EBTRON EB-FlowII EF-A2000-U Airflow Measurement with Temperature and Alarm Capability User Guide

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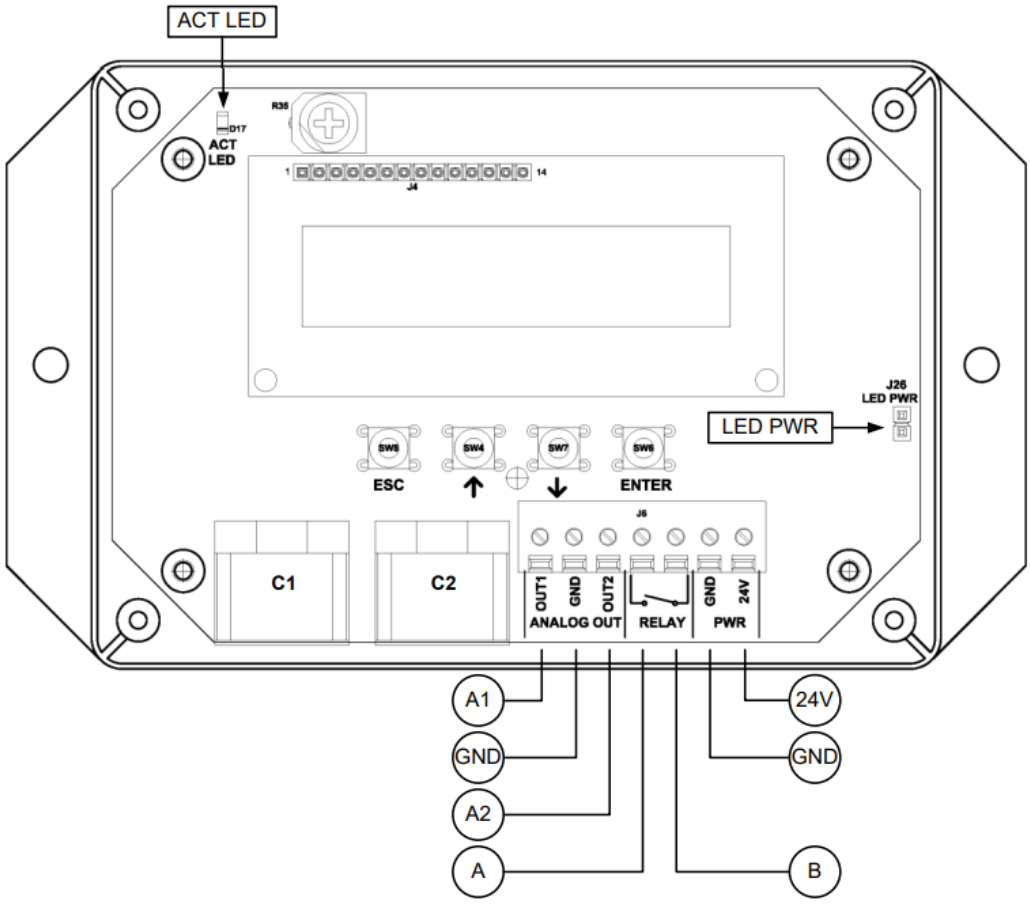
Product OverView



EF-A2000-U Parameters – Factory Defaults and Optional Settings/Ranges

Description	Parameter	Default	Optional Settings/Ranges	Units
System of Units	SYS	I-P (US customary)	SI (metric)	
Measurement Locations	LOCATIONS	1	2	
Airflow Calculation Method	AIRFLOW	ACT (actual)	STD (standard mass flow)	
Altitude (for actual flow correction)	ALT	0	0 to 20000 [0 to 6000]	ft [m]
Low Limit Airflow Cutoff	LLIMIT	0 FPM	0 to 500 FPM [0.0 to 2.5 m/s]	
Area	AREA	*{Null}* requires entry	0.00 to 9999.99 [0.000 to 999.999]	sq ft [sq m]
AO1 and AO2 Type	AOUT	2-10V	0-10V, 0-5 V	
AO1 Assignment (LOCATIONS=1)	AO1 ASGN	AF (Airflow)	None	
AO1 Assignment (LOCATIONS=2)	AO1 ASGN	AF1 (Airflow1)	F1-2, F2-1	
AO1 Unit of Measure	AO1 UM	FPM [m/s]	CFM [L/s]	
AO1 Minimum Scale Reading	AO1 MS	0	None	FPM [m/s]
AO1 Full Scale Reading	AO1 FS	3000 [15.0]	100 to 15000 [0.5 to 75.0]	FPM [m/s]
AO2 Assignment (LOCATIONS=1)	AO2 ASGN	TEMP (Temperature)	ALRM (Alarm) or TRBL (System Trouble)	
AO2 Assignment (LOCATIONS=2)	AO2 ASGN	AF2 (Airflow2)	F1-2, F2-1	
AO2 Unit of Measure	AO2 UM	F [C]	None	°F [°C]
AO2 Minimum Scale Reading	AO2 MS	-20 [-30]	-50 to 160 [-50 to 70]	°F [°C]
AO2 Full Scale Reading	AO2 FS	160 [70]	-50 to 160 [-50 to 70]	°F [°C]

STARTUP INSTRUCTIONS

1. Verify that the sensor probes are located where they meet EBTRON published installation guides.
2. Verify that the probes are properly spaced with the airflow arrows pointing in the direction of airflow. Improperly installed probes will compromise the installed accuracy of the device and degrade system performance.
3. Verify that the transmitter is installed and wired in accordance with the EF-A2000-U Wiring Guide provided with the transmitter and power is provided to the transmitter.
4. Make sure the ductwork is clean and free of debris prior to fan startup.
5. Energize power to the transformer. Power-up faults, if detected, are displayed on the LCD. If any power up faults are detected, resolve all conflicts or contact EBTRON customer service at 1-800-232-8766 before

proceeding.. If extension cables have been added, the extension cable length must be entered into the transmitter. Refer to the Operations and Maintenance Manual for more information.

6. The transmitter is fully functional as a factory calibrated airflow and temperature measurement device in I-P units (ft, FPM, CFM °F). Airflow (FPM) and temperature (°F) are displayed on the LCD. Airflow is displayed in FPM in lieu of CFM because the exact area where the sensor probes are located is not known until installation is complete. If SI units are required, refer to the Operations and Maintenance Manual. The factory default airflow output is set to actual airflow (FPM, CFM). If standard (mass) airflow (SFPM, SCFM) is required, refer to the Operations and Maintenance Manual.
7. If two probes are provided and each probe is used in a separate measurement location (ex. intake and exhaust paths of an ERV) continue to step 8, otherwise skip to step 9.
8. Press the ↑↓ arrow buttons simultaneously to enter the MAIN MENU. The SETTINGS menu is displayed. Press the ENT button to select the top of the SETTINGS submenu category. Press the ENT button to enter the GLOBAL submenu. Press the ↓ button until the LOCATIONS parameter is visible. Press the ENT button and set the LOCATIONS parameter to 2 using the ↑↓ buttons. Press the ENT button to save the selection. Press the ESC button twice to return to normal operation. Location 1 is the probe connected to receptacle C1.
9. It is recommended that the area of the opening where the probes are mounted is entered manually or calculated using the area wizard tool (AREA WIZ). The area parameter, AREA, can also be entered manually directly through the SETTINGS menu. Use the free area, excluding the probe blockage, where the probes are located.

   Refer to the Operations and Maintenance Manual if manual entry of the AREA parameter is desired. Failure to use the correct area will result in volumetric airflow (CFM) measurement error and degrade system performance.
10. To use the AREA WIZ tool, press the ↑↓ arrow buttons simultaneously to enter the MAIN MENU. The SETTINGS menu is displayed. Press the ↓ button until the TOOLS menu category is visible. Press the ENT button to select the top of the TOOLS submenu category. Press the ↓ button until the AREA WIZ tool is visible. Press the ENT button to execute the tool. Select “YES” when the SAVE prompt is displayed. The display will be changed from FPM to CFM and the AREA parameter will be updated.
11. If analog output signals are used continue to step 12, otherwise skip to step 17.
12. The output signal type and range (2-10 VDC, 0-5 VDC or 0-10 VDC) of AO1 and AO2 is determined by the AOUT parameter. The transmitter is factory set to 2-10V (i.e. AOUT=2-10V).

    The VDC output circuit can drive the input circuit of devices designed to measure 4-wire current loops with a resistive load ≥250 ohms.

    Do not apply any excitation voltage to the output of the transmitter.
13. Verify that the transmitter is configured to match the analog input requirements of the host controller. Press the ESC and ↑ buttons simultaneously to display the transmitter setting for the AOUT parameter. If the AOUT parameter is not correct, press the ENT button and use the ↑ and ↓ buttons to set AOUT. Press the ENT button to execute and display the change. Press the ESC button to return to normal operation.
14. The analog output signal for airflow (AO1) is linear. The minimum scale reading (0% output) of the airflow signal is fixed at 0 and the full scale reading (100% output) is factory set to 3,000 FPM.

    If the transmitter is configured for two locations, the default output for AO1 is Airflow1 (AF1). If differential airflow is desired (i.e., Airflow 1-Airflow 2 or Airflow 2-Airflow 1), refer to the Operations and Maintenance Manual.

    Multiply the default full scale velocity (FPM)by the correct total area (i.e. AREA parameter) of the measurement location to determine the full-scale or span (CFM) for the B.A.S. to avoid additional field configuration.

EBTRON airflow measurement device accuracy is percent-of-reading. Changing the full scale reading does not affect measurement accuracy.

If custom airflow scaling or unit of measure are required, refer to the Operations and Maintenance Manual.

15. If the transmitter is configured for two locations, repeat step 14 for AO2, then skip to step 17.
    If the transmitter is configured for two locations, the default output for AO2 is Airflow2 (AF2). If differential airflow is desired (i.e., Airflow 1-Airflow 2 or Airflow 2-Airflow 1), refer to the Operations and Maintenance Manual.
16. The analog output signal for temperature (AO2) is linear. The minimum scale reading (0% output) is set to -20 ºF and full scale reading (100% output) is set to 160 ºF.
    If custom temperature scaling is required, refer to the Operations and Maintenance Manual.
    AO2 can be configured for a high/low airflow alarm or system status alarm. Refer to the Operations and Maintenance Manual for more information.
17. If contact closure alarming is required continue to step 18, otherwise skip to step 20.
18. The contact closure relay can be assigned to the high/low airflow alarm or system status alarm. Refer to the Operations and Maintenance Manual for more information on configuring the high/low airflow alarm..
19. Press the ↑↓ arrow buttons simultaneously to enter the MAIN MENU. The SETTINGS menu is displayed. Press the ENT button to select the top of the SETTINGS submenu category. Press the ↓ button until the RELAY submenu category is visible. Press the ENT button to enter the RELAY submenu. The R1 ASGN parameter is visible. Press the ENT button and set the R1 ASGN parameter to ALRM (high/low airflow alarm) or TRBL (System Status Alarm) using the ↑↓ buttons. Press the ENT button to save the selection. The default state for the relay is normally open (N.O.). If N.O. is required, press the ESC button twice to return to normal operation. If N.C. is required, press the ↓ button until the R1 STATUS parameter is visible. Press the ENT button and set the R1 STATUS parameter to NC using the ↑↓ buttons. Press the ENT button to save the selection. Press the ESC button twice to return to normal operation.
20. Startup is complete! If additional customization is desired, consult the Operation and Maintenance Manual.

VERIFICATION

Many installations require third-party airflow verification. If the airflow measuring device is within the measurement uncertainty of the verification technique, EBTRON strongly recommends that no field adjustment correction is made. EBTRON airflow measurement devices are factory calibrated to NIST traceable standards. Field adjustment is not recommended when installed in accordance to published guidelines. If field adjustment is required, refer to the Operation and Maintenance Manual.

- Transmitters can be field adjusted to match a third-party measurement. Adjusted field measurements typically result in comparative readings within ±3% of the third-party measurement. Be advised that the third-party measurement may have uncertainties greater than or equal to ±10% and should only be used to adjust the airflow measurement if the discrepancy is greater than the uncertainty of the third-party source.
- The -U probe type is often used in outdoor air intakes of smaller rooftop units or mounted directly downstream of the blades of an intake louver on larger systems. In this type of application, adjustment to a reliable third-party measurement may improve the “out of the box” installed accuracy of the device.

FOR MORE INFORMATION

Operations and Maintenance Manual.

The Operations and Maintenance Manual is a comprehensive reference document that contains information on installation, startup, custom configuration, built-in tools, diagnostics, troubleshooting and maintenance.

NEED MORE HELP?

EBTRON Customer Service
For toll-free factory support call 1-800-2EBTRON (1-800-232-8766), Monday through Thursday 8:00 AM to 4:30 PM and Friday 8:00 AM to 2:00 PM eastern time.

Your Local EBTRON Representative
Visit **EBTRON.com** for the name and contact information of your local representative.

Documents / Resources

	**EBTRON EB-FlowII EF-A2000-U Airflow Measurement with Temperature and Alarm Capability** [pdf] User Guide EB-FlowII EF-A2000-U Airflow Measurement with Temperature and Alarm Capability, EB-FlowII , EF-A2000-U, Airflow Measurement with Temperature and Alarm Capability, Airflow Measurement, Temperature and Alarm Capability Measurement, Temperature Measurement

References

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