

Protecting Your Assets Today; Protecting Our Environment Tomorrow Kidde Engineered Fire Suppression System

Designed for use with 3M™ Novec™ 1230 Fire Protection Fluid

At Kidde, we are committed to providing more than fire protection—we strive to deliver value. This guiding principle was paramount in the development of the Kidde Engineered Fire Suppression System Designed for use with 3M™ Novec™ 1230 Fire Protection Fluid.

Kidde engineers set out to manufacture a suppression system flexible enough to satisfy the requirements of a wide range of special hazard applications while meeting the environmental standards of today, as well as those of the foreseeable future.

Novec 1230 fluid is the ideal suppressant for the system as it provides the greatest margin of safety of any clean agent replacement. In addition, it is the first clean agent to offer a viable, long-term solution to the environmental challenges presented in today's environmentally aware society.



Novec 1230 Fire Protection Fluid Features:

- *Zero Ozone Depleting Potential*
- *Global Warming Potential (GWP) of just one—99.9% lower than any other halocarbon agent acceptable for use in occupied spaces*
- *Atmospheric Lifetime of just five days—the closest alternative is 33 years*
- *Safety Margin of 100%—higher than any other type of clean agent fire suppressant*
- *Easy to handle and charge—stored as a liquid (at room temperature) so cylinders are not pressurized*

***Kidde Fire Systems—
Setting the Standard in Fire Protection***

*UL Listed,
FM Approved and
USCG Approved*

Why Choose a Kidde Engineered System using Novec 1230 Fluid?

Environment Friendly. Novec 1230 fluid has a zero Ozone Depletion Potential, a Global Warming Potential of just one, and an atmospheric lifetime of only five days.

Safe. Independent scientific studies have proven that Novec 1230 fluid poses no safety risk to people in occupied spaces at the normal design concentration. It also offers a safety margin of up to 100%—that's higher than any other type of clean fire suppression agent.

Efficient. Novec 1230 fluid puts fires out quickly, before they can do any serious damage. It does this by reaching extinguishing concentrations in ten seconds or less. Because Novec 1230 fluid extinguishes fires with a combination of heat absorption and chemical interface with the flame, it is effective on a wide range of Class A, B and electrical fires.

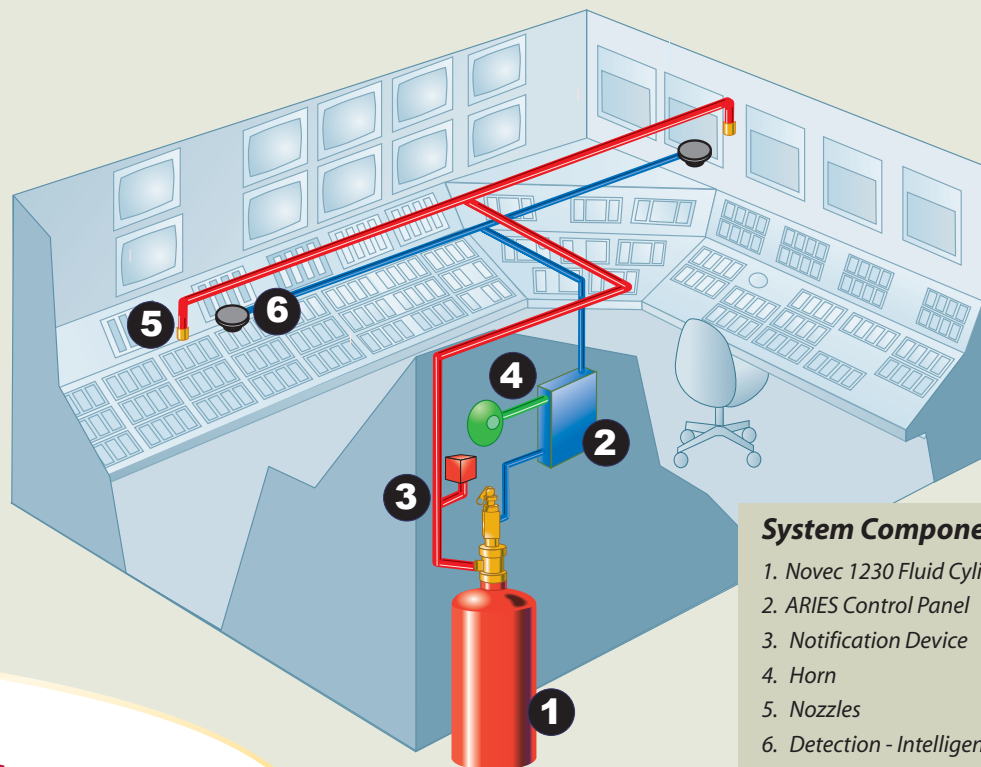
Clean. Novec 1230 fluid, stored as a liquid, discharges as a colorless, electrically non-conductive, and non-corrosive gas. It does not leave any residue behind, and there is no need for costly clean-up operations.

Cost-Effective. Kidde has produced a cost-effective Novec 1230 fluid Fire Suppression System with independent third party approvals recognized worldwide.

Novec 1230 Fluid System

Typical Applications:

- Petrochemical Installations
- Steam Turbine Generators
- Telecommunications
- Marine Applications
- Pharmaceutical/Healthcare
- Food Processing Facilities
- Railway Traffic Controls
- Electrical Equipment
- Power Generation
- Packaging Plants
- Universities/Collegiate
- Printing Facilities
- Science Labs



System Components:

1. Novec 1230 Fluid Cylinders
2. ARIES Control Panel
3. Notification Device
4. Horn
5. Nozzles
6. Detection - Intelligent



A UTC Fire & Security Company

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Kidde Engineered Fire Suppression System

Designed for use with 3M™ Novec™ 1230 Fire Protection Fluid



Effective: March 2005

K-45-1900

Novec™ 1230 Fire Protection Fluid Data Sheet

FEATURES

- **People Safe at Concentration Levels Required to Extinguish Fire**
- **Zero Ozone Depletion Potential**
- **Atmospheric Lifetime of Five Days**
- **Colorless, with Low Odor and No Particulate or Oily Residue Allowing for Minimal Business Disruption After a Discharge**
- **Electrically Non-Conductive**
- **Space Saving; Quantity of Agent Needed to Extinguish Fires Typically Required Minimal Cylinders, thus Minimal Space Required**

EXTINGUISHING AGENT

3M™ Novec™ 1230 Fire Protection Fluid is a fluorinated ketone (FK-5-1-12) Dodecafluoro-2-methylpentan-3-one) compound of carbon, fluorine and oxygen ($\text{CF}_3\text{CF}_2\text{C}(\text{O})\text{CF}(\text{CF}_3)_2$). It is colorless, electrically non-conductive and has a low odor. It suppresses fire primarily by physical mechanisms with minimal effect on the available oxygen. This allows people to see and breathe, permitting them to leave the fire area safely.

Novec 1230 fluid is acceptable for use in occupied spaces when used in accordance with the United States Environmental Protection Agency (EPA) Significant New Alternatives Policy (SNAP) program rules.

Although Novec 1230 fluid is considered non-toxic to humans in concentrations necessary to extinguish most fires, certain safety considerations should be observed when applying and handling the agent. The discharge of Novec 1230 fluid may create a hazard to people from the decomposition products which result when the agent is exposed to fire or other hot surfaces. Exposure to the agent is generally of less concern than is exposure to the decomposition products. Unnecessary exposure to the agent or the decomposition products should be avoided.

TOXICITY

Unnecessary exposure to clean agents is to be avoided in accordance with the requirements of NFPA-2001. As such, upon operation of a system pre-discharge alarm, all personnel should immediately exit the protected space. In no case shall personnel remain in a room in which there is a fire. In the very unlikely instance where a clean agent system should discharge unexpectedly into an occupied room, all personnel should proceed in a calm and orderly manner to an exit and leave the room.

