

VE.Direct TX digital output cable

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1. Introduction

The VE.Direct TX digital output cable can be used in combination with [SmartSolar](#) or [BlueSolar](#) MPPT solar charger. It supports the following applications:

- **Solar lighting:** Drive a LED driver to dim lights to reduce energy consumption.
- **Virtual load output:** Drive a BatteryProtect or relay to create a load output for solar chargers that do not have a load output.
- **Energy meter:** Send a pulse to an energy meter each time 0.01kWh of solar energy has been generated.

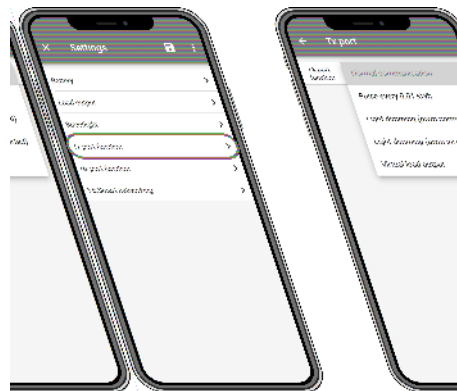
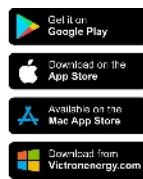
The cable connects between the solar charger VE.Direct port and a LED driver, BatteryProtect or energy meter.



ID	Description
A	VE.Direct connector
B	Ground terminal
C	Tx terminal

The Tx port functionality can be configured in the solar charger settings using the [VictronConnect app](#).

For information on the various Tx port settings, see the "Tx port chapter" in the applicable [solar charger manual](#).



Note that the cable cannot be used with the following older (end of life) solar charger models because these models are not powered at night:

- SCC010030200 - BlueSolar MPPT 100/30. Use its successor, the SCC020030200, instead.
- SCC010050000 - BlueSolar MPPT 75/50. Use its successor, the SCC020050200, instead.
- SCC010050200 - BlueSolar MPPT 100/50. Use its successor, the SCC020050200, instead.
- SCC010035000 - BlueSolar MPPT 150/35. Use its successor, the SCC020035000, instead.

2. Solar lighting function

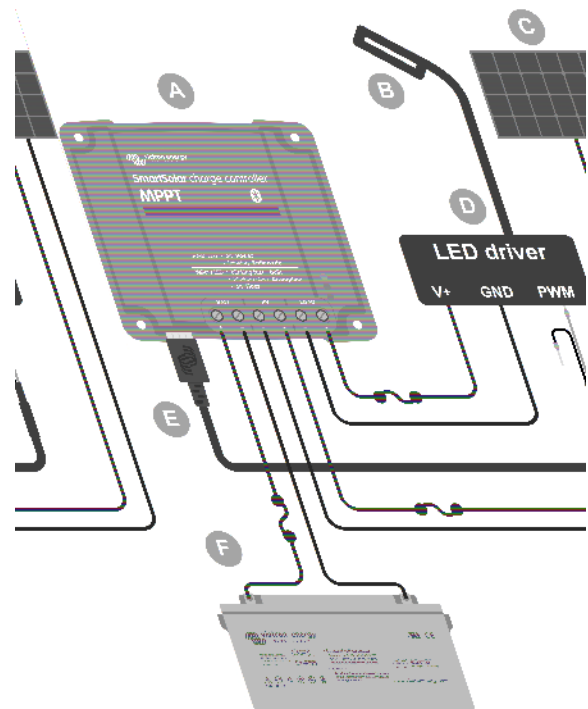
The cable can be used in lighting applications in solar energy systems where energy consumption can be substantially reduced by dimming lights when appropriate. The resulting lower energy consumption will reduce the overall system costs and will increase light availability, even when the battery has only been partly charged due to bad weather.

The cable connects the solar charger VE.Direct Tx pin to the PWM light-dimming terminal of a LED driver.

Connection sequence:

- Connect the VE.Direct connector to the solar charger VE.Direct port.
- Connect the white Tx terminal to the PWM dimmer input of the LED driver.
- The black ground terminal is optional or is not used.

ID	Description
A	Solar charger
B	Streetlight
C	Solar panel
D	LED driver
E	VE.Direct TX digital output cable
F	Battery



Wiring example - Controlling a streetlight LED driver.

Configuration items in the solar charger settings in the VictronConnect app:

- Settings > Tx port function > Tx port function = "Light dimming (normal)" or "Light dimming (inverted)".
- Settings > Load > Load operation mode = "BatteryLife algorithm" or any mode you prefer.
- Settings > Streetlight > Streetlight function = "ON" and set up the timer program as desired for your application.
- See the [solar charger](#) manual for more information on these settings.

The PWM dimming function has been tested to work with the following LED drivers:

- RECOM RBD-12.
- Glacial Power GP-LD7048-0B.
- Glacial Power GP-LD3548-0B.
- MEAN WELL LDH-45.

3. Virtual load output function

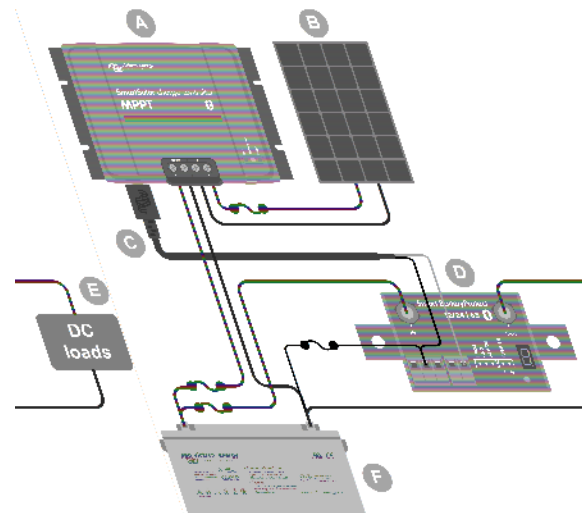
The cable can be used to add load output functionality to the larger solar chargers, MPPT 100/30 and up, as these solar chargers do not have a load output like the smaller solar chargers.

The cable connects the solar charger VE.Direct Tx pin to the [Battery Protect](#) remote H terminal.

Connection sequence:

- Connect the VE.Direct connector to the solar charger VE.Direct port.
- Connect the white Tx terminal to the BatteryProtect remote H terminal.
- Connect the black ground terminal to the BatteryProtect GND terminal.

ID	Description
A	Solar charger
B	Solar panel
C	VE.Direct TX digital output cable
D	BatteryProtect
E	DC loads
F	Battery



Wiring example - Creating a Virtual load output using a BatteryProtect.

Configuration items in the solar charger settings in the VictronConnect app:

- Settings > Tx port function > Tx port function = "Virtual load output".
- Settings > Load > Load operation mode = "BatteryLife algorithm" or any mode you prefer.
- Settings > Streetlight > Streetlight function = "OFF".
- See the [solar charger manual](#) for more information on these settings.

Alternatively, a solid-state relay can be used instead of a BatteryProtect:

- A solid-state relay with a 5Vdc coil rating, such as the Omron G3NA-D210B-UTU DC5-24 relay.