Active Alarm Splitter Junction Box
Model AS-1
Installation Instructions

2/1/25 Rev D

Sales @dasalert.com

Technical Support
Phone: (303) 526-1965
8:00 AM – 5:00 PM (Mountain)

CONTENTS

Tables and Figures Page

Warnings and Cautions that Must be Observed to Maintain Warranty Protection and Ensure Proper Operation

CAUTION: Do not try to enlarge the existing conduit ports as this will invalidate the warranty and may damage internal sensitive electronics. Use a 1/2" adapter / expander to mate with larger diameter conduit.

CAUTION: Connect DC power (12 to 55 VDC) ONLY to TB-8. If connected in error to other terminal strip points, damage will result to the relay contacts for the Fire Panel. Do not connect an AC voltage to TB-8 as damage will result.

IMPORTANT: Alarm relay contacts from the DAS equipment must only be connected to TB- 5, TB-6 and TB-7 in the Splitter. No other equipment (like the Fire Panel) can also be connected to these contacts. Otherwise, both the DAS Alert Annunciator and Fire Panel will not operate properly.

CAUTION: The relay contacts to the Fire Panel are rated for a maximum of 2 Amps at 30 VDC which is well within the requirements for standard Fire Panel alarm signaling. Do not exceed this rating.

Included items

The following Items are included with the Splitter. (see Figure 1)

Supplied Items	
Quantity	Description
1	Model AS-1 Active Splitter Junction Box
5	1/2" water proof cable gland
1	3/16” Drill Bit
1	1 Amp in-line Fuse and Spare
4	Drywall Anchors
4	#6 x1/2" Mounting screws
1	Instructions
4	M4 x 3/4” Cover attachment screws (Black)
5	Conduit Plugs 1/2”

Tools Required

- Electric Drill
- #2 Phillips screwdriver
- Network RJ-45 cable tester
- Volt-Ohm meter.
- Some tests require two people to execute

Compatibility

This Splitter is designed to operate with DAS Alert Model 1221 Annunciator panels shipped after November 1, 2024. These panels have a serial number that starts with 4.

Figure 1. Included Items

NEMA Enclosure Model AS-1 Active Splitter Junction Box

1/2" water- proof cable gland (QTY 5)

Conduit Port Plugs (QTY 4)

3/16" drill Bit , QTY: 1

M4 x 3/4" Cover attachment screws (QTY 4 + 1spare)

6 x3/4" wall Mounting Screws, QTY 4

Drywall Anchors (QTY 4)

1 amp in-line fuse holder with 1 fuse installed

Spare 1 Amp Fast –Blow Fuse 5 x 20 mm

Functional Description

This splitter is designed to split the alarm dry relay outputs from standard Public Safety Signal Booster Equipment (BDA, BBU and other System Components) into two paths. It provides independent dry relay contacts that can be connected to any Fire panel or to Addressable Monitor modules that are remotely located. It also provides a single RJ45 connector with multiplexed alarms and DC power for a Model 1221 DASAlert Annunciator panel. This device simplifies the required in-building wiring if the connections to the Master Fire panel are via Addressable Modules located in the DAS headend far from the Fire Command Center that contains the building's fire panel and the DAS Alert Annunciator.

The enclosure has five ports on it that can enable a wide variety of conduit or wire routing arrangements.

As required by many AHJs in the DAS headend, it also provides LED indicators and an audible buzzer that provide status information for all alarms. Included is a summary dry relay output that triggers if any of the other alarms are active. In some jurisdictions this is the only alarm signal that is required to connect to the Fire Panel for monitoring.

Figure 2 on page 8 shows the Master Wiring Diagram and Page 13 provides tables that detail descriptions of the connection points on the terminal strips.

Main PC board

Figure 3 shows the main PCB of the splitter that contains all of the terminal strips providing screw- down connections for the DAS equipment alarm inputs and independent dry relay outputs to the building's fire panel. LEDs contained on this board show the status of each alarm and a buzzer is mounted to the side of the enclosure that provides audible alarming. This buzzer can be permanently turned OFF via switch # 9 on DIP switch SW1.

There are five standard ½' conduit ports provided for the DAS equipment alarm wires and the relay outputs to the fire panel. The enclosure is designed so that the wires from the DAS equipment can be routed from the left side of the enclosure to the terminal strips on the left and the wires to the fire panel can be routed out of the right side. This provides a clear way to dress these wires so the LED status indicators can be easily seen through the transparent cover that is attached with four screws. The cover has a rubber gasket in it that maintains the NEMA-4 rating. Conduit port plugs are provided to seal unused ports.

