



MODEL 910 ANNUNCIATOR

INSTRUCTION AND OPERATING MANUAL

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Please Read This First!

Explanation of Symbols

The following symbols are used with this product and instruction manual for compliance with UL 61010B-1, Electrical Measuring and Test Equipment.



Caution (refer to the product instruction manual for installation and safety information)

IMPORTANT NOTES

THE ANNUNCIATOR DESCRIBED IN THIS MANUAL REQUIRES A HIGH VOLTAGE AC OR DC POWER SOURCE. THE FIELD CONTACT VOLTAGE MAY BE SELECTED FOR 24/48/125V DC OR 120V AC

ENSURE THAT ALL INSTALLTION/TESTING AND COMMISIONING IS CARRIED OUT BY TRAINED AND QUALIFIED PERSONNEL TAKING ANY RELEVANT PRECAUTIONS CONCERNING HAZARDOUS VOLTAGES

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

STANDARD DEFAULT SETTINGS ARE INDICATED IN THIS MANUAL TO WHICH MODEL 910 ANNUNCIATORS WILL BE SET SHOULD NO SPECIFIC CONFIGURATION OR SET UP DETAILS BE SUPPLIED WITH PURCHASE ORDERS

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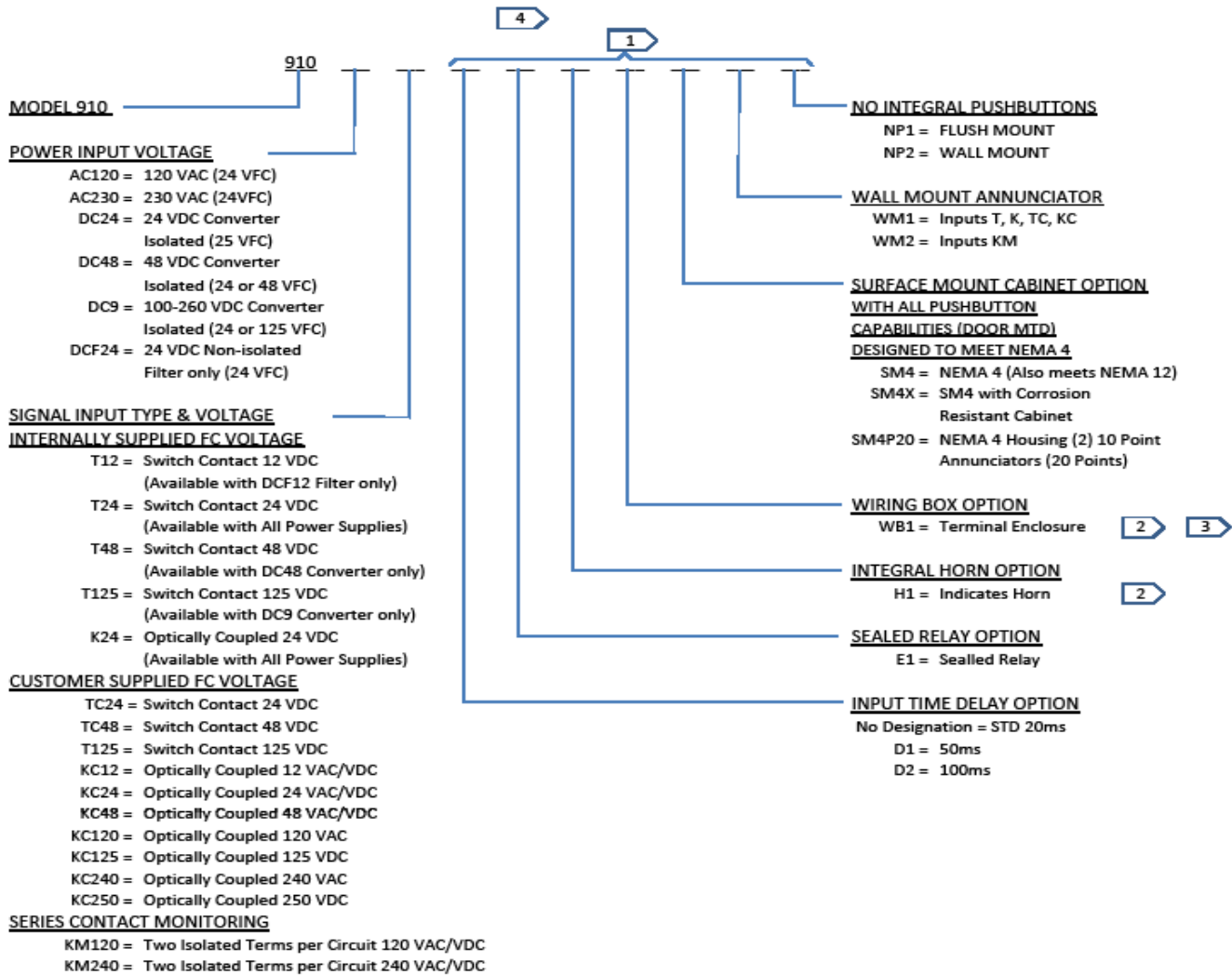
FEATURES DESCRIPTION

1.1 DESCRIPTION

The Model 910 annunciator is a self-contained unit comprising ten input alarm circuits on a single printed wiring board. Standard features include integral LED indication, common control pushbuttons, AC or DC power supply, output reflash relay, external audible relay, NO/NC field contacts, seven field programmable operational sequences and packaging per DIN 43700 standard. Included, as optional features are integral audible signal device, wiring box terminal enclosure, switch contact inputs or optically coupled inputs (AC or DC) and weatherproof surface mounted cabinet and watertight doors designed to meet NEMA 4 and 12 environments.

The front panel includes a power-on LED, an LED for each point adjacent to each of the ten nameplate windows and four pushbuttons (ACK, FL RST, RST and TEST). RST is a dual-purpose pushbutton serving as manual reset for sequences AM and FRM and as first-out reset for sequences TFS and TFSFR. (See Section 3).

1.2 STANDARD MODEL NUMBER EXPLANATION



MODEL 910 WATERTIGHT DOOR
WATERTIGHT DOOR OPTION

- H1 = Watertight Door with Locking T Handle (NEMA 12)
- T1 = Watertight Door with 1/4-20 Bolts (NEMA 4)
- T2 = Watertight Door with 1/4-20 Bolts (NEMA 4X Stainless Steel)

FIELD DRAWINGS

910100-1	Dimensional Outline, Model 910* Flush Mount Cabinet & Option "WB1" Wiring Box
910100-RD-1	Dimensional Outline for Remote Display
910100-WM1-1	Dimensional Outline, Wall Mount Cabinet
910100-SM4-1	Dimensional Outline, Surface Mount Enclosure (NEMA 4 & 12)
910100-SM4P20-1	Dimensional Outline, Surface Mount Enclosure, 2 units (20 Points) in one SM4 Enclosure
910100-DH/DT-1	Dimensional Outline, Flush Mount Cabinet with Watertight Door
910450-TERM-1	Terminal Arrangement & Input-Output Functions
910450-K*-1	Wiring Diagram for Input Option "K*" (Optically Coupled)
910450-KM*-1	Wiring Diagram for Input Option "KM*" (Series Contact Monitoring)
910450-T*-1	Wiring Diagram for Input Option "T*" (Switch Contact)

- NOTES**
- 1 If Options are not Specified, No Option Numbers will be required. (Standard Flush Mount will be supplied)
 - 2 Not Available with "SM" Option
 - 3 Not Available with "WM" Option
 - 4 Not All Options Available are shown
Consult Factory for Special Requirements

SPECIFICATIONS

2.1 INPUT POWER

Model

AC120, 105 to 130 VAC, 50-60 Hz, transformer isolated

AC230, 210 to 260 VAC 50-60 Hz, transformer isolated

DC24, 24 VDC nominal, 20-30 VDC, converter isolated (maximum ripple 10%)

DCF24, 24 VDC nominal, 20-30 VDC, non-isolated filter only

DC48, 48 VDC nominal, 40-60 VDC, converter isolated (maximum ripple 10%)

DC9, 100-280VDC, converter isolated (maximum ripple 10%)

Transformer/converter isolation -- 1500 VRMS

Power consumption - Less than 10 VA, all Models

Flasher - Integral only no provisions for external SYNC

2.2 OPERATING TEMPERATURE RANGE

0 to 50°C Ambient

2.3 HUMIDITY

5% to 95% Non-condensing

2.4 STORAGE TEMPERATURE RANGE

-55°C to +85°C

2.5 SIGNAL INPUTS

INPUT TYPE	NOMINAL INPUT VOLTAGE	MINIMUM MAXIMUM SIGNAL VOLTAGE	% OF NOMINAL W/O COMPONENT DAMAGE	MAXIMUM CURRENT INPUT	MAXIMUM SERIES RESISTANCE	MINIMUM LEAKAGE RESISTANCE
T24	24VDC	20-30	200%	3 mA	6.5K	45K
T48	48VDC	40-60	200%	3 mA	5.0K	65K
T125	125VDC	105-140	135%	3 mA	5.0K	150K
TC24	24VDC	20-30	200%	3 mA	6.5K	45K
TC48	48VDC	40-60	200%	3 mA	5.0K	65K
TC125	125VDC	105-140	135%	3 mA	5.0K	150K
K24	24VDC	20-28	200%	3 mA	10K	25K
KC24	24VAC/DC	20-28	200%	3 mA	10K	25K
KC48	48VAC/DC	40-56	200%	3 mA	10K	50K
KC120	120VAC	100-130	115%	3 mA	10K	100K
KC125	125VDC	105-140	150%	3 mA	10K	100K
KC240	240VAC	210-250	110%	3 mA	10K	100K
	250VDC	210-260	110%	3 mA	10K	100K
KM120	120VAC/DC	105-130	110%	17 mA	N/A	N/A
KM240	240VAC/DC	210-250	110%	13 mA	N/A	N/A

Notes:

- Signal contact series resistance (maximum resistance of wiring and contacts to be recognized as a closed contact).

Signal input leakage resistance (minimum resistance in parallel to input terminals to be recognized as an open contact).

Maximum series resistance and minimum leakage resistance values are valid if field contact voltage is $\pm 15\%$ of nominal.
- Inputs of 24V or higher have been tested to meet or exceed the requirements of IEEE Std. 472-1974 and ANSI C 37 90-1978 without damage or false Indication.
- Isolation voltage rating for input opto-isolator is 1066 VRMS continuous and 1770 VRMS surge.

2.6 RESPONSE TIME

Response time is defined as time between application of step voltage at signal input and recognition of the voltage change as an alarm. System will not respond to momentary signals shorter than response time. Standard response time is 20mS-25mS. When opto-isolated inputs are specified the response time will be the specified response time *plus* 20-60mS. (See Para 2.9)

2.7 RESOLUTION TIME

Resolution time is defined as minimum time between the start of two signals in a First-Out group required by the system to recognize only the first occurring signal as First-Out. Resolution time is 5mS.

2.8 RELAY ISOLATION

1500 VRMS from contacts to system common
750 VRMS across open contacts

2.9 TIME DELAY (RESPONSE TIME)

The minimum delay is 20-25mS.
Time delay can be extended using Annunciator Configurator software.

2.10 OUTPUT RELAY RATINGS (HORN RELAY, REFLASH RELAY)

CONTACT RATING

5A @ 250VAC or 28VDC RESISTIVE, SEALED RELAY
(STANDARD, "IE option" SEALED RELAY)
500 mA @ 125VAC or 28VDC LAMP LOAD
500 mA @ 125VDC RESISTIVE LOAD ONLY
125 mA @ 125VDC LAMP LOAD ONLY

WARNING!

EXPOSURE TO SOME CHEMICALS MAY DEGRADE THE SEALING PROPERTIES. RELAYS SHOULD BE INSPECTED PERIODICALLY FOR SIGNS OF ATTACK (CRACKING, SWELLING, OR DEFORMATION). REPLACE PC BOARD IF DEGRADATION IS OBSERVED.

OPERATIONAL SEQUENCES

3.1 SEQUENCE SELECTIONS

The seven operating sequences are AF, AFNL (non lock-in) AM, FR, FRM, TFS & TFSFR. Inputs can be assigned to one of four groups. Each group can have its own operating sequence. This is implemented using the Annunciator Configurator software.

- AF - Basic Flashing (ISA Type A)
- AFNL - Basic Flashing non-lock-in (ISA Type A-4)
- FR - Basic Flashing with Separate Horn Silence (ISA Type A-1-2)
- AM - Basic Flashing with Manual Reset (ISA Type M)
- FRM - Basic Flashing with Separate Horn Silence and Manual Reset (ISA Type M-1-2)
- TFS - Tri-Flash First Out Sequences (ISA Type F3A-3)
- TFSFR - Tri-Flash First Out with Separate Horn Silence (ISA Type F3A-1-2-3)

Functional test is included on all Models. The annunciator may be tested at any time. If points are in alarm when the TEST button is pressed they will show as acknowledged after the test is complete. If an alarm occurs while in a test sequence, the point will show as acknowledged upon completion of the test.

