



Thermal Dispersion Airflow Measurement

Advantage **GOLD** Series

(Firmware Version 3.XX)

Troubleshooting & Diagnostics

GTx116 Troubleshooting Guide

All Transmitters

Problem	Possible Cause	Remedy
No LCD display indication and the green LED on the main circuit board is not illuminated.	Power switch not in the "on" position.	Move the power switch to the "on" position.
	Improper supply voltage to the power input terminal block.	Make sure that input power wires are connected to positions L1 and L2 of the POWER terminal block and the voltage with the power switch in the "on" position is between 22.5 and 29 VAC.
	Blown fuse	Check power wiring. Make sure that multiple devices wired on a single transformer are wired "in-phase". Replace with a 1.5 amp, fast acting fuse only after the problem has been determined and corrected.
No LCD display indication and the green LED on the main circuit board is flashing.	LCD contrast too low.	Turn the contrast potentiometer on the main circuit board "clockwise".
The LCD display is scrambled or there is no LCD display indication after touching the switches, LCD display, or circuit board.	Static electricity.	Touch an earth-grounded object, such as a duct, to discharge static electricity then reset the power. Avoid direct contact with the LCD display or circuit board.
The LCD display indicates "0.00 FPM and -459.7"	The power switch on the transmitter was moved to the "on" position before the sensor probes were connected.	Reset the power by moving the power switch from the "on" to "off" position and then back to the "on" position.
The LCD display indicates "DIFF SENSOR TYPE".	Sensor probes have been mismatched.	Transmitters must have the same sensor type connected (GP1, GF1, or GB1 sensor probes).
The LCD display indicates "TOO MANY SENSORS".	A probe with 5 or more sensors has been connected to a 'Type B' transmitter with 4 receptacles.	Probes with 5 or more sensors are shipped with and require a 'Type A' transmitter with 2 receptacles.
The last digit of the flow rate units is displayed as a lower case letter.	The sensor detection system has detected one or more malfunctioning or missing sensors.	Check sensor probe cable connections. If sensor probe connections look OK and match the number of sensor probes indicated on each probes hang tag fill out the form at the end of this document and call Ebtron customer service.
The green LED on the main circuit board is "on" but not flashing.	The microprocessor is not running.	Reset the power by moving the power switch from the "on" to "off" position and then back to the "on" position.
The green LED on the main circuit board is flashing at 1 second intervals.	No problem, normal operation.	No remedy required.
The green LED on the main circuit board is flashing at 2 second intervals.	The sensor detection system has detected one or more malfunctioning or missing sensors.	Check sensor probe cable connections. If sensor probe connections look OK and match the number of sensor probes indicated on each probe's hang tag fill out the GTx116 Diagnostic Measurement Form and call Ebtron customer service.
The transmitter indicates airflow when the HVAC system is not operating.	Sensors are sensitive and can measure very low air velocities. If a reading is indicated, there is airflow present where the airflow measuring station is located.	Do not attempt to adjust zero ("offset"). Doing so will result in an error in airflow measurement.

GTx116 Troubleshooting Guide

GTA116 Transmitters (Analog Output)

Problem	Possible Cause	Remedy
No output signal can be measured at the OUTPUT terminal block of the GTA116 transmitter.	Output card is not securely mounted on main circuit board.	Press output card firmly onto main circuit board.
	Blown output fuse (output 1 and output 2 are fused and protected independently on GTA116 transmitters).	Make sure that power has not been connected to the output terminal block. Correct the problem and replace with 0.125 amp, fast acting fuse only.
		Make sure that your host control system is not configured for a 2-wire device (no excitation voltage should be present on the signals from the host controls). Correct the problem and replace with 0.125 amp, fast acting fuse only.
The 4-20 mA output signal on the GTA116 transmitter outputs less than 4 mA.	The analog output signal switch (SW1 for Output 1 or SW2 for Output 2) was moved to the 4-20 mA position after power-up.	Turn the power switch to the "off" position. Select the desired 4-20 mA output signal for output 1 (SW1) and/or output 2 (SW2). Turn the power switch to the "on" position.
The 0-10 VDC output signal on the GTA116 transmitter does not output less than 2 VDC.	The analog output signal switch (SW1 for Output 1 or SW2 for Output 2) was moved to the 0-10 VDC position after power-up.	Turn the power switch to the "off" position. Select the desired 0-10 VDC output signal for output 1 (SW1) and/or output 2 (SW2). Turn the power switch to the "on" position.
The output signal on the GTA116 transmitter fluctuates while the flow and/or temperature reading on the LCD are steady.	Electrical interference from other devices is creating noise in the signal wires to the host control system.	Verify that the output signal wiring to the host control system is shielded. Sources of electrical interference vary by location and can usually be resolved by connecting various points to Earth ground. Try individually grounding the following points, if that does not resolve the issue begin trying combinations of the points: signal wire shield at host controls, signal wire shield at GTA116 transmitter, COM on the output terminal block of the GTA116 (if host controls allows it), L2 of the power terminal block of the GTA116 (if host controls allows it).
The LCD display does not match the readings indicated by the host control system.	The output signal switches on a GTA116 transmitter have been changed after the power switch had been turned to the "on" position.	Reset the power by moving the power switch from the "on" to "off" position and then back to the "on" position.
	The scaling in the host control system is incorrect.	Compare the current configuration of the GTx116 transmitter with that of the host control system (on GTA116 transmitters compare the minimum and full scale settings for each output by navigating through the setup configuration menus).

