

PHOTON™ WI-FI MODULE

Owner's Manual

BEFORE GETTING STARTED

Read and follow safety instructions. Refer to product data plate(s) for additional operating instructions and specifications.

ATTENTION

IMPORTANT INFORMATION FOR INSTALLERS OF THIS EQUIPMENT - THIS EQUIPMENT IS INTENDED FOR INSTALLATION BY TECHNICALLY QUALIFIED PERSONNEL. FAILURE TO INSTALL IT IN COMPLIANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES AND WITHIN FRANKLIN ELECTRIC RECOMMENDATIONS, MAY RESULT IN ELECTRICAL SHOCK OR FIRE HAZARD, UNSATISFACTORY PERFORMANCE, AND EQUIPMENT FAILURE. FRANKLIN INSTALLATION INFORMATION IS AVAILABLE FROM PUMP MANUFACTURERS AND DISTRIBUTORS AND DIRECTLY FROM FRANKLIN ELECTRIC.

⚠ WARNING

SERIOUS OR FATAL ELECTRICAL SHOCK MAY RESULT FROM FAILURE TO CONNECT THE MOTOR, CONTROL ENCLOSURES, METAL PLUMBING, AND ALL OTHER METAL NEAR THE MOTOR OR CABLE TO A PROPER EARTH GROUND IN ACCORDANCE WITH LOCAL CODES, USING WIRE NO SMALLER THAN MOTOR CABLE WIRES. TO REDUCE RISK OF ELECTRICAL SHOCK, DISCONNECT POWER BEFORE WORKING ON OR AROUND THE WATER SYSTEM. DO NOT USE MOTOR IN SWIMMING AREAS.

⚠ CAUTION

Use the Foton™ Wi-Fi Module only with Foton™ Drive controllers. Use of this unit with any other controller, or with controllers from other manufacturers, may result in damage to both motor and/or electronics. Modification of Foton™ Drive parameters to any value outside of the recommended range or without the expressed consent from Franklin Electric could result in reduced life of the motor, pump, drive or system.

⚠ WARNING

High voltages (both AC and DC) capable of causing severe injury or death by electrical shock are present in this unit. More than one disconnect switch may be required to de-energize the equipment before servicing. This unit should only be installed or serviced by technically qualified professionals. Anytime working on or near the Foton™ Drive, or system:

- Turn OFF the external DC rated disconnect from the solar array or any other DC source to the Foton™ Drive controller.
- Securely cover any solar array with an opaque tarp.
- Wait a minimum of 5 minutes after removing power to the Foton™ Drive before servicing.

This equipment must not be used by children or persons with reduced physical, sensory or mental abilities, or lacking in experience and expertise, unless supervised or instructed. Children may not use the equipment, nor may they play with the unit or in the immediate vicinity.

⚠ WARNING

Solar panels that have been exposed to full solar insolation for an extended period of time can achieve high temperatures and could be a potential source of burns to exposed skin if contacted. Use caution when working around solar arrays.

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OVERVIEW

The Photon™ Wi-Fi Module (581COMM-APP) is an accessory for the Photon™ Drive which allows wireless communication between the Photon™ Drive and a mobile device (such as a smartphone or tablet) by means of the Photon™ App (for iOS or Android devices).

For additional installation guidelines and precautions related to the Photon™ Drive please refer to the Photon™ Drive Installation Manual.

FE FHOTON™ APP FEATURES

The FE Photon™ App allows drive parameters to be monitored in real-time with examples, following:

- Input Power (Watts)
- Rotor Speed (Hertz)
- Bus Voltage (Volts DC)
- Input Current (Amps DC)
- Motor Current (Amps AC)

In a similar way, the FE Photon™ App allows drive parameters to be modified with examples, following:

- Motor Maximum Frequency (Hertz)
- Motor Minimum Frequency (Hertz)
- Motor Minimum off time (Seconds)
- Underload adjustment (%)

DESCRIPTION

The Photon™ Wi-Fi Module consists of a 20-pin form-factor module with integral wire antenna and uses 802.11b/g/n communication protocols (2.4 GHz frequency). See Figure 1 for reference.

The Photon™ Wi-Fi Module can be field installed into the 20-pin socket provided on the Photon™ Drive User Interface Board (U7 terminal). The module is powered via the socket, therefore no additional power sources are required. The sealed Photon™ Drive enclosure with the lid attached will allow communication with the module to a range of up to about 100 feet (30 meters) when direct line of sight with the Wi-Fi enabled device.

Any time the Photon™ Drive is being powered with the minimum required voltage (45 VDC), it will provide enough power for the Wi-Fi Module to begin broadcasting a Wi-Fi signal (802.11b/g/n).