An RJ-45 socket is located on the bottom wall to provide a multiplexed output of the alarms and power to a remotely located DAS Alert Model 1221 Annunciator panel. The Cat 5/6 cable length can be up to 5000 feet when the splitter is powered with a minimum of 24 VDC.

Figure 2. Master Wiring Diagram

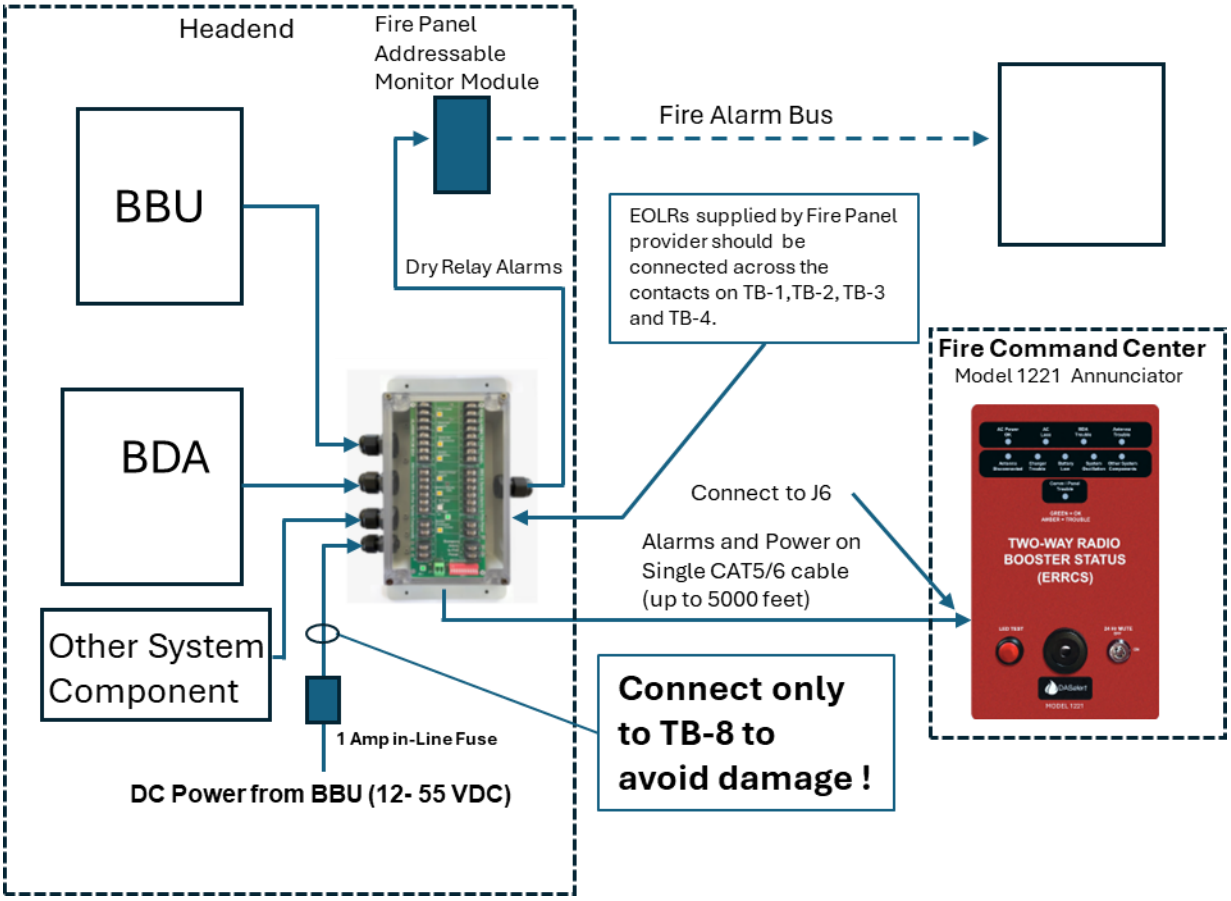
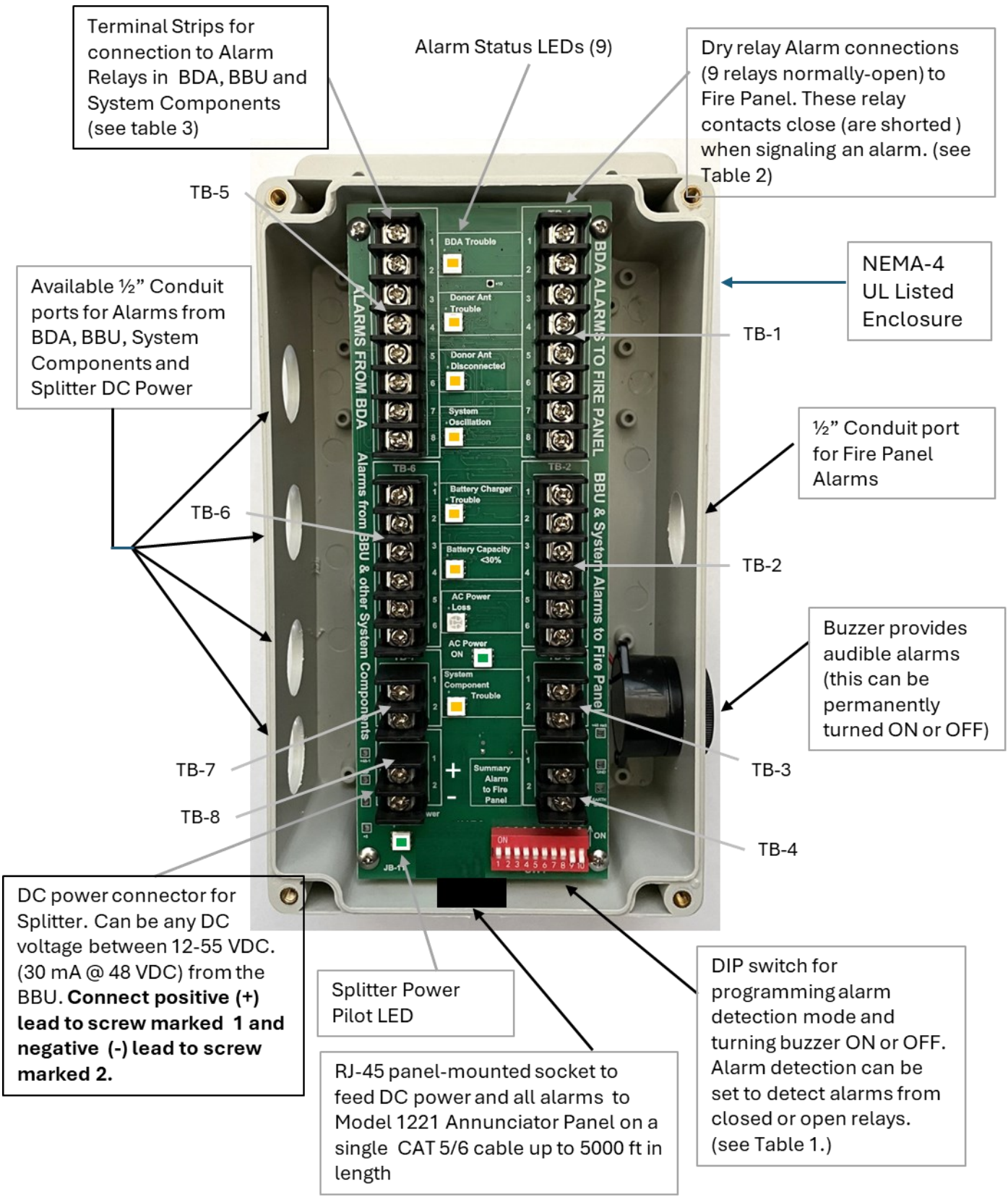