Novec 1230 fluid has been evaluated for cardiac sensitization in accordance with test protocols approved by the United States Environmental Protection Agency (U.S. EPA). The EPA's SNAP Program classifies Novec 1230 fluid as acceptable for use as a total flooding agent in occupied spaces with specific limitations. Refer to the SNAP program rules or

NFPA 2001 for more information. Novec 1230 fluid has been judged acceptable by the U.S. EPA for use in occupied spaces when used in accordance with the guidance of NFPA 2001. In accordance with NFPA 2001, Novec 1230 fluid designed for use with agent vapor concentrations up to ten volume percent in air are permitted. See NFPA 2001, Sect. 1-6, *Safety*.

Although Novec 1230 fluid has negligible toxicity in concentrations needed to suppress most fires, certain safety considerations must be observed when applying and handling the agent. For example, Novec 1230 fluid is a liquid at room temperature and has been superpressurized with dry nitrogen. Upon release to atmospheric pressure (e.g., from nozzles) the liquid flash evaporates at a low temperature. Thus, nozzles must be located to avoid direct impingement on personnel.

DECOMPOSITION

When Novec 1230 fluid is exposed to high temperatures, such as what may be expected in a flame front, hazardous products of thermal decomposition (halogen acids) are produced. If the Novec 1230 fluid is discharged in 10 seconds or less, flames will be extinguished rapidly and the amount of by-products produced will be minimal.

CLEANLINESS

Novec 1230 fluid is clean and leaves no residue, thereby eliminating costly after-fire clean-up and keeping expensive downtime to a minimum. Most materials such as steel, stainless steel, aluminum, brass and other metals as well as plastics, rubber and electronic components are unaffected by exposure to Novec 1230 fluid.

APPROVALS

Novac 1230 fluid complies with the NFPA Standard 2001, Standard for Clean Agent Fire Extinguishing Systems, EPA SNAP Program, (Significant New Alternate Policy), Underwriters Laboratories, Inc. (UL) FM Approvals (FM).

USE

Kidde Engineered Fire Suppression Systems Designed for use with 3M™ Novac™ 1230 Fire Protection Fluid are designed to extinguish fires in specific hazards or equipment located where an electrically non-conductive agent is required, where agent cleanup creates a problem, where extinguishing capability with low weight is a factor and where the hazard is normally occupied by personnel. Novac 1230 fluid is an acceptable alternative to Halon and is approved by the EPA and NFPA for use in fire suppression systems.

Table 1. Novac 1230 Fluid Physical Properties

Chemical Formula	$CF_3CF_2C(O)CF(CF_3)_2$
Molecular Weight	316.04
Freezing Point	-162.4°F (-108.0°C)
Boiling Point at 1 Atm.	120.6°F (49.2°C)
Critical Temperature	335.6°F (168.7°C)
Critical Density	39.91 lb./ft. ³ (639.1kg/m ³)
Critical Pressure	270.44 PSIA (1865 kPa)
Critical Volume	0.0251cu.ft./lbm (494.5 cc/mole)
Ozone Depletion Potential	0
Global Warming Potential	1

Table 2. Novac 1230 Fluid Toxicity Properties

Novac 1230 Fluid Toxicity Properties	
NOAEL (No Observable Adverse Effect Level)	10.0%
LOAEL (Lowest Observable Adverse Effect Level)	10.0% >

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Table 3. Novac 1230 Fluid Design Concentrations

Fuel	Design Concentration, % v/v
1-Butane	6.37
1-Propanol	7.02
2,2,4-trimethylpentane	6.11
2-butoxyethanol	6.76
Acetone	5.59
Acetonitrile	4.20
Commercial Heptane	5.72
Commercial Hexanes	5.59
Cyclohexane	5.85
Cyclopentanone	5.98
Denatured Alcohol (92.2% EtOH, 4.6% IPA, and 3.1% MeOH)	6.89
Diesel Fuel	4.42
Diethyl Ether	6.37
Ethanol	7.15
Ethyl Acetate	6.11
Gasoline-87 oct. unleaded	5.85
Hexene	5.98
Isooctane	6.11
Isopropanol Alcohol	6.37
Methane	7.28
Methanol	8.45
Methyl Ethyl Ketone	5.85
Methyl Isobutyl Ketone	5.72
Methyl Tert Butyl Ether	5.95
n-Heptane	5.85
n-Pentane	6.11
Octane	5.72
Propane	7.54
Pyrrolidine	6.11
Technical Heptane	5.59
Tetrahydrofuran	6.50
Toluene	4.55
Transformer Oil	5.85

- Minimum Design Concentration for Class A and de-energized Class C Fires = 4.2%
- Design concentrations for Class B Fire are shown in the above table and include a 30% safety factor from the minimum extinguishing concentration.

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If you need more information on this product, or if you have a particular problem or question, contact KIDDE-FENWAL INC., Ashland, MA01721. Telephone: (508) 881-2000

Kidde Engineered Fire Suppression System

Designed for use with 3M™ Novec™ 1230 Fire Protection Fluid
Electric Control Head, Stackable Explosion Proof
Data Sheet



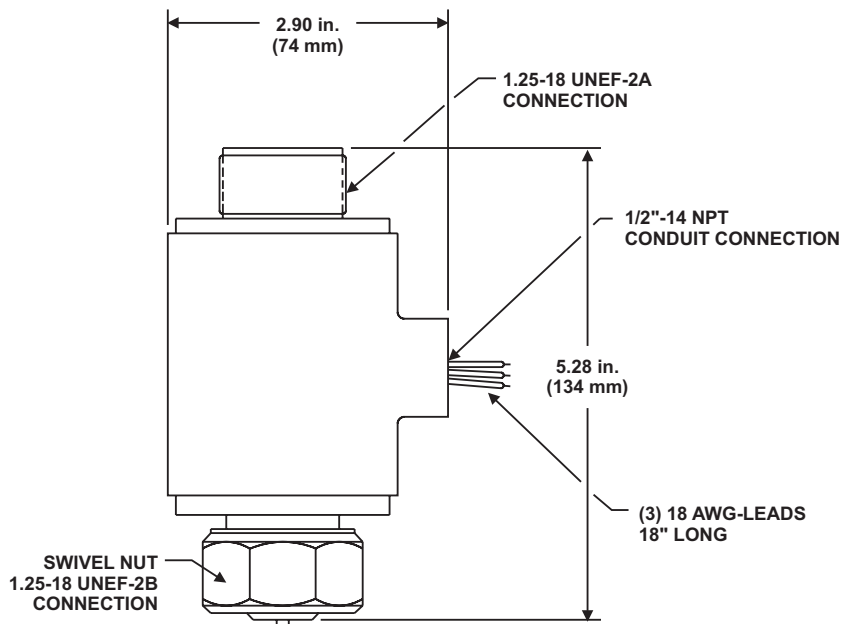
A UTC Fire & Security Company

Effective: March 2007
K-45-8017

FEATURES

- For Use with UL Listed, ULC Listed, and FM Approved Systems

P/N: 486500-01



Note: This control head is polarized. Improper wiring will result in operational failure of this device.

TECHNICAL DATA

- Voltage: 24 Vdc
- Current: 0.2 A Continuous Draw



WARNING

Electric Control Head, P/N 486500-01, is designed for installation directly on Novec 1230 valves only. This control head must not be installed on any other type of cylinder valve, or stop (directional) valves. Installation of this control head to any other device (e.g., pressure operated control head) will result in failure of the device to operate.



CAUTION

The Stackable Control head, P/N 486500-1, cannot be used with the 3-inch valve cylinders (P/Ns 45-100600-001, 45-100601-001, 45-100900-001, and 45-100901-001). The stackable control head does not have sufficient force to activate the 3-inch valve and may result in a system failure. The electric/manual control heads (P/Ns 890181, 890149, 890165, and 81-100000-001) may be used with the 3-inch valve.

