




**PRODUCT SPECIFICATIONS**  
7x1 Fiber Beam Combiner  
FLC07YCBA10A2 Rev. 04

7x1 High-Power 1um Fiber Beam Combiner

**Product code**

F	L	C	0	7	Y	C	B	A	1	0	A	2
---	---	---	---	---	---	---	---	---	---	---	---	---

-  Input Ports and Power Handling - See section 1.0
-  Output Port and Termination - See section 2.0
-  Cooling Plate Option - See section 3.0

400 Montpellier Blvd, Montreal, QC, Canada, H4N 2G7  
Tel: +1 (514)-748-4848 --- Fax: +1 (514)-744-2080  
[www.itftechnologies.com](http://www.itftechnologies.com)  
[info@itftechnologies.com](mailto:info@itftechnologies.com)

**1.0 Optical, Power and Input Ports Specifications**

Item	Specifications	Min.	Typ.	Max.	Unit	Notes
1.01	Input beam wavelength	1040		1080	nm	
1.02	Operation regime	CW				
1.03	Input beam $M^2$ *		1.2	1.4	-	Never operate if $M^2 > 1.4$ at any input power
1.04	Output BPP (Average)	2.5		5	mm mrad	For input $M^2 \approx 1.2$

**\*Technical note:**  $M^2=1.2$  or better inputs are expected to achieve good output beam quality. This represents inputs where >97% of the power is in the single mode ( $LP_{01}$ ) regime. If the input  $M^2$  increases, so does the output BPP

	FLC	0	7	Y	C	B	A	1	0	A	2	7 x 2 kW class beam combiner				
1.05	Input power handling per port													2050	W	
1.06	Total optical loss													0.05	dB	
1.07	FLC	0	7	Y	C	B	A	1	0	A	2	Input ports : 25/400 um NA=0.06/0.46				
1.08	Input pigtails length											1.5			m	Free fiber in splice tray

**2.0 Output fiber and termination options**

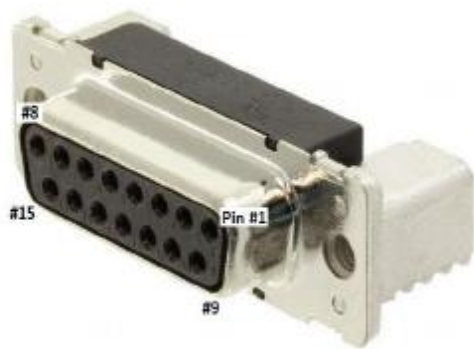
Option: <b>Bare Fiber Output with Armored Cable protection</b>																
Item	Specifications											Min.	Typ.	Max.	Unit	Notes
2.2	Armored Cable Length (customizable)											2		2.5	m	
	FLC	0	7	Y	C	B	A	1	0	A	2	<b>Delivery fiber:</b> 100/360 um NA=0.22/0.46				
	Notes											Do NOT operate without proper high power termination (QBH cable, for example)				
											Output Fiber Length > Armored cable length + 1.5m					

