Installation and Setup Guide

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INSTALLATION GUIDE

FMS-1630L

General Specifications

Electrical

Optional External Remote Sensor Distance ................. Up to 4000 feet
Optional External Remote Sensor Wiring 18-22 AWG, twisted shielded copper pair
Power Supply ........................................ Class2, 24 VAC/DC ±10%, 10 VA
(Step-Down Isolation Transformer provided, 120 to 24 VAC, 60 Hz.)
System Accuracy

<table>
<thead>
<tr>
<th>Pressure Range</th>
<th>Accuracy @ 72°F ± 5°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - .0100</td>
<td>± .0011&quot; WC</td>
</tr>
<tr>
<td>0 - .0600</td>
<td>± .0005&quot; WC</td>
</tr>
<tr>
<td>0 - .1000</td>
<td>± .0011&quot; WC</td>
</tr>
<tr>
<td>0 - .2000</td>
<td>± .0022&quot; WC</td>
</tr>
</tbody>
</table>

NIST Traceable / Individual certification available as option

4 Analog Inputs ........................................ 4-20mA, 0-5VDC or 0-10VDC
4 Analog Outputs ........................................ 0-5VDC or 0-10VDC
4 Digital Inputs ........................................ 0-5 or 0-24 VDC
4 Relay Outputs ........................................ 2A@24VDC, 2A@120VAC
Input Impedance ........................................... 10k - 0 Ω
Output Impedance .......................................... 0 - 10k

Mechanical

LCD Display ............................................. 4-Line x 16 characters per line
LCD Character Height ...................................... 0.19 inches

Dimensions

FMS-1630L Housing ................................. 4.0”W x 6.0”H x 2.0”D
Optional External Remote Sensor Housing ........... 2.0”W x 3.0”H x 2.7”D
Stainless Steel Cover Plate for Flow Tube ............ 2.7”W x 4.5”H x 0.2”D
Stainless Steel Cover Plate for Remote Sensor ...... 2.7”W x 4.5”H x 0.2”D
Shipping Weight
FMS-1630L w/ Flow Tube Cover Plate ................. Approximately 3.5 lb
FMS-1630L w/ Optional External Remote Sensor .... Approximately 4.0 lb

Mounting
FMS-1630L ........................................ Surface
Flow Tube Cover Plate .................................. Rush
Optional External Remote Room Pressure Sensor .... Rush

Environmental

Operating Temperature ................................ 32° to 125° F Operating
Operating Humidity .................................... 10% - 95% RH, Non-condensing

No special ventilation requirements are required for the proper operation of this product.

Using this product in a manner not specified by the manufacturer may result in injury or hazardous conditions and should be avoided.

Part Numbers

FMS-1630L - [-] - [-] - [-]

Analog Output
1 = 0-5 VDC (> 500 Ω)
2 = 0-10VDC (> 1K Ω)

Pressure Range
001 = -0.0100 to +0.0100” WC (-2.4910 to +2.4910 Pa)
005 = -0.0500 to +0.0500” WC (-12.46 to +12.46 Pa)
010 = -0.1000 to +0.1000” WC (-24.91 to +24.91 Pa)
020 = -0.2000 to +0.2000” WC (-49.82 to +49.82 Pa)

Custom Ranges Available

Internal or Remote Sensor
0 = Standard Internal Sensor
1 = Optional External Remote Sensor

Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
The TRIATEK FMS-1630L Series Isolation Monitor is an ultra-sensitive instrument used to control and/or monitor air pressure in hospital rooms, labs, and clean rooms. This unit is a precision measuring system capable of measuring and displaying air pressures down to 0.0001" WC. It can be used to control pressures down to 0.001" WC. Features of the unit include:

- digital display of pressure with a programmable descriptor
- six-key touchpad for convenient operation
- three LED indicator lights that show room status at a glance
- audible and visual alarm annunciation
- Four relay outputs for transmitting alarm conditions to a remote location such as a central monitoring station
- auxiliary analog inputs for use with optional sensors
- analog outputs used in control applications
- password protection of programmed setup
- keylock switch for isolation select protection
- optional LON communications.

The FMS-1630L is equipped with a 4-line 16-character per line alphanumeric LCD Display and can be wiped clean using a soft cloth without the use of harsh chemicals. No decontamination requirements are required for the proper operation of this product.

There are three Room Status lights to indicate “Normal” when pressure is within defined limits, “Caution” when pressure is nearing an out-of-limits condition, and “Alarm” when pressure is outside defined acceptable limits. The pressure ranges for these conditions are easily set by the user for the specific installation when necessary. The status lights provide overview of room pressure conditions at a glance.

Alarm conditions can be defined by the user, in terms of desired pressure settings for the room being monitored. When an alarm condition occurs, it can be annunciated in three user-definable ways: 1) on the display, 2) with an audible alarm, and 3) transmitted via contacts to a remote monitoring station and over network. The alarm can be set to automatically reset when the unit has sensed that the room pressure has returned to proper limits, or it may be set to remain on until manually reset. In either case, the attendant can mute the audible alarm by pressing the Silence Alarm touchpad.

The FMS-1630L provides four Relay outputs that can be used for remote alarm annunciation or pilot control functions. The operation of each output can be configured by the user to define the exact room air pressure values above and below which the output will operate. Delay times before activation can be specified to minimize nuisance activation.

In many installations, it is important to have other room variables such as temperature or relative humidity to be displayed along with room pressure. The FMS-1630L provides for this by means of Additional Analog Inputs which can be configured for 4-20 ma current or for voltage input signals. The input can be scaled as needed to display correct values, and a suitable descriptor can be applied.

The FMS-1630L provides Analog Outputs which can be set up for voltage. It can be programmed to be proportional output for providing a linear signal to an automation system, or programmed for PID floating point output for direct control of damper actuators, speed drives, etc.

The user can set up a Password in the programming sequence to protect against unauthorized or casual access to the FMS-1630L programmed variables.

Room pressure selection of Positive, Negative, or No Isolation is set using a Keylock Switch.

An LON Communications Interface enables the unit to communicate room status information to the building automation system.
Mounting/Wiring

FMS-1630L with Internal Sensor

Introduction:

FMS-1630L display/processor units having an internal sensor should be installed outside of the room on the corridor wall. Sensor tubing should be between this corridor and isolation room in the most direct and shortest path.

The FMS-1630L is calibrated with settings programmed in the factory according to the customer specifications (provided by the model number). The user can change the settings by using the instructions provided in the User/Programming section of this manual. This product should be calibrated periodically to ensure the accuracy of the measurement readings and overall performance.

