Project Case Study: 8.5m Heavy-Duty PV Testing Rotating Platform

1. Project Overview

Project Type: Large-scale heavy-duty rotating platform (turntable)
Client: Xintu (Jiaxing) Digital Technology Co., Ltd.
Industry: PV testing & digital energy
Key Challenges: 8.5m diameter, 8.5-ton load, ±0.5° accuracy, 0.01–0.1 rpm ultra-low speed, 360° stop, slip ring integration, MODBUS control

2. Client Background & Industry Challenge

The client conducts photovoltaic (PV) power generation testing to analyze how panel orientation affects power output. Traditional fixed structures cannot meet automated continuous testing requirements. The system is installed outdoors and carries PV panels, inverters, and cabling with a total load of 8.5 tons.

3. Core Specifications

Parameter	Value
Platform Diameter	8500 mm
Rated Load	8500 kg
Flatness	±4 mm
Roundness	±3 mm
Speed Range	0.01 - 0.1 rpm
Step Angle	2 - 10° (±0.5°)
Control System	Siemens S7 PLC + V90 Servo
Communication	MODBUS RS485 + Ethernet
Slip Ring	Power + Signal + Ethernet + DC lines

4. Engineering Solutions

1. Heavy Load Structure: Reinforced steel frame ensures stability and prevents deformation.
2. Ultra-low Speed Control: Siemens V90 servo + S7 PLC enables precise step rotation ±0.5°.
3. Slip Ring System: Integrates 485, Ethernet, AC and DC lines for uninterrupted 360° rotation.
4. Intelligent Control: 12-inch HMI, MODBUS + Ethernet remote control, one-key reset.
5. Outdoor Reliability: Industrial-grade components ensure stability under harsh conditions.

5. Delivery & Execution

Order Date: Jan 26, 2026
Shipment Date: Mar 5, 2026
Total Lead Time: ~38 days (including holiday constraints)

Result: On-time delivery supporting client PV testing schedule