

OPERATING INSTRUCTIONS

FreeWireTM

model FW10

Digital Transceiver/Wireless TTL Flash
and Camera Trigger

Uni-Mod FW11

Universal Connection Module and Hot Shoe



QUANTUM

★ DESIGNED AND MANUFACTURED IN THE USA ★

Patent Pending

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Included with FreeWire FW10: Pole mounting kit, 2x AAA batteries, Sync-in cord, Instructions, Hook and loop mounting pads

Model FW11 Uni-Mod and all other accessories mentioned in this Operating Manual are optional.

All specifications and features are subject to change, updating, and improvements.

Glossary

FreeWire TX, or "TX" unit	a FreeWire set to transmit
FreeWire RX, or "RX" unit	a FreeWire set to receive
FreeWire Relay	a FreeWire that will relay a signal from one FreeWire to another
Zones 1, 2, 3, and 4	wireless links that can be turned on or off to change lighting and camera activation
Channels 0 thru 7	independent channels for separate FreeWire setups operating in the same area
"Local" flash	a flash close to the camera and connected with a sync cord
"Remote" flash	a flash at a distance from the camera and wirelessly synchronized

1.0 Introduction

We would like to introduce you to FreeWire's unique ability to control your photo gear, wirelessly.

FreeWire makes a two-way link between your camera, flash, and you. One FreeWire unit signals a remote FreeWire to trigger a flash or camera, and the remote unit sends back confirmation that it received the signal!

FreeWire provides wireless sync and/or wireless shutter control. And, FreeWire provides wireless TTL control of remote Qflash's.

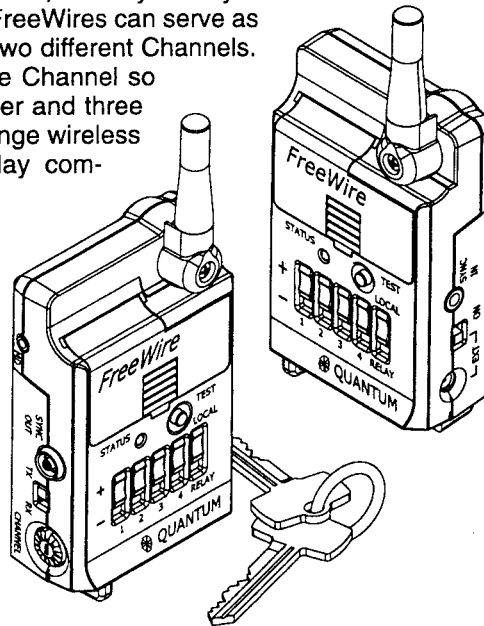
FreeWire controls four independent Zones for wireless flash or motor drive. You can activate any one Zone, or any combination of Zones 1,2,3 and 4. Switch your lighting instantly, remotely. Select and trigger flash, cameras, or combinations of them, from your remote position.

FreeWire also has eight unique Channel Codes. FreeWire units set to one Channel cannot activate FreeWires set to different Channels. You control the Channel Code to make FreeWire units work together or independently, as required.

You can switch the functions of your FreeWire units to suit your purpose. Each FreeWire can become a transmitter, receiver, or relay unit by simple switch selection. (For example, four FreeWires can serve as two send/receive systems, operating on two different Channels. Or all FreeWires can be set on the same Channel so they operate as one system - a transmitter and three receivers.) If you need extremely long-range wireless control, intermediate FreeWires can relay commands to farther FreeWire units.

FreeWire is very small and light and mounts easily to cameras, brackets, poles, and tripod legs. Adapter cords are available for popular cameras and flashes. A Universal Connection Module (Uni-Mod), though not required, allows you to hot sync FreeWire directly from camera hot shoes, or to use multiple types of sync cords.

There are many more useful features of FreeWire and we encourage you to read on!



2.0 Channel Code and Zone set-up

2.1 Setting the Channel Code, Transmit, Receive, and Zones

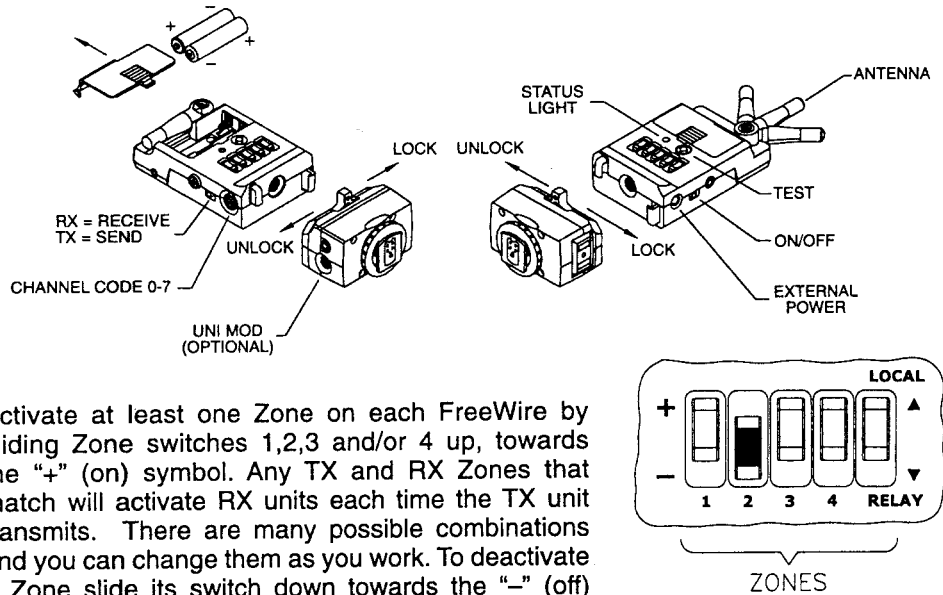
The Channel Codes allow FreeWires to work together. Set all units that you want to work together to the same Channel Code. If you desire independent groups of FreeWires (to work in the same area but not interfere), assign each group of FreeWires its own Channel.

The Channel dial is located on the left side. Rotate the dial to the desired Code, 0 through 7. To rotate, press the pad of your thumb on the dial and turn. Or, use a small screwdriver. Channels can be matched by the number or by the position of the cutout in the Channel dial.

Put AAA batteries in all units.

Set one FreeWire to "TX" and set the Local/ Relay switch to **Local**. TX means transmitter or sender.

Set any number of other FreeWire units to "RX" and the Local/ Relay switch to **Local**. RX means receiver or remote.



Activate at least one Zone on each FreeWire by sliding Zone switches 1,2,3 and/or 4 up, towards the "+" (on) symbol. Any TX and RX Zones that match will activate RX units each time the TX unit transmits. There are many possible combinations and you can change them as you work. To deactivate a Zone slide its switch down towards the "-" (off) symbol.

2.2 Turn on the units. Slide the power switch to ON.

Status lights of FreeWire TX units blink red slowly. RX units blink green slowly. Low batteries are indicated by 3 quick blinks every few seconds.

