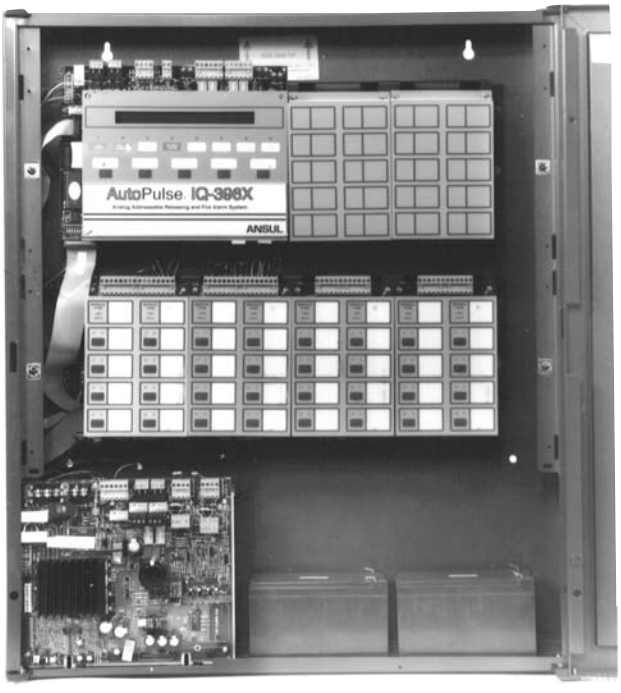
ANSUL®

DETECTION AND CONTROL EQUIPMENT DATA SHEET

AUTOPULSE® IQ-396X ANALOG ADDRESSABLE CONTROL UNIT

FEATURES

- Two intelligent Signaling Line Circuits (SLC) Style 4, 6, or 7
- 396 intelligent device capacity (198 intelligent detectors and 198 monitor/control modules)
- Four built-in output circuits
- Up to 64 internal output circuits/relays on optional modules in the unit
- 99 programmable zone output relays
- Manual sensitivity adjustment – 9 levels
- Pre-alarm AWACS™ 9 levels
- Day/Night automatic sensitivity adjustment
- Drift compensation (U.S. patent pending)
- Multi-detector algorithm involves nearby detectors in alarm decision (patent pending)
- Early Warning View™ Detection
- Auto detector test (meets NFPA 72)
- Maintenance alert (two levels)
- Self-optimizing pre-alarm adjusts pre-alarm level to environment automatically
- Activate local sounder base on pre-alarm
- LED blink control for sleeping areas
- Automatic device type check
- Ten independent releasing hazards
- Sophisticated cross-zone (three options)
- Release time delay with automatic (0-60 sec.) and manual (0-10 sec.) operation
- Soak time 0 to 9999 seconds
- “Second Shot” release capability
- Abort (four options)
- Solid state message generation
- Hard-wired voice control module options
- Distributed voice options (XP transponders)
- Fire fighter telephone option
- 30- to 120-watt high-efficiency amplifier
- Backup tone generator and amplifier option
- Dual channel option
- Optional universal 396 channel DACT (Digital Alarm Communicator/Transmitter), with AC fail delay
- Annunciation by software zone or device address
- LCD-80 remote display/control
- ACS annunciators (EIA-485), including LDM custom
- Printer interface (80-column and 40-column printers)
- 6.0 A usable regulated output power, plus 3.0 A expanders
- 80-character LCD display, backlit (2 lines x 40 characters)
- History file with 800-event capacity in non-volatile memory, plus separate 200-event alarm-only file
- VGAS graphic monitor system supports up to 8 IQ-396X’s
- Waterflow or supervisory selection per point
- Alarm Verification selection per point, with tally
- Auto programming and Walk Test reports 2 devices set to same address
- Positive Alarm Sequence (PAS) Presignal per NFPA 72
- Silence inhibit and Auto Silence timer options



FEATURES (Continued)

