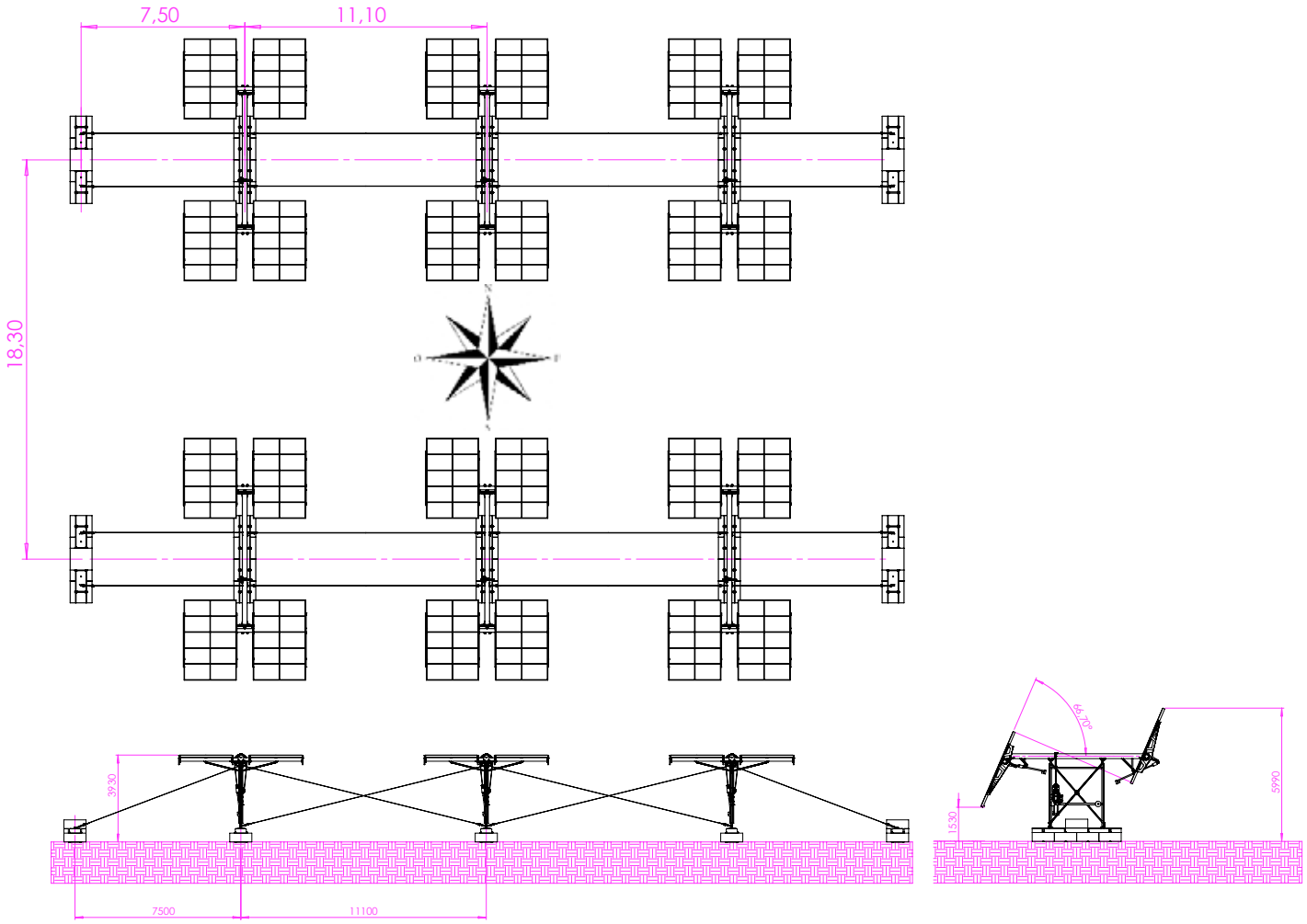
HELIOSLITE

THE NEXT GENERATION **OF (C)PV TRACKERS**

HL35 CPV TRACKER
TECHNICAL DATASHEET

HL35 CPV TRACKER
MECHANICAL DRAWINGS & SPECIFICATIONS



SYSTEM DESCRIPTION

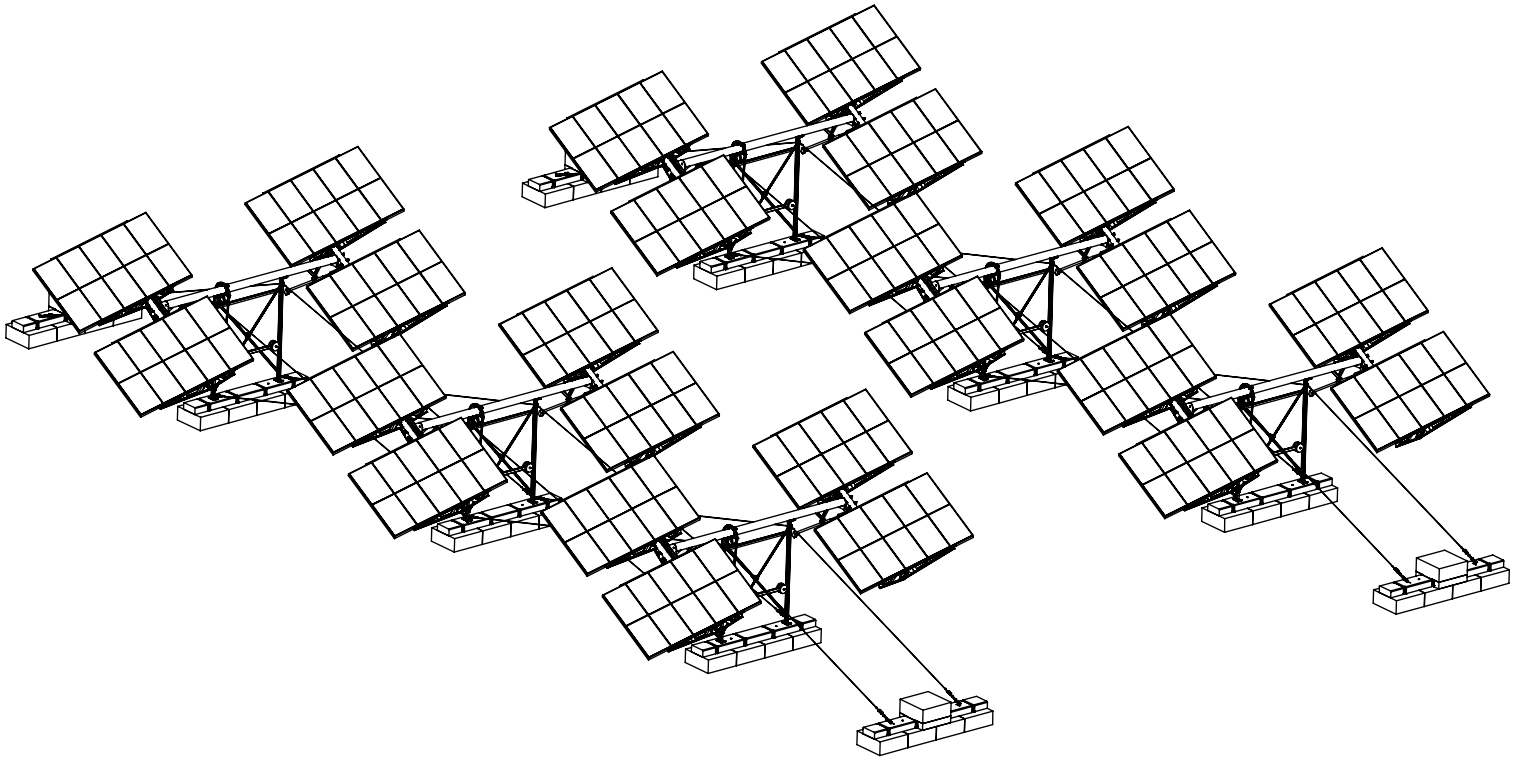
Tracker model number	HL35_Rev2
Type of tracker	CPV Tracker, Dual Axis
Payload surface area	35m² nominal area
Nominal payload mass	850 kg
Number of CPV modules	4
CPV module dimensions	2.39 x 3.67 m
Module array configuration	2x2 array /tracker unit
Peak power / tracker unit	10.2 kWp

MECHANICAL SPECIFICATIONS

Configuration of axis	Tilt and Roll
Roll axis angular range	+/- 85°
Tilt axis angular range	up to +70° South, -30° North
Minimum ground distance	0.5 m

ELECTRICAL SPECIFICATIONS

Average daily energy consumption	Less then 200 Wh per tracker unit
Stow energy consumption (with wind load)	<10 Wh per tracker unit
Motor ratings on nameplate	Rated power: 180W Certifications, UL pending
Input power requirements	100-240 VAC, 50-60 Hz, 500W peak for 16 trackers
Idle mode: Power consumption	< 10W (estimated value)
During tracking: Average power consumption	20W (estimated value)
Peak power consumption (worst case wind loads)	240W (estimated value)
Backup system	Li-ion battery backup included



DRIVE SYSTEM

Drive type	Linear Electric Actuators
Motor type	180 Watt DC motor
Backlash	0.05 degrees maximum
Limit switches	Built-in actuators

ELECTRONIC CONTROL SYSTEM

Control system architecture	Distributed control system with a single "Master" and multiple "Slave" controllers
Control algorithm	Hybrid with maximum power optimizer
Tracking modes	Self correcting open loop with maximum module power output optimizer
Tracking accuracy, typical[1]	0.1 degrees
Control interfaces	Local wireless and remote web-based GUI
External communication interface	Ethernet/TCP-IP
Stow time with wind load (worst case)	6 minutes for 16 tracker units (1.5 minutes for a single unit)
Cable inputs to control unit and cable size	1 x Power bus cable between tracker units (custom 4 wires harness with quick connect molded IP68 connectors)

OPERATING CONDITIONS

Maximum allowable wind speed during tracking[2]	14 m/s
Maximum allowable wind speed in stow[2]	40 m/s
Temperature operational range	-30 °C to +60 °C
Temperature survival range	-40 °C to +70 °C

MAINTENANCE

Pivot points	Maintenance free spherical bearings
Maintenance schedule	System visual inspection every 12 months

CODES AND STANDARDS

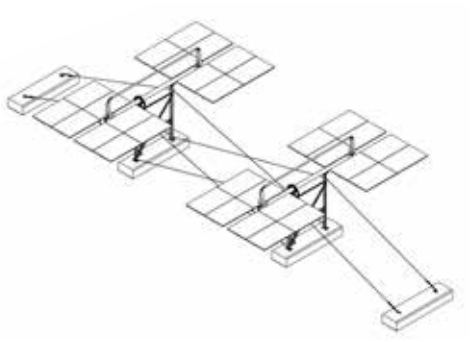
IEC 62817 Draft for Solar Trackers
Eurocodes
EMC directives 204/108/CE (pending)
Machinery directive 2006/42/CE (pending)
System performance verified by CEA-INES laboratory

(1) to be verified by CEA-INES laboratory.

(2) third party verified with wind tunnel tests by Aerodynamique Eiffel laboratory

HELIOSLITE TRACKERS UNIQUE **TECHNICAL ADVANTAGES**

DISTRIBUTED MECHANICAL ARCHITECTURE



HeliosLite tracker units rely on a patented distributed mechanical architecture which cuts down metal usage by 30 to 50% compared to traditional "pedestal" tracker designs.

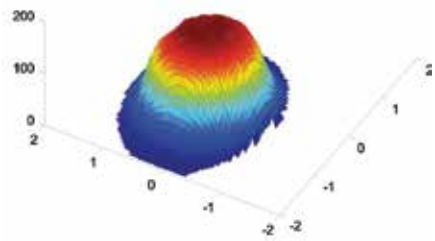
LOW COST FOUNDATIONS

HeliosLite tracker units can be installed on any ground using lightweight surface footings. No excavation is necessary and locally available rocks may be used for the footings. As individual tracker units are mechanically interconnected in rows using tensioned cable stays, the mass of the footing under each tracker unit is reduced by a factor of 6.

DISTRIBUTED CONTROL SYSTEM WITH BUILT-IN POWER BACKUP

HeliosLite trackers are controlled by a patented electronic control systems using a distributed control architecture. The system comprises a "Master" controller, "Slave" controllers on each tracker unit and smart motor drivers embedded in each linear actuator which are communicating on an industrial databus. This proprietary control architecture greatly simplifies cabling in the field and reduces the system overall cost as the battery back-up system, DC power supply, local wireless and remote SCADA interface functions are all centralized on the "Master" controller.

OPTIMUM POWER TRACKING ON EACH TRACKER UNIT



Each tracker unit is equipped with an independent electronic controller which monitors the DC output of the CPV modules on both wings of each tracker unit. The control system automatically maximize the power output of the modules with a tracking accuracy of 0.1°. The system automatically detects and corrects any angular deviation induced by ground settling.

ADVANCED MONITORING AND DIAGNOSTIC FUNCTIONS

HeliosLite control system has a built-in SCADA interface with built-in advanced monitoring and diagnostic functions. The system provides a web interface for monitoring the performance of an entire plant. No data loggers are required as HeliosLite "Master" controller provides built-in functions for synchronizing and logging the DC current output of the CPV modules, tracking data from each tracker unit, and DC/AC power metrics from each inverter.

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