

MANUAL – INSTALLATION

LED Indicator Kit Installation for LFDC Diffusers & Fan Filter Units

LFDC, FFU

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PRICE[®]

LED INDICATOR KIT INSTALLATION FOR LFDC DIFFUSERS & FAN FILTER UNITS

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LED INDICATOR KIT INSTALLATION FOR LFDC DIFFUSERS & FAN FILTER UNITS

PRODUCT OVERVIEW

Introduction

Refer to this manual for installing the Price LED light kit to the Price FFU & LFDC products. This document includes information on operation, calibration and maintenance.

General LED Options

The filter LED (FL) indicator light turns from green to yellow when the pressure drop over the filter exceeds approximately 150% of the initial/clean filter pressure drop. The yellow light indicates that the filter is still functional, but should be checked and/or replaced as soon as possible. The LED is visible from the occupied area, so there is no need to open the unit in order to determine the filter status.

The motor LED (ML) indicator light turns from green to red when the fan filter unit motor is no longer operating – sensed through a measurement of the unit static pressure. The red light indicates the motor is not operating and may need to be repaired/replaced. The LED is visible from the occupied area, so there is no need to open the unit in order to determine the motor status.

The Filter to Building Automation System (FBAS) option makes the filter signal available to the Building Automation System (BAS). Measurement of unit static pressure by a pressure switch, determines whether the filter is loaded or not, and this signal can be sent to a BAS system. If the filter signal indicates that the filter is loaded this indicates that the filter should be replaced.

The standard LED options are as follows:

1. FL
2. ML (FFU Only)
3. FL & ML (FFU Only)
4. FL & FBAS (Non-FFU Only)

Factory installed LED kit comes with factory pre-calibrated switches. It can be field adjusted if required. Maximum available pressure setting is 1.0 inch w.g. LED operation is unaffected by room pressure changes.

FIGURE 1 - SURFACE MOUNT ▼

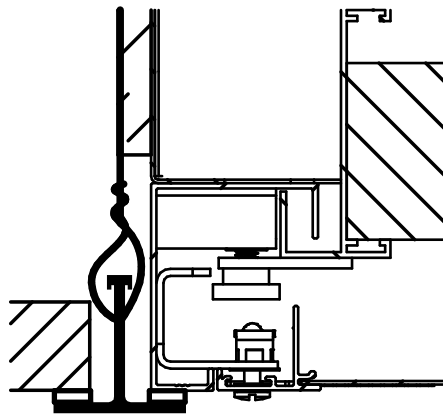
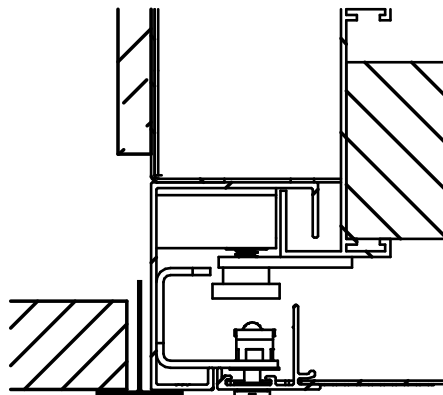


FIGURE 2 - T-BAR MOUNT ▼



LED INDICATOR KIT INSTALLATION FOR LFDC DIFFUSERS & FAN FILTER UNITS

PRODUCT OVERVIEW

Safety

Potential hazard exists due to electrical equipment. Adhere to all safety codes of conduct.

CAUTION: Disconnect all power supplies before working on equipment.

CAUTION: Only qualified personnel should work on equipment.

Tools and Equipment

(Supplied by others)