- March time/temporal/California/two-step code for bell circuits
- Field-programmable on panel or on PC, with VeriFire™ program check, compare, simulate
- Full QWERTY keypad behind flip-down door
- MMX-2 two-wire detector interface provides compatibility with many non-Notifier detectors for retrofit applications
- Dual rate charger for up to 90 hours of standby power
- Tornado Warning activates different Notification Circuit code
- Non-alarm points for lower priority functions
- Remote ACK/Silence/Reset/Drill via MMX modules
- Automatic time control functions, with holiday exceptions
- Rapid poll algorithm for manual stations; responds in < 3 seconds
- Operates with untwisted, unshielded wire (up to 1,000 feet) for retrofit applications (U.S. Patent 5, 210, 523)
- Surface Mount Technology (SMT) Electronics
- High-speed RISC (Reduced Instruction Set Computer) 16-bit Microprocessor
- Extensive, built-in transient protection

DESCRIPTION

The IQ-396X is a modular, cost-effective, intelligent fire alarm and agent releasing control unit with a capacity of 563 points and an extensive list of powerful features. The IQ-396X integrates the conventional output circuits, such as notification, telephone, and speakers, with the intelligent features of two signaling line circuits (SLC) and 396 intelligent/addressable points.

Field Programming is accomplished in three different ways.

1. AUTOPROGRAM – Autoprogram is a timesaving feature of the IQ-396X. It is a special software routine that allows the IQ-396X to "learn" what devices are physically connected and automatically load them in the program with default values for all parameters.

   Requiring less than 30 seconds to run, this routine allows the user to have almost immediate fire protection in a new installation, even if only a portion of the detectors are installed. The routine will find all intelligent detectors and modules, and present them to the installer for edit of the default option selections, if desired. If a device is found that already exists in memory, autoprogram skips over that device (only new devices or missing devices are presented to the installer).

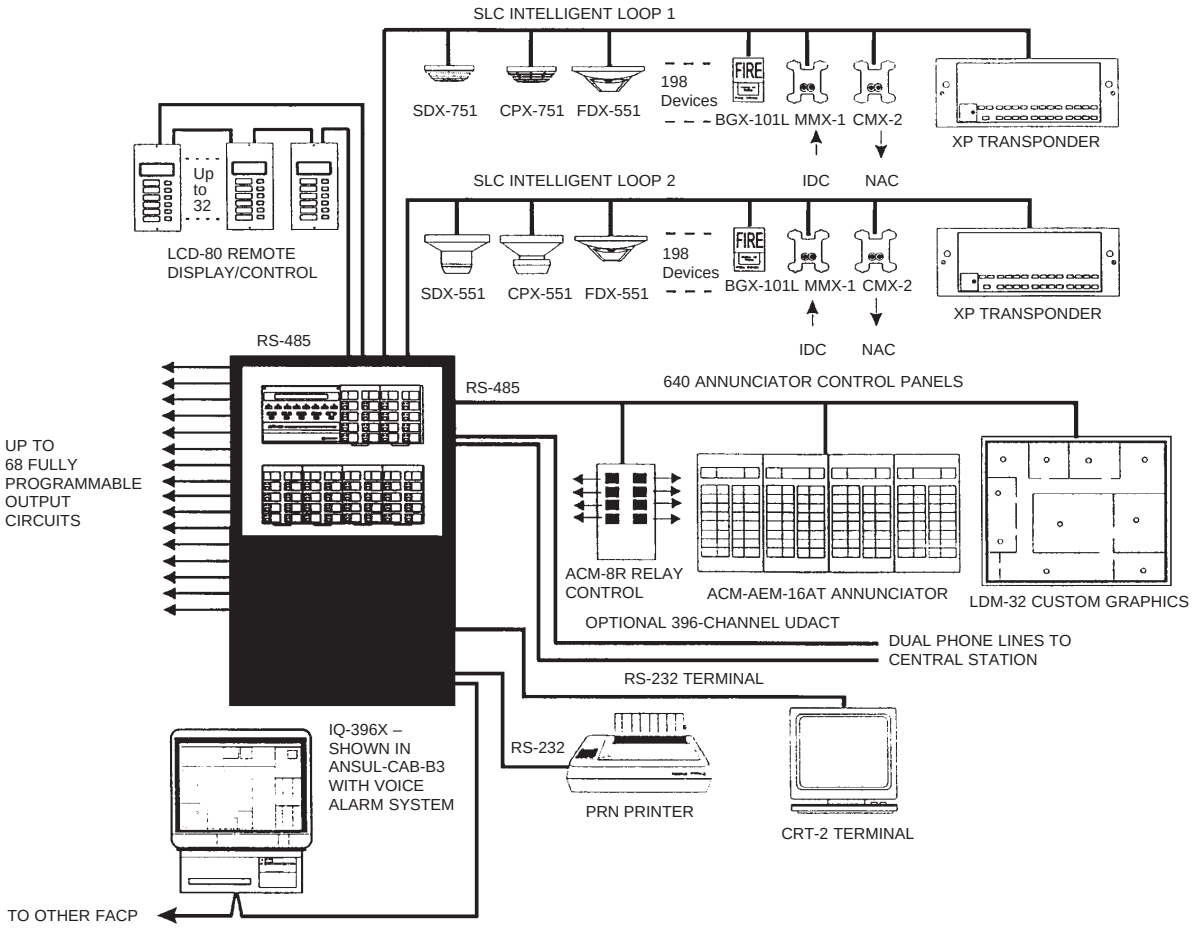
   Often the installer will perform autoprogram as a first step in a new installation, then upload the program into VeriFire to add all custom labels and other information, then download from VeriFire to the IQ-396X.

