User Manual

Multi Channel Superluminescent Diode Light Source (Multi-SLED)

Multi-SLED

Integrated Spectral Bench (ISB2)

Company Mission

To establish trusted relationships with our clients by providing technical expertise, reliable products, exceptional customer service, and ongoing support. Everyone at DAYY is part of our continuous improvement culture.

Company Vision

To illuminate photonic solutions through continuous innovation of our own products and technology.

Quality Policy

At DAYY Photonics, we use only the highest-quality components, manufactured consistently to our stringent specifications. After assembly, we test each system in-house before it is carefully packaged and shipped. We ensure our customers receive well-built and thoroughly inspected products.

Contact Support

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

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1. Description

DAYY's Multi-SLED (superluminescent diode) is a compact broadband light source that operates within the near infrared region. The product itself is a fully enclosed Integrated Spectral Bench (ISB2) containing DAYY's proprietary 32-pin butterfly package that uses a set of superluminescent diodes, one monitor diode for each SLED (enabling better power control and monitoring capabilities), an integrated isolator, a thermoelectric cooler (TEC), and a driver circuit to provide overlapping spectral coverage. This user-controlled box enables complete control of up to six light sources enclosed.

The ISB2 includes various spectral coverages with SLED's ranging from 770nm to 1680nm, with up to 40mW of optical power. Users operate with complete control of the temperature from a remote device (e.g., PC or laptop) or from the dip switches on the side of the bench. The bench includes six monitor diodes, and is capable of USB or RS-232. The ISB2 is compact and easy to use, making it a great fit for manufacturer assemblies requiring light power.

The Multi-SLED uses DAYY's technology of spectral stitching to provide extensive spectral coverage. This technology integrates multiple wavelengths into a single spatially coherent beam with low temporal coherence and broad spectral coverage. The Multi-SLED product lines can be spectrally tailored to suit specific application needs.

Features

- Between two and six superluminescent diodes available (SLEDs) in a single unit
- All SLEDs can be run from 0-100% of maximum rating
- Each SLED comes with a built-in independent monitor photodiode and one common thermoelectric cooler (TEC) for all SLEDs
- Fiber-coupled output power from 10mW to 40mW; Free Space output power from 30mW to 130mW
- Bandwidth FWHM from 40nm to 460nm
- DAYY's spectral stitching technology provides optimum power and bandwidth
- Multiple communication interfaces: USB and RS-232.
- Internally optimized for maximum coupling efficiency with Single Mode or PM Fiber
- Monolithic integration of a Broadband Dual Stage PMF Isolator (35dB)
- 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 Fiber-coupled ISB2 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.***
- ⚠ The Free Space ISB2 is a Class 3B laser product. Avoid direct exposure to beam. Laser protective eye wear is required.

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 Multi-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 Multi-SLED ISB2 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.

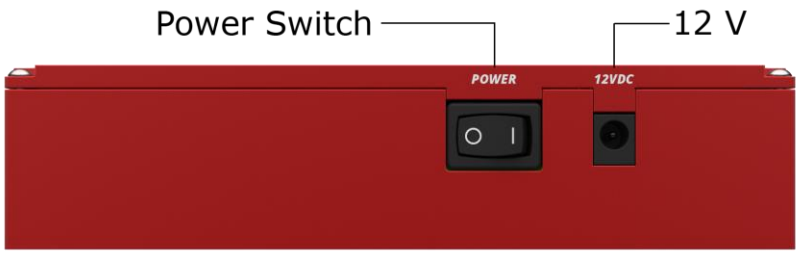


FIGURE 1: POWER SIDE PANEL

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

The ISB2 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 and RS-232 for communication, and a 7-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 or Serial cable for communication. In MANUAL MODE, no connection to USB or RS-232 is required and the SLEDs can be turned ON/OFF with the six switches on this side panel.
The switches are labeled from 1-6 corresponding to the SLED number, with SLED 6 having the shortest wavelength and SLED 1 having the longest wavelength. Please refer to the Final Inspection Test Report included with the Multi-SLED Integrated Spectral

Bench for SLED numbering as well as corresponding wavelengths and maximum operating currents.
When turning individual SLEDs “on” or “off” in MANUAL MODE they will be driven at their default current settings. Default current settings for MANUAL MODE can be changed through the software. This will be explained in the Software Operation section Figure 14.

When running the DAYY Photonics software, toggle the left switch to PC MODE in order to control SLEDs from 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.