The Model 910 supports a facility for first out grouping between separate units. This allows a first up group to be spread across the connected units. The alarms to be included must be configured in Alarm Group 1 and have the same sequence selected in each unit. Note that alarms in Alarm Groups 2, 3 and 4 do not have this feature. Any First up sequences in those groups will be local to a unit.

The first up signal is connected between units by commoning together their Z terminals. The 0 volts must also be commoned between the units. Any unit getting a first up alarm will then signal the others and prevent them from showing a first up. The signal will be cleared when the first up is reset. Up to 10 units (100 points) may be grouped together.

Sequence selection is accomplished using the Annunciator Configurator software. For more information see Section 9.

Sequence Charts

Operational Sequence “AF” (ISA A)		
Input Status	Visual	Audible
Alarm	Flashing	On
Acknowledge	Steady	Off
Return to Normal	Off	Off

Operational Sequence “AFNL” (ISA A-4)		
Input Status	Visual	Audible
Alarm	Flashing	On
Normal before Acknowledge	Off	Off
Acknowledge	Steady	Off
Return to Normal	Off	Off

Operational Sequence “FR” (ISA A-1-2)		
Input Status	Visual	Audible
Alarm	Flashing	On
Acknowledge	Flashing	Off
Flash Reset	Steady	Off
Return to Normal	Off	Off

Operational Sequence “AM” (ISA M)		
Input Status	Visual	Audible
Alarm	Flashing	On
Acknowledge	Steady	Off
Return to Normal	Steady	Off
Reset	Off	Off

Operational Sequence “FRM” (ISA M-1-2)		
Input Status	Visual	Audible
Alarm	Flashing	On
Acknowledge	Flashing	Off
Flash Reset	Steady	Off
Return to Normal	Steady	Off
Reset	Off	Off

Operational Sequence “TFS” (ISA F3A-3)			
Input Status	First Visual	Subsequent Visual	Audible
First Alarm	Intermittent Flashing		On
Subsequent Alarm		Flashing	On
Acknowledge	Slow Flash	Steady	Off
Reset	Steady	Steady	Off
Return to Normal	Off	Off	Off

Operational Sequence “TFSFR” (ISA F3A-1-2-3)			
Input Status	First Visual	Subsequent Visual	Audible
First Alarm	Intermittent Flashing		On
Subsequent Alarm		Flashing	On
Acknowledge	Intermittent Flashing	Flashing	Off
Flash Reset	Slow Flash	Steady	Off
Reset	Steady	Steady	Off
Return to Normal	Off	Off	Off

INPUT OPTIONS

4.1 INPUT POWER

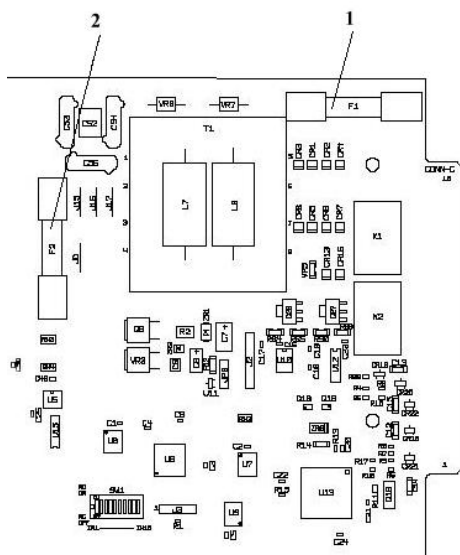
Input power options include 120VAC/240VAC @ 50-60 Hz, 24VDC, 48VDC, 125VDC input isolated and 24VDC non-isolated with filter only.

POWER-ON INDICATOR AND FUSES

Models with T24, T48, T125 or K24 type inputs are designed to operate from the internal field contact supply. On these Models the input power line is fused as well as the field contact output voltage. The power-on indicator, (green LED) monitors the internal logic supply voltage. Therefore, if the F1 fuse blows or input power is lost, the power-on LED will go off.

Models designed for external customer supplied FC voltage (TC24, TC48, TC125, KC24, KC48, KC120, KC125, KM120, KM240) are supplied with the power-on LED connected to monitor logic supply and input power only, and the FC fuse is not used. The user should ascertain that his field contact supply is properly fused according to system and other requirements.

MAIN PRINTED CIRCUIT BOARD



(1) INPUT POWER	INTERNAL	FUSE RATING CHART	
INPUT VOLTAGES	FUSE	RATING	P / N
24VDC	F1	1/2A 250V	110738
120VAC	F1	2/10A 250V SD	110698
230VAV	F1	1/16A 250V SD	110699
24VDC ISOLATED	F1	1/2A 200V SD	110739
48VDC ISOLATED	F1	1/4A 250V SD	110752
100-250VDC ISOLATED	F1	2/10A 250 SD	110698

FC (+) SUPPLY IS FUSED INTERNALLY AS SHOWN BELOW. FUSE IS NOT IN CIRCUIT IF CUSTOMER PROVIDES F.C. POWER SUPPLY.

(2) SIGNAL CONTACT	INTERNAL	FUSE RATING CHART	
INPUT VOLTAGES	FUSE	RATING	P / N
ALL	F2	1/16A AGC 3AG	110797

4.2 SWITCH CONTACT INPUT

The standard input is via a resistor network design to couple the field voltage into the sensing electronics. This acts as protection from noise interference, spikes and overvoltage.

- T12 - SWITCH CONTACT INPUT, 12VDC (internally supplied FC voltage)
- T24 - SWITCH CONTACT INPUT, 24VDC (internally supplied FC voltage)
- T48 - SWITCH CONTACT INPUT, 48VDC (internally supplied FC voltage)
- T125 - SWITCH CONTACT INPUT, 125VDC (internally supplied FC voltage)
- TC24 - SWITCH CONTACT INPUT, 24VDC (cust supplied FC voltage)
- TC48 - SWITCH CONTACT INPUT, 48VDC (cust supplied FC voltage)
- TC125 - SWITCH CONTACT INPUT, 125VDC (cust supplied FC voltage)

4.3 OPTICALLY COUPLED INPUT

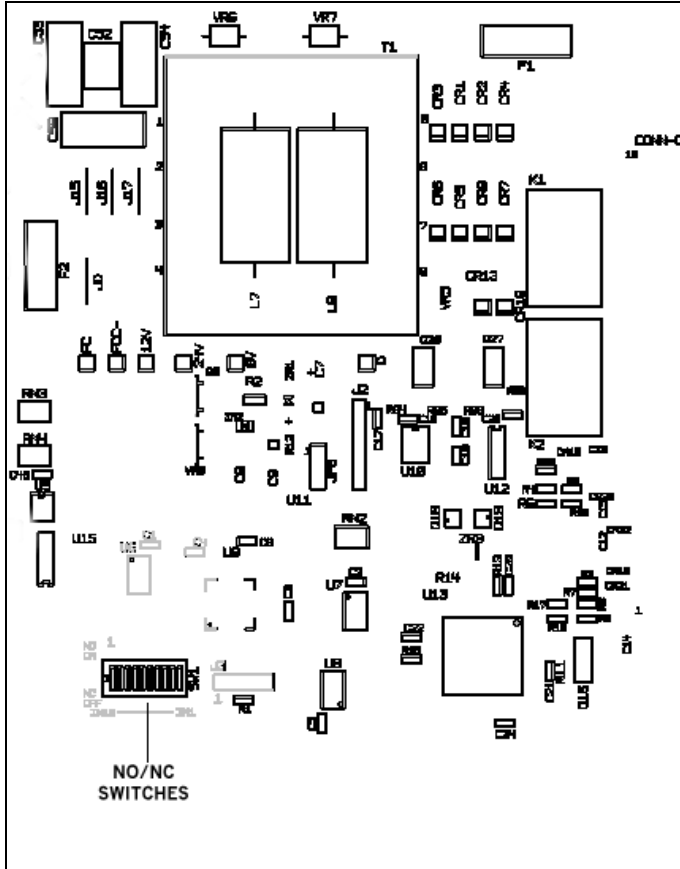
Optional opto-isolated inputs include internal current-limiting resistors feeding into a bridge circuit so that the input may be either AC or DC voltage. The output of the bridge is filtered and drives the input of the opto-isolator. The output of the opto-isolator is connected to the input of the IC. The integral field contact supply is a nominal 24 VDC only. It is isolated from the logic supply. When used with T24, T48 or T125 inputs FCC(-) must be connected to OV on the rear terminal blocks. With K24 & all KC and KM opto-isolated inputs this connection is not used.

The negative side of the field contact supply is internally connected to one side of each bridge. Input and the positive side is connected per wiring diagrams (Paragraphs 8.3, 8.4, 8.5). The customer may use his own supply for field contact voltages by ordering TC24, TC48, or TC125, or KC24, KC48, KC120, KC125, KM120 or KM240 input options. For TC inputs, the negative side of the power supply must be connected to the OV terminal. For KC inputs the negative side is connected to the FCC(-) terminal. Note that factory jumpers are installed based on input type ordered, and wiring must be in accordance with the wiring diagram for that type input.

- KC12 - OPTICALLY COUPLED, 12VDC (cust supplied FC voltage)
- K24 - OPTICALLY COUPLED, 24VDC (internally supplied FC voltage)
- KC24 - OPTICALLY COUPLED, 24VAC/VDC (cust supplied FC voltage)
- KC48 - OPTICALLY COUPLED, 48VAC/VDC (cust supplied FC voltage)
- KC120 - OPTICALLY COUPLED, 120VAC (cust supplied FC voltage)
- KC125 - OPTICALLY COUPLED, 125VDC (cust supplied FC voltage)
- KM120 or 240 (Series Contact Monitoring). Ref Paragraph 9.4.

4.4 NO/NC SELECTION

Switch way 1 through 10 on bank SW1 are used to select (NO) or (NC) operation for inputs 1 through 10 respectively. For NO contacts the switch is in the ON position.



4.5 INPUT TIME DELAY

The standard input time delay is factory set at 20-25mS. Input time delay may be extended using the Annunciator Configurator software. For more information please see Section 9.

OUTPUT OPTIONS

5.1 SEALED RELAY

The standard relay output options (horn relay & reflash relay) use sealed relays. Specify E1 as part of your Model number. Relay ratings are detailed in the specification section of this manual.

5.2 HORN RELAY

The horn relay is selected as a normally energized or normally de-energized relay operation using the Annunciator Configurator software. For more information see Section 9. Form C contacts are brought out to the main terminal block for complete flexibility in connecting an external horn.

5.3 REFLASH RELAY

The reflash relay operates on first alarm. After ACK, it momentarily changes state on subsequent alarms. The reflash relay is suppressed by the test function.

5.4 INTEGRAL HORN

The Model 910 annunciator is supplied with a horn relay. If an integral horn is required option H1 must be specified as part of the Model number. The integral horn sound output is approximately 75 db at 10 feet.

ENCLOSURE OPTIONS

6.1 WIRING BOX

The standard Model 910 annunciator includes rear-mounted terminals, which are exposed to ease customer field wiring. If enclosed terminals are preferred specify Option WB1, which will allow access via removable, rear cover plate.

6.2 SURFACE MOUNT CABINET

When the Model 910 annunciator is to be subjected to harsh environment or when the standard flush mounting is not acceptable, specify option “SM4”. This is a surface mount cabinet which is designed to meet Nema 4 and Nema 12 application conditions. Option “SM4X” is option “SM4” with a stainless steel cabinet. Option “SM4P20” is a Nema 4 housing containing two Model 910 annunciators (20 points).

Note: Pushbuttons and horn must be ordered separately. They are not automatically furnished as part of the SM* option.

6.3 WALL MOUNT CABINET

Model 910 – WM* Nema 1 Wall Mount
WM1 for T K TC or KC Signal Inputs
WM2 for KM Signal Inputs

6.4 WATERTIGHT DOORS

Model 910DT1 for Nema 4 Applications
Model 910DH1 for Nema 12 Applications

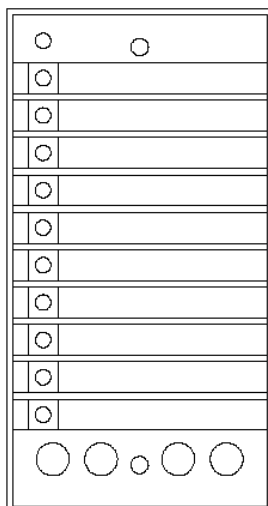
MOUNTING & INSTALLATION

7.1 CONFIGURATION AND SETUP

To achieve desired system operation, the user may be required to set user changeable options by changing NO/NC switch positions on the internal printed wiring board or perform a software configuration using the 9 pin serial connector. To check or change these options or to gain access to the slip-out window legend card, it will be necessary to remove the front display and internal logic assembly module from the annunciator enclosure. This assembly removal is accomplished by pulling out on the two front panel fasteners approximately 3 mm to disengage them and then continuing to pull straight out to withdraw the complete internal assembly.

