

Product Data

Rotating Microphone Boom — Type 3923

USES:

- Sound power measurements
- Building acoustic measurements

FEATURES:

- Fulfils ISO 3741
- Length of boom adjustable between 50 cm and 200 cm

- Battery operation with built-in NiCd-cells or line operation
- Three switch-selectable rotation times
- Plane of rotation adjustable in steps of 10 degrees
- Synchronization facility
- Power to and signal from microphone via slip rings
- Typical emitted sound power equal to 26 dB re 1 pW (A-weighted)

The Rotating Microphone Boom Type 3923 is designed for use in sound power measurements to ISO 3741 and in building acoustic measurements, and complements the range of sound power and building acoustic measuring equipment available from Brüel & Kjær.

The 3923 consists essentially of three parts: a boom, the length of which can be adjusted to any value between 50 and 200 cm; a motor assembly to which the boom is attached and which contains power supply and input and output sockets, and a trunnion mount which allows the rotation plane of the boom to be varied in steps of 10°.

The boom consists of 6 aluminium tubes which can be screwed together to provide effective lengths up to 200 cm. A ball joint with rubber suspension for the microphone accepting both $\frac{1}{2}$ " and 1" microphone preamplifiers is mounted at one end of the boom. This suspension attenuates possible vibrations transmitted through the boom to the microphone. At the other end of the boom, counterweights (two of which are included) can be fitted to balance the



assembly. The load capability of the boom is 1 kg at its maximum length of 200 cm.

The boom slides into a fixture on the motor assembly, which allows it to be adjusted to any length within its range and locked. A 7-pin Brüel & Kjær input socket is mounted on the fixture to accommodate the plug from Brüel & Kjær Microphone Preamplifiers. Six cable clamps are provided to secure the preamplifier

cable to the boom. The signal from the microphone and the operating voltages for the preamplifier are transferred via slip rings in the motor assembly to a 3 m cable permanently connected to the assembly. The cable is fitted with a 7-pin plug which makes direct connection to Brüel & Kjær Measuring Amplifiers and Frequency Analyzers possible by use of standard extension cables.



Fig.1 The microphone boom placed on a tripod, ready for measurements

The Microphone Boom has three electronically controlled, switch-selectable rotation times of 16, 32 and 64 seconds, which are accurate within $\pm 5\%$. The stop/start of the boom can be remotely controlled and a built-in micro-switch allows synchronization with external equipment.

The motor assembly is suspended in a trunnion mount which allows the rotation plane of the boom to be varied in steps of 10° . The mount is provided with a $\frac{3}{8}$ " Whitworth thread allowing it to be directly mounted on tripods.

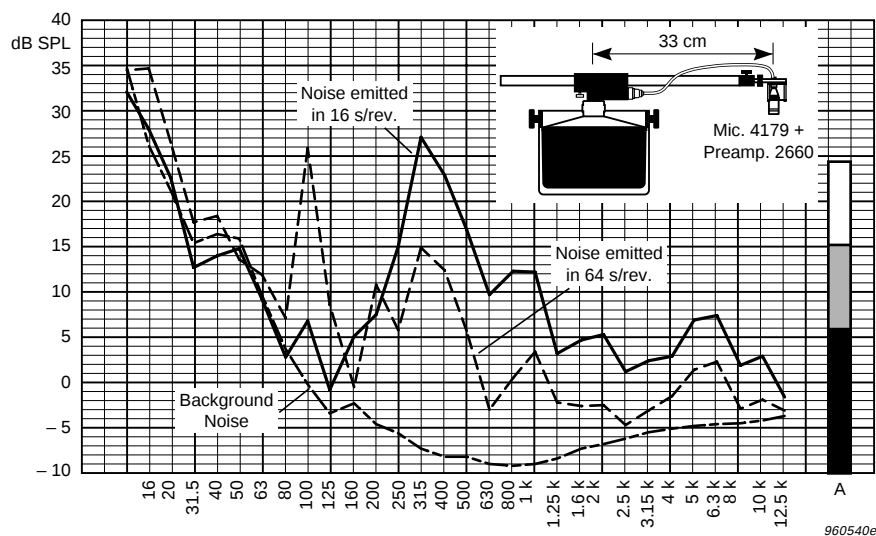


Fig.2 Typical $\frac{1}{3}$ octave analysis of sound pressure levels emitted from 3923 at rotational speeds of 16 sec./rev., and 64 sec./rev., as measured in an anechoic chamber

The 3923 is powered by 6 built-in NiCd-cells, IEC R20, which can be recharged in situ. With fully charged cells the 3923 can operate continuously for approximately 35 hours. A built-in miniature meter is provided to monitor the battery voltage. For recharging the NiCd-cells and operating the instrument from the mains, a Battery Charger ZG 0283 is included, ZG 0283 can only be used to power the 3923 if it has its internal NiCd-cells installed. Furthermore, provision is made for connection of an external DC power supply of 7.5 to 13 V, for instance an automobile battery, to

operate the instrument. External supplies, including the ZG 0283, are connected to the 7-pin EXT. POWER socket on the motor assembly.

