



# Webdyn EasyDot

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Hardware manual

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# General Notes

Product is deemed accepted by recipient and is provided without interface to recipient's products. The documentation and/or product are provided for testing, evaluation, integration, and information purposes. The documentation and/or product are provided on an "as is" basis only and may contain deficiencies or inadequacies. The documentation and/or product are provided without warranty of any kind, express or implied. To the maximum extent permitted by applicable law, Webdyn further disclaims all warranties, including without limitation any implied warranties of merchantability, completeness, fitness for a particular purpose and non-infringement of third-party rights. The entire risk arising out of the use or performance of the product and documentation remains with recipient. This product is not intended for use in life support appliances, devices, or systems where a malfunction of the product can reasonably be expected to result in personal injury. Applications incorporating the described product must be designed to be in accordance with the technical specifications provided in these guidelines. Failure to comply with any of the required procedures can result in malfunctions or serious discrepancies in results.

Furthermore, all safety instructions regarding the use of mobile technical systems, including GSM products, which also apply to cellular phones, must be followed. Webdyn or its suppliers shall, regardless of any legal theory upon which the claim is based, not be liable for any consequential, incidental, direct, indirect, punitive or other damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information or data, or other pecuniary loss) arising out the use of or inability to use the documentation and/or product, even if Webdyn has been advised of the possibility of such damages. The foregoing limitations of liability shall not apply in case of mandatory liability, e.g., under the Spanish Product Liability Act, in case of intent, gross negligence, injury of life, body or health, or breach of a condition which goes to the root of the contract. However, claims for damages arising from a breach of a condition, which goes to the root of the contract, shall be limited to the foreseeable damage, which is intrinsic to the contract, unless caused by intent or gross negligence or based on liability for injury of life, body or health. The above provision does not imply a change on the burden of proof to the detriment of the recipient. Subject to change without notice at any time. The interpretation of this general note shall be governed and construed according to Spanish law without reference to any other substantive law.

## Important Information

This technical description contains important information for the start-up and use of the Webdyn EasyDot gateway. Read it carefully before you start working with the EasyDot gateway. The warranty will be void should damage occur due to non-compliance with these instructions for use. We cannot accept any responsibility for consequential loss.

# Revision Information

REVISION	DATE	AUTHOR	CHANGES
1.0	2024/10	FJGG	First Release

## Warranty

The information contained within this user guide, including but not limited to any product specification, is subject to change without notice. Webdyn provides no warranty about this user guide, or any other information contained herein and hereby expressly disclaims any implied warranties of merchantability or fitness for any particular purpose about any of the foregoing. Webdyn assumes no liability for any damages incurred directly or indirectly from any technical or typographical errors or omissions contained herein or for discrepancies between the product and the uses guide. In no event shall Webdyn be liable for any incidental, consequential, special, or exemplary damages, whether based on tort, contract or otherwise, arising out of or in connection with this user guide or any other information contained herein or the use thereof.

## RoHS statement

EasyDot gateway is compliant with the 2002/95/EC (RoHS 1) and 2011/65/EC (RoHS 2) directives of the European Parliament and of the Council of 27 January 2003 (and revised on 8 June 2011) on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).



# CE mark

EasyDot conforms to the essential requirements of Directive 2014/53/UE (RED)



## Disposal of old electrical and electronic equipment

### Recycling:



This symbol, applied on our products and/or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product.

The recycling of materials will help to conserve natural resources. For more detailed information about the recycling of this product, please contact your local city office, household waste disposal service or the retail store where you purchased this product.

## 1 Precautions

### 1.1 General Precautions



PLEASE READ THESE GENERAL PRECAUTIONS AND KEEP A COPY OF THEM.

- EasyDot as a standalone item is designed for indoor use only. For outdoor use it must be integrated into a weatherproof enclosure. Do not exceed the environmental and electrical limits as specified in Technical Data
- Avoid exposing the device to lighted cigarettes, naked flames or to extreme hot or cold temperatures.
- Never try to dismantle the device yourself. There are no components inside the router that can be serviced by the user. If you attempt to dismantle the device, you may invalidate the warranty.
- EasyDot terminal must neither be installed nor located in areas where the surface temperature of the metallic case could exceed 85°C.
- Check that voltage and power available at installation is within range specified for router. It can be found on this guide and labelled on the gateway.
- Do not install any gateway that is obviously damaged or suspected of having been damaged.
- To provide strain relief and to avoid transmitting excessive vibration to the device during installation, all cables connected to EasyDot must be secured or clamped immediately adjacent to the device's connectors.
- To protect the power supply cables, and to comply with the fire safety requirements, when the unit is powered from a battery or a high current supply, a fast 1.25A fuse should be connected in line with the positive supply.
- Only compatible components should be connected to EasyDot.

**Note! EasyDot distributors and sales offices may refuse warranty claims where evidence of product misuse is found.**

## 1.2 Safety requirements and protection regulations.



PLEASE READ THESE GENERAL PRECAUTIONS AND KEEP A COPY OF THEM.

- EasyDot, for any type of operation, is only accessible for instructed and skilled installers, testers and technical engineers.
- Before any type of handling of EasyDot, it must be ensured that it has been de-energized to allow for electrical work to be carried out and it cannot be inadvertently re-energized.
- Always ensure that use of EasyDot is permitted. The router may present a hazard if used in proximity to personal electronic medical devices. As a rule, the router must not be used in hospitals, airports or planes.
- This equipment is not suitable for use in locations where children are likely to be present.
- Never use the device at a gas station, refueling point, blasting area or in any other environment where explosives may be present.
- Operating the device close to other electronic devices, such as antennas, television sets, and radios may cause electromagnetic interference.
- This product is intended to be used with the antenna or other radiating element at least 20cm away from any part of the human body. In applications where this rule cannot be applied, the application designer is responsible for providing the SAR measurement test report and declaration.
- You are responsible for observing your country's safety standards, and where applicable, the relevant wiring rules.

## 1.3 SIM Card Precautions

Before handling the SIM card in your application, ensure that you are not charged with static electricity. Use proper precautions to avoid electrostatic discharges.

- When the SIM card is not present, the pins of the SIM connector are exposed.
- Caution! Do not touch these connectors! If you do, you may release an electrical discharge that could damage the router or the SIM card.
- When designing your application, the SIM card's accessibility should be considered. We always recommend that you have the SIM card protected by a PIN code. This will ensure that the SIM card cannot be used by an unauthorized person.

## 1.4 Antenna Precautions

If the antenna is to be mounted outside the device, consider the risk of lightning. Follow the instructions provided by the antenna manufacturer. Never connect more than one router to a single antenna. The router can be damaged by radio frequency energy from the transmitter of another router.

- Like any mobile station, the antenna of the gateway emits radio frequency energy. To avoid EMI (electromagnetic interference), you must determine whether the application itself, or equipment in the application's proximity, needs further protection against radio emission and the disturbances it might cause. Protection is secured either by shielding the surrounding electronics or by moving the antenna away from the electronics and the external signal cable.
- The gateway and antenna may be damaged if either of them meets ground potentials other than the one in your application. Beware: ground potential is not always what they appear to be.

## 1.5 Radio Frequency (RF) Exposure and SAR

Your wireless device is a low-power radio transmitter and receiver (transceiver). When it is turned on, it emits low levels of radio frequency energy (also known as radio waves or radio frequency fields).

Governments around the world have adopted comprehensive international safety guidelines, developed by scientific organizations such as ICNIRP (International Commission on Non-Ionizing Radiation Protection) and IEEE (The Institute of Electrical and Electronics Engineers Inc.), through periodic and thorough evaluation of scientific studies. These guidelines establish permitted levels of radio wave exposure for the general population. The levels include a safety margin designed to assure the safety of all people, regardless of age and health, and to account for any variations in measurements.

Specific Absorption Rate (SAR) is the unit of measurement for radio frequency energy absorbed by the body when using a transceiver. The SAR value is determined at the highest certified power level in laboratory conditions, but the actual SAR level of the transceiver while operating can be well below this value. This is because the transceiver is designed to use the minimum power required to reach the network.

EasyDot gateway has been approved for applications where the antenna is located more than 20cm from the body of the user. In all other configurations the user is responsible for meeting the local SAR regulations. Users of the EasyDot gateway are responsible for ensuring that they meet the SAR regulatory requirements of the countries in which they intend to operate the device and that their documentation contains the relevant SAR declaration, certification information and user guidance as appropriate.

## 1.6 SAR Information

Wireless Modules models: EG915 is marketed without a defined antenna.

The Maximum Antenna Gain when using indoor antennas depends on the distance from the antenna to any nearby people when in normal operation. It should not exceed the values shown on the table below.

According to the limit in 47 CFR 1.1310, we get the value of the maximum antenna gain as follows:

The maximum measured power output in the 900 MHz band is 1995.26 mW (33 dBm).

The maximum permissible exposure defined by 47 CFR 1.1310 is  $f/1500 = 0.6 \text{ mW/cm}^2$ .

The maximum measured power output in the 1800 MHz band is 1000 mW (30 dBm).

The maximum permissible exposure is defined as 47 CFR 1.1310 with  $1 \text{ mW/cm}^2$ .

According to the limit in 47 CFR 1.1310, we get the value of the maximum antenna gain as follows:

$$S = P \cdot G / 4\pi R^2; G = 4\pi R^2 (S / P)$$

$$S = 0.6 \text{ mW/cm}^2 \text{ or } 1 \text{ mW/cm}^2 \quad P = 1995.26 \text{ mW or } 1000 \text{ mW}$$

$$R = 20 \text{ cm or } 50 \text{ cm} \quad \pi = 3.1416$$

$$G(\text{dBi}) = 10 \cdot \log(G)$$

Solving for G; the maximum antenna gain is:

BAND (MHz)	P (mW/ dBm)	S ( mW/ cm <sup>2</sup> )	DISTANCE (cm)	MAX. GAIN (dBi)
900	1995.26 / 33	0.6	20	1.79
900	1995.26 / 33	0.6	50	9.75
1800	1000 / 30	1	20	4.79
1800	1000 / 30	1	50	14.97
2600	199.52 / 23	1	20	14.01
2600	199.52 / 23	1	50	21.97

## 1.7 Personal Medical Devices

Wireless devices may affect the operation of cardiac pacemakers, hearing aids and certain other implanted equipment. If a minimum distance of 15 cm (6 inches) is maintained between the EasyDot gateway radiating antenna and a pacemaker, the risk of interference is limited. If the user's application is likely to be situated in the vicinity of personnel, a suitable warning should be contained in the equipment manual to this effect.

## 1.8 SAR Requirements Specific to Portable Mobiles

Mobile phones, PDAs or other portable transmitters and receivers incorporating a GSM module must be in accordance with the guidelines for human exposure to radio frequency energy. This requires the Specific Absorption Rate (SAR) of portable EC21 based applications to be evaluated and approved for compliance with national and/or international regulations.

Since the SAR value varies significantly with the individual product design, manufacturers are advised to submit their product for approval if designed for portable use. For European markets the relevant directives are mentioned below. It is the responsibility of the manufacturer of the final product to verify whether further standard recommendations or directives are in force outside these areas.

Products intended for sale in US markets:

EN 59005/ANSI C95.1: Considerations for evaluation of human exposure to Electromagnetic Fields (EMFs) from Mobile Telecommunication Equipment (MTE) in the frequency range 30MHz – 6GHz

Products intended for sale in European markets:

EN 50360: Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300MHz – 3GHz)

Please note that SAR requirements are specific only for portable devices and not for mobile devices as defined below:

- Portable device: A portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20cm to the user's body.
- Mobile device: A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20cm is normally maintained between the transmitter's radiating structure(s) and the user's body or that of nearby people. In this context, the term "fixed location" means that the device is physically secured at one location and cannot be easily moved to another location.

## 1.9 RED Regulations

To comply with RED regulations, the following antenna considerations must be complied with:

- The antenna used for LTE communications must be less than 0.49 dBi Gain of an isotropic antenna.

## 2 Technical Description

### 2.1 Overview

EasyDot is an innovative industrial gateway that comprises a set of features to provide remote wireless connectivity on customer facilities. It is equipped with a rich set of interfaces and LEDs indicators to show operating status of the gateway.

Device includes the following features:

- 4G LTE Cat 1 bis module.
- Antenna connection: 1x SMA Female for LTE
- Mini SIM card push-pull socket.
- RS232 on RJ45 connector.
- RS485 on terminal block connector.
- Factory default settings reset button.
- 3.5mm pitch screwed terminal blocks for power supply input connection.
- Status LEDs to show power, coverage, WAN connection.

EasyDot has an industrial temperature range (-40/+85°C) and is built in a metal casing that provides high impact resistance. It includes two fixing holes for wall mounting and is equipped with RS485 and RS232 interfaces and a socket for a Mini SIM card. This device can be used as a powerful and flexible unit that, due to its small size, can be integrated into a wide range of applications that require 4G technology. A full list of supplied antennas, cables, and accessories are available.



## 2.2 Operating Range

Electrical specifications	Min.	Typ	Max.
<b>Power Supply</b>			
Power Supply Voltage (VIN)	7VDC	<b>12VDC</b>	<b>24VDC</b>
Absolute Max. Power Supply Voltage			30VDC
Current consumption (12VDC – Average Value)			
4G		300 mA	1 A
2G Low RSSI (-100 dBm)		700 mA	2.5 A
2G Critical RSSI (-110 dBm)		1120 mA	3 A
<b>RS485</b>			
Baudrate	2400 bps		230.400 bps
D+, D- common mode	-7V		12V
Short Circuit Current			±250mA (HBM)
ESD protection			±16kV (HBM)
<b>RS232</b>			
Baudrate	2400 bps		230.400 bps
ESD protection			±15kV (HBM)
<b>SIM Card Slot</b>			
ESD protection			±15kV (Contact)
<b>Antenna</b>			
LTE antennas		50 ohms	

Cellular output power	Max.
GSM850/EGSM900	33 dBm
DCS1800/PCS1900	30 dBm
LTE bands	23 dBm

Mechanical and environmental specifications.	
Enclosure fixing (1)	Panel mounting compliant
Operating temperature (2)	-35°C to +75°C
Extended temperature (3)	-40°C to +85°C
Storage temperature	-40°C to +85°C
Dimensions	39.3 x 60.3 x 78.3 mm
Weight	106g

(1) Optional DIN rail using Webdyn accessories.

(2) Within this range, EasyDot complies with 3GPP specification requirements

(3) The device remains the ability to establish and maintain functions such as data transmission without any unrecoverable malfunction. Radio spectrum and radio network are not influenced, while one or more specifications, such as Pout, may exceed the specified tolerances of 3GPP.

## 2.3 Ordering information

Model Name	Part Number
EasyDot EU	000199811008

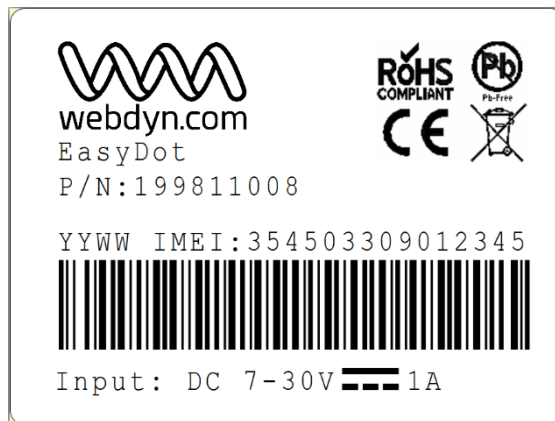
## 2.4 Packaging

EasyDot gateway is packaged without any additional accessories and is packaged without additional accessories and is supplied in cardboard boxes containing 15 units each. The box dimensions are 37x32x5 cm.

## 2.5 Product Label

The label fixed to the top of an EasyDot gateway comprises the following information:

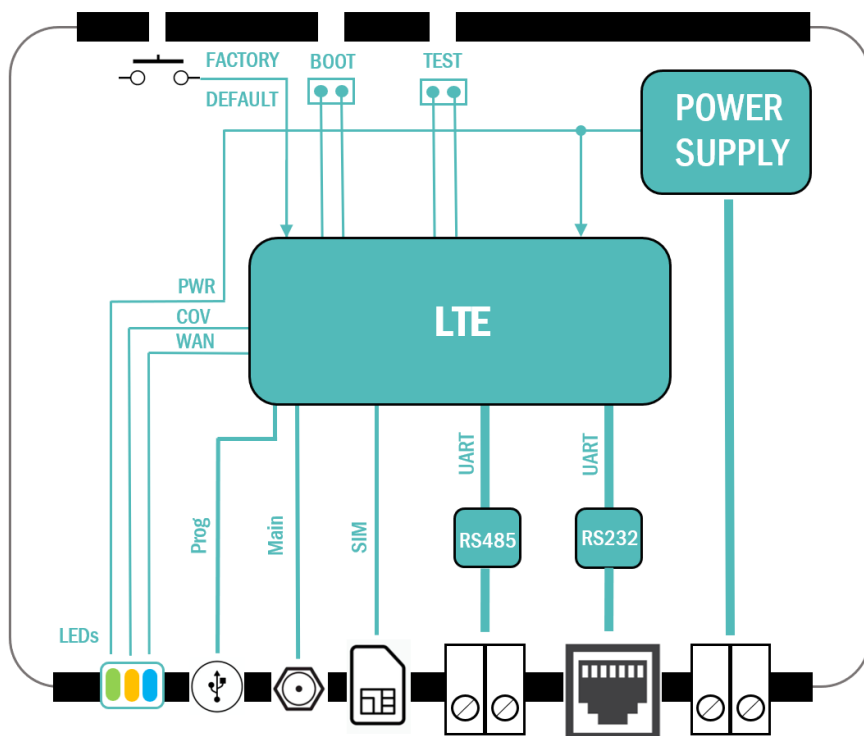
- Webdyn logo
- RoHS symbol
- Pb-Free logo
- WEEE logo
- CE logo
- Product name (model)
- Part number/ordering code (P/N)
- Manufacturing Year/week (YYMM)
- IMEI
- IMEI Bar Code
- Power supply operating specifications



## 2.6 System Architecture

EasyDot gateway is based on an industrial LTE module with a rich set of interfaces and a companion power management controller, all of them assembled on a main board as appear on the following diagram.

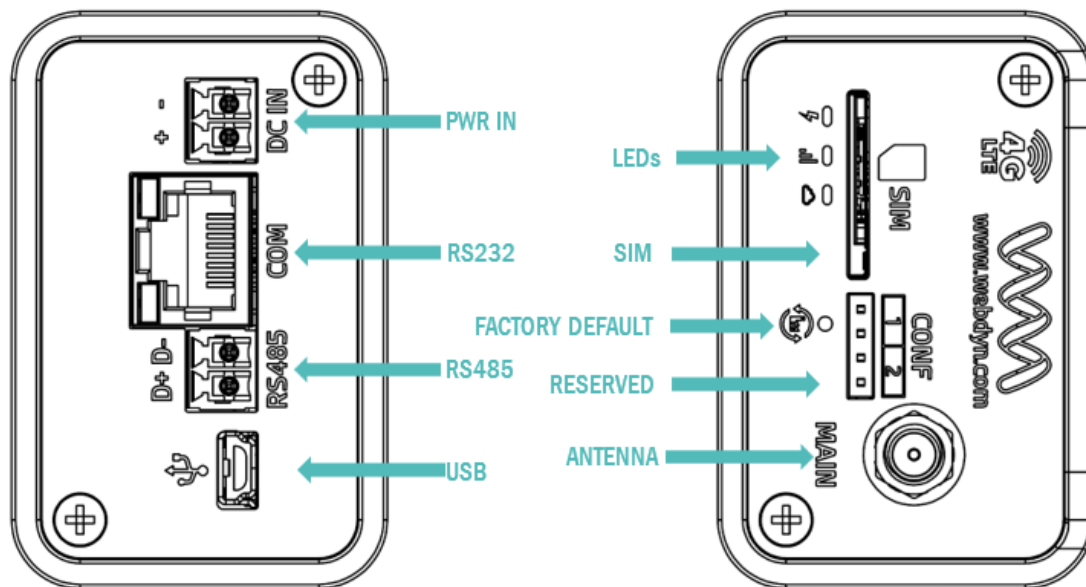
Connectors for external interfaces are grouped to be accessible at a common front and rear panel.



LTE interface covers EMEA region and is CE certified with following frequency bands table and data rates: For 000199811008 Webdyn EasyDot

NETWORK	BANDS	TECHNOLOGY	MAX DATA RATE	
			DL	UL
4G	B1/B3/B5/B7/B8 /B20/B28	LTE-FDD	10 Mbps	5 Mbps
2G	B2/B3/B5/B8	GPRS	85.6 kbps	85.6 kbps

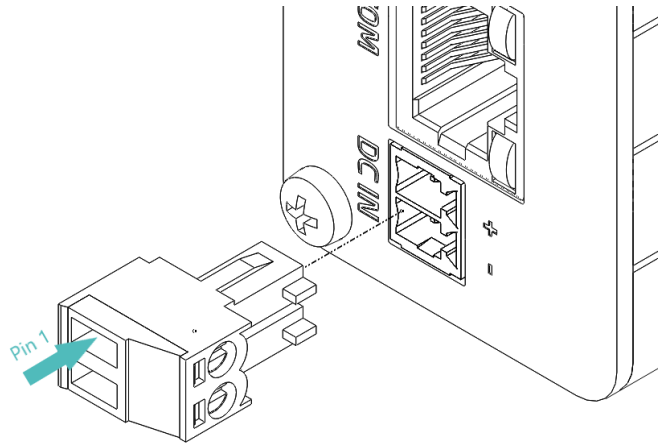
## 2.7 External interfaces on front and rear panel



- Antenna – SMA-F connector for 4G main antenna.
- SIM push-pull socket for Mini-SIM form factor card.
- LEDs – Three leds for operation status.
- COM – Communication Port RS232 (RJ45)
- Power supply input – 2-way plug-in 3.5mm pitch terminal block
- RS485 interface - 2-way plug-in 3.5mm pitch terminal block
- Mini USB type B configuration port
- Factory Default Settings push button

## 2.8 Power Connection

EasyDot gateway has a terminal block type connector for fastening to bottom panel for power supply input.



PIN	SIGNAL	TYPE	FUNCTION
1	+	PWR	Positive power supply input
2	-	PWR	Negative power supply input

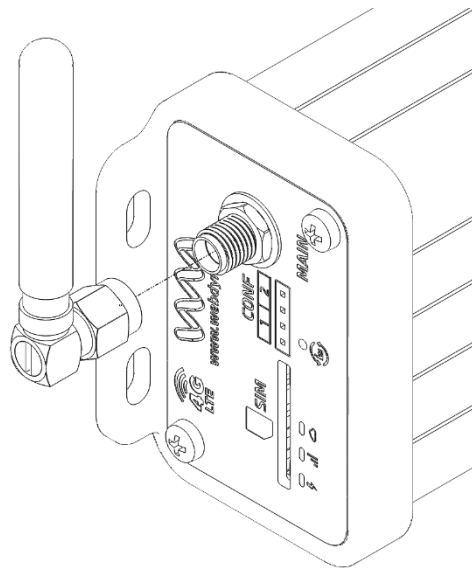
Power supply input is externally connected on terminal block, positive signal at pin 1 and negative signal at pin 2. Operating range values are specified at ([Operating range](#)).

## 2.9 Main Antenna Connection

EasyDot gateway provides SMA Female connector to attach external antenna. This connector allows radio frequency (RF) transmission signals between the gateway and an external customer-supplied antenna. EasyDot is fitted with a 50Ω SMA Female coaxial connector.

These external antennas must be matched properly to achieve the best performance regarding radiated power, DC-power consumption, modulation accuracy and harmonic suppression.

SSMA Interface Specifications	
Impedance	50 Ω
Type	SMA Female
ESD Protection	15 KV air / 8 KV contact



Consider the following requirements:

- The antenna must be designed for one or all the frequency bands defined on frequency bands table under the [system architecture section](#); please ask your network operator to provide more information.
- The impedance of the antenna and antenna cable must be 50Ω.
- Antenna connector should be SMA Male type
- Antenna power should be at least 500mW as maximum power is 316.23mW.
- Maximum Output RF load mismatch ruggedness at antenna is 10:1 VSWR

The antenna should be placed away from electronic devices and other antennas. The recommended minimum distance between adjacent antennas, operating in a similar radio frequency band, is at least 50cm. If the signal strength is weak, it is useful to face a directional antenna towards the closest radio base station. This can increase the strength of the signal received by the router. The LoRa module's peak output power can reach 320mW.

RF field strength varies with antenna type and distance. At 10cm from the antenna the field strength may be up to 70V/m and at 1m it will have reduced to 7V/m. In general, CE-marked products for residential / commercial areas and the light industry can withstand a minimum of 3V/m.

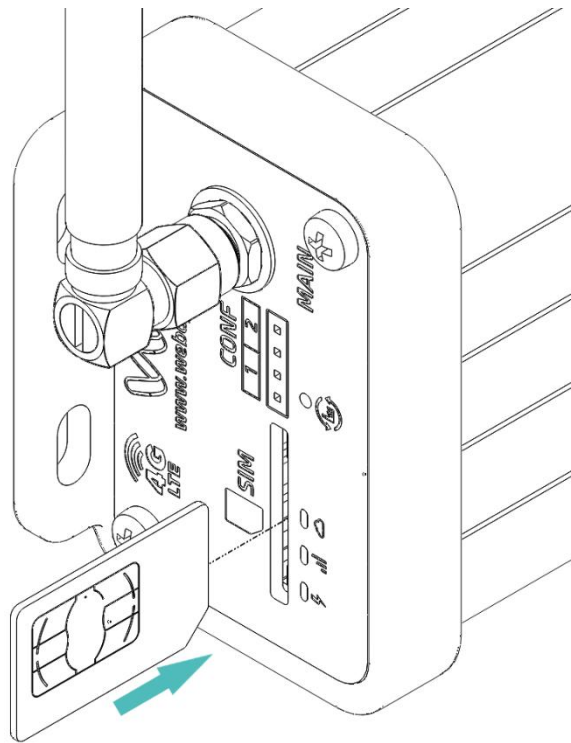
Possible communication disturbances include the following:

- Noise can be caused by electronic devices and radio transmitters.
- Path-loss occurs as the strength of the received signal steadily decreases in proportion to the distance from the transmitter.
- Shadowing is a form of environmental attenuation of radio signals caused by hills, buildings, trees or even vehicles. This can be a particular problem inside buildings, especially if the walls are thick and reinforced.
- Multi-path fading is a sudden decrease or increase in the signal strength. This is the result of interference which is caused when direct and reflected signals reach the antenna simultaneously. Surfaces such as buildings, streets, vehicles, etc., can reflect signals.
- Hand-over occurs as you move from one cell to another in the GSM network. Your mobile application call is transferred from one cell to the next. Hand-over can briefly interfere with communication and may cause a delay, or at worst, disruption.

## 2.10 SIM Card Reader

EasyDot gateway is equipped with a Mini SIM card reader designed for 1.8V and 3V Mini SIM cards. It is a push-pull type and can be accessed through the panel where the antenna connection is located.

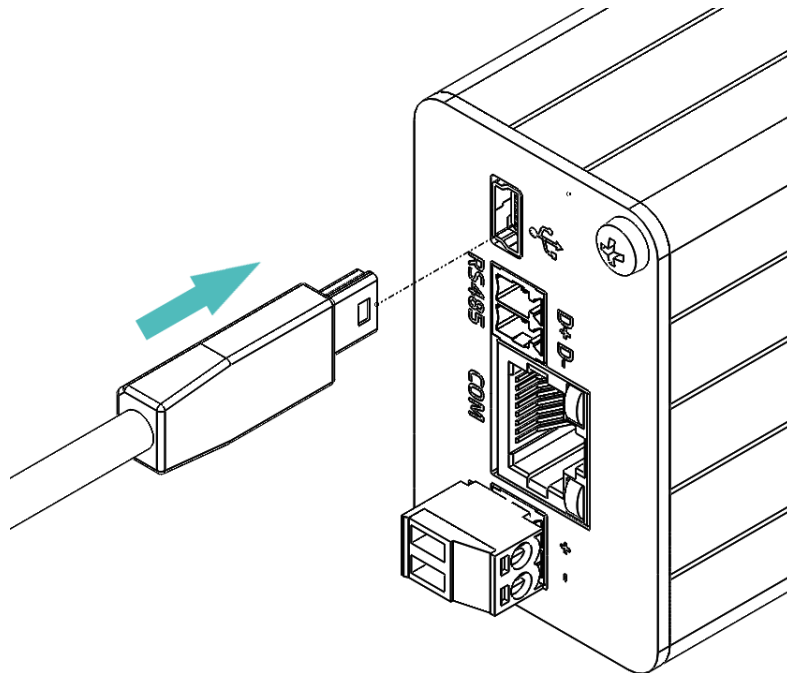
To insert Mini SIM card, look at the picture below for proper orientation.



## 2.11 Mini USB type B Port

By connecting EasyDot gateway through a mini-USB type B cable with our computer we will have access to  $\mu$ Titan Firmware.

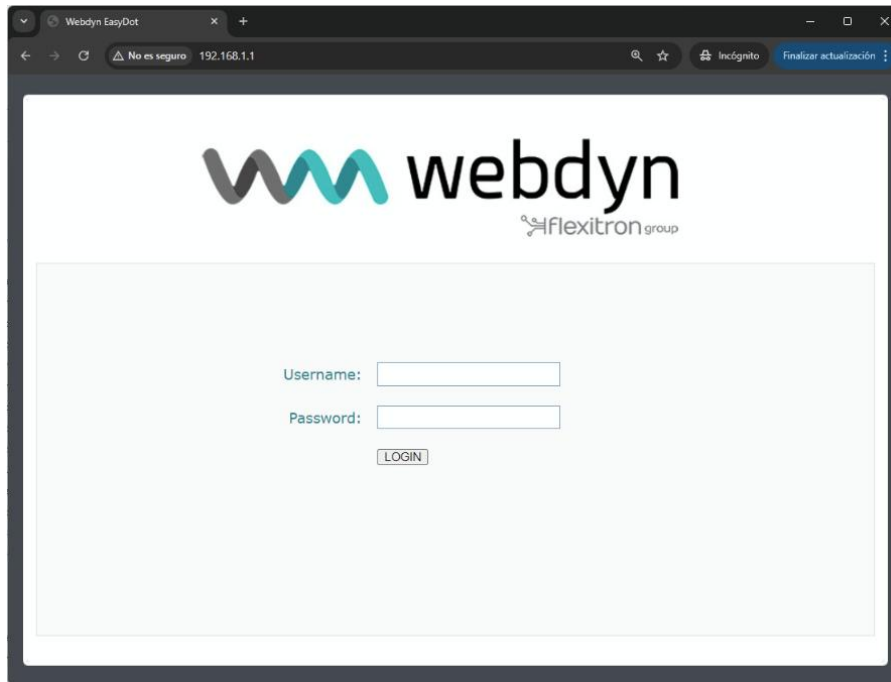
In the following image, you can see how to make the connection and where the USB connector is located on the EasyDot gateway.



Easydot gateway uses the RNDIS (Remote Network Driver Interface Specification) protocol for network connectivity over USB. Currently, this interface is only compatible with Windows operating systems and other systems that natively support the RNDIS protocol.

EasyDot has by factory default IP: 192.168.1.1 – Mask: 255.255.255.0

Open a browser, with the address "<http://192.168.1.1/>" a window like the following should appear:



Use the default username and password: **admin** and **admin**

Through which we can configure Titan RS232, RS485, Sim, MODBUS, etc.

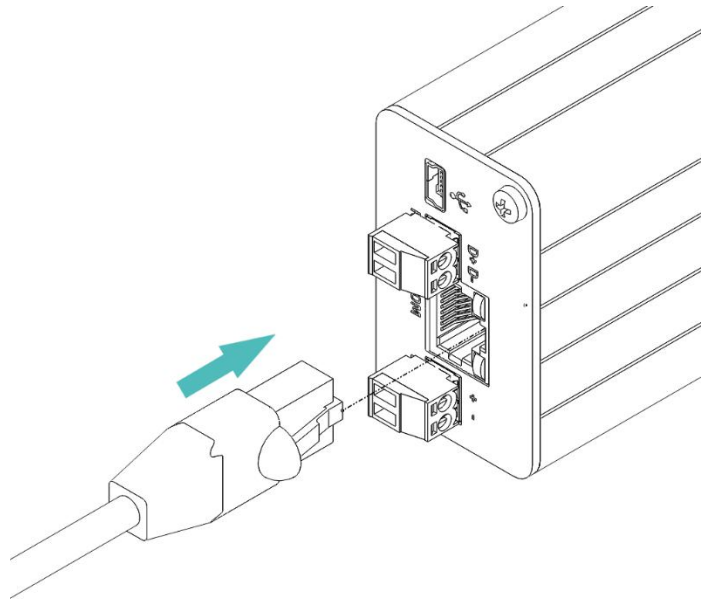
**See  $\mu$ Titan software manual for more information.**

## 2.12 RS232 Connection

EasyDot gateway has implemented RS232 interface in RJ45 (COM).

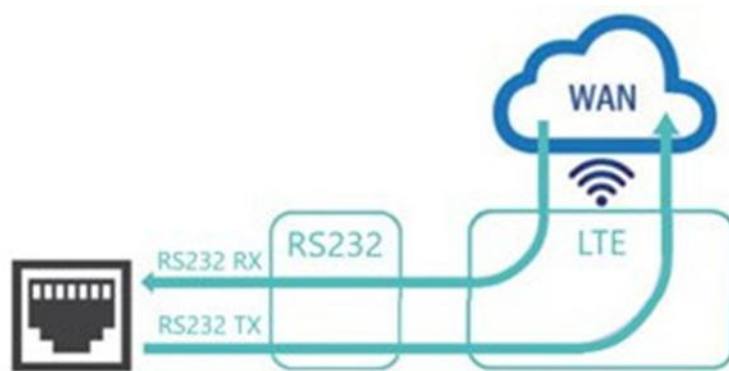
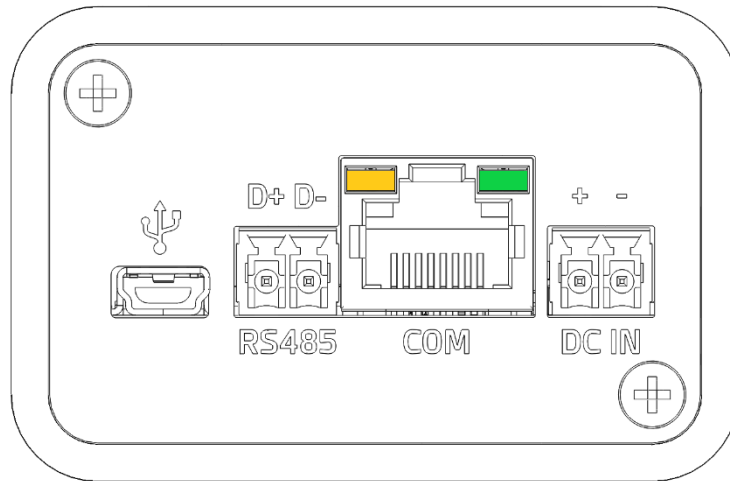
RS232 interface is implemented as a serial asynchronous transmitter and receiver conforming to ITU-T V.24 Interchange Circuits DCE. It is configured for 8 data bits, no parity and 1 stop bit and can be operated at fixed bit rates from 2400 bps to 230400 bps. The maximum recommended length is 1.5m.

If RS232 cable required length is longer than 3m, it is recommended to use a shielded cable. No hardware related configuration action is needed to enable RS232 port communication.



Terminal	RS232 DCE	Type	Description
1	NC	NC	Not connected
2	RS232 CTS	Out	Clear to send
3	RS232 Rx	Out	WAN received data is transmitted on this output
4	NC	NC	Not connected
5	RS232 RTS	In	Ready to send
6	GND	GND	Reference common signal
7	NC	NC	Not connected
8	RS232 Tx	In	Data received on this input is transmitted to WAN

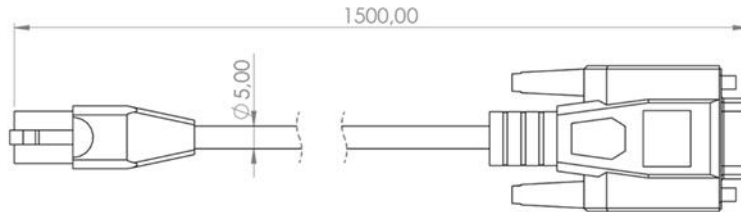
RS232 LEDS	
Green	Blink Transmitting Data
Amber	Blink Receiving Data




## RS232 SPECIFICATIONS

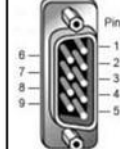
Baud Rate	2400 to 230400 bps
ESD Protection	15 KV air / 15 KV contact
Cable length	Max. 3 m

Recommended cable to convert the RJ45 to DB9 Male (commonly used in electricity meters). This is the pin-out of the cable:



RS485-RJ45 Plug	Signal	Pin	Direction
	NC	1	X
	CTS	2	OUT
	RxD	3	OUT
	NC	4	X
	RxD	5	IN
	GND	6	X
	NC	7	X
	TxD	8	IN
-	-	-	X

Webdyn Cod. 00230001103		
Signal	Cable	DB9 MALE
1	NC	1
2	CTS	8
3	RxD	3
4	NC	4
5	RTS	7
6	GND	5
7	NC	6
8	TxD	2
-	NC	9

DB9 MALE	Signal	Pin	Direction
	NC	1	X
	TxD	2	IN
	RxD	3	OUT
	NC	4	X
	GND	5	-
	NC	6	X
	RTS	7	IN
	CTS	8	OUT
	NC	9	X

Recommended Webdyn accessory cable:

### Model Name

Cable modem (RS232/RS485/RS422) [RJ45] to [DB9M]

### Part Number

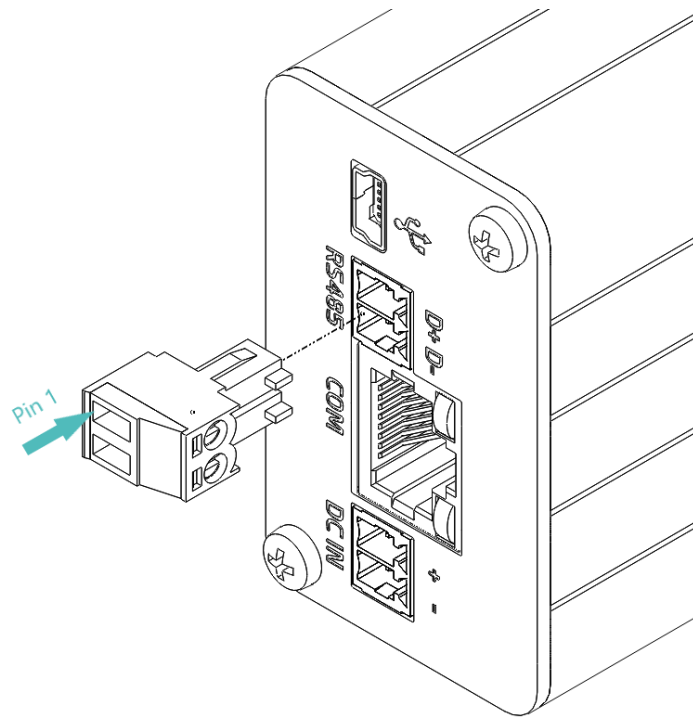
000230001103

## 2.13 RS485 Connection

EasyDot provides an RS485 interface on terminal block connector D+ and D-.

This communication port is intended to be connected to an external device through an additional cable ending with proper type connector and signal distribution. The maximum recommended length is 1.5m.

If RS485 cable required length is longer than 3m, it is recommended to use a shielded cable. No hardware related configuration action is needed to enable RS485 port communication.

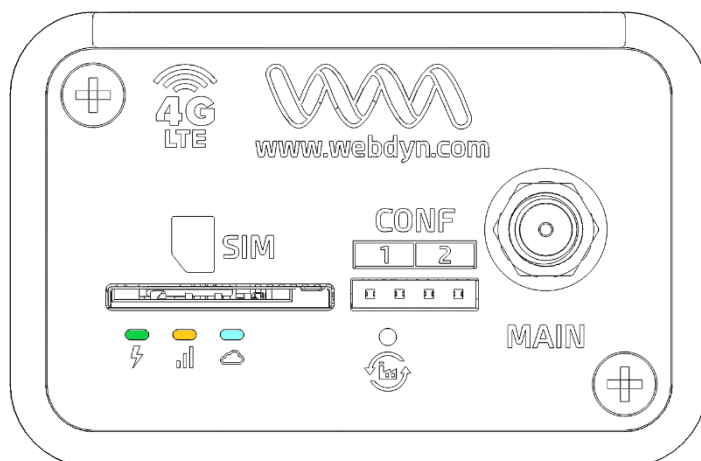


PIN	RS485	Type	Description
1	D+	IO	RS485 positive line
2	D-	IO	RS485 negative line

RS485 SPECIFICATIONS	
Baud Rate	2400 to 230.400 bps
Termination	Internal Resistors on RS485 Fail-Safe Bias
ESD Protection	16 KV air / 16 KV contact
Cable length	Max. 3 m with UTP cable Max. 20 m with SFTP cable

## 2.14 Status LEDs

Three LEDs on top panel are included to inform about operation status of EasyDot gateway.



Following table shows relationship between operation status and LED operation.

Fast refers to fast blinking On-Off every 1 second. Slow refers to slow blinking On-Off every 2 seconds.

If the device is set to default settings, the blue and yellow LEDs blink simultaneously

### ■ Power LED (Green)

Operating States	State
Power Off	OFF
Power On	ON

### ■ Coverage LED (Amber)

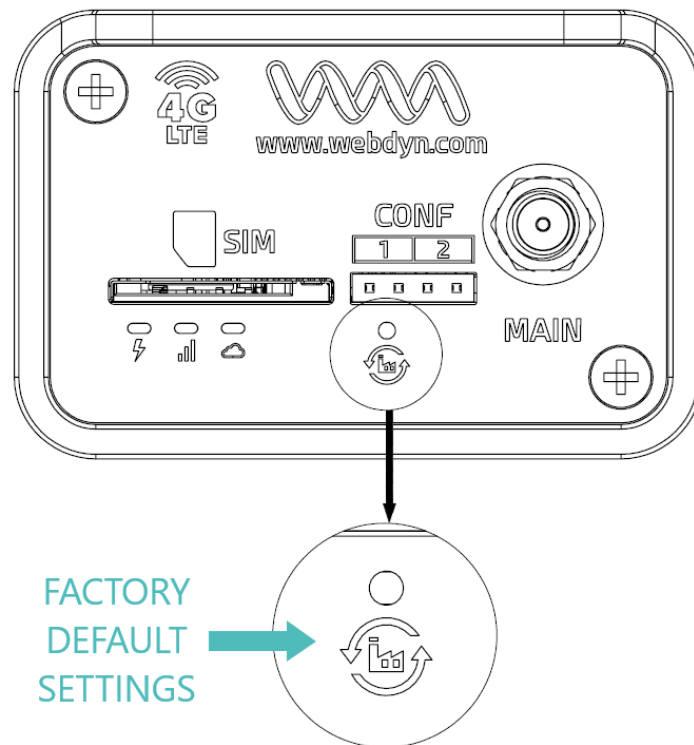
Operating States	State
Mini SIM detected and ready	Slow/ Blink /ON
Mini SIM undetected or incorrect PIN	OFF
Not enough/critical coverage	OFF
Low coverage	Blink
Good coverage	ON

### ■ IP Status LED (Blue)

Operating States	State
IP Not Assigned	OFF
IP Assigned	ON

## 2.15 Factory Default Settings Reset

EasyDot parameters can be restored to factory default values with an external input push button in top panel. This input is labelled on the rear panel with this symbol:

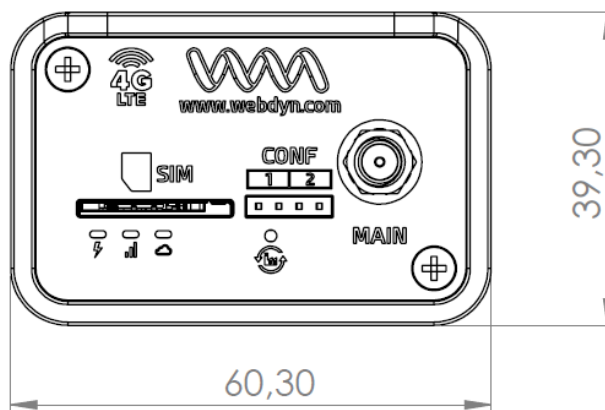
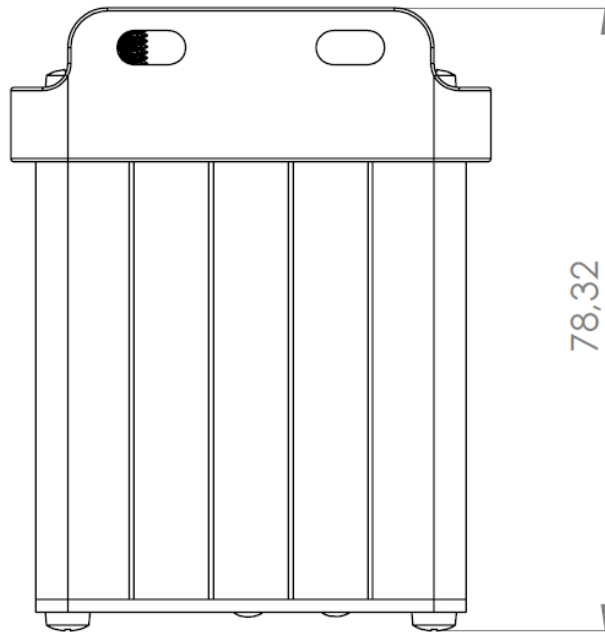
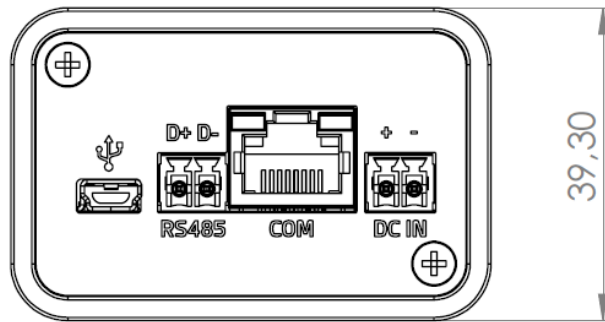


To proceed to restore parameters to factory default settings:

1. Power off the EasyDot.
2. Hold on "Factory default settings" button and power on the gateway.
3. Wait for EasyDot to restart, and for the Coverage LED (yellow LED) and IP Status LED (blue LED) to start blinking. It may require around 15 seconds.
4. Release "Factory default settings" button.
5. Power off the EasyDot gateway.
6. Power on again.

# 3 Mechanical Description

## 3.1 Dimensions



## 4 Device Installation

This chapter gives you advice and helpful hints on how to install the EasyDot gateway from a hardware perspective.

There are several conditions which need to be taken into consideration when designing your application as they might affect the router and its function.

Please, carefully read the complete hardware user guide as there are many details to be considered for installation.

### 4.1 Installation Location

EasyDot is intended to be installed indoor with environmental conditions as stated in the "[Operating Range](#)" chapter.

It must be installed in a cabinet, in order to be mechanically protected. Additionally, the plastic piece on one of its sides allows for easy installation into the cabinet.

Installation height referred to floor must be less than 2m and guarantee proper visibility of status Leds and connection of wires, SIM card insertion and Antenna attachment.

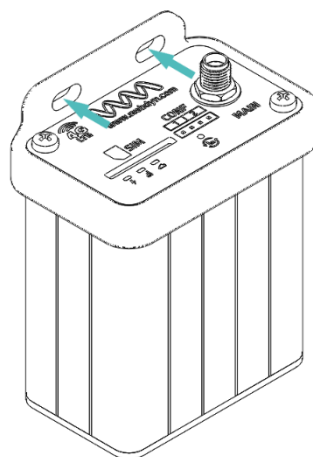
### 4.2 RF Signal Strength

The device must be placed in a way that ensures sufficient signal strength. To improve signal strength, the antenna can be moved to another position. Signal strength may depend on how close the gateway is to a radio base station. You must ensure that where you intend to use the router is within the network coverage area. Degradation in signal strength can be the result of disturbance from another source, i.e., an electronic device in the immediate vicinity.

*Tip! Before installing the device, use an ordinary mobile telephone to check a possible location for it. In determining the location for the device and antenna, you should consider signal strength as well as cable length.*

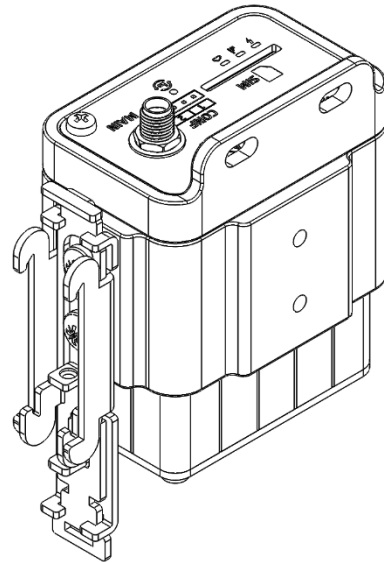
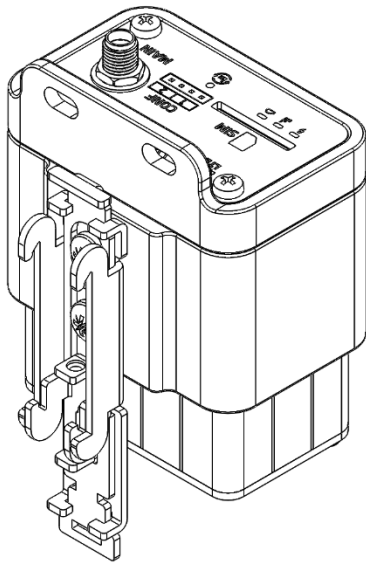
### 4.3 Panel mounting

To install the device on a wall, place the EasyDot parallel to the wall as shown in the image, and use the holes provided to insert the fastening elements.



## 4.4 DIN Rail mounting

To install the gateway on the DIN rail, the EasyDot Din rail accessory available from Webdyn must be used. This accessory allows for mounting on the DIN rail in two positions to best adapt the EasyDot to the cabinet where it will be installed.



Model Name	Part Number
EasyDot Din rail accessory	000199804000

|

## 4.5 Connections of EasyDot

The user is responsible for the final integrated system. If it is not installed correctly, external components may cause radiation limits to be exceeded. For example, poorly made connections or improperly installed antennas can interfere with the network and lead to router malfunctions.

For the power supply connection, use a high-quality, low-resistance power cable. This ensures that the voltage at the connector pins remains within the permissible range, even during maximum peak current.

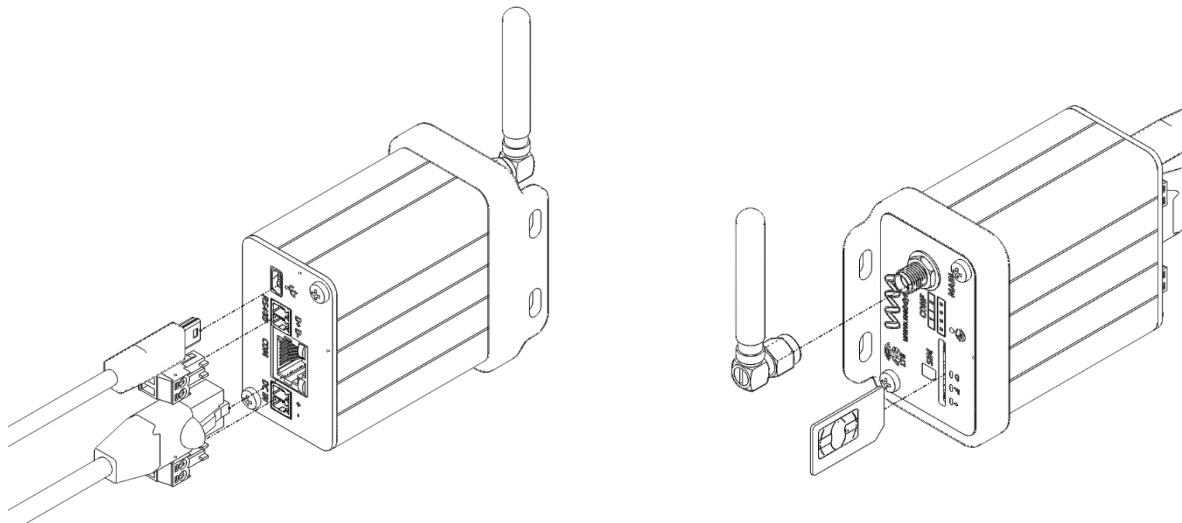
It is recommended to perform the installation with no external power connected: unplug the terminal block from the gateway, attach all required wiring, then plug the terminal block back in, securing both fastening screws. Finally, connect the external power supply to the system.

If the device is powered by a battery or a high-current supply and will operate in environments with 4G coverage, connect a fast 1.5A fuse in line with the positive supply. This protects the power cabling and gateway.

If the equipment is installed in environments where it will only operate in 2G and low-coverage areas, a standard 3.5A fuse should be used.

This protects the power cabling and gateway.

The figures below show connections for all available interfaces; however, only those required for the end application should be connected.



## 5 Support

In case of technical problems related to our products, contact WEBDYN support:

### **Webdyn SA**

26 Rue des Gaudines

78100 Saint-Germain-en-Laye

FRANCE

Tel.: +33 1 39 04 29 40

Mail: [support@webdyn.com](mailto:support@webdyn.com)

<https://www.webdyn.com>

Includes the following:

- Product Type
- Product serial number.
- Production date.
- Software version of the product.
- Hub logs
- Gateway configuration



The user manual and firmware are available at this web address:  
<https://www.webdyn.com/support/TBD>

## 6 Sales and Support

### SPAIN

C/ Alejandro Sánchez 109  
28019 Madrid

Telephone: +34.915602737  
E-mail: [contact@webdyn.com](mailto:contact@webdyn.com)

### FRANCE

26 Rue des Gaudines  
78100 Saint-Germain-en-Laye

Telephone: +33.139042940  
E-mail: [contact@webdyn.com](mailto:contact@webdyn.com)

### INDIA

803-804 8th floor, Vishwadeep Building  
District Centre, Janakpurt, 110058 Delhi

Telephone: +91.1141519011  
E-mail: [contact@webdyn.com](mailto:contact@webdyn.com)

### PORTUGAL

Av. Coronel Eduardo Galhardo 7-1°C  
1170-105 Lisbonne

Telephone: +351.218162625  
E-mail: [comercial@lusomatrix.pt](mailto:comercial@lusomatrix.pt)

### SUPPORT

#### Madrid

Telephone: +34.915602737  
E-mail: [iotsupport@matrix.es](mailto:iotsupport@matrix.es)

#### Saint-Germain-en-Laye

Telephone: +33.139042940  
E-mail: [support@webdyn.com](mailto:support@webdyn.com)

#### Delhi

Telephone: +91.1141519011  
E-mail: [support-india@webdyn.com](mailto:support-india@webdyn.com)



# Webdyn EasyDot

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Software User Manual

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# General Notes

The product is deemed to have been accepted by the recipient and is provided without an interface for the recipient's products. The documentation and/or the product are provided for testing, evaluation, integration and information purposes. The documentation and/or products are provided "as is" and may include defects. The documentation and/or products are provided without a warranty of any kind, either express or implied. To the fullest extent permitted by the applicable laws, Webdyn further disclaims all guarantees; including, but not limited to, all implied guarantees of merchantability, integrity, fitness for a particular purpose, and non-infringement of third party rights. All risks arising out of the use or performance of the product or the documentation are borne by the recipient. This product is not intended for use in life support devices or systems where a malfunction of the product can reasonably be expected to result in personal injury. Applications incorporating the described product must be designed in accordance with the technical specifications provided in these guidelines. Failure to follow any of the required procedures may result in a malfunction or serious discrepancies in the results.

Furthermore, all safety instructions related to the use of mobile technical systems, including GSM products, which also apply to cell phones, must be strictly followed. Regardless of the legal theory on which a claim may be based, neither Webdyn nor its suppliers shall be held liable for any consequential, incidental, direct, indirect, punitive or other damages (including, without limitation, damages for lost profits, interruption of business, loss of business data or information, or other pecuniary losses) arising from the use, or inability to use, the documentation and/or the product, even if Matrix Electronics has been advised of the possibility of such damages occurring. The foregoing limitations of liability shall not apply in the event of mandatory liability, e.g. pursuant to the Spanish Product Liability Law, or in the event of intent, gross negligence, injury to life, body and health, or breach of a condition in relation to the contract. However, claims for damages arising from a breach of a condition relating to the contract, shall be limited to the foreseeable damage which is intrinsic to the contract, unless caused by intent or gross negligence, or is based on the liability for injury to life, body and health. The aforementioned provision does not imply a change in the burden of proof to the detriment of the recipient. Subject to change without notice. The interpretation of this general note will be governed and interpreted in accordance with Spanish law, without reference to any other substantive law.

## Important Information

This technical description contains important information about starting up and using the equipment. Please read it carefully before you start working with them. The warranty will be void if damage occurs due to non-compliance with these instructions. We cannot accept liability for related losses.

## Revisions

VERSION. 1.0.0

# 1 Introduction

The **Webdyn EasyDot** device allows you to easily create 4G/2G - RS232/485 gateways to access devices such as electricity meters, execute AT commands via SMS (to check coverage, configuration changes, etc.), autonomously read Modbus RTU devices, send readings to WEB platforms and much more.

We provide free, fast and efficient support to all users of modems and routers when required. So, if you have any doubts after reading this manual, please do not hesitate to contact us at [soporte@matrix.es](mailto:soporte@matrix.es). The same applies if you need a feature not included in our equipment, or if you need customisation. Let us know and we will look into it.

## 2 FAQ-Basic Concepts

- **Does the Webdyn EasyDot device have serial gateways?**

Yes, up to 2 IP-Serial gateways can be configured. These gateways can be of TCP Client or TCP Server type and can work simultaneously.

- **RS232 or RS485 serial gateways?**

The Webdyn EasyDot device has one RS232 serial port and one RS485 serial port, so you can have one 4G/2G – RS232 gateway and one 4G/2G – RS485 gateway.

- **I want a 4G/2G device but I need to be able to send AT commands directly to the device, send SMS messages, check coverage, etc. Does the Webdyn EasyDot equipment allow this?**

Yes, in several ways. It is possible to send AT commands REMOTELY from a “Telnet-like” connection, via HTTP or MQTT/MQTTS, by SMS, and even embedded commands in the IP-Serial gateways themselves. AT commands can also be sent LOCALLY via the RS232 serial port.

- **Can the Webdyn-EasyDot device operate autonomously by reading Modbus RTU devices and sending the readings obtained to the cloud?**

Yes. Webdyn EasyDot devices can read Modbus RTU devices, store the readings internally and send them to WEB platforms through a JSON object via HTTP/HTTPs or MQTT/MQTTS.

- **What if the Webdyn EasyDot device is reading Modbus RTU devices autonomously? Would that prevent me from connecting sporadically and remotely to the Modbus RTU devices from my office to make occasional readings, change firmware, etc.?**

No. You can configure the Webdyn EasyDot device to read Modbus devices autonomously and set up a sporadic direct gateway to access Modbus RTU devices from your premises.

- **Do Webdyn EasyDot devices have datalogger capability and can they store data?**

Yes. As mentioned above, data can be stored for subsequent delivery to web platforms via HTTP and/or MQTT.

- **How do I configure a Webdyn EasyDot device?**

There are several ways to configure Webdyn EasyDot devices, but generally, all device configuration can be done via web configuration, i.e. via the internal web server using your web browser.

- **Is it possible to read/upload a complete configuration to the devices? This facilitates the production process when there are a significant number of devices to configure.**

Yes, it is possible to make full configuration backups/restores from the web configuration environment.

- **Can you order Webdyn EasyDot devices pre-loaded with a particular configuration from the factory?**

Yes, you can. But only for high volumes (>500 units). Please contact your sales representative for more information.

- **Do you support the DynDNS service?**

Yes. It is also compatible with NO-IP. You also have the additional option of “Private DynDNS” to send your current IP every time it changes or periodically to a private server, e.g. your company’s server. As part of this additional option, as well as sending the current IP address, other data such as coverage, technology, IMEI, cell, etc. is attached.

- **Do Webdyn EasyDot devices have a clock?**

Yes, they have a built-in clock. It is synchronised via NTP over the Internet.

- **Can Webdyn EasyDot devices be configured via SMS?**

Yes, Webdyn EasyDot devices can be configured through AT commands. And AT commands (in addition to Telnet, MQTT/S and Serial) can be sent to the device by SMS. Commands can be sent to the devices to reboot them, change their configuration, find out their IP address, check coverage, etc.

- **Do Webdyn EasyDot devices have indicative LEDs?**

Yes, they have 3 LEDs: a green power supply LED, a yellow coverage LED (off: no coverage, flashing: low coverage, steady: good coverage) and a blue LED (off: the device has no IP, on: the device has IP).

## 3 Step-by-step configuration.

The Webdyn EasyDot device is primarily configured using your web environment.

### What is required?

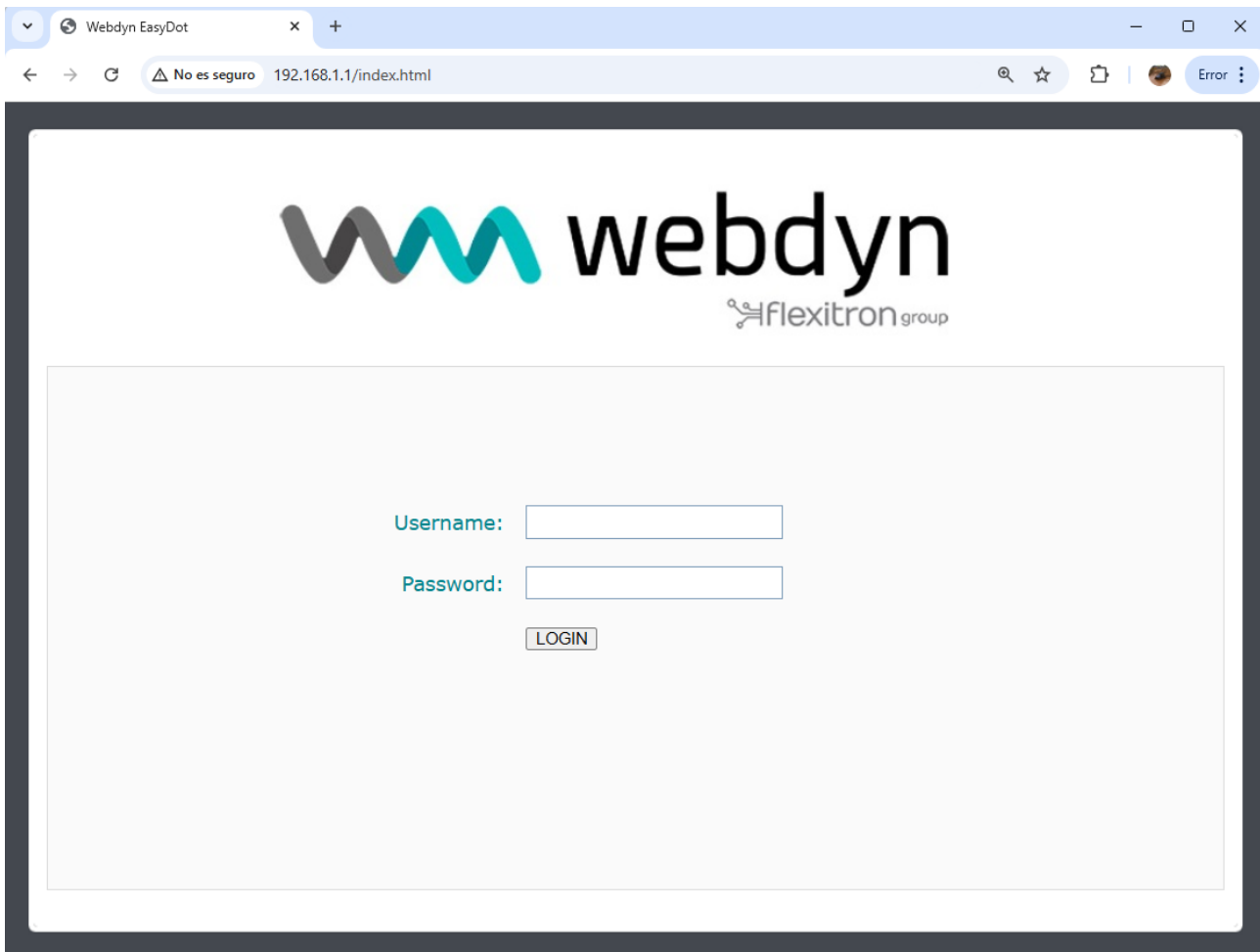
- A PC with a web browser (Chrome, Brave, Firefox, etc.) and a USB port.
- A mini-USB cable to connect the PC to the device.

### Steps to access the configuration environment.

- Connect the USB cable between the PC and the device.
- Open a browser with the address <http://192.168.1.1>. The following window should appear the first time the modem is started.



- For security reasons, you must enter a password for the “**admin**” user. The password must be at least 10 characters long and contain upper and lower case letters and numbers.
- The next time you start the modem you will be able to log in with the username “**admin**” and the password you have set.



## 4 Configuration

### 4.1 Mobile

The Mobile section covers all aspects related to the device's 2G/4G configuration, including the connection status, network configuration parameters and connection monitoring.

#### 4.1.1 Mobile → Status

This screen shows the general status of the device.

- **Firmware Version:** FW version of the device
- **WAN Mobile IP:** WAN IP address (IP address assigned to the 4G/2G connection) if available.
- **IMEI:** unique identifier of the internal modem
- **SIM:** SIM card status
- **Network (4G/2G):** indicates whether the current WAN connection is using the 2G (GPRS) or 4G network
- **Signal Strength:** indicates the strength of the signal. 0=none, 31=maximum
- **Extra signal info:** indicates the RSRP/RSRQ for 4G connectivity



## 4.1.2 Mobile → Basic Settings

This section covers the configuration of the WAN connection (4G/2G) parameters. You will need to know about your SIM card, including the APN, username and password. Your provider must give them to you.

- **Mobile WAN:** If you need IP connectivity (4G/2G), you must enable this option.
- **APN:** APN of the SIM operator. Ask your GSM provider.
- **Username:** Username of the SIM operator. Ask your GSM provider.
- **Password:** SIM operator password. Ask your GSM provider.
- **PIN:** if your SIM card has a PIN, you must enter it here.
- **Authentication:** authentication method “NONE”, “PAP” or “CHAP”.
- **Network selection:**

**Auto** the device will use 4G if there is coverage, or 2G otherwise.

**4G:** the device will use the 4G network in all cases. If there is no 4G coverage, the device will not switch to 2G.

**2G:** the device will use the 2G network in all cases. If there is no 2G coverage, the device will not switch to 4G.

- **DNS selection:**

“Get DNS from Operator” makes the DNSs used by the device the ones assigned by the telephone operator.

“Selected DNS servers” means that, if DNSs are not received from the operator, the DNSs used are those specified in the DNS1 and DNS2 parameters.

- **DNS1 and DNS2:** DNS servers for domain name resolution. We recommend using Google's 8.8.8.8 and 8.8.4.4, or those indicated by your provider.

**USB network access enabled:** If this box is checked, the device will give network access (Internet or SIM-provided network) to devices connected to the USB port of the Webdyn EasyDot (e.g. PC). For security reasons, it is recommended NOT to check this box unless your application requires it.

The screenshot shows the Webdyn configuration interface. At the top, the Webdyn logo and Flexitron Group name are displayed. On the left, a sidebar menu lists various configuration categories: Mobile, Firewall, Serial Settings, External Devices, and Other. The 'Mobile' category is selected, and the 'Basic Settings' sub-section is active. The main content area contains the following settings:

- Mobile WAN:**  Enable Interface (IP active)
- APN:**  SIM APN
- Username:**  SIM Username
- Password:**  SIM Password
- Authentication:**  SIM authentication
- PIN:**  SIM PIN
- Network selection:**  Network selection (Auto, 4G, 2G)
- DNS selection:** 
  - DNS1:**  Preferred DNS1
  - DNS2:**  Preferred DNS2
- USB network access enabled:**  Enable network connection through USB. Not recommended if this feature won't be used

A "SAVE CONFIG" button is located at the bottom of the settings area.

### Additional Notes.

- Once the configuration process is finished, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.

## 4.1.3 Mobile → Keep Online

On this screen you can configure a PING to check the device's connectivity. If the PING fails in the configured instances, the 4G/2G session will be restarted.

- **Enabled:** check the box to allow the device to send a PING periodically to check connectivity.
- **Ping Server:** indicates the IP or DNS address of the server to PING.
- **Period:** indicates the number of minutes between each PING



The screenshot shows the Webdyn configuration interface. At the top, the Webdyn logo and 'flexitron group' are displayed. On the left, a sidebar menu lists various settings categories: Mobile (Status, Basic Settings, Keep Online), Firewall (Authorized IPs), Serial Settings (Serial Port RS232, Serial Port RS485), External Devices (Logger configuration, ModBus Devices), and Other (AT Command, DynDns, Private DynDns). The main content area is titled 'Mobile ▶ Keep Online' and contains the following configuration options:

- Enabled:** A checkbox that is currently unchecked. To its right, the text reads 'Enable PING method for keep Mobile WAN Session'.
- Ping Server:** A text input field with a placeholder value. To its right, the text reads 'IP or DNS address'.
- Period:** A text input field with a placeholder value of '30'. To its right, the text reads 'Minutes between pings (1 ... 1440)'.

At the bottom of the configuration area, there is a button labeled 'SAVE CONFIG'.

### Additional Notes.

- Once the configuration process is finished, click on the "SAVE CONFIG" button to save the changes. Remember that you must restart the device for the new changes to take effect.

## 4.2 Firewall

Section for configuring the device's security features.

### 4.2.1 Firewall → Authorized IPs

This screen allows you to define up to 3 IP addresses authorised to accept connections on the WAN interface for the different services provided by the device. For example, if an authorised IP address of 90.166.108.200 is specified (such as the IP of an office, for example), certain services of the device will only be accessible from that IP address.

- **Authorized IP1:** authorised IP address number 1
- **Authorized IP2:** authorised IP address number 2
- **Authorized IP3:** authorised IP address number 3
- **Remote configuration:** Specifies whether remote connections to the web configuration environment are accepted from any IP, or only from authorised IP addresses.
- **Serial Gateways:** specifies whether remote connections to 4G/2G-RS232/485 gateway services are accepted from any IP, or only from authorised IP addresses.
- **Remote console:** specifies whether to accept remote connections to the remote console service (Telnet) from any IP, or only from authorised IP addresses.



The screenshot shows the webdyn configuration interface for Firewall Authorized IPs. The page features the webdyn logo and Flexitron Group branding at the top. A left sidebar contains a navigation menu with categories: Mobile (Status, Basic Settings, Keep Online), Firewall (Authorized IPs), Serial Settings (Serial Port RS232, Serial Port RS485), External Devices (Logger configuration, ModBus Devices), and Other (AT Command, DynDns). The main content area is titled 'Firewall Authorized IPs' and contains the following configuration options:

Authorized IP1:	<input type="text"/>	Remote connections from this IP are allowed
Authorized IP2:	<input type="text"/>	Remote connections from this IP are allowed
Authorized IP3:	<input type="text"/>	Remote connections from this IP are allowed
Router configuration:	<input type="text" value="ALLOW ANY IP"/>	Security for remote configuration connections
Serial gateways:	<input type="text" value="ALLOW ANY IP"/>	Security for remote serial connections
Remote console:	<input type="text" value="ALLOW ANY IP"/>	Security for remote console connections

A 'SAVE CONFIG' button is located at the bottom left of the configuration area.

#### Additional Notes

- Once the configuration process is finished, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.

## 4.3 Serial Settings → Serial portX

In the Serial Settings section it is possible to configure each serial port of the device (speed, parity, etc.), as well as the special function that each of them will have (IP-serial gateways, Modbus concentrator, etc.).

### 4.3.1 Serial Settings → Serial portX

Each port can be used to create 4G/2G-Serial gateways to remotely control RS232 or RS485 devices. The number of RS232 or RS485 serial ports will depend on the device model.

- **Baudrate:** specifies the speed of the serial port (115200, ..., 300)
- **Data bits:** specifies the number of data bits (8)
- **Parity:** specifies the parity (none, even, odd)
- **Stop bits:** number of stop bits (1)
- **Flow Control:** specifies flow control (none or hardware)
- **Timeout ms:** indicates the number of milliseconds the device will wait without receiving data through the serial port before sending the data with IP. If you specify a "0" (default value), the data will be sent via IP as it arrives at the serial port. A value of 10, for example, specifies that no data is

sent if a period of at least 10ms has not passed without receiving data at the serial port. This ensures that the data arrives at the destination less fragmented.

- **Allow remote embedded AT Commands:** checking this box enables the sending of REMOTE AT commands embedded in a Server or Client 4G/2G-Serial gateway. AT commands must be sent over the established gateway connection, but placed between the <MTXTUNNELR> and </MTXTUNNELR> tags. For example, if coverage is desired, the <MTXTUNNEL R>AT+CSQ</MTXTUNNEL> command can be sent. Or, if you wish to re-set a device remotely, you can send the command <MTXTUNNELR>AT^MTXTUNNEL=REBOOT </MTXTUNNELR>
- **Function: Nothing or Used by External Device:** select this operating option if you do not want to use a given serial port as an IP/serial gateway, or if you want the serial port (RS232 or RS485) to be used by an external device specified in the “External Devices” configuration section.
- **Function: Serial – IP Gateway (TCP Server):** select this operating option if you want to create a 4G/2G TCP Server-Serial gateway, i.e. a scenario in which the Webdyn EasyDot device is listening on a certain TCP port, waiting to receive a connection to establish the IP-Serial gateway.
  - **TCP Local Port:** TCP listening port for the 4G/2G Serial gateway
  - **Timeout:** time (seconds) without data on the gateway to close the socket automatically.
  - **TCP Local Priority Port:** priority TCP listening port for the 4G/2G Serial gateway. If there is an active connection in this port, connections within the TCP Local Port will not be allowed. Useful for reading electricity meters with IP connection priority.
- **Function: Serial – IP Gateway (TCP Client):** select this operating option if you wish to establish a transparent Serial – 4G/2G gateway in TCP Client mode, i.e. a scenario where the device connects to a given IP / TCP port to establish the Serial – 4G/2G gateway
  - **Remote IP:** the IP address to which the device will be connected
  - **Remote TCP Port:** the TCP port to which the device will be connected
  - **Reconnection time:** in case of connection failure or connection problems, this indicates how many milliseconds should be left between connection attempts. 0 = immediate reconnection. Be careful with this value if you do not have a flat rate SIM card or if you have a contract with a very low monthly data volume.
  - **ID String:** string of text that is sent just after connecting the socket to the remote IP. This text will allow you to identify the Webdyn EasyDot device making the connection. For example, if you have 100 devices in this operating mode, you will be able to determine, after receiving a connection, which of these 100 devices has made it. It is possible to add the special tags [IMEI], [CR] and [LF] which will be substituted by the IMEI, and the characters 0x13 and 0x10 respectively.
- **Function: Direct (AT Command):** select this operating option if you need to be able to send AT commands directly to the modem. For example, if you want to send SMS messages by sending AT commands through the serial port, use this option. The AT commands used must be sent with

caution so as not to interfere with the proper functioning of the device. For example, using AT commands and setting the modem to airplane mode will interfere with the Webdyn's IP connectivity.

#### **Additional Notes**

- Once the configuration process is finished, click on the "SAVE CONFIG" button to save the changes. Remember that you must restart the device for the new changes to take effect.

## 4.4 External Devices

In this section, the internal datalogger is configured, as well as external serial peripherals (Modbus RTU devices).

### 4.4.1 External Devices → Logger configuration

If you need the Webdyn EasyDot to collect data from external devices (Modbus devices) to send it to a server, you first need to configure the internal Logger, i.e. configure how to collect the data, and where and how to send it. That is what this section is for.

This section allows you to configure the parameters related to the internal datalogger. You can send the data to a server via HTTP/HTTPS or MQTT/MQTTS. In all cases, the data will be sent in JSON format

#### General parameters:



The screenshot shows the Webdyn configuration interface. At the top, there is the Webdyn logo (a stylized 'w' in grey and teal) and the text 'webdyn flexitron group'. Below the logo, there is a navigation menu on the left with 'Mobile' (Status, Basic Settings, Keep Online) and 'Firewall'. The main content area is titled 'External Devices → Logger' and contains two configuration options: 'ID:' with an empty text input field and 'Check date:' with a checked checkbox. To the right of these options, there is explanatory text: 'Optional. Device identification' and 'Save data in Logger only if date has been set (check Time Servers)'.

- **ID:** Optional. This is a text parameter that allows you to enter an identifying string included within the JSON file.
- **Check date:** If the box is checked, data cannot be recorded in the datalogger memory if the device date/time is not correct. This means that data cannot be sent to a server with an incorrect TimeStamp.

