

“X” HEAD with XD000,XP000,XF000

IAQ ENFORCER™ Installation Guide

OVERVIEW -

The “X”-Head satellite eXtension board is designed to allow **EBTRON** IAQ Enforcer satellite sensors to be daisy chained. When used with multiple satellite boards, the “X”-Head allows for simple field wiring and superior performance. The “X”-Head and satellite sensors use industrial grade components and can withstand temperatures down to -20 Fahrenheit. However, care should be taken to avoid direct contact of the electronics with water.

Models Available with X-Head Electronics Processors ARE: XD000,XP000,and XF000.

1. FIELD WIRING

1.1 MULTIPLE PROBE SYSTEMS

1.11 - Multiple probes in a single duct location with an “X” Head processor require power and signal connections only to the main “X” Head probe as indicated in section 1.2 (the probe with the larger electronics enclosure).

1.12 - Connect multiple satellite sensors to the “X” Head board by connecting like wires to each of the terminals labeled “R”, “W”, and “B” on both the “X” Head board and the satellite sensors. For ease of wiring, the letters “R”, “W”, and “B” refer to the colors Red, White, and Black, respectively. Do not connect power or signal wires to these terminals or irreparable damage will result to both the “X” Head processor and the satellite sensors.

1.2 ALL SYSTEMS

1.21 - USE ONLY 24V AC POWER. EACH SYSTEM SHOULD HAVE A DEDICATED CLASS 2 TRANSFORMER OR MUST OTHERWISE BE ISOLATED FROM OTHER DEVICES POWERED FROM THE SAME SOURCE. **USE THE 1:1 ISOLATION TRANSFORMER PROVIDED AT EACH LOCATION TO ASSURE ISOLATION FROM OTHER DEVICES.**

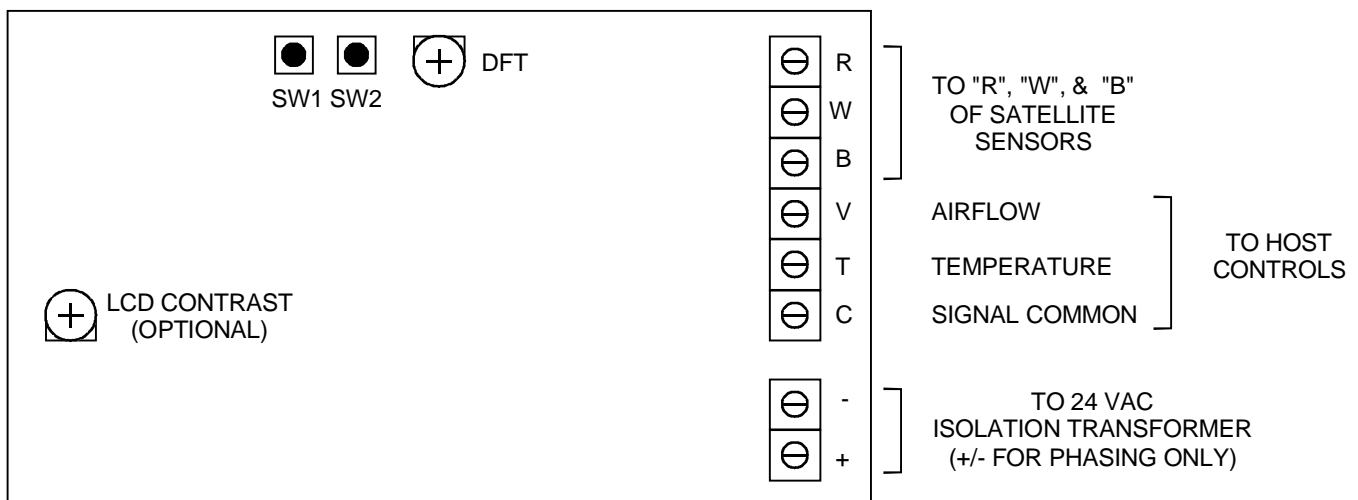
1.22 - USE CAUTION AND MAKE SURE THAT POWER IS NOT APPLIED TO THE 6 POSITION TERMINAL BLOCK. DOING SO WILL DAMAGE THE ELECTRONICS AND VOID WARRANTY.

1.23 - ALL POWER CONNECTIONS MUST BE MADE IN PHASE BETWEEN **EBTRON** EQUIPMENT SHARING A SINGLE TRANSFORMER.

1.24 - GROUNDING POWER TO EARTH WILL RESULT IN DAMAGE TO THE PRINTED CIRCUIT BOARD, OTHER ELECTRONIC COMPONENTS OR THE HOST SYSTEM.

1.25 - **CONNECTING POWER TO THE WRONG TERMINAL BLOCK WILL DESTROY THE “X” HEAD BOARD AND SATELLITE SENSORS.**

1.26 - All systems provide both airflow and temperature output as indicated on the identification tag on the electronics enclosure. The default output is 0-5 VDC. Optionally, the output can be ordered as 0-10 VDC or 4-20 mA. Unless specified when ordered,



devices with 4-20 mA airflow output signals will be supplied with the default voltage temperature output. Check the identification tag on the electronics enclosure to determine the types of output signals and output scaling for each device.

1.27 - Connect field wiring to the probe terminal block labeled “24 VAC” as indicated in the diagram below.

2. OPERATION

2.1 - All units are factory calibrated. The output signals are LINEAR to airflow and temperature and should not require field adjustment. To convert output signals from FPM to CFM, multiply the full scale output by the free area where the sensors are located, in square feet.

3. TRANSIENT WIND/TURBULENCE FILTER

3.1 - All "X" head units have a built in digital airflow filter to reduce excessive signal noise which may be generated by transient wind when installed in outdoor air intakes or excessive turbulence when installed in fan inlets. The factory default is for the filter to be turned "off" . To increase the filtering of the airflow output signal, turn the potentiometer labeled DFT clockwise (see diagram on first page for the location of the DFT potentiometer).

4. TO CHANGE THE FACTORY AIRFLOW FULL SCALE

4.1 - "X" Head full scale readings are set at the time of order as indicated on the unit identification tag. In the event that the full scale of the unit requires field adjustment, the full scale can be easily adjusted in the field by using the following procedure:

1. Make sure that the LED is flashing and not in a steady state.
2. Depress switch SW2 for approximately 5 seconds.
3. Wait for the LED to stop flashing. You are now in SETUP MODE 1.
4. The airflow output will now correspond to the full scale reading factor. The default factor is 1.0 which, in this mode, will result in a an output signal of 1.00 volt on a unit with a 0-5 VDC output or 7.2 mA (4.0 mA+ 3.2 mA) on a unit with a 4-20 mA output.
5. While measuring the airflow output signal, press SW1 to increase the full scale or press SW2 to decrease the full scale. The increase or decrease is proportional to the change in the output signal (as an example, if you would like to double the full scale indicated on the tag, you would press SW1 until the output signal measured 2.00 volts on a 0-5 VDC unit or 10.4 mA (4.0 mA + 6.4 mA) on a 4-20 mA unit.
6. Be sure to note that you have changed the full scale of the unit from that which is printed on the factory identification tag.
7. The full scale change will be stored in permanent memory when both switches have not been pressed for 10 seconds and the unit will return to its normal operating mode (LED flashing).

[note: full scale readings can also be changed by ordering a factory PROM. Factory PROM changes can be purchased for a nominal charge and include new system identification tags]

5. TO CHANGE THE FACTORY AIRFLOW CALIBRATION "GAIN" CONSTANT

5.1 The "X" Head airflow gain factor is factory preset to 1.00. Under certain circumstances it may be necessary to adjust the output of the unit to field conditions. To change the factory gain setting use the following procedure:

1. Make sure that the LED is flashing and not in a steady state.
2. Depress switch SW1 for approximately 5 seconds.
4. Wait for the LED to stop flashing. You are now in SETUP MODE 2.
5. While measuring the airflow output signal, press SW1 to increase the airflow output and press SW2 to decrease the airflow output.
6. The gain change will be stored in permanent memory when both switches have not been pressed for 10 seconds and the unit will return to its normal operating mode (LED flashing).

6. TO RESET TO FACTORY DEFAULTS

6.1 - Factory defaults for the airflow full scale factor and the airflow gain factor can be reset to 1.00 by using the following procedure:

1. Make sure that the LED is flashing and not in a steady state.
2. Depress switch SW1 and SW2 simultaneously for approximately 5 seconds.
3. Release the two switches when the LED stops flashing.
4. The factory resets will be restored and the unit will automatically return to its normal operating mode.

Thank you for using **EBTRON** products. For more information or customer support call us

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