The new TrinaTracker Agile 1P
Designed for ultra-high power
modules up to 670W+

19th May, 2021

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Agile 1P system features

ENVIRONMENT CHALLENGES PUSH FOR NEW TRACKER TECHNOLOGY

Complex and extreme environment and site conditions implies more challenges to tracker design in terms of cost saving and quality assurance.

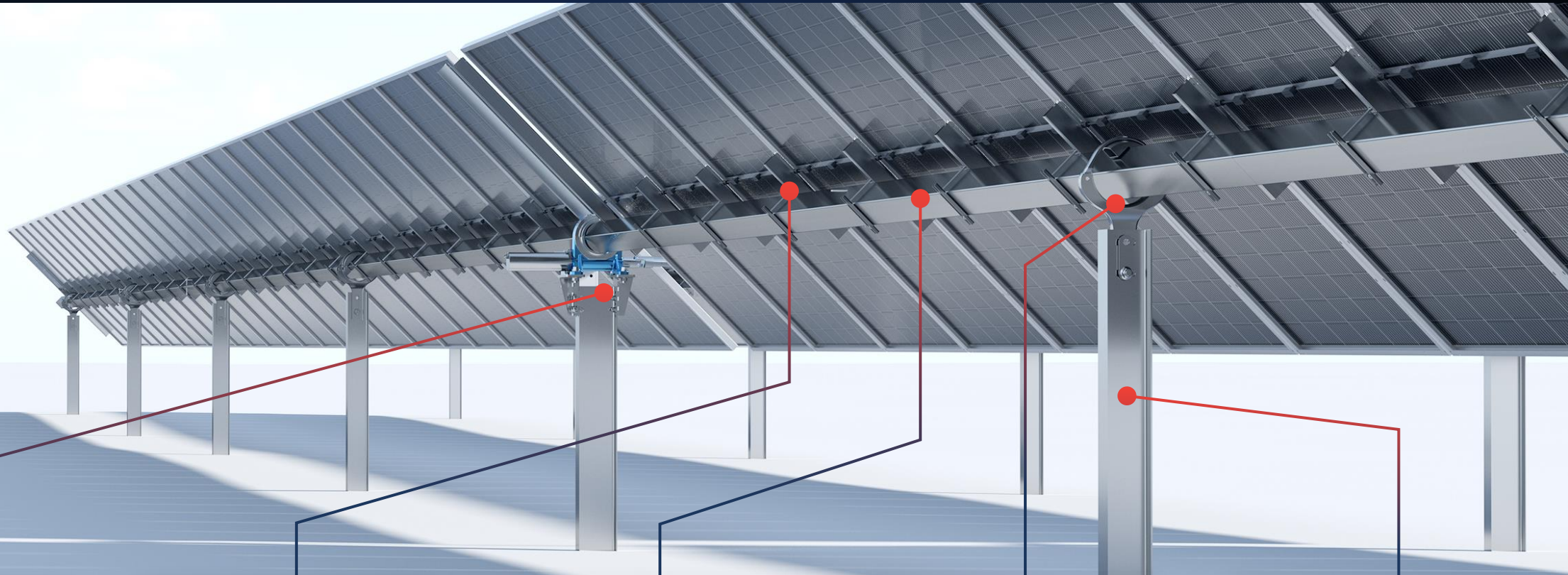| Constrained Sites | Bad Geotech | Uneven Terrain | Remote Location & High Labor mobilization Cost | Extreme Environment (Wind, snow, hail, etc.) | Project Tight Schedule for Commissioning |

TrinaTracker

Agile™

Dual-Row	1P	Up to 120	New Drive system
Single-Axis	configuration	modules per tracker	Dual Slewing drive

