



VHR-XHR-XR-Series

Fast Response Power and Energy Probes for wavelengths from 1 nm to 400 nm

The VHR and XHR energy probes cover a wide range of wavelengths and powers in the ultra-violet. Clear aperture sizes are from 16 to 89 mm with damage thresholds to 5W/ cm². Probes are available with black anodized aluminum or with stainless steel. The probes are calibrated to NIST traceable standards and have an excellent linearity and are not affected by exposure to UV energy even after a billion pulses. Probe housings are available in either anodized aluminum or stainless steel for vacuum or clean room applications.

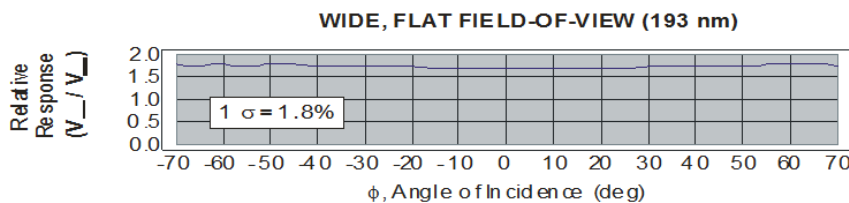
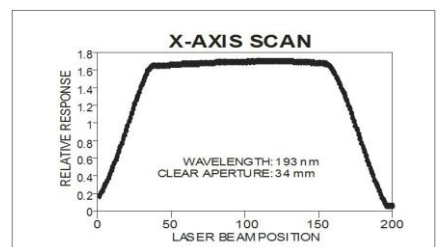
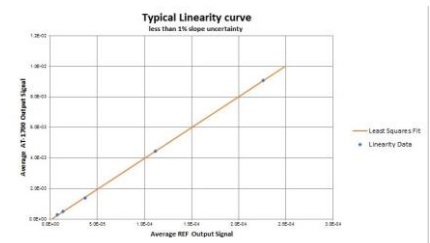
- Transmissive monitoring
- Polarization insensitive
- Broad Wavelength Range x-ray to 400 nm*
- High Responsivity
- Flat Field
- High Damage Threshold to 5W/cm²
- No damage after a Billion pulses!
- Very high linearity slope error <1%
- OEM Options

Wavelength Range:	10 - 350 nm
Clear Aperture:	16 - 50 mm
Pulse damage threshold:	0.5 J/ cm ²
CW damage threshold:	5W/cm ²
Responsivity at 157 nm:	to 10,000 V/J
I/O deviation from linearity:	<1%
Rise time:	5 μsec
Fall time:	6 μsec
Responsivity variation over full aperture:	<5%
Signal output:	150 mV (BNC)

VHR-C38 stainless steel



VHR-C38 anodized Al



STAR TECH INSTRUMENTS INC. 3 ROUTE 39, UNIT 7, NEW FAIRFIELD, CT 06812

TEL: 203-312-0767 <http://www.startechinstruments.com>



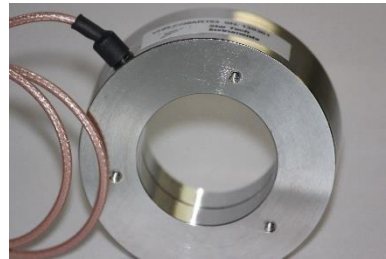
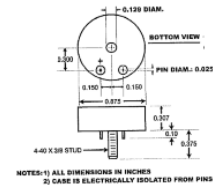
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Crystal Options

Crystal	Primary Application	λ Band (nm)	Relative response			Saturation mJ/cm ²			Decay time μ sec	Max Rep Rate kHz
			193 nm	248 nm	308 nm	193 nm	248 nm	308 nm		
C	193 nm	110 to 225	22	0.17	0.03	400	X	x	3-5	20-30
G	Wide λ , low fluence	1 to 400	480	480	112	10	10	50	0.5	200
P	$\lambda < 350$, high fluence, fast	110 to 350	48	15	1	30	30	50	5	20
R	Wide λ , high fluence, slow	110 to 532	100	8	0.18	50	400	400	3,000	0.03

193 nm Responsivity by model (V/J) at 193 nm

Probe Type	Crystal Type			
	C	G	P	R
BEM	22	480	48	100
VHR	2500	50000	2000	2500
MM	500	10000	400	500



Energy/ Power Monitor Models

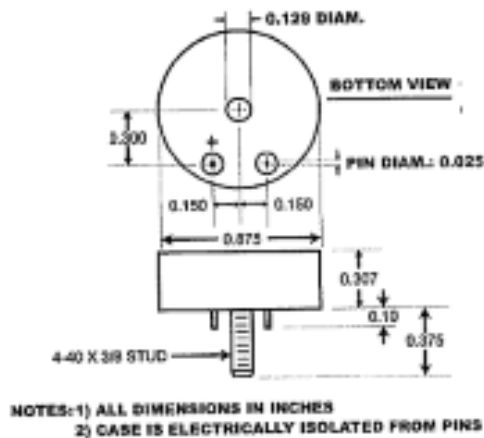
Probe Model	Clear Aperture (mm)	Pulse Damage Threshold	Diam. (mm)	Thickness	Interface		Mounting	
					COAX/ BNC	Other		
VHR-28	28	500 mJ/cm ²	57.2	19	Male		8-32 THD	
VHR-38	38		69.9	19	Male		8-32 THD	
VHR-50	50		82.6	19	Male		8-32 THD	
VHR-89*	89		120.8	19	Male		8-32 THD	
XR-10	10		16	8.3	Male			
XR-16	16		32.9		Male			
XR-20	20		28.6	6.9	Male			
XR-25	25		32.9	6.9	Male			
XHR-16 mini-probe	16		22.2	7.8			Pin out	4-40 STUD
XR-16R-10*	16		22.2				SMA (F)	Case OD
BEM-25	25		63.5	6	Female			1/4-20
BEM-38	38		76.2	6	Female			1/4-20
BEM-50	50		85.9	6	Female			1/4-20



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Base Model (select conversion plate)	Clear Aperture	Available Conversion Plates			
		C	G	P	R
Best Application		193 nm Excimer	Wide λ low fluence	< 350 nm high fluence, fast	Broad Band, high fluence slow
VHR-28	28	✓	✓	✓	✓
VHR-38	38	✓	✓	✓	✓
VHR-50	50	✓	✓	✓	✓
XR-10	10	✓	✓	✓	✓
XR-16	16	✓	✓	✓	✓
XR-20	20	✓	✓	✓	✓
XR-28	28	✓	✓	✓	✓
XHR-16 mini-probe	16	✓	✓	✓	✓
XR-16R-10*	16		1-350 nm		
Wavelength Range- nm		110-225	1-400	10-350	110-532
Saturation- mJ/cm^2					
193 nm		400	10	30	50
248 nm		N/A	10	30	400
308 nm		N/A	50	50	400
Relative Response					
193 nm		22.00	480.00	48.00	100.00
248 nm		0.17	480.00	15.00	8.00
308 nm		0.03	112.00	1.00	0.18
Decay Time μs		3-5	0.5	5	3000

*Mounts to PC board



Model	C/A (mm)	OD (mm)	Thk
XR-10	10	20.0	7
XR-16	16	22.0	7
XR-20	20	28.6	7
XR-25	25	33.0	7
VHR-25	25	57.2	19
VHR-38	38	69.9	19
VHR-50	50	82.6	19
VHR-89	89	120.8	19
VHR-157	28	60	16
BEM-25	25	63.5	6
BEM-38	38	76.2	6
BEM-50	50	85.9	6

All dimensions in mm