



SM120X RELAY / POWER SUPPLY MODULE

READ INSTRUCTIONS CAREFULLY AND COMPLETELY BEFORE INSTALLING.

Electrical Rating: 120V AC 60 HZ 0.08 AMP
Contact Rating: 10 AMPS @ 120 VAC
 NON INDUCTIVE
 5 AMPS @ 30 VDC
DC Output: 5 MA Max. (CURRENT LIMITED)



DESCRIPTION:

This module is only activated by a smoke alarm interconnect signal. The relay portion of this module can be used to activate auxiliary warning devices such as external bells and sirens, hallway or stairwell lighting. It provides isolated, (no internal connection to 120 volts AC) normally open, and normally closed contacts.

The power supply portion can be used to connect spot type heat detectors (**Rate of rise or combined rate of rise and fixed temperature only**) and manual pull stations with interconnected multiple station alarms.

WARNING! Alarm and module wiring must conform to the electrical codes and local codes in your area. In USA, it includes articles 210 and 300.3(B) of the U.S. National Electrical Code ANSI/NFPA 70, and NFPA 72. The multiple station interconnect wiring to the alarms must be run in the same raceway or cable as the AC power wiring. In addition, the resistance of the interconnect wiring shall be a maximum of 10 ohms.

All wiring should be performed by a licensed electrician. The module should be installed in a UL listed junction box that has sufficient volume for proper installation. The electrical circuit used to power the alarms and the module must be a 120 volt ac 60hz circuit which cannot be turned off by a switch or a ground fault interrupter, **it must be on 24 hours a day. Since this module is 120 volt AC powered, it will not function during an AC power failure**, even if it is being used with the model 1275, 1275CA, 1276, 1276CA, 1285, 1285CA, 1296, i12040, i12040CA, i12060, i12060CA, i12080, PE120, PE120CA, PI 2000, PI2000CA, KN-COSM-IB, KN-COSM-IBCA, HD135F, and HD135FCA, alarms which have battery backup power.

WARNING: This device cannot be operated from power derived from a square wave, modified square wave or modified sine wave inverter. These type of inverters are sometimes used to supply power to the structure in off grid installations, such as solar or wind derived power sources. These power sources produce high peak voltages that will damage the device.

IMPORTANT: Whenever alarms and modules are interconnected they must be powered from a single circuit. When wiring the module remote from the alarm use UL/CSA listed wire as required by codes in your area. **Do not use more than 1000 feet of wire** between the first and last device in the multi station system.

INSTALLATION INSTRUCTIONS:

This module should be installed in a UL listed junction box. All connections should be made by a qualified electrician in accordance with the requirements of the national electrical code and/or any other local codes having jurisdiction in your area.

Turn off the main power to the circuit. If you are also installing smoke alarms, heat alarms, or CO alarms, wire them according to their specific owner's manual. Refer to the typical installation diagrams (Figures 1-4) included in this manual for your specific application.

Connections on the Relay /Power Supply Module:

Black Wire	AC Hot
White Wire	AC Neutral
Red Wire	Interconnect Signal
Blue Wire	Common Contact
Yellow Wire	Normally Closed Contact
Orange Wire	Normally Open Contact
Gray Wire	9-Volt DC Output (5MA Max.)

After all connections are made, place the module inside a UL listed junction box, where the alarm is installed, or in a remote location and use the appropriate electrical box cover.

CAUTION: The model SM120X should not be used to connect groups of alarms to a fire alarm panel or to interconnect groups of fire alarms together.

Residential alarms do not latch in the alarm condition and they are self-resetting. If an alarm connected to a module has the test button pushed or the alarm momentarily activates, it will activate the module for as long as the unit is in alarm. If more than one alarm is connected to the module and the module is tied to a control panel there will be no way of knowing which unit caused the alarm.

The model SM120X module is for use with the following interconnectable models: Smoke Alarms: 1235, 1235CA, 1275, 1275CA, 1276, 1276CA, 1285, 1285CA, 1296, i12020, i12020CA, i12040, i1240CA, i12060, i12060CA, i12080, PE120, PE120CA, PI2000, and PI2000CA, RF-SM-ACDC, CO/ Smoke Combo alarms: KN-COSM-IB and KN-COSM-IBCA, and Heat Alarms, HD135F, and HD135FCA, all with red interconnect wires. Each module is equivalent to one interconnect alarm, reduce the maximum number of interconnect devices by one for each module used. Do not exceed the total number of devices allowable in the interconnect system, refer to the individual alarm owners manual for the maximum number of units allowed when interconnecting. Do not exceed the temperature or humidity limits of +40°F (4.4°C) to 100°F (37.8°C) (such as in garages and unfinished attics) and 90% relative humidity for either the relay module or the alarms.

