

How do SUNGO iOPTs communicate with SUNGO GT via PLC

a. What's PLC?

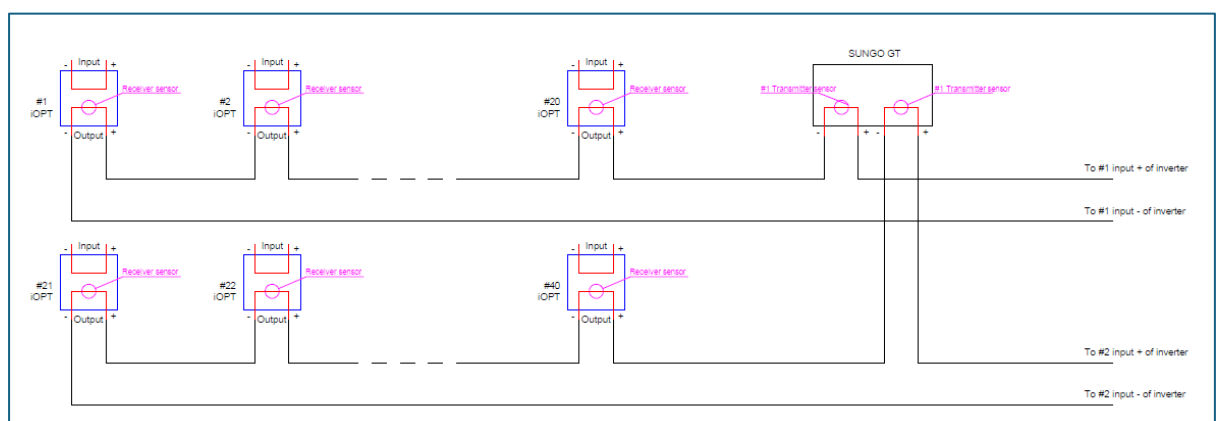
Power-line communication (PLC) is the carrying of data on a conductor that is also used simultaneously for AC electric power transmission or electric power distribution to consumers. The line that does so is known as a power-line carrier.

Power-line communications systems operate by adding a modulated carrier signal to the wiring system. Different types of power-line communications use different frequency bands. Since the power distribution system was originally intended for transmission of AC power at typical frequencies of 50 or 60 Hz, power wire circuits have only a limited ability to carry higher frequencies. The propagation problem is a limiting factor for each type of power-line communications.

The main issue determining the frequencies of power-line communication is laws to limit interference with radio services. Many nations regulate unshielded wired emissions as if they were radio transmitters. These jurisdictions usually require unlicensed uses to be below 500 kHz or in unlicensed radio bands. Some jurisdictions (such as the EU), regulate wire-line transmissions further. The U.S. is a notable exception, permitting limited-power wide-band signals to be injected into unshielded wiring, as long as the wiring is not designed to propagate radio waves in free space.

Data rates and distance limits vary widely over many power-line communication standards. Low-frequency (about 100–200 kHz) carriers impressed on high-voltage transmission lines may carry one or two analog voice circuits, or telemetry and control circuits with an equivalent data rate of a few hundred bits per second; however, these circuits may be many miles long. Higher data rates generally imply shorter ranges; a local area network operating at millions of bits per second may only cover one floor of an office building, but eliminates the need for installation of dedicated network cabling.

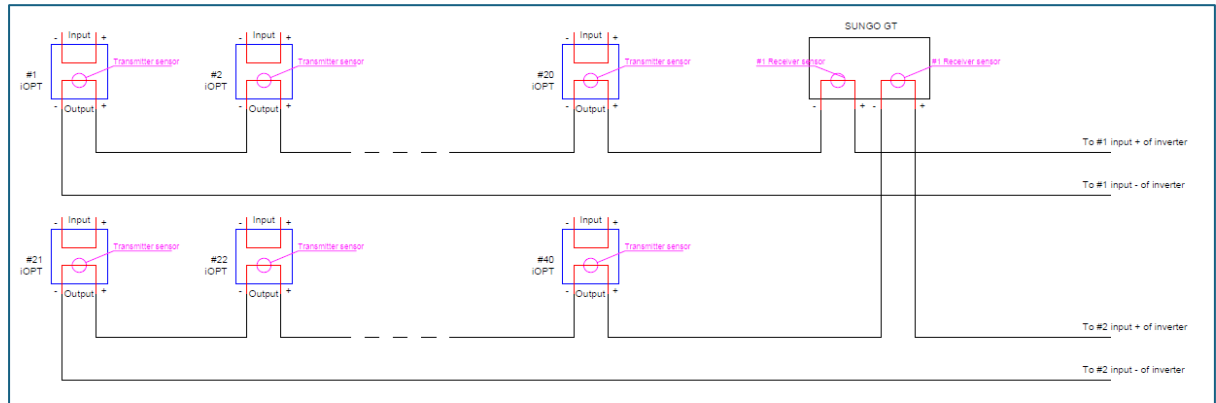
b. How SUNGO GT sends commands to SUNGO iOPTs?



SUNGO GT has two PLC sensors, and each SUNGO iOPT 800W has one PLC sensor. When SUNGO GT sends commands to SUNGO iOPTs, the PLC sensors in SUNGO GT work as transmitter sensors, they translate commands into add high frequency signals, add the signals on the PV cable. The PLC sensor in SUNGO iOPT works as a

receiver sensor, it receives high frequency signals from the PV cable, and translates the signal into digital information, sends it to MCU of SUNGO iOPT.

c. How SUNGO iOPTs send data to SUNGO GT?



When SUNGO iOPTs send data to SUNGO GT, the PLC sensors in SUNGO iOPT works as a transmitter sensor, it translates data into high frequency signals, add signals on the PV cable. The PLC sensor in SUNGO GT works as a receiver sensor, it receives high frequency signals from the PV cable, and translates the signal into digital information, sends it to MCU of SUNGO GT.