KEY MECHANICAL COMPONENTS

TrinaTracker

Drive System

Slewing drive & cardan design - simple assembly process

Trina Clamp

Robust and easy to assemble

Torque Tube

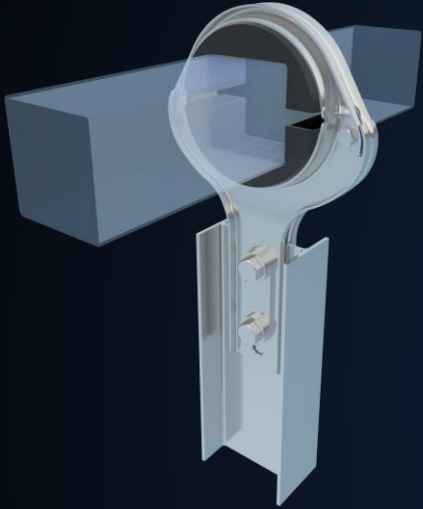Standard shape for supply chain efficiency

Spherical Bearing

Self-aligment, easy to assemble

Piles

W/H pile option for difficult ground conditions

PATENTED
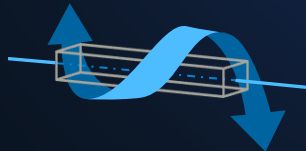# SPHERICAL BEARING & TRINA-CLAMP

Spherical Bearing

- Self-lubricating plastic

- Resistance to solar degradation (accelerated life cycle tested)

- 12 years proven in harsh environments

Trina-Clamp

- Innovative Trina Clamp installation

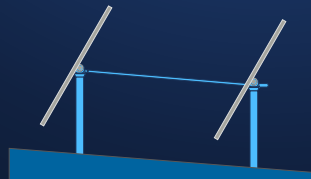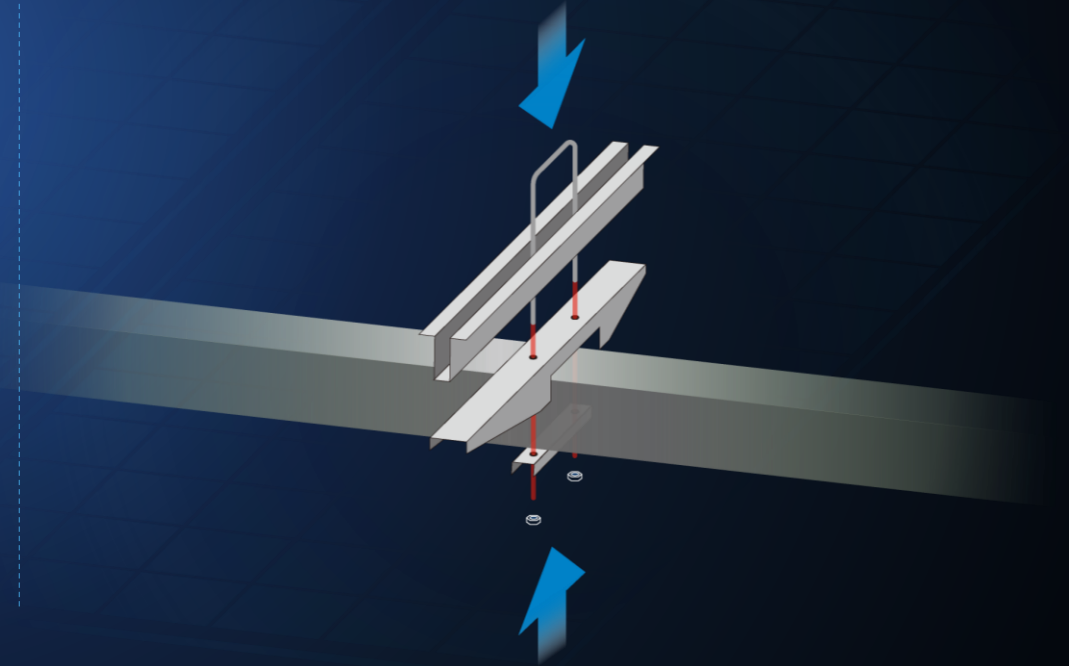- Save 50% installation time

- Updated design for large modules

Avoids the need for calibration during the installation process

Minimizes structure stress and deformation

Enables increase of ramming tolerances

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AGILE SYSTEM FEATURES

DESIGN

- Tracker & Module Compatibility
- Advanced Wind design
- Integrated Alarm Strategy

