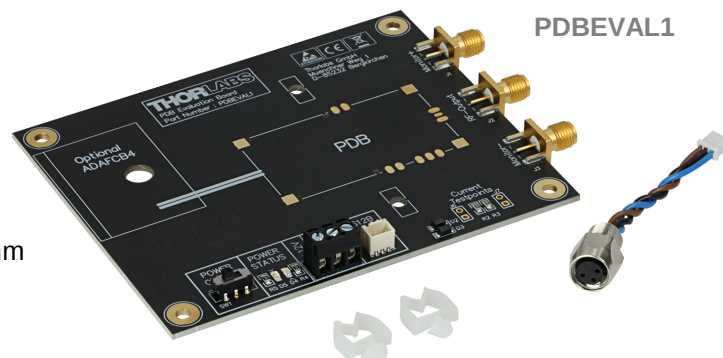


PDBEVAL1: Evaluation Board for PDB77xC or PDB78xCAC

FEATURES

- PCB Evaluation Board to Mount and Run the PDB77xC or PDB78xCAC Balanced Detector
- SMA Connectors for Signal Output
- RKM3 Connector Cable to Connect Power Supply LDS12B (Not Included)
- Alternative Screw Terminal Block for Flexible Power Connection
- Small Layout: 112.6 mm x 80.0 mm x 13.6 mm (4.43" x 3.15" x 0.53")



DESCRIPTION OF MODEL

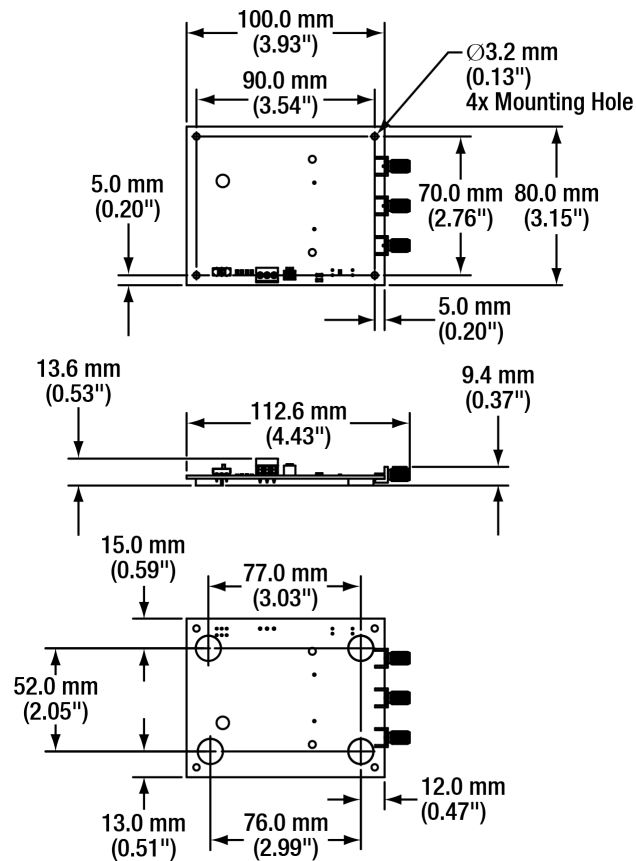
The PDBEVAL1 is an evaluation board specifically designed to allow ready evaluation and use of PDB77xC and PDB78xCAC balanced detectors. The PDBEVAL1 allows the user to mount and solder a PDB77xC or PDB78xCAC balanced detector in place. A power supply can then be connected to the PDBEVAL1 and output connections can be made via SMA connectors provided on the PDBEVAL1. An additional fiber bracket [ADAF4B4](#) to mount FC/APC connectors of the PDB77xC or PDB78xCAC is available separately. Please observe all standard [ESD-safe practices](#) including discharging any cables before they are attached.

- **PDBEVAL1** Evaluation Board to mount and run PDB77xC or PDB78xCAC balanced detectors. Includes SMA Connectors for Output Signal, Connector Cable (RKM3) for Power Supply [LDS12B](#) (not included) and Plastic Clamps for Fiber Mounting.