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www.kiddefiresystems.com



KIDDE® CONTROL HEAD MONITOR FOR ELECTRIC ACTUATORS

Reliable, Retrofittable, Peace-of-Mind Supervision for Clean Agent Systems

Meets All Codes and Standards

The Kidde Fire Systems' Control Head Monitor (CHM) for electric actuators on discharge valve control heads meets the requirements of NFPA 2001-2012, UL 2166, UL 2127 and FM5600.

Simple Installation

The CHM is simple to install in new systems AND has the added benefit of easily retrofitting existing systems at a very reasonable price point. There is no need to switch out the existing electric actuator on discharge control heads.

Universal Compatibility

The CHM is also universal in use. It fits on all clean agent storage cylinder valves (1.5, 2.0 and 3.0 inch) the Advanced Delivery System (ADS) Nitrogen Drivers and the Nitrogen Pilot Cylinders for both HFC-227ea and Novec platforms. It is compatible with the following electric actuators:

- Electric Control Head w/ Cable Operator
- Stackable Explosion-Proof Control Head
- Electric Control Head
- Electric Explosion-Proof Control Head

Total Supervision

Our CHM is truly a supervised solution. It comes standard with 4 wires to ensure that you are not only supervising the placement of the electric actuator, but also that you are supervising the complete circuit from panel to CHM to junction box for continuity (in accordance with UL 864 Standard for Control Units and Accessories for Fire Alarm Systems 9th Edition.)



Extremely Robust

Our CHM meets the tough criteria Kidde Fire Systems demands of all its products. Besides UL Listing and FM Approval, it comes standard as an explosion-proof device that satisfies the following regulations:

USA	CANADA MARKING
XP/II/1/CDT6 Ta = -40°C to 60°C	XP/II/1/CDT6 Ta = -40°C to 60°C
DIP/II, III/EFG/T6 Ta = -40°C to 60°C	DIP/II, III/EFG/T6 Ta = -40°C to 60°C
I/1/AEx d IIB T6 Ta = -40°C to 60°C	I/1/AEx d IIB T6 Ta = -40°C to 60°C
21/AEx tb IIIC T85° Ta = -40°C to 60°C	



When you choose Kidde, you've chosen the world's most respected name in special hazards fire protection.

Kidde Engineered Fire Suppression System

Designed for use with 3M™ Novec™ 1230 Fire Protection Fluid

 Kidde Fire Systems

Effective: March 2005

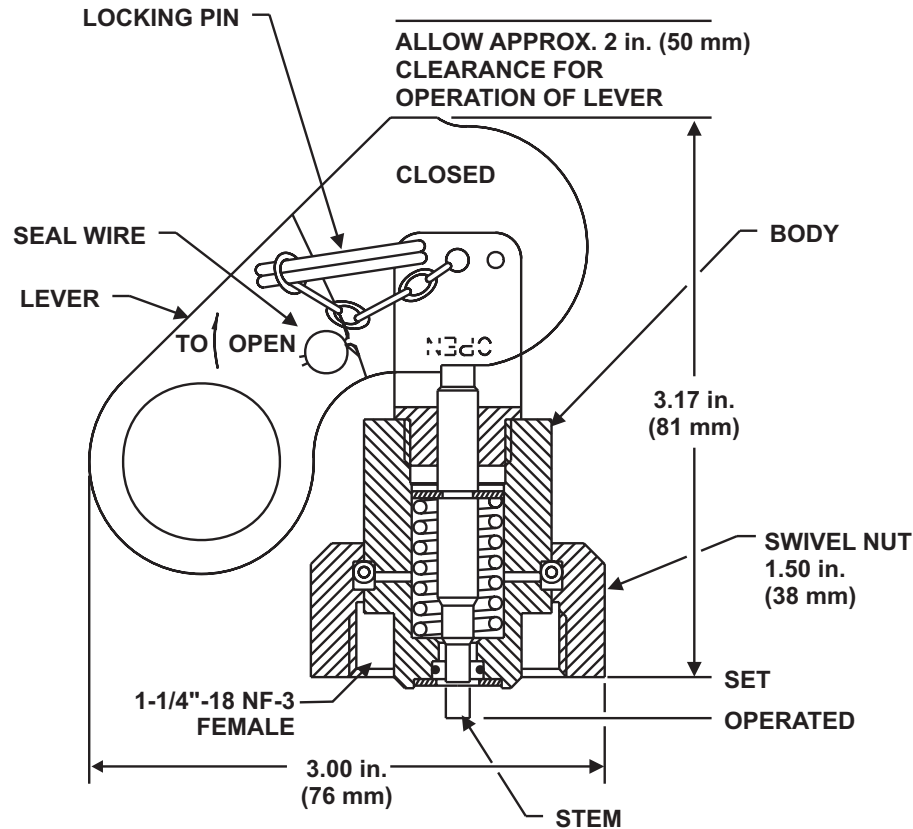
K-45-6010

Lever Operated Control Head Component Sheet

FEATURES

- For use with UL Listed, ULC Listed and FM Approved Systems

P/N: 870652



MATERIALS

- Lever: Stainless Steel
- Body: Brass

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Kidde Engineered Fire Suppression System

Designed for use with 3M™ Novec™ 1230 Fire Protection Fluid



Effective: March 2005

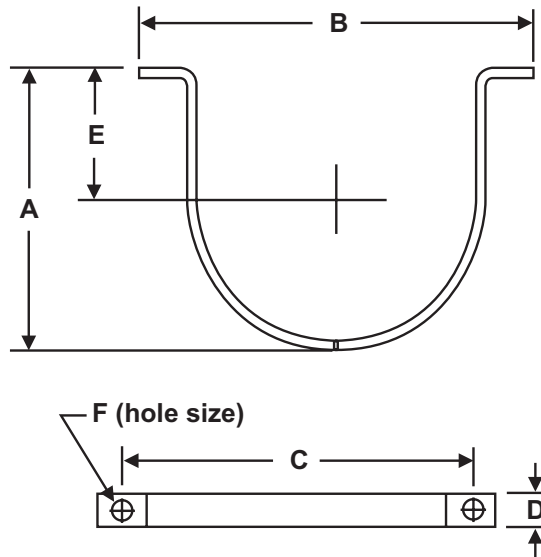
K-45-8130

Cylinder Mounting Straps Component Sheet

FEATURES

- For Use with UL Listed, ULC Listed and FM Approved Systems

P/N: 235317, 236125, 281866, 283934, 283945 and 294651



Part Number	Cylinder Size	Cylinder O.D.		Dimension A		Dimension B		Dimension C		Dimension D		Dimension E		Dimension F	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
283945	10 lb., 20 lb.	7.07	180	6.48	165	9.62	244	8.62	219	1.00	25	2.78	71	0.437	11
283934	40 lb., 70 lb.	9.00	229	8.16	207	11.69	297	10.69	272	1.00	25	3.50	89	0.437	11
235317	125 lb., 200 lb.	12.75	324	12.93	329	16.18	411	14.56	370	1.75	44	5.59	142	0.625	16
281866	350 lb.	16.00	406	15.50	394	19.50	495	17.88	454	1.75	44	6.06	154	0.625	16
294651	600 lb.	22.00	559	21.56	548	25.75	654	24.12	613	1.75	44	10.25	260	0.625	16
236125	900 lb.	24.00	610	23.75	603	27.75	705	26.00	660	1.75	44	12.13	308	0.625	16

MATERIALS

- Steel, Painted Black SAE 1020

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Kidde Engineered Fire Suppression System

