PRODUCT SPECIFICATIONS

Optical Laser Engine
OLE_D 500W and 1000W
Rev. 01

1080nm fiber laser engine

Product code selector - Available options

O	L	E	_	_	D	_	_	_	_	_	_

Power and pump input ports options. See section 1.0

Termination options. See section 5.0

Cooling plate option. See section 2.0

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PRODUCT SPECIFICATIONS
Optical Laser Engine
500W and 1000W

1.0 Optical and Operation Specifications

Item	Specifications	Min.	Typ.	Max.	Unit	Notes
1.1	Laser wavelength	1075	1080	1085	nm	At $T=T_N$
1.2	Laser linewidth	1.0			nm	At full power
1.3	Pump wavelength	908	915	928	nm	At $T=T_N$, CW regime
1.4	Polarization	Random				
1.5	Operation regime	CW				
1.6	Warm-up time			30	min	Within 2% after 1min
1.7	Optical power stability			±1	%	At constant T and $P=P_{max}$ over 1h

Power and input ports options

1.8	OLE _ _ D **0** _ _ _ _ _	**500 W class laser engine**				
	Output power (P_{Max})[1]	500		550	W	At $T=T_N$, CW
	Optical-Optical Efficiency[1]	73	75		%	BOL. At $T=T_N$, CW
	OLE **X** **X** D 0 _ _ _ _ _	**Number of pump input ports** (standard : 06)				

[1] At rated power output. Tested using Lumentum (JDSU) ST Series pump diodes.

1.9	OLE _ _ D **1** _ _ _ _ _	**1000 W class laser engine**				
	Output power (P_{Max})[1]	1000		1100	W	At $T=T_N$, CW
	Optical-Optical Efficiency[1]	73	75		%	BOL. At $T=T_N$, CW
	OLE **X** **X** D 1 _ _ _ _ _	**Number of pump input ports** (standard : 12)				

[1] At rated power output. Tested using Lumentum (JDSU) ST Series pump diodes.

1.10	OLE _ _ D _ _ _ _ **A** _	**Pump input ports**: 106.5/125 um NA=0.22[2]				
	Maximum power per pump port			150	W	Do not exceed maximum output power (1.08)

[2] Designed to be used at NA=0.17 (95% of energy within NA=0.15)

1.11	OLE _ _ D _ _ _ _ **D** _	**Pump input ports**: 135/155 um NA=0.22[2]				
	Maximum power per pump port			190	W	Do not exceed maximum output power (1.08)

[2] Designed to be used at NA=0.17 (95% of energy within NA=0.15)

1.12	Pump input pigtails length	1.5			m	

2.0 Environemental specifications

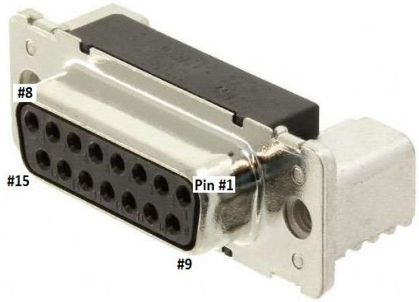
Item	Specifications		Min.	Typ.	Max.	Unit	Notes
2.1	Nominal operating temperature (T_N)			+20		°C	Case temperature
2.2	Operating temperature range		+15		+25	°C	Case temperature
2.3	Storage temperature		-40		+75	°C	Case temperature
2.4	Relative humidity				80	%	Non condensing
2.5	Cooling Method		conduction via bottom surface				
2.6	Case temperature monitoring		Via installed thermistors				See electrical pinout, Calibration recommended
2.7	Cooling plate	Included	O L E _ _ D _ _ _ **1** _ _				
		Not included	O L E _ _ D _ _ _ **0** _ _				

See 6.4 for cooling plate mechanical drawing

3.0 Visible pilot/aiming beam

Item						
3.1	Red tracker beam output power	200		1000	uW	Operated by control electronics

4.0 Electrical specifications

Item	Specifications					Type	Notes
4.1	Communication interface					DB-15 connector	See drawing
4.2	**Communication interface Pin assignment**						
	PIN		Name	Direction	Type	Description	
	1		Pout	OUT	Analog 0 to 5V	Output Power Monitor	
		9	GND	-			
	2		Pback	OUT	Analog 0 to 5V	Back Reflection Power Monitor	
		10	GND	-			
	3		Temperature	OUT	Analog 0 to 5V	Temperature monitor	
		11	Alarm	OUT	Logic 0 or 5V	Alarm signal. Active low	
	4		Pilot enable	IN	Logic 0 or 5V	Enable red laser pilot	
		12	TDB (+)	OUT	Differential	RS485-Tx+	
	5		TDA (-)	OUT	Differential	RS485-Tx-	
		13	RDA (-)	IN	Differential	RS485-Rx-	
	6		RDB (+)	IN	Differential	RS485-Rx+	
		14	GND	-			
	7		V+	-		Power supply 5V	
		15	Intrlck A	-		QHB Interlock A (if option)	
	8		Intrlck B	-		QHB Interlock B (if option)	
4.3	Pin Diagram						

5.0 Delivery fiber and termination options

Item	Specifications	Min.	Typ.	Max.	Unit	Notes
5.1	Default delivery fiber type	20/400 NA=0.06/0.46				
5.2	Delivery fiber jacket	Armored cable				
5.3	Delivery fiber bend radius			80	mm	

Option : **Bare Fiber Output**						
5.4	OLE _ _ D _ **0 1** _ _ **C**	Delivery fiber: **20/400 um NA=0.06/0.46**				
	Beam quality[1]			1.2	M^2	
	Delivery fiber length	3		3.5	m	
	Note	Do NOT operate without proper high power termination (QBH cable, for example)				

[1] Tested using a 20/400um QBH Cable

Option : **QBH Cable Output**		
5.5	Description	Water cooled beam delivery cable

5.6	OLE _ _ D _ **3** _ _ _ **E**	Delivery fiber: **20/400 um NA=0.06/0.46**				
	Beam quality			1.2	M^2	
	Delivery fiber length	4.5	5	5.5	m	Case to termination

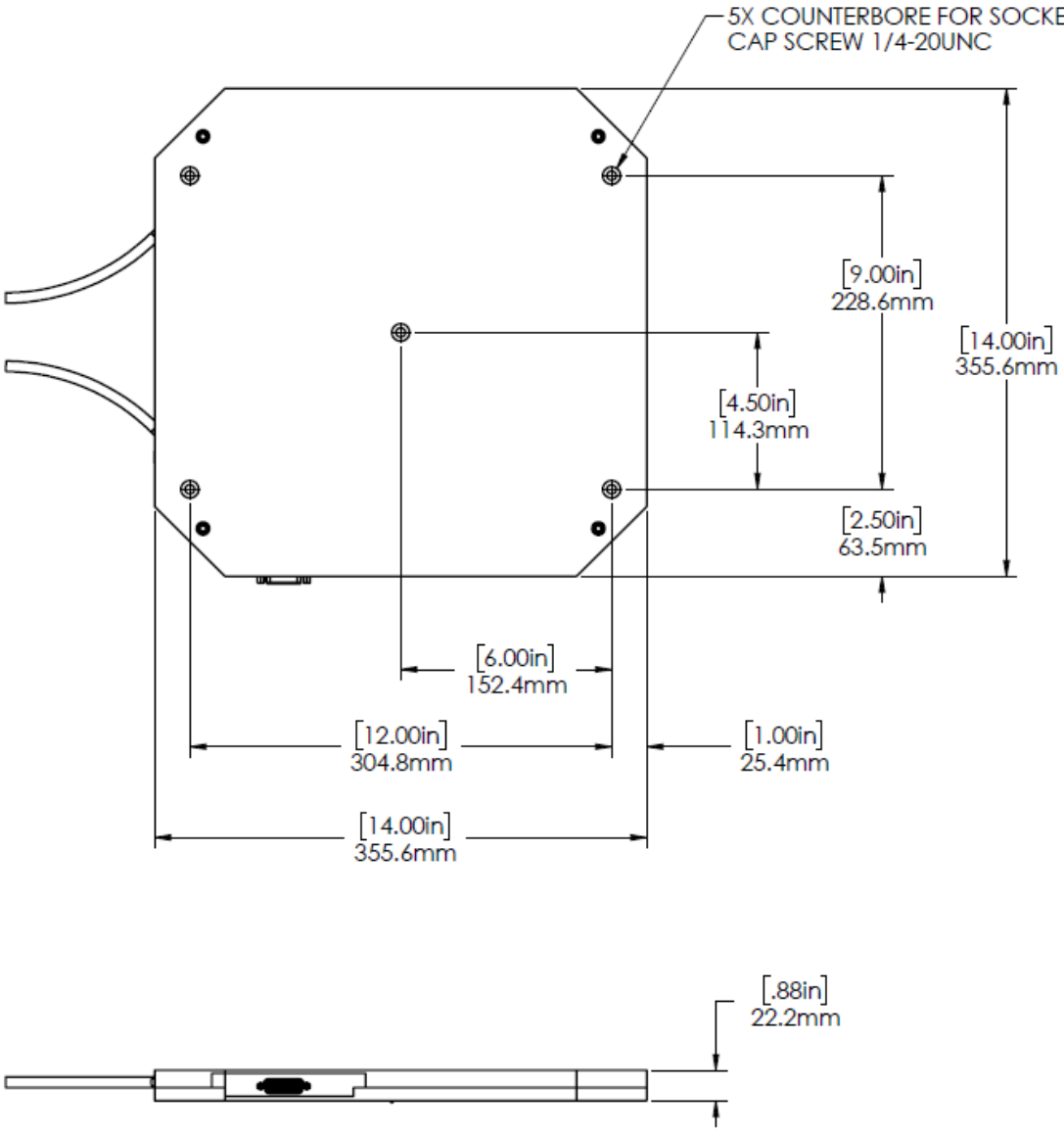
5.7	OLE _ _ D _ **4** _ _ _ **G**	Delivery fiber: **50/360 um NA=0.22/0.46**				
	Beam quality		1.3		BPP	Typical value
	Delivery fiber length (default value)		15		m	Customizable

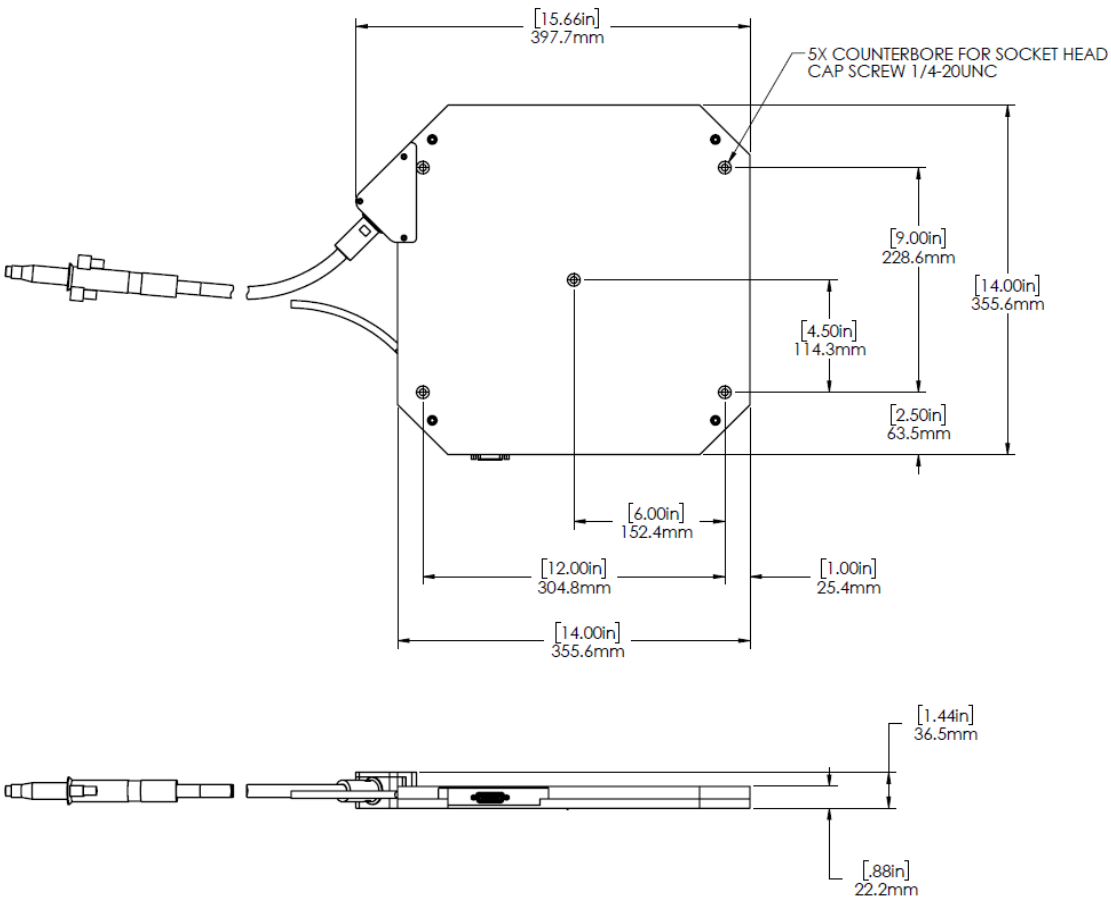
5.8	OLE _ _ D _ **5** _ _ _ **G**	Delivery fiber: **100/360 um NA=0.22/0.46**				
	Beam quality		2.5		BPP	Typical value
	Delivery fiber length (default value)		15		m	Customizable