1. Screw Drivers
2. Drill Bits (5/16" & 1/4")
3. Silicon Sealant

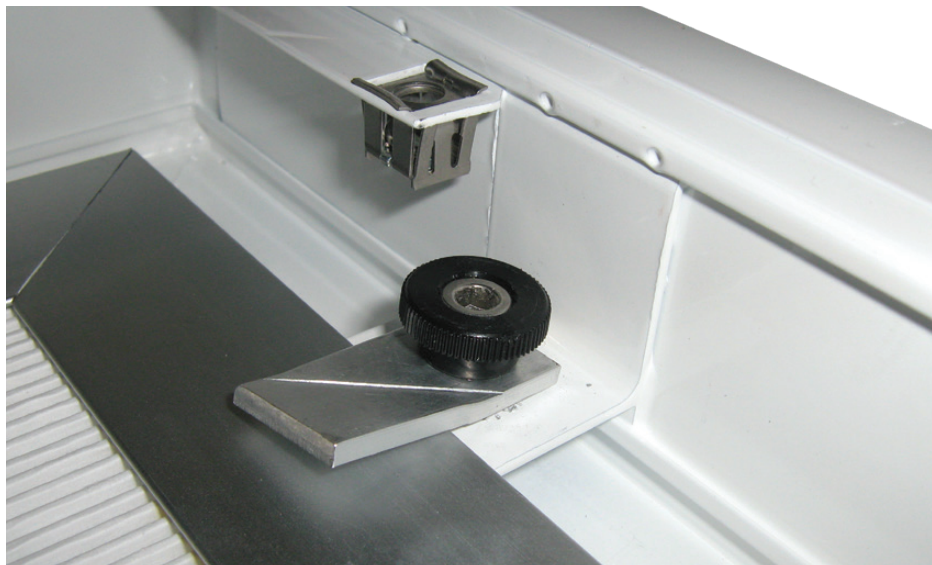
Preparation

Removal of HEPA/ULPA filter: Loosen cam latch knurled knobs by turning counter-clockwise.

CAUTION: Extreme care should be taken when handling the filter. Filters should be handled by frame only. Filter media should not be touched at any time for any reason - damage may occur. **See FFU Installation Manual for more details.**

- A. Open 1/4 turn fasteners holding perforated face panel.
Detach face panel safety chains and remove face panel.
- B. Loosen cam latch bolts by turning counter-clockwise (Figure 3).
- C. Turn all cam latch filter retainers to the open position.
- D. Remove filter, handling by frame and not touching the media.

FIGURE 3 - FILTER LATCH KNURLED FASTENER ▼



LED INDICATOR KIT INSTALLATION FOR LFDC DIFFUSERS & FAN FILTER UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

LFDC-1-1 & FFU Units

LEDK Control Box Installation

1. Remove filter from unit (following the instructions on page 2).
2. Mark and drill a $\frac{5}{16}$ " hole in housing (see Figure 4).
3. Insert brass bulkhead fitting union with neoprene washer into hole and tighten.
4. Mark and drill a $\frac{1}{2}$ " hole on outer unit frame and de-burr (Figure 4).
5. Insert grommet into $\frac{1}{2}$ " hole.
6. Mount LEDK bracket centered about the width of the unit and flush with the end of the unit using self-tapping screws (Figure 5).
7. Mount LEDK control box to the mounting bracket.
8. Insert $\frac{1}{4}$ " diameter tubing from pressure switch onto brass bulkhead fitting.
9. For FFU units, terminate the power cable from the LEDK control box to the FFU control box as per the FFU control box wiring diagram.

For LFDC units, 24 volt power must be supplied to the LEDK control box.