Open the antennas so that they are approximately vertical. See Section 6.0, Mounting FreeWire.

Press TEST on the FreeWire TX to confirm that all units are working. STATUS should light steadily on all FreeWires RX's for as long as you hold TEST (assuming correct Channel and Zone settings.)

The optional accessory Uni-Mod may be connected to the FreeWire TX. The purpose of the Uni-Mod (Universal Module) is: 1) to provide hot shoe mounting and sync from a camera to a FreeWire TX; 2) provide a two prong sync-in connection to fit common sync cords; or, 3) provide an interface to Quantum's TTL adapters for wireless TTL control of Qflash. See Section 7.0 for more details.

2.3 Summary of the Local/Relay switch

Whether a FreeWire is set to transmit (TX) or receive (RX), the Local/Relay switch has different functions. The table below summarizes the functions.

<u>TX/RX switch</u>	<u>Local/Relay switch</u>	<u>Function</u>
TX	Local	Transmit to remote flashes and also trigger a local flash connected to either the PC Sync-out or to an "FW" series TTL adapter.
TX	Relay	Transmit only - do not activate local flash function
RX	Local	Receive signals from TX units
RX	Relay	Receive signals from TX units and re-transmit (relay) them to other RX units.

3.0 Remote Flash set-up

3.1 FreeWire TX:

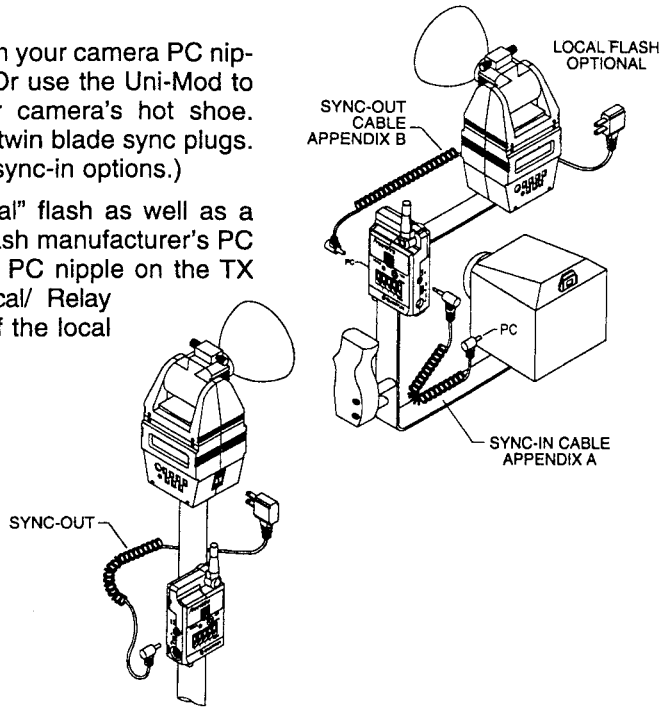
Connect a sync-in cord from your camera PC nipple to FreeWire Sync-In. Or use the Uni-Mod to connect FreeWire to your camera's hot shoe. The Uni-Mod also accepts twin blade sync plugs. (See Appendix A for other sync-in options.)

If you want to sync a "local" flash as well as a remote one, connect the flash manufacturer's PC sync cord to the Sync-Out PC nipple on the TX FreeWire, and set the Local/ Relay switch to Local. To turn off the local flash, switch to Relay.

3.2 FreeWire RX:

Set the Local/Relay switch to Local.

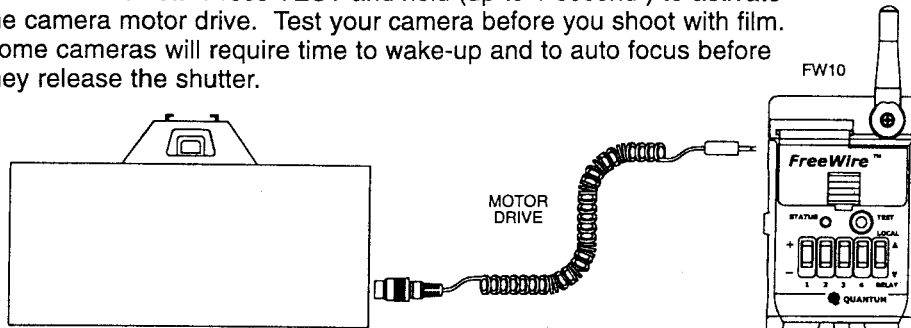
Connect the PC sync cord supplied by your flash's manufacturer to the Sync-Out PC nipple on the RX FreeWire. (See Appendix B for other sync-out options.)



4.0 Remote Camera Trigger (with or without *on-camera* flash)

4.1 FreeWire RX: Connect a Motor Drive Cord (see Appendix C) from the FreeWire MD connection to your camera motor drive.

4.2 FreeWire TX: Press TEST and hold (up to 1 second) to activate the camera motor drive. Test your camera before you shoot with film. Some cameras will require time to wake-up and to auto focus before they release the shutter.



There are motor drive options available in Section 10, Special Options.

5.0 Confirmation Signals and STATUS light

To activate the confirmation feature, set FreeWire TX Special Options to "Confirmation ON", as described in Section 10. "Confirmation ON" needs to be set on just the FreeWire transmitters.

When an RX unit receives a valid signal, it sends a confirmation signal back to the TX unit. A valid signal is one that matches the same Zone and Channel Codes on both RX and TX units.

When the TX unit receives confirmation, STATUS lights *steadily* for about 2 seconds. Absent confirmation, STATUS will only *blink rapidly* as you hold its TEST button (or blinks once if a camera shutter sync triggers the TX unit). Remember that no confirmation signal will appear unless the TX unit is set to "Confirmation ON."

When a TX unit has more than one Zone ON, all remote RX units must confirm, or else the TX status will not light steadily for one second. Make sure TX Zones are ON only for the Zones set on RX units, otherwise, no confirmation signal will appear. The Status confirmation is very useful for testing your radio links or for troubleshooting. See Section 12, FreeWire Performance Guide.

Note: At the limit of FreeWire's range, you may see a remote flash fire but not get a confirmation signal. The flash nevertheless will be in proper sync with the camera shutter.

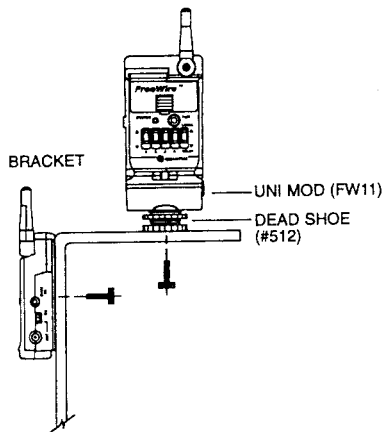
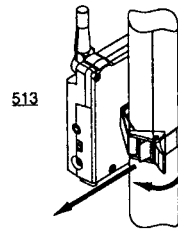
Summary of STATUS light signals:

<u>Light</u>	<u>Repeats every</u>	<u>Means</u>
Steady 2 sec.	——	Confirmation of signal on TX or RX
Single Blink	2 seconds	FreeWire on. Red for TX, Green for RX
Double Blink	15 seconds	Sleeping (see Special Options, Section 10)
Triple Blink	2 seconds	Low battery
Blinking fast	——	TX sending without confirmation, (or Relay waiting for MD sync, Sec. 8)

6.0 Mounting FreeWire

FreeWire units mount by several means:

6.1 Pole Mount Adapter 513: This item is included with your FreeWire. Attach it to the back of FreeWire and clamp it around any pole, leg, or structure where the antenna can be opened away from metal objects.



