

Specification

Supply Voltage	3.3 to 10V. Operation is not guaranteed <3.3V).
Supply Current	1-10mA. Depends on AUX connection.
PWM Servo Pulses	Standard RC servo pulses between 1.1 and 1.9mS are used for the various functions.
SBUS	Standard 16 channel, slow or fast format.
Weight	9g with 20cm cable + 2g per 15cm servo lead.

Diagnostics

If the unit doesn't operate as expected, this is the suggested fault-finding process.

Try to isolate whether the fault is in the camera, gentWIRE or radio system. First replace gentWIRE with a servo and make sure it moves at least 45degrees when commanded by the RC transmitter.

With the RC working use the unit in PWM (not SBUS) and Channel 1 to see if the camera will move between record and standby:

- Is the camera in REDlink (see page 1)?
- Is the gentWIRE connected to the CTRL port?
- Is firmware 6.0.x or above in the camera?

If record and standby work but other functions do not:

- Are Channel 2 & 3 connected – test them with a servo
- Is the configuration described on page 5 correct?

If PWM works but SBUS doesn't:

- Is the configuration described on page 5 correct?
- Does the RC system offer fast and slow SBUS?
Try alternative settings, this may help.

gentWIRE-redPRO 102



This device interfaces a RED camera with CTRL interface to a RC receiver. Up to 3 RC channels can be used, controlling IRIS, exposure, FOCUS, SHUTTER angle, and many other camera features. The unit works with standard PWM servo signals or SBUS.

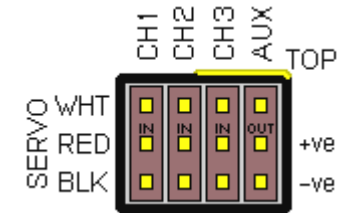
Operation is described with PWM and default settings, using SBUS and other control options are discussed in the Advanced Operation section.

NOTE: The RED camera used must have Firmware 6.0.x or higher installed for correct operation.

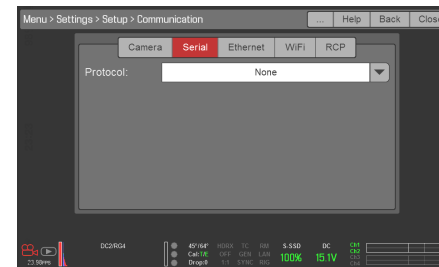
BASIC Operation (with PWM)

Connect standard RC Receiver Servo lead(s) (+ve to RED, -ve to BLACK, servo to WHITE) to Channel 1, 2, and/or 3. You need only connect cables to channels you intend to use.

NOTE: All +ve inputs must be connected to the same power supply, or damage may result.



The AUX port is described in the Advanced Operation Section on page 7.



Connect the LEMO plug (at the opposite end of the unit) to the Camera CTRL port.

On the camera go to SETTINGS - SET-UP - COMMUNICATIONS – SERIAL and select Protocol **REDLINK™ Command Protocol**

gentWIRE-redPRO has two personalities called BANK A and BANK B. You can change BANKs in-flight and record / standby with Ch 1. This allows RC channels 2 & 3 to control different camera settings depending on the BANK selected in Channel 1.

CHANNEL Control

The following table details the allocation of Ch 2 and 3 to camera features, depending on the setting, or BANK selected, with Channel 1:

PWM Futaba/Spektrum	1.1mS -95	1.3mS -50	1.5mS 0	1.7mS 50	1.9mS 95
Channel 1	RECORD	STANDBY	idle	STANDBY	RECORD
Channel 2					
PWM Futaba/Spektrum	BANK A			BANK B	
1.1mS -95	IRIS fast close*			FOCUS fast near*	
1.3mS -50	IRIS slow close*			FOCUS slow near*	
1.5mS 0	IDLE <i>relative</i>			IDLE <i>relative</i>	
1.7mS +50	IRIS slow open*			FOCUS slow far*	
1.9mS +95	IRIS fast open*			FOCUS fast far*	
Channel 3					
PWM Futaba/Spektrum	BANK A			BANK B	
1.1mS -95	USER A			Shutter fast short*	
1.3mS -50	USER B			Shutter slow short*	
1.5mS 0	IDLE <i>absolute</i>			IDLE <i>relative</i>	
1.7mS +50	USER C			Shutter slow long*	
1.9mS +95	USER D			Shutter fast long*	

Note that IRIS, FOCUS and TARGET SHUTTER are “relative”, controlling changes to the current value. Faster change rates happening at the joy-stick extremes, & changes stop when control is returned to the centre. USER keys is an “absolute” setting, keys are “pressed” when the joy-stick moves to the position shown (more information in the next section).