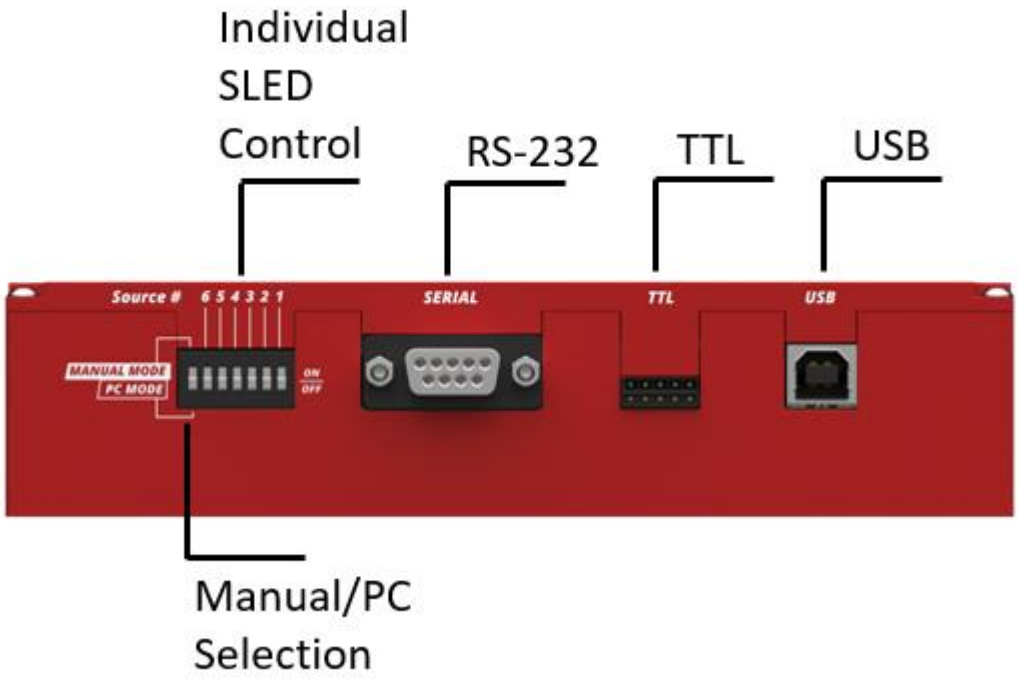


FIGURE 2: COMMUNICATIONS AND CONTROL PANEL

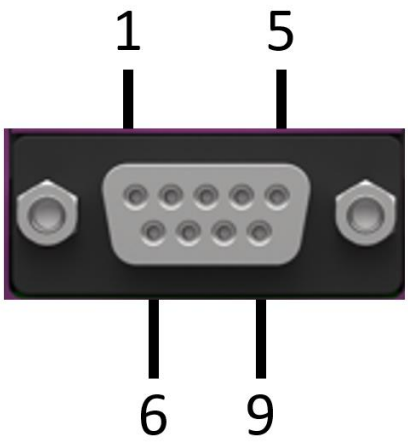
	Pin 2: RXD Recevied Data Pin 3: TXD Transmit Data Pin 5: Ground Baud Rate 115200, 1 stop bit, no parity

TABLE 1: RS-232 PINOUT

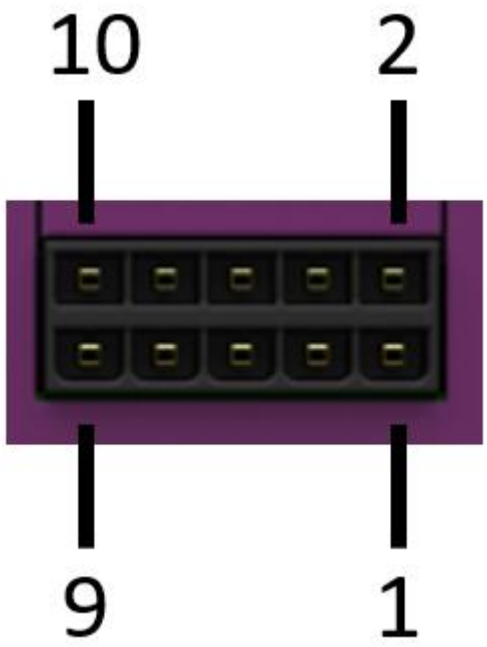
	Pin 1: TTL Control Enable (input) Pin 2: SLED Ready (output) Pin 3: T Alarm (output) Pin 4: TTL SLED On/Off_Not (input) Pin 5: TTL GP1 (input) Pin 6: TTL GP2 (input) Pin 7: TTL GP3 (output) Pin 8: TTL GP4 (output) Pin 9, 10: Ground TTL Voltage range: 0-3.3V Mates with #IPS1-105-01-L-D-RA or equivalent

TABLE 2: TTL PINOUT

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 ISB2; see Figure 3. The Multi -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 SLEDs are enabled and users can turn them on. When SLEDs are turned on and light is being emitted, the green “ON” LED will light up.

If the ISB2 is controlled through the DAYY Photonics software, the SLED controls 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 SLEDs before the unit is ready, the unit will not emit light until the “READY” stops blinking. Once the yellow “READY” is on, the ISB2 will allow for SLEDs 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 Multi -SLED is ready again, in such case, the yellow “READY” LED will start blinking.

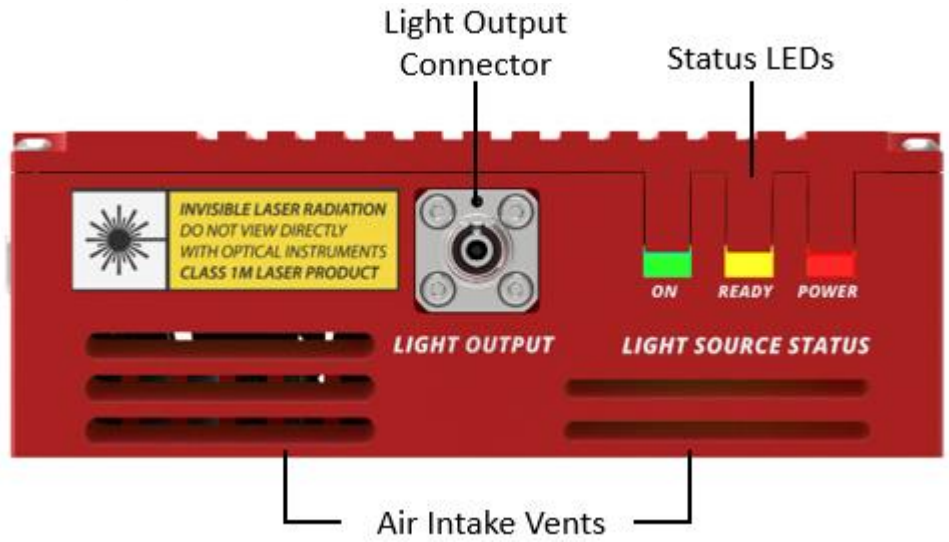


FIGURE 3: FRONT PANEL – LIGHT OUTPUT

Back Panel - Thermal Management:

Free air circulation around the rear of the unit should be maintained for good thermal performance. If the ISB2 is operated in environments over 35°C, the ISB2 should be mounted to an external heatsink. Free air circulation around the ISB2 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 ISB2 Unit.

Air circulation is located on the back panel of the ISB2, 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.

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.

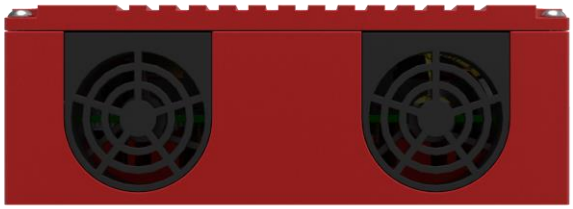


FIGURE 4: BACK PANEL – THERMAL MANAGEMENT

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 Multi-SLED ISB2. 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.