GTx116 Troubleshooting Guide

GTN116 Transmitters (RS485 Output)

Problem	Possible Cause	Remedy
The host control system is unable to communicate with the GTN116 transmitter.	Output card is not securely mounted on main circuit board.	Press output card firmly onto main circuit board.
	The network signal wiring is not properly connected to the GTN116 transmitter or the host controls.	Verify that the network signal wires are connected to the proper positions of the OUTPUT terminal block on the GTN116 transmitter and the host controls. On the GTN116 transmitter OUTPUT terminal block, position 1 is for A, 2 for B and COM for common.
	The network protocol has not been properly set on the GTN116.	Set network protocol based on your network requirements and reset transmitter power. See the transmitter installation and configuration guide for settings.
	The transmitter address has not been properly set on the GTN116.	Set the address based on your network requirements and reset the transmitter power. See the transmitter installation and configuration guide for settings. Note that each address must be unique for the network and the least significant bit (LSB) is DIP switch position 8.
	The transmitter termination has not been properly set on the GTN116.	Set the transmitter termination based on your network requirements and reset the transmitter power. See the transmitter installation and configuration guide for settings.
The LCD display does not match the readings indicated by the host control system.	The area factor in the GTN116 transmitter does not match that of the host controls.	Compare the value for the area setting of the GTx116 transmitter with that of the host control system and make adjustments so that they match.
The status point from the GTN116 transmitter has a Trouble value.	The sensor detection system has detected one or more malfunctioning or missing sensors.	Check sensor probe cable connections. If sensor probe connections look OK and match the number of sensor probes indicated on each probe's hang tag, fill out the GTx116 Diagnostic Measurement Form and call Ebtron customer service.
There is no value for the differential pressure point.	Differential pressure is only available from transmitters that have Ebtron's Bi Directional Bleed Airflow Sensors connected.	If a differential pressure measurement is required, contact your local Ebtron Representative about Ebtron's Bi Directional Bleed Airflow Sensor.

GTx116 Diagnostic Measurement Form

EBTRON customer service is available, free of charge, between the hours of 8:00 AM and 4:30 PM EST, Monday through Friday. Many customer service issues are easily resolved by using the troubleshooting guides in the installation instructions. If you need more information or believe that there may be a problem with the sensor probes or transmitter, enter the data in the form below before calling the service department. If you feel you may have an application issue, a sketch of the installation location along with control sequence of operations is recommended. Fax the completed information, if possible to 843-756-1838 before you call or have it available when speaking with a service representative. Address all correspondence to the *EBTRON Customer Service Department*. Completing the form will significantly facilitate field troubleshooting. Additional information is also available from your local *EBTRON* representative or 24 hours a day online at www.ebtron.com.

TAG INFORMATION			
Location Name:	Model:	Type:	
Reference Number:	Item:	Number of Probes:	
Duct Size: x (in / mm)	Internal Insulation:		

Record the Software Version (displayed on power up)

Record the LCD display output

24 VAC Power Input	
Power Terminal Block L1 & L2:	VAC (power "off")
Power Terminal Block L1 & L2:	VAC (power "on")

Enter the Setup mode and record ALL current settings	
*DISPLAY = (on / off) circle one	
*OUT1 = (4-20 / 0-10) circle one	
*MS1 =	
*FS1 =	
*ONFAIL1 = (MS1 / FS1) circle one	
*LCD U/M = (FPM / CFM / iWC / MPS / LPS / PA) circle one	
*AREA =	
*OFFSET-GAIN = (on / off) circle one	
m =	b =
*FILTER =	
*OUT2 = (4-20 / 0-10) circle one	
*MS2 =	
*FS2 =	
*ONFAIL2 = (MS2 / FS2) circle one	

Enter <i>Diagnostics</i> mode and enter all data				
	Probe Type	Probe SN		
	{name}	{number}	{stat}	
1				
2				
3				
4				
	Sensor Volts		Sensor Vel	Sensor Temp
	Volts1	Volts2	vel	temp
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				
G				

Note: When *OFFSET-GAIN=OFF, the gain and offset coefficients m and b are not displayed.