NOTE: Only the Smoke portion of the: KN-COSM-IB and KN-COSM-IBCA combo alarms will activate this module. If CO alarm models, KN-COB-IC, KN-COB-IC-CA, KN-COB-ICB-CA, KN-COP-IC, KN-COP-IC-CA are included in the interconnect system, they will not activate the SM120X module.

ATTENTION: The wiring connecting the module with the external devices is not supervised. Be sure to test the operation of all the devices controlling the module or controlled by the module. Devices controlled by the module can be tested by pushing the test button on the alarms and verifying that the controlled device responds in the desired manner.

Devices controlling the module can be tested by activating the device. Test pull stations and spot type heat detectors after initial installation and each time you test your alarms. Verify that the pull station and heat detectors sound all your interconnected alarms.

ATTENTION: Only use spot type heat detectors incorporating a rate of rise feature, as this type can be tested to validate operation. These detectors should be tested following the manufacturers recommended procedure. This procedure typically recommends using a hot air source (hand held hair dryer or heat gun) directed at the detector from approximately 1 foot away. This will activate the rate of rise portion of the detector and sound the interconnected alarms.

CAUTION: Remove the hot air source as soon as the alarms sound. This will prevent activating the fixed temperature portion of the heat detector. The fixed temperature element is a one-time device. Once activated it will not reset and the detector will have to be replaced.

ADDITIONAL INSTALLATION INFORMATION: (Figures 1 and 2) If the desired function is to switch off a device when the alarms sound, connect the yellow wire (NC) instead of the orange wire (NO) to the supply side of the device. Be sure not to exceed the relay contact ratings of the module. This module should not be used to control inductive loads with inrush currents that will exceed the maximum contact ratings.

ONE YEAR LIMITED WARRANTY:

Kidde warrants to the Purchaser that the enclosed module will be free of defects in material, workmanship or design under normal use and service for a period of one year from the date of purchase. The obligation to Kidde under this warranty is limited to repairing or replacing any part which we find to be defective in material, workmanship, or design, free of charge, to the customer, upon sending the relay module with proof of date of purchase, postage and return postage prepaid, to Warranty Service dept. Kidde Safety, 1016 Corporate Park Drive, Mebane, NC 27302 USA. (1-800-880-6788) This warranty shall not apply to the relay module if it has been damaged, modified, abused or altered after the date of purchase, or if it fails to operate due to improper maintenance or inadequate AC electrical power.

The liability of Kidde or any of its parent or subsidiary corporations arising from the sale of this accessory module or under the terms of this limited warranty shall not in any case exceed the cost of the replacement of the module and, in no case, shall Kidde or any of its parent or subsidiary corporations be liable for consequential loss or damages resulting from the failure of the relay module or for the breach of this or any other warranties, expressed or implied, even if the loss of damage is caused the company's negligence or fault.

Since some states/provinces do not allow limitations on the duration of an implied warranty or do not allow the exclusions or limitations of incidental or consequential damages the above limitations or exclusions may not apply to you. While this warranty gives you specific legal rights, you may also have other rights, which vary from state to state, or province to province. The above warranty may not be altered except in writing signed by both parties hereto.

FIGURE 1 shows a typical installation of a relay / power supply module wired to switch on 120 volt device when the alarms sound. In this configuration the common switch contact (blue wire) is connected to the 120 volt supply. When the alarms sound the module detects the signal on the interconnect line (red wire) and activates the relay. As a result of this action, the orange wire (NO) supplies 120 volts to the device.

FIGURE 2 shows a typical installation of a manual pull station and a relay / power supply module. In this configuration the module receives 120-volt power all the time. The 9-volt DC output (gray wire) is used to supply power to the pull station, and the relay portion is used to control a 120-volt device configured to switch on when the module is activated. The pull station switches the 9 volt signal from the module back into the interconnect line.

Activating the pull station will sound the alarms and activate the relay portion of the module. The common terminal of the switch contact (blue wire) is connected to the 120-volt supply. When the alarms sound or the pull station is activated the module detects the signal on the interconnect line (red wire) and activates the relay. As result of this action, the orange wire (NO) supplies 120 volts to the device.

