ARIES™

Fire-Alarm/Suppression System Control Unit

Effective: April 2013
K-76-600

FEATURES

- ***Distributed Intelligence to Sensor Level***
- ***Fully-Digitized Communications Protocol***
- ***Up to 255 Points without Device-Type Restrictions***
- ***Triple-R Protection Against Inadvertent Extinguishing-System Activation***
- ***Inherently Power Limited***
- ***USB Communications Port***
- ***Internet Accessible***
- ***Simple Programming***
- ***UL Listed and FM Approved***

DESCRIPTION

The ARIES™ Fire Alarm/Suppression System Control Unit is a compact control unit that provides one signaling line circuit, four notification-appliance circuits, two releasing circuits, and four on-board relays. Two of the four notification-appliance circuits are user-configurable to actuate one solenoid valve for control of a special extinguishing system or a pre-action/deluge sprinkler system. A 5.4 Amp, filtered and regulated power supply provides charging capabilities for batteries up to 70 Ah.

The ARIES Control Unit annunciates alarm, trouble, and supervisory events via an 80-character, backlit LCD display with integral status LEDs. Event acknowledgment, alarm silence, and system reset are accomplished with dedicated control keys. Basic user and maintenance operations such as viewing history or isolation commands to initiating points and system outputs are performed via the control keys and associated digit keys. A security password prevents unauthorized access to the system.

SIGNALING LINE CIRCUIT

The signaling line circuit communicates with up to 255 SmartOne® automatic initiating devices, monitor modules, and control modules via a highly-efficient, fully-digitized protocol. The SmartOne communications protocol imposes no limitations on the mix of automatic initiating devices and monitor/control modules on the signaling line circuit. Each SmartOne initiating device has a microprocessor, memory, and decision-making algorithms to interrupt normal control-unit communications and initiate an alarm signal.

This distributed intelligence to the sensor level ensures rapid response to all types of initiating signals, and is far superior to the various sequential, poll and respond communication schemes employed by others that rely on the control unit to make all alarm decisions. SmartOne smoke detectors manage their individual drift compensation routines, and have pre-alarm and alarm thresholds that are configurable in 0.1 percent-per-foot increments throughout the entire range of Listed sensitivities. The

control unit can dynamically adjust the smoke detector alarm thresholds as the result of one or more alarm-initiating events to confirm that a fire requiring the rapid action of an associated extinguishing system has occurred. SmartOne smoke detectors can also be configured for non-latching operation that requires them to measure smoke signatures in excess of their alarm thresholds for the entire pre-discharge time period in order to discharge the extinguishing system. This prevents a transitory event that mimics a smoke signature such as the leakage of air-conditioning fluid from accidentally discharging the extinguishing system.

SmartOne heat detectors have pre-alarm and alarm thresholds that are programmable in 1°F intervals.

The signaling line circuit can be wired for Class-A, Style-6 or Class-B, Style-4 operation. Optional isolator modules can be used for a Class-A, Style-7 circuit.

RELEASING CIRCUITS

The ARIES Control Unit has two releasing circuits that can be configured to actuate releasing devices via any of the following ways:

- Single control head or solenoid valve
- Two series-supervised, parallel-actuated control heads or solenoid valves.
- One Metron actuator

These releasing circuits can be used to actuate various Kidde control heads for waterless-extinguishing-system storage containers, or solenoid valves for sprinkler control that fall within the Factory Mutual System Groups A, B, D, E, and G. A releasing circuit can actuate an unmatched pair of control heads or solenoid valves because it activates these releasing devices in parallel, not in series. This means that a releasing circuit can activate the control valves for a waterless suppression system and a back-up pre-action-sprinkler system simultaneously which makes efficient use of the control unit's circuitry and increases system reliability by enabling a single action to operate both extinguishing systems.