GTA116 Transmitters (Analog Output): Record output signal measurements with your host controls disconnected and connected to the transmitter.

Analog Output Signal with Host Controls Disconnected	
Output Terminal Block 1 & COM:	mA / VDC
SW1 Position On Output Card: (4-20 / 0-10) circle one	
Output Terminal Block 2 & COM:	mA / VDC
SW2 Position On Output Card: (4-20 / 0-10) circle one	

Analog Output Signal with Host Controls Connected	
Output Terminal Block 1 & COM:	mA / VDC
SW1 Position On Output Card: (4-20 / 0-10) circle one	
Output Terminal Block 2 & COM:	mA / VDC
SW2 Position On Output Card: (4-20 / 0-10) circle one	

GTN116 Transmitters (RS485 Output): Record airflow, differential pressure, temperature and status readings at your host controls and confirm that DIP switch settings on the network card are set properly.

BACnet MS/TP		Johnson Controls N2-bus		ModBus-RTU			Host Controls Reading
Type		NPT ¹	NPA ²	Function	Register	Length	
Analog Input	AI0	AI	1	04	30001	2 ^a	
Analog Input	AI1	AI	2	04	30003	2 ^a	
Analog Input	AI2	AI	3	04	30005	2 ^a	
Analog Value	AV0	BI	1	04	30007	2 ^b	
Device	DEV#			04	30009	2 ^b	
				04	3011	2 ^b	
				02	10001	1 ^c	

¹Network Point Type
²Network Point Address

^aIEEE Floating Point (low, high word)
^bIEEE Floating Point (high, low word)
^cBinary (1 byte total)

Protocol DIP Switch		
Pos.		Protocol Required
1	2	
on / off	on / off	

Address DIP Switch							
DIP Switch Position							Address Required
1	2	3	4	5	6	7	8
on / off	on / off	on / off	on / off	on / off	on / off	on / off	on / off

Termination DIP Switch				
DIP Switch Position				Termination Required
1	2	3	4	
on / off	on / off	on / off	on / off	

GTE116 Transmitters (Ethernet Output): Record addresses, airflow, differential pressure, temperature and status readings at your host controls and confirm that DIP switch settings on the network card are set properly.

GTE116 Address Settings	
IP Address:	
Subnet Mask:	
Default Router:	

BACnet Ethernet / IP		ModBus-RTU			Host Controls Reading
Type		Function	Register	Length	
Analog Input	AI0	04	30001	2 ^a	
Analog Input	AI1	04	30003	2 ^a	
Analog Input	AI2	04	30005	2 ^a	
Analog Value	AV0	04	30007	2 ^b	
Device	DEV#	04	30009	2 ^b	
		04	3011	2 ^b	
		01	00001	1 ^c	
		03	40001	4 ^c	
		03	40005	4 ^c	
		03	40009	4 ^c	

^aIEEE Floating Point (low, high word)

^bIEEE Floating Point (high, low word)

^cBinary (1 byte total)

Protocol DIP Switch SW1		
Pos.		Protocol Required
1	2	
on / off	on / off	

GTL116 Transmitters (LonWorks Output): Record the following values at your host controls.

Variable Name	SNVT	SNVT Index	Value
nvoAirVelocity	SNVT_speed_mil	35	
nvoAirFlow	SNVT_flow	15	
nvoAirFlowFloat	SNVT_flow_f	53	
nciVSndHrtBt	SNVT_time_sec	107	
nciVMinOutTm	SNVT_time_sec	107	
nciVSendOnDelta	SNVT_speed_mil	35	
nciDuctArea	SNVT_area	110	
nciVSampleTime	SNVT_time_sec	107	

Variable Name	SNVT	SNVT Index	Value
nvoHVACTemp	SNVT_temp_p	105	
nciTMaxSendTime	SNVT_time_sec	107	
nciTMinSendTime	SNVT_time_sec	107	
nciTMinDelta	SNVT_temp_p	105	
nciVSampleTime	SNVT_time_sec	107	

Variable Name	SNVT	SNVT Index	Value
nvoPrecisePress	SNVT_press_p	113	
nvoFloatPress	SNVT_press_f	59	
nciPMaxSendTime	SNVT_time_sec	107	
nciPMinSendTime	SNVT_time_sec	107	
nciPMinDelta	SNVT_press_p	113	
nciPSampleTime	SNVT_time_sec	107	

Variable Name	SNVT	SNVT Index	Value
nciStatSampTime	SNVT_time_sec	107	