AG990 GNSS Auto-Steering System

Ideal solution for precision agriculture

Overview

The Tersus AG990 Auto-Steering System is an automatic steering system which uses high-torque motor control steering wheel. It integrates the advantages of convenient 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 transplanters and other agricultural models.

The system includes a control tablet integrated with a high-precision GNSS board, a steering wheel motor with a built-in controller, and an angle sensor. It controls the vehicle and co-operates with a base station to form a whole machine control system for agriculture applications. 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

Non-contact angle sensor

10.1'' touch screen control tablet

Inter-ridge error less than 2.5cm

Without modification of the hydraulic system

Dual antennas receive signals

Fast installation in 30 minutes

Calibration in 15 minutes

Quick start in 5 minutes' learning

Note: If users want to customize the product portfolio, please contact sales@tersus-gnss.com by email.

Technical Specifications - T100 Control Tablet

System

Operating System:	Android 6.0
CPU:	Quad-Core 1.5GHz
Memory:	2GB RAM + 16GB ROM
External Flash:	T-Flash , up to 64GB
LCD:	10.1'' Capacitive Touch Screen
Resolution:	1024x600 pixels

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

GNSS

Signal Tracking:	GPS L1, L2; GLONASS L1, L2; BeiDou B1, B2; Galileo L1, L2; QZSS L1, L2; SBAS L1
Single Point Positioning Accuracy (RMS):	
– Horizontal:	1.5m
– Vertical:	3.0m
Real Time Kinematic, RTK (RMS):	
– Horizontal:	10mm+1ppm
– Vertical:	15mm+1ppm
Heading Accuracy:	
– 1m Baseline (RMS):	0.15°
Timing Accuracy (RMS):	20ns
Velocity Accuracy (RMS):	0.03m/s
Correction:	RTCM 2.3/3.0/3.2
Data Output:	NMEA-0183
Heading and RTK update rate:	20Hz
Network Protocol:	NTRIP, TCP/IP

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 ℃ ~ +85 ℃

Website | www.tersus-gnss.com
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Technical Specifications - AX3702 Antenna

Performance

Frequencies:	GPS L1,L2; GLONASS L1, L2; BeiDou B1, B2, B3
Impedance:	50Ω
Polarization:	RHCP
Axial Ratio:	≤3dB
Azimuth Coverage:	360°
Output VSWR:	≤2.0
Peak Gain:	5.5dBi
Phase Center Offset:	54.04mm
Phase Center Accuracy:	±2mm

Environmental

Operating Temperature:	-45℃ ~ +85℃
Storage Temperature:	-45℃ ~ +85℃
Humidity:	95% not condensing

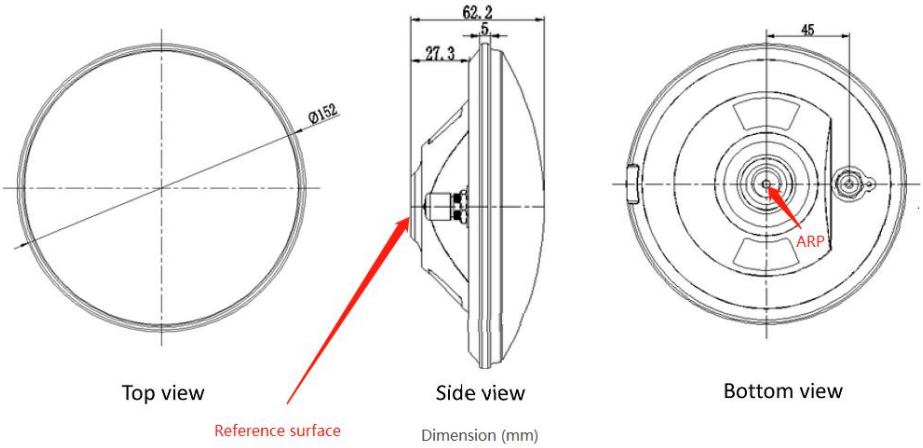
LNA

LNA Gain:	40±2dB
Noise Figure:	≤2.0dB
Output VSWR:	≤2.0
Operation Voltage:	3.3V~12V DC
Operation Current:	≤45mA
Ripple:	±2dB

Mechanical

Dimension:	ϕ 152x62.2mm
Connector:	TNC Female
Screw Hole for assembly:	5/8"×11 UNC Female
Weight:	374g

Structure Overview



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Technical Specifications - EMS2 Motor Wheel

Motor Performance

Rated speed:	100 rpm
Rated torque:	6.5 N·m (typical), 13 N·m (max)
Guaranteed continuous operation speed:	100 rpm
Maximum freewheel error:	0 (without reducer)
Supply voltage:	8V~18V DC
Rated current:	10A
Stall current:	20A
Rated voltage:	12V

Communication

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

Physical

Dimension:	ϕ 178x81mm (motor) ϕ 410x32mm (steering wheel)
Weight:	5.4kg (motor only) 6.35kg (motor and wheel)
Material:	Aluminum alloy

Environmental

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

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