Integrating Basic Sound Level Meter

The **Tango**® sound level meter is a compact Class 1 basic sound level meter for workplace and environmental protection applications. Due to i intelligent software concept and its measuring range of 110 dB without switching to another range, Tango is still very easy to operate despite its high functionality. Using Tango, even inexperienced users are immediate able to correctly measure and interpret the current sound level.
Tango's permanently polarized 1/2" microphone is automatically calibrated with a standard acoustic calibrator. The measured value is shown on a back-lighted high-contrast display and is readable even over larger distances in sunlight or in darkness. The clearly arranged keyboard with a perceptible keystroke works noiselessly. Being based on state-of-the-art circuit technology, Tango has an extremely low power consumption. Two lithium batteries (1.2 V, size AA) guarantee an operation time of 120 h and a storage time of 10 years. Therefore Tango practically always ready for use.
The Tango sound level meter allows for simultaneous A- and C-frequency weightings as well as Fast (125 ms) and Slow (1 s) time weightings. In addition to the momentary sound level values (L_{AF} and L_{AS}) and the maximum sound level values over a given period (L_{AFmax}, L_{ASmax} and L_{Cpeak}) Tango can also measure the L_{Aeq}, L_{Atm5} and L_{Atm5}-L_{Aeq} values integrated over a given period. In addition, the exceedance times for three freely-selectable L_{CPeak} thresholds can be measured.
The setup function is used to define which values are to be measured and which of these are to be saved, whereby the storage cycles can be chose individually for the various measurement values.
With the help of the USB interface and the Tango-Utilities software, the measured values are read from the memory and converted to a standard format. Additionally, the software allows for the creation of a user-defined setup (measured values, saved values, storage cycles) which can easily be defined and transferred to the device.

Tango satisfies all requirements for a Class 1 sound level meter to be used for the following measurement tasks:

- Traffic and industrial noise measurements
- Neighborhood and recreation noise monitoring
- Workplace noise measurements.

The accuracy of the measurement may be considerably improved by calibrating the sound level meter before each measurement This calibration also remains intact after switching off the device or exchanging the batteries.
Because of its reasonable price, easy operation and small dimensions, Tango is the ideal instrument for all users whose measurement tasks require a Class 1 measuring device according to the IEC 61672 standard but without frequency analysis, level statistics or audio recording.
The type approval by the PTB (legal calibratability in Germany) is scheduled.

Operation of Tango via USB interface

The Tango sound level meter may also be operated via USB interface. In this case the PC powers the device through the interface. The scope of delivery also includes a USB adapter for mains power supply.
The Tango Utilities software included in the scope of delivery allows the operation and configuration of Tango via PC as well as

the data transfer between the two devices. A separate window is displayed on the PC which allows easy setting of the parameter and rapid transfer of the stored measurement values.
The interface also enables the user to integrate Tango easily into a PC-based measuring system.

Technical Data

Accuracy	Class 1 according to IEC 60651 / 60804 / 61672
Oficial calibratability	Planned
Measurement values	• Sound pressure level L_{AF}, L_{AS} • Maximum sound level L_{AFmax}, L_{ASmax} • Equivalent sound pressure level L_{Aeq} • Peak value L_{Cpeak} • Sound dose L_{AE} • Taktmaximal level L_{Atm5} • 3x peak-value exceedance times $L_{Cpeak\_exceedance}$ • Time of day / Measurement time / Exceedance time • Optional: 3x Percentiles L_{AFnn}
Frequency weightings	A + Cpeak
Time weightings	Fast, Slow
Measurement range	30 ... 140 dB (L_{Aeq}) 55 ... 143 dB (L_{Cpeak})
Resolution	0.1 dB
Display	Illuminated LCD: • Measured value with 3.5 digits • Bar graph in 5 dB steps • < under-range, > over-range • Measurement time (hh:mm:ss) • Battery status • Memory status
Microphone	1/2" electret measurement microphone
Calibration	Automatic to 94 dB
Storage cycles	Individually selectable for all measurement values from 125 ms ... 24 h
Interface	USB
Batteries	2 x AA (1.2 V); all battery types may be used
Operating time per set of batteries	> 120 h
Storage time for batteries	10 years (lithium batteries)
Dimensions	190mm x 70mm x 32mm
Weight	250 g (including batteries)
Scope of delivery	Sound level meter, windscreen, manual, 1.5m USB interface cable, USB mains power supply, Tango Utilities software
Option 1	Expansion to 8MB memory plus 3 freely-selectable percentiles
Option 2	Measurement case with tripod
Option 3	Interface documentation for individual software development