

Getting Started with the PEM-400



This document provides basic information to get started on using Santec's PEM-400 Polarization Extinction Ratio Meter.

For more information, email support.inst@santec.com or visit our website: inst.santec.com

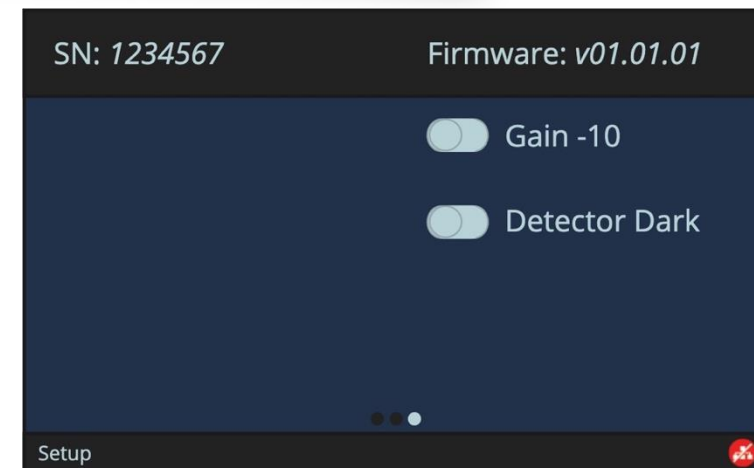


There are two gain ranges on the PEM-400:

- 8 to -30 dBm (Gain -10 disabled)
- -9 to -50 dBm (Gain -10 enabled)

Notes:

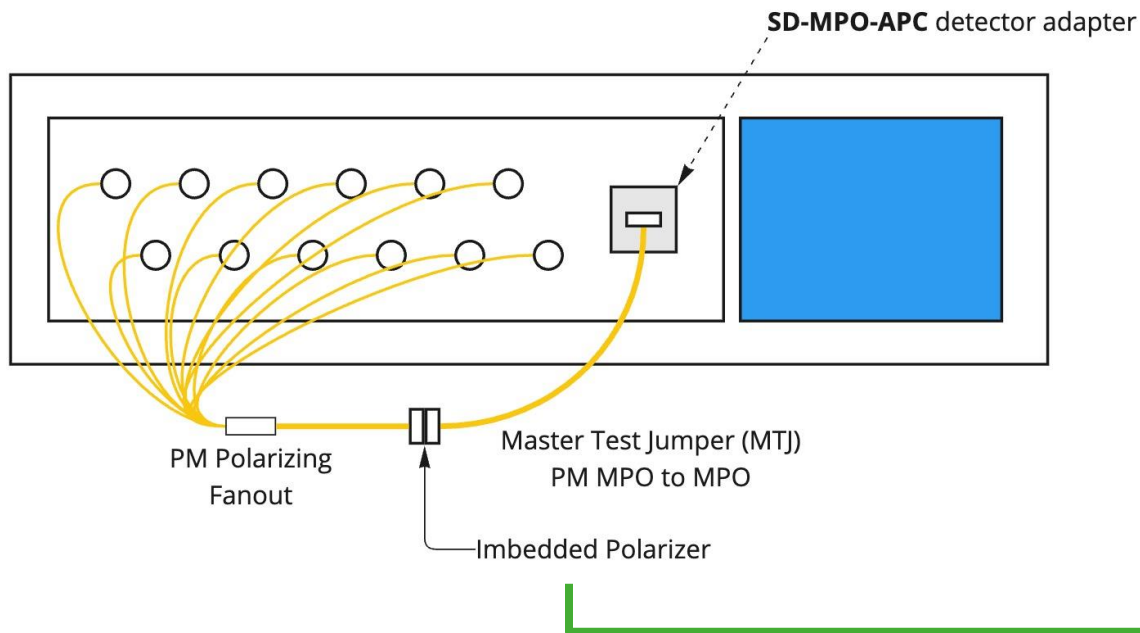
- The PEM-400 boots up in Gain 8 to -30 (Gain -10 disabled)
- It is best to input power at the top of the gain range in order to maximize the accuracy when measuring high PER values
- A SCPI command exists to adjust power the power level `SOURCE:POWER #`
 - # is the percent of full power, download the Santec Terminal software from our website to send direct SCPI commands
 - Typical adjustments should be between 50 and 100
 - The power adjustment is currently not sticky, i.e. if you reboot, the unit will go back to 100%
 - A future firmware update will enable auto power and gain adjustments to simplify this process. This can be done remotely without the need to send the unit back.



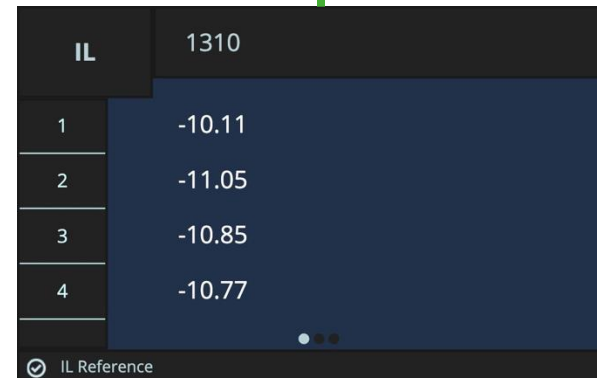
The reference page shows the power in dBm.

