COGNISYS
SCOUT
AUX BOX

Owner's Manual

Revision 1.0

COGNISYS INC.
Capture the Hidden World

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1. Safety Instructions

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Follow all CAUTION notices to reduce the risk of personal injury, prevent damage to the Scout equipment, accessories, and devices (computers, cameras, flashes, etc). Failure to follow all CAUTION notices may void your warranty. CAUTION may also indicate a potentially hazardous situation which, if not avoided, may result in personal injury.

The safety alert symbol ⚠ precedes a general CAUTION or WARNING statement.

The electrical hazard symbol ⚡ precedes an electric shock hazard CAUTION or WARNING statement.

⚠ **CAUTION:** Only use approved power sources for Scout equipment. Use of other power adapters or batteries may damage the controller and/or attached equipment.

⚠ **CAUTION:** Misuse of Scout equipment could potentially damage your equipment. Cognisys, Inc. will not be held liable for damage to your equipment. If you have questions about safety please contact us!

2. Getting Started

The latest version of this manual is available on our website at: https://www.cognisys-inc.com/store/scout-aux-box.html

Not big on reading manuals? (What? No thumbs-up? We worked hard on this you know!) We have a few real world setups in the "4 - Examples" section. You can always come back to the technical details if you get stuck. You really should finish reading this section though – it goes through battery replacement and the basic care of the Aux Box.

2.1 What is the Scout Aux Box?

The Scout Aux Box is an accessory for the Scout Camera Box. It easily lets you wirelessly control external lighting (visible or infrared) using the settings in the Camera Box.

The Scout Aux Box has several features:
- Wireless communication to the Camera Box
- Full control of lighting duration including extending the duration on detection events
- Supports three unique lighting programs (duplicating the Camera Box Aux settings)
- Easy setup (All done through the Camera Box app)
- Weatherproof
- 200+ days battery life (wireless standby, not driving a light)
- Wide voltage Range (6 – 20V)
- Drives loads up to 5 amps
- Optional External Power
- Optional Internal Battery (5200mAh/14.8V -- 20800 mAh total capacity)
- Wide operating temperature range: -40C – 105C (-40F – 221F)

The Scout Aux Box requires that the Camera Box is running software version 1.0.03 or greater.

2.2 Selecting Lights

There are many lighting options available on the market today. Obviously you will want a weatherproof (IP66, IP67, IP68) enclosure. Also make sure the lights are compatible with the voltage of our Li-Ion battery pack (12 – 16.8V) or the external power you are supplying. Any automotive light is compatible with our Li-Ion battery pack. LED lights are by far the best option due to their low current consumption. How big (number of watts) can the Aux Box handle? That gets tricky thanks to "creative marketing".

The Aux Box can supply up to 5 amps of current at whatever voltage you are supplying to it. Normally the number of watts is the current multiplied by the voltage. The problem is with how the marketing folks specify LED lights. You're probably familiar with this inside your own home. A 60 watt LED light only uses 9 watts of electricity. So if you buy an 12volt 18W outdoor light panel, you would think it'd draw 18W/12V = 1.5 amps. That's not the case! It will be considerably less than that (one of ours draws 0.57 amps). To complicate things further most LED lights do not tell you the current they draw – just that they include a 1 – 3 amp AC/DC adapter or that you're supposed to wire it up to a vehicle.

That's a lot of numbers and math. The bottom line is that the Aux Box can likely control more than one light. Just keep the "creative marketing" wattage less than around 160 watts at 12V per Aux Box. Chances are you'll want more than one Aux Box anyways to more evenly distribute the lighting.

2.3 What is Included

The Scout Aux Box includes:

- Scout Aux Box
- 1.5 meter / 3ft wiring cable for lighting
- Quick-start guide insert

If you purchased the Scout Aux Box as a kit it may include additional accessories.