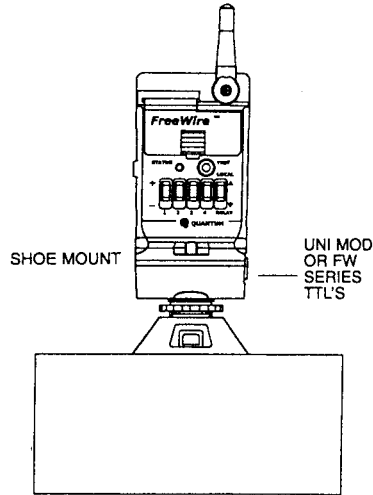
6.2 Mounting directly to a bracket: Use the #8/32 screw included with FreeWire to secure it through a hole in a bracket. *Any other screw used must protrude not more than 3/4" (2 cm) into the FreeWire case, or you will damage FreeWire!*

6.3: Direct Hot Shoe Mounting with the Uni-Mod

Connect the Uni-Mod to a FreeWire and slip it into a camera hot shoe. If the FreeWire is set to TX, sync-in will be connected.

A FreeWire RX mounted to Uni-Mod on a camera shoe will have no connection to the motor drive. If you desire remote motor drive triggering, connect a separate motor drive cord (Appendix C) between MD out and the camera motor drive.

You may also mount the Uni-Mod to a "dead" shoe for convenience, in which case sync-in (for TX units) or sync-out (for RX units) connections will be necessary.

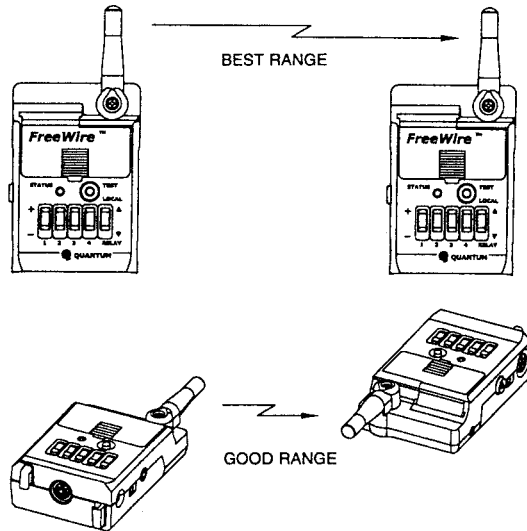


6.4: Mounting with hook & loop tape: Two sets of hook & loop fasteners and one mounting pad are included in the package.

6.5: Important notes on antenna orientation:

At close range (about 50' or 16m) antenna orientation is not critical. Antenna orientation matters more as distance between TX and RX FreeWire increases. Since local conditions affect all radio signals, we recommend a quick test using the Confirmation Signal, Section 5.

The best mounting positions keep FreeWire antennas away from metal objects. Each antenna should be parallel to all others. Vertical FreeWires with vertical antennas provide the greatest range. Other orientations work almost as well.



Also see Section 12, FreeWire Performance Guide, for further information.

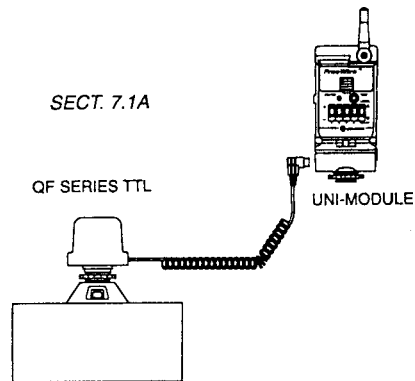
7.0 Wireless TTL and Wireless Auto with Qflash

7.1 Wireless TTL control with Quantum TTL adapters

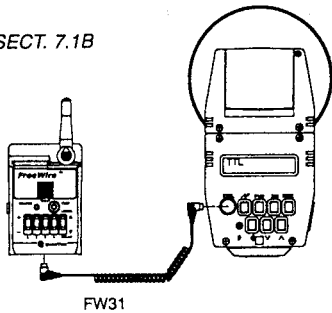
This mode will allow the camera to control all local and remote Qflash exposures. This set up requires a camera with TTL capability and a Quantum TTL Adapter.

Set all Qflash's to "TTL" mode. Set FreeWire TX's Special Options to "TTL ON", as described in Section 10.

7.1A FreeWire TX set-up: Select the correct type of Qflash TTL Adapter for your camera, from the list in Appendix D. The "FW" series of TTL adapters connect directly to FreeWire. The "QF" series of TTL Adapters need to be powered by a Uni-Mod connected to the FreeWire TX. Connect the QF series TTL adapter to the Uni-Mod and mount FreeWire/Uni-Mod on a bracket or other location.



SECT. 7.1B



7.1B FreeWire RX:

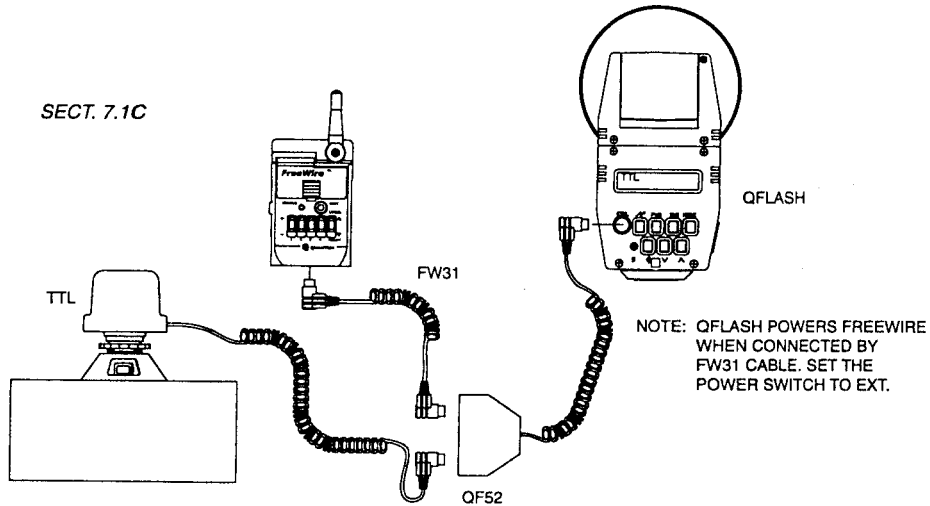
Connect FW31 Accessory Cable between the FreeWire RX and Qflash Accessory sockets. Set Qflash to TTL mode.

