

Parameter Index

System Accuracy

Model	TLH-INS-370D-26A	TLH-INS-170M-26A	TLH-INS-150M-23A	TLH-INS-600M-21A
Azimuth accuracy	$\leq 0.3^{\circ} \times \text{Sec (Lati)}$, 15min (north-seeking alignment) $\leq 0.1^{\circ}$, baseline of 1 m, dual antenna (satellite combination)	$\leq 0.1^{\circ}$, baseline of 1 m, dual antenna Conditions: satellite combination	$\leq 0.1^{\circ}$, baseline of 1 m, dual antenna Conditions: satellite combination	$\leq 0.1^{\circ}$, baseline of 1 m, dual antenna Conditions: satellite combination
Attitude angle accuracy	$\leq 0.02^{\circ}$ (real-time); $\leq 0.015^{\circ}$ (post-processing)	$\leq 0.1^{\circ}$	$\leq 0.1^{\circ}$	$\leq 0.1^{\circ}$
Horizontal position accuracy	$\leq 3.0\% \text{ D}$ (autonomous) $\leq 0.8\text{‰}$ (GNSS unlocked for 30min)	$\leq 0.2\%$ (GNSS unlocked for 30 min)	$\leq 0.2\%$ (GNSS unlocked for 15 min)	$\leq 0.2\%$ (GNSS unlocked for 1 km or 120 s)
Data update frequency	$\geq 200 \text{ Hz}$	$\geq 200 \text{ Hz}$	$\geq 200 \text{ Hz}$	$\geq 200 \text{ Hz}$
Speed accuracy	$\leq 3.0 \text{ m/s}$ (1 h of pure inertia) $\leq 0.05 \text{ m/s}$ (GPS and INS integrated Positioning)	$\leq 0.1 \text{ m/s}$ (satellite-guide combination)	$\leq 0.1 \text{ m/s}$ (satellite-guide combination)	$\leq 0.1 \text{ m/s}$ (satellite-guide combination)

System Parameters

Model	TLH-INS-370D-26A	TLH-INS-170M-26A	TLH-INS-150M-23A	TLH-INS-600M-21A
Initial alignment time	$\leq 8 \text{ min}$	/		
Restart alignment time	$\leq 3 \text{ min}$	/		
Zero speed correction time	$\leq 0.5 \text{ min}$	/		
Communication interface	RS232*2 (RTK and data line); RS422*2 (data line); CAN*1 (odometer and data line); PPS*1 (synchronization)	RS232*2 (RTK and data line); RS422*1 (data line); CAN*1 (odometer and data line); PPS*1 (synchronization)		
Operating temperature	$-40^{\circ}\text{C} \sim +65^{\circ}\text{C}$			$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Storage temperature	$-50^{\circ}\text{C} \sim +85^{\circ}\text{C}$	$-50^{\circ}\text{C} \sim +85^{\circ}\text{C}$	$-50^{\circ}\text{C} \sim +85^{\circ}\text{C}$	$-50^{\circ}\text{C} \sim +105^{\circ}\text{C}$
Vibration	5g@20~2000 Hz			
Impact	40g, 11ms, 1/2 Sine			
Maximum speed	120km/h			
Maximum angular velocity	90° /s			
Maximum gradient	It can find the north normally when the vehicle body tilts 15°	/	/	/
Power supply voltage	18V~36V; Rated voltage: 24V	9V~36V; Rated voltage: 12V	9V~36V; Rated voltage: 12V	9V~36V; Rated voltage: 12V
Power consumption	$\leq 20\text{W}@24\text{VDC}$	$\leq 10\text{W}@12\text{VDC}$	$\leq 8\text{W}@12\text{VDC}$	$\leq 6\text{W}@12\text{VDC}$
Dimensions (mm)	135*116*126	156*100*50.4	116*100*62	116*100*36
Weight (kg)	≤ 2	≤ 0.75	≤ 0.6	≤ 0.5

Inertial Device

Model	TLH-INS-370D-26A	TLH-INS-170M-26A	TLH-INS-150M-23A	TLH-INS-600M-21A
Gyro type	Type 70 fiber optic gyro	Type 70 fiber optic gyro+MEMS gyro	Type 50 fiber optic gyro+MEMS gyro	MEMS gyro
Gyro range	±500d deg/s	±500 deg/s	±500 deg/s	±300 deg/s
Gyro zero bias stability	≤ 0.03 deg/h,1σ	≤ 0.07 deg/h+10 deg/h,1σ	≤ 0.3 deg/h+10 deg/h,1σ	≤ 10 deg/h,1σ
Gyro zero bias repeatability	≤ 0.03 deg/h,1σ	≤ 0.07 deg/h+10 deg/h,1σ	≤ 0.3 deg/h+10 deg/h,1σ	≤ 10 deg/h,1σ
Gyro zero bias uncertainty	≤ 0.03 deg/h,1σ	≤ 0.07 deg/h+10 deg/h,1σ	≤ 0.3 deg/h+10 deg/h,1σ	≤ 10 deg/h,1σ
Gyro scale nonlinearity	≤ 50 ppm	≤ 10 ppm+100 ppm	≤ 10 ppm+100 ppm	≤ 100 ppm
Gyro angle random walk	≤ 0.009 deg/h ^{1/2}	≤ 0.004°/√h+0.25°/√h	≤ 0.02°/√h+0.25°/√h	≤ 0.25°/√h
Accelerometer range	±20 g	±6 g	±6 g	±6 g
Accelerometer zero bias stability	≤ 30 μg (1σ)	≤ 200 μg (1σ)	≤ 200 μg (1σ)	≤ 200 μg (1σ)
Accelerometer scale nonlinearity	≤ 40 ppm	≤ 200 ppm	≤ 200 ppm	≤ 200 ppm