

This installation manual provides information for installing and configuring the Cook Flow Monitor System. The system includes a Loren Cook Company fan with a piezometric ring (p-ring) and the Cook Flow Monitor. The manual does not cover any other installation details or applications.



Carefully read this publication and any supplemental documents prior to any installation or maintenance procedure.

For additional safety information, refer to AMCA publication 410-96, *Safety Practices for Users and Installers of Industrial and Commercial Fans*. This document and all Cook publications may be obtained from Cook by phoning (417) 869-6474, extension 166; by FAX at (417) 832-9431; or by e-mail at info@LorenCook.com. All Cook publications are available on LorenCook.com.

For information and instructions on special equipment, contact Cook at (417) 869-6474.

Location and Maintenance

Consider the following points while choosing a location for the Cook Flow Monitor.

- Do not place the device on the floor.
- Maintain a temperature between -1°C to 43°C (30°F to 110°F). A temperature beyond this range may cause condensation and sweating of metal parts.
- Maintain a low humidity, dry, and clean atmosphere. Ensure that the device is not in the path of blowing dust, rain, or snow.

Follow these guidelines prior to installation.

- Clean the components to remove any deposit of dirt, water, ice, or snow and wipe them dry.
- Dry components using a portable electric heater to remove any buildup of moisture.
- Allow the cold metal parts to reach room temperature to avoid sweating.

CAUTION

Voltage Warning

Low-voltage control wires and line voltage power wires must not be installed in same conduit. Failure to follow these instructions could result in malfunction or damage.

Disconnect Warning

ALWAYS disconnect power prior to working on fan. Failure to comply with these safety precautions could result in property damage, serious injury, or death.

Installation

The following steps and components are important to the proper operation of the Cook Flow Monitor System.

Pressure Ports

The system requires connecting the pressure ports on the Cook Flow Monitor to the pressure ports located on the fan labeled Piezometric Connections. (See Fig. 1) Follow these guidelines while making the connections.

- The connections require the use of 1/4" OD tubing. The connection at the Flow Monitor utilizes barb fittings on the exterior of the enclosure while the connection at the fan uses push-to-connect fittings located on the exterior of the fan near the inlet.
- Connections are labeled HIGH and LOW on the monitor as well on the fan. See Figures 2 and 3.
- Keep the length of tubing between the pressure ports to 50 feet (15m) or less.
- Ensure that there are no kinks along the length of the pressure tube.
- Do not pinch the pressure tube.
- Form a drip loop in the tubing as it enters the flow monitor. This avoids condensation build up inside the pressure tube and damage to the device's sensor.
- Drip loop should be at least 1" (25mm) greater than highest measured pressure (as measured in inches, w.c.) factoring in error conditions in the system. (Example: If pressure being measured is 4" w.c., then the bottom of drip loop should be 5" or more below the high pressure port.)

Figure 1

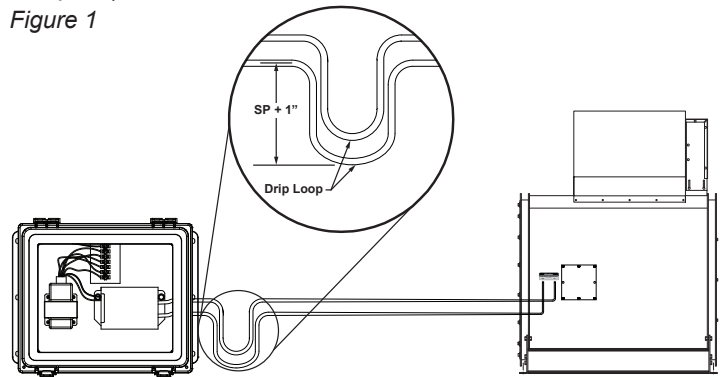



Figure 2 Fan Label



Figure 3 Flow Monitor Label



Programming

Press the menu button  to enter programming mode. Once in programming mode, the menu button always advances to the next step. Use the arrow keys to change the value of the current menu item. Press and hold an arrow key to scroll rapidly through the values. Changes are automatically saved. The Cook Flow Monitor automatically exits the menu after 20 seconds of inactivity.