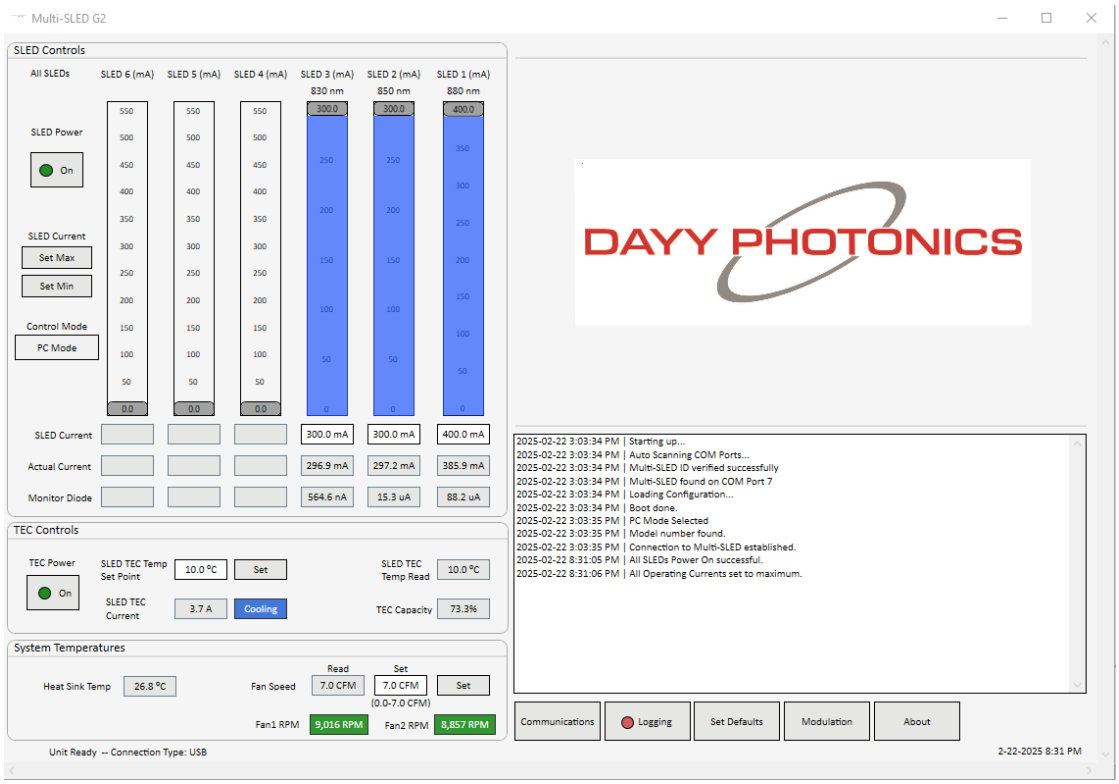


FIGURE 5: MAIN CONSOLE OF DAYY PHOTONICS MULTI-SLED ISB2 DRIVER

SLED Controls:

There are six individual slider bars to independently adjust the current of each SLED; see Figure 7.
Based on the ISB2 model, the maximum current of each SLED will be limited and the sliders' maximum values will be adjusted accordingly when the Multi-SLED ISB2 is connected. The center wavelength will be displayed with each SLED number.

FIGURE 6: SLED CONTROLS SECTION

Each SLED's current can be adjusted using its specific sliding bar. Additionally, all SLEDs can be set to their Maximum or Minimum by clicking the "Set Max" or "Set Min" buttons on the left of the sliders. The user can also manually type the desired set current by

double clicking the Set Current box underneath the sliding bar, typing a desired value, and pressing the “Enter” key on their keyboard.
When the unit is turned on, the SLED Controls will be disabled, inhibiting the user from moving the sliders or setting the current until the unit is ready and the Yellow LED stops blinking.
For each SLED, the Actual Current is sensed and displayed. The boxes below the Actual Current row show the monitor photodiode current. The monitor photodiodes are physically placed on the back facet of each SLED, inside the Multi-SLED 32-pin Package Optical Spectral Engine, and can be used as a reference for the light each SLED is emitting. Note that monitor diode values will vary depending on which SLEDs are on.
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”, see Figure 7.