The releasing circuits are protected against inadvertent activation via the main microprocessor by the ARIES exclusive "Triple-R" (for triple redundancy) safeguard system. The "Triple-R" system requires that the main microprocessor issue two release commands, of opposite polarity and via separate signaling channels, and that these commands be combined with a signal from the control unit's watchdog timer confirming proper microprocessor operation, in order to activate a release circuit. This triply-redundant release-command requirement ensures that an electrical transient or disturbance that temporarily interferes with the operation of the main microprocessor will not inadvertently activate an extinguishing system.

NOTIFICATION-APPLIANCE CIRCUITS

The ARIES Control Unit has four notification-appliance circuits (NACs). Each circuit can provide up to 1.5 Amps @ 24 Vdc for horns, strobes, chimes, or other notification appliances. Power for the notification appliances is fully filtered and regulated. Each NAC is programmable, and supports continuous and master-coded outputs for audible devices. The NACs' coded patterns are dynamically adjustable and can be programmed to sound different codes to notify the occupants of progressively-more-serious conditions.

Both circuits are supervised, power limited, and are compatible with conventional, UL Listed, 24 Vdc notification appliances. They can also be used with the following Kidde synchronizable horns and strobes without the requirement of an external synchronization module:

- MT Series Multi-Tone Horns and Horn/Strobes
- NS Series Horn/Strobes
- NH Series Horns
- RS Series Strobes

The MT and NS Series notification appliances provide the option to use silenceable horns and non-silenceable strobes on the same NAC.

Two of the NACs are also user-configurable to activate one solenoid for special-extinguishing-system actuation or pre-action/deluge sprinkler-system actuation like the regular releasing circuits. These NACs are also protected against inadvertent activation via the main microprocessor by the ARIES "Triple-R" safeguard system when they are configured for releasing applications.

ON-BOARD RELAYS AND AUXILIARY POWER

The ARIES has four Form-C relays. Three of the four relays are user-programmable for any system condition and the fourth relay is dedicated to trouble conditions. Each relay is rated for 1 Amp @ 28 Vdc.

Two auxiliary power outputs are provided, each with a 1-A output. These auxiliary power outputs are user configurable for resettable or continuous power.

INTEGRATION WITH SPECIALTY DETECTION SYSTEMS

The ARIES is designed to integrate seamlessly with ORION™ XT High Sensitivity Smoke Detectors (HSSD®) via one or more ORION XT Interface Modules (PALM). It also integrates with Kidde's AlarmLine™ Cable via AlarmLine Addressable Modules and with Linear Heat-Sensing Cable (LHS) via regular monitor modules.

The PALM permits an HSSD to be connected to the signaling line circuit and report pre-alarms and alarms in an addressable manner analogous to a SmartOne smoke detector.

The AAM permits an AlarmLine cable to be connected to the signaling line circuit and report pre-alarms and alarms in an addressable manner analogous to a SmartOne heat detector. The LHS can report as a point-specific alarm via an AI Monitor Module.

PROGRAMMING

The ARIES configuration tool is used to program the control unit for each individual, site-specific application. Programming is for control-by-event scenarios, and consists of entering a series of conditional control statements that logically join initiating points to control-unit-based outputs and remote control modules. Each SmartOne field device can be assigned a location message of up to 40 characters via the ARIES configuration tool. A USB Device Port is available to connect to a laptop computer for application upload.

A front panel-activated AutoLearn routine can be executed that will create a general alarm, one input activates all outputs application to speed the system-configuration process. The more sophisticated Auto-Setup routine allows the ARIES System to be automatically configured for the typical control scenario utilized by waterless fire-suppression systems.

OPTIONAL MODULES

REMOTE LCD ANNUNCIATOR

The ARIES Control Unit supports up to 15 remote LCD annunciators called RDCMs. This remote annunciator uses the same 80-character, backlit LCD display found on the main control unit. The RDCM permits remote event acknowledgment, alarm silencing, and system reset, and is secured with a key lock. User- and maintenance-level functions are also possible from the remote annunciator.

