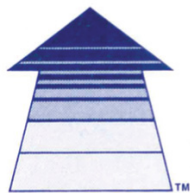


# **MATERIAL SUBMITTAL**

**GOOD SAMARITAN HOSPITAL  
401 15TH AVENUE SE  
PUYALLUP, WASHINGTON 98372**

**PROVIDE FIRE ALARM DETECTION  
AND CONTROLS FOR EXISTING  
CLEAN AGENT SUPPRESSION  
SYSTEM**

**SYSTEM DESIGNED AND  
INSTALLED BY SPECIAL HAZARD  
FIRE PROTECTION CONTRACTOR:**



**SUPPRESSION SYSTEMS, INC.**  
SPECIAL HAZARD FIRE PROTECTION  
3077 20TH STREET EAST, SUITE B  
FIFE, WA 98424-1798  
(253) 926-3300 FAX (253) 926-3306

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400 Main Street  
Ashland, MA 01721  
Phone: (866) 287-2531

<http://www.kiddefiresystems.com/>

**Kidde Aries Battery Size Calculation**  
(Version 2, 2017)

**Distributor Information:**  
GOOD SAMARITAN HOSPITAL  
2207  
PREPARED BY: SSI

**FIRE ALARM DETECTION AND CONTROLS FOR EXISTING CLEAN AGENT SUPPRESSION SYSTEM**

This software can only be used to calculate battery size for devices powered by the Kidde Aries control panel. Separate battery size calculation must be done for devices controlled or monitored by the Kidde Aries control panel but powered by other power sources.  
Note: This may not be your maximum alarm current.

Battery Size Calculation			
A	Total Stand-By Current per System:	0.228	Amps
B	Total Alarm Current per System:	2.240	Amps
C	Enter Stand-By Hours:	24	Hour
D	Enter Alarm Time:	5	Minute
E	Ampere Hour Required ((A*C)+(B*D)):	5.65	AH
F	Total Amp Hour Require (Derating Factor 1.2):	7.00	AH
G	Battery Size Required per System (two(2) batteries required):	7.00	AH

**Note:**  
Right-click anywhere to UPDATE,  
PRINT or to CLEAR Battery  
Calculation.

Item No.	Description	Enter Quantity	Unit Standby Current (Amps)	Total Unit Standby Current (Amps)	Unit Alarm Current (Amps)	Total Unit Alarm Current (Amps)
1	Kidde Aries (with Keyboard/Display)	1	0.200	0.200	0.650	0.650
2	SmartOne Photoelectric Smoke Detector DS-PS	12	0.000150	0.001800	0.000220	0.002640
3	SmartOne Contact Input Module (AI's, N/O)	8	0.000580	0.004640	0.000580	0.004640
4	SmartOne Contact Output Module (AO's)	3	0.000400	0.001200	0.000440	0.001320
5	Solenoid, Steady 48650001, (0.240 Amps), (Max. 2 / Circuit)	1	0.000	0.000	0.240	0.240
6	Solenoid, Steady FM Group F, (Skinner 24VDC, 22 Watt Solenoid 7312BN4TNLVNOC322C2)	1	0.000	0.000	0.920	0.920
7	30cd STROBE	1	0.000	0.000	0.130	0.130
8	75cd HORN STROBE	1	0.000	0.000	0.271	0.271
9	Maint. Bypass	2	0.010	0.020	0.010	0.020

This calculator provided voltage drop calculations in three formats (Point to Point, End of Line, and Load Centering).																	
Make sure that you know what method is accepted by, and the results do not exceed the limits set by the respective jurisdiction																	
		Point to Point Method				End of Line Method				Load Centering Method							
Project Name		GOOD SAMARITAN				CIRCUIT IS WITHIN LIMITS				CIRCUIT IS WITHIN LIMITS							
Date		4/5/22															
Circuit Number		NAC 1				Totals		Voltage		Totals		Voltage					
Area Covered		STROBE OF HORN STROBE				Current	Distance	Drop	Current	Distance	Drop	Current	Distance	Drop			
Nominal System Voltage		24				0.243	50	0.12	0.243	50	0.119	0.243	50	0.059			
Minimum Device Voltage		16				End of Line Voltage		23.88		End of Line Voltage		23.88		End of Line Voltage		23.94	
Total Circuit Current		0.243		Wire	Ohm's	Percent Drop		0.50%		Percent Drop		0.50%		Percent Drop		0.25%	
				Gauge	Per 1000	End of Line and Load Centering Methods use only the wire guage for the first device to source											
Distance from source to 1st device		50		16	4.89	Standard Wire Resistance in Ohms per 1000 feet.											
Wire Gauge for balance of circuit				16	4.89			18=7.77	16=4.89	14=3.07	12=1.98	10=1.24					
Enter current in amps.		Distance		Voltage		Notes:											
.150 = 150 ma		from				Wire resistance is doubled in the calculations for two wires (Positive and Negative)											
Device Number	Device Current	previous device	At Device	Drop from source	Percent Drop	The voltage calculated to the last device in any method must not be lower then											
Device 1	0.243	50	23.88	0.119	0.50%	the manufactures listed minimum operating voltage (IE: rated operating voltage 20-32 VDC).											
END			23.88	0.119	0.50%	Device Manufacturer		POTTER		Device Manufacturer		POTTER					
END			23.88	0.119	0.50%									Current @Rated Voltage			
END			23.88	0.119	0.50%	Model #		Candela		Model #		Candela		Current @Rated Voltage			
END			23.88	0.119	0.50%	Strobe Blue -W		15		Strobe Blue -W		15		0.105			
END			23.88	0.119	0.50%	Strobe Blue -W		30		Strobe Blue -W		30		0.13			
END			23.88	0.119	0.50%	Strobe Blue -W		60		Strobe Blue -W		60		0.203			
END			23.88	0.119	0.50%	Strobe Blue -W		75		Strobe Blue -W		75		0.243			
END			23.88	0.119	0.50%	Strobe Blue -W		110		Strobe Blue -W		110		0.310			
END			23.88	0.119	0.50%	Strobe Blue -C		15		Strobe Blue -C		15		0.124			
END			23.88	0.119	0.50%	Strobe Blue -C		30		Strobe Blue -C		30		0.124			
END			23.88	0.119	0.50%	Strobe Blue -C		60		Strobe Blue -C		60		0.139			
END			23.88	0.119	0.50%	Strobe Blue -C		75		Strobe Blue -C		75		0.205			
END			23.88	0.119	0.50%	Strobe Blue -C		110		Strobe Blue -C		110		0.212			
END			23.88	0.119	0.50%	Horn		--		Horn		--		0.028			
END			23.88	0.119	0.50%												
END			23.88	0.119	0.50%												
END			23.88	0.119	0.50%												
Totals	0.243	50	End of Line Voltage		23.88												

This calculator provided voltage drop calculations in three formats (Point to Point, End of Line, and Load Centering).													
Make sure that you know what method is accepted by, and the results do not exceed the limits set by the respective jurisdiction													
		Point to Point Method			End of Line Method			Load Centering Method					
Project Name	GOOD SAMARITAN			CIRCUIT IS WITHIN LIMITS			CIRCUIT IS WITHIN LIMITS			CIRCUIT IS WITHIN LIMITS			
Date	4/5/22												
Circuit Number	NAC 2			Totals		Voltage	Totals		Voltage	Totals		Voltage	
Area Covered	DISCHARGE STROBE			Current	Distance	Drop	Current	Distance	Drop	Current	Distance	Drop	
Nominal System Voltage	24				0.130	50	<b>0.06</b>	0.130	50	<b>0.064</b>	0.130	50	<b>0.032</b>
Minimum Device Voltage	16				End of Line Voltage		<b>23.94</b>	End of Line Voltage		<b>23.94</b>	End of Line Voltage		<b>23.97</b>
Total Circuit Current	0.130		Wire	Ohm's	Percent Drop		0.26%	Percent Drop		0.26%	Percent Drop		0.13%
			Gauge	Per 1000	End of Line and Load Centering Methods use only the wire guage for the first device to source								
Distance from source to 1st device	50		16	4.89	Standard Wire Resistance in Ohms per 1000 feet.								
Wire Gauge for balance of circuit			16	4.89			18=7.77	16=4.89	14=3.07	12=1.98	10=1.24		
Enter current in amps.	Distance					18-14 Awg = Solid Conductors			12-10 Awg = Stranded Conductors				
.150 = 150 ma	from			Voltage		Notes:							
Device Number	Device Current	previous device	At Device	Drop from source	Percent Drop	Wire resistance is doubled in the calculations for two wires (Positive and Negative)							
Device 1	0.130	50	23.94	0.064	0.26%	The voltage calculated to the last device in any method must not be lower then							
END			23.94	0.064	0.26%	the manufactures listed minimum operating voltage (IE: rated operating voltage 20-32 VDC).							
END			23.94	0.064	0.26%	Device Manufacturer	POTTER		Device Manufacturer				
END			23.94	0.064	0.26%			Current @Rated Voltage				Current @Rated Voltage	
END			23.94	0.064	0.26%								
END			23.94	0.064	0.26%	Model #	Candela			Model #	Candela		
END			23.94	0.064	0.26%	Strobe Blue -W	15	0.105					
END			23.94	0.064	0.26%	Strobe Blue -W	30	0.13					
END			23.94	0.064	0.26%	Strobe Blue -W	60	0.203					
END			23.94	0.064	0.26%	Strobe Blue -W	75	0.243					
END			23.94	0.064	0.26%	Strobe Blue -W	110	0.310					
END			23.94	0.064	0.26%	Strobe Blue -C	15	0.124					
END			23.94	0.064	0.26%	Strobe Blue -C	30	0.124					
END			23.94	0.064	0.26%	Strobe Blue -C	60	0.139					
END			23.94	0.064	0.26%	Strobe Blue -C	75	0.205					
END			23.94	0.064	0.26%	Strobe Blue -C	110	0.212					
END			23.94	0.064	0.26%	Horn	--	0.028					
END			23.94	0.064	0.26%								
END			23.94	0.064	0.26%								
END			23.94	0.064	0.26%								
Totals	0.130	50	End of Line Voltage		<b>23.94</b>								

This calculator provided voltage drop calculations in three formats (Point to Point, End of Line, and Load Centering).													
Make sure that you know what method is accepted by, and the results do not exceed the limits set by the respective jurisdiction													
					Point to Point Method			End of Line Method			Load Centering Method		
Project Name		GOOD SAMARITAN			CIRCUIT IS WITHIN LIMITS			CIRCUIT IS WITHIN LIMITS			CIRCUIT IS WITHIN LIMITS		
Date		4/5/22											
Circuit Number		COMBO 2			Totals		Voltage	Totals		Voltage	Totals		Voltage
Area Covered		HORN OF HORN STROBE			Current	Distance	Drop	Current	Distance	Drop	Current	Distance	Drop
Nominal System Voltage		24			0.028	50	0.01	0.028	50	0.014	0.028	50	0.007
Minimum Device Voltage		16			End of Line Voltage		23.99	End of Line Voltage		23.99	End of Line Voltage		23.99
Total Circuit Current		0.028	Wire	Ohm's	Percent Drop		0.06%	Percent Drop		0.06%	Percent Drop		0.03%
			Gauge	Per 1000	End of Line and Load Centering Methods use only the wire guage for the first device to source								
Distance from source to 1st device		50	16	4.89	Standard Wire Resistance in Ohms per 1000 feet.								
Wire Gauge for balance of circuit		16			4.89		18=7.77	16=4.89	14=3.07	12=1.98	10=1.24		
Enter current in amps.		Distance				18-14 Awg = Solid Conductors			12-10 Awg = Stranded Conductors				
.150 = 150 ma		from	Voltage			Notes:							
Device Number	Device Current	previous device	At Device	Drop from source	Percent Drop	Wire resistance is doubled in the calculations for two wires (Positive and Negative)							
Device 1	0.028	50	23.99	0.014	0.06%	The voltage calculated to the last device in any method must not be lower then							
END			23.99	0.014	0.06%	the manufactures listed minimum operating voltage (IE: rated operating voltage 20-32 VDC).							
END			23.99	0.014	0.06%	Device Manufacturer		POTTER			Device Manufacturer		
END			23.99	0.014	0.06%			Current @Rated Voltage				Current @Rated Voltage	
END			23.99	0.014	0.06%	Model #		Candela				Candela	
END			23.99	0.014	0.06%	Strobe Blue -W		15				0.105	
END			23.99	0.014	0.06%	Strobe Blue -W		30				0.13	
END			23.99	0.014	0.06%	Strobe Blue -W		60				0.203	
END			23.99	0.014	0.06%	Strobe Blue -W		75				0.243	
END			23.99	0.014	0.06%	Strobe Blue -W		110				0.310	
END			23.99	0.014	0.06%	Strobe Blue -C		15				0.124	
END			23.99	0.014	0.06%	Strobe Blue -C		30				0.124	
END			23.99	0.014	0.06%	Strobe Blue -C		60				0.139	
END			23.99	0.014	0.06%	Strobe Blue -C		75				0.205	
END			23.99	0.014	0.06%	Strobe Blue -C		110				0.212	
END			23.99	0.014	0.06%	Horn		--				0.028	
END			23.99	0.014	0.06%								
END			23.99	0.014	0.06%								
END			23.99	0.014	0.06%								
Totals	0.028	50	End of Line Voltage		23.99								