FIGURE 3 and 4 show the typical installation of a relay / power supply module and a manual pull station or a spot type heat detector, interconnected with multiple station alarms. In both of these configurations the connected device (manual pull station or spot type heat detector) switches on the AC power to the module when the device is activated. The module then supplies the DC interconnect signal (gray wire) needed to activate all of the interconnected alarms.

NOTE: The switch contacts in the Pull Station or the Heat detector must be rated for 120 volts in this application.

FIGURE 1

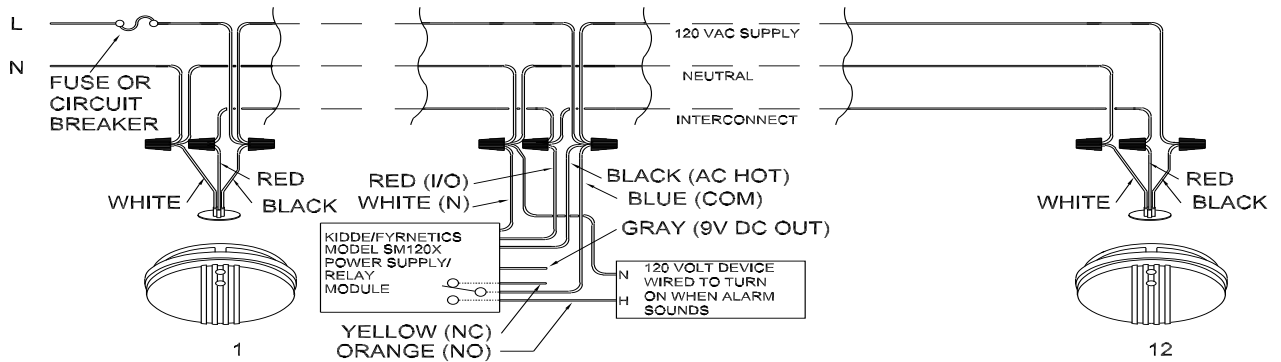


FIGURE 2

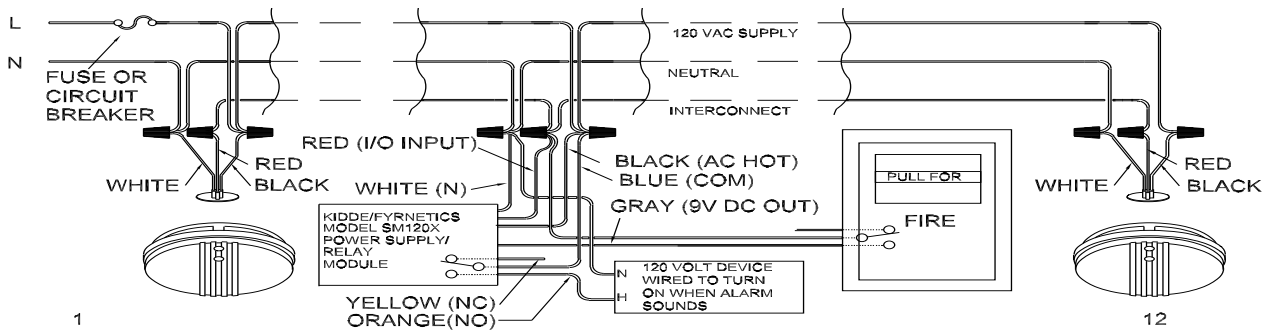


FIGURE 3

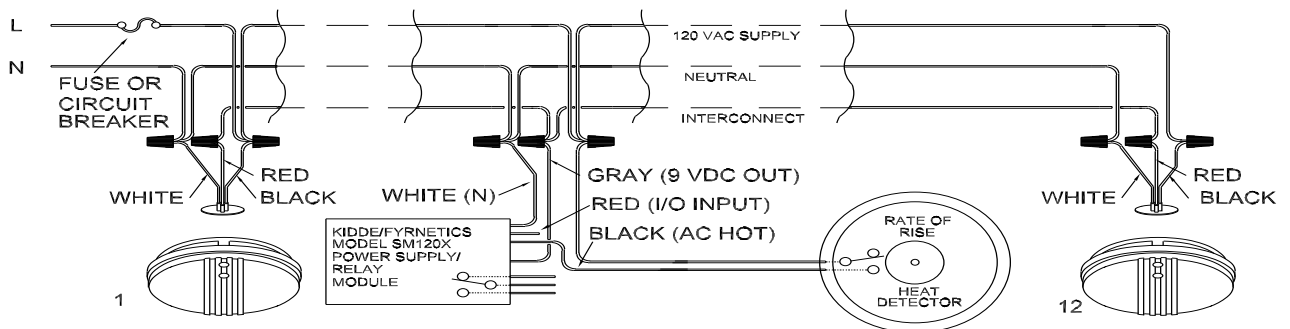
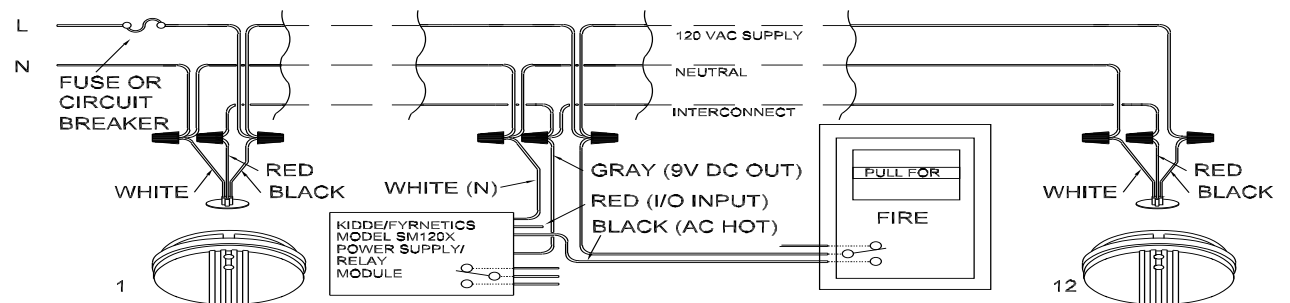


FIGURE 4



SARGENT 3520 SERIES POWER SUPPLIES OPERATION AND INSTALLATION INSTRUCTIONS

MODELS: 3520 (24 VOLT); 3521 (12 VOLT) SUPPLIES;
AND 737-12 VOLT AND 738-24 VOLT BATTERY BACKUP KITS

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DESCRIPTION

SARGENT Model 3521 is a 12-volt, 1-amp* power supply delivered in a single lockable enclosure with the line voltage connections made by screw terminals. Model 3520 is the same unit with 24-volt, 1-amp output. All units feature regulated, adjustable power with integral sealed lead acid/gel cell battery charging capability. All units also meet Class 2 electrical requirements, which means under the National Electrical Code that output wiring does not need to be in conduit; however, compliance with applicable wiring codes should always be checked with the local building department before installing these units.

WARNING: The power supply must only be opened by trained service personnel when the cover LED is on.

