

# PA400

Articulated Arm  
PV Cleaning Robot



## Autonomous operation, intelligent decision-making



### Autonomous intelligent cleaning

RTK+LiDAR multi-sensor fusion constructs 3D maps of the PV plant for intelligent path planning and 24/7 autonomous operation



### Smart control

Intelligent SCADA + Cloud platform SmartPure enables remote monitoring, multi-robot coordination, and weather-responsive AI decision-making

## High efficiency, cost-effective



### Extended runtime

8h operation with wireless charging, 10MW per day coverage



### Damage-Free cleaning

Using UV-resistant brushes, 99.5% efficiency with no damage to the modules



### Quick deployment

Plug-and-play standard design

## All-Terrain capability, multi-scenario coverage



### All-Terrain capability

A crawler-type chassis handles slopes up to 25°, traversing various challenging surfaces (sand/grass/snow)



### Smart adaptation

360° rotatable quick-adjust robotic arm auto-adjusts in milliseconds, ensuring constant and gentle contact with the modules

## General and mechanical

|                            |                        |
|----------------------------|------------------------|
| Weight                     | 2.5 T                  |
| Max cleaning speed         | 2.5 km/h               |
| Optimal cleaning speed     | 1.5 km/h               |
| Travel speed               | 3 km/h                 |
| Chassis type               | Crawler                |
| Cleaning type              | Dry cleaning           |
| Operating temperature      | -20°C-60°C             |
| Storage temperature        | -40°C-60°C             |
| IP rating                  | IP65                   |
| Brush length               | 3 m-6 m                |
| Brush rotation speed       | 0-200 rpm              |
| Brush head swivel angle    | 360°                   |
| Cleaning efficiency        | 99.5% (Daily cleaning) |
| Corrosion resistance level | C4                     |
| Module coverage ratio      | 100%                   |
| Charge time                | 5 h                    |
| Operating range            | 12.5 km                |
| Operating time             | ≥ 8h                   |
| Battery cycle life         | 2000 cycles            |

## Adaptive capability

|                           |               |
|---------------------------|---------------|
| Obstacle clearance height | 200 mm        |
| Trench crossing capacity  | 0.4 m         |
| Max gradeability          | 25°           |
| Min row spacing clearance | 2 m           |
| Turning radius            | 2.5 m         |
| Module tilt angle         | 0-50° (1P、2P) |

## Communication and management

|                  |                                         |
|------------------|-----------------------------------------|
| Control mode     | Full autonomy                           |
| Brush adjustment | Adaptive                                |
| Path planning    | Autonomous navigation                   |
| Safety mechanism | Hardware-software integrated safeguards |

\*This version is the preliminary version for reference only. Please refer to the actual product for specifics

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