The AIC400 (Multi-color) is a traditional annunciator advanced with the state-of-the-art technology based on the Arm Cortex-M7 processor. This combination makes the AIC400 a progressive device that is compact, easy to install and expand. The AIC400 is an ideal solution where full features and functionality are required in the face of restricted space and limited budget.

MULTI-COLOR

The **Multi-color LEDs** option is an added feature to the new generation of AIC400. User can change the color of each LED according to the application of each alarm point.

The AIC400 can receive the alarm signals through communication ports -as a Serial Annunciator- and as well as physical inputs with galvanic isolation.

FEATURES & BENEFITS:

- *Multi-color LEDs selectable by software in a few seconds*
- *Various sizes from 4 to 48 channels*
- *Easily expandable for larger systems*
- *Redundant universal power supplies*
- *Eight additional LEDs to monitor the system status including 'power failure'*
- *Fully field programmable (Input type, LED color, Response time, ...)*
- *Four output relays to be assigned to twelve different output types*
- *Individual channel Aux. Relays*
- *Communication & event recording options*
- *Field-configurable alarm labels*
- *Integral audible (buzzer) & optional vocal*
- *Shallow installed depth (130mm)*
- *ISA-18.1 Alarm sequences programmable*
- *Very low power consumption for longer service with batteries*
- *Field selectable Inputs (NC or NO, Dry Contact or Voltage)*
- *Integral and/or Remote pushbuttons (Acknowledge, Reset, Mute & Test) plus two user configurable pushbuttons*

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APEX® AUTOMATION SOLUTIONS

Size Variety

AIC400 comes in various sizes from 4 to 48 alarm points. Regardless of number of alarm points, each unit has eight full color (RGB) user configurable additional LEDs to monitor the system status such as Power Failure, System Ready, ...
The overall and cut-out dimensions are shown below. The depth of all units is 130mm.
The AIC400 can be expanded up to 10 units to cover higher number of alarm points.

Overall and Cut-out Dimensions

Model Number	AIC404	AIC408	AIC412	AIC416	AIC420	AIC424	AIC428	AIC432	AIC436	AIC440	AIC444	AIC448
No. of Alarm Points	4	8	12	16	20	24	28	32	36	40	44	48
Overall Width (mm)	101	126	151	176	202	227	253	278	304	329	354	380
Overall Height (mm)	150	150	150	150	150	150	150	150	150	150	150	150
Cut-out Width (mm)	89	114	139	164	190	215	241	266	292	317	342	368
Cut-out Height (mm)	141	141	141	141	141	141	141	141	141	141	141	141

Display

Each 24mm x 22mm window is equipped with a supper bright, Multi-color, low power consumption LED. The standard system comes with three LED colors (Red, Green and Yellow), called RGY set. The tint of each LED can be set to one of these colors via the ALCON software just in a few seconds. This advanced feature allows the user to assign a specific color to each LED state according to their application as shown below.

LED Color/Status while **NORMAL**	OFF	OFF	OFF	RED	GREEN	RED	YELLOW	GREEN	YELLOW
LED Color/Status while **ABNORMAL**	RED	GREEN	YELLOW	GREEN	RED	YELLOW	RED	YELLOW	GREEN

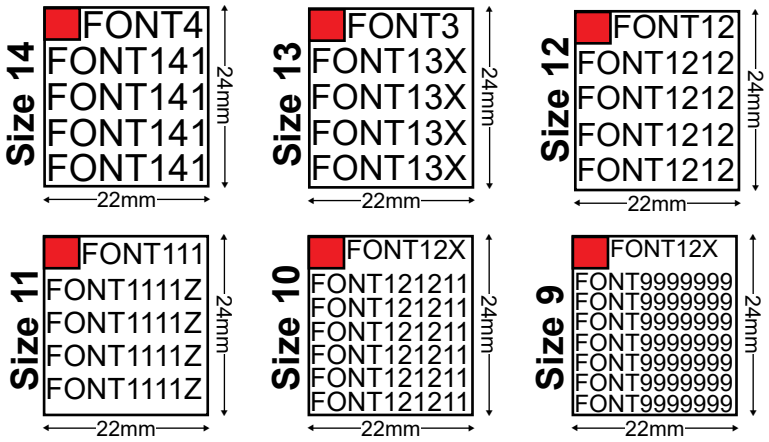
The available standard and special order color sets are as below:

- **RGY** (Red, Green, Yellow) - Standard color set
- **RBM** (Red, Blue, Magenta)
- **GBC** (Green, Blue, Cyan)
- **RCW** (Red, Cyan, White)
- **GMW** (Green, Magenta, White)
- **BYW** (Blue, Yellow, White)

User can also set the brightness of the LEDs in a range of 10% to 100%. This feature can help to reduce the system power consumption significantly and it is very important for a longer hold up when using standby batteries.

