# SOLID STATE ALARM SYSTEMS
SERIES X11

RONAN

BUY RONAN, THE BEST.

The Ronan Series X11 Window Annunciator Systems are designed to serve the standard process monitor market, providing economy while maintaining quality, performance, and appearance. The system features Monalarm, Binalarm and Trialarm displays within Ronan's standard 3.5 inch (89 mm) by 3.5 inch (89 mm) mechanical cabinet modules. The single plug-in module construction contains single or multi-point alarm circuitry of conventional solid state design with maximum noise immunity and reliability. The most popular industry-wide sequences and normally open/normally closed field contact logic are resident on the circuit board, DIP switch selectable. A system common trouble alarm and a point alarm output may be utilized for remote group alarms, or fed to integrally mounted auxiliary relays, upgrading the transistor type output switches to dry contact outputs. A separate integral auxiliary contact module supplied initially, or added later in the field, contains one to three relays, depending on the system's window density. A set of contact output terminals on a mounting plate is added to the points where repeater contacts are desired. A system's common reflash output allows remote re-annunciation of any one window going into alarm.
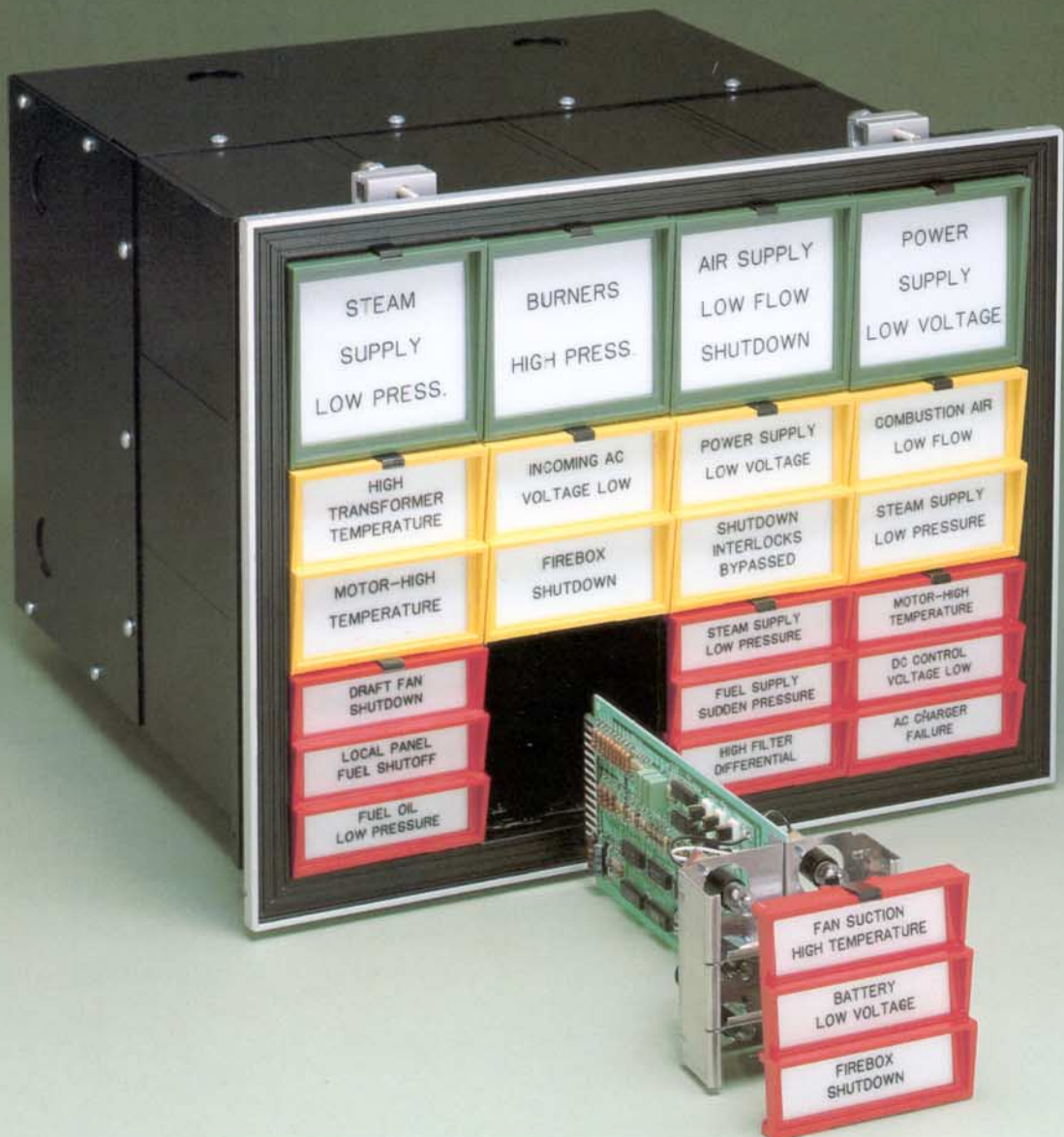
INPUTS