GRAPHIC-ANNUNCIATOR DRIVER

The Model ATM-L Annunciator Driver Module provides the ARIES Control Unit with up to 32 programmable, supervised LED outputs for graphical or tabular annunciators, along with 6 system-level LED outputs and 5 system-level inputs circuits for functional switches.

The system-level LEDs correspond to the following general conditions: Module Power, Pre-Alarm, Alarm, Alarm Silence, Supervisory, and Trouble.

The input circuits for functional switches provide for the following operator intervention: System Reset, Event Acknowledgment, Alarm Silence, Fire Drill, and Lamp Test.

The ARIES supports up to 16 graphic annunciator driver modules.

INTELLIGENT COMMUNICATIONS MODULE

The Intelligent Communications Module (ICM) can be used to access the ARIES System via the Internet to view system status and current events and to download the history log. The ICM can be programmed to transmit up to five e-mails upon the occurrence of any unsolicited event in the system. The e-mail message embeds a link with the IP address of the control unit that sent the message for instant access to the remote system.

The ICM can be accessed using any standard Web-browsing program and requires no special proprietary software.

The ICM also allows the ARIES Control Unit to report as a slave device via the Modbus TCP/IP Protocol to a master monitoring system for automated process control.

SPECIFICATIONS

Primary AC Power:	120 Vac, 50/60 Hz, 3.2 A 220/240 Vac, 50/60 Hz, 1.6 A
Power Output:	5.4 A @ 24Vdc Filtered and Regulated Inherently Power-Limited
Battery (Sealed, Lead-Acid Only):	70 Ah Maximum Capacity Enclosure fits two 12AH batteries
1 Signaling Line Circuit:	255 Devices Maximum, Style-4, -6, or -7 (with Isolater Modules)
2 Notification Appliance Circuits:	Class-A, Style-Z or Class B, Style-Y 24 Vdc, 1.5 A (maximum per circuit) Suitable for Synchronized Notification Appliances
2 Releasing Circuits:	Configurable for: - One or two Control Heads and/or Solenoid Valves - One Metron Actuator 24 Vdc, 2.4 A (maximum per circuit)
2 Combination Circuits:	Each Configurable as: Class-A, Style-Z or Class-B, Style-Y NAC, 24 Vdc, 1.5 A (Maximum per circuit) Suitable for Synchronized Notification Appliances OR Release Circuit with One Control Head or Solenoid Valve 24 Vdc, 2.4A (maximum per circuit)
Relays:	3 Programmable and 1Trouble Relay. - 1.0 A @ 30 Vdc (resistive) - 0.5 A @ 30 Vdc (inductive) - 0.5 A @ 120 Vac (inductive)
2 Auxiliary-Power Outputs:	Programmable for Resettable or Continuous Output 1 A @ 24 Vdc (each output)
2 RS-232 Serial Ports:	Bi-Directional 9600 Baud, 8 Data Bits, 1 Stop Bit, No Parity
1 RS-485 Communications Port:	Maximum 31 Remote Addresses (RDCM and ATM-L)

1 USB Device Port:	USB Serial
Dimensions:	Enclosure Only: 14-1/4 in. W x 19 in. H x 5 in. D Enclosure with Door: 14-13/32 in. W x 19-5/32 in. H x 5-1/16” D
Environmental	Temperature 32°F to 120°F Humidity 93% @ 90°F (non-condensing)

OPTIONAL MODULES

Part Number	Description
76-600000-005	Remote Display/Control Module (RDCM)
06-220080-002	Intelligent Connector Module (ICM): Use for remote Internet access and MODBUS protocol
76-600000-018	ICM Enclosure - Red
76-600000-009	Network Interface Card (NIC): One required for each network panel
76-600000-006	Fiber Optic Converter Card in Red Enclosure (OCC)
76-200004-032	ATM-L Annunciator Driver Module: 32 independently programmable LED drivers
76-200005-032	ATM-R Relay Driver Board 32 independently programmable relay drivers

ORDERING INFORMATION

Part Number	Description
76-600000-001	ARIES Control Unit (Red)
76-600000-007	Trim Ring (Red)

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