This calculator provided voltage drop calculations in three formats (Point to Point, End of Line, and Load Centering).														
Make sure that you know what method is accepted by, and the results do not exceed the limits set by the respective jurisdiction														
		Point to Point Method				End of Line Method				Load Centering Method				
Project Name	GOOD SAMARITAN				<b>CIRCUIT IS WITHIN LIMITS</b>				<b>CIRCUIT IS WITHIN LIMITS</b>					
Date	4/5/22													
Circuit Number	RELEASE 1				Totals		Voltage		Totals		Voltage			
Area Covered	CLEAN AGENT SOLENOID				Current	Distance	Drop	Current	Distance	Drop	Current	Distance	Drop	
Nominal System Voltage			24			0.240	50	<b>0.12</b>	0.240	50	<b>0.117</b>	0.240	50	<b>0.059</b>
Minimum Device Voltage			16			End of Line Voltage		<b>23.88</b>	End of Line Voltage		<b>23.88</b>	End of Line Voltage		<b>23.94</b>
Total Circuit Current	0.240		Wire		Ohm's		Percent Drop		Percent Drop		Percent Drop		Percent Drop	
			Gauge		Per 1000		End of Line and Load Centering Methods use only the wire guage for the first device to source							
Distance from source to 1st device			50	16	4.89		Standard Wire Resistance in Ohms per 1000 feet.							
Wire Gauge for balance of circuit			16		4.89		18=7.77		16=4.89	14=3.07	12=1.98	10=1.24		
Enter current in amps.		Distance		Voltage		Notes:								
.150 = 150 ma		from				Wire resistance is doubled in the calculations for two wires (Positive and Negative)								
Device Number	Device Current	previous device	At Device	Drop from source	Percent Drop	The voltage calculated to the last device in any method must not be lower then								
Device 1	0.240	50	23.88	0.117	0.49%	the manufactures listed minimum operating voltage (IE: rated operating voltage 20-32 VDC).								
END			23.88	0.117	0.49%	Device Manufacturer		Kidde		Device Manufacturer		Other		
END			23.88	0.117	0.49%			Current @Rated Voltage				Current @Rated Voltage		
END			23.88	0.117	0.49%	Solenoid				Solenoid				
END			23.88	0.117	0.49%	Model #		Candela		Model #		Candela		
END			23.88	0.117	0.49%	Momentary				Sprinkler		0.920		
END			23.88	0.117	0.49%	Momentary								
END			23.88	0.117	0.49%	Steady								
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
END			23.88	0.117	0.49%									
Totals	0.240	50	End of Line Voltage		<b>23.88</b>									

This calculator provided voltage drop calculations in three formats (Point to Point, End of Line, and Load Centering).																	
Make sure that you know what method is accepted by, and the results do not exceed the limits set by the respective jurisdiction																	
		Point to Point Method				End of Line Method				Load Centering Method							
Project Name	GOOD SAMARITAN				CIRCUIT IS WITHIN LIMITS				CIRCUIT IS WITHIN LIMITS								
Date	4/5/22																
Circuit Number	RELEASE 2				Totals		Voltage		Totals		Voltage						
Area Covered	PRE-ACTION SOLENOID				Current	Distance	Drop	Current	Distance	Drop	Current	Distance	Drop				
Nominal System Voltage			24			0.920	200	1.80	0.920	200	1.800	0.920	200	0.900			
Minimum Device Voltage			16			End of Line Voltage		22.20	End of Line Voltage		22.20	End of Line Voltage		23.10			
Total Circuit Current	0.920		Wire		Ohm's		Percent Drop		7.50%		Percent Drop		7.50%				
				Gauge		Per 1000		End of Line and Load Centering Methods use only the wire guage for the first device to source									
Distance from source to 1st device		200		16		4.89		Standard Wire Resistance in Ohms per 1000 feet.									
Wire Gauge for balance of circuit				16		4.89		18=7.77		16=4.89		14=3.07		12=1.98		10=1.24	
Enter current in amps.		Distance						18-14 Awg = Solid Conductors		12-10 Awg = Stranded Conductors							
.150 = 150 ma		from		Voltage		Notes:											
Device Number	Device Current	previous device	At Device	Drop from source	Percent Drop	Wire resistance is doubled in the calculations for two wires (Positive and Negative)											
Device 1	0.920	200	22.20	1.800	7.50%	The voltage calculated to the last device in any method must not be lower then the manufactures listed minimum operating voltage (IE: rated operating voltage 20-32 VDC).											
END			22.20	1.800	7.50%	Device Manufacturer		Kidde		Device Manufacturer		Other					
END			22.20	1.800	7.50%			Current @Rated Voltage				Current @Rated Voltage					
END			22.20	1.800	7.50%	Solenoid				Solenoid							
END			22.20	1.800	7.50%	Model #		Candela		Model #		Candela					
END			22.20	1.800	7.50%	Momentary				Sprinkler		0.920					
END			22.20	1.800	7.50%	Momentary											
END			22.20	1.800	7.50%	Steady											
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
END			22.20	1.800	7.50%												
Totals	0.920	200	End of Line Voltage		22.20												



This calculator provided voltage drop calculations in three formats (Point to Point, End of Line, and Load Centering).

**Make sure that you know what method is accepted by, and the results do not exceed the limits set by the respective jurisdiction**

						<b>Point to Point Method</b>		<b>End of Line Method</b>			<b>Load Centering Method</b>						
Project Name		GOOD SAMARITAN		<b>CIRCUIT IS WITHIN LIMITS</b>		<b>CIRCUIT IS WITHIN LIMITS</b>		<b>CIRCUIT IS WITHIN LIMITS</b>			<b>CIRCUIT IS WITHIN LIMITS</b>						
Date		4/5/22															
Circuit Number		AUX		Totals		Voltage		Totals		Voltage		Totals		Voltage			
Area Covered		AUX POWER DEVICES		Current	Distance	Drop		Current	Distance	Drop		Current	Distance	Drop			
Nominal System Voltage		24		0.020		250		0.04		0.020		250		0.049			
Minimum Device Voltage		16		End of Line Voltage		23.96		End of Line Voltage		23.95		End of Line Voltage		23.98			
Total Circuit Current		0.020		Wire	Ohm's	Percent Drop		0.18%		Percent Drop		0.20%		Percent Drop			
				Gauge	Per 1000	End of Line and Load Centering Methods use only the wire guage for the first device to source											
Distance from source to 1st device		200		16		4.89		Standard Wire Resistance in Ohms per 1000 feet.									
Wire Gauge for balance of circuit				16		4.89		18=7.77		16=4.89		14=3.07		12=1.98		10=1.24	
Enter current in amps.		Distance						18-14 Awg = Solid Conductors		12-10 Awg = Stranded Conductors							
.150 = 150 ma		from		Voltage		Notes:											
Device Number	Device Current	previous device	At Device	Drop from source	Percent Drop	Wire resistance is doubled in the calculations for two wires (Positive and Negative)											
Device 1	0.010	200	23.96	0.039	0.16%	The voltage calculated to the last device in any method must not be lower then											
Device 2	0.010	50	23.96	0.044	0.18%	the manufactures listed minimum operating voltage (IE: rated operating voltage 20-32 VDC).											
END			23.96	0.044	0.18%	Device Manufacturer			Device Manufacturer								
END			23.96	0.044	0.18%				Current @Rated Voltage			Current @Rated Voltage					
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%	Model #		Candela			Model #		Candela				
END			23.96	0.044	0.18%	MAINT. BYPASS			0.010								
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
END			23.96	0.044	0.18%												
Totals	0.020	250	End of Line Voltage		23.96												

# ARIES®-SLX

## Intelligent Single-Loop Fire Alarm-Suppression Control Unit



Effective: May 2020  
K-76-650

### FEATURES

- "Triple R" safeguards substantially reduce the risk of inadvertent activation caused by microprocessor failure
- 1 SLC supports up to 255 SmartOne® addressable devices
- 6 output circuits - 2 NACs, 2 release, 2 NAC/release
- 3 Programmable and 1 Trouble Form-C relays
- 2 auxiliary power outputs, 1 amp each
- Remote release modules (RRM) supported on SLC, up to 66 for standalone control unit, 1000+ for large networks (limitations apply)
- 32 network node capacity (up to 8,160 addresses)
- Can be networked with other legacy Chemetron Fire Systems and Fenwal Protection Systems single loop control units
- Control for wide array of fire suppression systems:
  - Kidde® ECS™ Clean Agent
  - Kidde® ADS™ Clean Agent
  - Kidde® Inert Gases
  - Kidde® HP CO2
  - Kidde® LP CO2
  - Kidde® WHDR™ Wet Chemical
  - Kidde® IND™ Dry Chemical
  - Marioff® HI-FOG® Water Mist
- Suppression systems by others:
  - Sprinkler Supervisory
  - Deluge/Pre-action
  - Foam and Foam/Water
- 120/240V, 50/60 Hz AC input
- 5.4 A Power Supply Unit
- Charging capacity of 70 AH
- Easy to service, advanced diagnostics
  - 80-Character (2 X 40) LCD Display
  - Flexible programming
  - Event log
  - Internet connectivity with e-mail notification
- Spurt and Squirt functions
- Modbus TCP/IP compatibility
- Backwards compatible with installed investment
  - SmartOne SLC devices & protocol
  - Kidde®, Fenwal® and Chemetron® Control Heads and Actuators
  - Fenwal Initiators
  - Remote display and output driver (LED & Relay) modules
- UL Listed to ANSI 864, 10th edition
- FM Approved
- California State Fire Marshal

### DESCRIPTION

The ARIES®-SLX is an intelligent, addressable, single loop Fire Alarm-Suppression control unit that supports Kidde Fire Systems' wide array of suppression products and is backward-compatible with legacy Kidde, Fenwal, Chemetron and Marioff agent release devices including control heads and initiators. It is compact, networkable and supports both simple and complex programming for the demanding operational requirements of single- and multi-hazard fire suppression applications.

The unit provides one signaling line circuit, two notification-appliance circuits, two releasing circuits, and two combo circuits that are user-configurable for NAC, or release to actuate one solenoid valve for control of a special extinguishing system or a pre-action/deluge sprinkler system. The unit has four on-board relays, a 5.4 amp filtered and regulated power supply, and provides charging for batteries up to 70 AH.



The ARIES-SLX 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 (SLC) is the communications path between the ARIES-SLX control unit and SmartOne field devices. It uses a highly-efficient, fully-digitized protocol to communicate with up to 255 SmartOne initiating devices including DS-PS photoelectric smoke detectors, DS-HFS heat detectors, DS-SD duct detectors, monitor modules and control modules (some mix and match limitations apply).

SmartOne devices are supervised and power-limited. 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.

The SLC can be wired for Class A or Class B operation. Optional isolator modules can be used for a Class X circuit. All SLC wiring must be twisted, unshielded, low-capacitance, fire-alarm wire.