FIGURE 4 - LED CONTROL BOX INSTALLATION ▼

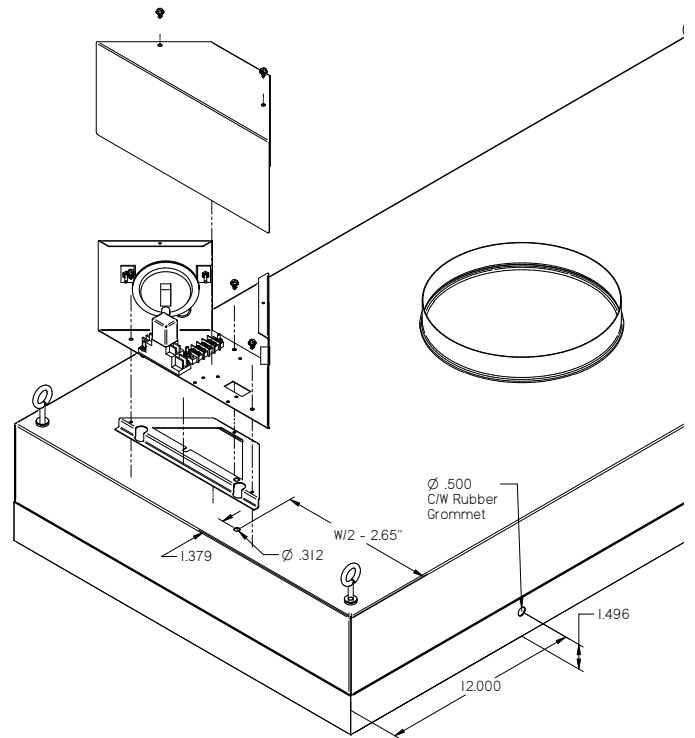
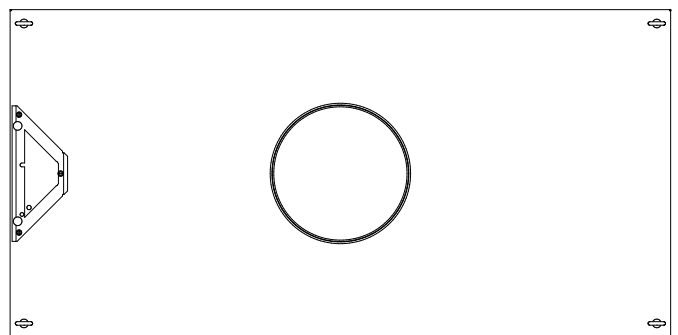


FIGURE 5 - MOUNTING BRACKET LOCATION ▼



LED INDICATOR KIT INSTALLATION FOR LFDC DIFFUSERS & FAN FILTER UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

LFDC-1-1 & FFU Units

Face LED Installation

1. Drill $\frac{5}{16}$ " hole in the face frame on the same side as the safety chains (Figure 6).
2. Feed LED wire through the hole in the face frame and thread the nut on the back of the LED (Figure 7).
3. Attach the face frame safety chains on the same side as the hole in the outer unit frame.
4. Feed the LED wire through the grommet in the outer frame and wire to the LEDK control box as per the appropriate wiring diagram.
5. With the face frame still hanging, zip tie the LED wire to the side of the plenum (Figure 8).
6. Ensure that all drilled holes and gaps in grommets are sealed with silicone sealant preventing any air leakage.
7. Confirm wiring of terminal block/pressure switch using appropriate wiring diagram (page 8).
8. Secure cover lid to LED control box using two #8x0.313 blunt tip screws.
9. Install clean filter.

FIGURE 6 - LED FACE HOLE ROOM SIDE VIEW ▼

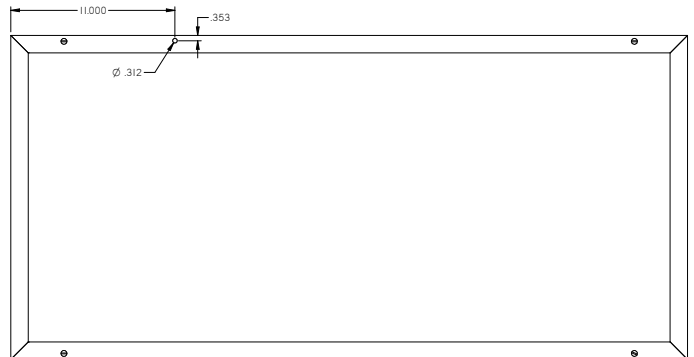


FIGURE 7 - MOUNTED LED FROM INSIDE FACE ▼

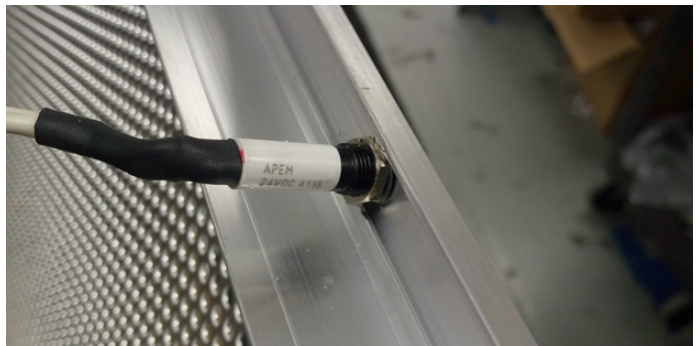


FIGURE 8 - ZIP-TIED LED WIRE WITH PROPER SLACK ▼



LED INDICATOR KIT INSTALLATION FOR LFDC DIFFUSERS & FAN FILTER UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

LFDC & LFDCSS (Old Style)