Designed for use with 3M™ Novec™ 1230 Fire Protection Fluid

180 Degree Pendant Nozzle Component Sheet

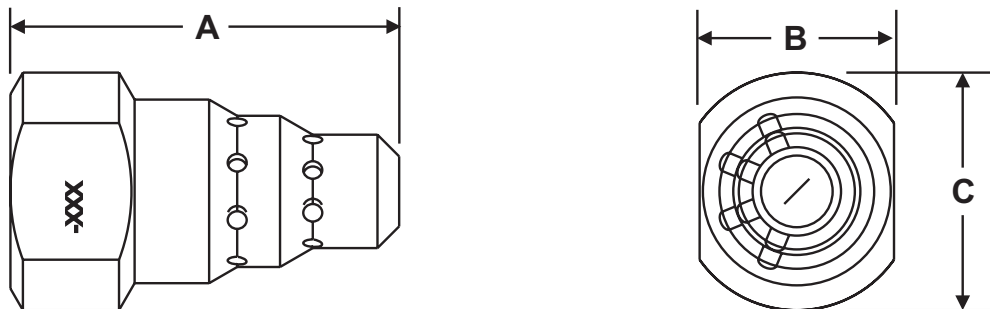
Effective: August 2005

K-45-2150

FEATURES

- For use with UL, ULC and FM Approved Systems
- Offered in Stainless Steel or Brass

P/N: 45-1946XX-XXX



Note: A selection of orifices are available for each nozzle size and make. Consult the Kidde Engineered Fire Suppression Design, Installation, Operation and Maintenance Manual for details.

Pipe Size	Dimensions					
	A		B		C	
1/4 in. (6 mm)	1.91 in.	49 mm	1.03 in.	26 mm	0.88 in.	22 mm
3/8 in. (10 mm)	2.03 in.	52 mm	1.00 in.	25 mm	1.19 in.	30 mm
1/2 in. (13 mm)	2.25 in.	57 mm	1.13 in.	29 mm	1.38 in.	35 mm
3/4 in. (19 mm)	2.69 in.	68 mm	1.38 in.	35 mm	1.63 in.	41 mm
1 in. (25 mm)	2.88 in.	73 mm	1.63 in.	41 mm	1.94 in.	49 mm
1¼ in. (32 mm)	3.29 in.	83 mm	2.00 in.	51 mm	2.38 in.	60 mm
1½ in. (38 mm)	3.63 in.	92 mm	2.25 in.	57 mm	2.69 in.	68 mm
2 in. (51 mm)	4.50 in.	114 mm	3.00 in.	76 mm	3.50 in.	89 mm

Note: Offered in either Stainless Steel or Brass.

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AEGIS™ 2.0

Conventional Fire Alarm-Suppression Control Unit



Effective: January 2017

K-84-200

FEATURES

- **Suppression Focused Control Unit**
- **Triple R Redundancy Provides Maximum Protection Against Inadvertent Release**
- **Agency Approvals**
 - *FM Approved to ANSI 864, 9th edition and NFPA 72 (2002)*
 - *UL Listed to ANSI 864, 9th edition*
 - *California State Fire Marshal*
 - *City of New York Fire Department*
- **Listed for a Wide Range of Suppression Systems:**
 - *Kidde ECS HFC-227ea and FK-5-1-12*
 - *Kidde ADS HFC-227ea and FK-5-1-12*
 - *Kidde HP CO2*
 - *Kidde IG Argonite & Nitrogen*
 - *Kidde FE-13*
 - *Fenwal Spheres*
 - *Fenwal BDCs*
 - *Kidde IND™ Dry Chemical & WHDR™ Wet Chemical Systems*
 - *Sprinkler Supervisory Service*
 - *Deluge, Pre-Action, Foam, Foam-Water Systems*
- **Combination Clean Agent plus Pre-Action System**
- **Option with Door Mounted Abort and Manual Release Switches Available**
- **Built-in Class-A and Class-B Circuitry**
- **Listed for use with Kidde, Fenwal and Chemetron agent release devices including Control Heads and Initiators**
- **Sophisticated Programmable NACs**
- **Independently Programmable Agent Releasing Circuits**
- **Compact Cabinet Design Supports Large Number of Input and Output Circuits**
 - *3 Detection Circuits*
 - *2 Supervisory Circuits*
 - *Option to Use SUP 1 as 4th Detection Circuit*
 - *1 Manual Release Circuit*
 - *1 Abort Input Circuit (with 6 Abort Modes)*
 - *3 Notification Appliance Circuits*
 - *2 Release Circuits*
 - *3 Programmable and 1 Trouble Form-C Relays*
 - *1 Auxiliary Power Output, 1 Amp*
- **5.4 Amp Power Supply Unit**
- **120/240 V, 50/60 Hz AC Input**
- **Easy-to-Use User Interface and Display**
- **Flexible Configuration Options**
- **Password Protected**
- **Digital Release Countdown**
- **Battery Voltage and Charging Current Display**
- **Charging Capacity of 68 AH**
- **Extensive Diagnostics**
- **Backwards Compatible**

DESCRIPTION

The Kidde AEGIS™ 2.0 is a Conventional Single Hazard Agent Releasing Unit which provides configuration flexibility in a compact footprint to protect life and assets in commercial, high-tech and industrial applications. The AEGIS 2.0 control unit has a NEMA1 enclosure and an option for door mounted Manual Release and Abort switches to avoid the additional expense of wall mounting these items.

The AEGIS 2.0 is well equipped to handle all special hazard extinguishing systems due to the high degree of programming flexibility provided and the following full complement of input and output circuits:

- **Three (3) Class A or Class B Detection Circuits**
- **Two (2) Class A or Class B Supervisory Circuits**
- **Option to Use SUP 1 as Fourth Detection Circuit**
- **One (1) Class A or Class B Manual Release Circuit**
- **One (1) Class A or Class B Abort Input Circuit**
- **Three (3) Class A or Class B Notification Appliance Circuits**
- **Two (2) Class B Agent Release Circuits**
- **Three (3) Programmable and 1 Trouble Form-C Relays**



DETECTION CIRCUITS

The Detection Circuits support Conventional 700 Series, CPD-705x Ionization Smoke, PSD-715x Photoelectric Smoke and THD-705x Heat Detectors as well as Normally Open contact closure type devices. Two circuits are dedicated to the main suppression function and can be programmed to activate the release circuits by either single-shot or cross-zone input. The user configuration allows automatic release via detection to be delayed from 0 to 60 seconds in 10-second intervals and also allows a choice of which of the two Agent Release Circuits to activate.

The third Detection Circuit is programmable for either Waterflow or as an independent Detection circuit. When programmed for Waterflow, Notification Appliance Circuits can be programmed as Non-Silenceable as required by certain jurisdictions. Additionally, the Supervisory 1 circuit can be configured to be the fourth detection circuit.

SUPERVISORY CIRCUITS

The Supervisory Circuits accept Normally Open contact closure type devices such as pressure switches on the agent cylinders or on the water or air pipe network. The system configuration enables the supervisory input to be a participant in the suppression function. For example, low air supervisory can be included with detection for release of pre-action systems as required by certain jurisdictions.

MANUAL RELEASE AND ABORT CIRCUITS

Both the Manual Release and Abort Circuits accept Normally Open contact closure type devices. Activation of the Agent Release Circuits can either be instantaneous or delayed up to 30 seconds (maximum) upon receipt of Manual Release input. Agent release can be temporarily delayed by activating the Abort Circuit. The Abort input can be programmed for 6 modes of operation. These include the UL 10-second mode, the full-delay mode, the IRI mode, two NYC modes, or the abort can be disabled. Aborts can also be programmed to be applicable for either one (ARC 1) or both Agent Release Circuits thereby allowing use with Deluge/Pre-Action systems.

NOTIFICATION APPLIANCE CIRCUITS (NAC)

The three Notification Appliance Circuits are rated 1.5 Amps each and accept polarized 24 VDC Notification Appliances. Each circuit is driven independently and is user configurable for First Alarm, Pre-Release, and Releasing as well as for 60 BPM, 120 BPM, Temporal, or Continuous pattern.

