



Micro-ICR Control board

PPEB076 - Datasheet

The **Pure Photonics** PPEB076 solution provides the control signals to drive and adjust an OIF MSA micro-ICR.

The control board has amplifier drivers, photodiode sensors (with variable sensitivity), setting of several analog and digital signals and detection of several analog signals.

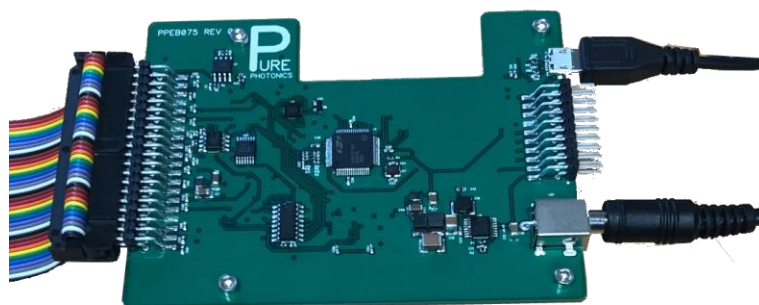
The PPEB076 is a replacement of the legacy Lumentum motherboard (1000033134) and connects to the daughterboards 1000035397 and 1000033129 (micro-ICR daughterboards). It also works with the Pure Photonics PPEB086 RF board.

The Pure photonics GUI works with the PPEB076 for easy access to all functionality. The device can also be controlled with standard serial communication.

This document differentiates between rev2 and rev3 boards, which are focused on covering earlier form-factor micro-ICRs and rev4 boards which are tailored to class 40 micro-ICR and beyond. Where applicable that distinction is made.

The product comes with a power supply (wall-plug), USB cable and 40-pin IDC cable.

Snapshot
Control board for micro-ICR
Class 20 and 40 capable
Works with existing RF boards



Please refer to our 'Application note PPEB076 v2.pdf' for operating instructions

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2. Specifications

Absolute Maximum Ratings

In Table 1 the absolute maximum ratings for the product are listed. These settings are never to be exceeded and may result in critical damage to the product if applied.

Parameter	Unit	Min	Max
Operating temperature	°C	10	40
Storage temperature	°C	5	45
Humidity	%DH	5	60
Input Voltage	V	10	25
Output connector sens pins	V	0	3.5

Table 1: Absolute maximum ratings

Performance Specifications

In Table 2 the more general performance specifications of the product are listed

Parameter	Unit	Min	Typ	Max
Current (12V, amplifiers off)	A		0.05	0.1
Amplifiers				
Voltage OFF	V			0.1
Voltage ON	V	3.0		3.3
Current	mA			300
Power dissipation per amplifier	W			1.0
Digital outputs (MGCAGC, Shutdown)				
Voltage	V	0		3.3
Voltage low	V	0		0.7
Voltage High	V	2.5		3.3
Analog outputs (Gain, Outputadjust)				
Voltage	V	0		3.3
Accuracy	V	-0.1		0.1
Analog inputs (PeakV)				
Voltage error	V	-0.05		0.05
VOA				
Voltage setting	V	0		5
Voltage error	V	-0.1	0	0.1
Current	mA			60
Photodiodes *1				
Voltage (class 20)	V	3.75		4.25
Voltage (class 40) *1	V	2.8		3.2
Resistance	kOhm	1		100
Current (class 20)	mA	0.01		1
Current (class 40)	mA	0.02		2

*1 specific toggle needs to be set in the firmware / parameter file

Table 2: performance specifications

3. Mechanical Specification

Parameter	Unit	Min	Typ	Max
Connector 40 pin IDC (rev2 and rev3)		Samtec TSM-120-01-T-MT		
Connector 40 pin IDC top (rev4)		Samtec TSM-120-01-S-DV		
Connector 40 pin IDC bottom (rev4)		Samtec SSM-120-L-DV		
Connector 20 pin IDC (rev2 and rev3)		Samtec TSM-110-01-T-MT		
Connector 20 pin IDC (rev4)		Samtec TSM-110-01-S-DV		
DC Power plug		PJ068B (2.5 mm ID / 5.5 mm OD)		
Mounting hole diameter	mm	3.2		

Table 3: mechanical configuration

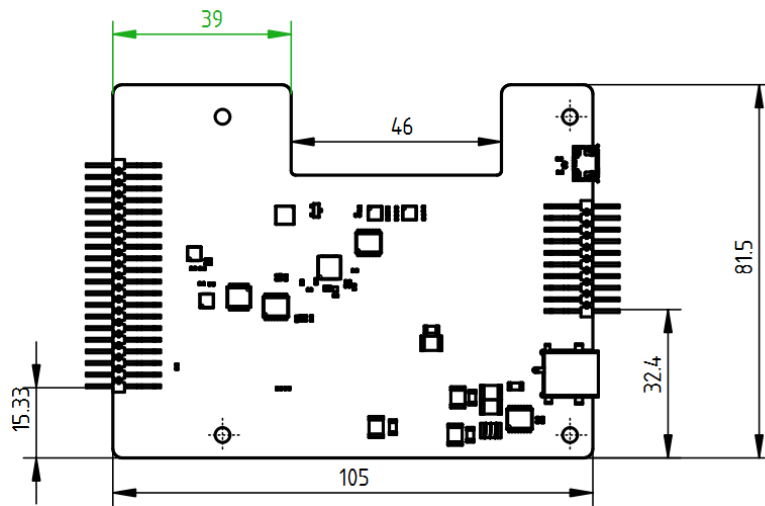


Figure 1: PPEB076 rev 2 and rev 3

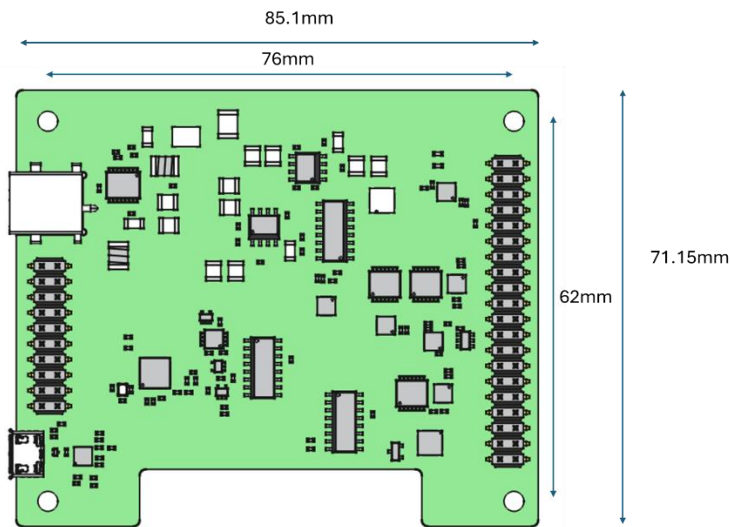


Figure 2: PPEB076 rev 4

4. Pinout

Input connectors

The product has a standard micro-USB interface, as well as a barrelplug power supply. Additional functionality is available to the 20 pin IDC connector.

IDC pin	Function	IDC pin	Function
1	Input voltage *1	2	Input voltage *1
3	GND	4	PD-cathode
5	PD-XI-n	6	PD-XI-p *4
7	PD-XQ-n	8	PD-XQ-p *4
9	PD-YI-n	10	PD-YI-p *4
11	PD-YQ-n	12	PD-YQ-p *4
13	Reset micro	14	GND
15	Do not use	16	USB DP *2
17	USB COM	18	USB DM *2
19	Serial Rx *3	20	Serial TX *3

*1 input voltage needs to be applied at the IDC pins or at the barrel plug power input. They cannot be used at the same time

*2 USB input needs to be at the IDC pins or at the USB connector. They cannot be used at the same time

*3 If using the USB connector, these lines need to be floating. They overrule the USB to serial conversion

*4 not on rev 4 devices

Table 4: 20 pin IDC input connector

Output connector

IDC connector

IDC pin	Typ. function	IDC pin	Typ. function
1	Peak YQ	2	NC / peaking rev4
3	Output Adjust YQ	4	Gain YQ
5	VOA2	6	MGCAGC Y
7	Vamp YQ	8	GND
9	PD YQ p	10	PD YQ n
11	PD YI p	12	PD YI n
13	Vamp YI	14	GND
15	PD Cathode	16	PD Anode
17	Gain YI	18	Output Adjust YI
19	Shutdown Y	20	Peak YI
21	Peak XQ	22	Not connected
23	Output Adjust XQ	24	Gain XQ
25	MGCAGC_X	26	VOA1
27	GND	28	Vamp XQ
29	PD XQ p	30	PD XQ n
31	PD XI p	32	PD XI n
33	Vamp XI	34	GND
35	NC/ peaking rev4	36	Not connected
37	Gain XI	38	Output Adjust XI
39	Shutdown X	40	Peak XI

Table 5: 40 pin IDC output connector


On rev4 boards the above pinout is on the top of the device. The 40-pin connector on the bottom is mirrored and intended to be plugged onto the RF board. If you are connecting the PPEB076 rev4 with a ribbon cable to the RF board, plug the ribbon cable on the top (male) connector.

5. Compliance

European Union RoHS Compliance

This product complies with the European Union directive for Restrictions of Hazardous Substances (RoHS) – Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, Directive 2002/95/EC plus all amendments.

Hazardous Substance Statement (China RoHS)

部件名称 (Parts)	有毒有害物质或元素 (Hazardous Substance)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
集成光电器件 Integrated optical circuit board assembly	×	○	○	○	○	○
金属盒件 Metal enclosure	○	○	○	○	○	○
<p>○ : 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006标准规定的限量要求以下。</p> <p>○ : Indicates that this hazardous substance contained in all homogeneous materials of this part is below the limit requirement in SJ/T 11363-2006.</p> <p>× : 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006标准规定的限量要求。</p> <p>× : Indicates that this hazardous substance contained in at least one of the homogeneous materials of this part is above the limit requirement in SJ/T 11363-2006.</p> <p>对销售之日的所售产品, 本表显示我公司供应链的电子信息产品可能包含这些物质。注意: 在所售产品中可能会也可能不会含有所有列出的部件。</p> <p>This table shows where these substances may be found in the supply chain of our electronic information products, as of the date of sale of the enclosed product. Note that some of the component types listed above may or may not be a part of the enclosed product.</p>						
<div>  <p>除非另外特别的标注, 此标志为针对所涉及产品的环保使用期限标志。此环保使用期限只适用于产品在产品手册中所规定的条件下工作。</p> <p>The Environment-Friendly Use Period (EFUP) for all enclosed products and their parts are per the symbol shown here, unless otherwise marked. The Environment-Friendly Use Period is valid only when the product is operated under the conditions defined in the product manual.</p> </div>						

6. Ordering and Technical Support

Please contact the **Pure Photonics** team for further information and support, as well as quotations.

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