RHP-BOS-RC-IF Remote Control Interface User Manual





RHP-BOS-RC-IF PIN-Out





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Attaching the FLIR Boson Thermal Camera:

BEFORE YOU BEGIN:

This product is static sensitive. Please use proper grounding techniques while installing the RC-IF to the Boson Camera.

Attaching the RHP-BOS-RC-IF to the FLIR BOSON Thermal Camera:

- 1. Mate the RHP-BOS-RC-IF board to the Boson Camera Hirose 80 pin connector.
- 2. Using the four screws provided, secure the RHP-BOS-RC-IF Board through the spacers, and attach to the camera.

NOTE: DO NOT OVER TIGHTEN THE SCREWS

Using other screws than the ones provided could damage the camera, RHP-BOS-RC-IF or both.

RHP-BOS-RC-IF Connections

Providing power to the RHP-BOS-RC-IF:

There are two ways to provide power to the RHP-BOS-RC-IF - Micro USB or 6-Pin Connector.

To use the Micro USB:

Insert the Micro USB connector on the side of the RHP-BOS-RC-IF Board, and then connect the other endto the power source.

The power light will illuminate within 5 seconds, indicating the unit is on.

Use this option when configuring the RHP-BOS-RC-IF with the RHP Controller Software.











4-Pin to USB Connector. To use the **4-Pin JST to USB**:

Insert the 4-Pin JST connector to the top of the RHP-BOS-RC-IF Board, and then connect the other end to a USB Input for power and video.

The power light will illuminate within 5 seconds, indicating the unit is on.

The 4-pin connector 'pin out':

- Pin 1: Power Hot (RED)
- Pin 2: D- (WHITE)
- Pin 3: D + (GREEN)
- Pin 4: Ground (BLACK)

Use this option to monitor the Boson video image via USB.

Connecting the 6 Pin to Bare Wires:

The 6-pin connector 'pin out':

- Pin 1: Power Hot
- Pin 2: Ground
- Pin 3: Video +
- Pin 4: Ground
- Pin 5: Video 2
- Pin 6: Ground

The customized 6 Pin power and Video cable provided allows you to connect 5-26 Volts of power to the RHP-BOS-RC-IF and video to a device or monitor of your choice.

Connect the Red Power Hot (+) and Black Ground (-) to a power source. The power light will illuminate within 5 seconds, indicating the unit is on.

Connect the Yellow (video +) and Black (Ground) wire to a video monitor or recording device. Two video connections can be used simultaneously.

Use this option to connect the camera to a wireless receiver or video recording device.









Connecting the 10-pin PWM/SBUS:

The 10-pin connector 'pin out' is as follows:

PWM Mode (5 channels):	S-Bus Mode (16 Channels)
Assignable using the RHP-BOS-RC-IF softwarethrough USB	Assignable using the RHP-BOS-RC-IF softwarethrough USB
	Pin 1: PWM 5 (optional)
Pin 1: PWM 5 (optional)	Pin 2: PWM 4 (optional)
Pin 2: PWM 4 (optional)	Pin 3: PWM 3 (optional)
Pin 3: PWM 3 (optional)	Pin 4: PWM 2 (optional)
Pin 4: PWM 2 (optional)	Pin 5: Ground (Required for use)
Pin 5: Ground (Required for use)	Pin 6: 5 Volts
Pin 6: 5 Volts	Pin 7: PWM 1 (Required for use)
Pin 7: PWM 1 (Required for use)	Pin 8: Ground (Required for use)
	Pin 9: 5 Volts
	Pin 10: S-Bus (Required for use)
	(PWM 1 – 5 are not used for S-Bus mode)

Connecting the 16 Ch. S-Bus: (*RC Mode)

The pins are set to RC Standards



PWM Mode (5 channels)

Pin 1: PWM 5 (optional) Pin 2: PWM 4 (optional) Pin 3: PWM 3 (optional) Pin 4: PWM 2 (optional) Pin 5: Ground (Required for use) Pin 6: 5 Volts Pin 7: PWM 1 (Required for use)

S-Bus Mode (16 Channels)

Assignable using the BOS-RC-IF software through USB Pin 8: Ground (Required for use) Pin 9: 5 Volts Pin 10: S-Bus (Required for use) (PWM 1 – 7 are not used for S-Bus mode)

Using the BOS-RC-IF Software gives you the ability to choose how to connect the camera to your wireless receiver.



RHP-BOS-RC-IF Connecting to a PC

Installing the RHP Controller GUI Software:

NOTE: Be sure the selected computer is connected to the internet <u>before</u> you first connect the RHP-BOS-RC-IF.

Connect the RHP-BOS-RC-IF via the provided Micro USB cable to the USB port on a Windows PC. Windows 10 will automatically find the necessary drivers and download them.

For other windows versions, download the driver at: <u>https://bit.ly/3hSjbeE</u>

If you have issues connecting, please contact support. (https://www.oemcameras.com/contact)

Once the software is downloaded and unzipped, run 'install.exe' If the security warning appears, click 'RUN'.



The application install security warning may appear. Choose 'Install'.