Beside the 24mm x 22mm windows, system has eight additional LEDs to monitor the system status. Three of these LEDs are assigned to Power Status and System Ready. The other five LEDs can be assigned to monitor other parameters to be specified at the time of order.

The Alarm Labels are field-configurable easily by printing on translucent film. Number of characters on each window depends on the font size as shown below.



Fully Field Programmable

The majority of system parameters are programmable via the USB port using the ALCON software.

The following parameters are configurable for each individual channel.
- Color of each LED
- Inputs' setting (Normally Open / Normally Close)
- Alarm Sequence
- Alarm Group (critical-non critical)
- Auxiliary Relay's function

The following parameters are configurable for all channel in common.
- Common relays' functions
- System Response Time
- Brightness of LEDs
- Integral Audible volume
- Auto Mute timer
- Common Alarm Reflashing enable/disable

The type of Inputs (Dry contact or Wet Contact) are configurable by jumpers for all Inputs in group of four.

Control Pushbuttons

The standard AIC400 comes with six integral pushbuttons including Acknowledge, Reset, Function Test, Mute and two user configurable buttons to control the operation. System also supports four external control pushbuttons.

Communication (optional)

AIC400 supports bi-directional communication with other devices such as SCADA, DCS, PLC,...
Various protocols such as Modbus Serial, Modbus TCP, DNP3 Serial, DNP3 Ethernet , BACnet MS/TP, BACnet IP, AB EtherNet IP,Allen Bradley EtherNet, AB DF1, and many other protocols are supported.

In addition to the above option, the standard AIC400 can be connected directly to a laptop or PC thorough the USB port to set the system configuration and also to receive/send the virtual Alarms and control signals such as Acknowledge or Reset.

Event Recording (optional)

In order to track the sequence of events in a process, the AIC400 can be supplied with an integral Event Recording option with up to 1ms resolution and
Accuracy.

Auto Mute Timer

The AIC400 has an Auto Mute Timer for unmanned applications. This feature mutes the internal buzzer and horn output relay automatically after a pre-set time. This timer can be set through the ALCON software from 5 seconds to 24 hours.

Adjustable light and sound

The LEDs' brightness and the integral Audible volume are adjustable from 10% to 100% by the built-in pushbuttons and via the ALCON software as well.

Redundant power supply (option)

The AIC400 can be equipped with integral redundant power supplies even with different external voltage levels (for example 125VAC and 24VDC) in order to reach to the maximum level of availability and reliability. Each power source has its own indicator on the panel. An output relay can be assigned to each or both power supplies to monitor the power supplies health.

Inputs

Each input is optically isolated up to 2000VAC. System accepts NO/NC, Dry Contact or Wet Inputs. All inputs are bi-polar and can accept both AC and DC signal in a wide range of voltages including “24V”, “48V”, “90V to 180V” , “150V to 250V”, ...
The system Response Time is selectable from 1ms to 1sec.

Auxiliary Relays (Repeat Relays)

Each alarm point can be equipped with an individual auxiliary relay to provide the user with a potential free contact per alarm point for use with 3rd party devices. Both NO and NC contacts are available at the same time. These auxiliary relays can be configured to operate in accordance with one of the following.
- Input Follow (Repeat): The state of each relay will change each time there is a status change to the associated input signal.
- Output Follow (Repeat): The state of each relay will change on alarm and faithfully and it follows the LED.

The auxiliary relays function can be set through the ALCON software.

Common Output Relays

The AIC400 supports up to four common relays. Each relay provides the user with a pair of potential free NO and NC contacts to be used with 3’rd party devices. Contacts are rated at 1A@24VDC or 0.5A@ 120VAC.
The common relays function can be set through the ALCON software. Each relay can be assigned to a variety of functions such as:

- Common Alarm
- First-up
- Group 1 (Critical alarms) Horn
- Group 2 (Non-critical alarms) Horn
- Group 1 (Critical alarms) Common Alarm
- Group 2 (Non-critical alarms) Common Alarm
- Power Supply 1 Failure Monitoring
- Power Supply 2 Failure Monitoring
- Redundant Power Supply Failure
- System Ready Signal
- RingBack

Alarm Sequences

All the standard alarm sequences are supported by the AIC400 as defined in the ISA S18-1 1979 including:

- Manual Reset (M)
- Automatic Reset (A)
- Automatic Reset First Out (F3A)
- Automatic Reset First Out (F1A)
- Manual Reset First Out (F2M-1)
- Manual Reset First Out (F2M-1)
- Ringback (R)
- No Lock In

You can see more information about these sequences at the end of this document.

