ACTON RESEARCH CORPORATION
530 Main Street, Acton, MA 01720
Phone: (978)263-3584, **Fax:** (978)263-5086
Web Site: www.acton-research.com

Operating Instructions
for
PD-438/439
Detector Housing

Ver 2.0

Acton Research Corporation
Model PD-438 and PD-439
Detector Housings and Assemblies

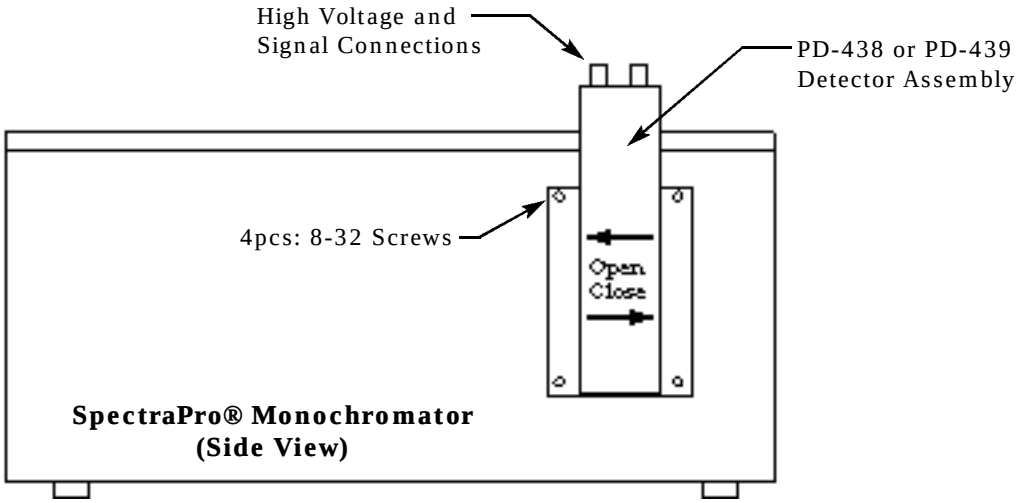
Description: The ARC Model PD-438 and PD-439 detector housings are designed for use with ARC SpectraPro Series Monochromators. The PD-438 includes a photomultiplier tube (PMT) housing, mounting flange, connectors for signal (BNC) and high voltage (HV). The PD-439 includes all of the features described above, but adds a light tight optical shutter which enables the user to block light from the PMT. The PD-438 and PD-439 detector housings are designed to accept standard 1-1/8" diameter side window PMTs. If a PMT is purchased with the PD-438 or PD-439, ARC normally installs the PMT and ships the detector as a complete assembly.

The detector assembly provided with your order is as follows:

Model Number: ☐ PD-438 ☐ PD-439
Serial Number:

PMT Provided with Your Order: ☐ P1 (1P28) ☐ P2 (R928) ☐ P3 (R5108)
Other PMT:

Mounting Instructions: The PD-438 and PD-439 detector housings and assemblies mount directly to the exit slit of ARC SpectraPro Series monochromators. Each detector should be positioned, with "HV" and "BNC" connectors facing up, directly against the exit slit so that the four mounting holes of the mounting flange align correctly with the tapped mounting holes of the exit slit. Insert the 8-32 mounting screws and tighten. The detector should now be mounted correctly as shown in the diagram below.



Note: If you have purchased an ARC photometer/power supply, please consult the corresponding instruction manual for correct cable connections and operating instructions. If you are providing your own photometer/power supply, please consult your instruction manual for correct operation, and the individual PMT specification sheet provided with the ARC detector assembly for correct electrical operating parameters.

Note: When the PD-438 or PD-439 detectors are used with an ARC FA-448 filter wheel assembly, the mounting procedure requires three 8-32 screws, 1.375" long. Insert the three screws into the detector mounting flange, through the filter wheel, and into the tapped holes of the slit or adapter plate. Tighten the screws to secure the accessories.

