



## Tech Note

## BCL-100 Bicolor Light Source

### Overview

The BCL-100 is a two color LED light source that can provide visual cues of two different colors during tests of visual reflexes in human subjects. The BCL-100 is useful in determining reaction times to light cues of different wavelengths. The device is also useful in determining if reaction times change when subjects are presented with light cues of a different wavelength after the subjects have been habituated to light cues of a familiar color. The intensity, duration, frequency, and color of the light signals emitted by the BCL-100 can be controlled by the same LabScribe software used to record the reaction times of subjects. When the light source is connected to the stimulus output of an iWorx 214 or an iWorx 118 Data Recorder, the BCL-100 will emit a green light signal when the polarity of the stimulus voltage is positive, and a red light signal when the polarity of the stimulus voltage is negative.

### Equipment Setup



Figure 1: The BCL-100 Bicolor Light Source.

#### When using the BCL-100 Bicolor Light Source (Figure 1) with an iWorx 214 Data Recorder:

1. Obtain a male double banana-female BNC adapter (Figure 2). A tab on the side of the adapter, that is embossed with the letters GND for ground, identifies the banana plug on the adapter that is attached to either the negative or the ground banana jack of the stimulator.



Figure 2: The male double banana-female BNC adapter.

2. Plug the male double banana-female BNC adapter into the positive (red) and negative (black) banana jacks of the IX/214 stimulator (Figure 3). The banana plug identified by the ground tab is placed in the negative stimulator output.



3. Attach the BNC connector of the BCL-100 to the BNC socket on the adapter on IX/214 stimulator (Figure 3).

#### When using the BCL-100 Bicolor Light Source with an iWorx 118 Data Recorder:

Attach the BNC connector of the BCL-100 to the BNC socket of one of the stimulus outputs of the IX/118 Data Recorder.

Figure 3: The BCL-100 Bicolor Light Source and an EM-100 Event Marker attached to an IX/214 Data Recorder

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### Start the Software

1. Open the LabScribe2 software by clicking on its icon on the Desktop.
2. When the program opens, select **Preferences** from the **Edit** menu.
3. Select the **Channel Preferences** window.
4. Activate the stimulator channel to which the BCL-100 is connected by putting a check mark in the box to the left of the channel title.
5. Name the channel to which the BCL-100. Set the **Mode** for this channel to **Record**. Also, set the sampling rate and display time for the recording.
6. Open the **Stimulator Preferences** window and set the stimulus parameters to these initial settings:

Parameter	Setting
Stimulator	Stim 1
Stimulus Mode	Pulse
Start with Recording	Checkmark
Time Resolution (msec)	0.01
Step Frequency	1
Step Amplitude (V)	0.1
Step Time (sec)	0.1
Delay (sec)	0
Amplitude (V)	5
Pulses (#)	0
Pulse Width (msec)	200
Time Off (msec)	4800
Time Off Amplitude (V)	0
Holding Potential (v)	0

7. Click **OK**.
8. Click the **Record** button to make the BCL-100 blink.

### Specifications

Minimum pulse width to trigger light: 1 msec  
Voltage range for green light: 2V to 5V  
Voltage range for red light is: -2V to -5V

### Experiment

An experiment using the BCL-100 bicolor light source can be found in the July 2007 edition of the iWorx newsletter at: <http://www.iworx.com/newsletter/July07>.



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