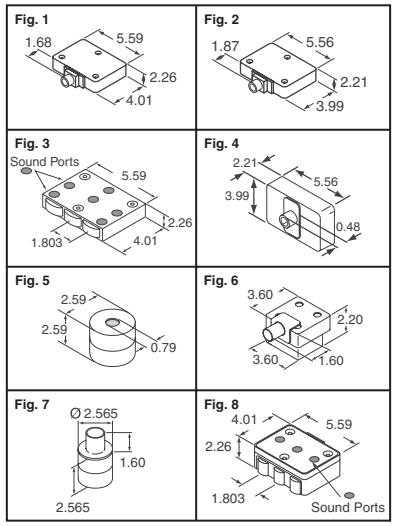
High Performance Audio Products

Omni-Directional Electret Microphones

Dim. in mm



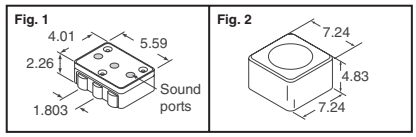
FG Series: • Integral FET amplifier • Wide, flat frequency response • Low noise performance • High electroacoustic sensitivity • 3-Wire configuration **EM Series:** • Integral FET amplifier • High electroacoustical sensitivity • Low vibration sensitivity • Low Noise • Small size **WP Series:** • Integral FET amplifier • High electroacoustical sensitivity • Low noise • Low vibration sensitivity • Flat response down to very low frequency • Survives submersion in water • 3-Wire configuration **EK Series:** • Integral FET amplifier • High electroacoustical sensitivity • Low vibration sensitivity • Low noise • 3-Wire configuration **EA Series:** • High resistance to mechanical shock • Rugged construction to withstand severe environmental conditions

Fig.	Sensitivity @ 1kHz (dB re 1V/Pa)	Sensitivity @ 1kHz (dB re 1V/0.1 Pa)	DC Supply Voltage	Max. Amplifier Current Drain (µA)	Max. "A" Weighted Noise (1kHz Equivalent SPL)	Output Imped. (Ω)	Digi-Key Part No.	Price Each 1	Price Each 10	Price Each 100	Knowles Acoustics Part No.
1	—	-53 ±2	1.3 ~ 10	50	26.0 dB	4400	423-1098-ND◆†	20.87	17.01	14.61	EK-23024-P07
	—	-59 ±3	1.3 ~ 10	50	28.5 dB	3500	423-1124-ND◆	13.80	10.85	9.37	EA-21842-C36
	—	-53 ±2	1.3 ~ 10	50	26.0 dB	4400	423-1121-ND◆	14.37	11.30	9.76	EK-23024-C36
2	—	-53 ±2	1.3 ~ 10	50	26.0 dB	4400	423-1099-ND◆	14.93	12.18	10.46	EK-23133-C36
3	-33 ±3	-53 ±3	1.0 ~ 10	50	26.0 dB	4400	423-1008-ND◆	17.82	16.06	11.47	EK-3132
4	—	-53 ±2	1.3 ~ 10	50	26.0 dB	4400	423-1120-ND◆	14.37	11.30	9.76	EK-23027-C36
5	-33 ±3	—	0.9 ~ 1.6	50	28.0 dB	4400	423-1064-ND◆•	29.11	26.23	18.74	FG-3629-P16
	—	-53 ±3	1.3 ~ 1.6	50	30.0 dB	4400	423-1119-ND◆	19.31	15.74	13.52	FG-23329-C05
	-43 ±3	—	0.9 ~ 1.6	50	30.0 dB	4400	423-1068-ND•	21.76	19.61	15.46	FG-3742-D36
	—	-53 ±3	1.3 ~ 1.6	50	28.0 dB	4400	423-1123-ND◆	19.31	15.74	13.52	FG-23629-C36
6	-36 ±3	—	0.9 ~ 10	50	31.0 dB	4400	423-1061-ND	17.18	15.47	12.27	EM-3046
	-36 ±3	—	0.9 ~ 10	50	31.0 dB	4400	423-1062-ND◆•	22.64	20.40	16.08	EM-3046-P16
	—	-56 ±3	1.3 ~ 10	50	31.0 dB	4400	423-1122-ND◆	17.02	13.88	11.92	EM-23046-C36
7	-33 ±3	—	0.9 ~ 1.6	50	28.0 dB	4400	423-1065-ND◆	21.53	19.39	15.29	FG-3652-C36
	-33 ±3		0.9 ~ 1.6	50	28.0 dB	4400	423-1066-ND◆•	29.11	26.23	18.74	FG-3652-P16
Waterproof Microphones											
8	-34 ±3	-54 ±3	1.0 ~ 10	50	28.0 dB	4400	423-1012-ND◆	24.24	21.85	15.61	WP-3502
	-34 ±3	-54 ±3	1.0 ~ 10	50	28.0 dB	4400	423-1054-ND•	27.02	24.35	17.39	WP-3502-P16

◆ ***RoHS Compliant*** • Has 1 inch long leads † Has 79 inch long leads

Noise-Canceling Close Talking Microphones

Dim. in mm



NR Series: • Integral FET amplifier • Diaphragm responds to pressure differential giving high rejection of background noise • Small size • High electroacoustical sensitivity • Low vibration sensitivity

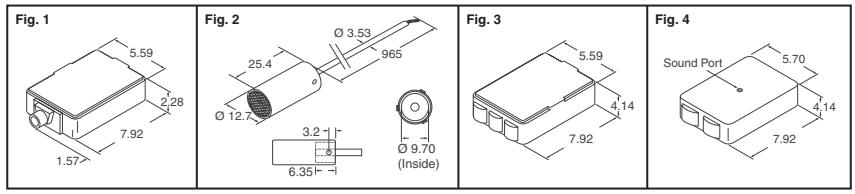
CF Series: • Integral FET amplifier • Diaphragm responds to pressure differential giving high rejection of background noise • Withstands severe environmental conditions • Sound ports protected by woven mesh treated with water repellent • High resistance to mechanical shock

WP Series: • Integral FET amplifier • Survives submersion in 1m water • Corrosion resistant • Withstands explosive decompression • High resistance to mechanical shock • Small size

Fig.	Sensitivity @ 1kHz (dB re 1V/Pa)	Sensitivity @ 1kHz (dB re 1V/0.1 Pa)	Microphone Configuration	DC Supply (V)	Max. Amplifier Current Drain (µA)	Nominal Output Imp. (Ω)	Digi-Key Part No.	Price Each 1	Price Each 10	Price Each 100	Knowles Acoustics Part No.
1	-32 ±3	-52 ±3	2-Wire	1.0 ~ 10	200	2500	423-1010-ND	12.27	11.06	8.02	NR-3160
2	-42 ±3	-62 ±3	3-Wire	1.0 ~ 10	50	3500	423-1014-ND	18.27	17.36	16.44	CF-2949
Waterproof Microphone											
1	-34 ±3	-54 ±3	2-Wire	1.0 ~ 10	300	2500	423-1011-ND	20.43	18.41	13.15	WP-3501

Piezo Ceramic, Accelerometer, Magnetic Balanced Armature

Dim. in mm



BL Series: • High sensitivity • Wide frequency range and flat response • Integral FET amplifier • High resistance to mechanical shock • BL-1785 typically used for instrumentation applications • 3-Wire configuration

BU Series: • Ceramic vibration transducer • High vibration sensitivity and small size • Wide frequency range • Integral FET preamplifier • 2 or 3-Wire configuration

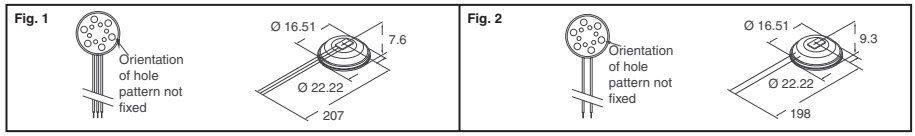
BJ Series: • Balanced armature technology • High efficiency, stability and reliability • Self-shielded against external magnetic fields • Small size • Omni-directional • 2-Wire configuration

Fig.	Sensitivity @ 1kHz (dB re 1V/Pa)	Sensitivity @ 1kHz (dB re 1V/0.1 Pa)	Sensitivity @ 1kHz (dB re 1V/g)	DC Supply Voltage	Nominal DC Res. (Ω)	Max. Amplifier Current Drain (µA)	Max. "A" Weighted Noise (1kHz Equivalent SPL)	Output Imp. @ 1kHz (Ω)	Digi-Key Part No.	Price Each 1	Price Each 10	Price Each 100	Knowles Acoustics Part No.
Piezo Ceramic Microphones													
1	-49 ±3	-69 ±3	—	3.0	—	160	34.0dB	4000	423-1003-ND	74.18	66.83	47.74	BL-21785
2	-49 ±3	-69 ±3	—	3.0	—	160	34.0dB	4000	423-1002-ND	92.19	82.82	65.76	BL-21994
3	—	-54.5 ±3	—	1.3	—	50	34.0dB	13000	423-1097-ND◆	33.96	28.09	24.79	BL21671-140
Accelerometer (Vibration-Sensing Transducer)													
3	—	—	-45.0 ±4.5	1.5 ~ 10	—	50	—	5200	423-1004-ND	38.27	34.48	24.63	BU-21771
Magnetic Balanced Armature													
4	-55.5 ±3	-75.5 ±3	—	—	900	—	—	3900	423-1001-ND	26.16	23.57	16.84	BJ-21590

◆ ***RoHS Compliant***

Waterproof Acoustical Transducers

Dim. in mm



MR Series: • Highly waterproof, no loss of performance after immersion in 15m water • Corrosion resistant • Withstands explosive decompression • Excellent environmental performance • High resistance to mechanical shock • Wire leads attached

Fig.	Sensitivity @ 1kHz (dB re 1V/Pa)	Sensitivity @ 1kHz (dB re 1V/0.1 Pa)	DC Supply Voltage	Max. Amplifier Current Drain (µA)	DCR @ 20 dC ±10% (Ω)	Max. "A" Weighted Noise (1kHz Equivalent SPL)	Load Condition (Ω)	Output Imp. @ 1kHz (Ω)	Digi-Key Part No.	Price Each 1	Price Each 10	Price Each 100	Knowles Acoustics Part No.
Electret Microphone													
1	-41 ±4	-61 ±4	1.0 ~ 20	50	—	30	10K	3.5K	423-1016-ND	27.39	24.68	19.96	MR-8406
Magnetic Microphone													
2	-67.5 ±3	-87.5 ±3	—	—	75.5	—	300	300	423-1015-ND	16.79	15.13	14.49	MR-3151

(Continued)

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