Digital
- Dry Contact – Normally Open/Normally Closed
- 24VDC Field Contact Voltage
- Optional 125VDC Field Contact Voltage
- Optional 115VAC Live Field Contact Voltage

SEQUENCE

Dual Sequence – Switch Selectable

ISA-A and ISA-F3A

ISA-A and ISA-M

Optional ISA-A1 Ring Back ISA-R

Multi First-Out Grouping Within System

OUTPUTS

Single Audible

Auxiliary Contact
- Single-Pole, Double-Throw (Form C)
- May Be Added in the Field
- Relay Normally Non-Energized
- GP or HS Relays Available

Common System Trouble Alarm

Individual Trouble Alarm If Not Used for Auxiliary Relay

Reflash — Pulse Output for Each New Alarm

FEATURES

Design Technology — CMOS
- High Noise Immunity
- Field Proven
- Available Off-the-Shelf, Worldwide
- No Custom Integrated Circuits

Expandability
- By Simple Exchange of Modules
- Up to 3 Times Original Number of Points
- No Internal Wiring Change

Quality Construction
- All Aluminum Extrusions and Castings
- Excellent Heatsinking
- Modular Assembly
- Maximum Flexibility in System Sizing
- Easy Panel Mounting
- Rugged Construction

Color Coding
- Eight Bezel Colors
- Colored Lenses
- Sandwich Lenses

SERVICES

Custom Designed Systems

Custom Designed Logic

Customer Training

Complete System Documentation

Field Service and Start-Up

WARRANTY

Three (3) Years

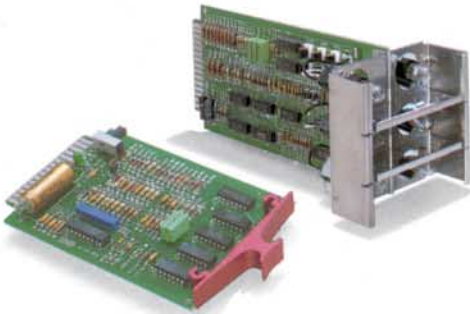## FIELD SERVICE

Worldwide Sales and Service Offices

Complete Manufacturing Facilities in USA, Canada, and U.K.

APPROVALS AVAILABLE

UL – Underwriters Laboratories

CSA – Canadian Standard Association

CONTENTS

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3-Year Warranty

Ronan warrants equipment of its own manufacture to be free from defects in material and workmanship, under normal conditions of use and service, and will repair or replace any component found to be defective, on its return, transportation charges prepaid, within three years of its original purchase. This warranty carries no liability, either expressed or implied, beyond our obligations to replace the unit which carries the warranty.

SYSTEMS ENCLOSURES

The Ronan enclosures for annunciators with integral electronics are assembled from basic 3.5 inch (89 mm) by 3.5 inch (89 mm) mechanical modules to overall size and requirements specified. This allows the greatest flexibility to adapt to the customer's control panel dimensions. The aluminum extrusion modules provide excellent heat dissipation for a continuously lit annunciator system and feature structural strength required in industrial applications. The enclosures are painted with black, baked, semi-gloss enamel; custom colors may be supplied optionally.

The panel mount enclosure may be enhanced with a NEMA 4 or NEMA 12 door assembly to seal the front of the alarm system against the control panel where it is subject to moisture or a corrosive atmosphere. The door is supplied with a clear acrylic window, sealed with a neoprene gasket. Gasketing is supplied for sealing between door frame and control panel.

Note: The panel cutout is the same as specified in the standard flush mounted alarm system.

The flush-mounting NEMA 1 type enclosure, for control panel applications, feeds through a rectangular cutout and attaches to the panel with a number of simple clamping devices supplied with each system. The rear accessible terminals are enclosed with protective side and rear panels. The side panels feature pre-stamped conduit knockout entries for field wiring and power input.

The Ronan alarm systems of various window sizes are available for standard 19 inch (483 mm) or 24 inch (610 mm) relay rack mounting. The five mechanical module wide unit is suitable for 19 inch (483 mm), and the six module wide unit for 24 inch (610 mm) rack spacing.

System Expandability

The Series X11 Annunciator Systems may be initially ordered with an expandability option, where the Monalarm System allows field expansion to either Binalarm or Trialarm and the Binalarm to Trialarm by simple exchange of alarm/lamp modules and the appropriate bezel.