LEDK Control Box Installation

1. Remove filter from unit (following the instructions on page 2).
2. Mark and drill a $\frac{5}{16}$ " hole in housing (see Figure 9).
3. Insert brass bulkhead fitting union with neoprene washer into hole and tighten.
4. Mark and drill a $\frac{1}{2}$ " hole on outer unit frame and de-burr (Figure 9).
5. Insert grommet into $\frac{1}{2}$ " hole.
6. Mount LEDK bracket centered about the width of the unit and flush with the end of the unit using self-tapping screws (Figure 10).
7. Mount LEDK control box to the mounting bracket.
8. Insert $\frac{1}{4}$ " diameter tubing from pressure switch onto brass bulkhead fitting.
9. For FFU units, terminate the power cable from the LEDK control box to the FFU control box as per the FFU control box wiring diagram.

For LFDC units, 24 volt power must be supplied to the LEDK control box.

FIGURE 9 - LED CONTROL BOX INSTALLATION ▼

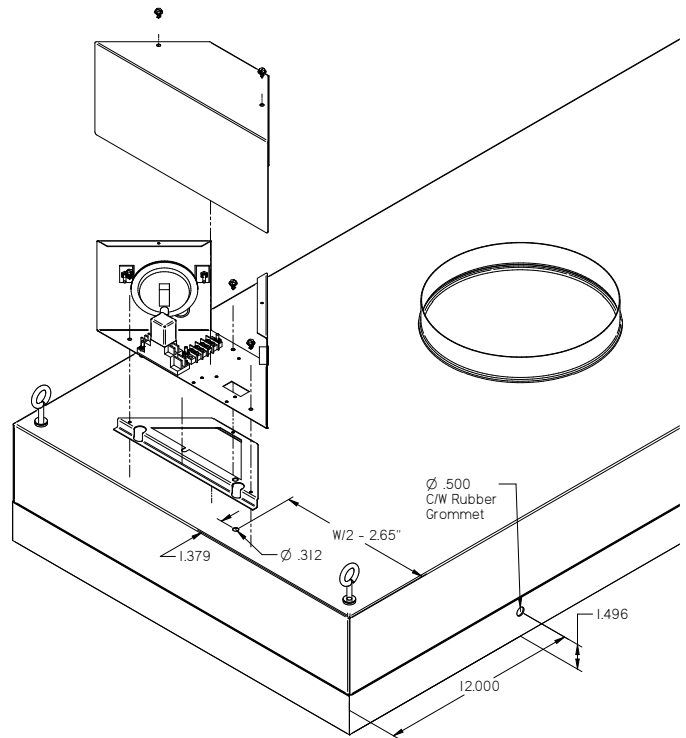
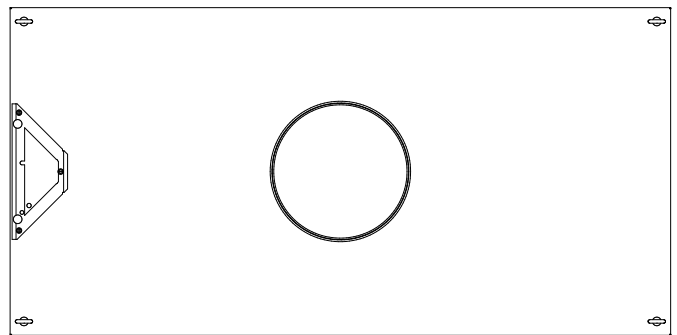


FIGURE 10 - MOUNTING BRACKET LOCATION ▼



LED INDICATOR KIT INSTALLATION FOR LFDC DIFFUSERS & FAN FILTER UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

LED Installation

Old Style LFDC & LFDCSS

1. Insert LED into hole in perforated baffle and zip tie in place may require 1/4" drill) (see Figure 11 & Figure 12).
2. Ensure safety straps are attached on the same side of the unit as the LED cable.
3. Ensure LED wire remains slack (longer than safety straps) when the perforated face of diffuser is fully open (Figure 13).
4. Ensure that all drilled holes and gaps in grommets are sealed with silicone sealant preventing any air leakage.
5. Confirm wiring using appropriate wiring diagram (page 8).
6. Install clean filter.