SAFETY

Two hazards are present in the Sargent 3520 series supply:

- Line voltage input presents a high voltage shock hazard.
- Battery output presents a high energy hazard. If shorted, the battery output can generate sufficient heat to ignite some materials.

To insure safety, the cover LED should be on whenever the supply offers danger, which is either if it is receiving line voltage or if batteries are operating.

OPERATING CHARACTERISTICS

Line Voltage Input

110–120 VAC should be input to terminals **H**, **N**, **G**, as shown in Figure 1. Wiring for Model 3521 and Model 3520. The line voltage current drawn by the power supply module will be approximately 500 mA.

DC OUTPUT AND VOLTAGE ADJUSTMENT

The power supply DC capacity depends on the exact voltage that is set and on whether or not batteries are employed. The power supplies can output 1 amp* when set at precisely 12 or 24 VDC. However, it is recommended that the power supplies not be operated at maximum capacity. This reduces the possibility of heat-induced failure and also allows for later installation expansion. When the power supply is used with batteries, available current capacity is reduced. This is because the voltage must be set higher to 13.5 or 27 volts (factory set values) and also because some current is used to charge the batteries. Model 3521 output range is 11.1–13.5 VDC and Model 3520 output range is 23.0–27.0 VDC.

* For UL listed applications, DC output current shall not exceed 650 mA when batteries are not used. For UL applications where batteries are used, the total output shall not exceed 1 amp (650 mA DC output + 350 mA battery charging current).

SARGENT 3520 SERIES POWER SUPPLIES OPERATION AND INSTALLATION INSTRUCTIONS

MODELS: 3520 (24 VOLT); 3521 (12 VOLT) SUPPLIES;
AND 737-12 VOLT AND 738-24 VOLT BATTERY BACKUP KITS



Model 3521

Model 3520

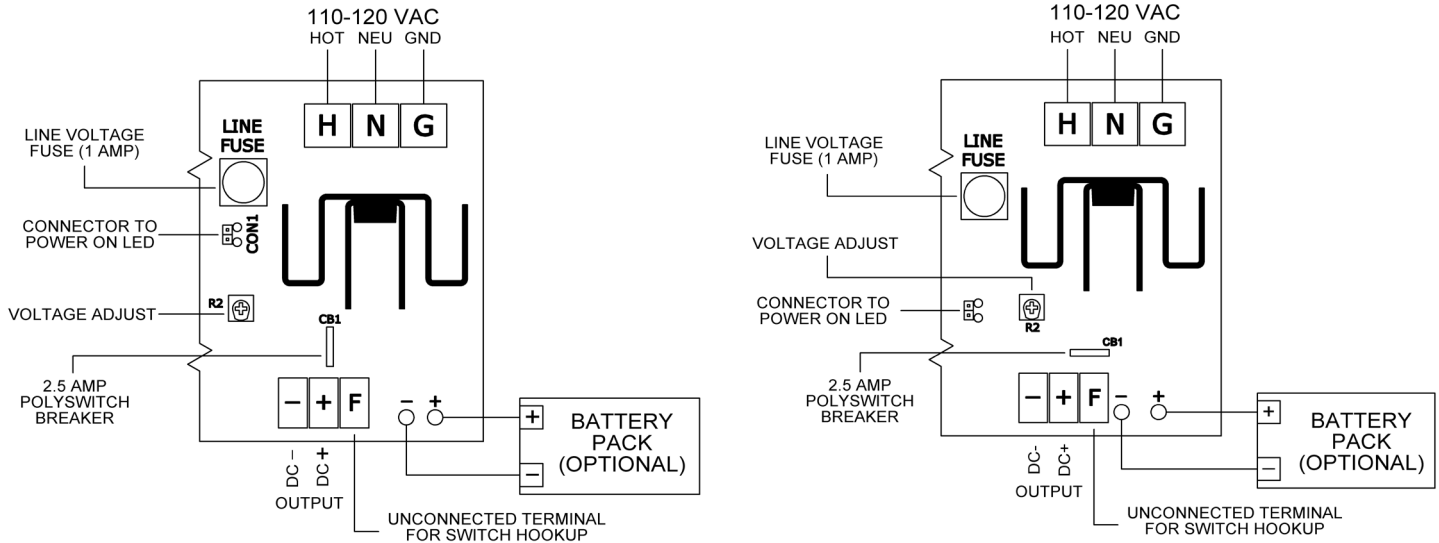


Figure 1. Wiring for Model 3521 and Model 3520

Battery Charging Capability

The Model 3521 and Model 3520 power supply incorporates a battery charging circuit appropriate for standby-rated sealed lead acid or gel cell batteries. Batteries are an option; the power supply can be used with or without them. A battery pack of the appropriate voltage (see Table 1 Battery Pack Selection) is connected to the red and black battery leads following correct polarity. The batteries will be kept charged at all times by the power supply acting in concert with the components on the power supply board. In the event of a line voltage power failure, the batteries automatically drive the load; however, if the emergency release terminals are opened, battery power will be cut off.

No matter whether the unit is 12 or 24 volts, battery charging is available for battery packs up to 20 amp hours in capacity. Certain long backup times are not achievable with the maximum size battery packs (N/A appears in Table 1). Table 1 should be consulted to calculate the correct battery pack based on desired backup time and the current drawn. For proper battery charging, the power supply must be set at 27 volts for a 24-volt system, and at 13.5 volts for a 12-volt system. If the power supply is not set as such, the batteries will not hold full capacity or have normal operating life, and may be damaged.