The nominal cost addition for the expansion capability makes this feature highly justifiable, if the number of required windows may increase during the life of the alarm system. When converting to the expanded system, an allowance will be made on undamaged Modules and Bezels returned within the warranty period.

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Model X11-1000
Flushmounting Type for Control Panels
Nameplate Size 2.75" (70 mm)
× 3.00" (76 mm)

These systems are expandable and intermixable.

A Overall
B Cutout

14.125" (358.775 mm)
12.250"* (317.5 mm)
2.00" (50.80 mm)

.75" (19.05 mm) Conduit K.O.

Field Wiring Terminals
Fuse and Master Terminals

Removable Rear Cover With Captive Fasteners

2.75" High × 3" Wide Window (69.85 mm × 76.20 mm)

Front Accessible Flasher Module Does Not Occupy Alarm Position

Option: Pushbutton Module Standard Position; Other Positions Optional

* Depth With Side and Rear Cover Removed
Note: Standard Finish Baked Enamel Black

FIREBOX SHUTDOWN | GAS HEADER LOW PRESS. SHUTDOWN | LOCAL PANEL FUEL SHUTOFF | BURNERS HIGH PRESS

STEAM SUPPLY LOW PRESS. | FAN SUCTION HIGH TEMP. SHUTDOWN | POWER SUPPLY LOW VOLTAGE | FUEL SUPPLY INTERLOCKS BYPASSED

BATTERY LOW VOLTAGE | | DRAFT FAN SHUTDOWN |

Alarm Module
Lamp Module
Window Bezel

AIR SUPPLY LOW FLOW SHUTDOWN

.56" (14.22 mm) Max. Panel Thickness

Clamp Assembly
Panel
Extruded Trim
Bezel
Cabinet

Detail D

Pushbutton Stations

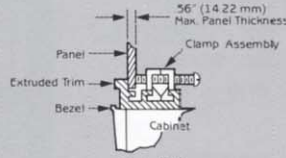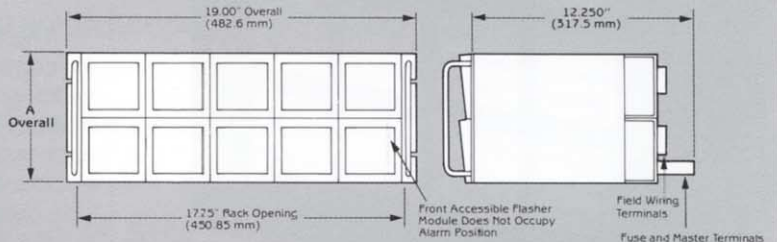*The integral Pushbutton Station shown is available as an option and may occupy any position in the system. Pushbutton stations will operate in conjunction with externally wired pushbuttons. The lower, right hand position also houses the Flasher/Horn Driver Module.

Number of Windows	A Overall		B Cutout	
High or Wide	In.	mm	In.	mm
1	5.00	127.0	4.38	111.1
2	8.50	215.9	7.88	200.0
3	12.00	304.8	11.38	288.9
4	15.50	393.7	14.88	377.8
5	19.00	482.6	18.38	466.7
6	22.50	571.5	21.88	555.6
7	26.00	660.4	25.38	644.5
8	29.50	749.3	28.88	733.4
9	33.00	838.2	32.50	825.5
10	36.50	927.1	36.00	914.4
11	40.00	1016.0	39.50	1003.3
12	43.50	1104.9	43.00	1092.2

Model X11RR-1000
Relay Rack Mounting Type
19 Inch Rack Mounting — Standard
24 Inch Rack Mounting — Optional

19.00" Overall (482.6 mm)
12.250" (317.5 mm)
A Overall
17.75" Rack Opening (450.85 mm)

Front Accessible Flasher Module Does Not Occupy Alarm Position

Field Wiring Terminals
Fuse and Master Terminals

LOCAL PANEL FUEL SHUTOFF | DRAFT FAN SHUTDOWN | GAS HEADER LOW PRESS. SHUTDOWN | FIREBOX SHUTDOWN | BATTERY LOW VOLTAGE

FUEL OIL LOW PRESS. SHUTDOWN | BURNERS HIGH PRESS. | STEAM SUPPLY LOW PRESS. | FAN SUCTION HIGH TEMP. SHUTDOWN | POWER SUPPLY LOW VOLTAGE

*Not limited to 4 high
**Limited to 5 wide only (19 inch, 483mm rack)
Also available 6 wide (24 inch, 610 mm rack)

Number of Windows		A Overall	
High	Wide	In.	mm
1	5**	3.5	88.9
2	5	7.0	177.8
3	5	10.5	266.7
4*	5	14.0	355.6

Series X11-1000
Rear Terminal Arrangement and Wiring Information

Field Contact Input

First-Out Grouping
FCA | MEA | TOA
A
MA

Connect to All ME Terminal of Points Desired in a Group.

