



NEWPORT CORPORATION  
1791 DEERE AVENUE  
IRVINE, CA 92606  
PHONE: (949) 863-3144  
FAX: (949) 253-1800

PA021027CN  
CERTIFICATE NUMBER

### CERTIFICATE OF CALIBRATION

Model No: 918D-IG-OD1R  
Serial No: 1090  
Description: Low Power Detector  
Customer Name: Initial Purchaser  
Address: \_\_\_\_\_  
Calibrated Per Procedure No: PTP44571-1

#### Environment Conditions

Temperature: 23.5 °C  
Relative Humidity: 31.42 %

Standard Used Model	Serial or ID Number	Description	Calibration Due Date	Calibration Traceability Number
818-IR STD	0001	NIST IR Standard	12/16/2018	685/285554-14

Newport certifies that the calibration that was performed using Standards that are traceable to the National Institute of Standards and Technology (NIST), other recognized national standards laboratories, using natural physical constants, or ratio calibration techniques. The calibration complies with ANSI/NCSL Z540-1-1994 and ISO-9001. This certificate shall not be reproduced except in full, without the written approval of Newport. Specific information concerning parameters and measurements is in attachment(s). Calibration ratio is at least 4:1 unless otherwise stated.

Calibration Date: 21-Nov-2017  
DD-MMM-YY

Calibration By: Melody Xu *Melody Xu*  
Print/Sign

Reviewed By: Melody Xu

Title: Technician

Newport  
SN 1090  
CALIBRATED BY *Mx*  
DATE [ ] [ ] [ ] [ ] [ ] [ ]  
DUE [ ] [ ] [ ] [ ] [ ] [ ]  
DD-MMM-YY

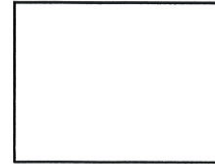
Newport recommends recalibration 12 months after customer receives product. Fill in the date and due date on calibration sticker. Remove and apply it to the Instrument as required.

# Detector Calibration Report



Newport Corporation  
 1791 Deere Avenue, Irvine, CA 92606  
 Telephone: 949-863-3144  
 Facsimile: 949-253-1800

Report Number: **918D-IG-OD1R21-Nov-20171090CN**  
 Detector Model Number: **918D-IG-OD1R**  
 Detector Serial Number: **1090**  
 External Attenuator  
 Serial Number: **1090**  
 Operator: **Melody Xu**  
 Traceability Number: **685/285554-14**  
 Calibration Date: **21-Nov-2017**  
 Calibration Temperature: **23.5 ± 0.5 °C**  
 Customer: **Initial Purchaser**  
 Customer Address:



Please remove & apply calibration sticker to the instrument as required.

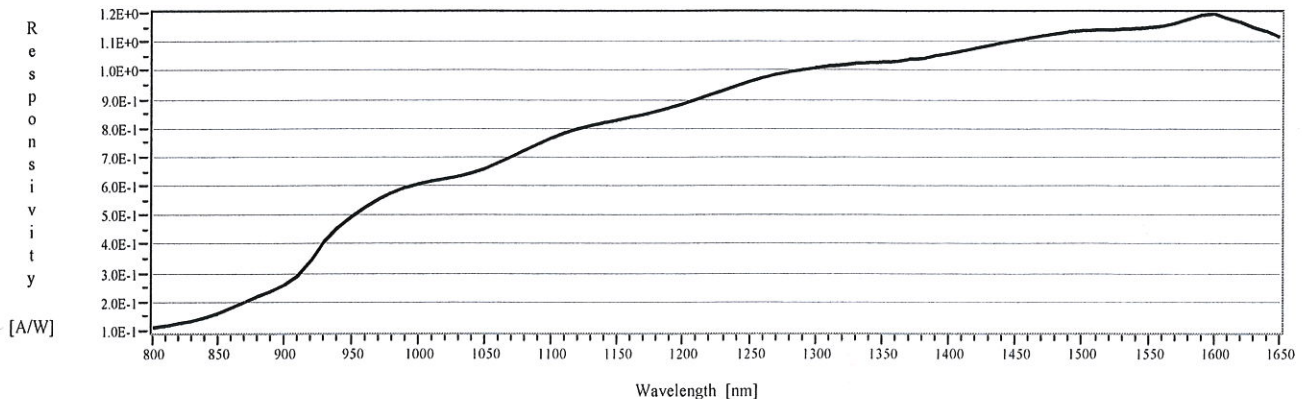
Procedure: **PTP44571-1**  
 Humidity: **31.4 %**

