

# JY305 GNSS Auto-Steering System

Ideal solution for precision agriculture

## Overview

The Smajayu JY305 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 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  $\pm 2.5$ cm

Without modification of the hydraulic system

Fast installation in 30 minutes

Calibration in 15 minutes



# 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

## Electrical

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

## Physical

Dimension:	281mmx181mmx42mm
Weight:	1.5kg
Operating Temperature:	-20 °C ~ +70 °C
Storage Temperature:	-40 °C ~ +85 °C



# 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:	$\phi$ 187x100.2mm (motor) $\phi$ 410x32mm (steering wheel)
Weight:	6.35kg (motor only)
Material:	Aluminum alloy

## Environmental

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

# Technical Specifications

## - R71 Smart Antenna



### Technical Parameter

MODEL	R71		
Signal tracking	BDS	B1I, B2I, B3I	
	GPS	L1C/A, L2P (Y)/L2C, L5	
	GLONASS	L1, L2	
	Galileo	E1, E5a, E5b	
	QZSS	L1, L2, L5	
	Cold start time	< 30 s	
	Initialization time	< 5 s (typ.)	
	RTK initialization reliability	> 99.9 %	
	Recapture	< 1 s	
	Accuracy Index	Single point positioning	Plane
Elevation			2. 5m
RTK Accuracy		Flat	$\pm(8 + 1.0 \times 10^{-6} \times D)$ mm Note 1
		Elevation	$\pm(15 + 1.0 \times 10^{-6} \times D)$ mm
Speed accuracy		0.03m/s	
G NSS heading accuracy		$(0.2/R)^\circ$ , R is the baseline distance, in meters	
G NSS roll or pitch accuracy		$(0.4/R)^\circ$ , R is the baseline distance in meters	
Gyro GNSS Fusion Heading Accuracy		0.5 °	
Angular velocity measurement range		$\pm 400$ °/s	
Acceleration range		$\pm 8g$	
Data update rate	1 ~ 100Hz		
Electrical parameters	Power consumption	$\leq 6.0W$	
	Supply voltage	6 to 36 V DC	
physical properties	Working temperature	-45 °C ~ +75 °C	
	Storage temperature	-55 °C ~ +85 °C	
	Size	195.9mm×84mm	
	Indicator light	1 power light, 1 differential signal light, 1 satellite light	
	Protection class	IP6 7	
	Shock and Vibration	2m drop resistance	
	Weight	1.05Kg	
	Data interface	Data output	NMEA-0183, binary code
Data refresh rate		1 ~ 20Hz optional	
Baud rate		9600 ~ 406800	
Deutsch connector		including 1 power supply, 1 USB , 2 RS232 , 1 CAN	
Differential format		RTCM3.X	
Communication		Full Netcom 4G module, UHF radio communication module	
Data link antenna		1	
GNSS antenna interface	1		

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