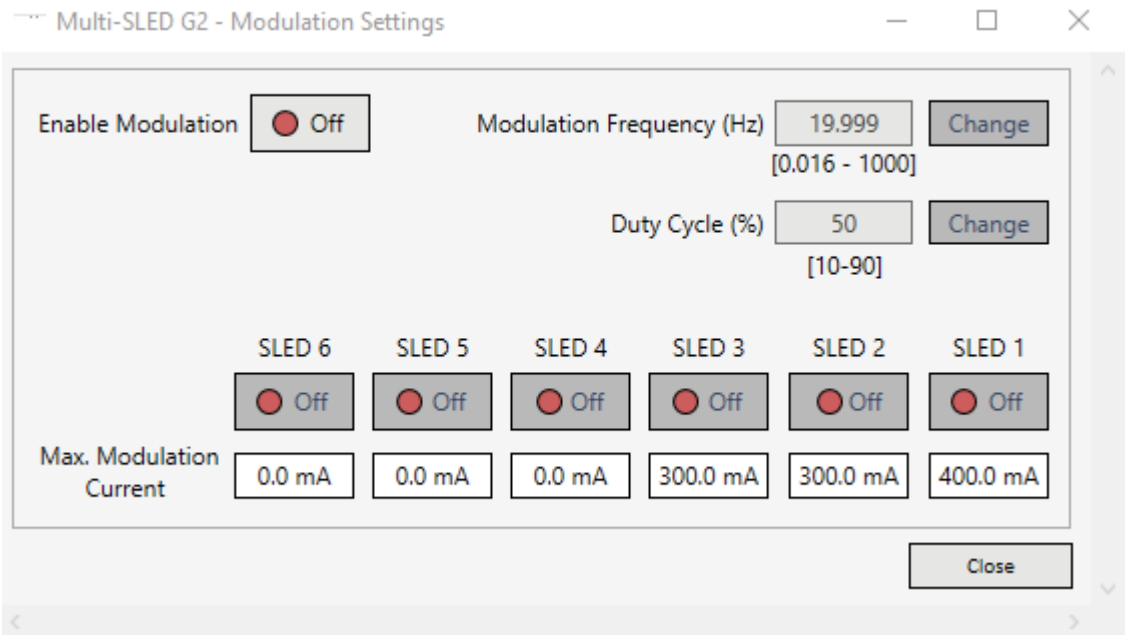


FIGURE 7: MODULATION SETTINGS WINDOW

Note that the SLED power must first to be set to “ON” in order to open the Modulation window. Once Modulation is enabled, the user can enable modulation for each of the individual SLEDs. Maximum Modulation Current is displayed for each individual SLED, and is dictated by the SLED’s 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 clicking the “Change” button next to the desired text field, then typing in the desired value and clicking “Save”. Modulation is specified in Hz while Duty Cycle is specified as a percentage. Additionally, the user may choose which SLEDs will be modulated by turning them on or off with the respective “ON/OFF” button(s). Note that if an individual SLED’s modulation setting is in the “OFF” position, no current will be sent to that SLED.

Thermoelectric Cooler (TEC) Controls:

The SLED TEC is used to control the common bench temperature of all SLEDs. 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 all SLEDs to avoid overheating and damage.
Users can set their desired TEC temperature by clicking the “Save” button beside the “Set Point” box; see Figure 8. 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 SLEDs. At 100% capacity, the TEC is working at its maximum capacity to maintain this temperature.
Note: A negative current reading corresponds to TEC cooling, and a positive current reading corresponds to TEC Heating.

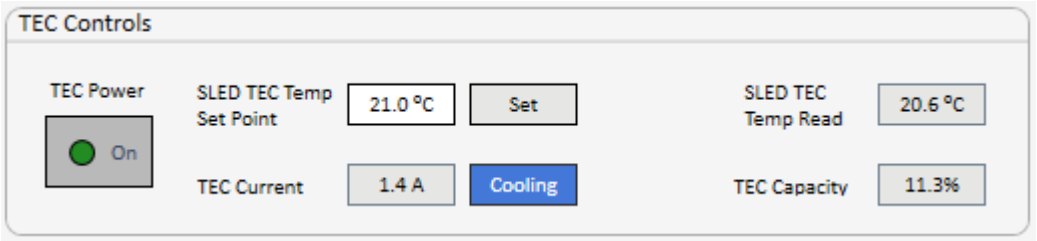


FIGURE 8: TEC CONTROLS SECTION

System Temperatures

Heat Sink Temperature, Fan Speed (CFM) and RPM are displayed to help the user monitor the thermal management, as shown in Figure 9.

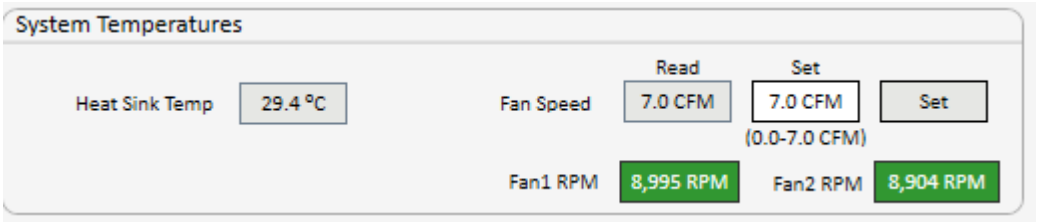


FIGURE 5: SYSTEM TEMPERATURES SECTION

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, see Figure 10.

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 12 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 ISB2. It will be 1 by factory default. Multiple ISB2 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.

