AN-3100D-LC

INSTALLATION AND CONFIGURATION MANUAL

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AMETEK®
POWER INSTRUMENTS

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Please Read This First!

IMPORTANT NOTES

THOROUGLY READ AND UNDERSTAND THE SAFETY SECTION BEFORE ATTEMPTING TO INSTALL AND ENERGIZE A SYSTEM

*****

UNAUTHORISED MODIFICATIONS OR REPAIRS WILL INVALIDATE THE AMETEK WARRANTY PLEASE CONTACT THE AMETEK CUSTOMER SERVICES DEPARTMENT BEFORE TAKING SUCH ACTIONS

Table of Contents

Overview **1**

Annunciator Model Code Definition 1

Safety **2**

CE certification 2

Construction **3**

System Front View 3
System Rear View 3
Annunciator Windows 4
Window Colors *4*
Window Legends *4*

Installation **5**

Mounting 5
Panel Mounting *6*
19" Rack Mounting *7*
Wiring 8
Input Wiring *8*
Test Pushbutton Wiring (Option INTB) *9*

Configuration **10**

Input Board 10

System Specifications **11**

Inputs 11
Display 11
Connections 11
Mechanical 11

Servicing **12**

Module Removal 12
ESD 12

Appendix A **13**

Window Assembly Details 13
Window Legends *13*
Window Colors *13*

Appendix B **15**

Telephone / Fax Number List 15
Procedures for Factory Repair and Return 16
Warranty 16

OVERVIEW

The AN-3100D-LC Annunciator is an LED Display driven from 24VDC Switched Inputs. There is no Annunciator Logic provided, as the lamps follow the status of the switched inputs. The Annunciator can be configured in any size from 13 Cells High by 13 Cells Wide. Each Window Cell can consist of 1 to 4 separate alarms, depending on the desired window size. The Annunciator Model Code defines the configuration for your system.

ANNUNCIATOR MODEL CODE DEFINITION

AN-3100D-LC - _____ - _____ - _____ - _____ - _____ - _____ - _____ - _____

Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8
Mounting Options	# of Cells High	# of Cells Wide	PB Cell	Window Size	Active Points	Window Color	Window Legend

Example: AN-3100D-LC-PM-3H-6W-NPB-2-36-W

Item 1 Mounting Option

PM Semi-Flush Panel Mounting
PC Semi-Flush Panel Mounting w/ rear cover
RK 19" Rack Mounting (5 wide systems only)
S Surface (Wall) Mounting(1H to 5H x 2W to 5W)

Item 2 # of Cells High

_____ (1-13H)

Item 3 # of Cells Wide

_____(1-13W)

Item 4 Push Button Cell

INTB Integral Test Pushbutton
NPB No Integral Pushbutton

Item 5 Window Size

4 Quad Size, 4 inputs per cell, ea 1.5"H x 1.5"W
3 Third Size, 3 inputs per cell, ea 1.0"H x 3.0"W
2 Half Size, 2 inputs per cell, ea 1.5"H x 3.0"W
1 Full Size, 1 input per cell, ea 3.0"H x 3.0"W
IMW Intermixed window size (must include matrix)

Item 6 Active Points

____ Total # of active points

Item 7 Window Color

W White Window Filter
R Red Window Filter
A Amber Window Filter
G Green Window Filter
B Blue Window Filter
IMC Intermix color, matrix must be included

Item 8 Window Legends

TP Legends printed on Transparency Film (field changeable)
ENG Legends are engraved on the Window Frames

SAFETY

CE CERTIFICATION

The AN-3100D - LC is CE certified for operation under the following conditions:

Indoor Use
Altitude up to 2000 m
Operating Temperature Range: -20 TO 50 ^{O}C (-4 to 122^{o}F)
Relative Humidity: 20-95% RH
Mains supply: None
Pollution Degree 2
Input/Output conductors of less than 3 meters in length

Installation and start-up must be carried out by trained and qualified personnel.
If the unit is not installed and operated as specified the protection provided by the unit may be impaired.

