

FLP-G11-303 / -307

Pulsed Fiber Laser

1.08-μm Q-switched pulsed Ytterbium fiber lasers design for OEM applications

DESCRIPTION

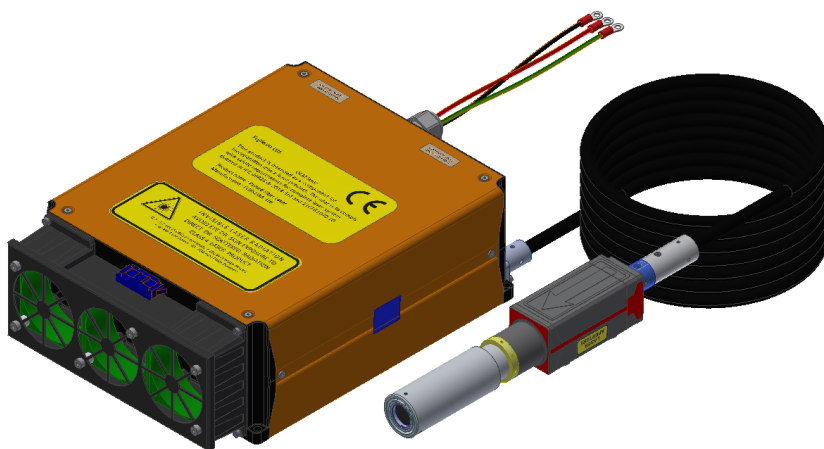
FLP-G11-303 / -307 are maintenance-free Q-switched pulsed Ytterbium fiber lasers. The lasers deliver high power 1.08-μm laser beam directly via flexible metal sealed fiber cable. They can provide many end user benefits, including unprecedented deep engraving capabilities on high-melting-point metals, black laser marking on car components and high-speed micro-fabrication.

FEATURES

- 30 W average output power
- 1.0 mJ energy per pulse
- 30 to 80 kHz pulse repetition
- $M^2 \leq 1.6$ beam quality
- Equipped guide laser inside its body
- Unified control-unit-power and LD-power supply with a voltage of 24 V
- Robustness against harsh environment
- Air-cooled package
- PC based control via D-SUB 25 pin or Serial communication port
- Maintenance free and High reliability

APPLICATIONS

- Marking
- Deep engraving
- Cutting
- Welding
- Precision drilling



1 OPTICAL CHARACTERISTICS

| Parameters | Conditions | Min. | Typ. | Max. | Units |
|--------------------------|---|-----------------|------|------|-------|
| Mode of operation | | Q-switch pulsed | | | - |
| Polarization | | Random | | | - |
| Average output power | | - | 30 | - | W |
| Output power instability | | -5 | - | +5 | % |
| Pulse repetition ratio | | 30 | - | 80 | kHz |
| Peak wavelength | | 1081 | 1087 | 1093 | nm |
| Pulse width | Width at 20% of peak power (See Fig.1) | 30kHz | - | 230 | - |
| | | 80kHz | - | 190 | - |
| Peak power | | - | 7 | - | kW |
| Pulse energy | @30kHz | 1.0 | - | - | mJ |
| Beam diameter | Diameter at position of 150 mm from exit of beam expander | -303 | 2.6 | 3.0 | 3.4 |
| | | -307 | 6.0 | 7.0 | 8.0 |
| Beam quality (M^2) | | - | - | 1.6 | - |
| Guide laser power | Red laser | - | - | 0.5 | mW |

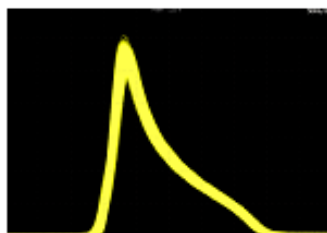


Fig.1 Typical waveform of optical pulse

2 GENERAL PARAMETERS

| Parameters | | Min. | Typ. | Max. | Units | Notes |
|----------------------------------|------|--------------------|------|------|-------|---|
| Cooling | | Forced air cooling | | | - | |
| Operating temperature, Main body | | 0 | - | 40 | °C | |
| Operating temperature, Head | | 15 | - | 45 | °C | |
| Operating & storage humidity | | 30 | - | 85 | % | No dew condensing |
| Storage temperature | | -10 | - | 60 | °C | |
| Fiber cable length | | - | 4 | - | m | |
| Fiber cable diameter | | 9.2 | - | 9.5 | mm | |
| Allowable bending radius | | 80 | - | - | mm | |
| Main body dimension | | W215 x H95 x L286 | | | mm | Excluding protruding part Refer in clause 5 |
| Head dimension | -303 | W40 x H40 x L207 | | | mm | Beam expander part diameter: φ35mm Refer in clause 6, 7 |
| | -307 | W40 x H40 x L278 | | | | |
| Mass | | - | - | 6.5 | kg | |


3 ELECTRICAL PARAMETERS

| Parameters | | Min. | Typ. | Max. | Units | Notes |
|-------------------|------------|------------------------|------|------|-------|---|
| Power supply | DC voltage | 23.0 | 24.0 | 25.0 | V | Power supply should be prepared by customers. |
| | DC Current | - | 12.4 | - | A | |
| Control interface | I/O_1 | Dsub25pin Male (Logic) | | | - | |
| | I/O_2 | Dsub9pin Male (Serial) | | | - | |

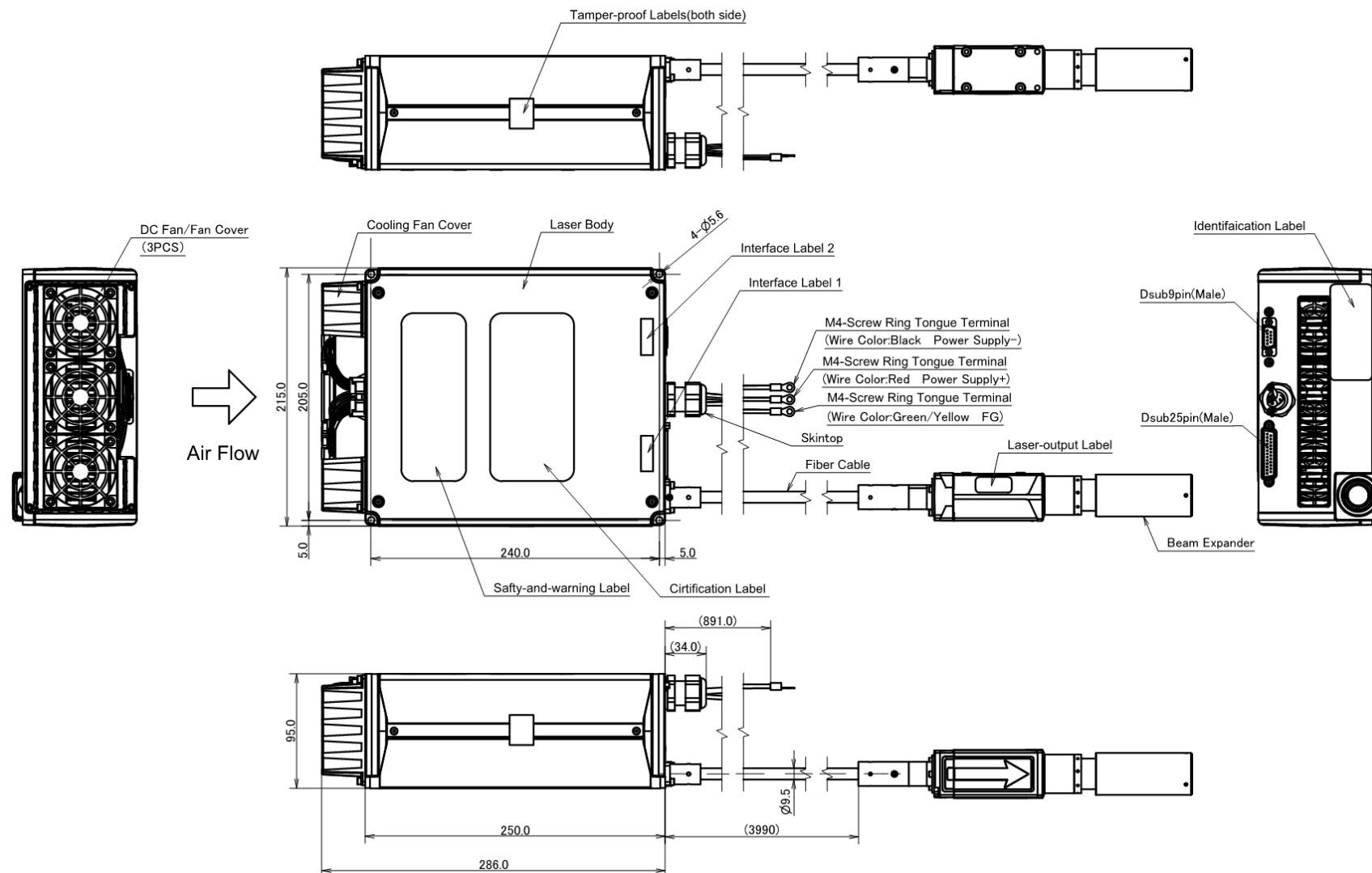
4 SAFTY INFORMATION

This product is classified as Class IV in accordance with IEC60825. This product emits laser light at a very instance of turning on the power, thoroughgoing safety measures should be taken by all of users.

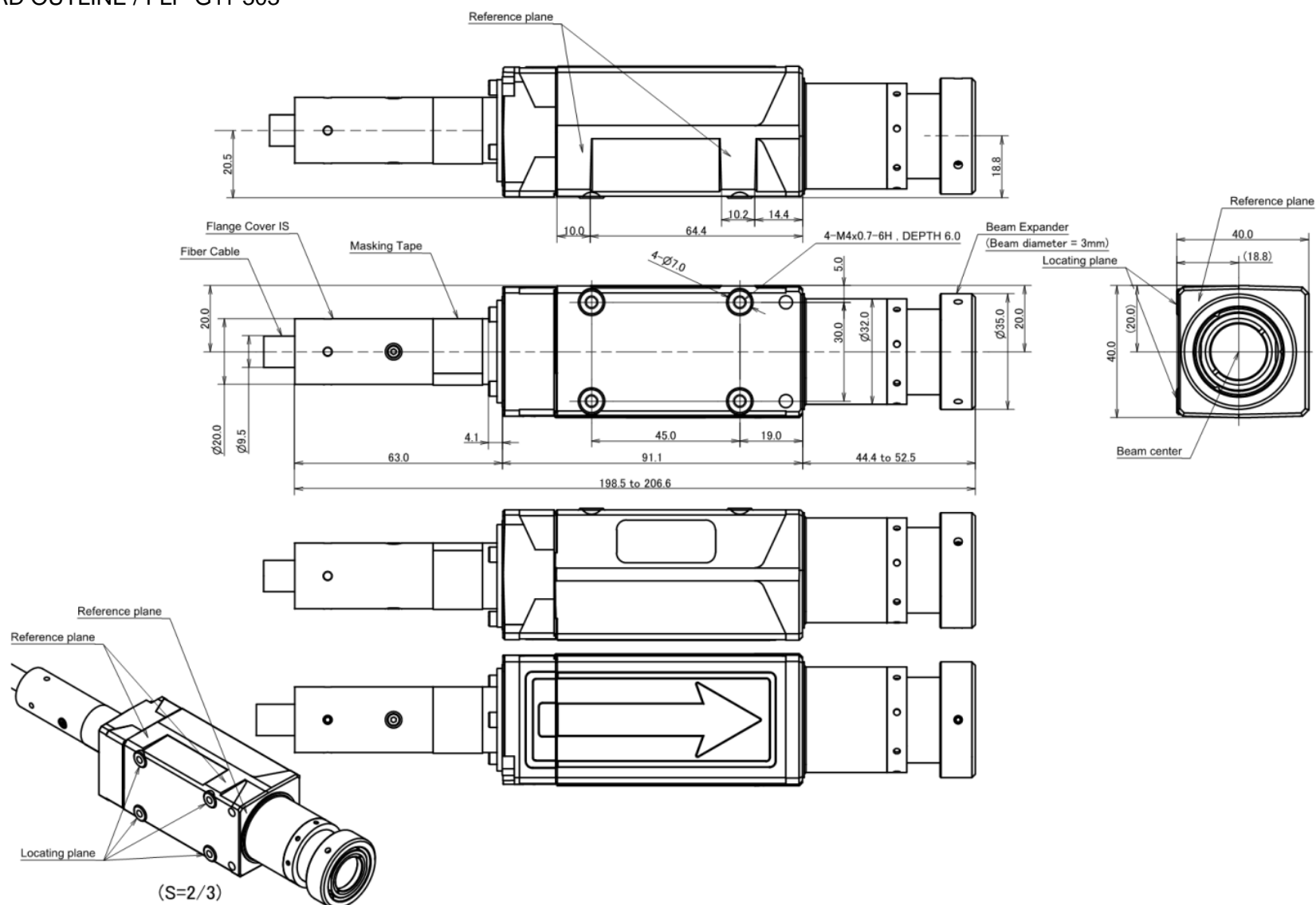
- Center wavelength: 1087 nm
- Average output power: 30 W
- Mode of operation: Pulsed

| | | |
|---|--------------------------------------|---|
|  | <p>Warning Laser beam</p> | <ul style="list-style-type: none"> • A laser beam is emitted from edge of delivery fiber during operation. • The laser beam, visible or invisible, directly or indirectly, may cause injury to the eye or loss of eyesight. • Do not look directly into the laser beam. • Avoid exposure to the laser beam, any reflected or collimated beam. • Use protection glass when laser power is on. |
|---|--------------------------------------|---|

5 PRODUCT OUTLINE



6. HEAD OUTLINE / FLP-G11-303



7. HEAD OUTLINE / FLP-G11-307

