GREENHECK DUCT SMOKE DETECTOR

D4120

Purpose/Application

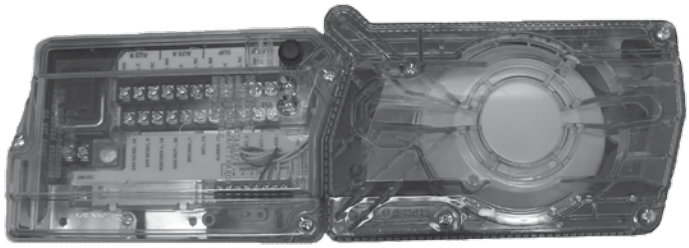
National and local safety standards and codes recognize the ability of air duct systems to transfer smoke, toxic gases, and flame from area to area. Sometimes smoke can be of such quantity as to be a serious hazard to life safety unless blowers are shut down and dampers are actuated. The primary purpose of duct smoke detection is to prevent injury, panic, and property damage by reducing the spread (recirculation) of smoke. The detector samples air currents passing through a duct and gives dependable performance for management of smoke and combination fire smoke dampers. Duct smoke detection can also serve to protect the air conditioning system itself from fire and smoke damage.

There are several important documents that provide guidance concerning the performance, application and installation of duct detectors:

1) NFPA Standard 90A, *Installation of Air Conditioning and Ventilating Systems*
2) NFPA Standard 92A, *Recommended Practice for Smoke Control Systems*
3) NFPA Standard 72, *National Fire Alarm Code*
4) NFPA Standard 101, *Life Safety Code*
5) UL Standard 268A, *Standard for Smoke Detectors for Duct Applications*
6) System Sensor, *Application Guide System Smoke Detectors & Duct Application Smoke Detectors*

Duct detectors are:

NOT a substitute for an open area smoke detector.
NOT a substitute for early warning detection, and
NOT a replacement for a building's regular fire detection system.



Specifications

Type:	Photoelectric
Air duct velocity:	100 to 4000 fpm (.5 m/s to 20.3 m/s)
Operating temperature range:	-4°F to 158°F (-20°C to 70°C)
Operating humidity range:	0% to 95% R.H.
Operation Voltage:	24 VAC/DC or 120 VAC
Dimensions:	14.38 in. L x 5 in. W x 2.5 in. H (365mm x 127mm x 63.5mm)

Features

- Improved cover design isolates the sensor head from the low flow feature for easier maintenance
- Plug is sensor head offers improved false alarm immunity and simple installation, testing, and maintenance.
- Up to 50 detectors may be interconnected.
- Terminal connections are of the strip and clamp method suitable for 12-18 AWG wiring.
- Easy access test /reset button makes it possible to test the unit with the cover on.
- The housing provides ample wiring space, 3/4 in. conduit knockout and built-in short circuit protection to prevent damage to sensitive components during installation.

Configuration

Maximum wall thickness:	6 in. (152mm) on FSD & SSFSD applications (Consult factory for walls greater than 6 in. [152mm])
Actuator Location:	Must be right hand drive Must be externally mounted
Detector Location:	Mounts opposite actuator side Must be external

Sampling tubes longer than three feet must be supported on each end. Holes in duct smoke detector sampling tubes must face into the airflow.

Availability

For use with all FSD, SSFSD, SMD, SSSMD, and CFSD models. Not available on SMDR models.

Listings

UL 268A

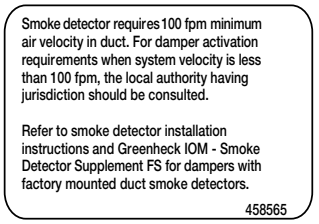
Refer to Greenheck Installation Supplement: Part #463813 IOM-Smoke Detector Supplement

Sleeve Length

Height less than 25 in. (635mm): 24 in. (610mm) sleeve (15 in. [381mm]'A' dimension) (detector mounted parallel to sleeve)

Height greater than or equal to 25 in. (635mm): 21 in. (533mm) sleeve (11 in. [279mm] 'A' dimension) (detector mounted perpendicular to sleeve)

Figure 1: Label applied to dampers with factory mounted duct smoke detectors.



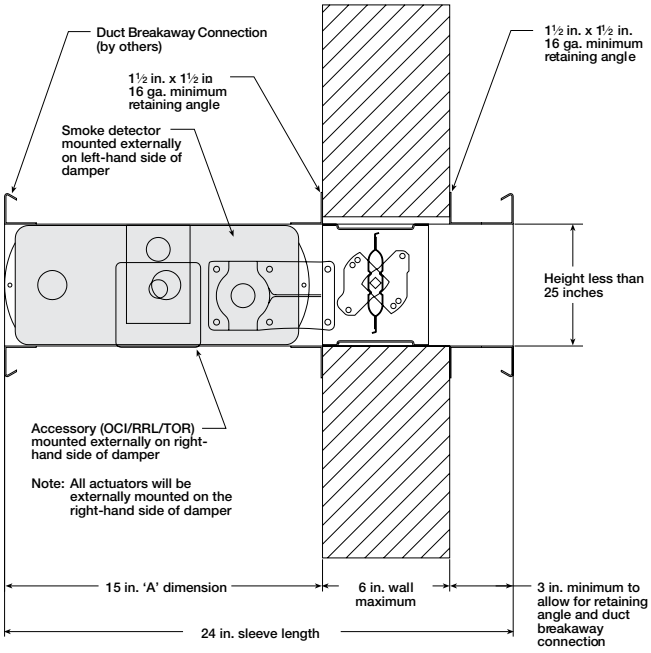


Figure 2: Smoke detector mounting orientation for dampers less than 25 inches (635mm) in height.