Specification Summary

Display
24x22(mm) windows equipped with supper bright **multi-color** LEDs (selectable colors)

Inputs
Optically isolated bipolar Inputs (NO/NC, Dry/Wet Contacts) or signals through communication ports as a Serial Annunciator

Common Output Relays
Up to four programmable relays with NO/NC contacts rated at 1A@24VDC or 0.5A@ 120VAC

Auxiliary Relays (Repeat Relays)
One individual auxiliary relay for each each alarm point with NO/NC contacts rated at 1A@24VDC or 0.5A@ 120VAC

Field Configurable
System is easily field configurable by the ALCON software via USB port

Adjustable Parameters
Adjustable LEDs' brightness, integral Audible volume, Auto Mute Timer

Connections
All connections via two-part pluggable heavy-duty terminals suitable for 28-16AWG conductors rated at 8A@300V

Redundant power supply
Integral redundant power supplies equipped with two power indicators. Each power supply can be:
Nominal 24VDC (18 to 36)VDC
Nominal 48VDC
Universal: 90-260VAC/DC
Others: To be specified

Communication
- Isolated or Non-Isolated RS485/232 port (Modbus RTU)
- Optional DNP3, BACnet ,... protocols
- USB port

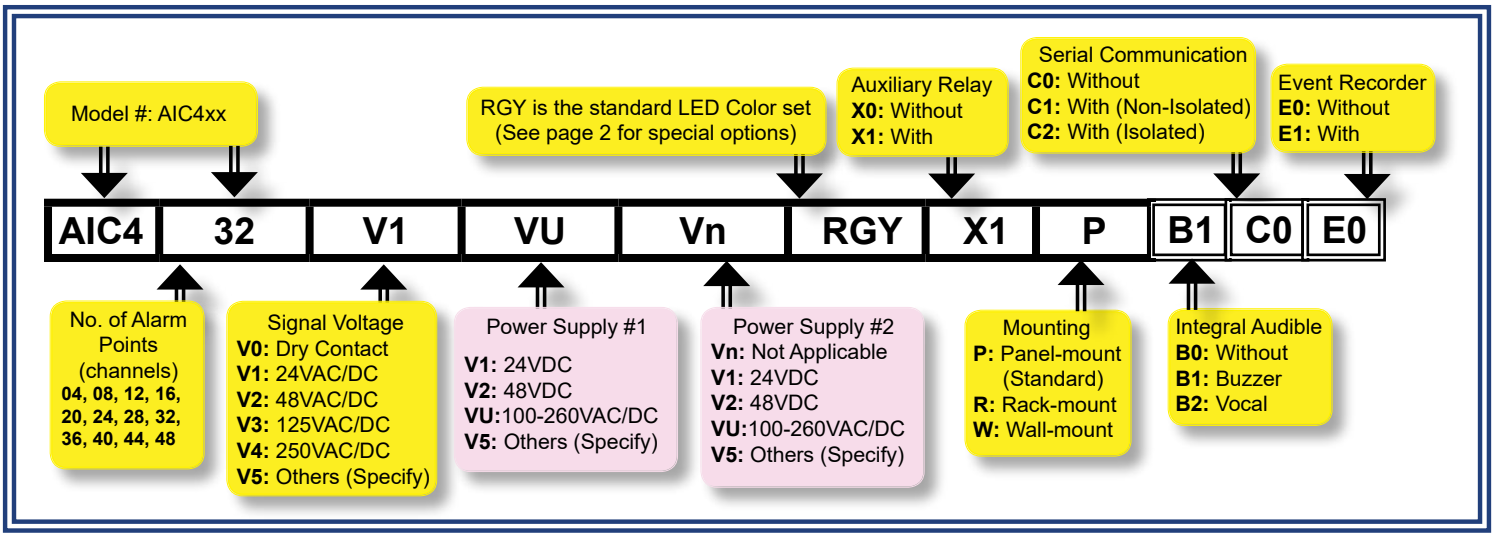
Pushbuttons
There are six integral pushbuttons including Reset, Aknowledge, Function Test, Mute and two user configurable buttons to control the operation. Four external pushbuttons are also supported via a five pin pluggable connector.

