



PLC Electronic Solutions Ltd.

fSTOP Wireless BarTech Digital Receiver Manual



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1. Introduction

Congratulations! You are now able to use your BarTech Handset to control industry standard Digital Follow Focus Motors. The **fSTOP Wireless BarTech Digital Receiver (BDR)** is currently the smallest, lightest and fastest response receiver on the market.

BarTech Engineering has worked with **PLC Electronic Solutions Ltd.** to bring new cutting edge technology at a fantastic value to be used with all camera systems from large Cinema Cameras to DSLR cameras.

We hope that you will enjoy using the **fSTOP Wireless BarTech Digital Receiver (BDR)** as much as we enjoyed bringing you this new technology. Please feel free to contact us if you have any questions or comments.



2. Installation

2.1. Necessary Hardware

- fSTOP Wireless BarTech Digital Receiver
- fSTOP Power Cable
- Digital Motor
- Digital Motor Cable
- BarTech Focus Device (BFD) Handset

2.2. Optional Hardware

- A PLC Electronic Solutions **BarTech Iris Slider Upgrade** for two channel control of focus and iris.



2.3. fSTOP Wireless BarTech Digital Receiver



Attach the Antenna to the **fSTOP Wireless BarTech Digital Receiver**.



Plug one end of the **fSTOP Power Cable** into the power output connector of a camera and the other end into the 2pin Lemo connector on the **fSTOP Wireless BDR**.

Attach the motor to the gearing of the desired focus, iris or zoom ring. Plug one end of the 7pin motor cable into the digital motor and the other end into the 7 pin connector of the **fSTOP Wireless BDR**. Do not power up the system at this time.

****You must ensure that the Camera Power output connector is able to source up to 3.0 Amps if you wish to power the fSTOP Receiver Directly from the Camera.****

3. fSTOP Wireless BarTech Digital Receiver Setup

3.1. Motor Calibration

After installing the motor and **fSTOP Wireless BDR** power up the camera. The motor will automatically calibrate by moving the lens gear to both end stops. It is now ready to communicate with your **BFD Handset**.

****You can also calibrate the motor by hand to test the system if no camera lens is available. Once you power the motor it will start to rotate one direction; after some movement apply pressure to the gear to stop the motor moving in that direction. The motor will stop and then move in the other direction, after one revolution in this direction apply pressure to stop it from moving. The motor will now be calibrated.**

Note: Do not let the motor spin for more than 60 seconds, as it will fail calibration as it assumes that no lens is present. If this happens simply unplug the motor cable and then plug it in again to restart the calibration.

3.2. Torque Setup

The **fSTOP Wireless BDR** allows for the user to set the desired torque for the motor control. Generally the increased torque will allow for more accurate control on stiffer lens rings, however there is a trade-off with increased noise generated by the motor.

In order to adjust the Torque move the **BFD Handset** knob to the torque percentage you would like to set, i.e. fully clockwise is 100%, fully counter clockwise is 1%

(Assuming the direction switch on the **BFD Handset** is set to **REV**).

Press and Hold in the **MODE** button on the **fSTOP Wireless BDR** and wait for the Green status light to go OFF and then turn back ON after about 1 second. The Torque is set and saved into memory.

Note: Due to changes in the wiring of the handsets over the years some units may have the torque setting reversed. So if changing the torque as described above doesn't have the desired effect try setting the direction switch to FWD and repeat the procedure.

3.3. fSTOP Switch Settings



3.3.1. CHAN Switch Settings

This **CHAN** switch is used to select one of the eight frequencies available in the 900MHz range for operation. If the selector switch is set to the same channel as the **BFD Handset**, the **fSTOP Wireless BarTech Digital Receiver** will be controlled by the focus knob on the **BFD Handset**.

To use the **fSTOP Wireless BarTech Digital Receiver** with the **BarTech Iris Slider Upgrade**, the **CHAN** switch must be set to **A**, **B**, or **C**. Use the following table to determine the appropriate channels to use. As a general rule, use the highest number that works in order to minimize interference from video transmitters.

Transmitter BFD Handset	Focus Receiver	Iris Receiver	Zoom Receiver (Future Use)
0	0	A	D
1	1		
2	2		
3	3	B	E
4	4		
5	5		
6	6		
7	7	C	F

Note: If two BFD units are being used at once, leave at least one unused channel between the two channels being used, i.e. do not set the units on adjacent channel, such as 5 & 6! Also do not use 3 & 7 or 2 & 6 simultaneously, as you may get interference.

3.3.2. DIRECTION Switch

The **DIRECTION** Switch sets the direction of the motor.

3.3.3. SECURITY Switch

The **Security** Switch switches between the two types of motor calibration: current only, or current and velocity.

- Having the switch in the **ON** position the motor calibrates with current only; the endstop is determined when the current drawn by the motor exceeds the set limit.
- If the switch is in the **OFF** position the motor will calibrate with both current and velocity detection. The endstop is determined by either the motor drawing too much current, or the motor speed dropping below a predetermined speed.

3.3.4. MODE Button

The **Mode** Button is used to set the Motor Torque Setting of the **fSTOP Wireless BDR**.

- With the **BFD Handset** and **fSTOP Wireless BDR** powered and calibrated and communicating, ensure that the FWD/REV switch on the **BFD Handset** is set to the REV position.
- Turn the Focus Knob on the **BFD Handset** to a position between 1% Torque (Fully counter-clockwise) and 100% (Fully clockwise) representing the amount of torque you wish the motor to have (Higher Values for Stiff Lenses).
- Press and Hold in the **MODE** button on the **fSTOP Wireless BDR** and wait for the Green status light to go OFF and then turn back ON after about 1 second. The Torque is set and saved into memory.
- The new Torque is now set in the **fSTOP Wireless BDR** and it will be stored in memory even after power is removed.

3.3.5. STATUS LED

When the unit is powered up the **STATUS** LED will indicate this by being lit steadily. When the **BFD Handset** is connected the **fSTOP Wireless BDR** the **STATUS** LED will blink quickly to indicate that data is being received.

3.3.6. CAL Button

The **CAL** or calibrate button is a soft reset of the unit. When the button is depressed and released it will reset the unit. The motor will then start its calibrate function again after approximately 6 seconds.

4. Connector Pinouts

4.1. Camera ON/OFF Connector

Lemo# ERD.0S.304.CLL

- 1 Transmit (Tx) – Factory use only
- 3 Receive (Rx) – Factory use only
- 2 Camera (ON/OFF) contact closure
- 4 Camera (ON/OFF) contact closure

Plug for making cables **Lemo# FFA.0S.304.CLA52**

4.2. Power (10-30V) Connector

Lemo# ECG.0B.302.CLL

- 1 Power (10 – 30V)
- 2 Ground

Plug for making cables **Lemo# FGG.0B.302.CLAD52**

4.3. Digital Motor Connector

Lemo# EGG.1B.307.CLL

- 1 Motor –
- 2 Motor +
- 3 Chan A Encoder
- 4 VCC +5V
- 5 Ground
- 6 Chan B Encoder
- 7 Motor Detect

Plug for making cables **Lemo# FGG.1B.307.CLAD52**

5. Specifications

Dimensions (antenna removed): approx 3.5" L x 2 1/8" W x 7/8" H
(9.1cm L x 5.4cm W x 2.4cm H)

Weight : 4 3/4 oz. (135 g)

Input Voltage: 10 to 30 Volts

Power Consumption: 0.075 A @ 12 volts, 0.055 A @ 24 volts
Standby, not driving motor

RF Reception: 8 channels 902-928 MHz

Channel	Frequency (MHz)
0	903.37
1	906.37
2	907.37
3	909.37
4	912.37
5	915.37
6	919.37
7	921.37

Resolution: 12-bits (4096 steps), all steps always used.

Transmission Latency: 2.7 milliseconds

Position Update Rate: 300 transmissions / second

Antenna: ANT 916MHZ 1/4 WAVE WHIP

Linx Technologies# ANT-916-CW-RH

Digi-Key# ANT-916-CW-RH-ND

Motor Compatibility:

*Preston: DM1, DM1X, DM2

*Scorpio: All Digital motors with 7 pin Lemo connector

*Heden: All Digital motors with 7 pin Lemo connector

*M-One: M-One Digital motor

6. Troubleshooting

6.1. Calibration

The motor will not calibrate to the full span of the lens.

- If the **Security** switch is in the **OFF** position try moving it to the **ON** position.
- Try increasing the torque settings. See section **3.2 Torque Setup**.

The motor moves to the first stop and continues to try and turn.

- If the **Security** switch is in the **ON** position try moving it to the **OFF** position.
- Try decreasing the torque settings. See section **3.2 Torque Setup**.
- If possible try increasing the supplied voltage to 24V.

6.2. Connectivity

I cannot get the **fSTOP Wireless BarTech Digital Receiver** to receive the signal from the transmitter.

- The motor has not been allowed to calibrate properly.
- Check that the **BFD Handset** and **fSTOP Wireless BDR** are set to the same channel.
- Look for the **STATUS** LED blinking on the **fSTOP Wireless BDR**

6.3. Interference Issues

I am having interference issues.

- If two BFD units are being used at once, leave at least one unused channel between the two channels being use, i.e. do not set the units on adjacent channel, such as 5 & 6! Also do not use 0 & 5 or 3 & 7 or 2 & 6 simultaneously, as you may get interference.

6.4. Iris Slider Calibration

I am having problems with the Iris not making it all the way to the end stops.

- To calibrate the **BarTech Iris Slider** make sure that all of the switches are in the down position on the BarTech Handset. I.e Power is OFF, Motor Direction is in REV, Camera is in CON, and Camera Run/Stop is in STOP.
- Switch on the Power switch.
- Now switch up all of the other switches. When this is completed both the Power and Camera Run/Stop LED's should start rapidly flashing.
- Slide the **BarTech Iris Slider** knob all the way from one end to the other a few times.
- Move all of the switches but the Power switch into the down position. The Power and Camera Run/Stop LED's will stop rapidly flashing which indicates that the calibration is complete.

6.5. Iris Slider Maintenance

My Iris Slider is sticky or has dirt in the slider guide.

- To clean the **BarTech Iris Slider** guide unscrew the 2 phillips screws on the end of the slider in the plastic stopper. Slide out the stopper and slider knob. Clean the guide and knob with alcohol and replace the slider knob with the rounded end going in first. Slide in the stopper and screw it back into place.

Note: Be careful not to over tighten the screws.

7. Limited Warranty

BarTech Engineering Warrants this equipment for 1 year from the date of original purchase against defects in materials or workmanship, provided it was purchased from an authorized dealer. This warranty does not cover equipment, which has been abused or damaged by careless handling or shipping, nor does it cover products subjected to customer alteration, modification, negligence or misuse. This warranty does not apply to used or demonstrator equipment.

Should any defect develop within the warranted time period, BarTech Engineering will at its sole option, repair or replace the defective instrument without charge. To obtain warranty service, the defective instrument must be returned within 1 year from original purchase date to BarTech Engineering, along with a brief description of the defect claimed.

This warranty gives you specific legal rights. You may have additional legal rights, which vary from state to state.

8. Technical Support

Address any technical question to:

PLC Electronic Solutions Ltd.

9-3871 North Fraser Way

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