2. KEYPAD PROGRAM EDIT - The IQ-396X has the exclusive feature of full program creation and edit capability from the front unit keypad, *while continuing to provide fire protection.* The architecture of the IQ-396X software is such that each point entry carries its own program, including control-by-event links to other points. This allows the program to be entered with independent per-point segments, while the IQ-396X simultaneously monitors other (already installed) points for alarm conditions.

   In addition to avoiding system shutdown, program edit from the unit keypad has the advantage of not requiring an on-site PC. This can save significant installation time for minor program changes. The IQ-396X site-specific program is password protected, and all information is stored in non-volatile memory. Menu "trees" are provided to lead the trained installer through the program steps without the necessity to refer to the programming manual.

3. VeriFire™ – VeriFire is an off-line programming and test utility that can greatly reduce installation programming time, and increase confidence in the site-specific software. It is Windows® based and provides technologically advanced capabilities to aid the installer. The installer may create the entire program for the IQ-396X in the comfort of the office, test it, store a backup file, then bring it to the site and download from a laptop into the unit.

System Diagram – The following figure shows an IQ-396X system diagram with a full complement of installed devices.



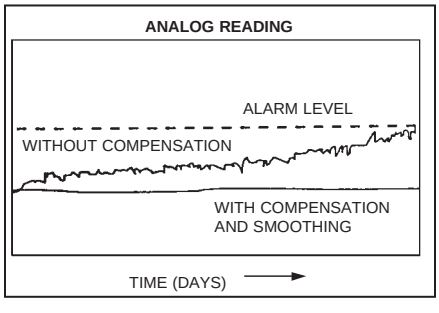
The program includes error checks for common programming mistakes, such as an input point that does not activate any outputs, or an output point that is not linked to any inputs. It also includes a simulation routine that will list all of the output points that are activated by a particular input point (alternatively, it will list all the input points that are linked to a particular output). Although this does not eliminate on-site testing, it greatly increases confidence in the final installation. For example, a 200-input and 100-output point system, without using VeriFire, could require 20,000 test observations to verify all possible I/O links.

VeriFire includes a compare routine that can also greatly help the installer. When a new program is created, it may be compared with a previous version and differences are highlighted. If the program is modified from the unit keypad, it may be uploaded into VeriFire, and compared with the previous version stored on disk. The identification of program *differences* greatly helps the installer in testing the installation. NFPA 72 requires that reacceptance test of a fire alarm system be performed on 100% of all points that are "known" to be modified. VeriFire allows the installer to determine the exact points that are changed.

