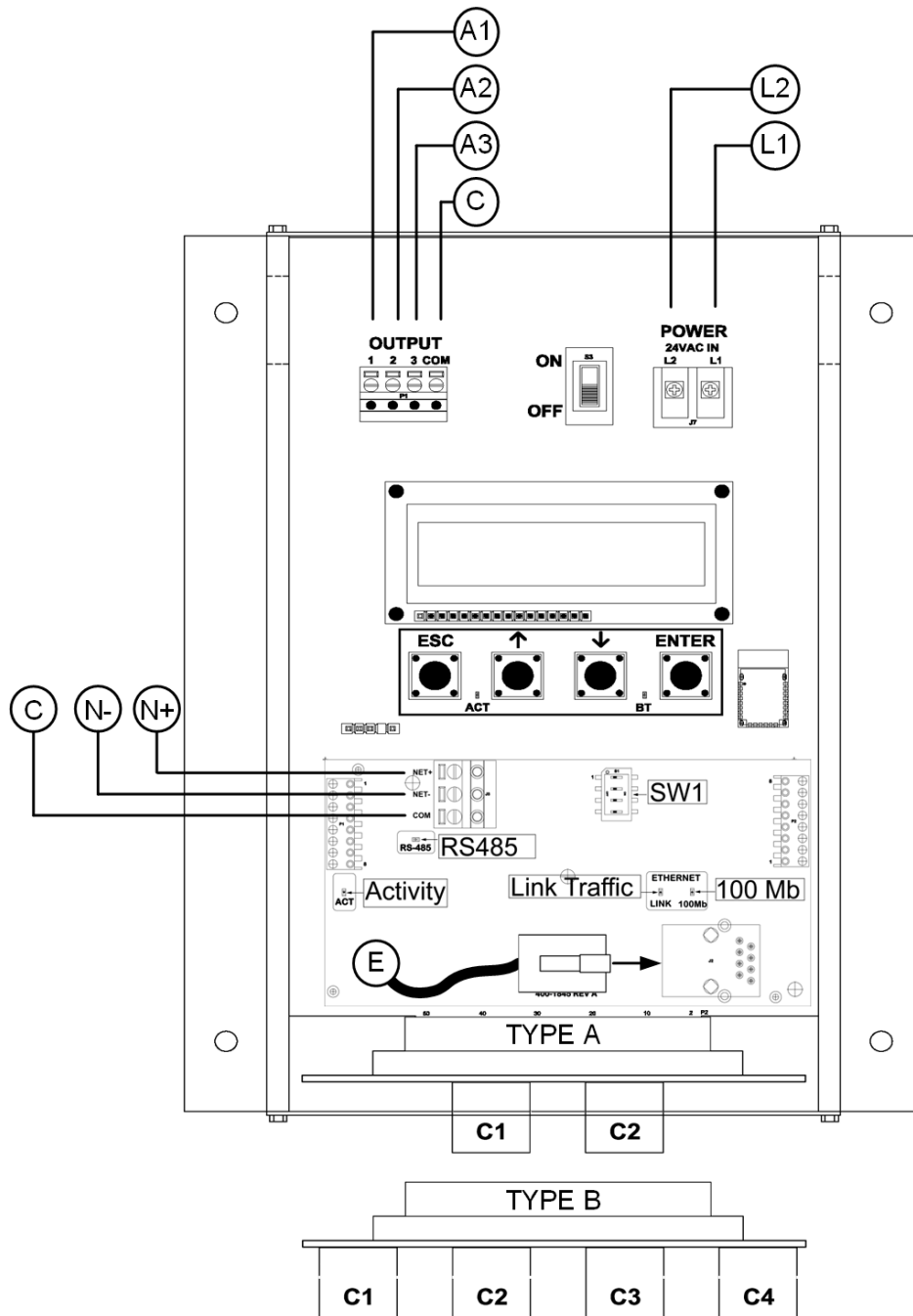# Advantage IV (A4) GTB116e-P STARTUP GUIDE

GTB116e-P Parameters - Factory Defaults and Optional Settings/Ranges

Description	Parameter	Default	Optional Settings/Ranges	Units
System of Units	SYS	I-P (US customary)	SI (metric)	
Airflow Calculation Method	AIRFLOW	ACT (actual)	STD (standard mass flow)	
Altitude (for actual flow correction)	ALT	0	AUTO, 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	{Order Area}	0.00 to 9999.99 [0.000 to 999.999]	sq ft [sq m]
Humidity Sensor Config. (/H opt.)	H CONFIG	RH (relative humidity)	ENTH (enthalpy), DPT (dew point)	
Auto Pb Correct Psych. Values	Pb CORR	ON (onboard sensor)	OFF	
AO1, AO2 and AO3 Type	AOUT	4-20mA	0-10V, 0-5 V	
AO1 Assignment	AO1 ASGN	AF (Airflow)	None	
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	5000 [25.0]	100 to 15000 [0.5 to 75.0]	FPM [m/s]
AO2 Assignment	AO2 ASGN	TEMP (Temperature)	ALRM (Alarm) or TRBL (System Trouble)	
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]
H CONFIG=RH (default)				
AO3 Assignment	AO3 ASGN	RH	None	
AO3 Unit of Measure	AO3 UM	%RH	None	
AO3 Minimum Scale Reading	AO3 MS	0	0 to 100	% RH
AO3 Full Scale Reading	AO3 FS	100	0 to 100	% RH
H CONFIG=ENTH				
AO3 Assignment	AO3 ASGN	ENTH	None	
AO3 Unit of Measure	AO3 UM	Btu/lb [kJ/kg]	None	
AO3 Minimum Scale Reading	AO3 MS	0	-20 to 400 [-40 to 800]	Btu/lb [kJ/kg]
AO3 Full Scale Reading	AO3 FS	200 [400]	-20 to 400 [-40 to 800]	Btu/lb [kJ/kg]
H CONFIG=DPT				
AO3 Assignment	AO3 ASGN	DPT	None	
AO3 Unit of Measure	AO3 UM	F DPT [C DPT]	None	
AO3 Minimum Scale Reading	AO3 MS	0	-50 to 160 [-50 to 70]	°F [°C]
AO3 Full Scale Reading	AO3 FS	100 [50]	-50 to 160 [-50 to 70]	°F [°C]
RS-485 Network		BACnet MS/TP or Modbus RTU (requires configuration)		
Ethernet Network		Simultaneous BACnet IP or BACnet Ethernet, Modbus TCP, and TCP/IP (requires configuration)		

