

AZURE[®] Bluetooth ECM

Installation Guide

MARS Motor No. 10856/10857

MARS Technical Help Line: **800-678-9888**

M-F 8 am - 5 pm Eastern



Apple



Android

Azure ECM
app



WARNING!

To prevent electric shock, personal injury, or death, turn off the electric power at the disconnect or main service panel prior to making any electrical connections. Only trained and qualified HVAC professionals should install this motor.



READ FIRST

A smartphone and Azure ECM app (available from your app store or from the QR code above) is required for the installation of this motor. This motor replaces constant torque ECM's (X13[®], Endura[®] Pro, etc.), variable speed ECM's (16 pin), and many communicating variable speed ECM's (4 pin). Due to the complexity of variable speed technology the Azure motor should always be connected to the factory harnesses and given a fan call to ensure compatibility prior to fully installing the motor. If the motor does not respond to a fan call, then the motor is not compatible with the equipment OR the equipment control board is damaged and may require replacement. Upon completion of Azure installation, confirm the airflow is correct. Always allow the system to run for one complete cycle to ensure full communication and correct operation.

- 1 Turn off the thermostat and remove line voltage to the system; disconnect the two harnesses from the OEM motor and connect to the Azure motor. For constant torque applications, connect the adapter to the Azure motor AND SET THE RED VOLTAGE JUMPER TO THE DESIRED VOLTAGE. Do not install the Azure motor; allow the motor to sit on the floor next to the cabinet to confirm compatibility.
- 2 Apply line voltage to the system (thermostat off); open the Azure ECM app on your smart phone/tablet. The Azure ECM app is available for download by scanning the QR code above.
- 3 Select the sub-app **Nos. 10856 & 10857**; select **Pair Motor** and then select **Connect**.
- 4 Select **Configuration** and enter the application data (Image 1):
 - Motor OEM** – manufacturer of motor being replaced
 - Voltage** – voltage of motor being replaced
 - Horsepower** – horsepower of motor being replaced
 - Rotation** – rotation of motor being replaced (*as viewed from lead end*)
 - Connector** – connector style of motor being replaced

Select **Next**; select **Load Default**; select **Save Configuration**; select **Confirm**; then remove line voltage for 1-2 minutes to save the settings in the motor.

NOTE: FOR 4 PIN INSTALLATIONS YOU MUST ALSO ENTER THE MANUFACTURER'S NAME OF THE EQUIPMENT PRIOR TO SAVING CONFIGURATION.

- 5 Apply line voltage to the system. Provide a Fan-G call (do not use Y or W). If the Azure motor responds within 2 minutes, remove line voltage and install the motor into the blower housing. If the motor does not respond, the motor may not be compatible OR the air handler control board is bad.

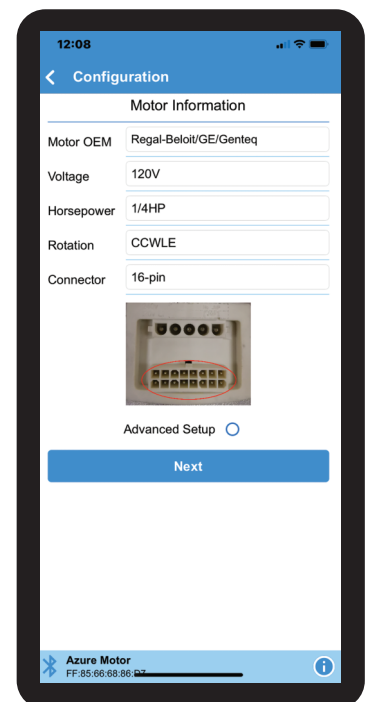
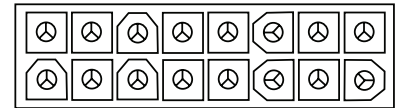


Image 1

Replacing 16 Pin Motors (with harnesses containing more than 6 wires)



- 6 Re-apply line voltage, connect to the app, and advance through the Configuration screen to the Motor Output screen (Image 2) by selecting **Next**.
- 7 The Motor Output screen displays the % of motor output for each operating mode. For example, 70% represents 70% of the maximum output of the motor at its rated horsepower. These values can be increased or decreased to optimize airflow during system setup.