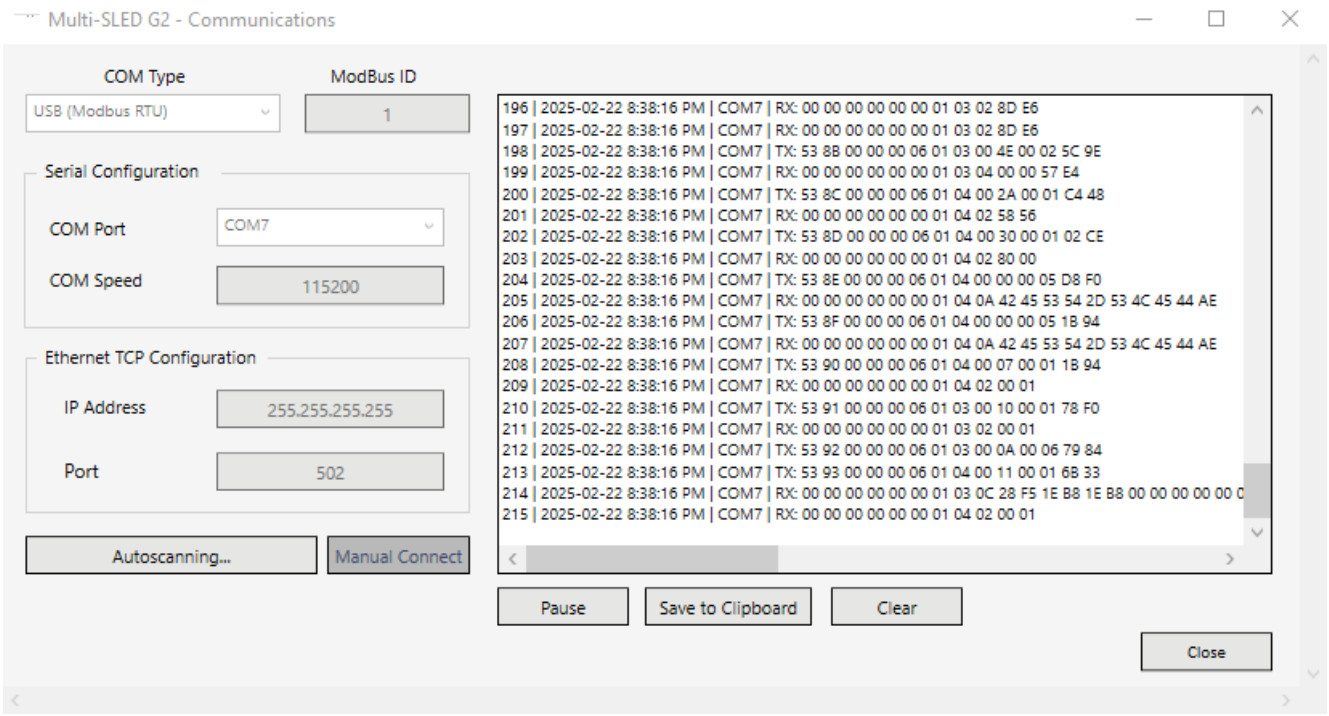


FIGURE 12: COMMUNICATIONS WINDOW

The Communications Window shows the continuous raw data transfers from the software to your Multi-SLED ISB2 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 Multi-SLED ISB2 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 13 will open. Enter the logging file name and directory for where the data is to be stored by clicking on the “…” button. After the filename and path have been selected, to start logging, click the check box before “Log to File” to enable the logging.
Note: Log Files must use the .csv (Comma Separated Value) file extension.

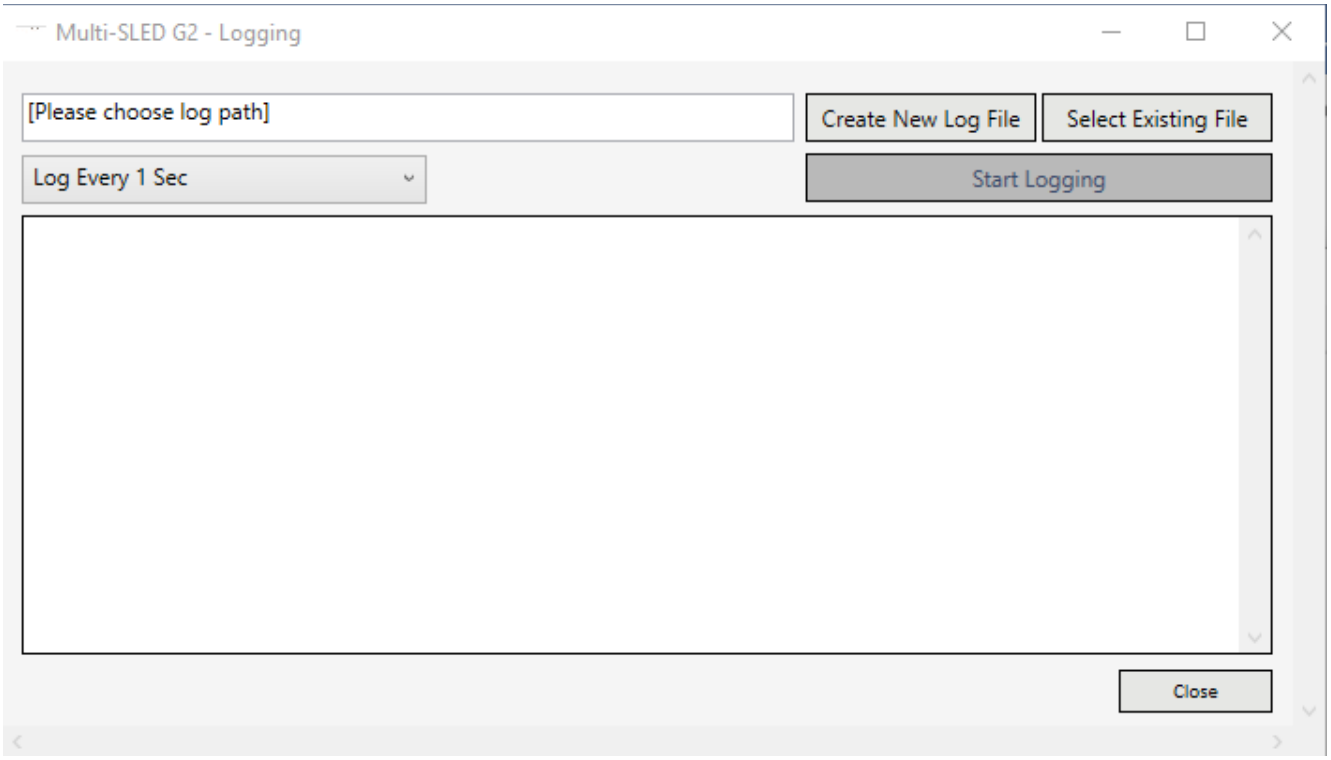


FIGURE 13: DATA LOGGING WINDOW

Set Defaults:

Clicking the “Set Defaults” tab from the main window will bring up the window displayed in Figure 14. 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 Multi-SLED ISB2, 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.

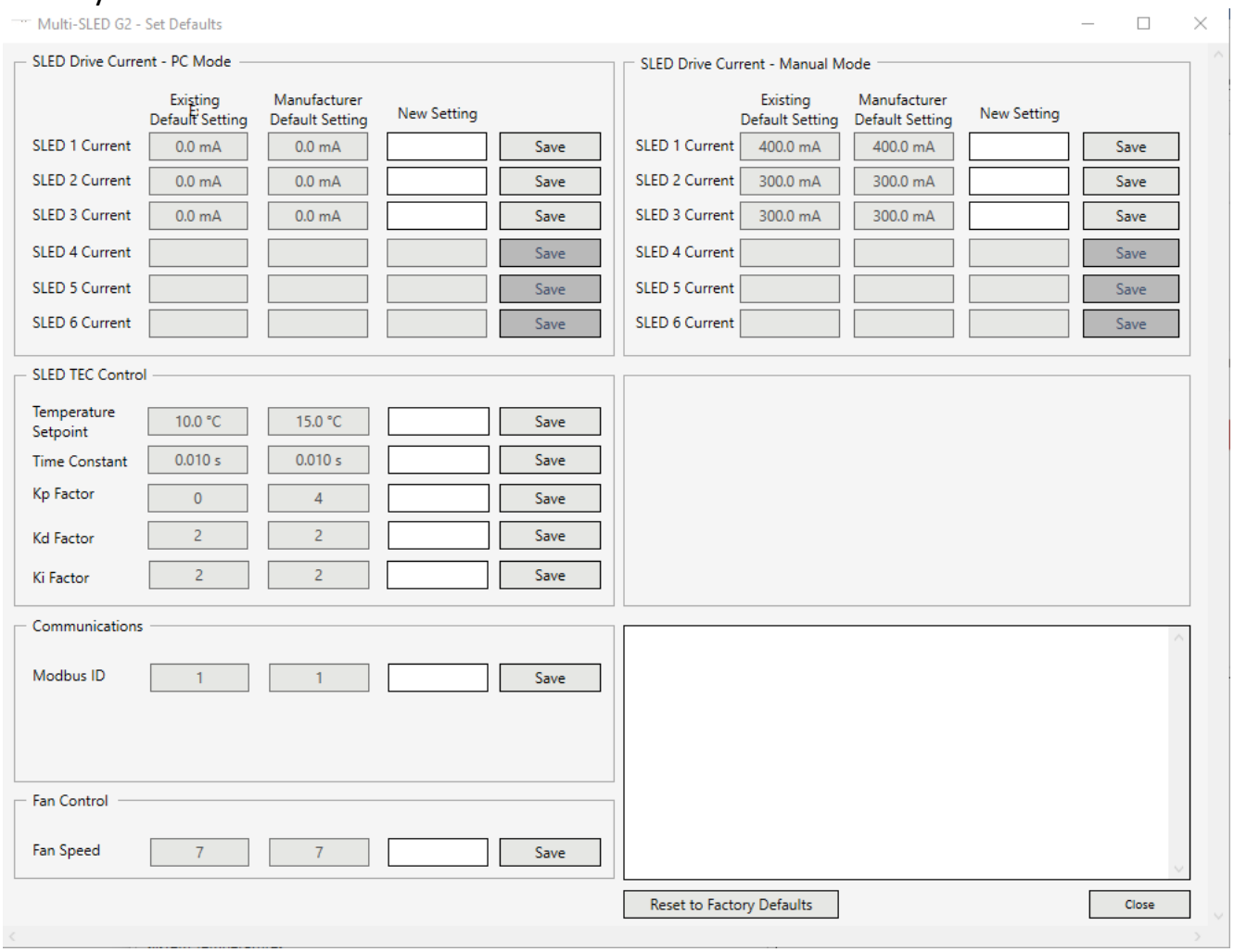


FIGURE 14: SET DEFAULTS WINDOW

The section “Default SLED Drive Current – PC Mode” allows user to set the initial current levels for each SLED when the unit is turned on and is in PC MODE.
The section “Default SLED Drive Current – MANUAL MODE” consists of the operating current at which each SLED will be driven when the ISB2 is operated in MANUAL MODE.

Note: SLEDs should be operated per manufacturer-recommended current setting provided in the Final Test Inspection Report for the Multi-SLED ISB2. Running the SLEDs at higher currents may cause damage. DAYY Photonics is not liable for damage if SLEDs are operated at higher than specified current ratings.
The section “Default TEC Temperature” allows users to change the default settings for the TEC temperature set point on the SLED TEC.
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 15. The software name and version are shown underneath DAYY Photonics logo. Based on the ISB2 model, the Capabilities column shows the functionality enabled on the driver.

The Admin tab will be used by DAYY Photonics technical support if needed.

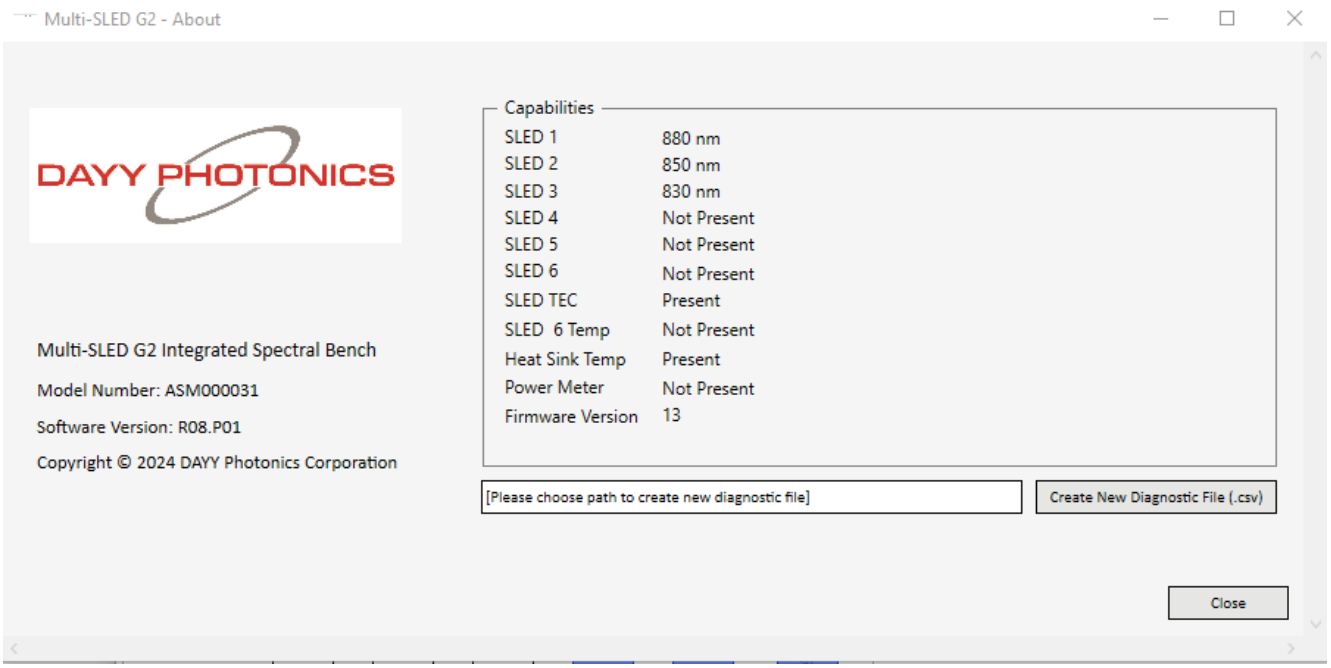


FIGURE 15: ABOUT WINDOW

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.

<table>
<tr><th>Serial Header</th><th colspan="2">MODBUS PDU</th><th colspan="2">Serial Footer</th></tr>
<tr><th>Slave Address</th><th>Function Code</th><th>Data</th><th colspan="2">CRC16</th></tr>
<tr><td rowspan="2">1 byte</td><td rowspan="2">1 byte</td><td rowspan="2">0 up to 252 byte(s)</td><td colspan="2">2 bytes</td></tr>
<tr><td>Low</td><td>High</td></tr>
</table>

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 Multi-SLED ISB2 Register Map

If users want to develop their own API, Multi-SLED ISB2 Register Map is available upon request. Please contact technical support: techsupport@dayyphotonics.com

5. 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˚C T_{TEC} = 21˚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	uA
Monitor Diode Current Reading Resolution	RES_{Imon}	-	-	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	°C
SLED TEC Temperature Setpoint Resolution	R_{TSLED_SET}	-	-	0.1	-	°C
SLED TEC Temperature Reading	T_{SLED_READ}	-	-40	-	100	°C
SLED TEC Temperature Reading Resolution	R_{TSLED_READ}	-	-	0.1	-	°C
TEMPERATURE SPECIFICATIONS						
Heatsink Temperature Reading Range	T_{HS}	-	-40	-	100	°C
Heatsink Temperature Reading Resolution	R_{THS}	-	-	0.1	-	°C
SLED 6 Temperature Reading Range[1]	-	-	0	-	60	°C
SLED 6 Temperature Reading Resolution[1]	-	-	-	0.1	-	°C

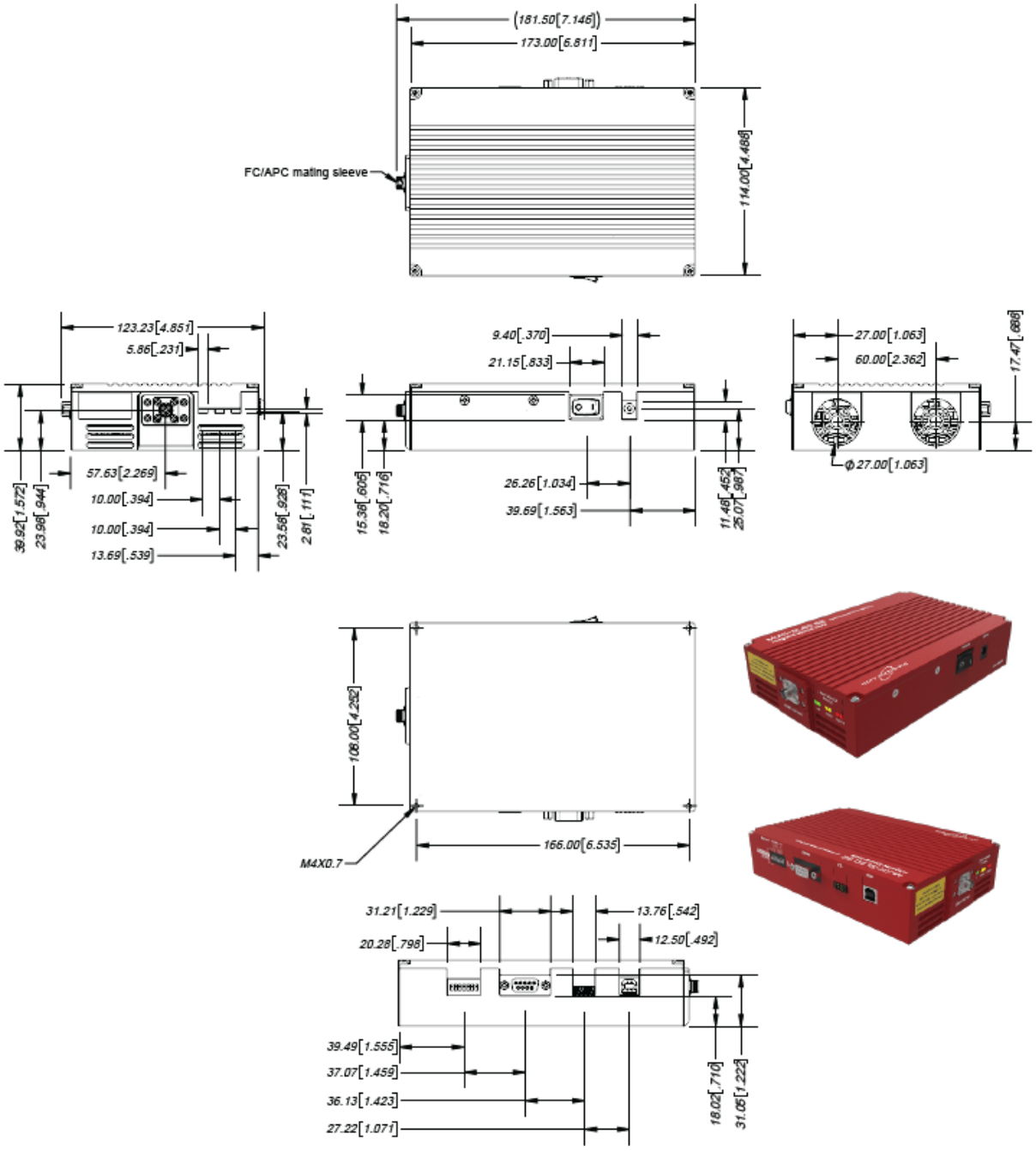
Parameter Symbol		Symbol	Condition	Min.	Typ.	Max.	Unit
POWER METER							
Spectral Response Range		λ_{PM}	-	900	-	1870	nm
Photosensitive Area		A_{PM}	-	-	Φ1	-	mm
Power Meter Current Reading		P_{PM}	-	50	-	-	uA
Peak Sensitivity Wavelength		λp	-		1750	-	nm
Photo Sensitivity		S	λ= λp	0.9	1.1	-	A/W
Typical Dark Current		I_D	-	-	1	10	nA
Detectivity		D*	λ= λp	2×10^{12}	5.5×10^{12}	-	$cm*Hz^{1/2}/W$
Noise Equivalent Power		NEP	λ= λp	-	1.5×10^{-14}	4×10^{-14}	$W/Hz^{1/2}$
POWER METER TEC SPECIFICATIONS							
Power Meter TEC Temperature Setpoint		T_{PM_SET}	-	-20	-	40	°C
Power Meter TEC Temperature Setpoint Resolution		R_{TPM_SET}	-	-	0.1	-	°C
Power Meter TEC Temperature Reading		T_{PM_READ}	-	-40	-	85	°C
Power Meter TEC Temperature Reading Resolution		R_{TPM_READ}	-	-	0.1	-	°C
GENERAL							
Operating Temperature Range[1]		-	-	0	-	50	°C
Storage Temperature Range		-	-	-40	-	70	°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	-	-	-	1.19	-	kg
	Low DOP	-	-	-	1.17	-	kg
	Standard with Power Meter	-	-	-	1.24	-	kg
	LOW DOP with Power Meter	-	-	-	1.22	-	kg

