

## Sub-Systems Pulsed Fiber Lasers

### Key Features

Up to 2.5 W average power

Up to 85  $\mu$ J per pulse

PM version available up to 50  $\mu$ J

Excellent beam quality

Maintenance free operation

OEM format

Conductively cooled

### Applications

LIDAR

2D/3D mapping

DTS

Range finding

Weather and pollutant detection

### For more Info

Please contact us at:  
Europe & Asia: +33 169 805 833  
North America: +1 514 748 4848  
+1 888 922 1044  
sales@3spgroup.com

## MENTAD

### 1.5 $\mu$ m Compact Pulsed Fiber Laser

The MENTAD is a very compact pulsed fibre laser delivering up to 2.5 W average output power and up to 85  $\mu$ J per pulse in standard versions or up to 50  $\mu$ J per pulse in its polarization maintaining versions.

The design and configuration of this laser render it unique and reliable.

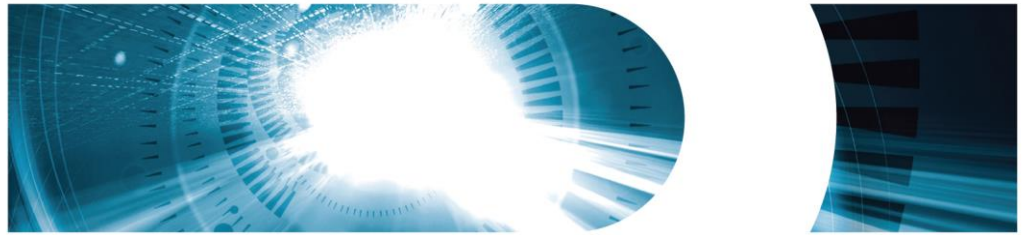
Our patented "Injection Technology" allows the use of highly reliable broad area laser diode pumps, for a cost-effective and maintenance-free operation.

The all fibre design guarantees the robustness of the laser, without any optical parts to align or to stabilize. The simple integration of the system requires no after-installation service.

The MENTAD is the ideal solution for LIDAR sensing, telemetry or range finding applications.



## 1.5 $\mu\text{m}$ Compact Pulsed Fiber Laser

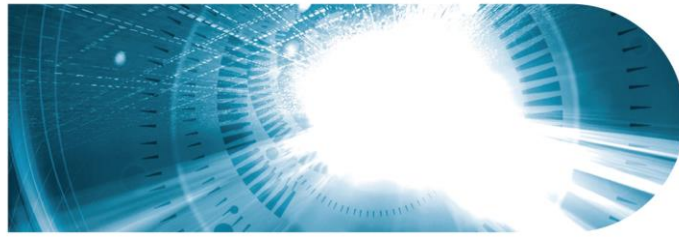


## ELECTRO-OPTICAL CHARACTERISTICS

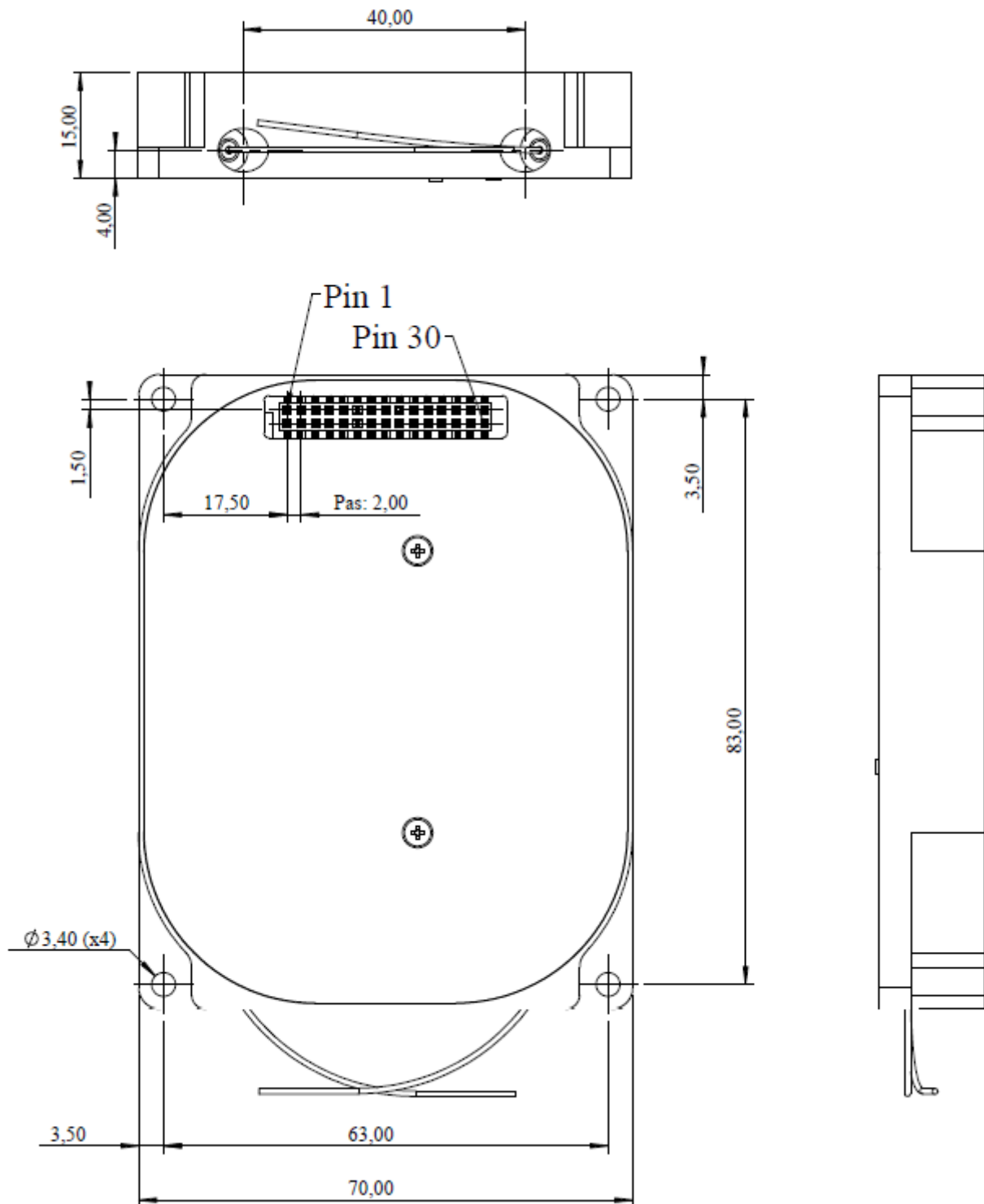
Parameters	Value		Unit
Operating mode	Pulsed		-
Central wavelength (1)	1550 $\pm$ 5		nm
OEM housing	OEM15	OEM20	-
Average output power (max.)	1.2	2.5	W
Peak power	up to 12	up to 17	kW
Energy per pulse (2)	up to 50	up to 85	$\mu\text{J}$
Output power tunability (3)	1 - 100		%
Long term stability (4)	< 1		% RMS
Pulse repetition frequency (5)	5 to 2000		kHz
Pulse duration (6)	2 to 250	0.5 to 250	ns
Signal linewidth (FWHM)	< 0.2		nm
Polarization *	Random	Random or Linear	-
Polarization extinction ratio (PER)	N/A	> 17	dB
Output fibre length	30		cm
Output fibre termination *	FC/APC connector or Collimator		-
Beam quality	< 1.1		$\text{M}^2$
Output isolator *	Optional		-
Output monitor *	Optional		-
Control mode	N/A		-
Pulse trigger type *	Internal or TTL or LVDS		-
Storage temperature	-20 to +60		$^{\circ}\text{C}$
Operating temperature *(7)	0 to +50		$^{\circ}\text{C}$
Control interface	RS232		-
Operating voltage DC	5		V
Power consumption	< 15	< 25	W
Dimensions	90x70x15	108x70x20	$\text{mm}^3$
Weight	< 130	< 200	g

\* see the available options codification in the ORDERING INFORMATION section.

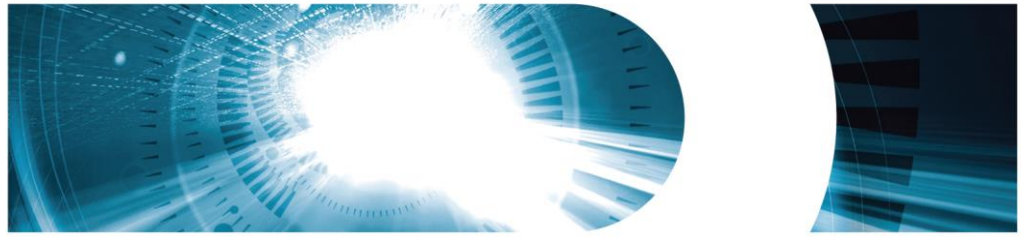
- (1) other wavelengths available in the range 1535-1575 nm
- (2) up to 50  $\mu\text{J}$  in PM version
- (3) RS232 adjustment
- (4) over 1h@25 $^{\circ}\text{C}$ , 1 sec sampling rate
- (5) limited range depending on duty cycle (> 1 / 20 000)
- (6) fixed duration; optional adjustable pulse width on few ns
- (7) optional extended range from -35  $^{\circ}\text{C}$  to +65  $^{\circ}\text{C}$



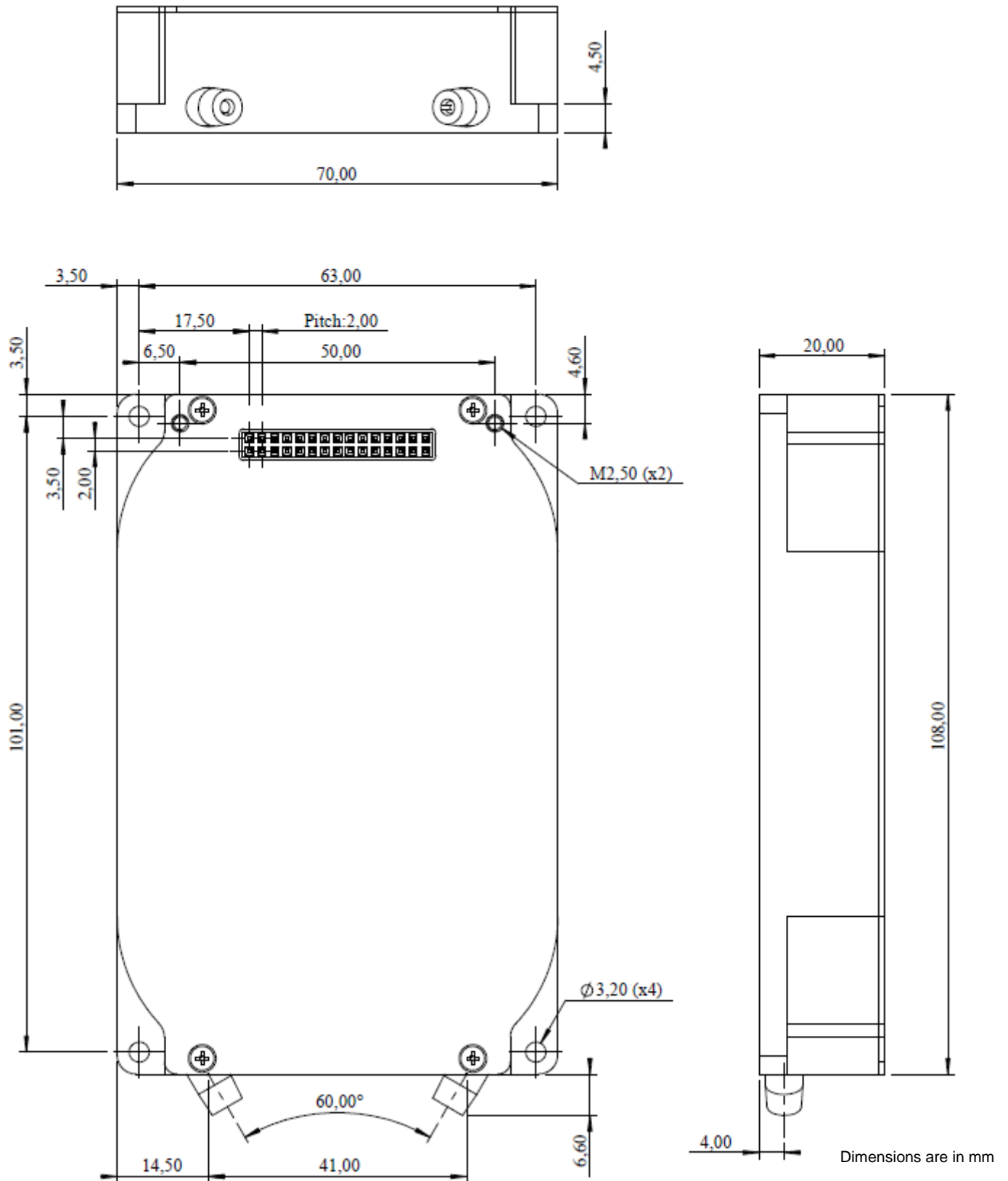
### MECHANICAL DETAILS – OEM15

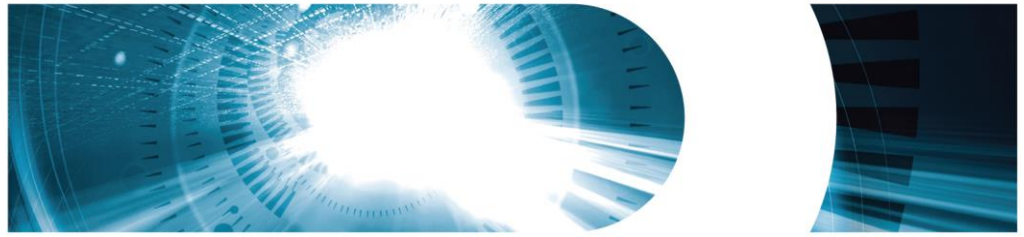


Dimensions are in mm



### MECHANICAL DETAILS – OEM20





## PIN ASSIGNMENT for OEM15 – TTL Trigger

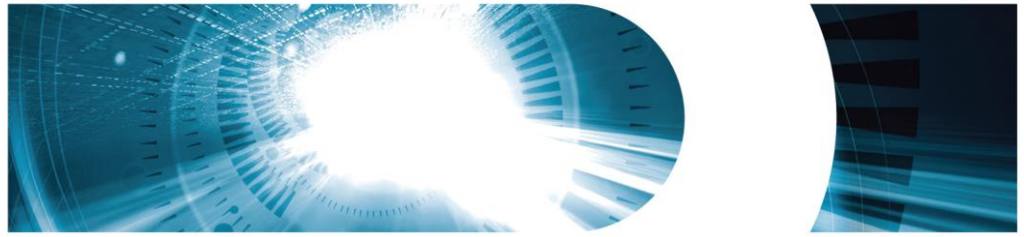
SAMTEC SMM-115-02-S-D-30 female connector

Description	Pin N°		Description
+5 V DC	2	1	+5 V DC
+5 V DC	4	3	+5 V DC
GND	6	5	GND
RS232 TX (TTL input)	8	7	RS232 RX (TTL output)
GND	10	9	GND
Reserved - do not connect	12	11	External trigger input (TTL, high impedance)
Burst input (TTL input)	14	13	Laser activation input ADI <i>TTL low : laser ON</i> <i>TTL high or disconnected : laser OFF</i>
Reserved - do not connect	16	15	Unit case temperature alarm (TTL output)
Laser diodes current alarm (TTL output)	18	17	Laser temperature alarm (TTL output)
Laser operating status output (TTL output)	20	19	Trigger alarm (TTL output)
GND	22	21	GND
Reserved - do not connect	24	23	Reserved - do not connect
GND	26	25	GND
+5 V DC	28	27	+5 V DC
Void	30	29	+5 V DC

## PIN ASSIGNMENT for OEM15 – LVDS Trigger

SAMTEC SMM-115-02-S-D-30 female connector

Description	Pin N°		Description
+5 V DC	2	1	+5 V DC
+5 V DC	4	3	+5 V DC
GND	6	5	GND
Reserved - do not connect	8	7	Reserved - do not connect
GND	10	9	GND
Reserved - do not connect	12	11	Reserved - do not connect
Burst input (TTL input)	14	13	Laser activation input ADI <i>TTL low : laser ON</i> <i>TTL high or disconnected : laser OFF</i>
Reserved - do not connect	16	15	Unit case temperature alarm (TTL output)
Laser diodes current alarm (TTL output)	18	17	Laser temperature alarm (TTL output)
Laser operating status output (TTL output)	20	19	Trigger alarm (TTL output)
GND	22	21	GND
External trigger LVDS B	24	23	External trigger LVDS A
GND	26	25	GND
+5 V DC	28	27	+5 V DC
Void	30	29	+5 V DC



## PIN ASSIGNMENT for OEM20 – TTL Trigger

SAMTEC SMM-115-02-S-D-30 female connector

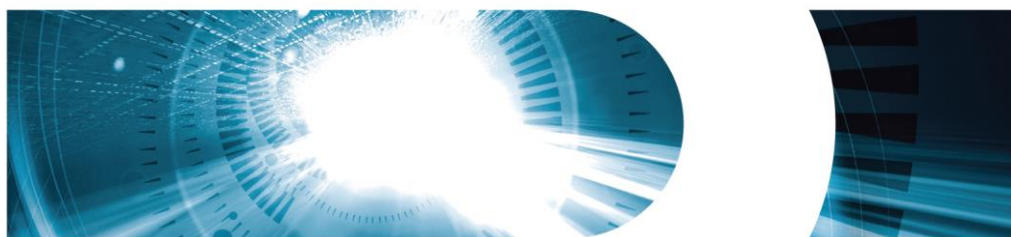
Description	Pin N°		Description
+5 V DC	2	1	+5 V DC
+5 V DC	4	3	+5 V DC
GND	6	5	GND
RS232 TX (TTL input)	8	7	RS232 RX (TTL output)
GND	10	9	GND
Reserved - do not connect	12	11	External trigger input (TTL, high impedance)
Burst input (TTL input)	14	13	Laser activation input ADI <i>TTL low : laser ON</i> <i>TTL high or disconnected : laser OFF</i>
Reserved - do not connect	16	15	Reserved - do not connect
Reserved - do not connect	18	17	Reserved - do not connect
Laser operating status output (TTL output)	20	19	Reserved - do not connect
GND	22	21	GND
Reserved - do not connect	24	23	Reserved - do not connect
GND	26	25	GND
+5 V DC	28	27	+5 V DC
Void	30	29	+5 V DC

## PIN ASSIGNMENT for OEM20 – LVDS Trigger

SAMTEC SMM-115-02-S-D-30 female connector

Description	Pin N°		Description
+5 V DC	2	1	+5 V DC
+5 V DC	4	3	+5 V DC
GND	6	5	GND
Reserved - do not connect	8	7	Reserved - do not connect
GND	10	9	GND
Reserved - do not connect	12	11	Reserved - do not connect
Burst input (TTL input)	14	13	Laser activation input ADI <i>TTL low : laser ON</i> <i>TTL high or disconnected : laser OFF</i>
Reserved - do not connect	16	15	Reserved - do not connect
Reserved - do not connect	18	17	Reserved - do not connect
Laser operating status output (TTL output)	20	19	Reserved - do not connect
GND	22	21	GND
External trigger LVDS B	24	23	External trigger LVDS A
GND	26	25	GND
+5 V DC	28	27	+5 V DC
Void	30	29	+5 V DC

## 1.5 $\mu\text{m}$ Compact Pulsed Fiber Laser

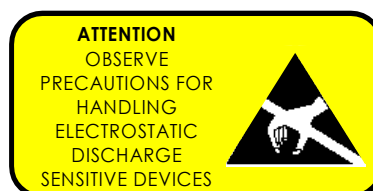


## LASER SAFETY INFORMATION

This fiber laser emits invisible light. Take appropriate precautions to prevent undue exposure to naked eye when the laser is in operation. This product is classified Class 4 Laser Product according to IEC-60825-1. This laser is only intended for integration into other equipment. The system does not comply with CDRH 21 CFR 1040.10 or EN 60825-1. The customer is responsible for CDRH and/or 60825-1 compliance of their system.

## HANDLING

Caution! Handle the sub-system by its package only; never hold it by its pigtail. Care should be taken to avoid supply transient currents and voltages. Drive voltage out of the specified electro-optical characteristics section may cause permanent damage to the device.



## ORDERING INFORMATION

### MENTAD FIBER LASER PRODUCT FAMILY

Maximum Average Output Power	Part number
1.2 W	MLT-PL-R-OEM15-x-y-z-i-m-b-t-c-a-g
2.5 W	MLT-PL-p-OEM20-x-y-z-i-m-b-t-c-a-g

p: polarization; R = random / P = linear  
x: pulse duration in ns

y: pulse repetition frequency in kHz  
z: energy in  $\mu\text{J}$

### Available options codification:

Symbol	Description	0	1	2
i	output isolator	not installed	installed	NA
m	output monitor	not installed	installed	NA
b	burst mode	not installed	installed	NA
t	extended operating temperature range	no	$T_{\text{case}} = -35\text{ }^{\circ}\text{C}$ to $+65\text{ }^{\circ}\text{C}$	NA
c	output termination	FC/APC connector	collimator $\varnothing 2\text{ mm} \pm 0.5\text{ mm}$ BD	NA
a	adjustable pulse width (few ns)	no	yes	NA
g	pulse trigger type	internal	TTL	LVDS

- Other options upon request:
- Cooled seed laser (OEM20 only)
  - Extended warranty
  - Interface board

3SPGroup can also develop custom products to meet a wide range of technical requirements. Please contact your Sales Manager for details.

# MENTAD

# 3SP Group

**1.5  $\mu\text{m}$  Compact Pulsed  
Fiber Laser**



## CONTACT INFORMATION

Europe & Asia: +33 169 805 833  
North America: +1 514 748 4848  
+1 888 922 1044

[sales@3spgroup.com](mailto:sales@3spgroup.com)  
[www.3spgroup.com](http://www.3spgroup.com)

## IMPORTANT NOTICE

Information in this document is typical and must be specifically confirmed in writing by your supplier before it becomes applicable to any order or contract.

Information is subject to change without notice.

## NOTES