For simplicity the table shows 5 settings – 1.1, 1.3, 1.5, 1.7, & 1.9mS – however channels marked with a * are continuously variable. i.e. the further the channel moved from centre the faster the setting changes.

All channels can be used with either joy-stick or switch control on the RC transmitter. A three position switch will give a fixed rate of change.

These are the default controls, many can be changed to suit your needs, by reference to the colours used in the table and the section later called Advanced Operation: Configuration Changes, page 5.

This is achieved with BANKing. Set the transmitter as follows: Ch 1 STBY/REC switch - STANDBY1.7mS(+50), RECORD 1.1mS (-95). For SBUS 2, 5, 8 translates to 1=B, 2=E, 3=H. That’s **BEH**.

As well as Ch1 (SBUS=2) controlling RECORD, we are also changing BANKs, in standby we are in BANK B, where Ch2 (SBUS=E) is set to FOCUS & Ch3 (SBUS=8) is set for IRIS. In RECORD we are in BANK A where Ch2 (SBUS=5) remains FOCUS but Ch3 (SBUS=8) is USER switches, and changes to IRIS are disabled. That’s **FFi**

Set gentWIRE-redPRO config to **gBEHFFiw**. redPRO returns **gBEHFFir**.

ADVANCED Operation: Restore factory default setting

Place blue links on both Ch 1 & Ch 2, then apply power. This will work without a camera or RC system connected, but if a camera is connected then it will change the CAMERA ID to **gDEFifsy** to confirm the change, note the letter **y** for Factory defaults.

ADVANCED Operation: AUX Output

Camera telemetry is sent out on the AUX port. The following accessories can be used on this port:

gentWIRE-redLED provides a visual indication of Camera REC status via an ultra bright red LED



gentWIRE-redAUDIO provides an audio indication of Camera status designed to be relayed via an audio channel of a video downlink. Tones tell the operator about record, Memory, & Battery state.



AUX Power Supply

The unit derives power from either Ch1, 2 or 3. This can be between 3.3 and 10 volts. The +ve pin of the AUX port is an OUTPUT which is regulated to a maximum of 5volts. Only connect *gentWIRE-redLED* or *gentWIRE-redAUDIO* to the AUX port.

Do not use the AUX port to apply power to the device.

So the default setting (as used in the previous sections of this manual) are:

DEF means redPRO Ch 1, 2, and 3 map to SBUS 4, 5, and 6. Use any capital letter from A to P for the 16 SBUS channels, or 0 (zero) means unused.

ifs is one character each for Ch2 Bank A, Ch2 Bank B, & Ch3 Bank B respectively. The letters can be any selected from this table:

relative position	absolute position
i Target Iris	I Target Iris
f Focus	F Focus
s Target Shutter Angle	S Target Shutter Angle
z Zoom*	Z Zoom*
N Do nothing	E Exposure Compensation

Note *: Currently no dSLR lenses support zoom control,

Note: It is not possible to change CH3 BANK A, USER keys.

Functions shown in bold are used in the default / factory settings.

To program new settings, edit the Camera ID to reflect the required changes, and replace the last letter with lower-case **w**. E.g. **gKLPIFsw** moves SBUS to 11,12,16, and control to absolute IRIS and FOCUS, with Ch 3 controlling relative SHUTTER angle.

Cycle the power on gentWIRE to program, and to confirm the new settings the Camera ID will change to **gKLPIFsr**, note the **r** for received. If the last letter is **x** the operation has failed and the old settings are reported. So check all 8 characters to confirm the settings have been changed.

After this remove the blue link, and restore Camera ID to its original value, the new configuration is now applied at every power cycle.

ADVANCED Operation: Practical Example

It is required to control FOCUS (absolute) and IRIS (relative), but IRIS can only be changed in standby to prevent accidental operation during recording.

In addition SBUS is to be used, channels required are 2, 5 and 8 for gentWIRE-redPRO Channels 1, 2 and 3 respectively.

USER KEY Operation



BANK A, Ch 3 simulates pressing USER keys. These can be programmed into the camera for many functions.

Warning: Do not configure un-reversible functions (e.g. eject media) to these keys in case they are accidentally triggered in-flight.

To use this feature the camera must be set-up to react to the key presses. There are 2 ways to do this.

IN THE CAMERA:

This method works for all cameras, excluding the WEAPON range, TO change the USER Keys goto the camera set-up menu:

Go to **SETTINGS – SET-UP – KEYS – ADVANCED** then using:

Key Source: REDMOTE

User Key: RM User A / B / C / D.

Select the required Key Action, e.g. Magnify, AF, AE, WB, focus mode, etc. Note key press and un-press can be configured separately.

USING THE RED KEYS MAPPER APPLICATION:

This method, using an external application, is more complicated to use, but works on all cameras, including the WEAPON series.

Install on a computer the *RED Key Mapper*,

part of the DSMC Toolkit downloadable from the RED website.

Use *RED Key Mapper* to create a new preset for EPIC / SCARLET. Do not create presets for WEAPON, you must use EPIC / SCARLET – this will work on all cameras. To make it easier you can download a preset from:

www.gentles.ltd.uk/gentwire/Keymap-redPRO-102.preset

This template contains the 4 key presses required, they are in the REDMOTE@1 tab. They allow you to toggle some features and change Motion Mount ND. Change or add key un-press actions by clicking on the pencil.

Once you have edited the file save to the presets directory in a REDMAG SSD. On the camera use the preset menu to copy the file into the camera, only the presets for gentWIRE-redPRO will be changed.

IMPORTANT NOTE: These imported settings will work on all cameras, but you will not be able to “see” them in menu SETTINGS – SET-UP – KEYS – ADVANCED in the WEAPON camera range. They are however visible to see and change with EPIC and SCARLET cameras.

Although this channel is different from the others by pressing USER keys, if desired the keys can be mapped onto functions like increment / decrement SHUTTER angle, IRIS, FOCUS etc. This allows this channel to control SHUTTER, IRIS or FOCUS like Channel 2 rather than use it for discrete buttons / actions.

If this channel is used in this way then single speed control will be achieved, rather than the full proportional control available on other channels.

Manual Lenses

In either BANK A or B, if a Cinema Lens is connected (with no IRIS or FOCUS control) then the channel controls Exposure Adjustment:

PWM Futaba /Spektrum	1.1mS -95	1.3mS -50	1.5mS 0	1.7mS 50	1.9mS 95
Ch 2 or Ch 3 absolute	EA -2.0*	EA -1.0*	EA 0.0*	EA +1.0*	EA +2.0*

Note that this is an absolute control, the centre is always 0 EA, with the end-points representing + and – 2 stops. Channels marked * in the tables above give continuous change if used with joy-sticks. In this case the joy-stick extremes are always 2 EA, half way from stick centre is 1 EA, quarter from end-stop 1.5 EA etc.

ADVANCED Operation: SBUS

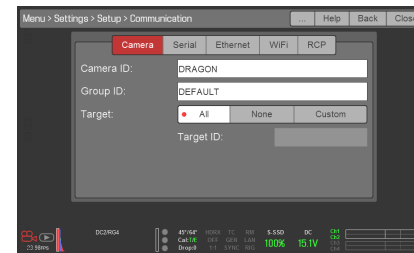
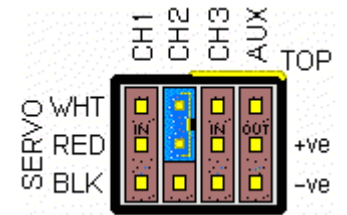
The unit will accept a SBUS signal if Ch1 is shorted to +ve and the SBUS is connected to Ch 3 as shown on the right. **WARNING:** Do not short the lower two power supply pins! Ch 1, 2, & 3 map to SBUS Ch 4, 5 & 6.

This mapping can be changed, and saved, using the following process.



ADVANCED Operation: Configuration Changes

This process allows the operator to change SBUS channel settings (see above), and the camera function assigned in BANK A and BANK B settings, these are permanently stored in gentWIRE. To do this first short CH2 as shown on the right.



Set the camera to SETTINGS – SET-UP – COMMUNICATIONS – CAMERA, and note the Camera ID for use later.

Connect the camera to gentWIRE and power on gentWIRE.

Camera ID will change to **gDEFifsx**. This is the default configuration, the 8 letters/numbers can be changed by the user, and the following tables describe what each character means:

	g	D	E	F	i	f	s	x
		...SBUS mapping...			...channel function...			
		CH 1	CH 2	CH 3	CH 2	CH 2	CH 3	Check
		SBUS	SBUS	SBUS	BankA	BankB	BankB	Letter:
The first letter is always g		If using SBUS, maps SBUS channel to redPRO channel: SBUS 1-16 are A - P			Change the function of Ch 2 & 3 in BANK A & B (Note: Ch 3 BANK A is fixed & can't be changed)			eXtract Write Receive factorY

The colour coding used can be cross-referenced to the Table on page 2.