Aux. Relay Contact Outputs

NO | C | NC — (A)

Auxiliary Relay Jumper Straps
+ + 1A

Master Terminals

115 VAC | Power Supply | fuse
Test
Silence
ACK
Reset
AC Horn | Horn Relay
X36 Electronic Horn

Not Used
Transistor Output

Use Horn Relay or Electronic Horn

Alarm Module Output

+V
−V
TOA
Drive Capacity 500 MA at 24 VDC

Aux. Contact Module Output

NO | C | NC — (A)
Internal Circuit

Notes:

1. CA Terminal Provides Logic Zero as Long as Any Point in the System Is in Alarm

2. RF Terminal Provides an Output Pulse to Reflash a Remote Annunciator as New Points Alarm

3. F1,F2 Flasher Sync Connection for Multichassis Applications

4. Silence Pushbutton Optional, Not Required for Operation

5. Reset Pushbutton Only Used for F3A Sequence
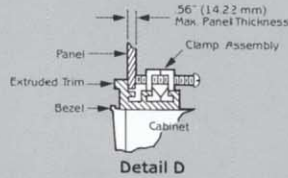
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BINALARM SERIES

Model X11-2000
Flush Mounting Type for Control Panels
Nameplate Size 1.44" (36 mm) × 3.00" (76 mm)

These systems are expandable and intermixable.

1.4" High × 3" Wide Window (35.56 mm × 76.20 mm)

Front Accessible Flasher Module Does Not Occupy Alarm Position

Option: Pushbutton Module Standard Position, Other Positions Optional

Field Wiring Terminals
Fuse and Master Terminals

.75" (19.05 mm) Conduit K.O.

Removable Rear Cover With Captive Fasteners

* Depth With Side and Rear Cover Removed
Note: Standard Finish Baked Enamel Black

.56" (14.22 mm) Max. Panel Thickness
Clamp Assembly
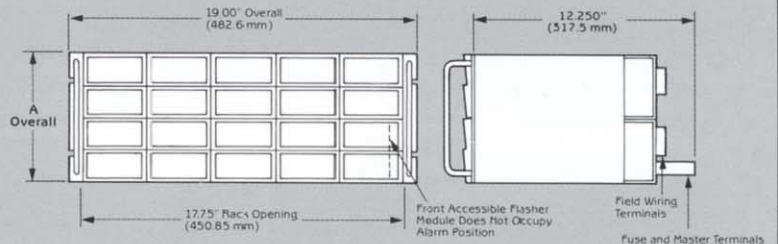Panel
Extruded Trim
Bezel
Cabinet

Detail D

Pushbutton Stations

*The integral Pushbutton Station shown is available as an option and may occupy any position in the system. Pushbutton stations will operate in conjunction with externally wired pushbuttons. The lower, right hand position also houses the Flasher/Horn Driver Module.

Alarm Modules
Lamp Module
Window Bezel

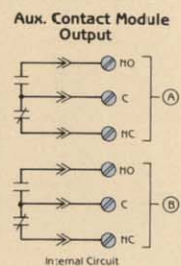| Number of Windows		A Overall		B Cutout	
High	Wide	In.	mm	In.	mm
2	1	5.00	127.0	4.38	111.1
4	2	8.50	215.9	7.88	200.0
6	3	12.00	304.8	11.38	288.9
8	4	15.50	393.7	14.88	377.8
10	5	19.00	482.6	18.38	466.7
12	6	22.50	571.5	21.88	555.6
14	7	26.00	660.4	25.38	644.5
16	8	29.50	749.3	28.88	733.4
18	9	33.00	838.2	32.50	825.5
20	10	36.50	927.1	36.00	914.4
22	11	40.00	1016.0	39.50	1003.3
24	12	43.50	1104.9	43.00	1092.2

Model X11RR-2000
Relay Rack Mounting Type
19 Inch Rack Mounting — Standard
24 Inch Rack Mounting — Optional

19.00" Overall (482.6 mm)
12.250" (317.5 mm)
17.75" Rack Opening (450.85 mm)

Front Accessible Flasher Module Does Not Occupy Alarm Position
Field Wiring Terminals
Fuse and Master Terminals

*Not limited to 8 high
**Limited to 5 wide only (19 inch, 483 mm rack)
Also available 6 wide (24 inch, 610 mm rack)

