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Certificate of Calibration

No 21053084636

New Unit
X Returned Unit

Result as found: FAIL
Result as left: PASS

Manufacturer	Thorlabs GmbH
Model Number	PM100D
Serial Number	P0007350
Date of Calibration	22-Feb-2021

Calibration Standards

NO	MANUFACTURER	MODEL	SERIAL NO	LAST CAL
1	Keithley Instruments Inc.	Model 2611B	4118325	11-Nov-2020
2	Agilent Technologies	34461A	MY53205384	14-May-2020

Thorlabs GmbH does hereby certify that the above mentioned equipment has been calibrated in accordance with our quality management system.
Our Quality Management System is certified according to DIN EN ISO 9001.

The measurement equipment used for calibration is traceable to national standards of the 'EUROMET' members (NPL, PTB, BNM etc.), the US 'NIST' or other national metrological institutions.
Measurements which cannot be traced to national standards can be traced to natural constants, other accepted standards or relational measurements.

Additional documentation concerning traceability of the measurement equipment is available and can be examined upon request.
The certificate of calibration may only be forwarded in complete form without any changes.

The recommended calibration interval is 12 months. The calibration period of this instrument / system begins on the date of receipt by the customer.

Calibrated by _____ Silke Danneberg
Thorlabs GmbH

Date Received _____

Calibrated Due _____

Test Report - as left

Model	PM100D	**Temperature**	23°C +/-5°C	**Test Date**	22-Feb-2021
Serial No	P0007350	**Humidity**	35% +/-15%	**Tester**	Silke Danneberg
Firmware	V2.8.1	**Scan**	CAL_PM100	**Test Result**	PASS

CURRENT INPUT

AMP RANGE	INPUT CURRENT	DISPLAY (AMP)	UNCERT.	TOL.	ANALOG OUT (VOLT)	UNCERT.	TOL.	RESULT
5 mA	5,0003E-03	5,0003E-03	0,05%	0,20%	2,0024E+00	0,11%	3,00%	PASS
500 µA	5,0003E-04	5,0004E-04	0,05%	0,20%	2,0020E+00	0,09%	3,00%	PASS
50 µA	5,0002E-05	5,0005E-05	0,06%	0,20%	1,9947E+00	0,27%	3,00%	PASS
5 µA	5,0003E-06	5,0005E-06	0,05%	0,20%	1,9966E+00	0,18%	3,00%	PASS
500 nA	5,0002E-07	5,0008E-07	0,06%	0,20%	1,9963E+00	0,19%	3,00%	PASS
50 nA	5,0001E-08	5,0012E-08	0,07%	0,50%	2,0416E+00	2,08%	5,00%	PASS

VOLTAGE INPUT

Pyroelectric Sensor

VOLT RANGE	INPUT VOLTAGE	MEASURED (VOLTS)	UNCERT.	TOL.	ANALOG OUT (VOLT)	UNCERT.	TOL.	RESULT
100 V	4,0003E+01	4,0011E+01	0,07%	0,50%	8,0204E-01	0,25%	3,00%	PASS
10 V	1,0001E+01	1,0003E+01	0,07%	0,50%	1,9998E+00	0,02%	3,00%	PASS
1 V	1,0001E+00	1,0004E+00	0,08%	0,50%	2,0049E+00	0,24%	3,00%	PASS
100 mV	1,0004E-01	9,9674E-02	0,42%	0,50%	2,0009E+00	0,00%	3,00%	PASS

Thermal Sensor

VOLT RANGE	INPUT VOLTAGE	DISPLAY (VOLT)	UNCERT.	TOL.	ANALOG OUT (VOLT)	UNCERT.	TOL.	RESULT
1 V	1,0002E+00	1,0002E+00	0,05%	0,50%	2,0072E+00	0,36%	3,00%	PASS
100 mV	1,0003E-01	1,0002E-01	0,06%	0,50%	2,0093E+00	0,46%	3,00%	PASS
10 mV	1,0002E-02	1,0002E-02	0,05%	0,50%	2,0161E+00	0,81%	3,00%	PASS
1 mV	1,0003E-03	1,0007E-03	0,09%	0,50%	2,0106E+00	0,53%	5,00%	PASS

Test Report - as found

Model	PM100D	**Temperature**	23°C +/-5°C	**Test Date**	22-Feb-2021
Serial No	P0007350	**Humidity**	35% +/-15%	**Tester**	Silke Danneberg
Firmware	V2.8.1	**Scan**	CAL_PM100	**Test Result**	FAIL
				Last Calibration	24-Oct-2018

CURRENT INPUT

AMP RANGE	INPUT CURRENT	DISPLAY (AMP)	UNCERT.	TOL.	ANALOG OUT (VOLT)	UNCERT.	TOL.	RESULT
5 mA	4,9999E-03	4,9985E-03	0,08%	0,20%	2,0021E+00	0,11%	3,00%	PASS
500 µA	5,0002E-04	4,9998E-04	0,06%	0,20%	2,0019E+00	0,09%	3,00%	PASS
50 µA	4,9998E-05	4,9992E-05	0,06%	0,20%	1,9944E+00	0,28%	3,00%	PASS
5 µA	5,0002E-06	4,9999E-06	0,06%	0,20%	1,9965E+00	0,18%	3,00%	PASS
500 nA	4,9997E-07	4,9981E-07	0,08%	0,20%	1,9958E+00	0,20%	3,00%	PASS
50 nA	4,9999E-08	5,0002E-08	0,06%	0,50%	2,0415E+00	2,07%	5,00%	PASS