Step	Display	Description	Values
1	Password	Enables programming changes	000111
2	Units	Selects the displayed and configuration units	Imperial (CFM and inches of w.c) Metric (LPS and kPa)
3	Internal Pressure External Pressure	Selects which pressure sensor is active Internal pressure: will use the internal sensor inside the flow monitor. External Pressure: will use an external pressure sensor connected to the Flow Monitor common and external input terminal #6.	Internal External
4	External Sensor Pressure Range	Selects the external pressure sensor range Valid only if Step 2 is configured to external pressure.	Imperial: Default: 1" Range: 1 to 50" Increment: 1" Metric: Default: 0.25 kPa Range: 0.25 kPa to 12.50 kPa Increment: 0.25 kPa
5	Fan Type Select	Sets the fan type to be used	<ul style="list-style-type: none"> • CA/CF/CP/SQ/TCN/CIC (Default) • CA DWDI • PLC • QMX
6	Fan Size Select	Sets the fan size The available fan size table is dependent on the fan type selected in step 5	Select size from menu using up and down menu buttons.
7	K Factor	Manual K Factor Will disable any fan selection on parameter 5 and 6 to allow operation with other fan types	0 to 100000 Entered one value at a time Ex: 022360
8	Airflow Offset	Manual offset of the sensor to adjust airflow display when adjusting readout to match some other measurement. Adjusted directly in + or -.	Default: 0% Range: -10% to 10% Increment: 1%
9	Sensor Sampling Filtration	Used to stabilize the airflow and pressure output and display	Default: 1 sample per second Range: 0 (No filtration) to 10 samples per second Increment: 1
10	Contact On:	Not Used	
11	Contact Off:	Not Used	
12	Altitude	Adds a compensation factor for the barometric pressure due to altitude	Imperial: Default: 1' Range: 0 to 10000' Increment: 1' Metric: Default: 0 Meter Range: 0 to 3000 Meters Increment: 1
13	Display mode	Selects to display only the airflow or both the airflow and dynamic pressure in a scrolling mode Dynamic Pressure is not fan static pressure. Used for diagnostics only.	Default: Airflow only Scroll: Both

Wiring

⚠ WARNING

Electrical Shock Hazard:

Fans should be installed and serviced by qualified personnel only.

Disconnect electric power before working on unit (prior to removal of guards or entry into access doors).

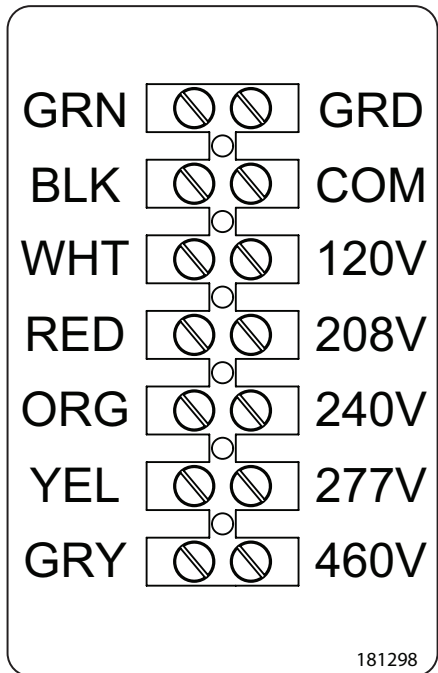
Follow proper lockout/tag out procedures to ensure the unit cannot be energized while being installed or serviced.

A disconnect switch should be placed near the fan in order that the power can be swiftly cut off, in case of an emergency and in order that maintenance personnel are provided complete control of the power source.

Grounding is required. All field-installed wiring must be completed by qualified personnel. All field installed wiring must comply with National Electric Code (NFPA 70) and all applicable local codes.

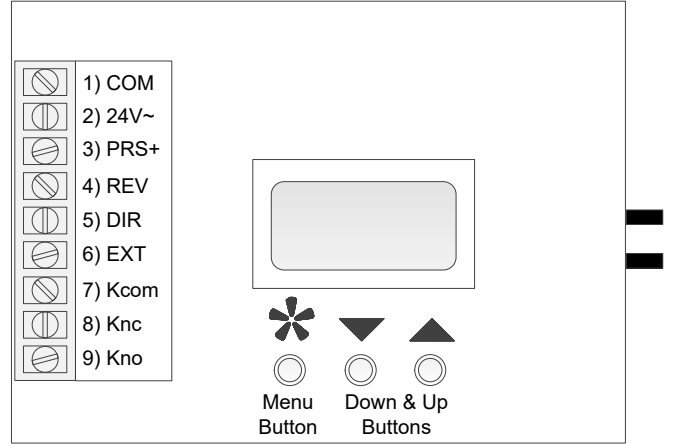
Failure to follow these instructions could result in death or serious injury.

Connect input power to the corresponding locations on the terminal block located inside enclosure. The Label shown below is directly under the terminal block.



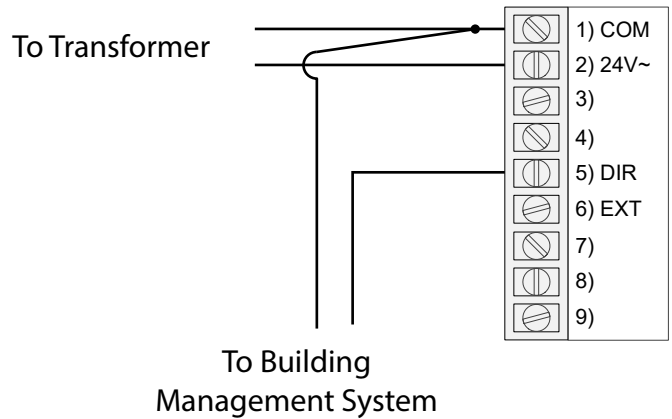
For an output signal back to the building management system or an external pressure sensor connect wires to the Cook Flow Monitor according to the following diagrams.