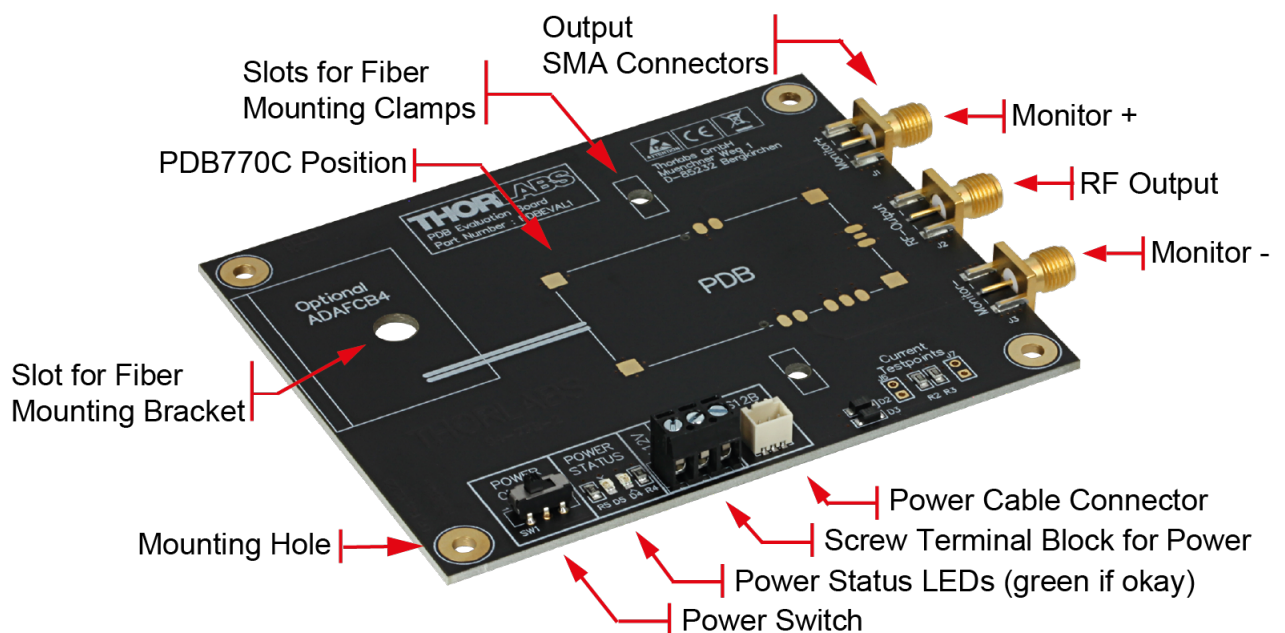
SPECIFICATIONS

Parameter	
Mounting Holes (4x):	3.2 mm Diameter for 3 mm Screws
Power Supply Voltage:	$\pm (12 \text{ V} \pm 10\%)$
Power Supply Current:	$\pm 50 \text{ mA}$ (Typ.), $\pm 200 \text{ mA}$ (Max) (Dependent on Used PDB Module)
RF Connectors:	SMA up to 5 GHz
RF Output Voltage Swing:	Dependent on Used PDB Module, $\pm 4 \text{ V}$ (Max)
Monitor Voltage Swing:	Dependent on Used PDB Module, $\pm 10 \text{ V}$ (Max)
Operating Temperature:	0 to 40 °C
Storage Temperature:	- 40 to 70 °C
Dimensions (W x H x D)	112.6 mm x 80.0 mm x 13.6 mm (4.43" x 3.15" x 0.53")
Weight	37 g

MECHANICAL DRAWING



OPERATING ELEMENTS



OPERATING GUIDE

The PDBEVAL1 is an evaluation board designed to mount and run the PDB77xC or PDB78xCAC balanced detectors. Please follow the instructions below and obey the instructions given in the Data Sheet for PDB77xC or PDB78xCAC.

Mounting and Soldering of PDB77xC or PDB78xCAC Detector

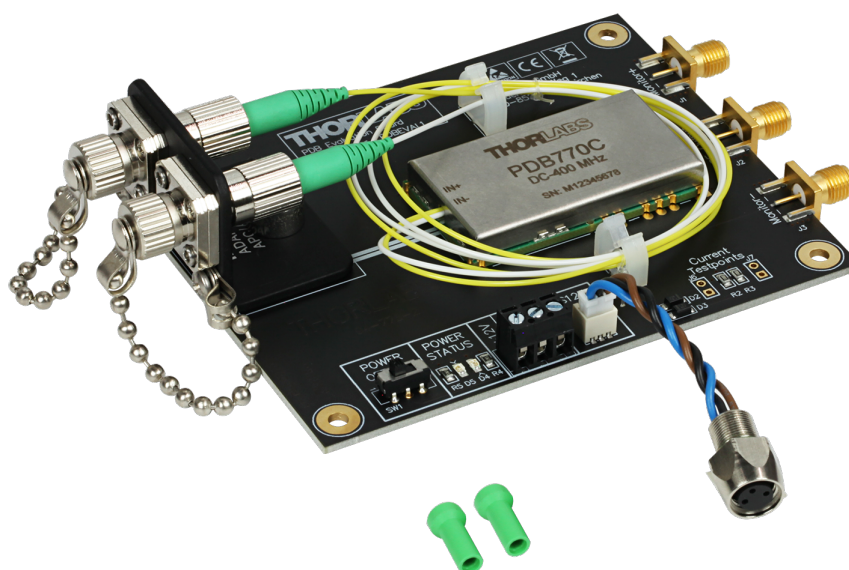
Follow the steps below to mount and solder a PDB77xC or PDB78xCAC detector to the evaluation board.

1. Insert the two mounting pins of the PDB77xC or PDB78xCAC into the two holes near the center of the PDBEVAL1. This will align the PDB77xC or PDB78xCAC half-vias with the corresponding contacts on the PDBEVAL1.
2. Add enough flux to the first contact to completely coat the gold half-via and the contact surface on the evaluation board.
3. Using an appropriately sized chisel-shaped soldering tip, add a small ball of solder to the tip of the iron and then apply the iron to the half-via.
4. Ensure the flux activates and the solder wets to both surfaces. The result should be a continuous fillet of shiny solder that bridges both gold surfaces.
5. Allow for cooling before moving to the next contact.
6. Repeat steps 2 through 4 for each of the 18 contacts.
7. Optionally, the [ADAFCB4](#) fiber bracket can be mounted on the PDBEVAL1 to secure FC/APC connectors on the PDBEVAL1.

Attention

Soldering of the half-vias needs to be done cleanly and quickly. To avoid damaging the internal opto-electronic components, do not exceed 10 seconds of soldering time at 250 °C for each contact. All soldering must be done by hand; a reflow oven will damage the device.

The resulting mounted PDB77xC or PDB78xCAC on PDBEVAL1 including the ADAFCB4 fiber bracket would look as shown below:



Operational Sequence

Follow the steps below to operate a PDB77xC or PDB78xCAC detector with the PDBEVAL1 evaluation board.

1. Mount and solder the PDB77xC or PDB78xCAC to the PDBEVAL1. Two provided plastic clamps can be used to fasten the optical fibers (see picture above).
2. Optional: Mount the FC/APC fiber bracket on the PDBEVAL1 for stable connection of optical input into the FC/APC connectors of the PDB77xC or PDB78xCAC.
3. Place the assembled evaluation board with the PDB77xC or PDB78xCAC on an ESD safe surface (e.g. dissipative bench top).
4. Connect optical input to FC/APC connectors of the PDB77xC or PDB78xCAC.
5. Attach the output SMA connectors to your measurement equipment with 50 Ω termination.
6. Attach a power supply.
 - a. Use the provided cable with RKM3 connector to connect a Thorlabs [LDS12B](#) power supply to the PDBEVAL1.
 - b. Alternatively, attach a power supply of choice in accordance with the below specifications for PDBEVAL1 and PDB77xC or PDB78xCAC to the Screw Terminal Block. The ground lead should be attached first, followed by both positive (+5 V) and negative (-5 V) bias voltages.
7. Two status LEDs next to the connector show green light when the power is connected correctly. The two status LEDs refer to the + and - poles respectively. The LEDs are off when the power is not correctly connected.
8. The power supply current can be monitored at the test points J6 (for +12V) and J7 (for -12V). The internal impedance at the test points equals 1 Ω .
9. Turn on the PDBEVAL1 and PDB77xC or PDB78xCAC using the switch next to the status LEDs. The status LEDs for power should show green light when power is supplied correctly.
10. Apply the optical signal using high quality connectors and adapters. Precise optical alignment of fiber cores is essential.

Note The RF-Output is negative when the optical Input+ is connected and positive, when the optical Input- is connected.
11. The PDB77xC or PDB78xCAC and PDBEVAL1 are now operational.
12. Power down the device by following the above steps in reverse order.

Additional Considerations

- Observe all the operating specifications as presented in the PDB77xC or PDB78xCAC Data Sheet.
- Use stable, noise-free power supplies within the specifications listed in the PDB77xC or PDB78xCAC Data Sheet.
- Always observe ESD-safe practices.

PRECAUTIONS

Attention

To avoid damage to the instrument, do not expose it to spray, liquids or solvents!

Attention ESD-Warning:

Follow the common recommendations for handling of electrostatic sensitive devices (ESD) as described in the ESD-standard: IEC/TR 61340-5-2 when installing, handling and using this PDB7xx product. Exposure of an ESD to electrostatic discharge may result in damage to the device.

Recommendations for ESD precautions:

Static electricity occurs in our everyday environment, for example when walking along a carpeted floor in a heated room during winter. While the sudden discharge of static electricity does not harm the human body, it can result in damage to electronic devices which are sensitive to electrostatic discharge (ESD). Examples of precautions to avoid static electricity are:

1. Handle ESD devices at static-safe workstations.
2. Wear anti static wrist-straps.
3. Avoid bringing sources of static electricity like plastic bags, blowers or paper within one meter of a static-safe work bench.
4. It is highly recommended for each user to wear antistatic shoes.
5. ESD devices should be contained in a static protective bag or container at all times during storage or transportation.



MANUFACTURING AND COMPLIANCE

Manufactured by: Thorlabs GmbH, Münchner Weg 1, 85232 Bergkirchen, Germany

All specifications are subject to change without notice.