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## RELEASING CIRCUITS

The ARIES-SLX 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
- Fenwal initiators

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 are FM Release Panel Group 2. 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 "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 triple-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-SLX control unit has two 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 regulated notification appliances. They can be used with the following Wheelock horns and strobes:

- MT Series Multi-Tone Horns and Horn/Strobes
- NS Series Horn/Strobes (See Note)
- NH Series Horns
- RSS(P) Series Strobes (See Note)
- Exceder Series Horns, Strobes, and Horn/Strobes (Xenon flashtube models only)

**Note:** Wheelock NS Series Horn/Strobes and Wheelock NH Series Horns cannot be programmed for synchronization. Horn/strobe combination devices utilizing the appropriate synch protocol have the option to use silenceable horns and non-silenceable strobes. Refer to the horn/strobe manufacturer's installation sheet for details.

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## COMBO CIRCUITS (NAC OR RELEASE)

The ARIES-SLX has two combo circuits which can be configured as a NAC or a release circuit to activate one solenoid for special-extinguishing-system actuation or pre-action/deluge sprinkler-system actuation. When configured for release, the circuit is protected against inadvertent activation via the main microprocessor by the Triple-R safeguard feature.

## ON-BOARD RELAYS AND AUXILIARY POWER

The ARIES-SLX 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 amp output. These auxiliary power outputs are user configurable for resettable or continuous power.

## INTEGRATION WITH SPECIALTY DETECTION SYSTEMS

SmartOne loop protocol interface cards enable the ARIES-SLX to seamlessly integrate with specialty detectors. AIR-Intelligence Air Sampling Smoke Detectors (ASD) connect via Addressable Protocol Interface Cards (APIC) and report pre-alarms and alarms in a manner analogous to SmartOne smoke detectors.

Fixed Temperature Linear Heat Sensor cables (LHS) connect via Addressable Input Modules (AI) and report point alarms.

## PROGRAMMING

The ARIES-SLX Configuration Tool (ACT-SLX) 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 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 system to be automatically configured for the typical control scenario utilized by waterless fire-suppression systems.

## OPTIONAL MODULES:

### ARIES-SLX NETWORK – NIC AND OCC CARDS

The ARIES-SLX networking structure supports a mixture of twisted-wire and fiber-optic interconnections between networked control units. The ARIES-SLX can be networked with legacy Fenwal and Chemetron single loop control units which allows the ARIES-SLX to be used as either a service replacement for existing networks or for system expansion.

The ARIES-SLX Network Interface Card (NIC) mounts to the control unit's printed circuit board as a "daughter" card and provides peer-to-peer interconnection for up to 32 control units. It supports Class B interconnecting wiring, and acts as a repeater to boost and regenerate the communications signals. It transmits and receives messages via the RS-485 format. One NIC is required for each node.

The Fiber-Optic Converter Card (OCC) allows ARIES-SLX networked control units to be interconnected using 62.5/125 multi-mode duplex fiber-optic media. One OCC is required per node to terminate each end of a fiber optic communications-channel(s) segment using ST type connectors. The OCC is housed in its own enclosure and connects to the NIC that passes communications to the control unit. The OCC support distances up to 1 mile, 1.6 km between nodes (with no more of 4 dB/km cable attenuation).

### REMOTE DISPLAY/CONTROL MODULE (RDCM)

The ARIES-SLX supports up to 15 RDCMs on its Annunciator bus. The RDCM 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.

### LED AND RELAY OUTPUT DRIVER MODULES

The Model ATM-L Annunciator LED Driver also operates on the Annunciator bus and provides the ARIES-SLX with up to 32 programmable, supervised LED outputs for graphical or tabular annunciators, along with 6 system-level LED outputs and 5 system-level input 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 Model ATM-R Relay Driver Module can activate up to 32 programmable, supervised relays. It provides up to 80 mA per output to drive relays.

The ARIES-SLX supports up to 16 graphic annunciator driver modules.

### INTELLIGENT COMMUNICATIONS MODULE

The Intelligent Communications Module (ICM) can be used to access the ARIES-SLX System via the Internet to view system status, 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 via the Internet Explorer and Mozilla Firefox web browsers.

The ICM also allows the ARIES-SLX control unit to report as a slave device via the MODBUS TCP/IP protocol to a master monitoring system for automated process control.

### ARIES-SLX ENCLOSURE

The ARIES-SLX enclosure has a NEMA 1 rating and is large enough to house two 12 VDC, 12 AH batteries. It provides up to 2 inches (51 mm) of wiring and finger space between the circuit board and the cabinet wall.

The enclosure can be surface or flush mounted. The trim ring used for flush mounting application is ordered separately.

## ORDERING INFORMATION

Part Number	Description
<b>ARIES-SLX control unit</b>	
76-600000-901	ARIES-SLX control unit, Red
76-600000-007	Red Trim Ring for semi-flush mounting of ARIES-SLX control unit
76-100010-001	Large Capacity Battery Cabinet, Red (Optional)
<b>Optional Modules</b>	
76-600000-005	Remote Display/Control Module (RDCM)
76-600000-010	RDCM Trim Ring - Red
06-220080-002	Intelligent Communications 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 control unit
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
<b>Replacement/Spare Parts</b>	
76-600000-902	ARIES-SLX Enclosure
76-600000-904	ARIES-SLX Printed-Circuit Board with Display
76-600000-011	Keypad Display Assembly
06-118394-002	Power Supply
06-220151-001	Spare Bezel Assembly
06-129829-102	RDCM Circuit Board Assembly
06-220024-002	Wiring Installation Kit
06-220043-002	Fiber Optic Converter Card
06-129924-001	Kidde Panels - Spare Lock w/ 2 Keys

## SPECIFICATIONS

<b>Primary AC Power:</b>	120 Vac, 50/60 Hz, 3.2 A 220/240 Vac, 50/60 Hz, 1.6 A	<b>Relays:</b>	3 Programmable and 1 Trouble Relay. - 1.0 A @ 30 Vdc (resistive) - 0.5 A @ 30 Vdc (inductive) - 0.5 A @ 120 Vac (inductive)
<b>Power Output:</b>	5.4 A @ 24Vdc Filtered and Regulated Inherently Power-Limited	<b>2 Class B Auxiliary-Power Outputs:</b>	Programmable for Resettable or Continuous Output 1 A @ 24 Vdc (each output)
<b>Battery (Sealed, Lead-Acid Only):</b>	70 Ah Maximum Capacity Enclosure fits two 12AH batteries	<b>2 RS-232 Serial Ports:</b>	Bi-Directional 9600 Baud, 8 Data Bits, 1 Stop Bit, No Parity
<b>1 Signaling Line Circuit:</b>	255 Devices Maximum, (limitations apply) Class A, Class B, or Class X (with Isolator Modules)	<b>1 RS-485 Communications Port:</b>	Maximum 31 Remote Addresses 15 RDCM and 16 Model ATM-L or ATM-R modules
<b>SLC Loop Resistance:</b>	40 Ohms Maximum	<b>1 USB Device Port:</b>	USB Serial
<b>SLC Conductor-to-Conductor Capacitance:</b>	0.5 $\mu$ F Maximum	<b>Dimensions:</b>	Enclosure Only: 14-1/4 in. (362 mm) W x 19 in. (483 mm), H x 5 in. (127 mm) D Enclosure with Door: 14-13/32 in. (366 mm) W x 19-5/32 in. (487 mm) H x 5-1/16" (129 mm) D
<b>SLC Loop Capacitance to Earth Ground:</b>	0.5 $\mu$ F Maximum	<b>NEMA 1 Enclosure:</b>	- 18 gauge sheet steel with door - Red color - Suitable for semi flush and surface wall mounting - Indoor/Dry Use Only - Optional Trim Ring - Operating temperature range: 32°F to 120°F (0°C to 49°C) - Humidity: 93 $\pm$ 2% RH at 90 $\pm$ 3°F (32 $\pm$ 2°C) non-condensing
<b>2 Notification Appliance Circuits:</b>	Class A or Class B 24 Vdc regulated 1.5 A (maximum per circuit) Suitable for Synchronized Notification Appliances		
<b>2 Releasing Circuits:</b>	Configurable for:  - One or two Control Heads and/or Solenoid Valves - One Metron Actuator 24 Vdc, 2.4 A (maximum per circuit) - One set of initiators		
<b>2 Combination Circuits:</b>	Each Configurable as:  Class A or Class B NAC, 24 Vdc, regulated 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)		

### EXPORT INFORMATION (USA)

Jurisdiction: EAR  
Classification: EAR99

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# Sealed Lead-Acid Batteries

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## AGM & GEL

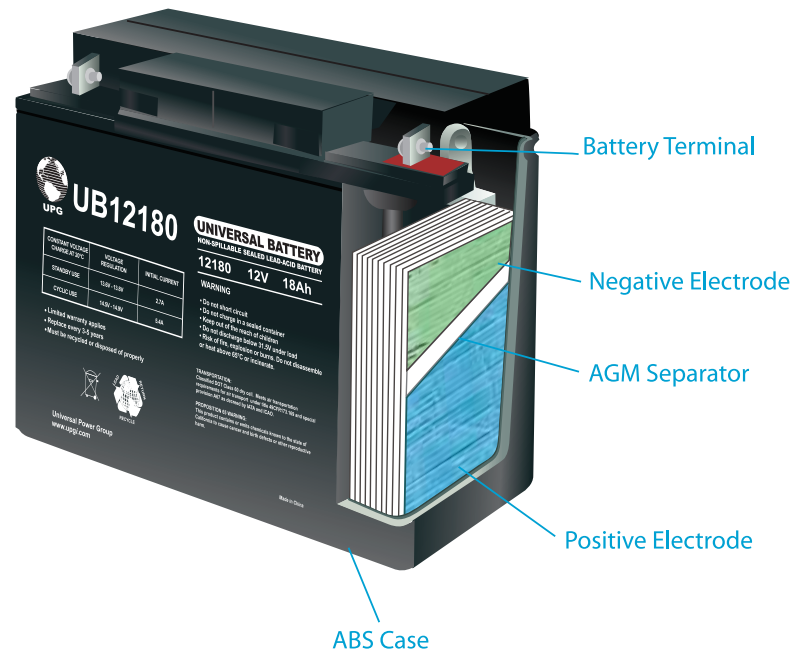


## Features & Benefits

Our Universal line of AGM and GEL batteries are defined as Non Hazardous & Non-Spillable by DOT (Department of Transportation), IATA (International Airline Transport Association), and ICAO (International Civil Aviation Organization).

### Our SLA batteries offer:

- ⊕ Outstanding performance, withstanding high current output and deep cycling.
- ⊕ Excellent resistance to vibration, shock, chemicals and heat.
- ⊕ Lower self-discharge.
- ⊕ Exceptional leak resistance even in an upside-down position.
- ⊕ Reliable power for critical applications.
- ⊕ DOT 60 classified for easy transportation.
- ⊕ UL recognized.



## AGM & GEL Battery Design

AGM & GEL batteries are lead-acid and of the same battery chemistry (lead dioxide, sponge-lead and sulfuric acid electrolyte) but the electrolyte is stabilized differently.



### AGM

The electrolyte is suspended in fiberglass mat separators which act as absorbent sponges.



### GEL

The electrolyte is suspended in silica-based gel as a thick pasty material.