IMPORTANT: TO CHANGE AIRFLOW WHILE SYSTEM IS IN OPERATION, ENTER A NEW VALUE AND THEN SELECT **TEST** (BUTTON WILL CHANGE TO **ON**). THIS CAN BE DONE AS FREQUENTLY AS DESIRED DURING TEST AND SETUP FOR FINE TUNING. TO **SAVE** THE SETTING, SELECT **SAVE CONFIGURATION** AND THEN **CONFIRM**. REMOVE LINE VOLTAGE TO THE MOTOR FOR 2 MINUTES – ALL ADJUSTMENTS WILL BE SAVED. ALL CHANGES / ADJUSTMENTS REQUIRE THIS PROCEDURE IN ORDER TO BE SAVED.

IMPORTANT: THE HVAC SYSTEM WILL CONTROL THE OPERATION OF THE MOTOR UNLESS ANY BUTTON ON THIS SCREEN IS SELECTED. WHEN A BUTTON IS SELECTED, THE APP WILL TAKE CONTROL OF THE MOTOR AND WILL NOT RELINQUISH CONTROL OF THE MOTOR OPERATION UNTIL LINE VOLTAGE IS REMOVED FROM THE MOTOR FOR 2 MINUTES – THE SYSTEM WILL THEN BE IN CONTROL OF THE MOTOR AGAIN AND READY FOR NORMAL OPERATION.

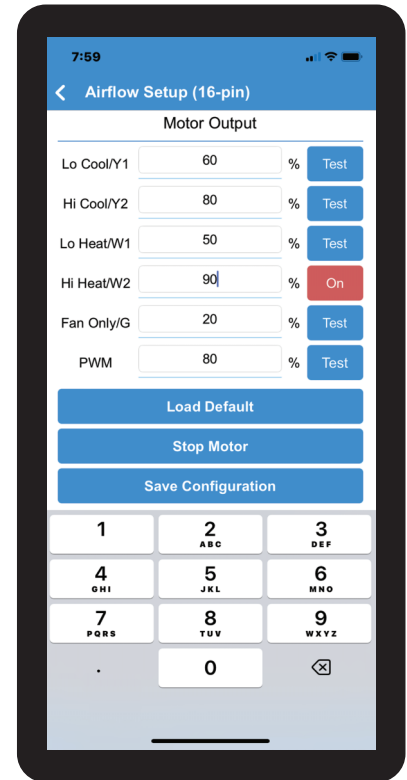


Image 2

- 8 Test system operation and check airflow. Adjust motor % output as necessary to achieve optimal airflow. If performing a temperature rise test, remove the call for heat and allow the motor to run to prevent excessive heat build-up in the heat exchanger after taking the measurements. This can be done by waiting 45 seconds before exiting the app. To exit, select **Save Configuration** and then select **Confirm**; remove line voltage for 2 minutes to save the settings. The motor will now be controlled by the HVAC system again. Test system operation.

Adding On/Off Delays: The default settings provide no on/off delays. If delays are needed for the application:

- a) Enter the Configuration screen, select **Advanced Setup** and select **Next** to enter Delay Profile screen (Image 3).
- b) Select **Single-Stage** or **Dual-Stage**. Enter desired values for On/Off Delay and % Reduction of Torque.
- c) Select **Next**. Select **Save Configuration** and then select **Confirm**. Remove line voltage for 2 minutes to save the settings. Test system operation.