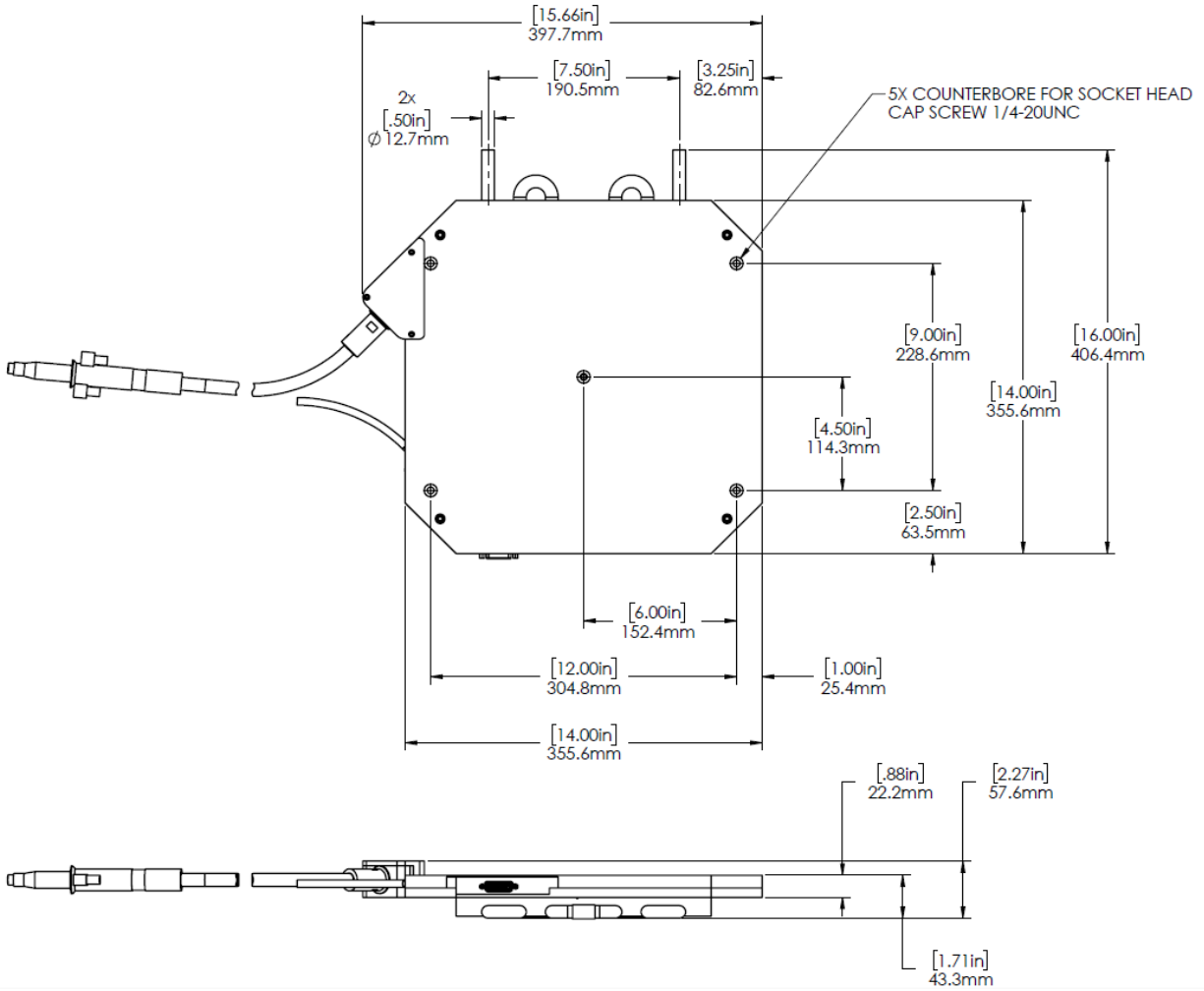
QBH Cable Supplier		
5.9	OLE _ _ D _ _ **A** _ _ _	Optoskand Ab, Sweden
	OLE _ _ D _ _ **B** _ _ _	Optizone Technology Limited, China
	OLE _ _ D _ _ **C** _ _ _	Aistana Inc., USA

6.0 Mechanical specifications and drawings

Item	Specifications		Unit	Notes
6.1	Module's dimensions	356 x 356 x 22	mm	see drawing
6.2	Mechanical Drawing - With bare fiber output			Dimensions in mm



	Mechanical Drawing - With QBH Cable	Dimensions in in
6.3		

	Mechanical Drawing - With Cooling Plate and QBH Cable	Dimensions in mm
6.4		

7.0 Product Data Report - supplied with every unit

Item	Data		
7.1	**Optical-Optical Efficiency**		
7.2	**Beam quality**	M^2	For Bare fiber or 20/400 um QBH output options
		BPP	For 50/360 um or 100/360 um QBH output options

8.0 Additional features

Item	Note
8.1	The Laser Engine is protected against backreflected signal during operation. Do not operate without proper high power termination (QBH cable, for example)
8.2	The output beam of multiple Laser Engines can be combined. Laser beam combiners are currently being developed by ITF, contact us for more details.
8.3	Pump diodes electrical drivers not included.

Note: See Operation Insctructions documents for more details and features

9.0 Safety and specific precautions

Item	Note
9.1	This laser engine is a laser component that does not include all safety features as required by IEC-60825-1:2007-03 2nd edition sections 4.3 to 4.12 for laser systems, as defined by section 3.48. The end product manufacturer has the responsibility to provide the necessary features to meet compliance level as required by relevant national regulations.
9.2	For your safety, never open the protective housing (case). Warranty is void if case is opened.
9.3	The module's case temperature must be maintained within the range specified in the environmental specifications section at all times. Its entire bottom surface MUST be appropriately heat sinked and its case temperature can be monitored using the built-in thermistors. A room temperature, power off, calibration is recommended. See OLE Aplication Note for more details.
9.4	To avoid irreversible damage and loss of power, fiber terminaisons (connectors, collimators...) must remain perfectly clean and scratch free.
9.5	The laser engine module case is not ESD or EMI sensitve.

Rev.#	Date	Ref. (#DC)	Change Description	Approved by
00	11-10-2017	n/a	Document created - Equivalent to OLE_Y 500-1000W Rev.04	JR
01	24-10-2017	n/a	Update mechanical drawings Corrected electrical pinout Added red tracker power values	JR