Mounting
Panel Mount (standard)
Rack-mount (optional)
Wall-mount (optional)

Protection
- Front Panel: IP41
- Enclosure: IP20

Environment
- Operating temperature: -20 to 60ºC
- Storage temperature: -20 to 80°C
- Humidity 0-95% RH, non condensing

Order Number



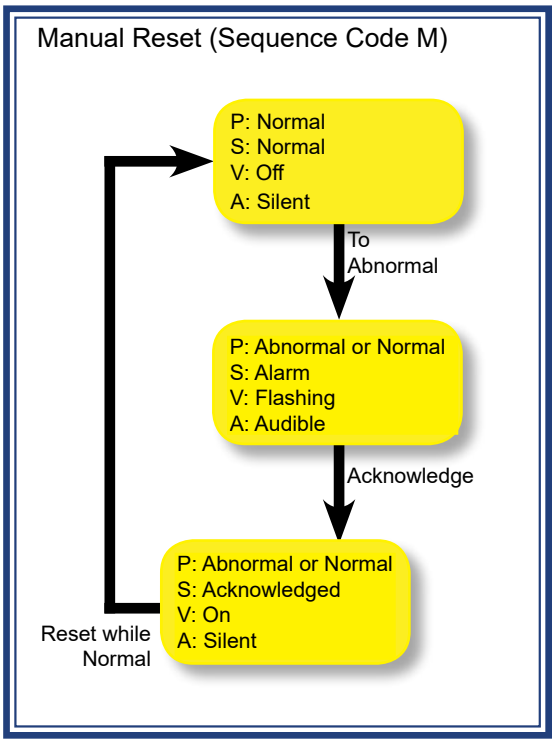
Alarm Sequence Flowcharts

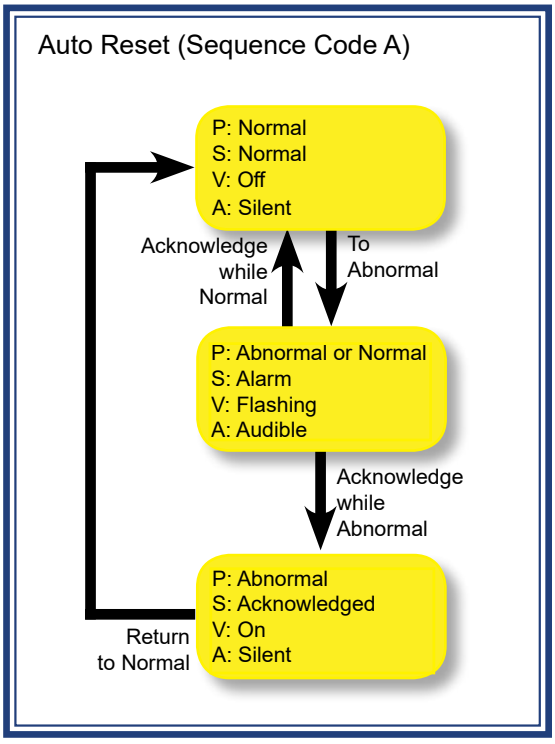
AIC400 supports all *ISA-18.1 Alarm* sequences including:

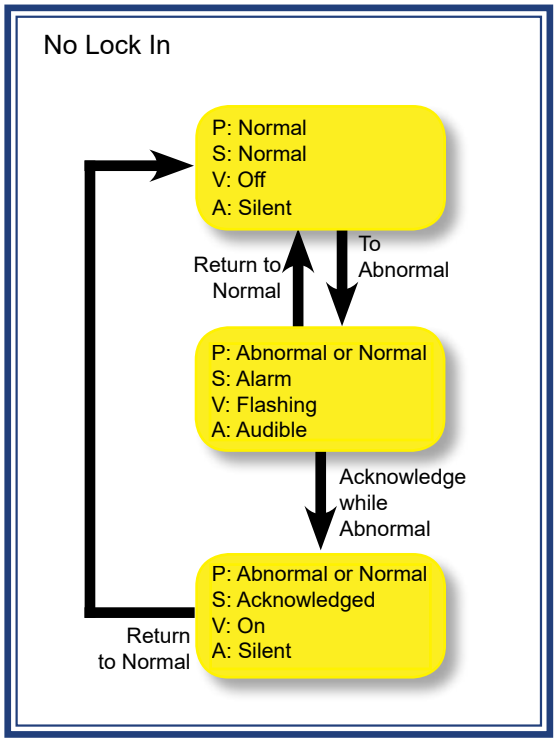
- Manual Reset (M)
- Automatic Reset (A)
- Automatic Reset First Out (F3A)
- Automatic Reset First Out (F1A)
- Manual Reset First Out (F2M-1)
- Ringback (R)
- No Lock In

These sequences are Field Selectable by ALCON configuration software via a USB port.