The electrical connections to the FMS-1630L are made via a convenient removable terminal block as shown on page 10. All wiring should conform to the Local Regulations and National Electrical Code. Take care not to run sensor wiring in the same conduit as line voltage or other conductors that supply highly inductive loads such as generators, motors, solenoids, contactors, etc. Use 22 AWG or larger.

Suggestion:

When mechanical and electrical installations are complete, apply power to unit and observe display. The room pressure should be indicated correctly for whatever it is. If parameters need to be changed, check the table of contents to locate the specific item of interest.
Mounting/Wiring

**FMS-1630L with Internal Sensor**

Mounting Steps:

1. Choose a location free of airflow obstructions, and minimal air turbulence. The installation should also avoid stagnant air or “short circuit-ing” of the supply air to the exhaust. Typically, the FMS should be located at eye level. It should not be mounted over the door since the LCD display cannot be read from that angle and since the alarm annunciator SILENCE touchpad cannot be reached to silence an alarm if the local alarm is enabled.

2. Remove the front cover from the base. Use the base as a template to mark the wall for the four mounting holes, wire conduit hole and the pressure tube (see page 9).

3. Run the conduit and all wiring according to local regulations and National Electrical Code. IMPORTANT: Use the 24 VAC stepdown isolation transformer, provided with the unit, to power the FMS 1630; this will prevent ground loop and other problems that might otherwise be encountered.

4. Drill a 3/4” hole through the walls for the sensor tube fitting. Refer to page 9. Typically, the hole on the opposite side should be either level or below the sensor clearance hole on the FMS side to reduce the potential for liquid from entering the sensor line.

5. Pull the air tube through the wall. Slide the hose over a long thin screwdriver or similar rod to help pull the tube through the wall.

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Mounting/Wiring

Display/Processor Unit with Electrical Conduit

*Note:
Flow tube must not have bends that can close off the air flow.
Mounting/Wiring

Internal Sensor

The FMS-1630L is calibrated with settings programmed in the factory according to the customer specifications (provided by the model number). The user can change the settings by using the instructions provided in the Programming section of this manual, beginning on page 28.
Mounting/Wiring

Remote Sensor Option

Introduction

FMS-1630L's ordered with a remote sensor have no internal sensor; that is, no sensor is included in the display case. You must install a remote sensor unit in the wall between the isolation room and the adjoining corridor. Port P1 must be oriented towards the isolation room and Port P2 toward the corridor. Please see illustration on page 12. With this sensor orientation a positive pressure value indicates that the isolation room is positive with respect to the corridor. A single pair (two conductor) shielded cable must be connected between the remote sensor and the display processor unit. Maximum length of this cable is 4000 feet. The display unit can be installed outside the room, at the nurses station, in the engineering office, or at any other location as needed.

Mounting Steps:

1. Cut opening in the wall of the isolation room to receive the mounting enclosure for the remote sensor electronics. Nominal hole dimensions are 3 ⅛" h x 2" w.
2. Drill a 7/16" hole through the opposite wall for the flow tube as shown.
3. Bring the 2-conductor signal wire through the cut-out.
4. Knock out the back and one bottom knockout, then with the signal wire pulled through the bottom hole into the box. Mount the enclosure box in the opening provided and secure with screw and anchors. Seal around the edges of the box with UL Classified Fire Sealant.
5. Push a length of flow tube through the back hole on through the 7/16" hole in the opposite wall.
6. Attach the flow tube to the sensor port, then push the tube and sensor module into place and secure to the mounting enclosure with two 6-32 x 3/4 screws supplied.
7. Install the louvered cover plate.
8. On the opposite side (corridor) attach the flow tube to the barbed fitting of the flow tube mounting plate.
9. Press the mounting plate into place, allowing the excess tube length to go into the wall space. Secure with the screws and anchors.
10. Install the louvered cover plate.
11. At the FMS-1630L connect the two leads from the remote sensor to the terminals marked +V "+" and A11 "-". Remote Sensor (+) goes to terminal +V (+) and Remote sensor IN (-) goes to terminal A11 (-). Install jumper on pin 1 JP6 and JP3 see diagram on page 14. [If not installed at the factory]
Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.

**Remote Sensor Option** (must be specified at time of purchase)

*Note:
When Flow Tube mounting plate is located directly opposite the sensor, Flow Tubing must be cut as short as possible to prevent a kink from forming after installation.

External Remote Sensor Installation Detail
(Side View)
Mounting/Wiring

Remote Sensor Option

**Isolation Room**

- Stainless Steel Mounting Plate
- Louvered Cover Plate
- Gasket
- Sensor Port P1
- Sensor Port P2
- Plug-in Terminal Block for connection of transmitter to FMS-1600 Series
- Use 18-22 AWG twisted shielded copper pair (up to 4000 feet)

**Corridor**

- UL Classified Fire Sealant
- Apply around tube and between stainless steel plate and wall to seal unit penetration
- Stainless Steel Flow Tube Mounting Plate

Remote Sensor Installation Detail
(Bottom View)
Remote Sensor Connector Strip

The electrical connections to the FMS-1630L are made via a convenient removable terminal block as shown below. All wiring should conform to the Local Regulations and National Electrical Code. Take care not to run Sensor wiring in the same conduit as line voltage or other conductors that supply highly inductive loads such as generators, motors, solenoids, contactors, etc. Use 22 AWG or larger.

Wiring Guide Legend

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>No Connection to Field Wiring</td>
</tr>
<tr>
<td></td>
<td>Field Wiring w/space for Number</td>
</tr>
<tr>
<td></td>
<td>Internal Wiring</td>
</tr>
<tr>
<td></td>
<td>Screw Terminal</td>
</tr>
<tr>
<td></td>
<td>Air Flow To and From Unit</td>
</tr>
<tr>
<td></td>
<td>Between Room and Corridor</td>
</tr>
</tbody>
</table>

Remote Sensor Connector

Removable Connector
for easy installation of field wiring.

Note:
The FMS remote sensor is an option which must be specified at time of purchase from factory.