After the nameplate legend card is completed and installed, and after all switches are placed in their proper position for desired NO/NC field switch operation, the internal assembly may be reinserted into the enclosure. For software configuration, the 9 pin serial connector and cable must be routed out the front of the 910 unit before you re-insert the electronics. Slide the printed wiring board into the internal enclosure guides and push in on the module front plate (not the disengaged fasteners) until the module assembly is fully seated into the rear connectors. The two fasteners should then be pushed in to reengagement position to secure the module in place. When software configuration is completed, you can remove the electronics and tuck the 9-pin connector and cable inside the unit.

7.2 LEGEND CARD



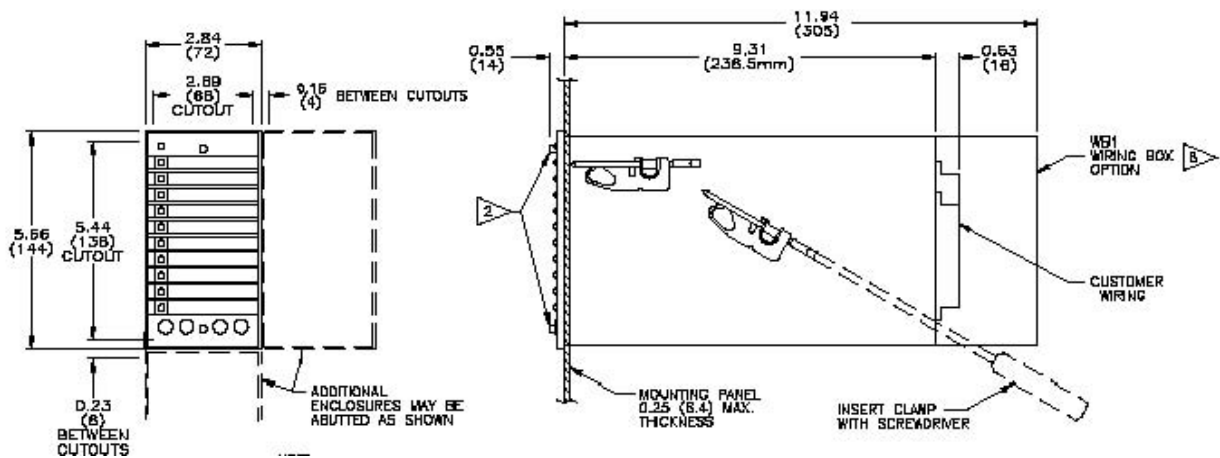
MODEL 910 ANNUNCIATOR
12 PITCH TYPE, 2 LINES 22 CHARACTERS PER LINE
TYPICAL FOR EACH OF 10 NAMEPLATES

Legends for point identification are provided by a slip-out card behind a clear overlay. Legends may be typed or printed by any legible means. Each legend area is 10 x 53 mm and will easily accommodate two lines of typing or printing with up to 22 characters per line.

7.3 FLUSH MOUNT CABINET INSTALLATION

Physically, the front panel of the annunciator is a standard DIN size of 72 x 144 mm and is designed for panel mounting in a standard DIN cutout of 68 x 138 mm. The unit is mounted with DIN type clamps (43 835, Form B). Behind the panel depth is approximately 252 mm, or 305 mm if an optional wiring box is added.

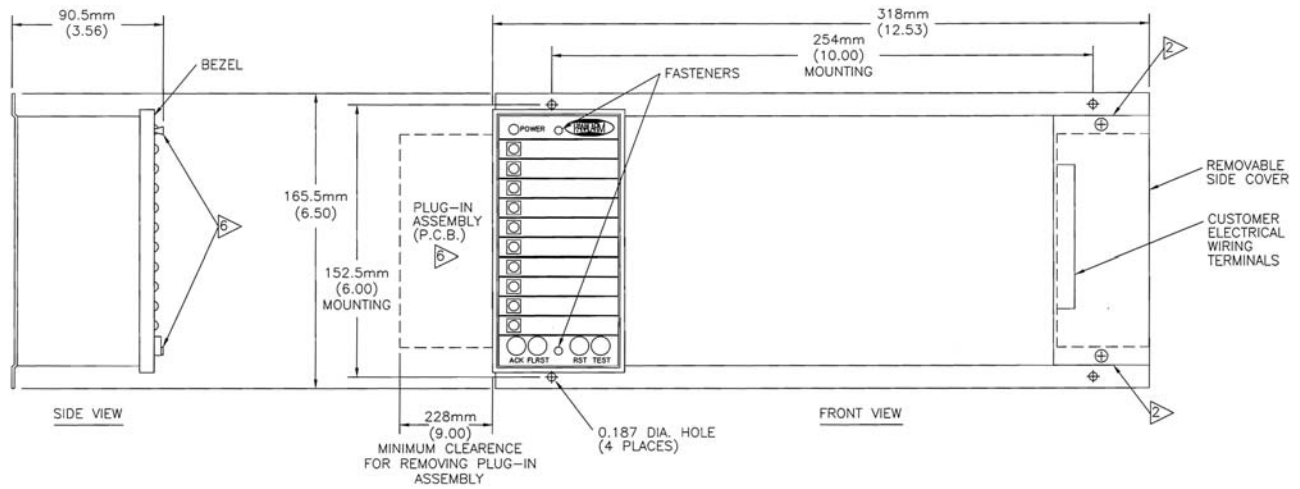
To mount a Model 910 annunciator, remove DIN clamps and insert assembly into the cutout from the front. Push the annunciator all the way through the cutout. Slip the DIN clamp fastener on the end of a 1/8 inch straight blade long shank screwdriver (minimum 10" long). Engage front slot of clamp to front screw head at about a 45° angle. Pivot clamp and screwdriver up to engage the rear clamp slot to the rear screw head. Now tighten clamp against the front panel, turning clockwise with the screwdriver. (See detail below).



Notes:

1. All dimensions are in inches with corresponding millimeter dimensions in parentheses.
2. To remove – pull on fasteners. This releases module and front display from cabinet, pull straight out to complete removal.
To replace – slide module into cabinet. Press on module front plate (not fasteners) to seat module into connectors. Then push on fasteners to secure module.
3. Terminal blocks are wired from rear.
4. Individual point window sizes are 10mm (0.39) x 53mm (2.09) wide. This allows 2 rows of 22 characters per row using standard 12 pitch typewriter type, (0.120 inch high characters).
5. Window legend paper is accessible by removing front module.
6. Two conduit openings, one at top and one at bottom for one inch conduit fittings.

7.4 WALL MOUNT CABINET INSTALLATION

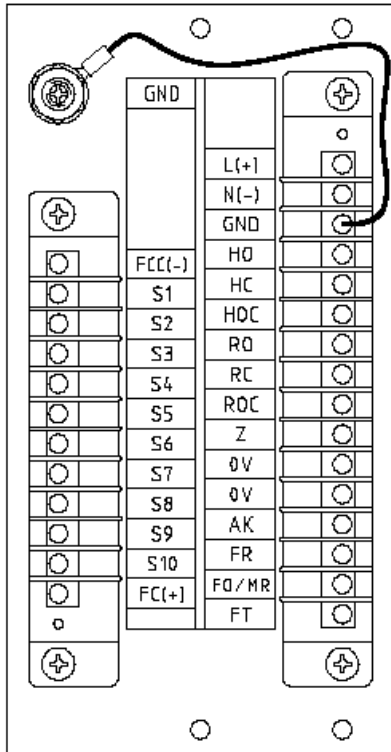


Notes:

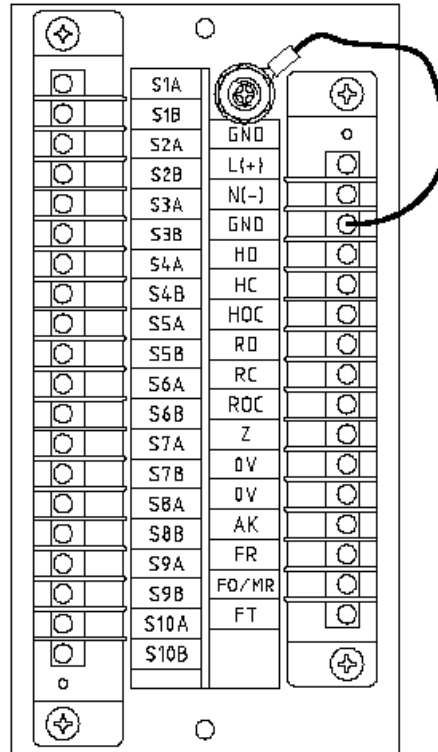
1. All dimensions are in millimeters with corresponding inch dimensions in parenthesis.
2. Two conduit openings, one at top and one at bottom for one inch conduit fittings.
3. Terminal blocks are wired from the front side.
4. Individual point window sizes are 10mm (0.39) x 53mm (2.09) wide. This allows 2 rows of 22 characters per row using standard 12 pitch typewriter type, (0.120 inch high characters).
5. Window legend paper is accessible by removing front display.
6. Remove plug-in assembly as follows:
 - A. Pull front display straight out using the fasteners.
 - B. Grasp top and bottom of bezel assembly and pull straight out.
 - C. Pull plug-in assembly out from left side of enclosure.

To replace, reverse above procedure except when reinstalling front display, press on front plate (not fasteners) to seat display into connector, then push in on fasteners.

WIRING



T, K, TC, KC Signal Input Version

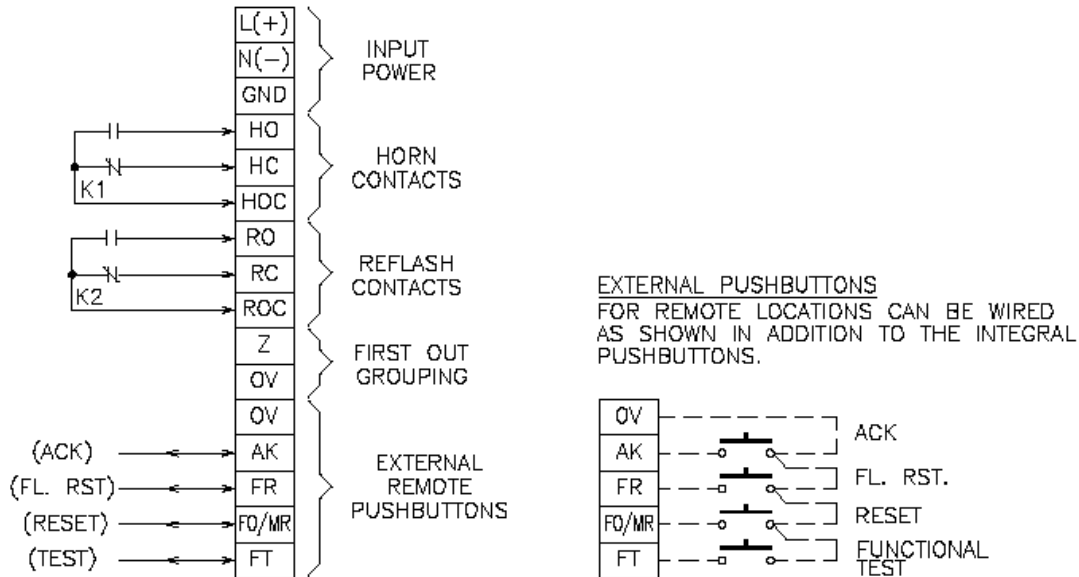


KM Signal Input Version

Two terminal blocks are used for all external connections. One twelve-point block (twenty-point on KM version) includes 10 inputs and connections for field contact supply. The other terminal block is 16 points and includes input power, horn relay contact out, reflash relay contact out group bus terminal, and terminals for external or interconnecting pushbuttons. Both horn relay and reflash relay may be operated in a normally de-energized or normally energized mode by using the Annunciator Configurator software.

8.1 ACCESSORY WIRING

If more than one Model 910 is employed each Model may operate with a separate sequence but with common pushbuttons. Integral pushbuttons are always operational but connections for remote PB s are furnished When remote PB s are used either the integral or the remote PBs will operate the annunciator. With multiple Model 910s if the pushbuttons are wired together externally any of the integral or remote PB s will operate all annunciators. Removal of an annunciator module wired in common with others will not affect operation of the remaining units.



8.2 INPUT WIRING

For details on input wiring see Appendix A. Connection types are:-

T & TC
 K & KC
 KM
 Ground Fault Monitor

SOFTWARE CONFIGURATION

9.1 INTRODUCTION

Model 910

The 910 is a fixed size 10-point annunciator. Most of the configuration of the system is made using software which makes the initial set up and any updates very simple. Only the NO/NC input option is selected with on-board switches.

Application

The 910 Configuration application is used to create, edit and download annunciator configurations. It connects directly to the annunciator via a serial port on the PC. A configuration may be created without a connection to the annunciator and then downloaded later. The configuration information is held as a file on the PC which may be edited if a change is required.

If a configuration is edited checks are made to ensure that the correct file is downloaded to the annunciator. If more than one version of the 910 configuration software is used then more than one version of the configuration file can exist. It is up to the user to ensure that copies of the configuration are kept up to date. If the application detects that the local and remote copies of a configuration are different the user can select update either.