- If you are measuring IL, PER and angle, connect your launch cable and perform an IL reference to check which Gain should be enabled.
- Alternatively, if you are measuring only PER and angle, connect your launch cable + DUT and perform an IL reference. Use this power level to determine the correct Gain setting and (optional) adjust the power level by SCPI command

Example:



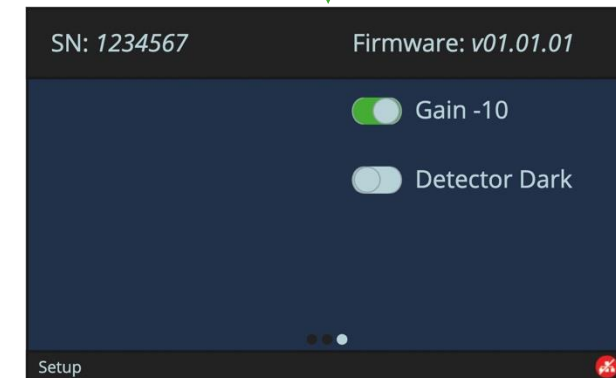
Power level is below -10 dBm → enable Gain -10



The screenshot shows the "IL Reference" measurement screen. It displays a table of power levels for four channels. The power levels are all below -10 dBm, indicating that the Gain -10 setting should be enabled.

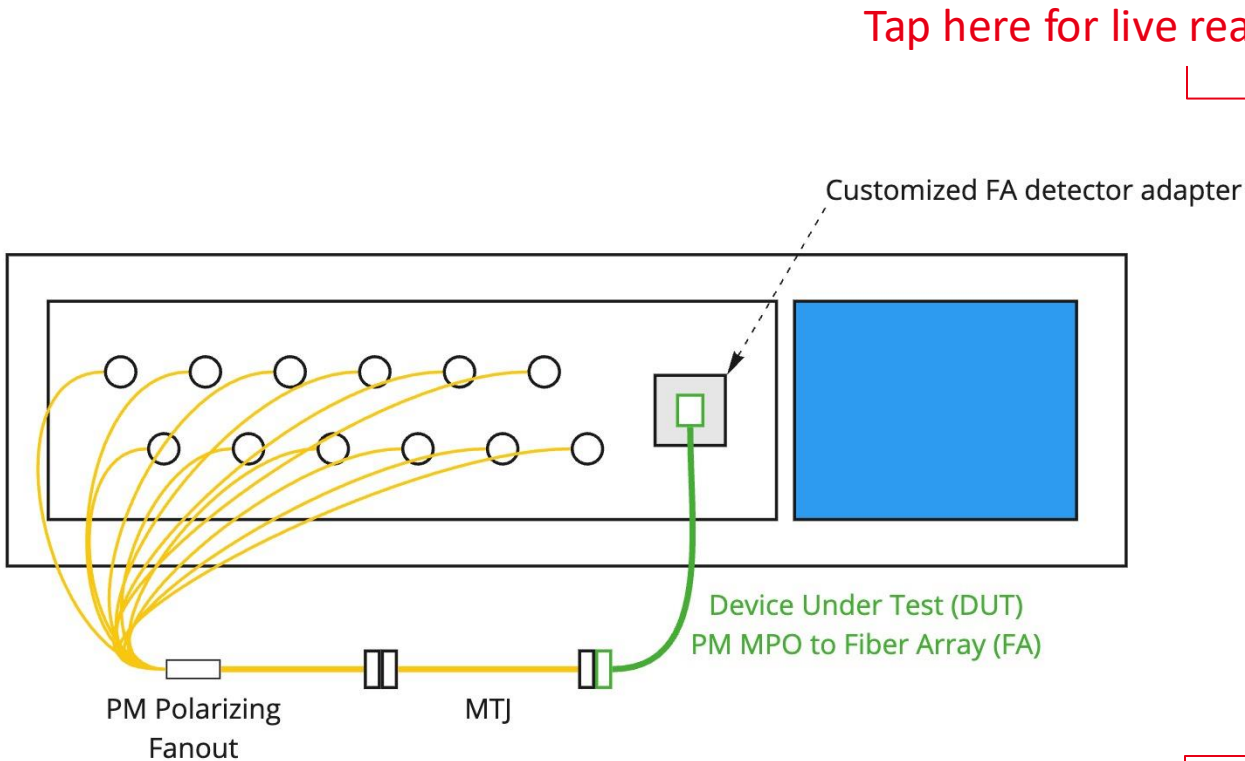
IL	1310
1	-10.11
2	-11.05
3	-10.85
4	-10.77

IL Reference



Connect polarizing fanout + MTJ then perform IL reference

Connect the DUT and measure by tapping on a channel to display a live reading or tapping in the center to measure all channels.



Tap here for live reading on ch. 1

1310	PER _(dB)	Angle (°)	IL _(dB)
1	23.95	-0.15	0.35
2	--	--	--
3	--	--	--
4	--	--	--

Measure

Tap here to measure all channels

1310	PER _(dB)	Angle (°)	IL _(dB)
1	23.95	-0.15	0.35
2	26.11	0.96	0.20
3	22.16	1.66	0.29
4	21.88	-2.13	0.41

Measure