



The **Energy** Management Platform
Installation Guide – WebdynSun/WebdynModbus

Internet of Things

Solar Energy



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Introduction

The purpose of this guide is to describe the installation and operation of a WebdynSun /Webdyn Modbus gateway

Tools and Materials Needed

Read manual before beginning the installation to be sure you have everything you need.

- Laptop with Windows 7/10
- Internet Connectivity (Lan or Dongle)
- MicroSD Card Reader
- Wire Stripper
- Pliers
- Allen Key Set
- Hammer Drill
- Cable Ties
- Saddle Clips
- RJ45 Crimping Tool
- 2 & 4Core Wire for Extension [if needed]
- Screw Driver
- Multi Meter
- Hammer

Internet Connectivity

It is crucial for the Webdyn to have an internet access, either Ethernet or GPRS, in order to enable file transfers between the gateway and a configured remote server, to enable the synchronization of the gateway's internal clock with the one's of general purpose systems.

Ethernet connection

For connection via Ethernet, the following parameters must be supplied:

- IP address of the WebdynSun/Webdyn Modbus on the local network;
- Subnet mask;
- IP address of the router or ADSL modem;
- IP address of the DNS server.

GPRS connection

For connection via GPRS, it is essential to procure an activated SIM card with a DATA option, and to know the values of the following parameters:

- APN (Access Point Name): Name of the GPRS access point. This depends on the operator and the type of subscription;
- User name and password for connection to the APN.

Understanding Device LED Status



LED	Function	Status	Explanation
Activity	Operational status of the gateway	On continuously (hardware version V2)	Power on
		Flashing rapidly	Initialization
		Flashing slowly	Operational
Services	Installation	Flashing rapidly	Installation phase in progress
RS 485(A)	RS485 (A) activity LED (inverters)	Flashing rapidly	Initialization
		On continuously	Initialization complete
		Flickering	Traffic to and from inverters
TIC	Activity on Remote Customer Information (smart meter) interfaces	Flashing rapidly	TIC initialization
		On continuously	Initialization complete
		Flickering	Traffic to & from smart meters
RS485/RS232 (B)	RS485/RS232 (B) activity LED (Modbus devices)	Flashing rapidly	Modbus initialization
		On continuously	Initialization complete
		Flickering	Traffic to & from Modbus devices

WAN	WAN connection via Ethernet	Flashing rapidly	Ethernet connection being initialized
		On continuously	Initialization complete
		Flickering	Connection with remote server in progress
	WAN connection via GPRS	Flashing rapidly	GPRS modem being initialized.
		Flashing Periodically 1 to 5 times.	Initialization complete. Signal strength (number of flashes)
		Flashing slowly	Connection with remote server in progress
	Connection WAN (PSTN)	Flashing rapidly	PSTN modem being initialized
		On continuously	Initialization complete
		Flickering	Connection with remote server in progress

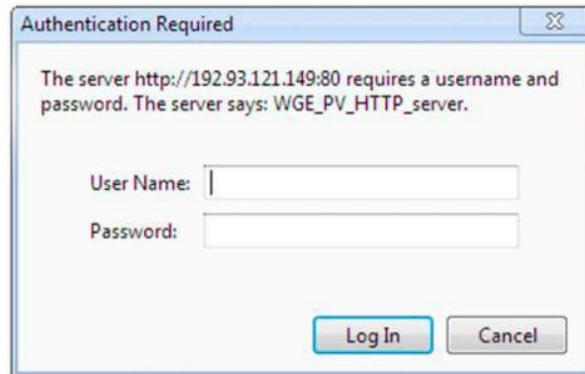
Accessing the Web Interface

Access to the built-in Web interface on the WebdynSun/Webdyn Modbus gateway is provided via the gateway's LAN connection. As the gateway does not cross Ethernet signals, when there is a direct connection between the gateway and the computer, a crossover cable must be used. In addition, both the computer used and the gateway must belong to the same subnet. If the WebdynSun/Webdyn Modbus gateway has a static IP address (the default situation), the computer must also be configured to use a compatible static IP address.

This static address must belong to the same subnet as the WebdynSun/Webdyn Modbus gateway:

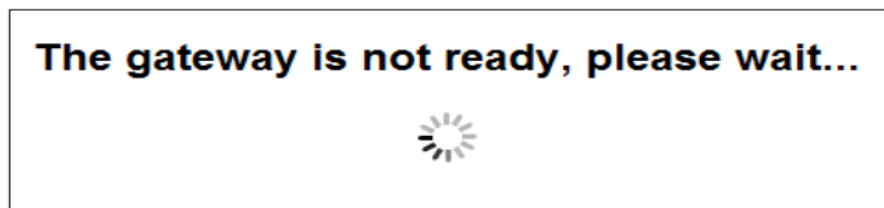
Default Settings	IP address: 192.168.1.12 Subnet mask: 255. 255. 255.0
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1. Once your computer has been correctly configured:
2. Launch your Web browser (Internet Explorer, Firefox, etc.).
3. Go to the home page of the WebdynSun/Webdyn Modbus gateway using the browser's address bar to specify the address <http://192.168.1.12>.
4. The following window is displayed:



Default Settings	User Name: userhigh Password: high
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Please Note : If the gateway is not yet operating, the following message is displayed:

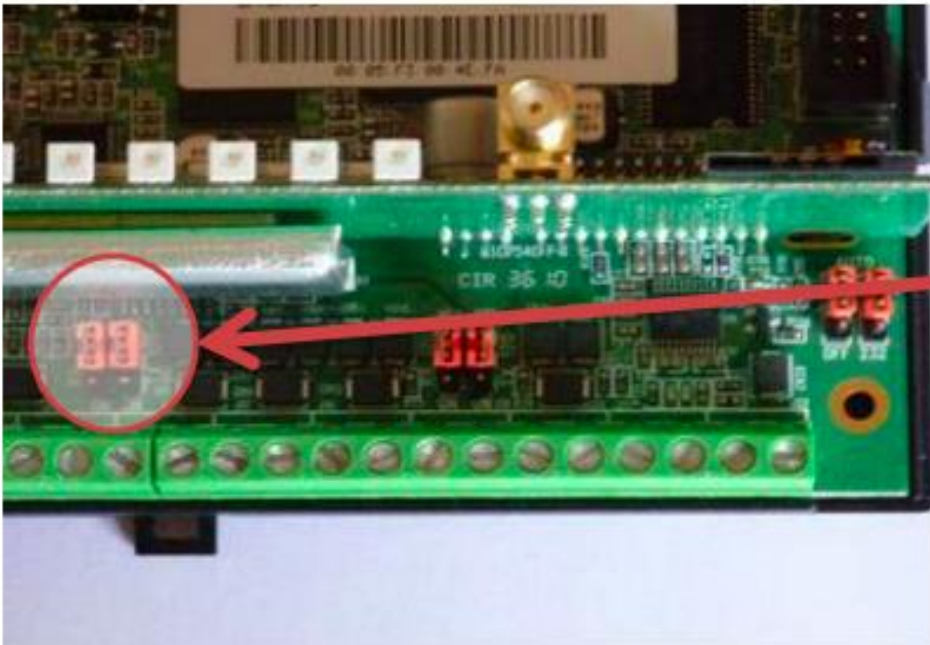


Slave Wiring

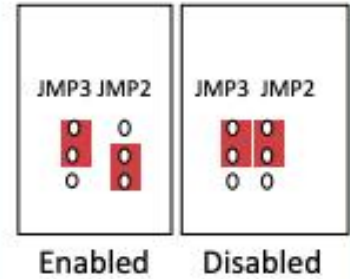
Communication with Modbus devices can be via RS485 (using 2 or 4 wires), RS232 or Ethernet. Where the configuration uses RS485, the gateway may be placed at the end or in the middle of the RS485 communication bus. To ensure correct operation of the RS485 data bus, it must be terminated at both ends using a 120 ohm terminator. Depending on the positioning of the gateway on the bus, this terminator must be enabled or disabled via a pair of jumpers (JMP4 and JMP1) fitted inside the casing.

Configuration of bus termination jumper

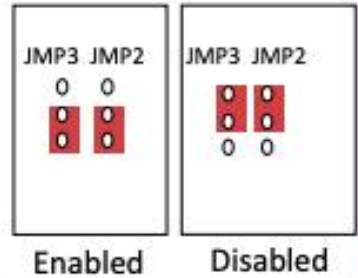
JMP3 and JMP2



RS485 2 wires – Half Duplex



RS485 4 wires – Full Duplex



Wiring can be made according to the diagrams as mentioned in the diagrams below. Diagram A refers the wiring for WebdynSun whereas Diagram B refers to the wiring diagram of Webdyn Modbus

Diagram A) WebdynSun wiring with the inverters.

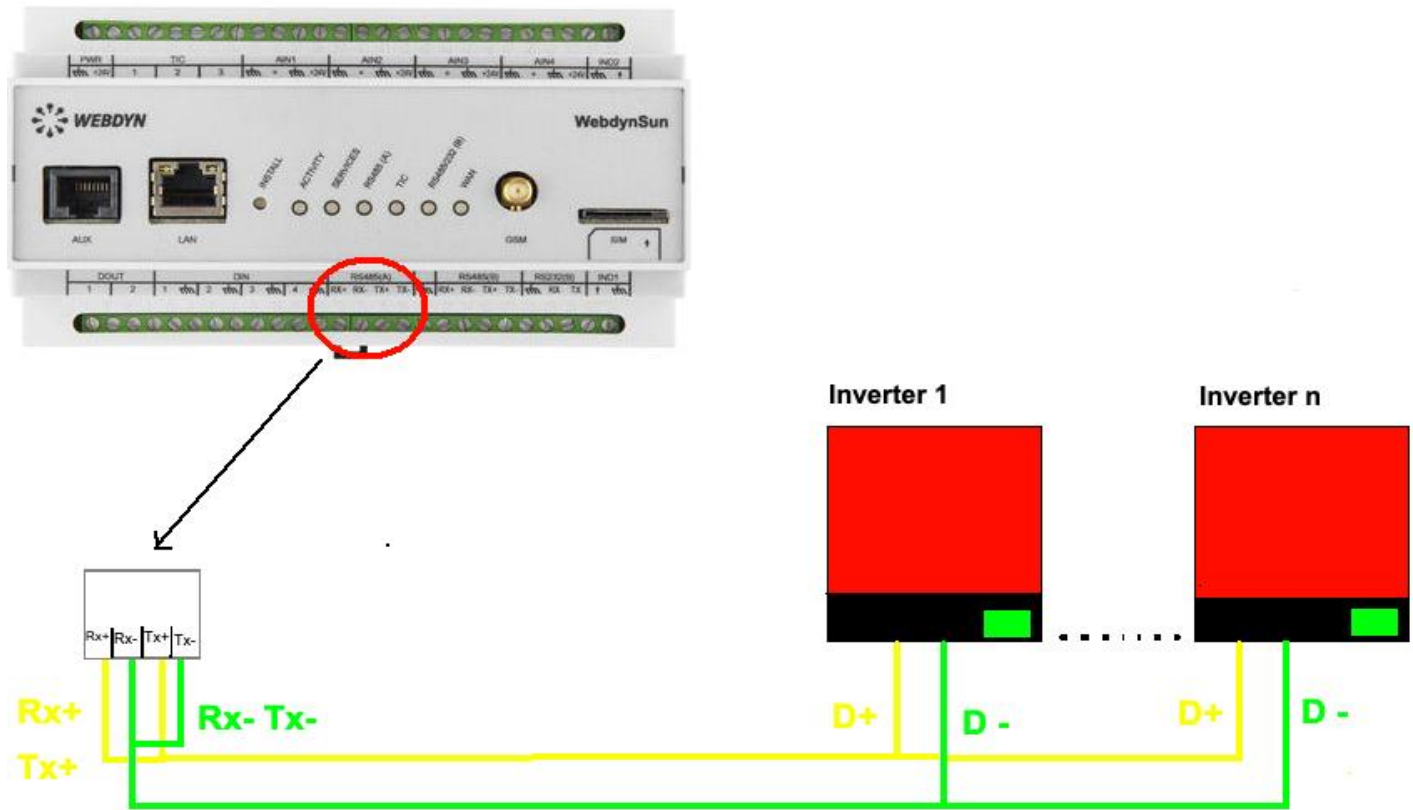
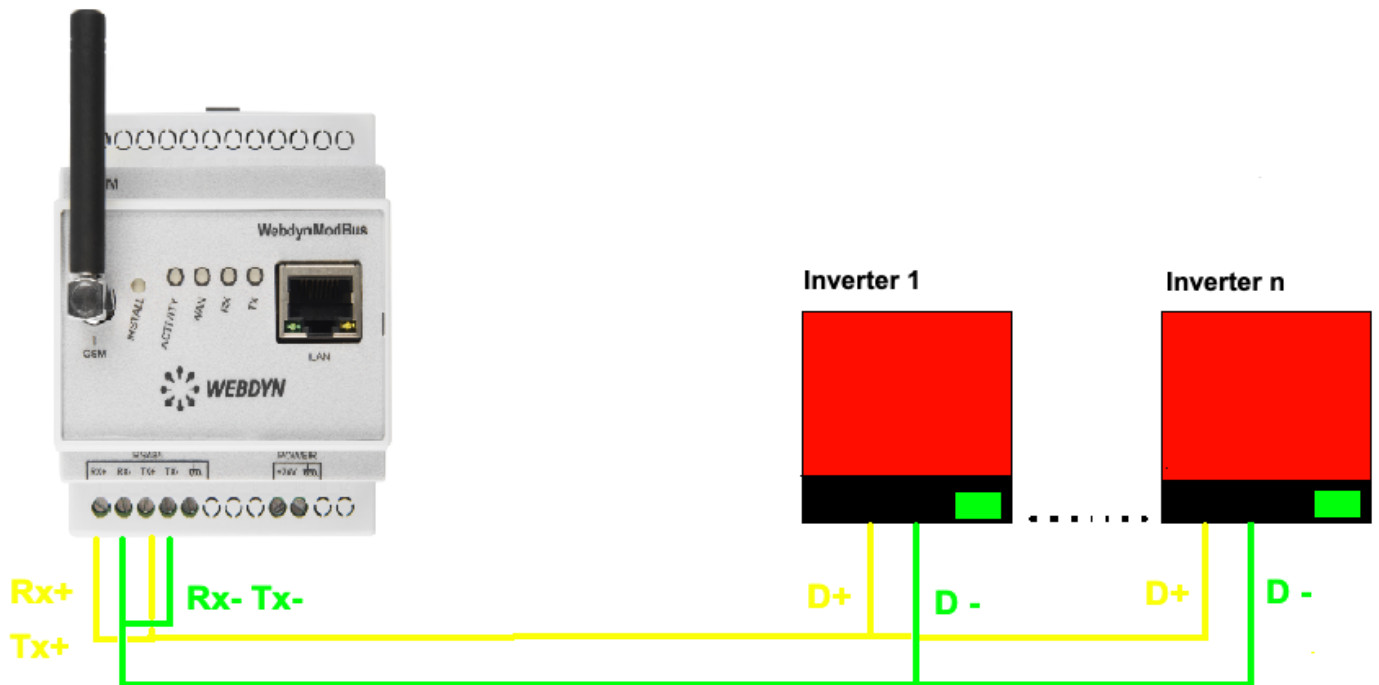


Diagram B) Webdyn Modbus wiring with the inverters.



Slave Connections & Settings

Now connect required Inverters and meters to device Modbus. Following link with guide you on how to connect:

For **Inverter/Meter** Connections and Settings, please refer to 'Installation Manual – [Inv Brand]' on:

<https://trackso.in/trackso-installation-manuals/>

For **physical installation and mounting of sensors**, please refer to 'Datasheet & Installation Guide – [sensor name]' on:

<https://trackso.in/datasheets/>

Check If Slaves are correctly connected

Modbus devices are operating correctly after they have been installed and configured. This can be done via the built-in Web server by going to the "Control/Modbus" menu:

s

Modbus devices control

Status	Name	Address	Definition file
1 	WebdynBridge	247	prefixID_MODBUS_TYPE1.ini
2 	WebdynBridge	1	prefixID_MODBUS_TYPE2.ini

Status:

Indicates the status of the configured Modbus device.



The Modbus slave is correctly configured and communicating with the WebdynSun.



The Modbus slave is not correctly configured or is not communicating with the WebdynSun.

Definition file:

Indicates the status of the definition file associated with the configured Modbus device.

prefixID_File.ini: file downloaded locally and complies with standards.

prefixID_File.ini: file not downloaded locally or not compliant with standards.

Note : You can also look at the RS485/232(B) LED on the front panel of the unit to check on the activity over the Modbus bus. This LED flashes rapidly on reception of Modbus packets.

Debugging via SMS

If your data logger is not able to send data to the portal or the unit is showing status as

OFF <timestamp> on the platform, please send the following SMS's to the phone number of the SIM card inserted in the Data Logger and identify the reason for the OFF status accordingly:

SMS command	Use Case	Response
status	Requests information on the current configuration of the unit:	<ul style="list-style-type: none"> • Unit type: WebdynModBus • Unit identifier (prefixID) • Software version • Connection mode (GPRS or LAN) • Information on the APN configured • SIM card identifier • GSM signal strength (RSSI) • Information on the Ethernet interface (IP, router, DNS, etc.) • Information on the remote FTP server
diag	Requests diagnostics on the unit interfaces:	<ul style="list-style-type: none"> • WAN: status of the WAN connection (OK or ERR) • FTP: status of the connection to the FTP server (OK or ERR) • NTP: NTP synchronization status (OK or ERR) • WS: status of Web Services (OK or ERR) • MODBUS: status of the Modbus link (OK or ERR)

Sample SMS Commands

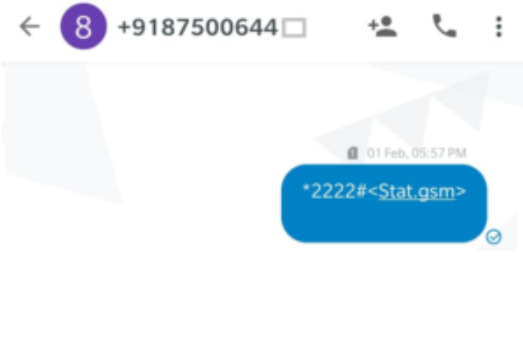
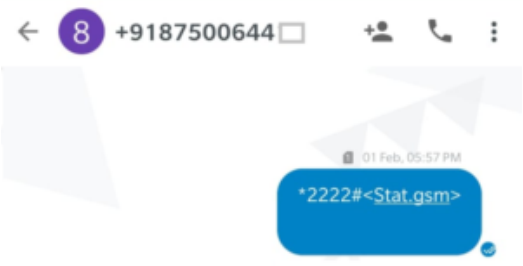
The image shows two screenshots of a mobile phone's SMS messaging app. The left screenshot shows a conversation with a contact whose number is partially visible as 8876914. The contact has sent three messages, each starting with a '1' icon and a '#' icon. The first message is 'status 1/2;' followed by a block of configuration data. The second message is 'status 2/2;' followed by LAN configuration data. The third message is 'status 3/2;' followed by 'FTP_DIR=/CONFIG;'. The right screenshot shows a similar conversation where the contact has sent a message starting with a '1' icon and a '#' icon, containing a timestamp 'DIAG=19/10/02-06:41;' followed by a list of diagnostic status values for WAN, FTP, NTP, WS, TIC, INV, MODBUS, DI, AI, DO, and DX.

Left Screenshot (SMS Messages):

- Message 1: status 1/2;
WebdynSUN;ID=tyu31t94
6tcb6bfc55915fa121245
6;VERSION=3.09.07 Nov
8
2017;GPRS_MODE;APN=
www;NUM=*99***1#;SIM
=8991751262104971584
;RSSI=28;
- Message 2: status 2/2;
LAN=DOWN;LAN_IP=192
.168.1.12;LAN_MASK=25
5.255.255.0;LAN_GATEW
AY=0.0.0.0;LAN_DNS=0.0
.0.0;FTP=webdyn.trackso
.in;
21;FTP_LOGIN=webdyn;
- Message 3: status 3/2;
FTP_DIR=/CONFIG;

Right Screenshot (SMS Message):

- Message 1: DIAG=19/10/02-06:41;
WAN=OK;
FTP=OK;
NTP=OK;
WS=NC;
TIC=NC;
INV=ERR (31/32);
MODBUS=NC;
DI=OK (4);
AI=OK (4);
DO=OK (2);
DX=OK (2);

SMS Status	SMS Screenshot	Possible Issue & Solution
SMS NOT delivered		<p>Possible device status:</p> <ol style="list-style-type: none"> 1. Not Powered ON 2. SIM card with the given phone number is not present in the data logger <p>Possible solution:</p> <ol style="list-style-type: none"> 1. Check Power Supply 2. Check if Sim card is properly inserted or if it is blocked by the service provider
SMS delivered but no response		<p>Possible device status:</p> <ol style="list-style-type: none"> 1. Powered ON but main balance/internet network not available <p>Possible solution</p> <ol style="list-style-type: none"> 1. Recharge account with <ol style="list-style-type: none"> a. minimum INR 10 main balance b. basic 2G/3G/4G internet data plan

Detailed Manuals

Note: Detailed Installation manual is available at the Manufacturers website. Link-
http://www.webdyn.com/wp-content/uploads/2015/10/WebdynSun/Webdyn Modbus_MI_UK.pdf?3912a7

We have tried to extract basic information for your use to help you bring your system online without support.

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