VOLTAGE INPUT

Pyroelectric Sensor

VOLT RANGE	INPUT VOLTAGE	MEASURED (VOLTS)	UNCERT.	TOL.	ANALOG OUT (VOLT)	UNCERT.	TOL.	RESULT
100 V	4,0004E+01	4,0006E+01	0,06%	0,50%	8,0204E-01	0,25%	3,00%	PASS
10 V	1,0001E+01	1,0002E+01	0,07%	0,50%	1,9999E+00	0,01%	3,00%	PASS
1 V	1,0001E+00	1,0002E+00	0,06%	0,50%	2,0048E+00	0,23%	3,00%	PASS
100 mV	1,0006E-01	1,0073E-01	0,72%	0,50%	2,0012E+00	0,00%	3,00%	FAIL

Thermal Sensor

VOLT RANGE	INPUT VOLTAGE	DISPLAY (VOLT)	UNCERT AINTY	TOL.	ANALOG OUT (VOLT)	UNCERT.	TOL.	RESULT
1 V	1,0003E+00	1,0003E+00	0,06%	0,50%	2,0075E+00	0,38%	3,00%	PASS
100 mV	1,0009E-01	1,0009E-01	0,05%	0,50%	2,0106E+00	0,53%	3,00%	PASS
10 mV	1,0004E-02	1,0003E-02	0,06%	0,50%	2,0163E+00	0,82%	3,00%	PASS
1 mV	1,0009E-03	1,0013E-03	0,09%	0,50%	2,0111E+00	0,56%	5,00%	PASS

λ [nm]	η [A/W]	λ [nm]	η [A/W]	λ [nm]	η [A/W]	λ [nm]	η [A/W]	λ [nm]	η [A/W]	λ [nm]	η [A/W]
400	2,74E-02	585	3,92E-02	770	4,72E-02	955	5,77E-02				
405	2,80E-02	590	3,94E-02	775	4,74E-02	960	5,79E-02				
410	2,87E-02	595	3,96E-02	780	4,77E-02	965	5,77E-02				
415	2,92E-02	600	3,98E-02	785	4,80E-02	970	5,76E-02				
420	2,97E-02	605	3,99E-02	790	4,83E-02	975	5,74E-02				
425	3,02E-02	610	4,01E-02	795	4,86E-02	980	5,72E-02				
430	3,07E-02	615	4,03E-02	800	4,89E-02	985	5,67E-02				
435	3,11E-02	620	4,05E-02	805	4,92E-02	990	5,62E-02				
440	3,16E-02	625	4,07E-02	810	4,95E-02	995	5,53E-02				
445	3,19E-02	630	4,09E-02	815	4,98E-02	1000	5,44E-02				
450	3,23E-02	635	4,11E-02	820	5,01E-02	1005	5,31E-02				
455	3,26E-02	640	4,12E-02	825	5,04E-02	1010	5,18E-02				
460	3,30E-02	645	4,14E-02	830	5,07E-02	1015	4,98E-02				
465	3,33E-02	650	4,16E-02	835	5,10E-02	1020	4,79E-02				
470	3,36E-02	655	4,18E-02	840	5,13E-02	1025	4,55E-02				
475	3,39E-02	660	4,20E-02	845	5,16E-02	1030	4,31E-02				
480	3,42E-02	665	4,21E-02	850	5,20E-02	1035	4,02E-02				
485	3,45E-02	670	4,23E-02	855	5,23E-02	1040	3,73E-02				
490	3,48E-02	675	4,25E-02	860	5,26E-02	1045	3,42E-02				
495	3,50E-02	680	4,27E-02	865	5,29E-02	1050	3,11E-02				
500	3,53E-02	685	4,29E-02	870	5,32E-02	1055	2,80E-02				
505	3,56E-02	690	4,31E-02	875	5,35E-02	1060	2,48E-02				
510	3,58E-02	695	4,33E-02	880	5,38E-02	1065	2,24E-02				
515	3,61E-02	700	4,36E-02	885	5,41E-02	1070	2,00E-02				
520	3,63E-02	705	4,38E-02	890	5,44E-02	1075	1,81E-02				
525	3,66E-02	710	4,40E-02	895	5,46E-02	1080	1,63E-02				
530	3,68E-02	715	4,42E-02	900	5,49E-02	1085	1,48E-02				
535	3,70E-02	720	4,45E-02	905	5,51E-02	1090	1,33E-02				
540	3,73E-02	725	4,47E-02	910	5,54E-02	1095	1,19E-02				
545	3,75E-02	730	4,50E-02	915	5,57E-02	1100	1,06E-02				
550	3,77E-02	735	4,52E-02	920	5,59E-02						
555	3,80E-02	740	4,55E-02	925	5,63E-02						
560	3,82E-02	745	4,58E-02	930	5,66E-02						
565	3,84E-02	750	4,60E-02	935	5,69E-02						
570	3,86E-02	755	4,63E-02	940	5,72E-02						
575	3,88E-02	760	4,66E-02	945	5,74E-02						
580	3,90E-02	765	4,69E-02	950	5,76E-02						

Inspection Report

Model	PM100D	**Temperature**	23°C +/-5°C	**Test Date**	22-Feb-2021
Serial No	P0007350	**Humidity**	35% +/-15%	**Tester**	Silke Danneberg
Software	V2.8.1	**Scan**	CAL_PM100	**Test Result**	FAIL
				Last Calibration	24-Oct-2018

Incoming Conditions:

Ingoing unit visual in perfect condition:	YES
In need of repair:	NO
Damaged during transportation:	NO

Work Performed:

Firmware update:	YES
Repair:	NO
Modification:	NO
Calibration and verification:	YES

Notes: