QBotix
Solar powered by robotics

QBotix pioneered the use of mobile, autonomous and rugged robots in the operation of solar power plants. Our goal is to make solar energy competitive with conventional energy through balance of system innovations.

The Robotic Tracking System™ (RTS)

RTS utilizes a pair of autonomous robotic controllers to control up to 340 kW of solar panels with high accuracy and reliability.

The RTS has many advantages over existing systems on the market:

Up to 20% Savings. RTS generates up to 15% more energy than single-axis trackers and up to 45% more energy than fixed-tilt systems. This enables up to 20% savings in CAPEX to achieve the same energy output with smaller system sizes and up to 20% improvements in project economics.

Universal Compatibility. RTS is compatible with all standard solar modules, inverters and foundation types used in ground-mounted installations for commercial, distributed generation and utility deployments.

Fast and Easy Installation. RTS ships pre-assembled and can be installed rapidly without using heavy equipment. The system does not require tight installation tolerances. Modular architecture allows fast deployments from 100 kW to multiple MW's.

Site Flexibility. RTS can be installed without extensive land grading or trenching required by other tracking systems. The system can accommodate land constraints by adjusting the Ground Coverage Ratio (GCR) based on the specific location and power generation needs.

System Level Intelligence. RTS comes with monitoring software that provides detailed information about power plant operation, including preventive maintenance indicators and system diagnostics.

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PRODUCT SPECIFICATIONS

Tracking Type	Optimized Dual-Axis
Tracking Range	Tilt: 0° to 70°, Azimuth: 0° to 360°
Module Area per Tracker	10 m² (108 ft²)
Modules per Tracker	5 x 72-cell or 6 x 60-cell modules
Modules Supported	Crystalline and thin-film PV modules
kWp per Tracker	1.5 kWp typical (based on 5 x 300 W modules)
Trackers per Block	Up to 225
kWp per Block	337 kWp typical
Robots per Block	2 in synchronous operation
Ground Cover Ratio	0.20 to 0.33 and above, flexible
Land Area per 1 MWp	5 acres (at GCR = 0.33)
Tracker Materials	Hot-dip galvanized steel
Foundation Post Type	4" / 100 mm steel pipe or equivalent
Foundation Post Depth	2.4 to 3.7 m (8 to 12 ft) typical, site specific
Foundation Post Height	406 mm (16 in) minimum, flexible
Array Height	1.8 m (6 ft) standard (modules in facing up position)
Drive System	Robot actuates passive linear actuator (tilt) and slew drive (azimuth)
Control System	Centralized field controller communicates wirelessly with robot
Solar Tracking Method	Algorithmic, self-calibrated
Positioning Accuracy	±1°
Backtracking	Optimized algorithm
Nighttime and Wind Stow	Yes
Wind Stow Threshold	12 m/s (27 mph)
Maximum Wind Speed	40 m/s (90 mph) in stow position, higher wind configuration available
Energy Gain vs. Fixed Tilt	Up to 45%, site specific
Energy Gain vs. Single Axis	Up to 15%, site specific
Robot Energy Consumption	475 kWh per 337 kWp per year (< 0.1%)
Warranty	5 years, extended warranty available
Data Communications	Ethernet / MODBUS
System Operational Data	Online customizable visualization

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