IMPORTANT: THE % REDUCTION OF TORQUE REPRESENTS THE % REDUCTION OF THE MOTOR OUTPUT VALUES OF Y AND W IN THE MOTOR OUTPUT SCREEN. FOR EXAMPLE, IF Y OPERATES AT 70% DURING THE CALL AND A 50% REDUCTION OF TORQUE IS ENTERED FOR THE DELAY, THE MOTOR WILL OPERATE AT 35% DURING THE ON/OFF DELAY PERIOD.

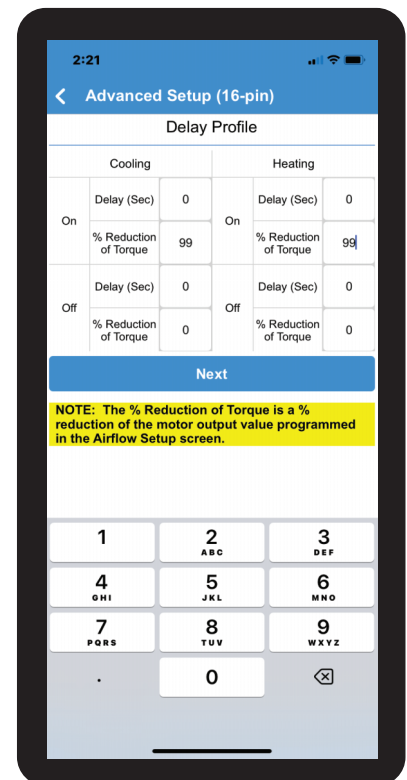


Image 3

Replacing 16 Pin Motors

(with harnesses containing 6 or fewer wires)

- 6 Re-apply line voltage, connect to the app, and advance through the Configuration screen to the Motor Output screen (Image 4) by selecting **Next**.
- 7 The Motor Output screen displays the % of PWM motor output. For example, 80% represents 80% of the maximum output of the motor at its rated horsepower. This value can be increased or decreased to optimize airflow during system setup.

IMPORTANT: THIS APPLICATION USES A PWM SIGNAL. USE THE PWM FIELD, ONLY; DISREGARD ALL OTHER % FIELDS ON THIS SCREEN.

IMPORTANT: TO CHANGE AIRFLOW WHILE SYSTEM IS IN OPERATION, ENTER A NEW VALUE IN THE PWM FIELD AND THEN SELECT **TEST** (BUTTON WILL CHANGE TO **ON**). THIS CAN BE DONE AS FREQUENTLY AS DESIRED DURING TEST AND SETUP FOR FINE TUNING. TO SAVE THE SETTING, SELECT **SAVE CONFIGURATION** AND THEN **CONFIRM**. REMOVE LINE VOLTAGE TO THE MOTOR FOR 2 MINUTES – ALL ADJUSTMENTS WILL BE SAVED. ALL CHANGES / ADJUSTMENTS REQUIRE THIS PROCEDURE IN ORDER TO BE SAVED.

IMPORTANT: THE HVAC SYSTEM WILL CONTROL THE OPERATION OF THE MOTOR UNLESS ANY BUTTON ON THIS SCREEN IS SELECTED. WHEN A BUTTON IS SELECTED, THE APP WILL TAKE CONTROL OF THE MOTOR AND WILL NOT RELINQUISH CONTROL OF THE MOTOR OPERATION UNTIL LINE VOLTAGE IS REMOVED FROM THE MOTOR FOR 2 MINUTES – THE SYSTEM WILL THEN BE IN CONTROL OF THE MOTOR AGAIN AND READY FOR NORMAL OPERATION.

- 8 Test system operation and check airflow. Adjust PWM % output as necessary to achieve optimal airflow. If performing a temperature rise test, remove the call for heat and allow the motor to run to prevent excessive heat build-up in the heat exchanger after taking the measurements. This can be done by waiting 45 seconds before exiting the app. To exit, select **Save Configuration** and then select **Confirm**; remove line voltage for 2 minutes to save the settings. The motor will now be controlled by the HVAC system again. Test system operation.

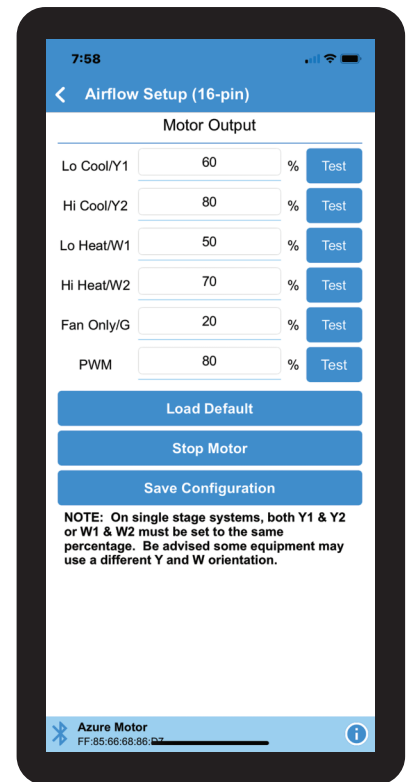
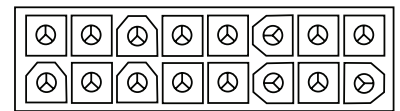
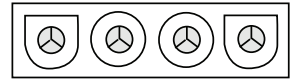


Image 4

Replacing 4 Pin Motors



- 6 Re-apply line voltage, connect to the app, and advance through the Configuration screen to the Unit screen (Image 5) by selecting **Next**.
- 7 Enter the name of the equipment manufacturer.
- 8 The Motor Output screen displays the % of motor output for each operating mode. For example, 70% represents 70% of the maximum output of the motor at its rated horsepower. These values can be increased or decreased to optimize airflow during system setup.

IMPORTANT: TO CHANGE AIRFLOW WHILE SYSTEM IS IN OPERATION, ENTER A NEW VALUE IN THE MOTOR OUTPUT FIELD AND THEN SELECT **TEST** (BUTTON WILL CHANGE TO **ON**). THIS CAN BE DONE AS FREQUENTLY AS DESIRED DURING TEST AND SETUP FOR FINE TUNING. TO SAVE THE SETTING, SELECT **SAVE CONFIGURATION** AND THEN **CONFIRM**. REMOVE LINE VOLTAGE TO THE MOTOR FOR 2 MINUTES – ALL ADJUSTMENTS WILL BE SAVED. ALL CHANGES / ADJUSTMENTS REQUIRE THIS PROCEDURE IN ORDER TO BE SAVED.

IMPORTANT: THE HVAC SYSTEM WILL CONTROL THE OPERATION OF THE MOTOR UNLESS ANY BUTTON ON THIS SCREEN IS SELECTED. WHEN A BUTTON IS SELECTED, THE APP WILL TAKE CONTROL OF THE MOTOR AND WILL NOT RELINQUISH CONTROL OF THE MOTOR OPERATION UNTIL LINE VOLTAGE IS REMOVED FROM THE MOTOR FOR 2 MINUTES – THE SYSTEM WILL THEN BE IN CONTROL OF THE MOTOR AGAIN AND READY FOR NORMAL OPERATION.

- 9 Test system operation and check airflow. Adjust motor % output as necessary to achieve optimal airflow. If performing a temperature rise test, remove the call for heat and allow the motor to run to prevent excessive heat build-up in the heat exchanger after taking the measurements. This can be done by waiting 45 seconds before exiting the app. To exit, select **Save Configuration** and then select **Confirm**; remove line voltage for 2 minutes to save the settings. The motor will now be controlled by the HVAC system again. Test system operation.