HARDWARE

- Dual-drive system
- Length of the tracker

SOFTWARE

- SuperTrack
- SCADA System

DESIGN: TRACKER & MODULE COMPATIBILITY*

TrinaTracker

550W   600W

450W   670W

Agile™

MODULE TYPE	POWER	MODULE WIDTH	MODULE LENGTH	MODULE PER STRING (20°C)	No. MODULE	MAX STRING PER ROW	TRACKER LENGTH
DE17 DEG17C.20	450 W	1046mm	2111mm	30	120	2	62.76 m
DE19 DEG19C.20	550W	1096 mm	2384mm	38	114	1.5	63.81 m
DE20 DEG20C.20	600W	1303 mm	2172mm	33	99	1.5	65.70 m
DE21 DEG21C.20	670W	1303 mm	2384mm	32	96	1.5	63.75 m

*Compatible with 158, 166, 182 y 210mm modules

DESIGN: ADVANCED WIND DESIGN
CUTTING EDGE STRUCTURAL & WIND ENGINEERING

TrinaTracker

Trackers are flexible structures even with frequencies higher than 1 Hz

STRUCTURAL VERIFICATION

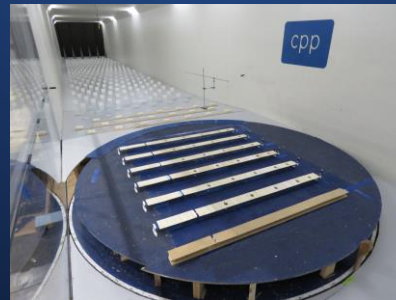| STATIC ANALYSIS | DYNAMIC ANALYSIS | AEROELASTIC ANALYSIS |

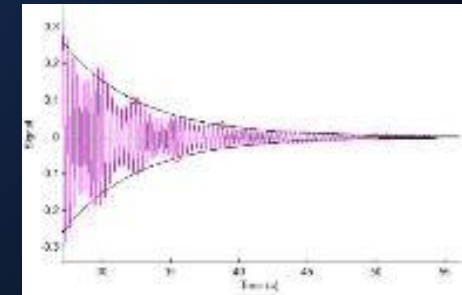## WIND ENGINEERING

Wind tunnel pressure model test

3D Full aeroelastic test

On-site Pluck Test

Pressure coefficient definition. Rigid structure

Critical wind speed definition. Flexible structure

Dynamic parameter measurement: Frequency & Damping

DESIGN: ADVANCED WIND DESIGN
WIND MITIGATION STRATEGY
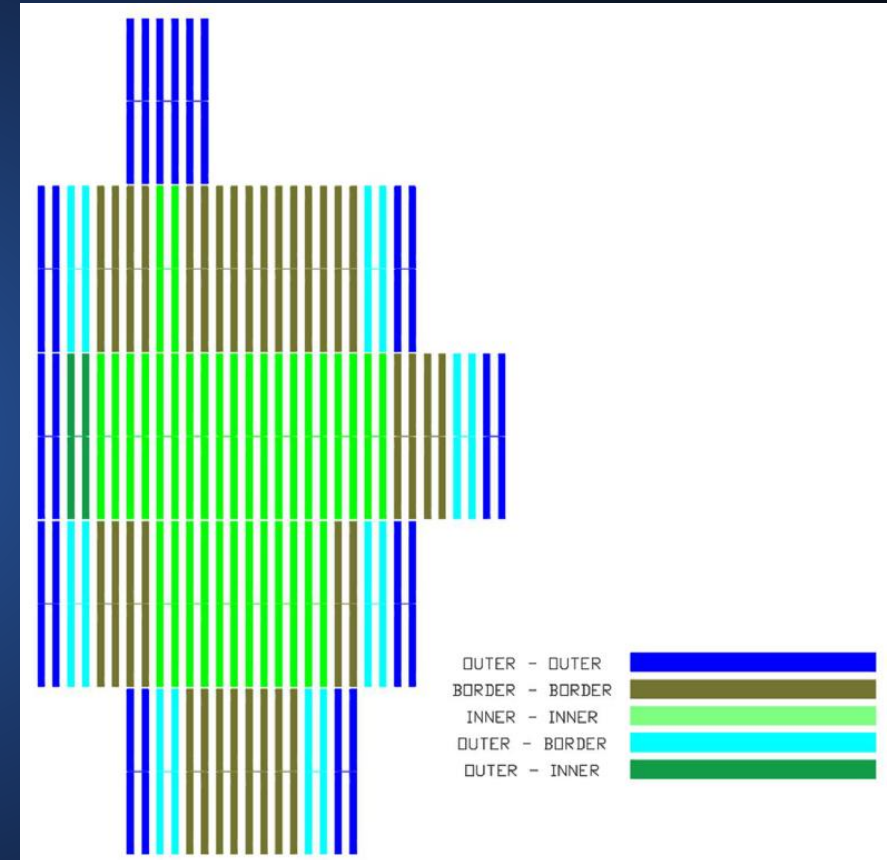
TrinaTracker

Tailored Tracker Lay-out

Wind stow strategy
High tilt angles

Considers critical, maximum structural and design wind speed limits

Configure per tracker and project

No risk for each location and weather conditions


```
OUTER - OUTER
BORDER - BORDER
INNER - INNER
OUTER - BORDER
OUTER - INNER
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Different types of tracker depending on the location on the plant to enhance efficiency.

DESIGN: INTEGRATED ALARM STRATEGY

TrinaTracker
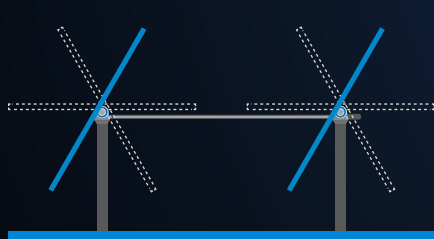
	LOW BATTERY	COMMS ALARM	MANUAL STOW ALARM	HAIL STOW	WIND ALARM	SNOW ALARM
Description	Stow position is commanded if the battery energy is not enough to stay tracking	Stow position is commanded if no communications with NCU are available	Stow position is commanded by the plant operator in case of any extreme risk	Hail Stow position is commanded in case of hails storms	Wind Stow position is commanded in case of wind alarms	Snow Stow position is commanded in case of wind alarms