Publisher cannot be verified.		2
Are you sure you want to install this applic	ation?	
Name:		
RHP Controller GUI		
From (Hover over the string below to \Desktop\Downloads	see the full domain): \V1.1.0\V1.1.0	
Publisher:		
Unknown Publisher		
		Install Don't Install
While applications from the Internet	can be useful, they can pote	entially harm your computer. If



Connecting the RHP-BOS-RC-IF to the Camera Controller GUI:

Com Ports

When the driver is finished downloading, and the program is up and running, it will be necessary to select the assigned COM port. Choose:

File >Connect >COM Ports

Select the COM Number the RHP-BOS-RC-IF is assigned to.

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🔘 Disable	e Analog	O PAL		Terret				
			Damping Factor	U				
Contin	uous Zoom -		ACE/Gamma	ų				
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FFC Settings			Linear Percent	U				
FFC	: Mode	~	Detail Headroom	Ų				
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The Highest Q	uality OEM Ca	meras 1-888-919-2263						
	Not Con	nected		OFMCamera	.com © 2017	Type	FW Version	Serie

Com Port Refresh **Option**:

If the COM Port is not shown or unavailable, choose:

File > Refresh COM

to refresh the COM Ports.

Connecting the Boson

To connect the camera to the RHP-BOS-RC-IF software, choose: *File > Connect*

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	Disable Analog	O PAL		

RHP Boson Camera Controller GUI

 File
 Mode
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File Mode Help			0em)C	amerc
Connect			Connect	arriere
COM Ports = 3		AGC Settings		
Refresh COM		Tail Rejection		
Refresh GUI	Video Format			
Enable Analog	O NTSC	Max Gain		
 Disable Analog 	O PAL			
		Damping Factor		
Continuous Zoom				
Continuous Zoom		ACE/Gamma		



Determining a Successful Connection:

The green bar on the bottom of the screen will indicate that the camera is successfully connected. The program will load the current settings and camera information from the RHP-BOS-RC-IF and the Boson. Once loaded, all available parameters will be enabled for adjustment, based on your configuration.

The Hignest Quality OEM Cameras 1-888-919-2263				
Connected	OEMCameras.com © 2017	RHP-BOS-RC-IF	1.0.0	123

Once connected, the thermal and visual camera settings will be available to modify.



RHP-BOS-RC-IF Thermal Functions Defined

In this section, each setting is defined for the Thermal and RC Control tabs.

Video Settings:

Once connected, the thermal camera settings will be available to modify.

Video Mode:

This option turns the Video output ON or OFF. Select your video settings by enabling or disablingAnalog Video.

Video Format:

Select your Video Format NTSC or PAL. NTSC will be selected by Default.

Continuous Zoom:

The continuous zoom allows you to digitally zoom in.Max zoom amount is dependent on the Camera Model.

🚳 RHP Boson Camera (Controller GUI
File Mode Help	
Thermal RC Control	
Video Settings	
Analog Video Settings	
Video Mode	Video Format
Enable Analog	NTSC
O Disable Analog	O PAL

Continuous	Zoom - 0
•	

Color Palette Select:

The FLIR Boson provides several factory-installed palettes, changing the parameter Color Palette causes the applied palette to change. The factory-default value is "white hot". Select a color palette from the drop down menu as shown. There are 14 options available.





FFC (Flat Field Correction) Settings:

There is a shutter between the camera sensor and the lens. This shutter is used to perform a flat-field correction, or FFC. During FFC, the shutter presents a uniform temperature source to each detector element in the array. While imaging the flat-field source, the camera updates the offset correction coefficients, resulting in a more uniform image after the process is complete.

	F · · · ·
FFC Mode	External V
FEC	Silent NUC
	Supplemental FEC

Automatic FFC: The camera does not load the stored NVFFC map but always performs automatic FFC instead. If the option of a faster start-up is desired, the power-on default FFC mode should be set to manual mode instead.

Manual FFC: If the stored NVFFC map was generated in the same NUC table as the start-up NUC table, then it is loaded and applied. Otherwise, an automatic FFC takes place under the assumption that the stored map is invalid for the current conditions (i.e., will result in suboptimal image quality). If the map is loaded, the value of "Camera temperature at last FFC" will be set to the value stored with the NVFFC map, and the value of "Frame counter at last FFC" will be set to 0. Note that the FFC Desired flag may be set immediately after the NVFFC map is loaded, assuming the difference between current camera temperature and "Camera temperature at last FFC" exceeds the value of FFC Delta Temp.

External FFC: If the stored NVFFC map was generated in the same gain state as the start-up gain state (see Sections 6.2 and 7.5), then it is loaded and applied. Otherwise, no FFC offset is applied (and the FFC Desired flag will be set) under the assumption that the stored map is invalid for the current conditions. If the map is loaded, the value of "Camera temperature at last FFC" will be set to the value stored with the NVFFC map, and the value of "Frame counter at last FFC" will be set to 0. Note that the FFC Desired flag may be set immediately after the NVFFC map is loaded, assuming the difference between current camera temperature and "Camera temperature at last FFC" exceeds the value of FFC Delta Temp.

NOTE: Generally speaking, it is always preferred to generate a fresh FFC map at start-up rather than relying on a stored, potentially stale NVFFC map. The NVFFC feature is intended primarily for the case in which a camera has only been powered down briefly since the previous FFC. Use of the NVFFC feature does not replace the recommendation to perform FFC at startup, even for shutterless configurations.

Silent NUC: A filter intended to minimize random spatial noise.

Supplemental FFC: This calibration can compensate for image effects caused by the changing temperature of large lenses or other optical components. It may also help with effects from heat sources in camera housings.

This calibration is documented by the Supplemental FFC Application Note, FLIR document number 102-PS242-100-05.



AGC Settings:

Automatic gain correction (AGC) is the process whereby the 16-bit resolution of the signal pipeline is converted to an 8-bit signal, suitable for a display system.

Boson provides a sophisticated AGC algorithm which is highly customizable via many parameters. It is a variant of classic histogram equalization (HEQ), which uses the cumulative histogram as the transfer function.

Tail Rejection: Determines the percentage of the histogram "tails" which are not ignored when generating the mapping function. The scene outliers which comprise

the histogram tails are consequently mapped to either the minimum or maximum grayshade (0 or 255). A large value of Tail Rejection will dedicate more 8-bit grayshades to the

central portion of the histogram, resulting in more contrast therein, but as a result, a small cold object or small hot object in the scene may appear completely washed out (no variation in grayshades).

Max Gain: Limits the maximum slope of the mapping function. In a relatively uniform image, a high Max Gain value increases the contrast of the image at the risk of over-exposure and more apparent noise in the image. Lower values of Max Gain result in a less grainy, lower contrast display.

Damping Factor: As new objects enter the scene, or the camera field of view changes, the AGC algorithm will be forced to update accordingly. Damping Factor increases or

decreases the update rate of all AGC algorithms. A small value of Damping Factor allows a faster remapping in response to a change in the scene, but in some cases, this can result in the background appearing to "flash" as it is quickly remapped to new 8-bit grayshades. A larger value of Damping Factor minimize flashing in response to a change in scene but at the expense of requiring more time to optimize the mapping function for the new scene content.

ACE/Gamma: ACE provides contrast adjustment dependent

on relative scene temperature.

The scale of values ranges from 0.5-4.0. In white-hot

polarity, an ACE value less than one darkens the image, increasing contrast in hotter scene content, while an ACE value greater than one will do the opposite.

ACE/Gamma

Plateau Value: Limits the population of any single histogram bin. Increasing values allow the mapping function to allocate

more grayshades to dominant scene content, as seen in traditional HEQ. Smaller values of Plateau Value clip the heavily populated bins, reserving more 8-bit grayshades for less heavily populated bins.



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ACC Settings Tal Rejection Max Gain Damping Factor ACE/Gamma Defense Value Tal Valu









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Linear Percent: Most histogram based AGC methods do not preserve the relative temperature of objects in the scene. Increasing values of Linear Percent more accurately

preserves the visual representation of an object's temperature by mapping the data in a more linear fashion. For example, in a scene where the two hottest objects in the scene are a human and a heated stovetop, setting Linear Percent to zero will display the stove only slightly brighter than the human because no 8-bit grayshades are dedicated to the empty portion of the histogram between the two. With a high value of Linear Percent, the stove will appear much brighter than the human (as one would expect from a hot stove). However, this enhancement is at the cost of decreased contrast throughout the image because some of the available 8-bit grayshades are allocated to portions of the histogram which are not present in the scene.

Linear Percent

Detail Headroom

Smoothing Factor

Detail Headroom: Defines the amount of 8bit dynamic range is allowed for use by the LP filter data (the histogram equalized data). Increasing values will increase the number

of 8bit shades—at the top and bottom of the dynamic range—to be reserved for the HP data.

DDE (Digital Detail Enhancement): Attenuates or gains the HP content of the scene. Reduces the appearance of graininess but blurs the scene when set to values less than 1 and sharpens the details but increases the appearance of noise when set to values greater than 1.

Smoothing Factor: Defines the cut off for the HP filter.

Lower values of Smoothing Factor result in less data being

included in the HP portion of the image. In other words, a low value of Smoothing Factor decreases the portion of the scene considered to be the more-heavily-weighted details. Smoothing Factor also affects which portion of the scene is attenuated or enhanced via DDE.

System Settings

Gain Correction: This automatically determines whether the Boson sets the optimum gain state based on current scene conditions.

Column Filter: Spatial column noise reduction (SCNR). This filter is intended to minimize column noise.

Temporal Filter: This feature is intended to minimize temporal noise.

Refresh Thermal Values: If the RC controller changes a parameter value, it will be necessary to Refresh Thermal Values to show the current settings.

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DDE 0.95	95
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Presets:

To Store a Configuration Preset:

When the configuration is complete, choose: *Mode > Presets > Preset 1-3 > Save Preset*

to store the settings.

