



PUIaudio



Data Sheet

UTR-16295K-TP-LWC60

Key Features

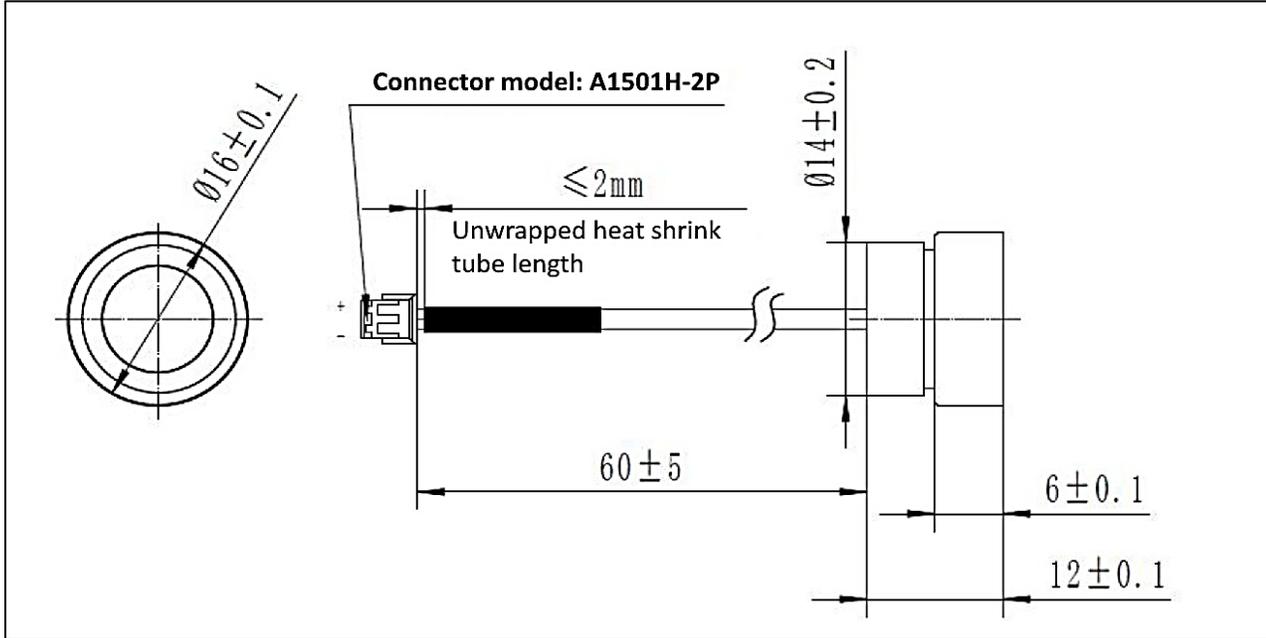
Perfect for short-range detection applications! Utilizes innovative acoustic materials for high precision, good directivity, and excellent consistency.

Specifications

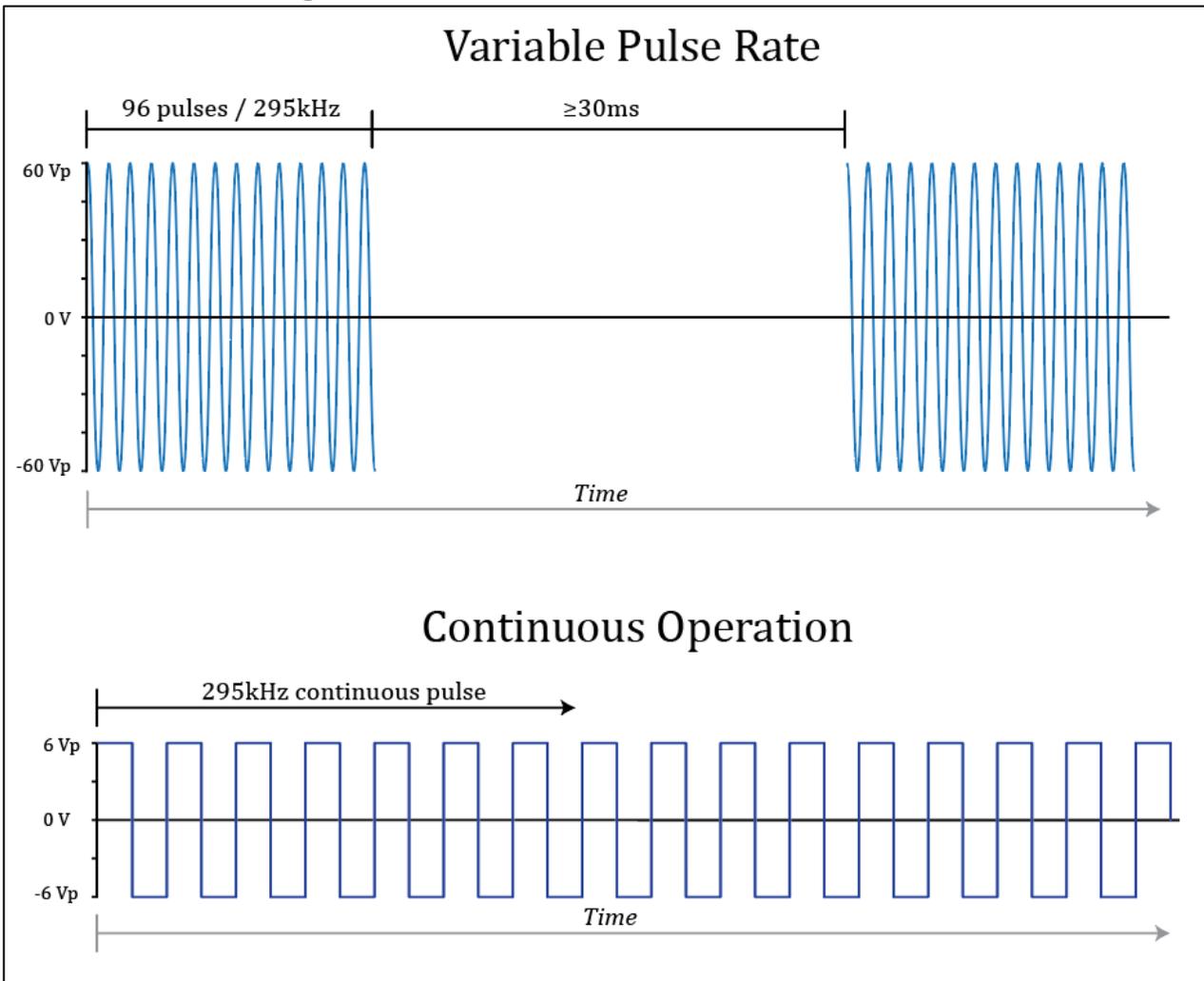
Parameters	Values			Units
Function	Dual Mode			Transmitter / Receiver
Nominal Drive Frequency	295 ± 15			kHz
Hard Ground Sensitivity Measuring distance: 30cm	First Echo	2750	+750/-200	mVp-p
	Second Echo	2600	+900/-1100	
Soft Ground Sensitivity Measuring distance: 30cm	First Echo	0	-	mVp-p
	Second Echo	0	-	
	Third Echo	0	-	
Typical Beam Angle See Direction Test Angle Diagram; measured with sensitivity reduced 50%, test distance 150mm	9 ± 2			degrees
Capacitance 1kHz/1V/25°C/LCR	1300 ± 20%			pF
Maximum Driving Voltage Maximum of 96 pulses / Pulse interval 30ms	120			Vpp
Maximum Driving Voltage Continuous square wave	12			Vpp
Operating Temperature	-40 ~ 70			°C
Storage Temperature	-40 ~ 70			°C
Housing Material	Black Plastic			-
Environmental Compliances	RoHS/REACH			-

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

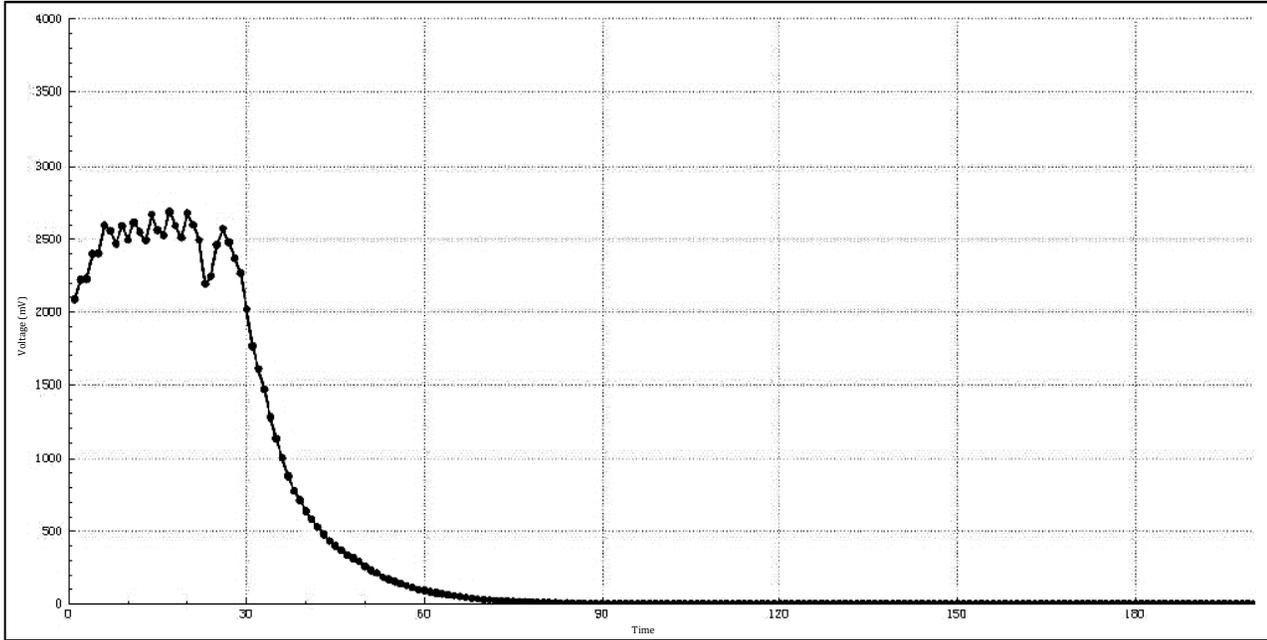
Dimensions (Units: mm, Tolerance: ± 0.5 mm unless otherwise stated)



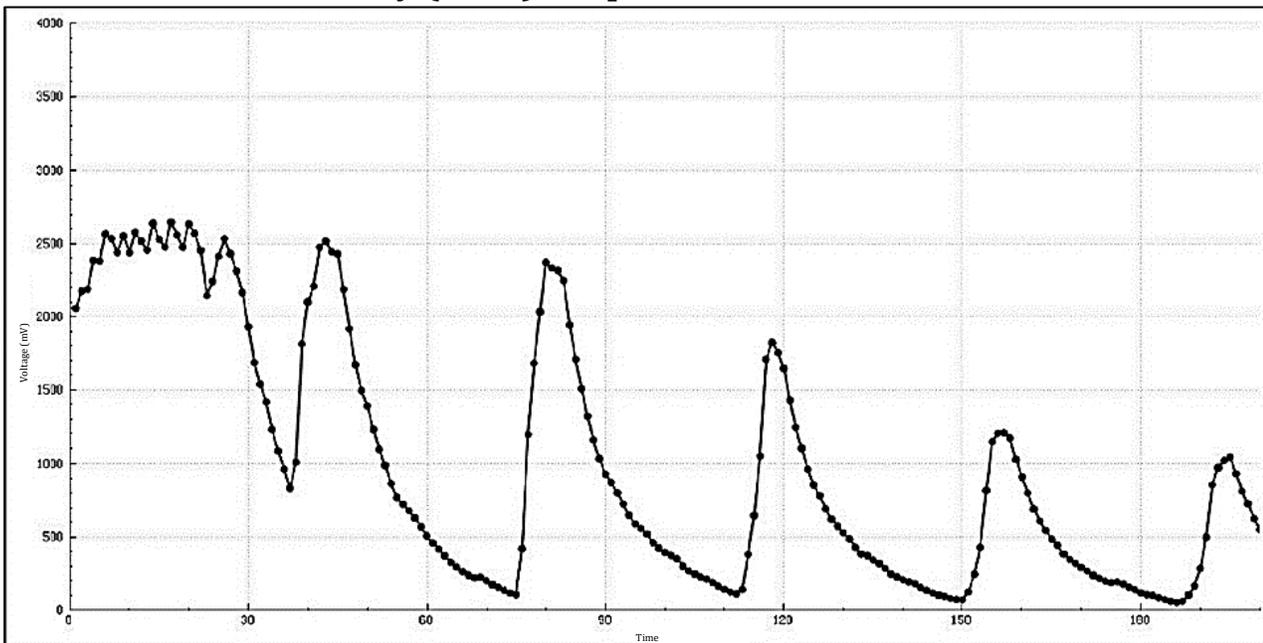
Reference Drive Signals



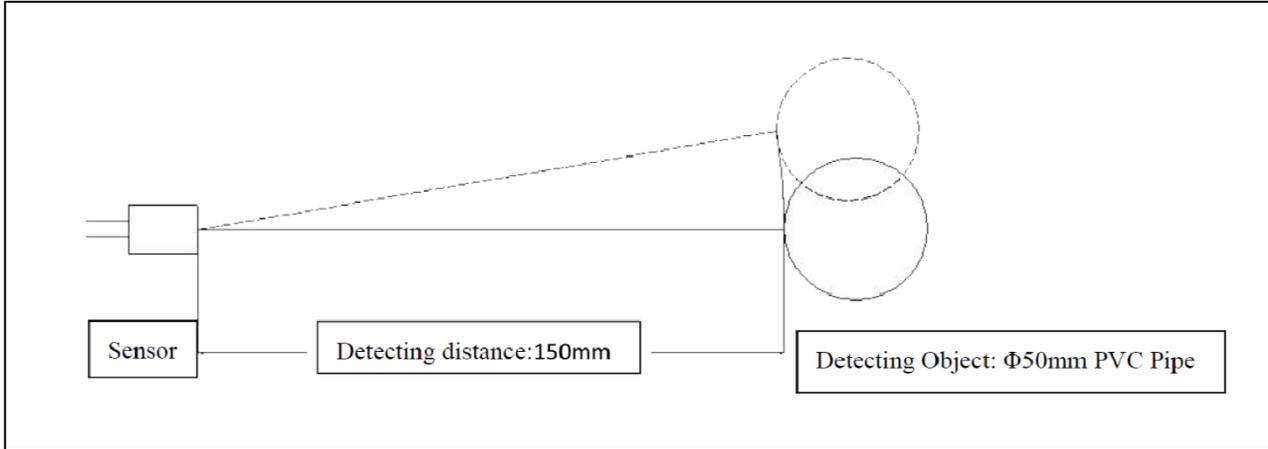
Soft Ground Sensitivity (Echo) Response



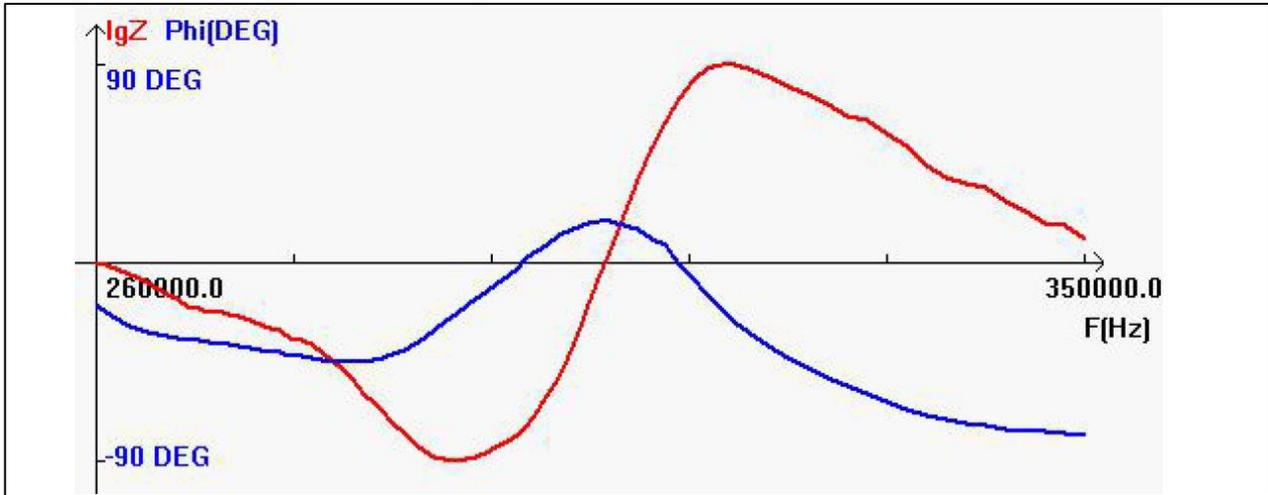
Hard Ground Sensitivity (Echo) Response



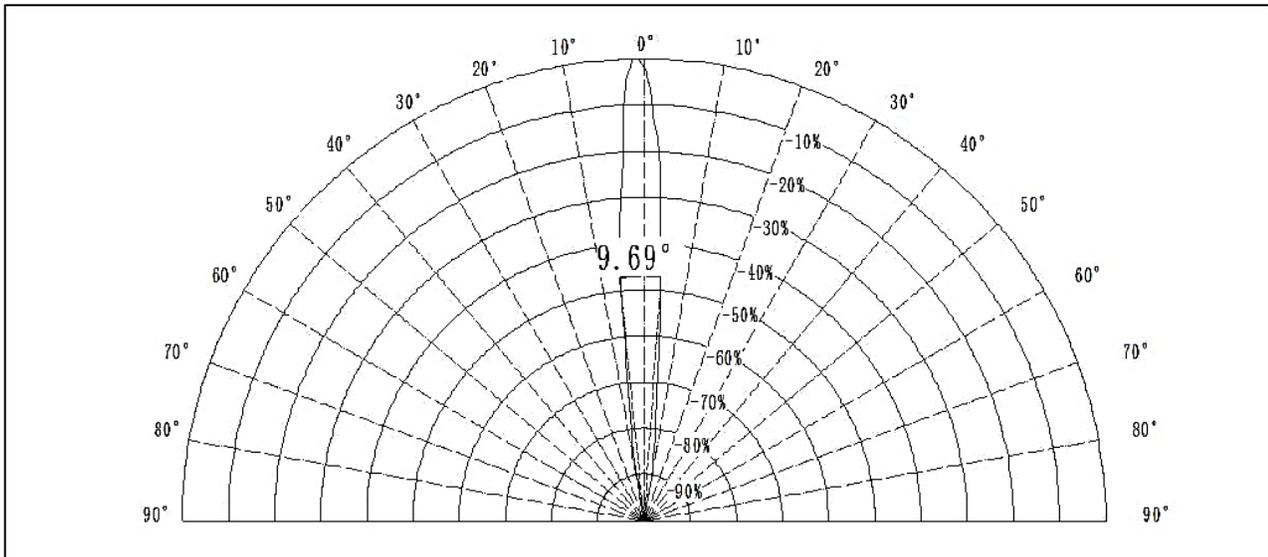
Direction Angle Test Diagram



Frequency - Impedance Response



Beam Angle Response



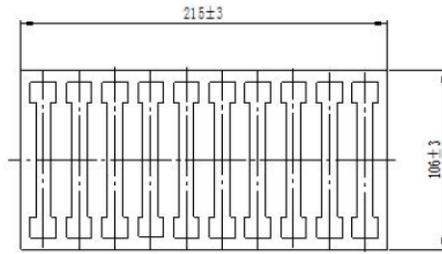
Reliability Testing

Test	Test Specifications	Judgement
Environmental Tests		
Low Temperature Storage Test	-40°C ± 3°C, 240 hours	Allow 24 hours rest at room temperature before judgement. 1) No abnormal changes in appearance (no deformation, cracking, corrosion, glue overflow, etc.) 2) Sensitivity variation ≤30%
High Temperature Storage Test	+70°C ± 2°C, 240 hours	
Low Temperature Operation Test	-40°C ± 3°C, 240 hours; 300 kHz, 120 Vpp sine or square wave; 96 pulses / 30ms interval	
High Temperature Operation Test	+70°C ± 2°C, 240 hours; 300 kHz, 120 Vpp sine or square wave; 96 pulses / 30ms interval	
Constant Humidity and Heat Test	+70°C ± 2°C, 90%RH, 240 hours	
High and Low Temperature Characteristic Test	-20°C ± 3°C for 2 hours→ Test ringing time and sensitivity→ Raise temperature to +60°C ± 2°C, remain for 2 hours→ Test ringing time and sensitivity	
Vibration Test	Constant 20 Hz 4.4G acceleration; vibration in X, Y, Z directions for 24 hours. Sweep frequency range: 10Hz ~ 200Hz, 4.4G acceleration, rise and fall times 15 minutes each; vibration in X, Y, Z directions for 24 hours.	Allow 4 hours rest at room temperature before judgement. 1) No abnormal changes in appearance (no deformation, cracking, corrosion, glue overflow, etc.) 2) Sensitivity variation ≤30%
Shock Test	Impact along ±X, ±Y, ±Z (6 directions); 3x in each direction (18 total); half sine waveform, peak acceleration 100G, pulse time 11ms	
Drop Test	Drop height: 1.0 ± 0.05m, ±X, ±Y, ±Z (6 directions) on steel plate, 3x in each direction (18 total)	
Tension Test	Vertically suspend 2000g weight in the outlet direction of sensor for 60s ± 1s	

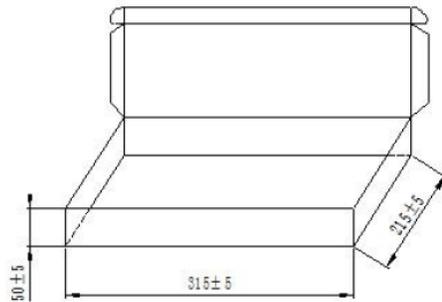
Reliability Testing (cont.)

Lifetime Tests		
Constant Humidity and Heat Operation Test	+70°C ± 2°C, 90%RH, 240 hours; Driving signal: 300 kHz, 120 ± 20 Vpp sine or square wave; 96 pulses / 30ms interval	Allow 24 hours rest at room temperature before judgement.
Rapid Temperature Transformation Test	-40°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; 100 cycles	1) No abnormal changes in appearance (no deformation, cracking, corrosion, glue overflow, etc.) 2) Resonant frequency and sensitivity shall meet requirements of specification.
Endurance Test	+70°C ± 2°C, 500 hours; Driving signal: 300 kHz, 120 ± 20 Vpp sine or square wave; 96 pulses / 30ms interval	

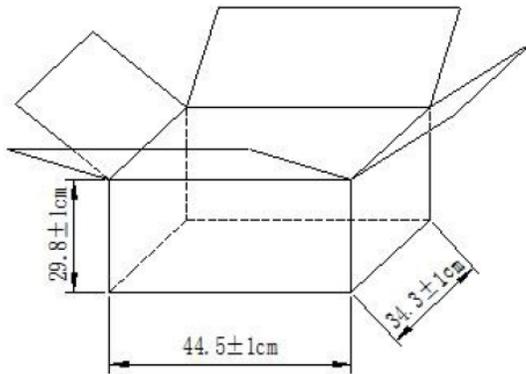
Packaging (Units: mm, Tolerance: $\pm 0.5\text{mm}$ unless otherwise stated)



20pcs/tray



9 trays per case (180pcs)



10 cases per box (1800pcs)

Specification Revisions

Revision	Description	Date	Approved
A	Released from Engineering	10/20/2022	
B	Revised Drawing and Reliability Testing	1/18/2023	
C	Revised Specifications, Performance Graphs, Reference Drive Signals, Reliability Testing, Precautions	2/26/2024	KM

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.