Electrical Signaling

Electrical protective signaling systems are configurations of components used to produce alarm signals indicative of fire, smoke, sprinkler waterflow or other emergency and to produce supervisory signals indicative of conditions needing attention with respect to protection equipment or watch service. System configurations are classified according to where and how the signals are received. The categories are commonly designated as local, municipal, remote station, proprietary and central station. Auxiliary systems are either local or proprietary systems interconnected with a municipal system.

This category presents the major system component categories and the integrated system configurations. The selection of components to form a hybrid system should be made only by those skilled in system design. Also, the suitability of any system application should be judged on the basis of the hazard(s) being protected.

Local Protective Signaling

Local systems produce alarm and/or supervisory signals within the protected property, which may not be constantly attended. The systems are electrically supervised, include a secondary power supply having sufficient capacity to operate the system for 24 hours under maximum normal load and often are primarily for the purpose of providing occupant evacuation signals. Some local systems also provide for signaling to a constantly attended remote location.

The heart of a signaling system consists of a control unit to which are connected the initiating and signal indicating circuits. The control unit is usually in a separate enclosure, provides power to its external circuits, and often is of modular design to enable flexibility in obtaining multiple functions. In a coded signaling system, transmitters may be either separate from or integral to a control; they transmit to the control or from a control to remote receiving equipment. The equipment listed below, in conjunction with peripheral devices, may be used to form a complete system or a portion of a multizone system.

ARIES NETLink

ARIES NETLink programmable analog addressable fire alarm control system. The main control board with operating software Rev. 1.0.X has two (Class A) Style 6, 7 or (Class B), Style 4 Signaling Line Circuits (SLC's) that communicate with up to 255 analog addressable devices each. The main control board also has two (Class A), Style Z or (Class B), Style Y Notification Appliance Circuits (NACs) rated 2.0 A (max.) @ 24 V dc. Two more configurable output circuits are located on the main control board. When configured as a notification appliance circuit, the wiring performance of the configurable output circuits qualifies as (Class A) Style Z, or (Class B) Style Y, rated 2.0 A (max) @ 24 V dc; otherwise, the output circuits are used for connection to initiator or solenoid based releasing devices, rated 2.4 A (max) @ 24 V dc. One un-powered Form C relay contact is provided for trouble conditions. Three programmable, un-powered, Form C contacts are also provided. One RS-485 communication circuit for connection to Approved remote user interface modules and annunciator-driver modules is also provided. A switching power supply w/PMU Module operating from either 120 V ac or 240 V ac, 50/60 Hz primary power, supplies 5.4 A @ 24 V dc to support the control and charge 24 V dc batteries. An optional second switching power supply may be used to provide an additional 5.4 A @ 24 V dc. Up to four PMUs and eight associated power supplies may be connected when the application requires up to 20A.

The system may be expanded by using one to four Expansion Card Cage Assemblies (P/N 76-800010-001) which accept the following optional modules: SLC Card (P/N 76-800011-001), Relay Card (P/N 76-800012-001), R-NAC Card (P/N 76-800013-001), or the City-Tie Card (P/N 76-800016-001). Optional dead front covers are available along with a PEGAsys Control Unit Retrofit Kit (P/N 76-800400-001).
The following addressable devices are compatible with the ARIES NETLink control: 70-407008-001, and 70-407018-001 addressable contact input device modules, 70-408004-001 and 70-408014-001 addressable relay output device modules, addressable manual station (P/N 30-330002-001), Addressable Signal Sounder Module (P/N 70-200200-003), PSD-7152 (P/N 71-402001-100) and CPD-7052 (P/N 70-402001-100) analog addressable photoelectric and ionization type smoke detectors with the 6 in. 6SB (P/N 70-400001-100) and 4 in. 4SB (P/N 70-400001-101) detector bases, DH-2000 duct detector with PSD-7152 (P/N 70-403001-152) and DH-2000 duct detector with CPD-7052 (P/N 70-403001-052). The panel is also compatible with the THD-7252 thermistor heat detector (P/N 70-404001-100) rated 135°F (37°C) to 155°F (68.3°C), Fixed RTI classification for both temperatures: Quick, spacing guide: 20 by 20 ft (6.1 x 6.1 m) max, loop isolator base mount (P/N 74-200012-004), loop isolator single gang mount (P/N 74-200012-002). The panel is also compatible with the Addressable AlarmLine Module (P/N 73-100001-003) installed in either a standard electrical outlet box or a suitably rated NRTL listed NEMA 4 enclosure. For one or more HSSD ORION XT's, the ARIES NETLink can be connected to a PEGAsys Addressable Loop Module (PALM), (P/N 77-297103-000) mounted inside each detector enclosure and interfaced to the signaling line circuit. For one or more Air-Intelligence HSSD's the ARIES NETLink can be connected to a SmartOne APIC, (P/N 76-333002-001) mounted inside a detector enclosure and interfaced to the signaling line circuit. Suitable for indoor use only in ambient temperatures from 32° to 120°F (0° to 49°C). The ARIES NETLink is also compatible with the Remote Display Control Module (RDCM) (P/N 76-800300-001), Remote LED Annunciator Module (R-LAM) (P/N 76-800300-002) and City of Chicago Stand-Alone Control Box (P/N 76-800500-001). The RRM (P/N 70-600000-001 Standard Mounting, and P/N 70-600000-002 In-Cabinet Mounting) has the ability to remotely activate extinguishing-system control devices. It provides a releasing circuit rated 2.4A (max) @ 24 V dc for initiator or solenoid based releasing devices and connects to the signaling line circuit of the ARIES NETLink. 24 V dc batteries rated 7-165 AH are available to provide 24 hours of emergency operation. (See also AUTOMATIC RELEASES FOR PREACTION AN DELUGE SPRINKLER SYSTEMS)

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