9.2 SOFTWARE INSTALLATION

The 910 configuration software should be installed onto a PC with the following minimum configuration:-

300MHz Pentium II CPU
Windows 98/2000/XP
64Mbytes RAM
20Gbytes hard disk

Insert the AMETEK 910 Configuration CD in the CD-ROM drive. This will automatically start the installation process. If this does not happen choose 'Run' from the 'Start' menu then browse to the CD-ROM drive and click on 'Autorun.exe'.

Select the directory for the application (default is *C:\Program Files\Ametek Applications\Annunciator Configurator*) then click on the *Model910* box. By default the application, demo configuration and this manual will all be installed. To change this select *Change*.

9.3 SOFTWARE CONFIGURATION INSTRUCTIONS

This is an overview of the configuration steps required for editing or creating an Annunciator configuration. Refer to the next section for additional detail on the menu selections.

Reviewing or editing the Factory Configuration

All Annunciators are factory configured per the Model number. Some of these selections, such as Alarm Sequence can be changed with the configuration software. Other features not in the Model number, such as Input Delay, CSM Relay Output Assignments can also be edited.

1. Connect serial straight through cable between the 910 communication port and the PC with the Configuration Software installed. Power up the 910.
2. Start up Configurator Software. If a default configuration appears, press Cancel.
3. Select Connections, then Settings and configure your PC Serial port for the Com Port where your serial cable is plugged into, 9600 Baud, no parity and address 1
4. Select Connections, then Connect. If successful, the annunciator lights will flash fast and a pop up screen will appear with your serial number. Press OK.
5. If you see a screen that says 'Configuration Mismatch', select Download Configuration from the annunciator.
6. Select File, Start Wizard and this will show how the annunciator is currently configured. You can make changes to any of the selections. For more detail on any of the selection, refer to the next section on the Configuration Wizard.
7. When finished making any changes, select save and enter the file name if prompted. Select Connections, Configuration, Write Configuration. When it is complete, select Connection, Disconnect.

Note: There are ICONS on the Toolbar for many of the functions above. See end of the section for more information.

Creating a new Configuration

New configurations may be created both on-line (connected to an annunciator) or off-line. In either case, start the configuration software and select File, New. From here, you can pick the annunciator selections, as shown in section 9.10.

9.4 MAIN MENU OVERVIEW

The main application window comprises of five main menus, File, Options, View, Connections and Help. These appear at the top of the screen above the application toolbar which provides quick access to the main functions of the program.



File Menu

The program manages configuration files through the File Menu. From this menu, you can open, save, and delete configuration files. The File Menu also provides you access to a new "default" configuration as a point of reference.

Options Menu

This menu provides functionality to alter the way your program behaves and appears.

View Menu

Here you can select what you see in main window. Status bar, Tool bar etc.

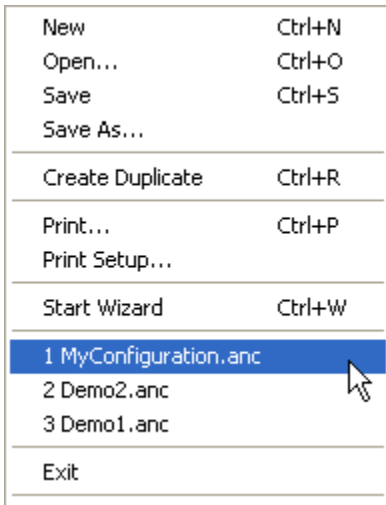
Connections Menu

Connections menu performs the actual communication with the annunciator to download or retrieve configurations.

Help Menu

The Annunciator Configurator is equipped with a Help Menu to provide the user with assistance for each screen and program function.

9.5 FILE

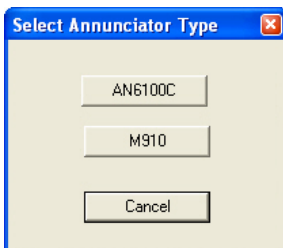


In the File menu you will find the following menu options:

New

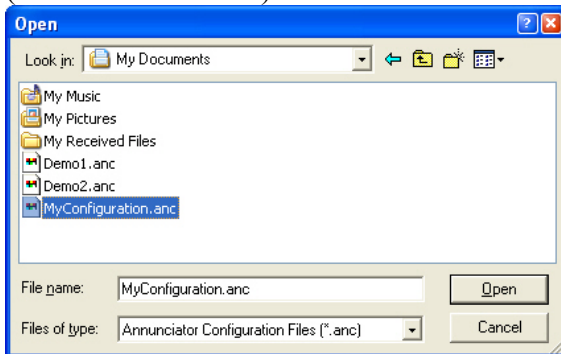
Clicking on this will create and open a new configuration. As only one configuration can be open at a time, any previous configuration that is open will be closed. You will be prompted to save any changes before the configuration is closed. New configurations are set to the default values.

After selecting 'New' click on '910' to create a configuration for a Model 910 annunciator. Alternatively click on the 'New File' icon then click on the 'Model 910' button.



Open

Here you can browse available locations on your system to open existing configuration files. (file extension ".anc").



Save

Allows you to save the active configuration file. If the configuration file has already been saved, it will automatically write over the old version.

Save As

Allows you to save the active configuration file. When clicked, it will ask you for a filename before proceeding. If the filename already exists, it will ask you if you want to overwrite the old version.

Create Duplicate

This will create and open a new configuration file, the parameters will be copied from the active (open) configuration and not set to defaults. This allows the same configuration settings to be downloaded to two annunciators.

Print

This allows you to print the configuration in a text form so that you can see all the parameters. The printout is marked with the time and date of printing.

Print Setup

This allows you to change your printer settings.

Start Wizard

This will start the configuration wizard which will guide you through a set of screens to simply setup your annunciator.

Recent Files

At the bottom of the file menu, you will also find a list of your most recent configuration files. You can simply click on one of these to open it.

9.6 OPTIONS

Preferences
View Configuration Ctrl+W
Upgrade

Preferences

In the preferences menu you can change the color setup of the whole application, and tell the program how you want the wizard to behave.

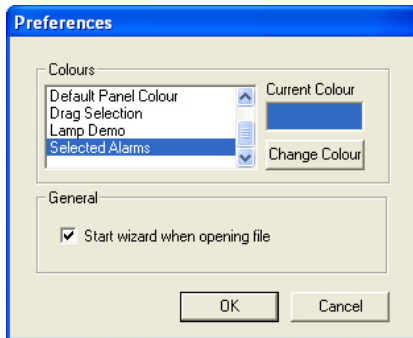
View Configuration

This is a textual overview of the complete configuration.

Upgrade

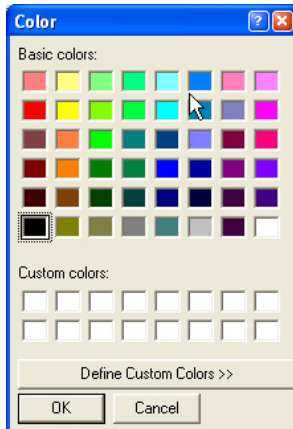
This option is not available on a Model 910 annunciator.

Preferences



Colors

The colors used to indicate various selections used in the configuration software may be changed. This may be required if they conflict with colors used in the Windows desktop. For most installations the default colors will be acceptable.



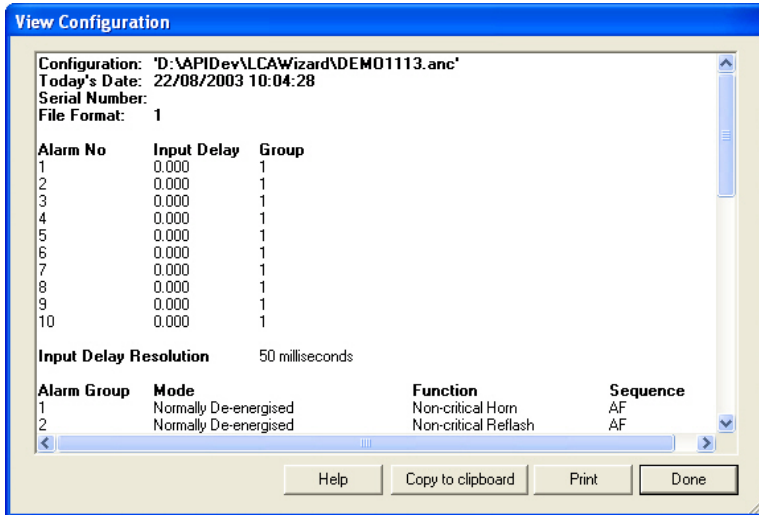
To change a color first select its usage from the list then click on 'Change Color' and select the new choice from the palate.

General

If the box beside "Start wizard when opening file" is checked, the wizard will automatically appear every time a new or existing document is opened. As the last open configuration is loaded when the application starts it means that the wizard will also automatically start at this point.

View Configuration (Text)

This allows you to see the complete configuration as text. Once this dialog is shown there are a number of options available.



Copy to clipboard

You can use the mouse to select a portion of the configuration and then copy the selection to the clipboard so you can paste it into other documents. If you do not select any text the whole configuration is then copied.

Print

This will print the complete configuration.

9.7 CONNECTIONS

Connect	Ctrl+C
Disconnect	Ctrl+D
Configuration	
Setting	
Connect Status	Ctrl+T

Connect & Disconnect

From the connections menu you will be able to connect to or disconnect from your annunciator using the *Connect* and *Disconnect* menu options.

Configuration

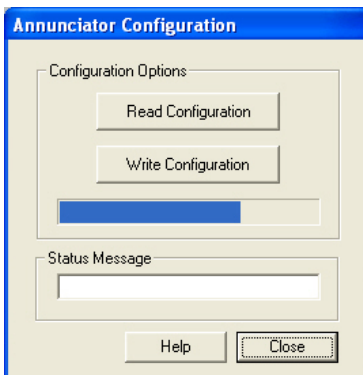
Once you have successfully connected to your annunciator you will be able to select the *Configuration* menu option. This will allow you to read and write configurations to and from the annunciator.

Settings

Here you change your computer's settings to tell it how to connect to your annunciator.

N.B. The annunciator functions will not operate while the configurator is connected to the 910.

Configuration



Read Configuration

This copies the configuration from the annunciator into the active configuration. It is recommended that you save any configuration changes before reading a configuration. If you wish to discard your changes you can open another document or close the application opting not to save.

Write Configuration

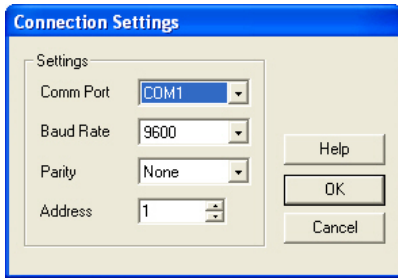
This will copy the active configuration to the annunciator. It is recommended that you save any configuration changes before writing to the annunciator.

Note: When a configuration is written to an annunciator the file is, from then on, associated with that specific annunciator. As a result of this association, on subsequent sessions, there are certain configuration options which will be disabled. They are listed below:-

System Name
Input delay resolution

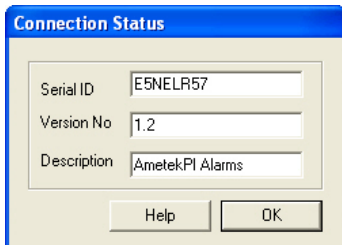
Communication Settings

From this dialog you can select the Com port you wish to use to connect and the baud rate and parity of the connection, and the *address* of the annunciator.



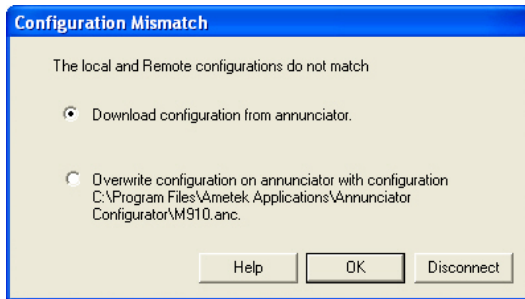
These values are stored independently of the annunciator hence care must be taken as if you have more than one annunciator they may not all have the same settings.

Connect Status



This option can be used when connected to retrieve the serial ID, the Hardware version and the system description. When nothing is connected the menu option is disabled. This can be used as an indicator to a successful connection.

9.8 CONFIGURATION MISMATCH



When you connect to an annunciator the program checks to see if the active file was the last configuration to be downloaded to the annunciator, if this is not the case then the message shown above will be displayed.

A configuration mismatch may occur as a result of the following:

- 1) You have opened the wrong configuration file.
- 2) Someone else has downloaded a different configuration to the annunciator.

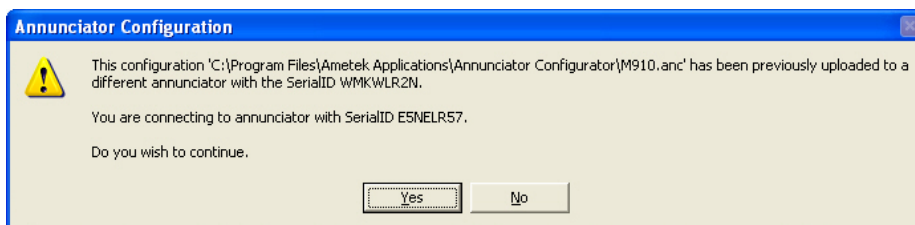
If you choose the first option "Download configuration from annunciator" this will copy the configuration from the annunciator into the active file.

