IMO

Solar Cube

Precision Solar Tracking & Management

Solutions with you in mind

Solar Cube

Solar Tracking & Management Controller

- Out-of-the-box solution
- Easy to set up
- Flexbility to adapt to any installtion
- Built-in sun positioning algorithm
- Integrated Ethernet option for remote web access

Solar Cube Overview

The IMO Solar Cube has been developed as a ground breaking, easy to set up solar tracking and measurement controller with the flexibility to adapt to any installation.

The Solar Cube is an off the shelf controller designed for use on either one or two axis solar panel installations to track the sun's movement and provide optimum panel (or array) positioning. The sun's position is calculated using the local time and date comparing this with the longitude and latitude location of the solar array. From this data the Solar Cube calculates the 'zenith angle' and the 'azimuth angle', which together exactly specify the position of the sun in the sky.

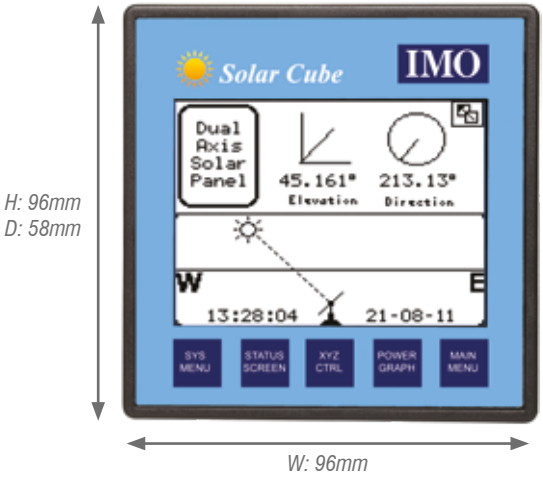
To position the array the Solar Cube uses feedback from an electronic compass device connected via RS485 which then activates the solar array's actuators until the correct position is reached. The compass is mounted directly on the array frame to give accurate positioning information.

With the option of GPS positioning or manual inputting of the array's location, the Solar Cube is easy to setup anywhere in the world. The Solar Cube is a competitive solution for controlling each array or it can be configured to control up to 4 arrays from one controller providing additional savings. Options for feedback and control from a single control station or via a web server are also available.

Solar Cube also offers data logging facilities using its own internal MicroSD card. Power output can be logged continually to produce daily, monthly and yearly figures. Revenues can be calculated along with CO_2 reduction figures.

Solar Cube Key Features

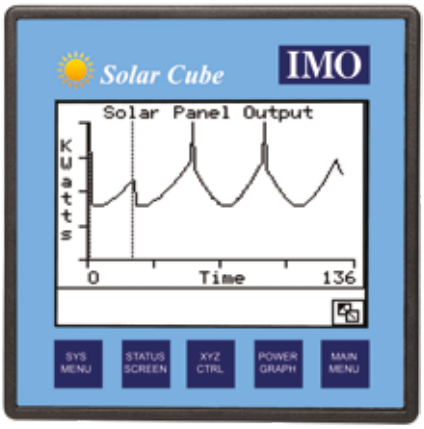
- 3.5” Monochrome Touch Screen
- 5 Pre-programmed function keys
- Built-in sun positioning algorithm, accurate to 0.1°
- Integrated Ethernet option for remote web access
- 3D Compass input for accurate positioning
- Automatic location and clock updates with GPS
- MicroSD card for data logging
- Password security for all settings
- Error based adjustment with configurable error values for each axis
- Configurable minimum and maximum adjustment angles
- Configurable safety cut-out system
- Configurable twilight settings (returns to morning position automatically)
- Single Axis supports Azimuth or Zenith tracking
- Supports custom inverter serial communications
- Emergency Stop input
- Manual Jog function
- Manual Override key
- Optional Ice and Wind Sensor inputs
- Four motor outputs (For 2 Axis Control)
- Limit Switch inputs for safety cut out
- Optional Washer Control output
- Analog input for power output measurement (CT Connection)
- Optional analog input for light level sensing
- IP65 (NEMA4) CE, cUL, UL
- 10-30VDC supply



H: 96mm
D: 58mm

W: 96mm

Solar Cube Data Logging



- Total kWh produced to date
- Total kWh produced today
- Current Power Output graph (kW against time)
- Yesterday’s Power Output graph
- Yield Values for last 31 days (kWh against days)
- Yield Values for last 12 months (kWh against months)
- Specific Annual Yield

Part Numbers

Single Array

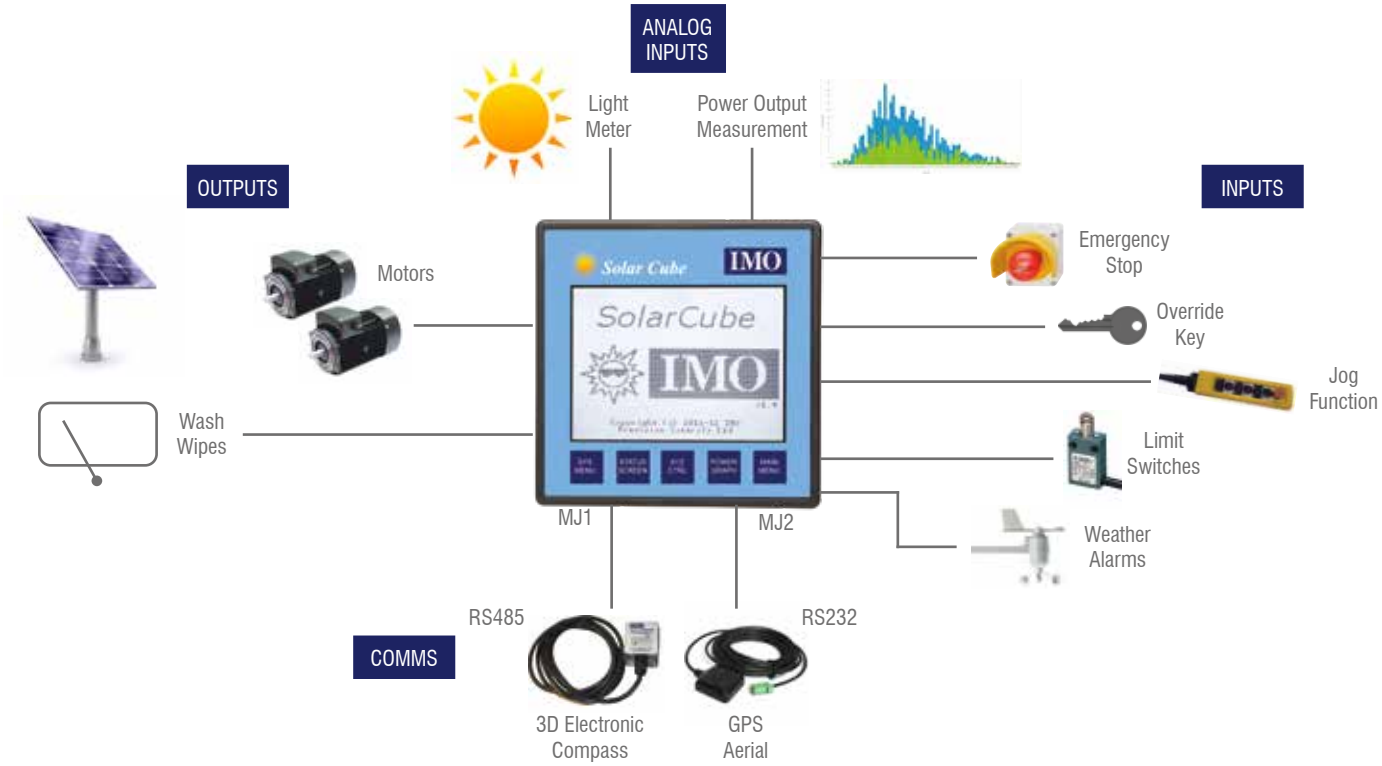
Part Number	Description
SOLARCUBE-1A	Single Array Solar Tracker, 1 or 2 axis configurable
COMPASS-485	3D Postional Compass
OEM GPS RECEIVER	RS232 GPS Receiver

Four Array

Part Number	Description
SOLARCUBE-1A	Four Array Solar Tracker, 1 or 2 axis configurable
SMT-CD-R20-V3 (x3)	Slave Array I/O Repeater
COMPASS-485 (x4)	3D Postional Compass
OEM GPS RECEIVER	RS232 GPS Receiver

Note: Above configuration can be used for each group of 4 Arrays.
Where a large number of Arrays need linking a Master Control option is available, call IMO for details.

Solar Panel Position Control



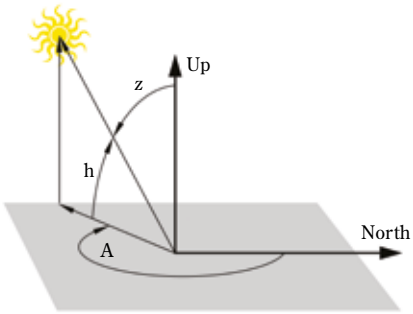
Precise Solar Tracking

The sun's position calculation depends upon the current time and date as well as longitude and latitude location of the solar array. The results of this calculation are the 'zenith angle' and the 'azimuth angle', which together exactly specify the position of the sun in the sky.

h - elevation angle, measured up from the horizon

z - zenith angle, measured from vertical

A - azimuth angle, measured clockwise from north



Solar Cube Physical Features

Create MS Excel compatible files, backup/restore user programs and change recipe templates.

Access the data remotely using IMO i3-Transfer software. Copy, paste and delete files through Serial or GSM connections, or through the IMO iConnect.

Automate the file transfer process through powerful scripting.

Data Logging Facility

Solar Cube also offers data logging facilities using its own internal MicroSD card. Power output can be logged continually to produce daily, monthly and annual figures. Revenues can be calculated along with CO_2 avoidance figures.

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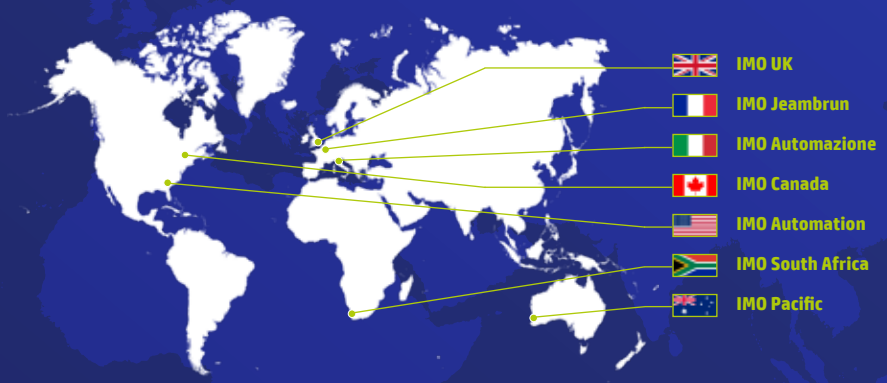

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