Figure 3. Active Alarm Splitter Junction Box

Model AS-1 Dimensions 7.87” H x 4.72” W x 2.99” D



LED Indicators

Functions of the LEDs are shown below.

LED Functions

LED	DESCRIPTION
1	**BDA Trouble (Normally OFF, Amber if there is a BDA problem)**
2	**Donor Antenna Trouble (Normally OFF, Amber if there is a problem)**
3	**Donor Antenna Disconnected (Normally OFF, Amber if the antenna is disconnected)**
4	**System Oscillation (Normally OFF, Amber if the system is oscillating)**
5	**Battery Charger Alarm (Normally OFF, Amber if there is trouble)**
6	**Battery Capacity (Normally OFF. If the DAS backup battery has less than 30% capacity this LED is Amber)**
7	**AC Power Loss (Normally OFF, Amber if AC power is down)**
8	**AC Power OK (Normally Green, OFF if AC power is down)**
9	**System Component Alarm (Normally OFF, If other system components have trouble, this LED is Amber.)**
10	**Splitter Power (Green if DC power to the the Splitter is ON)**

Important Preparation

This splitter is designed to operate with DAS Alert Model 1221 Annunciator panels shipped after November 1, 2024. These panels will have a serial number that starts with the number 4. The splitter will connect to these panels with a standard CAT 5 or CAT 6 cable up to 5000 feet in length. Before connecting the splitter. It is advised to first test the CAT 5/6 cable to confirm the plugs on it are wired properly in accordance with T-568B and there are no shorts, reversals or open circuits. Use a standard tester to verify this. **Remove the AA batteries from the DAS Alert panel and verify its operation in accordance with APPENDIX A.**

Installation

1. Hold the enclosure temporarily in place on the desired surface and mark the locations with a nail or pencil of the four holes found on the mounting flanges at the top and bottom of the enclosure.

2. Drill holes in these locations with the included 3/16” drill bit and install the drywall anchors.

3. Screw the panel in place with the four # 6 x ¾” mounting screws included.

4. The conduit ports will accommodate standard ½ “ conduit fittings or the included water-proof cable glands can be utilized.

5. Seal any unused ports with the included plugs.

6. Attach DC power from the BBU through the supplied 1 Amp in-line fuse to the two screw-down terminals on TB- 8 (see figure 3). **It is important that DC power not be attached inadvertently to any of the other terminal strips or else damage will result. For the DAS Alert panel and Splitter to work together properly, the PLUS and MINUS of the DC power must be connected to the indicated screw terminals on TB-8.**

7. Verify the Splitter DIP switch is set to the factory default settings shown in Table 1. Before connecting the alarms from the DAS equipment, verify the pilot LED is GREEN and the AC power LED is GREEN and none of the alarm LEDs are AMBER.

8. Do not connect the alarms from the DAS equipment yet. First simulate alarms by changing the settings on the Splitter DIP switch one at a time to verify the appropriate LED on both the Splitter and DAS Alert panel changes from OFF to AMBER. (It will be helpful to have another individual in the Fire Command Center to phone the results to the headend.)

9. Do not connect the relay outputs to the Fire Panel yet. Use a voltmeter to first test the proper functioning of the dry relay outputs to the fire panel. Connect the probes across each pair of outputs on TB-1, TB-2, TB-3 and TB-4 to verify when an alarm is simulated the resistance is less than 10 Ohms and greater than 10 Meg Ohms when the alarm is OFF.

10. Connect the relay outputs to the Fire Panel. Nine independent alarm dry relays outputs are provided on TB-1, TB-2, TB-3 and TB-4. Table 2 shows the function of each relay output. When there is an alarm, these relays will close (are shorted). These terminals also provide a location for the End-of-Line -Resistors (EOLR) that are required for the Fire Alarm and will be provided by the Fire Alarm supplier. Verify operation using the DIP switch to simulate alarms.

11. Set the DIP switch to detect alarms from the DAS Equipment relays.
    If DIP switches 1-8 are in the ON position, an alarm relay closure that results in a short across the two screw terminals will trigger an alarm. This is the standard alarm format for most DAS components. However, if a DAS component performs the reverse of this, then place the appropriate DIP switch to the OFF position.

12. Connect the Alarms from the DAS components and perform end-to-end testing (Table 3 shows the attachment points on TB-5, TB-6 and TB-7)

13. Attach the transparent cover with the four supplied black M4 screws.

Table 1. DIP Switch SW1 Settings	
SW=ON detects closed (shorted) relay contacts to trigger alarm	
SW=OFF detects open (not shorted) relay contacts to trigger alarm	
SW	**Function**
1	BDA Trouble Default = ON
2	Donor Antenna Trouble Default = ON
3	Antenna Disconnected Default = ON
4	Oscillation Default = ON
5	Charger Trouble Default = ON
6	Battery Low Default = ON
7	AC Power OFF Default = ON
8	Other System Component Default = ON
9	Buzzer ON or OFF Default = ON
10	Not Used