Power On Preset: To store the settings as a power up default,

choose: *Mode > Presets > Preset 1-3 > Set Default.*

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	eo mode		Preset 2	+	Set Default	
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0	Disable Analog	, i	Default All Settings	+		
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When the program connects to the Boson, the defaults will be loaded to the settings that weresaved.

Load Preset after Power On: To load a preset after the camera has been connected, choose: *Mode > Presets > Preset 1-3 > Set Current*

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	Disable Analog		Preset 3	۲	Save Preset	
	Disable Analog		Default All Settings	۲		_
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This will set the current parameters to the determined settings when the preset was saved.



Programming A Controller

RC Controls Defined:

Calibration Mode:

In the event a calibration is necessary, click the **Calibrate RC** button. It will be necessary to move all buttons on the RC Controller from the starting position to the maximum position. Once the calibration is complete, press the **Stop** button located in the same position where the Calibrate RC was.

Clear:

Clears settings in the setup configuration.

Refresh:

Reloads the last settings for the channel you have selected.

Note: If there is no assignment, it will be reset to the default program setting. i.e., (Vari "0" Down; Max Function: None; Center/Center Function: None; Min Function: None)

Save:

Saves the settings for the channel you are currently working on. This will save the settings to the controller simultaneously.

Clear All Channels:

Will reset all channels below to the base line.

Refresh All Channels:

The channel will revert to the currently saved channel settings from the controller. This will overwrite any changes currently in the Channel Table.

Save All Channels:

Will send the Channel Table settings to the controller.

Channel: The number of channels is based on the mode you are in. In 'SBUS' mode, Channels 1-16 are available to modify. In the 'PWM' & 'Button' modes, channels 1-5 will be available. Select the channel on the lower list first, then assign a function to that channel. **Examples are in the Controller Assignment section.**

Invert Channel: This is an easy way to reverse the function that has been programmed for a particular channel.

Switch Type: This lets the program know what type of switch will control the channel chosen.

Max Function / Maximum: Tells the program what the channel will do when the knob or switch type is at its maximum.



hermal RC Control		Oel	DCumerc
RC Channel Sta	tus Button Mode	Connected	Calibrate RC
Channel 1 100 Channel 2 100	Channel 1 Setup	Invert O	hannel
Channel 3 100 Channel 4 100	Switch Type	Button	~
Channel 5 100 Channel 6 0	Single Click	None	~
Channel 7 0 Channel 8 0	Double Click	None	~
Channel 9 0 Channel 10 0	Tripple Click	None	~
Channel 11 0 Channel 12 0 Channel 12 0	Long Click	None	~
Channel 14 0 Channel 15 0 Channel 16 0	Clear	Refresh	Save
Class M Channels	Defends M Chan	- ala	Cause All Channels

Center Function / Center: This is used for switches (3 position switch) that have a center position. If a switch has two center positions (4 position switch), then the Center Function 2 can be programmed. A momentary switch will not have a center position and may not be active for editing.

Min Function / Minimum: Tells the program what the channel will do when the knob or switch type is at its minimum.



Changing Controller Modes:

SBUS to PWM Mode:

When connected, the RHP Controller Software is set to **S-BUS** by default.

File	Mod	e Help			06	m	mera
Them	al RC	Control			00		incia
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CH	Chi Chi Chi Chi Chi	All Channels	-100 -100 -100	Clea Refresh Al C	r Refresh	Save	Il Channels
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Change from S-BUS to PWM Mode:	
Choose:	
Mode > RC Mode	
and select PWM.	

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Therma	RC Mode	•	SBUS		UCI	Jucann	CIU
	Advanced	•	PWM	Mada	Connected	Calibrata DC	
Presets	•	Button	wode.	Connected	Calibrate NC		
	Channel 1 Channel 2	-100	UART	1 Setup	Invert C	hannel	
	Channel 3 Channel 4	-100	S	witch Type	Vari "0" Dow	n v	
	Channel 5	-100		Inv Eurotion	Nego	1	

You will be prompted for confirmation.

Click OK.





PWM to Button Mode:

The page will refresh and is now in PWM Mode.

File	Mod nal RC	Control			oel	m)CC	Imerc
	RC 555555555555555555555555555555555555	Chann annel 1 annel 2 annel 3 annel 4 annel 5 annel 5 annel 6 annel 7 annel 7 annel 10 annel 11 annel 11 annel 13 annel 16	el Statu N/A N/A N/A N/A N/A N/A N/A N/A	S PWM Mode: Channel 1 Setup Switch Type Max Function Center Function Center Function Min Function Clear	Connected Invert Vari "0" Do None None None None Refresh	Calbrate f Channel wm ~ ~ ~ Save	AC
	Clear	All Channels		Refresh All Chan	nels	Save A	I Channels
CH	Invert	Name	Туре	Maximum	Center	Center	Minimum
1	No	Channel 01	Vari "0" Down	None	None	None	None
2	No	Channel 02	Vari "0" Down	None	None	None	None
3	No	Channel 03	Vari "0" Down	None	None	None	None
4	No	Channel 04	Vari "0" Down	None	None	None	None
E	Ma	Channel OE	Vad "0" Daves	Mana	lana	Mana	Mana

The same principal applies when changing to Button mode. Choose: *Mode > RC Mode* and select Button.