Activation / deactivation	Automatically by the TCU SOC* estimation	Automatically by the TCU	Manually by the operator	Manually by the operator	Automatically by the weather station	Automatically by the weather station
Priority	1	2	3	4	5	6

HARDWARE: MULTIDRIVE SYSTEM

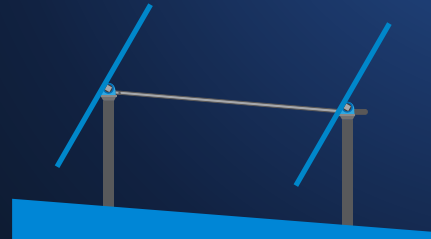ONE LINEAR ACTUATOR

TWO SLEWING DRIVES

±60º Tracking range

10% E-W
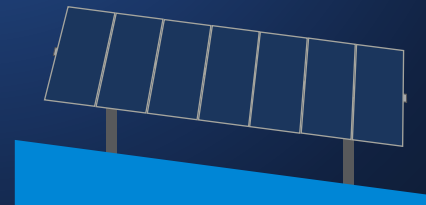
20% N-S
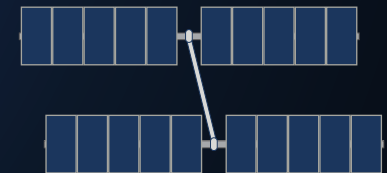
12º Adaptability

HARDWARE: TRACKER LENGTH

TrinaTracker

Shorter - Agile dual row 1P

Up to 72m

Longer - Single row 1P

110m
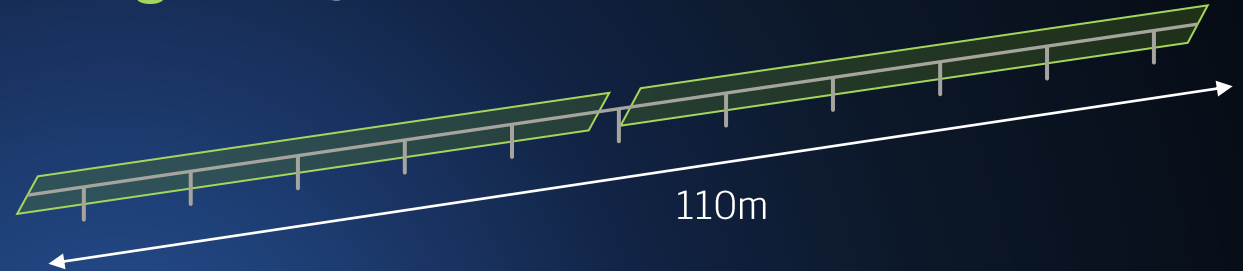
Per MW

12.6 trackers

-33%	**-45%**	**-9%**	Optimized
Trackers per MW	Shorter. Less grading	DC cable	**BOS**

VS

46 trackers
3036kW
