

INSTALLATION MANUAL

DL-300 DATA LOGGER

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IMPORTANT INFORMATION

The DL-300 data logger is the hardware that connects Darfon hybrid inverters to the Darfon cloud monitoring system. Please read all instructions before installing this data logger. And, store this installation manual where it can be accessed easily.

What You Need Before You Begin

- Internet service
- A computer with WiFi

FCC Compliance

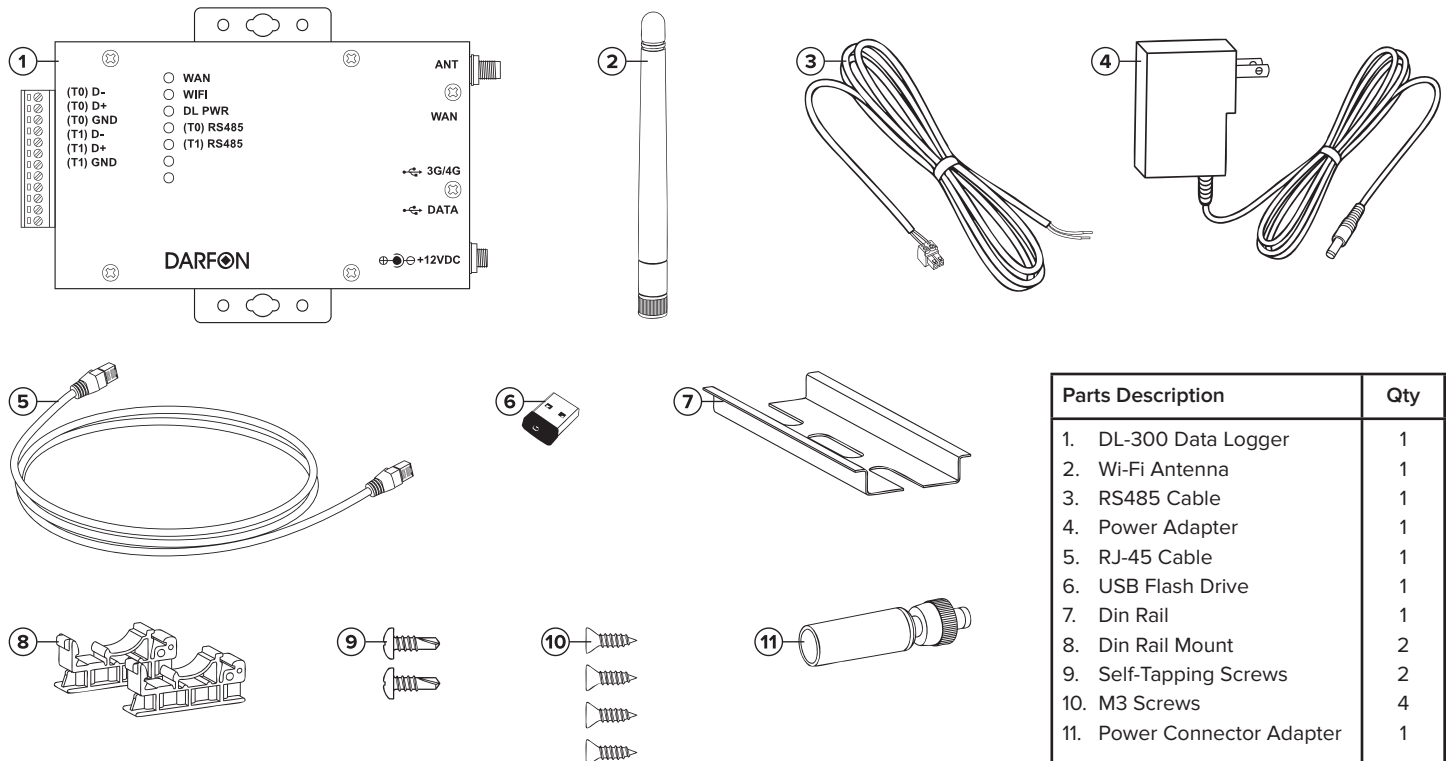
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

PRODUCT OVERVIEW

What's in the Box



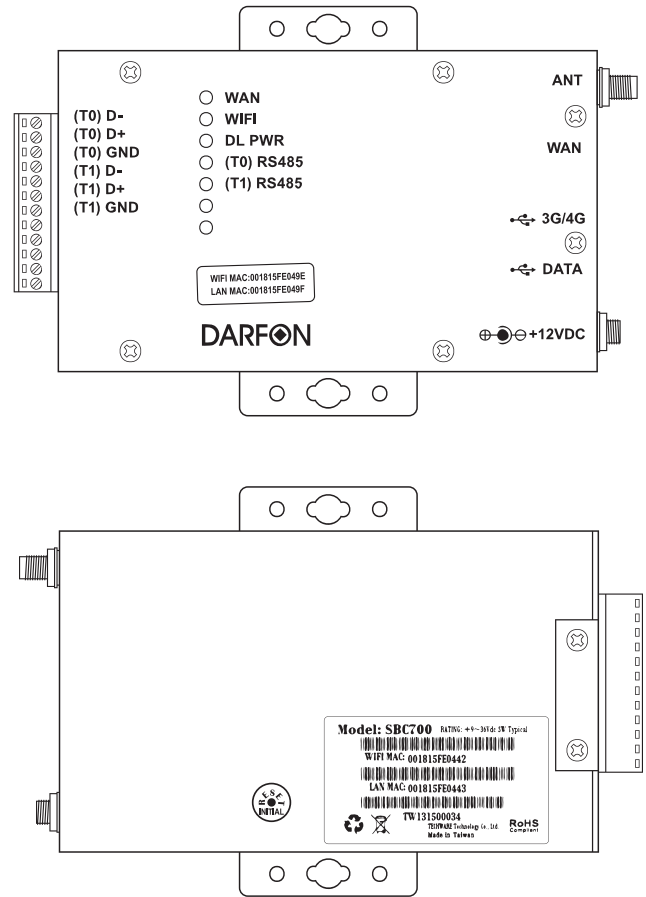
Parts Description	Qty
1. DL-300 Data Logger	1
2. Wi-Fi Antenna	1
3. RS485 Cable	1
4. Power Adapter	1
5. RJ-45 Cable	1
6. USB Flash Drive	1
7. Din Rail	1
8. Din Rail Mount	2
9. Self-Tapping Screws	2
10. M3 Screws	4
11. Power Connector Adapter	1

Connections

Port	Description
ANT	Attach the antenna for WiFi connection.
WAN	Connect the RJ-45 cable for a LAN connection.
3G/4G	Connect a 3G/4G dongle for a cellular connection.
DATA	USB flash drive.
(T0) RS485	Connects to the hybrid inverter for two-way communication.
(T1) RS485	External RS485 sensor device reserved.
RESET	Factory default reset button. Insert a pin and hold for 30 seconds.

LED Definitions

LED	Activity	Description
WAN	● Solid	The LAN is connected.
	● Flashing	Data is being transmitted or received.
	○ Off	No connection established.
WIFI	● Solid	The WIFI is enabled.
	● Flashing	Data is being transmitted or received.
	○ Off	WIFI is disabled.
DL PWR	● Solid	Power is on.
	● Solid	System initialization.
	○ Off	There is no Power.
(T0) RS485	● Solid	A command is transmitted to the inverter(s).
	● Solid	A command is received from the inverter(s).
	○ Off	No commands are being transmitted or received.
(T1) RS485	● Solid	A command is transmitted to the device(s).
	● Solid	A command is received from the device(s).
	○ Off	No commands are being transmitted or received.



