

TD2300

The **TD2300** vibroacoustic transducer is part of a complete counter surveillance protection system. It inducts noise into walls, floors, ceilings, windows and other surfaces of the building, preventing leakage of sound signals. To provide a sufficient level of protection the system consists of a number of transducers installed on different structures in the room and is connected to a generator.

Advantages

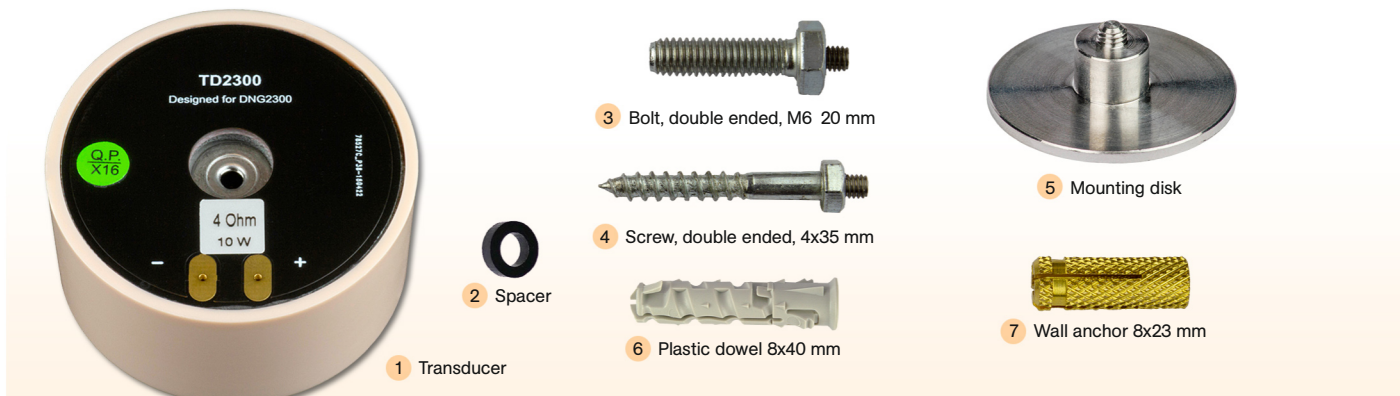
- Attractive design, looks good in any interior
- High power output, combined with compactness
- Fits equally well on windows, walls and other structures
- The included mounting set makes it possible to install the transducer on any surface
- Passes most of the generated noise into the desired construction in the form of vibration, while also producing less audible interference
- The frequency characteristics optimally correspond to the spectrum of human's speech
- Perfectly suited for the DNG 2300 white noise generator



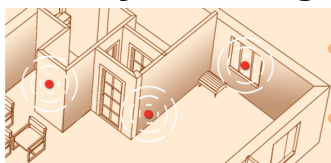
Specification

Impedance	4 Ohm
Frequency response	58 Hz -12 kHz
Power	10W
Weight	252 g
Dimensions	56 x 27 mm

Supplied set



Quantity and arrangement



- **On walls** the TD2300 transducers should be installed every 2-3 meters, centered between floors and ceiling
- **On windows** – on each window pane
- **On floors and ceilings** – should be installed every 6 m²
- **Doors** – One, placed adjacent to the center hinge on the doorframe
- **Water pipes** – on each pipe going in and out of the premises

Mounting

- Please note that it is necessary to solder a short piece of wire to the transducer before mounting it as the terminals are on the underside and this would be impossible after mounting. Use a length which enables easy screwing without it being twisted while fixing. After the transducers have been mounted, attach their wires to the generator's cable according to the wiring diagram (see below).
- Use a thread-locking fluid when threading the transducer onto its screw, mounting disk.
- To avoid damaging the wire behind the transducer put the provided spacer onto the screw or bolt before threading it in the surface, dowel or anchor.
- For best efficiency, the mounting hole of the transducer is made in its membrane. To avoid damaging the membrane, never thread the transducer into the structure with the screw or bolt which has been previously attached. First, thread the screw, or bolt, into the structure, then mount the transducer onto it.

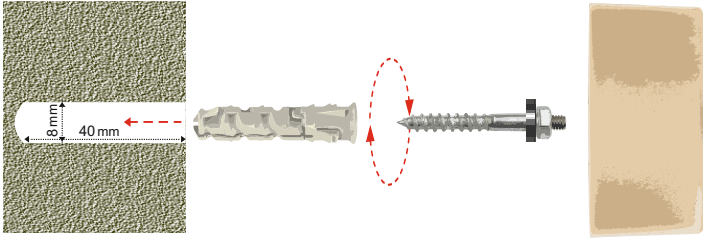
Direct screw



A double ended screw is provided in the supplied set. One end has machine screw threads for the transducer; the other has coarse, tapered threads to be used in such uniform materials such as wood, ply wood, studs, or wood beams.

- 1 Drill a pilot hole in the wall using the 3 mm drill bit
- 2 Put the spacer on the screw and thread it into the pilot hole
- 3 Thread the transducer onto the rear side of the screw.
DO NOT TIGHTEN EXCESSIVELY.

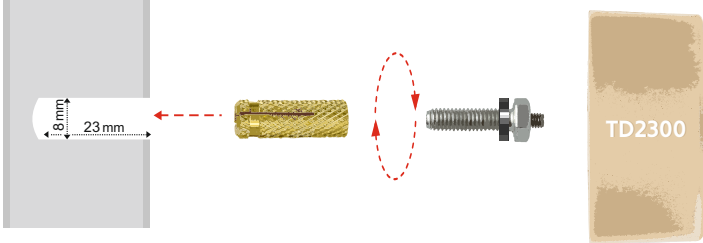
Plastic dowel



When the surface allows for the drilling of a deeper hole, such as cement or concrete, a plastic dowel can be used.

- 1 Drill a 40 mm deep hole in the wall using the 8 mm drill bit
- 2 Hammer the dowel into the hole
- 3 Put the spacer on the screw and thread it into the dowel
- 4 Thread the transducer onto the rear side of the screw.
DO NOT TIGHTEN EXCESSIVELY.

Wall anchor



For walls with fragile surfaces such as drywall, plaster, or thin paneling, the transducer can be attached with the help of the supplied bolt and wall anchor.

- 1 Drill an 23 mm deep hole in the wall using the 8 mm drill bit and insert the wall anchor
- 2 Put the spacer on the bolt and screw it into the wall anchor until it is tight. (Figure 3)
- 3 Thread the transducer onto the rear side of the screw.
DO NOT TIGHTEN EXCESSIVELY.

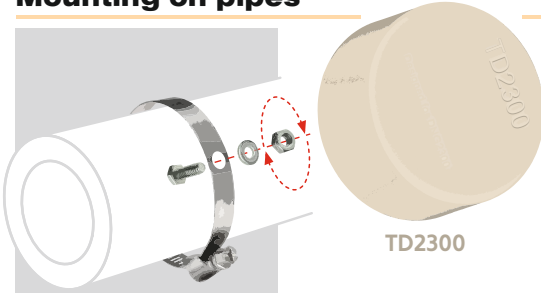
Mounting disk



The transducer can be attached to the window pane or other smooth surfaces using the metal mounting disk.

- 1 The glass must be firmly mounted to avoid vibration.
- 2 Tear off the protective layer from the adhesive tape and press the disk firmly onto the clean and dry surface.
- 3 Screw the transducer onto the metal disk until firm.
DO NOT TIGHTEN EXCESSIVELY.

Mounting on pipes



Since water is a good conductor of sound, it is recommended to install the TD2300 transducer onto each pipe going in, or out, of the protected room. You will need some extra accessories which are not included in the supplied set: i.e. interlocked hose clamp 100-150 mm, bolt M4x8, washer and nut

- 1 Take an interlocked hose clamp of suitable length and drill a 4 mm diameter hole in it at a distance of 40-50 mm to the lock
- 2 Insert the bolt from the inside into the hole, put the washer on the outside and tighten with the appropriate nut. The bolt should have a 4 mm free space on it to accept the transducer.
- 3 Put the clamp on the pipe, conveniently position the free part of the bolt, and tighten the clamp. Thread the transducer onto the free part of the bolt.

Connection

Depending on the number of transducers needed, choose a wiring diagram from the below picture for each channel of the noise generator.

To provide an equal output power, and to follow the demands of output impedance, the TD2300 4 Ohm transducers are united as a combination of serial circuits (chains) connected in parallel.

The output power is divided between the transducers and is in quadratic dependence on their quantity in a serial chain.

The percentage % shows the relative power produced by a transducer, comparing to the "basic" variant with 2 serially connected 4 Ohm transducers.

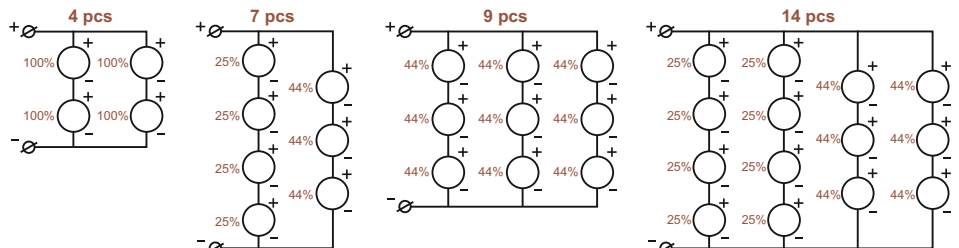
It is recommended to pass more power to the transducers mounted onto solid surfaces such as concrete/cement/brick wall, ceiling and floor. In this case the quantity of serially connected transducers in each chain should not exceed 3-4 pcs for 4 Ohm version.

Quantity of transducers in a serial chain	Relative power produced by 4 Ohm transducer	Type of surface
2	100%	Solid
3	44%	Solid
4	25%	Solid/Light
5	16%	Light
6	11%	Light

Light surfaces such as window glass, wood, drywall, plaster and pipes usually demand less power and allow for the connection of more transducers in a series (up to 6).

Combining levels can be done, but care should be taken to verify the load for the generator and correct output volume out of each transducer.

The DNG 2300 has 2 independent output channels, each able to feed its own group of transducers. As an example, one channel can be used for walls, floors and ceiling, while the other – for drywall or windows.



The percentage reflects the relative power, while the real output will also depend on the generator's volume control. Typically when there are more transducers the volume should be set higher. To determine the sufficient level for the output channel it is necessary to conduct some tests with the help of an acoustic leakage probe. By creating a test sound in the room with the generator active it is possible to adjust the noise to such a level that the external probing does not capture any sound.