FIGURE 11 - ZIP-TIE LED TO PERF-FACE ▼

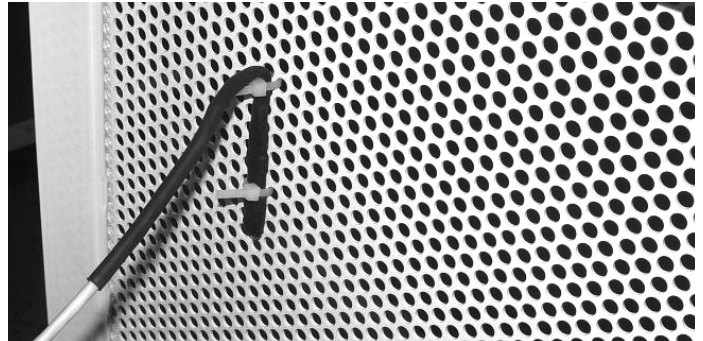


FIGURE 12 - LED VISIBLE THROUGH PERF-FACE ▼

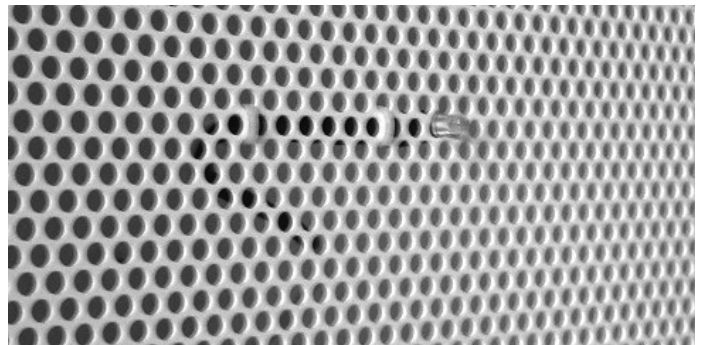
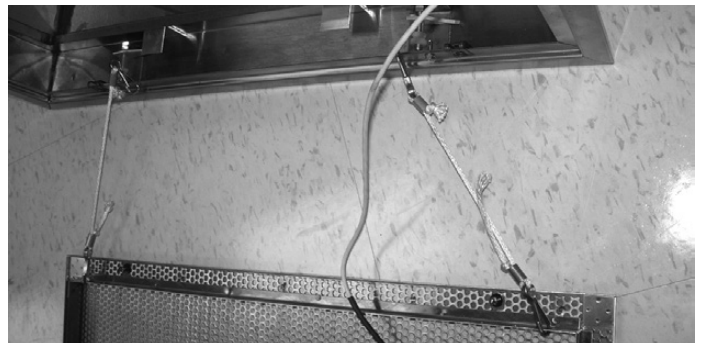


FIGURE 13 - LED SLACK VS SAFETY STRAPS ▼



LED INDICATOR KIT INSTALLATION FOR LFDC DIFFUSERS & FAN FILTER UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

Startup and Operation

Filter LED (FL) turns green when power is supplied.
 Filter LED turns yellow when pressure drop over filter exceeds 150% of initial/clean filter pressure drop.
 Motor LED (ML) turns green when unit static pressure is greater than 0.2" w.g , indicating the motor is operating.
 Motor LED turns red when static pressure is less than 0.2" w.g., indicating the motor is not operating.
 Motor to Building Automation System (MBAS) gives a signal to the building automation system when the motor is not operating.

Calibration

Calibration of the Filter LED (FL) kit must be done based on module size and filter type (Tables 1 & 2).
 Factory installed LED kit comes with factory pre-calibrated switch (**Figure 14**). It can be field adjusted if required. Max available pressure setting is 1.0 inch w.g. Tables 1 and 2 give pressure differentials for various filters in units of inches of w.g.

1. Turn set screw clockwise the number of turns prescribed in Table 3 to obtain approximate calibration.

CAUTION: Do not exceed 4 1/2 turns.

2. In lieu of Table 3 a Magnahelic or other pressure device may be used to calibrate the pressure gauge.

NOTE: Pressure gauge diaphragm must be in vertical position when testing calibration.

