



kintech
engineering

DATASHEET

Isc & Voc MONITORING

The ISC & VOC monitoring system is developed and manufactured by Kintech Engineering to accurately measure the Isc and Voc values of two solar PV panels simultaneously.

It is used for detection of fault symptoms, analysis of solar panel degradation and inclement weather conditions on the solar panels installed in the solar PV plant, including the effect from soiling.

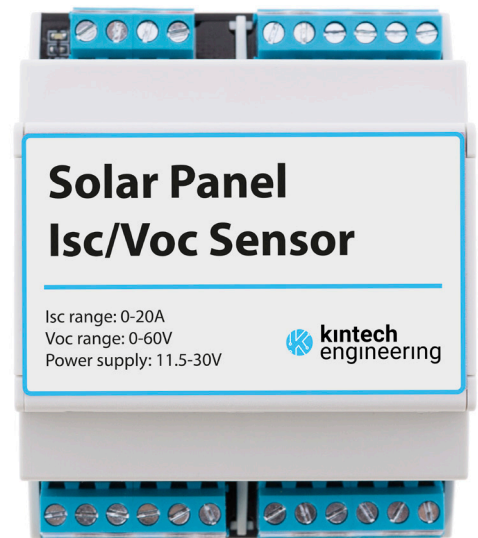
ISC / VOC SOLAR PANEL SENSOR | OTHER SOLAR

DESCRIPTION

With its small form factor, the Isc & Voc device is meant for use on solar PV panels already installed in the solar PV plant. The device can measure the Isc and Voc values from up to two solar PV panels simultaneously and when supplied as part of a complete measurement kit (including the Orbit 360 data logger) an open-source python script can be included to calculate the soiling rate.

APPLICATIONS

Isc & Voc monitoring of solar PV panels. The Isc output can be used for irradiance calculations whereas the Voc output can be used for cell temperature calculations. The combination of both Isc and Voc outputs can be used to estimate the solar power output.



FEATURES

General

Supply voltage	11.5...30 V (DC)
Average current consumption	10mA @ 24V
Peak current consumption	500mA @ 24V
Operating temperature	-30...+70°C
Storage temperature	-30...+85°C
Dimension	72 mm x 89.7 mm x 62.2 mm
Mounting	Standard DIN Rail
IP	IP10
Compatibility	All Kintech Engineering data loggers
Manufacturer	Kintech Engineering

Isc measurement
















Isc input range	0..20A*
Accuracy	0.1%
Analog Isc Output	0...5V
Transfer function	Slope: 4, Offset: 0

Voc measurement

Voc input range	0..60V*
Accuracy	0.1%
Analog Voc Output	0...5V
Transfer function	Slope: 12, Offset: 0

* Other values on request

SENSOR WIRING TABLE

Pin Description		Orbit 360			EOL Zenith	
		Section	Terminal	Type	Section	Type
	(+) PV panel 1					
	(-) PV panel 1					
	(+) PV panel 2					
	(-) PV panel 2					
	Power supply (+)	Power Input			BAT	
	Power supply (-)	Power Input	(-)		BAT	
	Short-circuit Intensity 1	Analog Channels	<div> <div>48 52 56 60 65</div> <div>69 73 77 81 84</div> <div>85 86 90 91 92</div> </div>	Signal	Analog Inputs	<div>1 2 3 4 5</div>
	Open-circuit Voltage 1	Analog Channels	<div> <div>48 52 56 60 65</div> <div>69 73 77 81 84</div> <div>85 86 90 91 92</div> </div>	Signal	Analog Inputs	<div>1 2 3 4 5</div>
	Reference	Analog Channels	<div> <div>47 51 55 59 64</div> <div>68 72 76 80 87</div> </div>	(-)	Analog Inputs	<div> <div>- -</div> </div>
	Short-circuit Intensity 2	Analog Channels	<div> <div>48 52 56 60 65</div> <div>69 73 77 81 84</div> <div>85 86 90 91 92</div> </div>	Signal	Analog Inputs	<div>1 2 3 4 5</div>
	Open-circuit Voltage 2	Analog Channels	<div> <div>48 52 56 60 65</div> <div>69 73 77 81 84</div> <div>85 86 90 91 92</div> </div>	Signal	Analog Inputs	<div>1 2 3 4 5</div>
	GND					

Note: Power supply must be in the range 11.5...30VDC and it has to be able to supply peaks of 500mA.

REQUIRED DATA LOGGER VERSION

Minimum data logger required: **ORBIT 360 BASIC PLUS**.

Minimum **firmware** required: **any**.



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HOW TO CONFIGURE IN ATLAS

Start Atlas and open the data logger you are working on. Now go to *Site settings* and scroll down to the *Channels* section and select the following type and model:

ISC	ISC2	VOC	VOC2
● Group: Analog channels	● Group: Analog channels	● Group: Analog channels	● Group: Analog channels
● Sensor Type: Voltage	● Sensor Type: Voltage	● Sensor Type: Voltage	● Sensor Type: Voltage
● Sensor Model: Volts	● Sensor Model: Volts	● Sensor Model: Volts	● Sensor Model: Volts
● Slope: 4	● Slope: 4	● Slope: 12	● Slope: 12
● Offset: 0	● Offset: 0	● Offset: 0	● Offset: 0

Important! Please make sure you are working with the latest version of Atlas. To check for new updates click the *Check for updates* button in the left-hand menu located in the main dashboard.

HOW TO CONFIGURE THIS SENSOR ON SITE

We recommend performing the entire sensor configuration using Atlas at the office before installing sensors onsite. Once the sensor is correctly setup in Atlas, use the *Upload settings* tool, to upload the sensor configuration to the data logger.

In case you are already on site and need to configure the sensor directly on the data logger, follow these steps:

1. Turn on the data logger.
2. Using the keypad on the data logger, navigate the menu until you see *Sensor model*, then click the “right arrow” on the keypad.
3. Now scroll down to the channel you are going to connect the sensor to, and click the “right arrow” on the keypad.
4. Now click “Set” on the keypad and scroll up in the menu to set the sensor model type according to the table here below. Once you have found the correct sensor model, click the “right arrow” key twice to select it and save.
5. Click the “left arrow” several times to go back to the main menu.

Data logger model	Firmware version	Sensor model type on data logger		
		Magnitude	Number	Name
ORBIT 360	any	ISC / ISC2	01	milliVolts
		VOC / VOC2	01	milliVolts
EOL ZENITH	any	ISC / ISC2	01	miliVolts
		VOC / VOC2	01	miliVolts

Keep in mind: if the sensor channel has been configured as milliVolts, the output values on data logger display will always be shown in milliVolts. Remember to fill in both the slope and the offset for the pyranometer sensor to see real sensor values in **V and A** in your datasets during a real-time connection with the data logger (from either Atlas or Atlas Mobile).

HOW TO CONFIGURE IN EOL MANAGER

Open EOL Manager and go to *Settings* of the data logger you are working on. Open the *Inputs* tab and select the following type and model:

ISC	ISC2	VOC	VOC2
● Group: Analog Inputs	● Group: Analog Inputs	● Group: Analog Inputs	● Group: Analog Inputs
● Sensor Type: Voltmeter	● Sensor Type: Voltmeter	● Sensor Type: Voltmeter	● Sensor Type: Voltmeter
● Sensor Model: Generic Voltmeter	● Sensor Model: Generic Voltmeter	● Sensor Model: Generic Voltmeter	● Sensor Model: Generic Voltmeter
● Slope: 4	● Slope: 4	● Slope: 12	● Slope: 12
● Offset: 0	● Offset: 0	● Offset: 0	● Offset: 0

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