If you choose the second option "Overwrite configuration on annunciator with configuration....." this will copy the configuration in the active file to the annunciator.

In the case of a configuration mismatch it is recommended that you select the first option and then save this configuration to another location as a backup.

9.9 SERIAL ID MISMATCH

A serial ID mismatch occurs when you try to upload a configuration that has already been uploaded to another annunciator. When you upload a configuration, a note is kept of which annunciator it "belongs to". Every time you connect to an annunciator the stored serial ID is checked to make sure that it matches the annunciator you are connected to.



In the case of a serial ID mismatch if you hit continue you will be able to read the configuration

from the annunciator but you will **not** be able to write the active one to the annunciator.

To rectify this situation you should click "No" and then open the correct configuration file, or create a new configuration.

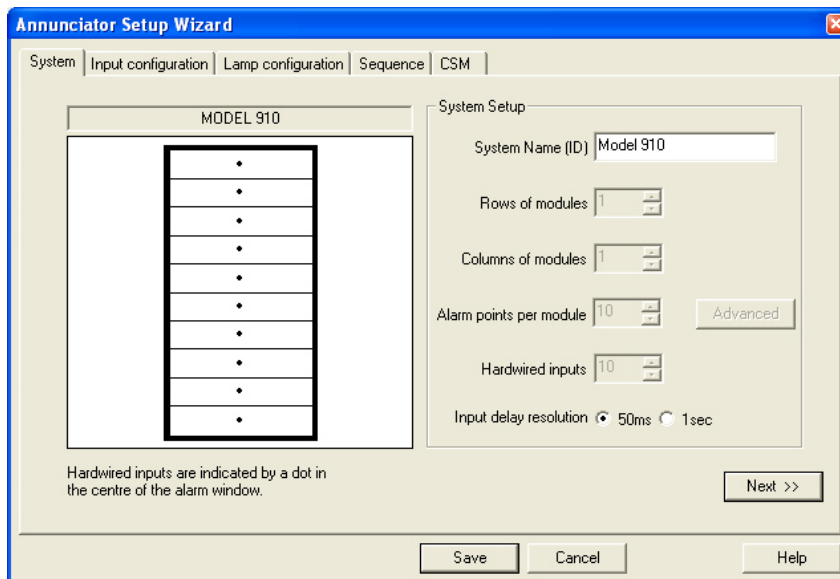
9.10 CONFIGURATION WIZARD

The configuration of a 910 is defined in a number of sections which are displayed on separate pages. The pages may be selected by clicking on the labeled tabs at the top of each page. When a system is configured for the first time the 'Next >>' button may be used to move through all the sections. This will ensure that no sections are missed. The '<< Back' button may be used to go to the previous page if required.

A graphical representation of the annunciator is used to simplify the configuration. Individual or groups of inputs can be selected by clicking on them.

System

The hardware configuration is defined in this page. A mimic diagram of the annunciator is shown on the left hand side. Other controls are displayed as 'grey'. These are not available for the 910.



N.B. After the configuration is uploaded to the annunciator for the first time the system parameters cannot be edited. The controls will be disabled. Care should be taken that the System values are correct. To make a change, you must create a new configuration.

System Name (ID)

This name is used to uniquely identify the annunciator. Up to 16 characters may be used for this.

Input delay resolution

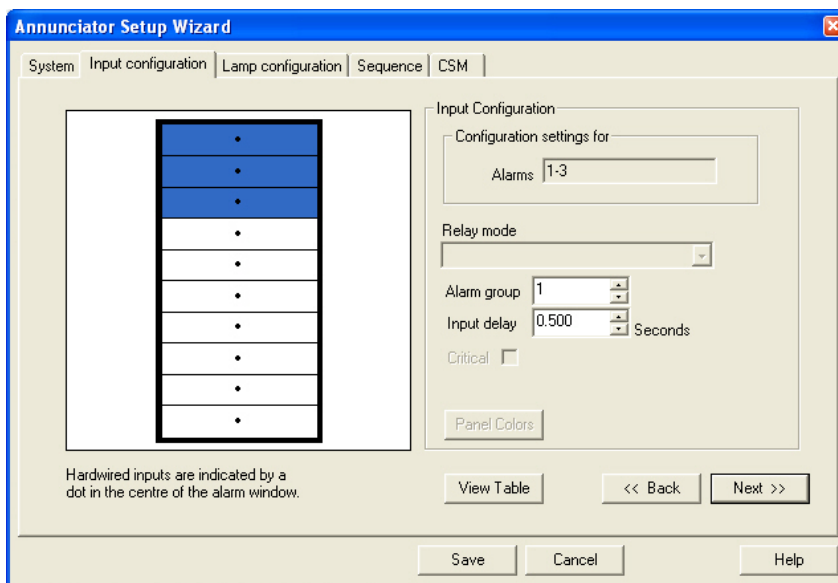
This determines the system-wide increment value for the input delay for each alarm. You have 255 increments of the value selected. For 50ms, you can have a selectable software delay up to 12.5 seconds. For 1 second, you have a selectable software delay up to 250 seconds. Each input can have its own delay assigned as shown in the Input Configuration page.

Input Configuration

The configuration of each alarm input is defined in this page. To simplify this procedure a number of similar inputs may be selected at the same time and common parameters set.

An individual input is selected by clicking on it. The input will change color when selected. The input number will be shown in the 'Alarms' list. To select a number of inputs hold down the <Ctrl> key while clicking on the inputs. To de-select an input press the <Ctrl.>' key and click on the input again.

When one or a number of inputs has been selected the parameters for those inputs may be set.



Alarm Numbering

The inputs are numbered top to bottom 1-10.

Alarm Group

Each input belongs to one of 4 groups. The groups define the alarm sequences that are set in the 'Group' page. This allows up to 4 first out groups per system or four different sequences.

Input delay

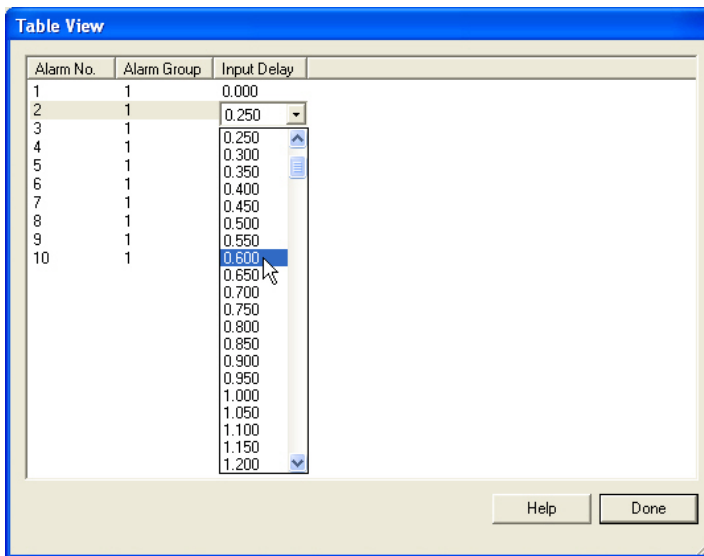
This is the time for which an input has to change state before it is acknowledged. Each input may be set from 0 to 250 seconds with a resolution of 1 second, or from 0 to 12.5 with a resolution of 50ms. The system wide input delay resolution (50ms or 1 second) is set on the System page.

Note: These software delays are in addition to the fixed hardware filter of 20-25ms. For example; if a 50ms delay is selected, the total input delay is 70-75ms.

Table View

Click on the Table View button to display the current input configuration in a table format. This is designed to be a summary of all the input configuration, but by clicking on the individual items you can actually change the selection from the table.

The column widths may be adjusted by clicking and dragging on the vertical separators between the column titles.



Lamp Settings

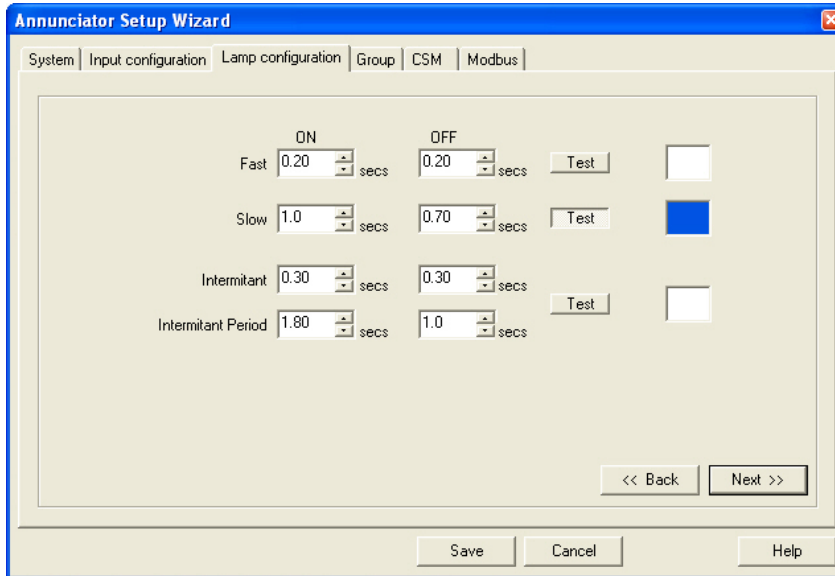
The lamp flashing sequences are defined in this page. Click on the up or down arrows beside each number to increment or decrement it. Click and hold on the arrows to scroll up or down. Click on the 'Test' button to check the appearance of each flash rate.

Fast & Slow flash rates

The ON and OFF times are set up with a resolution of 0.1s. The maximum times are 4s.

Intermittent rate

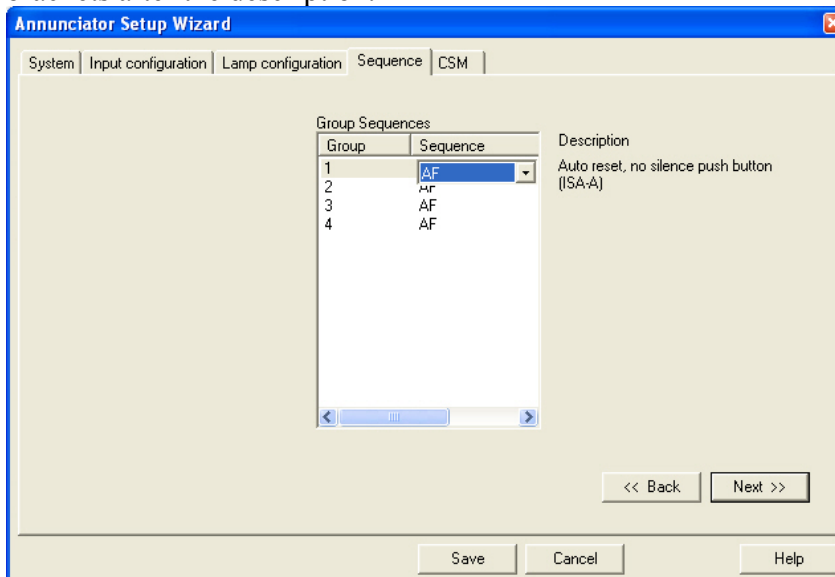
The Intermittent period values will be automatically adjusted to ensure they are integer multiples of the sum of the Intermittent ON and OFF times. The maximum Intermittent Period ON and OFF values are 25s.



Note: The **intermittent on period** may be adjusted automatically by the wizard so that it is set to at least one full intermittent on - off cycle.

Alarm Sequence Settings

The alarm sequence for each input group is defined in this page. To change the alarm sequence click on the entry then choose the new entry from the list. The alarm sequences shown below follow ISA Standard S18.1 – 1979 (R.1985). The equivalent ISA sequence is shown in brackets after the description.



Common Service Module (CSM)

The functions of the CSM are defined in this page.

Common Relay

There are 2 relays in the CSM. The relay mode may be defined as either Energized or De-Energized, with respect to the power on, normal state. For example, an Energized Relay has a coil that is energized when power is applied and there is no alarm. When the output is activated, the coil will de-energize, transferring the contact output. The relay functions may be selected from:-

Horn	Auxiliary horn output driven by any alarm. The horn relay output will return to its normal state upon activation of the ACK pushbutton.
Re-flash	Upon an alarm, the relay output changes state. After ACK is pressed, every new alarm will pulse the relay output for approximately ½ second. The relay output will return to its normal state when all alarms have returned to normal.
Fault	This relay output will change state when any input is in the alarm state. The relay output will only return to its normal state when all alarms have returned to normal. The relay output is not affected by the pushbuttons.

The Configuration Screen will show a summary of the Common Relay functions to the right. To select a relay to edit use the up or down arrows beside the relay number or click on the entry in the summary.

The screenshot shows the 'Annunciator Setup Wizard' window with the 'CSM' tab selected. The 'Common Relay' section includes a dropdown for 'Common Relay' set to '1', a 'Relay mode' dropdown set to 'Normally De-energised', and a 'Relay function' dropdown set to 'Non-critical Horn'. A 'Summary' table is displayed to the right:

Relay	Mode	Function
1	Normally De-energised	Non-critical Horn
2	Normally De-energised	Non-critical Re-flash

The 'Common Functions' section contains several checkboxes: 'Auto Horn Cancel' (0.00 seconds), 'Ringback Audible Pulsed', 'Critical Audible Pulsed', 'Auto Acknowledge', 'Enable Internal Horn' (checked), 'Audible on test', 'Auto Reset', 'Separate first out Acknowledge', 'Relays on test', 'Control Interlock', 'Critical Audible has no effect on non-critical', and 'Lamp test only'. Navigation buttons include '<< Back', 'Finish', 'Save', 'Cancel', and 'Help'.

Common Functions

A number of functions are available for the Common Service Module as On/Off switches. To select a function click on the white box to the right of the name so as a tick mark appears. To turn the function off click on the box again so as the tick is removed. The available functions are:-

Auto Horn Cancel

The horn alarm may be automatically canceled after a fixed time. Use the up and down arrows to the right of the value beside 'Auto Horn Cancel' to set the required time. The maximum value is 60s and the resolution is 0.25s. This will affect the internal and external horn outputs.

Auto Acknowledge

This will activate the acknowledge function continuously, eliminating the need to manually press this. (**Note:** by selecting this, you will never get any horn outputs and flashing lamps, depending on the sequence selected.)

Auto Reset

This will activate the reset function continuously, eliminating the need to manually press this. (**Note:** this only applies to alarm sequences that require the reset function.)

Audible on test

If selected, the internal and external audible outputs will be activated during the Test Function.

Lamp test only

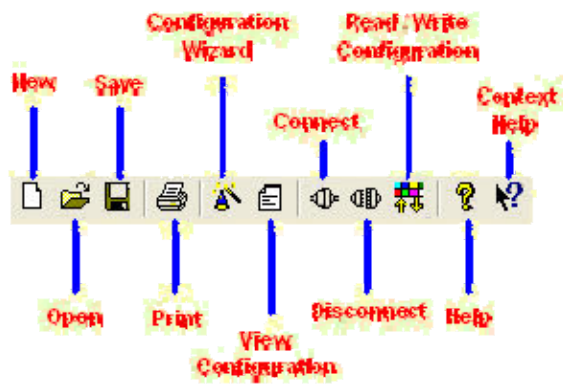
If selected, only the lamps will be activated during the Test function.

Enable internal horn

When selected, this will activate the internal audible device if purchased with the system.

Quick Access

Toolbar

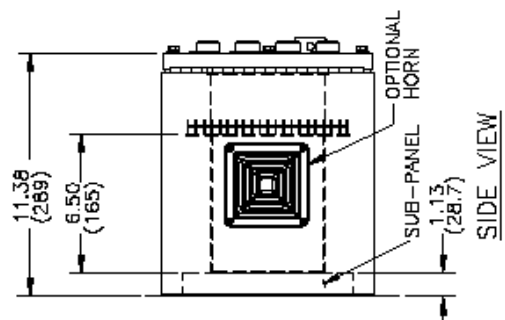
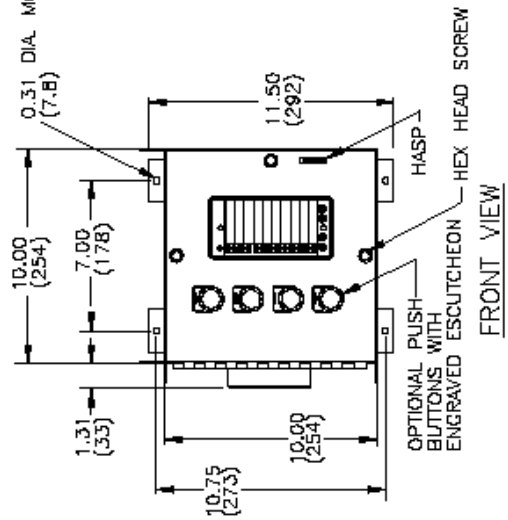
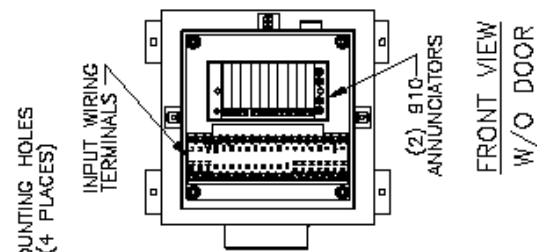
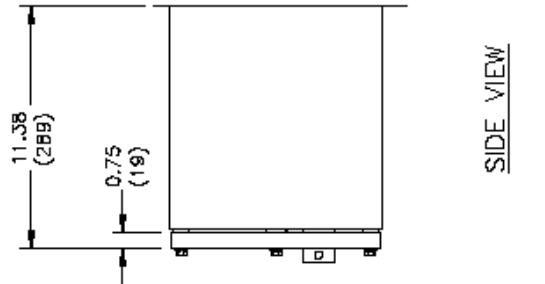


Hot Keys

Action	Hot Key
New Document	CTRL + N
Open Document	CTRL + O
Save	CTRL + S
Print Configuration	CTRL + P
View Configuration	CTRL + V
Connect	CTRL + C
Disconnect	CTRL + D
Create Duplicate	CTRL + R
Connection Status	CTRL + T
Run Wizard	CTRL + W

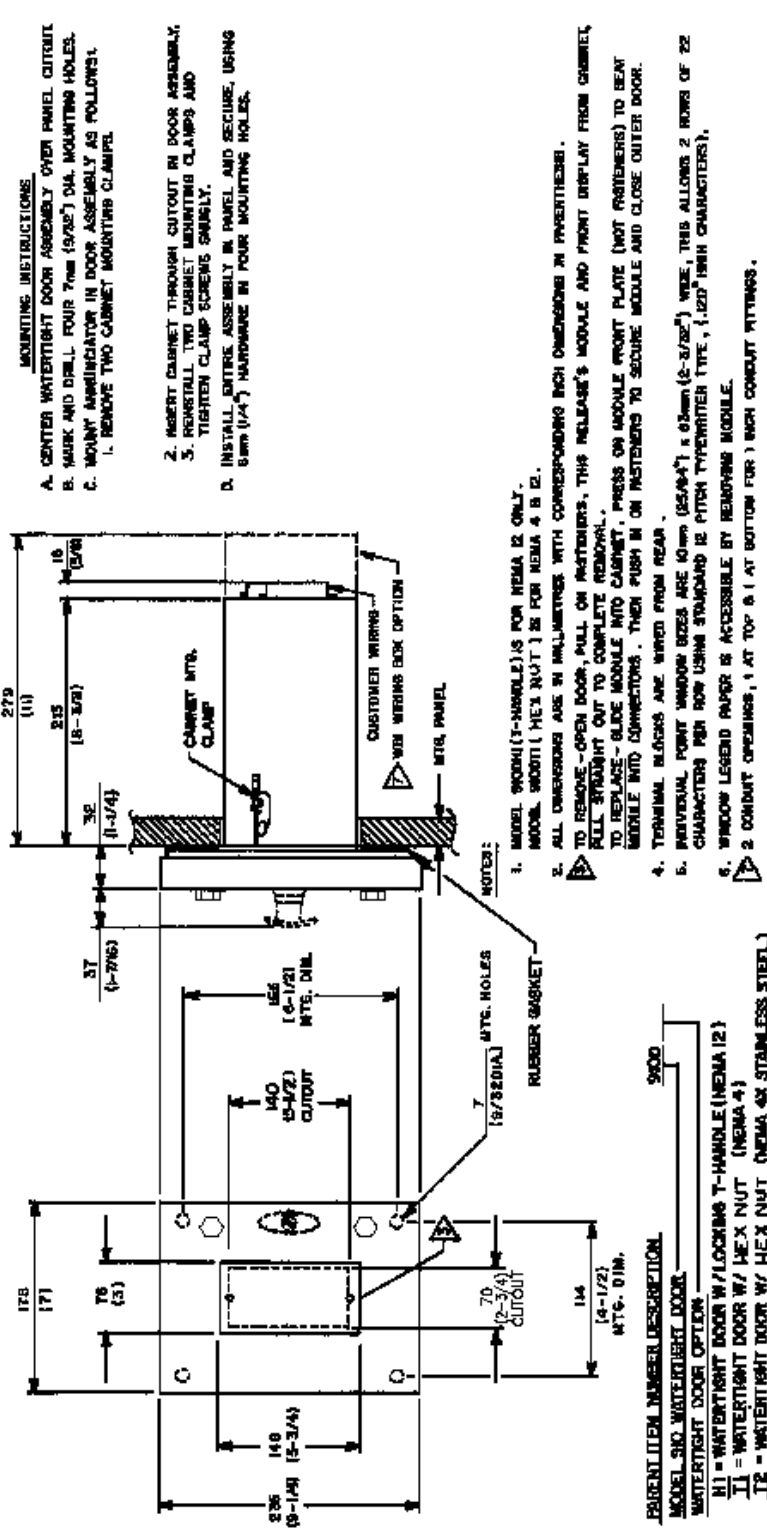
APPENDIX A – MOUNTING, OUTLINE AND WIRING DRAWINGS

DIMENSIONAL OUTLINE, MODEL 910, SURFACE MOUNT ENCLOSURE

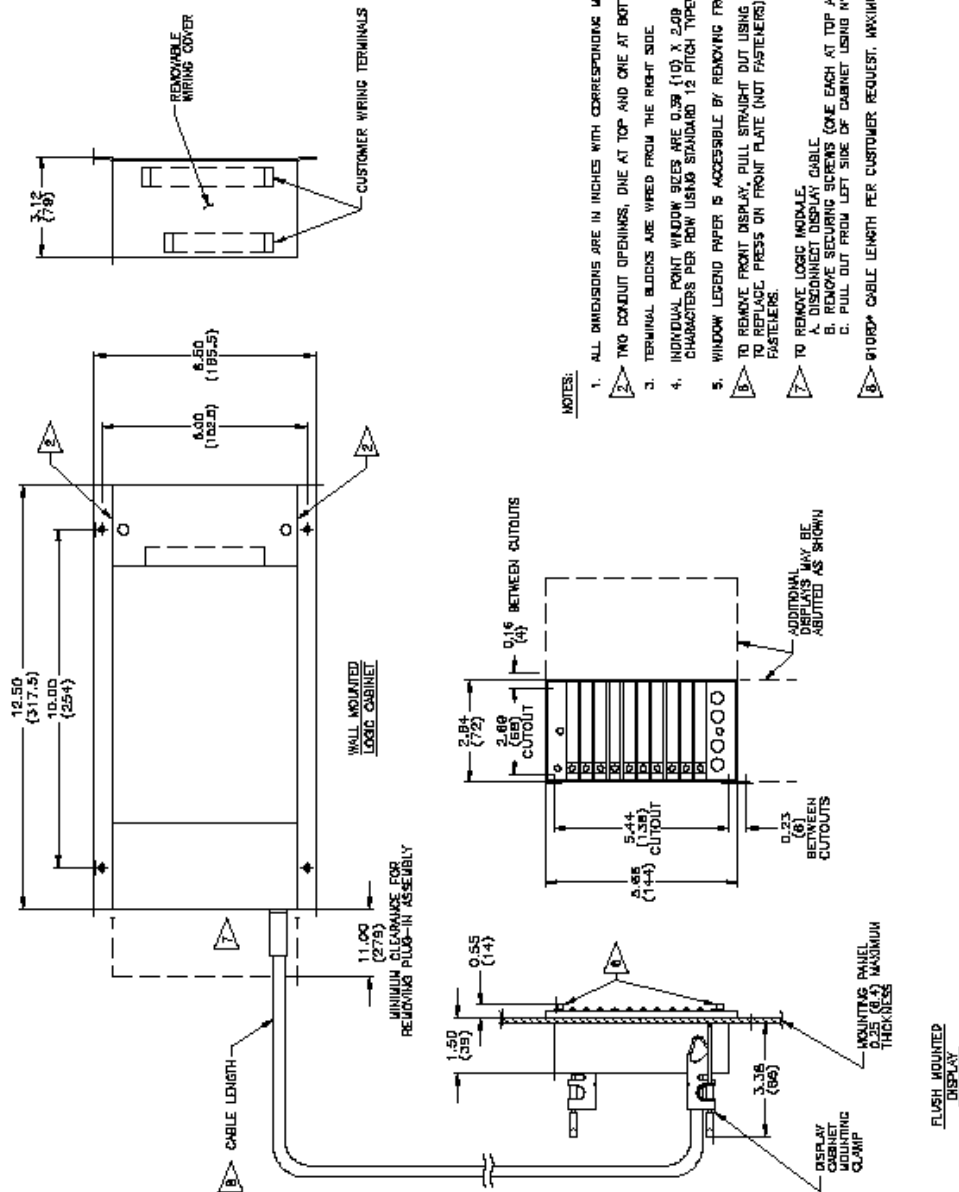


- NOTES:**
1. ALL FIELD WIRING IS ACCESSIBLE FROM FRONT OF CABINET. AFTER HINGED ENCLOSURE DOOR IS OPENED.
 2. IF SPECIFIED, PUSHBUTTON(S) WILL BE MOUNTED IN ENCLOSURE DOOR AS SHOWN. REFER TO GENERAL WIRING DIAGRAM FOR THE NUMBER OF PUSHBUTTONS REQUIRED.
 3. ALSO MEETS NEMA 4.
 4. NEMA 4 ENCLOSURE, MODEL 910SM4, MADE FROM 0.059 NOMINAL (#16 GA) CRS WITH POWER COATED GREY FINISH PER PANELARM DRAWING No. ENG-151-11. NEMA 4X ENCLOSURE, MODEL 910SM4X, MADE FROM 0.059 NOMINAL (#16 GA) STAINLESS STEEL, FINISH: NONE.