Note: Qflash powers FreeWire when it is connected with the QF31 cable. Set the power switch of FreeWire to EXT.

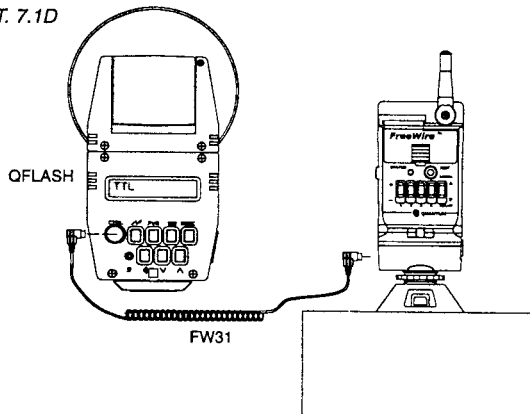
7.1C Connecting a local TTL Qflash to the FreeWire TX:

A local Qflash connected to TX will sync with the remote flash and will also power the TX. A Uni-Mod will not be needed in that case.

When using a "QF series TTL adapter, connect an FW31 Accessory cable and a QF52 Y connector as shown in diagram 7.1C. Set Qflash to TTL mode. Qflash cannot be turned off with the Local/Relay switch.



SECT. 7.1D



7.1D When using an "FW" series TTL adapter, connect Qflash to FreeWire with an FW31 cable as shown in diagram 7.1D. Qflash will be turned on/off by the Local/Relay switch.

7.2 Wireless *Auto* control for 2 or more Qflash

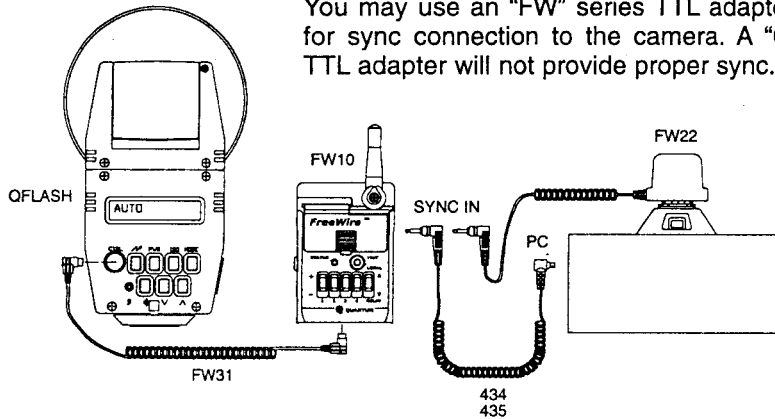
This mode will allow a Qflash in Auto mode to control its exposure and the exposure of remote Qflash's. This set up does not require a camera with TTL capability nor a TTL Adapter. It does require a local Qflash.

Note: Set FreeWire TX's Special Options to "TTL ON", as described in Section 10.

7.2A FreeWire TX set-up:

Connect an FW31 cable from FreeWire TX to Qflash. Connect a Sync-in cord from camera PC nipple to FreeWire. Set the local Qflash to "Auto" mode.

You may use an "FW" series TTL adapter but only for sync connection to the camera. A "QF" series TTL adapter will not provide proper sync.



7.2B FreeWire RX:

Connect an FW31 cable from FreeWire RX to the remote Qflash as in diagram 7.1B. Connect as many remote Qflash's as required and set them to "TTL" mode. The remote TTL Qflash's will expose to the setting of the local "Auto" Qflash.

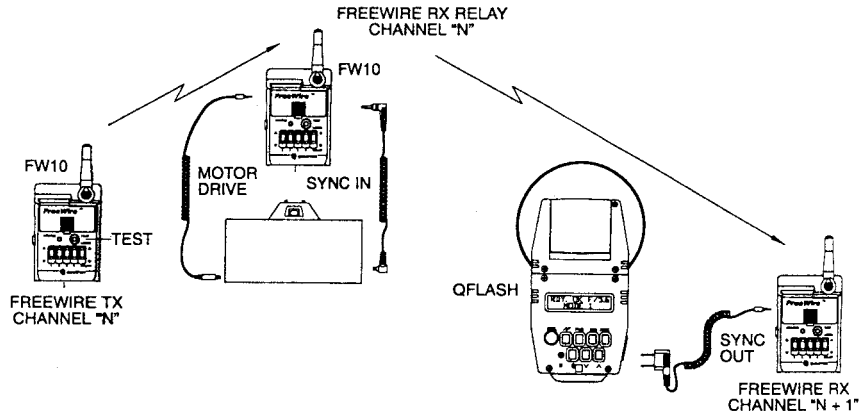
8.0 Remote Camera & Remote *off-camera* Flash

This set up releases a shutter wirelessly. The remote camera then triggers a remote flash timed to the shutter release. The instructions explain how to get proper synchronization with this set-up using 3 FreeWires.

When FreeWire TX TEST is pressed, FreeWire Relay will activate the camera shutter function. The camera will delay the flash sync until wake up, auto focusing, metering, etc., is achieved. This takes up to a second or so. Then, the shutter opens

and the camera flash sync activates FreeWire Relay. FreeWire RX receives the signal and synchronizes the flash.

8.1 Basic Set-up: Set FreeWire TX and FreeWire Relay Unit to "TTL ON." See Section 10, Special Options.



FreeWire TX: Set any Channel Code 0-7. Set Zones to "+" (on) that correspond to the FreeWire RX's that you want to fire. Press TEST when you wish to activate the camera shutter.

FreeWire Relay: Set to RX / Relay mode. Set the Channel # the same as FreeWire TX. Connect a Sync-in cord from the camera sync, or mount a Uni-Mod to the camera hot shoe, or use an "FW" series TTL adapter. Connect a motor drive cord from FreeWire to the camera motor drive. (Zone settings for the Relay unit don't matter, except see 8.3).

Important: For proper synchronization, turn on the TTL Special Option, as described in Section 10, for the FreeWire Relay unit. While the TTL option is required for FreeWire Relay, you will not have TTL control of the flash unless you use a TTL adapter also. In that case, connect a TTL adapter in place of the Sync-in cord in the diagram above. Then, remote Qflash's will be TTL controlled by the camera.

FreeWire RX: Set to RX / Local mode and connect a sync-out cord to the off-camera flash. **Set the Channel Code one higher.** For example, if FreeWire TX and FreeWire Relay are Code 5, set FreeWire RX to Code 6. If the first Code is 7, the next higher Code is 0. Set a Zone "+" (on) which is also selected on the TX unit.

