

User Manual

Single Channel Superluminescent Diode Light Source (Single-SLED) Integrated Spectral Bench (ISB1)



Contact Support

For any issues related to technical support or service, please contact:
techsupport@dayyphotonics.com

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1. Description

The Single-SLED Integrated Spectral Bench (ISB1) product is a compact Superluminescent Diode (SLED) solution that employs DAYY Photonics high-performance Optical Spectral Engine (OSE1) module. The ISB1 series consists of various multiple SLED configurations; refer to “Section 12. Ordering Code.” The ISB1 is a broadband light source that operates in the near infrared range. It is a turn-key product that can easily be integrated into existing devices that require light power.

The Single-SLED ISB1 includes an integrated isolator and a proprietary driver and controller, each of which enable the light power to easily be adjusted. A Graphical User Interface (GUI) with a USB, RS232 or Ethernet connection allows for external monitoring and adjustment capabilities.

The Single-SLED ISB1’s light output is powered by a standard FC/APC connector (FC/PC or SMA available upon request). The central wavelength of the light-output ranges from 770nm to 1680nm, thereby delivering high-power densities across the spectral range of the SLED.

Features

- User-controlled box with one SLED enclosed
- Compact and user-friendly
- Centre wavelength (CW) options: 770nm-1680nm
- SLED can be run from 0% to 100% of maximum rating
- Output power on fiber-coupled models: 1mW-30mW
- Bandwidth FWHM: 15nm-60nm
- Some models include Monolithic integration of a broadband dual stage PMF isolator (35dB)
- Includes a monitor photodiode
- Light output connector: FC/APC (optional: FC/PC or SMA)
- Multiple communication interfaces: USB or RS-232
- Low Degree of Polarization (DOP) outputs available
- User-friendly GUI and custom API available for test automation

2. Safety

All statements regarding safety of operation and technical data in this user manual will only apply when the unit is operated correctly.

- ⚠ The driver must not be operated in environments susceptible to explosion hazards.
- ⚠ Do not obstruct the air ventilation slots.
- ⚠ If any parts of the driver, or electronics are broken or exposed, contact DAYY Photonics technical support and do not attempt to operate the unit.
- ⚠ The ISB1 is a Class 1M laser product. It is safe for all conditions of use except when passed through magnifying optics such as microscopes and telescopes. It produces a beam that is divergent. ***If light is re-focused use protective eye wear.***

3. Operation

3.1 Parts List

Inspect the shipping container for damage. If the shipping container seems to be damaged, keep it until you have inspected the contents and the unit mechanically and electrically.

Verify that you have received the following items within the package:

- 1 Single-SLED Integrated Spectral Bench
- 1 Power supply. Input: AC 100-240V Output: 12V
- 1 Power Cord
- 1 USB 2.0 A to B Cable
- 1 Single-SLED ISB1 Final Inspection Test Report

3.2 Physical Driver Functionality

Side Panel - Power:

The power side panel consists of the 12V power jack and a two-position power switch to turn the unit ON/OFF as shown in Figure 1.

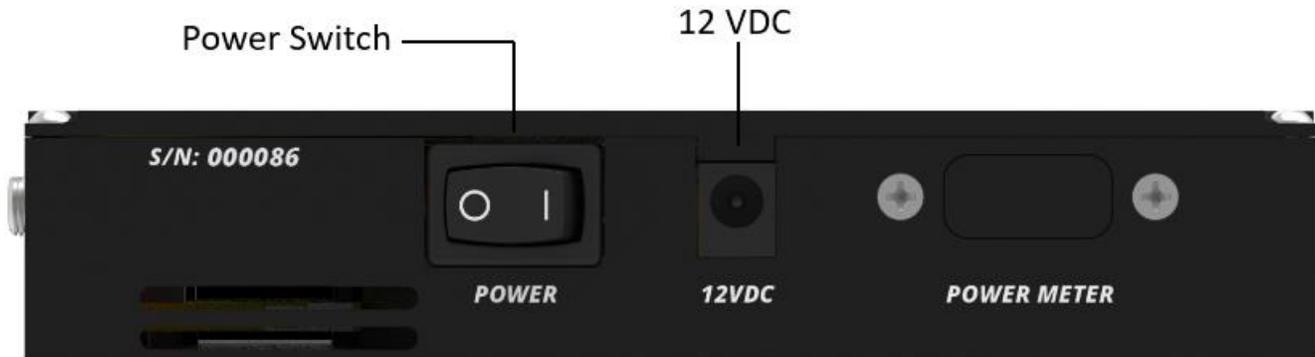


Figure 1: Power Side Panel

When the unit is plugged in and the power button is in the “1” (ON) position, the power LED of the front panel will light up.

The ISB1 can be powered up with the power supply provided by DAYY Photonics or with the user’s power supply if it fits the following specifications:

1. 12VDC (max. 14VDC) and minimum 3A current supply capability
2. Power Barrel Connector Jack 2.00mm ID, 5.50mm OD, 9.5 mm Length.
3. Center Positive 

Side Panel – Communications and Control:

The right-side panel consists of a USB Type B connector, Ethernet and RS232 for communication, and a 2-position slide type switch module; see Figure 2.

The left-most switch controls whether the driver will be operated in MANUAL MODE or PC MODE. The right-most switch enables the SLED to be turned on and off.

If the driver is controlled through the PC-based software or DAYY Photonics API, connect either a USB, a Serial and/or Ethernet cable for communication. In MANUAL MODE, no connection to USB, RS232 or Ethernet is required and the SLED can be turned ON/OFF with the SLED source control.

When turning the SLED “on” or “off” in MANUAL MODE it will be driven at its default current settings. Default current settings for MANUAL MODE can be changed through the software and will be explained in the Software Operation section (Section 3.4).

When running the DAYY Photonics software, toggle the left switch to PC MODE in order to control the SLED from the software. The SLED control will be disabled in the software if operating in MANUAL MODE. Software will still display current levels when running in MANUAL MODE but users will not be able to adjust the operating currents.

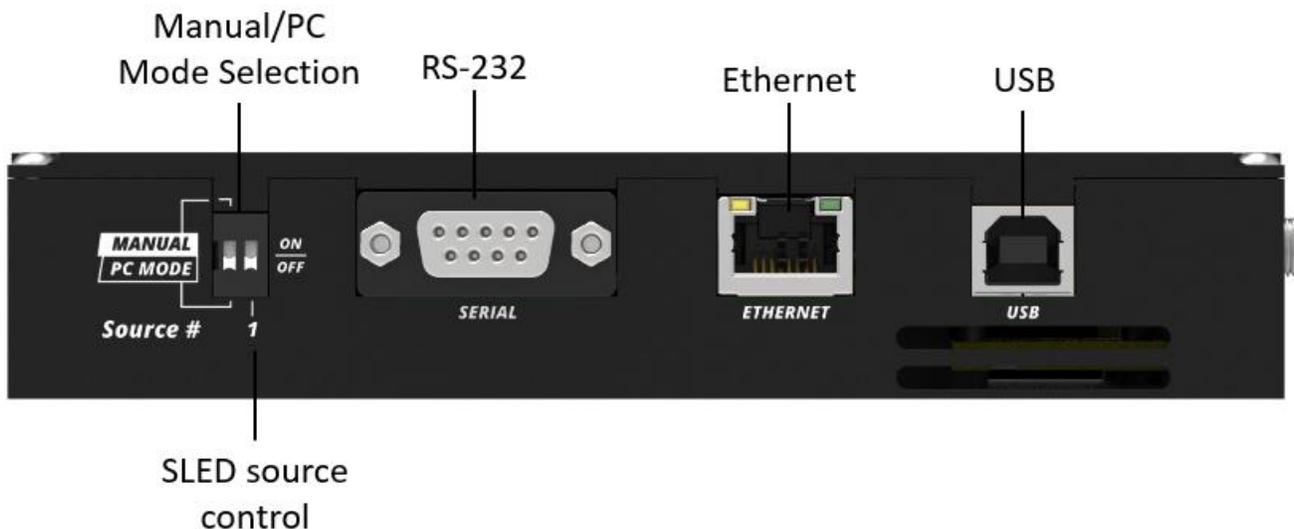


Figure 2: Communications and Control Panel

Front Panel - Light Output:

The front panel includes three LEDs, vent holes and light output connector, allowing users to connect their own fiber optic cable to the ISB1; see Figure 3. The Single-SLED comes with FC/APC as standard, but FC/PC and SMA connectors are available upon customer request.

When the unit is plugged in for power and the power button (side panel) is in the “I” position the red “POWER” LED will light up.

The yellow “READY” LED will start blinking until the unit is ready for operation. When the yellow “READY” LED stops blinking and stays on, the SLED is enabled and users can turn it on. When the SLED is turned on and light is being emitted, the green “ON” LED will light up.

If the ISB1 is controlled through the DAYY Photonics software, the SLED control will be disabled until the unit is ready, as explained in the Software Operation section (Section 3.4).

Otherwise, in MANUAL MODE or DAYY Photonics API, if the user turns on the SLED before the unit is ready, the unit will not emit light until the “READY” stops blinking. Once the yellow “READY” is on, the ISB1 will allow for the SLED to start emitting light.

In the event of a fast and large temperature change in the environment, the unit may stop emitting light until the Single-SLED is ready again, in such case, the yellow “READY” LED will start blinking.

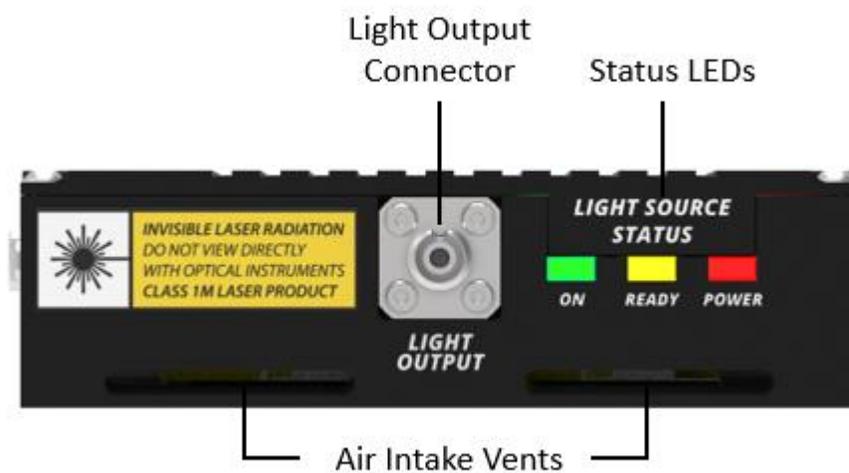


Figure 3: Front Panel – Light Output

Back Panel - Thermal Management:

Free air circulation around the rear of the unit should be maintained for good thermal performance. If the ISB1 is operated in environments over 35°C, the ISB1 should be mounted to an external heatsink. Free air circulation around the ISB1 is required when it is used without a heatsink. A minimum of 0.5” clearance is recommended for free air circulation around the top and sides of the ISB1 Unit.

Air circulation is located on the back panel of the ISB1, while additional ventilation holes are located on the front panel. Ensure vents are not obstructed to allow for maximum air flow.

The back panel includes two fans as shown in Figure 4. Upon powering up the unit, each fan is regulated automatically to its maximum speed. Users do have the option, however, to control fan speed manually as explained in the Software Operation section (Section 3.4).

If the fan is not working and the heat sink temperature goes over 60°C, turn the unit off and contact DAYY Photonics technical support.



Figure 4: Back Panel – Thermal Management

3.3 Hardware Requirements

CPU: 1 GHz or higher

RAM: 256 MB

Hard disc with at least 100 MB free storage space

USB 2.0 port

USB cable according the USB 2.0 specification

The driver is compatible with the following operating systems:

- Windows[®] 7 (32-bit, 64-bit)
- Windows[®] 8 (32-bit, 64-bit)
- Windows[®] 10 (32-bit, 64-bit)

3.4 Software Operation

When starting up, the software will automatically scan your computer’s ports and find the Single-SLED ISB1. Please wait until a connection is established and the status bar in the bottom-right corner shows your connection type (USB/RS-232). Figure 6 shows the main console of the software.

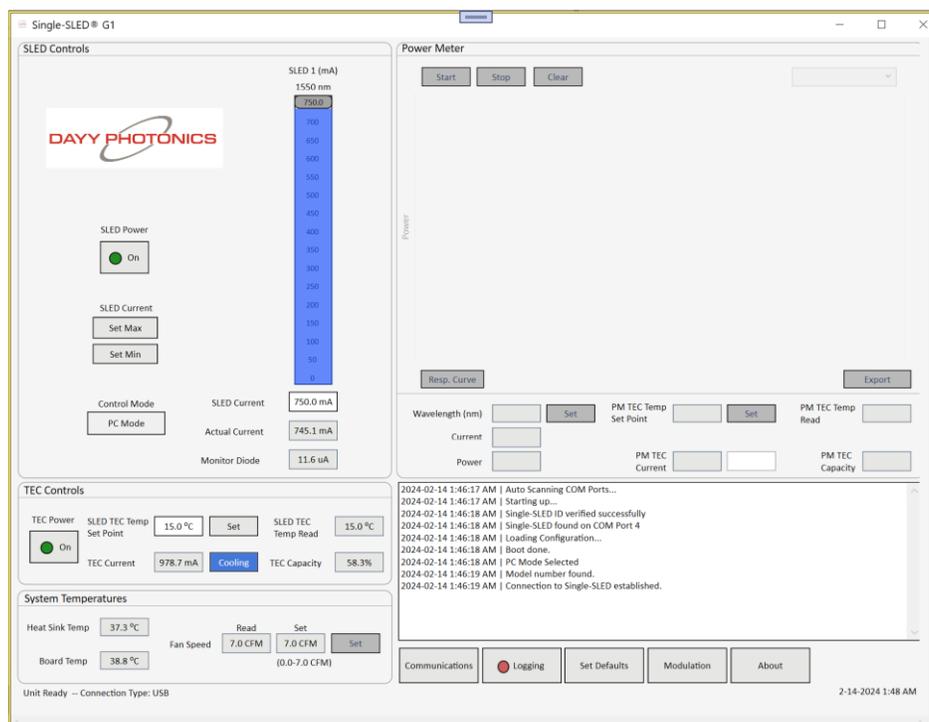


Figure 5: Main Console of DAYY Photonics Single-SLED ISB1 Driver

SLED Control:

There is one slider bar to adjust the current of the SLED; see Figure 7.

Based on the ISB1 model, the maximum current of the SLED will be limited and the slider maximum value will be adjusted accordingly when the Single-SLED ISB1 is connected. The center wavelength will be displayed.

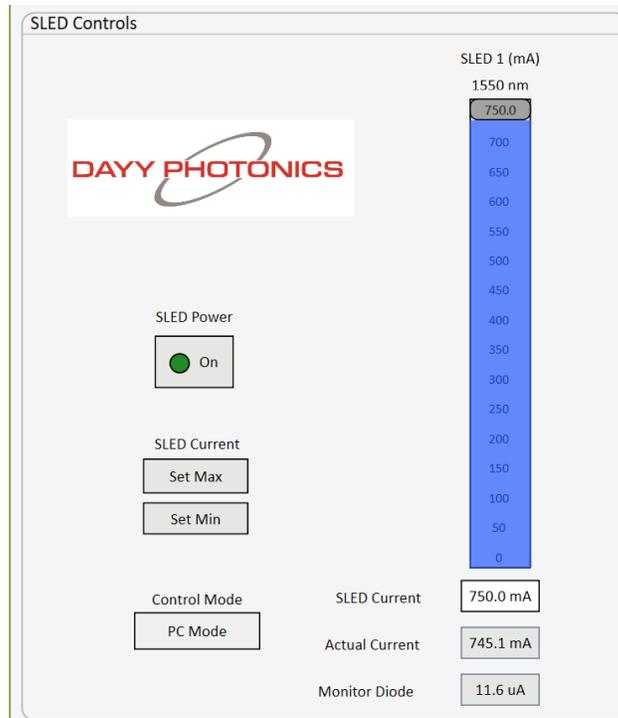


Figure 6: SLED Control Section

The SLED current can be adjusted using the sliding bar. Additionally, the SLED can be set to the Maximum or Minimum by clicking the “Set Max” or “Set Min” buttons on the left of the slider. The user can also manually type the desired set current by typing a desired value in the SLED Current box underneath the sliding bar.

When the unit is turned on, the SLED Control will be disabled, inhibiting the user from moving the sliders or setting the current until the SLED Power is turned on. If the temperature of the units goes over 32°C, the SLED will be turned off automatically.

The Actual Current is sensed and displayed. The box below the Actual Current shows the monitor photodiode current. The monitor photodiode is physically placed on the back facet of the SLED, inside the Single-SLED 14-pin Package Optical Spectral Engine, and can be used as a reference for the light the SLED is emitting. Note that monitor diode value will vary depending on the SLED operating current.

By default, Modulation will be Off. However, the user can enable Modulation by clicking the “Modulation” button in the bottom right of the main console to open Modulation Settings. With the Modulation Settings window open, the user may then enable modulation by setting “Enable Modulation” to “ON”. Note that the SLED power must first be set to “ON” in order to open the Modulation window. Once Modulation is enabled, the user can enable modulation for the SLED. Note that if the SLED modulation setting is in the “OFF” position, no current will be sent to the SLED even if modulation mode is enabled. Maximum Modulation Current is displayed, and is dictated by the SLED current setting in the Main Window. Note that once Modulation is enabled, this current setting is not variable, and the user must disable modulation in order to change it.

The Modulation Frequency has a default of 1kHz with a 50% Duty Cycle. Modulation frequency and/or Duty Cycle can be altered by the user by typing in the desired value and clicking the “Change” button next to the desired text field. Modulation is specified in Hz while Duty Cycle is specified as a percentage.

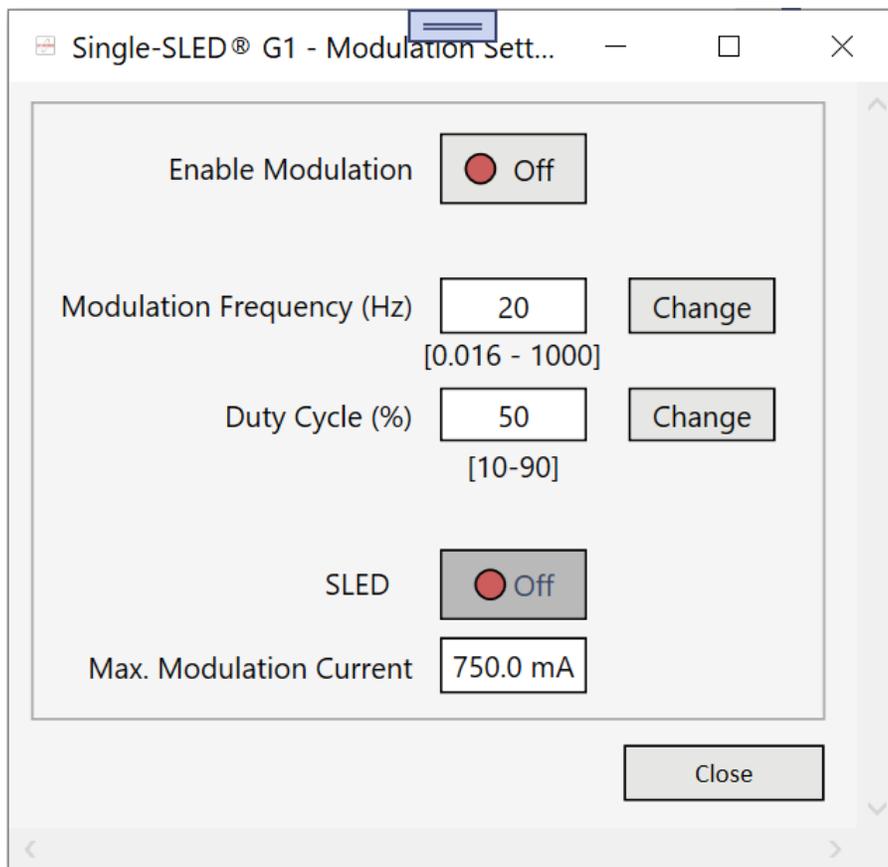


Figure 7: Modulation Settings Window

Thermoelectric Cooler (TEC) Controls:

The SLED TEC is used to control the bench temperature of the SLED. The TEC is turned ON/OFF by toggling the enable button. Note that if a user turns the SLED TEC off, the driver will automatically turn off the SLED to avoid overheating and damage.

Users can set their desired TEC temperature by clicking the “Save” button beside the “Set Point” box; see Figure 9. Factory default recommended value is 21°C. The real-time TEC temperatures are shown in the “Temp Read” box and TEC Current is shown in the “Current Read” box. TEC Capacity represents how hard the TEC is working to maintain the temperature of the SLED. At 100% capacity, the TEC is working at its maximum capacity to maintain this temperature.

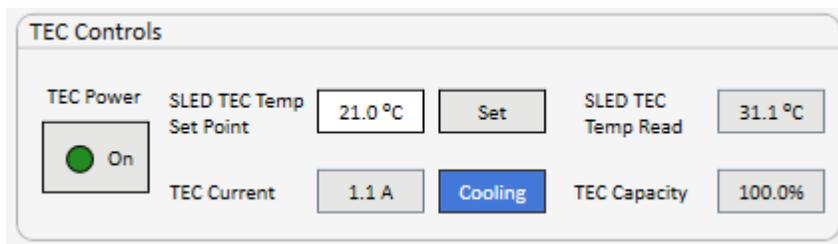


Figure 8: TEC Controls Section

Fan Controls

Factory default settings will automatically control the air flow. When the unit is powered on, fan speed will default to its maximum value. Realtime fan speed is read from the unit and displayed in the fan speed “Reading” box.

To change the fan speed, the user may type a desired fan speed value (0.0 to 7.0 CFM) into the fan speed “Set Point” field, then click the “Set” Button.

Note: The user-defined fan speed Set Point will not be saved when the unit is powered off. It is recommended to run the unit only at factory default fan speed.

Communications:

The screen shown in Figure 11 will appear when clicking on the “Communications” button from the main console. When software loads up, the Auto-Scan function will run to find the virtual com port settings for a USB, RS232 and/or Ethernet connection. Users can manually enter the communication settings by clicking on “Autoscanning...” to stop the Auto-scan, then clicking “Manual Connect” to connect via their preferred communications settings. To Disconnect from a Manual Connection, click the “Disconnect” button.

USB/RS-232 Serial Configuration:

1. COM Port can be found on device manager
2. COM Speed should always be set to a 115200 Baud Rate
3. MODBUS ID is the unique identifier for the ISB1. It will be 1 by factory default. Multiple ISB1 Modules can be set up and used with different Modbus ID’s. To change Modbus ID, enter the new ID into the “Modbus ID” field before attempting to connect.

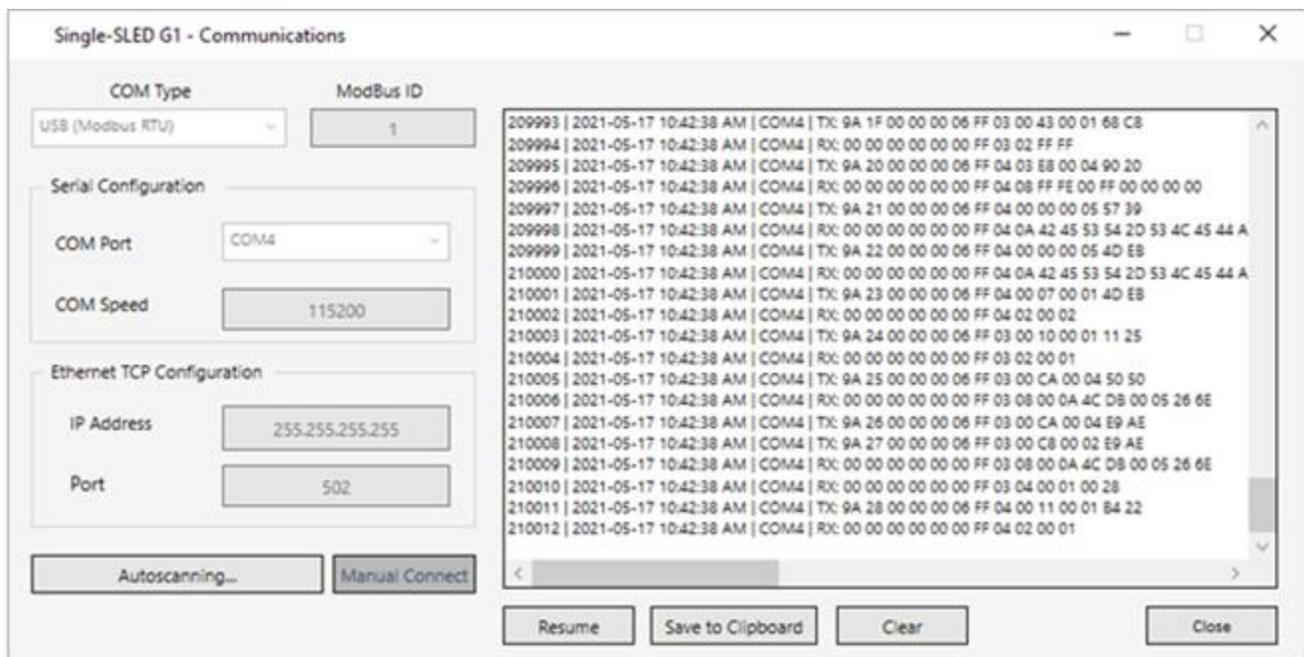


Figure 11: Communications Window

The Communications Window shows the continuous raw data transfers from the software to your Single-SLED ISB1 unit, and is used to monitor communications. The data transfer is represented as TX (data send) and RX (data receive) messages, accompanied by their time-stamps, see Figure 12. The Communications log can be paused by clicking “Pause,” exported to a file by clicking “Save to Clipboard,” or the window can be emptied by clicking “Clear.”

In an event of a communication error, send the communication log to DAYY Photonics technical support at techsupport@dayyphotonics.com.

Logging:

The Single-SLED ISB1 supports continuous logging of data such as the currents, temperatures, fan flow, etc. by clicking on the “Logging” tab from the main console. The window shown in Figure 12 will open. A new file can be created by clicking the “Create New Log File” button or the data can be appended to an existing file with the button “Selecting Existing File”. After the filename and path have been selected, to start logging, the logging will start automatically and the “Start Logging” button will change to “Stop Logging”. To stop the logging click on “Stop Logging”. To Resume Logging to same file, click “Start Logging”.

Note: Existing Log Files must use the .csv (Comma Separated Value) file extension.

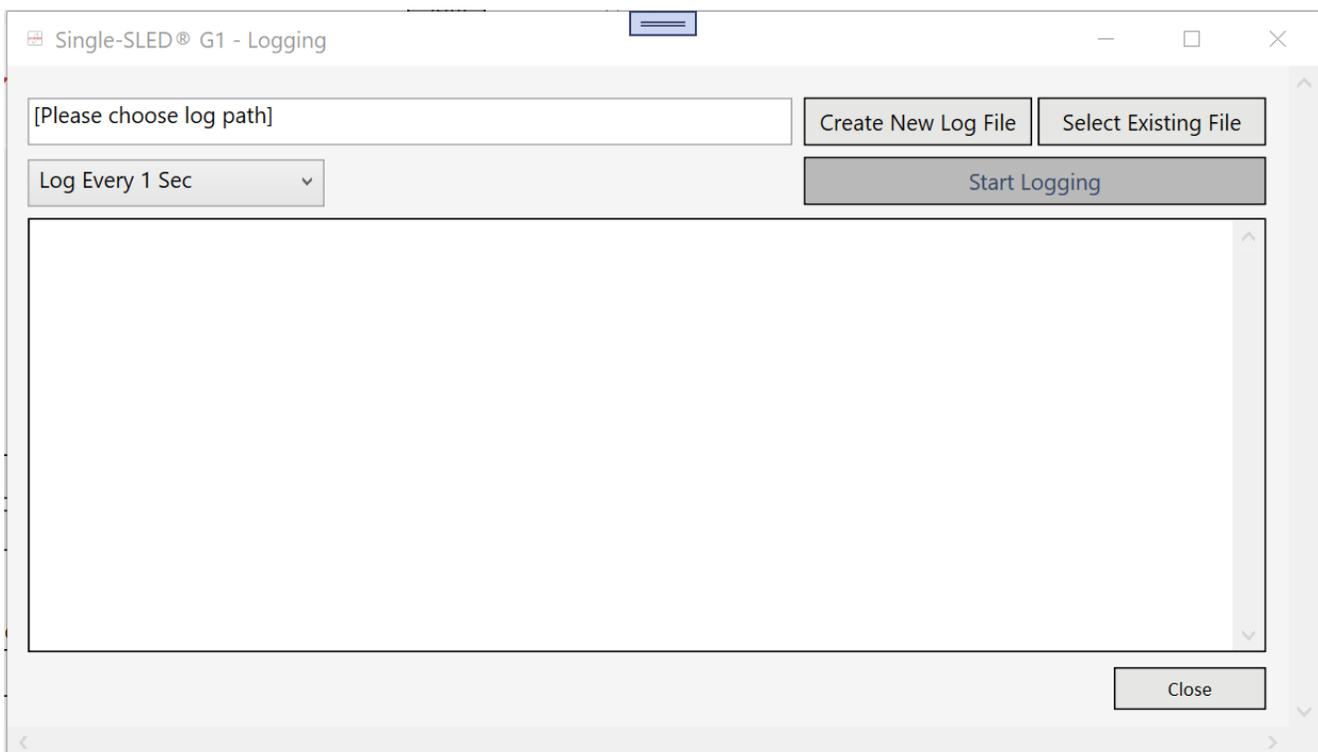
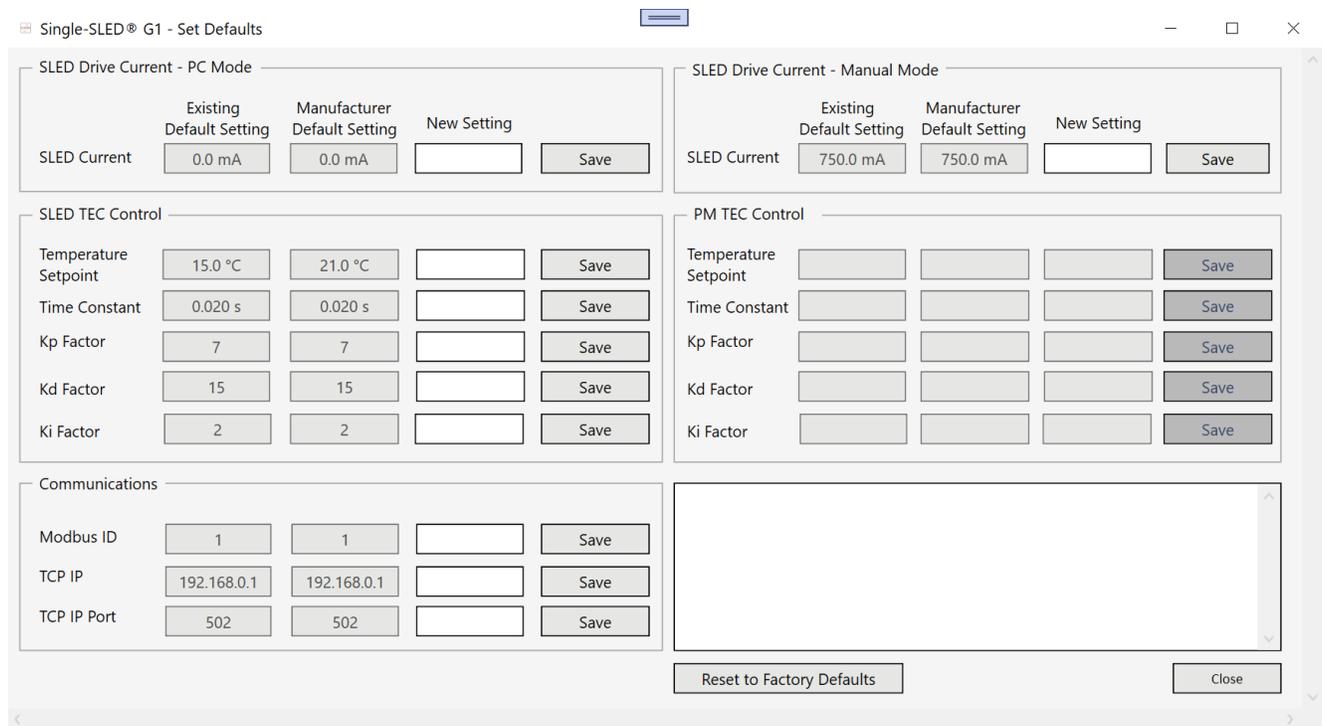


Figure 12: Data Logging Window

Set Defaults:

Clicking the “Set Defaults” tab from the main window will bring up the window displayed in Figure 13. For each of the parameters, the software displays the Existing Setting (First box from the left) and the Manufacturer Default Setting (Second box).

In order to change the value of any parameter, users must type the new value into the “New Setting” text field, then click the “Save” button next to this new value. Clicking this button will store the new value recorded in the “New Setting” field as its new default start-up setting. The new value will be stored in the Single-SLED ISB1, and not on the user’s computer, so if the unit is powered off and taken to a different work station, the new settings will be kept as the default values when the unit is powered on again. The New Settings will remain stored in the driver until a different New Setting is saved, or “Reset to Factory Defaults” is clicked, which will reset all of these settings to their Factory Default Values.



Section	Parameter	Existing Default Setting	Manufacturer Default Setting	New Setting	Action
SLED Drive Current - PC Mode	SLED Current	0.0 mA	0.0 mA	<input type="text"/>	Save
	SLED Drive Current - Manual Mode	750.0 mA	750.0 mA	<input type="text"/>	Save
SLED TEC Control	Temperature Setpoint	15.0 °C	21.0 °C	<input type="text"/>	Save
	Time Constant	0.020 s	0.020 s	<input type="text"/>	Save
	Kp Factor	7	7	<input type="text"/>	Save
	Kd Factor	15	15	<input type="text"/>	Save
	Ki Factor	2	2	<input type="text"/>	Save
PM TEC Control	Temperature Setpoint	<input type="text"/>	<input type="text"/>	<input type="text"/>	Save
	Time Constant	<input type="text"/>	<input type="text"/>	<input type="text"/>	Save
	Kp Factor	<input type="text"/>	<input type="text"/>	<input type="text"/>	Save
	Kd Factor	<input type="text"/>	<input type="text"/>	<input type="text"/>	Save
	Ki Factor	<input type="text"/>	<input type="text"/>	<input type="text"/>	Save
Communications	Modbus ID	1	1	<input type="text"/>	Save
	TCP IP	192.168.0.1	192.168.0.1	<input type="text"/>	Save
	TCP IP Port	502	502	<input type="text"/>	Save
Reset to Factory Defaults					Close

Figure 13: Set Defaults Window

The section “SLED Drive Current – PC Mode” allows user to set the initial current levels for the SLED when the unit is turned on and is in PC MODE.

The section “SLED Drive Current – MANUAL MODE” consists of the operating current at which the SLED will be driven when the ISB1 is operated in MANUAL MODE.

Note: The SLED should be operated per manufacturer-recommended current setting provided in the Final Test Inspection Report for the Single-SLED ISB1. Running the SLED at higher currents may cause damage. DAYY Photonics is not liable for damage if the SLED is operated at higher than specified current ratings.

The section “SLED TEC Controls” allows users to change the default settings for the TEC temperature set point on the SLED TEC as well as the factors for the PID TEC Controller.

The section “PM TEC Controls” (only enabled for Units with Power Meter) allows users to change the default settings for the Power Meter TEC temperature set point as well as the factors for the PID TEC Controller.

The section “Communications” allows users to change the default settings for Modbus ID and Ethernet connection settings.

Changes and notifications are displayed in the text box in the lower-right quadrant of the Set Defaults window.

About:

Refer to the About section by clicking on the “About” button in the main console. The About window is shown in Figure 14. The software name and version are shown underneath DAYY Photonics logo. Based on the ISB1 model, the Capabilities column shows the functionality enabled on the driver.

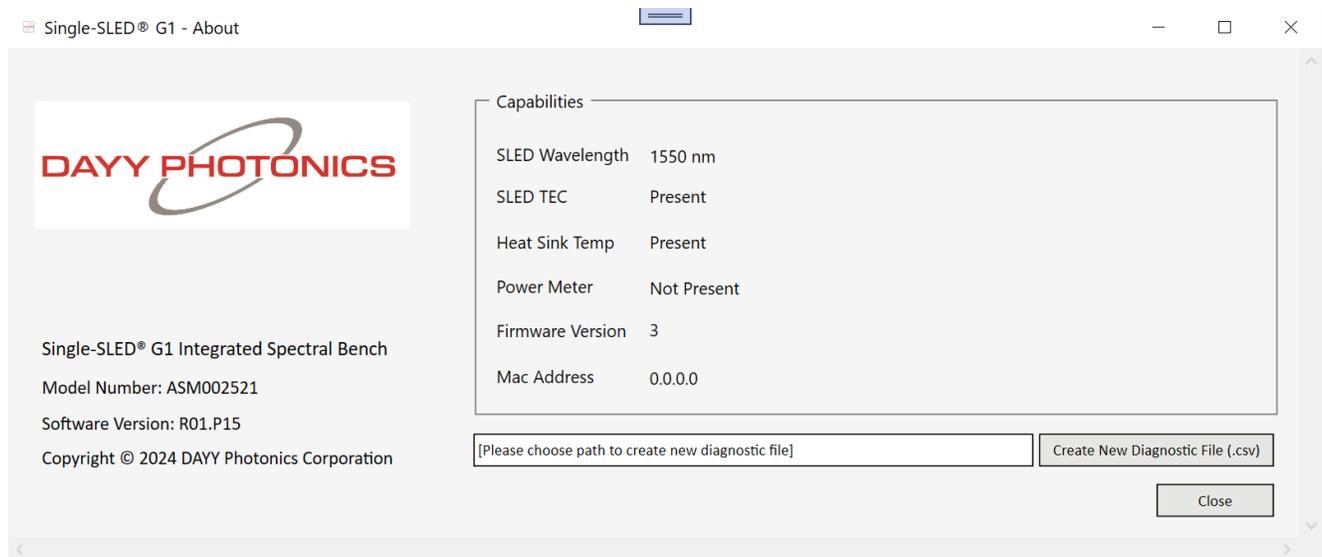


Figure 14: About Window

4. Application Protocol Interface (API)

DAYY Photonics driver utilizes the MODBUS Protocol for communications. Users can find numerous detailed specifications for the protocol on the internet. This manual will only provide a high-level overview. MODBUS is a master/slave protocol and is used widely in industrial applications. The driver is designed to use this protocol over all of its communication interfaces, and the MODBUS specification has outlined how a user can adapt the overall packet structure to suit each interface requirement. The primary section of a MODBUS packet is known as the Protocol Data Unit (PDU) and it is independent of the underlying communication interface. The PDU includes additional byte fields for the MODBUS transaction per the Application Data Unit (ADU).

4.1 Serial MODBUS-RTU (USB interface/RS232)

MODBUS over Serial Line is a master/slave protocol and is employed by the USB port. The ADU packet structure for each serial interface is shown below.

Serial Header	MODBUS PDU		Serial Footer	
Slave Address	Function Code	Data	CRC16	
1 byte	1 byte	0 up to 252 byte(s)	2 bytes	
			Low	High

As per the MODBUS Standard, this structure is used regardless of whether a packet is a request or a response. Each MODBUS-RTU packet consists of at least 4–256 bytes. The slave address byte is used to uniquely identify different units on the serial line and must be a number from 1 to 247. The function code byte indicates the request to perform. The Data bytes are dependent on the transaction data per the MODBUS protocol. The CRC16 bytes are transmitted with the low byte first and are calculated using the common CRC16 algorithm with the values of the slave address, function code, and the data bytes.

4.2 MODBUS-TCP/IP (Ethernet interface)

MODBUS - TCP/IP is a client/server protocol. The ADU packet structure for each of these interfaces is shown below. As per the MODBUS Standard, this structure is used regardless of whether data is being sent from the user or from the device.

MODBUS TCP/IP ADU								
MBAP Header							MODBUS PDU	
Transaction Identifier		Protocol Identifier		Length		Unit Identifier	Function Code	Data
High	Low	High	Low	High	Low	1 byte	1 byte	0 up to 252 byte(s)

The MODBUS Application Protocol (MBAP) header is a dedicated TCP/IP header used to identify the MODBUS TCP/IP ADU. It consists of the Transaction Identifier, Protocol Identifier, Length, and Unit Identifier (UI). The Transaction Identifier indicates a specific MODBUS request/response transaction and must be unique at each given time. This allows the user to associate a particular response with a previous request. The Protocol Identifier is always 0, which indicates that MODBUS protocol is being used. Length is the byte count of the Unit Identifier and the MODBUS PDU. The Unit Identifier is a device identification number (analogous to the Slave Address used in MODBUS-RTU over Serial). The MODBUS PDU structure is identical for both MODBUS-RTU and MODBUS-TCP/IP.

4.3 Single-SLED ISB1 Register Map

If users want to develop their own API, Single-SLED ISB1 Register Map is available upon request. Please contact technical support: techsupport@DAYY Photonics.com.

6. Technical Data

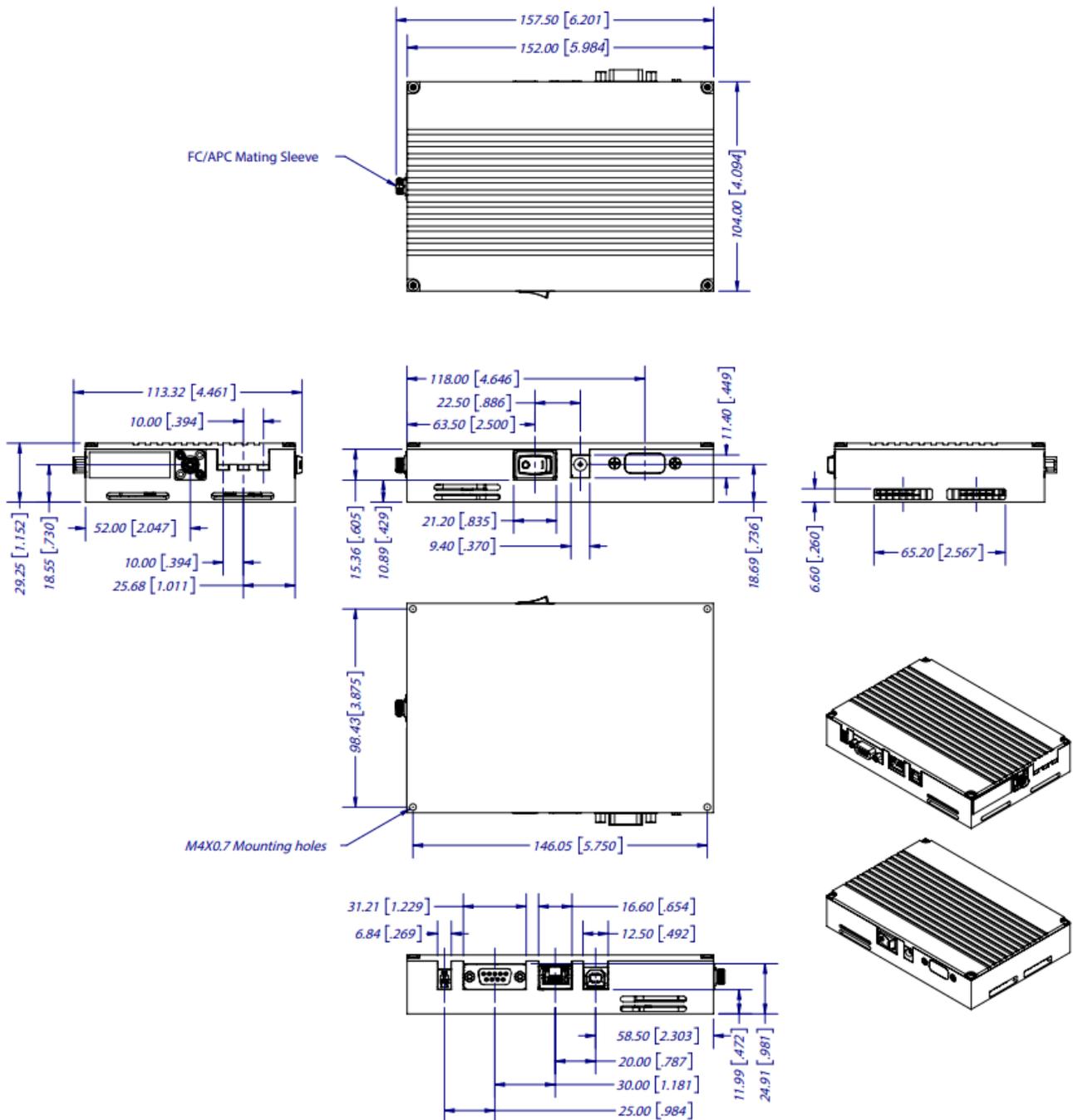
Parameter Symbol	Symbol	Condition	Min.	Typ.	Max.	Unit
DRIVER POWER SUPPLY SPECIFICATIONS						
Input Power Supply Voltage	V_s	CW	10	12	14	V
Input Power Supply Current	I_s	CW	5	-	-	A
Input Power Supply Voltage Ripple and Noise	γ	CW	-	-	200	mVpp
CONSTANT CURRENT MODE						
Operating Current Range	I_{OP}	CW $T_{OP} = 25^{\circ}\text{C}$ $T_{TEC} = 21^{\circ}\text{C}$	0.05A	-	1A	mA
Max. Forward Voltage	-	-	-	2.6	-	V
Current Setting Resolution	R_{IOP_SET}	-	-	-	0.1	mA
SLED Current Reading Resolution	R_{IOP_READ}	-	-	0.1	-	mA
MODULATION MODE						
Waveform	-	-	-	Square	-	-
Modulation Frequency Range	f_{mod}	-	0.016	-	-	-
Duty Cycle	D	-	10	50	90	%
INTERNAL MONITOR DIODE						
Monitor Diode Current Reading	I_{mon}	-	-	-	500	μA
Monitor Diode Current Reading Resolution	$RES_{I_{mon}}$	-	-	7.6	-	nA
LIGHT OUTPUT CONNECTOR						
Type of Fiber Connector	-	-	-	FC/PC, FC/APC, SMA	-	-
SLED TEC SPECIFICATIONS						
SLED TEC Temperature Setpoint	T_{SLED_SET}	-	0	-	40	$^{\circ}\text{C}$
SLED TEC Temperature Setpoint Resolution	R_{TSLED_SET}	-	-	0.1	-	$^{\circ}\text{C}$
SLED TEC Temperature Reading	T_{SLED_READ}	-	-40	-	100	$^{\circ}\text{C}$
SLED TEC Temperature Reading Resolution	R_{TSLED_READ}	-	-	0.1	-	$^{\circ}\text{C}$
TEMPERATURE SPECIFICATIONS						
Heatsink Temperature Reading Range	T_{HS}	-	-40	-	100	$^{\circ}\text{C}$
Heatsink Temperature Reading Resolution	R_{THS}	-	-	0.1	-	$^{\circ}\text{C}$
POWER METER						
Spectral Response Range	λ_{PM}	-	900	-	1870	nm
Photosensitive Area	A_{PM}	-	-	$\Phi 1$	-	mm
Power Meter Current Reading	P_{PM}	-	50	-	-	μA

Parameter Symbol	Symbol	Condition	Min.	Typ.	Max.	Unit
Peak Sensitivity Wavelength	λ_p	-	-	1750	-	nm
Photo Sensitivity	S	$\lambda = \lambda_p$	0.9	1.1	-	A/W
Typical Dark Current	I_D	-	-	1	10	nA
Detectivity	D^*	$\lambda = \lambda_p$	2×10^{12}	5.5×10^{12}	-	$\text{cm}^2 \cdot \text{Hz}^{1/2} / \text{W}$
Noise Equivalent Power	NEP	$\lambda = \lambda_p$	-	1.5×10^{-14}	4×10^{-14}	$\text{W} / \text{Hz}^{1/2}$
POWER METER TEC SPECIFICATIONS						
Power Meter TEC Temperature Setpoint	$T_{\text{PM_SET}}$	-	-20	-	40	$^{\circ}\text{C}$
Power Meter TEC Temperature Setpoint Resolution	$R_{\text{TPM_SET}}$	-	-	0.1	-	$^{\circ}\text{C}$
Power Meter TEC Temperature Reading	$T_{\text{PM_READ}}$	-	-40	-	85	$^{\circ}\text{C}$
Power Meter TEC Temperature Reading Resolution	$R_{\text{TPM_READ}}$	-	-	0.1	-	$^{\circ}\text{C}$
GENERAL						
Operating Temperature Range	-	-	0	-	50	$^{\circ}\text{C}$
Storage Temperature Range	-	-	-40	-	70	$^{\circ}\text{C}$
Dimension (W x H x D)	Standard	-	-	-	114.00 x 178.50 x 39.92	mm
	Low DOP	-	-	-	114.00 x 178.50 x 46.92	mm
	Standard with Power Meter	-	-	-	139.56 x 178.50 x 39.92	mm
	LOW DOP with Power Meter	-	-	-	139.56 x 178.50 x 46.92	mm
Weight	Standard	-	-	-	576	g
	Low DOP	-	-	-	565	g
	Standard with Power Meter	-	-	-	620	g
	LOW DOP with Power Meter	-	-	-	605	g

7. Dimensions

7.1 Dimensions – Single-SLED Standard

Overall dimensions for the connector, venting locations, and mounting holes.



8. Troubleshooting

If an error occurs on your unit, operate the unit with the desired SLED on and send diagnostic file to DAYY Photonics tech support.

To send the diagnostic file, follow these steps:

1. While your unit is connected and running, click on the “About” button on the main screen to open the About window.
2. Click “Create New Diagnostic File” button and save with your desired filename and path (.csv extension)

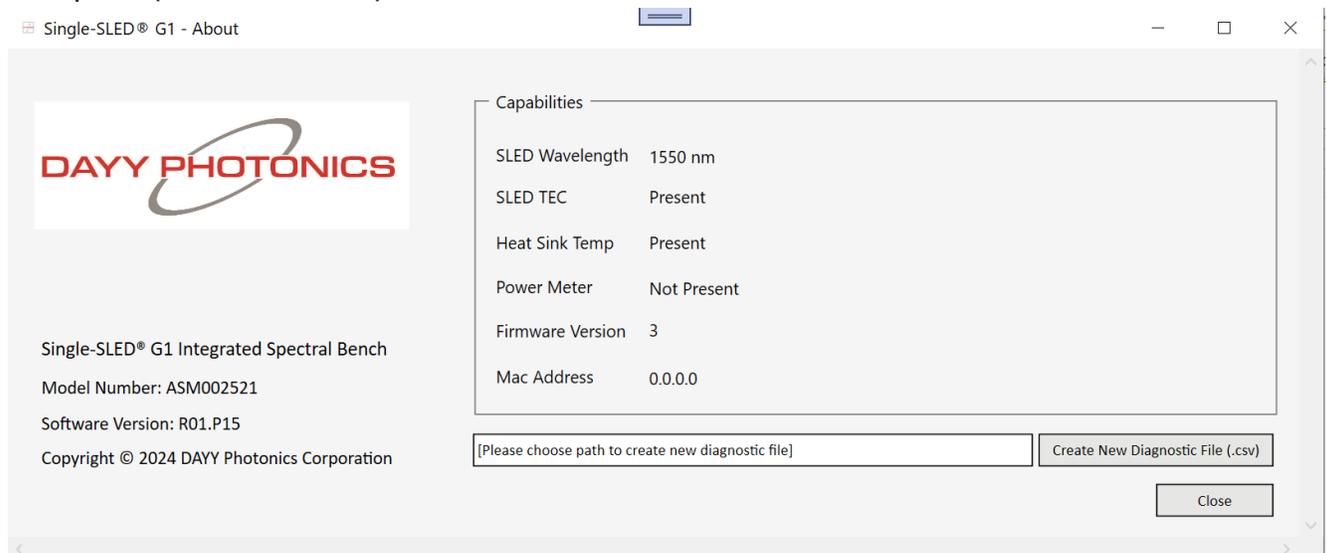


Figure 15: About Window

3. Attach this file along with a brief explanation in an e-mail and send to techsupport@dayyphotonics.com

9. Limited Product Warranty (“WRTY”)

DAYY PHOTONICS (“DAYY PHOTONICS”) products and components are warranted against defects in materials and workmanship for a period of one year (unless otherwise stated), beginning on the product shipment date. This warranty is provided only to the original end user, and is not transferrable. The warranty ceases upon transfer of the product to a new owner. Except as otherwise prescribed by applicable law, in the event of a breach of this warranty, the sole and exclusive remedy and DAYY Photonics sole and exclusive liability shall be for DAYY PHOTONICS to use commercially reasonable efforts to repair or replace the product that caused the breach of this warranty. If DAYY PHOTONICS cannot or determines that it is not practical to repair or replace the returned product, then the sole and exclusive remedy and the limit of DAYY Photonics obligation under this warranty shall be to refund the amount received by DAYY PHOTONICS for such product.

Warranty Returns

All products must be returned to DAYY PHOTONICS in accordance with DAYY Photonics then-current Return Material Authorization (RMA) procedure. Products obtained from DAYY PHOTONICS that do not comply with the warranty and which are returned to DAYY PHOTONICS during the applicable warranty period will be repaired or replaced at DAYY Photonics option, provided the reseller or end user bears the cost of freight, insurance, duties and import and export fees to the point of repair or return. If the returned product is covered by a DAYY PHOTONICS warranty, DAYY PHOTONICS will bear the cost of freight, insurance, duties and import and export fees for return of goods to reseller (if any) or end user. If the product is purchased from a DAYY PHOTONICS reseller, the reseller will handle and be responsible for the warranty return process for its end users. If the product was purchased directly from DAYY PHOTONICS, the end user will be responsible for the warranty return process.

For the first 30 days of the warranty period, DAYY PHOTONICS will provide immediate replacement, with our Advanced Replacement Service, including same-day shipment via standard overnight shipping (must meet shipment cut-off time) for the covered product, after first confirming a warranty failure.

The product arrival date is subject to local transport conditions. Additional service coverage such as Advanced Replacement service, and/or an extended warranty are available for purchase under a separate support and service agreement.

Warranty Exclusions and Disclaimer

The warranties described in this document do not extend to any product that is repaired, modified or altered by anyone other than DAYY PHOTONICS, or a DAYY PHOTONICS authorized company; is not maintained to DAYY Photonics maintenance recommendations; is operated in a manner other than that specified by DAYY PHOTONICS; or has its serial number removed or altered. The warranty does not cover abuse of the product including but not limited to neglect, damage or mis-use, such as water damage, back-reflection, broken fiber, incorrect input voltage, improper wiring, shock or severe impact, damage during transport, exposure to rain, excessive humidity, corrosive environments or other contaminants. All of the above are not covered by the terms and conditions of our warranty. The warranty does not cover cosmetic defects associated with normal wear that do not interfere with product functionality.

10. Compliance



11. Acronyms

SLED - Superluminescent diode
 ISB - Integrated Spectral Bench
 PCB – Printed Circuit Board
 TEC – Thermal Electric Cooler
 ESD – Electrostatic Discharge
 API – Application Protocol Interface
 PDU - Protocol Data Unit
 ADU - Application Data Unit
 MBAP - MODBUS Application Protocol
 UI - Unit Identifier

12. Contact Information

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