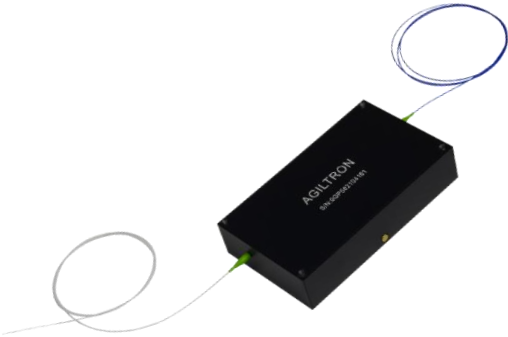


Optical Power Surge Protector



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BUY NOW



Applications

- Sensor Protection
- Surge Prevention
- Instrumentation

Features

- No Moving Parts
- High Reliability
- High Speed

The optical power surge protector is a two-fiber port module that has a passive low insertion loss during normal operation but actively suppresses an optical power surge quickly (about 100ns) when the passing light intensity exceeds a preset level. The unit maintains the output at the preset point when the input power is higher. This is achieved by using a detector to tap a small portion of light and feed into a closed-loop circuit to control an NS variable fiber optical attenuator connected between light input and output. The maximum allowed output power is manually settable by a resistor pot through a side screw. High maximum output power up to 10W is available through special order. The optical power surge protector provides an ultimate solution for sensor protection. The non-mechanical device has passed the most stringent mil-spec and space flight qualifications and is designed for over 25 years of continuous operation. The module comes with a wall-plug 12V power supply.

The device is optimized for fast surge protection while also regulating to provide a stable output. It has more oscillations in the regulation function. For high-performance output stability, please order our Regulator, which also has a surge protection function but with a much slower speed.

Specifications

| Parameter | Min | Typical | Max | Unit |
|---|--------------|---------|------|------|
| Central Wavelength | 760 | | 2000 | nm |
| Insertion Loss ^[1] | 1260 -1650nm | 1.0 | 1.4 | dB |
| | 960 - 1100nm | 1.2 | 1.6 | dB |
| | 760 – 960nm | 1.5 | 1.8 | dB |
| Dynamic Range | 18 | 25 | 30 | dB |
| Return Loss | 45 | 50 | | dB |
| Response Time | 0.1 | | 50 | μs |
| Maximum Output Power Setting ^[2] | 0.2 | | 20 | W |
| Operating Temperature | -5 | | 70 | °C |
| Electrical Power Consumption | | | 2 | W |
| Storage Temperature | -40 | | 85 | °C |

Notes:

[1]. Excluding connectors. Including the power tapping for feedback control.

[2]. High power version up to 20W is available

Warning: The device mounted on the PCB is an OEM module designed for system integration only, not for general uses. Do not touch the PCB by hand. The electrical static can kill the chips even without a power plug-in, and unpleasant electrical shock may also be felt. For laboratory use, please buy a protected Turnkey system.

Legal notices: All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind Agiltron only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with the use of a product or its application.

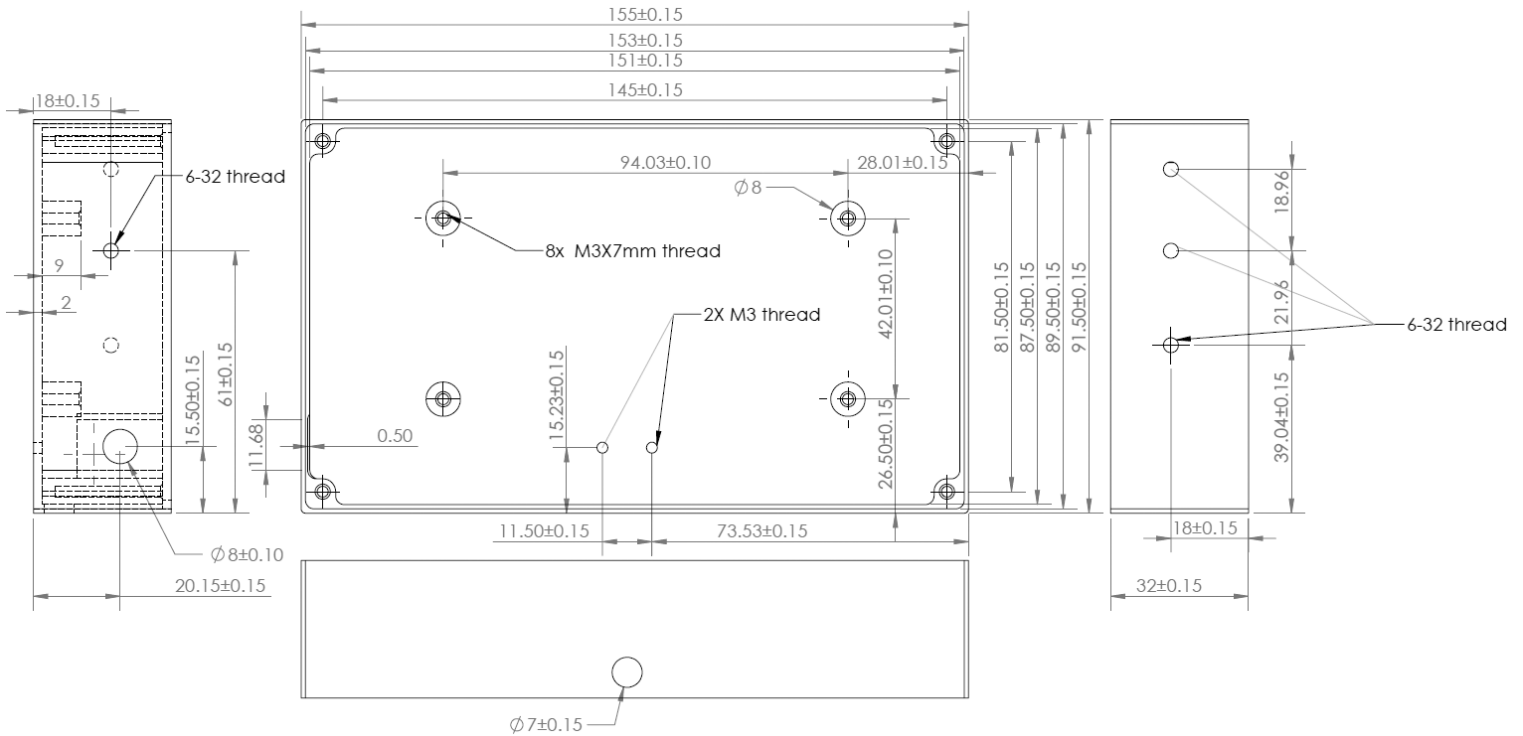
Rev 05/07/24

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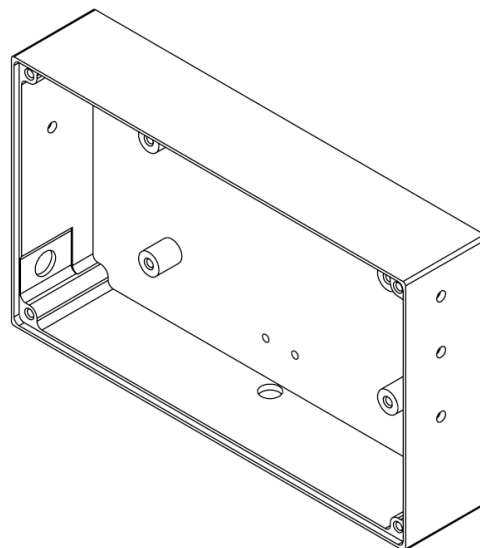
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Dimensions of Module (mm)



Notes:

1. Material to be AL6061
2. Surface treatment: sandblasting and oxide black



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Optical Power Surge Protector

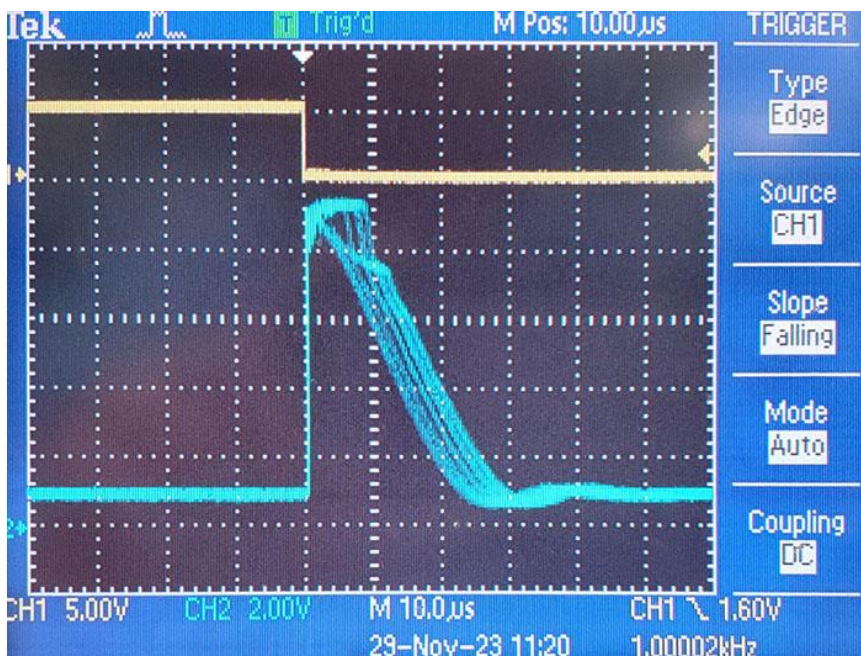


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Operation Instruction

- ❑ The maximum output power level P_{Set} is preset per customer's request as a default. The P_{Set} can be adjusted manually through the screw hole.
- ❑ Plug in the accompanied power supply.
- ❑ When the input power exceeds the maximum power setting, the device starts regulating output to be constant.
- ❑ No response when the input power lower than the preset level.

Typical Response



1. Power Surge: 10 dB
2. Regulation Stability: < 0.02 dB
3. Response Time: 30 µs

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Ordering Information

| Prefix | Configuration | Wavelength | Max Output Power | Fiber Type | Fiber Cover | Fiber Length | Connector ^[1] |
|--------|---------------|-------------|------------------|-------------|-------------------------------|--------------|--------------------------|
| OPSP- | SM = 1 | 1060 = 1 | 10mW = 010 | SMF-28 = 1 | 0.9mm tube = 3 Special = 0 | 0.25m = 1 | None = 1 |
| | PM = 2 | 2000 = 2 | 20mW = 020 | HI1060 = 2 | | 0.5m = 2 | FC/PC = 2 |
| | MM = 3 | 1310 = 3 | 30mW = 030 | HI780 = 3 | | 1.0 m = 3 | FC/APC = 3 |
| | Special = 0 | 1480 = 4 | 40mW = 040 | PM1550 = 5 | | Special = 0 | SC/PC = 4 |
| | | 1550 = 5 | 50mW = 050 | PM850 = 8 | | | SC/APC = 5 |
| | | 1625 = 6 | 60mW = 060 | PM980 = 9 | | | ST/PC = 6 |
| | | 780 = 7 | 70mW = 070 | 50/125 = 6 | | | LC/PC = 7 |
| | | 850 = 8 | 80mW = 080 | Special = 0 | | | LC/APC = A |
| | | 650 = E | 90mW = 090 | | | | LC/UPC = U |
| | | 550 = F | 100mW = 100 | | | | Special = 0 |
| | | 400 = G | 500mW = 500 | | | | |
| | | Special = 0 | 900mW = 900 | | | | |
| | | | 20W = A00 | | | | |

[1]: High power connector may be available per request, please contact sales.

RED is Special Order

NOTE:

- ☐ **PM1550** fiber works well for **1310nm**

Application Notes

Fiber Core Alignment

Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness

Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power

Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.