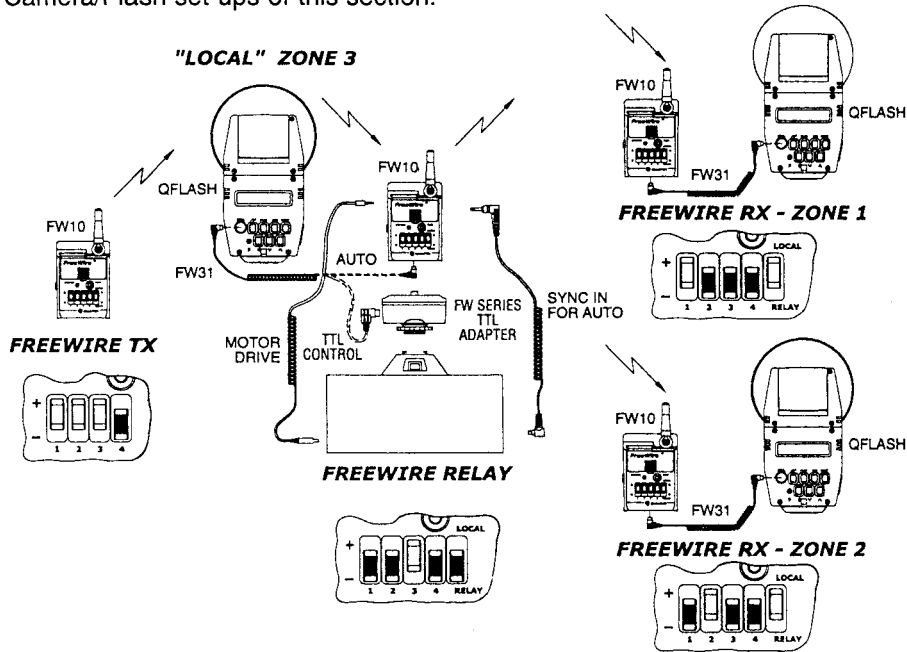
8.2 The Confirmation signal will be delayed until after the camera releases the shutter. You will see STATUS (on the TX) first blink rapidly until the camera releases the shutter. Then STATUS will change to steady on. Note: this feature requires that the FreeWire TX's Confirmation Special Option is selected, as described in Section 10.

8.3 If you use multiple FreeWire RX's, you can control them from FreeWire TX like this: Select different Zones for the multiple FreeWire RX's. Then select any or all such Zones on FreeWire TX to fire FreeWire RX's you desire.

To trigger a "local" flash from the FreeWire relay (camera position) do this: Set one Zone to "+" (on) and all others to "-" (off) for the Relay unit. The "on" Zone now controls the local flash. If the same Zone is set to "+" (on) for the TX unit, then the "local" flash will fire.

8.4 Advanced Set-up with local Qflash and remote TTL or Auto control:

- For TTL, use an FW series TTL adapter and connect as shown in the diagram.
- For wireless Auto connect the FW31 cable from the "local" Qflash to the FreeWire Accessory connector. Connect Sync-In and MD cords between the camera and FreeWire relay. (Do not use a Uni-Mod or TTL adapter for wireless Auto).
- The TX Cycle feature (see Special Options, Section 10) is possible with remote Camera/Flash set-ups of this section.

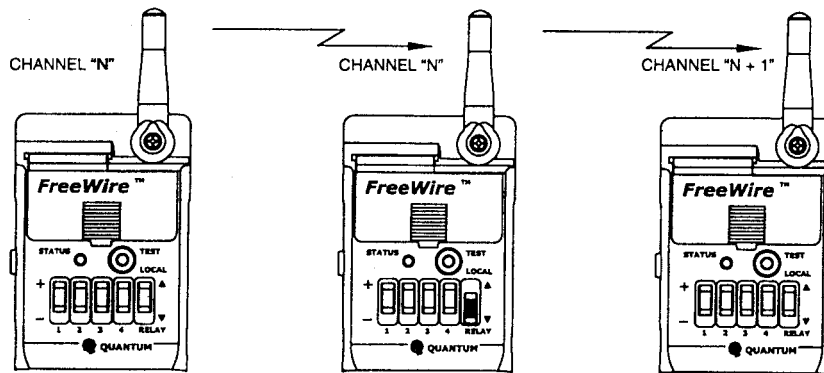


9.0 Relay for Long Distance Remote

This set-up extends range by relaying signals through a chain of FreeWires. If used for remote flash, decrease the camera's shutter speed to half FreeWire's maximum, or less. For example, use 1/125 sec. for focal plane, and 1/250 sec. for leaf shutters. Refer to Section 11 for high speed sync, if necessary.

To set up a relay you will need at least 3 FreeWire Units.

Turn off Special Options "TTL" on all units to allow the relaying of signals without interference. Note: the TTL Special Option is factory set to OFF. See Section 10 if you need to reset Special Options.



Set up FreeWire TX:

- Select any Channel Code 0-7.
- Select the desired Zones.

Set up a FreeWire Relay:

- Set the TX/RX switch to RX.
- Set the Local/Relay switch to Relay.
- Set the Channel Code the same as FreeWire TX.
- Set the same Zones on FreeWire Relay units as FreeWire TX.

Set up a FreeWire RX:

- Set the Local/Relay switch to Local.
- Choose a Channel Code one number higher than the previous FreeWire Relay. For example, if FreeWire TX and FreeWire Relay are set to Channel 5, set FreeWire RX to Channel 6. (After 7 the next higher Code is 0).
- Select the desired Zone to activate this unit.

Connect FreeWire TX and FreeWire RX to your equipment as described in previous sections. Relay mode is not suitable for short ranges. Use it only when the range of a direct TX-RX set-up is inadequate.

It is possible to set up more than one FreeWire Relay to increase the range further. Every FreeWire *after the first Relay* must be set to the next higher Channel Code from the previous one.

10.0 Special Options

10.1 Special Options let you select additional FreeWire features. Special Options may be turned on or off when you power up FreeWire with a special procedure, Section 10.2. **Special Options are factory set to OFF.**

These Special Options affect RX units only:

Camera ON: When FreeWire acts as a wireless shutter release, the camera may be kept "ON" to focus and meter continuously (like holding the shutter button down half way). That way the camera can be ready for instant shutter release. However, Camera ON will consume more power in the camera. (MD delay is automatically defeated when Camera ON is selected). The Camera ON option requires a two step motor drive cord listed in Appendix C.

MD Delay: Many cameras have two step shutter buttons: Pressing part way turns on the meter and auto focusing, and pressing all the way releases the shutter. Some of these cameras require a delay between the meter/focus function and shutter release (for example, Contax 645). Select MD Delay for those cameras. Without MD Delay, the camera focus, meter, and shutter will be activated together (and the camera will shoot as soon as it can). The MD Delay Option requires a two step motor drive cable listed in Appendix C. Motor drive cables will be added periodically, so please consult your dealer or the Quantum Web Site (qtm.com) for the latest models available.

This feature affect all FreeWire units:

Power Save: In Power Save mode, FreeWire goes to "sleep" (with the Power switch on) after 40 minutes of no activity. It can remain asleep up to 500 hours before draining the batteries. Without Power Save, FreeWire will remain "awake" continuously when the Power Switch is on. Please see more details in Section 10.3.