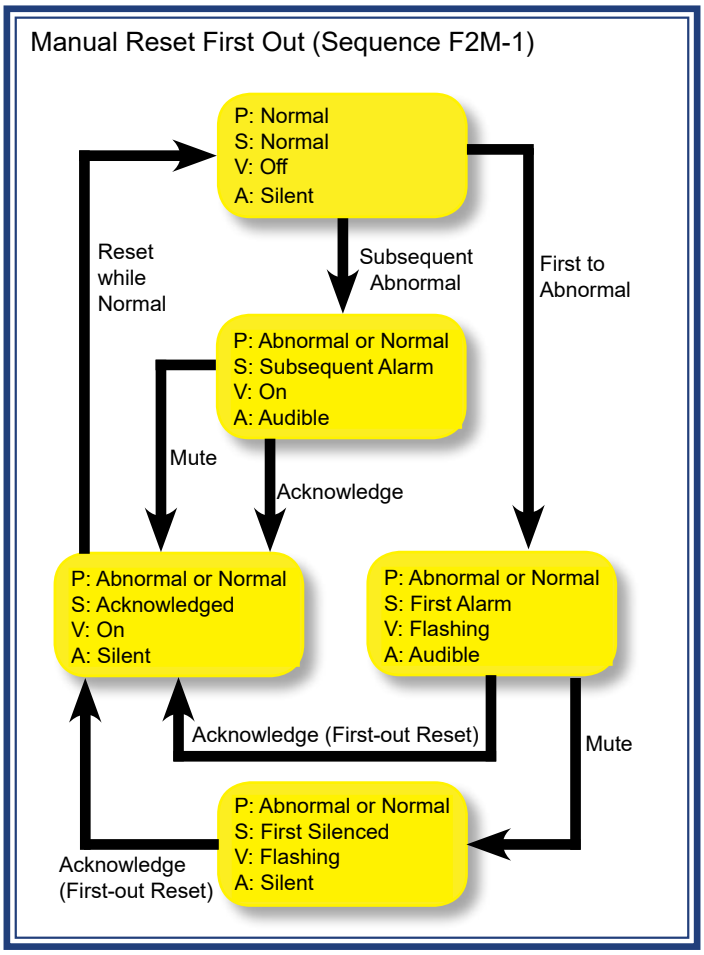
Customized sequences are also available based on request