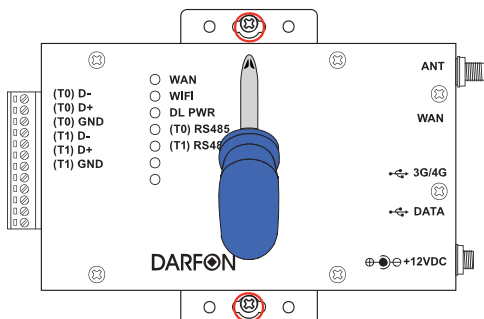
MOUNTING THE DATA LOGGER

Location Requirements

- The DL-300 has an IP20 rated enclosure, which means it must be installed indoors.
- The RS485 cable is about 4' long, so the data logger should be mounted no more than 3 feet away from the inverter.
- The data logger requires an internet connection, be it wired, WiFi or cellular.
- The data logger can be mounted to the wall, or elsewhere with the use of the din rail and din rail mounts.

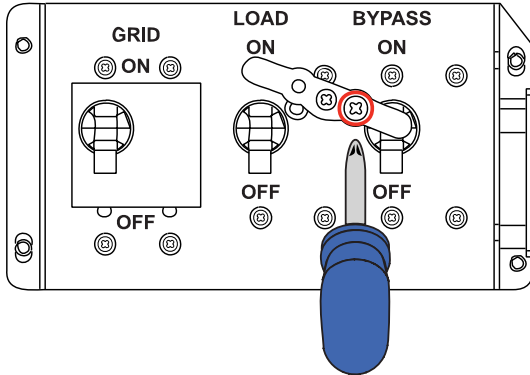
Step 1. If the data logger cannot be secured to a stud in the wall, insert drywall anchors prior to installation.

Step 2. Place the data logger against the wall and secure with two screws.

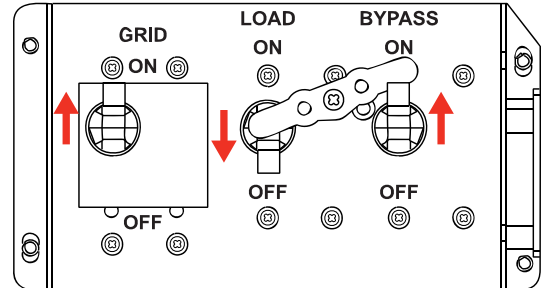


CONNECTING TO THE INVERTER

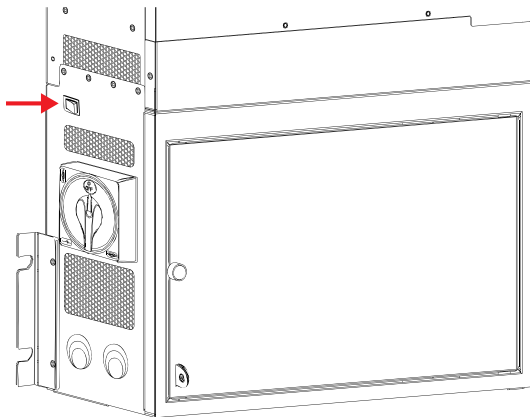
Step 1. Unlock Bypass switch. If there is a screw on the rocker arm that keeps the Bypass off, remove it with a small Philips screwdriver.



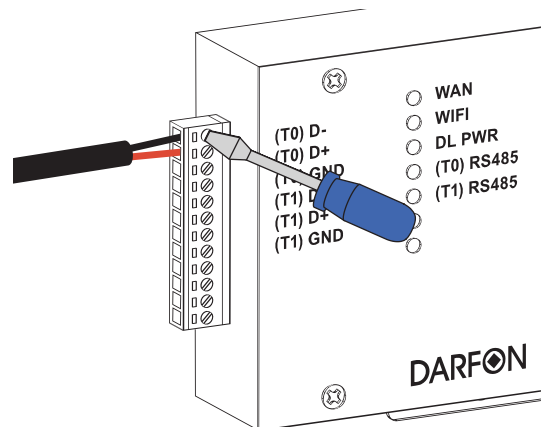
Step 2. Switch on Bypass, so your load runs from grid while the inverter is turned off. Make sure the breakers are in the correct position. Grid and Bypass are on. Load is off.



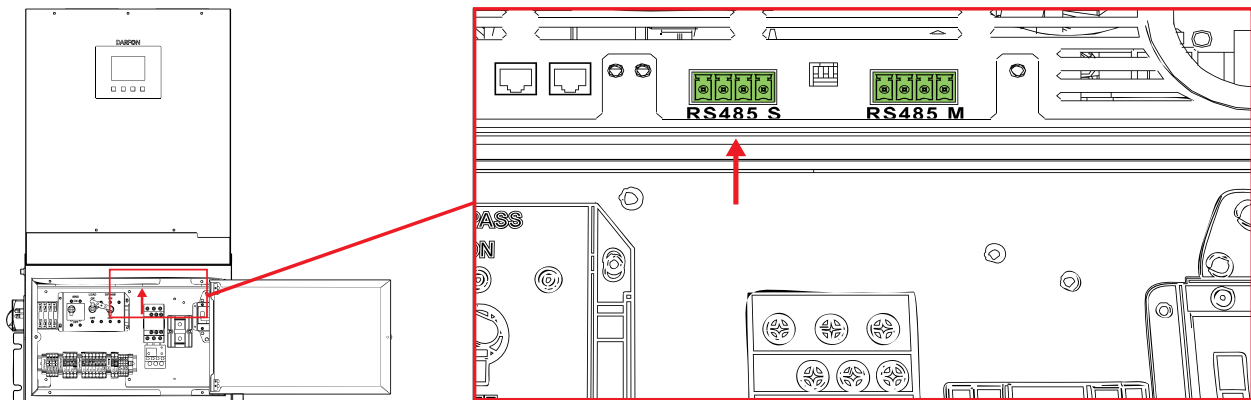
Step 3. Turn off the main switch that is located on the side of the inverter.



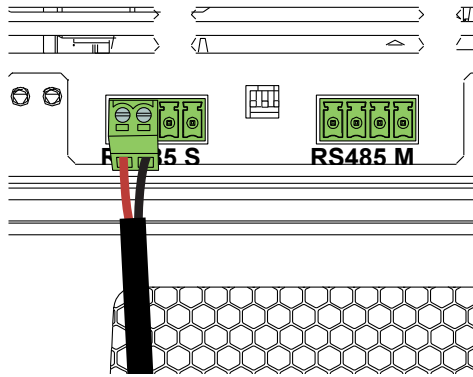
Step 4. Insert the black wire of the RS485 cable into the first pin, (T0) D-, and the red wire into the second pin, (T0) D+, of the data logger. Then use a small flathead screwdriver to tighten the screws.



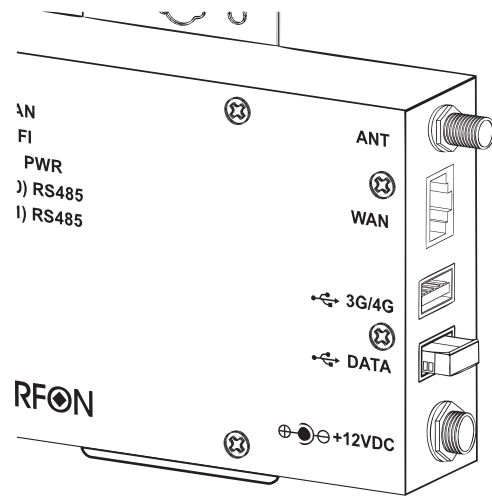
Step 5. Open the door on the inverter and remove the dead front cover if needed (See inverter manual for instructions). Look inside and on the top bulkhead panel you should find a green socket (with 4 pins) labeled “RS485 S”.



Step 6. Connect the RS485 connector into the first two pins of the port labeled “RS485 S” on the inverter. Push the connector in hard so that it seats properly.



