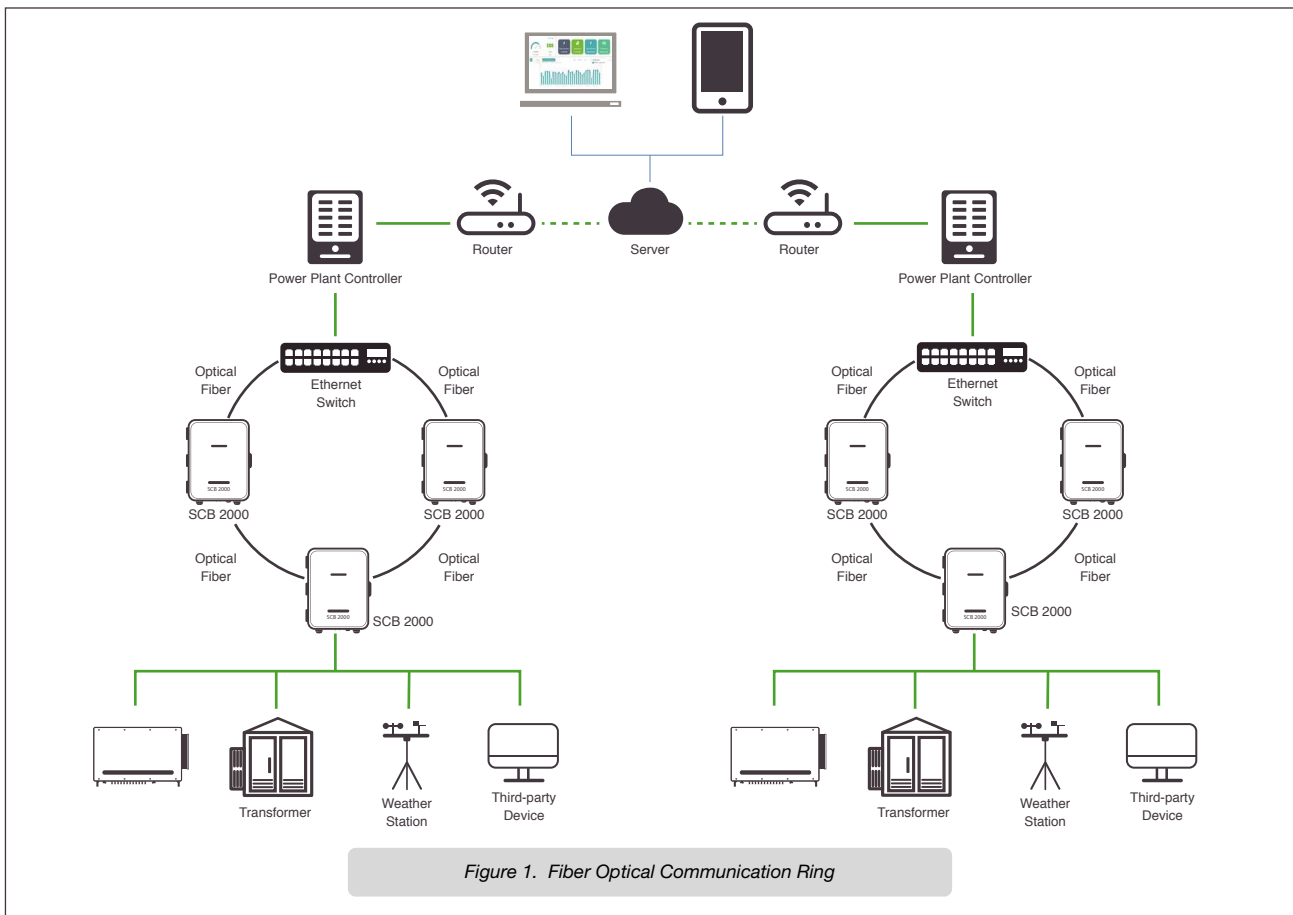# FIBER OPTICALCOMMUNICATION RING

VER: 03, UPDATED ON JULY 15ᵗʰ, 2021

WHY DO WE NEED FIBER OPTICAL COMMUNICATION RING?

In large-scale PV projects, stability of data and long-distance transfer are key concerns. Usually, communication options such as RS485 or PLC are deployed in those projects to transfer data from inverters to data logger by LAN, GPRS or optical fiber from data logger to control room.

Fiber optical communication ring is a ring network which consists of multiple fiber optical termination boxes connecting hand by hand in a circle, where one node broken won't disturb the master fiber termination box (also known as root node) from receiving data, thus to reduce data loss possibility.

