damage to the system could occur. Verify that only one power supply is connected to each voltage buss before powering the system.

### Fault Status Buss

The fault status buss carries the DC Fault status between accessory boards and power supplies. Any product with fault detection and/or reporting capability can report a fault to or from the ABC chain. Unless otherwise noted in a product's documentation, AC faults are not transmitted through the fault status buss.

Some accessory boards have a jumper to split the fault buss. This allows the separation of faults between two power supplies in some dual voltage systems. If the buss is not split, any fault on either power supply or any accessory board will show on both power supplies. If the buss is split, faults on each side of the jumper will go to their respective power supply only, allowing easier troubleshooting fault conditions, but requiring monitoring of the fault outputs of both power supplies. Note that only one split should be used in the fault status buss. See the documentation for the accessory boards in the system to determine which, if any, have a fault buss split jumper.

NOTE: Not all accessory boards have fault detection or reporting capability; however the fault status is still carried through these accessory boards to maintain continuity through the chain.

## About the Accessory Board Connector (continued)

### Fire Alarm Interface (FAI) Status Buss

The FAI status buss carries FAI activation signals on systems utilizing a Fire Alarm Interface. This buss is used to control outputs on compatible accessory boards. See the documentation for the accessory boards in the system to determine FAI capability.

Some accessory boards have a jumper to split the FAI buss, allowing independent control of groups of accessory boards and power supplies with multiple FAI input sources. If the buss is not split, all power supplies and accessory boards with FAI capability will change state upon activation of *any* FAI input source in the chain. If the buss is split, FAI activation of any FAI input source will only activate accessory boards or power supplies up to the split. Products after the split require their own FAI input source.

Note: Not all accessory boards have FAI capability; however the FAI status is still carried through these accessory boards to maintain continuity through the chain.

### DC Common

The DC Common (ground) for the system is maintained through the entire ABC chain. Any power supplies or accessory boards connected to the chain are common grounded through the ABC.

### Accessory Boards

The following is a list of currently available AlarmSaf Accessory Boards with ABC connectors:

| ACCESSORY MODULE | | MODULE DESCRIPTION | ABC CABLE | |
|---|---|---|---|---|
| ORDER | MODEL# | | ORDER | MODEL# |
| 10041, 10042 | PD8(F) | 8 outputs | 00521 | ABC-03 |
| 10067, 10068 | MB8(F) | 8 outputs w/FAI & voltage selection | 00521 | ABC-03 |
| 10069, 10070 | CMB8(F) | 8 outputs w/FAI; 4 Relay Controlled | 00521 | ABC-03 |
| 10066 | SPS4 | Secondary Power Source Module: 5-18V @ 4A | 00523 | ABC-05 |
| 03207 | FAIM | Fire Alarm Input Module (used w/PS5-M) | 00521 | ABC-03 |
| 97471 | EDB-10 | Power Distribution Module for proprietary systems | 00523 | ABC-05 |
| 97472 | LDB-8 | Power Distribution Module for proprietary systems | 00523 | ABC-05 |



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# Glossary

| | |
|---|---|
| ABC | See “Accessory Board Connector” |
| Accessory Board Connector | Connector present on some AlarmSaf power supplies and accessory boards, allowing plug-in expansion of the system |
| Accessory Board | An AlarmSaf product for use with AlarmSaf power supplies containing an ABC connector. These boards allow plug-in expansion of the functionality of the system. Examples of accessory boards include, but are not limited to, voltage distribution (simple and controlled), secondary DC-DC power supplies, and NAC Circuit expanders. |
| AC-DC Converter | A DC power supply whose voltage input is either direct from the AC line or though a step-down AC transformer |
| Buss 1 (B1) | The primary DC voltage in a system. Typically the higher of the two voltages in dual voltage systems |
| Buss 2 (B2) | The secondary DC voltage in a system. Only dual voltage systems use this voltage. |
| Class 2 Power Limited | A voltage output or wiring which conforms to NEC Article 725. |
| Controlled Distribution | Voltage distribution providing on/off control for the outputs. Control can be from FAI, an access control panel, card reader, or other device. The MB8(F) and CMB8(F) accessory boards, and the APD8(F) are examples of controlled distribution. |
| DC-DC Converter | A DC power supply whose voltage input comes from another DC source. DC-DC converters allow multi-voltage system backup with a single battery set. |
| FAI | See “Fire Alarm Interface” |
| Fire Alarm Interface | Input present on some AlarmSaf products allowing control of output(s) in the system. Typically used for dropping power to maglocks on egress doors during a fire alarm condition, but can also be used for other control functions, such as resetting smoke detectors |
| Negative Trip | An input which is activated upon the switching of a DC Common to its terminals. The DC Common may either be from an external (common grounded) source, or may be provided as one of the terminals of the input, depending on the product. This input type is used with a dry contact or open collector input. |
| Positive Trip | An input which is activated upon the switching of a positive DC voltage to its terminals. The positive voltage may either be from an external (common grounded) source, or may be provided as one of the terminals of the input, depending on the product. This input type is used with a dry contact or voltage input. |
| Power Limited | A voltage output or wiring which conforms to NEC Article 725. |
| PTC | A resettable overcurrent protection device, similar to a fuse or circuit breaker. |
| Rack Mount | A product which has an enclosure that allows mounting in a standard 19 inch equipment rack |
| Simple Distribution | Voltage distribution without any control function for the distributed outputs. Power is always available to the outputs. The PD8(F) accessory board is an example of simple distribution. |
| Voltage Distribution | Splitting a bulk power supply output into multiple, current limited outputs to prevent a single circuit failure from talking down an entire system. The multiple terminal outputs also simplify wiring by providing a pair of terminals for each circuit, rather than wiring several circuits to a single pair of terminals. |



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