We offer additional "T" connections and cables to connect multiple lights to each Aux Box.
https://www.cognisys-inc.com/store/scout-aux-box-cables.html

2.4 Battery Installation

Battery installation is a simple process and because the Aux Box has excellent battery life – you won't have to do it often!

The Aux Box is designed to use the Cognisys 5200mAh Scout Li-Ion battery pack. You simply plug the battery pack in!
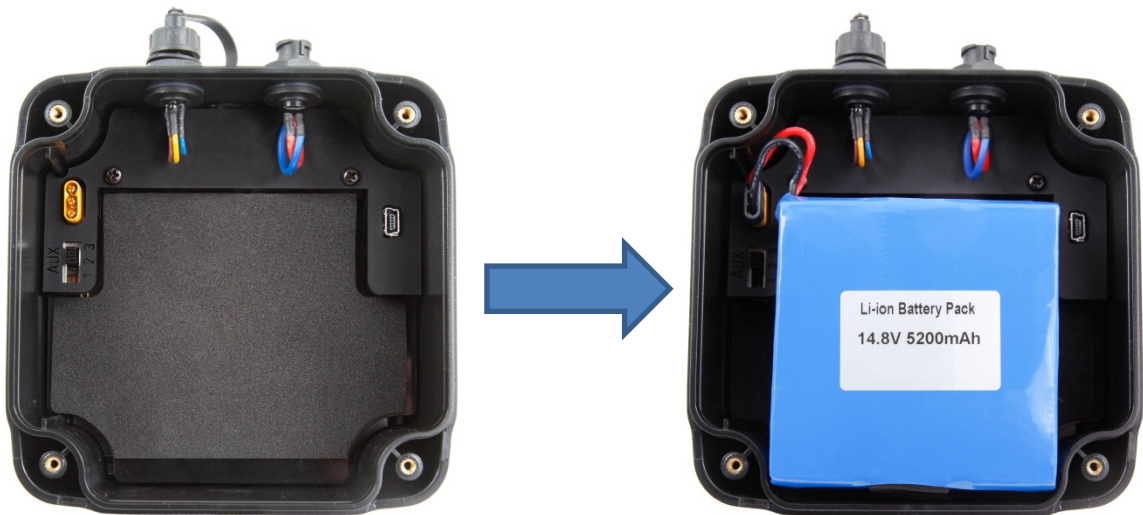
To install the battery:

1. Be sure the Aux Box is clean prior to replacing the batteries otherwise dirt may compromise the weatherproof seal.
2. Remove the four screws from the back-side of the Aux Box using a Philips screwdriver.
3. Remove the Aux Box back cover.
4. Install the 5200mAh battery and plug it in.
5. Align and push back cover onto the Aux Box.
6. Install screws being careful not to cross-thread them – **do not overtighten**!

You can also power the Scout Aux Box with external power using the optional power cable available here:
https://www.cognisys-inc.com/store/3pin-extpwr-cable.html

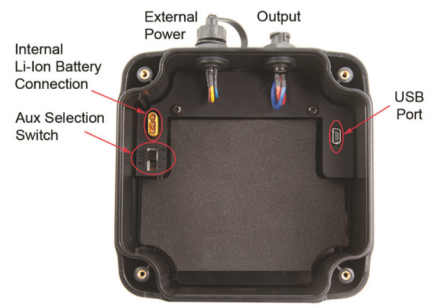If you are using external power you should absolutely have a fuse in the wiring (or similar protection device).

You do not need to remove the internal battery when using external power but you should remove the battery if the Aux Box will not be used for an extended period.

2.5 Quick Start Guide

Want to be up and running in two minutes or less? Here's the quick-start guide in case you misplaced it:

2.6 Cleaning and Care

We want your Scout equipment to last – so here are some brief steps to keep it happy!

2.6.1 Cleaning

For cleaning we recommend a slightly dampened (not wet) micro-fiber cloth. Do not spray water directly into the inside of the equipment. Any liquid that goes into the controller may cause an electrical failure of the device. Do not use a flammable liquid/solvents or cleaning agents on the controller – just a micro-fiber cloth (dampened if needed).

2.6.2 Care and storage

Scout equipment is designed to handle normal wear and tear but there are some things to avoid:

- Do not get the unit wet internally.
- If not using the external connector be sure to attach the protective cover or water may leak into the controller causing damage.
- Do not drop the unit (the housing is made of a strong polycarbonate but it DOES have its limits)
- Do not allow dirt to get into the weatherproof seal. This could cause seal failure and damage to the Aux Box.
- **Remove the battery prior to long term storage**.

Failure to properly care for the Scout Aux Box could result in a leak that may cause damage. The product warranty does not cover water damage resulting from user error.

2.6.3   Maintaining Weatherproof Design

Scout equipment is designed to meet the most challenging environmental conditions. It does, however, require some care to maintain its weatherproof sealing.

Prior to opening the equipment rinse it under gently running water if it is dirty.

It's very important to keep the housing's silicone seal clean. A single hair or grain of sand could potentially cause the housing to leak and damage the equipment. To clean the seal remove the back cover from the housing, and rinse the back cover in fresh water and shake dry (drying with a cloth may cause lint to compromise the seal). Allow the seal to dry prior to reassembly.

Below is an image indicating the seal location. It is recessed in a groove in the back cover of the equipment.
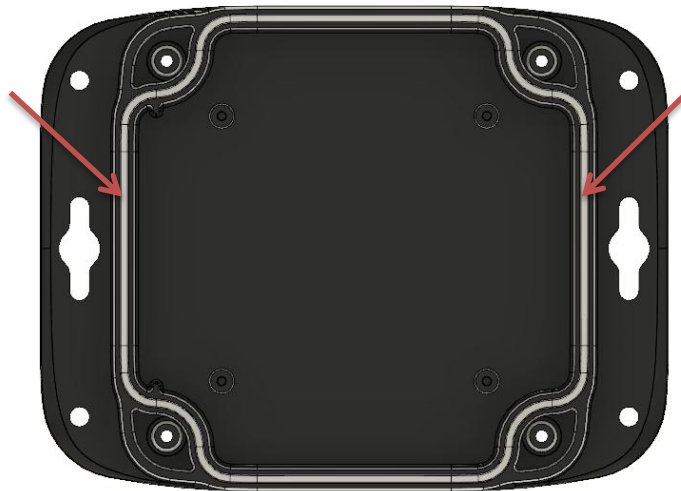
2.7 Wiring Diagram / Connectors

Figure 1 – Scout Aux Box Connections

There are two connectors on the Scout Aux Box (left to right):

1. External Power (3-pin)

   This allows you to optionally power the Aux Box from your own power source for even longer battery life.

2. Light connector (2-pin)

   Supplies power to your light.

The Scout Aux Box uses weather-resistant connectors and cables. If the Aux Box will be used outside during rain, snow, or condensing humidity be sure to have the connectors locked in place. If not using the external power jack keep the connector cap installed.

2.8 Aux Selection

This switch selects which Aux settings the Aux Box will use. There are three available selections. If this switch is set to "3", then this Aux Box will follow the programming in the Camera Box app for "Aux 3".

If using multiple Scout Aux Boxes in one setup you can have more than one set to the same Aux selection, or set them differently for separate effects. "Aux 1" could be set to activate from a Scout Receiver (beam-break) and "Aux 2" by a Scout PIR. The lighting options are extremely flexible!

2.9 Power Button

 The power button is on the side of the Aux Box:

Press this button to turn on the Scout Aux Box. To turn it off simply press and hold this button for approximately two seconds until the red LED goes out.

Once the Aux Box is powered you can quickly press it to turn on the lights for setting up the camera trap. The lights will stay on until you either press the power button again *or* the camera box is activated by a sensor (at which point the Aux Box will follow its programming).

If you turn on the lights manually and they don't turn on or go out unexpectedly and the red LED indicator is flashing that means you are drawing too much current – the lights are are too many watts or there is a short in the wiring.

2.10   "Pairing" to your Camera Box

The Scout Aux Box needs to know which Camera Box you would like to use it with. This pairing process only needs to be done once. The process is easy:

1. Turn on your camera box (it's okay if it goes back to sleep).
2. **Make sure only one Camera Box is within wireless range**.
3. Turn on the Aux Box.
4. The Aux Box will scan all available wireless channels looking for the Camera Box. Once it finds one the process is complete!

Note: This process is very quick – less than a quarter of a second! If you see your Aux Box LED indicator ramping up and down slowly in intensity that means it can't find the Camera Box. Double-check that you've turned the Camera Box on!

If you ever change the "Wireless Channel" of your Camera Box or you want to change the Aux Box to use a different Camera Box on another "Wireless Channel" you'll need to start the pairing process over. To do this:

1. Start with the Aux Box turned off.
2. Press and hold the power button until the red LED indicator goes out (about 5 seconds).
3. Release the power button.
4. Repeat the "Pairing" process above.

2.11   Turning on the Aux Box

To turn on the Aux Box simply press and release the power button. Upon power-up, the Aux Box will attempt to connect to the Camera Box. If the Camera Box is out of range or turned off, the Aux Box will flash (on/off) the red LED indicator a few times to let you know it can't communicate. No worries though! It doesn't **need** to talk to the Camera Box at this point – the indicator is just to help you know that *maybe* something isn't quite right with the camera trap setup.

Note: You don't have to turn on the Scout equipment in any order – the indicator is just a helpful reminder.

Once the Aux Box is on the LED indicator will slowly dim down until it is out.

2.12   LED Indicator during operation

Whenever you give the power button a quick press to turn on your light the LED indicator will stay on for the duration your light is on.

The Aux Box will also give the LED indicator a quick flash when the Camera Box tells it to turn on. This will help you verify that the Camera Box is communicating with the Aux Box. In order to prevent the LED indicator from being visible long term this feature will automatically turn off after two minutes from power-on.

3. Settings

The Aux Box settings are adjusted inside the Camera Box app under "Aux Settings":

- Aux Settings

Aux 1

Activate

Input Source: Receiver ▼   ID: 1 ▼

pics: 1

Delay: 0.00   sec

On Time 1: 0.50   sec

Off Time 1: 0.50   sec

On Time 2+: 0.50   sec

Off Time 2+: 0.50   sec

Final Off: ☐

Extend On: ☐

Extend Off: ☐
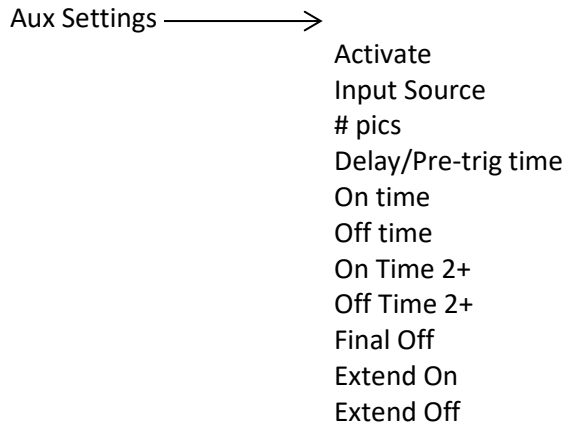
3.1 Settings Navigation Map

Below is the navigation map for all the aux settings. The links are "clickable" to get you to the specific details about the setting.

Aux Settings ⟶

        Activate
        Input Source
        # pics
        Delay/Pre-trig time
        On time
        Off time
        On Time 2+
        Off Time 2+
        Final Off
        Extend On
        Extend Off

3.2 Setting Descriptions

3.2.1 Activate

This will start the programming for this specific aux output. This is useful for testing connections or setting up your camera trap.

3.2.2 Input Source

You can choose what device you would like to activate the aux output. The system defaults to using the Scout Receiver that is programmed with an ID of "1".

You can currently select between the Scout Receiver or PIR. If using multiple receivers and PIR's make sure that each device is set to its own unique ID. You can have a Scout Receiver and a Scout PIR with "ID: 1", but **not** two Receivers with "ID: 1".

You can also select "Any" for the source or "Any" for the ID. Here are a few examples:

Example 1:
Source: RX
ID: 2
Only the Scout Receiver that is programmed with a wireless ID of "2" will activate the aux output.

Example 2:
Source: Any
ID: 1
Either a Scout Receiver OR PIR with ID 1 will activate the aux output.

Example 3:
Source: Any
ID: Any
Any sensor will activate the aux output.

3.2.3 # pics

This is the number of times you would like to activate the aux output when the Scout Camera Controller receives a detection signal.

3.2.4 Delay/Pre-trig time

This is the first step after a sensor detects something. For the "Aux Settings" this only functions as a delay. If "Delay/Pre-trig" is set to zero then the aux output will immediately activate.

3.2.5 On time

Once the "pre-trig" time expires (or completely skipped if it is set to zero) the aux output will activate (lights on!). The output will stay active for this duration.

3.2.6 Off time

The "off time" is how long between each "# pics" that the output will be off (lights out). If "# pics" is set to "1" then this will be how long the lights will stay out before the Aux Box will allow them to turn back on again. See section "3.2.9 - Final Off" for an additional option for controlling the "off time".

3.2.7 On Time 2+

If the "# pics" is set to greater than one you can use this setting to adjust the duration of the second (and all future) times the aux output turns on. This gives you additional creative control of lighting.

3.2.8 Off Time 2+

If the "# pics" is set to greater than one this will be the time between aux output activations beyond the first one.

3.2.9 Final Off

You have the option of disabling the final "off time". Here are two use-cases.

1) The "# pics" is set to one. If "final off" is set to on, then you can use the "off time" to set how long the Camera Controller (and therefore the Aux Box) will ignore any additional subjects walking through the a sensor (preventing the Aux Box from turning on the lights).
2) If "final off" is turned off then the Aux Box will turn on the lights immediately if a sensor detects a subject again.

3.2.10 Extend On

If this option is selected any detection signal from a sensor will continue the programmed "on time" if the "on time" is currently active. This can be useful for video recording where you may have programmed 30 seconds of video but if the sensor continues to detect a subject the video will continue another 30 seconds and the Aux Box will keep the lights on.

The "Extend On" feature should match your "Camera Settings". Otherwise the lights may turn on/off when you don't expect them to.

3.2.11 Extend Off

This is similar to "Extend On". It can be used for a few use-cases.

1. If a subject enters the sensor area it will fire the camera. If the subject hovers and continues to re-trigger the sensor, and this option is enabled (along with final off), it will prevent the camera from firing again.
2. If the "# pics" is set to greater than one, and the subject hovers, this can be used to prevent the picture taken until the subject stops moving in the sensor area.
3. Some cameras require a shutter activation to start video recording and another to stop. If you want to extend the video recording time for these cameras you should select "Extend Off".

The "Extend Off" feature should match your "Camera Settings". Otherwise the lights may turn on/off when you don't expect them to.

4. Example

In the following section we will walk you through a real-world setup/example using your Scout Camera Box and Aux Box. Be sure to check out our website and follow us on YouTube (http://www.youtube.com/user/CognisysInc/) for video examples. Sometimes watching a video makes the whole process much easier to understand!

4.1 Recording Video

In this example we'll be using a Sony camera to record a 30 second video clip using the Aux Box. The clip might be longer if the subject continues to move in the area. This will be a completely wireless setup.

The equipment:
- Sony A7SII
- Scout Camera Box
- Scout PIR sensor
- Scout Aux Box
- Cognisys Sony Video Switch

The first step is to get the camera recording video. For this we make the following changes to the camera settings in the Camera Box app:
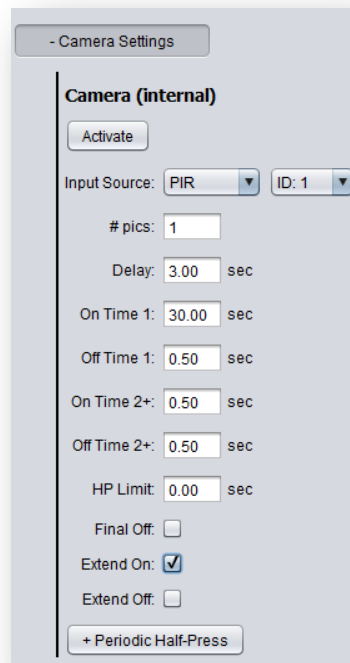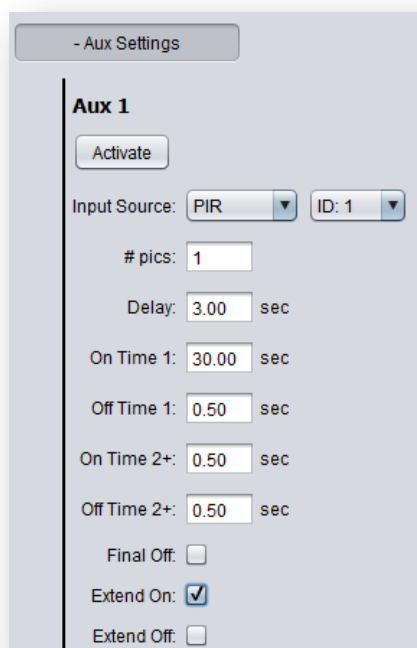

First we've selected the "Input Source" as PIR (since that is the sensor we're using) and left the ID to the default of "1".

Next we've set the delay to 3 seconds since Sony's are notoriously slow for waking up – especially for video. So we'll give the camera a 3-second half-press to get it going.

Then the "On Time 1" is set to 30 seconds for our video clip duration.

Finally is checking the "Extend On" box. What this will do is if the subject continues to move in the PIR's detection area the record time will be upped again to 30 seconds. We want that footage for as long as the critter is moving around – and then 30 seconds after that stop recording.

Now for the "Aux Settings":

Hey – these settings look suspiciously like the camera settings! They're identical. The lights will still come on before the camera starts recording since there is a slight lag in the camera *starting* to record. If your lights are slow and take one second to come on though you'll want to decrease the "delay" to two seconds, and then increase the "On Time" to "31".

Finally click "Save Config" in the app so the Camera Box will retain the settings if power is lost.

That's it! Almost… Make sure your Aux Box switch inside the box is set to "Aux 1". You can verify that the lighting setup is working properly by pressing the "Activate" button in the app.

The final step as with all camera trapping is to *test*-**test**-**TEST**. Make sure that the sensor placement is good and that you're getting some fantastic video of yourself (pretending to be an animal) before you consider everything done.

5. Installing the Reflash software (optional)

What is "reflash"? It's a small program that allows you to update the firmware on your Scout Products. **You do not need this program to use your Scout equipment.** Rest assured if you just purchased your Scout it ships with the latest software available. If, however, new firmware becomes available you may want to upgrade your controller. Do you have to upgrade your firmware? No. Should I upgrade your firmware? Maybe. We say "maybe" because as new firmware is released we are adding and improving features. This means changes to the user interface and things might not look exactly how they did before you updated the firmware. So if you discover that a new feature is available that you absolutely have to have, then by all means go ahead and reflash your controller. Just keep in mind that things might look and behave a little different! The other consequence to reflashing your controller is that you *may* lose any stored settings.

Scout products can only be updated over USB. The reflash process takes a few seconds.

Reflash requires a firmware package (instructions included). You can find the package here: https://www.cognisys-inc.com/store/scout-aux-box.html#resources

 Whether you use Windows or OS X, you will **need** Oracle's Java installed for Reflash to load. You can download it here: http://java.com/download

5.1 Windows Installation

Windows installations should automatically detect and download the USB drivers required. Once the installation is complete you will have a "Start Menu" folder called Cognisys. Underneath that you will find the Reflash icon.

5.2 OS X Installation

Reflash requires Java 1.7 or later from Oracle. This version of Java requires that your OS X version be 10.7.3 (Lion) or above. It has not been tested with older versions of Java or earlier versions of OS X and is not supported.

Use the above link in section "5 - Installing the Reflash software".

Once installation completes you will have a "Reflash" icon on your Launch Pad:

6. Troubleshooting

Problem	Cause	Solution
Does not turn on when power button is pressed.	Battery not installed.	Install battery.
	Battery discharged.	Attach battery to charger.
	External power wired backwards.	Check battery polarity.
LED ramps up/down at power-up.	Not paired.	See section "2.10" for details.
LED flashes at power-up.	Camera box not turned on.	See section "2.11" for details.
LED flashes when manually turning on light.	Over-current.	Check wiring for polarity, shorts, and the device current/wattage rating.
Need to restore factory settings	You just want to start over!	With the Aux Box turned off, press and hold the power button until the red power light goes out. Release the power button.

If you cannot resolve a problem with your Scout Aux Box, please contact us at support@cognisys-inc.com. We want to make sure that you are completely satisfied!

7. Specifications

Specifications are intended for reference only. The design may be modified to improve features or functionality without notice.

Specifications	MIN	NOM	MAX	UNITS
Dimensions (including cover flange)		118 x 118 x 60		mm
Dimensions (including cover flange)		4.6 x 4.6 x 2.4		inches
Input Voltage	6	14.8	20	Vdc
Input Current 12V (no load) [1]	-	492	-	uAdc
Input Current 16.8V (no load) [1]	-	374	-	uAdc
Aux Output Current	-	-	5	Adc
Battery life (internal 5200mAh Li-Ion) [2]	-	200		days
Wireless Range [3]		15	30	m
		50	100	feet
Operating Temperature	-40	25	105	C
	-40	77	221	F

- 32-bit high performance low current ARM Processor
- Wireless connectivity: Proprietary 2.4GHz
- Powered by Scout Li-Ion battery pack and/or external power
- USB for reprogramming

[1] Light connected but not enabled.
[2] Based off of Scout 5200mAh battery pack.
[2] Several factors can affect the wireless range. Congestion, terrain, etc.

8. Warranty

Limited Warranty

The Scout Aux Box, Receiver, Transmitter, Base Transmitter, Flash, and Camera Controller (hereby referred to as "Scout Equipment"), software, and related equipment is provided by Cognisys, Inc. "as is" and "with all faults." Cognisys, Inc. makes no representations or warranties of any kind concerning the safety, suitability, lack of viruses, inaccuracies, typographical errors, or other harmful components of Scout Equipment and its related software. There are inherent dangers in the use of any product, and you are solely responsible for determining whether Scout Equipment is compatible with your equipment and other software installed on your equipment. You are also solely responsible for the protection of your equipment and backup of your data, and Cognisys, Inc. will not be liable for any damages you may suffer in connection with using or modifying Scout Equipment and/or its related software.

All electronic products are warranted to be free from defects in materials or workmanship for two (2) years from the date of purchase. Within this period, Cognisys Inc. will, at its sole option, repair or replace any components which fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alterations or repairs. This warranty is non-transferable.

THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE.

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Cognisys, Inc. retains the exclusive right to repair or replace the product or offer a full refund of the purchase price at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.

9. Revision History

Revision	Date	Change
1.0	11/19/2018	Initial Release