Figure 1. Fiber Optical Communication Ring

Besides, transmission speed of optical fiber is faster and transmission distance can be as long as 20km.

In large-scale PV projects, fiber optical communication ring can guarantee stable and secure communication which is crucial to plant's healthy operation & maintenance.

WHAT IS GOODWE SOLUTION?

There are two options available to apply GoodWe Fiber Communication Ring solution in accordance with different communication methods, RS485 or PLC between inverter and data logger.

● *Option 1. Solution with Communication Box SCB2000*

Figure 2. SCB2000

Model		SCB2000
Communication	to inverter	RS485
	to server	LAN (100m)/ Optical Fiber (20km)
Max. amount of inverter connected		30 pcs
Max. transmission distance to inverter		1000m
Compatibility		available to connect to third-party devices, such as environmental sensors, through RS485
Max. amount of SCB2000 connected in a ring		128 pcs

PV communication box SCB2000, developed by GoodWe independently, is designed to deploy in monitoring and control solution for large-scale commercial and utility-scale projects. There are Ezlogger Pro and fibre switch box integrated inside the box. It is easy and convenient to build a fiber optical communication circle to monitor the whole system or third-party monitoring platform like SCADA
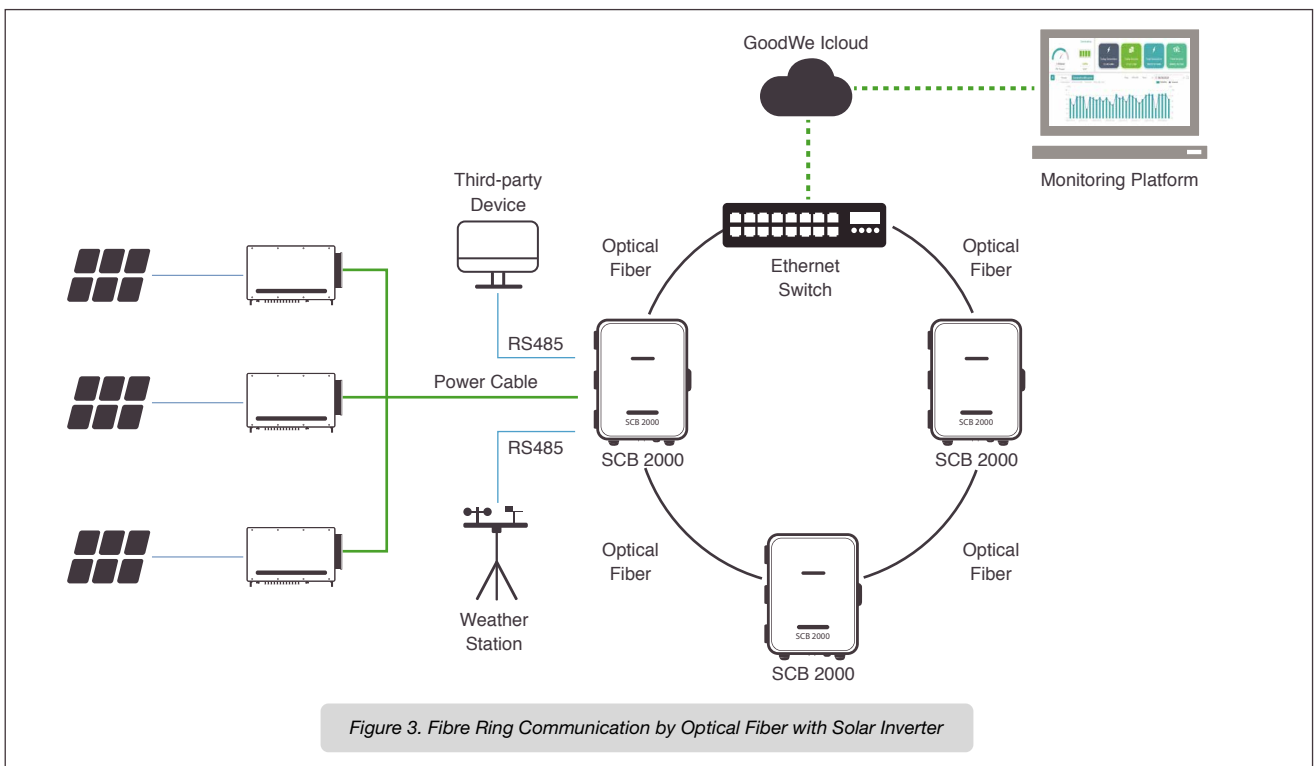

Figure 3. Fibre Ring Communication by Optical Fiber with Solar Inverter

● *Option 2. Solution with Communication Box SCB3000*

With PV communication box SCB3000 applied, PLC communication can be used for GoodWe inverters, which is mainly deployed in large-scale commercial or ground projects. There are PLC communication board, Ezlogger Pro and Network switch integrated inside the box.