Refer to the O&M Manual for more information and/or <u>additional</u> parameter defaults, settings and ranges.

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 *GTB116e-P 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. Move the power switch to the "ON" position. 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 (CFM) and temperature (°F) are displayed on the LCD. It the transmitter is provided with the /H humidity sensor option, relative humidity (%RH) is also displayed.

7. If the /H humidity sensor option is provided, relative humidity (%RH) is displayed on the LCD. Enthalpy or dew point can also be displayed on the LCD by changing the H CONFIG parameter to ENTH (enthalpy) or DPT (dew point). 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 GENERAL submenu category is visible. Press the ENT button to enter the GENERAL submenu. Press the ↓ button until the H CONFIG parameter is visible. Press the ENT button and set the H CONFIG parameter to ENTH (enthalpy) or DPT (dew point) using the the ↑↓ buttons. Press the ENT button to save the selection. Press the ESC button twice to return to normal operation.

ⓘ *The H CONFIG setting specifies the psychrometric property assigned to analog output AO3.*

ⓘ *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.*

8. Verify that the location (if provided) on the hang-tag matches the actual location where sensor probes are installed to optimize implementation of the EB-Link Reader. The NAME parameter stored in transmitter will match the location on the hang-tag or will default to transmitter serial number if no location was provided or location does not match on all sensor probes. If the location does not match or is blank on hang-tag and requires entry, modify the NAME parameter in the transmitter.

ⓘ *If the NAME parameter must be changed, refer to the Operations and Maintenance Manual.*

ⓘ *The NAME parameter will be displayed on the EB-Link Reader.*

9. Verify that the area on the hang-tag matches the actual area of the duct or opening where the probes are located (less any internal insulation). If the area is different, modify the area parameter stored in the transmitter and use the correct area for any external conversion calculations from FPM to CFM.

⚠ *Failure to use the correct area will result in volumetric airflow (CFM) measurement error and degrade system performance. If the area parameter must be changed, refer to the Operations and Maintenance Manual.*

10. If analog output signals are used continue to step 11, otherwise skip to step 16.

11. The output signal type and range (4-20 mA, 0-5 VDC or 0-10VDC) of AO1, AO2 and AO3 is determined by the AOUT parameter. The transmitter is factory set to 4-20mA.

⚠ *The 4-20mA is "4-wire type" and not loop powered. Do not apply any excitation voltage to the output of the transmitter.*

12. 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.

13. 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 5,000 FPM.

ⓥ *Multiply the default full scale velocity (FPM)by the correct area of the measurement location to determine the full-scale or span (CFM) for the B.A.S. to avoid 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.*

14. 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.*

15. The analog output signal (AO3) for the psychrometric property specified is linear. The minimum scale reading (0% output) and full scale reading (100% output) is based on the psychrometric specified by H CONFIG. The factory default ranges for each psychrometric property output are as follows:

   – Relative humidity (H CONFIG = RH): 0 to 100%
   – Enthalpy (H CONFIG = ENTH): 0 to 200 Btu/lb
   – Dew point (H CONFIG = DPT): 0 to 100 ºF

ⓘ *If custom psychrometric property scaling is required, refer to the Operations and Maintenance Manual.*

16. If the RS-485 network connection is required continue to step 17, otherwise skip to step 19.

17. 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 RS-485 submenu category is visible. Press the ENT button to enter the RS-485 submenu. The NET OUT parameter is visible. Press the ENT button and set the NET OUT parameter to BACNET (BACnet MS/TP) or MODBUS (Modbus RTU). Press the ENT button to save the selection. Use the ↓ arrow button and continue through the RS-485 submenu to configure the remaining network parameters. Enable network communications by setting the RS485 COM parameter to "ON" and press the ENT button. Press the ESC button twice to return to normal operation.

18. Refer to the *Operations and Maintenance Manual* for detailed information on the BACnet Objects and Modbus Registers supported by this device.

19. If the Ethernet network connection is required continue to step 20, otherwise skip to step 22.

20. 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 ETHERNET submenu category is visible. Press the ENT button again to enter the ETHERNET submenu. Configure the network parameters and press the ESC button twice to return to normal operation.

ⓘ *GTB116e transmitters support simultaneous communication via BACnet IP or BACnet Ethernet, Modbus TCP, and TCP/IP.*

21. Refer to the *Operations and Maintenance Manual* for detailed information on the BACnet Objects and Modbus Registers supported by this device.
22. 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*.

ⓘ *If minimum placement guidelines cannot be achieved, installed accuracy may be compromised. 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 device if the probes do not meet minimum placement requirements or the discrepancy is greater than the uncertainty of the third-party source.*

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.