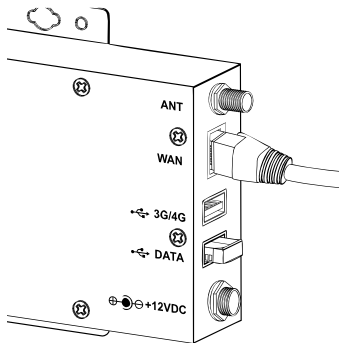
Step 7. Insert the USB flash drive into the data logger.



Step 8. Internet Connection. There are three ways to establish an internet connection: LAN, WiFi or Cellular.

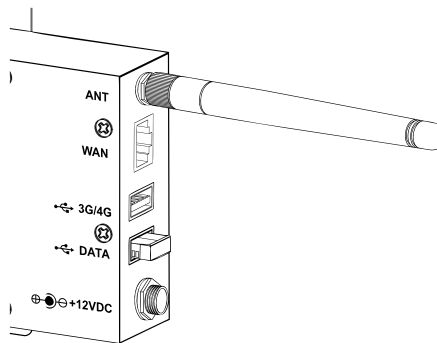
LAN Connection

Connect the ethernet cable to the data logger and to the network/router.



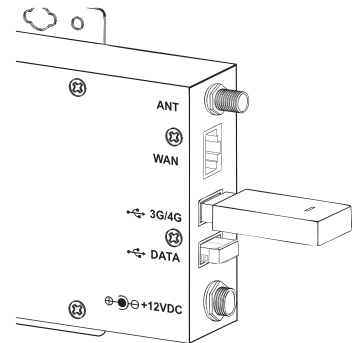
WiFi Connection

Connect the antenna to the data logger.

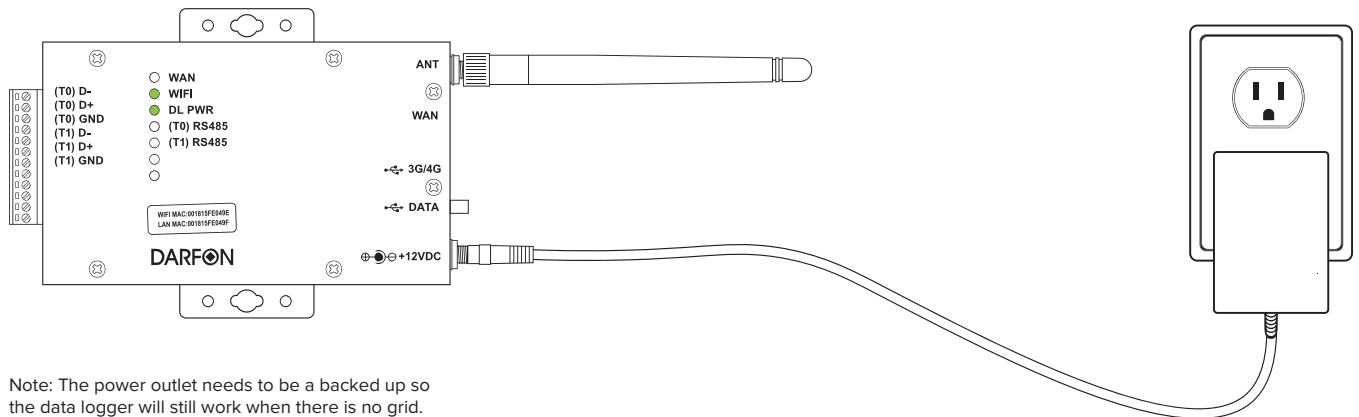


Cellular Connection

Connect a non password protected 3G/4G dongle to the data logger.

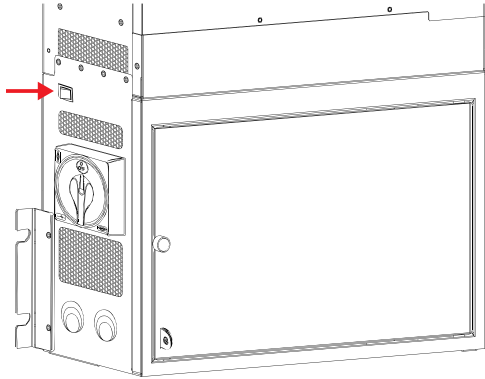


Step 9. Connect the power adapter into the data logger and then to the power outlet.

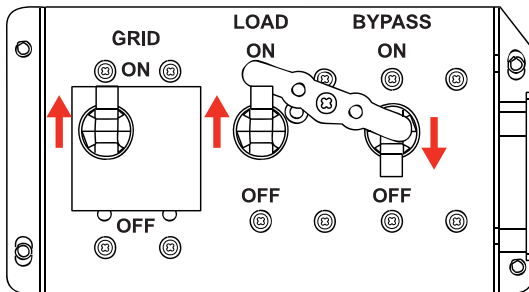


Note: The power outlet needs to be a backed up so the data logger will still work when there is no grid.

Step 10. Turn the inverter on by the using Main Switch on the inverter. Wait for the inverter to boot up before going to the next step.

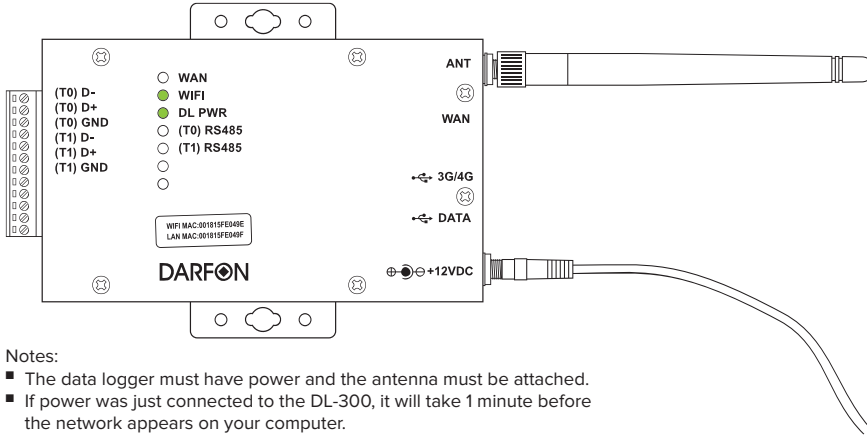


Step 11. Turn the load breaker back on.

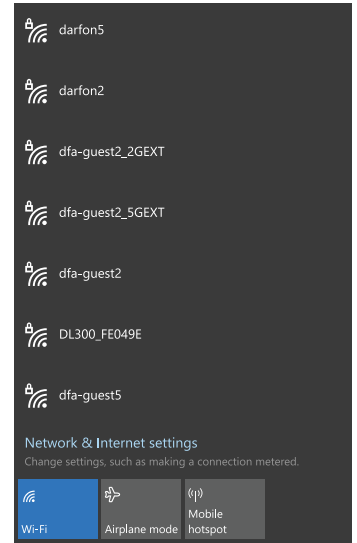


CONFIGURING FOR WIFI

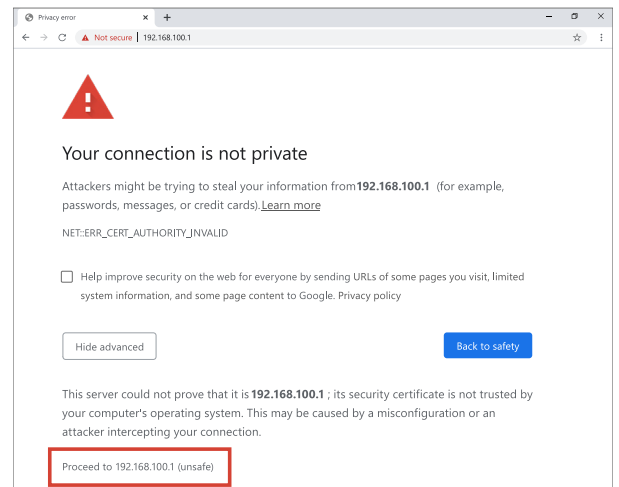
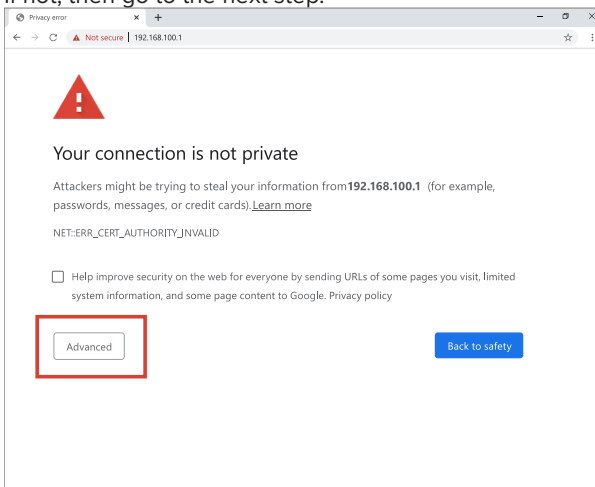
Step 1. Connect the computer to the DL-300 through WiFi. The password is SBC700ap. The network name will be “DL300_” followed by the last 6 characters of the WiFi MAC address. The WiFi MAC address label is located on either the front or side of the DL-300.



- Notes:
- The data logger must have power and the antenna must be attached.
 - If power was just connected to the DL-300, it will take 1 minute before the network appears on your computer.

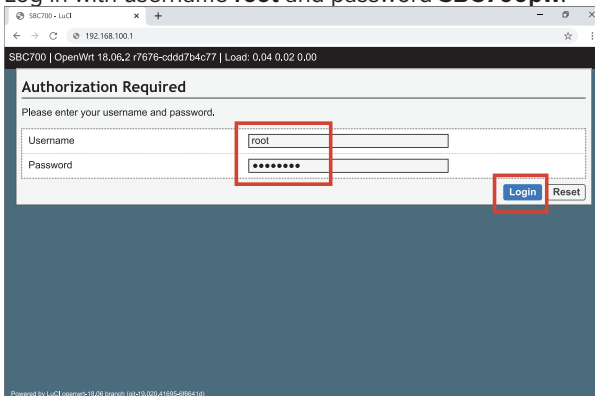


Step 2. Open a web browser and go to “192.168.100.1”. If you are redirected to a warning page, click on “Advanced” and then “Proceed”. If not, then go to the next step.

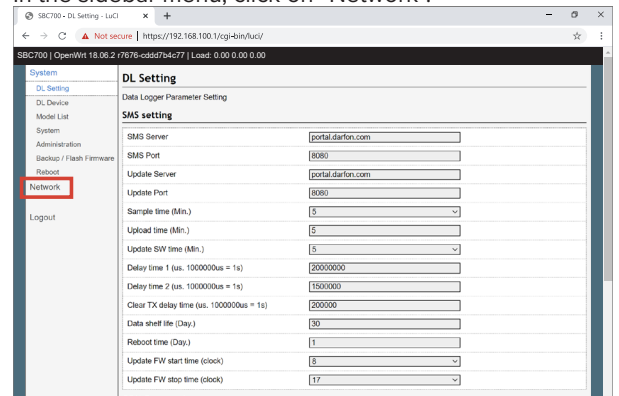


Note: The wording and appearance of the warning page will vary depending on which browser is used.

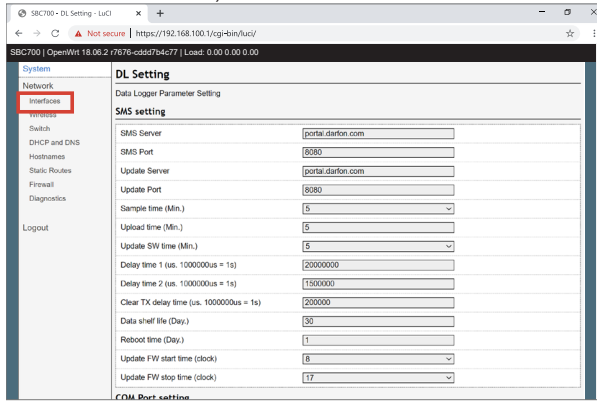
Step 3. Log in with username **root** and password **SBC700pw**.



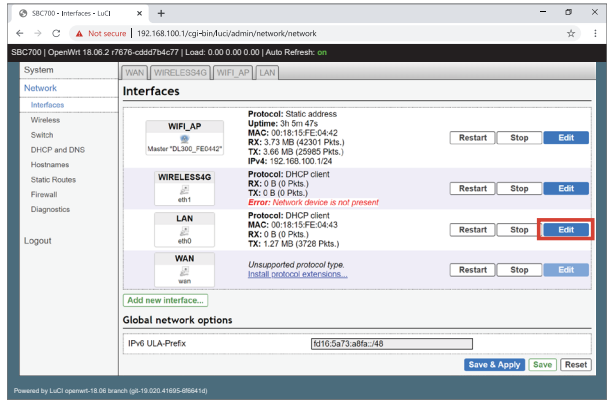
Step 4. In the sidebar menu, click on “Network”.



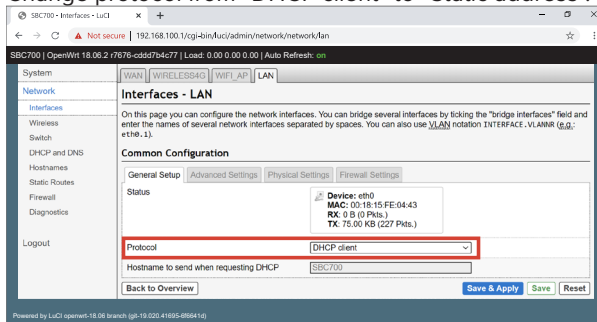
Step 5. In the sidebar menu, click on “Interfaces”.



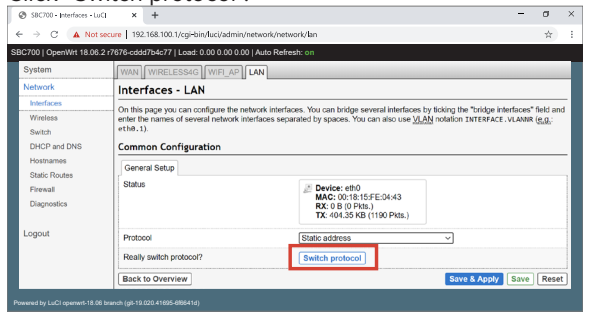
Step 6. Click “edit” in the “LAN” section.



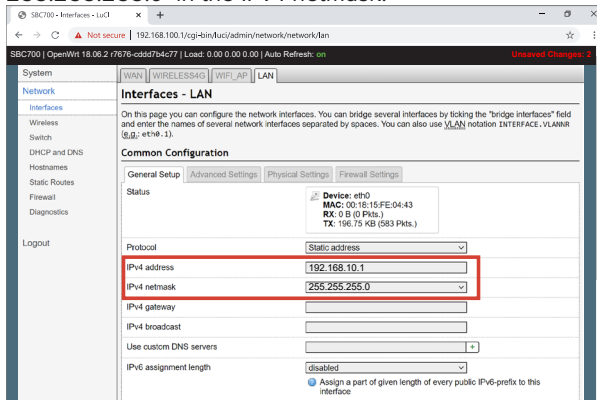
Step 7. Change protocol from “DHCP client” to “Static address”.



