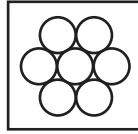


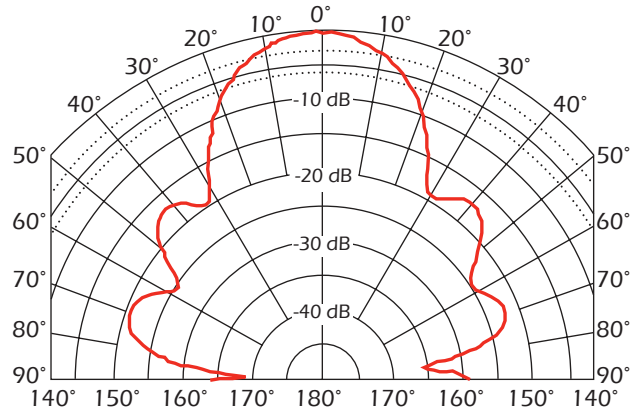
50 kHz-AWIq

**Ceramics wired in parallel
Transformed to 250 ohms**
 Power Rating: 1 kW rms @ 2% duty cycle
 7 x 20.3 mm (0.80") PZT4
 Active Area: 23 cm²
 Epoxy/Urethane Window

Array



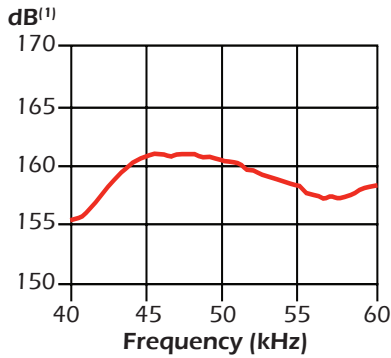
Transmit Radiation Pattern



Beamwidth:
 -3 dB: 25°
 -6 dB: 36°
 -10 dB: 45°

Directivity Index: 17.2
 Frequency Tolerance: ± 3 kHz
 Peak TVR⁽¹⁾, nominal: 161 dB
 Peak TVR⁽¹⁾, minimum: 159 dB
 Q (transmit): 4
 Peak Source Level⁽⁴⁾: 212 dB
 Peak RVR⁽²⁾, nominal: -175 dB
 Peak Figure of Merit⁽³⁾: -19.1 dB

TVR



RVR

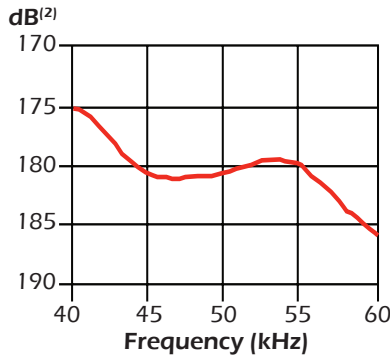
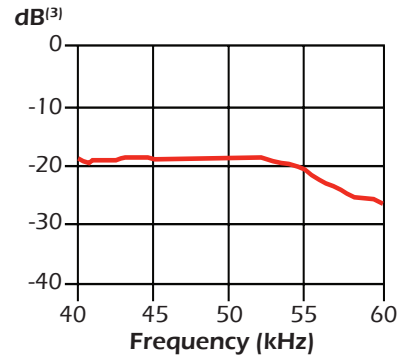


Figure of Merit



Notes:

- (1) dB re 1 μPa per volt at 1 meter
- (2) dB re 1 volt per μPa
- (3) Sum of transmitting voltage response and receiving voltage response
- (4) Nominal peak TVR, rated power, and no cavitation

Technical Data Catalog

50 kHz-AWIq

7 x 20.3 mm (0.80") PZT4

Cable Type: C332

Cable Length: 10.4 m (34')

Note:

Impedance data includes cable

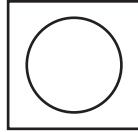
Impedance Data		
	<i>Balanced</i>	<i>Unbalanced</i>
Parallel: Rp.	250 Ω: -20%, +40%	250 Ω: -20%, +40%
Parallel: Cp. (nominal)	0 pF	0 pF
Series [R - jX]: (nominal)	200 + j10 Ω	200 + j10 Ω
1 kHz capacitance: (nominal)	n/a	n/a