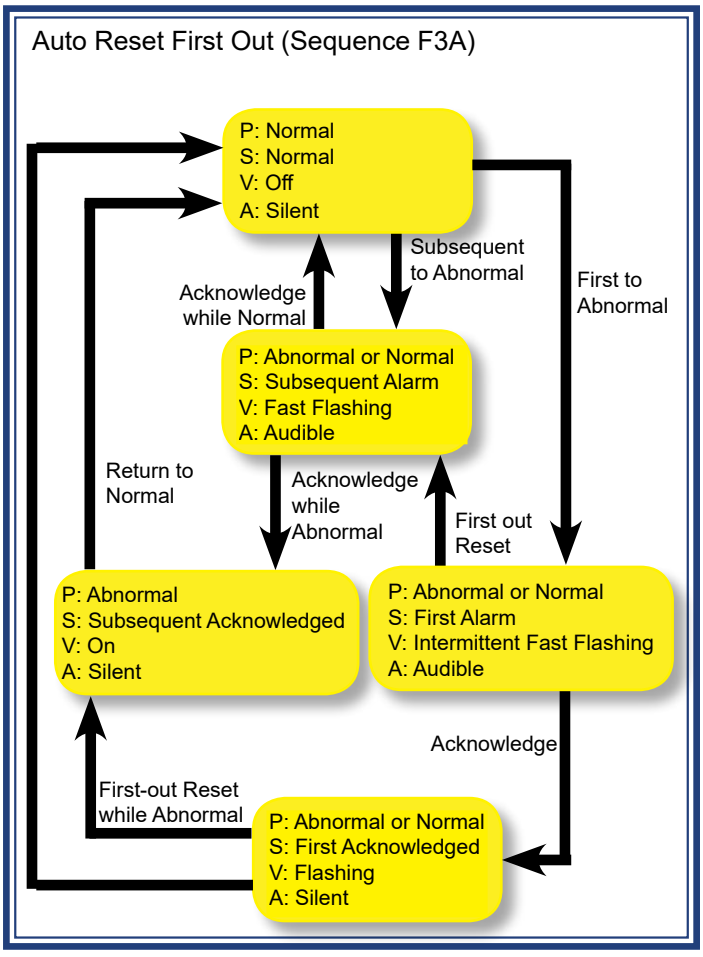


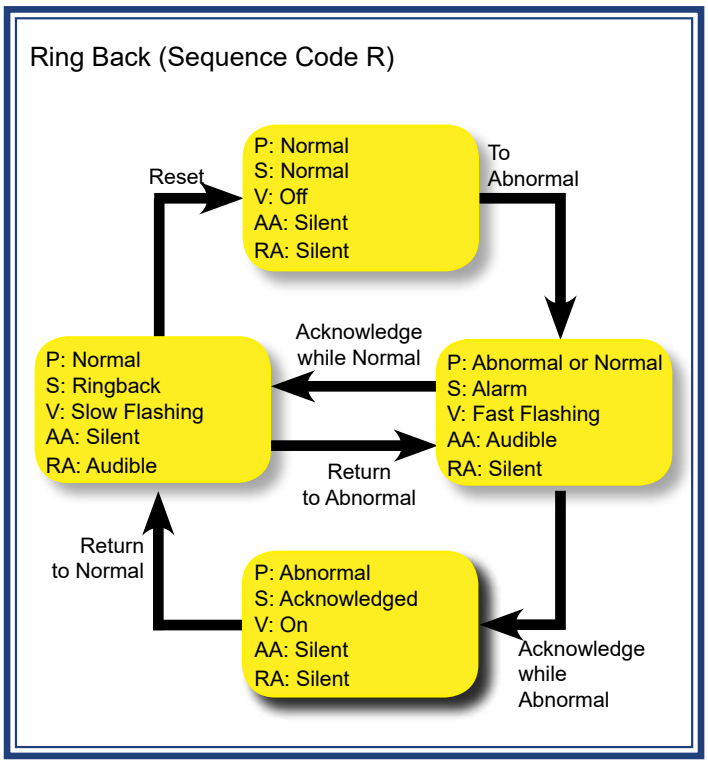


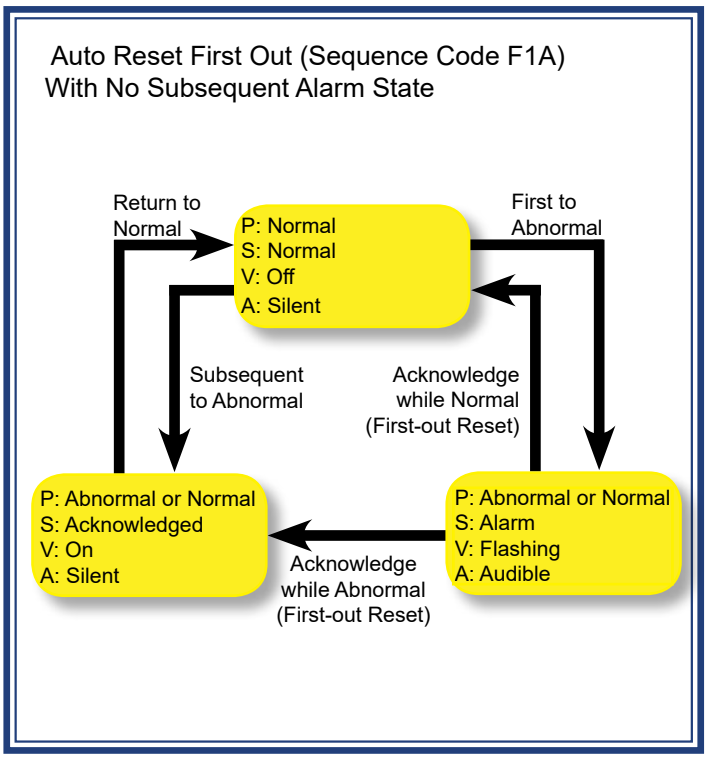


Legends:
P: Process S: Sequence V: Visual A: Audible AA: Alarm Audible RA: Ringback Audible









Legends:

P: Process S: Sequence V: Visual A: Audible AA: Alarm Audible RA: Ringback Audible