The control unit supports appliances that provide the option to use silenceable horns and non-silenceable strobes on the same NAC. Multiple NAC circuits (connected to audible devices only) programmed with the same master code pattern are synchronized, regardless of any differing starting times that preceded their concurrent operation. The NACs configuration includes a user-selectable intelligent synchronization feature which allows a silenceable horn to be shut off while the strobe continues to flash in synchronized fashion.

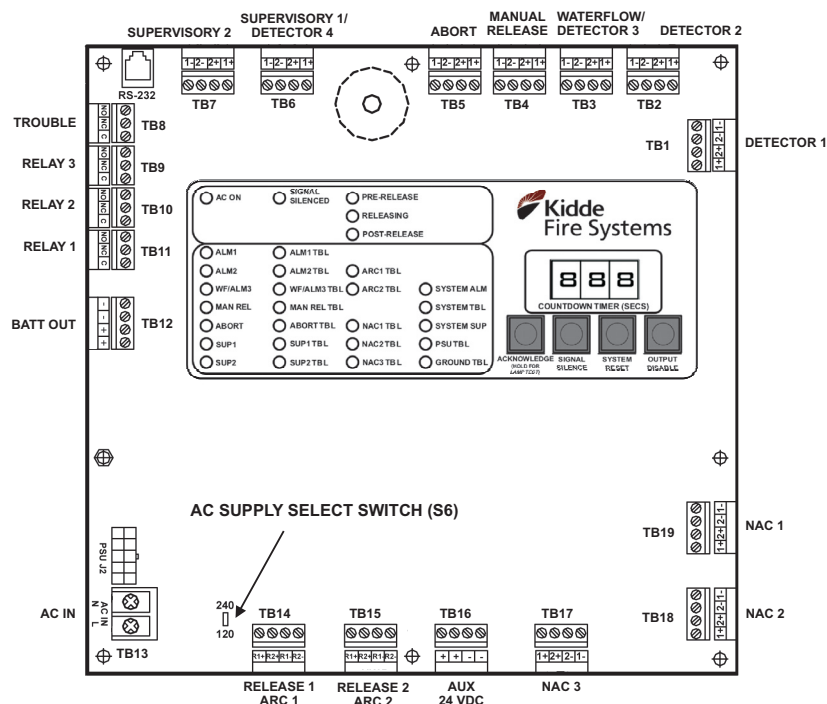


Figure 1. Printed Circuit Board (PCB)

BUILT-IN CLASS A AND B CIRCUITRY

For the input and NAC circuits, the choice of Class A or Class B supervision is made at site on the board itself by selecting the terminals used for wiring. Neither conversion boards nor additional hardware nor jumper selection is required for this purpose.

AGENT RELEASING CIRCUITS (ARC)

The two circuits can be programmed for activation by different inputs, with independent time delays and abort modes to fire combinations of two of the following releasing devices:

- 1 or 2 Kidde Continuous and Momentary Solenoid Control Heads
- 1 Kidde Actuator or Fenwal Initiator
- 1 Factory Mutual Group A, B, D, E, F, G, I, J, or K Solenoid

In other words, operating in tandem, the two circuits can release:

- 1 or 2 Control Heads on ARC 1 and 1 or 2 Control Heads on ARC 2
- 1 or 2 Control Heads on ARC 1 and 1 Actuator/Initiator on ARC 2 or vice-versa
- 1 or 2 Control Heads on ARC 1 and 1 FM Sprinkler Solenoid on ARC 2 or vice-versa
- 1 Actuator/Initiator on ARC 1 and 1 Actuator/Initiator on ARC 2
- 1 FM Solenoid on ARC 1 and 1 FM Solenoid on ARC 2

This configurability is useful for those jurisdictions where the gaseous suppression agent is required to be supplemented with a pre-action system.

TRIPLE-R PROTECTION FOR ARCS

The two ARCs feature a triple failure redundancy safeguard system to protect them from inadvertent activation by the main microprocessor. The Triple-R system requires that in order to activate an ARC, the main microprocessor issues two release commands of opposing polarity via separate channels and that these commands be combined with a third signal from the panel watchdog timer to confirm the microprocessor operation. The Triple-R system ensures that electrical transients or disturbances such as power surges that could interfere with the operation of the main microprocessor will not inadvertently activate the connected suppression system. The result is a more robust and reliable suppression-focused panel.

PROGRAMMABLE RELAYS

Of the 4 relays, three are user-programmable for a variety of alarm related conditions and the fourth is a dedicated trouble relay. All relay contacts are rated 3.0 Amps at 30 VDC/120 VAC (resistive).

POWER-LIMITED CIRCUITRY

All circuits are inherently power-limited. ARCs can be configured for power-limited or non-power-limited operation. One in-line releasing device is required for each solenoid on a power limited ARC. In-line releasing devices are not included with the panel; the appropriate number of in-line releasing devices should be ordered using part number 06-220023-001.

ROBUST POWER SUPPLY UNIT (PSU)

The AEGIS 2.0 features a universal 120/240 V, 50/60 Hz AC Power Supply Unit with a robust 5.4 Amps of 24 VDC power. Input voltage selection is via a slider switch with no jumper cutting required. The on-board battery charger is able to charge 24 VDC (2 x 12) batteries of capacity up to 68 AH thereby allowing from 24 hours of supervision plus 5 minutes of alarm to 90 hours of supervision plus 10 minutes of alarm required by some jurisdictions.

AUXILIARY POWER SUPPLY

Up to 1 Amp of auxiliary power at 24 VDC is available to power external 4-wire devices such as Flame Detectors, AlarmLine modules, Duct Detectors, etc. The auxiliary power output is resettable.

ELEGANT USER INTERFACE

The user interface consists of an array of LED Indicators, Control Switches, a Digital Display, and Buzzer. Over and above the System, Power Supply status, Input circuit Fire and Trouble and Output circuit Trouble LEDs, the AEGIS 2.0 annunciates its suppression state-of-alarm via three additional Pre-Release, Releasing and Post Release LEDs. Four switches are provided, one each for Acknowledge, Signal Silence, System Reset and Output Disable. The 3-digit display provides a countdown of impending agent release. On command from the user interface switches, it also indicates the battery open circuit voltage and charging current.

SIMPLE SITE-SPECIFIC CONFIGURATION

Setting the site-specific configuration is easily done using the digital display and user interface buttons. To prevent unauthorized use, the configuration menu is protected by a user-changeable password. Factory technical support can provide assistance with lost or forgotten passwords.

Apart from the input voltage selection performed on both the PSU and main board via a slider switch, no other on-board settings or jumper cuttings are required.

EXTENSIVE DIAGNOSTICS

Also initiated via the digital display and user interface switches, the troubleshooting function displays diagnostic codes that assist in determining causes of trouble. A complete list of diagnostic codes and their meaning ships factory installed on the inside of the enclosure door for easy reference.

BACKWARDS COMPATIBILITY

The AEGIS 2.0 is backwards compatible and listed for use with a full range of conventional detectors and alarm devices as well as suppression accessories from Kidde, Fenwal and Chemetron. Going forward, this will allow legacy panels to be replaced with relative ease.

EASY TO INSTALL CABINET

The cabinet design allows for easy installation by fitting between the studs of a standard 16 inch studded wall. It is large enough to house two 12 VDC, 12 AH Batteries and provides up to 2 inches (51 mm) of wiring and finger space between the circuit board and the cabinet wall.

An optional door design features a Manual Release and Abort switch for applications with space constraints. Both switches incorporate guards that prevent their inadvertent activation.

TECHNICAL SPECIFICATIONS

- **Hazards Protected**
 - One
- **Power Supply**
 - 120/240 V, 50/60 Hz (90 to 264 Vrms, 47 to 63 Hz) AC Main Input
 - 5.4 Amps at 27 VDC Output
 - Battery capacity up to 68 AH @ 24 VDC
 - Auxiliary power output rated at 1 Amp at 18.8 - 27.6 VDC (resettable)
- **Three (3) or Four (4) Detection Circuits**
 - Compatible with 700 Series, CPD-705x, PSD-715x, and THD-705x detectors as well as Normally Open contact closure type devices. Refer to documents K-70-100 and F-70-63 for details on compatibility and the maximum number of devices supported.
 - Configurable as Class A/Style D or Class B/Style B
 - Supervised for ground faults and open circuits
 - Power limited
 - DET 1 and DET 2 used for suppression
 - DET3/WF configurable for detection or waterflow
 - Option to use SUP 1 circuit as DET 4 circuit
- **One (1) Manual Release Circuit**
 - Compatible with normally open contact-closure type devices
 - Configurable as Class A/Style D or Class B/Style B
 - Supervised for ground faults and open circuits
 - Power limited

TECHNICAL SPECIFICATIONS (*cont'd*)

- **One (1) Abort Circuit**
 - Compatible with normally open contact-closure type devices
 - Configurable as Class A/Style D or Class B/Style B
 - Supervised for ground faults and open circuits
 - Six (6) Abort Modes available
 - Power-limited
- **Two (2) Supervisory Circuits**
 - Compatible with normally open contact-closure type devices
 - Configurable as Class A/Style D or Class B/Style B
 - Option to use SUP 1 as 4th detection circuit
 - Supervised for ground faults and open circuits
 - Power-limited
- **Three (3) Notification Appliance Circuits (NACs)**
 - Compatible with polarized 24 VDC Audio-Visual devices
 - Rated at 1.5 Amps each
 - Up to 35 synchronized appliances
 - Configurable as Class A/Style Z or Class B/Style Y
 - Supervised for ground faults, shorts, and open circuits
 - Power-limited
 - Common NAC/ARC output disconnect switch
- **Two (2) Agent Release Circuits**
 - Each compatible with 1 or 2 control heads, or 1 actuator/initiator, or 1 FM sprinkler solenoid
 - Circuits electrically capable of simultaneously releasing any combination of two of the above devices
 - Factory configured as Class B/Style Y
 - Supervised for ground faults and open circuits
 - Default setting: Power-Limited. Each solenoid on a power-limited ARC requires the use of an in-line releasing device, P/N 06-220023-001 (order separately, not included with panel).
 - Common NAC/ARC output disconnect switch
- **Four (4) Relays**
 - 3 independently programmable, normally de-energized Form-C Relays
 - 1 dedicated normally energized Form-C Trouble Relay
 - Relay contacts rated 3 Amps at 30 VDC/120 VAC (resistive)

TECHNICAL SPECIFICATIONS (cont'd)

- **Enclosure**
 - NEMA 1 rated 18 gauge sheet steel with door
 - Red color
 - Suitable for wall and surface mounting
 - Optional Trim Ring
 - Optional door with Manual Release and Abort switches
 - Optional Dead Front Plate
 - Dimensions:
 - *with Standard Door:*
14-1/4 in. W x 5 in. D x 19 in. H
(362 mm x 127 mm x 483 mm)
 - *with Switch Door:*
14-1/4 in. W x 6 in. D x 19 in. H
(362 mm x 152 mm x 483 mm)
- **Environmental Criteria**
 - Indoor/Dry use only
 - Operating temperature range: 32°F to 120°F
(0°C to 49°C)
 - Humidity: 93 ± 2% RH at 90 ± 3°F (32 ± 2°C)
- **Packaging/Shipping**
 - Enclosure, PCB, and PSU packaged in individual cartons. Field assembly is required.
 - Accessories shipped include mounting hardware, battery leads, IOM manual on CD-ROM, operating instruction sheet, and EOL resistor kit.
 - Order in-line releasing device (required for power-limited ARCs) and batteries separately.

ORDERING INFORMATION

Description	Part Number
Kidde AEGIS 2.0 Control Unit	84-732001-901
Kidde AEGIS 2.0 Control Unit with Switches	84-732001-902
In-Line Releasing Device	06-220023-001
Dead Front Plate	06-220175-001
EOL Resistors (10 pk)	06-220184-001
Trim Ring	76-600000-007
Large Capacity Battery Enclosure	76-100010-001
Installation/Configuration Kit	06-220148-902
Replacement Hardware Installation Kit	06-220149-001
Replacement Enclosure Assembly	06-220172-902
Replacement Enclosure Assembly (with Switches)	06-220174-902
Replacement Door Switches Kit	06-220176-001
Replacement PCB Assembly	06-220150-901
Replacement Power Supply	06-118394-002
Replacement Bezel Assembly	06-220151-001
Spare Key	06-118013-001
Spare Keylock with Keys	06-129924-001



EXPORT INFORMATION (USA): Jurisdiction: EAR, US ECCN: EAR99
This document contains technical data subject to the EAR.

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All other trademarks are the properties of their respective owners.

For detailed installation, operation, and configuration information, refer to the Kidde AEGIS 2.0 Conventional Fire Alarm-Suppression Control Unit Installation, Operation, and Maintenance Manual P/N 06-237463-001.

This literature is provided for informational purposes only. KIDDE-FENWAL, INC. believes this data to be accurate, but it is published and presented without any guarantee or warranty whatsoever. KIDDE-FENWAL, INC. assumes no responsibility for the product's suitability for a particular application. The product must be properly applied to work correctly. If you need more information on this product, or if you have a particular problem or question, contact KIDDE-FENWAL, INC., Ashland, MA 01721 USA. Telephone: (508) 881-2000.



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Two- and Four-Wire Conventional Smoke Detectors

700 Series

STANDARD FEATURES

- *FM Approved*
- *UL Listed*
- *CSFM Approved*
- *Self-diagnostic capability continually monitors operation*
- *Meets NFPA 72 sensitivity test requirements*
- *Head and terminal base design (base sold separately)*
- *Automatic drift compensation*
- *Field-replaceable optical chamber*
- *Low-profile design blends into the ceiling*
- *Advanced alarm verification feature reduces chance of nuisance alarms*
- *Extensive two-wire compatibility listings*
- *Compatible with most Kidde, Fenwal and Chemetron Conventional Control Panels (See compatibility chart in Datasheet No. K-70-100)*

DESCRIPTION

The 700 Series conventional photoelectric smoke detector is an interchangeable head and base detector with a light-scattering optical sensor that provides outstanding stability and excellent response to a wide range of fires.

A pulsed infrared LED light source and a high-speed photodiode sensing element are housed in an omnidirectional sensing chamber protected by an insect screen. For easy cleaning, the detector features a field-replaceable optical chamber (P/N 211).

Model 721UT photoelectric detectors include integral fixed temperature and rate-of-rise heat detectors. The 721UT provides remote alarm and trouble LED driver outputs.

The 700 Series smoke detectors were the industry's first conventional self-diagnostic detectors specifically designed for the demands of commercial and industrial environments. If the detector drifts out of its UL Listed sensitivity range or fails internal diagnostics, the alarm LED flashes once a second to indicate a trouble condition. This meets NFPA 72 field sensitivity testing requirements without the need for external meters.

Additional diagnostic information is activated by applying a magnet near the detector's integral reed switch. This initiates a self-diagnostic routine and provides visual indication of sensitivity level, or if service is required. The magnet test causes the LED to blink. The number of blink counts corresponds to a smoke detector sensitivity range.

And, if they become dirty over time, the 700 Series detectors automatically adjust the alarm threshold through built-in drift compensation. If the detector ever does need to be cleaned, the patented field replaceable optical chamber makes cleaning a snap.



ENGINEERING SPECIFICATIONS

The 700 Series photoelectric smoke detector is a low-profile, self-diagnostic, two-wire detector that monitors its own sensitivity and operational status. The detector meets NFPA 72 field sensitivity testing requirements without the need for external meters. Built-in drift compensation automatically adjust the sensitivity if the detector gets dirty. The 700 Series features an alarm verification feature to further reduce the chance of a nuisance alarm. Normal sensing occurs every 9 seconds. This rate doubles when a signal exceeding the alarm threshold value is sensed. Two additional successive signals above the threshold level initiate an alarm. The patented optical sensing chamber is field replaceable, allowing quick and easy cleaning and maintenance.

TECHNICAL SPECIFICATIONS

Electrical	
Voltage	8.5 - 33VDC, non polarity sensitive
Maximum ripple (peak to peak)	10% (vp - p)
Typical standby current (24V)	70µA
Typical alarm current (24V)	up to 60 mA max, if not limited by control panel
Photoelectric Sensitivity	2.85%, +0.37, -0.75%
Operating temperature	32°F to 100°F (0°C to 38°C)
Operating humidity range	0 to 95% Non-condensing
RFI immunity	20 V/m min; 0-1000 MHz
Remote LED output current	5 mA min, 8.5 mA max
Drift compensation adjustment	1.0% ft, max
Environmental	
Heat Sensor Ratings (721UT, 741UT)	Fixed 135°F/Rate of rise 15°F/min, > 105°F (8.3°C/min., >40.6°C)
Maximum wind velocity	300 ft/min
Field wiring size	12-18 AWG
Remote test input (721 UT)	100 ohm max
Reset voltage	2.5V max
Reset time	1 second max
UL two-wire compatibility identifier	S10A (711U, 721UT)

Note: Refer to Kidde Fire Systems Datasheet Number K-70-100 for smoke detector compatibility.

Physical	
Color	White head and base
Detector head dimensions	4" D x 1.75" H (10cm x 4.44cm)
Base dimensions	701U, 702U: 6" D x 0.06" H (15.24 cm x 1.3 cm), 702E: 4" D x 0.06" H (10.16 cm x 1.3 cm)
Total height, (head and base)	1.98" (5 cm) H
Regulations	
Listing	UL 268, FM, CSFM

ORDERING INFORMATION

711U	Smoke detector head only, photoelectric, two-wire
721UT	Smoke detector head only, photoelectric, two-wire w/integral heat detector, output for remote LED
741UT	Smoke detector head only, photoelectric, four-wire, w/integral heat detector, alarm relay (N.O.) output and output for remote LED
701U	Smoke detector base, 3 terminals, 6 in. dia.
702U	Smoke detector base, 6 terminals, 6 in. dia.
204-12/24VG	End-of-Line, power supervision relay for four-wire applications
211-10PKG	Replacement optical chamber for smoke detectors, set of 10
06-117883-001	Test magnet
SM200-12PKG	Canned smoke for functional testing of smoke detectors
706U1A	Remote LED indicator for 721UT or 741UT
706U2A	Remote LED indicator and keyed remote for 721UT or 741UT
706U3A	Remote LED indicator, keyed remote and reset for 721UT or 741UT

All trademarks are the property of their respective owners.

This literature is provided for informational purposes only. KIDDE-FENWAL, INC. assumes no responsibility for the product's suitability for a particular application. The product must be properly applied to work correctly. If you need more information on this product, or if you have a particular problem or question, contact Kidde-Fenwal Inc.



Features

- Tamperproof field selectable candela settings of 15, 30, 60, 75, and 110
- Lens colors available in amber, blue, green, and red
- Super-Slide® Bracket – Ease of supervision testing
- Checkmate® - Instant voltage verification
- Synchronize strobe and/or horn with AVSM module
- Silence audible while visual appliance remains flashing (for use in accepted jurisdictions)
- Switch for chime, whoop, mechanical, and 2400Hz tone
- Switch for continuous or temporal 3 tone (not available on whoop)
- Tamperproof re-entrant grill
- Product includes a 5 year warranty



7135-0328:0210
7135-0328:0209

Application

The CS/CHS Series Colored Lens Signals are wall mount, low profile strobes and horn/strobes that offer dependable audible and visual signals for warning and emergency notification. Applications include emergency communication, severe weather, emergency response and many more.

Description

The CS/CHS Series Colored Lens Signals are 24VDC units available in lens colors of amber, blue, green, and red. The Series offers tamperproof field selectable options of 15, 30, 60, 75, and 110 candela. They have a minimal operating current and a minimum flash rate of 1Hz, regardless of input voltage. The strobes can be synced using a Gentex sync protocol or the AVSM Sync Module.

The Colored Lens Series is shipped with a die-cast universal 4" mounting bracket which incorporates the popular Super-Slide® feature that allows the installer to easily pre-wire the system and test for supervision. The product also features a locking mechanism that secures the signal to the bracket without showing any screws. The Colored Lens Series also features the Checkmate® - Instant Voltage Verification Feature which allows the installer to check the voltage drop, current draw, and match against the blue print.

Product Listings

- ANSI/UL 464 and 1638
- CSFM 7135-0328:0210 (CHS Series)
- CSFM 7135-0328:0209 (CS Series)

Technical Specifications

Operating Voltage	Nominal 24VDC (16-33VDC)
Environmental Limitations	32°F - 120°F (0° - 49°C) Indoor Only
Dimensions	5" H x 4.5" W x 2.5" D
Wiring Connections	Terminals accept 18 - 12 AWG
Mounting	Single gang, double gang, or 4" square backbox Surface mount with AVBB
Shipping Weight	1.05 lbs.

CS Series Colored Lens Strobe, Selectable Candela			
Model Number	Stock Number	Lens Color	Body Color
CS-24WAR	4890100	Amber	Red
CS-24WAW	4890101	Amber	Off-White
CS-24WBR	4890102	Blue	Red
CS-24WBW	4890103	Blue	Off-White
CS-24WGR	4890104	Green	Red
CS-24GW	4890105	Green	Off-White
CS-24WRR	4890106	Red	Red
CS-24WRW	4890107	Red	Off-White

Optional Bezels		
Wording	Color	Stock Number
AGENT	Red	4890262
AGENT	Off-White	4890263
ALERT	Red	4890264
ALERT	Off-White	4890265

All CS/CHS Series devices are plain (no wording).
AGENT/ALERT bezels can be ordered separately.

CHS Series Colored Lens Strobe, Selectable Candela					
Model Number	Stock Number	Lens Color	Body Color	Reverberant dBA at 10', per ANSI/UL 464	In Anechoic Room dBA at 10'
CHS-24AR	4890120	Amber	Red	62-82	100
CHS-24AW	4890121	Amber	Off-White	62-82	100
CHS-24BR	4890122	Blue	Red	62-82	100
CHS-24BW	4890123	Blue	Off-White	62-82	100
CHS-24GR	4890124	Green	Red	62-82	100
CHS-24GW	4890125	Green	Off-White	62-82	100
CHS-24RR	4890126	Red	Red	62-82	100
CHS-24RW	4890127	Red	Off-White	62-82	100

UL Max Strobe Current Ratings (24VDC Regulated)		
Candela	Amber Lens	Blue, Green, and Red Lens
15cd	47mA	105mA
30cd	64mA	130mA
60cd	113mA	203mA
75cd	145mA	243mA
110cd	178mA	310mA

For unfiltered FWR ratings, see installation manual.

Horn Decibel and Current Ratings			
Horn Setting	Minimum dBA at 10', Per UL 464 (HIGH)	Minimum dBA at 10', Per UL 464 (LOW)	Regulated 24VDC Max. Operating Current, at High Setting (mA)
Temporal 3 2400Hz	78	71*	28
Temporal 3 Mechanical	76	70*	25
Temporal 3 Chime	70*	66*	15
Continuous 2400Hz	81	74*	28
Continuous Mechanical	80	72*	25
Continuous Chime	70*	66*	15
Whoop	82	69*	56

*Operating the horn in this mode at this voltage will result in not meeting the minimum ANSI/UL 464 reverberant sound level required for public mode fire protection service. These settings are acceptable only for private mode fire alarm use. Use the high dBA setting for public mode application (not applicable when using the chime tone. The chime tone is always private mode).

Tone Switch Locations

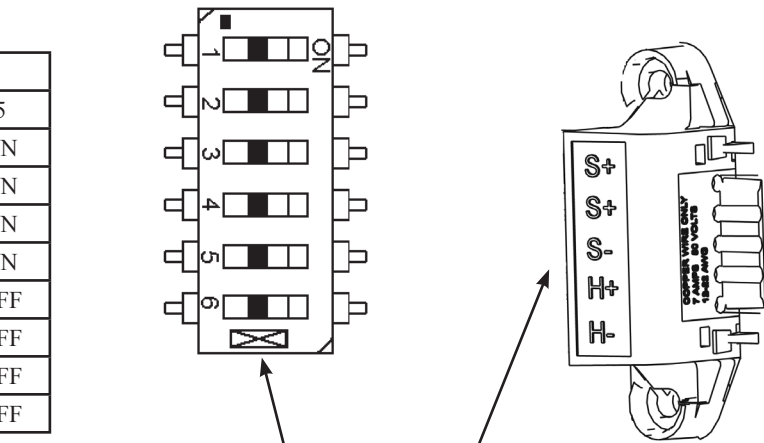
Tone	Switch Position		
	3	4	5
Mechanical Temporal 3	ON	ON	ON
Mechanical - Continuous	OFF	ON	ON
2400Hz - Temporal 3	ON	OFF	ON
2400Hz - Continuous	OFF	OFF	ON
Chime - Temporal 3	ON	ON	OFF
Chime - Continuous	OFF	ON	OFF
Whoop	ON	OFF	OFF
Whoop	OFF	OFF	OFF

NOTES:

- Switch Positions 1 and 2 in the OFF position to select isolated horn and strobe power inputs
- Switch Position 6 ON = HIGH dBA
- Switch Position 6 OFF = LOW dBA

Super Slide® Mounting Bracket

Allows the installer to pre-wire the system, test for system supervision, remove the signal head until occupancy, switch out signals without changing mounting brackets and has locking edge connector for snap-in-place installation.



Checkmate® Instant Voltage Verification

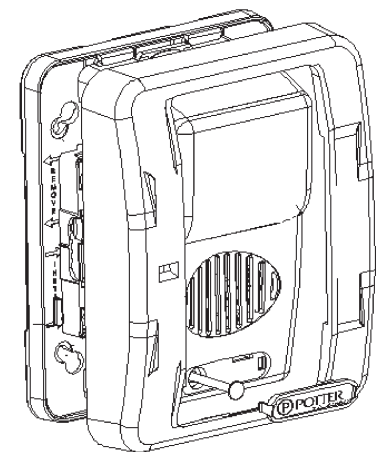
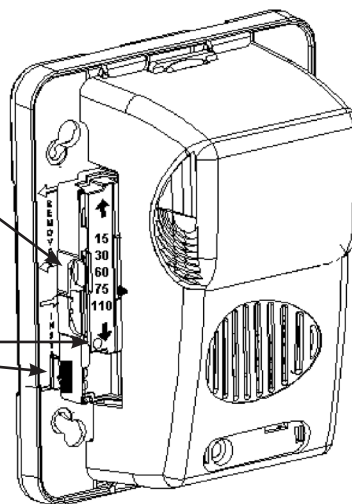
It is often necessary to confirm the voltage drop along the line of devices. The access holes are provided in the back of the terminal block to allow the voltage to be measured directly without removing the device. Typically, this would be done at the end of the line to confirm design criteria. Most measurements will be taken using the S+ and S- locations although access is provided to other locations.

NOTE: Care should be taken to not short the test probes.

Candela selection slider switch. Depress center and slide switch to desire brightness level.

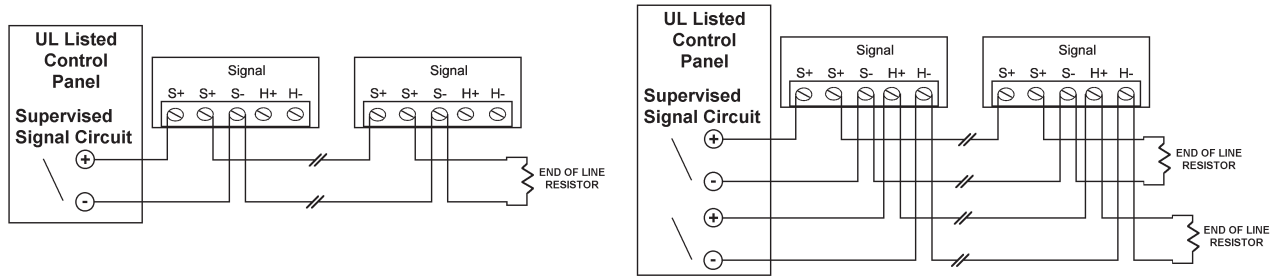


Break off pin and insert into hole at the bottom of the selector to lock candela setting. Signal must be removed from bracket and pin pushed forward from backside out of the hole to change candela.



To remove bezel, grip both sides of bezel and pull in a download and outward motion.

Wiring Diagrams



NOTES:

- All strobes are designed to flash as specified with continuous applied voltage. Strobes should not be used on coded or pulsing signaling circuits. However, use of the AVSM control module or Gentex synchronization protocol is permitted to synchronize the strobe, horn and/or mute the horn.
- **FOR SYNCHRONIZATION WIRING INFORMATION, REFERENCE AVSM CONTROL MODULE DATA SHEET (8830050) AND/OR AVSM CONTROL MODULE MANUAL FOR SYNCHRONIZATION MODULE WIRING DIAGRAMS. AVSM CONTROL MODULE DATA SHEET AND MANUAL CAN BE OBTAINED AT <http://pottersignal.com> OR CALL POTTER ELECTRIC AT 1-800-325-3936.**

Architect and Engineering Specifications

The audible and/or visible signal shall be Potter Colored Lens Series or approved equal and shall be listed by Underwriters Laboratories Inc. per ANSI/UL 1638 and ANSI/UL 464 and shall have compliance with the polar dispersion requirements of ANSI/UL 1971. The notification appliance shall also be listed with the California State Fire Marshal (CSFM).

The notification appliance (combination audible/visible) shall produce a peak sound output of 100dBA or greater as measured in an anechoic chamber. The signaling appliance shall also have the capability to silence the audible signal while leaving the visible signal energized with the use of a single pair of power wires. Additionally, the user shall be able to select either continuous or temporal tone output with the temporal signal having the ability to be synchronized.

Unit shall be capable of being installed so that any unauthorized attempt to change the candela setting will result in a trouble signal at the fire alarm control panel.

The audible/visible and visible signaling appliance shall also maintain a minimum flash rate of 1Hz or up to 2 Hz regardless of power input voltage. The appliance shall have an operating current of 74mA or less at 24 VDC for the 15Cd strobe circuit.

The appliance shall be polarized to allow for electrical supervision of the system wiring. The unit shall be provided with a mounting bracket with terminals with barriers for input/output wiring and be able to mount to a single gang or double gang box or double workbox without the use of an adapter plate. The unit shall have an input voltage range of 16-33 volts with either direct current or full wave rectified power for 24 volt models.

The appliance shall be capable of testing supervision without disconnecting wires. Also, the appliance shall be capable of mounting to a surface back box. The unit shall also be able to verify voltage at the unit without removing unit.