Table 3	
Relay Alarm Connections from BDA , BBU and Other System Component	
TB-5	
1	BDA Trouble COM
2	BDA Trouble NO
3	Donor Antenna Trouble COM
4	Donor Antenna Trouble NO
5	Donor Antenna Disconnected COM
6	Donor Antenna Disconnected NO
7	System Oscillation COM
8	System Oscillation NO

TB-6	
1	Battery Charger Trouble COM
2	Battery Charger Trouble NO
3	Battery Capacity Low COM
4	Battery Capacity Low NO
5	AC Power Loss COM
6	AC Power Loss NO

TB-7	
1	System Component COM
2	System Component NO

Table 2. Relay Connections to Fire Panel	
Relays closed (are shorted) when in Alarm state	
TB-1	
1	BDA Trouble COM
2	BDA Trouble NO
3	Donor Antenna Trouble COM
4	Donor Antenna Trouble NO
5	Donor Antenna Disconnected COM
6	Donor Antenna Disconnected NO
7	System Oscillation COM
8	System Oscillation NO

TB-2	
1	Battery Charger Trouble COM
2	Battery Charger Trouble NO
3	Battery Capacity Low COM
4	Battery Capacity Low NO

TB3	
1	System Component COM
2	System Component NO

	TB-4
1	Summary Alarm COM
2	Summary Alarm NO

Specifications

Visible Annunciators	
Normal AC Power	Green when AC power is normal, off when AC power is lost
Loss of Normal AC Power	Normally off, amber indicating alarm
BDA Trouble	Normally off, amber indicating alarm
Donor Antenna Malfunction	Normally off, amber indicating alarm
Donor Antenna Disconnection	Normally off, amber indicating alarm
DAS backup Battery Charger Failure	Normally off, amber indicating alarm
Loss of DAS Backup Battery Capacity to 70% Depletion	Normally off, amber indicating alarm
System Oscillation	Normally off, amber indicating alarm
Other System Component Malfunction	Normally off, amber indicating alarm
Splitter Power	Green when DC power is 12-55 VDC
Audible Annunciator	Triggers when any alarm condition exists

Alarm inputs from DAS equipment dry contact relays	
Loss of Normal AC Power	2 wire input
BDA Trouble	2 wire input
Donor Antenna Malfunction	2 wire input
Donor Antenna Disconnection	2 wire input
DAS Backup Battery Charger Failure	2 wire input
Loss of DAS Backup Battery Capacity to 70% Depletion	2 wire input
System Oscillation	2 wire input
Other System Component Malfunction	2 wire input

Cable Connection from Splitter to Annunciator	Standard CAT 5 or CAT 6 cable
Max Cable Length (when DC power is at least 24 VDC)	5000 feet

Specifications Continued

Dry relay outputs to building's fire panel	Single-pole Form A relays, 2 Amps @ 30 VDC max
Loss of Normal AC Power	
BDA Trouble	
Donor Antenna Malfunction	
Donor Antenna Disconnection	
DAS Backup Battery Charger Failure	
Loss of DAS Backup Battery Capacity to 70% Depletion	
System Oscillation	
Other System Component Malfunction	
Summary Fault	

Power Requirements:	
DC Power (Any DC voltage between 12-55 VDC from BBU)	70 mA @ 24 VDC, 36 mA @ 48 VDC

Physical Characteristics	4.8" W x 7.9" H x 2.99" D Weight: 1.2 Lbs

Meets or exceeds the following specifications:	
UL-2524	
NFPA 72	
NFPA 1225	
IFC	
IEC320-C14	
UL60950-1	
NEMA-4	
UL listed E194432 (industrial control panel)	

APPENDIX A. DAS Alert Model 1221 Panel Self-Test.

1. Temporarily connect the supplied 48 VDC power supply to J2.
2. Remove or do not install the AA batteries.
3. Verify on DIP switch SW1 that switches 1 through 9 are in the ON state. Check that switch 10 is OFF.
4. Verify on DIP switch SW2 all switches are OFF
5. Verify that the AC Power LED on the front panel is GREEN and that all other LEDs are OFF.
6. To ready the unit for use with the Splitter set switches 9 and 10 on SW2 to ON. All other switches on SW2 should be OFF. This will enable the Buzzer and the Comm Trouble LED on the front panel will flash AMBER.
7. Disconnect the 48 VDC power supply. It will no longer be needed.
8. Once the CAT 5/6 cable is connected from the Splitter to J6 (an RJ-45 socket) and the Splitter is powered, the DAS Alert panel LEDs will replicate the alarm LEDs on the Splitter.