

# Paul C. Buff, Inc. OPERATING MANUAL

CyberSync™ Transmitter CST1  
CyberSync™ AC Powered Receiver CSR  
CyberSync™ Battery Powered Receiver CSRB  
FCC ID: OUECSXCVR1  
IC: 6866A-CSXVR1

This device complies with Part 15 of the FCC rules and Industry Canada requirements. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## PRODUCT DESCRIPTION

CyberSync™ CST1 Transmitter, CSR receiver and CSRB battery powered receiver are 2.4GHz digitally encoded devices for remote firing of photographic flash units from cameras fitted with a standard "hotshoe" or flash sync connection.

Data is digitally encoded as a 256 bit highly secure word with validity verification for complete freedom from false firing from interference signals.

It is supplied with Alkaline batteries. If you prefer rechargeable batteries you may use NiMH batteries and charger available at most drug stores. Batteries are replaced by opening the battery compartment on the back. Observe the polarity marked inside the battery compartment.

The CSRB is turned on by pressing the Test switch. This places it in on mode for one hour, after which it shuts off automatically to preserve battery life. While in use, the CSRB receiver begins a new one-hour on-period each time it receives a flash command. Thus it will stay on continuously during a session, then shut off when not in use.

**The battery life is approximately 200 hours of on-time.**

## POWERING THE CST1 TRANSMITTER

The CST1 uses a standard Lithium Coin Cell #CR2450, available at most drug stores. It is easily changed via the battery drawer located at the back of the unit. The CST1 has no power switch. It is in sleep mode except for the very brief time when it is transmitting. The typical battery life is on the order of two years regardless of whether or not it is used.

## SETTING THE FREQUENCY

CyberSync™ CST1 Transmitter, CSR receiver and CSRB battery powered receivers employ a sixteen channel frequency selection switch on the front panel.

## EXAMPLE OF REPEATER MODE USAGE

Assume you are lighting a scene several hundred feet from your camera location. Position a CSR or CSRB midway between the camera and the scene and place it in repeater mode. When you fire the camera the repeater will receive the camera signal, then regenerate it for transmission to the more distant receivers.

If a flash unit is connected to the repeater it will fire normally from the camera signal. The more distant flash units may also fire from the camera signal if they are close enough. If not, they will fire from the regenerated signal of the repeater.

Using a repeater delays the signal by an additional 1/4000 second. The resulting latency of 1/2000 second total is still fast enough to allow the camera exposure time to be set one click below the camera's maximum sync speed in most uses.

**It is not generally advisable to use more than one repeater in a setup.** If two repeaters are used and both receive the same transmission, both will regenerate at the same instant and interfere with one another.

While designated as "receivers", the CSR and CSRB are actually transceivers and are capable of transmitting as well as receiving. Because of this they may be used as repeaters to extend the usable operating range. (See "Repeater Mode")

The usable range is typically up to approximately 350' line of site and 150' when obstacles such as walls are between the transmitter and receiver. Achievable working range can be affected by factors such as interference from other devices or the presence of metal buildings or bodies of water. Multiple operating frequencies are provided to gain immunity from competing interference signals. The user should test the equipment in the intended environment.

## CONNECTIONS

In typical use, the CST1 transmitter is simply slid onto the standard hotshoe of your camera. If your camera lacks a hotshoe the CST1 may be connected to a standard "PC" sync connector via accessory cable.

**The voltage presented to the camera by the CST1 is approximately 3 volts DC and is thus safe for use with any camera.**

The CSR and CSRB receivers employ a standard 3.5mm mono phone jack for connecting the output to your flash unit's sync input. A sync cord is included, with adapters to fit the 3.5mm or 1/4" phone jacks used on most flash units.

The multiple frequencies allow freedom from interference from other nearby photographers using CyberSync™ or other equipment operating on the 2.4 GHz band.

The transmitter and receiver(s) must be set to the same frequency. If interference is problematic, set all the units to a different common frequency.

## SETTING THE CAMERA

The CyberSync™ system is not designed to perform TTL control of flash units, nor are most studio flash units capable of TTL operation. Therefore it is necessary to set the camera for manual mode.

This involves manually setting the aperture, exposure time and ISO, and using a flash meter or histograms to determine optimal exposures.

ISO is preferably set for the lowest number your camera allows (usually ISO 100 or 200). This will yield the highest possible quality.

The exposure time should be normally set one or two clicks slower than your camera's maximum flash sync speed. For example, if your camera's maximum sync speed is 1/250 second you should set it to 1/200 or 1/160 second.

While the latency (time from camera trigger to received flash command) of Cyber Sync is typically only 1/4000 second, setting the camera faster than its max flash sync speed with any manual flash unit will result in dark, unexposed areas.

## SPECIFICATIONS

**Frequency range:** Sixteen frequencies spaced 2MHz apart, from 2.427GHz to 2.457GHz.

**Encoding:** Secure 256 bit binary encoded packet, with validity verification.

**Latency:** 1/4000 typical delay from closing of camera contact to receiver sync output signal.

**CST1 Sync Voltage:** 3VDC at camera.

**CSR/CSRB Sync Voltage:** Withstands up to 300VDC from connected flash unit. Fires units with positive or negative sync polarity.

**CSR Power Consumption:** Approximately 2 watts. Operates from 50VAC to 260VAC, 50/60Hz. Pass-through AC rated for up to 250VAC, 15A.

**CSRB Battery life:** Approximately 200 hours on-time with two AA Alkaline or NiMH batteries. Auto shutoff after one hour of non-use.

**CST1 Battery:** Uses Lithium coin cell CR2450 battery (3VDC, 540mAh). Two year typical life.

**CST-1 connections:** Syncs from standard hotshoe. Auxiliary adapter allows "PC" connection.

**CSR/CSRB Connections.** Female mono mini-phone jack, 3.5mm. Supplied sync cable outputs male 3.5mm or 1/4" mono phone plug.

It is also possible to connect receivers to battery operated portable flash units having sync voltages up to 300VDC using an accessory cable providing mini-phone plug to camera "PC" connection.

## POWERING THE CSR RECEIVER

The AC powered CSR receiver is fitted with a standard IEC computer style AC input socket and an attached one-foot cable with IEC standard output plug.

**The CSR may be used safely with AC voltages from 50VAC to 260VAC, 50 or 60Hz.**

To power the CSR receiver, unplug the power cord from your light unit and plug this cord into the CSR AC input. Then plug the CSR AC output cord into your flash unit. The AC power then passes through the CSR receiver and to your flash unit without added cords.

If your flash equipment uses other than a standard IEC style power connector the CSR may be separately powered using a standard accessory IEC computer style power cord.

**The CSR receiver has no on/off switch** as its power draw is extremely low. When properly connected, the front panel LED should be green, indicating it is operating.

## POWERING THE CSRB RECEIVER

The CSRB receiver is powered by two "AA" batteries.

A common misconception for new users of studio flash is that exposure is determined by both the aperture and the exposure time.

While the exposure time does affect exposure from ambient light, it does not affect the exposure from flash, nor does a faster exposure time aid in stopping action (unless a very high amount of ambient light is present.)

Studio flash units typically produce their light in 1/300 to 1/5000 second and the intensity of the flash is thousands of times brighter than the light produced by modeling lamps or normal room lighting.

Thus, unless there are high amounts of sunlight present, camera exposure times of 1/60 second or faster have little to no effect on the exposure, action stopping or composition.

## REPEATER MODE

If the distance from transmitter to receiver is greater than the reliable range of CyberSync™, either a CSR or CSRB may be used to repeat the trigger signal, thus doubling the effective range.

Repeater mode is established by holding down the TEST button for three seconds. When you see the LED rapidly blink green three times you are in repeater mode. To exit repeater mode, again hold the TEST button in for three seconds until the LED blinks one time to indicate you have exited repeater mode.

## WARRANTY

Paul C. Buff, Inc. guarantees all CyberSync™ products for a period of two years from date of purchase. We will, at our option, repair or replace any CyberSync™ product that becomes defective during this period. Batteries are excluded from this warranty, as is any damage resulting from improper use.

No claim is made for the suitability of this product for any intended use and no liability is implied or assumed beyond the repair or replacement of this product.

Defective units should be returned to us at the address below with a note explaining the defect or problem. We will return repaired or replaced units to you at our cost.

Made in USA by

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## ADDITIONAL INFORMATION FOR CYBERSYNC CST, CSR AND CSRB

Current CST transmitters include a 2.5mm mono mini-phone female jack for connecting to non-hotshoe devices such as flashmeters and other devices you wish to use to trigger your system. Auxiliary cables include:

- 2.5mm mini-phone male to 3.5mm mini-phone male
- 2.5mm mini-phone male to camera style "PC" male
- 3.5mm mini-phone male to camera-style "PC" male

### CONNECTING TO A FLASHMETER AND METERING FLASH LEVELS:

By connecting the CST transmitter to your flashmeter you will typically use the auxiliary 2.5mm mini-phone male to camera style "PC" male cord. This will allow you to fire and meter your flash system by pressing the "fire" button on your meter.

Most flashmeters also have wireless mode wherein you "arm" the meter and it automatically meters as soon as it sees a flash. This can be done with the CST with no cord attached. Just arm the meter, then press the test button on the CST to fire and meter all of your lights. The easiest way to meter individual lights is to arm the meter, then press the test-flash button on the particular light you wish to meter.

Place a second CST on the hotshoe of the remote camera, set to Frequency B. Place additional CSR or CSRB(s) set to Frequency B on the light(s) you wish to use to expose the remote camera. They will now fire in sync with the remote camera. Any flash-sensitive slaves must be disabled for this to work.

### IT MAY BE POSSIBLE TO TRIP TWO OR MORE CAMERAS FROM A CST USING A SINGLE SET OF LIGHTS:

But because of shutter response time differences it will probably be necessary to use identical cameras and it may be necessary to use a slower-than-normal exposure time setting on the cameras (perhaps 1/30 to 1/60 second). To attempt this:

Use a CST set to Frequency A as a trigger for all cameras. Connect a CSR or CSRB set on Frequency A to each camera via auxiliary shutter release cables.

Place a CSR set to Frequency B on one of the cameras and place CSR or CSRB receiver(s) on the common flash unit(s).

CST A will trip all cameras when you press the test button. The camera whose hotshoe contains CST B will send a flash command to the common flash unit(s) when its shutter is opened. This will only work if the cameras all have very close to the same shutter delay, and will require

This may require an assistant or the model to hold the flashmeter in the right position.

### USING CYBERSYNC TO ACTUATE THE SHUTTER OF YOUR CAMERA, SECOND CAMERA OR REMOTE CAMERA:

Both the CSR and CSRB receivers are capable of remotely tripping a camera shutter from the CST transmitter test button. You will need an auxiliary remote shutter cable for your particular camera. Flash Zebra carries inexpensive cables for this purpose for many popular cameras at this link: [http://www.flashzebra.com/shutter\\_pw/index.shtml](http://www.flashzebra.com/shutter_pw/index.shtml)

These cables typically force the camera into continuous focus mode (or you can use manual focus). This is because the camera must be ready to trip when it receives the short fire pulse from the CSR or CSRB receiver.

A major consideration when using CyberSync to trip a camera is the fact that the camera has a few milliseconds of delay between the instant it receives a trip command and the time the mirror flips up and the shutter is opened. Because of this delay, you cannot use the same CST signal that trips the camera to fire your flash units. The flash units would fire before the shutter is open and you will have no exposure. But there is an easy remedy: Set the CST transmitter that will trip the camera on a certain frequency (call it

Frequency A). Use the same frequency on the CSR or CSRB that will trip the camera via remote cable. Place a second CST on the hotshoe of your camera and set it to a different frequency (Call it Frequency B). Use Frequency B on the CSR or CSRB receiver(s) that are connected to your light(s).

When you press the test button on CST A it will trip the camera. As soon as the camera responds and opens its shutter it will send a trigger signal from CST B on its hotshoe. This will fire the lights on Frequency B in sync with the camera shutter.

### USING A LOCAL CAMERA, A REMOTE CAMERA AND TWO SETS OF LIGHTS:

Consider the situation where you want to use a local camera in conjunction with a remote camera to take pictures from two angles, with different lighting effects. Place a CST (Frequency A) on the hotshoe of your local camera. Put CSR or CSRB receiver(s) on Frequency A on the light(s) you wish to use in your local camera shots. This will fire them normally and in sync with the local camera.

Connect the auxiliary shutter release cable of the remote camera to a CSR or CSRB also set to Frequency A. This will trip the remote camera a few milliseconds after your local camera.

some experimentation with which camera contains CST B and with exposure times.

### USING CYBERSYNC WITH BATTERY OPERATED "SPEED LIGHTS":

Both the CSR and CSRB should fire virtually all such flash units if the proper connections are made.

Some such flash units employ a female "PC" style sync input. If this is the case, you would simply connect the auxiliary 3.5mm mini-phone male to camera-style "PC" male (included with CSRB) from the CSR or CSRB PC sync input.

If the Speed light has only a hotshoe connection and no sync cord input, you will need an auxiliary "hotshoe to 3.5mm male mini-phone" adapter. (These are available from Flash Zebra at :

<http://www.flashzebra.com/wizardcables/index.shtml> and other sources.) Place your speed light on the hotshoe adapter and plug the 3.5mm plug into the CSR or CSRB.

### USING CSR OR CSRB WITH FLASH UNITS USING TWO-PRONG HOUSEHOLD STYLE SYNC INPUTS:

This will require an auxiliary male 3.5mm mini-phone to "H" connector cable. These are available at :

<http://www.flashzebra.com/wizardcables/index.shtml> and other sources.