Unbalance Impedance Table

Test Frequency (kHz)	Impedance Magnitude (Ω)	Phase Angle (°)	Series Resistance (Ω)	Series Reactance (Ω)	Parallel Conductance (mS)	Parallel Susceptance (mS)	Parallel Resistance (Ω)	Parallel Capacitance (pF)
40.00	418.98	-34.21	346.49	-235.56	1.9738	1.3419	506.63	5339.18
41.00	339.61	-34.34	280.41	-191.59	2.4312	1.6611	411.31	6448.24
42.00	287.92	-31.89	244.46	-152.12	2.9488	1.8350	339.12	6953.62
43.00	242.44	-27.10	215.82	-110.45	3.6718	1.8791	272.35	6954.97
44.00	217.38	-21.04	202.89	-78.03	4.2937	1.6512	232.90	5972.68
45.00	205.36	-14.98	198.39	-53.07	4.7041	1.2583	212.58	4450.40
46.00	199.17	-8.79	196.83	-30.43	4.9619	0.7670	201.53	2653.90
47.00	201.44	-4.78	200.74	-16.79	4.9469	0.4138	202.15	1401.15
48.00	200.73	-1.22	200.69	-4.28	4.9806	0.1062	200.78	352.12
49.00	198.34	2.41	198.17	8.33	5.0373	-0.2118	198.52	-687.80
50.00	201.95	8.64	199.66	30.35	4.8954	-0.7442	204.27	-2368.94
51.00	207.39	12.71	202.31	45.63	4.7037	-1.0609	212.60	-3310.78
52.00	221.17	17.41	211.04	66.18	4.3142	-1.3530	231.79	-4141.13
53.00	240.15	21.20	223.90	86.83	3.8824	-1.5056	257.57	-4521.31
54.00	271.57	22.83	250.29	105.38	3.3937	-1.4289	294.67	-4211.38
55.00	306.70	25.43	276.99	131.69	2.9446	-1.4000	339.60	-4051.16
56.00	351.87	24.75	319.56	147.29	2.5810	-1.1897	387.45	-3381.07
57.00	406.37	21.82	377.26	151.04	2.2845	-0.9147	437.73	-2553.90
58.00	456.66	19.17	431.34	149.96	2.0684	-0.7191	483.47	-1973.26
59.00	515.06	10.82	505.90	96.68	1.9070	-0.3644	524.38	-983.09
60.00	559.21	4.13	557.76	40.28	1.7836	-0.1288	560.67	-341.62

200 kHz-BH

Array



with Parallel Inductor

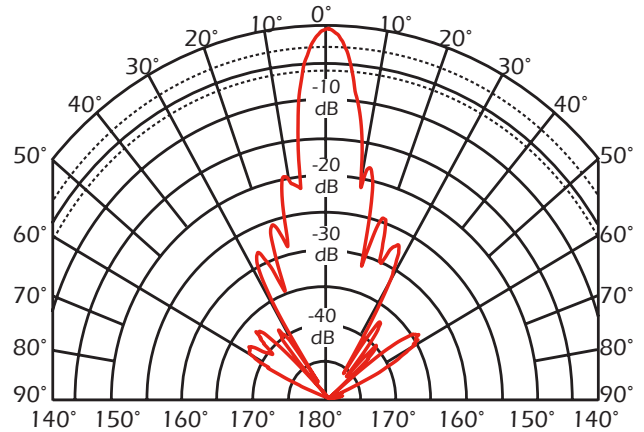
Power Rating: 1 kW rms @ 1% duty cycle
 65 mm (2.56") PZT
 Active Area: 33 cm² (5.1 in²)
 Urethane Window

Beamwidth:

-3 dB: 6°
 -6 dB: 9°
 -10 dB: 12°

Directivity Index: 27
 Frequency Tolerance: ± 8 kHz
 Peak TVR⁽¹⁾, nominal: 175 dB
 Peak TVR⁽¹⁾, minimum: 173 dB
 Q (transmit): 9
 Peak Source Level⁽⁴⁾: 225 dB
 Peak RVR⁽²⁾, nominal: -180 dB
 Peak Figure of Merit⁽³⁾: -10 dB

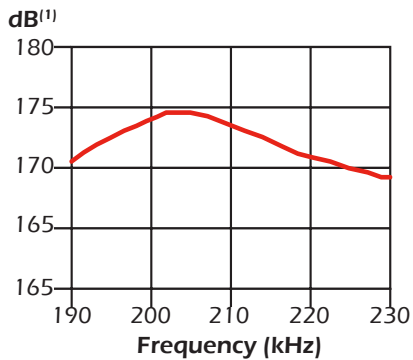
Transmit Radiation Pattern



Notes:

- (1) dB re 1 μPa per volt at 1 meter
- (2) dB re 1 volt per μPa
- (3) Sum of transmitting voltage response and receiving voltage response
- (4) Nominal peak TVR, rated power, and no cavitation

TVR



RVR

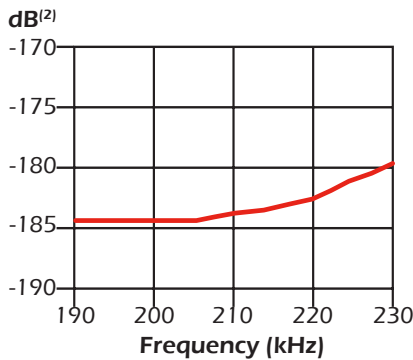
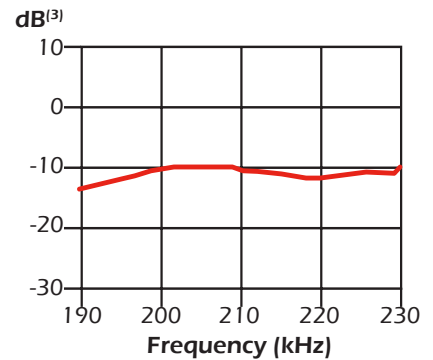


Figure of Merit



Technical Data Catalog

200 kHz-BH

65 mm (2.56") PZT

Cable Type: C44-02

Cable Length: 15.2 m (50')

Note:

Impedance data includes cable

Impedance Data		
	<i>Unbalanced</i>	<i>Balanced</i>
Parallel: Rp.	110 Ω: -20%, +40%	110 Ω: -20%, +40%
Parallel: Cp. (nominal)	N/A	N/A
Series [R - jX]: (nominal)	110 - j0 Ω	110 - j0 Ω
1 kHz capacitance: (nominal)	N/A	N/A

Balanced Impedance Table

Test Frequency (kHz)	Impedance Magnitude (Ω)	Phase Angle (°)	Series Resistance (Ω)	Series Reactance (Ω)	Parallel Conductance (mS)	Parallel Susceptance (mS)	Parallel Resistance (Ω)	Parallel Capacitance (pF)
190.00	194.09	-30.58	167.10	-98.74	4.44	2.62	225.44	2195.57
191.00	181.02	-28.83	158.59	-87.29	4.84	2.66	206.63	2219.57
192.00	169.98	-26.79	151.74	-76.61	5.25	2.65	190.42	2197.67
193.00	160.77	-24.47	146.33	-66.60	5.66	2.58	176.64	2124.76
194.00	153.08	-21.92	142.02	-57.14	6.06	2.44	165.00	2000.32
196.00	140.89	-17.27	134.54	-41.82	6.78	2.11	147.54	1710.67
197.00	135.49	-15.07	130.83	-35.23	7.13	1.92	140.31	1550.36
198.00	129.96	-12.74	126.75	-28.67	7.51	1.70	133.24	1364.55
199.00	124.79	-10.04	122.88	-21.76	7.89	1.40	126.73	1117.66
200.00	120.01	-6.97	119.13	-14.56	8.27	1.01	120.91	804.68
202.00	112.57	0.44	112.56	0.86	8.88	-0.07	112.57	-53.21
203.00	110.55	4.71	110.18	9.07	9.01	-0.74	110.93	-582.05
204.00	109.48	9.28	108.05	17.66	9.01	-1.47	110.93	-1149.28
205.00	109.99	13.83	106.80	26.28	8.83	-2.17	113.27	-1686.91
206.00	111.96	18.17	106.38	34.92	8.49	-2.79	117.84	-2152.29
208.00	120.20	25.65	108.36	52.03	7.50	-3.60	133.34	-2755.27
209.00	125.28	28.47	110.13	59.73	7.02	-3.81	142.52	-2897.69
210.00	130.44	30.52	112.36	66.25	6.60	-3.89	151.42	-2950.85
211.00	135.41	32.25	114.52	72.25	6.25	-3.94	160.11	-2972.23
212.00	139.97	33.97	116.09	78.20	5.93	-3.99	168.77	-2996.53
214.00	149.62	37.85	118.15	91.80	5.28	-4.10	189.47	-3049.76
215.00	155.68	39.72	119.74	99.49	4.94	-4.11	202.40	-3038.82
216.00	162.32	41.28	121.98	107.10	4.63	-4.06	216.02	-2995.03
217.00	169.78	42.32	125.54	114.31	4.35	-3.97	229.63	-2908.37
218.00	177.07	43.14	129.20	121.08	4.12	-3.86	242.67	-2819.39
219.00	183.38	43.94	132.04	127.25	3.93	-3.78	254.68	-2750.04
220.00	189.74	45.01	134.13	134.19	3.73	-3.73	268.39	-2696.68
222.00	206.34	47.76	138.71	152.76	3.26	-3.59	306.94	-2572.26
223.00	216.75	48.67	143.14	162.77	3.05	-3.46	328.22	-2472.59
224.00	228.15	49.10	149.39	172.44	2.87	-3.31	348.43	-2353.84
225.00	240.02	49.09	157.17	181.41	2.73	-3.15	366.55	-2227.33
226.00	250.34	49.14	163.79	189.32	2.61	-3.02	382.62	-2127.48
228.00	268.67	49.80	173.43	205.20	2.40	-2.84	416.22	-1984.36
229.00	279.46	50.64	177.23	216.08	2.27	-2.77	440.67	-1922.83
230.00	293.09	51.52	182.38	229.43	2.12	-2.67	470.99	-1848.16

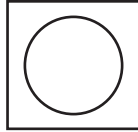
200 kHz-BH

Power Rating: 1 kW rms @ 2% duty cycle
 65 mm (2.56") PZT
 Active Area: 33 cm²
 Urethane Window

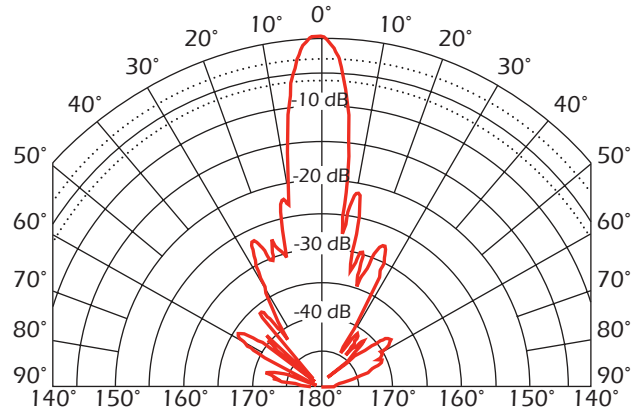
Beamwidth:
 -3 dB: 7°
 -6 dB: 9°
 -10 dB: 12°

Directivity Index: 29.2
 Frequency Tolerance: ± 8 kHz
 Peak TVR⁽¹⁾, nominal: 175 dB
 Peak TVR⁽¹⁾, minimum: 173 dB
 Q (transmit): 8
 Peak Source Level⁽⁴⁾: 225 dB
 Peak RVR⁽²⁾, nominal: -182 dB
 Peak Figure of Merit⁽³⁾: -10 dB

Array



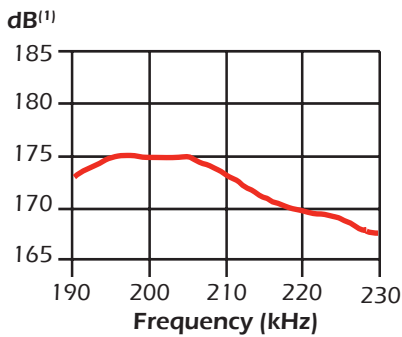
Transmit Radiation Pattern



Notes:

- (1) dB re 1 μPa per volt at 1 meter
- (2) dB re 1 volt per μPa
- (3) Sum of transmitting voltage response and receiving voltage response
- (4) Nominal peak TVR, rated power, and no cavitation

TVR



RVR

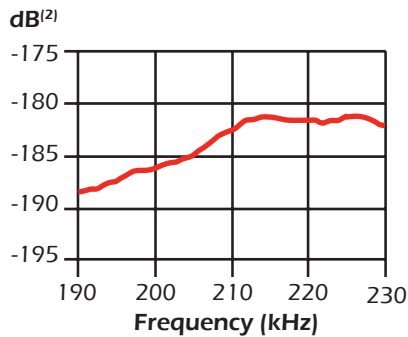
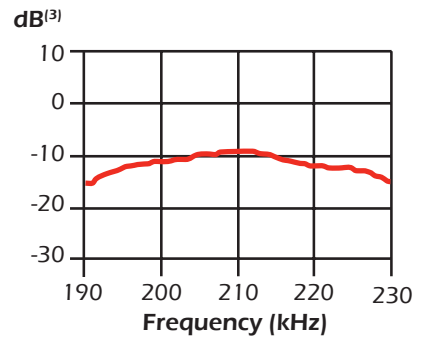


Figure of Merit



Technical Data Catalog

200 kHz-BH

65 mm (2.56") PZT

Cable Type: C332

Cable Length: 10.4 m (34')

Note:

Impedance data includes cable

Impedance Data		
	<i>Balanced</i>	<i>Unbalanced</i>
Parallel: Rp.	100 Ω: -20%, +40%	100 Ω: -20%, +40%
Parallel: Cp. (nominal)	1510 pF	2960 pF
Series [R - jX]: (nominal)	90 - j20 Ω	90 - j20 Ω
1 kHz capacitance: (nominal)	n/a	n/a

Unbalanced Impedance Table

Test Frequency (kHz)	Impedance Magnitude (Ω)	Phase Angle (°)	Series Resistance (Ω)	Series Reactance (Ω)	Parallel Conductance (mS)	Parallel Susceptance (mS)	Parallel Resistance (Ω)	Parallel Capacitance (pF)
180.00	113.07	-58.93	58.35	-96.84	4.56	7.58	219.08	6698.23
182.00	107.82	-53.34	64.38	-86.49	5.54	7.44	180.57	6505.62
184.00	108.56	-51.18	68.06	-84.58	5.77	7.18	173.17	6207.53
186.00	103.03	-50.53	65.50	-79.53	6.17	7.49	162.07	6410.90
188.00	96.02	-47.75	64.55	-71.08	7.00	7.71	142.81	6526.81
190.00	90.11	-43.14	65.75	-61.62	8.10	7.59	123.50	6356.72
192.00	86.60	-37.24	68.95	-52.40	9.19	6.99	108.78	5791.63
194.00	85.64	-31.05	73.37	-44.18	10.00	6.02	99.97	4941.41
196.00	86.35	-25.03	78.24	-36.53	10.49	4.90	95.30	3978.41
198.00	87.95	-18.86	83.22	-28.43	10.76	3.68	92.94	2955.08
200.00	91.29	-12.38	89.16	-19.57	10.70	2.35	93.46	1868.90
202.00	97.91	-5.46	97.46	-9.31	10.17	0.97	98.35	765.09
204.00	109.37	0.85	109.36	1.62	9.14	-0.14	109.38	-105.59
206.00	126.91	4.76	126.47	10.54	7.85	-0.65	127.35	-505.53
208.00	149.87	6.05	149.03	15.80	6.64	-0.70	150.71	-538.15
210.00	176.36	3.95	175.94	12.15	5.66	-0.39	176.78	-296.08
212.00	199.04	-0.88	199.02	-3.07	5.02	0.08	199.07	58.18
214.00	212.62	-6.34	211.32	-23.47	4.67	0.52	213.93	386.08
216.00	216.04	-10.18	212.64	-38.20	4.56	0.82	219.50	603.05
218.00	223.00	-7.91	220.88	-30.68	4.44	0.62	225.15	450.38
220.00	262.75	-10.18	258.61	-46.46	3.75	0.67	266.96	486.82
222.00	289.51	-17.21	276.54	-85.66	3.30	1.02	303.08	732.73
224.00	311.18	-25.19	281.58	-132.45	2.91	1.37	343.88	971.90
226.00	315.52	-34.23	260.88	-177.47	2.62	1.78	381.60	1255.37
228.00	303.59	-42.01	225.58	-203.17	2.45	2.20	408.57	1538.82
230.00	288.73	-47.76	194.09	-213.76	2.33	2.56	429.51	1774.34