Integration Note

Manufacturer:	Sunsynk & Deye
Model Number(s):	Sunsynk & Deye Single-Phase Hybrid Inverters
Core Module Version:	**8.8.**
Driver Developer:	**Paul Cammidge Computer Consulting cc**
Document Revision Date:	1 August 2023

Overview & Supported Features

This driver allows an ELAN system to communicate via a serial port with the Single-Phase Sunsynk and Deye Hybrid Inverters. It has been tested on 5kW and 8kW Sunsynk and Deye inverters.

Display Driver: This is installed under "Sense Inputs" under "Input/Output". The following information is available from the driver:

- Grid Power
- Battery State-of-Charge (SoC)
- Solar Yield
- Generator Power
- Grid Voltage
- AC & DC Temperature
- Battery Power
- Power Consumption

*Note: Compatibility and features vary by model and inverter firmware version. Inverters connected in parallel are not supported. 3-Phase inverters are not supported by this driver.

> Any feature not explicitly noted as supported should be assumed to be unsupported.

CONNECTION TO YOUR INVERTER:

A Sunsynk/Deye inverter can be connected to your ELAN controller using the following methods. Different inverter models have different port configurations. If your external RS232 port is being used for a WiFi dongle, an internal RS485 port can be used. This driver cannot communicate with your inverter using a WiFi dongle.

We strongly recommend testing the driver using the external RS232 port to ensure that it works correctly before attempting to use an adapter with an internal RS485 port.

Connection reliability is visible in the Configurator, indicating the reliability of the connection to the inverter. A reliability of between 99.8 and 100% is expected. If the serial port is not configured or not available, this statistic will not update. Some RS232/RS485 converters will require a 120Ω terminating resistor.

The ELAN controller can be connected to your inverter using the external RS232 Port.

Nice/ELAN System Controller

RS232 Cable

RS232 Port on the Inverter

The ELAN controller can be connected to your inverter using an internal RS485 Port on your inverter using an RS232/RS485 converter. Most Synsynk/Deye inverters use pins 7(+) and 8(-) on the RJ45 socket. RS485 ports on ELAN controllers are not compatible with this driver because there is no supported method of configuring them as RS485 half duplex.

RS232/RS485 Adapter

RS232 Cable

RS485 Cable

Nice/ELAN System Controller

RS485 Port on the Inverter

Virtual interfaces supported by ELAN controllers, such as the Global Cachè serial ports, can also be used. Serial ports must be configured at 9600 baud, 1 stop bit, and no parity.

IP/RS232 Adapter

RS232/RS485 Adapter

Ethernet Cable

RS485 Cable

Nice/ELAN System Controller

INSTALLATION PROCESS

It is recommended that you follow the below installation process to ensure you are running the latest version of the driver.

1. Download the latest version of the driver from Drivercentral.
2. Under Input/Output in Configurator, right-click Sense Inputs and select Add New Input Controller.
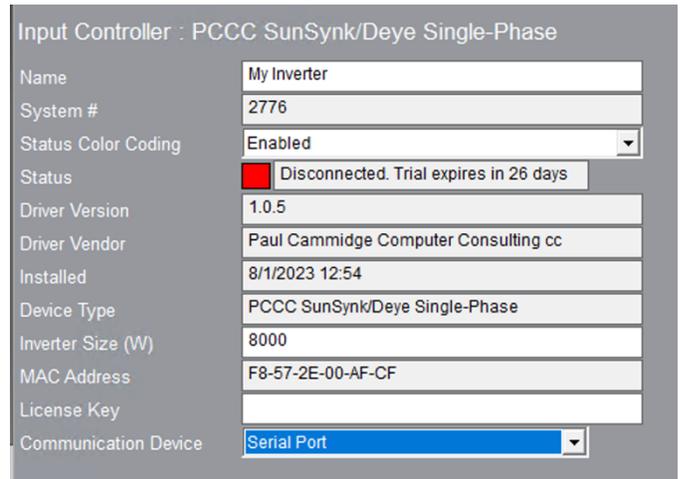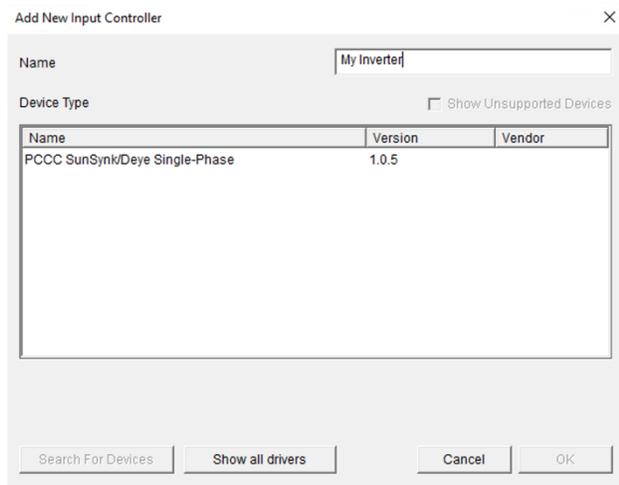
3. Select the driver and click OK.
4. Select the correct serial port, then click "Apply".

NUMERIC INPUTS

The following table shows the numeric inputs available from the driver, together with their Device ID. The input name may be changed, but the ID must remain the same.

Grid Power	0
Consumption	1
Battery State-of-Charge	2
Solar Yield	3
Generator	5
Grid Voltage	7
DC Temperature	8
AC Temperature	9
Battery Power	10
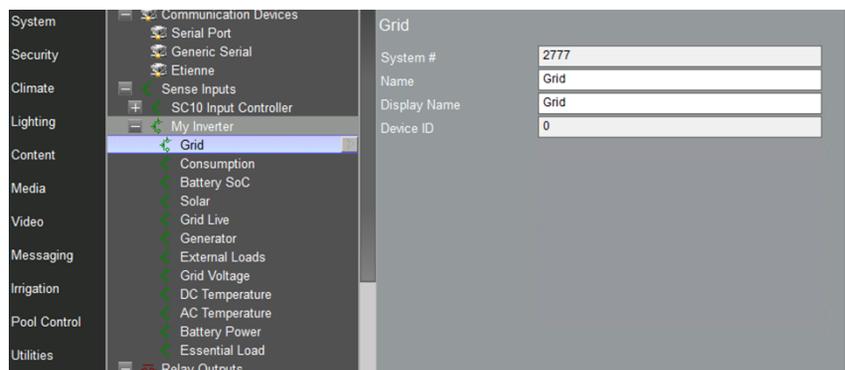
Most numeric inputs are updated every 2 minutes or when the data changes by more than 50W. Temperatures update when they change by more than 1 degree Celsius. State-of-Charge updates when it changes by more than 1%.

Temperatures are measured in Degrees Celsius.

GRID STATE

The grid state can be displayed on an Input Toggle Indicator. The toggle indicator must be linked to "Your inverter: Grid Live". The indicator will indicate whether the grid voltage exceeds 50V.
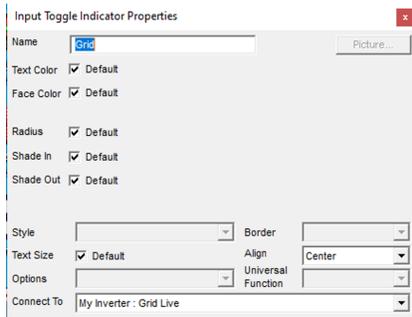
CREATING BAR GAUGES

Bar Gauges can be created on any home page. When making a bar gauge, there are two different values that can be linked to each reading. Select the reading preceded by the inverter name.
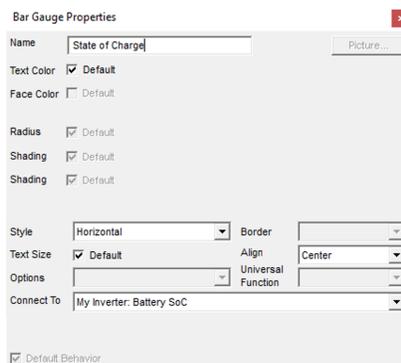
Notes:
- Bar Gauge data updates every 10 seconds.
- Vertical bar gauges will not display the values. The value may be added as feedback text above the gauge.
- The scale on the bar gauge is determined by the inverter size specified in the Configurator. You may change this value in the Configurator without affecting anything besides the bar gauges.

HISTORICAL GRAPHS

Historical data can be displayed on graphs.

To create a graph, select "Graph Objects" on the "Input/Output" tab. Right-click and select "Add New Graph Object".
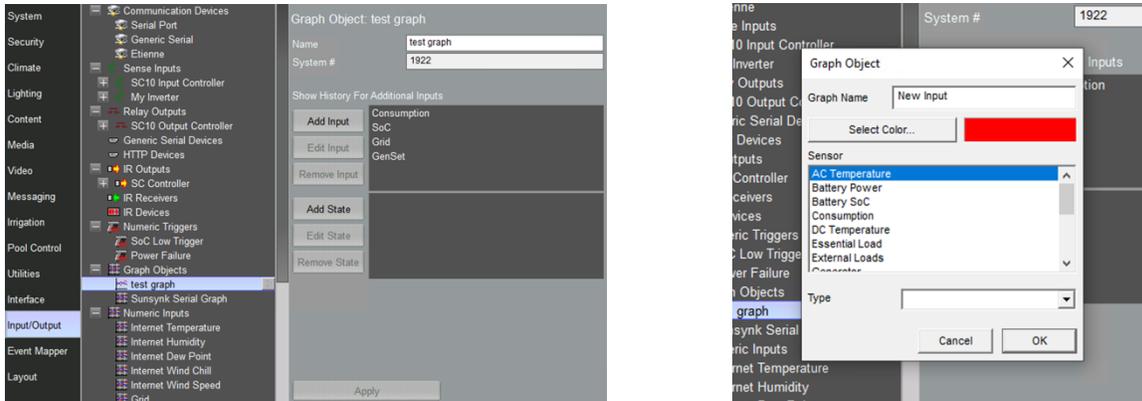
Add the inputs by clicking on "Add Input" and selecting the inputs required.

States can be displayed below the graph. One example might be to indicate the state of the Grid. To create a state, create a "Numeric Trigger" in the "Input/Output" tab. Right-click and "Add New Graph Object".

TRIGGERING EVENTS

Events can be triggered based on your inverter data. Some examples would be:
- Switch on a fan when the inverter temperature exceeds 50 degrees C.
- Switch off your geyser when the Battery state-of-charge drops below 35%.

Triggering an event consists of 2 steps:
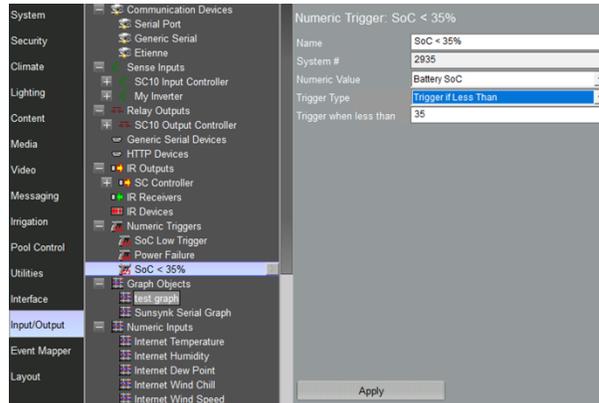
1. Right-click "Numeric Triggers" in the "Input/Output" tab. Select "Add New Numeric Trigger". Give the trigger a meaningful name. Select the value and the level at which to trigger.
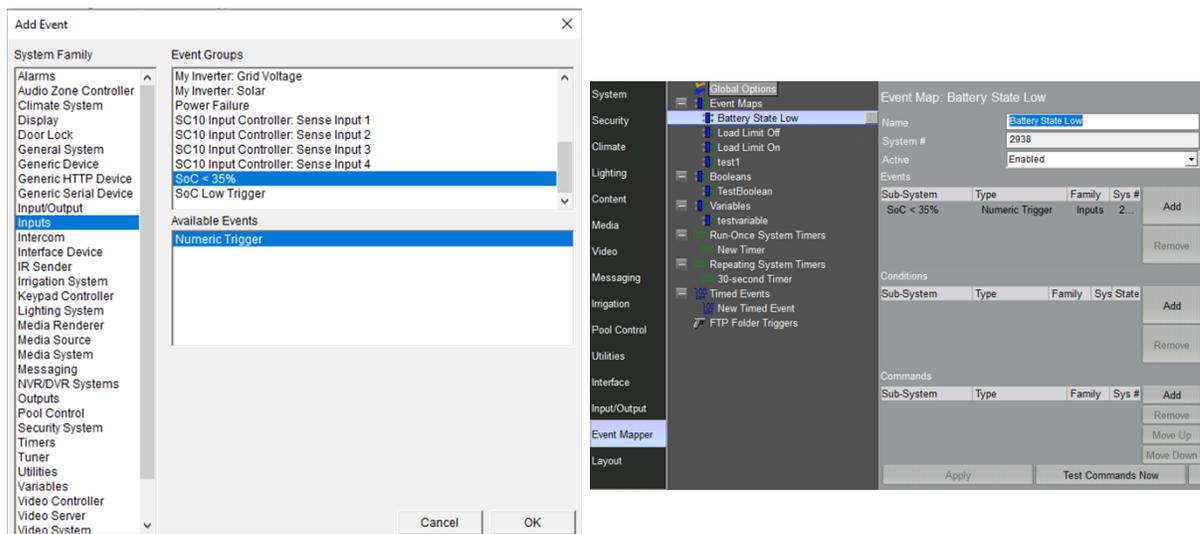
2. Create an event map on the "Event Mapper" tab. Right-click on "Event Maps" and "Add New Event Map". Give the event map a meaningful name. In the "Events" section, add your trigger from the "Inputs" section. Select "Numeric Trigger" and "Ok".
3. Select the action to take in the "Commands" section.

Triggers can also be added as states on historical graphs.

COMMON PROBLEMS

1. If the Grid Power reading is negative when drawing power from the grid, please check the orientation of the Current Transformer (CT Coil) on your inverter.

2. Graphs do not render correctly prior to version 8.8. This is a known problem that has been fixed in 8.8.

3. Some RS232/RS485 converters require a 120Ω terminating resistor. Other converters have internal resistors. If the connection is not reliable, you might need to add a terminating resistor on the converter.

NICE/ELAN DEVELOPER PARTNER INFORMATION

This driver was written and supported by: Paul Cammidge Computer Consulting cc (PCCC).

Disclaimer

Paul Cammidge Computer Consulting cc drivers are created to the highest standard and developed with industry-leading practices, including bench and real-world field testing.

Paul Cammidge Computer Consulting cc advises that dealers take advantage of our free show room driver to thoroughly test and familiarize themselves with our drivers and their capabilities before installing them on a customer site.

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