**3.0 Environmental specifications**

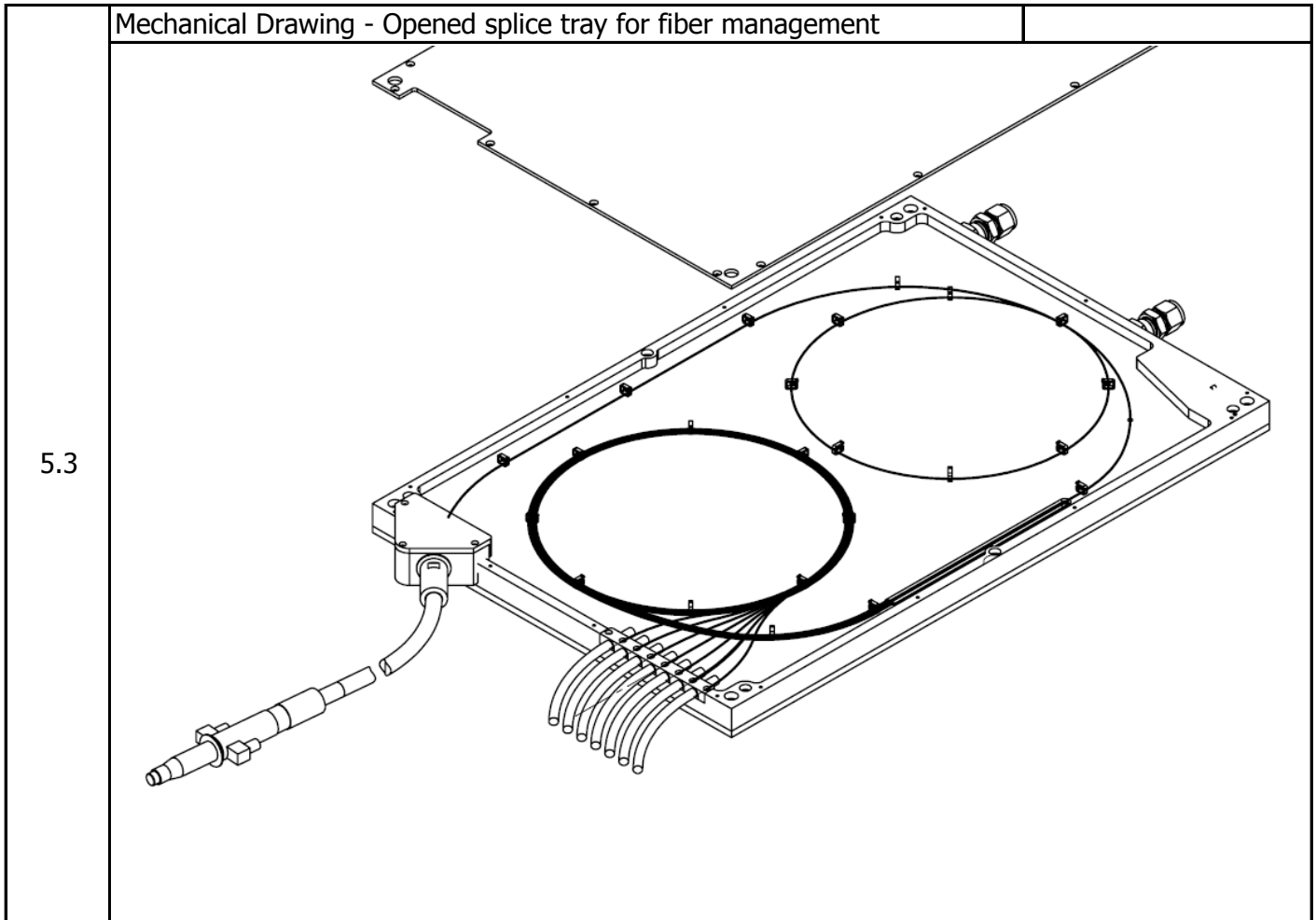
Item	Specifications	Min.	Typ.	Max.	Unit	Notes
3.1	Nominal operating temperature ( $T_N$ )		+20		°C	Case temperature
3.2	Operating temperature range	+15		+25	°C	Case temperature
3.3	Storage temperature <sup>1</sup>	-40		+75	°C	Case temperature
3.4	Relative humidity			80	%	Non condensing
3.5	Cooling Method	conduction via bottom surface				
3.6	Case temperature monitoring	Via internal sensors				See electrical specifications
3.7	<b>FLC 0 7 Y C B A 1 0 A 2</b>	No cooling plate				See mechanical drawing

<sup>1</sup>**Note:** Specification for Beam Combiner Module only. For QBH cable storage temperature, refer to the cable supplier specification. For reference, Optoskand QBH cable specification is -10°C to +70°C

**4.0 Electrical specifications**

Item	Specifications	Type	Notes
4.1	Communication interface	DB-15 connector	
<b>Communication interface command Codes</b>			
	Description		Note
4.2	Probe temperature sensor 1		See Operation Instructions documents for more details
	Probe temperature sensor 2		
	Probe temperature sensor 3		
	Probe temperature sensor 4		
	Probe temperature sensor 5		
	Power monitoring		
	Backreflection monitoring		
4.3	Pin assignment		





## 6.0 Product Data Report - supplied with every unit

Item	Data
6.1	Input ports signal insertion loss
6.2	Output BPP (Beam Parameter Product): Average and individual input ports

## 7.0 Safety and specific precautions

Item	Note
7.1	This beam combiner is a passive laser system component that does not include all safety features as required by IEC-60825-1:2007-03 2 <sup>nd</sup> 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.
7.2	For your safety, never open the protective housing (case). Warranty is void if case is opened.
7.3	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.
7.4	To avoid irreversible damage and loss of power, fiber terminations (connectors, collimators...) must remain perfectly clean and scratch free.
7.5	The beam combiner module case is not ESD or EMI sensitive.

## Revision history

Rev.#	Date	Ref. (#DC)	Change Description	Approved by
00	14-11-2017	n/a	Document created	JR
01	28-06-2018	n/a	Added Bare Fiber + Armored Cable output option	MA
02	10-08-2018	n/a	Added power monitoring features in section 4.0	MA
03	27-02-19	n/a	Added minimum BPP value Revised input M <sup>2</sup> requirements	MA
04	14-05-19	n/a	Modified BPP spec from 3.5 minimum to 2.5 minimum average	MA

Specifications subject to change without notice

May 05, 2019

Made in Canada

400 Montpelier Blvd, Montreal, QC, Canada, H4N 2G7, 1+(514) 748-4848

www.itftechnologies.com

ISO 9001:2015