**Table 1. Responsivity [A/W]:**

**Detector Without External Attenuator**

Lambda	0	10	20	30	40	50	60	70	80	90
800	1.1109E-1	1.1807E-1	1.2592E-1	1.3501E-1	1.4654E-1	1.6148E-1	1.7986E-1	1.9945E-1	2.2014E-1	2.3938E-1
900	2.5961E-1	2.9042E-1	3.4074E-1	4.0882E-1	4.5686E-1	4.9301E-1	5.2389E-1	5.5181E-1	5.7497E-1	5.9372E-1
1000	6.0645E-1	6.1667E-1	6.2458E-1	6.3334E-1	6.4431E-1	6.5977E-1	6.7954E-1	7.0024E-1	7.2280E-1	7.4504E-1
1100	7.6635E-1	7.8350E-1	7.9855E-1	8.0924E-1	8.1937E-1	8.2835E-1	8.3807E-1	8.4773E-1	8.5839E-1	8.7103E-1
1200	8.8452E-1	8.9955E-1	9.1558E-1	9.3055E-1	9.4612E-1	9.6110E-1	9.7464E-1	9.8620E-1	9.9501E-1	1.0031E+0
1300	1.0099E+0	1.0152E+0	1.0193E+0	1.0235E+0	1.0268E+0	1.0289E+0	1.0311E+0	1.0388E+0	1.0411E+0	1.0524E+0
1400	1.0589E+0	1.0672E+0	1.0776E+0	1.0872E+0	1.0962E+0	1.1055E+0	1.1126E+0	1.1205E+0	1.1276E+0	1.1334E+0
1500	1.1371E+0	1.1388E+0	1.1402E+0	1.1423E+0	1.1454E+0	1.1478E+0	1.1536E+0	1.1632E+0	1.1776E+0	1.1906E+0
1600	1.1972E+0	1.1813E+0	1.1677E+0	1.1494E+0	1.1359E+0	1.1154E+0				

**Responsivity versus Wavelength  
 Detector Without External Attenuator**



# Detector Calibration Report



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 Telephone: 949-863-3144  
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Report Number: **918D-IG-OD1R21-Nov-20171090CN**