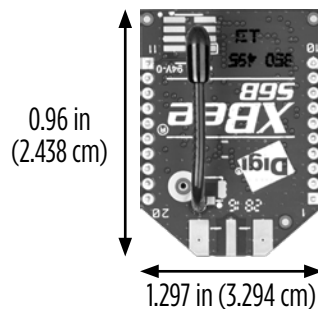


Figure 1

APPLICATION

The Photon™ Wi-Fi Module can be used for communicating with any Photon™ Drive having a date code of June 2016 or later. Communication by means of the Photon™ App for mobile devices (iOS or Android) allows for Photon Drive parameters to be monitored and/or modified.

INSTALLATION

Installation Preparation and Requirements

⚠ WARNING

All electrical power should be disconnected prior to installation, maintenance, or modification of the electronic boards or electronic components inside the Photon Solar Drive.

When installing the Photon™ Wi-Fi Module, be aware of the following:

Solar pumping systems are powered from high voltage sources so all power sources should be removed including any AC power sources (grid power, generator, etc.) and DC power sources (Photovoltaic Panels, Batteries) before working on or around the solar pumping system.

Only authorized and trained personnel should be allowed access to work on, or near the solar array and related equipment.

The Photon™ Drive Wi-Fi Module continuously broadcasts a radio frequency signal (2.4 GHz frequency) as a Wi-Fi signal while power is applied. If other electronic products or devices near the Photon Solar Drive are not compatible with a 2.4 GHz Wi-Fi signal, interference could occur.

Installing the Wi-Fi Module

1. Remove power from the Photon™ Drive (DC Source or optional AC Source). Lock-out and tag-out the power source to avoid accidental turning on of the power sources while the system is being worked on.
2. Wait at least 5 minutes after power is removed to ensure that power has dissipated in the drive. Confirm by verifying all LED lights in the Photon™ Drive are off.
3. When confidence is certain that the drive is safe regarding internal power, remove the drive cover and use a multimeter to confirm no external voltage is being applied.
4. The Photon™ Drive User Interface (U/I) board contains (2) 10-pin headers in the bottom right section (delimited by the area marked as U7, as shown on Figure 2).
5. The placement of the Wi-Fi Module is outlined in white on the User Interface board, allowing the correct placement of the product to be matched to the shape of the outline.
6. With the Wi-Fi Module cut-corners facing down (and the wire antenna facing up), mount over the two headers (see Figure 3).
7. Ensure that all pins are properly aligned and fully inserted into the two headers. Also note the name on the Wi-Fi Module label (antenna side) as this will be the Wi-Fi Module signal name when connecting to the Wi-Fi enabled mobile device.
8. When confidence is certain that the Wi-Fi Module is properly installed, replace the drive cover and restore power to the Photon Drive.
9. Ensure that the drive wakes up and operates normally.

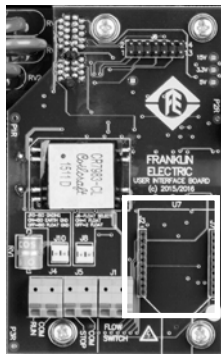


Figure 2

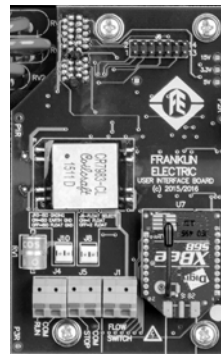


Figure 3

OPERATION

FE FHOTON™ APP

1. Download the FE Photon™ App from either the Apple Store for iOS type devices or Google Play Store for Android type devices.
2. Prior to launching the Photon™ App, the connection between the Wi-Fi Module and mobile device must be established. Go to the phone or tablet's Wi-Fi setup and locate / connect to the signal listing the previously noted serial number as located on the module.
NOTE: The Wi-Fi Module signal will typically have a name such as “FELE AH XXXX” which also matches the label on the Wi-Fi Module. As a reference, the typical default IP and ports used to connect are 192.168.1.200 and port 9750.
3. Launch the FE Photon™ App on the mobile device. Tap on “Connect”, as shown in Figure 4, a new screen should pop up for a few seconds to indicate the attempted connection (Figure 5).



Figure 4

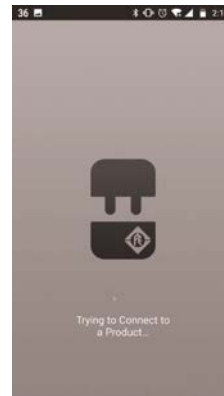


Figure 5

Monitoring

The Monitoring Screen (Figure 6) lists parameters such as Input Power (Watts), Rotor Speed (Hertz), Bus Voltage (VDC), Input Current (Amps) and Motor Current (average of the 3 output currents, in Amps):

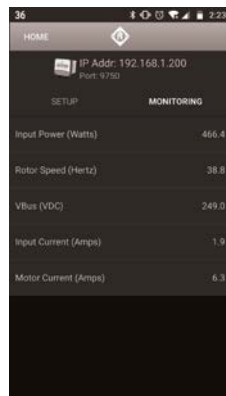


Figure 6

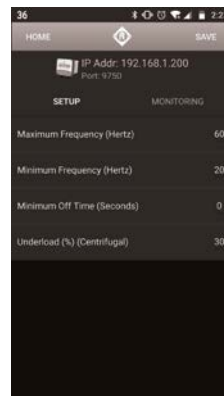


Figure 7

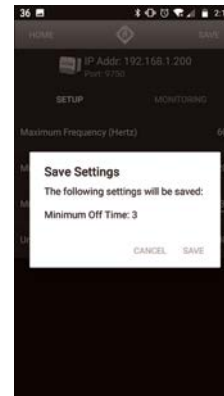


Figure 8

Setup

The Setup Screen (Figure 7) includes the following: Maximum Frequency (Hertz), Minimum Frequency (Hertz), Minimum Off Time (Seconds) and Underload % (Centrifugal).

NOTE: Be aware that if a change is saved while the motor is running, the system will automatically stop the motor-pump for a few seconds, saving the changes to the solar controllers memory. After the memory changes are saved the control will automatically restart the pump/motor returning to normal operation.

To change a parameter, touch the displayed value that you desire to adjust. A dialogue box will appear showing the current value. Type the new value, matching the decimal point and the decimal units to the format previously displayed for the original value (Figure 8).

Tap the “Save” button on the lower right corner. If the settings are loaded correctly, a pop-up window will display, indicating the changes have been saved on the device (Figure 10). After setting or setup information is saved, a message will indicate such and that the solar drive has been restarted (Figures 11 and 12).

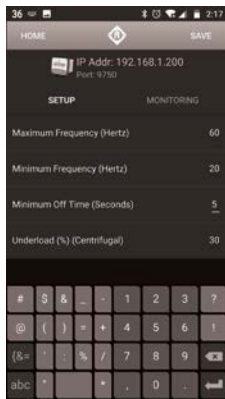


Figure 9

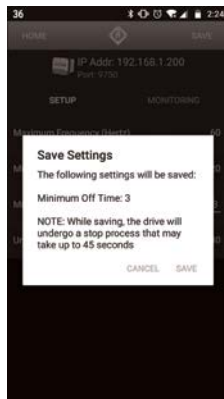


Figure 10

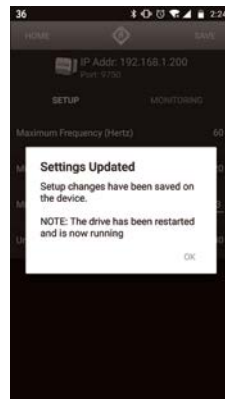


Figure 11

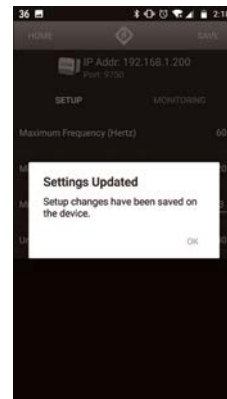


Figure 12

TROUBLESHOOTING

Initial Connection

- After tapping the “Connect” button, if unable to establish a connection (Figure 13), completely close the Photon™ App and go to the mobile device Wi-Fi settings. Make sure the mobile device antenna is enabled and the mobile device is connected to the Photon™ Wi-Fi module. Re-start the App and try again.

Setup/Monitoring Screens

If at any point a Data Error message is received as in Figure 14, or no connection can be established with the unit (Cannot access Monitoring screen or Setup Screen), verify the following:

- Unit (motor) is completely stopped (no command on RUN terminal, or circuit is open).
- There are no other mobile devices nearby using Wi-Fi and connected on the signal being emitted by the Photon™ Wi-Fi Module (“FELE AH XXXX”). Whenever possible, disable Wi-Fi communication from any other mobile devices nearby not being used to communicate with the Photon™ Drive.

If the unit would not allow for communication, Cycle input power* on the Photon™ Drive and repeat the procedure listed on the Operation Section of this manual from step #2.

* “Cycle input power” means disconnecting all power supplies to the unit for at least five minutes, then re-connecting power.



Figure 13

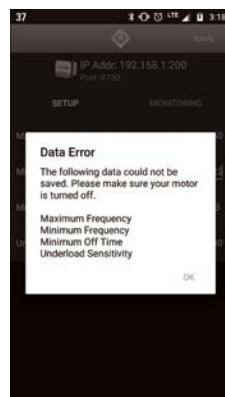


Figure 14

SPECIFICATIONS

Photon™ Wi-Fi Module Order Number	581COMM-APP
Dimensions	1 in x 1.3 in (2.4 cm x 3.3 cm)
Operating Temperature	-22 F to 185 F (-30 C to 85 C)
Communication Protocol	802.11b/g/n
Frequency	2.4 GHz
Data Rate	72 Mbit/s (Approximate)

Refer to the Photon™ Drive Installation Guide for additional details.

NOTES

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