Before startup it is important to ensure that:

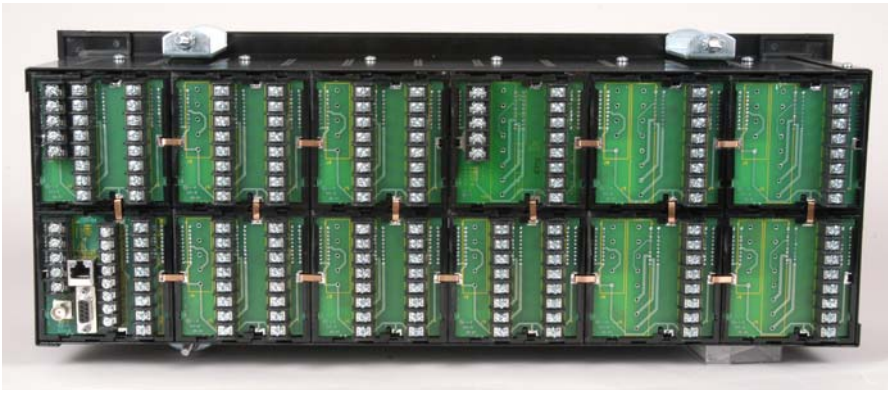
- Proper ventilation is provided by at least 6 inches (15.25 cm) above and below the unit

CONSTRUCTION

The AN-3100D-LC is a modular design constructed from a matrix of cells up to 13 high by 13 wide. The cells can be configured for 1, 2, 3 or 4 points per cell. Each cell provides front access to the electronics and all wiring connections are made to the rear of the unit.

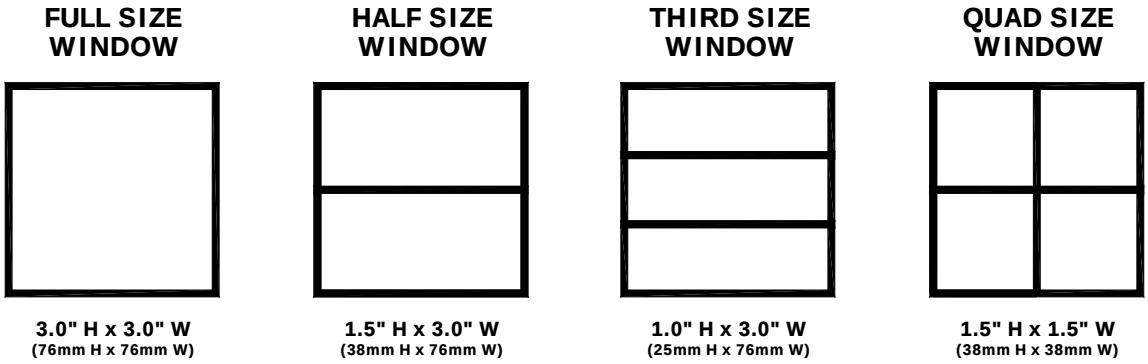
SYSTEM FRONT VIEW

SYSTEM REAR VIEW



ANNUNCIATOR WINDOWS

The Annunciator windows come in four sizes as shown below. Each window 'cell' is separated into segments as shown using dividers behind the window frame. This determines the number of alarms per cell.



Window Colors

The windows can be colored using filters placed behind the clear window assembly. Available colors include: White, Red, Amber, Green and Blue
Access to the colored filters is detailed in Appendix A.

Window Legends

Window legends are laser printed on transparency film and inserted into the window frame. This allows easy changes to the legends in the field. You also have the flexibility to choose any font type and size, permitting easy viewing of alarm legends. Access to the legend films is detailed in Appendix A.
(Legend Templates in Microsoft Excel are available from the factory upon request.)
There is an option to have the window legends engraved directly on the windows. This is provided at the factory.