Detector Model Number: **918D-IG-OD1R**

Detector Serial Number: **1090**

External Attenuator Serial Number: **1090**

Customer: **Initial Purchaser**

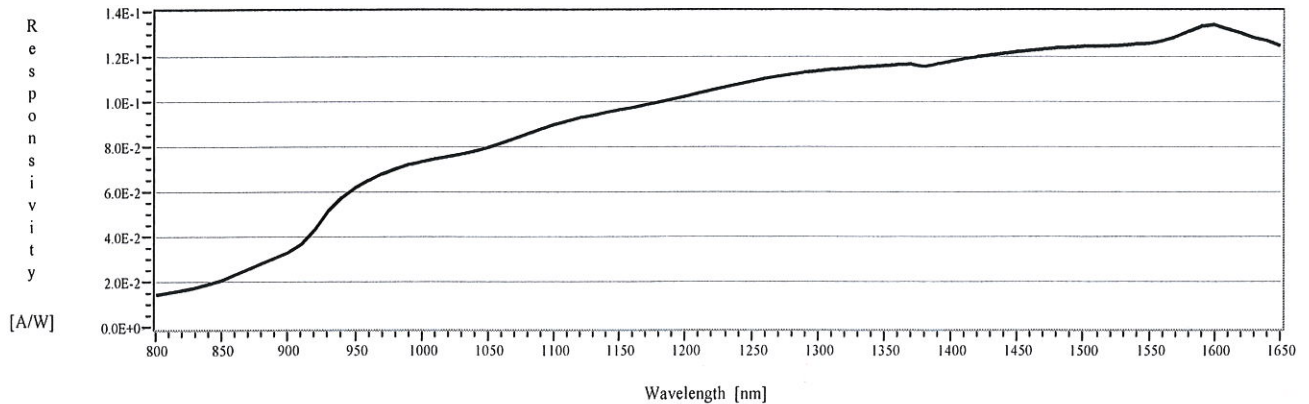
Newport certifies that the calibration was performed using standards traceable to the National Institute of Standards and Technology (NIST), National Research Council (NRC) using natural physical constants, or ratio techniques. The calibration complies with ANSI/NCSL Z540-1-1994 and ISO 9001. This certificate shall not be reproduced, except in full, without written approval by Newport. The expanded uncertainty claims are based on +/- 2 standard deviations of all known calibration variables. For example, if the calibration uncertainty is claimed to be +/- 2%, that means there is a 95% probability the reported responsivity falls within +/- 2% of the NIST reference standard.

**Table 2. Responsivity [A/W]:**

**Detector With External Attenuator**

Lambda	0	10	20	30	40	50	60	70	80	90
800	1.4323E-2	1.5283E-2	1.6290E-2	1.7437E-2	1.8876E-2	2.0730E-2	2.3055E-2	2.5536E-2	2.8024E-2	3.0411E-2
900	3.2910E-2	3.6671E-2	4.2834E-2	5.1348E-2	5.7304E-2	6.1659E-2	6.4994E-2	6.7836E-2	7.0121E-2	7.2047E-2
1000	7.3415E-2	7.4680E-2	7.5693E-2	7.6795E-2	7.8054E-2	7.9683E-2	8.1632E-2	8.3609E-2	8.5722E-2	8.7823E-2
1100	8.9864E-2	9.1496E-2	9.2954E-2	9.4090E-2	9.5227E-2	9.6352E-2	9.7505E-2	9.8627E-2	9.9770E-2	1.0105E-1
1200	1.0239E-1	1.0376E-1	1.0523E-1	1.0652E-1	1.0779E-1	1.0910E-1	1.1031E-1	1.1135E-1	1.1221E-1	1.1298E-1
1300	1.1367E-1	1.1427E-1	1.1477E-1	1.1529E-1	1.1570E-1	1.1608E-1	1.1645E-1	1.1677E-1	1.1577E-1	1.1693E-1
1400	1.1813E-1	1.1909E-1	1.2003E-1	1.2082E-1	1.2148E-1	1.2217E-1	1.2266E-1	1.2325E-1	1.2376E-1	1.2420E-1
1500	1.2445E-1	1.2459E-1	1.2477E-1	1.2503E-1	1.2546E-1	1.2593E-1	1.2702E-1	1.2872E-1	1.3111E-1	1.3325E-1
1600	1.3408E-1	1.3227E-1	1.3047E-1	1.2842E-1	1.2704E-1	1.2492E-1				

**Responsivity versus Wavelength  
 Detector With External Attenuator**



# Detector Calibration Report



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 Telephone: 949-863-3144  
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Report Number: **918D-IG-OD1R21-Nov-20171090CN**

Detector Model Number: **918D-IG-OD1R**

Detector Serial Number: **1090**

External Attenuator Serial Number: **1090**

Customer: **Initial Purchaser**

**Table 3. Calibration Factors: Detector Without External Attenuator**

Lambda	0	10	20	30	40	50	60	70	80	90
800	9.0020E+0	8.4696E+0	7.9418E+0	7.4067E+0	6.8239E+0	6.1928E+0	5.5598E+0	5.0139E+0	4.5425E+0	4.1774E+0
900	3.8520E+0	3.4433E+0	2.9348E+0	2.4461E+0	2.1889E+0	2.0283E+0	1.9088E+0	1.8122E+0	1.7392E+0	1.6843E+0
1000	1.6490E+0	1.6216E+0	1.6011E+0	1.5789E+0	1.5521E+0	1.5157E+0	1.4716E+0	1.4281E+0	1.3835E+0	1.3422E+0
1100	1.3049E+0	1.2763E+0	1.2523E+0	1.2357E+0	1.2205E+0	1.2072E+0	1.1932E+0	1.1796E+0	1.1650E+0	1.1481E+0
1200	1.1306E+0	1.1117E+0	1.0922E+0	1.0746E+0	1.0569E+0	1.0405E+0	1.0260E+0	1.0140E+0	1.0050E+0	9.9696E-1
1300	9.9024E-1	9.8507E-1	9.8103E-1	9.7701E-1	9.7390E-1	9.7195E-1	9.6986E-1	9.6261E-1	9.6056E-1	9.5022E-1
1400	9.4435E-1	9.3705E-1	9.2802E-1	9.1977E-1	9.1227E-1	9.0458E-1	8.9879E-1	8.9250E-1	8.8684E-1	8.8230E-1
1500	8.7940E-1	8.7811E-1	8.7704E-1	8.7544E-1	8.7306E-1	8.7122E-1	8.6683E-1	8.5973E-1	8.4917E-1	8.3991E-1
1600	8.3530E-1	8.4655E-1	8.5640E-1	8.7000E-1	8.8036E-1	8.9656E-1				

**Table 4. Calibration Factors: Detector With External Attenuator**

Lambda	0	10	20	30	40	50	60	70	80	90
800	6.9820E+1	6.5432E+1	6.1388E+1	5.7351E+1	5.2978E+1	4.8239E+1	4.3374E+1	3.9161E+1	3.5684E+1	3.2883E+1
900	3.0386E+1	2.7269E+1	2.3346E+1	1.9475E+1	1.7451E+1	1.6218E+1	1.5386E+1	1.4741E+1	1.4261E+1	1.3880E+1
1000	1.3621E+1	1.3390E+1	1.3211E+1	1.3022E+1	1.2812E+1	1.2550E+1	1.2250E+1	1.1960E+1	1.1666E+1	1.1387E+1
1100	1.1128E+1	1.0929E+1	1.0758E+1	1.0628E+1	1.0501E+1	1.0379E+1	1.0256E+1	1.0139E+1	1.0023E+1	9.8962E+0
1200	9.7663E+0	9.6372E+0	9.5030E+0	9.3883E+0	9.2773E+0	9.1661E+0	9.0654E+0	8.9808E+0	8.9121E+0	8.8508E+0
1300	8.7972E+0	8.7511E+0	8.7127E+0	8.6736E+0	8.6430E+0	8.6148E+0	8.5874E+0	8.5637E+0	8.6379E+0	8.5521E+0
1400	8.4654E+0	8.3967E+0	8.3309E+0	8.2765E+0	8.2320E+0	8.1853E+0	8.1527E+0	8.1137E+0	8.0804E+0	8.0514E+0
1500	8.0351E+0	8.0262E+0	8.0145E+0	7.9981E+0	7.9705E+0	7.9410E+0	7.8726E+0	7.7689E+0	7.6269E+0	7.5047E+0
1600	7.4581E+0	7.5602E+0	7.6645E+0	7.7872E+0	7.8713E+0	8.0049E+0				

Wavelength Range	Uncertainty Over the Range WITHOUT the External Attenuator	Uncertainty Over the Range WITH the External Attenuator
800 - 900	± 2 %	± 5 %
901 - 1650	± 2 %	± 2 %

Standards:

Model: **818-IR STD**

Serial: **0001**

Due Date: **12/16/2018**