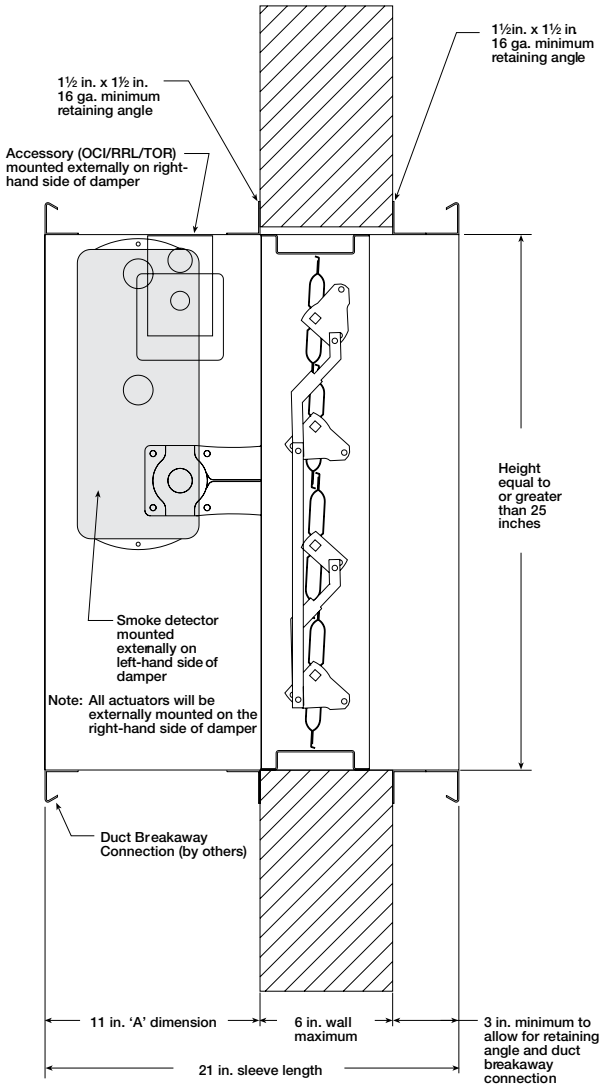


Figure 3: Smoke detector mounting orientation for dampers equal to or greater than 25 inches (635mm) in height.

Ordering Options

Factory Mounted

Smoke detector will be wired to a 4 in. x 4 in. (102mm x 102mm) handi-box. The closure device (if RRL or TOR) will also be wired to the handi-box. Dampers provided with the smoke detector option will include single point wiring as standard (includes RRL, OCI, TOR, detectors, and multiple actuators).

Shipped Loose

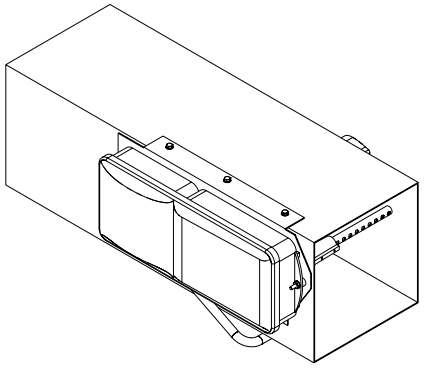
Shipped loose smoke detector will only include the detector itself (no mounting hardware or bracket seals). The duct size will have to be specified in order to allocate the appropriate length sampling tube. Adhere to all national and local codes.

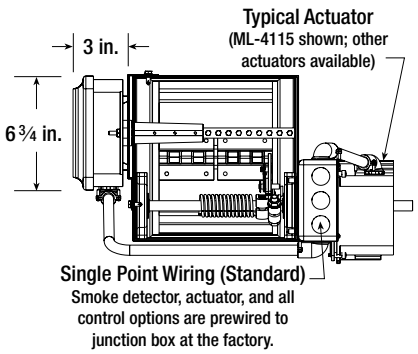
IMPORTANT!

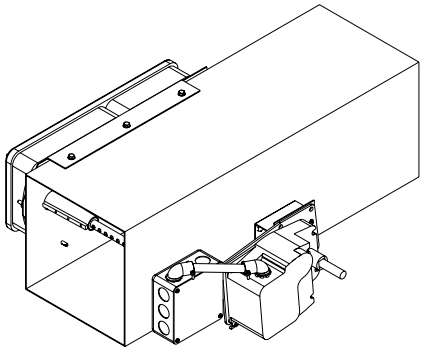
Dampers ordered with shipped loose smoke detectors will have the standard sleeve length, not a longer sleeve to accommodate the smoke detector installation. If smoke detectors are intended to be field mounted on the damper sleeve, the damper sleeve length and 'A' dimension will need to be manually changed to the requirements indicated under 'Sleeve Length'.