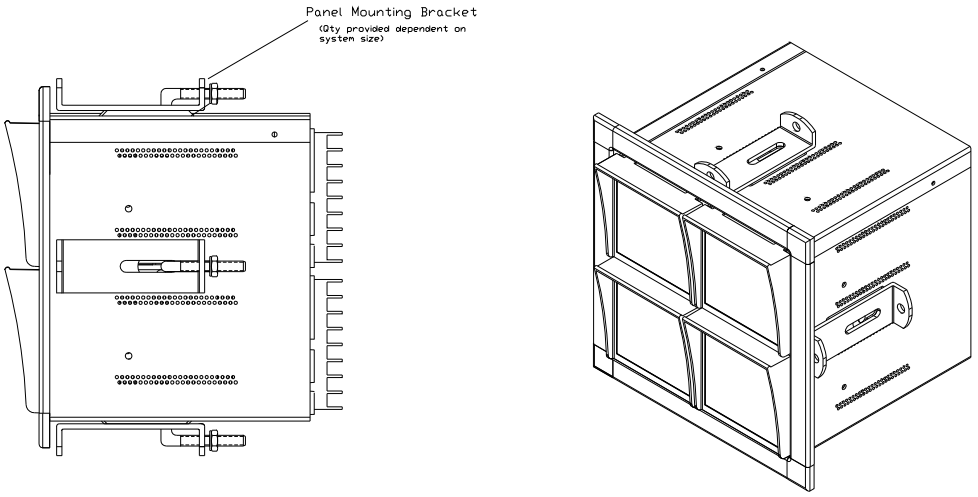
INSTALLATION

MOUNTING

The system is designed for Panel Mounting and 19" Rack Mounting, Other mounting methods such as NEMA Enclosures and Surface or Wall Mounting will have additional details and drawings provided by the factory.

Caution must be exercised when installing this, or any other type of equipment into racks or panels. Ensure that all equipment is properly secured using the specified hardware in accordance with equipment manufacturer's specifications.

Panel Mounting



The dimensions given in the tables below refer to the size of the panel cut out required for mounting and the front bezel height and width. The height and width are related to the number of cells in the system. Dimensions shown are in inches (mm).

# of Cells High	# of Cells Wide	Overall Height or Overall Width	Panel Cut-Out Height or Panel Cut-Out Width
1	---	5.0 (127)	4.06 (103)
2	2	8.47 (215)	7.53 (191)
3	3	11.94 (303)	11.0 (279)
4	4	15.40 (391)	14.47 (368)
5	5	18.88 (479)	17.94 (456)
6	6	22.34 (568)	21.41 (544)
7	7	25.81 (656)	24.88 (632)
8	8	29.28 (744)	28.34 (720)
9	9	32.75 (832)	31.81 (808)
10	10	36.22 (920)	35.28 (896)
11	11	39.69 1008)	38.75 (984)
12	12	43.16 (1096)	42.22 (1072)
13	13	46.63 (1184)	45.69 (1161)

Tolerance on all cut out dimensions is 0.0625 inches (1.5mm)

Example: A 3H x 4W Annunciator has a cut-out height of 11.0 and a cut-out width of 14.47.

Annunciator Depth (Behind Panel)	**Inches**	**Mm**
Maximum depth w/out rear cover	6.75	171
Maximum depth w/ rear cover	10.00	254

Minimum mounting panel thickness: 18 GA Galvanneal, 0.072 inches, 1.83 mm.

For system installation perform the following steps:

1 Mark cut-out dimensions on the surface where the annunciator is to be mounted, keeping in mind that the assembly may rest on the sill of the cut-out.

NOTE: Allow a minimum of 6 inches (150 mm) above the unit and behind the panel for proper ventilation.

2 Cut out and remove panel material.

3 Temporally remove the panel mounting clamps and Install the annunciator assembly through the panel cut-out (from the front of the panel). Position within the cut-out so that the weight is taken at the bottom of the unit.

4 From the rear of the panel, replace the annunciator mounting clamps along the bottom then top and sides screws to “finger tight” check the front of panel alignment on panel face etc

5 Fully tighten the mounting clamps.

19” Rack Mounting

The dimensions given in the tables below refer to the height of the 19” Rack based on the number of Cells High. In all configurations, the Annunciator will be 5 cells wide to maintain the 19” rack width. Dimensions shown are in inches (mm)

# of Cells High	Overall Rack Height	
	Inches	mm
1	3.5	89
2	7.0	178
3	10.5	267
4	14.0	356
5	17.5	445
6	21.0	534
7	24.5	623
8	28.0	712
9	31.5	801
10	35.0	890
11	38.5	979
12	42.0	1068
13	45.5	1157

Annunciator Depth	**Inches**	**Mm**
Maximum depth	6.75	171

For system installation perform the following steps:

Allow a minimum of 6 inches (150 mm) above the unit and behind the panel for proper ventilation.