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## Function Descriptions

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUX Power Output</td>
<td>Power supply outputs used for power auxiliary devices. Each is supply limited to 100 ma.</td>
</tr>
<tr>
<td>LON Communications</td>
<td>LON FTT-10A Free Topology Network building automation system can access the status and the configuration of the unit. Also used by configuration software to configure unit.</td>
</tr>
<tr>
<td>Analog Output</td>
<td>Unit has 4 Analog Outputs which can be configured for 0-5 VDC or 0-10VDC.</td>
</tr>
<tr>
<td>Analog Input</td>
<td>Unit has 4 Analog Inputs which can be configured for 4-20 mA, 0-5VDC, or 0-10VDC.</td>
</tr>
<tr>
<td>Power</td>
<td>The FMS-1630L Series can be powered by either 24 VAC or 24 VDC. A 120 VAC to 24 VAC Step Down Isolation Transformer is provided and recommended. This power must be from a Class 2 supply only.</td>
</tr>
<tr>
<td>Digital Input</td>
<td>The unit has 4 Digital Inputs with selectable pull-up voltages of 0V, +5V and +18V.</td>
</tr>
<tr>
<td>Relay Output</td>
<td>The unit has 4 SPDT Relay outputs with normally open contacts.</td>
</tr>
</tbody>
</table>

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Mounting / Wiring Internal Sensor
Analog Output to Electric Damper Actuator

CONNECTIONS FOR POWERED OUTPUT

Analog Input
AI 1
AI 2
AI 3
AI 4

Analog Output
AO 1
AO 2
AO 3
AO 4

Jumper Setting

Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
Mounting / Wiring Internal Sensor

Analog Output to Pneumatic Damper Actuator

Connections for Powered Output

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<td>-</td>
<td>Field Wiring w/space for Number</td>
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<tr>
<td>-</td>
<td>Internal Wiring</td>
</tr>
<tr>
<td>-</td>
<td>Screw Terminal</td>
</tr>
<tr>
<td>Air Flow To and From Unit Between Room and Corridor</td>
<td></td>
</tr>
</tbody>
</table>

Analog Input 0-5v (JP7)

<table>
<thead>
<tr>
<th>AI</th>
<th>4</th>
<th>3</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI 4</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>AI 3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AI 2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Analog Input 4-20mA (JP6)

<table>
<thead>
<tr>
<th>AI</th>
<th>4</th>
<th>3</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI 4</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>AI 3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AI 2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Analog Input 0-10v (JP7)

<table>
<thead>
<tr>
<th>AI</th>
<th>4</th>
<th>3</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI 4</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>AI 3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AI 2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Each Analog Input or Output value can be set independent of one another.

Example:
AI 1 can be set to 0-10v jumper ON (JP7 PIN 1),
AI 2 can be set to 0-5v jumper OFF (JP7 PIN 2),
AI 3 can be set to 4-20mA jumper ON (JP7 PIN 3) and jumper OFF (JP7 PIN 1),
AI 4 can be set to 0-10v jumper ON (JP7 PIN 1),
AI 5 can be set to 0-5v jumper OFF (JP7 PIN 2)

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**Mounting / Wiring - Internal Sensor**

Analog Output to Variable Speed Drive

### Wiring Guide Legend

<table>
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<tbody>
<tr>
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<td>Field Wiring</td>
<td>Field Wiring w/ space for Number</td>
</tr>
<tr>
<td>Internal</td>
<td>Internal Wiring</td>
</tr>
<tr>
<td>Screw Terminal</td>
<td>Screw Terminal</td>
</tr>
<tr>
<td>Air Flow To and From Unit</td>
<td>Air Flow To and From Unit Between Room and Corridor</td>
</tr>
</tbody>
</table>

### Jumper Setting

**Analog Input 0-5v (JP7)**

<table>
<thead>
<tr>
<th>AI</th>
<th>Jumper Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>JUMPER ON</td>
</tr>
<tr>
<td>3</td>
<td>JUMPER OFF</td>
</tr>
</tbody>
</table>

**Analog Input 4-20mA (JP6)**

<table>
<thead>
<tr>
<th>AI</th>
<th>Jumper Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>JUMPER ON</td>
</tr>
<tr>
<td>3</td>
<td>JUMPER OFF</td>
</tr>
</tbody>
</table>

**Analog Output 0-5v (JP5)**

<table>
<thead>
<tr>
<th>AO</th>
<th>Jumper Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>JUMPER ON</td>
</tr>
<tr>
<td>3</td>
<td>JUMPER OFF</td>
</tr>
</tbody>
</table>

**Analog Output 0-10v (JP5)**

<table>
<thead>
<tr>
<th>AO</th>
<th>Jumper Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>JUMPER ON</td>
</tr>
<tr>
<td>3</td>
<td>JUMPER OFF</td>
</tr>
</tbody>
</table>

Note: Each Analog Input or Output value can be set independent of one another.

---

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Mounting / Wiring Remote Sensor
Analog Output to Modulated Air Controller

**Wiring Guide Legend**

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<tr>
<td></td>
<td>Air Flow To and From Unit Between Room and Corridor</td>
</tr>
</tbody>
</table>

**Jumper Setting**

- **Analog Input 0-5v (JP7)**
  - AI 4: 4
  - AI 3: 2
  - AI 2: 1
  - AI 1: 1

- **Analog Input 4-20mA (JP6)**
  - AI 4: 4
  - AI 3: 2
  - AI 2: 1
  - AI 1: 1

- **Analog Output 0-5v (JP5)**
  - AO 4: 4
  - AO 3: 2
  - AO 2: 1
  - AO 1: 1

- **Analog Output 0-10v (JP5)**
  - AO 4: 4
  - AO 3: 2
  - AO 2: 1
  - AO 1: 1

*Note: Each Analog Input or Output value can be set independent of one another. Example: AI 1 can be set to 0-5v jumper OFF (JP7 PIN 1) AI 2 can be set to 0-10v jumper ON (JP7 PIN 2) AI 3 can be set to 4-20mA jumper ON (JP6 PIN 3) and jumper OFF (JP7 PIN 3) AO 1 can be set to 0-10v jumper ON (JP5 PIN 1) AO 2 0-5v can be set to 0-5v jumper OFF (JP5 PIN 2)*
Mounting / Wiring

Analog Input to Remote Pressure Sensor with Internal Sensor 0-10V Out

Wiring Guide Legend

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Jumper Setting

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<td>AO 2</td>
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<tr>
<td>AI 2</td>
<td>1</td>
<td>AI 2</td>
<td>1</td>
<td>AO 1</td>
<td>1</td>
<td>AO 1</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: 4-20mA can only be used if the corresponding JP7 Analog Input Jumper is set to OFF.

Example:
- AI 1 can be set to 0-5v jumper OFF (JP7 PIN 1)
- AI 2 can be set to 0-10v jumper ON (JP7 PIN 2)
- AI 3 can be set to 4-20mA jumper ON (JP6 PIN 3) and jumper OFF (JP7 PIN 3)
- AO 1 can be set to 0-10v jumper ON (JP5 PIN 1)
- AO 2 0-5v can be set to 0-5v jumper OFF (JP5 PIN 2)
Wiring Guide Legend

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>No Connection to Field Wiring</td>
</tr>
<tr>
<td>~</td>
<td>Field Wiring w/ space for Number</td>
</tr>
<tr>
<td></td>
<td>Internal Wiring</td>
</tr>
<tr>
<td></td>
<td>Screw Terminal</td>
</tr>
<tr>
<td>←</td>
<td>Air Flow To and From Unit Between Room and Corridor</td>
</tr>
</tbody>
</table>

4-20mA OUT

Pressure Sensor

Analog Input to Remote Pressure Sensor with Internal Sensor

4-20mA Out

Jumper Setting

Analog Input

<table>
<thead>
<tr>
<th>Analog Input</th>
<th>0-5v (JP7)</th>
<th>0-10v (JP7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI 4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>AI 2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>AI 1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Analog Input

<table>
<thead>
<tr>
<th>Analog Input</th>
<th>4-20mA (JP6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI 4</td>
<td>4</td>
</tr>
<tr>
<td>AI 2</td>
<td>2</td>
</tr>
<tr>
<td>AI 1</td>
<td>1</td>
</tr>
</tbody>
</table>

Analog Input

<table>
<thead>
<tr>
<th>Analog Input</th>
<th>0-5v (JP5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AO 4</td>
<td>4</td>
</tr>
<tr>
<td>AO 3</td>
<td>3</td>
</tr>
<tr>
<td>AO 2</td>
<td>2</td>
</tr>
<tr>
<td>AO 1</td>
<td>1</td>
</tr>
</tbody>
</table>

Analog Input

<table>
<thead>
<tr>
<th>Analog Input</th>
<th>0-10v (JP5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AO 4</td>
<td>4</td>
</tr>
<tr>
<td>AO 3</td>
<td>3</td>
</tr>
<tr>
<td>AO 2</td>
<td>2</td>
</tr>
<tr>
<td>AO 1</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: 4-20mA can only be used if the corresponding JP7 Analog Input Jumper is set to OFF.

Example:

- AI 4 can be set to 0-5v jumper OFF (JP7 PIN 1)
- AI 2 can be set to 0-10v jumper ON (JP7 PIN 2)
- AI 1 can be set to 4-20mA jumper ON (JP7 PIN 3) and jumper OFF (JP7 PIN 2)
- AO 4 can be set to 0-5v jumper ON (JP5 PIN 1)
- AO 2 0-5v can be set to 0-5v jumper OFF (JP5 PIN 2)
Mounting / Wiring

Analog Input to 2 Remote Pressure Sensors

0-10V Out

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>No Connection to Field Wiring</td>
</tr>
<tr>
<td>-</td>
<td>Field Wiring w/ space for Number</td>
</tr>
<tr>
<td>-</td>
<td>Internal Wiring</td>
</tr>
<tr>
<td>-</td>
<td>Screw Terminal</td>
</tr>
<tr>
<td>-</td>
<td>Air Flow To and From Unit Between Room and Corridor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Jumper Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog Input 0-5v (JP7)</td>
</tr>
<tr>
<td>AI 4 4</td>
</tr>
<tr>
<td>AI 3 3</td>
</tr>
<tr>
<td>AI 2 2</td>
</tr>
<tr>
<td>AI 1 1</td>
</tr>
<tr>
<td>Note: 4-20mA can only be used if the corresponding JP7 Analog Input Jumper is set to OFF. Example: AI 1 can be set to 0-5V jumper OFF (JP7 PIN 1)</td>
</tr>
</tbody>
</table>

| Analog Output 0-10v (JP5) |
| AO 4 4 |
| AO 3 3 |
| AO 2 2 |
| AO 1 1 |
| Note: Each Analog Input or Output value can be set independent of one another. Example: AO 1 can be set to 0-10v jumper OFF (JP5 PIN 1) AO 2 0-5v can be set to 0-10v jumper OFF (JP5 PIN 2) |

0-10V OUT

Pressure Sensor 2

IN

Pressure Sensor 1

IN

AIRFLOW TO AND FROM UNIT BETWEEN ROOM AND CORRIDOR

Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
Mounting / Wiring

Analog Input to 2 Remote Pressure Sensors
4-20mA Out

Wiring Guide Legend

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>No Connection to Field Wiring</td>
</tr>
<tr>
<td></td>
<td>Field Wiring w/ space for Number</td>
</tr>
<tr>
<td></td>
<td>Internal Wiring</td>
</tr>
<tr>
<td></td>
<td>Screw Terminal</td>
</tr>
<tr>
<td></td>
<td>Air Flow To and From Unit Between Room and Corridor</td>
</tr>
</tbody>
</table>

Jumper Setting

<table>
<thead>
<tr>
<th>Analog Input 0-5v (JP7)</th>
<th>Analog Input 4-20mA (JP6)</th>
<th>Analog Output 0-5v (JP5)</th>
<th>Analog Output 0-10v (JP5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI 4 4 4</td>
<td>AI 4 4 4</td>
<td>AO 4 4 4</td>
<td>AO 4 4 4</td>
</tr>
<tr>
<td>AI 2 2 2</td>
<td>AI 2 2 2</td>
<td>AO 2 2 2</td>
<td>AO 2 2 2</td>
</tr>
<tr>
<td>AI 1 1 1</td>
<td>AI 1 1 1</td>
<td>AO 1 1 1</td>
<td>AO 1 1 1</td>
</tr>
</tbody>
</table>

Note: 4-20mA can only be used if the corresponding JP Analog Input Jumper is set to OFF.

Example:

AI 1 can be set to 0-5v jumper OFF (JP7 PIN 1)
AI 2 can be set to 0-10v jumper ON (JP7 PIN 2)
AI 3 can be set to 4-20mA jumper ON (JP6 PIN 3) and jumper OFF (JP7 PIN 3)
AO 1 can be set to 0-10v jumper ON (JP5 PIN 1)
AO 2 can be set to 0-5v jumper OFF (JP5 PIN 2)
Mounting / Wiring

Analog Input to Temperature Sensor

Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
A switch having normally-open or normally-closed contacts may be used with the FMS-1630L to serve as a timed alarm buzzer inhibit, when the room door has been opened. An optional door switch (part number SWD-100) may be purchased from TRIATEK for this specific purpose.

Door switch connections are located inside the front cover of the FMS-1630L. After the switch has been installed at the door and connected to the FMS unit, its operation may be programmed as described on page 44 of this manual.

Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
Mounting / Wiring

Digital Input to Flow Switch

Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.

Wiring Guide Legend

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>Internal Wiring</td>
</tr>
<tr>
<td></td>
<td>Screw Terminal</td>
</tr>
<tr>
<td></td>
<td>Air Flow To and From Unit Between Room and Corridor</td>
</tr>
</tbody>
</table>
Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.

Mounting / Wiring

Digital Input to Occupancy Sensor

JP4 is set at factory to +5 setting. User can change voltage setting to suit application requirement.

**Wiring Guide Legend**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>No Connection to Field Wiring</td>
</tr>
<tr>
<td></td>
<td>Field Wiring w/space for Number</td>
</tr>
<tr>
<td></td>
<td>Internal Wiring</td>
</tr>
<tr>
<td></td>
<td>Screw Terminal</td>
</tr>
<tr>
<td></td>
<td>Air Flow To and From Unit Between Room and Corridor</td>
</tr>
</tbody>
</table>
Mounting / Wiring

Relay Output to Alarm

NOTE: Relay 3 & 4 Share a common contact terminal block pin, (C3/4).

Wiring Guide Legend

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>No Connection to Field Wiring</td>
</tr>
<tr>
<td></td>
<td>Field Wiring w/space for Number</td>
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<td></td>
<td>Internal Wiring</td>
</tr>
<tr>
<td></td>
<td>Screw Terminal</td>
</tr>
<tr>
<td></td>
<td>Air Flow To and From Unit</td>
</tr>
<tr>
<td></td>
<td>Between Room and Corridor</td>
</tr>
</tbody>
</table>

Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
Mounting / Wiring

Relay Output 1

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>No Connection to Field Wiring</td>
</tr>
<tr>
<td></td>
<td>Field Wiring w/space for Number</td>
</tr>
<tr>
<td></td>
<td>Internal Wiring</td>
</tr>
<tr>
<td></td>
<td>Screw Terminal</td>
</tr>
<tr>
<td></td>
<td>Air Flow To and From Unit Between Room and Corridor</td>
</tr>
</tbody>
</table>

Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
Wiring

Power

Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
Mounting / Wiring

*Note:
This product should be installed with the manufacturer provided isolated power supply and connected to an electrical circuit protected by a minimum 20A circuit breaker. This circuit breaker should be mounted in an approved electrical enclosure located separately from this product.
Communications

Wiring

FMS1630L CONTROLLER

Wiring Guide Legend

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>No Connection to Field Wiring</td>
</tr>
<tr>
<td></td>
<td>Field Wiring w/Space for Number</td>
</tr>
<tr>
<td></td>
<td>Internal Wiring</td>
</tr>
<tr>
<td></td>
<td>Screw Terminal</td>
</tr>
<tr>
<td></td>
<td>Air Flow To and From Unit Between Room and Corridor</td>
</tr>
</tbody>
</table>

Free Topology Cable Specifications

<table>
<thead>
<tr>
<th>Cable Type</th>
<th>Maximum Node-to-Node Distance (FT)</th>
<th>Maximum Total Wire Length (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belden 85102</td>
<td>1640 ft</td>
<td>1640 ft</td>
</tr>
<tr>
<td>Belden 8471</td>
<td>1312 ft</td>
<td>1640 ft</td>
</tr>
<tr>
<td>Level IV, 22AWG</td>
<td>1312 ft</td>
<td>1640 ft</td>
</tr>
<tr>
<td>JY (50) Y x260.8</td>
<td>1049 ft</td>
<td>1640 ft</td>
</tr>
<tr>
<td>TIA Category 5</td>
<td>820 ft</td>
<td>1476 ft</td>
</tr>
</tbody>
</table>

Refer to www.lonmark.org for more details.

Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
LON WIRING INSTRUCTIONS
Communications connections require that the FMS-1630L units be connected with twisted pair communication cable to each unit in the network. The unique network address of each FMS unit is set by a network management tool like LONMAKER.

All wiring must be done in accordance with the NEC as well as regulations of all authorities having jurisdiction, and must conform to applicable codes. When required by code, communications wiring may be installed in conduit of a type designed specifically for this purpose.

WIRE TERMINATIONS
The FMS-1630L is provided with a removable connector block with convenient screw terminals. Make the LON FTT-10 communications connections as follows:

1. Connect a cable lead to the “NT1 -” terminal (#1).
2. Connect a cable lead to the “NT2” terminal (#2)

GUIDELINES FOR WIRING
Following these guidelines will help to keep wiring-related communications problems to a minimum:

1. Do not splice communications cable or wire at any point.
2. Avoid “T-tap” technique of routing/connecting communications cable. Conductor discontinuities produced by such connections may generate RFI or other electromagnetic interference on the communications circuit.
3. Do not use wire nut devices for connecting communications cable.
4. Do not route any part of the communications cable through conduit, junction boxes or other devices containing AC electrical wiring.
5. Do not strap communications cable to any conduit or other device containing AC electrical wiring, or run communications cable parallel to (or against) such devices.

NOTE: AC electrical devices such as transformers, disconnects, fluorescent lighting, motor-controllers, variable frequency drives or other high voltage power sources may generate RF interference which could cause intermittent problems in the communications network.

Typical Network Topologies

- Singly Terminated Bus Topology
- Doubly Terminated Bus Topology
- Loop Topology
- Star Topology
- Mixed Topology

Wire the LON network in accordance with LON network standards.

NOTE: Be sure to observe installation instructions regarding possible need for a termination load or other device that may have to be attached on the end of a run.
FMS-1630L Series QUICK-START

1- AFTER THE FMS-1630L UNIT HAS BEEN INSTALLED, apply power to the unit. Observe the displayed room pressure and verify that it is responding to room pressure. If it is, proceed to step 2 below. If it is not responding, check the installation, especially the flow tube connections (page 9 or 12) and if remote sensor, also check the wiring.

- An indication of a maximum negative number (eg, –.10000) indicates the sensor is not connected.
- An indication close to zero indicates a missing or blocked air tube to the sensor.

2- TEST THE ALARM STATUS INDICATORS. When the unit is indicating response to room pressure, observe that the status lights on the face of the unit are indicating properly.

a- With the room door closed, the displayed room pressure should be .001 "WC or greater (or –.001 or more negative if negatively pressurized).

b- If the pressure is positive, select Positive Isolation mode; if it is negative, select Negative Isolation mode.

c- The green “NORMAL” light should now be on.

d- Open the door to the isolation room. Observe that the displayed pressure drops and the ALARM light comes on.

e- After a delay of several seconds, the audible alarm (buzzer) should sound.
After power-up the FMS-1630L displays the TRIATEK product description for 5 seconds and then brings up the main display. A typical main display is shown below. This display contains the following information:

1) Descriptor - This can be up to eight (8) alpha numeric characters such as “RM 1020”.
2) Type of Isolation selected for the room.
3) The room pressure reading.

Four display channel are available on the FMS-1630L. These can be configured as needed but the factory setting is as shown here.

Channel 1: Blank (not used here)
Channel 2: Descriptor - 8 characters and isolation type selected
Channel 3: Room pressure reading
Channel 4: Blank- (not used here)
**Touchpad Definition and Colors**

Touchpads are used for special functions during programming the FMS-1630L as described below.

<table>
<thead>
<tr>
<th>Touchpad</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROOM SELECT</td>
<td>Used for scrolling through menus, increasing numeric values and entering Setup mode.</td>
</tr>
<tr>
<td>Green Touchpad</td>
<td></td>
</tr>
<tr>
<td>TEST</td>
<td>Used for scrolling through menus, decreasing numeric values and entering Setup mode.</td>
</tr>
<tr>
<td>Yellow Touchpad</td>
<td>Press and release both Green and Yellow touchpads simultaneously to enter the Programming Mode.</td>
</tr>
<tr>
<td>ALARM SILENCE</td>
<td>Used for advancing thru the Setup menu and storing newly-set data.</td>
</tr>
<tr>
<td>Red Touchpad</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Used to enter calibration mode.</td>
</tr>
<tr>
<td>Grey Touchpad</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Used to accelerate setting values when incrementing or decrementing.</td>
</tr>
<tr>
<td>Grey Touchpad</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Not used in programming mode.</td>
</tr>
<tr>
<td>Grey Touchpad</td>
<td></td>
</tr>
</tbody>
</table>
Touchpad Operation

Menu Selections

Touchpads on the FMS-1630L can be used to scroll through a setup menu. This setup menu allows users to define the FMS-1630L personality to match your facilities needs and requirements. Press Room Select to scroll in one direction or Test to scroll in the opposite direction.

To enter the Setup menu simultaneously depress both the Green and Yellow touchpads simultaneously. Three menu items will be displayed at one time. Press either the Green or Yellow touchpads to scroll the menu up or down. When the desired menu item is marked with the arrow press the Red touchpad to select it.

To enter the menu selection depress both Green and Yellow touchpads simultaneously. The LCD will display three menu options at one time. Scroll through the menu using either Green or Yellow touchpads. Use both touchpads simultaneously to enter a selected menu.

Due to continuous product improvement, TRIATEK reserves the right to change product specifications without notice.
Setting Values

Using the Keypad to enter values

Use the ROOM SELECT key to advance the value in one digit increments.

Use the TEST key to decrease the value in one digit increments.

Pressing both NEGATIVE ISOLATION and ROOM SELECT advances the valve in 10 digit increments.

Pressing both NEGATIVE ISOLATION and TEST decreases the valve in 10 digit increments.

Pressing both NO ISOLATION and ROOM SELECT advances the valve in 100 digit increments.

Pressing both NO ISOLATION and TEST decreases the valve in 100 digit increments.

Press the ALARM SILENCE key to accept the selected value.
Programming/User Guide

Setting Password

The Setup menu item “Lock&Rate” allows access to “Password” the user to set a password for protection of the FMS-1630L setup from unauthorized changes. The owner can select a 5 digit numeric value using ROOM SELECT and TEST keys to create a unique password. The password will appear on the display record the password.

CAREFUL: Be sure the responsible person keeps a record of the password, as it will be needed to re-enter the programming mode.

1) From the Main display screen, simultaneously press both the ROOM SELECT and TEST keys to display the Setup menu.
2) Press the ROOM SELECT key until the “Lock&Rate” is marked.
3) Press Alarm Silence to enter the “Lock&Rate” submenus.
4) Press the ROOM SELECT key until the “Password” is marked.
5) Press Alarm Silence to enter this set-up sequence.
6) Use the keypad to set the new password value.* Record the password for future reference.
7) Press Alarm Silence to accept the password and return to the Setup menu.
8) Use ROOM SELECT to select the next item you wish to setup, or select “EXIT” then press Alarm Silence to return to the normal operating display.

*Note: See page 44 for specific instructions on using the keypad to set values.

Exiting Setup

The Setup menu item “Exit” allows the user to return to the main operating display when use of the Setup menu is completed.

1) Press the ROOM SELECT to scroll through the menu and choose “Exit”.
2) Press Alarm Silence to return to the main operating display.

---

**LEGEND**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑️</td>
<td>Press both ROOM SELECT and TEST touchpads simultaneously</td>
</tr>
<tr>
<td>▲</td>
<td>Make selections using ROOM SELECT or TEST</td>
</tr>
<tr>
<td>🔢</td>
<td>Return to Setup menu</td>
</tr>
<tr>
<td>🔢</td>
<td>Possible Selections</td>
</tr>
<tr>
<td>🔸</td>
<td>Alarm Silence Key</td>
</tr>
<tr>
<td>NA</td>
<td>Not Available</td>
</tr>
<tr>
<td>🔢</td>
<td>TEST touchpad</td>
</tr>
<tr>
<td>☑️</td>
<td>Enter value</td>
</tr>
</tbody>
</table>

*1) Use the keypad to select a numeric value.*  
*2) Press the Alarm Silence key to accept the selection.*

*Note: See page 42 for specific instruction on using the keypad to set values.*
The SetPoints1 selection enables the user to adjust occupied and unoccupied face velocity setpoints on the controller. The values used in setting the setpoints are Pa x 10. i.e 152 represents 15.2 Pa.

1) From the Main display screen, simultaneously press both the Room Select and Test touchpads to display the setup menu.

2) Press the Room Select touchpad until “Setpoints1” is marked, then press the ALARM SILENCE touchpad.

3) Use the Room Select or Test touchpad to select “UnOccP-” then press the ALARM SILENCE touchpad.

4) Use keypad to set Unoccupied face velocity setpoint. Use the ALARM SILENCE touchpad to accept the value. The unit will return to the SetPoints1 Menu.

5) Use the Room Select or Test touchpad to select “OccP-” then press the ALARM SILENCE touchpad.

6) Use keypad to set Occupied face velocity setpoint. Use the ALARM SILENCE touchpad to accept the value. The unit will return to the SetPoints1 Menu.

7) Repeat Steps 3 - 6 for each setpoint value see note.

7) Select the ALARM SILENCE touchpad to move back to the main menu.

Notes:
The values used in setting the setpoints are in inches Wg.
The following entries relate to the following parameters;

- **UnOccP+** The Unoccupied Positive Isolation Setpoint
- **UnOccP-** The Unoccupied Negative Isolation Setpoint
- **UnOccP0** The Unoccupied No Isolation Setpoint
- **OccP+** The Occupied Positive Isolation Setpoint
- **OccP-** The Occupied Negative Isolation Setpoint
- **OccP0** The Occupied No Isolation Setpoint

---

**LEGEND**

- Press both ROOM SELECT and TEST touchpads simultaneously
- Make selections using ROOM SELECT or TEST
- Return to Setup menu Possible Selections
- Alarm Silence Key
- NA Not Available
- TEST touchpad
- Enter value
  1) Use the keypad to select a numeric value.*
  2) Press the Alarm Silence key to accept the selection.

*Note: See page 42 for specific instruction on using the keypad to set values.
Temperature Setpoint

The temperature setpoint is an optional value only used in applications where the FMS will also be providing temperature control for the isolation room.

1) Press both ROOM SELECT and TEST simultaneously to enter programming mode.
2) Enter the Password (factory default 00006) using keypad and press the Alarm Silence key.
3) Scroll to the “Setpoints2” selection, and press the Alarm Silence key.
4) Scroll to the “Temp” selection, and press the Alarm Silence key.
5) The unit will now request the temperature setpoint value.
6) Enter the value (i.e. 74 degree Fahrenheit) using the ROOM SELECT and TEST buttons, press the Alarm Silence key to record the value.

Dead Band

The Dead Band Selection allows the controller to avoid moving the actuator while the sensed flow value is within a certain range from the SetPoint. This reduces wear on the actuator and in some cases may add to the stability of the control loop.

1) From the main display screen, simultaneously press both the ROOM SELECT and TEST touchpads to display the setup menu.
2) Press the ROOM SELECT touchpad until “Setpoints2” is marked, then press the ALARM SILENCE touchpad.
3) Press the ROOM SELECT touchpad until “DeadBand” is marked, then press the ALARM SILENCE touchpad.
4) The value displayed is the total dead band, with half the value being above the SetPoint and half below the SetPoint. (i.e., a value of 6 means that the controller will not move the actuator for sensed values of SetPoint +/- 3). Use the ROOM SELECT or TEST touchpad to set the value. Use the ALARM SILENCE touchpad to accept the entry.
5) Use the ALARM SILENCE touchpad to confirm the selection and exit to the main menu.
The ExAccel selection enables the controller to Accelerate or super charge its response when the airflow/pressure closely approaches its minimum allowable value. The values used in setting the setpoints are FPM.

1) From the Main display screen, simultaneously press both the ROOM SELECT and TEST touchpads to display the setup menu.
2) Press the ROOM SELECT touchpad until “SetPoints” is marked, then press the ALARM SILENCE touchpad.
3) Press the ROOM SELECT touchpad until “ExAccelEnab” is marked, then press the ALARM SILENCE touchpad.
4) Use the touchpad set the enable value “1” if it is not already enabled. Use the ALARM SILENCE touchpad to confirm this selection. If ExAccel is already enabled use the ALARM SILENCE touchpad to move to the next setting.
5) Press the ROOM SELECT touchpad until “ExAccelOn” is marked, then press the ALARM SILENCE touchpad.
6) Use the touchpad to set the value. The unit will display the current setting for the value at which ExAccel is initiated (“On”). If the sensed value ever goes below this value, the controller will excite the motor and drive it to its maximum open position as fast as it can. To modify this setting push the ROOM SELECT or TEST touchpad to increment or decrement this number accordingly. Use the ALARM SILENCE touchpad to accept the value. The unit will display the next menu entry.
7) Press the ROOM SELECT touchpad until “ExAccelOff” is marked, then press the ALARM SILENCE touchpad.
8) Use the the touchpad to set the “Off” value for ExAccel. This is the value, that when the sensed velocity figure is greater than this, the ExAccel will disengage and hand control back to the PID control loop. Adjust this figure in the same manner as step 6. Use the ALARM SILENCE touchpad to accept the value. The unit will display the next menu entry.
9) The ExAccel settings may require iterative tuning, as incorrect settings and the fast response of the system may add some instability to the control loop. As a guide, set the ON value a little above the minimum allowed velocity or pressure. Set the OFF value 10% or so above the ON value.
10) Select the ALARM SILENCE touchpad to move back to the main menu.
The Setup menu item “PID Params” allows the FMS-1630L user to select parameters that will match the characteristics of the HMS to the isolation room requirements.

1) From the Main display screen press both the ROOM SELECT and TEST keys to display the Setup menu.
2) Press the ROOM SELECT key until “PID Params” is marked with an arrow.
3) Press the Alarm Silence key to enter this setup sequence.
4) Use the ROOM SELECT key to select “PID1-P”.
5) Press the Alarm Silence key to enter this PID1-P setup.
6) Enter the “PID1-P” value using the keypad a good starting value is 100. With proportional control, the difference between an actual condition and the desired condition (setpoint) is exaggerated by the value set for this parameter to produce a more responsive correction. Values too high will cause oscillation, and values too low may cause the system to respond too slowly. Press Alarm Silence to accept the displayed value.
7) Use the ROOM SELECT key to select “PID1-I”.
8) Press the Alarm Silence key to enter the PID1-I setup.
9) Enter the “PID1-I” value using the keypad a good starting value is 100. This parameter is used to produce increased correction signal value based on the time the error condition persists. Press Alarm Silence to accept the displayed value.
10) Use the ROOM SELECT key to select “PID1-D”.
11) Press the Alarm Silence key to enter the PID1-D setup.
12) Enter PID-D value using the keypad a good starting value is 10. Derivative is based on the error rate of change. This produces a “braking” action as the desired condition is found to be approaching its setpoint. Press Alarm Silence to accept the displayed value.
13) Use ROOM SELECT to select the next item you wish to setup, or select “Exit” then press Alarm Silence to return to the normal operating display.

Note:
The values used in setting the PID values are dimensionless and act as gains to the appropriate P I and D components.
The following entries relate to the following parameters:

<table>
<thead>
<tr>
<th>PID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PID1-P</td>
<td>The Proportional Gain for PID loop 1 (main loop)</td>
</tr>
<tr>
<td>PID1-I</td>
<td>The Integral Gain for PID loop 1 (main loop)</td>
</tr>
<tr>
<td>PID1-D</td>
<td>The Differential Gain for PID loop 1 (main loop)</td>
</tr>
<tr>
<td>PID3-P</td>
<td>The Proportional Gain for PID loop 3 (Optional)</td>
</tr>
<tr>
<td>PID3-I</td>
<td>The Integral Gain for PID loop 3 (Optional)</td>
</tr>
<tr>
<td>PID3-D</td>
<td>The Differential Gain for PID loop 3 (Optional)</td>
</tr>
</tbody>
</table>
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Enable Door Switch

A room door switch having normally-open or normally-closed contacts may be used with the FMS-1630L to serve as a Door Interlock for room pressure control. An optional door switch (part number SWD-200) may be purchased from TRIATEK for this specific purpose.

1) From the main operating display, simultaneously press and then release the ROOM SELECT and TEST touchpad to display the Setup menu.
2) Use the ROOM SELECT touchpad to select “Lock&Rate”, then press the ALARM SILENCE touchpad.
3) Use the ROOM SELECT touchpad to select “DoorEnab”, then press the ALARM SILENCE touchpad.
4) Use the ROOM SELECT touchpad to enter the value “0” disables and “1” enables the doorswitch, then press the ALARM SILENCE touchpad to accept the entry.
5) Use the ROOM SELECT touchpad to display “DoorDelay”, then press the ALARM SILENCE touchpad. Note: DoorDelay is the delay in seconds between door closure and control door resumption.
6) Use the ROOM SELECT or TEST touchpad to enter the delay value “0 - 3600” seconds, then press the ALARM SILENCE touchpad to accept the entry.
7) Press the ALARM SILENCE touchpad to accept this setting and return to the Setup menu.
8) Use the ROOM SELECT touchpad to mark “Exit”, then press the ALARM SILENCE touchpad to exit the Setup menu and return to the main operating display.
**Buzzer Calibration**

In this menu the user can enable or disable the buzzer and set the buzzer delay.

1) From the Main display screen, simultaneously press both the ROOM SELECT and TEST keys to display the Setup menu.
2) Press ROOM SELECT key until Lock&Rate is marked with arrow.
3) Press Alarm Silence to enter this menu.
4) Use ROOM SELECT key to select BuzzerEnable.
5) Press Alarm Silence to enter selection.
6) Use ROOM SELECT key to set value 1 to enable 0 to disable.
7) Press Alarm Silence to enter selection.
8) Use ROOM SELECT key to select BuzzDelay.
9) Press Alarm Silence to enter selection.
10) Use ROOM SELECT key to set value 0 to 60 seconds before the audible alarm sounds. Adjustable from 0 to 60 seconds in 1 second increments.
11) Press Alarm Silence to enter selection.
12) Use ROOM SELECT to select the next item you wish to setup, or select “Exit” then press Alarm Silence to return to the normal operating display.

**Display Refresh Rate**

The DispRate allows the user to set the rate at which the FMS-1630L display updates its LCD screen (i.e. every 3 seconds).

1) From the main display screen, simultaneously press both the ROOM SELECT and TEST touchpads to display the setup menu.
2) Press the ROOM SELECT touchpad until “Lock&Rate” is marked, then press the ALARM SILENCE touchpad key.
3) Press the ROOM SELECT touchpad until “DispRate” is marked, then press the ALARM SILENCE touchpad key.
4) When all of the digits have been set, use the ALARM SILENCE touchpad to enter this setting and return to the main menu.
The MaxDmprPos and MinDmpPos selection allows the user to set the travel limits of the isolation room's exhaust damper. The factory default values of MaxDmprPos “100” and MinDmpPos “0” should only be changed under the specific instructions of qualified personnel. Please consult with our support staff before changing these values.

1) From the Main display screen, simultaneously press both the ROOM SELECT and TEST touchpads to display the setup menu.
2) Press the ROOM SELECT touchpad until “Lock&Rate” is marked, then press the ALARM SILENCE touchpad.
3) Press the ROOM SELECT touchpad until “MaxDmprPos” is marked, then press the ALARM SILENCE touchpad.
4) Use the touchpad set the value 0-100. Use the ALARM SILENCE touchpad to confirm this selection and return to the setup menu.
5) Press the ROOM SELECT touchpad until “MinDmpPos” is marked, then press the ALARM SILENCE touchpad.
6) Use the touchpad set the value 0-100. Use the ALARM SILENCE touchpad to confirm this selection and return to the setup menu.
7) Select the ALARM SILENCE touchpad to move back to the main menu.
The filter speed selection allows the user to set the responsiveness of the flow/pressure sensor. The controller utilizes a third order software digital filter to process the incoming signals from the sensor. The user can adjust the cutoff point of this filter by selecting Slow, Normal or Fast from the menu. For systems that are installed in an environment where there is turbulence in the airflow or there are outside air disturbances (air conditioning vents etc) that are unavoidable, a Slow setting will dampen some of these effects, although system responsiveness will also be slower than usual.

1) From the main display screen, simultaneously press both the GREEN and YELLOW touchpads to display the setup menu.
2) Press the GREEN touchpad until “14 Filter Speed” is marked, then press the RED touchpad.
3) Using the GREEN or YELLOW touchpads cycle through the Slow, Normal or Fast settings.
4) Use the RED touchpad to confirm this selection and return to the main menu.
The IsoMode selection enables the FMS-1630 to change the room pressurization from Positive, Negative and Neutral no isolation from the programming menu.

1) From the Main display screen, simultaneously press both the ROOM SELECT and TEST touchpads to display the setup menu.

2) Press the ROOM SELECT touchpad until “IsoMode” is marked, then press the ALARM SILENCE touchpad.

3) Press the ROOM SELECT touchpad until the desired isolation mode is marked (Pos, Neg, or Neut), then press the ALARM SILENCE touchpad.

4) Select the ALARM SILENCE touchpad to move back to the main menu.

Notes:
- Pos: Positive Isolation, uses the Positive Isolation SetPoint
- Neg: Negative Isolation, uses the Negative Isolation SetPoint
- Neut: No Isolation, use the No Isolation SetPoint.
No Status LEDs will be active.

The isolation mode can also be changed using a keyswitch and the isolation buttons on the keypad avoiding the need to enter the programming menu.

1) From the FMS1630L, using the proper key insert the key and turn to the UNLOCK position to change the isolation mode.

2) Press the A key for POSITIVE ISOLATION, B key for NEGATIVE ISOLATION or C key for NO ISOLATION button to change the isolation mode.

3) Return the keyswitch to the LOCK position and remove the key.

Notes:
- Positive Isolation uses the Positive Isolation SetPoint.
- Negative Isolation uses the Negative Isolation SetPoint.
- No Isolation uses the No Isolation SetPoint.
No Status LEDs will be active.
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