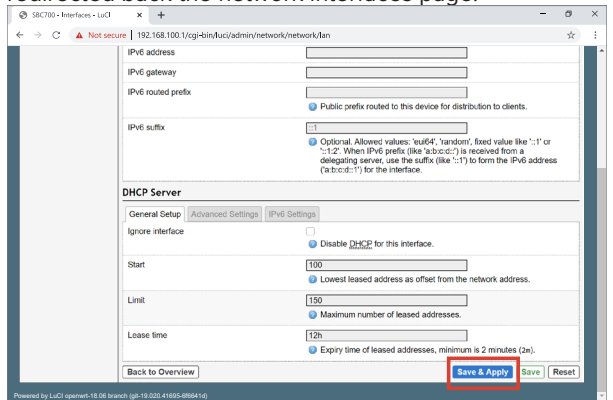
Step 8. Click “Switch protocol”.



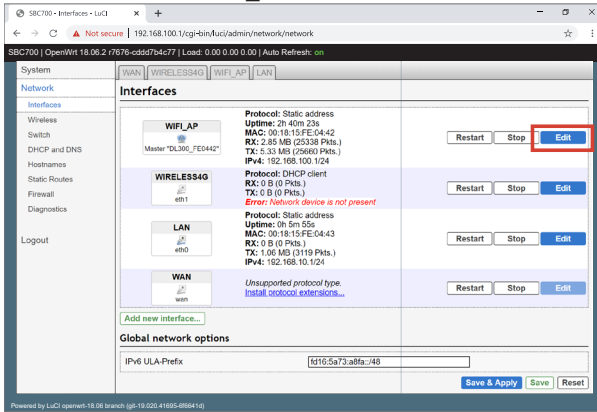
Step 9. Enter 192.168.10.1 into the IPv4 address and 255.255.255.0 in the IPv4 netmask.



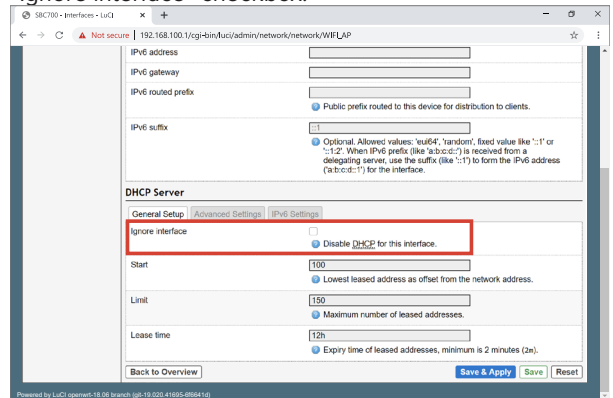
Step 10. Scroll down and click “Save & Apply”. Wait until you are redirected back the network interfaces page.



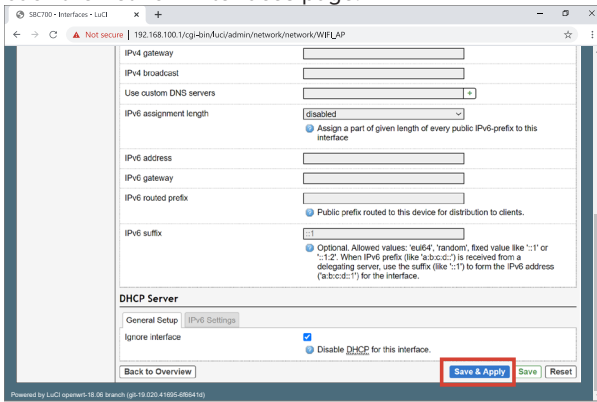
Step 11. Click “edit” in the “WIFI_AP” section.



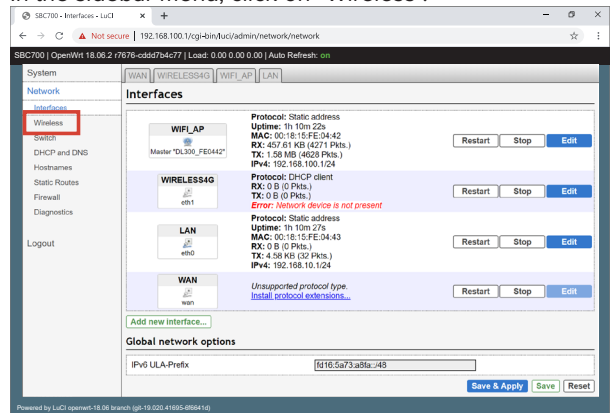
Step 12. Scroll down to the “DHCP Server” section and check the “Ignore interface” checkbox.



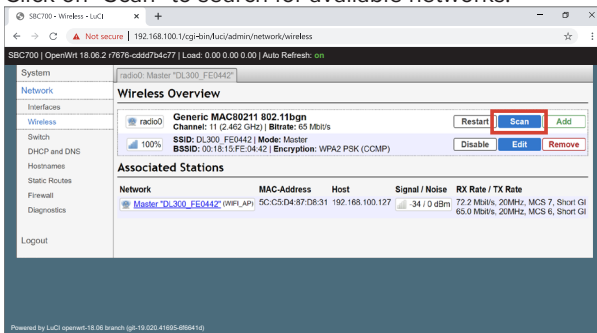
Step 13. Click “Save & Apply”, and wait until you are redirected back the network interfaces page.



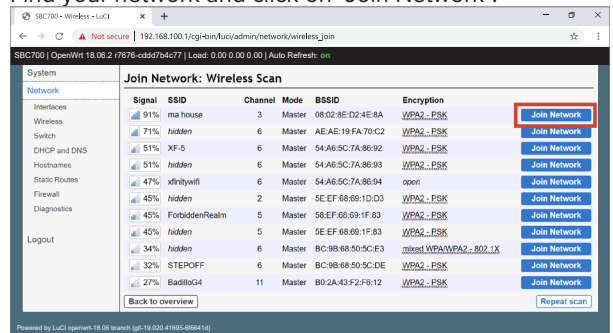
Step 14. In the sidebar menu, click on “Wireless”.



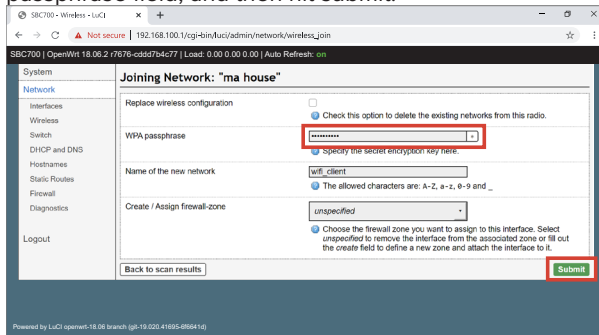
Step 15. Click on “Scan” to search for available networks.



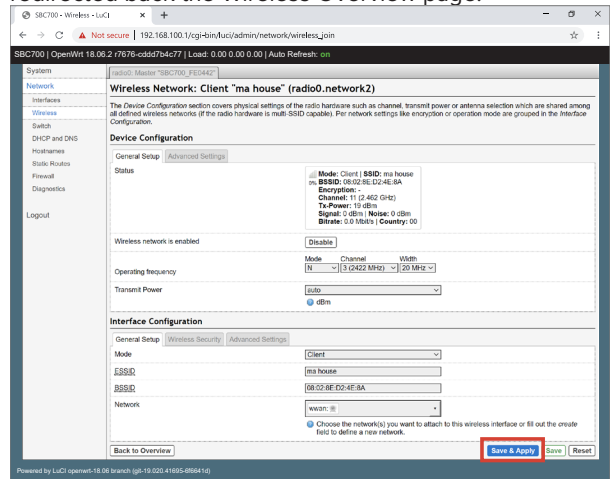
Step 16. Find your network and click on “Join Network”.



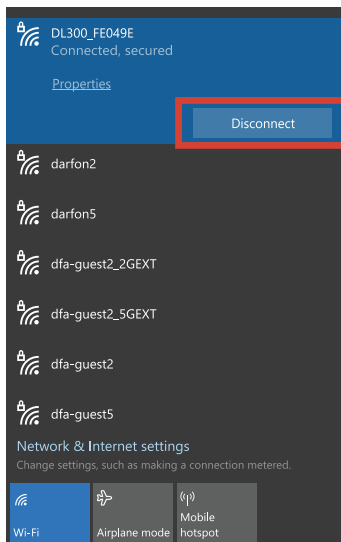
Step 17. Enter the password for your network into the WPA passphrase field, and then hit submit.



Step 18. Click “Save & Apply”, and wait until you are redirected back the Wireless Overview page.



Step 19. Disconnect the computer from the DL-300’s WiFi.



Step 20. [Optional] Confirm that the data logger shows up on your network.

MONITORING PORTAL

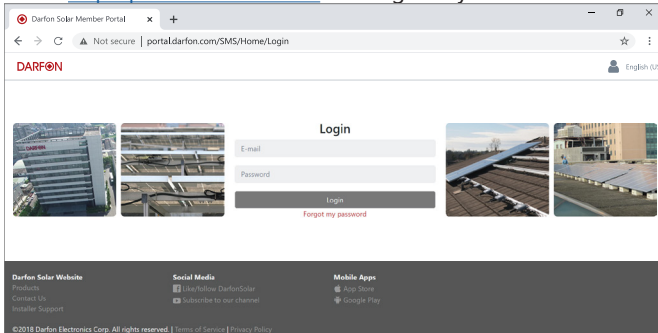
The monitoring portal can be accessed through a web browser, iOS app or android app. This manual uses a web browser for instructions. Before creating an end-user account or registering a system, you will need the following information on hand:

- Data logger LAN MAC address
- Installer login credentials
- Electronic copy of this manual (recommended)

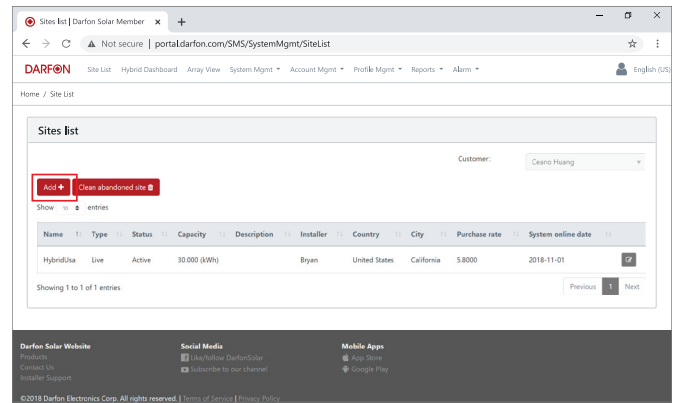
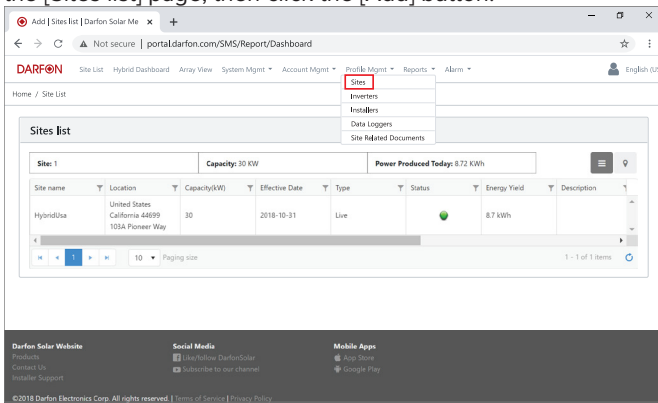
Registering a new system

If you are an existing installer, please follow the following steps to create an account for your customer. If you are a new installer, please contact a Darfon representative to create your installer account first.

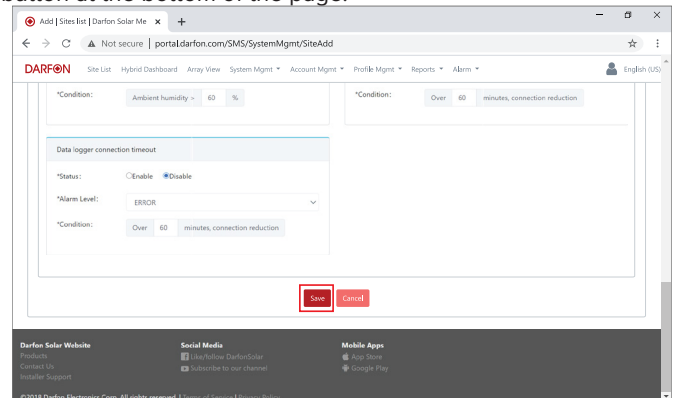
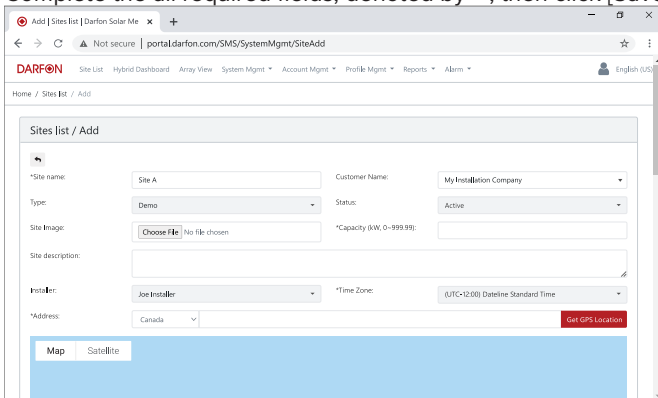
Step 1. Go to <http://portal.darfon.com/> and log into your account.



Step 2. Go to <http://portal.darfon.com/SMS/SystemMgmt/SiteAdd> directly. Or in the website menu, select [Profile Mgmt] / [Sites] to go to the [Sites list] page, then click the [Add] button.

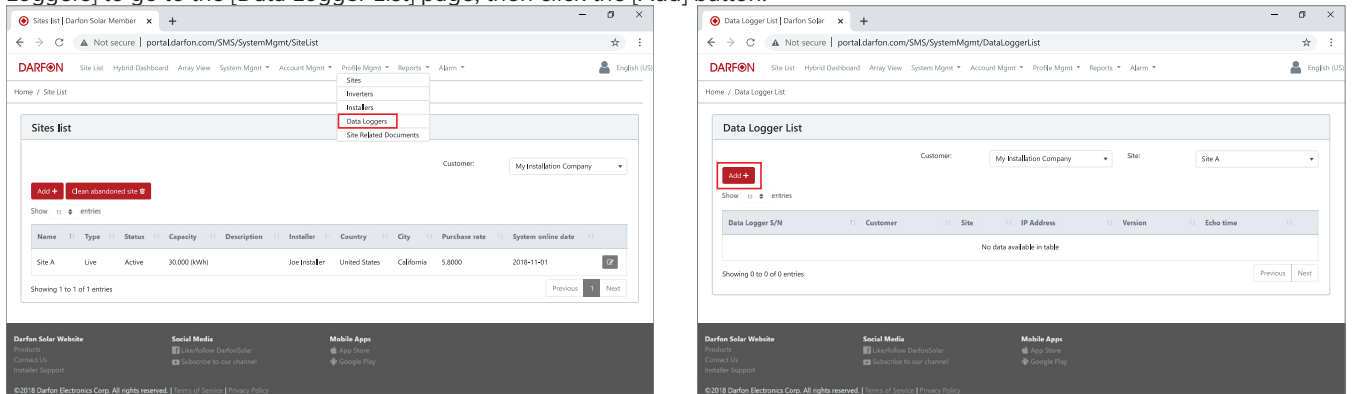


Step 3. Complete the all required fields, denoted by *, then click [Save] button at the bottom of the page.