DIMENSIONAL OUTLINE, MODEL 910, FLUSH MOUNTED ANNUNCIATOR INSTALLED IN WATER TIGHT DOOR

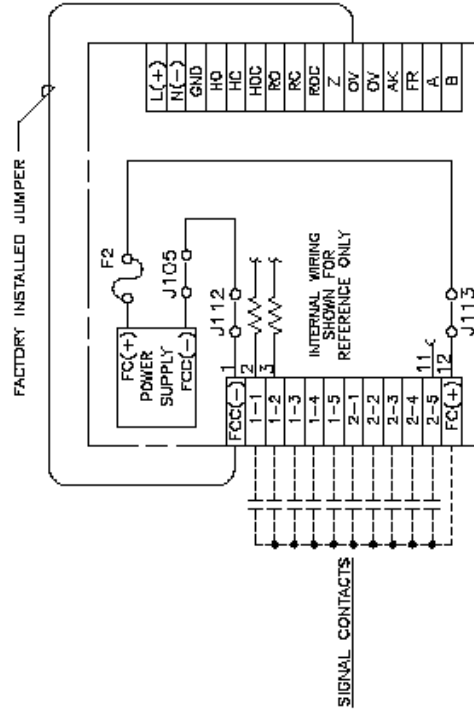


DIMENSIONAL OUTLINE, MODEL 910, OPTION RD1, REMOTE DISPLAY ANNUNCIATOR



- NOTES:
1. ALL DIMENSIONS ARE IN INCHES WITH CORRESPONDING MILLIMETER DIMENSIONS IN PARENTHESES.
 2. TWO CONDUIT OPENINGS, ONE AT TOP AND ONE AT BOTTOM FOR ONE EACH CONDUIT FITTING.
 3. TERMINAL BLOCKS ARE WIRED FROM THE RIGHT SIDE.
 4. INDIVIDUAL POINT WINDOW SIZES ARE 0.39 (10) X 2.09 (53). THIS ALLOWS TWO ROWS OF 22 CHARACTERS PER ROW USING STANDARD 12 PITCH TYPEWRITER TYPE (0.12 (3) HIGH CHARACTERS).
 5. WINDOW LEGEND PAPER IS ACCESSIBLE BY REMOVING FRONT DISPLAY.
 - TO REMOVE FRONT DISPLAY, PULL STRAIGHT OUT USING THE FASTENERS.
 - TO REPLACE, PRESS ON FRONT FLATE (NOT FASTENERS) TO SEAT DISPLAY, THEN PUSH IN ON FASTENERS.
 6. TO REMOVE LOGIC MODULE
 - A. DISCONNECT DISPLAY CABLE.
 - B. REMOVE SECURING SCREWS (ONE EACH AT TOP AND BOTTOM OF CABINET).
 - C. PULL OUT FROM LEFT SIDE OF CABINET USING NYLON HANDLE.
 7. TO REMOVE LOGIC MODULE
 8. Ø10RØ CABLE LENGTH PER CUSTOMER REQUEST. MAXIMUM LENGTH 50 FT.

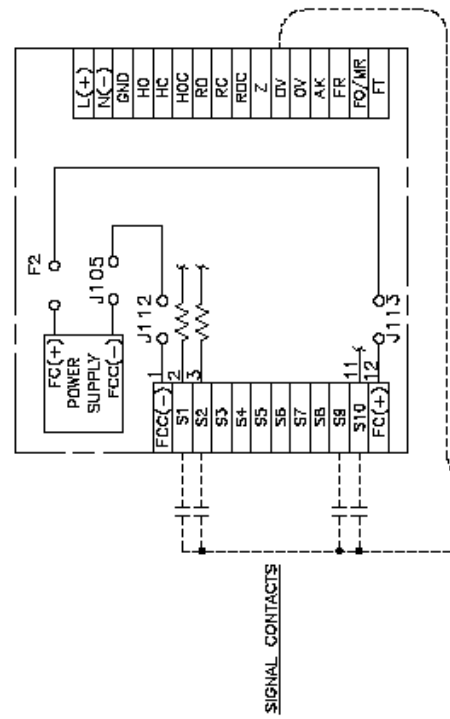
"T" & "TC" TYPE SIGNAL INPUTS



NOTE
 1. JUMPERS J105, J112 & J113 ARE FACTORY INSTALLED ON INPUT BOARD
 2. FC (+) MUST REMAIN ISOLATED BETWEEN INDIVIDUAL ANNUNCIATORS WHEN MULTIPLE UNITS ARE USED.

TYPE T12, T24, T48, T125 INPUT (SWITCH CONTACT)
 WIRING DIAGRAM WITH INTERNALLY SUPPLIED
 FC VOLTAGE, (12, 24, 48 OR 125V DC ONLY)

NOTE: DASHED LINES INDICATE CUSTOMER FIELD WIRING



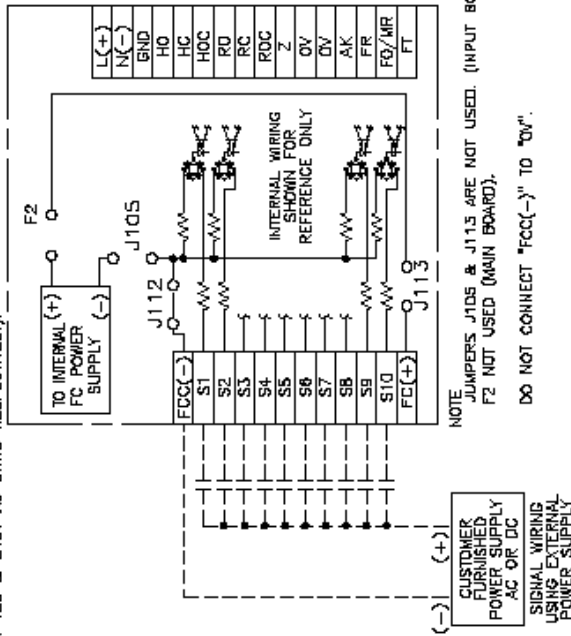
NOTE
 1. INPUT BOARD JUMPERS J105, J112 & J113 ARE NOT USED.
 2. MAIN BOARD FUSE F2 IS NOT USED.

TYPE TC24, TC48, TC125 INPUT (SWITCH CONTACT)
 WIRING DIAGRAM WITH CUSTOMER SUPPLIED
 FC VOLTAGE, (24, 48 OR 125V DC ONLY)

CUSTOMER SOURCE
 (+) (-)

"K" & "KC" TYPE SIGNAL INPUTS

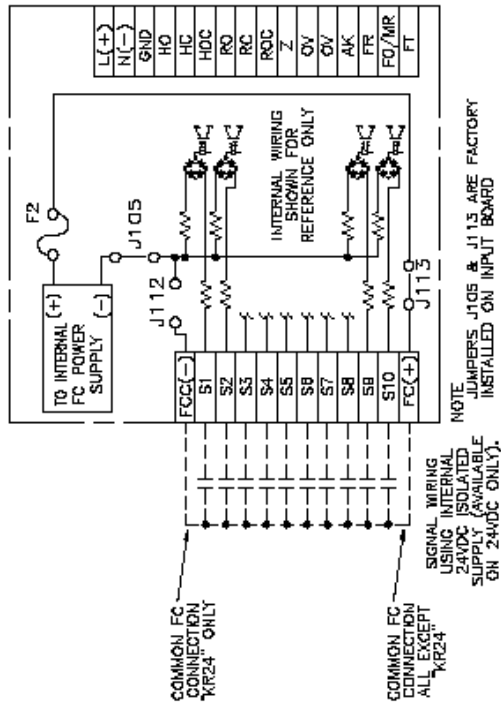
NOTES:
 1) "B" VERSION CARD WILL DE-ENERGIZED AT A HIGHER VOLTAGE THAN STANDARD "KC" UNIT TO COMPENSATE FOR THE UNDESIRABLE EFFECT OF RESIDUAL VOLTAGE CAUSED BY DISTRIBUTED CAPACITANCE ALONG FIELD CONTACT WIRING (APPROX. 90V AC AND 180V AC FOR 120 & 240V AC UNITS RESPECTIVELY).



NOTE
 JUMPERS J105 & J113 ARE NOT USED. (INPUT BOARD)
 F2 NOT USED (MAIN BOARD).
 DO NOT CONNECT "FCC(-)" TO "OV".

TYPE "KC12", "KC24", "KC48", "KC120", "KC125", "KC240" & "KC8240" (OPTICALLY COUPLED)
 WIRING DIAGRAM WITH CUSTOMER SUPPLIED
 "FC" VOLTAGE, 12VAC/DC, 24VAC/DC, 48VAC/DC, 120VAC, 125VDC, 240VAC, 250VDC

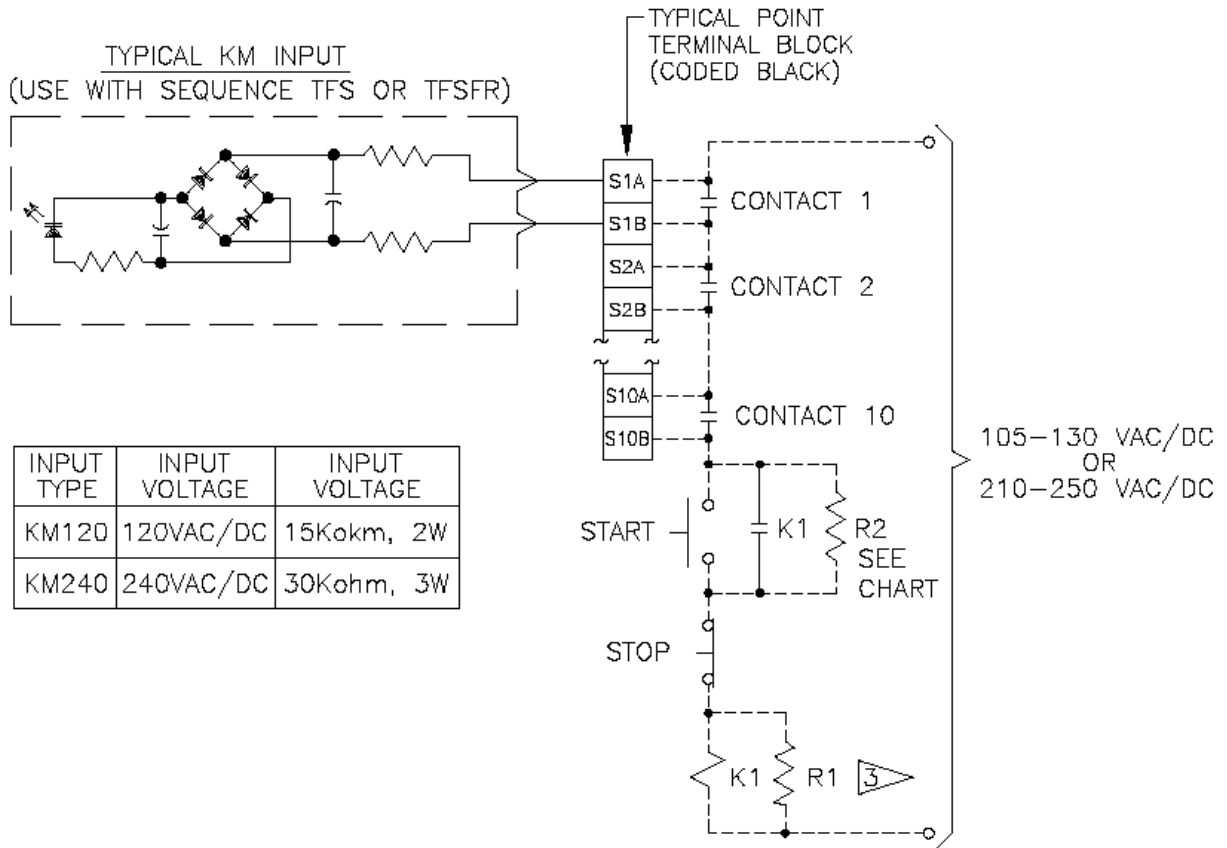
NOTE: DASHED LINES INDICATE CUSTOMER FIELD WIRING



NOTE
 JUMPERS J105 & J113 ARE FACTORY
 INSTALLED ON INPUT BOARD

TYPE "KC24" & "KC24" INPUT (OPTICALLY COUPLED)
 WIRING DIAGRAM WITH INTERNALLY SUPPLIED
 "FC" VOLTAGE (24V DC)

