

CHANG EYE VIDEO SYSTEM USERS MANUAL

September 30, 2005
Rev 1.0.1



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Warnings:

Always remove the batteries when the units are stored or shipped.

Never puncture Li-Polymer packs, packs may ignite/explode causing bodily injury.

Li-Polymer packs may ignite because of cell damage, charger failure or other factors.

Do NOT charge battery on or near flammable surfaces.

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Chang Eye Video System

<u>Part #</u>	<u>Main Components</u>	<u>Qty</u>
CE-T010	Chang Eye video transmitter (channels 1-4 ea)	4
CE-R01x	Wireless Hand Held Video Receiver	
CE-A003	Nylon Chest Mount for Video Receiver	1
CE-A060	Li-Polymer Rechargeable Battery Pack	2
CE-A061	Li-Polymer Battery Charger	1
CE-A063	AC Adaptor for Li-Polymer Battery Charger	1
CE-A064	North American Power Cord for AC Adaptor	1
CE-A004	Carrying Case	1
CE-M001	User's Manual	1

<u>Part #</u>	<u>Optional Accessories</u>	
CE-P003	Long Multi-Section Telescoping Pole with Bracket Ball,	1
CE-P001	Short Extendable Pole with Bracket Ball	1
CE-P000	Pole-to-Cam Mounting Assembly	1
CE-A062	Car Lighter Adaptor for Li-Polymer Battery Charger	1
CE-A008	White Light LED Illuminator with Dual Mounting Bracket	1
CE-A065	AC Adaptor for Wireless Hand Held Video Receiver	1
CE-A060	Li-Polymer Rechargeable Battery Pack	2

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Pictures of Chang Eye Video System Components & Optional Accessories



CE-T010
Chang Eye Video Transmitter



CE-R014
Wireless Hand Held Video Receiver



CE-A060
Li-polymer Rechargeable Battery Pack



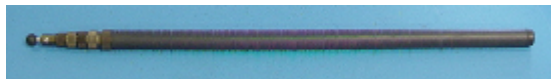
CE-P000
Pole-to-Cam Mounting Assembly



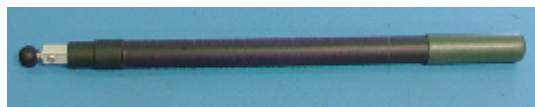
CE-A061
Li-Polymer Battery Charger



CE-A063
AC Adaptor for Li-Polymer Battery Charger



CE-P003
**Long Multi-Section Telescoping Pole
with Bracket Ball**



CE-P001
**Short Extendable Pole
with Bracket Ball**



CE-A062
Car Lighter Adaptor
for Li-Polymer Battery Charger



CE-A008
White Light LED Illuminator &
Dual Mounting Bracket

Chang Eye Video Transmitter

1. Description

1.1 Introduction

The Chang Eye video transmitter, CE-T01x, is a battery-powered module that uses a miniature black & white video camera and a small transmitter. Currently, the units are available in one of four possible channels.

1.2 Specifications

Power Consumption	
camera only	~550mA
camera & IR ON	~900mA
Range	300 ft
Battery type	Lithium-Polymer, 3060MAh @ 3.7V
Charge time	~4 hours

2. Power Management

2.1 Battery Type

The Chang Eye video transmitter uses a re-chargeable lithium-polymer battery pack which has a nominal rating of 3060mAh at 3.7V. The battery pack must be recharged using only the Li-polymer battery charger, part # CE-A061.

2.2 Battery Pack Installation and Removal

2.2.1 Installation

1. Remove the battery cover by loosening the two thumbscrews located on the rear of the unit.
2. Connect the battery connector to the mating end found in the housing.
3. Align the battery pack so that the black portion of the battery pack is facing the antenna. Insert the pack into the housing. Figure 1.



Figure 1.

4. Fold over the red ribbon. Figure 2. Replace the battery cover, and tighten the thumbscrews.



Figure 2.

2.2.2 Removal

1. Remove the battery cover by loosening the two thumbscrews located on the rear of the unit.
2. Un-seat the battery pack by pulling up on the red ribbon and continue to remove the pack from the housing. Figure 3.

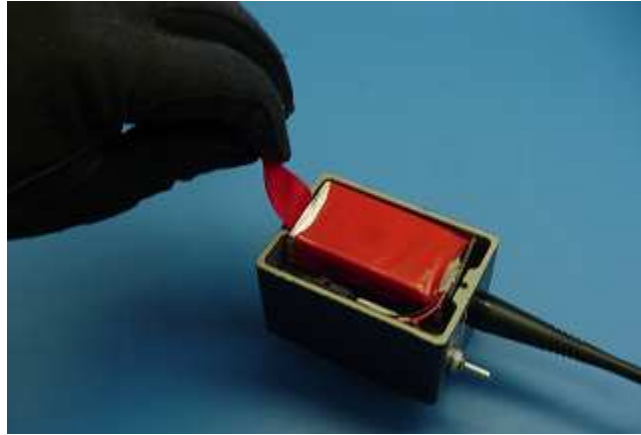


Figure 3.

