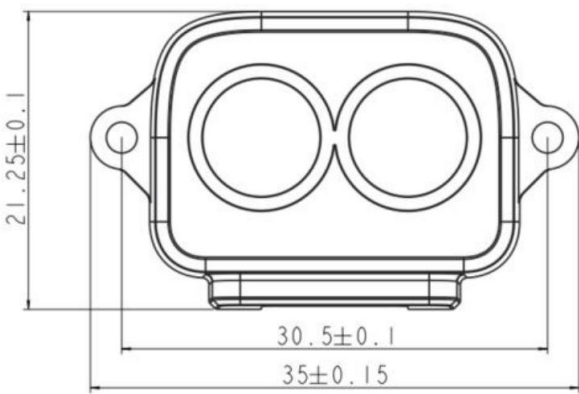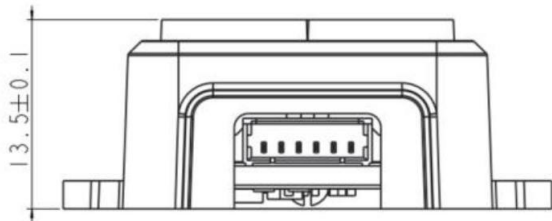# Benewake TF-Luna-UW

Datasheet

TF-Luna-UW is a single-point Time-of-Flight (ToF) LiDAR, using an 850nm infrared light source and a unique optical and electrical design for stable, precise, and highly sensitive distance measurement. Highly adaptable to various environments and targets, it's ideal for outdoor pool robots, even in direct sunlight.

Advantages: Compact size, high accuracy, low power consumption, and algorithms optimized for underwater applications.

Applications: Pool edge mapping, underwater obstacle avoidance, and pool step detection.

Technical Specifications

Underwater Measurement Performance	
Detection range	10cm~55cm[1],in clear water
Accuracy	<±3 cm[1]
Repeatability	< ±1 cm[1]
Distance resolution	1cm
Default frame rate[2]	100Hz
Optical Parameters	
Light source	VCSEL
Central wavelength	850nm
FoV of laser emission[3]	2°
Eye safety	Class 1 Eye-safe[EN60825]
Mechanical/Electrical	
Power supply	DC 3.7V~5.2V
Average power consumption	≤70mA
Power consumption	≤0.35W
Peak current	150mA
Storage temperature	-20℃~75℃
Communication level	LVTTL（3.3V)
Dimensions	35mm*21.25mm*13.5mm
Weight	<5g

Chassis material	PC/ABS
Cable length	10cm

Communication Protocol[④]

UART		I2C	
Baud rate	115200 (Adjustable)	Maximum transfer rate	400kbps
Data bit	8	Master-follower mode	Follower mode
Stop bit	1	Default address	0x10
Parity	None	Address range	0x01~0x7F

Dimensions (Unit: mm)

Notes to the specifications:

① The measured parameters is under indoor, clear water conditions with a target simulating a common tile reflectivity of 50% at 25℃.   Results may vary under different conditions.

② Supports up to 250 Hz; configurable frame rates are 500/n Hz, where n is an integer ≥ 2 (e.g., 250, 167, 125, 100 Hz). The factory default is 100 Hz.

③ This angle is a theoretical value; some deviation from the actual angle may occur.

④ UART and I2C use different pins and require a command to switch communication protocols. See the user manual for details.