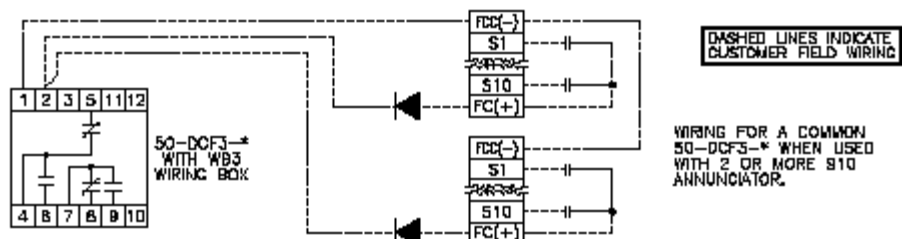
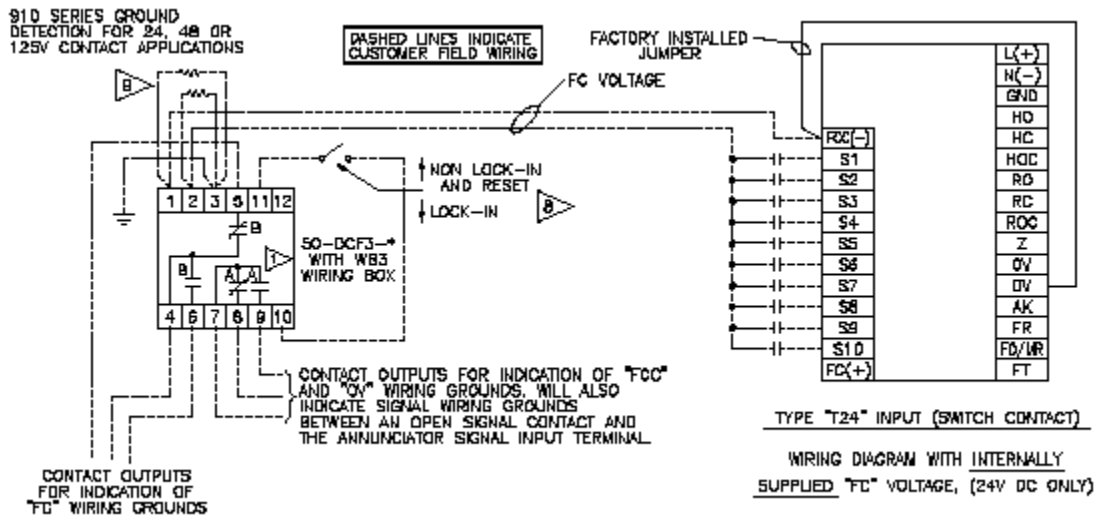
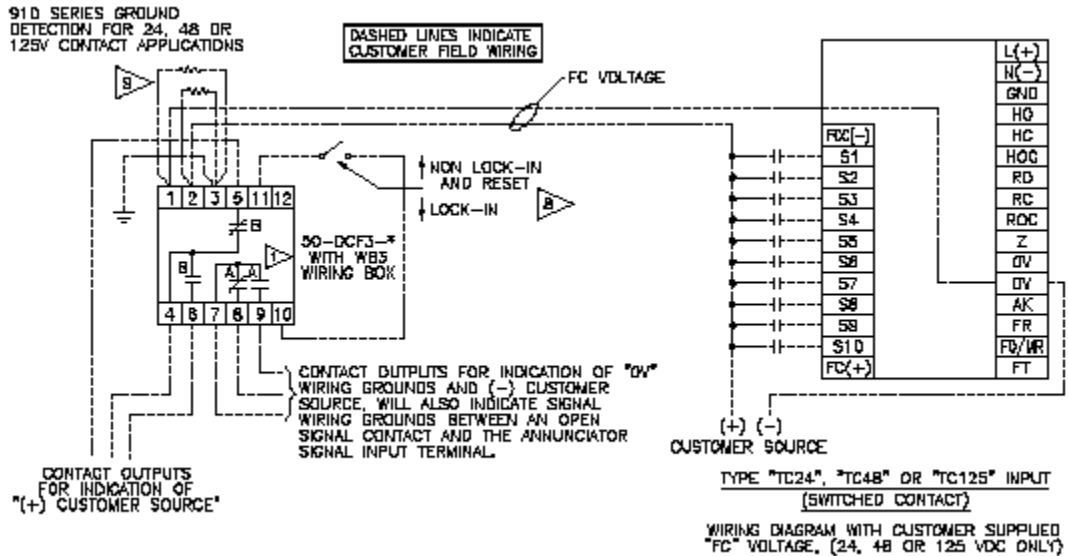
“KM” TYPE SIGNAL INPUTS



NOTES:

1. FROM ONE TO TEN CONTACTS MAY BE MONITORED WHEN WIRED AS SHOWN.
2. SET ALL INPUTS USED FOR CONTACT MONITORING TO "N.O."(SW1-10 OPEN).
3. COMBINATION OF K1 AND R1 (WHEN REQUIRED) MUST MEET THE FOLLOWING REQUIREMENT:
KM120 - MAXIMUM INPEDANCE $\leq 10Kohm$, MINIMUM HOLDING CURRENT $\geq 20mA$.
 POWER DISSIPATION FOR R1 (WHEN REQUIERD) MAY BE FOUND BY DIVIDING 18225 THE RESISTANCE IN OHMS.
KM240 - MAXIMUM IMPEDANCE $\leq 20Kohm$, MINIMUM HOLDING CURRENT $\geq 15mA$.
 POWER DISSIPATION FOR R1 (WHEN REQUIERD) MAY BE FOUND BY DIVIDING 70225 THE RESISTANCE IN OHMS.
4. ALL CONTACTS SHOWN DE-ENERGIZED. SERIES CONTACTS AND K1 CONTACTS ARE CLOSED IN NORMAL OPERATION.

GROUND FAULT MONITOR



OPERATING INSTRUCTIONS

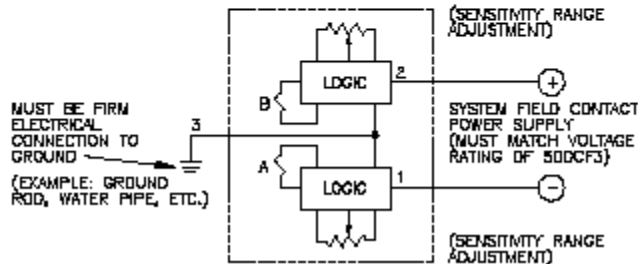
1. SHOULD A GROUND FAULT OCCUR, THE APPROPRIATE RELAY WILL ENERGIZE & VIA ITS CONTACTS, PROVIDE THE ALARM SIGNAL.

NOTE: THE 50-DCF3 WILL RESET AUTOMATICALLY WHEN THE GROUND IS REMOVED, UNLESS THE LOCK-IN/ NON LOCK-IN SWITCH IS IN THE LOCK-IN POSITION, THEN THE GROUND FAULT DETECTOR WILL HAVE TO BE MANUALLY RESET.

2. IN CASE OF A GROUND INDICATION, THE FIELD CONTACT OR POWER WIRING SHOULD BE REMOVED ONE POINT AT A TIME UNTIL THE FAULT IS LOCATED.

NOTE: MULTIPLE FAULTS MAY OCCUR. REPLACE THE WIRING UNTIL ALL FAULTS ARE LOCATED, CORRECTED AND THE SYSTEM RESUMES NORMAL OPERATION.

SIMPLIFIED WIRING DIAGRAM



NOTES:

1. IN NORMAL (NON-GROUNDED) CONDITION, THE 50-DCF3-* RELAYS ARE DE-ENERGIZED. (CONTACTS AS SHOWN)
2. FOR ADDITIONAL WIRING DETAILS, REFER TO APPLICABLE SYSTEM WIRING DIAGRAMS.
3. CONTACT RATING: 0.5A AT 125VAC 2A AT 30VDC.
4. GROUND MONITOR SYSTEM MAY NOT BE APPLICABLE IN CERTAIN CASES INVOLVING CONNECTION OF PERIPHERAL EQUIPMENT TO THE FIELD CONTACTS.
5. WHEN ISOLATED FC'S ARE USED, CONNECT 50-DCF3-* TO FC SOURCE, TERM #1 TO (-), TERM #2 TO (+), TERM #3 TO GROUND.
6. SENSITIVITY IS FACTORY SET AT 47K OHM (470K OHM FOR 50-DCF3-125) AND MAY BE READJUSTED BY POTENTIOMETERS LOCATED ON TOP OF THE PLUG-IN.
7. PLUS AND MINUS GROUND FAULT TRIP POINTS ARE INDEPENDENTLY ADJUSTABLE.

8. IF LOCK-IN IS NOT REQUIRED, THE EXTERNAL SWITCH MAY BE OMITTED.

MODEL	VOLTAGE	DETECTION RANGE	LABEL MARKING
	24V DC	25K ohm TO 500K ohm	WB-3
	48V DC	25K ohm TO 500K ohm	WB-3
	125V DC	250K ohm TO 1.5M ohm	WB-3
	125V DC	40K ohm TO 280K ohm WITH EXTERNAL 150K ohm RESISTORS	WB-3/150K/150K

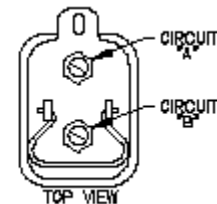
10. OPERATING DATA: (X=ENERGIZED)

50-DCF3* ALL VOLTAGES			
FAULT RESISTANCE	FAULT LOCATION GND TO	RELAY "A"	RELAY "B"
> "SET" VALUE	NONE	-	-
0 ohms TO "SET" VALUE	PLUS (TERM 2)	-	X
0 ohms TO "SET" VALUE	MINUS (TERM 1)	X	-

PROCEDURE FOR SETTING (+) AND (-) GROUND DETECTION POINTS

SET CIRCUIT "A" AND "B" POTENTIOMETERS FULLY COUNTER CLOCKWISE.

1. CONNECT DESIRED RESISTANCE VALUE BETWEEN (+) OF FC VOLTAGE AND GROUND (⊕).
2. ADJUST CIRCUIT "B" POTENTIOMETER CLOCKWISE UNTIL RELAY CIRCUIT "B" CONTACTS CHANGE STATE (TERMINALS 4, 5 AND 6).
3. REMOVE RESISTANCE AND RELAY CONTACTS 4, 5 AND 6 SHOULD RETURN TO NORMAL STATE.
4. CONNECT DESIRED RESISTANCE VALUE BETWEEN (-) OF FC VOLTAGE AND GROUND (⊖).
5. ADJUST CIRCUIT "A" POTENTIOMETER CLOCKWISE UNTIL RELAY CIRCUIT "A" CONTACTS CHANGE STATE (TERMINALS 7, 8 AND 9).
6. REMOVE RESISTANCE AND RELAY CONTACTS 7, 8 AND 9 SHOULD RETURN TO NORMAL STATE.
7. CIRCUIT "A" AND "B" WILL NOW TRIP AT THE DESIRED FAULT RESISTANCE.



APPENDIX B - TROUBLESHOOTING AIDS

TROUBLE SHOOTING GUIDE FOR MODEL 910

	SYMPTOM	PROBABLE CAUSE
1	NO LEDS ON	FUSE F1, F2 OR POWER WIRING
2	NO ALARMS	FCC(-) TO OV WIRE MISSING MODEL "T24" INPUTS ONLY. <u>NOTE</u> DO NOT WIRE FOR "TC", "K" OR "KC" INPUTS, CHECK WIRING TO FIELD CONTACT SUPPLY FOR ALL OTHER TYPE INPUTS
3	REMOTE PUSHBUTTONS INOPERATIVE	CHECK WIRING. MAKE SURE PUSHBUTTON COMMON IS CONNECTED TO OV
4	SEQUENCE INCORRECT	CHECK SOFTWARE CONFIGURATION FOR CORRECT SEQUENCE
5	NORMAL POINT IN ALARM	CHECK NO/NC SWITCH FOR CORRECT POSITION
6	NO EXTERNAL HORN	CHECK WIRING TO HO, HC, HOC
7	REFLASH INOPERATIVE	CHECK WIRING TO RO, RC, ROC

APPENDIX C - SERVICING

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

MODULE REMOVAL

CAUTION

Note and record the window positions when removed from the chassis so as to ensure that the windows are replaced in their original locations

Severe problems/damage could occur to monitored plant/equipment should windows be replaced in incorrect positions causing erroneous indication of alarms

Only remove one window assembly at a time to minimise the possible incorrect repositioning of alarm display windows

APPENDIX D

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	800-950-6676	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.