You will be prompted for confirmation.

Click OK.

The page will refresh and is now in Button Mode.

File	Mode	Help				OP	noor	nera
Thema	RC Mode Advanced Presets		RC Mode 🕨			001	Jucar	nora
F			Advanced +		PWM	Mode	Connected	Calibrate RC
			•	Butto	n Mode.	Connected	Calibrate NC	
	Channel Channel	1	-100	UART	1 Setup	Invert C	hannel	
	Channel	3	-100		Switch Type	Vari "0" Dov	m v	
	Channel 4 Channel 5		-100		Max Eurotion	Nego	100	

Are you sure you want to change to Button Mod	lode		
	ou sure you wa	ant to change to Button Me	ode?
Provide and a second seco			

File Mode Help hermal RC Control		oen	Camero
RC Channe	Status Button N	ode Connected	Calibrate RC
	Channel 1		
Channel 1 1 Channel 2 1	00	Invert Ch	annel
Channel 1 1 Channel 2 1 Channel 3 1 Channel 4 1	00 00 00 Switch Ty	Dinvert Cr Button	sannel V



Revert to SBUS Mode:

select:

Mode > RC Mode and select SBUS.

Thema RC Mode SBUS Advanced PWM Presets Button UART UART UART UNVet Channel UNVet Channel UNVet Channel		oem)camerc					Help	Mode	File
F Advanced Presets Button Channel 1 -100 UART Variation Channel 1 -100 UART UART Variation Variatio Variati	Mode: Connected Calibrate RC				SBUS	•	Mode	RC	Therma
Channel 1 -100 UART Setup				PWM Button	Advanced Presets		F Pres		
Channel 2 -100		el	Invert Chann	1 Setup	UART	-100	el 1 el 2	Channel 1 Channel 2 Channel 3 Channel 4 Channel 5	
Channel 3 -100 Channel 4 -100 Channel 4 -100 Channel 5 -100		~	Vari "0" Down	h Type	Switch	-100	el 3 el 4		

You will be prompted for confirmation. Click OK.



The page will refresh and is now in SBUS Mode.

Mode Help			oem	DCal	me
C Chan	nel Status	SBUS Mode: Co	onnected	Calibrate RC	
Channel 1 Channel 2	-100 -100	Channel 1	Invert Char	nnel	
Channel 3 Channel 4	-100	Switch Type	Vari "0" Down	~	
Channel 5 Channel 6	-100	Max Function	None	~	
Channel 7 Channel 8	-100 -100	Center Function	None	~	0-100%
Channel 9 Channel 10	-100 -100	Center Function2	None	~	
Channel 11 Channel 12 Channel 13	-100 -100 -100	Min Function	None	~	
Channel 14	-100	Clear	Refresh	Save	



Controller Assignment:

Select Channel:

To assign a Function on the RHP-BOS-RC-IF to a switch type on the RC Controller follow these steps:

1. Choose a channel from the *Channel Table* in the lower portion of the screen.

NOTE: When in PWM Mode, only five (5) Channels will show.

- 2. Select the switch type:
 - **2** position switches will only show the Max Function and the Min Function.

 - 3 position switches will show Max Function, Center Function and Min Function.

- Variable +/- will only show the Center Function.

- *Variable with Center* will show Max Function, Center Function, Center Function and Min Function

3. Configure the function:

Choose a function and assign a command to that function. i.e., Max Function: Smoothing Factor + adjust the smoothing factor to 100% when activated.

NOTE: Functions are dependent on the switch type selected. Therefore, some functions may not be available for every switch type.

4. Click save.

The channel parameters will reflect the changes in the channel table and save to the RC Controller.



NOTE: Be sure to save your work on each channel. Changing channels before saving will reset the settings for that previous channel.



	Clear All Channels			Refresh All Ch	annels	Save All Channels		
CH	Invert	Name	Туре	Maximum	Center	Center	Minimum	
1	No	Channel 01	Vari "0" Down	None	Continous Zoom	None	None	
2	No	Channel 02	Vari "0" Down	None	None	None	None	
3	No	Channel 03	Vari "0" Down	None	None	None	None	
4	No	Channel 04	Vari "0" Down	None	None	None	None	
5	No	Channel 05	3 Pos Switch	Do FFC	None	None	Do FFC	
6	No	Channel 06	3 Pos Switch	Lava	Graded Fire	None	Rainbow	
7	No	Channel 07	Vari "0" Down	None	None	None	None	
8	No	Channel 08	Vari "0" Down	None	None	None	None	
9	No	Channel 09	Vari "0" Down	None	None	None	None	
10	No	Channel 10	3 Pos Switch	Smoothing Fac	None	None	Smoothing Fac	
11	No	Channel 11	Vari "0" Down	None	None	None	None	
12	No	Channel 12	Vari "0" Down	None	DDE	None	None	
10	A1.	A	17-2 HOH D	NI	Maria	Maria	Maria	

SBUS Mode: C	onnected	Calibra	te RC
annel 10 Setup	Invert Ch	annel	
Switch Type	3 Pos Switch	~	
Max Function	Smoothing Fa	ctor + 🗸	100%
Center Function	None	~	0%
Center Function	None		
Min Function	Smoothing Fa	ctor - v	-100%

RHP-BOS-RC-IF Controller Sample Configurations

SBUS - Controller Assignment Example:

In our example, we have modified and saved channels 12, 13 and 14.