(46*60*2*550W)

53 trackers
2625.5kW
(53*90*550W)

SOFTWARE: SUPERTRACK ALGORITHM

STA

Smart Tracking Algorithm

- Designed for bifacial modules
- Accounting for diffuse and reflected irradiance
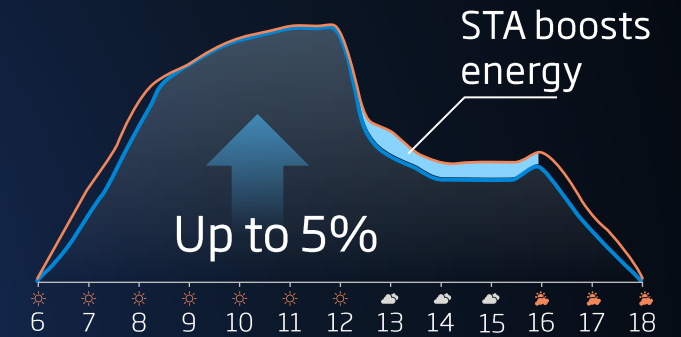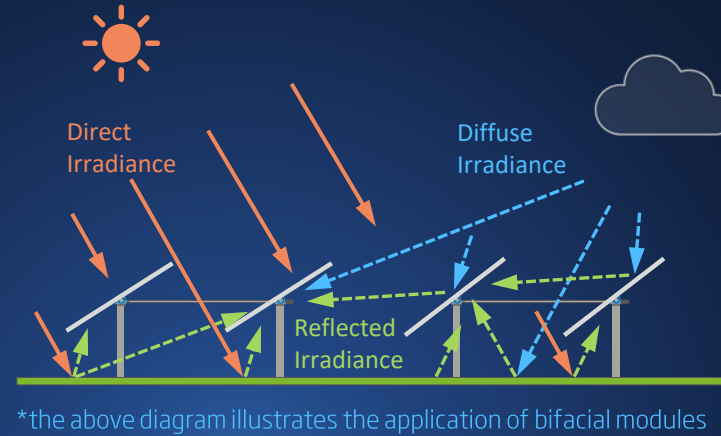- Ensure optimized tracker position for max yield gain at all times
- More effective under cloudy and overcast weather

STA can boost the energy gain by up to 5% on cloudy and overcast days

Direct Irradiance

Diffuse Irradiance

Reflected Irradiance

*the above diagram illustrates the application of bifacial modules

STA boosts energy

Up to 5%

6 7 8 9 10 11 12 13 14 15 16 17 18

## SBA

Smart Backtracking Algorithm

- Accounting for complicated terrain variations
- Ensure module shading avoidance at all times
- Most effective during dawn and evening periods

