e-survey

EAS301 Pro



PRECISION AGRICULTURAL AUTO-STEERING SYSTEM

- **High control accuracy**
  Precisely complete your farm task owing to ±2.5 cm control accuracy, supported by our high positioning accuracy and high torque and high-speed electric steering wheel.
- **RTK assistant technology**
  Free RTK assistant function could maintain centimeter accuracy for 600 seconds when RTK corrections fail.
- **Free from terrain worries**
  Do not need to worry about rough terrains, for roll and pitch of the vehicle will be detected to ensure straight lines, supported by our terrain compensation technology.
- **NMEA message supported**
  Output messages GGA, GSV, VTG, GSA, ZDA, RMC and GST.
- **Rich optional accessories**
  - Angle sensor: it helps to control the vehicle at speed from 1 - 12 km/h to 0.1 - 18km/h.
  - External IMU: it helps to improve the performance of auto-steering when you drive the vehicle in too steep and rough terrain at high speed.
  - Rear camera: it helps to conveniently check the status of implements without turning round even at night, supported by its LED.

EAS301 Pro is an auto-steering system that can adapt to different crops, regions and characteristics of agricultural equipment, relying on the advantages of the whole industry chain in the field of satellite positioning. It not only greatly improves the operation efficiency of agricultural machinery by the centimeter-level accuracy of repeated farming operations and 24-hour uninterrupted work even in the day with strong lights or at night, but also reduces the labor intensity of drivers and increases the unit output.

EAS301 Pro System

Accuracy	Dry land: 2.5 cm(≤ 9 km/h); Paddy land: 5 cm(≤ 9 km/h)
Line acquisition distance	<10 m
Vehicle velocity range	0.1 - 18 km/h
Correction data source	GSM, Radio, L-band, SBAS
NMEA output	GGA, GSV, VTG, GSA, ZDA, RMC, GST
Data formats	RTCM3.X, CMR, ROX
Optional accessory	Angle sensor, external IMU, rear camera



Specification

ST6 Display

System

Processor	Qualcomm SDM450, Octa-core ARM Cortex-A53 64-bit CPU @ 1.8 GHz
OS	Android 9.0
RAM	2 GB
ROM	16 GB

Screen

Size	10.1" LCD
Resolution	1280 x 600
Brightness	750 nits
Touch panel	Capacitive touch screen, multi-point anti-glare

Communication

Bluetooth	BT2.1+EDR/3.0/4.1/4.2 BLE
Wi-Fi	2.4G+5G, IEEE802.11 g/b/n/ac
GSM	■ LTE FDD: B1/B3/B5/B8 ■ LTE TDD: B34/B38/B39/B40/B41 ■ TD-SCDMA: B34/B39 ■ WCDMA: B1/B8 ■ CDMA2000/EVDO: BC0 ■ GSM: 900/1800MHz
Port	■ 1 x serial port, 12-pin ■ 1 x serial port, 12-pin ■ 1 x USB type-A, USB host ■ 1 x USB, Micro-USB, USB device ■ 1 x SIM card, SDHC ■ 1 x TF card, 128G max ■ 1 x GSM, Fakra D

Power Supply

Input voltage	7 - 36 V dc

Physical Specification

Dimension	270 mm × 190 mm × 40 mm
Weight	1.3 kg
Button	1 x power button
Battery	None
Humidity	90%
Operating temperature	-20°C - +70°C
Storage temperature	-30°C - +85°C
Water/dust proof	IP65
Vibration	ISO 16750/MIL-STD-810G

MC5 ECU

GNSS Performance

Channels	1100
Satellites tracking	■ GPS: L1CA/L1P/L1C/L2P/L2C/L5 ■ BDS: B1I/B2I/B3I/B1C/B2a/B2b/ACEBOC ■ GLONASS: G1/G2/G3, P1/P2 ■ GALILEO: E1/E5a/E5b/E6/ALTBOC ■ QZSS: L1CA/L1C/L2C/L5/LEX ■ IRNSS: L5 ■ SBAS: L1/L5
Update rate	10 Hz standard, 20 Hz optional
Horizontal positioning accuracy	■ Single: < 1.2 m (RMS) ■ DGNSS: < 0.3 m (RMS) ■ SBAS: < 0.3 m (RMS) ■ RTK: 8 mm+1 ppm (RMS)
Heading accuracy	< 0.08° rms with 1.0 m baseline
Re-acquisition	< 1 second

Communication

Bluetooth	4.2
Wi-Fi	IEEE 802.11 b/g/n
GSM	Global GSM/WCDMA/LTE
Port	■ 1 x serial port, 18-pin ■ 1 x SIM card ■ 1 x GNSS heading, TNC ■ 1 x UHF, TNC

Internal Radio

Frequency range	410 - 470 MHz & Hopping 902.4 - 928 MHz
Channel spacing	12.5 KHz / 25 KHz
Protocol	HZSZ, TrimTalk 450S, PCC-GMSK, South

Environment

Operating temperature	-40°C - +70°C
Storage temperature	-40°C - +85°C
Humidity	95%
Shock	EP 455 Section 5.14.1
Vibration	EP 455 Section 5.15.1 (Random)
Water/dust proof	IP67

Power

Input voltage	9 – 28 V dc (ISO 16750 4.2 B-H)

Physical Specification

Dimension	162.2 mm × 162.8 mm × 70.2 mm
Material	Magnesium alloy
Weight	1284±20 g

Specification

EW1 Electric Steering Wheel

Motor	
Working voltage	9 - 16 V dc
Nominal voltage	12 V dc
Output torque	9 V dc : 6.5N.m; 12 V dc : 8.5N.m
Maximum output torque	13 N·m
Maximum power	< 200 W
Maximum rotation speed	100 RPM
Load steering error	< ±5°
Response delay	Full range: 10 Hz; Straight walking: 20 Hz

Working Environment	
Operating temperature	-20°C - +70°C (-68°F - +158°F)
Storage temperature	-40°C - +85°C (-104°F - +185°F)
Mechanical shock	EP455 5.14.1
Vibration characteristics	EP455 5.15.1& 5.15.2

Communication	
Interface	ALTW/1DC-06PMMS-LC7001
Communication protocol	SAE J1939/ISO11783 CAN BUS

EMC / Safety / Environmental Protection	
Radiated interference	■ Broadband: IAW ISO14982-2009 /6.4 ■ Narrowband: IAW ISO14982-2009/ 6.5
Radiation immunity	IAW ISO14982-2009/6.6
Electrostatic discharge (ESD)	IAW ISO14982-2009/6.7
Environmental protection standard	2011/65/EU RoHS 2.0

Physical Specification	
Dimensions	Φ180 mm × 80 mm
Weight	4.6 kg

Rear Camera (Optional)

Performance	
Water/dust proof	IP67
Input voltaget	12 V dc
Port	Female, 4-pin aviation
LED	8 LED light
Resolution	720P, 1024 x 600

UA35 GNSS Antenna

Antenna Performance	
Frequency	■ GPS: L1/L2/L5 ■ BDS: B1/B2/B3 ■ GLONASS: G1/G2/G3 ■ GALILEO: E1/E5 ■ QZSS ■ SBAS ■ L-Band
Polarization	Right-handed circular
Axis ratio	≤2dB @Axial
Antenna gain	GPS L1: > 6 dBi GPS L2: > 5 dBi
Phase center offset	±2 mm

Physical Specification	
Dimensions	Φ146 mm x 46 mm
Weight	500 g
Antenna interface	TNC-F
Radome material	ASA Plastic
Base material	Aluminum alloy
Mount	5/8-11UNC-2B

iMM1 Angle Sensor & iMM1 External IMU (Optional)

Performance	
Supply voltage	5.5 – 36 V
Supply current	30 mA/12 V
Power consumption	≤ 0.7 W
Water/dust proof	IP67
Measurement range	±90°
Measurement axis	X-Y
Resolution	0.002°
Accuracy	0.1°
Update rate	50 Hz
Initialization time	≤ 30 seconds

Working Environment	
Working temperature	-40°C - +70°C
Storage temperature	-40°C - +85°C
Shock	20000 g, 0.5 ms, 3 times/axis
Interface	CAN

Physical Specification	
Material	Aluminum alloy





e-survey

Shanghai eSurvey GNSS Co., Ltd.
Building 4, No. 651 Wanfang Rd, Minhang District, Shanghai 201112, China

Tel: +86 400-999-8088
Email: info@esurvey-gnss.com
Web: www.esurvey-gnss.com
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