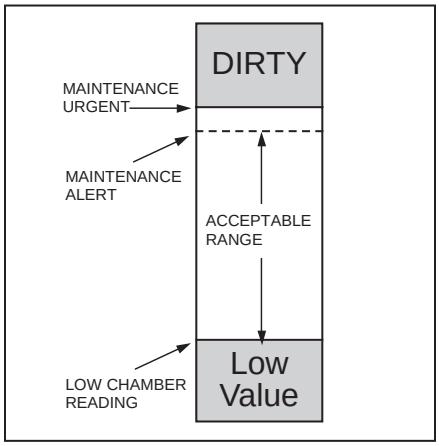
AWACS™ – ADVANCED WARNING ADDRESSABLE COMBUSTION SENSING

AWACS™ is a group of software algorithms that provide the IQ-396X with industry-leading smoke detection capability. These complex algorithms require many calculations on each reading of each detector, and are made possible by the very high speed microcomputer used by the IQ-396X (16-bit RISC).

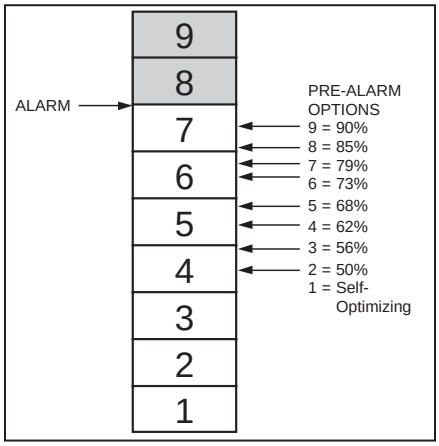
Drift Compensation and Smoothing: These algorithms (U.S. patent pending), identify and compensate for long-term changes in the analog readings from each smoke sensor. Long-term changes are usually caused by dust accumulation inside the smoke chamber. Drift compensation allows the detector to retain its original ability to detect actual smoke, and resist false alarms, even as dirt accumulates. It reduces maintenance requirements by allowing the system to automatically perform the periodic sensitivity measurements required by NFPA standard 72. Smoothing filters are also provided by software to remove transient noise signals, usually caused by electrical interference. Different smoothing algorithms are used, depending on the sensitivity selection of each detector.



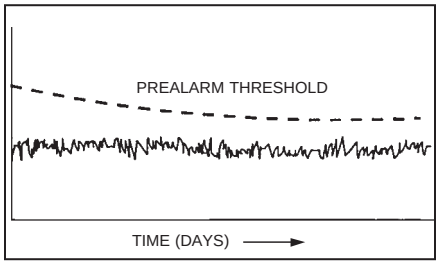
Maintenance Warnings: When the drift compensation performed for a detector reaches a certain level, the performance of the detector may be compromised, and special warnings are given. There are three warning levels: (1) Low Chamber value – usually indicative of a hardware problem in the detector; (2) Maintenance Alert – indicative of dust accumulation that is near but below the allowed limit; (3) Maintenance Urgent – indicative of dust accumulation **above** the allowed limit. The Maintenance Alert level (2) encourages maintenance before the performance of the device is compromised.



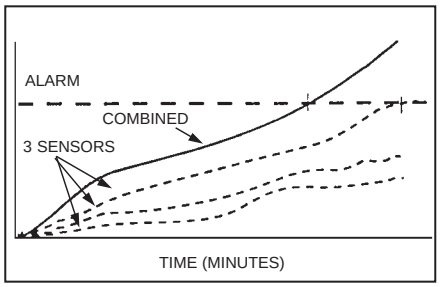
Sensitivity Adjust: Nine sensitivity levels are provided for alarm detection. These levels can be set manually, or can change automatically between day and night. Nine levels of pre-alarm sensitivity can also be selected, based on predetermined levels of alarm. Pre-alarm operation can be latching or self-restoring, and can be used to activate special control functions that are a subset of the alarm control program.