NOTE: Motor LED (ML)/Motor to Building Automation System (MBAS) kits come with factory pre-calibrated switch (see **Figure 14**) – pre-calibrated to 0.20" w.g.

Maintenance

No maintenance is required. If LED is off then check power supply, connections and wiring.

Abbreviations

- LED** - Light Emitting Diode
- FPM** - Feet per minute
- AC** - Alternating Current
- w.g.** - Water Gauge

FIGURE 15 - PRESSURE SWITCH ADJUSTMENT ▼

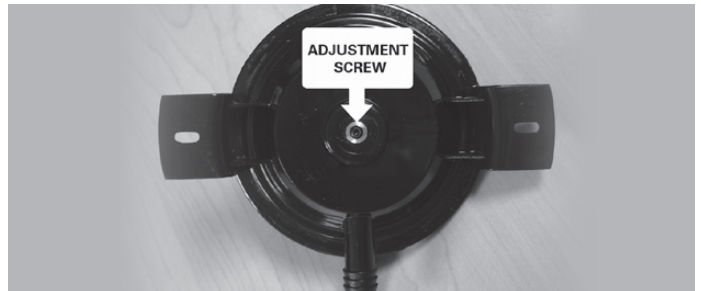


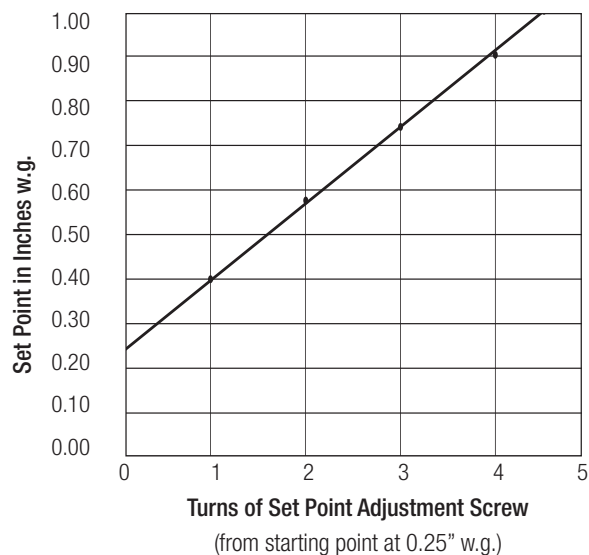
Table 1 - FFU

| Module Size | Filter | ΔP @ 100 FPM Clean Filter | Set Point 1.5 x Loaded Filter |
|-------------|-------------|---------------------------|-------------------------------|
| 2 x 4 | 2" Hepa | 0.48 | 0.72 |
| | 2 & 3" ULPA | 0.68 & 0.40 | 0.72 |
| 2 x 3 | 2" HEPA | 0.49 | 0.74 |
| | 2" ULPA | 0.68 | 1.00 |
| 2 x 2 | 3" HEPA | 0.31 | 0.47 |
| | 3" ULPA | 0.38 | 0.57 |

Table 2 - LFDC

| Module Size | Filter | ΔP @ 100 FPM Clean Filter | Set Point 1.5x Loaded Filter |
|-------------|---------|---------------------------|------------------------------|
| 2 x 4 | 2" HE | 0.35 | 0.53 |
| | 2" HEPA | 0.48 | 0.72 |
| | 2" ULPA | 0.68 | 1.00 |
| 2 x 3 | 2" HE | 0.37 | 0.56 |
| | 2" HEPA | 0.49 | 0.74 |
| | 2" ULPA | 0.68 | 1.00 |
| 2 x 2 | 2" HE | 0.32 | 0.48 |
| | 2" HEPA | 0.46 | 0.69 |
| | 2" ULPA | 0.68 | 1.00 |