Channel 12 is a 2-position switch.

At maximum, the switch is assigned to zoom in 48x. The Min Function is set to zoom out to 0x.

Channel 13 is a Variable "0" Center POT which is assigned to Palette (+) when turned to the right and Palette (-) when turned to the left.

Channel 14 (highlighted) is a 3-position switch. At Max will send the Gain Value to the maximum value of 8. At Center, the gain value will return to the default setting. The Minimum value will send the minimum Gain Value to 0.

File	Mod	le Help			OOr	nocou	marc
Them	nal Visit	e RC Cont	rol		UCI	Dea	nerc
		~	1.01.1	CDUC Made	Connected	Calibrate DC	-
	RC	Chann	el Statu	S SBUS Mode:	Connected	Calibrate Hu	•
	Cha	annel 1	-100	Channel 13 Setu	p D lovert C	hannel	
	Chi	annel 2 annel 3	-100			namen	
	Cha	annel 4	-100	Switch Type	Vari "0" CTR	· ~	
	Chi	annel 5 annel 6	-100	Max Function	Palette +	~	100%
	Cha	annel 7	-100	Center Function	None	~	0%
	Chi	annel 9	-100				
	Chi	annel 10	-100	Center Function	2 None	~	0%
	Cha	annel 12	-100	Min Function	Palette -	~	-100%
	Cha	annel 13 annel 14	-100				
	Chi	annel 15	-100	Clear	Refresh	Save	
	Chi	annel 16	-100				
	Clear	All Channels		Refresh All Chan	nels	Save All	Channels
СН	Invert	Name	Туре	Maximum	Center	Center	Minimum
1	No	Channel 01	Vari "0" Down	None I	Vone	None	None
2	No	Channel 02	Vari "0" Down	None I	Vone	None	None
3	No	Channel 03	Vari "0" Down	None I	Vone	None	None
~		Channel 04	Vari "0" Down	None I	None	None	None
4	No	Channel 04				110110	
4 5	No No	Channel 04 Channel 05	Vari "0" Down	None I	None	None	None
4 5 6	No No No	Channel 05 Channel 06	Vari "0" Down Vari "0" Down	None I None I	None None	None	None None
4 5 6 7	No No No	Channel 04 Channel 05 Channel 06 Channel 07	Vari "0" Down Vari "0" Down Vari "0" Down	None I None I None I	Vone Vone Vone	None None None	None None None
4 5 6 7 8	No No No No	Channel 04 Channel 05 Channel 06 Channel 07 Channel 08	Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down	None I None I None I None I	None None None	None None None None	None None None None
4 5 6 7 8 9	No No No No No	Channel 04 Channel 05 Channel 06 Channel 07 Channel 08 Channel 09	Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down	None 1 None 1 None 1 None 1 None 1 None 1	Vone Vone Vone Vone Vone	None None None None None	None None None None None
4 5 6 7 8 9 10	No No No No No No	Channel 04 Channel 05 Channel 06 Channel 07 Channel 08 Channel 09 Channel 10	Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down	None 1 None 1 None 1 None 1 None 1 None 1	Vone Vone Vone Vone Vone	None None None None None None None None	None None None None None
4 5 6 7 8 9 10 11	No No No No No No No	Channel 04 Channel 05 Channel 06 Channel 07 Channel 08 Channel 09 Channel 10 Channel 11	Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down	None I	Vone Vone Vone Vone Vone Vone	None None None None None None None	None None None None None None None
4 5 6 7 8 9 10 11 12	No No No No No No No No	Channel 04 Channel 05 Channel 06 Channel 07 Channel 08 Channel 09 Channel 10 Channel 11 Channel 12	Vari "0" Down Vari "0" Down 2 Pos Switch	None I Zoom 100% I	None None None None None None None None	None None None None None None None None	None None None None None None None Zoom 0%
4 5 6 7 8 9 10 11 12 13	No No No No No No No No No	Channel 04 Channel 05 Channel 06 Channel 07 Channel 08 Channel 09 Channel 10 Channel 11 Channel 12 Channel 13	Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down 2 Pos Switch Vari "0" CTR	None I Zoom 100% I Palette + I	Vone Vone Vone Vone Vone Vone Vone Vone	None None None None None None None None	None None None None None None Zoom 0% Palette -
4 5 6 7 8 9 10 11 12 13 14	No No No No No No No No No	Channel 04 Channel 05 Channel 06 Channel 07 Channel 08 Channel 09 Channel 10 Channel 11 Channel 12 Channel 13 Channel 14	Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down Vari "0" Down 2 Pos Switch Vari "0" CTR 3 Pos Switch	None I Zoom 100% I Palette + I Max Gain + I	Vone Vone Vone Vone Vone Vone Vone Vone	None None None None None None None None	None None None None None Zoom 0% Palette - Max Gain -



5 Button Direction Pad Example:

This example will walk through setting up a 5 Button Direction Pad. Two of the buttons will zoom in and zoom out. Another two will change palettes. The final button will perform a manual Flat Field Correction (FFC).

This walkthrough is designed to show how a channel is selected, switch type is defined, and function is assigned and saved to the channel. Ensure that you have Button Mode active.

Select Channel 1 from the bottom list.

In our example, each channel will be chosen in succession.

Next, Assign a function. We have assigned the 'Long Click' to Zoom in on Channel 1 of our 5 button Pad.

File	Mod nal RC	le Help Control			Oel	DCO	imerc
	RC	Chann	el Status	Button Mode	Connected	Calibrate F	RC
	0	annel 1 annel 2	100	Channel 1 Set	up	Channel	
	00	annel 3 annel 4	100	Switch Type	Button	~	
	00	annel 5 annel 6	100	Single Click	None	~	
	00	annel 7 annel 8	0	Double Click	None	~	
	66	annel 9 annel 10	0	Tripple Click	None	~	
	Channel 10 Channel 11 Channel 12 Channel 13 Channel 14		0	Long Click	None	~	
Channel 12 0 Channel 13 0 Channel 14 0 Channel 15 0 Channel 16 0		0000	Clear	Refresh	Save		
1	Clear	Al Channels		Refresh All Ch	annels	Save A	I Channels
CH	Invert	Name	Туре	Single	Double	Tripple	Long
1	No	Channel 01	Button	None	None	None	None
2	No	Channel 02	Button	None	None	None	None
3	No	Channel 03	Button	None	None	None	None
4	No	Channel 04	Button	None	None	None	None

e Mode Help mai RC Control			oer	Dcamer
RC Chan	nel Status	Button Mode	Connected	Calibrate RC
Channel 1 Channel 2 Channel 3 Channel 4 Channel 5 Channel 7 Channel 7 Channel 7 Channel 9 Channel 10 Channel 11 Channel 11	100 100	Channel 1 Setup	linvert O	hannel
		Switch Type	Button	~
		Single Click	None	~
		Double Click	None	~
		Tripple Click	None	~
		Long Click	None	~
Channel 13 Channel 14			None	^
Channel 15 Channel 16	0	Clear	Zoom Out Zoom 0% Zoom 25%	

File	Mod val RC	le Help Control			OE	m)CC	imera
	RC	Chann	el Stati	IS Button M	lode Connected	Calbrate	RC
	66	annel 1 annel 2	100	Channel 1	Setup	et Channel	
	00	annel 3 annel 4	100	Switch Ty	pe Button	~	
	60	annel 5	100	Single Cik	k None	~	i l
	6	annel 7	0	Double C	lok None	~	i l
	66	annel 9	0	Tripple Cl	ck None	~	i i
Channel 11 Channel 12 Channel 13		annel 11 annel 12	000	Long Click	k Zoom In	~	1
	9999	annel 14 annel 15 annel 16	000	Oe	ar Refresh	Save	
[Clear	Al Channels		Refresh Al	Channels	Save A	N Channels
ж	Invert	Name	Туре	Single	Double	Tripple	Long
	No	Channel 01	Button	None	None	None	Zoom in
	No	Channel 02	Button	None	None	None	None
	No	Channel 03	Button	None	None	None	None
			0.000	Mana	Mana	Mana	Mana

(channel 1) that we selected.	

Next, click Save and the function will be saved to the channel



Select Channel 2 from the bottom list.

We have assigned the 'Long Click' to Zoom out on Channel 2.

Next, click Save and the function will be saved to the channel

1	Clear	All Channels		Hefresh Al	Channels	Save	All Channels
СН	Invert	Name	Туре	Single	Double	Tripple	Long
1	No	Channel 01	Button	None	None	None	Zoom In
2	No	Channel 02	Button	None	None	None	None
3	No	Channel 03	Button	None	None	None	None
4	No	Channel 04	Button	None	None	None	None
5	No	Channel 05	Button	None	None	None	None





Soloct	Channel	2	from	tho	hottom list	
Select	Channel	Э	monn	uie	DOLLOITI IISL.	

CH	Invert	Name	Туре	Single	Double	Tripple	Long
1	No	Channel 01	Button	None	None	None	Zoom In
2	No	Channel 02	Button	None	None	None	Zoom Out
3	No	Channel 03	Scroll	None	None	None	None
4	No	Channel 04	Scroll	None	None	None	None
5	No	Channel 05	Button	None	None	None	None

(channel 2).

We have assigned the 'Palette - ' to reverse through the palettes Single Click Double Click

Channel 15 Channel 16 Clear All Channels

Type

Туре

Channel 01 Button

Channel 02 Butto

Name

Channel 01 Button

Channel 02 Button

Channel 03 Button

Channel 05 Button

Connected

nel 04 Scr

CH Invert Name

No

No

Clear All Channels CH Invert No

Next, click Save and the function will be saved to the channel

We have assigned the 'Palette +' to cycle forward through the

3.