3. Unlock the connectors by pressing on the locking center tap on the battery back connector and pull the connectors apart.

3. Operation

3.1 Turn ON/OFF

The Chang Eye video transmitter has two modes of operation, camera only or camera with IR illumination. To select either mode, move the toggle switch to the appropriate position as labeled on the unit. The center position is the OFF position.

3.2 Troubleshooting

If the Chang Eye video transmitter fails to operate, check the following:

1. Is the lens cover removed?
2. Is the battery sufficiently charged? The unit has a shutdown voltage of ~2.9V.
3. Is the battery connected properly?

4. FCC Statement

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by Chang Industry, Inc. can void the user's authority to operate the equipment.

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the

instruction manual, may cause harmful interference in which case the user will be required to correct the interference at his own expense.

Wireless Hand Held Video Receiver, 2 channels or 4 channels

1. Description

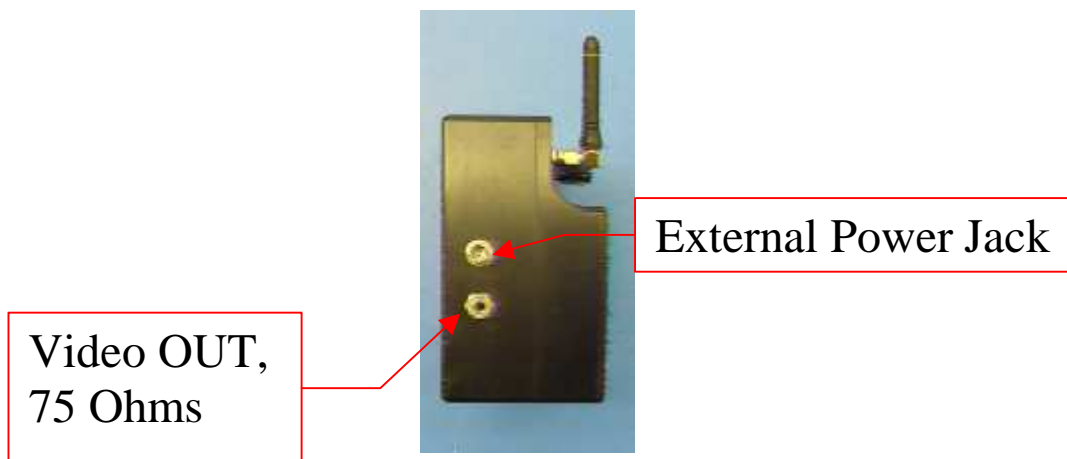
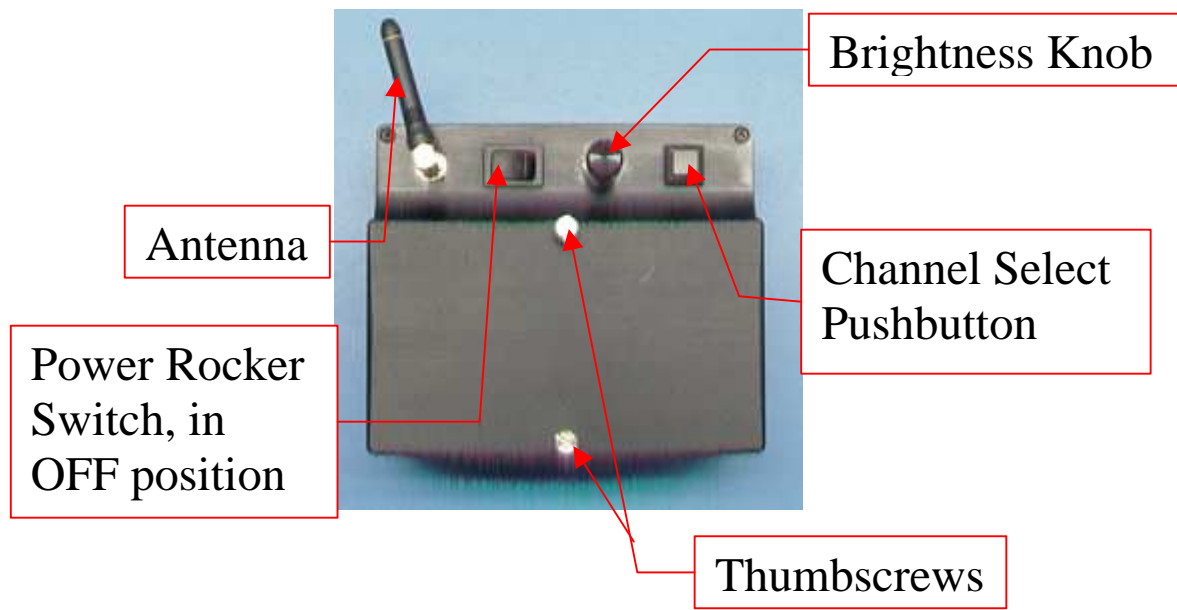
1.1 Introduction

The Wireless Hand Held Video Receiver, CE-R01x, is a portable video receiver that displays the video feed from a Chang Eye Video Transmitter. Currently, the units are available in one of two possible configurations; one version (CT-R012) is capable of receiving channels 1 & 2, the other version(CT-R014) is capable of receiving channels 1 through 4. The units can be powered either through the use of 8 high performance AA batteries or from an external power source. A video OUT connection is also provided(adaptor cord provided, video is RCA YELLOW plug) to allow the user to connect to video devices for recording or viewing on a larger monitor. There is no audio feed however.

1.2 Specifications

Power Consumption	~600mA
AC Adaptor	1.25A @ 12V
Battery type	8 Energizer Lithium E2, AA size

1.3 Controls



2. Power Management

2.1 Power Type

The Wireless Hand Held Video Receiver can be powered either by the AC wall adaptor or by the use of 8 AA Energizer Lithium E2 batteries(non-rechargeable). Plugging in the AC adaptor into the unit will cause the batteries to disconnect internally so that there is no need to remove the batteries when the unit is powered externally.

2.2 Battery Installation and Removal

1. Remove the battery cover by loosening the two thumbscrews located on the rear of the unit.
2. Remove the old batteries if present and then, paying attention to correct polarity, install 8 AA Energizer Lithium E2 batteries.
3. Replace the battery cover and tighten thumb screws.

3. Operation

3.1 Using the unit

1. Insure the antenna is attached and firmly seated.
2. After installing the batteries or connecting an external power source, press the rocker switch in the appropriate position.

3. Select the desired channel by pressing and releasing the Channel Select button. Each cycle will switch to the other channel.
4. Adjust the brightness knob until the image has the correct brightness level.

3.2 Setting the default channel

The default channel is the channel that the unit will be set to when powered up. To change the default channel:

1. Power up the unit normally
2. Cycle to the channel that will be the new default channel.
3. Press and HOLD the Channel Select for at least three seconds then release the button.
4. Power down the unit.

3.3 Troubleshooting

If the Wireless Hand Held Video Receiver fails to operate, check the following:

1. Is the brightness level too low?
2. If the unit is being powered externally, is the external adaptor plugged into a working voltage source?
3. Are the batteries seated properly and in the right polarity?
4. Is there sufficient charge left on the batteries.

4. FCC Statement

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

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Lithium-Polymer Battery Charger

1. Description

1.1 Introduction

The Lithium-Polymer Battery Charger, CE-A061, is specially designed to charge the Li-Poly Battery Pack using a special charge sequence; constant current for the beginning of the cycle and constant voltage and the end of the charge cycle. Three LEDs on the front panel indicate charge cycle status and an internal timer stops operation after 12 hours of continuous charging.

WARNING:

Never use the Lithium-Polymer Battery Charger to charge any other type of battery or pack other than the CE-A060 Lithium-Polymer Rechargeable Battery Pack.

WARNING:

Never attempt to charge the CE-A060 Lithium-Polymer Rechargeable Battery Pack with any other type of charger.

1.2 Specifications

Power Consumption

~1950mA @ 12V

2. Power Management

2.1 Input Power Requirements

The AC power adaptor takes an input voltage of 100V to 240V AC at 50Hz to 60Hz. The power cord supplied is a IEC 320-C13 power cable with NEMA 5-15P male end but any IEC 320-C13 power cable maybe used.

3. Operation

3.1 Connect the power source first

- 3.1.1 If using the car adaptor, plug the car adaptor into the lighter socket.
- 3.1.2 If using the AC adaptor for the battery charger, connect the power cord to the AC power adaptor and wait for the green LED indicator to turn on.

3.2 Apply 12V to the input

- 3.2.1 If using the car adaptor, connect the car adaptor to the battery charger.
- 3.2.2 If using the AC adaptor, connect the car adaptor or the AC power adaptor to the battery charger.

- 3.3 Connect the battery pack to the battery charger, insuring the connector are fully mated and locked. Set up should look like Figure 4.



Figure 4.

- 3.4 Batteries will charge to 90% in two hours and will take an additional 2 hours to reach 100%.

3.5 Error codes for charger.

STATUS	1	2	3	4	5
FULL	●	●	●	●	○
C.C./C.V. CHARGE	●	●	○	●	●
AUTO	●	●	●	●	●

LED Legend

○ = SOLID ON

● = BLINKING

● = OFF

Battery Charger Indicator LEDs

battery charger LED indicator codes:

1. no battery pack attached, charger has input power
2. error
 - a. poor or no connection
 - b. damaged battery pack
3. charging in constant current (up to 90%)
4. charging in constant voltage (90% to 100%)
5. charging complete

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Manual #: CE-M002
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