AX3000 GNSS Auto-Steering System

Solution for precision agriculture

Overview

The AX3000 Auto-Steering System is an automatic steering system which uses high-torque motor control steering wheel. It integrates the advantages of fast and easy installation, large torque, high precision, low noise, low heat and quick debugging. It is suitable for various applications of tractors, harvesting machines, plant protection machinery, rice trans-planters and other agricultural machinery.

The system includes a control tablet integrated with a 4G modem, a steering wheel motor with a built-in controller, and an angle sensor. It can be widely used for sowing, cultivating, trenching, ridging, spraying pesticide, transplanting, land consolidation, harvesting and other work scenarios.

Key Features

Supports multiple constellations & frequencies:

- GPS L1, L2
- GLONASS L1, L2
- BeiDou B1, B2
- GALILEO E1, E5b
- QZSS L1, L2
- SBAS L1

Small high-torque motor

Highly integrated system

10.1'' touch screen control tablet

High accuracy to ±2.5cm

Without modification of the hydraulic system

Fast installation in 30 minutes

Calibration in 15 minutes

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Technical Specifications - T100 Control Tablet

System

Operating System:	Android 6.0
CPU:	Quad-Core1.5GHz
Memory:	2GB RAM + 16GB ROM
External Flash:	T-Flash, up to 64GB
LCD:	10.1'' Capacitive Touch Screen
Resolution:	1024x600 pixel

Communication

Wi-Fi:	2.4GHz IEEE 802.11 b/g/n
Cellular:	FDD-LTE 800 / 1800 / 2100 / 2600MHz
	TD-LTE 1900 / 2300 / 2500 / 2600MHz
	WCDMA 850 / 900 / 1900 / 2100MHz
	GSM 850 / 900 / 1800 / 1900MHz
Bluetooth:	V4.0
USB:	USB 2.0 (host & debug) x1
Audio:	3.5mm Audio Jack for Audio Serial
Port:	RS232 x2, RS485 x1
CAN Port:	CAN x2 (J1939, CANOpen, ISO15765)
Ethernet:	RJ45 (100M Ethernet) x1

Electrical

Power Input:	9V~36V DC
Power failure detection:	supported
Power output:	12V DC x2

Physical

Dustproof&Waterproof:	IP-65
Dimension:	281mmx181mmx42mm
Weight:	1.5kg
Operating Temperature:	-20 ℃ ~ +70 ℃
Storage Temperature:	-40 ℃ ~ +8

Technical Specifications
- EMS2 Motor Wheel

Motor Performance

Rated speed:	100 rpm
Rated torque:	10 N·m
Guaranteed continuous operation speed:	100 rpm
Maximum freewheel error:	0 (without reducer)
Supply voltage:	8V~16V DC
Rated current:	10A
Stall current:	25A
Rated voltage:	12V

Communication

Communication protocol:	ModBUS
Encoder resolution:	1000 lines, 4000 pulses / circle
Encoder interface (protocol):	parallel, no protocol
Encoder maximum output rate:	200KHz
Communication interface:	RS232

Physical

Dimension:	ϕ 187x100.2mm (motor)
	ϕ 410x32mm (steering wheel)
Weight:	6.35kg (motor only)
Material:	Aluminum alloy

Environmental

Operating Temperature:	-40℃ ~ +105℃ (motor)
Storage Temperature:	-45℃ ~ +150℃ (motor)

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Technical Specifications
- R71 Smart Antenna

Operating Temperature	-30C ∽+70C			
Storage Temperature	-40C ∽+85C			
Physical Dimension	179x179x69mm			
Weight	1-1 Kg			
Protection Level	IP67			
Power Consumption	<6.0W			
Supply Voltage	DC 9 ∽36V			
Signal	GPSL1/LZ BDS B1/B2, GLONASS L1/L2> Galileo E1/E5a/E5b, QZSS L1/L2/L5			
	Hot Start	<10S		
	Cold Start Time	<25s		
	Recapture	<1S		
	Initialization Time	<5S(Typical Value)		
	Initialization Reliability	Single point positioning		
	Differential Data	RTCM V3.0/3.2		
	Data Format	NEMA0183, Unicore		
	Channel	432 Channel. Based on Nebulasll chip		
Single Point Positioning	Horizontal	1.5m	Observation data update rate	20HZ
(RMS)	Elevation	2.5m		
DGPS(RMS)	Horizontal	0.4m		
	Elevation	0.8m		
	Orientation Accuracy	0.2 Degree/1m Baseline	Positioning data update rate	20HZ
RTK(RMS)	Horizontal	1cm+1ppm		
	Elevation	1.5cm+1ppm		
	Time Accuracy	20ns		
	Speed Accuracy	0.03m/s		

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