Outdoor Microphone System Type 41CN

Product Data and Specifications

Typical applications

- ***Permanent outdoor-noise monitoring***
- ***Community-noise monitoring***
- ***IEC 60651 Type 1 noise measurements***

The Outdoor Microphone System Type 41CN (Fig. 1) is for outdoor use whenever trouble-free acoustic measurements and, in particular, community and trafic noise monitoring are required.

It complies with IEC 651 Type 1 and ANSI S1.4 1983 Type 1 requirements and can be used with any suitable electronic sound or vibration measurement system. It is PTB approved as part of an IEC 651 Type 1 system.

A ½-inch precision condenser microphone and thick-film preamplifier ensure maximum stability and performance. Both microphone and casing are made of stainless steel.

Precise *in-situ* calibration checks at 1000 Hz are enabled any time via a built-in electrostatic actuator and test oscillator.

The Type 41CN is fitted with anti-bird spikes, a windscreen, and a rain cap which is an integral part of its acoustic omnidirectional characteristics. The rain cap, which contains the electrostatic actuator, remains in position while calibrating the microphone with a pistonphone.

The large dynamic range of the Type 41CN is obtained via a twin circuit board with a DC converter for supplying 200 V for microphone polarization as well as a 120 V supply for the preamplifier. The sensitivity of the amplifier can be adjusted by 12 dB and the gain changed by ±20 dB (via a pair of circuit-board jumpers) to give optimum signal-to-noise ratios on long cables. The gain is normally set to 0 dB on leaving the factory.

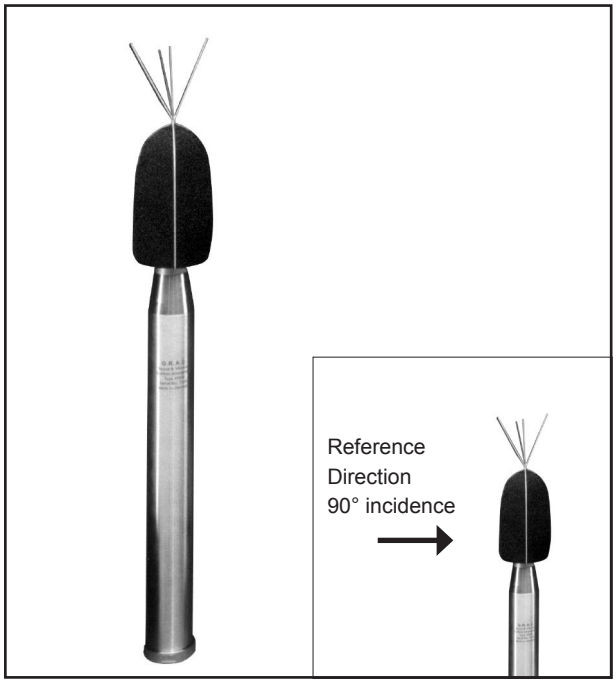

Fig. 1 Outdoor Microphone System Type 41CN. Inset shows reference direction

An A-weighting filter for increased dynamic capability is included in the Type 41CN. A circuit-board jumper is used to select either the A-weighting or linear frequency response. A-weighting or linear response can be specified when ordering, otherwise Lin-weighting will be active on delivery.

The built-in calibration oscillator can be switched on or off by short-circuiting a pin to ground in the output socket of the Type 41CN. The electrostatic actuator is factory set to a calibration level of 90 dB re. 20 µPa at 1000 Hz. A calibration level of 94 dB can be specified when ordering.

The electrostatic actuator and microphone assembly is electrically isolated from the casing of the Type 41CN; thus eliminating EMC and ground loops.

A silica-gel desiccator is located inside the lower half of the casing and a humidity-indicator window

Vers.25-03-03

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for checking the condition of a second desiccator is located in the top half.

The internal venting of the Type 41CN is via a capillary tube which terminates under the rain cap, it also carries the calibration-signal connection to the electrostatic actuator. By removing the rain cap (left-hand thread), the connection to the actuator is accessible.

With the windscreen removed, the unit can be readily re-calibrated using a pistonphone (fitted with Adaptor RA0041); though rarely necessary since actuator calibration is normally done on a regular basis.

The Pole Adapter has a G 1½-inch thread (ISO 228/1). The Tripod Adapter can be screwed directly to the Pole Adapter. The output connector of the Type 41CN is located under the Pole Adapter and both plug and cable are well protected.

Among the available accessories is a Calibration Control Box AC0001. This has a lead which plugs directly into the output socket of the Type 41CN. The AC0001 has sockets for signal output, remote-control calibration and external power (12 – 18 V DC, e.g. from a G.R.A.S. Mains/line Adapter AB0002/AB0003 *). It also has an on/off switch for local calibration control.

* AB0002 for 230 V AC; AB0003 for 120 V AC

Specifications

Nominal sensitivity:
50 mV/Pa

Frequency response:
IEC 651 Type 1 and ANSI S1.4-1983 Type 1

0° incidence (Fig. 1), re. 1000Hz:

20 Hz - 80 Hz:	± 1 dB
80 Hz - 4 kHz:	± 0.7 dB
4 kHz - 8 kHz:	± 1 dB
8 kHz - 12 kHz:	± 1.5 dB
12 Hz - 20 kHz:	+ 1.5 dB, – 5 dB

Dynamic range (upper limit):
> 156 dB SPL (at -20 dB setting) re. 20 µPa

Total system-noise level:

A-weighted	< 20 dB re. 20 µPa
Lin. 22.5 Hz - 22.5 kHz	< 23 dB re. 20 µPa

Output impedance:
< 50 Ω

Output current:
> 25 mA

Power supply:
12 - 18 VDC

Power consumption:
120 mA at 15 V
180 mA at 15 V calibrator "on"

Operating-temperature range:
– 40 °C to + 50 °C

Calibration level of electrostatic actuator:
90 dB re. 20 µPa at 1000 Hz ± 0.2 dB at 23 °C

Dimensions:

Casing (ext. dia.):	40 mm (1.57 in)
Length:	520 mm (20.5 in)
Pole-adapter thread:	50 mm (1.97 in) x G 1½ in (ISO 228/1)

Weight:
1.3 kg (2.8 lbs)

Accessories included:

Windscreen complete:	AM0052
Spanner:	AM0038
Transport protection cap:	AM0037
Tripod adapter:	AM0033
Pole adapter:	AM0029
LEMO plug FFA.2S.306:	AE0001

Accessories available:

Pistonphone adapter:	RA0041
Foam windscreens (5 items):	AM0009
Calibration Control Box:	AC0001
Extension cables:	
3 m:	AA0003
10 m:	AA0002
20 m:	AA0001
30 m:	AA0017
50 m:	AA0004
100 m:	AA0015 [1]
200 m:	AA0016 [1]

[1] Doubled screened with cable drum

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