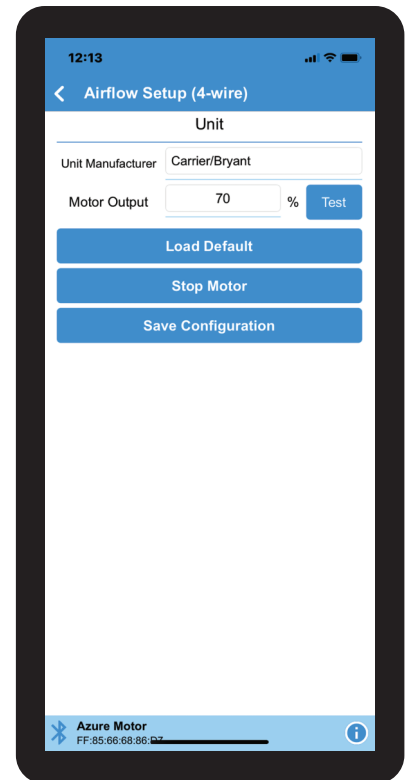


Image 5

Replacing 5-Tap Motors (Constant Torque)

- 6 Re-apply line voltage, connect to the app, and advance through the Configuration screen to the Motor Output screen (Image 6) by selecting **Next**.
- 7 The Motor Output screen displays the % of motor output for each tap. For example, 80% represents 80% of the maximum output of the motor at its rated horsepower. This value can be increased or decreased to optimize airflow during system setup.

IMPORTANT: TO CHANGE AIRFLOW WHILE SYSTEM IS IN OPERATION, ENTER A NEW VALUE AND THEN SELECT **TEST** (BUTTON WILL CHANGE TO **ON**). THIS CAN BE DONE AS FREQUENTLY AS DESIRED DURING TEST AND SETUP FOR FINE TUNING. TO **SAVE** THE SETTING, SELECT **SAVE CONFIGURATION** AND THEN **CONFIRM**. REMOVE LINE VOLTAGE TO THE MOTOR FOR 2 MINUTES – ALL ADJUSTMENTS WILL BE SAVED. ALL CHANGES / ADJUSTMENTS REQUIRE THIS PROCEDURE IN ORDER TO BE SAVED.

IMPORTANT: THE HVSCREENAC SYSTEM WILL CONTROL THE OPERATION OF THE MOTOR UNLESS ANY BUTTON ON THIS IS SELECTED. WHEN A BUTTON IS SELECTED, THE APP WILL TAKE CONTROL OF THE MOTOR AND WILL NOT RELINQUISH CONTROL OF THE MOTOR OPERATION UNTIL LINE VOLTAGE IS REMOVED FROM THE MOTOR FOR 2 MINUTES – THE SYSTEM WILL THEN BE IN CONTROL OF THE MOTOR AGAIN AND READY FOR NORMAL OPERATION.

IMPORTANT: AZURE REFERENCES THE TORQUE TAPS AS 1 (LOW) TO 5 (HIGH). SOME EQUIPMENT MAY REFERENCE THE TAP TORQUE AS 1 (HIGH) TO 5 (LOW). TO SEE WHICH TAP IS BEING USED BY THE SYSTEM, SELECT **CURRENT MOTOR STATUS** (IMAGE 7) ON MAIN SCREEN. THIS FEATURE IS ONLY AVAILABLE WHEN THE HVAC SYSTEM IS CONTROLLING THE AZURE MOTOR; IF THE MOTOR IS IN TEST MODE AND BEING CONTROLLED BY THE APP REAL TIME DATA IS NOT AVAILABLE.

- 8 Test system operation and check airflow. Adjust motor % output as necessary to achieve optimal airflow. If performing a temperature rise test, remove the call for heat and allow the motor to run to prevent excessive heat build-up in the heat exchanger after taking the measurements. This can be done by waiting 45 seconds before exiting the app. To exit, select **Save Configuration** and then select **Confirm**; remove line voltage for 2 minutes to save the settings. The motor will now be controlled by the HVAC system again. Test system operation.

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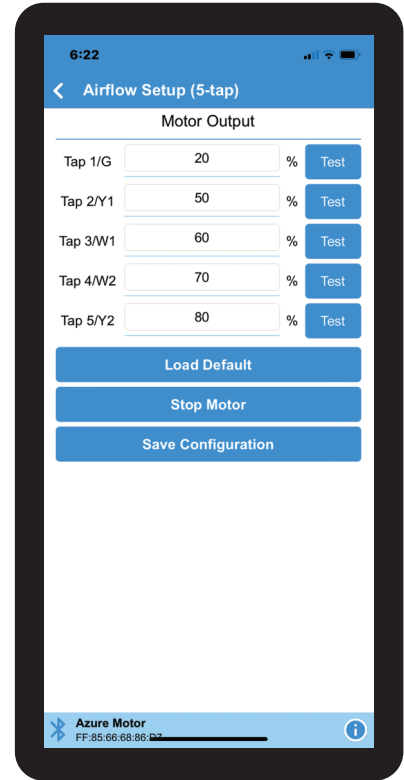
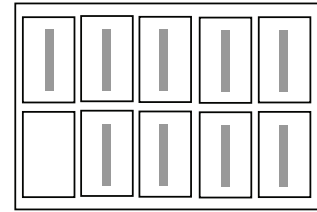


Image 6

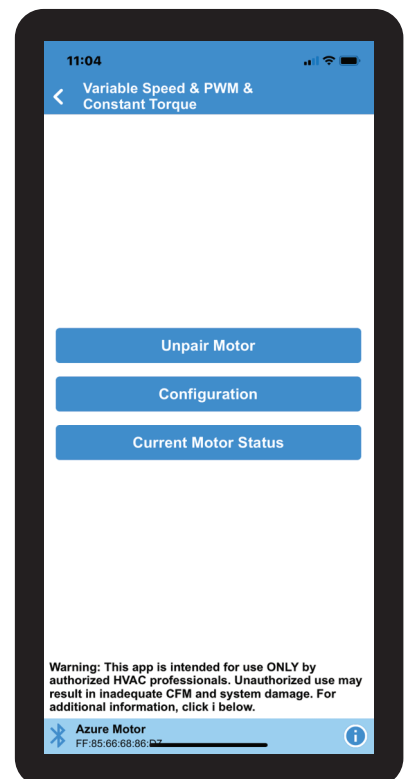


Image 7

Replacing 5-Tap Motors cont. (Constant Torque)

Adding On/Off Delays: The default settings provide no on/off delays. If delays are needed for the application:

- a)** Enter the Configuration screen, select **Advanced Setup** and select **Next** to enter the Delay Profile screen (Image 8).
- b)** Enter desired values in seconds for On and/or Off Delays.
- c)** Select **Next**. Select **Save Configuration** and then select **Confirm**. Remove line voltage for 2 minutes to save the settings. Test operation.

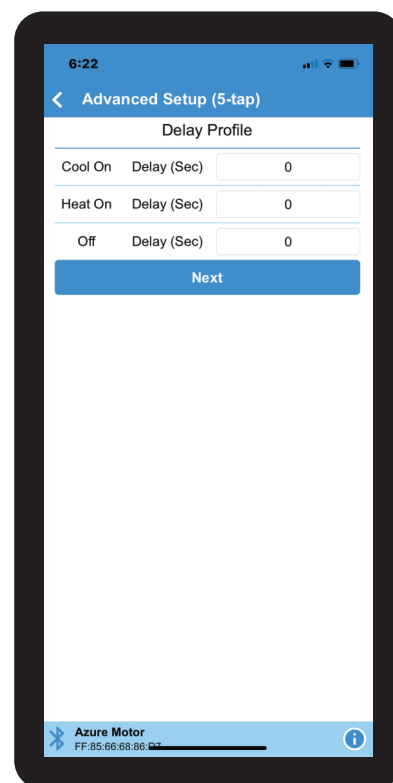
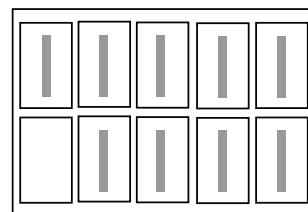


Image 8

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