SBA can boost the energy gain by up to 3% during early morning and late afternoon

SBA boosts energy

SBA boosts energy

Up to 3%

6 7 8 9 10 11 12 13 14 15 16 17 18

16
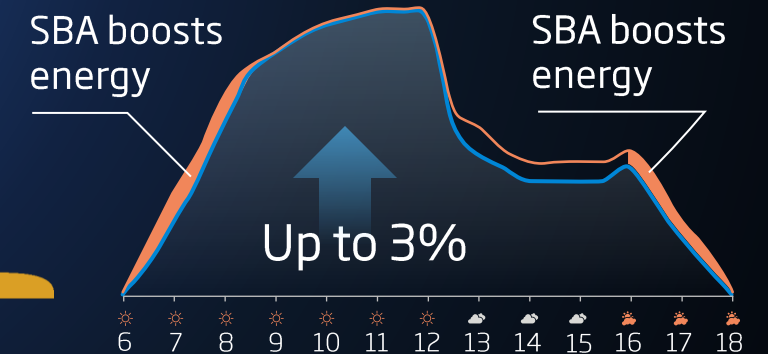
SOFTWARE: SCADA SYSTEM
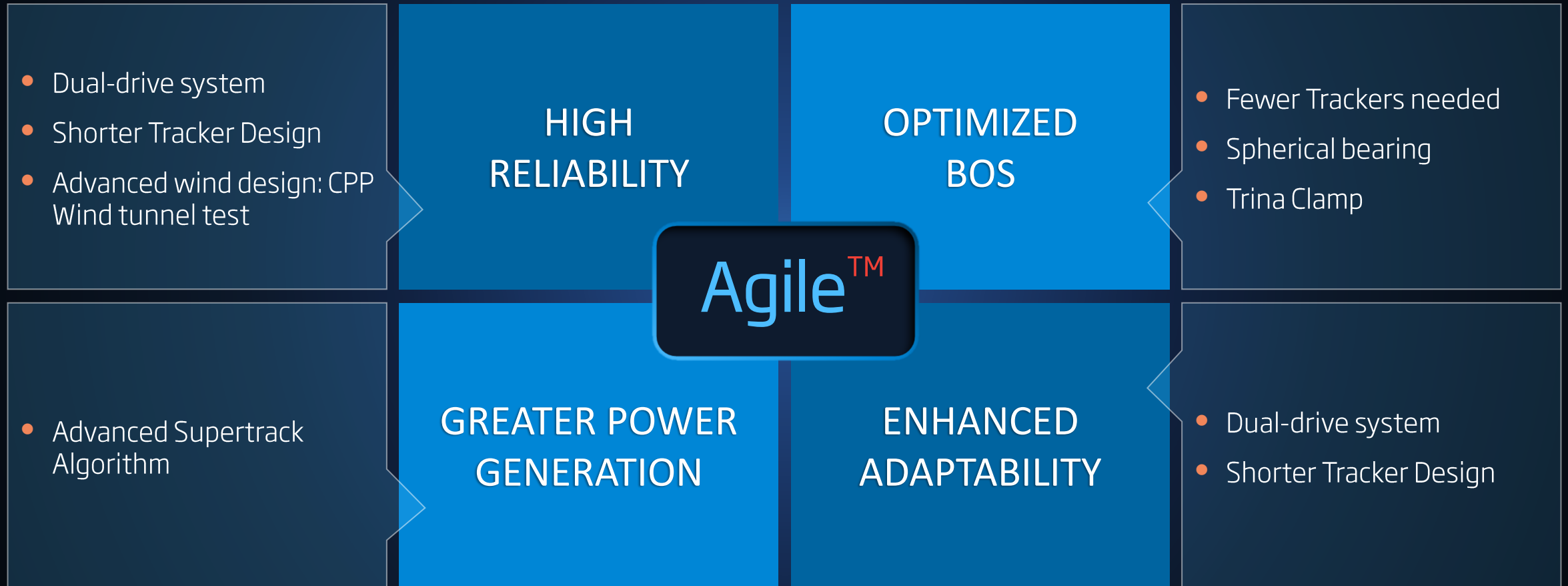
TrinaTracker

TrinaSCADA = Tracker Monitoring & Alarm + System Diagnosis + Intelligent Control = Easier O&M
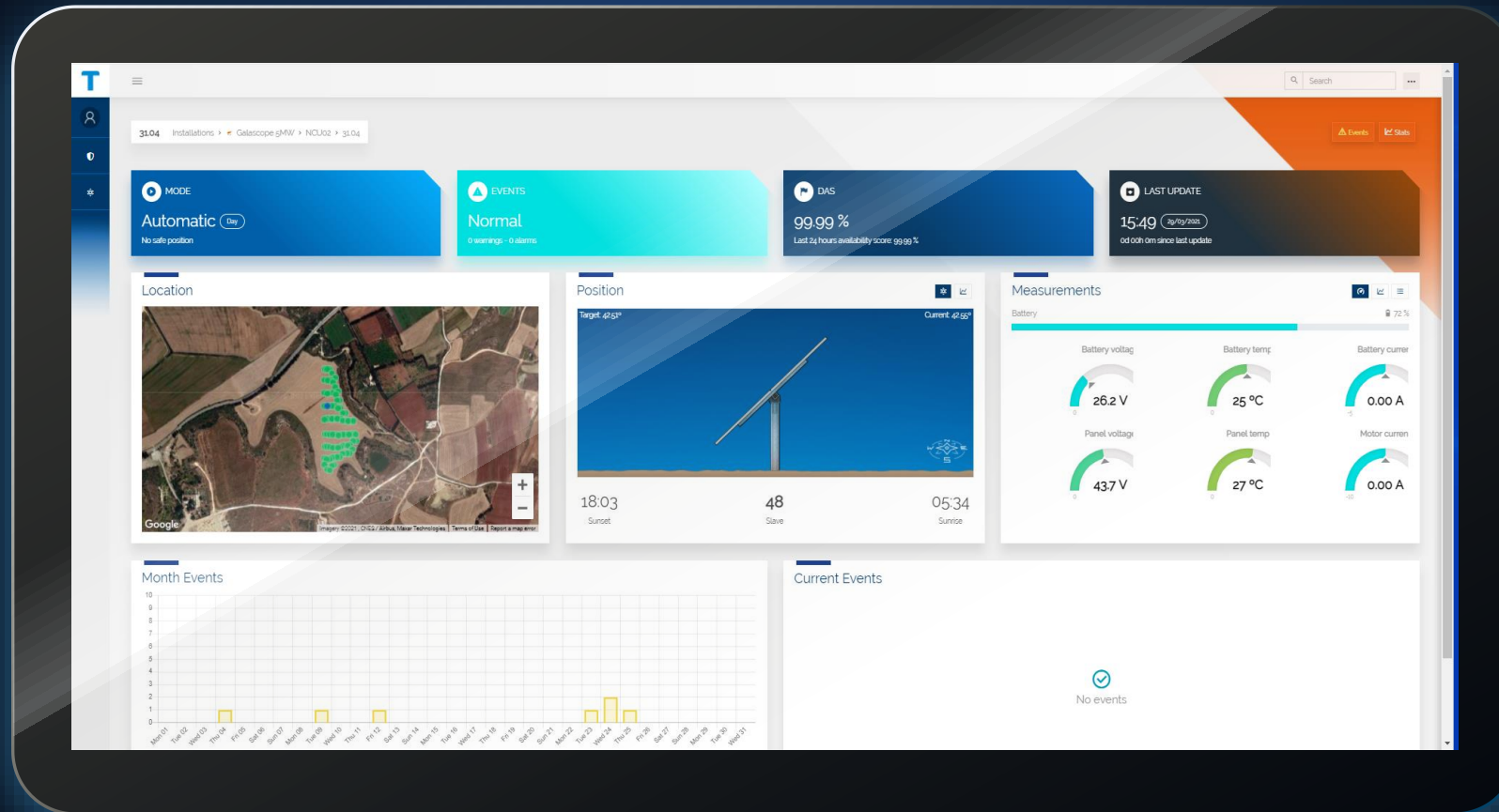
Upgrade to SCADA system based on current TrinaTracker Cloud

TECHNICAL ADVANTAGES
SUMMARY OF AGILE 1P

TrinaTracker

- Dual-drive system
- Shorter Tracker Design
- Advanced wind design: CPP Wind tunnel test

HIGH RELIABILITY

OPTIMIZED BOS

- Fewer Trackers needed
- Spherical bearing
- Trina Clamp

Agile™

- Advanced Supertrack Algorithm

GREATER POWER GENERATION

ENHANCED ADAPTABILITY

- Dual-drive system
- Shorter Tracker Design

THANK YOU!

Please feel free to contact us at europe@trinasolar.com