

FLAGSHIP – LONG-RANGE COMPACT

LRF3000A1

LASER CLASS

CLASS 1

IEC 60825-1

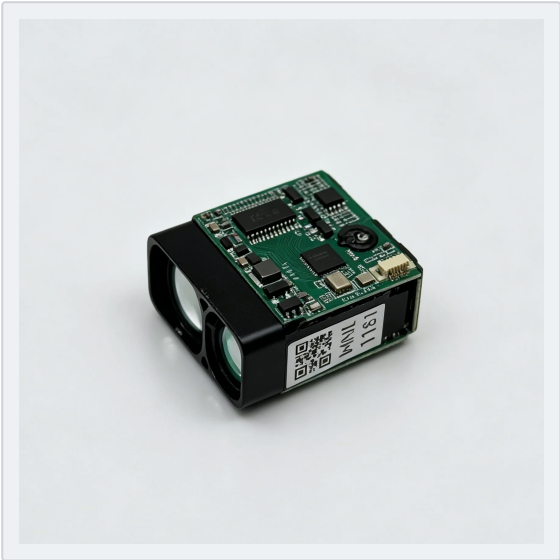
The long-range flagship: a 12-gram, 905 nm Class-1 DToF module that reaches beyond 3,000 m on a 70% building target, yet fits a 13.5 × 25.1 × 27.8 mm envelope. Adaptive output and UART-TTL make it a direct drop-in for handheld optics, survey instruments and UAV payloads.

MAX RANGE	ACCURACY	WEIGHT	INTERFACE
≥ 3,000 m	±0.7 m (≤100 m)	12 g	UART-TTL 3.3 V

TECHNICAL SPECIFICATIONS

FULL SHEET

Maximum ranging distance	≥ 3,000 m @ 70% refl. building target (clear, visibility ≥ 4 km)
Minimum ranging distance	1 m @ 90% refl. white board
Ranging accuracy	d ≤ 100 m: ±0.7 m · d > 100 m: ±(0.7 + 0.003·d) m
Measurement frequency	Normal 3-10 Hz adaptive · Long-range 1-10 Hz adaptive
Valid measurement rate	≥ 98%
False alarm rate	≤ 1%
Laser wavelength	905 ± 10 nm, Class 1 (IEC 60825-1)
Typical beam divergence	≤ 10 mrad
Average laser power	7.63 mW
Receiver field of view	≈ 8 mrad
Interface	UART (TTL 3.3 V)
Baud rate	115200 bps default / 9600 bps
Supply voltage	DC 3.3-5 V (ripple < 0.1 V)
Operating power	≤ 1.8 W @25°C · ≤ 2.1 W @70°C · ≤ 1.6 W @-20°C
Standby power	≤ 1 mW (enable high) / ≤ 350 mW (enable low)
Response time	≤ 160 ms + 100-517 ms (start-up + first ranging)
Weight	12 ± 0.5 g
Dimensions	13.5 × 25.1 × 27.8 mm
Shock / vibration	1000 g/ms · 5-50-5 Hz, 2.5 g
Operating temperature	-20 to +60 °C
Storage temperature	-25 to +75 °C
Protection rating	IP67
Reliability	MTBF ≥ 1500 h



INTERFACE

UART-TTL

PIN	SIGNAL	DESCRIPTION
1	GND	Ground
2	VCC	3.3-5 V DC supply
3	NC	Reserved
4	TTL_TXD	Serial TX, TTL 3.3 V
5	TTL_RXD	Serial RX, TTL 3.3 V
6	Enable	Power on at low level

APPLICATION FIT

- HANDHELD OPTICS

SURVEY INSTRUMENTS

UAV PAYLOADS
- EMBEDDED E0 SYSTEMS

Standard 8-byte UART frame (0x55 0xAA header, function code, 4 data bytes, checksum); distance returned ×10 for a one-decimal reading. Full integration manual ships with samples.