Number of Windows		A Overall	
High	Wide	In.	mm
2	5**	3.5	88.9
4	5	7.0	177.8
6	5	10.5	266.7
8*	5	14.0	355.6

Series X11-2000
Rear Terminal Arrangement and Wiring Information
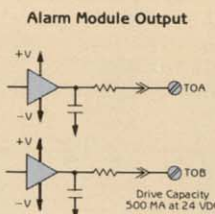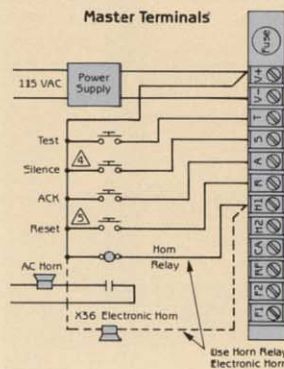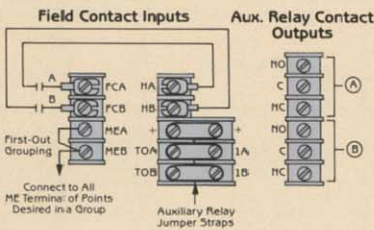
Field Contact Inputs
First-Out Grouping
Connect to All ME Terminal of Points Desired in a Group

Aux. Relay Contact Outputs
Auxiliary Relay Jumper Straps

Master Terminals
115 VAC
Power Supply
Test
Silence
ACK
Reset
AC Horn
Horn Relay
X36 Electronic Horn
Use Horn Relay or Electronic Horn
Not Used
Transistor Output

Alarm Module Output
TOA
TOB
Drive Capacity 500 MA at 24 VDC

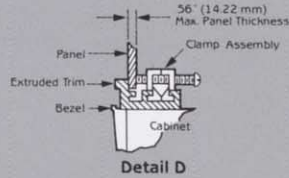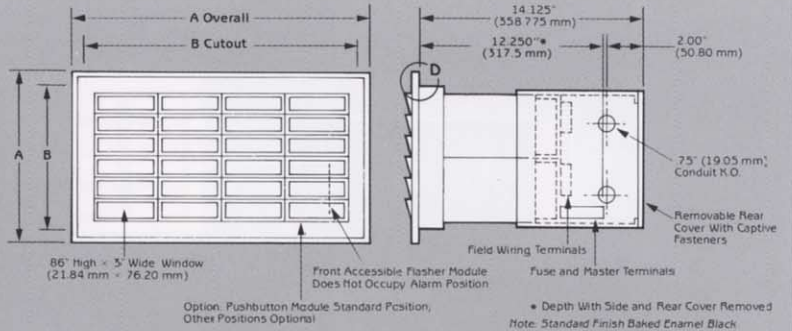Aux. Contact Module Output
Internal Circuit

Notes:
1. CA Terminal Provides Logic Zero as Long as Any Point in the System is in Alarm
2. RF Terminal Provides an Output Pulse to Reflash a Remote Annunciator as New Points Alarm
3. F1,F2 Flasher Sync Connection for Multichassis Applications
4. Silence Pushbutton Optional, Not Required for Operation
5. Reset Pushbutton Only Used for F3A Sequence

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Model X11-3000
Flush Mounting Type for Control Panels
Nameplate Size .86" (22 mm)
× 3.00" (76 mm)

These systems are
intermixable.

Alarm Modules
Lamp Module
Window Bezel

A Overall
B Cutout

14.125" (358.775 mm)
12.250"* (317.5 mm)
2.00" (50.80 mm)
D

.75" (19.05 mm) Conduit K.O.

Removable Rear Cover With Captive Fasteners

Field Wiring Terminals

Fuse and Master Terminals

.86" High × 3" Wide Window
(21.84 mm × 76.20 mm)

Front Accessible Flasher Module Does Not Occupy Alarm Position

Option: Pushbutton Module Standard Position;
Other Positions Optional

* Depth With Side and Rear Cover Removed
Note: Standard Finish Baked Enamel Black

.56" (14.22 mm)
Max. Panel Thickness

Clamp Assembly
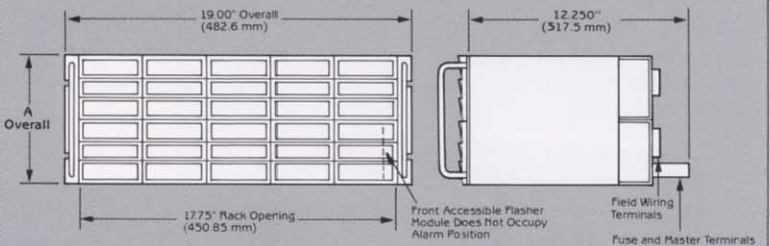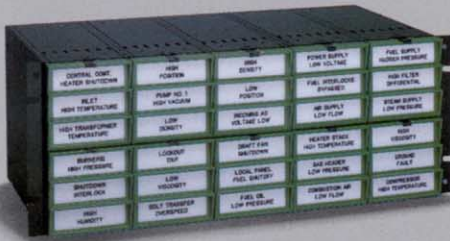
Panel
Extruded Trim
Bezel
Cabinet