Self-Optimizing Pre-Alarm: Each detector may be set for "Self-Optimizing" pre-alarm. In this special mode, the detector "learns" its normal environment, measuring the peak analog readings over a long period of time, and setting the pre-alarm level just above these normal peaks. This allows extremely sensitive pre-alarm capability with reasonable protection against non-fire signals.



Cooperating Multi-Detector Sensing: A unique feature of AWACS is the ability of a smoke sensor to consider readings from nearby sensors in making alarm or pre-alarm decisions. Using logic algorithms, each sensor can include up to two other sensors in its decision. Without statistical sacrifice in the ability to resist false alarms, it allows a sensor to increase its sensitivity to actual smoke by a factor of almost 2 to 1. Multi-detector sensing also allows the combination of ionization with photoelectric technology in reaching an alarm decision.



APPLICATION

The AUTOPULSE IQ-396X control system is ideal for industrial, commercial, and institutional facilities where an intelligent control system is needed to detect fire, and if required, actuate a fixed fire suppression system. In addition this system can be used as a combination fire/burglary and burglary system, critical process monitoring, and tornado warning.

Analog smoke detector sensitivity is monitored by the control unit which will indicate a special trouble condition if the detector sensitivity moves outside the listed range.

The control unit can be programmed to operate as single zone or cross zoned for controlling agent release with time delays, soak times, and abort capabilities.

The control system also meets the requirements of the various standards for fire suppression systems including: NFPA 12 CO_2 Extinguishing Systems; NFPA 2001 Clean Agent Fire Extinguishing Systems; NFPA 13 Sprinkler Systems; NFPA 15 Water Spray Systems; NFPA 16 Foam/Water Deluge and Foam/Water Spray Systems; NFPA 17 Dry Chemical Extinguishing Systems; NFPA 17A Wet Chemical Extinguishing Systems.

LISTINGS AND APPROVALS

UL S4935

ULC. CS412

FMRC. 0B 1A0.AY

CSFM 7165-0595:112

These listings apply to the basic IQ-396X control unit. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult Ansul for latest listing status.

The IQ-396X is UL-Listed, per Standards 864 (Fire) and 1076 (Burglary). It meets NFPA 72 Local, Auxiliary, Remote Station, Proprietary, and Emergency Voice/Alarm Fire System Requirements.

TECHNICAL SPECIFICATIONS

Primary input power: . . . . . 120 VAC, 50/60 Hz, 3.0 Amps

Total output 24 V power: . . . . . 6.0 A*

Standard Bell Circuits (4) per MPS-400: . . . . . 2.5 A each

Four-wire detector power: . . . . . 1.25 A

Two non-reset regulated power outputs: . . . . . 1.25 A each

Battery charger range: . . . . . 12 AH - 55 AH (Use separate BB-55 cabinet for 55 AH batteries)

Charge high rate: . . . . . 29.1 V

Float Rate: . . . . . 27.6 V

* Note: The MPS-400 has a total of 6.0 Amps of available power. This is shared by all internal modules and each MPS-400 circuit.

SYSTEM CAPACITY

Intelligent Signaling Line Circuits 2

Intelligent Detectors. 198

Addressable monitor/control modules. . . . 198

Programmable internal hardware and output circuits (4 standard) 68

Programmable Software zones. 99

Special Programming zones 6

Releasing Software zones 10

Programmable remote relay/ annunciator points 99

LCD-80 annunciators per system . . . . . 32 (observe power)

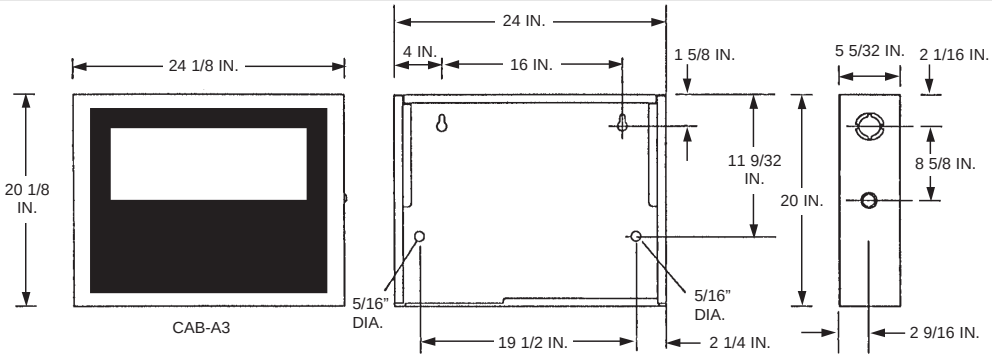
ACS annunciators per system . . . . . 10 Address x 64 points