(channel 3).

available palettes with a single click on the FLIR Boson on Channel

Select Channel 4 from the bottom list.

with a single click on the on Channel 4.



Tripple Click

Long Click

Single

None

None

None

Single

None

None

None

Palette

Refresh All Channels

Refresh All Channels

None

None Clear Refresh

Double

None

None

None

Double

None

None

None

None

~

Save All Channels

Save All Channels

Long

Zoom In

Zoom Out

None

Long

Zoom In

Zoom Out

None

None

Save

Tripple

None

None

None

Tripple

None

None

None

None

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Next, click Save and the function will be saved to the channel (channel 4).

	Chi	annel 4	100		Dutton		
	Chi	annel 5 annel 6	100 0	Single Click	Palette -	~	
	Channel 7 0 Channel 8 0			Double Click	None	~	
	Chi	annel 9 annel 10	0	Tripple Click	None	None \checkmark	
	Channel 11 0 Channel 12 0 Channel 12 0			Long Click	None	~	
	Chi Chi Chi	annel 14 annel 15 annel 16	0000	Clear	Refresh	Save	
- 1	Clear	All Channels		Refresh All Cl	hannels	Save All	Channels
СН	Invert	Name	Туре	Single	Double	Tripple	Long
1	No	Channel 01	Button	None	None	None	Zoom In
2	No	Channel 02	Button	None	None	None	Zoom Out
3	No	Channel 03	Button	Palette +	None	None	None
4	No	Channel 04	Button	Palette -	None	None	None
-	No	Channel 05	Button	None	None	None	None
·							

CH	Invert	Name	Туре	Single	Double	Tripple	Long
1	No	Channel 01	Button	None	None	None	Zoom In
2	No	Channel 02	Button	None	None	None	Zoom Out
3	No	Channel 03	Button	Palette +	None	None	None
4	No	Channel 04	Button	Palette -	None	None	None
5	No	Channel 05	Button	None	None	None	None

	Ch	annel 2	100						
	Ch	annel 4	100	Switch Typ	e	Button	~		
	Ch	annel 5 annel 6	100	Single Click	ĸ	Do FFC	~		
	Ch	annel 7 annel 8	0	Double Click Tripple Click		HD Zoom Out HD Stabalizer On HD Stanablizer Off HD BLC On	^		
	Ch	annel 9 annel 10	0						
	Ch	annel 11 annel 12 annel 13	0	Long Click		HD BLC Off HD HLC Off			
	Ch Ch	annel 14 annel 15	0	Clea	r	HD Defog On HD Defog Off			
ī	Clear All Channels		Refresh All Channel		HD WideD On HD WideD Off FFC Auto		Channels		
СН	Invert	Name	Type	Single	Do	Do FFC		Long	
1	No	Channel 01	Button	None	Nor	Tail Rejection +		Zoom In	
2	No	Channel 02	Button	None	Nor	Tail Rejection Default Max Gain +		Zoom Out	
3	No	Channel 03	Button	Palette +	Nor	Max Gain -		None	
4	No	Channel 04	Button	Palette -	Nor	Max Gain Default Damping Factor +		None	
-	-	-			-	a dotor -			



Select Channel 5 from the bottom list.

We have assigned the 'Do FFC' command to initiate a Flat Field Correction event on press on Channel 5.

Next, click Save to store on channel (channel 5).



The Final Step:

Once the channels have been assigned and saved, the last step is done by clicking **Save All Channels** located below the Channel Setup Save button.

	Chi Chi	annel 14 annel 15 annel 16	0	Cle	ar Refresh	Save	
	Clear	All Channels		Refresh All	Channels	Save	All Channels
СН	Invert	Name	Туре	Single	Double	Tripple	Long
1	No	Channel 01	Button	None	None	None	Zoom In
2	No	Channel 02	Button	None	None	None	Zoom Out
3	No	Channel 03	Button	Palette +	None	None	None
4	No	Channel 04	Button	Palette -	None	None	None
5	No	Channel 05	Button	Do FFC	None	None	None

This will write the settings to the RHP-BOS-RC-IF.



Example Configurations

Example Configuration USB VPC Connection:

To allow a visible picture while programming, we have added another USBconnection to the RHP-BOS-RC-IF. The 4 Pin Video/Power to USB cable provided allows you to connect 6-26 Volts of power to the RHP-BOS-RC-IF and view video on a Windows PC.

Connect the JST end to the RHP-BOS-RC-IF, then connect the USB connector to the PC. The power light will illuminate within 5 seconds, indicating the unit is on.

The camera will connect as a standard UVC device, so no special drivers are provided byFLIR. The standard Windows drivers are used.

Connecting the RHP-BOS-RC-IF VIA the USB connection as shown can also be done in conjunction with the other connections. i.e.: S-Bus, Video out 1 & 2, USB Connection toprogram, etc.



Example Configuration Connection Diagram:



Example Configuration 16CH S-BUS



Example Configuration 5 Channel PWM



Example Configuration Vehicle with Control Pad





Example Thermal Image Taken from Vehicle.



Example Configuration Control Pad





REFERENCE:

Palette Examples:



