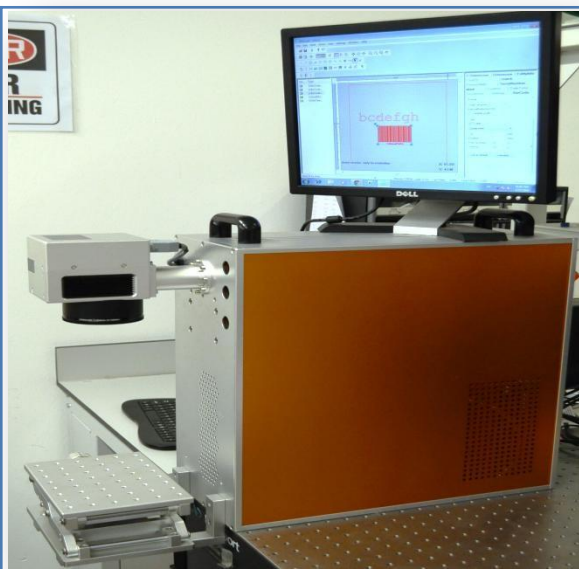


# TFL SOLUTIONS

## Smart Fiber Laser System

**Smart Fiber Laser** ( L-series) is design with integrated cooling and with maintenance free laser system specifically designed for marking and micro-machining applications.. Based on MOPA technology, Smart Fiber Laser is incorporated with rugged mechanical design that allows such system to operate freely in an industrial or harsh outdoor environment. The Smart Fiber Laser system offers a reliable 100,000 hour MTBF without additional water cooling requirements and only a single phase 240 VAC power requirements.

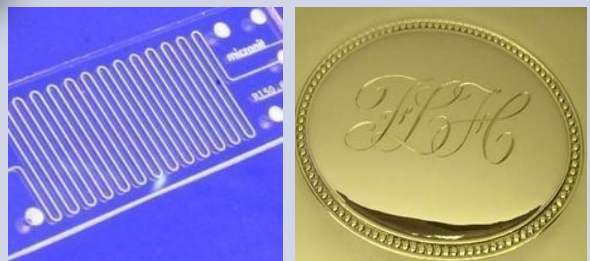


### Features :

- ✓ Same Interface with Q-Switch Fiber Laser
- ✓ Peak power up to 22KW
- ✓ Operation Range from 1KHz\* to 800 KHz
- ✓ Pulse Width Self-reduced when rep rate up
- ✓ Beam Quality  $M^2 < 2$
- ✓ Max. Pulse Energy > 1mJ
- ✓ Peak Power in 200KHz > 10KW
- ✓ 1 years warranty
- ✓ Optimised Peak Power over all Rep Rates
- ✓ Integrated Isolator with Beam Delivery Optics
- ✓ SCSI Hardware and RS-232 Software Control
- ✓ Real time monitoring & Shutdown Protection

### Applications :

- ✓ Metal Marking, Color Marking
- ✓ Black Marking on Anodized Al
- ✓ Ceramic Marking, hole drilling
- ✓ Poly-compounds Marking
- ✓ IC Marking
- ✓ Ceramic Scribing and Cutting
- ✓ Mono silicon, Poly silicon Processing
- ✓ Resistor Trimming
- ✓ Solar Cell Scribing
- ✓ ITO Film removal
- ✓ Hole drilling



\*Single Shot and pulses on demand available

# TFL SOLUTIONS

## Product Specification :

Product Name	20W Smart	30W Smart	50W Smart *
Product Code	IFL-20P-LM-L-1	IFL-30P-LM-L-1	IFL-50P-LM-L-1
Average Power	20W	30W	50W
Central Wavelength	1060 ± 5 nm	1060 ± 5 nm	1060 ± 5 nm
Pulse Duration	15ns-350ns	15ns-350ns	15ns-350ns
Max Peak Power	20KW	22KW	22KW
Full Power of Rep rate	21 - 800kHz	32 - 800kHz	50 - 800kHz
Output Power Stability	5%	5%	5%
Max Pulse Energy	1mJ	1mJ	1mJ
Beam size	5– 8mm	5 – 8mm	5 – 8mm
M <sup>2</sup>	≤ 2	≤ 2	≤ 2
Polarization	Random	Random	Random
Length of cable	2 m	2 m	2 m
Weight of Module	< 6kg	< 6kg	< 6kg
Dimension of Module	360 x 210 x 100 mm	361 x 210 x 100 mm	362 x 210 x 100 mm
Operation Temp.	5°C - +55°C	5°C - +55°C	5°C - +55°C
Storage Temp.	−10°C - + 70°C	−10°C - + 70°C	−10°C - + 70°C

## Product Order Code :

Co., Code	Average Power Code	Beam Quality Code	Pulse Feature Code	Wavelength Code	BET Code
IFL	15P	SM	N	1	A
	20P	LM	S	2	B
	30P	HM	P	3	C
	40P		C	4	D
	500C		L		E
Notes	15P-15W Pulse	SM-Single Mode	N- Pulse, 4ns-350ns,	1-1060nm	A- Without BET
	20P-20W Pulse	LM-Low Mode	S-Short Pulse, 1.5ns-10ns	2-1550nm	B- 3 X BET
	30P-30W Pulse	HM-Multi-Mode	P-ps Pulse, 700ps-10ns	3-532nm	C- 5X BET
	500C-500W CW		C-CW/Modulation	4-2000nm	D- 7X BET
			L-Smart ns Pulse		E- 9X BET
Example	Product Code	Description			
1	IFL-20P-LM-N-1-D	20W Pulse (1060nm), low mode , M2<2, Pulse Width 4ns-350ns, With 7X BET			
2	IFL-20P-SM-S-1-B	20W Pulse (1060nm) ,Single Mode, M2<1.3, Pulse Width 1.5ns-10ns, With 3X BET			