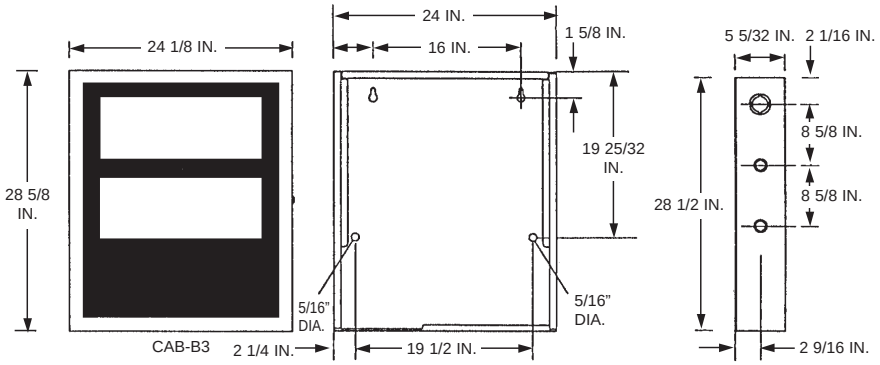
NOTE: Specifications in this data sheet subject to change.

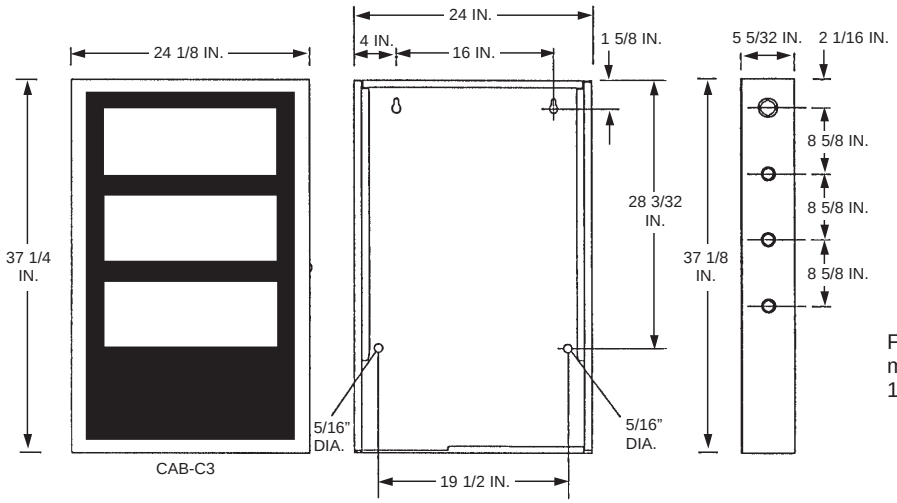
ORDERING INFORMATION*

Part No.	Description	Shipping Weight lb.	(kg)
419404	BE-IQ-396X Basic Equipment Package (order cabinet separately)	26	(11.8)
419589	MPS-400 Power Supply (included with BE-IQ-396X)	10	(4.5)
419671	ANSUL-CAB-A3 Cabinet, Red	35	(15.9)
419672	ANSUL-CAB-B3 Cabinet, Red	45	(20.4)
419673	ANSUL-CAB-C3 Cabinet, Red	55	(24.9)
419410	BB-55, Battery Back Box, Red	30	(13.6)
426134	Key and Lock Assembly	1.0	(0.45)

* Optional modules, chassis, etc. will be shown on other component sheets.







For metric measurements 1 in. = 25.4 mm

