



PUIaudio



Data Sheet

UTR-18225K-TT

Key Features

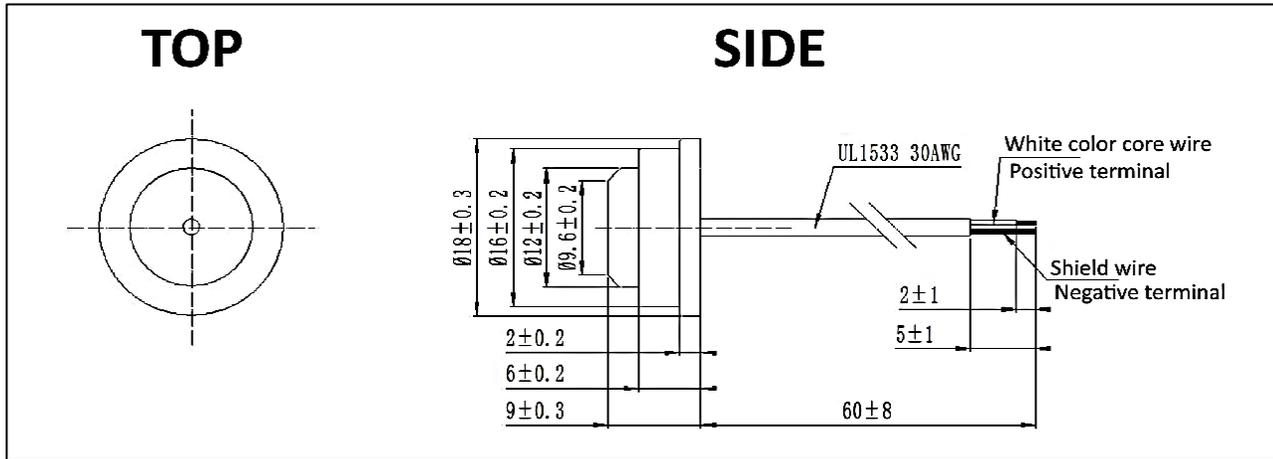
This transducer is designed primarily for gas flow measurement and is equipped with innovative acoustic technology to ensure stability, reliability, and consistent performance.

Specifications

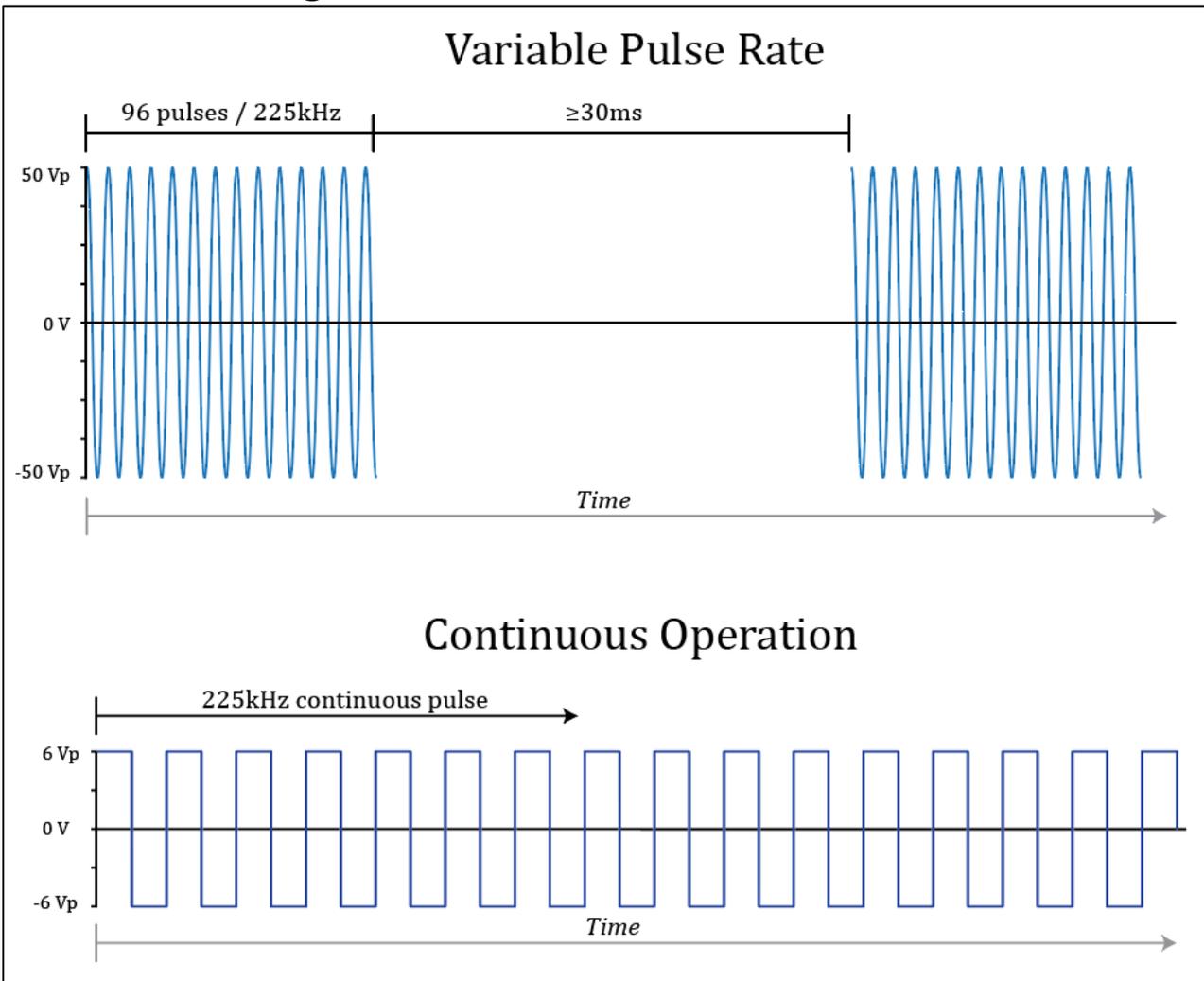
Parameters	Values	Units
Function	Dual Mode	Transmitter / Receiver
Nominal Drive Frequency	225 ± 5	kHz
Resonant Impedance	100 ~ 350	Ohms
Overall Sensitivity Input: 200KHz/5Vp-p/square/3 pulses. Measuring distance: 60cm Receiving sensitivity after amplifying ~30dB	140 ~ 240	mVp-p
Typical Beam Angle See Direction Test Angle Diagram; measured with sensitivity reduced 50%, test distance 200mm	15 ± 3	degrees
Capacitance 1kHz/1V/25°C/LCR	2,200 ± 20%	pF
Maximum Driving Voltage Maximum of 96 pulses / Pulse interval 30ms	100	Vpp
Maximum Driving Voltage Continuous square wave	12	Vpp
Maximum Pressure	0.2	Mpa
Operating Temperature	-25 ~ 70	°C
Storage Temperature	-30 ~ 70	°C
Housing Material	Black Plastic	-
Environmental Compliances	RoHS/REACH	-

Test condition: T=25±3°C, H=45~75% R.H

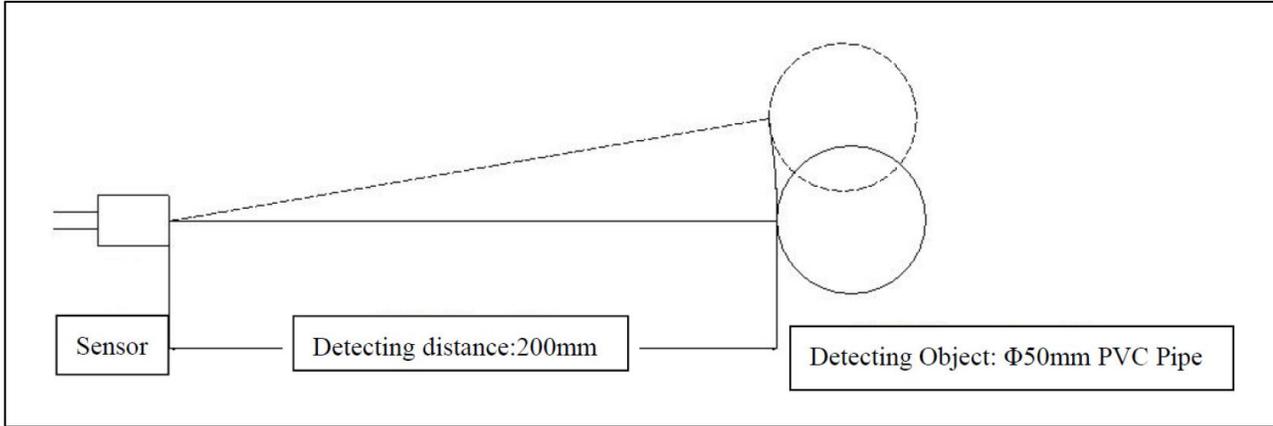
Dimensions (Units: mm, Tolerance: ± 0.5 mm unless otherwise stated)



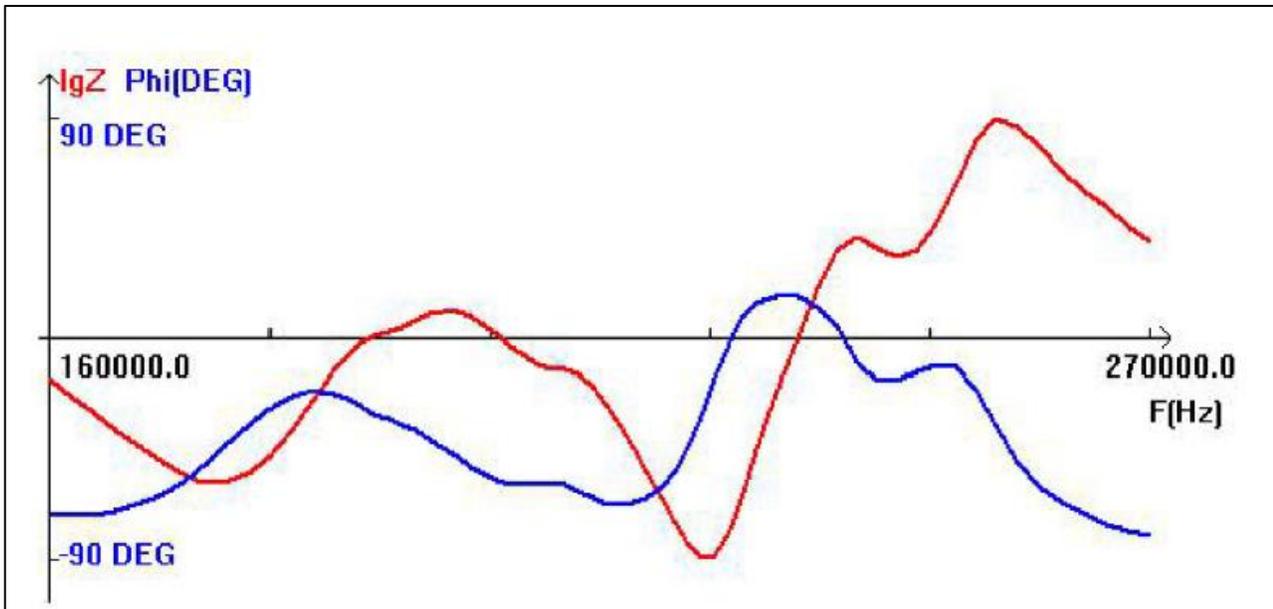
Reference Drive Signals



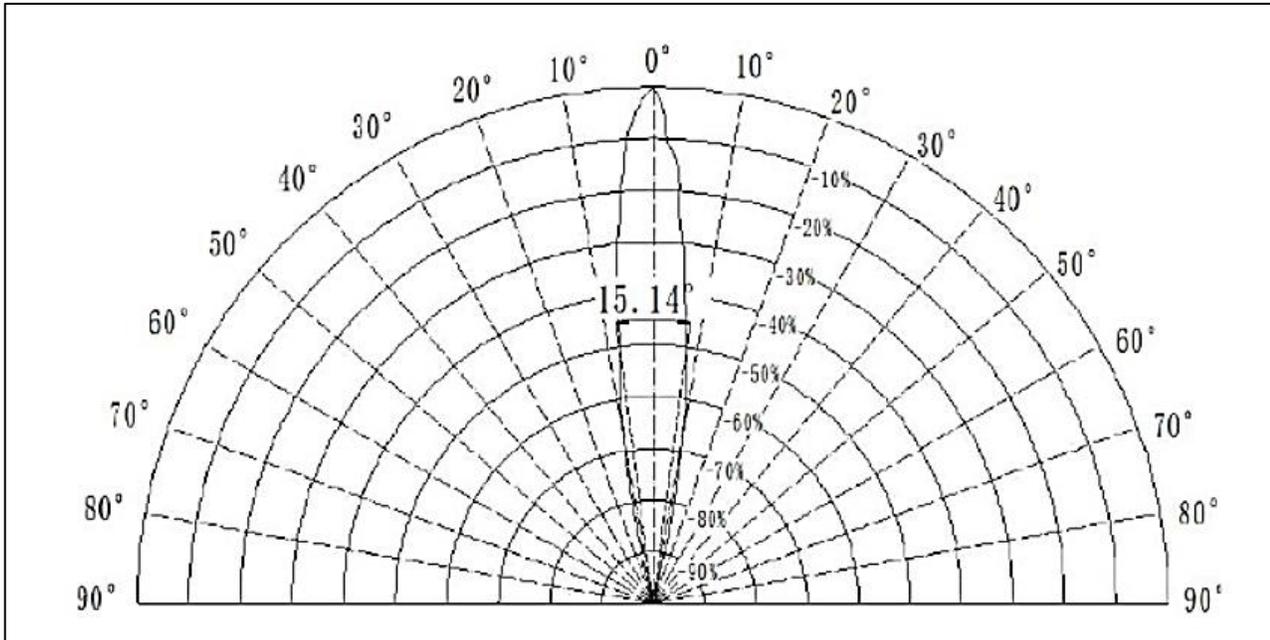
Direction Angle Test Diagram



Frequency - Impedance Response



Beam Angle Response



Reliability Testing

Test	Test Specifications	Judgement
Temperature Load Tests		
Low Temperature Storage Test	-30°C ± 3°C, 240 hours	Allow 24 hours rest at room temperature before judgement.
High Temperature Storage Test	+70°C ± 2°C, 240 hours	
Low Temperature Operation Test	-40°C ± 3°C, 240 hours; 200 kHz, 120 ± 20 Vpp sine wave; 96 pulses / 30ms interval	1) No abnormal changes in appearance (no deformation, cracking, corrosion, glue overflow, etc.) 2) Resonant frequency variation ≤ 1.5% 3) Sensitivity variation ≤ 30%
High Temperature Operation Test	+70°C ± 2°C, 240 hours; 200 kHz, 120 ± 20 Vpp sine wave; 96 pulses / 30ms interval	
High Temperature Resistance Test	+120°C ± 2°C, 15 minutes	Allow 4 hours rest at room temperature before judgement. 1) No obvious deformation in appearance

Mechanical Load Tests		
Sine Vibration Test	Sweep: 10~150Hz, 1 octave / min, displacement 0.35mm, vibration in X, Y, Z directions; 20 cycles	Allow 4 hours rest at room temperature before judgement. 1) No abnormal changes in appearance (no deformation, cracking, corrosion, glue overflow, etc.) 2) Resonant frequency and sensitivity shall meet requirements of specification.
Drop Test	Drop height: 1.0 ± 0.05m, ±X, ±Y, ±Z (6 directions), 3x in each direction (18 total)	
Shock Test	Impact along ±X, ±Y, ±Z; 3x in each direction (18 total); half sine waveform, peak acceleration 100G, pulse time 11ms	
Static Pressure Resistance Test	Subject to 0.2Mpa for 1 hour	
Wire Tension Test	Tensile force of 4.9N applied between wires and sensor, 30 seconds	
Lifetime Tests		
Constant Humidity and Heat Operation Test	+60°C ± 2°C, 90%RH, 400 hours; Driving signal: 200 kHz, 120 ± 20 Vpp sine wave; 96 pulses / 30ms interval	Allow 24 hours rest at room temperature before judgement. 1) No abnormal changes in appearance (no deformation, cracking, corrosion, glue overflow, etc.) 2) Resonant frequency variation ≤ 1.5% 3) Sensitivity variation ≤ 30%
Rapid Temperature Transformation Test	-30°C ± 3°C for 0.5 hours → raise temperature to +70°C ± 2°C within 3 minutes → remain at temperature for 0.5 hours → lower temperature to -40°C ± 3°C within 3 minutes; 240 cycles, parallel 3.9kΩ resistance at both ends of sensor.	
Flame Retardancy Test	Conduct Vertical combustion test; 10 seconds burning time, 2x for each test	Allow 24 hours rest at room temperature before judgement. 1) Shall meet grade V-0; residual flame time ≤ 10 seconds

Packaging

20 pcs/tray
5 trays per case (100pcs)
12 cases per box (1200pcs)

Precautions

- a) Product designed only for use in air medium, not liquid mediums.
- b) Integration of an anti-interference function in the drive circuit is recommended.
- c) Ensure an anti-failure function is present in the application in case of malfunction.
- d) It is recommended to separate the product and application housing by a soft rubber ring.
 - a. Keep the product emitting surface free from external vibrations to prevent changes in performance.
- e) Do not use the product under the following conditions, to avoid any fault or performance degradation.
 - a. Strong impacts or vibration
 - b. Prolonged exposure to high temperatures and humidity
 - c. Corrosive gas or sea breeze
 - d. Soluble organic matter environments
 - e. Input voltages exceeding the specified maximum
 - f. Pressure environments exceeding the specified maximum pressure

Specifications Revisions

Revision	Description	Date	Approved
A	Released from Engineering	10/20/22	
B	Revised Specifications, Performance Graphs, Reference Drive Signals, Reliability Testing, Precautions	2/26/24	KM
C	Added Resonant Impedance	3/7/25	JD

Note:

1. Unless otherwise specified:
 - A. All dimensions are in millimeters.
 - B. Default tolerances are $\pm 0.5\text{mm}$ and angles are $\pm 3^\circ$.
2. Specifications subject to change or withdrawal without notice.