Glacier^{TM} X
TE Cooled
Linear CCD Array Spectrometer
User Manual

Glacier™ X

1) Introduction

The Glacier™X is a low cost and high performance thermoelectric cooled (TEC) linear CCD spectrometer equipped with 2048 elements with a built-in 16 bit digitizer with high speed USB 2.0/1.1 interface.

Compared with non-cooled CCD spectrometers the Glacier™X offers a much higher dynamic range, greatly reduced dark counts and superior long term operation stability making it ideal for low light level detection and long term monitoring applications. Our accompanied software has an integration time multiplier for exposure times greater than 16 minutes to take advantage of low dark counts in light starving applications.

2) Specifications

See Product Data Sheet for specifications

3) Check Contents

Before installation please check your system contents. They may include:

- Glacier™X Spectrometer Unit
- USB Cable
- DC Power Adapter
- Plug Kit
- AUX Cable
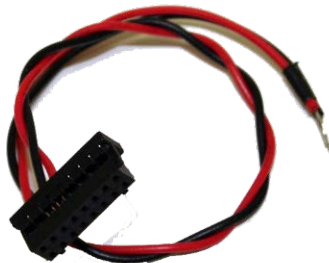- BWSpec Software USB Drive

USB Cable

DC Power Adapter with plug kit

Glacier™X Spectrometer

AUX Cable

Software USB Drive

4) Installation

Software / Hardware Installation

There will be a "BWSpec Software & Spectrometer Installation Guide" located on your software USB drive. Refer to this guide for installation instructions.

5) External trigger/Aux port

Glacier™X spectrometer has an available External trigger/Aux port option. The port uses a 16 pin connector and is located at the rear panel of the spectrometer. Pay attention to the Pin 1 of the connector since it may be oriented differently for different revisions. Refer to the drawing insert at the end of this document for the pin definitions and triggering examples.

External triggering of the spectrometer may be achieved by using the associated pins. Make sure that the Enable Trigger option under the Acquire \ External Trigger menu in BWSpec operation software is enabled before it the spectrometer can be ready to respond to an external trigger. The trigger is negative edge effective. The maximum time delay between an arrival negative going trigger and the start of a new integration time is less than 0.005 ms. Within the specified short delay the spectrometer will begin a new integration period and it will last for a complete integration cycle as current integration time setting in the BWSpec. For a synchronized spectrum capturing the intended external event needs to be arranged to fall within the same integration period.

The supplied trigger signal is required to be a TTL compatible pulse with a minimum width of 0.005 ms, and the trigger becomes effective at the falling edge of the TTL compatible signal. The maximum trigger signal voltage should not exceed +5.5 V DC.

When in external trigger mode a time average of one (1) will be used which means that each qualified trigger received will advance the BWSpec to acquire one spectrum only. To disable the external trigger mode check off the option in the dialog box under Acquire\External Trigger menu.

The wired trigger connector may be used to test the above trigger function if the connector is included in the package. After enabling the external trigger from the BWSpec the triggered acquisition by the spectrometer may be achieved by momentarily shorting the two leads from the wired trigger connector.

 The Aux port connector information is provided below for interested users:

Sockets: Manufacturer #:DF11-16DS-2C
Manufacturer: Hirose ELC.CO.LTD
Vender: Digikey (WWW.DIGIKEY.COM) Vender #:H2025-ND.

 Crimps: Manufacturer #:DF11-2428SCA
Manufacturer: Hirose ELC.CO.LTD
Vender: Digikey (WWW.DIGIKEY.COM) Vender #:H2300-ND.

6) Operating Software BWSpec Quick Start Guide

Getting to know BWSpec Graphic User Interface

The BWSpec operating software has a graphic user interface which consists of a menu bar, quick access bar, graphic area, message bar and control panel.
Reference the BWSpec User Manual located on your Software USB drive for more information on how the software works.
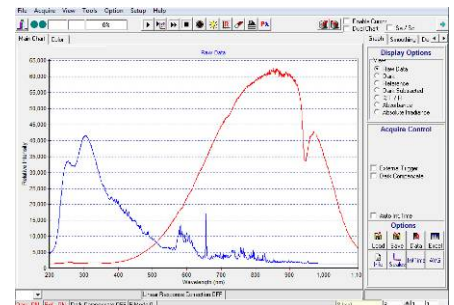
Sample Spectrum

Quick Start

1. Open BWSpec from the shortcut icon that will have been placed on your desktop after installation.
2. From the toolbar, select "Acquire Continuously"
3. Point the spectrometer's SMA Port (Light Input) towards a broadband light source; for example a tungsten bulb, light bulb, or overhead lights.
4. You should see a spectral response being displayed on the Graph in the BWSpec software window. Spectral response will vary from unit to unit and source to source.

Note There are different ways in which light can be directed into the spectrometer's SMA Port and different light sources which can be used.
For more information on these types of setups, please see our website: www.bwtek.com
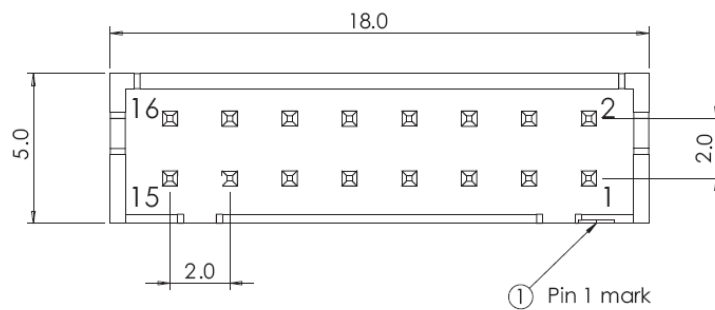
Appendix A: Dimensional Drawing

Appendix B: Pin Definition

Table 1 Auxiliary port pin assignments

Pin ID	IO	Description	Comment	Note
2	Input	TTL sensing	TTL compatible	Optional
3	Output	Multi-purpose output	TTL compatible	Optional
4	Output	CCD cooler current monitoring	Output range: 0 - 5 Vdc Output resistance: 300 ohms	Optional
6		Ground return terminal	GND	Standard
8	Input	External trigger	TTL compatible	Standard
9		Ground return terminal	GND	Optional
11	Output	CCD cooler temperature monitoring	Output range: 0 - 5 Vdc Output resistance: 300 ohms	Optional
Others		Reserved	No connection allowed	

Figure 1 Spectrometer connector dimension

		Name	Date	
Dimensions are in mm[Inch] Tolerances: Fractional± Angular: Mach± Bend ± Two place decimal ± Three place decimal ±	Drawn	John Lu	Oct 28,10	
	Checked			Product BTC111E/ BTC112E/ BTC161E/ BTC162E
	Eng. appr.			
	MFG appr.			
Material	Q.A.			Title Aux. port pin assignments
Finish	Comments:			

Proprietary and confidential

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Next | Used on

Application | DO NOT SCALE DRAWING

Size B | FCSM NO. | DWG. NO. 310000012 | Rev. A3C

Scale: 2:1 | Weight | Code: SW | Sheet 1 of 2

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