Detail D

Pushbutton Stations

*The integral Pushbutton Station shown is available as an option and may occupy any position in the system. Pushbutton stations will operate in conjunction with externally wired pushbuttons. The lower, right hand position also houses the Flasher/Horn Driver Module.

Number of Windows		A Overall		B Cutout	
High	Wide	In.	mm	In.	mm
3	1	5.00	127.0	4.38	111.1
6	2	8.50	215.9	7.88	200.0
9	3	12.00	304.8	11.38	288.9
12	4	15.50	393.7	14.88	377.8
15	5	19.00	482.6	18.38	466.7
18	6	22.50	571.5	21.88	555.6
21	7	26.00	660.4	25.38	644.5
24	8	29.50	749.3	28.88	733.4
27	9	33.00	838.2	32.50	825.5
30	10	36.50	927.1	36.00	914.4
33	11	40.00	1016.0	39.50	1003.3
36	12	43.50	1104.9	43.00	1092.2

Model X11RR-3000
Relay Rack Mounting Type
19 Inch Rack Mounting – Standard
24 Inch Rack Mounting – Optional

19.00" Overall (482.6 mm)
12.250" (317.5 mm)

A Overall

17.75" Rack Opening
(450.85 mm)

Front Accessible Flasher Module Does Not Occupy Alarm Position

Field Wiring Terminals
Fuse and Master Terminals

*Not limited to 8 high
**Limited to 5 wide only (19 inch, 483 mm rack)
Also available 6 wide (24 inch, 610 mm rack)

Number of Windows		A Overall	
High	Wide	In.	mm
3	5**	3.5	88.9
6	5	7.0	177.8
9	5	10.5	266.7
12*	5	14.0	355.6

Series X11-3000
Rear Terminal Arrangement and Wiring Information

Field Contact Inputs

FCA HA
FCB HB
FCC HC
MEA +
First-Out Grouping   MEB TOA
MEC TOB
TOC

Connect to All ME Terminal of Points Desired in a Group

Aux. Relay Contact Outputs

NO
C   C   (A)
NC   NC
NO
1A
1B   (B)
1C

Auxiliary Relay Jumper Straps

Master Terminals

115 VAC   Power Supply

Test
Silence
ACK
Reset

AC Horn

X36 Electronic Horn

Fuse

Not Used

Transistor Output

Use Horn Relay or Electronic Horn

Alarm Module Output

+V
−V   TOA

+V
−V   TOB

+V
−V   TOC
Drive Capacity 500 MA at 24 VDC

Aux. Contact Module Output

NO
C   (A)
NC

NO
C   (B)
NC

NO
C   (C)
NC

Internal Circuit

Notes:
1. CA Terminal Provides Logic Zero as Long as Any Point in the System is in Alarm
2. RF Terminal Provides an Output Pulse to Reflash a Remote Annunciator as New Points Alarm
3. F1,F2 Flasher Sync Connection for Multichassis Applications
4. Silence Pushbutton Optional, Not Required for Operation
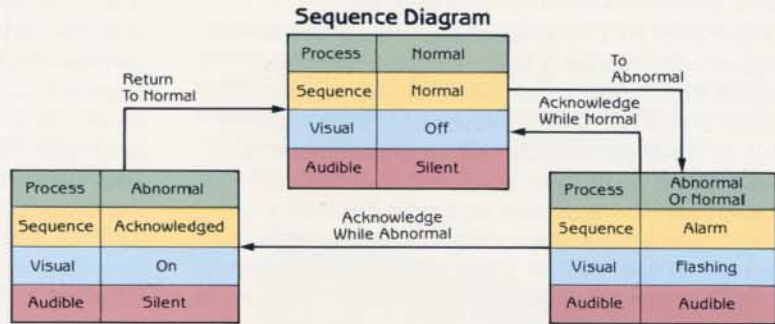5. Reset Pushbutton Only Used for F3A Sequence

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SEQUENCES

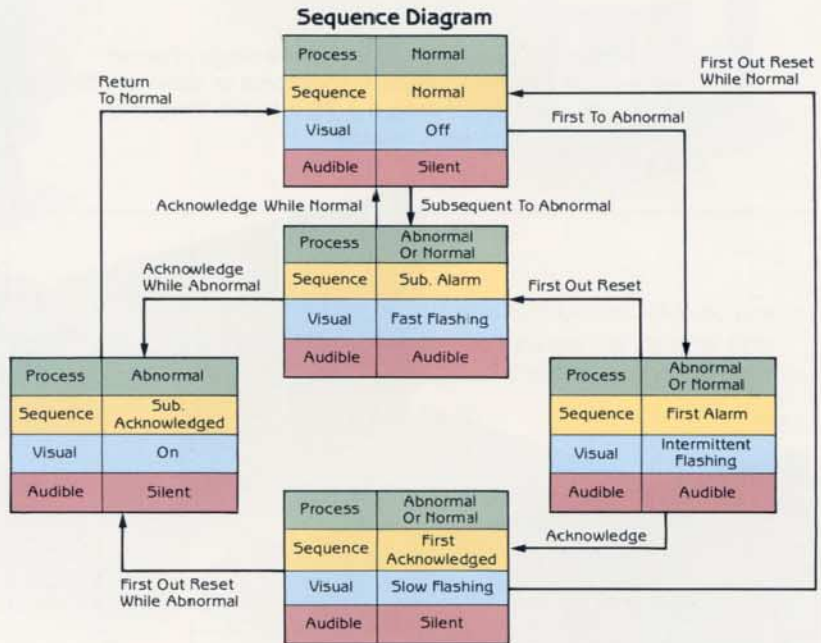## Sequence A, Automatic Reset

Sequence Features

1. Acknowledge and Test Pushbuttons.
2. Alarm Audible Device.
3. Lock-In of Momentary Alarms Until Acknowledged.
4. The Audible Device is Silenced and Flashing Stops When Acknowledged.
5. Automatic Reset of Acknowledged Alarm Indications When Process Conditions Return to Normal.
6. Operational Test.

Sequence Diagram

Process	Normal		To Abnormal	
Sequence	Normal		Acknowledge While Normal	
Visual	Off			
Audible	Silent			

Return To Normal

Process	Abnormal		Acknowledge While Abnormal	Process	Abnormal Or Normal
Sequence	Acknowledged			Sequence	Alarm
Visual	On			Visual	Flashing
Audible	Silent			Audible	Audible

Sequence F3A, Automatic Reset First Out With First Out Flashing and Reset Pushbutton
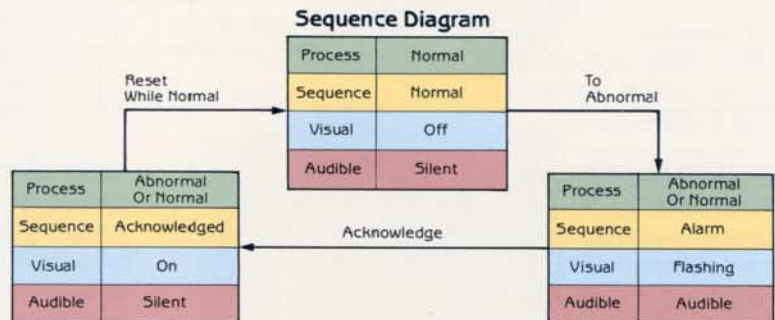
Sequence Features

1. Acknowledge, First Out Reset, and Test Pushbuttons.
2. Alarm Audible Device.
3. Lock-In of Momentary Alarms Until Acknowledged.
4. First Out Flashing Different from Subsequent Flashing.
5. First Out Reset Pushbutton to Change the First Out Visual Indication to be the Same as Subsequent Visual Indications.
6. Automatic Reset of Acknowledged Alarm Indications When Process Conditions Return to Normal.
7. Operational Test.

Sequence Diagram

Process	Normal
Sequence	Normal
Visual	Off
Audible	Silent

Return To Normal

First Out Reset While Normal

First To Abnormal

Acknowledge While Normal | Subsequent To Abnormal

Process	Abnormal Or Normal
Sequence	Sub. Alarm
Visual	Fast Flashing
Audible	Audible

Acknowledge While Abnormal

First Out Reset

Process	Abnormal
Sequence	Sub. Acknowledged
Visual	On
Audible	Silent

Process	Abnormal Or Normal
Sequence	First Alarm
Visual	Intermittent Flashing
Audible	Audible

Acknowledge

Process	Abnormal Or Normal
Sequence	First Acknowledged
Visual	Slow Flashing
Audible	Silent

First Out Reset While Abnormal

Sequence M, Manual Reset

Sequence Features

1. Acknowledge, Reset and Test Pushbuttons.
2. Alarm Audible Device.
3. Lock-In Momentary Alarms Until Acknowledged.
4. The Audible Device Is Silenced and Flashing Stops When Acknowledged.
5. Manual Reset of Acknowledged Alarm Indications After Process Conditions Return to Normal.
6. Operational Test.