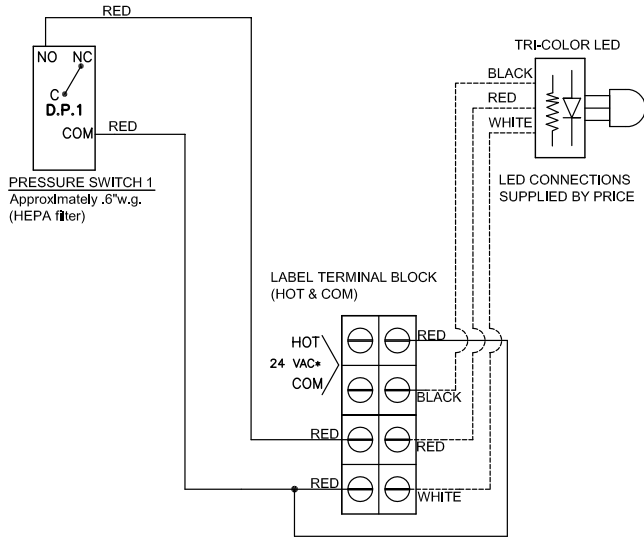
Table 3 - Set Point Adjustment



LED INDICATOR KIT INSTALLATION FOR LFDC DIFFUSERS & FAN FILTER UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

LED WIRING DIAGRAM - FILTER LOADING ▼

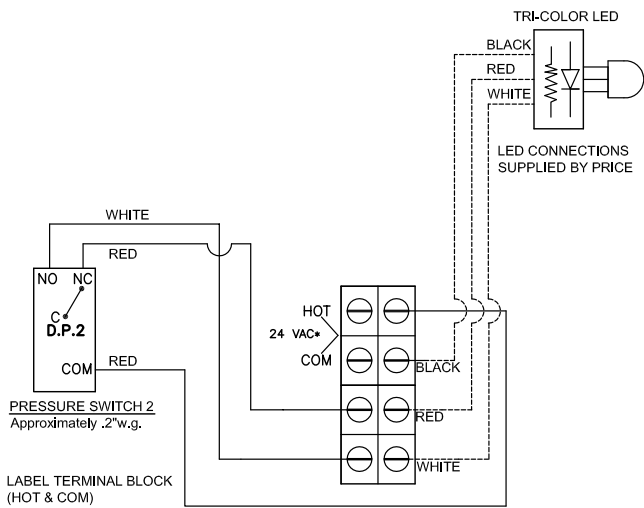


TRI-COLOR LED

- LED GREEN: INDICATES FILTER IS CLEAN
- LED YELLOW: INDICATES FILTER IS LOADED

- FACTORY CONNECTION
- - - - - FACTORY CONNECTION IF RSR FILTER
FIELD CONNECTION IF BTR FILTER

LED WIRING DIAGRAM - MOTOR LOADING ▼



DUAL COLOR LED

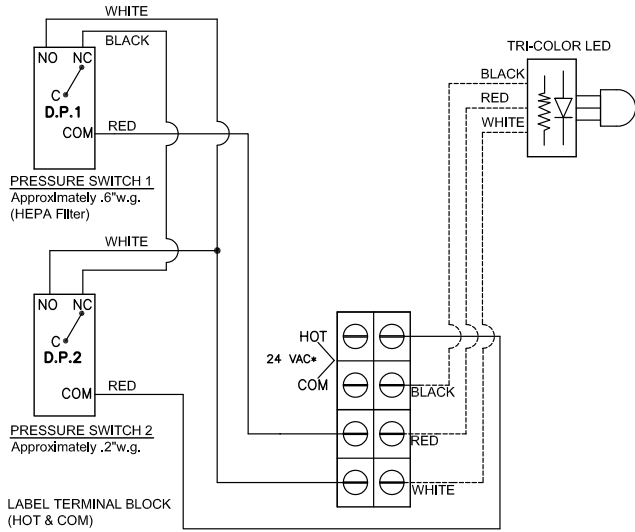
- LED GREEN: INDICATES MOTOR IS RUNNING
- LED RED: INDICATES MOTOR IS NOT RUNNING