(at 25°C)

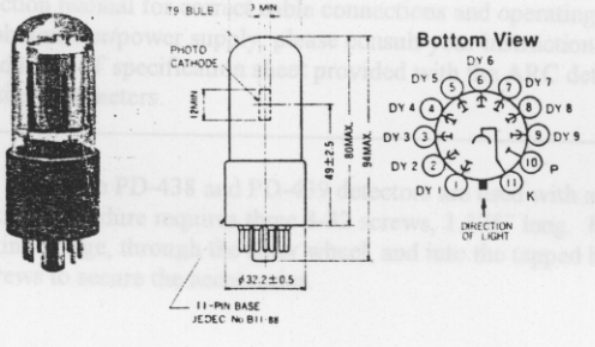
Cathode Sensitivity			Anode to Cathode Supply Voltage (L)	Anode Characteristics (M)								Notes	Type No. (A)
				Anode Sensitivity			Current Amplification Typ.	Anode Dark Current (after 30 min.)		Time Response			
				Luminous		Radiant (K)							
Blue Typ. (μA/lm-b)	Red/White Ratio Typ.	Radiant (K) Typ. (mA/W)	(Vdc)	Min. (A/lm)	Typ. (A/lm)	Typ. (A/W)		Typ. (nA)	Max. (nA)	Rise Time Typ. (ns)	Electron Transit Time Typ. (ns)		
—	0.15	—	1000 (10)	50	200	—	1.3×10^6	5	50	1.2	18		R2368*
5.5	0.15	65	1000 (10)	300	700	2.7×10^5	4.1×10^6	2	50	2.2	22	Silica window type (R787) available.	R777
4.0	0.25	40	1000 (10)	100	400	2.0×10^5	5.0×10^6	2	50	2.2	22		R446
3.0	0.1	30	1000 (10)	40	100	8.8×10^4	2.2×10^6	2	50	2.2	22		R508*
4.5	0.25	40	1000 (10)	100	400	2.0×10^5	5.0×10^6	2	50	2.2	22		R456
7.5	0.3	68	1000 (10)	400	2000	6.8×10^5	1.0×10^7	2	50	2.2	22	Photn counting type (R2949) available.	R928
7.5	0.3	68	1000 (10)	400	2000	6.8×10^5	1.0×10^7	2	50	2.2	22		R955
10.0	0.35	80	1000 (10)	1000	2000	4.2×10^5	5.3×10^6	2	50	2.2	22		R1477
—	0.4	30	1000 (10)	50	300	1.3×10^5	4.3×10^6	2	50	2.2	22		R936
7.5	—	65	600 (2)	—	0.6	—	3.0×10^3	0.05	0.5	1.0[c]	—		R1913
8.0	0.53	62	1250 (10)	20	80	1.1×10^4	1.8×10^5	0.1[d]	2[d]	2.0	20	Silica window type (R758) available.	R636
4.0	0.43	35	1000 (10)	100	300	7.0×10^4	2.0×10^6	15	50	2.2	22	Silica window type (R764) available.	R666
5.5	0.45	48	1000 (10)	100	300	5.8×10^4	1.2×10^6	15	50	2.2	22		R666S
—	0.38	40	1250 (10)	—	16	6.4×10^3	1.6×10^5	1	10	2.0	20		R2658*
5.5	0.05[b]	1.9	1250 (10)	1	4	380	2.0×10^5	30[a]	100[a]	2.0	20		R406

(H) The maximum ambient temperature range is −80 to +50°C.
(J) Averaged over any interval of 30 seconds maximum.
(K) At the wavelength of peak response.
(L) Voltage distribution ratios used to measure characteristics are shown on page 62.

(M) Anode characteristics are measured with the supply voltage and the voltage distribution ratio specified by Note (L).
a : At 4A/lm
b : Measured using a red filter Toshiba IR-D80A.
c : At 2000 Vdc.
d : At 10A/lm

Unit: mm

(3) R636, R666, R2658 etc.



(4) R1913