SPACE ENVELOPES

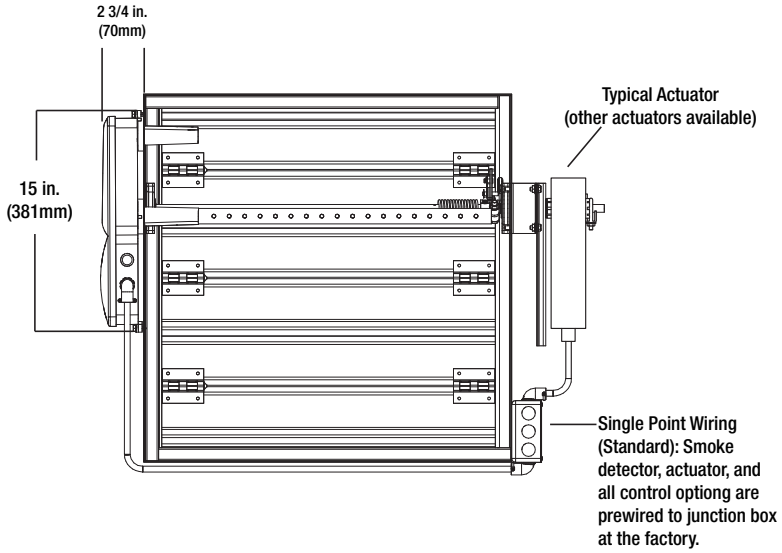
Dampers Less Than 25 Inches (635mm) In Height







Dampers Equal To Or Greater Than 25 Inches (635mm) In Height



ELECTRICAL RATINGS

Electrical Ratings			
Power Supply Voltage	20-29 VDC	24 VAC 50-60Hz	120 VAC 50-60 Hz
Input Capacitance	270 µF max.	270 µF max.	N/A
Reset Voltage	3.0 VDC min.	2.0 VAC min	10 VAC min
Reset Time	0.6 sec. max.	0.6 sec. max.	0.6 sec. max.
Power Up Time	35 sec. max.	35 sec. max.	35 sec. max.
Alarm Response Time	15 sec.	15 sec.	15 sec.
Sensitivity Test	See detector label	See detector label	See detector label
Current Requirements			
Max. Standby Current	21 mA	65 mA RMS @ 24 VAC 60 Hz	20 mA@120 VAC 60 Hz
Max. Alarm Current	65 mA	135 mA RMS @ 24 VAC 60 Hz	35 mA @ 120 VAC 60 Hz

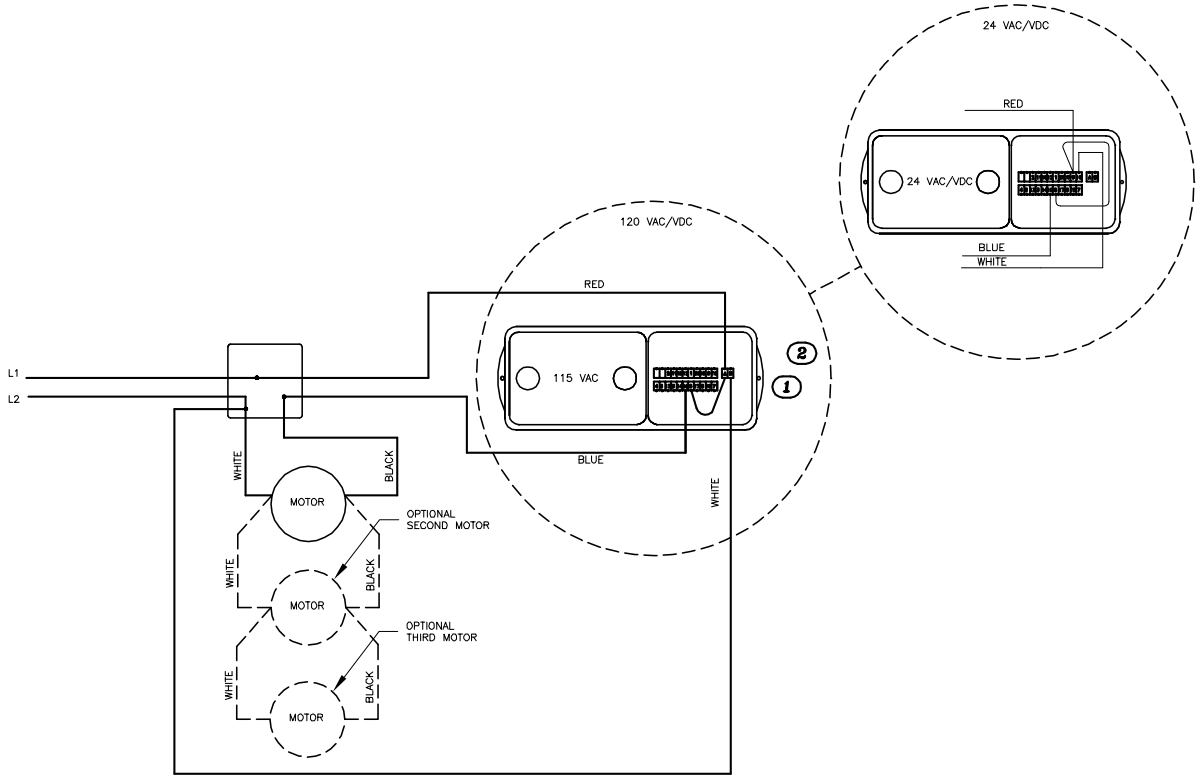
Contact Ratings

Alarm Initiation Contacts (SPST): 2.0A @ 30 VDC (resistive)
Alarm Auxiliary Contacts (DPDT): 10A @ 30 VDC (resistive)
10A @ 250 VDC (resistive)

Note: Alarm auxiliary contacts shall not be connected to initiating circuits of control panels. Use the alarm initiation contact for this purpose.

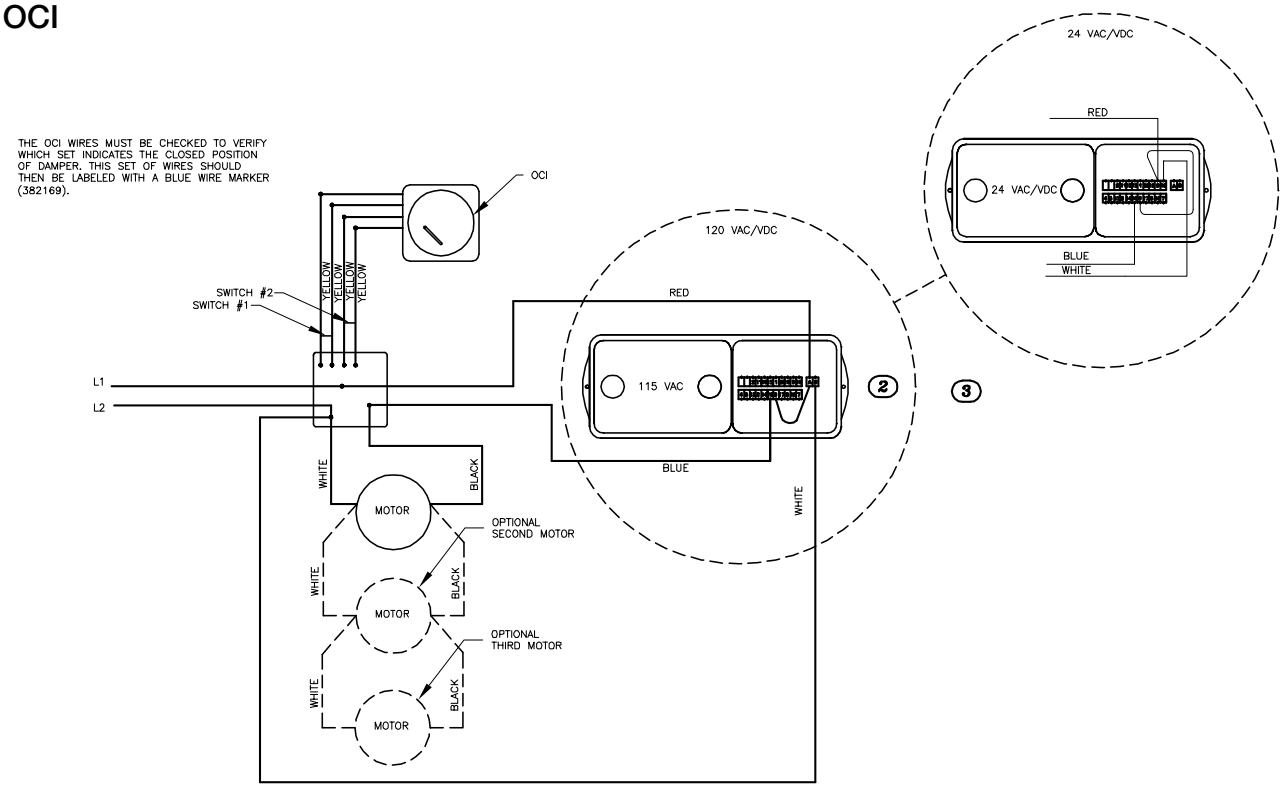
Supervisory Contacts (SPDT): 2.0A @ 30 VDC (resistive)

Fusible Link



1. CONDUIT RUNS WHICH EXCEED 72" MUST HAVE GREEN GROUND WIRE.
2. FLEX CONDUIT MUST BE SECURED WITH A CONDUIT CLAMP (458296) WITHIN 12" OF CONDUIT TERMINATION AT THE HANDI-BOX OR ACTUATOR. CONDUIT RUNS MUST ALSO BE SECURED ALONG SLEEVE AT A MAXIMUM OF 24" ON CENTER.

OCI



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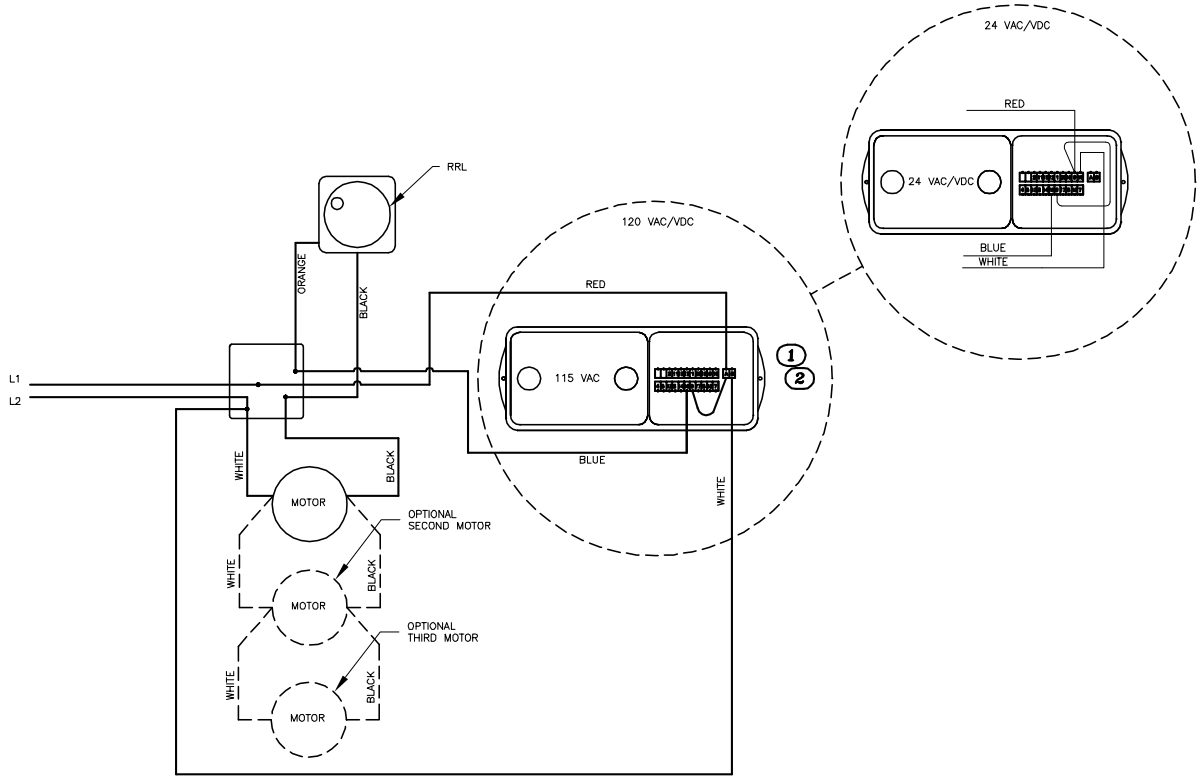
WIRING DIAGRAMS DUCT SMOKE DETECTOR

RRL



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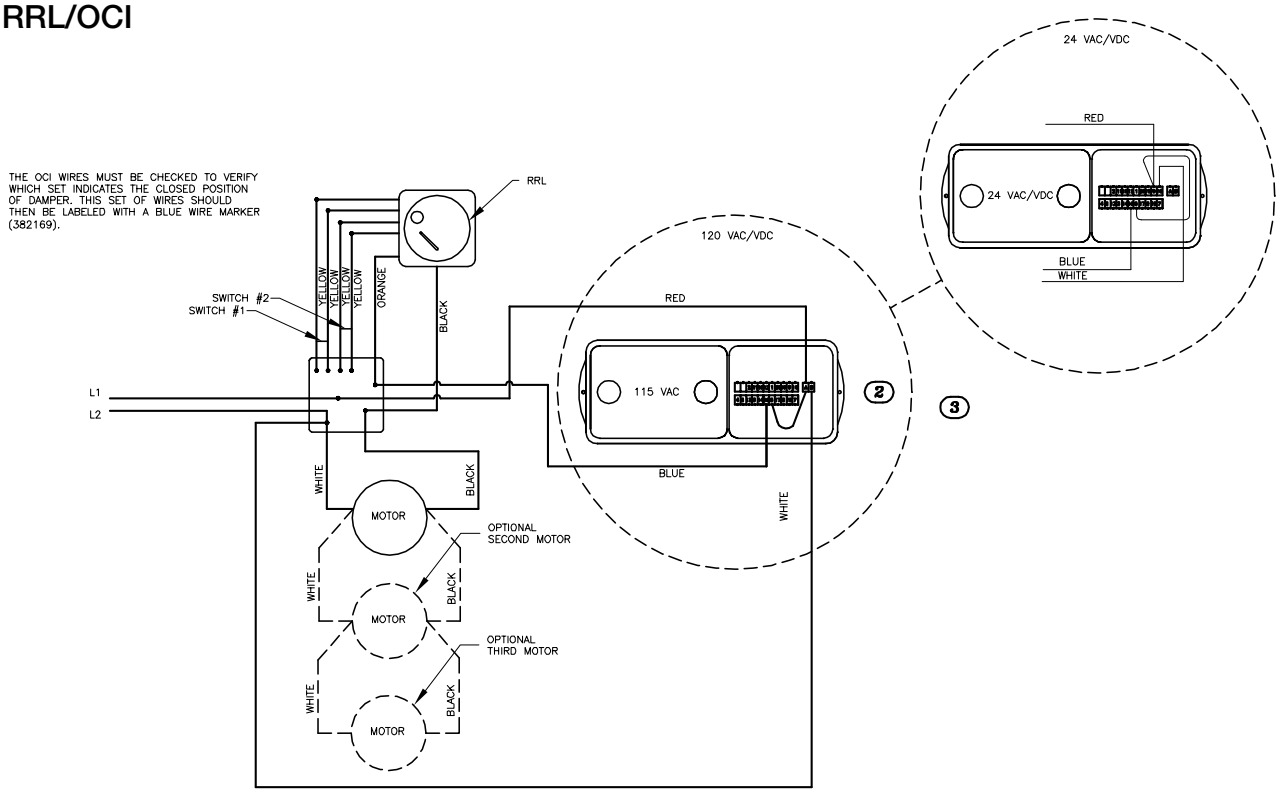
RRL/OCI



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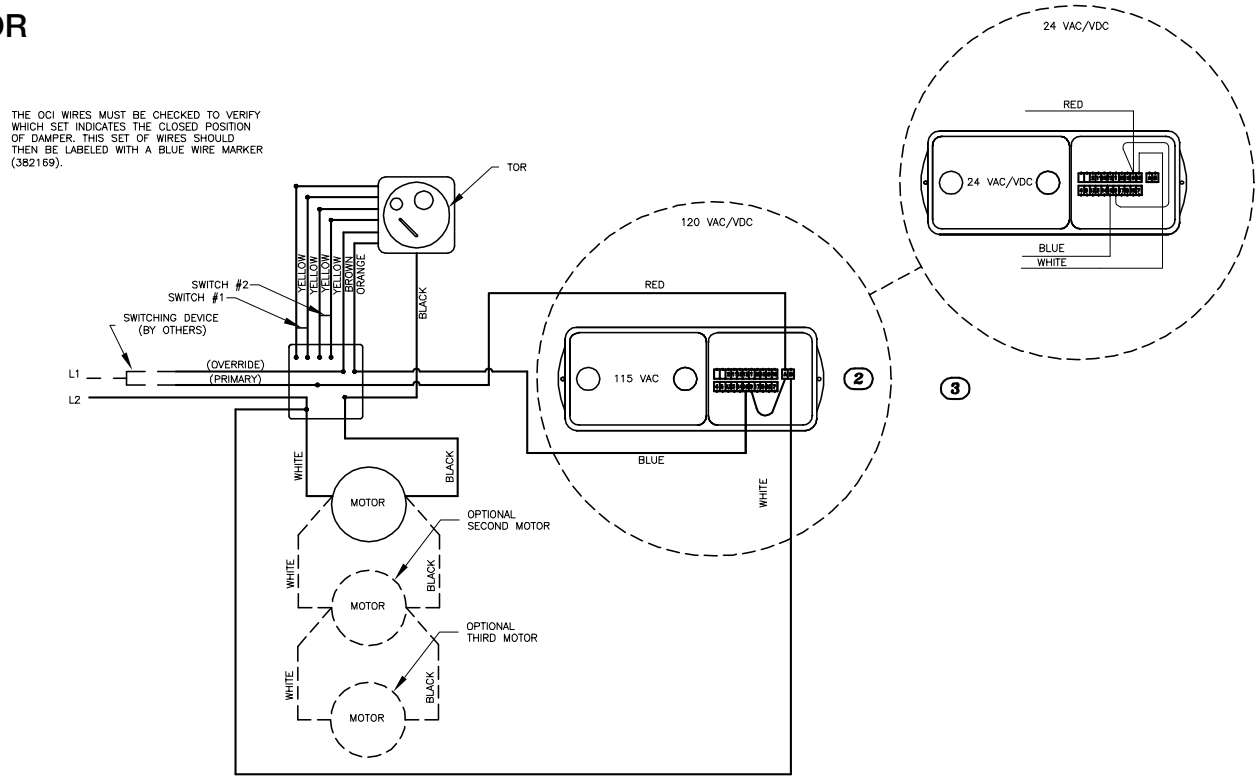
TOR



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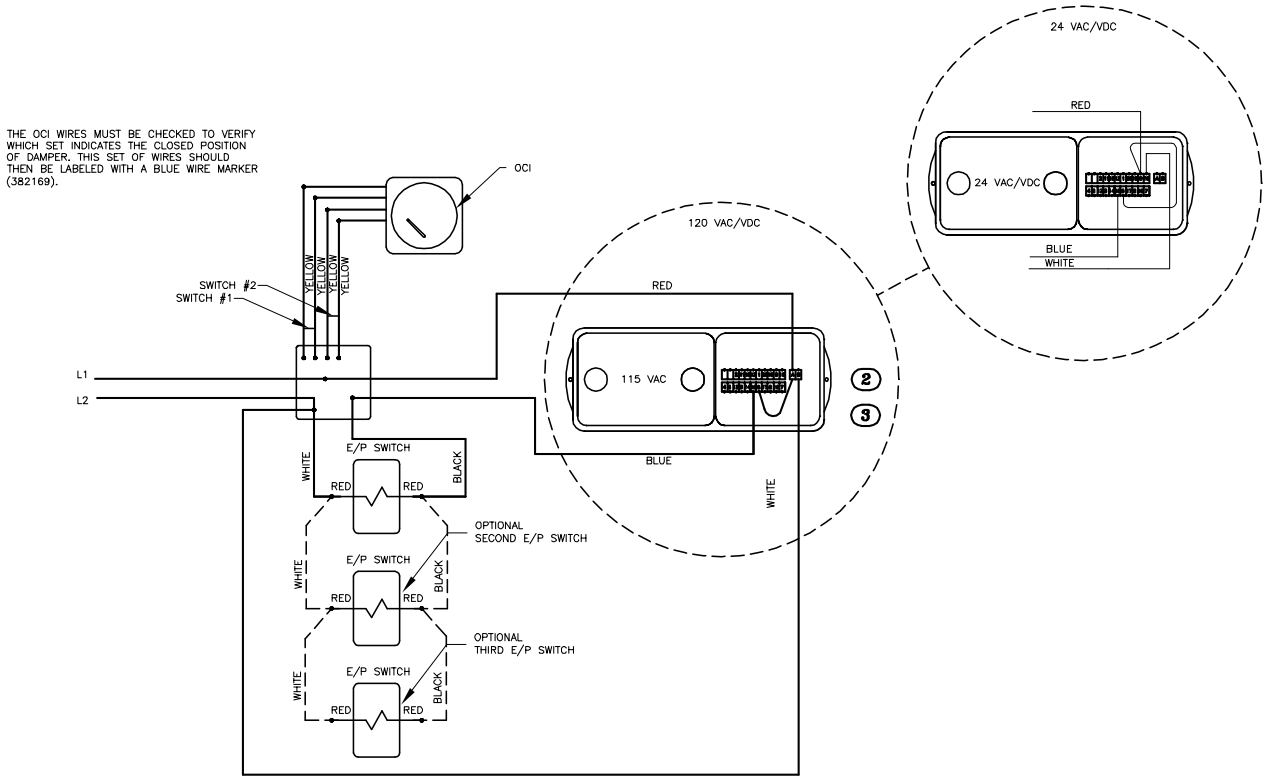
OCI w/ EP Switch



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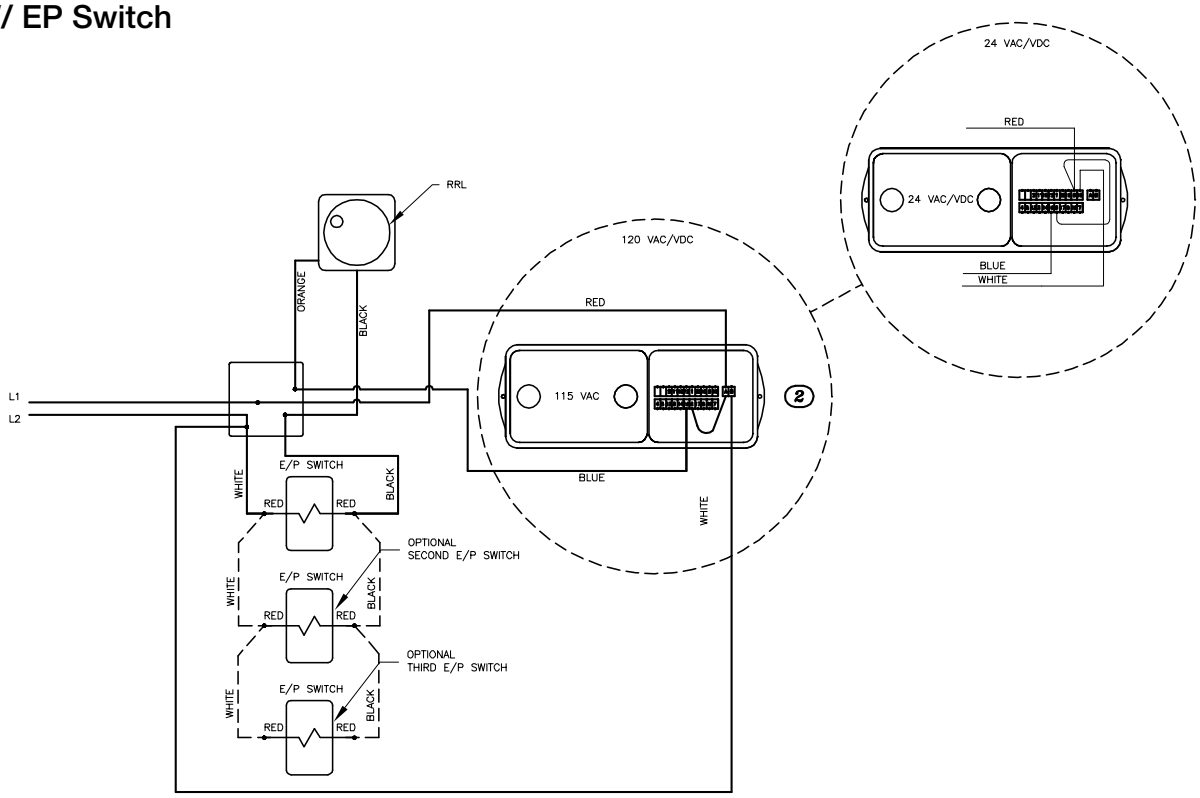
WIRING DIAGRAMS DUCT SMOKE DETECTOR

RRL W/ EP Switch



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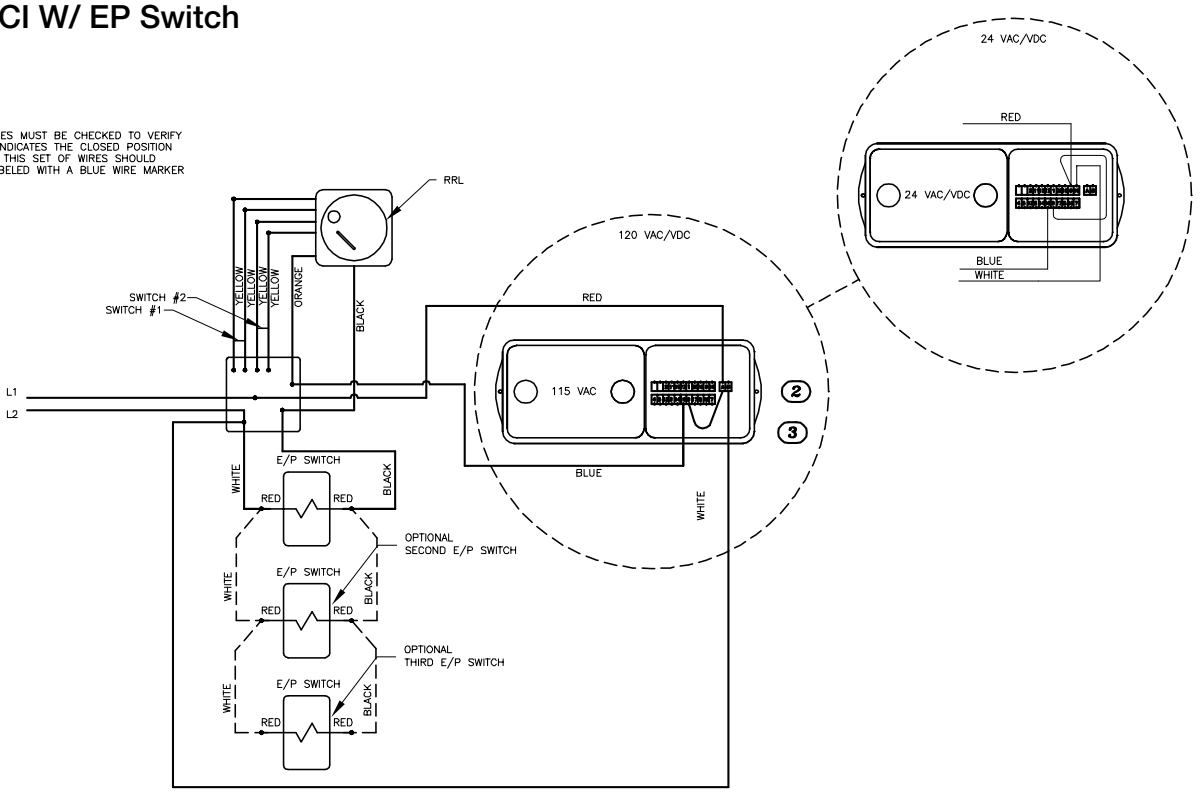
RRL/OCI W/ EP Switch

THE OCI WIRES MUST BE CHECKED TO VERIFY WHICH SET INDICATES THE CLOSED POSITION OF DAMPER. THIS SET OF WIRES SHOULD THEN BE LABELED WITH A BLUE WIRE MARKER (382169).



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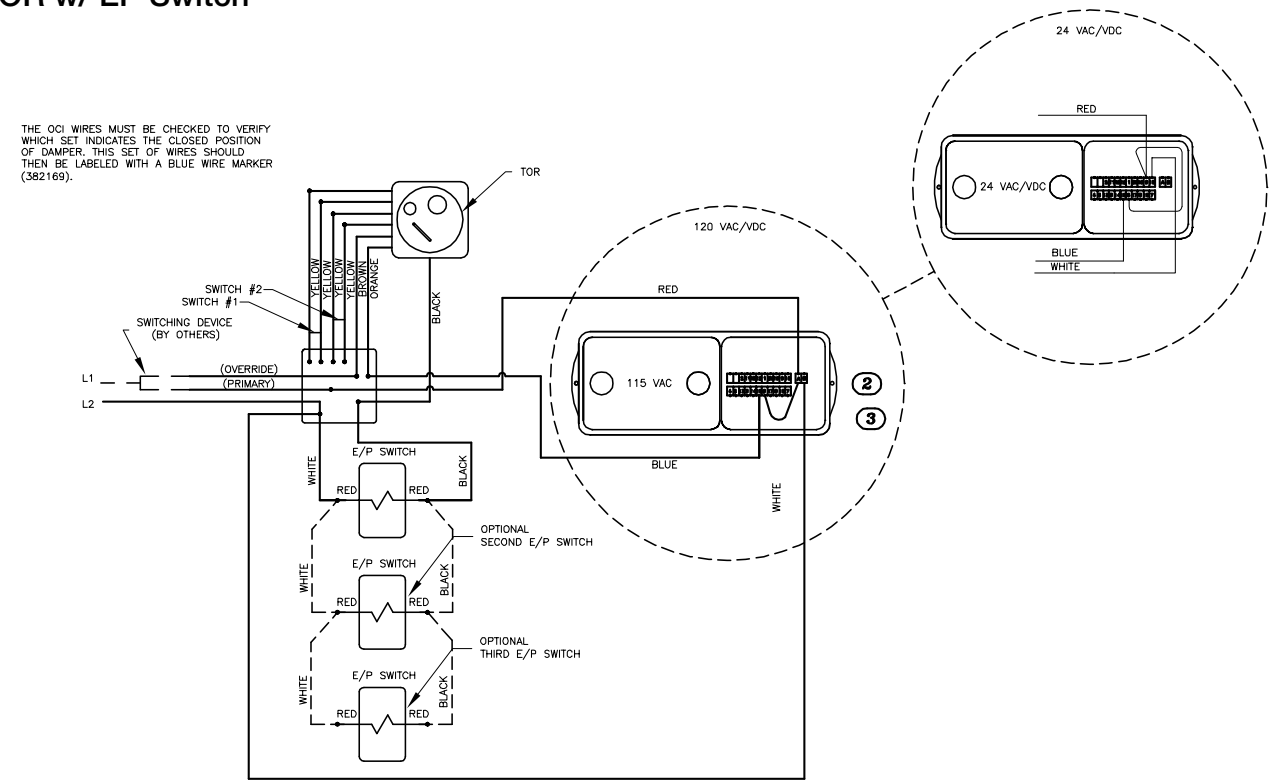
TOR w/ EP Switch



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