These features affect TX units only:

Confirmation: When receivers detect a valid signal, they will send a confirming signal back to the transmitter. When you are operating many FreeWire systems in the same area, the Confirmation option is not recommended as signals may occasion-

ally cross and interfere. See also FreeWire Performance Guide, Section 12, under "Testing your FreeWire link."

TTL: This option selects the wireless TTL and wireless Auto function, as described in Section 7. **Turn off the TTL Special Option when you are not using it.** When you are operating many FreeWire systems in the same area, wireless TTL signals may sometimes cross and interfere.

TX Zone Sequencer: Use this feature to make TX units "cycle" through several Zones. The first sync trigger or TEST button push will activate the lowest Zone, then the next, etc. You can turn up to 4 TX Zones for cycling. For example, if Zones 1,2, and 4 are turned ON for the TX, the first trigger will activate Zone 1, the next trigger Zone 2, then Zone 4, and back to Zone 1 again. RX units set to Zones 1,2 and 4 will activate in sequence. This Special Option may be used to shoot fast while giving multiple flash power packs time to recycle.

10.2 How to select Special Options:

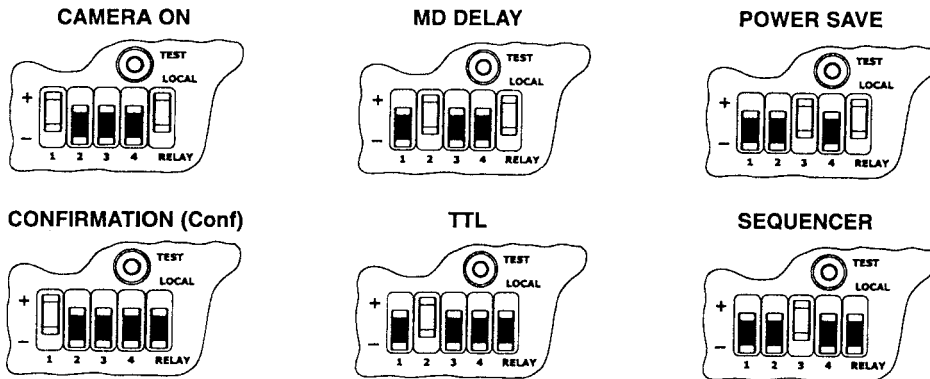
Special Options may be turned on or off when you power up FreeWire with this special procedure. Each Special Option corresponds to a combination of a Zone turned ON and the setting of the Local/ Relay switch.

To select your Options:

- Turn off FreeWire. Disconnect external power if connected.
- Switch to **Local** or **Relay** to select from upper or lower group of 3 Options in the chart below.
- Switch Zones 1, 2, and/or 3 towards "+" for the Options you want, all others towards "-".
- **Press and hold TEST**, then power up FreeWire, and **continue to hold TEST** until STATUS blinks twice. Your Special Options are set.

Zone ON>	<u>1</u>	<u>2</u>	<u>3</u>	<u>LOCAL/RELAY</u>
	<i>Camera ON</i>	<i>MD Delay</i>	<i>Pwr Save</i>	< LOCAL group
	<i>Conf</i>	<i>TTL</i>	<i>Sequencer</i>	< RELAY group

Examples of switch positions to set Special Options:



If you want to set options from both the Local and Relay groups above, you will have to perform the procedure twice.

Before you begin shooting, reset Zones and Local/Relay switches to the settings you desire. The Special Options will not change; FreeWire keeps the options you last set, until you change them by the procedure above.

Special Options are factory set to OFF. To return to factory settings, set all Zones to "-" and use the procedure "To select your Options" twice; the first time with the Local/Relay switch set to "Local", and the second time set to "Relay."

10.3 Power Saver Mode notes:

When FreeWire is awake the batteries last about 120 hours. The low battery warning (*triple blinking*) indicates less than 2 hours remaining battery power. In the Power Save mode FreeWire goes to "sleep" after 40 minutes of no use. When FreeWire is sleeping the batteries can last up to 500 hours (3 weeks). While sleeping the Status light will *double blink* every 15 seconds.

To wake up a complete FreeWire System, *press and hold* TEST on the sleeping TX unit. The TX unit will wake up all remote RX units in about 3 seconds. The TX STATUS will blink until remote units are awake. RX units will fire flashes or trigger cameras.

The FreeWire RX will wake up *remotely* only if the FreeWire TX sends the correct Zone and Channel Code. If you have set up a Relay chain, continue to hold TEST until all units are awake, which will take about 3 seconds extra for each Relay unit in the chain.

FreeWire will also wake up if you turn it off for 1 minute, then turn it on. If you turn FreeWire off and on within 1 minute, it may still be sleeping.

11.0 Miscellaneous

11.1 Sync Speeds for remote flash:

For highest sync speeds do this: Turn on all zones of FreeWire RX units. This "high speed sync" allows shutter speeds up to 1/500 for focal plane and 1/1000 for leaf shutters.

"Normal sync" speeds are 1/250 for focal plane and 1/500 for leaf shutters (or slower) when selecting one, two or three of the Zones on FreeWire RX unit.

When you use Relay mode, cut the maximum sync speed in half (of normal or high speed sync).

11.2 External Power:

You can power FreeWire externally with AC adapters, Quantum Batteries, or with a Qflash connected by an FW31 Accessory cable. Appendix E lists AC adapters that connect to the EXT power jack. To utilize external power, switch FreeWire OFF (EXT). When external power is removed, switch FreeWire ON to power it from its internal batteries.

Warning: Use only Quantum specified external power to avoid possibly damaging FreeWire.

12.0 FreeWire Performance Guide

How to maximize performance, troubleshoot, and answer questions about Quantum's FreeWire Wireless Photo Control Transceivers.

If for some reason we don't have an answer in this guide, please e-mail, fax, write or call Customer Service for further assistance.

Good radio performance depends on several factors: The orientation of a radio and antenna, the presence of other radio signals which may interfere, and the presence of objects which may interfere. As the range increases, these issues become more important. At close range, performance is less critical.

Testing your FreeWire link

You may use the confirmation feature of FreeWire to troubleshoot your wireless link. First, turn on Special Option "Confirmation" on the FreeWire transmitter, as described in Section 10. Now the Status light on the FreeWire TX will light for 1 second if its signal reaches the RX unit. Make sure the TX and RX units are set to the same Channel. Make sure the Zone(s) activated are the same for the TX and RX units. If using multiple RX units, test one at a time, using different ones, to discover the problem.

Often a flash doesn't fire even when you *do* get confirmation on the TX. Then check the equipment connected to FreeWire RX. Here's how: 1) Press TEST on the FreeWire RX which will activate the motor drive and flash sync out; 2) check or change cable connections; 3) check that the camera or flash is turned on.

