EF-A2000-B TYPICAL WIRING DIAGRAM

NOTES:
1. CONNECT OUTPUT SIGNAL CABLE DRAINS TO EARTH GROUND AT ONE END OF CABLE ONLY.
2. EF-A2000 IS A NON-ISOLATED DEVICE USING A HALF-WAVE RECTIFIER ON THE 24VAC POWER INPUT. IF MULTIPLE DEVICES ARE POWERED BY THE SAME TRANSFORMER OUTPUT, ALL GND CONNECTIONS MUST BE COMMON, OR AN ISOLATION TRANSFORMER MAY BE USED TO PREVENT EQUIPMENT DAMAGE.
3. ALL DEVICES ON MULTIPLE EF-A2000 INSTALLATIONS WITH A COMMON POWER 24VAC SOURCE MUST BE WIRED IN-PHASE TO THE SAME TERMINALS (PIN 6 TO PIN 6, PIN 7 TO PIN 7).
4. SHIELDED TWISTED PAIR (STP) WIRING (SUPPLIED BY OTHERS) IS RECOMMENDED.
**SETUP MENUS (PART 1 OF 5)**

**SYSTEM OF UNITS MENU**

Simultaneously depress/release ENTER + ESC keys during normal operation to select

* Factory Default/Current Setting

- **Enter (move →)**
  - Esc (normal oper.)
  - Esc (move +)
  - Enter (move +)

<table>
<thead>
<tr>
<th>ACTION</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET IFP* SYS</td>
<td>Set system units to Inch-Pound units (FPM, CFM, iWG, sq. ft, °F)</td>
</tr>
<tr>
<td>SET IFG* SYS</td>
<td>Set system units to International System of Units (MPS, LPS, PA, sq. m, °C)</td>
</tr>
</tbody>
</table>

Simultaneously depress/release ↑ + ↓ keys during normal operation to select

* Factory Default/Current Setting

- **Enter (move →)**
  - Esc (normal oper.)
  - Esc (move + or prev setting)
  - Enter (move + or prev setting)
  - Esc (move + or prev setting)

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<tr>
<th>ACTION</th>
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<tr>
<td>SET NAME?</td>
<td>Set measurement mode to AIRFLOW</td>
</tr>
<tr>
<td>MEAS=AIRFLOW</td>
<td>Set the airflow measurement to ACTUAL units (AFPM/ACFM)</td>
</tr>
<tr>
<td>AIRFLOW=ACT</td>
<td>Set the airflow measurement to STANDARD units (SFPM/SCFM)</td>
</tr>
<tr>
<td>ALT=0</td>
<td>Set the altitude above sea level for flow correction: 0 to 18,000 ft.</td>
</tr>
<tr>
<td>ON FAIL=HI</td>
<td>Set transmitter analog output state in the event of a major fault (all sensor failures) expressed as HI for full scale analog output or LO as minimum scale analog output.</td>
</tr>
<tr>
<td>EXT CABLE=0</td>
<td>Enter length of extension cable</td>
</tr>
<tr>
<td>LCD UM=AFPM</td>
<td>Set LCD units of measure to CFM or FPM. (Note: A if ACT or S if STD measurement prefix set by AIRFLOW= setting above)</td>
</tr>
<tr>
<td>LCD UM FIXED</td>
<td>The text &quot;LCD UM FIXED&quot; flashes to indicate that this setting is fixed and cannot be modified.</td>
</tr>
<tr>
<td>LCD TRBL=ON</td>
<td>Set whether or not TRBLE is displayed on LCD</td>
</tr>
<tr>
<td>LCD DISPL=OFF</td>
<td>Set what is displayed on LCD. Note: Will cycle between readings if not able to fit on same screen. Press either ESC or ENTER to stop cycling and press again to continue cycling between readings.</td>
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<td>Integration samples for LCD</td>
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ANALOG OUT

*AO1 ASGN=FLOW

**AO1 ASGN FIXED**

Set range for AO1

**AO1 SGNL=VDC

**AO1 SGNL FIXED**

Set AO1 units to FPM or CFM (Note: A if ACT or S if STD measurement prefix set by AIRFLOW= setting above)

*AO1 INTG=30

Integration samples. Also same as network integration.

Set AO1 fullscale

NO FAULT = HI

**AO2 SGNL=VDC

**AO2 SGNL FIXED**

Set AO2 units to FPM or CFM (Note: A if ACT or S if STD measurement prefix set by AIRFLOW= setting above)

*AO2 INTG=30

Integration samples. Also same as network integration.

Set AO2 fullscale

*AO2 INTG=0

Set AO2 minscale

*AO2 ASGN=ALRM

Set AO2 alarm/trouble output state when no alarm/trouble condition is present

**AO2 ASGN=TRBL

**AO2 ASGN FIXED**

Set AO2 alarm/trouble output state when no alarm/trouble condition is present

**AO2 UM FIXED

**AO2 UM FIXED**

Set AO2 units to FPM or CFM (Note: A if ACT or S if STD measurement prefix set by AIRFLOW= setting above)

*AO2 RNGE=0-5

Set range for AO2

Set AO2 units to FPM or CFM (Note: A if ACT or S if STD measurement prefix set by AIRFLOW= setting above)
SETUP MENUS (PART 3 OF 5)

FROM PART 2

**IF MEAS = AIRFLOW**

- "HI ALRM=OFF"; SET HI ALRM; HI ALRM=OFF;
- "LO ALRM=OFF"; SET LO ALRM; LO ALRM=OFF;

Enable LO alarm

Enable HI alarm

Set alarm units of measure to FPM or CFM (Note: A if ACT or S if STD measurement prefix set by AIRFLOW= setting above)

**IF MEAS = PRESS**

- "ALRM UM=AFPM"; SET ALRM UM; ALRM UM=AFPM;
- "ALRM UM=ACFM";

The text "ALRM UM FIXED" flashes to indicate this setting is fixed and cannot be modified.

**SET ALRM UM?** ALRM UM=ACFM

Set alarm units of measure to FPM or CFM (Note: A if ACT or S if STD measurement prefix set by AIRFLOW= setting above)

**SET NORMAL?**

- "RESET=AUTO"; SET RESET; RESET=AUTO;
- "NORMAL=CLOSE"; SET NORMAL; NORMAL=CLOSE;

Set alarm RESET

- "RLAY ASN=BOTH"; SET RLAY ASN; RLAY ASN=BOTH;
- "RLAY ASN=TRBL"; SET RLAY ASN; RLAY ASN=TRBL;

Assign relay to trouble, alarm, both, or none

Set NORMAL state of relay

**SET HI ALRM?** HI ALRM=OFF

- "ALRM UM=AFPM"; SET HI ALRM UM; HI ALRM UM=AFPM;
- "ALRM UM=ACFM";

Enable HI alarm

**SET LO ALRM?** LO ALRM=OFF

- "ALRM UM=AFPM"; SET LO ALRM UM; LO ALRM UM=AFPM;
- "ALRM UM=ACFM";

Enable LO alarm

**SET TOL?** TOL=0

Enter tolerance as value above or below setpoint. Units based on ALRM UM= setting.

**SET DELAY?** DELAY=2 MIN

Enter alarm delay

**SET RLAY ASN?**

- "RELAY ASN=TRBL";
- "RELAY ASN=ALRM";
- "RELAY ASN=BOTH";
- "RELAY ASN=None";

Enable HI alarm

Enable LO alarm

**SET HI ALRM?** HI ALRM=OFF

Enter HI setpoint for alarm

Enter LO setpoint for alarm

**SET ALRM UM?** ALRM UM=AFPM

Enter alarm units of measure to FPM or CFM (Note: A if ACT or S if STD measurement prefix set by AIRFLOW= setting above)

**SET PTNT?** SEPTNT=0

Enter setpoint for alarm

**SET TOL?** TOL=0

Enter tolerance as value above or below setpoint. Units based on ALRM UM= setting.

**SET DELAY?** DELAY=2 MIN

Enter alarm delay

**SET RLAY ASN?**

- "RELAY ASN=TRBL";
- "RELAY ASN=ALRM";
- "RELAY ASN=BOTH";
- "RELAY ASN=None";

Assign relay to trouble, alarm, both, or none

Set NORMAL state of relay

TO PART 4 'B'
### Setup Menus (Part 4 of 5)

#### FROM PART 1

- **MEASURE**
  - **AIRFLOW**
    - **FLOW ADJ=OFF**
      - SET FLOW ADJ
      - **FLOW ADJ=ON**
      - SET FLOW ADJ

- **PRESSURE**
  - **PRESS ADJ=OFF**
    - SET PRESS ADJ
    - **PRESS ADJ=ON**
    - SET PRESS ADJ

#### FROM PART 3

##### FLOW ADJ=
- **OFF**
  - SET FLOW ADJ
  - **ON**
  - SET FLOW ADJ

##### PRESSURE ADJ=
- **OFF**
  - SET PRESS ADJ
  - **ON**
  - SET PRESS ADJ

#### TO PART 4A
- **TOOLS**
- **OUTPUT TEST**
  - **OUT1 TEST%**
  - SET OUT1 TEST%
  - **OUT2 TEST%**
  - SET OUT2 TEST%

#### TO PART 4B
- **FIELD ADJUST**
  - **RUN FA WIZARD?**
    - **SET FAW INT**
      - **FAW INT=300**
      - SET # OF FLOWS
      - **# OF FLOWS=1**
      - **# OF FLOWS=2**

#### TO PART 5 'A'
- **MEASURE**
  - **AIRFLOW**
    - **FLOW 1**
      - **FLOW2**
        - **FLOW 2**
          - **FLOW1=0**
          - **FLOW2=0**

#### TO PART 5 'B'
- **MEASURE**
  - **PRESSURE**
    - **PRESS 1**
      - **PRESS2=0**
      - **PRESS 2**

---

*Wait . . . %* indicates progress while the Field Adjustment Wizard acquires a large number of samples of airflow rate and averages all of the readings. Display indicates “ADJUSTMENT COMPLETE” when adjustment is complete.

If you wish to review the adjustment made, simply navigate back to the SETUP menu and view the ADJUSTMENTS section.

**ENSURE THAT FAN IS ON AND SET TO DESIRED SPEED!**

Wait. . . ADJUSTMENT COMPLETE

---

**ADJUSTMENTS**

---

**Tools**

---

**Output Test**

---

**Field Adjust**

---

**Run FA Wizard?**

---

**Set FAW Int**

---

**Set # of Flows**

---

**Set Flow 1**

---

**Set Flow 2**

---

**Set Press 1**

---

**Set Press 2**

---

**Wait . . . %**

---

**Adjustment Complete**

---

**Set # of Press**

---

**Set # of Press**

---

**Wait . . . %**

---

**Adjustment Complete**

---

**Set # of Flow**

---

**Set # of Flow**

---

**Wait . . . %**

---

**Adjustment Complete**

---

**Set Offset**

---

**Set Offset**

---

**Enter Offset**

---

**Enter Offset**

---

**Set Flow Adj**

---

**Set Pressure Adj**

---

**Set Gain**

---

**Set Gain**

---

**Enter Gain**

---

**Enter Gain**

---

**Set Off**

---

**Set Off**

---

**Enter Offset**

---

**Enter Offset**

---

**Set FAW Int**

---

**Set FAW Int**

---

**Set # of Press**

---

**Set # of Press**

---

**Wait . . . %**

---

**Adjustment Complete**

---

**Enable Flow Adjustments**

---

**Enable Pressure Adjustments**

---

**Enter Gain Applied to Airflow Reading**

---

**Enter Offset Applied to Airflow Reading**

---

**Enter Gain Applied to Pressure Reading**

---

**Enter Offset Applied to Pressure Reading**

---

**Set FLOW 1 to % of Full Scale Analog Output**

---

**Set FLOW 2 to % of Full Scale Analog Output**

---

**Set Flow 1**

---

**Set Flow 2**

---

**Enable Flow Adjustments**

---

**Enable Pressure Adjustments**

---

**Output Test**

---

**Set Flow 1**

---

**Set Flow 2**

---

**ENSURE THAT FAN IS ON AND SET TO DESIRED SPEED!**

---

**Wait. . . %**

---

**ADJUSTMENT COMPLETE**

---

**Set FLOW ADJ**

---

**Set PRESS ADJ**

---

**Enter Gain Applied to Airflow Reading**

---

**Enter Offset Applied to Airflow Reading**

---

**Enter Gain Applied to Pressure Reading**

---

**Enter Offset Applied to Pressure Reading**

---

**Set OUT1 to % of Full Scale Analog Output**

---

**Set OUT2 to % of Full Scale Analog Output**

---

**Set OUT1 TEST%**

---

**Set OUT2 TEST%**

---

**Set OUT1 TEST%**

---

**Set OUT2 TEST%**

---

**Set Offset 1**

---

**Set Offset 2**

---

**Set Offset 1**

---

**Set Offset 2**

---

**Wait . . . %**

---

**ADJUSTMENT COMPLETE**

---

**Enable Pressure Adjustments**

---

**Enable Flow Adjustments**

---

**Wait. . . %**

---

**ADJUSTMENT COMPLETE**
SETUP MENUS (PART 5 OF 5)

FROM PART 4 'A'

1. SECURITY:
   - LOCK SEC=LOW
   - LOCK SEC=HIGH
   - LOCK SEC=MEDIUM
   - LOCK OFF
   - LOCK ON

2. ENT CODE:0000
   - CONF CODE:0000

3. RESET
   - RESET ALL:
     - ARE YOU SURE?
     - RESET ALL=YES
     - RESET ALL=NO

4. RESET SENS
   - ARE YOU SURE?
   - RESET SENS=YES
   - RESET SENS=NO

5. RESET ADJ
   - ARE YOU SURE?
   - RESET ADJ=YES
   - RESET ADJ=NO

6. RESET TRBL SET
   - ARE YOU SURE?
   - YES
   - NO

FROM PART 4 'B'

1. DIAGNOSTICS:
   - TRBL CODES:
     - 1: NO PROBES
     - (example shown)

2. DIAGNOSTICS:
   - DSBL TRBL CODE
     - DSBL TRBL=YES
     - DSBL TRBL=NO

3. SERIAL NUMBERS:
   - BRD #####

4. DIAGNOSTICS:
   - TRBL HISTORY
     - DSBL TRBL=NO

5. DIAGNOSTICS:
   - SERIAL NUMBERS
     - 1: NO PROBES
     - (example shown)

6. DIAGNOSTICS:
   - SENS VELOCITY
     - 1=#####FPM

7. DIAGNOSTICS:
   - SENS TEMP
     - 1=##.#F

8. DIAGNOSTICS:
   - SENS VOLTS
     - 1=#####F

9. DIAGNOSTICS:
   - PROBE TYPE
     - TYPE BLEED

Enable LOW setting where code is last four digits of board serial number

Enable MED setting where code is entered from user. EBTRON has ability to unlock if code is lost

Enable HIGH setting where code is entered from user. EBTRON cannot unlock, must return transmitter to EBTRON.

Enter code and confirm code (NOTE: if LOCK SEC= HIGH, DO NOT lose code!)

Reset transmitter to defaults

Reset sensor data, transmitter needs after completion

Reset Flow/Pressure adjustments to GAIN = 1, OFF = 0, FLOW/PRESS ADJ = OFF

Resets all disabled trouble codes

Enable active TROUBLE indication

View last 5 TROUBLE codes

Displays probe serial numbers followed by a T if connected and functioning properly and followed by F if not connected or not functioning properly

For sensors =1 to 2

For sensors =1 to 2

For sensors =1 to 2