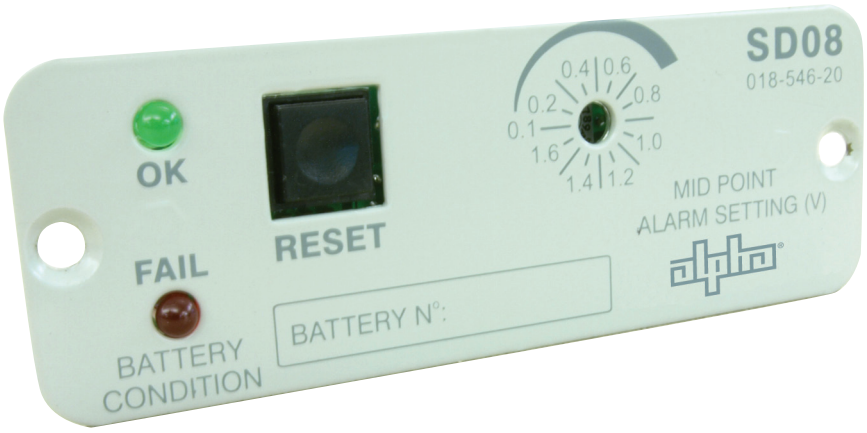
SD08 Battery Fail Monitor

Part # 018-546-B2
Effective: 07/2011



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Your Power Solutions Partner

SD08

Battery Fail Monitor

018-546-B2 RevD

The following documents and drawings are included in this manual:

- Specification: 018-546-B1
- Outline drawing: 018-546-06
- Customer connection drawing: 018-546-08

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This section contains important instructions that must be followed during the installation and maintenance of the equipment and batteries. **Read all of the instructions before operating the equipment, and save this manual for future reference.**

1. To obtain a maximum degree of safety, follow the sequences as outlined.

2. Before using the product, read all instructions and cautionary markings on the product and any equipment connected to the product.

3. This manual provides warnings and special notes for the user:
    a. Points that are vital to the proper operation of the product or the safety of the operator are indicated by the heading: **WARNING**.

    b. A notation that is in ***Bold Italic*** typeface covers points that are important to the performance or ease of use of the product.

4. **WARNING** – Use care working around battery systems. Before unpacking and handling batteries, thoroughly read and follow the documentation from the battery manufacturer with special regard to safety precautions.

5. **WARNING** – Under abnormal operating conditions, or as a result of damage and/or misuse of a battery, potentially hazardous conditions could occur including burns from sulphuric acid or injury from explosive gases.

6. **WARNING** – Whenever working with batteries there is a short-circuit current hazard. Extreme caution must be taken to prevent electrical arcing, electrical burns or shock.

7. Do not expose the product to rain or snow; install only in a clean, dry environment.

8. **CAUTION** – Unless otherwise noted, use of an attachment not recommended or sold by the product manufacturer may result in a risk of fire, electric shock, or injury to persons.

9. **CAUTION** – Do not operate the product if it has received a sharp blow, it has been dropped, or otherwise damaged in any way – return it to a qualified service center for repair.

10. **CAUTION** – Do not disassemble the product – call our qualified service centers for servicing. Incorrect reassembling may result in a risk of electrical shock or fire.

TABLE OF CONTENTS

1 Introduction

1.1 Scope of the Manual

This instruction manual explains the features, installation and operation of the SD08 Battery Fail Monitor from Alpha Technologies.

NOTE: *To aid the user with installation, frequent reference is made to drawings located at the rear of this manual.*

1.2 Product Overview

The SD08 Battery Fail Monitor module (see Figure 1) is designed to monitor the status of a single battery string. The method used is “battery midpoint voltage monitoring.” The SD08 connection to the battery string splits the battery string voltage in half at the midpoint. The string voltage halves are compared and if the difference between the two exceeds the programmed value (set by front panel rotary switch) then an alarm is sent to the Alpha system controller or directly to the customer’s office monitoring system via the contacts on a Form “C” relay. The local alarm indication (red LED) is latching and requires manual intervention to reset (front panel push button).

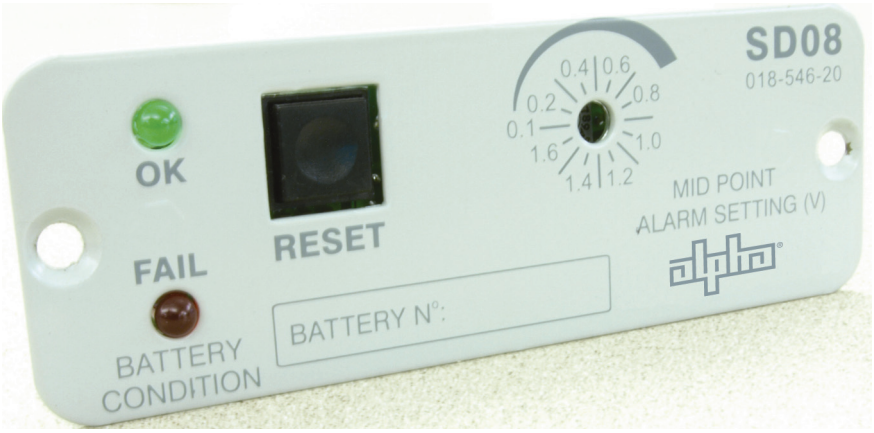


Figure 1–Front view of SD08

A complete battery monitoring system consists of one or more SD08 modules installed in a 19" or 23" panel or cabinet (see Figure 2). Additional SD08 modules can be added at a later time after the system has been installed; e.g. when additional battery strings are added.

1.3 Part Numbers and List Options

This product is available to order under the following Alpha part numbers and list options:

Description	Part Number/List Option
SD08 Battery Fail Monitor	018-546-20
Basic Unit	*List 0
19" Rack Mount	List 19
23" Rack Mount	List 23
Wall Mount (chassis for stand-alone unit)	List 25
Gray Finish	*List 55
SD08 Battery Fail Monitor Module	List 80
Blanking Plate	List 90

* Default option, consult factory for up-to-date ordering information.

2 Features, Alarms and Controls

The following chapter will cover the various features and options available on the SD08 Battery Fail Monitor.

2.1 Module Indicators

Two indicators are provided on the SD08 module to provide visual indication of its operational status (see Figure 1). The conditions and associated colors are:

- Module Power On (OK) .....Green
- Battery Condition Fail (FAIL) .....Red

The OK LED indicator illuminates when the SD08 module is getting power from the battery and the battery status is OK.

The FAIL LED indicator illuminates when the battery is in a fail condition and will latch (see Reset Button). The green LED will turn off.

2.2 Fail Alarm

The SD08 Battery Fail Monitor module is equipped with a fail alarm, which is extended to the alarm module (Alpha system controller or customer's monitoring system) via the contacts on a Form C relay. The alarm may indicate one of the following conditions:

- If the battery cell is open,
- If there is a bad connection,
- If the cell is performing inefficiently,
- If the battery cell is shorted
- No power (neither LED illuminated).

The Fail Alarm contacts will change state when the voltage difference between the two halves monitored exceeds the programmed value set by the front panel control. ***The relay is jumper selectable for latching or no latching operation.*** See Figure 3.

The alarm contacts are also 'fail-safe' and therefore will present an alarm condition without a source of voltage being present, however, the Fail LED will not remain illuminated unless there is input power available. The alarm is extended if the input voltage to the unit falls below factory set limits or if the internal reference fails. If the unit returns to normal operation (and the battery status is OK) then the alarm clearz.

The SD08 module has a terminal block (plug in cable connector) for the Form C relay alarm contacts located on the rear of the module PCB. Both normally closed (NC) and normally open (NO) contacts are available.

NOTE: *The Fail Alarm relay is de-energized during alarm conditions.*

NC provides the user with open contacts when the power is on (and there are no alarm conditions) and closed contacts when the power is off or when an alarm condition is present. NO acts in a similar manner and gives closed contacts under power-on and non-alarm conditions; open contacts under power-off or alarm conditions.

2.3 Reset Button

The local alarm indication (red LED) is latching. ***You must press the SD08 module front panel push button to reset.***

2.4 Mid-Point Alarm Setting Control

A front panel rotary switch (see Figure 1) with 16 indents allows the user to set the maximum allowable voltage deviation in battery string halves to 1.6 Volts in 0.1 Volt increments; i.e. 0.1, 0.2… 1.6V.

2.5 Battery Mid-Point Voltage Contacts

One plug in cable connector is provided for customer connections at the rear of the SD08 module (see also Fail Alarm Contacts). This is a two-piece design equipped with screw terminals for the battery terminations (in addition to the Fail Alarm contacts described above).

2.6 Universal Operation

The SD08 module obtains power directly from the battery for universal 24 or 48 Volt operation.

NOTE: *The module is internally fused and diode protected from damage in the event that reverse polarity connection is made.*

2.7 Battery Identification

A space on the front of the SD08 module is provided for battery number identification. See Figure 1.

2.8 Mounting

A variety of mounting options for the SD08 module allow for adjustments and indicators to be visible from the front of the panel.

2.8.1 19" Rack Mount

Up to 4 SD08 modules may be flush mounted in a 19" single R.U. panel. See Figure 2 and drawing 018-546-06, sheet 1.

2.8.2 23" Rack Mount

Up to 5 SD08 modules may be flush mounted in a 23" single R.U. panel. See Figure 2 and drawing 018-546-06, sheet 2.

2.8.3 Wall Mounting

A chassis for an individual SD08 module is available for wall or cabinet mounting. See Figure 1 and drawing 018-546-06, sheet 3.

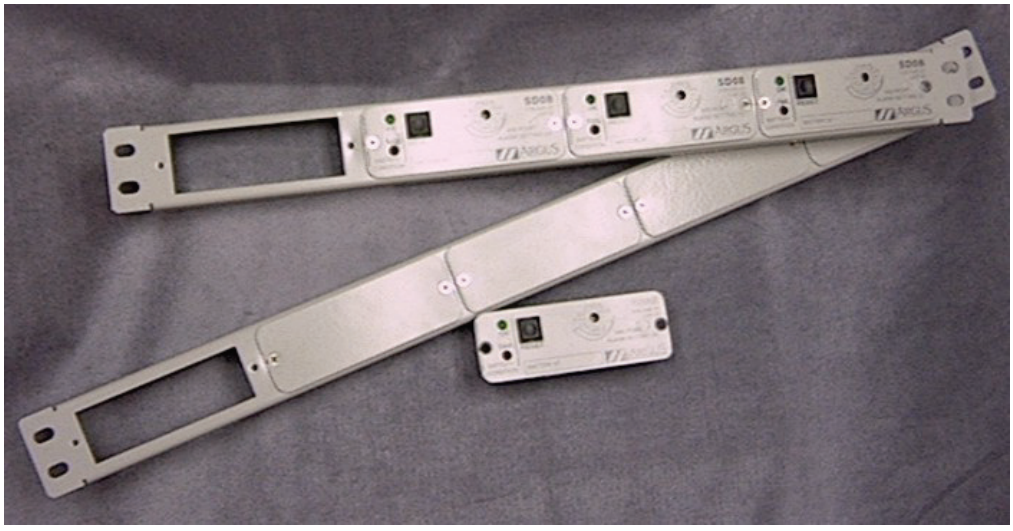


Figure 2–Front view of SD08 rack mount options

3 Inspection

3.1 Packing Materials

All Alpha products are shipped in rugged, double walled boxes and suspended via solid inserts to minimize shock that may occur during transportation. Packaging assemblies and methods are tested to National Safe Transit Association standards.

Products are also packaged with a plastic wrap that contains a corrosive-inhibitor that protects the product from corrosion for up to two years.

3.1.1 Returns for Service

Save the original shipping container. If the product needs to be returned for service, it should be packaged in its original shipping container. If the original container is unavailable, make sure the product is packed with at least three inches of shock-absorbing material to prevent shipping damage.

NOTE: *Alpha Technologies is not responsible for damage caused by the improper packaging of returned products.*

3.2 Check for Damage

Prior to unpacking the product, note any damage to the shipping container. Unpack the product and inspect the exterior for damage. If any damage is observed contact the carrier immediately.

Continue the inspection for any internal damage. In the unlikely event of internal damage, please inform the carrier and contact Alpha Technologies for advice on the impact of any damage.

Verify that you have all the necessary parts per your order for proper assembly.

4 Installation

This chapter is provided for qualified personnel to install the product, which shall be mounted in a clean and dry environment.

NOTE: *To aid the user with installation, frequent reference is made to drawings located at the rear of this manual.*

4.1 Safety Precautions

WARNING
Hazardous voltages are present at both the input and the output of power systems. The DC output from the rectifiers and the battery system is at a lethal potential and has a high short circuit current capacity that may cause electrocution, severe burns and electrical arcing.

Before working with any live battery or power system/distribution center, the following precautions should be followed:

- Remove all metallic jewelry; e.g., watches, rings, metal rimmed glasses, necklaces.
- Wear safety glasses with side shields (and prescription lenses if necessary) at all times during installation.

Insulated metallic tools shall be used.

The installer should follow all applicable local rules and regulations for electrical and battery installations; e.g., CSA, UL, CEC, NEC, OSHA, and local fire codes.

4.2 Tools Required

Various insulated tools are essential for product installation. Use this list as a guide:

- Slot head screwdriver (blade size 1/8")
- Philips head screwdriver, #2 (tip size 3/16")
- Philips head screwdriver, #1
- Anti-static wrist strap
- Safety glasses
- Cutters and wire strippers 2.5 to 0.34mm^2 (#14 to #22 AWG)
- Digital voltmeter equipped with test leads.

4.3 Preparation/Mounting

NOTE: *The SD08 must be mounted in a clean and dry environment.*

4.3.1 Rack Mount

The SD08 Battery Fail Monitor has been designed for flush mounting in an EIA standard single RU relay rack panel.

The SD08, 19" or 23" unit, should be mounted to the rack using two #12 – 24 x 1/2" screws in each bracket. Philips-type screws and screwdriver should be used to eliminate the possibility of slippage and scratching of the unit's exterior. Washers (such as internal tooth) or special screws that are designed to cut through the painted surface should be used to ensure a good chassis ground.

4.3.2 Wall Mount

The stand-alone battery fail monitor module can be mounted with the wall mounting holes in the rear of the chassis. To use these holes, remove the front plate (two screws on the front of the panel). See drawing 018-546-06, sheet 3.

Consult the drawings located at the rear of this manual and proceed to the next chapter for wiring connections.

5 Wiring and Connections

This chapter provides cabling details and notes on cable sizing for DC applications with respect to the product.

NOTE: *Refer also to drawings located at the rear of this manual.*

5.1 Safety Precautions

WARNING
Hazardous voltages are present at both the input and the output of power systems. Ensure that input power and output power is removed before attempting work on the CXC's connections. Use a voltmeter to verify the absence of voltage. Clearly mark the correct polarity of the battery leads before commencing work on DC connections.

Refer to the previous (Installation) chapter for additional safety precautions.

5.2 Grounding

WARNING
For safety reasons, ensure the SD08 is properly bonded to the building's ground grid.

5.3 Alarm Connections

Alarm cables should be bundled and routed through the rear of the module or rack; through the side in the case of the stand-alone or wall mount unit. See drawing 018-546-08. Insert each wire into the appropriate terminal on the termination block (see Figure 3) and secure the wires by tightening the terminal screw. See Specifications document at the front of this manual for recommended wire sizes.

WARNING
Do not over tighten the terminal screws. This may result in damage to the input connectors.

The Fail Alarm terminals are connected to relay contacts in the SD08 module and both normally open or normally closed contacts are provided. ***Latching is jumper selectable.***

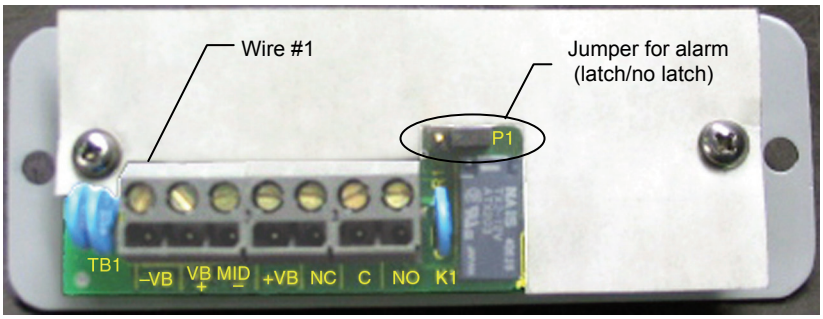


Figure 3–Rear view of SD08 module showing termination block

NOTE: *The Fail Alarm relay is de-energized during alarm conditions.*

5.3.1 Latch

Set the jumper (P1) to pins 1 and 2 for alarm "latch" (requires manual reset).

5.3.2 No Latch (default)

Set the jumper (P1) to pins 2 and 3 for alarm "no latch" (clears automatically).

5.4 Module Installation and Removal

WARNING: HIGH VOLTAGE AND SHOCK HAZARD.

Only qualified personnel familiar with line and battery voltage should attempt to change modules while the SD08 Battery Fail Monitor cabinet is energized. Remove rings, watches and other jewelry before performing this procedure. Keep fingers clear of live electric parts while unit is energized.

Leave cables disconnected at battery and verify polarity using a voltmeter. Make battery connections only after all other wiring is completed.

5.4.1 Installing Module

Battery sense leads should be bundled and routed through the rear of the module or rack per drawing 018-546-08. Route through the side of the SD08 in the case of the stand-alone or wall mount unit. Insert each wire into the appropriate terminal on the termination block and secure the wires by tightening the terminal screw. See Specifications document located at the front of this manual for recommended wire sizes.

WARNING
Do not over tighten the terminal screws. This may result in damage to the input connectors.

The termination block can then be plugged into the SD08 module (cable routed through corresponding slot). Attach the module to the panel with the screws provided (see Figure 4).

5.4.2 Removing Module

Remove the two screws from the face of the module. Detach the module from the panel and unplug the cable connector from the terminal block.

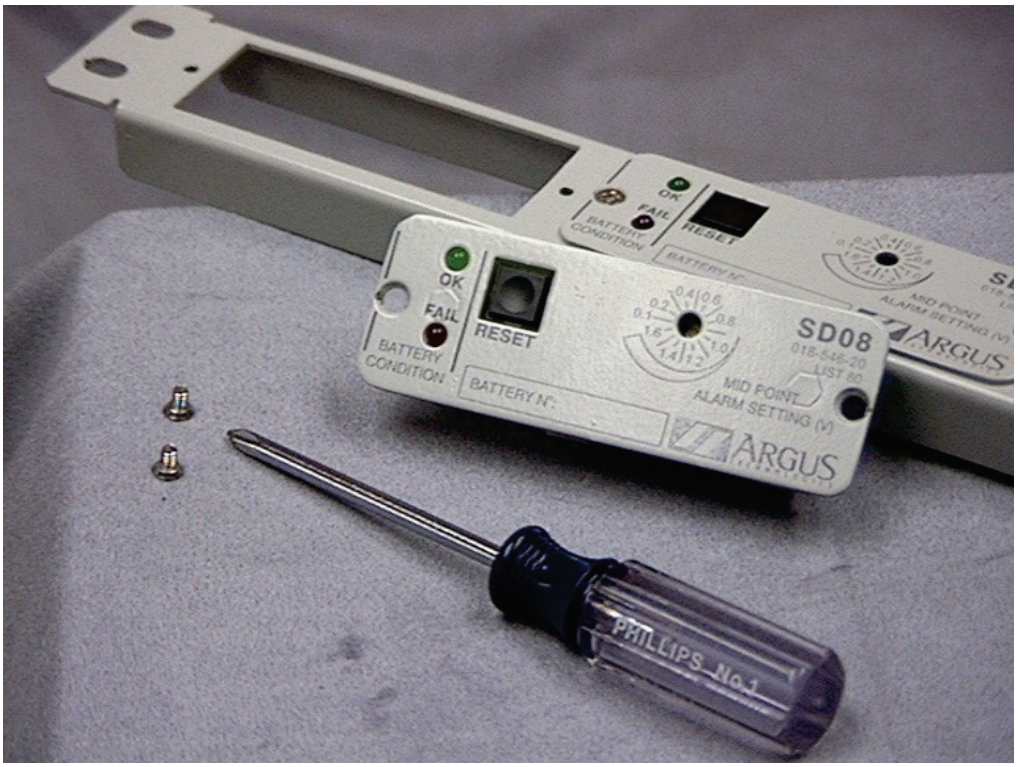


Figure 4–SD08 module, panel and mounting screws

6 Initial Startup

After completing the system wiring and installation, perform the following startup and test procedure to ensure proper operation.

1. Confirm that the battery sense leads and alarm cables are connected to the terminal of the correct polarity at the SD08 module. See TB (terminal block) in Figure 5.

WARNING
Check battery polarity. Failure to do so could damage the unit and or battery.

2. Verify the battery installation according to the instructions provided by the battery manufacturer.
3. Measure total battery string voltage and the midpoint voltage.
4. Set the midpoint monitor to the desired voltage deviation setting, which should be greater than the midpoint voltage differential under normal operating conditions. 0.5 to 1.0V is recommended.
5. Apply DC power by plugging the other end of the sense leads into the mating battery cell connector.
6. Plug in and test the remaining modules, following the steps above.

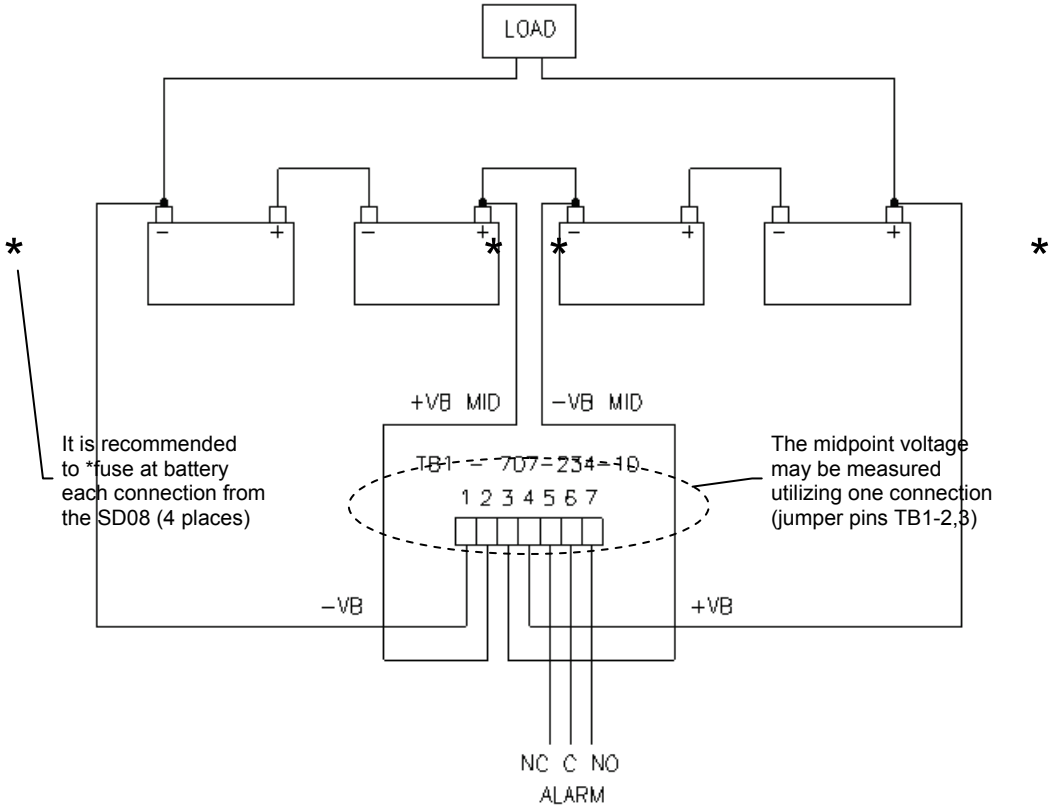


Figure 5–Showing SD08 terminal to battery connections

7 Operation

Normal operation of the battery fail monitor system will be indicated by the illumination of the BATTERY CONDITION OK LED indicators on each module and the absence of illumination of the FAIL LED indicators on each module.

An open cell, shorted cell or poor performing cell will cause the midpoint voltage deviation to shift exceeding the Midpoint Alarm Setting (V). This will result in a battery midpoint alarm (BATTERY FAIL).

NOTE: *Some fine-tuning may be required to obtain the ideal setting that is sensitive enough to detect a 'bad' cell and will not produce false alarms.*

The Midpoint Alarm Setting (V) will have to be adjusted within the functional range and is dependant upon many factors including the battery characteristics under float, charge and discharge conditions.

7.1 Factory Defaults

7.1.1 Midpoint Alarm Setting (V)

The Midpoint Alarm Setting (V) has a programmable range of 0.1 to 1.6V (in 0.1V increments).

The default setting for 24Vdc systems is 0.5V.

The default setting for 48Vdc systems is 0.5V.

7.1.2 Fail Alarm Contacts

The SD08 module has a terminal block (plug in cable connector) for the Form C relay alarm contacts located on the rear of the module PCB; both normally open and normally closed contacts are available. The Fail Alarm contacts will change state when the voltage difference between the two halves monitored exceeds the programmed value set by the front panel control. The relay is jumper selectable for latching or no latching operation.

The default setting is for no latching operation.

8 Maintenance

Although very little maintenance is required with Alpha systems, routine checks and adjustments are recommended to ensure optimum system performance. Qualified service personnel should do repairs.

The following table lists a few maintenance procedures for this system. These procedures should be performed at least once a year.

WARNING: HIGH VOLTAGE AND SHOCK HAZARD.

Use extreme care when working inside the shelf while the system is energized. Do not make contact with live components or parts.

Circuit cards, including RAM chips, can be damaged by static electricity. Always wear a grounded wrist strap when handling or installing circuit cards.

Ensure redundant modules or batteries are used to eliminate the threat of service interruptions while performing maintenance on the system's alarms and control settings.

Procedure	Date Completed
Clean ventilation openings	
Inspect all system connections (re-torque as necessary)	
Verify alarm/control settings	
Verify alarm relay operation	

Table A–Sample maintenance log

8.1 Spare Parts

Qty 2 of 460-196-10 Fu,0.1"x0.3",125mA 125V,Very Fast,Ax Ld F1,2 (circuit designation)

9 Warranty and Service Information

9.1 Technical Support

Free Technical Support 24/7/365 is part of the Alpha customer satisfaction commitment. The phone numbers below can also be used to access a wide range of service solutions both at your premise and at the Alpha facility nearest you.

In Canada and the USA, call toll free 1-888-462-7487 24 hours a day, seven days a week.

Customers outside Canada and the USA, call +1-604-436-5547.

9.2 Warranty

Alpha Technologies Ltd. warrants all equipment manufactured by it to be free from defects in parts and labor, for a period of two years from the date of shipment from the factory. The warranty provides for repairing, replacing or issuing credit (at Alpha's discretion) for any equipment manufactured by it and returned by the customer to the factory or other authorized location during the warranty period. There are limitations to this warranty coverage. The warranty does not provide to the customer or other parties any remedies other than the above. It does not provide coverage for any loss of profits, loss of use, costs for removal or installation of defective equipment, damages or consequential damages based upon equipment failure during or after the warranty period. No other obligations are expressed or implied. Warranty also does not cover damage or equipment failure due to cause(s) external to the unit including, but not limited to, environmental conditions, water damage, power surges or any other external influence.

The customer is responsible for all shipping and handling charges. Where products are covered under warranty Alpha will pay the cost of shipping the repaired or replacement unit back to the customer.

9.3 Battery Warranty

Note that battery warranty terms and conditions vary by battery and by intended use. The most common battery warranty provided by Alpha is a two year full replacement warranty with a pro-rated warranty for the following three years. Pro rated warranty provides a credit applicable toward the purchase of new batteries from Alpha. The credit is calculated as the purchase price multiplied by the percentage of the battery life that was not available (in months). Battery warranty coverage is lost where the battery charge is not maintained for 6 months. Contact your Alpha sales representative or the Technical Support team at the above number to understand your entitlements under Battery Warranty.

9.4 Return of Material

Please contact Technical Support at the number above to obtain a Service Repair Order (or Return Material Authorization) number BEFORE sending material back. This will ensure that your service needs are handled promptly and efficiently.

For more service and warranty information, visit the Alpha website:

http://www.alpha.ca/web2/services-and-support/warranty.html#

10 Acronyms and Definitions

AWG	American wire gauge
CEC	Canadian Electrical Code
CSA	Canadian Standards Association
DC	Direct current
EIA	Electronic Industry Alliance
LED	Light emitting diode
NC	Normally closed
NEC	National Electrical Code (USA)
NO	Normally open
OSHA	Occupational Safety & Health Administration
PCB	Printed circuit board
RAM	Random access memory
RU	Rack unit (1.75")
UL	Underwriters Laboratories

Specifications for Alpha Technologies Battery Fail Monitor SD08

Electrical/Mechanical

Input Voltage:	± 20 to 60Vdc
Dimensions:	38mm H x 114mm W x 25mm D (1.5" H x 4.5" W x 1" D)
Mounting:	1 RU; 19” flush rack mounting (fits 4 modules) 1 RU; 23” flush rack mounting (fits 5 modules) Wall mount; stand-alone (fits 1 module)
Weight:	225 g (0.5 lb.)

Environmental

Operating Temperature:	-40 to +50°C (-40 to +122°F)
Humidity:	0 to 95% (non-condensing)

Hardware

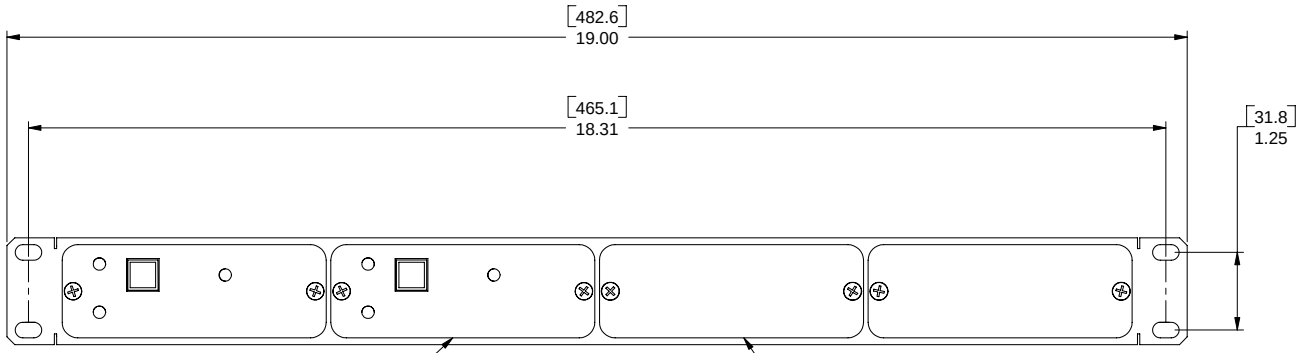
Front Panel Keypad:	Reset button
LEDs:	Battery Condition OK (green) Battery Condition Fail (red)
Front Panel Switch:	Rotary switch, 16 detents (0.1V increments); sets the maximum voltage deviation to 1.6V
Rear Terminal Inputs:	7 screw terminals for customer connection: 1 Battery – 1 Battery + 2 Battery Midstring 1 Alarm NC 1 Alarm NO 1 Alarm Common
Rear Relay Output:	1 Form C; Battery Fail

Recommended Connection Wire Sizes (as per CSA/UL)

Input/Output:	Temperature Range	Minimum Wire Size
	0 to +50°C (32 to +122°F)	2.5 to 0.34mm^2 (#14 to #22 AWG)

The above information is valid at the time of publication. Consult factory for up-to-date ordering information. Specifications are subject to change without notice.

REVISIONS			
LTR	DESCRIPTION	DATE	APPD
B	REDESIGNED		



LIST 19

LTR	DESCRIPTION	QTY
	FINISHED HOLE LEGEND	

ARGUS TECHNOLOGIES

DESIGN	CA	98/11	MATERIAL
DRAWN	JJ	98/11	
CHECKED	CA	98/11	
APPROVED	RD	98/11	FINISH

TOLERANCES
X.X ±0.04" |X| ±1mm
X.XX ±0.02" |X.X| ±0.5mm
X.XXX ±0.01" |X.XX| ±0.25mm

SCALE N.T.S.

TITLE
OUTLINE DRAWING,
19" RACK MOUNT, SD08

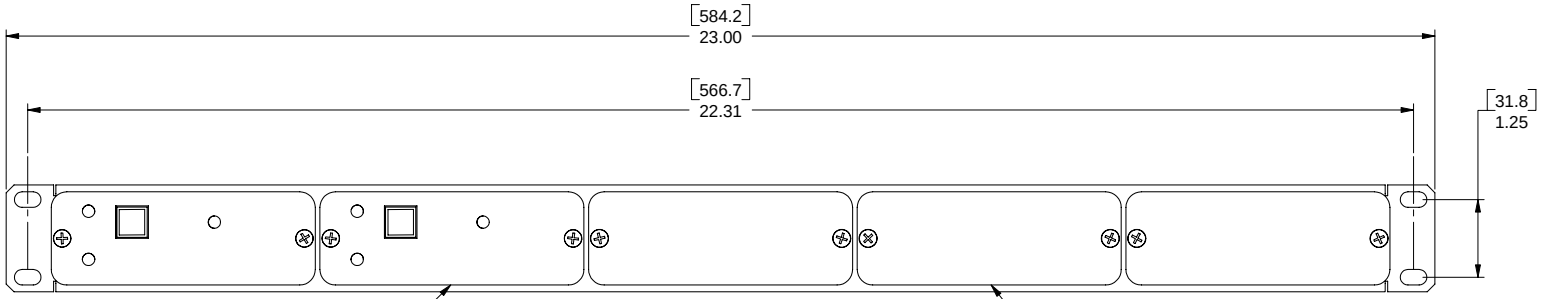
ISSUE DATE

SHEET 1 OF 3

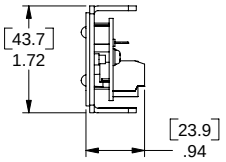
SIZE	TYPE	DWG NO.	REV
B	D1	018-546-06	B

DIMENSIONS ARE IN INCHES WITH METRIC [mm] IN BRACKETS: INCHES [mm]

REVISIONS			
LTR	DESCRIPTION	DATE	APPD



FRONT VIEW



SIDE VIEW

LIST 80
SD08, BATTERY FAIL MONITOR

LIST 90
BLANKING PLATE, SD08 MODULE

LIST 23

LTR	DESCRIPTION	QTY
	FINISHED HOLE LEGEND	

DESIGN	CA	98/11	MATERIAL
DRAWN	JJ	98/11	
CHECKED	CA	98/11	
APPROVED	RD	98/11	FINISH

TOLERANCES
X.X ±0.04" |X| ±1mm
X.XX ±0.02" |X.X| ±0.5mm
X.XXX ±0.01" |X.XX| ±0.25mm

SCALE **N.T.S.**

TITLE
OUTLINE DRAWING,
23" RACK MOUNT, SD08

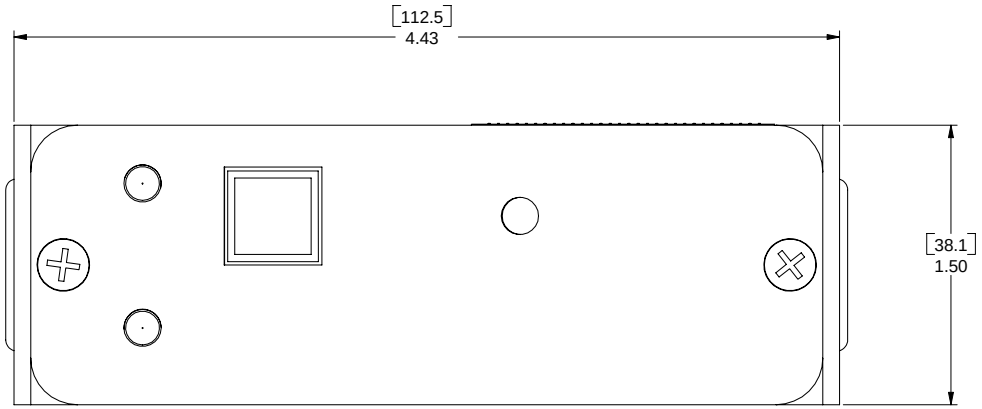
ISSUE DATE

SHEET 2 OF 3

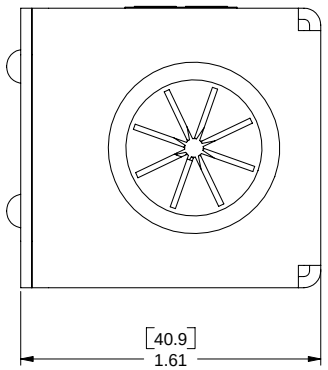
SIZE	TYPE	DWG NO.	REV
B	D1	018-546-06	B

DIMENSIONS ARE IN INCHES WITH METRIC [mm] IN BRACKETS: INCHES [mm]

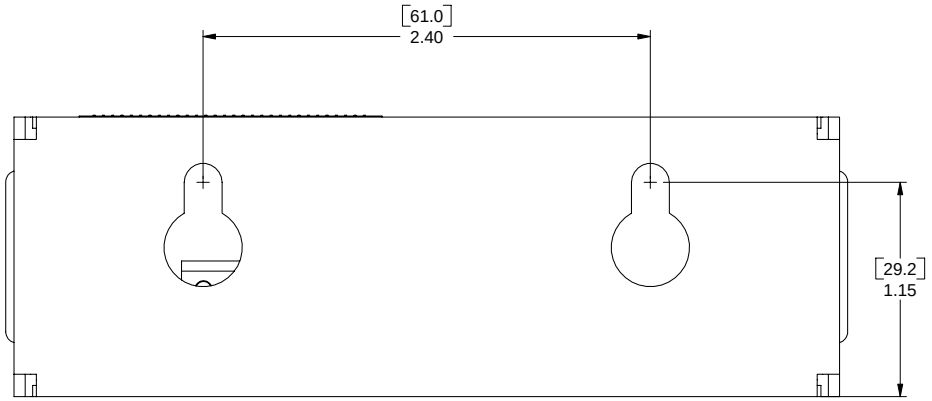
REVISIONS			
LTR	DESCRIPTION	DATE	APPD



FRONT VIEW



SIDE VIEW



REAR VIEW

LIST 25

LTR	DESCRIPTION	QTY
	FINISHED HOLE LEGEND	

ARGUS TECHNOLOGIES

DESIGN	CA	98/11	MATERIAL
DRAWN	JU	98/11	
CHECKED	CA	98/11	
APPROVED	RD	98/11	FINISH

TOLERANCES
X.X ±0.04" |X| ±1mm
X.XX ±0.02" |X.X| ±0.5mm
X.XXX ±0.01" |X.XX| ±0.25mm

SCALE N.T.S.

TITLE
OUTLINE DRAWING,
SINGLE UNIT, SD08

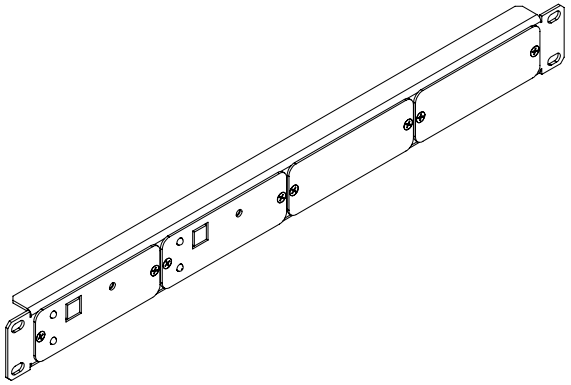
ISSUE DATE

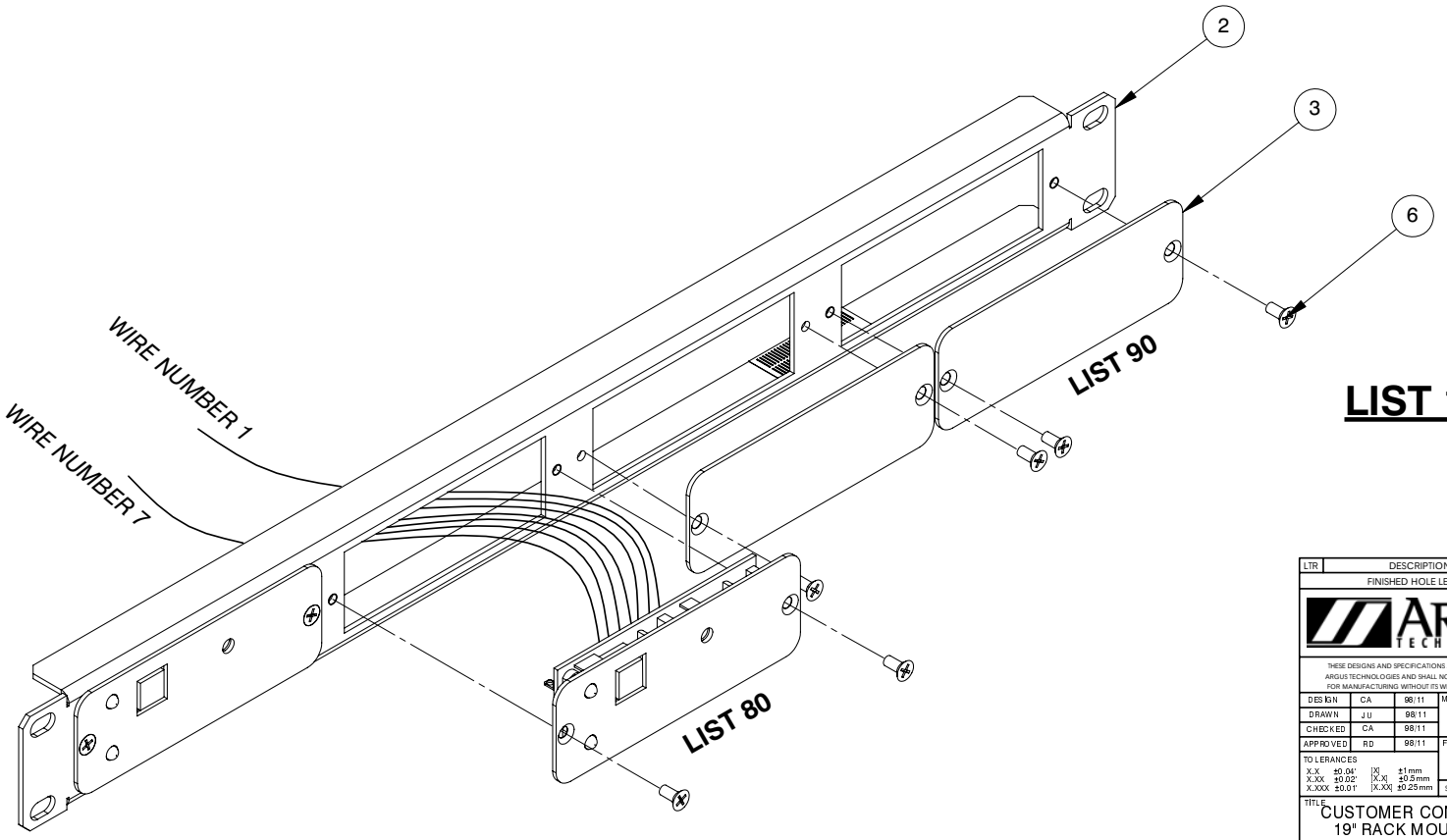
SHEET 3 OF 3

SIZE	TYPE	DWG NO.	REV
B	D1	018-546-06	B

DIMENSIONS ARE IN INCHES WITH METRIC [mm] IN BRACKETS: INCHES [mm]

REVISIONS			
LTR	DESCRIPTION	DATE	APPD
B	REDESIGNED		





WIRE CONNECTION

WIRE NUMBER 1 -VB
WIRE NUMBER 2 +VB MID
WIRE NUMBER 3 -VB MID
WIRE NUMBER 4 +VB
WIRE NUMBER 5 NC
WIRE NUMBER 6 C } ALARM
WIRE NUMBER 7 NO

LIST 19

LTR	DESCRIPTION	QTY
	FINISHED HOLE LEGEND	

ARGUS TECHNOLOGIES

DESIGN	CA	98/11	MATERIAL
DRAWN	JU	98/11	
CHECKED	CA	98/11	
APPROVED	RD	98/11	FINISH

TOLERANCES
X.X ±0.04" |X| ±1mm
X.XX ±0.02" |X.X| ±0.5mm
X.XXX ±0.01" |X.XX| ±0.25mm

SCALE N.T.S.

TITLE
CUSTOMER CONNECTION, 19" RACK MOUNT, SD08

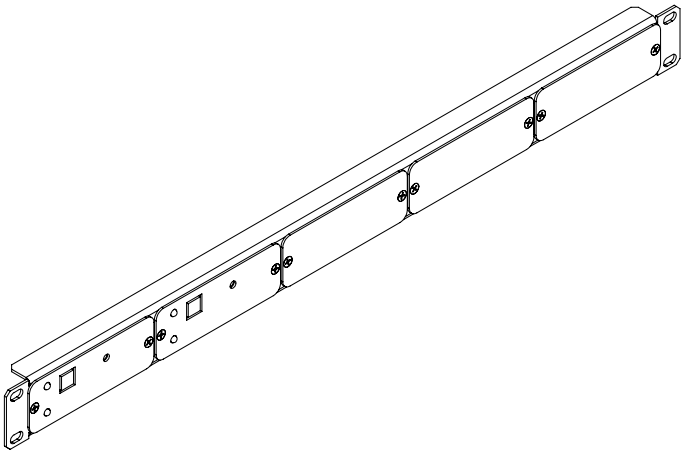
ISSUE DATE

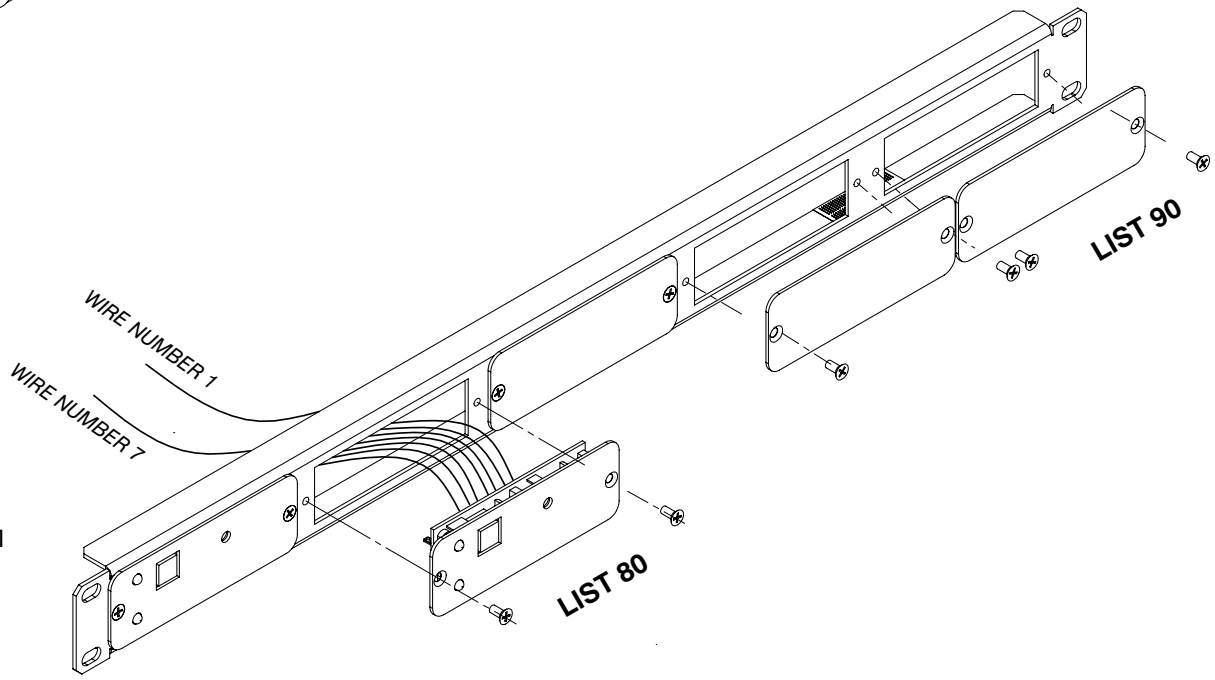
SHEET 1 OF 3

SIZE	TYPE	DWG NO.	REV
B	D1	018-546-08	B

DIMENSIONS ARE IN INCHES WITH METRIC [mm] IN BRACKETS: INCHES [mm]

REVISIONS			
LTR	DESCRIPTION	DATE	APPD





WIRE CONNECTION

WIRE NUMBER 1	-VB	
WIRE NUMBER 2	+VB MID	
WIRE NUMBER 3	-VB MID	
WIRE NUMBER 4	+VB	
WIRE NUMBER 5	NC	ALARM
WIRE NUMBER 6	C	
WIRE NUMBER 7	NO	

LIST 23

DIMENSIONS ARE IN INCHES WITH METRIC [mm] IN BRACKETS: INCHES [mm]

LTR	DESCRIPTION	QTY
	FINISHED HOLE LEGEND	

ARGUS TECHNOLOGIES

DESIGN	CA	98/11	MATERIAL
DRAWN	JU	98/11	
CHECKED	CA	98/11	
APPROVED	RD	98/11	FINISH

TOLERANCES
X.X ±0.04" |X| ±1mm
X.XX ±0.02" |X.X| ±0.5mm
X.XXX ±0.01" |X.XX| ±0.25mm

SCALE N.T.S.

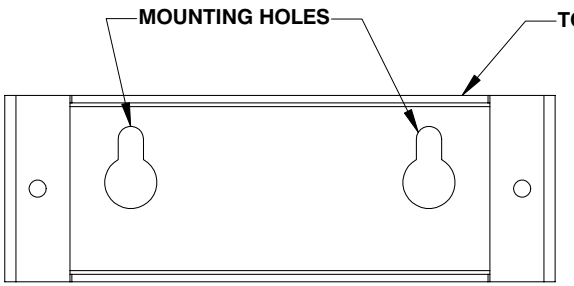
TITLE
CUSTOMER CONNECTION, 23" RACK MOUNT, SD08

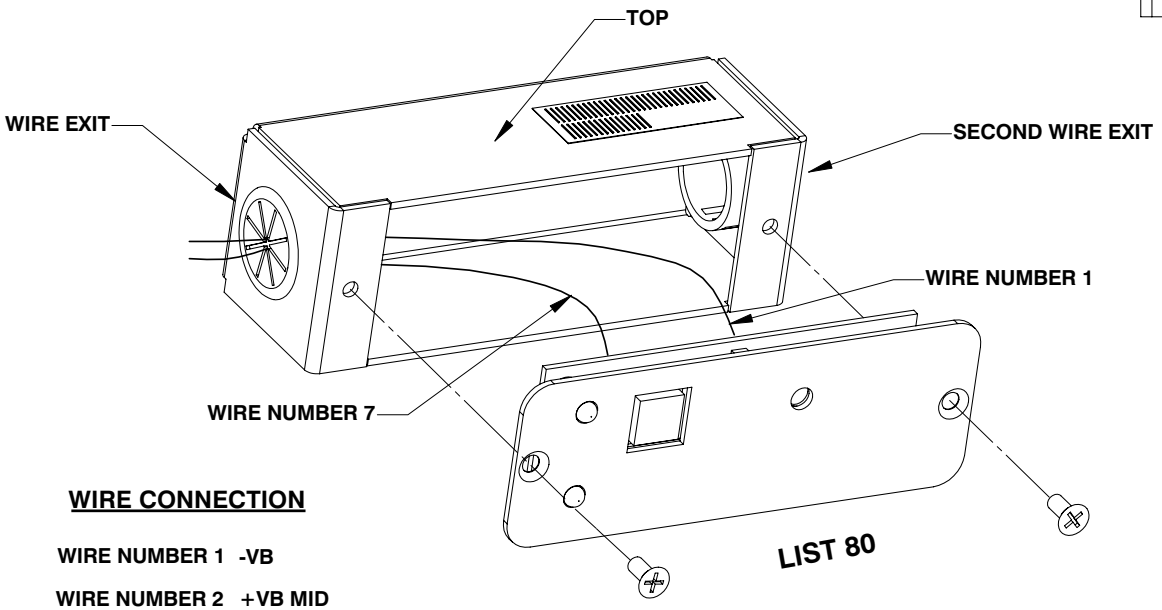
ISSUE DATE

SHEET 2 OF 3

SIZE	TYPE	DWG NO.	REV
B	D1	018-546-08	B

REVISIONS			
LTR	DESCRIPTION	DATE	APPD





LIST 25

WIRE CONNECTION

WIRE NUMBER 1	-VB	
WIRE NUMBER 2	+VB MID	
WIRE NUMBER 3	-VB MID	
WIRE NUMBER 4	+VB	
WIRE NUMBER 5	NC	ALARM
WIRE NUMBER 6	C	
WIRE NUMBER 7	NO	

LTR	DESCRIPTION	QTY
	FINISHED HOLE LEGEND	

ARGUS TECHNOLOGIES

DESIGN	CA	98/11	MATERIAL
DRAWN	JU	98/11	
CHECKED	CA	98/11	
APPROVED	RD	98/11	FINISH

TOLERANCES
X.X ±0.04" |X| ±1mm
X.XX ±0.02" |X.X| ±0.5mm
X.XXX ±0.01" |X.XX| ±0.25mm

SCALE N.T.S.

TITLE
CUSTOMER CONNECTION, WALL MNT., SINGLE UNIT, SD08

ISSUE DATE

SHEET 3 OF 3

SIZE	TYPE	DWG NO.	REV
B	D1	018-546-08	B

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