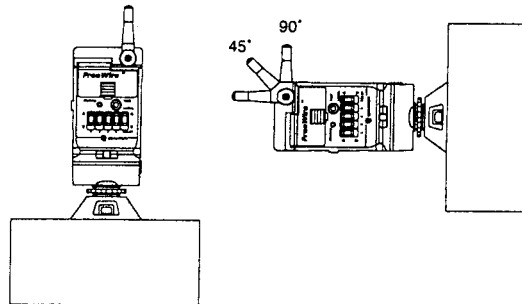
Otherwise, use the tips below to maximize reliability.

The following suggestions will maximize range and reliability of your FreeWire link:

Orientation

The ideal orientation is with all FreeWire antennas opened vertically and all antennas parallel. If FreeWire is attached to a camera and you change from vertical to horizontal framing, you can easily swing the FreeWire antenna back to vertical.

When switching repeatedly from horizontal to vertical framing, you may set the TX antenna at 45° as shown. That will provide reasonable range without adjusting the antenna with every shot.



Mounting and placement

The enemies of radio signals are metal objects, concrete, and water. Mount FreeWires away from metal objects when possible. Of course, you may be mounting on light stands and brackets, and they generally have a slight affect on range.

At longer ranges it is possible to find dead spots. Moving the FreeWire Remote unit a few inches in any direction can cure the problem.

Do not use gaffers or duct tape which have metal threads imbedded, on any FreeWire. Do not mount metallic labels on the units.

When wearing FreeWires, mount them outside your clothing and away from your body. And, of course, watch out for metal objects on you.

FreeWire RX units may be mounted close together. TX units will trigger RX units from a distance of about 1 foot (.3m) up to the maximum range.

Interference

Keep FreeWire receivers away from flash units and generators that generate radio interfering signals. That is also true of most any heavy machinery, motors, and of course other transmitters. Arenas, factories, and offices have other sources of radio "noise" which can include TV camera uplinks, walkie-talkies, radio and TV broadcast antennas, and cell phone repeaters.

While radio interference will not generally affect FreeWire transmitters from signaling the receivers, you may not get confirmation on the transmitters if they are located near radio noise sources.

If you cannot remove FreeWire receivers from interference, close the **receiver** antennas which will decrease interference, however decrease the range as well.

Appendices

Accessories may be changed or added periodically. Please consult your dealer or the Quantum Web page (www.qtm.com) for the latest models available.

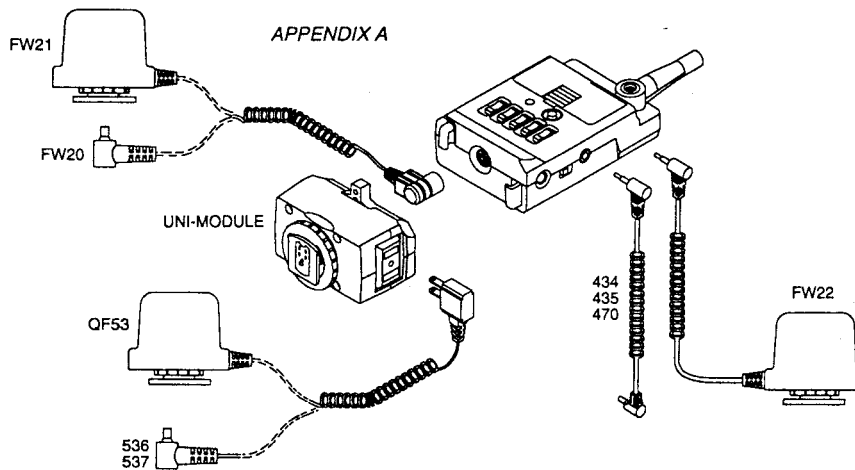
Appendix A -- Sync-in connections from camera to FreeWire TX

Model	Description	From	To	Notes
434	Sync-in cord- 18" (.5m)	Camera PC nipple	FreeWire Sync-In	Coiled cord
435	Sync-in cord- 4' (1.2m)	Camera PC nipple	FreeWire Sync-In	Coiled cord
470	Hasselblad sync cord	Hasselblad "C" lens	FreeWire Sync-In	
FW20	Sync-in cord- 18"(.5m)	Camera PC nipple	FreeWire Accy conn	
FW21	Hot Shoe sync- 18" (.5m)	Camera hot shoe	FreeWire Accy conn	
FW22	Hot Shoe sync- 18" (.5m)	Camera hot shoe	FreeWire Sync-In	

The following require a Uni-Mod connected to your FreeWire TX unit:

QF53	Hot Shoe Adapter	Camera hot shoe	Uni-Mod two prong	
536	Sync-in cord, 18" (.5m)	Camera PC nipple	Uni-Mod two prong	Coiled cord
537	Sync-in cord, 5' (1.5m)	Hasselblad "C" lens	Uni-Mod two prong	Coiled cord
539	Sync-in cord, 12" (.3m)	Camera PC nipple	Uni-Mod two prong	Straight cord

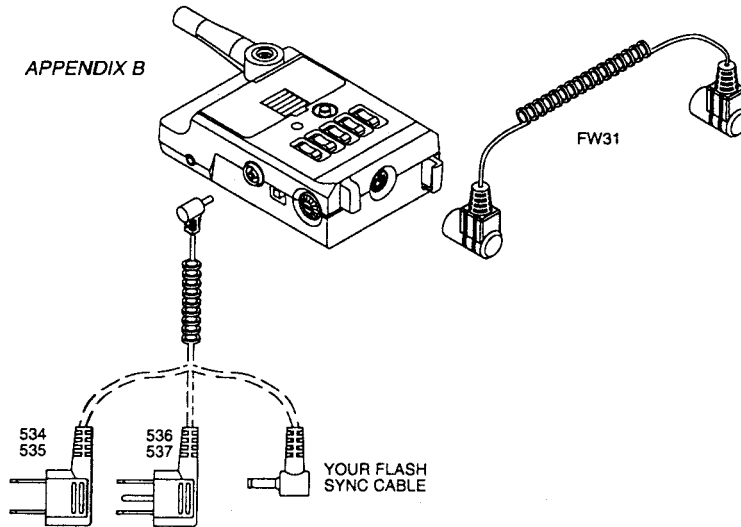
(Note: #536 and 537 serve as Sync-out cords as well - see Appendix B)



Appendix B - Sync-out connections from FreeWire RX to flash

Model	Description	From	To	Notes
----	flash mfg's sync cord	FreeWire PC conn.	Your flash	Supplied by flash manufacturer
FW31	Accy cable 18" (.5m)	FreeWire Accy conn.	Qflash Accy conn.	For Qflash sync or wireless TTL.
534	Sync-out cord 18" (.5m)	FreeWire PC conn.	2 prong	For Studio flash -2 prong socket
535	Sync-out cord 5' (1.5m)	FreeWire PC conn.	2 prong	For Studio flash -2 prong socket
536	Sync-out cord 18" (.5m)	FreeWire PC conn.	2 prong + pin	For Qflash and some studio flash
537	Sync-out cord 5' (1.5m)	FreeWire PC conn.	2 prong + pin	For Qflash and some studio flash

(Note: #536 and 537 serve as Sync-in cords as well - see Appendix A)



Note on Sync-out and Sync-in cords:

Paramount Cords makes many cords that fit FreeWire. For reference, the Sync-in requires a 3.5mm phone plug, and the Sync-out fits a PC male plug. There is a second Sync-out connection on the Uni-Mod that fits a 3.5mm plug.

