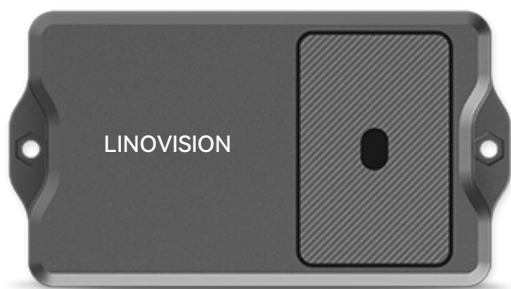# ToF Laser Distance Sensor
IOT-S500TLD

IOT-S500TLD is a distance sensor based on ToF (time of flight), which is mainly used for detecting the fill level and position status. With an appropriate FOV with the maximum field angle of 27°, it has almost no blind spot when installed on small-sized waste bins or containers. The embedded temperature sensor enables it to monitor whether the containers are burning for security reasons.

With IP67 waterproof rating and internal damp-proof coating, it is suitable for outdoor applications. Besides, IOT-S500TLD is equipped with 3-axis accelerometer to detect the status of container lid. Linovision offers LoRaWAN® version and NB-IoT/Cat.M version to meet different communication needs. The LoRaWAN® version can be integrated with Linovision LoRaWAN® gateway and Linovision IoT Cloud solution, enabling remote and visual management of all sensor data. The NB-IoT/Cat.M version not only supports multiple application modes to compatible with IoT platforms, but also is equipped with GNSS for tracking and security purposes.

⬚ Features

Shared Values

- 2-350 cm wide detection range with extremely short blind zone
- Easy to install, especially suitable for small-size waste bins or containers
- Equipped with NTC temperature sensor for the detection and alarm of trash burning
- Built-in 3-axis accelerometer sensor to monitor device tilt status
- Damp-proof coating inside and IP67 waterproof enclosure for outdoor applications

- ☐ Two built-in 9000 mAh replaceable batteries that work for up to 10 years without replacement
- ☐ Equipped with NFC for one touch configuration, support card emulation mode

LoRaWAN® Version Only

- ☐ Ultra-wide-distance wireless transmission up to line of sight of 15 km
- ☐ Function well with standard LoRaWAN® gateways and network servers
- ☐ Compatible with Linovision IoT Cloud for remote management

NB-IoT/Cat.M Version Only

- ☐ Equipped with GNSS positioning for tracking
- ☐ Support cumulative number report function for power saving
- ☐ Support multiple network protocols to be compatible with IoT platforms

☐ Specifications

Wireless Transmission	
LoRaWAN® Version	
Frequency	CN470/IN865/RU864/EU868/US915/AU915/KR920/AS923-1&2&3&4
Tx Power	16 dBm (868 MHz)/20 dBm (915MHz)/19 dBm (470MHz)
Sensitivity	-137dBm @300bps
Mode	OTAA/ABP Class A
NB-IoT/Cat M Version	
Cellular Band	Cat M1: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85 Cat NB2: B1/B2/B3/B4/B5/B8/ B12/B13/B18/B19/B20/B25/B28/B66/B71/B85
SIM Slot	1 (Micro SIM-3FF)
Application Mode	TCP/UDP/MQTT/AWS/Linovision IoT Cloud1
Measurement	
Distance	
ToF FoV	27°
Detection Range	2 ~ 350 cm
Detection Accuracy	±2 cm (- 20°C ~ 70°C)
Detection Resolution	1mm
Device Position	
Status	Normal/Tilt

Temperature

Range	-40 ~ 125°C
Resolution	0.1 °C

GNSS Positioning (NB-IoT/Cat M Version Only)

Parameters	Longitude/Latitude
Resolution	0.000001

Operation

Power On & Off	NFC, Power Button (Internal)
Configuration	Mobile App (via NFC)

Physical Characteristics

Power Supply	2 x 9000 mAh ER26500 Li-SOCL2 Batteries
Battery Life2	LoRaWAN® Version: Standard mode: Around 10 years (10 min interval, 25°C) Bin mode: Around 10 years (20 min interval, 25°C) NB-IoT/Cat.M Version: TCP/UDP—Around 10 Years, MQTT/AWS—Around 5 Years (4 Times Report per Day, per Report Includes 12 Packages with 30-min Collection Interval, 25°C)[3]
Operating Temperature	- 30°C ~ 70°C
Relative Humidity	≤95% (non-condensing)
Ingress Protection	IP67
Dim ens ion	118 × 65 × 30 mm
Material & Color	ABS + PC (Flame Retardant), Black gray
Installation	On the Flat Surfaces with Screws

[1] Linovision IoT Cloud mode is under development.

[2] Tested under laboratory conditions and for guideline purposes only

[3] PSM is required for SIM card and will be impacted by cellular base station signals.