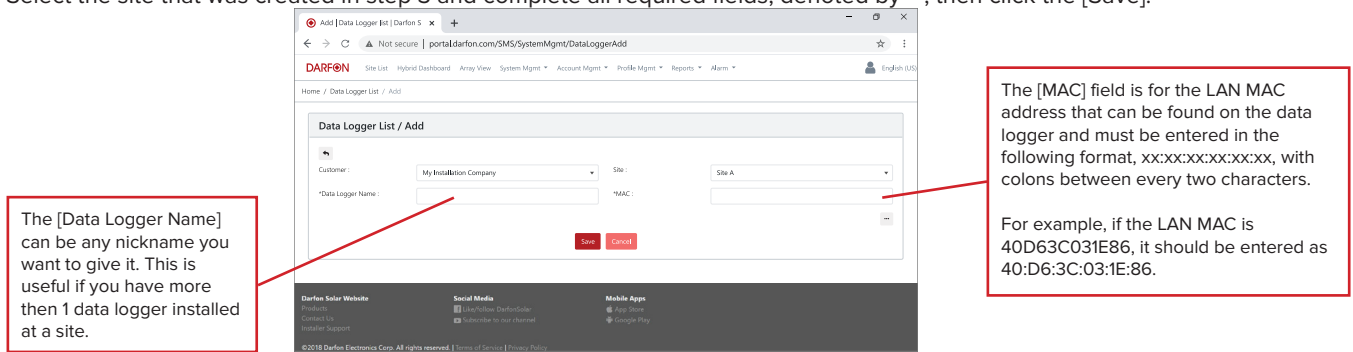


Note: To display this site on Google Maps, click the [Get GPS Location] button after filling in the address.

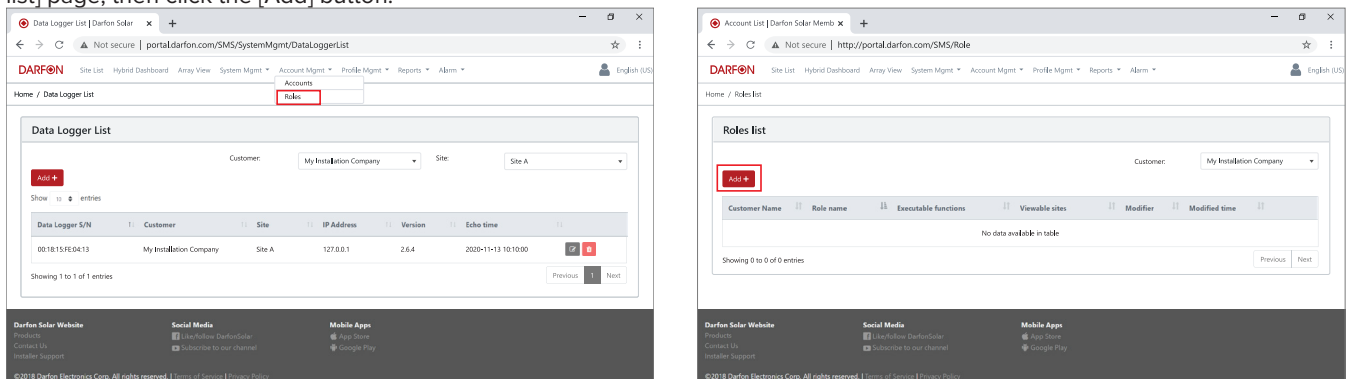
Step 4. Go to <http://portal.darfon.com/SMS/SystemMgmt/DataLoggerAdd> directly. Or in the website menu, select [Profile Mgmt] / [Data Loggers] to go to the [Data Logger List] page, then click the [Add] button.



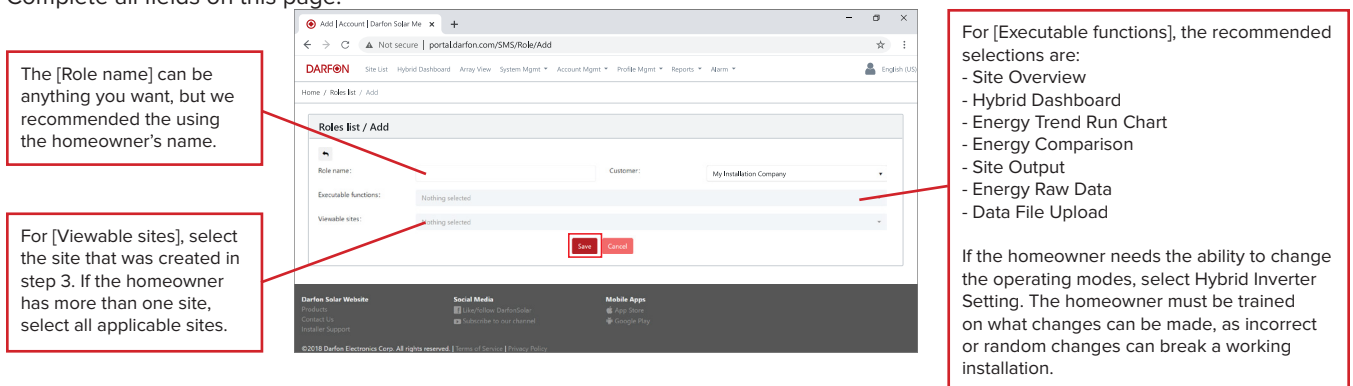
Step 5. Select the site that was created in step 3 and complete all required fields, denoted by "*", then click the [Save].



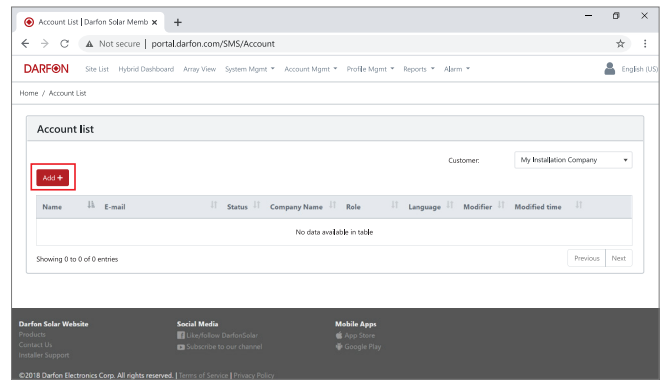
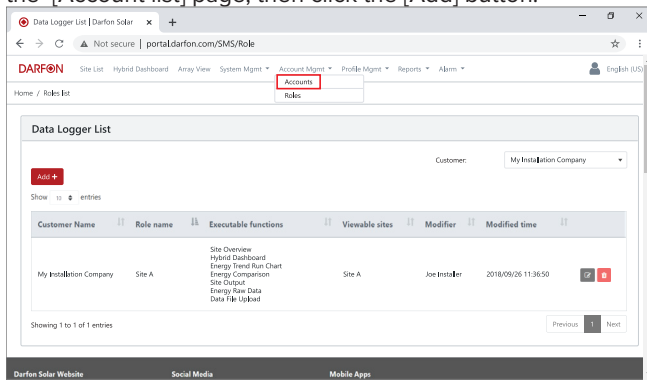
Step 6. Go to <http://portal.darfon.com/SMS/Role/Add> directly. Or in the website menu, select [Account Mgmt] / [Roles] to go to the [Roles list] page, then click the [Add] button.



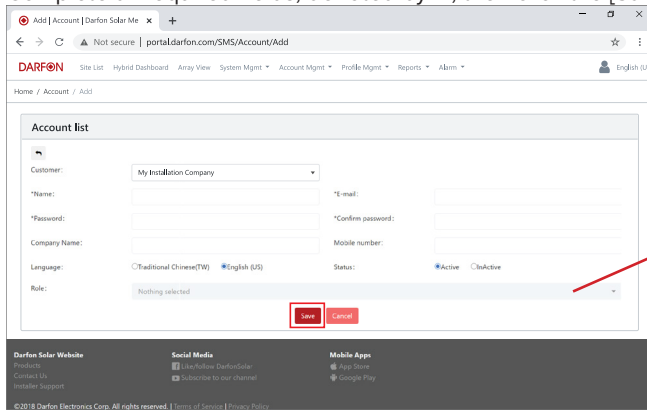
Step 7. Complete all fields on this page.



Step 8. Go to <http://portal.darfon.com/SMS/Account/Add> directly. Or in the website menu, select [Account Mgmt] / [Accounts] to go to the [Account list] page, then click the [Add] button.



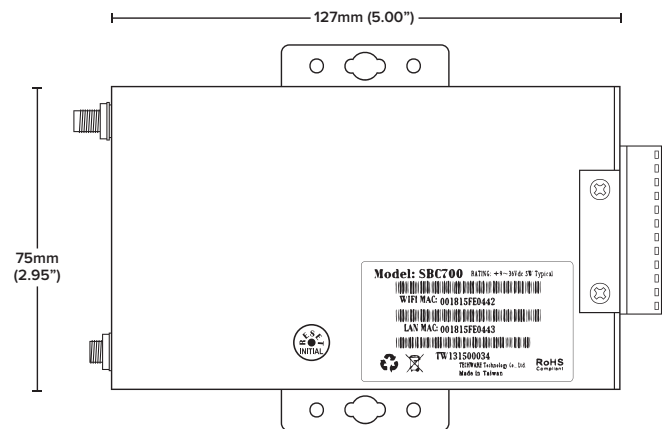
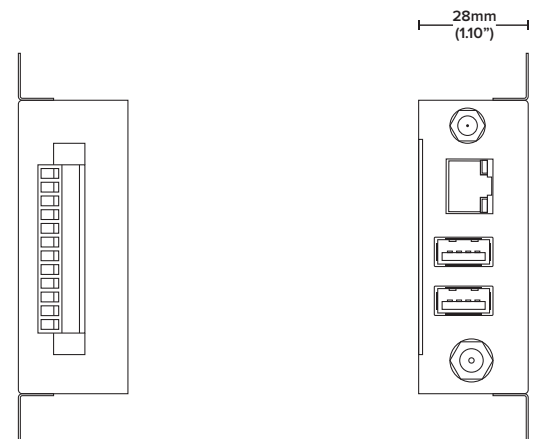
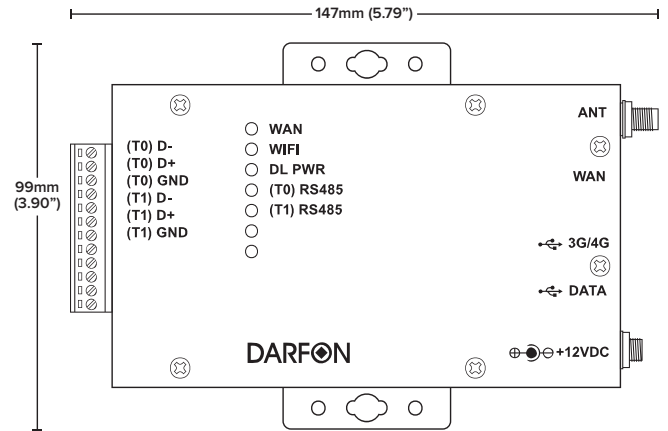
Step 9. Complete all required fields, denoted by ‘*’, then click the [Save] button and you’re done.



For [Role], select the role that was created in step 7.

APPENDIX A: TECHNICAL SPECIFICATIONS

DEVICE CONNECTION	
Inverter Communication	RS485
Number of Inverters	Up to 3 Hybrid Inverters
Sensor Communication	RS485
DATA CONNECTION	
Ethernet	10/100 Base-T, RJ45
WiFi	2.4GHz 802.11 b/g/n (Detachable Antenna)
Cellular	USB 2.0 Type A for 3G/4G Dongle
Storage & Log	USB 2.0 Type A (8G Flash Drive Included)
POWER	
Power Supply Input	12Vdc, 2Adc
Power Consumption	9 to 36Vdc, 5W Typical
MECHANICAL DATA	
Dimensions (WxHxL)	99x28x147mm (3.9x1.1x5.8in)
Weight	0.17kg (0.37lb)
Installation Method	Wall-mount
Protection Rating	IP20 (Indoor Use Only)
Operating Temperature	-20 to 60°C (-4 to 140°F), 0 to 95% RH non-condensing
Storage Temperature	-20 to 80°C (-4 to 176°F), 0 to 95% RH non-condensing
POLICIES	
Compliances	FCC Part 15 Class B, EN300328 V2.1.1, EN61000-3-x, IEC 61000-4-x
Warranty	1 year



APPENDIX B: TROUBLESHOOTING

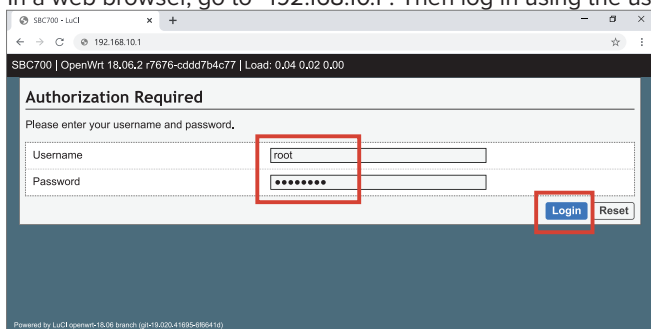
Problem - Not all the inverters are communicating with the data logger/portal.

- Step 1. How many Darfon hybrid inverters are connected to the data logger? The data logger can only communicate with up to 3 inverters.
- Step 2. Check all communication wires connected to the inverters.

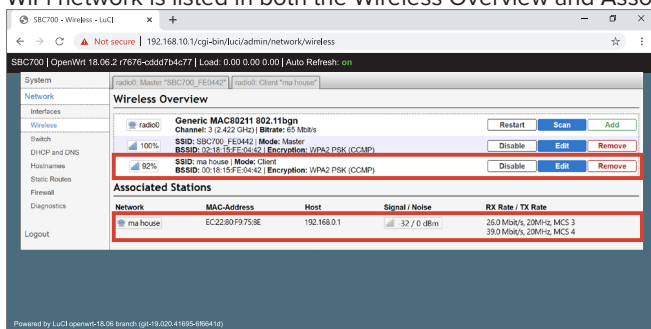
Problem - I registered a new system, but I cannot see the data logger.

- Step 1. Make sure the MAC address entered is the LAN MAC address and NOT the WiFi MAC address..
- Step 2. Make sure the LAN MAC address was typed in correctly. It must be entered in the following format, xx:xx:xx:xx:xx:xx, with colons between every two characters. For example, if the LAN MAC is 40D63C031E86, it should be entered as 40:D6:3C:03:1E:86.
- Step 3. If the data logger is connected to the router via a LAN connection, make sure the RJ45 cable is properly connected to the data logger and router. The WAN led indicator should be green.
- Step 4. If the data logger is connected to a WiFi network, make sure that it is still properly connected by:
 - Connect a computer to the data logger using the RJ45 cable.

- In a web browser, go to “192.168.10.1”. Then log in using the username **root** and the password **SBC700pw**.



- In the sidebar menu, click on “Network” and then “Wireless” to go to the Wireless Overview page. Then confirm that your WiFi network is listed in both the Wireless Overview and Associated Stations sections.



DARFON

Manufactured by:

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Taoyuan 333, Taiwan, (R.O.C.)
Tel: +886 3 2508800

USA Office:

Darfon America Corp.
103B Pioneer Way
Mountain View, CA 94041
Tel: +1.650.316.6300

For more information:

www.darfonsolar.com