SARGENT 3520 SERIES POWER SUPPLIES OPERATION AND INSTALLATION INSTRUCTIONS

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CURRENT DRAW	BACKUP TIME DESIRED									
	Min	1 HR	2 HRs	4 HRs	UL Std	8 HRs	16 HRs	24 HRs	48 HRs	72 HRs
150 mA	4 AH	4 AH	4 AH	4 AH	4 AH	4 AH	4 AH	8 AH	8 AH	12 AH
300 mA	4 AH	4 AH	4 AH	4 AH	4 AH	4 AH	8 AH	12 AH	16 AH	N/A
500 mA	4 AH	4 AH	4 AH	4 AH	4 AH	8 AH	12 AH	16 AH	N/A	N/A
750 mA	4 AH	4 AH	4 AH	8 AH	12 AH	12 AH	16 AH	20 AH	N/A	N/A
Min: Refers to a facility using an emergency generator, where the batteries are only required to operate the system for under 3 minutes until takeover by the generator.										
UL Std: Requires 4 hours of battery operation followed by a 24-hour recharge period and then a second 4 hours of operation.										
Notes: 1. Batteries must be sealed lead acid or gel cell type. Dry cells will not recharge and will be damaged. 2. The above table is only valid if batteries are operated at room temperature. Capacity is reduced in cold environment. 3. Batteries should be replaced after five (5) years of use.										

Table 1. Battery Pack Selection

Circuit Polyswitches and Fusing

The SARGENT 3520 series has a 1-amp AC fuse on the board along with a 2.5-amp DC Polyswitch. The AC fuse is located on the hot 120 VAC input and protects against a transformer internal short. A short in the DC load will not blow the AC fuse as the power supply is short-circuit protected and will shut off if there is an attempt to draw more than its rated output. A DC short cannot damage the power supply, but will cause problems as the load will be shut off. Additionally if batteries are used, they will switch into the short when the power supply shuts down and will supply a tremendous amount of current into a short, which could easily melt wire insulation. To protect against a short circuit when batteries are being employed, a 2.5-amp DC Polyswitch breaker is provided. The Polyswitch, functioning as an automatic circuit breaker, receives an overload and rapidly cuts the current down to a small leakage current (about 100 mA).

EXAMPLE: If a short circuit appeared, tripped the Polyswitch and the short was corrected, but the wire from the – terminal was not disconnected, the Polyswitch would see the normal load and would continue to block current flow until reset.

The reset procedure is as follows:

REMOVE all current from the Polyswitch for a period of ten (10) seconds by disconnecting the wire from the + or – terminal.

SARGENT 3520 SERIES POWER SUPPLIES OPERATION AND INSTALLATION INSTRUCTIONS

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Emergency Release

Emergency release of power supply DC output is easily accomplished by using the unconnected **F** terminal. The NC contacts of the release switch are connected between **+** and **F** (see Figure 2, Adding Switch for Emergency Release) and then a load is connected to **-** and **F**. When the emergency release contacts open, all DC power will be cut off. When the connection is to a UL-listed fire alarm system, the auxiliary latching normally closed contacts are used. Do not use trouble contacts.

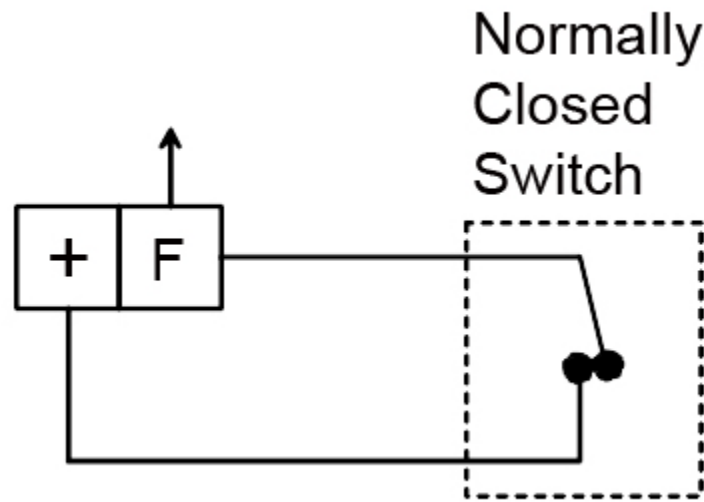


Figure 2. Adding Switch for Emergency Release

IMPORTANT: This product must be installed according to all applicable building and life safety codes.

INSTALLATION

1. ENSURE during product installation with circuit conductors operating at 150 volts or less to ground, that a minimum ¼ inch (6.4 mm) separation is provided between all Class 2 or 3 cable conductors extending beyond the jacket and all electric light, power, Class 1 conductors, non-Class 2 or 3 signaling conductors and medium-power network-powered broadband communications-circuit conductors.

WARRANTY

The Model 3521 and Model 3520 are covered by the Sargent lifetime replacement no fault warranty. No registration is required. Product will be replaced forever, for any reason, including but not limited to installation error, vandalism, or act of God. Replacement product is shipped at Sargent's expense next day air, if needed.

For more information visit www.SargentLock.com.