- FACTORY CONNECTION
- - - - - FACTORY CONNECTION IF RSR FILTER
FIELD CONNECTION IF BTR FILTER

LED INDICATOR KIT INSTALLATION FOR LFDC DIFFUSERS & FAN FILTER UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

LED WIRING DIAGRAM - MOTOR LOADING/FILTER LOADING ▼

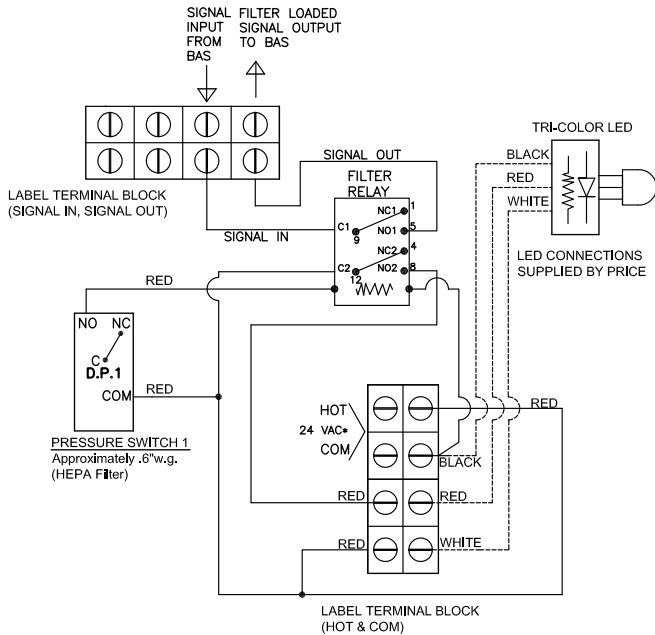


TRI COLOR LED

- LED GREEN: INDICATES MOTOR IS RUNNING, AND FILTER IS CLEAN
- LED RED: INDICATES WHEN MOTOR IS NOT RUNNING
- LED YELLOW: INDICATES FILTER IS LOADED

- FACTORY CONNECTION
- - - - - FACTORY CONNECTION IF RSR FILTER
FIELD CONNECTION IF BTR FILTER

LED WIRING DIAGRAM - FILTER LOADING AND FILTER BAS ▼



TRI COLOR LED

- LED GREEN: INDICATES FILTER IS CLEAN
- LED YELLOW: INDICATES FILTER IS LOADED

D.P. SWITCH 1

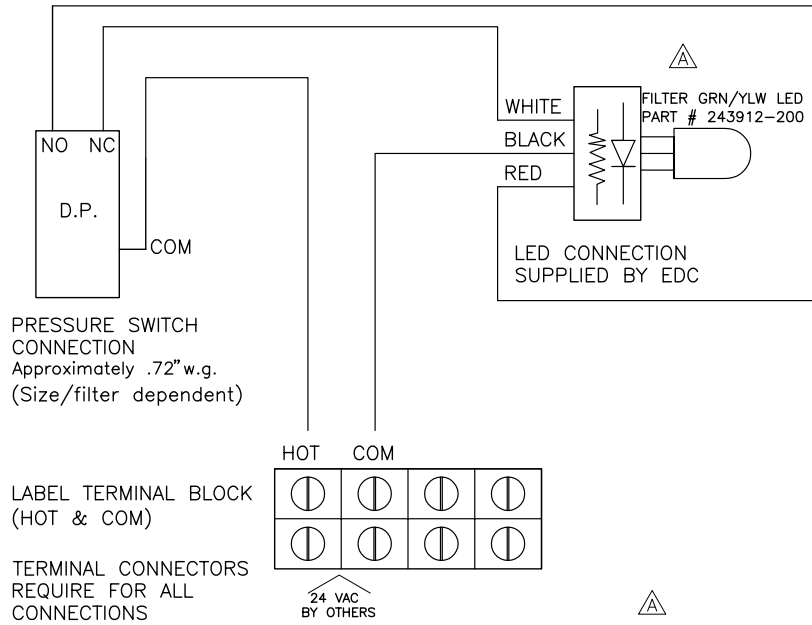
SIGNAL OUT WHEN FILTER IS LOADED

- FACTORY CONNECTION
- - - - - FACTORY CONNECTION IF RSR FILTER
FIELD CONNECTION IF BTR FILTER

LED INDICATOR KIT INSTALLATION FOR LFDC DIFFUSERS & FAN FILTER UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

LED WIRING DIAGRAM - LFDC & LFCSS (OLD STYLE) ▼



NOTES:

1. LED FILTER INDICATOR IS FACTORY INSTALLED.
2. THE LED ENCLOSURE CONTAINS:
 - * D.P. SWITCH
 - CONTROLS FFU MOUNTED BI-COLOR LED
 - LED IS GREEN WHEN FILTER IS O.K.
 - LED IS YELLOW WHEN FILTER IS LOADED

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