Appendix C - Motor Drive cords from FreeWire to camera

Model	Camera	Notes
451	Nikon MD2/4/12/15, 8008/s, F4S	N90/s, F5 need Nikon adapter MC25
452	Hasselblad ELM, ELX	
453	Canon, Olympus, Bronica SQAM, ETR md	
454	Mamiya RZ67, RZ67 II, 645 Super, 645 Pro	
456	Leica	
458	Minolta 5000/i, 7000/i, 8000/i, 9000/i, 5Xi, 7Xi, 9Xi, 700si	
459	Canon EOS A5, A2E, A2, 1, 1N, 620, T90	
463	Bronica SQA1	
464	Rollei, 6002, 6003, 6006, 6008, SLX	
465	Hasselblad 503CW/CXi	
466	Canon EOS 3, 1V, D30	
467	Mamiya 645AF	
FW41	Contax 645, Canon Elan 2, 2E, 7, 7E Rebel 2000, XI Lite	Two step MD cord
FW42	Minolta 7 & 9	Two step MD cord
FW43	Canon EOS 1v, 3, D2000, D30	Two step MD cord
FW44	Nikon D1, F5, N90/s, 645AF, F90x, F100	Two step MD cord
FW45	Mamiya 645AF	Two step MD cord
FW46	Canon EOS 1, A2, A2E, AS, 1N, 620, T90	Two step MD cord

Appendix D - TTL Wireless Adapters for FreeWire TX

These TTL modules, connected to a FreeWire TX and provide wireless TTL exposure control.

QF Series** TTL Adapters	FW Series* TTL Adapters	Cameras
QF10		Olympus, Practica
QF11		Minolta X series
QF12	FW52	Nikon
QF13N	FW53N	Canon
QF14		Minolta Xi series
QF15		Contax
QF16		Leica
QF17	FW57	Pentax
QF18		Rollei
QF19	FW59	Hasselblad
QF20	FW60	Bronica
QF22		Mamiya
QF23		Leica
QF24	FW64	Contax
QF25	FW65	Mamiya 645AF

* FW series TTL Adapters connect directly to the FreeWire TX.

** QF series TTL Adapters require a Uni-Mod connected to FreeWire TX, unless a Qflash is also connected to the Accessory connector of FreeWire.

Adapters models may be updated periodically. Please check the latest Quantum Price List at your dealer, or www.qtm.com. Look under Qflash and FreeWire.

Appendix E - Miscellaneous Connections

Model	Description
QF52	Y Connector for FreeWire TX to connect a TTL adapter plus a local Qflash and FW31 cable.
MDC2	External power connection from QB1, 1+, or QB1c to FreeWire:
XDC2	External power connection from Bantam or QB1c to FreeWire:
FW29	AC external adapter, US & Can, 115 VAC

Appendix F - Specifications

Size: FreeWire FW10: 3.6 x 2.3 x 1.1 in. (9 x 6 x 2.8 cm)
Uni-Mod FW11: 1.3 x 2.3 x 1.3 in. (3 x 6 x 3.4 cm)

Weight
(w/ batteries): FreeWire FW10: 4.3 oz. (122g)
Uni-Mod FW11: 2.0 oz. (56g)

Batteries: 2x AAA cell alkaline, nicad, nickel-metal hydride, or lithium

Battery Life:
(Alkalines): TX or RX mode, one shot per minute 7200 shots, or 120 hours;
Sleep mode: 500 hours;
Connected to Qflash with FW31 cable: Powered by Turbo Battery.
(batteries may be left in unit)

Battery life - after low battery signal (triple blink every 2 seconds): approx. 1-3 hours

Maximum
Range: Varies with local conditions- up to 500' (150m)

Maximum flash rate or
motor drive speed: 13 fps

Maximum sync delay
from camera trigger to
remote flash: 1/2000 sec normal sync; 1/3000 sec.
(all RX Zones ON fast sync mode).

Minimum camera
shutter speeds: Leaf shutters 1/500 , 1/250 focal plane
shutters. In fast sync mode (All RX Zones ON)
sync speeds may be 1/1000 for leaf shutters,
1/500 for focal plane shutters.

Batteries: FreeWire FW10 supplied with 2 x AAA.
External power is supplied whenever FreeWire
is connected to Qflash with FW31 cord.
External power required 5-7 volts, center positive.

Uni-Mod is powered by FreeWire.

All equipment, specifications and descriptions are subject to changes, improvements
and availability.

Customer Service

If you have any trouble whatsoever in using your Quantum product, we wish to assist you in any way we can. Contact the Service Department via:

Telephone: (516) 222-6000 Fax: (516) 222-0569
E-mail: QuantRep@qtm.com Website: www.qtm.com

If you suspect a malfunction or require adjustment, return the unit to the factory with an accurate description of the problem. Please be sure your problem is not caused by improper operating procedure or malfunctions in your other equipment.

Send all equipment carefully packaged and insured to:

Service Department
Quantum Instruments Inc.
1075 Stewart Ave.
Garden City, New York 11530

An estimate of repair cost on out-of-warranty merchandise may be forwarded if you desire. This will require that we contact you for approval before proceeding and will delay return of your equipment. For fastest repair turn around, you may pre-approve repairs up to a limit of \$75 with your credit card. We will bill you only for actual costs up to that limit. If repair costs exceed your pre-approval, we will contact you.

Summary:

For all repairs:

Ship in via UPS or Parcel Post, insured.
Give a clear, detailed description of the problem.
Give your Mailing address and Daytime phone number.

For out-of-warranty repairs with pre-approval:

Provide your Visa, MasterCharge, or American Express card # and expiration date.
Give us your authority to charge repair costs up to \$75.00.
Provide your Billing address

Limited Warranty

Quantum products have a 1 year limited warranty. Please refer to the Limited Warranty card for complete details, conditions, and terms.

FC Tested to comply with FCC standards

CANADA: 37071032098A

FCC ID: CEXFW10

FreeWire model FW10

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry & Science Canada. Operation is subject to the following conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received including that which may cause undesired operation of the device.

IMPORTANT - CAUTION

Changes or modifications to this equipment could void your authority to use this product under the equipment authorization granted by the regulating agencies.

CE 0678 Ⓢ

Declaration of Conformity: Quantum Instruments, Inc. declares that FreeWire FW10 satisfies all the technical regulations applicable to the product within the scope of Council Directive 1999/5/EC.



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