Sequence Diagram

Process	Normal
Sequence	Normal
Visual	Off
Audible	Silent

Reset While Normal

To Abnormal

Process	Abnormal Or Normal
Sequence	Acknowledged
Visual	On
Audible	Silent

Acknowledge

Process	Abnormal Or Normal
Sequence	Alarm
Visual	Flashing
Audible	Audible

For other sequences contact factory or see enclosures.

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ALARM MODULES

Alarm Sequence/Display Module

The Model X11 is offered in two dual sequence configurations, allowing field selection of either the most commonly used ISA-A, or the popular first out ISA-F3 and the ISA-M sequences, selectable by means of a jumper switch setting on each alarm module. ISA-R Ring Back and ISA-A-4-5 status Indication are also available as single sequence modules. The combination display/alarm module contains a single, dual or triple alarm channel circuit with the appropriate dual lamp display constructed as a single plug-in module. The modules are removable from the front of the system without interference with the remaining channels of the system. The window display areas are contained within Ronan's standard colored bezels, allowing multi-line engraving on single or sandwich lenses. The alarm logic may interface with a normally open or normally closed field contact. The field contacts are interrogated by the system's 24VDC logic supply, or optionally with 125VDC from a dual output power supply, if so specified. Modules are available with optical isolation and can accept 115VAC or 125VDC live field contact voltages.
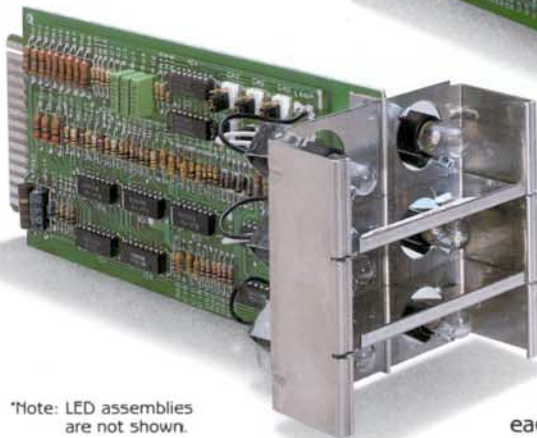
Monalarm

The monalarm plug-in module features single channel alarm logic with two 3 watt incandescent or optional LED type indicators* illuminating a 2.75 inch (70 mm) high by 3 inch (76 mm) wide window.
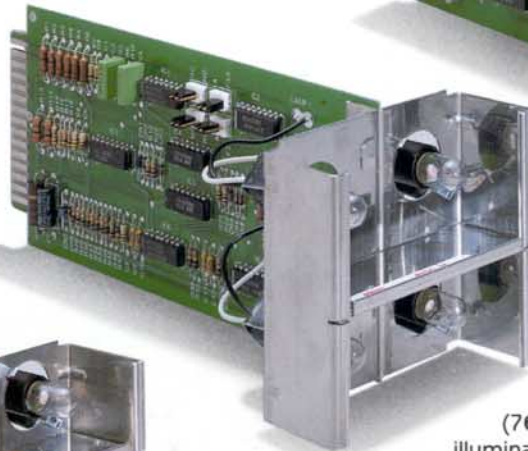
Binalarm

The two-window binalarm module contains two channels of alarm logic to display alarm conditions on two windows, sized for 1.44 inch (36 mm) high and 3 inch (76 mm) wide lenses. Each window is illuminated by two 2 watt lamps or LED type indicators.*

Trialarm

The trialarm module represents the highest possible density of the Model X11 Series. The three 0.86 inch (22 mm) high by 3 inch (76 mm) wide windows are illuminated by three sets of two 2 watt lamps or optional LED type indicators*, each set driven by one channel of the three channel alarm logic.

*Note: LED assemblies are not shown.

Output Features

The Model X11 System provides a common trouble alarm (CTA) output, presented on the master terminal assembly. This output drives a system's internally or remotely mounted relay to annunciate an alarm condition if any one or more points in the system are in alarm. A second output, also presented on the master terminal assembly, features a reflash signal which allows reannunciation to a remote system of any one window going into alarm. In addition, each field contact input is repeated and presented as an output on rear terminals by way of an open collector transistor. These, per-point, outputs allow multigrouping of alarms, or are utilized to drive internal auxiliary contact repeater relays, providing a Form C contact, available on rear mounted terminals.