GOODWE
YOUR SOLAR ENGINE

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Figure 4. SCB3000

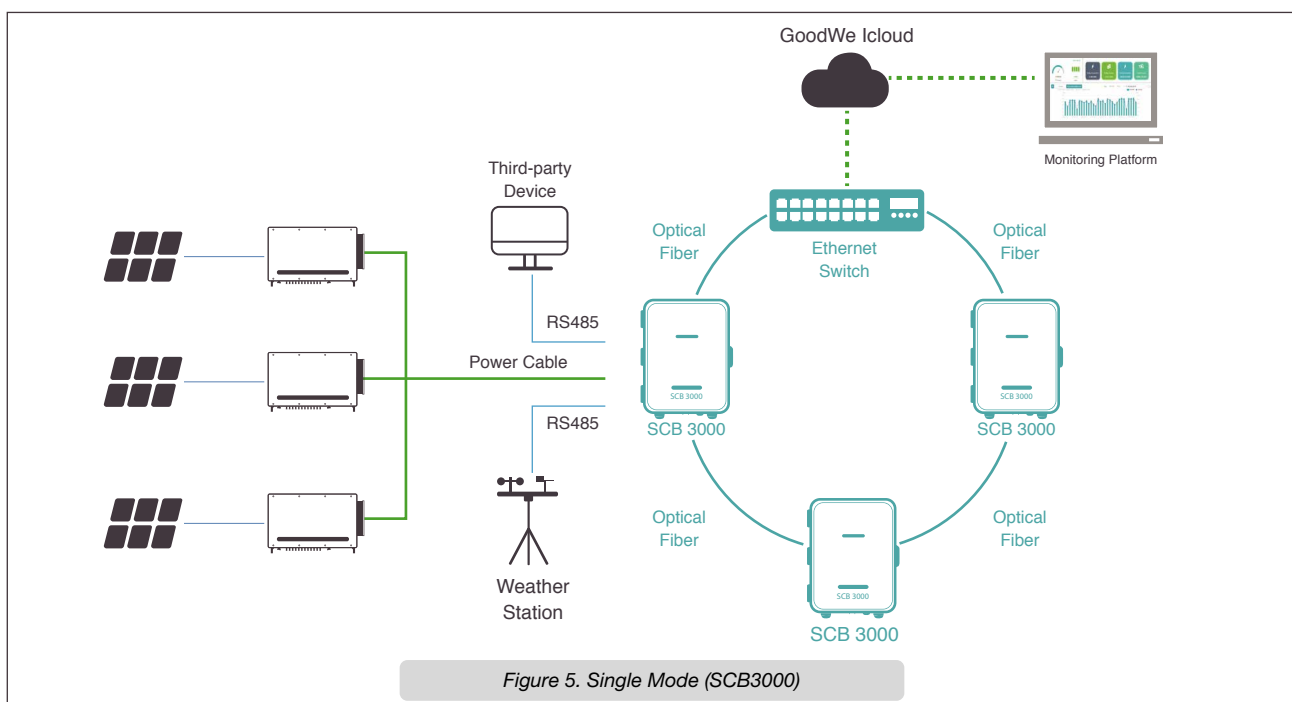| Model		SCB3000
Communication	to inverter	PLC
	to server	LAN (100m)/ Optical Fiber (20km)
Max. amount of inverter connected		60 pcs
Max. transmission distance to inverter		1000m
Compatibility		available to connect to third-party devices such as environmental sensor via RS485
Max. amount of SCB3000 connected in a ring		128 pcs

Figure 5. Single Mode (SCB3000)

Note: Network switch is optional and there is no switch available for inverters with LAN or GPRS.

How to Configure Fiber Optical Communication Network?

Please follow the below steps to set up your own fiber communication network.

1. Access to the default IP address: 11.11.11.254 with account root and password admin.

2. Select and set one of the communication boxes as root node and no configuration needed for the others. All the other boxes are regarded as slave nodes automatically.

Note: Configuration is required only for multiple mode where several communication boxes are deployed.