1 Slide the annunciator assembly into the rack (from the front of the rack).

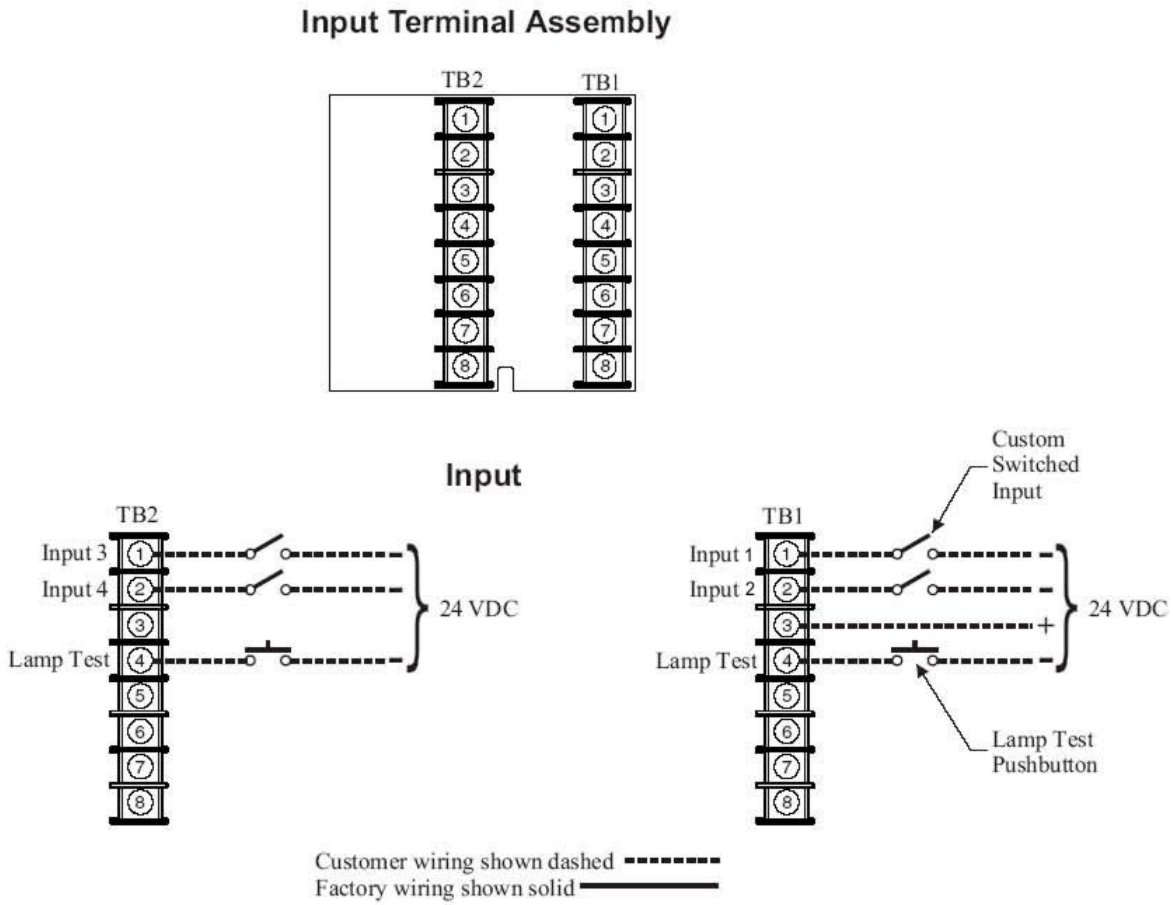
2 Secure using the recommended fixing screws into the rack mount rails.

WIRING

All wiring connections are made to the rear of the unit using barrier style terminal blocks that have a #6 screw which will accept a solid or stranded wire from 12-22 AWG.

Input Wiring

All inputs consist of a switched 24VDC signal provided by the customer. +24VDC needs to be bussed to all TB1 terminal 3's. The 24V return is switched into terminals 1 & 2 of TB1 and TB2. The number of alarms (or windows per cell) determines which inputs are used.
A terminal is provided for a customer supplied lamp test pushbutton. If a system wide lamp test pushbutton is desired, all TB1 and TB2 terminal 4's can be bussed together and connected to a single lamp test pushbutton connected to the 24V return.