# Sealed Lead-Acid/AGM

UPG No.	Model No.	Terminal	Nom Volt	Capacity 20 hr. rate	Length		Dimensions Width		Height		Weight lbs. +/-5%	Case Qty	Skid Qty
					in.	mm	in.	mm	in.	mm			
40559	UB445	F2	4	4.50	1.86	47	2.06	52	3.82	97	1.10	20	1920
D5798	UB490	F2	4	9.00	4.02	102	1.74	44	3.91	99	2.10	5	500
40561	UB610	F1	6	1.00	2.01	51	1.65	42	2.20	56	0.53	20	2240
D5731	UB613	F1	6	1.30	3.82	97	0.96	24	2.22	56	0.64	60	3780
D5695	UB3.2-6	F1	6	3.20	2.57	65	1.28	33	4.00	102	1.10	30	1920
40681	UB632L	F1	6	3.20	5.26	140	1.33	32	2.37	58	1.40	20	960
D5732	UB634	F1	6	3.40	5.25	133	1.32	33	2.57	65	1.10	20	1700
D5733	UB645	F1	6	4.50	2.76	70	1.85	47	4.17	106	1.83	20	1700
40565	UB645WV	WL	6	4.50	2.75	69	1.86	47	3.94	100	2.02	10	1200
D5697	UB650S Lantern	S2	6	5.00	2.63	67	2.63	67	4.50	114	2.02	20	1000
D5897	UB650F Lantern	F1	6	5.00	2.63	67	2.63	67	4.00	102	2.02	20	1000
D5734	UB670	F1	6	7.00	5.94	150	1.34	34	3.94	100	2.43	10	1000
D5735	UB685	F1	6	8.50	3.82	97	2.19	56	4.60	117	3.10	10	800
D5736 / D5778	UB6120	F1 / F2	6	12.00	5.94	151	1.94	49	3.82	97	4.06	10	650
40575	UB6130 TOY	F1	6	13.00	4.25	108	2.82	72	5.44	138	5.04	10	50
D5737	UB6120 TOY	P2	6	12.00	4.25	108	2.78	71	5.47	139	4.19	10	50
40560	UB6420	F2	6	42.00	6.42	163	3.48	88	6.41	163	13.20	2	144
45969	UB62000 (Grp 27 Case)	I4	6	200.00	12.00	305	6.60	168	9.25	235	58.20	1	42
45966	UB-GC2 (Golf Cart)	L5	6	200.00	10.26	260	7.12	180	9.67	245	62.30	1	50
45791	UB1208	WL	12	0.80	3.78	96	0.98	25	2.44	62	0.75	30	1000
D5738	UB1213	F1	12	1.30	3.82	97	1.69	43	2.28	58	1.21	20	2000
D2790	UB1220-T	ST	12	2.00	5.91	150	0.79	20	3.50	89	1.54	20	1200
D5739	UB1222	F1	12	2.20	7.00	178	1.38	35	2.50	63	2.20	20	1400
N/A	UB1223A	PC	12	2.30	7.17	182	0.93	24	2.40	61	1.46	10	500
D5700	UB1229T	F1	12	2.90	3.06	78	2.19	56	4.00	102	2.12	10	960
D5740	UB1234	F1	12	3.40	5.25	133	2.63	67	2.44	62	3.20	10	800
D5741 / D5777	UB1250	F1 / F2	12	5.00	3.54	90	2.76	70	4.21	107	3.09	10	850
40800	UB1270	F1	12	7.00	5.94	151	2.56	65	3.94	100	4.50	8	360
40760	UB1272	F1	12	7.20	5.94	151	2.56	65	3.94	100	4.90	8	504
D5743 / D5779	UB1280	F1 / F2	12	8.00	5.94	151	2.56	65	3.94	100	4.96	8	544
40749 / 40748	UB1290/ UB1290F2	F1	12	9.00	5.94	151	2.56	65	3.94	100	5.10	8	504
D5719	UB12100-S	F2	12	10.00	5.94	151	2.56	65	4.61	117	7.28	8	504
D5744 / D5775	UB12120	F1 / F2	12	12.00	5.94	151	3.88	99	4.00	102	8.38	4	336
40658	UB12150	Tab w/ hole	12	15.00	5.94	151	3.89	99	3.95	100	9.60	4	244
40672	UB12150	F2	12	15.00	5.94	151	3.89	99	3.95	100	9.60	4	244
D5745 / 40648	UB12180	T4 / F2	12	18.00	7.13	181	3.01	76	6.57	167	11.90	4	240
40696	UB12220	T4	12	22.00	7.13	181	3.01	76	6.57	167	13.01	2	240
D5747	UB12260	T3	12	26.00	6.50	165	6.86	174	4.94	125	18.08	2	168
40596	UB12260T	T3	12	26.00	6.50	165	4.94	125	6.86	174	21.00	2	150
D5722	UB12350 (Group U1)	L1	12	35.00	7.68	195	5.16	131	7.13	181	23.15	1	128
45976	UB12350 (Group U1)	I2	12	35.00	7.68	195	5.16	131	6.14	156	23.15	1	128
45977	UB12500	L2	12	50.00	7.72	196	6.50	165	7.17	182	31.97	1	100
45825	UB12550 (Group 22NF)	Z1	12	55.00	9.02	229	5.43	138	9.13	232	38.58	1	84
40740	UB12550 (+ ON LEFT)	Z1	12	55.00	9.02	229	5.43	138	9.13	232	38.58	1	84
45980	UB12550 (Group 22NF)	I4	12	55.00	9.02	229	5.43	138	8.27	210	38.58	1	84
45821	UB12750 (Group 24)	Z1	12	75.00	10.24	260	6.61	168	9.13	232	50.71	1	60
45822	UB12750 (Group 24)	I4	12	75.00	10.24	260	6.61	168	8.27	210	50.71	1	66
45826	UB12900 (Group 27)	Z1	12	90.00	12.05	306	6.61	168	9.13	232	56.80	1	52
45823	UB12900 (Group 27)	I4	12	90.00	12.05	306	6.61	168	8.27	210	56.80	1	52
45978	UB121000 (Group 27)	Z1	12	100.00	12.05	306	6.61	138	9.13	232	58.90	1	52
D5751	UB121100 (Group 30H)	FL1	12	110.00	12.91	328	6.77	172	9.29	236	67.24	1	47
45981	UB121100 (Group 30H)	I6	12	110.00	12.91	328	6.77	172	8.58	218	67.24	1	47
45824	UB121100 (Group 30H)	L3	12	110.00	12.91	328	6.77	172	9.29	236	67.24	1	47
40994	UB121350	I6	12	135.00	13.39	340	6.81	173	11.22	285	87.08	1	40
45965	UB-4D AGM	L4	12	200.00	20.75	527	8.11	206	9.65	245	123.46	1	24
45964	UB-8D AGM	L4	12	250.00	20.47	520	10.55	268	9.65	169	160.94	1	18

# Adventure Power Marine / Absorbent Glass Mat (AGM)

UPG No.	Model No.	Terminal	Nom Volt	Capacity 20 hr. rate	Length		Dimensions Width		Height		Weight lbs. +/-5%	Case Qty	Skid Qty
					in.	mm	in.	mm	in.	mm			
40600	UB12550 (Group 22NF)	Marine Post	12	55.00	9.02	229	5.43	138	10.22	259	39.00	1	84
40601	UB12750 (Group 24)	Marine Post	12	75.00	10.24	260	6.61	168	10.16	258	54.50	1	66
40602	UB12900 (Group 27)	Marine Post	12	90.00	12.05	306	6.61	168	10.16	258	64.00	1	52
40603	UB121100 (Group 30H)	Marine Post	12	110.00	13.00	330	6.91	175	10.37	263	74.65	1	46

# Flame Retardant Sealed Lead-Acid/Absorbent Glass Mat

UPG No.	Model No.	Terminal	Nom Volt	Capacity 20 hr. rate	Length		Dimensions Width		Height		Weight lbs. +/-5%	Case Qty	Skid Qty
					in.	mm	in.	mm	in.	mm			
45565	UB1250FR	F2	12	5.00	3.54	90	2.76	70	4.21	107	3.09	10	600
45566	UB1270FR	F2	12	7.00	5.94	151	2.56	64	3.94	100	4.96	8	360
45567	UB12120FR	F2	12	12.00	5.94	151	3.88	98	4.00	102	8.38	4	336
45568	UB12180FR	T4	12	18.00	7.13	181	3.01	76	6.57	167	11.90	4	480
40995	UB12260FR	T3	12	26.00	6.54	166	6.89	175	4.92	125	18.08	2	120
D5880	UB12350FR	L1	12	35.00	7.68	195	5.16	131	7.13	181	23.15	2	128
D5881	UB12550FR	Z1	12	55.00	9.02	229	5.43	138	9.13	232	38.58	1	84
D5882	UB12750FR	Z1	12	75.00	10.24	260	6.61	168	9.13	232	50.71	1	60
45983	UB12750FR	I4	12	75.00	10.24	260	6.61	168	8.31	211	50.71	1	60
D5883	UB12900FR	Z1	12	90.00	12.05	306	6.61	168	9.13	232	59.52	1	52
D5884	UB121100FR	Z1	12	110.00	12.91	328	6.77	172	9.29	236	67.24	1	47

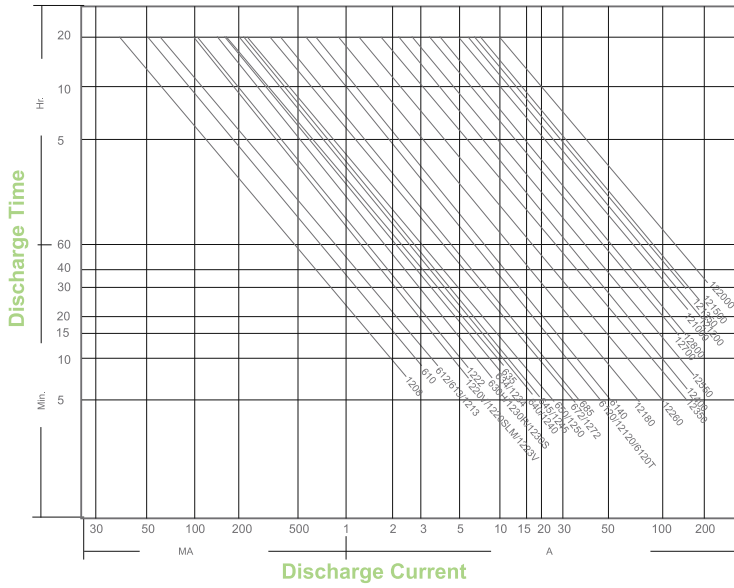
# Sealed Lead-Acid/GEL

UPG No.	Model No.	Terminal	Nom Volt	Capacity 20 hr. rate	Length		Dimensions Width		Height		Weight lbs. +/-5%	Case Qty	Skid Qty
					in.	mm	in.	mm	in.	mm			
40703	UB-GC2 (Golf Cart) Gel	L5	6	180.00	10.26	260	7.12	180	9.67	245	63.20	1	20
D5870	UB-GEL	L1	12	32.00	7.69	195	5.19	132	7.00	178	23.10	1	128
D5871	UB-22NF GEL	Z1	12	55.00	9.02	229	5.38	137	9.13	232	38.58	1	84
D5872	UB-24 GEL	Z1	12	75.00	10.25	260	6.63	168	9.25	235	50.10	1	60
D5873	UB-27 GEL	Z1	12	90.00	12.05	306	6.61	168	9.13	232	59.52	1	54
D5874	UB-30H GEL	FL2	12	100.00	12.91	328	6.77	172	9.29	236	67.24	1	52
40701	UB-4D GEL	L4	12	180.00	20.87	530	8.11	206	9.61	244	132.28	1	24
40702	UB-8D GEL	L4	12	230.00	20.47	520	10.55	268	9.65	245	171.96	1	16

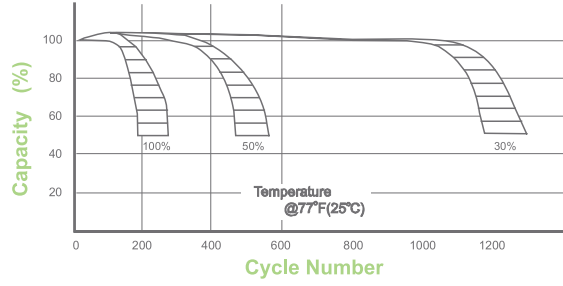


# Performance Characteristics

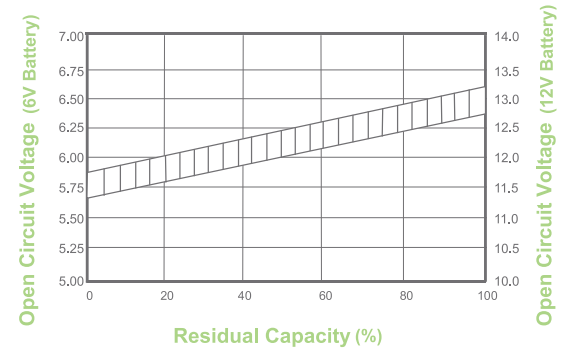
## Discharge Current vs Time Curve 25°C(77°F)