[1] for models with SLED6 Temperature Reading

[2] non-condensing

7. Dimensions Multi-SLED

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 SLEDs 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 “Select Diagnostic File” button and save with your desired filename and path (.csv extension)

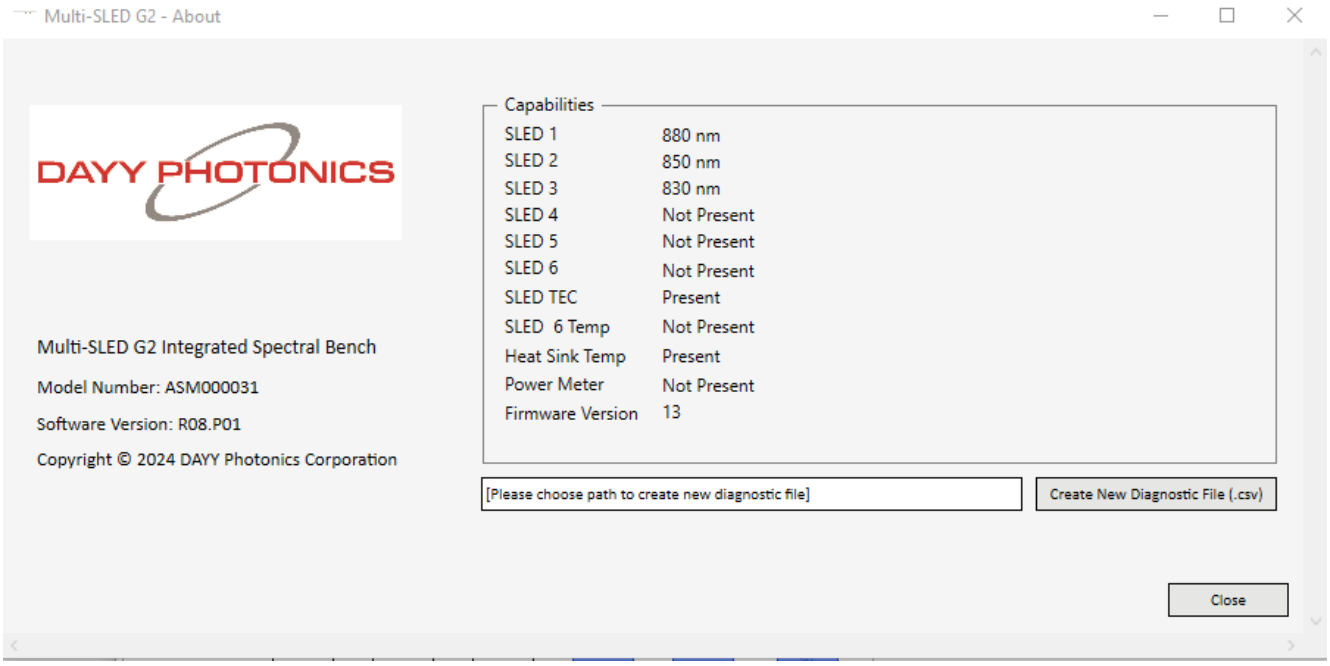


FIGURE 16: ABOUT WINDOW

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

9. Limited Product Warranty ("WRTY")

DAYY Photonics Corporation ("DAYY") 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 proscribed by applicable law, in the event of a breach of this warranty, the sole and exclusive remedy, and DAYY's sole and exclusive liability, shall be for DAYY to use its commercially reasonable efforts to repair or replace the product that caused the breach of this warranty. If DAYY 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's obligation under this warranty shall be to refund the amount received by DAYY for such product.

Warranty Returns

All products must be returned to DAYY in accordance with DAYY's then-current Return Material Authorization (RMA) procedure. Products obtained from DAYY that do not comply with the warranty and which are returned to DAYY during the applicable warranty period will be repaired or replaced at DAYY's 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 warranty, DAYY 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 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, the end user will be responsible for the warranty return process. For the first 30 days of the warranty period, DAYY will provide advance replacement same day ship via standard overnight shipping (must meet shipment cut-off time) for the covered product after confirming coverage and the warranty failure. The product arrival date is subject to local transport conditions. Additional service coverage such as Advanced Replacement service, 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 or an DAYY authorized company, is not maintained to DAYY's maintenance recommendations, is operated in a manner other than that specified by DAYY, has its serial number removed or altered. The warranty does not cover abuse of the product including but not limited to neglect, damage or abuse, such as water damage, back-reflection, broken fiber, incorrect input voltage, improper wiring, shock or severe impact, damage during shipment, exposure to rain, excessive humidity, corrosive environments or other contaminants 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

13 Optional: Light Output Connector

Multi-SLED comes with FC/APC Connector as standard. If customer requires FC/PC or SMA connector instead, please indicate on the order.

14. Contact Information

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