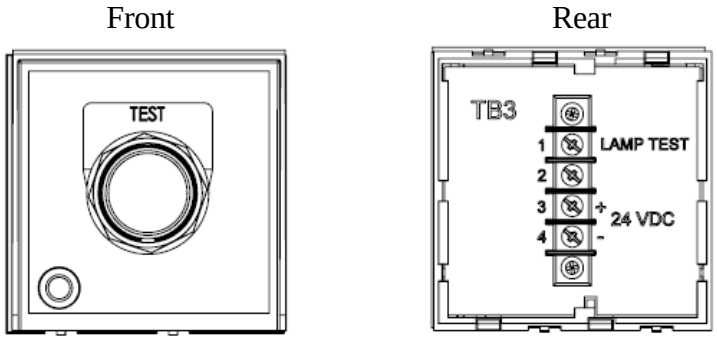
Window Size	Input #
1 per Cell	1
2 per Cell	1,2
3 per Cell	1,2,3
4 per Cell	1,2,3,4

Test Pushbutton Wiring (Option INTB)

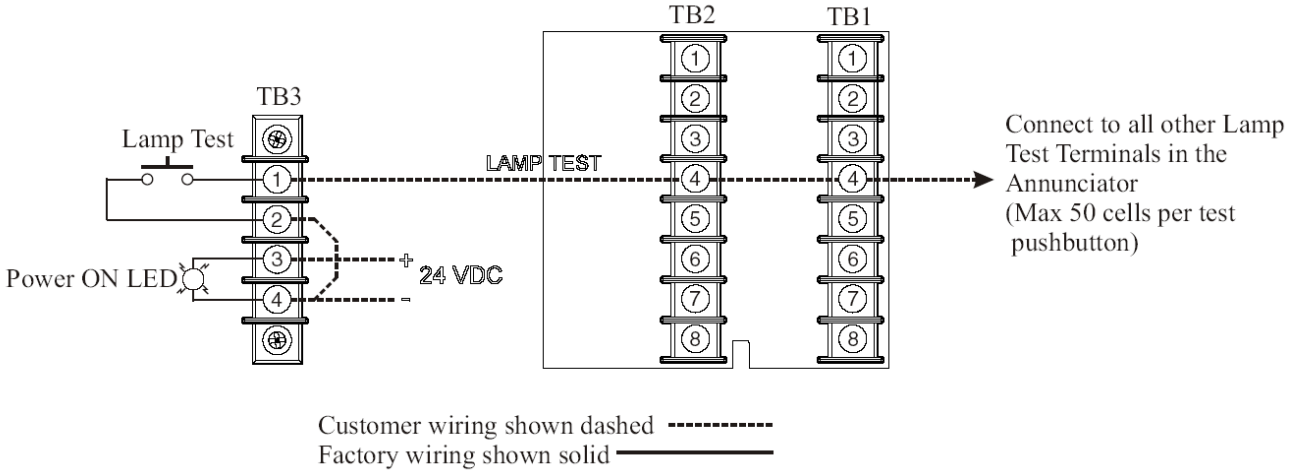
When option INTB is specified, the lower right cell is equipped with a Lamp Test Pushbutton that can be connected to all Lamp Test Terminals. In addition, the INTB option includes a Power ON LED to indicate that the system is under power.

The Integral Lamp Test Pushbutton and Power ON LED are connected to the rear mounted terminal block (TB3) as shown below. The Pushbutton can be connected to all Input Terminal Blocks (TB1 & TB2) Lamp Test Terminals as shown below. If desired, all of these lamp test terminals can be connected to a single Test Pushbutton or multiple pushbuttons if desired.

Test PB Terminal



Test PCB **Typical Input**



Note: Due to current requirements, there is a maximum of 50 Cells per test pushbutton regardless of window size.

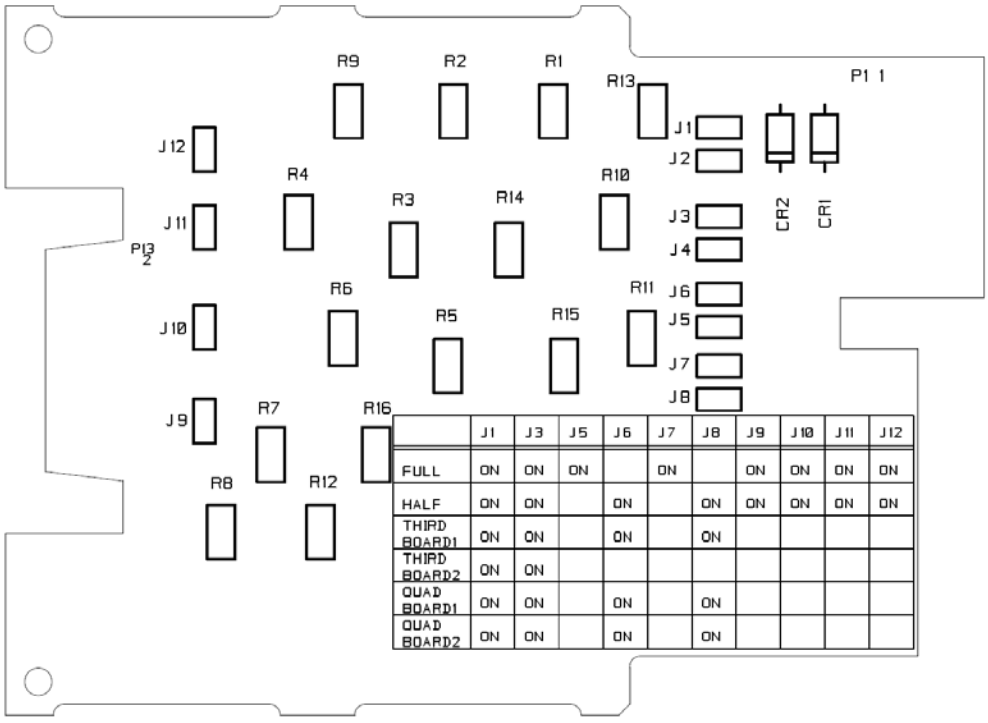
CONFIGURATION

INPUT BOARD

The input board has a series of jumpers provided to accommodate the different window sizes available (Full, Half, Third, Quad). The configuration selections are shown in the table below.

Note: All systems are pre-configured at the factory. Revert to this only if installing new input boards. For Third and Quad size windows, there are two boards supplied as noted below.

	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12
FULL	ON		ON		ON		ON		ON	ON	ON	ON
HALF	ON		ON			ON		ON	ON	ON	ON	ON
THIRD BOARD1	ON		ON			ON		ON				
THIRD BOARD2	ON		ON									
QUAD BOARD1	ON		ON			ON		ON				
QUAD BOARD2	ON		ON			ON		ON				



	J1	J3	J5	J6	J7	J8	J9	J10	J11	J12
FULL	ON	ON	ON		ON		ON	ON	ON	ON
HALF	ON	ON		ON		ON	ON	ON	ON	ON
THIRD BOARD1	ON	ON		ON		ON				
THIRD BOARD2	ON	ON								
QUAD BOARD1	ON	ON		ON		ON				
QUAD BOARD2	ON	ON		ON		ON				

SYSTEM SPECIFICATIONS

INPUTS

Switched Inputs

Voltage: 24VDC
Current Requirements per Input:

Window Size (# of inputs/cell)	**# of LED's per Input**	**Switched Current @24VDC**
1	8	0.163 A
2	4	0.082 A
3	2	0.041 A
4	2	0.041 A

Lamp Test Input

Voltage: 24VDC
Current: Based on number of inputs per table above. (Max. 0.163 A /Input)

DISPLAY

Window Sizes

Full Size (1 per Cell): 3.0 x 3.0" (76 x 76mm)
Half Size (2 per Cell): 1.5 x 3.0" (38 x 76mm)
Third Size (3 per Cell): 1.0 x 3.0" (25 x 76mm)
Quad Size (4 per Cell): 1.5 x 1.5" (38 x 38mm)

Window Color

White, Red, Yellow, Amber, Green, Blue

Legends

Laser printed on transparency film or Engraved

CONNECTIONS

Input Terminals

-Barrier Terminal Block, #6-32 screw. Accepts Ring, Spade Lug or Bare Wire
-Wire size: 12-22 AWG

MECHANICAL

Enclosures: Semi-flush Panel Mount, 19" Rack Mount, Surface (wall) mount
Size: Depends on Annunciator Configuration (# of cells high x wide)
Weight: 1.5 LB per cell (0.8kg per cell)

SERVICING

Ensure that the power supply to the unit is switched off before servicing.

MODULE REMOVAL

When removing a display module for replacement or configuration, it is best to shut off the power to prevent any false alarms or electric shock. When replacing any board, note the jumper settings and transfer them to the replacement module. If in doubt, refer to the module set-up instructions in this manual.

ESD

ESD (Electrostatic Discharge) can damage sensitive electronics when they are being handled or touched. The Annunciator has been protected against certain levels of ESD when touching the outside case or terminals. The internal electronics may be susceptible to ESD when handled, so proper care should be given to any exposed electronics or circuit boards. The following guidelines should be used to prevent any build-up of ESD and to minimize the products exposure to it.

1. Prevent static build-up by using conductive paints, carpeting, mats and metal surfaces. Use appropriate grounding techniques, including wrist and heel straps for personnel.
2. Store or transport electronic devices, parts or assemblies in conductive bags or bins.
3. Only perform repairs at an appropriate repair station.
4. When handling electronic assemblies or printed circuit boards, try to avoid touching traces on the printed circuit board or static sensitive devices.
5. Remember that tools are a source of static electricity. Only use grounded soldering irons. Ground tools before using them to bleed off any charge build-up.
6. Discharge yourself before touching or handling any electronic assembly or device. This can be done by touching a good ground point before touching any electronic devices or assemblies. Preferably, discharge any static charge through a high impedance such as a wrist or heel strap.

APPENDIX A

WINDOW ASSEMBLY DETAILS

The Annunciator uses a common window assembly for all window configurations. The different window options are created using dividers (for the 4 window sizes) and colored filters for the different window colors (white, red, blue, green, amber, yellow). The assembly drawings on the next page identify the different options available.
A typical window consists of the following parts:

- Transparency film with Legends
- Colored Filter if required (red, blue, green, amber, yellow)
- 2 White Diffusers (to eliminate LED hotspots)

All of these parts are pressed into the clear window, which is inserted into the window frame.

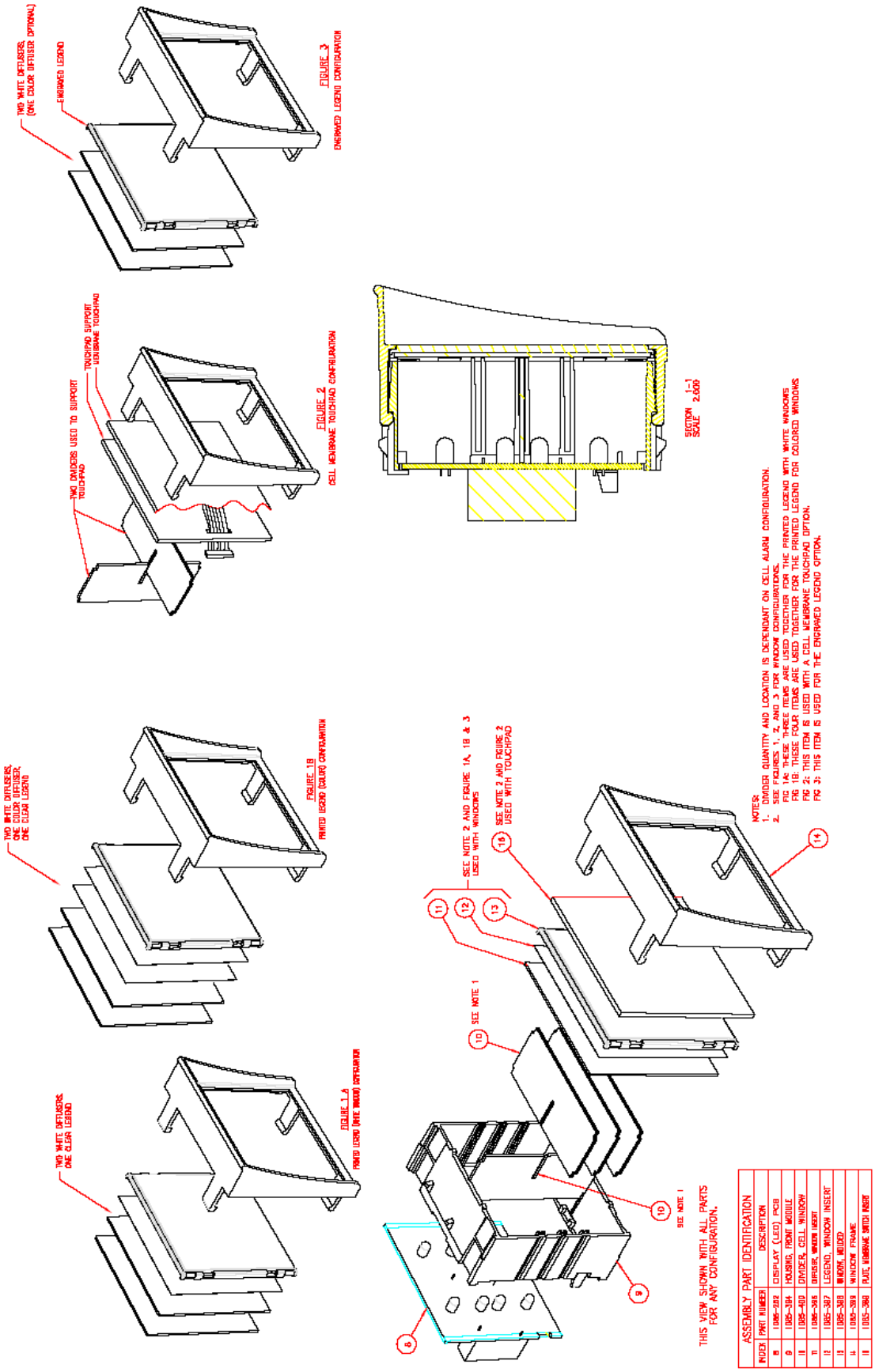
Window Legends

The Annunciator Window Legends are typically printed on clear transparency film, which is provided with the Annunciator. There is an option to engrave these legends directly on the window (Option E). For printing of legends on the transparency film, the Software CD will include a template in Microsoft Excel. You type the legend in the window template that matches your size window and print on a suitable printer. (A laser printer is recommended or any type that is compatible with printing on Transparency film.)

Window Colors

The Annunciator Window Colors are provided through colored filters, which are provided with the Annunciator. In cases where several different window colors are required for an individual Cell (option IMC), the laser printed transparency will be colored in place of the color filters. In these cases, color Laser Printer should be used.
Note: All legends and pre-printed colors will be provided with the Annunciator if the details are provided before the unit ships.

Window Assembly



APPENDIX B

TELEPHONE / FAX NUMBER LIST

This errata sheet provides an easy-to-use reference for all major departments. Use these numbers for ordering equipment, application assistance, technical support, and scheduling field service

Please Note: Your instruction manual may contain other phone and fax numbers; this list will take precedence.

MAIN OFFICE

AMETEK Power Instruments – Rochester
255 North Union St., Rochester, NY 14605

DEPARTMENT/PRODUCT LINE	TELEPHONE	FAX
MAIN PHONE	585-263-7700	585-262-4777
FIELD SERVICE	800-374-4835	585-238-4945
REPAIRS/RETURNS	888-222-6282	585-238-4945
SALES SUPPORT	800-950-5503	585-454-7805

FAR EAST OFFICE

AMETEK Power Instruments
271 Bukit Timah Road, #03-09
Balmoral Plaza, Singapore 259708
Tel: 65-732-8675
Fax:65-732-8676

UK OFFICE

AMETEK Power Instruments
Unit 20, Ridgeway
Donibristle Industrial Estate
Dunfermline, UK
Tel: 1383-825630
Fax:1383-825715

PROCEDURES FOR FACTORY REPAIR AND RETURN

A. Obtain a Returned material Authorization (RMA) number by calling AMETEK Repair Sales and giving the following information:
   1. ***Model*** and ***Serial Number*** of the equipment
   2. Failure Symptom – **Be Specific**
   3. Approximate date of installation
   4. The site name and address of the failed equipment
   5. Complete shipping information for the return of the equipment if other than the operating site
   6. Name and telephone number of person to contact if questions arise.

B. Enclose the information with the equipment and pack in a commercially accepted shipping container with sufficient packing material to insure that no shipping damage will occur. Mark the outside of the container with the RMA number. Ship to the appropriate location: **Attention:** Repair Department

AMETEK Power Instruments
255 North Union Street
Rochester, New York 14605 USA
Tel: (888) 222-6282
Fax: (585) 238-4945

C. Your emergency equipment will be tested, repaired and inspected at the factory. Factory turnaround is ten working days or less (excluding shipping time).

D. For emergency service or repair status information, please contact the AMETEK Repair Sales Engineer at (800) 374-4835.

WARRANTY

AMETEK warrants equipment of its own manufacture to be free from defects in material and workmanship, under normal conditions of use and service. AMETEK will replace any component found to be defective, upon its return, transportation charges prepaid, within one year of its original purchase. AMETEK will extend the same warranty protection on accessories that is extended to AMETEK by the original manufacturer. AMETEK assumes no responsibility, expressed or implied, beyond its obligation to replace any component involved. Such warranty is in lieu of all other warranties expressed or implied.