

SPD INTEGRATION SERIES

SPD1200S2G

LASER CLASS

CLASS 1

IEC 60825-1

The S2 platform with an integrated high-precision gyroscope — pairing 0.1–1,200 m (max 1,400 m) distance measurement with spatial attitude in a 24.6 × 11.4 × 26.3 mm, ≈ 10 g body for dynamic, moving-platform applications. IP67 lens cavity, efficient power.

MAX RANGE	ACCURACY	WEIGHT	INTERFACE
0.1–1,200 m (max 1,400 m)	±0.2 m (≤400 m)	≈ 10 g	UART-TTL

TECHNICAL SPECIFICATIONS

Laser wavelength	905 nm ± 5 nm
Laser beam divergence	< 6 mrad
Optical material	Aspherical lens
Receiving aperture	9.0 × 14.5 mm
Ranging range	0.1–1,200 m (max 1,400 m)
Ranging accuracy	±0.2 m (≤400 m) · ±d·0.75% (400–1,200 m)
Ranging frequency	2–20 Hz adaptive
Measurement accuracy rate	≥ 98%
False alarm rate	≤ 1%
Interface	UART-TTL (customizable)
Baud rate	115200 bps (default) · 9600 bps (optional)
Supply voltage	3.3–5 V
Startup time	≤ 200 ms
Inrush current	≈ 350 mA
Average laser power	On request
Response time	On request
Operating power	Average ≈ 0.65 W
Operating temperature	-20 to +60 °C
Storage temperature	-40 to +60 °C
Protection rating	IP67 (lens cavity)
Laser safety class	IEC Class 1
Dimensions	24.6 × 11.4 × 26.3 mm (square)
Weight	≈ 10 g
Shock / vibration	1000 g/ms (10×/s along optical axis) · 5–50–5 Hz, 2.5 g
Reliability	MTBF ≥ 1500 h
Integrated sensor	High-precision gyroscope (attitude / spatial positioning)
Gyro – Euler angle range	Roll (X) ±180° · Pitch (Y) ±90° · Yaw (Z) ±180°
Gyro – tilt accuracy (X, Y)	0.3°
Gyro – heading accuracy (Z)	≤ 0.75° (within 10 s)
Gyro – radial distance error (2 points)	±1 m (≤500 m) · ±1 m + d·0.1% (500–1,200 m)
Gyro – static distance error (2 points)	≤ ±1 m (<100 m) · ≤ ±3 m (100–500 m) · ≤ ±5 m (500–1,000 m)
Gyro – dynamic distance error (2 points)	≤ ±1 m (<50 m) · ≤ ±3 m (50–100 m) · ≤ ±6 m (100–500 m) · ≤ ±10 m (500–1,000 m)

FULL SHEET



INTERFACE

UART-TTL

PIN	SIGNAL	DESCRIPTION
1	GND	Power –
2	VCC	Power +
3	I/O	Reserved for expansion
4	TXD	Module → host
5	RXD	Host → module
6	SW-SHOT	Function enable (active high)

APPLICATION FIT

DYNAMIC PLATFORMS	STABILIZED GIMBALS	SPATIAL POSITIONING
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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.