Monitor Terminals

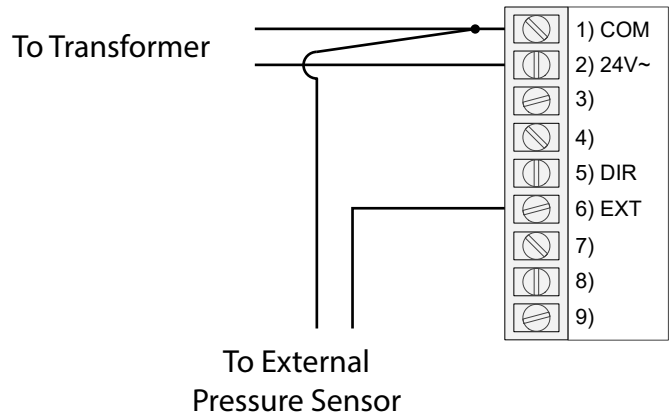


- 1) Common
- 2) 24 Vac power supply
- 3) Not Used
- 4) Not used
- 5) Main pressure feedback output 0-10 Vdc (Direct acting output)
- 6) External pressure sensor input 0-10 Vdc
- 7) Not used
- 8) Not used
- 9) Not used

Building Management System



External Pressure Sensor



Troubleshooting

PROBLEM AND POTENTIAL CAUSE

CFM reads Zero

Cause:

- Low Side tubing is disconnected, or blocked
- Low Side has kinks or punctures in the tubing
- Low Side and High Side tubes are reversed
- Wrong sensor selected (Internal/External)

Corrective Action:

- Ensure that the tubing is properly connected and does not have any kinks, punctures or blockages between the Pressure Controller and the pressure ports.
- Verify the High Side and Low Side tubing between the Flow Monitor and the pressure ports are correctly hooked up.
- Ensure that correct sensor(Internal/External) is selected in the menu.

CFM reads Low

Cause:

- Kinks or punctures in the tubing
- The wrong unit and/or size selected in the menu
- The Altitude is entered incorrectly.

Corrective Action:

- Verify and ensure that there are no kinks or punctures in the tubing between the Flow Monitor and the pressure ports.
- Verify the proper unit and/or size is selected in the menu
- Ensure that the Altitude is entered correctly.
- Adjust the offset parameter

CFM reads High

Cause:

- High Side tubing is disconnected, or blocked
- High Side has kinks or punctures in the tubing
- The wrong unit and/or size selected in the menu
- The Altitude is entered incorrectly.

Corrective Action:

- Ensure that the tubing is properly connected and does not have any kinks, punctures or blockages between the Flow Monitor and the pressure ports.
- Verify the proper unit and/or size is selected in the menu
- Ensure that the Altitude is entered correctly.
- Adjust the offset parameter

Limited Warranty

Loren Cook Company warrants that your Loren Cook fan was manufactured free of defects in materials and workmanship, to the extent stated herein. For a period of one (1) year after date of shipment, we will replace any parts found to be defective without charge, except for shipping costs which will be paid by you.

This warranty is granted only to the original purchaser placing the fan in service.

This warranty is void if the fan or any part thereof has been altered or modified from its original design or has been abused, misused, damaged or is in worn condition or if the fan has been used other than for the uses described in the company manual. This warranty does not cover defects resulting from normal wear and tear.

To make a warranty claim, notify Loren Cook Company, General Offices, 2015 East Dale Street, Springfield, Missouri 65803-4637, explaining in writing, in detail, your complaint and referring to the specific model and serial numbers of your fan. Upon receipt by Loren Cook Company of your written complaint, you will be notified, within thirty (30) days of our receipt of your complaint, in writing, as to the manner in which your claim will be handled. If you are entitled to warranty relief, a warranty adjustment will be completed within sixty (60) business days of the receipt of your written complaint by Loren Cook Company.

This warranty gives only the original purchaser placing the fan in service specifically the right. You may have other legal rights which vary from state to state.

For fans provided with motors, the motor manufacturer warrants motors for a designated period stated in the manufacturer's warranty. Warranty periods vary from manufacturer to manufacturer. Should motors furnished by Loren Cook Company prove defective during the designated period, they should be returned to the nearest authorized motor service station. Loren Cook Company will not be responsible for any removal or installation costs.



LOREN COOK COMPANY

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