The noise emitted from the 3923 is very low (see Fig.2), typical 24 dB(A) re 2×10^{-5} Pa at a distance of 33 cm from the instrument, under free field conditions for a rotational speed of 16 sec./rev., which assuming a perfectly spherical radiation pattern corresponds to a sound power level of typical 26 dB(A) re 1 pW. Even less noise is produced at lower rotational speeds.

Specifications 3923

BOOM LENGTH:

50 cm to 200 cm. ISO 3741 fulfilled for length greater than 48 cm

LOAD:

Max. 1 kg at max. boom length when properly balanced with counterweight

ROTATION TIMES:

16, 32 and 64 s

ROTATION PLANE:

Adjustable in steps of 10°

POWER SUPPLY:

Internal from six built-in NiCd-cells IEC R20 (QB 0008) or six dry cells (QB 0004), externally from battery Charger ZG 0283 (only with internal NiCd-cells fitted) or other DC supplies with ratings of 7.5 to 13 V DC. The ZG 0283 operates on 100 to 130 V or 200 to 240 V AC, 50 to 60 Hz line frequency

RECHARGING:

Via Battery Charger ZG 0283 or 8,3 to 13 V DC supply, maximum current 400 mA. Recharging time at 400 mA is approximately 14 hours for fully discharged cells. If the boom is to be operated at the same time as recharging then the recharge time will be longer

REMOTE CONTROL:

"Start" and "Stop" can be remotely controlled via the 8-pin SYNC. socket situated on the motor assembly

SYNCHRONIZATION:

Synchronization of external equipment by means of built-in microswitch which can be adjusted to operate up to three times per revolution of the boom

NOISE:

Typ. 26 dB(A) re 1 pW at a rotational speed of 16 sec./rev. Less noise is produced when lower rotational speeds are used

TEMPERATURE RANGE:

-10 to +55°C (14 to 131°F)

MAXIMUM DIMENSIONS:

(without boom)

Height: 262 mm (10.3")

Width: 267 mm (10.5")

Depth: 190 mm (7.5")

WEIGHT:

(Including boom and counterweights) 8 kg (17.5 lbs)

ACCESSORIES INCLUDED:

5 Extension Tubes..... YG 0226

1 Tube..... YG 0227
1 Counterweight (2.7 kg)..... UA 0476
1 Counterweight (0.5 kg)..... UA 0477
1 Microphone Suspension..... UA 0502
1 Ball Joint..... UA 0800
1 set of spare Drive Belts..... UA 0708
6 Cable Clamps..... DV 0225
6 NiCd-cells (IEC R 20)..... QB 0008

1 Battery Charger..... ZG 0283
1 7-pin DIN Plug..... JP 0710
1 8-pin DIN Plug..... JP 0808
Instruction Manual

ACCESSORIES AVAILABLE:

1 Adaptor..... JE 0002
1 Adaptor..... DB 2609
1 Adaptor..... ZG 0350

COMPLIANCE WITH STANDARDS:

CE	CE-mark indicates compliance with: EMC Directive and Low Voltage Directive.
Safety	EN 61010-1 (1993): Safety requirements for electrical equipment for measurement, control and laboratory use.
EMC Emission	EN 50081-1 (1992): Generic emission standard. Part 1: Residential, commercial and light industry. EN 50081-2 (1993): Generic emission standard. Part 2: Industrial environment. CISPR 22 (1993): Limits and methods of radio disturbance characteristics of information technology equipment. Class B Limits. FCC Class B limits.
EMC Immunity	EN 50082-1 (1992): Generic immunity standard. Part 1: Residential, commercial and light industry. EN 50082-2 (1995): Generic immunity standard. Part 2: Industrial environment. Note: The above is guaranteed using accessories listed in this Product Data sheet only. RF immunity implies that the noisefloor when using the Type 3923 with a Type 2669B Preamplifier and a 50 m V/Pa Microphone will not be more than 40 dB (A) SPL. LF magnetic immunity implies that the noisefloor will increase by no more than 7 dB (Lin 20 Hz-20 kHz). The Output of the Type 3923 should be connected to a balanced input with good EMC-specifications. The Ext. Power input should (when in use) be connected to the Power Supply ZG 0283. The Sync. input should (when in use) be connected via the 8-pin Plug JP 0808 and a screened cable with good EMC-specifications (fx B&K AC 0079)
Temperature	Operating Temperature: -10 to +55°C Storage Temperature: -20 to +60°C
Humidity	IEC 68-2-3: 90% RH (non-condensing at 40°C)

Brüel & Kjær reserves the right to change specifications and accessories without notice