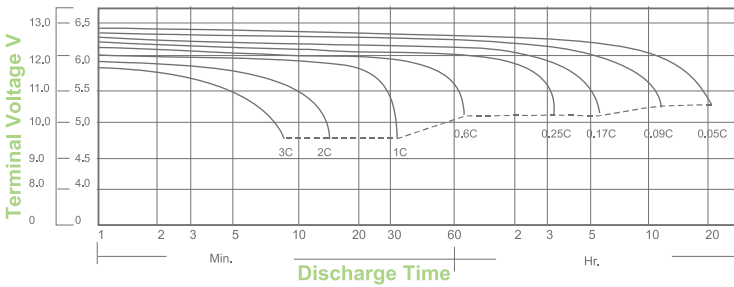
## Cycle Life vs Depth of Discharge



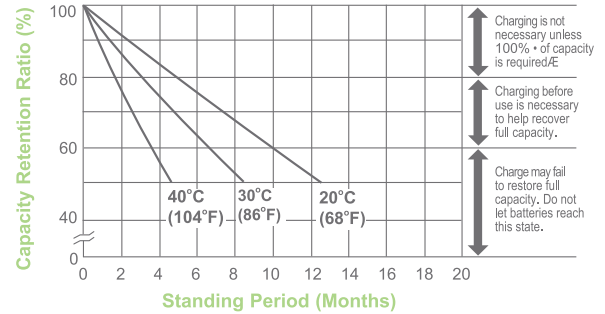
## Open Circuit Voltage vs Residual Capacity



## Discharge Characteristics



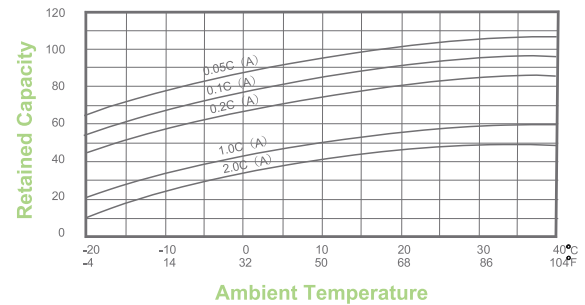
## Shelf-Life & Storage Temperature



## Discharge Current vs Final Discharge Voltage

Discharge Current (A)	Final Discharge Voltage (V/cell)
$0.01C > C_A$	1.90
$0.2 > C_A \geq 0.01C$	1.75
$0.5 > C_A \geq 0.2C$	1.70
$2.0 > C_A \geq 0.5C$	1.60
$C_A \geq 2.0C$	1.30

## Effect of Temperature on Capacity



➤ For assistance, please contact a UPG sales professional at 866.892.1122 or by email at [sales@upgi.com](mailto:sales@upgi.com).



# Terminal Configurations

### F Series (Faston Tabs)

Dimension	L	W	w	H	T
F1	6.50 mm 0.26 in	4.75 mm 0.19 in	6.00 mm 0.24 in	5.00 mm 0.20 in	0.80 mm 0.03 in
F2	7.80 mm 0.31 in	6.35 mm 0.25 in	7.80 mm 0.31 in	6.00 mm 0.24 in	0.80 mm 0.03 in

### P Series (Plastic Connector)

P2

### Marine Combo Post

### Flag Terminal (FL1)

### Flag Terminal (FL2)

### I Series (Internal Thread)

Dimension	M	∅	H
I1	6.00 mm 0.24 in	13.0 mm 0.51 in	4.00 mm 0.16 in
I2	6.00 mm 0.24 in	15.0 mm 0.59 in	3.00 mm 0.12 in
I3	9.52 mm 0.37 in	16.0 mm 0.63 in	4.00 mm 0.16 in
I4	6.00 mm 0.24 in	15.0 mm 0.59 in	4.00 mm 0.16 in
I5	9.52 mm 0.37 in	17.0 mm 0.67 in	4.00 mm 0.16 in
I6	6.00 mm 0.24 in	16.0 mm 0.63 in	4.00 mm 0.16 in
I7	9.52 mm 0.37 in	16.0 mm 0.63 in	4.00 mm 0.16 in
I8	10.0 mm 0.39 in	19.0 mm 0.75 in	2.00 mm 0.08 in
I9	9.52 mm 0.37 in	19.0 mm 0.75 in	4.00 mm 0.16 in

### Z Series (Z Post Terminal)

Dimension	∅	∅1	H	h
Z1	17.0 mm 0.67 in	8.00 mm 0.32 in	21.5 mm 0.85 in	9.00 mm 0.35 in

### S Series

S1

### L Series (L Type Terminal)

Dimension	L	W	H	h	∅
L1	17.5 mm 0.69 in	7.00 mm 0.28 in	17.0 mm 0.69 in	7.00 mm 0.28 in	8.50 mm 0.34 in
L2	17.0 mm 0.69 in	9.00 mm 0.35 in	17.0 mm 0.69 in	9.00 mm 0.35 in	6.50 mm 0.26 in
L3	25.5 mm 1.00 in	7.00 mm 0.28 in	22.0 mm 0.87 in	10.5 mm 0.41 in	8.50 mm 0.34 in
L4	26.5 mm 1.04 in	8.00 mm 0.32 in	24.5 mm 0.97 in	12.0 mm 0.47 in	9.00 mm 0.35 in
L5	26.5 mm 1.04 in	8.50 mm 0.34 in	24.0 mm 0.95 in	10.0 mm 0.39 in	8.00 mm 0.32 in

### T Series (Tab Terminal)

Dimension	L	W	w	h	∅
T3	14.0 mm 0.55 in	2.00 mm 0.09 in	12.5 mm 0.49 in	6.00 mm 0.24 in	6.00 mm 0.24 in
T4	12.0 mm 0.47 in	3.00 mm 0.12 in	12.5 mm 0.49 in	5.00 mm 0.20 in	5.50 mm 0.22 in

## Battery Care

To properly charge your deep cycle AGM/GEL battery:

- + Active users: Charge daily.
- + Occasional users: Charge your battery before any outing, after active use or every 90 days if no use.
- + Only use with a specified charger. Only use appropriate charger to charge AGM vs GEL batteries as charging rates differ.
- + Never use an automotive or wet type charger on a AGM/GEL battery.
- + Top charge your battery frequently and/or leave on a charger/maintainer.

## Battery Storage

- + Batteries should always be stored fully charged in a cool and dry place to maintain maximum service life.
- + Depending on storage temperature, batteries hold their charge for 3 to 9 months until recharge is necessary. Above 30°C (86°F), recharge at 9 months. Above 40°C (104°F), recharge at 3 months. Do not store above 40°C (104°F).
- + If a battery is stored for 9 months or longer without being charged, its service life may be shortened.
- + Never store batteries in a sealed environment or incorporate into a sealed structure/enclosure without adequate ventilation.

## Usage Precautions ⚠

SLA batteries if used under recommended conditions generate no sulfuric acid gasses. However, because they contain lead and sulfuric acid, which are both toxic, proper care and handling is important in order to avoid accidental fires, damage to property, bodily injuries or even death.

- Improper charging and poor maintenance may cause battery to emit hydrogen gas. Therefore, do not use battery near a spark, fuse, flame and/or equipment that emits sparks.
- Never mix the SLA batteries together with other types of batteries, such as dry cells and nickel-cadmium batteries.
- Keep the battery terminals from contact with wire, metal cabinets, metal tools, such as screw drivers, spanners, torque wrenches unless they are properly insulated. Do not wear any watches, personal jewelry, hair pins or any other metallic objects when servicing the batteries.
- Short circuiting the terminals of the battery can cause burns, injuries, damage to the storage battery, or trigger explosions.
- Do not direct solder to terminal. This may lead to electrolyte leakage.
- Use of SLA batteries in the upside down position is not recommended.
- Do not use organic solvent, cleaning agents, paint/thinner, petroleum products to clean battery surface. These products can lead to battery container/cover cracking.
- SLA batteries may not be compatible with certain equipment. Any uncertainty about the specifications of the battery should be brought to our attention.
- Observe circuit polarities. Do not make or break live circuits.
- As appropriate, use an insulating blanket to cover exposed portions of the battery system when performing extended maintenance that could result in personal or equipment contact with the energized conductors.

## Primary Power Applications

- + Consumer Electronics
- + Electric Vehicles
- + Engine Starters
- + Golf Cart
- + Hunting
- + Lawn & Garden
- + Marine
- + Medical Mobility
- + Medical Equipment
- + Motorcycles
- + Photography
- + Powersports
- + Portable Tools
- + Solar
- + Toys & Hobbies
- + Trucking
- + Other Portable Equipment

## Standby Power Applications

- + Access Control Devices
- + Automotive & Cable Electronics
- + Emergency Lighting
- + Security
- + Telecommunications Equipment
- + UPS Systems

## Specialized Applications

If your needs are specialized, we are able to custom manufacture batteries and chargers to meet your particular specifications. Tell us what you need and let us handle the rest.

## Environmental Care

Improper disposal of batteries can lead to contamination of soil and ground water. At UPG, we work with authorized recyclers to pick up your “spent”/used batteries and we ensure that these batteries are properly disposed of by EPA licensed smelters.

## Adventure Power® Chargers & Maintainers



UPG recommends using Adventure Power Charger & Maintainers for charging and maintaining sealed lead-acid batteries in boats, motorcycles, ATVs, snowmobiles and other vehicles. Adventure Power Charger & Maintainers conveniently and safely maintain battery charge while in storage without having to disconnect from vehicle.

UPG No.	Description	Charges and/or Maintains
84036	12V 1A Charger & Maintainer	12V 2.9 Ah - 12V 7.2 Ah Batteries
84037	12V 2A Charger & Maintainer	12V 8 Ah - 12V 12 Ah Batteries
84038	12V 4A Charger & Maintainer	12V 12 Ah Batteries and Up

Adventure Power is a registered trademark of UPG.



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# SmartOne® CLASS B Addressable Contact Input Device



K-76-703

Effective: February 2021

## FEATURES

- **Monitors N.O. or N.C. Unpowered Contacts**
- **Full Digital Communications**
- **Output for Remote LED (Customer-Supplied)**
- **CLASS B Initiating Device Circuit**
- **Maximum 200 Ohm Loop Resistance (both conductors)**
- **cULus Listed**
- **FM Approved**

## DESCRIPTION

The SmartOne® Addressable Contact Input Device (AI) is an intelligent field device with its own microprocessor and memory which interfaces to all standard contact type fire alarm devices. The Initiating Device Circuit (IDC) is wired as one CLASS B NFPA 72 circuit.

The type of contact monitored is selectable through a jumper to monitor N.O. (Normally Open) or N.C. (Normally Closed) devices.

## FIELD PROGRAMMING

CLASS B Addressable Input modules are interchangeable with existing Addressable Input modules in the field. The module's Signaling Line Circuit (SLC) address is set in the same manner as all SmartOne devices. System address, owner location message and reporting type are programmable via the compatible control unit configuration software program. The system address is a 3-digit number that uniquely identifies each device. The owner location message is a 40-character, alpha numeric message that describes the location of the device. The reporting type is assigned to the AI based on the functionality of the device being monitored.

## SUPERVISION

The AI continuously monitors the integrity of the following:

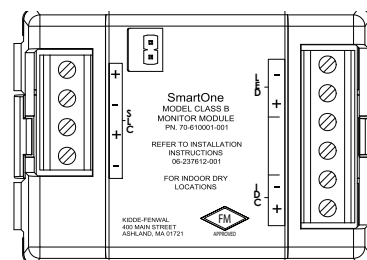
- Continuity of contact interface wiring
- Device/panel communications
- Power/communications voltage
- Internal power supply
- Memory data

## STATUS LED

A remote status LED may be connected to the AI.

## ORDERING INFORMATION

Description	Part Number
CLASS B Addressable Input Module	70-610001-001
Note: P/N 70-610001-001 includes:	
- CLASS B Addressable Input Module	
- Installation Bracket	
- (2) End-of-Line Resistors	
End-of-Line Resistors (10)	70-411001-005
Installation Bracket	06-237614-001



## SPECIFICATIONS

<b>Operating Voltage Range:</b>	24VDC (nominal)
<b>Device Current: (for all operating conditions)</b>	580 µA Max
<b>Operating Temperature Range:</b>	-31 TO 151°F (-35 to 66°C)
<b>Operating Humidity Range:</b>	0 - 95% RH, non-condensing
<b>Environment:</b>	Indoor Use Only, Dry Locations
<b>Construction:</b>	Flame Retardant ABS
<b>Shipping Weight:</b>	3.45 oz. (98 g)
<b>Compatible Electrical Boxes:</b>	North American 2-1/2 in. (64 mm) Deep 1-Gang Box with Metal Cover or Standard 4-in. Square Box 1-1/2-in. (38 mm) Deep with 4-in. Metal Cover.
<b>Initiating Device Circuit (for Normally Open AI)</b>	NFPA 72 CLASS B Wiring
<b>EOL Resistor Value:</b>	10KΩ
<b>Max. Circuit Resistance:</b>	200Ω (per IDC) 100Ω (per conductor)
<b>Max. Circuit Capacitance:</b>	0.1µF
<b>Recommended Wire Type:</b>	Twisted, unshielded, low-capacitance, fire-alarm wire

## COMPATIBLE CONTROL UNITS

Fire Alarm Control Unit (FACU) Type	Current Product	Legacy Product
Single Loop	ARIES®-SLX	ARIES® FENWALNET™ 6000 MICRO SLX PEGAsys™* FENWALNET™ 2000*
Multi Loop	ARIES®-MLX	ARIES® NETLink FenwalNET™ 8000-ML MICRO MLX PEGAsys* FENWALNET™ 2000*
*FACUs running software revision 82.4 are compatibility-tested but not agency listed with the device(s) in this data sheet.		

## EXPORT INFORMATION (USA)

Jurisdiction: EAR  
US ECCN: EAR99  
This document contains technical data subject to the EAR.

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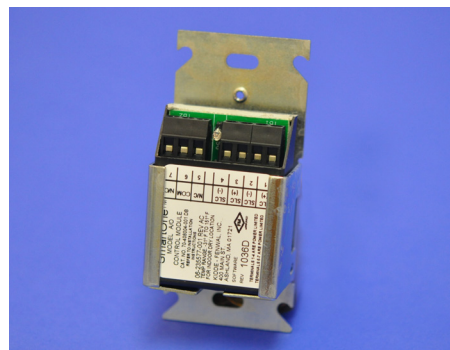
400 Main Street  
Ashland, MA 01721 USA  
Tel: (508) 881-2000  
kiddefireystems.com

# SmartOne® Addressable Relay Output Device

K-76-018

## FEATURES

- Full-Digital Communications
- Addressable Control Point
- Unpowered, SPDT Relay Contacts
- Control-by-Event And/or By Time Operation
- Status Indicator
- Unique Internal Supervision
- UL Listed
- FM Approved
- CSFM Approved



## DESCRIPTION

The SmartOne® Addressable Relay Output Device (AO) is an addressable output module for control of auxiliary equipment such as air handlers, door release and elevator recall.

The AO connects directly to a compatible control unit's Signaling Line Circuit (SLC) and contains a SPDT relay to control auxiliary equipment. All of the electronics are contained in a small high-impact polymer case. This creates a small and durable device for installation. A silicone-free module is available for applications where silicone is not desired. The AO can be mounted in a North American 1-1/2-in. (64 mm) deep 1-gang box, or standard 4-in. square box 1-1/2-in. (38 mm) deep with a cover.

## FIELD PROGRAMMING

The AO is field programmable with a unique 3-digit address and a 40-character owner location message. The AO relay may be set or reset on command from the control unit. In addition to combi-national-logic programming that utilizes system inputs (i.e., events) to activate this device, the unit may be programmed for real-time clock operation. The real-time clock programming permits the AO to be activated and deactivated by the time of day, calendar date and day of the week.

## SUPERVISION

The AO is continuously monitored for:

- Internal power supply voltages
- Faulty entering of data into AO's memory
- Relay state equals command state

An internal set of relay contacts provides a feedback signal that confirms the activation of the addressable relay output. If the relay fails to operate at the appropriate time, the device transmits a trouble report for display by the control unit.

## STATUS LED

A status LED is mounted on the unit.

## ORDERING INFORMATION

AO Control Module	70-408004-001
AO Control Module, non-silicone	70-408014-001

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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 fire suppression system design, installation, maintenance, service and troubleshooting must be performed by trained, authorized Kidde Fire Systems distributors for the product 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.

## SPECIFICATIONS

Input Voltage:	24 VDC (nominal)
Standby Current:	500 µA, Typical
Alarm Current:	500 µA, Typical
Contact Ratings:	
Resistive:	2 A @ 30 VDC
Inductive (Motor Control):	1.0 A @ 30 VDC, 0.60 PF 0.6 A @ 120 VAC, 0.35 PF
Pilot Duty:	0.6 A @ 30 VDC, 0.35 PF
Operating Environment:	-31 to 151°F (-35 to 66°C) at 0 to 95% RH
EMI Immunity:	Meets UL 864
LED Pulse Modes:	
Normal:	9 second interval
Trouble:	LED is off
Alarm:	2 second interval
Wire Sizes:	14, 16, 18 AWG Acceptable
Dimensions:	2.3" x 1.8" x 0.8" nominal
Shipping Weight:	5.1 oz (145 g)

## COMPATIBLE CONTROL UNITS

Fire Alarm Control Unit (FACU) Type	Current Product	Legacy Product
Single Loop	ARIES®-SLX	ARIES FenwalNET™ 6000 PEGAsys™ * FenwalNET 2000 *
Multiple Loop	ARIES®-MLX	ARIES NETLink FenwalNET 8000-ML PEGAsys * FenwalNET 2000 *

\* FACUs running software revision 82.4 are compatibility-tested but not agency listed with the device(s) in this data sheet.

# In-Line Releasing Device

## Installation Instructions



Effective: November 2004

### DESCRIPTION

The In-Line Releasing Device, P/N 06-220023-001, is used to make a single-or dual-solenoid releasing circuit power limited. See Figure 1.



Figure 1. In-Line Releasing Device

### SUPPLIED PARTS

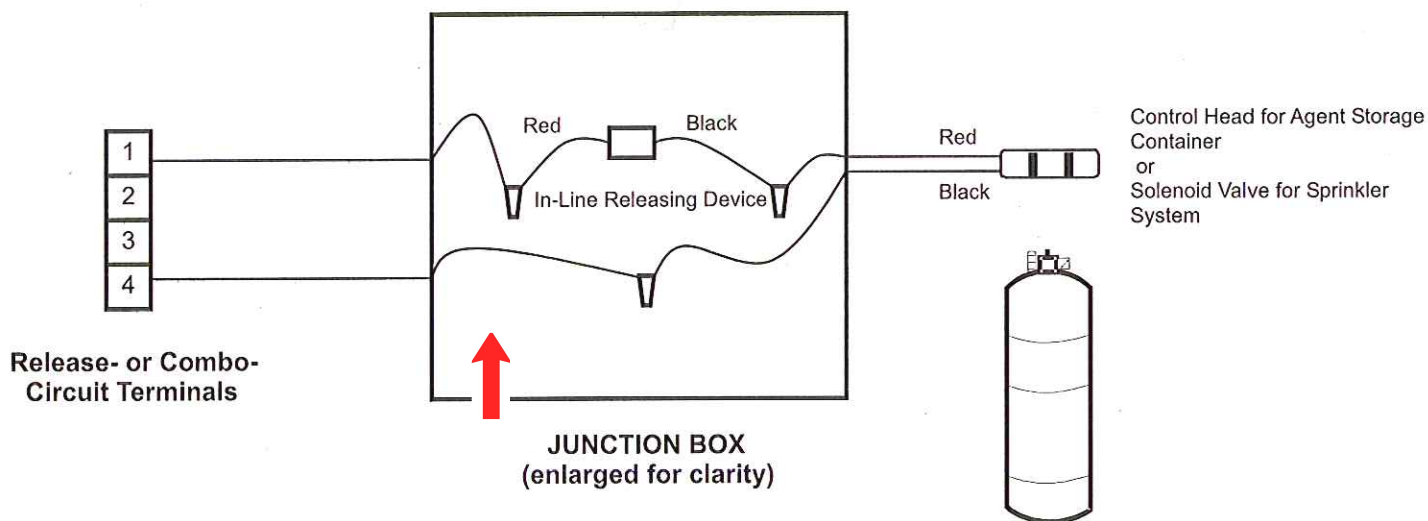
- In-Line Releasing Device, P/N 06-220023-001

### REQUIRED TOOLS

- No. 2 Flat-Head Screwdriver.
- Small Flat-Head Screwdriver.

### PROCEDURE

1. The In-Line Releasing Device is polarity-sensitive and must be connected as shown in Figure 2 for a single-solenoid circuit or as shown in Figure No. 3 for a dual-solenoid circuit.
2. The red lead of the In-Line Releasing Device must be connected to the field wiring from Terminal 1 of the releasing circuit. The black lead must be connected to the control head or solenoid valve.
3. Use wire nuts to connect the In-Line Releasing Device to field wiring and leads from control heads and solenoid valves.



### Note:

Junction box for In-Line Releasing Device must be close nipped to control head or enclosure for solenoid valve.

Figure 2. Single-Control-Head or -Solenoid Releasing Circuit

## → Addressable Manual Pull Station Series 3300

### FEATURES

- Unique Field Labeling for either Fire Alarm or Suppression Applications
- Dual Action Operation
- Surface and Weatherproof Backboxes
- Flashing LED
- Keylock for Reset
- UL Listed #S5654
- FM Approved
- cUL Listed #7150-1076:147

### DESCRIPTION

The Kidde® Addressable Manual Pull Stations is an intelligent initiating device that contains its own SmartOne™ Addressable Input (AI) module and interfaces directly to the Kidde PEGAsys™ and ARIES™ control panels. The initiating device circuit is wired as NFPA Class B.

The Manual Pull Station is constructed of heavy die-cast aluminum for long life and uses an internal toggle switch for reliable operation.

Similar to the SmartOne devices, the unit is field programmable using the control panel keypad or Hand-Held Programmer. The owner location message and reporting type can be customized by the use of a programming utility utilized with the control panel. A status LED is mounted on the unit and indicates the status by a 2 or 9 second flash interval. A Trouble condition inhibits the status LED completely.

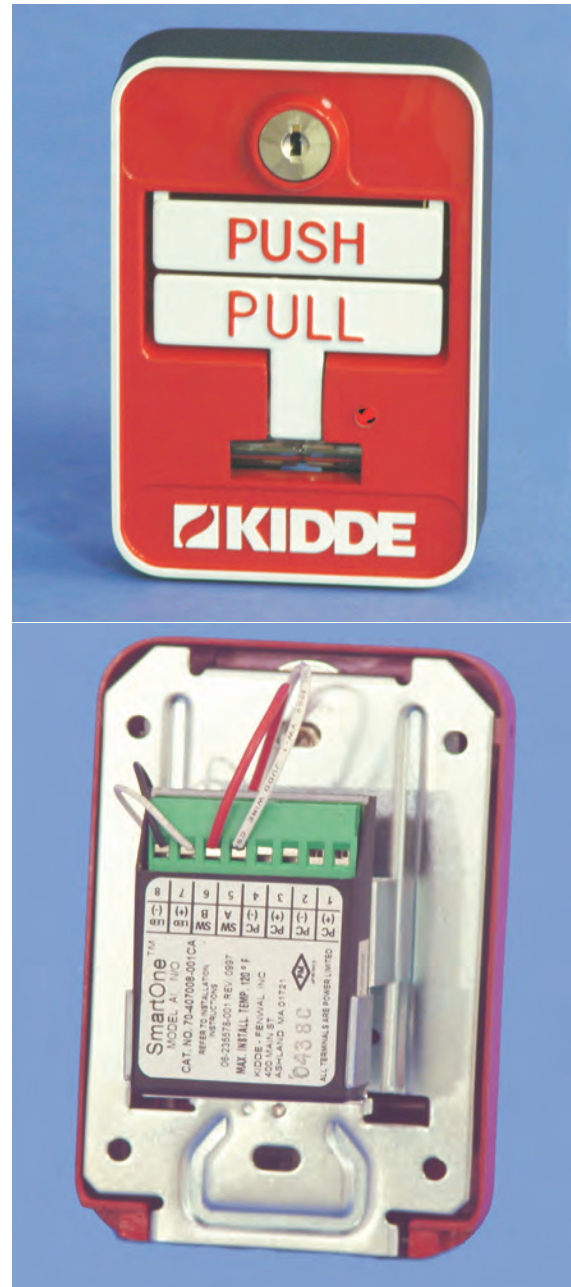
While the Pull Station is designed for quick, efficient emergency response, its double action PUSH/PULL levers prevent accidental operation.

The Pull Station can be mounted in an indoor or outdoor weatherproof backbox (Model SBG-32S or Model SGB-32C) or a North American 2-1/2 in. (64 mm) deep single-gang box.

The Station terminal block on the AI module accepts 14, 16 and 18 AWG (1.5 mm<sup>2</sup>, 1.0 mm<sup>2</sup>, and 0.75 mm<sup>2</sup>) wire. Size #18 is the minimum requirement.

### FIRE ALARM OR SUPPRESSION RELEASE LABELING

The Pull Station has a unique labeling method which provides the installer the greatest amount of flexibility without the expense of having to carry extra inventory. Seven heavy-duty Lexan® self-adhesive labels are shipped with each station:



- FIRE ALARM
- NOVEC 1230 RELEASE
- FIRE SYSTEMS RELEASE
- FM-200 RELEASE
- FE-13 RELEASE
- HALON RELEASE

## SPECIFICATIONS

Station Type:

- Double Action, with integral SmartOne Addressable Module

Initiating Device Circuit:

- EOL Resistor Value:
  - 0 K Ohm (06-129025-003)
- Max. Circuit Resistance:
  - 50 Ohm (25 ohm per conductor)
- Max. Circuit Capacitance:
  - 0.1µF

Operating Temperature Range:

- -40°F to 150°F (-40°C to 66°C)

Operating Humidity Range:

- 0-95% RH

Construction:

- Die-cast metal housing

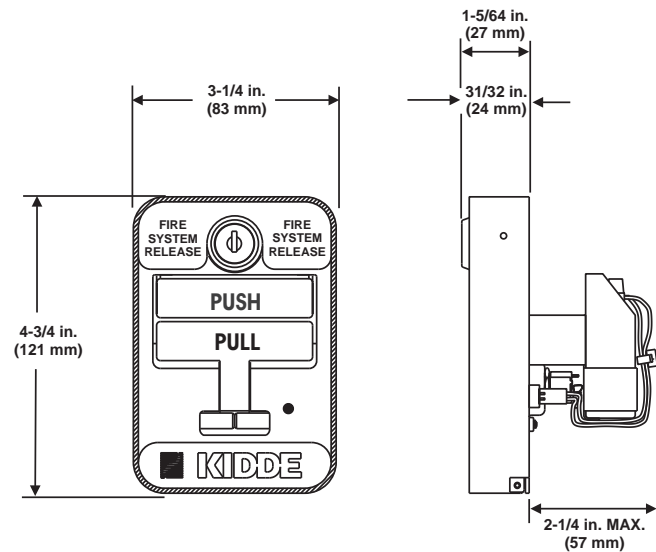
Compatible Electrical Boxes:

- Indoor:
  - Sheet metal Model SGB-32S
- Outdoor:
  - Weatherproof Die-cast Model SGB-32C

Shipping Weight:

- 1.12 lbs. (510 g)

## DIMENSIONS



## SGB-32S INTERIOR SURFACE BACKBOX

Dimensions:

- 4-3/4 in. H x 3-1/4 in. W x 2-1/4 in. D

Construction:

- Steel sheet metal

Conduit:

- Two knockouts for 1/2 in. conduit connectors, one on top and bottom

Mounting:

- Mounts to the box with (4) 8/32 screws, which ship with each box

## SGB-32C WEATHERPROOF SURFACE BACKBOX

Dimensions:

- 4-3/4 in. H x 3-1/4 in. W x 2-1/4 in. D

Construction:

- Cast aluminum

Conduit:

- One threaded opening for 1/2 in. conduit connector

Mounting:

- Mounts to the box with (4) 8/32 screws and a foam gasket, which ship with each box



# Model 878752 Suppression System Abort Station



Effective: November 2014  
K-84-10

## FEATURES

- UL Listed
- Flush or Surface Mount
- One Normally Open Contact
- Sized for Double Gang Box
- Large Yellow Push Button Switch
- Abort Station Becomes Addressable SLC Device with installation of one (1) Model AI Addressable Monitor Module, N.O.

## DESCRIPTION

The Kidde® Model 878752 Abort Station features a large, easy-to-operate abort push button. The momentary type switch is very easy to see due to its highly visible yellow color. The abort station stainless steel faceplate is clearly labeled with operation procedures—eliminating indecision and hesitation.

The Backbox is painted with red enamel and is provided with four 1/2-inch knockouts. The pre-drilled and tapped mounting tabs allow for easy attachment of the abort station.

To make the Abort Station an addressable SLC device for use with Kidde Intelligent control units, one SmartOne® Model AI monitor module (purchased separately) must be installed into the backbox. The Model AI monitor module is seated inside a bracket (included) and easily installs with two mounting screws.

A cULus-listed Abort Station for Canadian applications that require compliance to ULC S527-11 (3rd edition) is also available (blue faceplate with white raised lettering). Order P/N 84-878752-110.

## TECHNICAL SPECIFICATIONS

**Electrical Ratings:** One normally open momentary contact, rated 2.5 Amps @ 120 Vdc

**Ambient Temperature:** -13°F to 158°F (-25°C to 70°C)

**Terminals:** Captive screws and saddle clamps accept 14 AWG to 24 AWG wire

**Mounting:** Four 6-32 x 1/2-inch mounting screws included

## ORDERING INFORMATION

Part Number	Description	Shipping Weight
84-878752-010	Abort Station	2 lb. (0.9 kg)
06-236881-001	Backbox, Red	1 lb. (0.45 kg)
70-407008-001	Model AI Addressable Monitor Module, N.O. (includes bracket)	5 oz. (145 g)

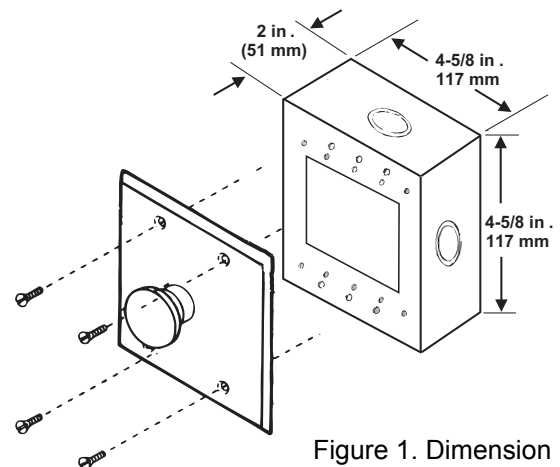
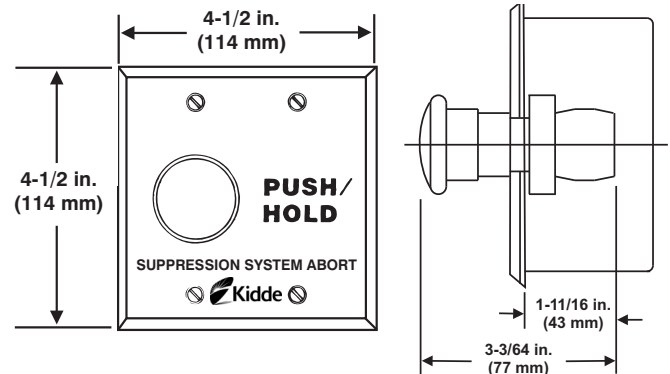


Figure 1. Dimension Details

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., Ashland, MA 01721. Telephone: (508) 881-2000.

Kidde Fire Systems  
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Ashland, MA 01721  
Ph: 508.881.2000  
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# KS-PS Addressable SmartOne® Protocol Photoelectric Smoke Detector

## FEATURES

- *Multi-criteria optical smoke sensing technology*
- *Advanced data analysis reduces chance of nuisance alarms*
- *Compatible with Kidde®, Fenwal® and Chemetron® intelligent control units*
- *Works with SmartOne® communication protocol*
- *Operates in conjunction with legacy SmartOne DS, PSD, CPD and THD smoke and heat detectors*
- *Two-color (green/red) status LED*
- *Supports remote LED alarm indication*
- *Detector head and terminal base design (bases sold separately)*
- *Low-profile design blends into ceiling*
- *Suitable for raised floor and plenum applications*
- *Attractive 6 in. diameter trim ring provided with bases*
- *Electronic addressing performed with SmartOne Hand-Held Programmer*
- *FM Approved*
- *cULus Listed to UL268, 7th edition*
- *California State Fire Marshal Listed*

## DESCRIPTION

The KS-PS Photoelectric Smoke Detector is an intelligent device that gathers analog information from multiple optical sensors, converting this data into digital signals. Utilizing dual optical wavelengths combined with multiple detection angles, the KS-PS differentiates particles that are not representative of actual smoke. Data is digitally filtered to remove signal patterns that are typical of nuisance sources, thus reducing unwanted alarms. To make an alarm decision, the detector's on-board microprocessor measures and analyzes all optical sensor readings and compares this information to a preprogrammed setting.

## ADDRESSING

KS-PS detectors feature electronic addressing. No addressing switches are used.

## PROTOCOL

This product will operate only on a Kidde Fire Systems fire alarm-suppression control unit employing SmartOne communications protocol.

## STATUS LED

KS-PS detectors use an LED to indicate the detector's condition. In normal, standby condition, a green LED flashes at a 9 second repetition rate. An alarm is indicated by a red flash at a 2.50 second repetition rate.

## REMOTE ALARM LED

An optional SIGA-LED Remote Indicator can be connected to the standard DS-SB base if the KS-PS detector status LED is in a location where it cannot be easily viewed.



## INSTALLATION

A KS-PS detector mounts to North American 1-gang boxes, 3-1/2 inch or 4 inch octagon boxes, and to 4 inch square electrical boxes 1-1/2 inches (38 mm) deep.

## EASY TWIST HEAD

A KS-PS detector head is installed onto its base by aligning arrow marks and gently twisting the head clockwise until secure. Removal is just as easy and is done by grasping the head and gently pressing down while turning counter-clockwise. Removal can be aided with the optional SIGA Removal Tool (P/N SIGA-RTA). This tool can be attached to a telescoping pole to avoid the use of ladders.

## SENSITIVITY




The alarm sensitivity is the minimum obscuration level at which the detector initiates an alarm condition and can be specified via the control unit menus or the remote configuration software. The control unit to which the detectors are connected is capable of interrogating each detector to determine its sensitivity.

## DETECTOR BASES

The KS-PS detector head attaches easily to these compatible bases. Detector bases have wiring terminals that are accessible from the “room-side” after mounting the base to the electrical box. A trim ring is supplied with the 4-inch base to help hide surface imperfections.

- **Model DS-SB Standard Base:** Connects the detector to the Signaling Line Circuit (SLC).
- **Model DS-RB Relay Base:** Connects the detector to the Signaling Line Circuit (SLC) and provides optional Relay functionality to the KS-PS detector.

## ORDERING INFORMATION

KS-PS	Intelligent Photoelectric Smoke Detector, head only 
DS-SB	Detector Mounting Base, 4 in. diameter, with 6 in. trim ring, for 2-wire connection to SmartOne SLC 
DS-RB	Detector Mounting Base, 4 in. diameter, with relay option and 6 in. trim ring, for 2-wire connection to SmartOne SLC 
SM200-12PKG	Canned smoke for functional testing of smoke detectors, package of 12
SIGA-LED	Optional Remote Alarm LED
SIGA-VA	Detector Vacuum Attachment
SIGA-RTA	Detector Removal Tool Attachment

## TECHNICAL SPECIFICATIONS

Operating voltage	24 VDC (nominal)
Current Normal Operating Alarm	150 $\mu$ A 220 $\mu$ A
SLC Protocol	SmartOne
UL/cUL smoke sensitivity range	0.5 to 3.50 %/ft. (2.95 to 11.48%/m) obscuration (Open Area Use Only)
NOTE: Smoke sensitivity is selected at the control unit or with the remote configuration software. Default values are 2.0%/ft (Alarm) and 1.5%/ft (Pre-Alarm). Refer to the Installation, Operation and Maintenance Manual or the Configuration Software User Guide for your system.	
North American standards	UL 268 (7th edition), UL 268A, CAN/ULC-S529, FM Approvals 3210
Compliances: <ul style="list-style-type: none"> <li>• This device complies with Part 15, Class A of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.</li> <li>• ICES-003, Class A</li> <li>• EN 55011, Class A</li> <li>• AS/NZS CISPR 11, Class A</li> </ul>	
Air velocity	0 to 4,000 ft./min (0 to 20.32 m/s)
Compatible bases	DS-SB (Standard), DS-RB (Relay)
Wall mounting: distance from ceiling	12 in. (305 mm) max.
Operating Environment Temperature Relative humidity	32 to 120°F (0 to 49°C) 0 to 93% non-condensing
Storage temperature	-4 to 140°F (-20 to 60°C)
Environmental compensation	Automatic
Color	White head and base
Construction	High impact engineering polymer
Mounting	Plug-in

## INTEGRATION OF DETECTORS

KS-PS detectors can be mixed in any order with SmartOne legacy detectors on a Kidde Fire Systems intelligent control unit running SmartOne protocol.

## COMPATIBLE CONTROL UNITS

Fire Alarm Control Unit (FACU) Type	Current Product	Legacy Product
Single Loop	ARIES®-SLX	ARIES FenwalNET™ 6000 MICRO SLX PEGAsys™* FenwalNET 2000*
Multiple Loop	ARIES®-MLX	ARIES NETLink FenwalNET 8000-ML MICRO MLX PEGAsys* FenwalNET 2000*

\* FACUs running software revision 82.4 are compatibility-tested but not agency listed with the device(s) in this data sheet.

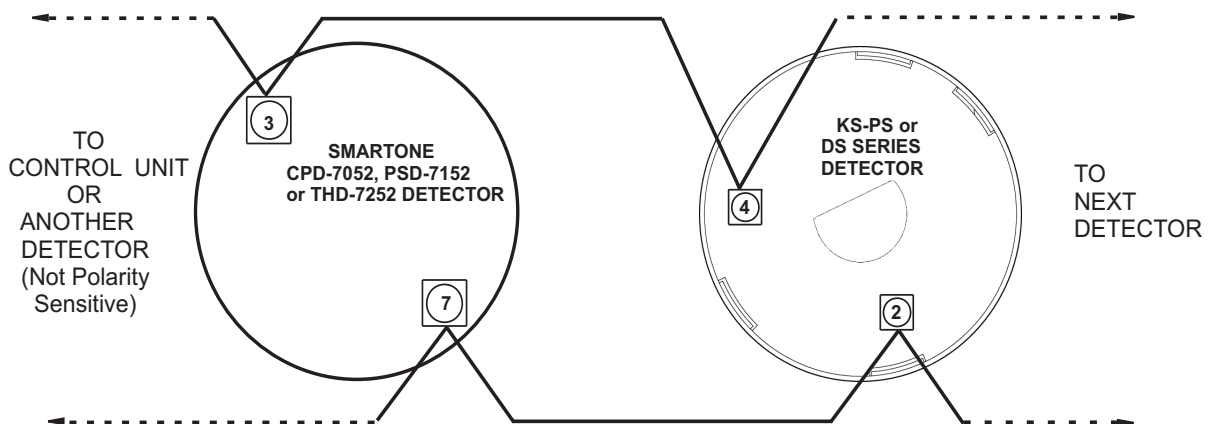
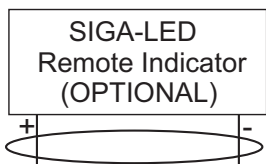


Figure 1: Combining Legacy Detectors with KS Series Detectors  
(Class B Wiring Style Shown)

### NOTES:

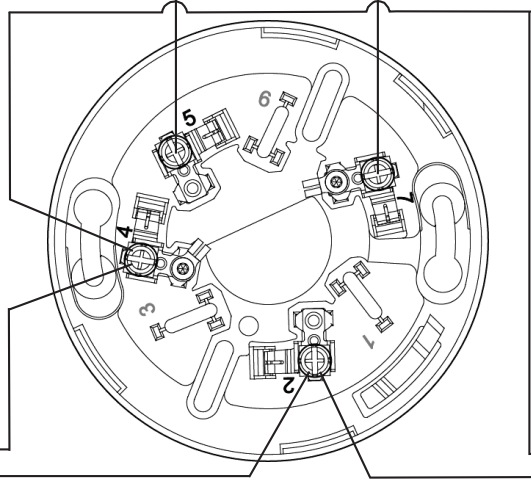
1. Detectors are not polarity sensitive. Terminals 3 and 7 (SmartOne legacy detectors) or Terminals 2 and 4 (KS or DS Series detectors) can be reversed.
2. Detectors can be installed in any order.
3. SLC loop is not sensitive to the location of the control unit (can be left or right end of loop).
4. Four-wire loops will be wired as shown, bringing loose end of loop back to the control unit.



NOTE: Maximum wiring resistance to SIGA-LED must not exceed 10 Ohms (per wire).

**TERMINAL DESIGNATIONS:**

Number	Description
1	Not used
2	SLC IN/OUT
3	Not used
4	SLC IN/OUT
5	Remote LED +
6	Not used
7	Remote LED -



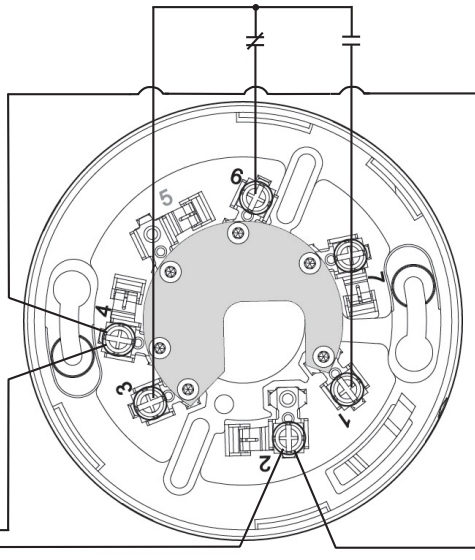
From control unit  
or  
From previous detector

To next detector

**DS-SB Standard Base**  
(Shown with Class B Wiring and Optional Remote LED)

**TERMINAL DESIGNATIONS:**

Number	Description
1	Normally Open
2	SLC IN/OUT
3	Common
4	SLC IN/OUT
5	Not used
6	Normally Closed
7	Not used



From control unit  
or  
From previous detector

To next detector

**DS-RB Standard Base**  
(Shown with Class B Wiring)

**EXPORT INFORMATION (USA)**

Jurisdiction: EAR  
US ECCN: EAR99

This document contains technical data subject to the EAR.

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## 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**

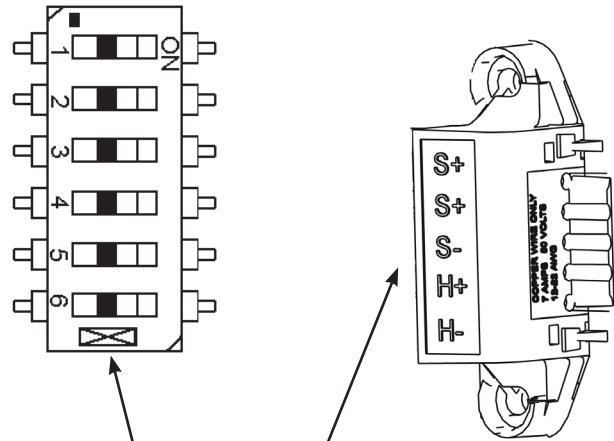
Tone	Switch Position		
	3	4	5
Mechanical Temporal 3	ON	ON	ON
Mechanical - Continuous	OFF	ON	ON
2400Hz - Temporal 3	ON	OFF	ON
2400Hz - Continuous	OFF	OFF	ON
Chime - Temporal 3	ON	ON	OFF
Chime - Continuous	OFF	ON	OFF
Whoop	ON	OFF	OFF
Whoop	OFF	OFF	OFF

**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**

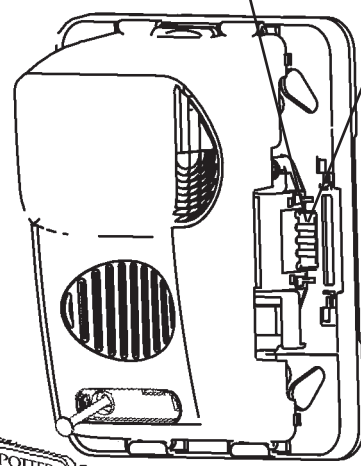
Allows the installer to pre-wire the system, test for system supervision, remove the signal head until occupancy, switch out signals without changing mounting brackets and has locking edge connector for snap-in-place installation.



**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.

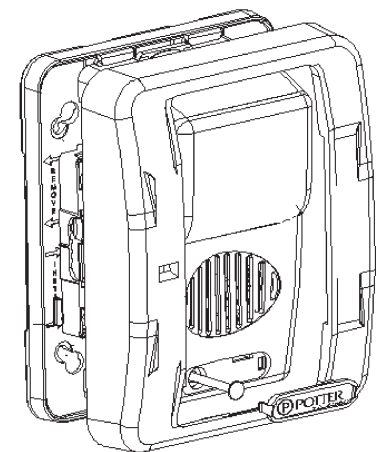
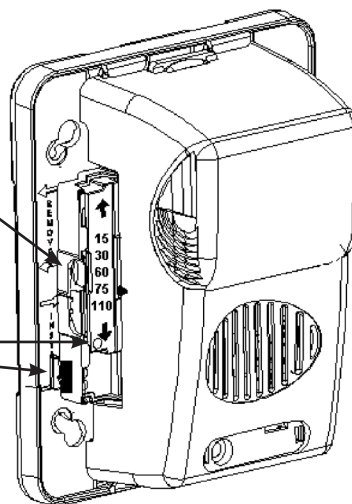
**NOTE:** Care should be taken to not short the test probes.



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



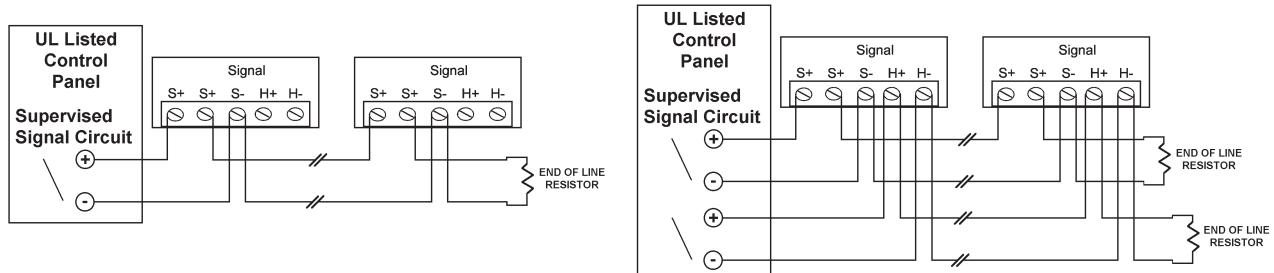
Break off pin and insert into hole at the bottom of the selector to lock candela setting. Signal must be removed from bracket and pin pushed forward from backside out of the hole to change candela.



To remove bezel, grip both sides of bezel and pull in a downward 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.

# **CAUTION**

**ROOM PROTECTED BY  
CLEAN AGENT EXTINGUISHING SYSTEM**

---

**DO NOT ENTER AREA DURING  
OR AFTER DISCHARGE**

---

**KEEP DOOR CLOSED AT ALL TIMES**

**SUPPRESSION SYSTEMS INC. (253) 926-3300**

**CAUTION**

**CLEAN AGENT EXTINGUISHING  
SYSTEM DISCHARGE ALARM  
IF ACTIVE**

**DO NOT ENTER**

# **CAUTION**

## **CLEAN AGENT EXTINGUISHING SYSTEM DISCHARGE ALARM**

**ALARM 1 - SLOW PULSE**

**ALARM 2 - FAST PULSE**

**DISCHARGE - STEADY**