## HTTP mode

<ul style="list-style-type: none"><li>★ <b>Firewall</b><ul style="list-style-type: none"><li>Authorized IPs</li></ul></li><li>★ <b>Serial Settings</b><ul style="list-style-type: none"><li>Serial Port RS232</li><li>Serial Port RS485</li></ul></li><li>★ <b>External Devices</b><ul style="list-style-type: none"><li>Logger configuration</li><li>ModBus Devices</li></ul></li><li>★ <b>Other</b><ul style="list-style-type: none"><li>AT Command</li><li>DynDns</li><li>Private DynDns</li><li>Sms control</li><li>Periodic Autoreset</li></ul></li></ul>	<p><b>Communication mode: WEB PLATFORM (HTTP REST)</b></p> <p>Enabled: <input type="checkbox"/> Communication mode HTTP Enabled</p> <p>Mode: <input type="text" value="HTTP GET (JSON)"/> Method of sending data. <b>Note:</b> If HTTPS is used <b>CA Certificates</b> menu must be configured</p> <p>Custom header1: <input type="text"/> Optional. Custom header1. For example: Content-type;application/json</p> <p>Custom header2: <input type="text"/> Optional. Custom header2. For example: Content-type;application/json</p> <p>Custom header3: <input type="text"/> Optional. Custom header3.</p> <p>Server: <input type="text"/> Destination URL. Example: www.mydomain.com/setdata.php</p> <p>Server username: <input type="text"/> Optional. Blank if no server authentication required</p> <p>Server password: <input type="text"/> Optional. Blank if no server authentication required</p>
--	---

- **Enabled:** click to enable the mode for sending data to a web platform via HTTP/HTTPS.
- **Mode:** data-sending mode. You can choose between HTTP GET (JSON), HTTPS GET (JSON), HTTP POST (JSON) and HTTPS POST (JSON)
- **Custom header1, Custom header2 and Custom header3:** allows you to add headers to HTTP/HTTPS requests. Many WEB platforms require a header with an identifying token. You can configure it in this section. You must separate the header name from the value with a semicolon (;).
- **Server:** Complete URL to send data collected in the datalogger. For example [www.myDomain.com/json/set.php?data=](http://www.myDomain.com/json/set.php?data=)
- **Server username:** if your platform has restricted access, please enter your username here.
- **Server password:** if your platform has restricted access, please enter your user password here.

## MQTT mode

<ul style="list-style-type: none"><li>Remote Console</li><li>Mqtt</li><li>Http</li><li>CA Certificates</li><li>Syslog</li><li>Backup / Factory</li></ul>	<p><b>Communication mode: MQTT</b></p> <p>Enabled: <input type="checkbox"/> Communication mode MQTT enabled</p> <p>MQTT Topic: <input type="text"/> MQTT Topic. Example: [IMEI]/logger</p> <p><b>Note:</b> MQTT menu must be configured</p>
--	---

- **Enabled:** click to enable the data-sending mode on an MQTT broker (all data is sent in JSON format).
- **MQTT Topic:** MQTT topic to which the stored logger data will be sent.

## Logger operation.

When the EasyDot reads external devices (e.g. Modbus RTU device registers), the data read is stored in the EasyDot's internal logger. Once stored in the internal logger, it is immediately sent to a web platform

via MQTT and/or HTTP. Storing the data read in the internal logger means that, in the event of problems with sending (coverage problems, platform downtime, etc.), the data read is not lost and can be sent at a later date.

The Logger has space for 20 registers in RAM and 128 in FLASH (non-volatile) memory with a size of up to 512 bytes for each register stored. By default, the read data is stored in the RAM registers and immediately transmitted to the platform. If there are problems sending data to the platform, the data stored in RAM is immediately dumped to the FLASH memory. From then on, new data readings will be stored in FLASH memory until it is empty because all the registers have been correctly transmitted to the remote platform. At that point, the read data will once again be stored in RAM.

The purpose of using RAM registers is to reduce the wear and tear on the FLASH memory, since in normal conditions only the RAM will be used.

### Additional Notes

- Once the configuration process is finished, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.
- When using HTTP or MQTT send mode, data is sent to your server as it is read. If there is no 4G/2G coverage or if there are problems sending data (e.g. a remote server crash), the device will store the data internally to be sent later when communications are back to normal.
- If you use the MQTT mode, remember to properly configure the section in the “**OTHER → Mqtt**”. In this section, you must enter all the configuration parameters necessary to connect the device to your MQTT broker.

## 4.4.2 External Devices → Modbus Devices

Webdyn EasyDot devices are equipped to read, store and send registers of external Modbus RTU devices to an external server (via HTTP/HTTPS or MQTT/MQTTS). That is, they can schedule a periodic reading of up to **16** Modbus RTU devices, selecting the reading registers, and then sending the readings to a server via a JSON object.

- **Enabled:** check this box if you have one or more Modbus RTU devices connected to a serial port and you intend to read Modbus registers autonomously.
- **Serial Port:** allows you to select the RS232 or RS485 serial port of the Webdyn EasyDot where the Modbus RTU device is connected.
- **Logger:** if you wish to use the internal logger to store the Modbus registers read (to send to a web platform later), you must select this option.
- **Device name:** name identifying a Modbus RTU device.
- **Address:** Modbus RTU address of the device to be read.
- **Command:** Modbus read command.
- **Start:** initial reading register.
- **Num Words:** number of registers to be read.
- **Reg type:** type of register to be read.
- **Period:** reading period, i.e. after how many minutes the set of registers should be read each time.

- ★ **Mobile**
  - ◆ Status
  - ◆ Basic Settings
  - ◆ Keep Online
- ★ **Firewall**
  - ◆ Authorized IPs
- ★ **Serial Settings**
  - ◆ Serial Port RS232
  - ◆ Serial Port RS485
- ★ **External Devices**
  - ◆ Logger configuration
  - ◆ ModBus Devices
- ★ **Other**
  - ◆ AT Command
  - ◆ DynDns
  - ◆ Private DynDns
  - ◆ Sms control
  - ◆ Periodic Autoreset
  - ◆ Time Servers
  - ◆ Remote Console
  - ◆ Mqtt
  - ◆ Http
  - ◆ CA Certificates
  - ◆ Syslog
  - ◆ Backup / Factory
  - ◆ Firmware Upgrade
  - ◆ Reboot
  - ◆ Logout

## External Devices ▶ ModBus RTU

Enabled:  Enable Modbus Devices

Serial Port:  Select the connected serial port if needed

Logger:  Check if logger must be used  
Please, configure logger before using this option

Dev. name / ID	Addr.	Command	Start @	Num word/bit	Reg Type	Period		
pepino1	1	0x03	0	10	FLOAT	0.5	Del	Test
pepino2	2	0x03	0	10	D.WORD+	1	Del	Test
pepino3	3	0x03	0	10	WORD+	2	Del	Test
pepino4	4	0x03	0	10	WORD	5	Del	Test
pepino5	5	0x03	0	10	WORD+	10	Del	Test
pepino6	6	0x01	0	10	FLOAT	15	Del	Test
pepino7	7	0x02	0	10	D.WORD+	30	Del	Test
pepino8	8	0x04	0	10	D.WORD+	60	Del	Test
pepino9	9	0x03	0	26	FLOAT	0.5	Del	Test
pepino10	10	0x04	0, 2, 6, 8	1, 3, 1, 2	WORD	1	Del	Test
pepino11	11	0x03	1, 5, 9	3, 2, 1	WORD+	2	Del	Test
pepino12	9	0x03	0, 4, 12, 18, 22	2, 6, 4, 2, 4	FLOAT	5	Del	Test

Device name / ID:  Insert the device name or ID

Address:  Modbus RTU address

Command:  Modbus read command

Start:  Address of the first register

Number Words / Bits:  Words for command 0x03/0x04. Bits for 0x01/0x02

Reg Type:  Type of registers for command 0x03/0x04

Period:  Read period (minutes)

(Max 16 modbus devices)

WEBDYN-EASYMODEM - Web Panel Control

## Additional Notes.

- Once the configuration process is finished, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.
- If you wish to create a new Modbus RTU device, you must fill in the form and press the “SAVE DEVICE” button.
- Here is an example of the JSON frame format stored with the readings to be sent to a server:

```
{"TYPE":"MODB", "ID":"pepino5", "TS":"2024-09-05T12:20:02Z", "IMEI":"866069069150439", "P":"1234", "A":5, "ST":0, "N":10, "V":[0,1,2,3,4,5 ,6,7,8,9]}
```

Where:

TYPE: type of data. In this case, Modbus.

ID: Modbus device name or ID.

TS: timestamp DD:MM:YYYY HH:MM:SS.

IMEI: equipment identification number. Unique for each device.

P: Logger ID field (External Devices > Logger configuration).

A: Modbus address of the device read.

ST: initial register.

N: no. of words (0x03/0x04 commands) or bits (0x01/0x02 commands) to read

V: array containing the registers read.

- We recommend you read the chapter on available AT commands, because you can read and change values of Modbus registers via AT commands, in the web configuration environment, from Remote Console (Telnet), SSH or SMS, etc.

- In the “Start” and “Num Words” fields, it is possible to create non-consecutive registers. This means if we want to read registers:

```
1;10;11;12;55;56;69;70;72;73;74;75;76;77;78;79;80;100;101;102;103;104;105;106;107;108;109;120;121;122;123;124;130;131;132;133;152;153;154;160;161;162;163;164;165;166;170
```

We must enter the following in the Start field (the initial register of each block):

```
1;10;55;69;72;100;120;130;152;160;170
```

And, in the “Number Words” field (the number of registers to be read from each block):

```
1;3;2;2;9;10;5;4;3;7;1
```

An example of a JSON received in this case:

```
{"TYPE":"MODB", "ID":"1", "TS":"17/06/2017 17:01:04", "IMEI":"357044060009633", "P":"12345678", "A":"1", "STX":[1, 10, 55, 69, 72, 100, 120, 130, 152, 160, 170], "NX":[1, 3, 2, 2, 9, 10, 5, 4, 3, 7, 1], "PX":[0, 1, 4, 6, 8, 17, 27, 32, 36, 39, 46],
```

```
"V": [1, 10, 11, 12, 55, 56, 69, 70, 72, 73, 74, 75, 76, 77, 78, 79, 80, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 120, 121, 122, 123, 124, 130, 131, 132, 133, 152, 153, 154, 160, 161, 162, 163, 164, 165, 166, 170]}
```

### 4.4.3 Other → AT Command

In this section, you can send an AT command directly to the device's internal modem. For example, you may wish to check the coverage or to identify nearby telephone cells, etc.

It is also possible to configure up to 5 special AT commands through which to configure the device at start-up.

- AT Command: AT command for real-time execution (e.g. AT+CSQ). Once you click on the “SEND AT COMMAND” button, the AT command will be executed.
- AT1, ... AT5: AT initialization commands.

The screenshot displays the webdyn interface for sending AT commands. The left sidebar contains a navigation menu with categories: Mobile, Firewall, Serial Settings, External Devices, and Other. The 'Other' category is expanded to show 'AT Command'. The main content area is titled 'Other > AT Command' and features a text input field for the AT command, currently containing 'AT+CSQ'. Below the input field is a text area for the response, which shows 'AT+CSQ', '+CSQ: 31,99', and 'OK'. At the bottom of the main area are two buttons: 'SEND AT COMMAND' and 'COPY TO CLIPBOARD'.

#### Additional Notes.

- Once the AT initialisation commands have been created, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.

#### 4.4.4 Other → DynDNS

The Webdyn EasyDot device supports the DynDNS and No-IP service. If you do not have a SIM card with a fixed IP and you are interested in using the external DynDNS or NO-IP services, you can configure them in this section.

- **Enabled:** Check this box if you wish to enable the use of DynDNS or NO-IP.
- **Server:** Specify the service server (members.dyndns.org or dynupdate.no-ip.com).
- **Domain:** enter the dns you have created (e.g. mydomain.dyndns.org)
- **Login:** login for your DynDNS or NO-IP account
- **Password:** password for your DynDNS or NO-IP account
- **Period:** period, in minutes, in which the current IP is refreshed on the DynDNS or NO-IP servers



The screenshot shows the Webdyn configuration interface. At the top is the Webdyn logo and the Flexitron Group logo. On the left is a navigation menu with categories: Mobile (Status, Basic Settings, Keep Online), Firewall (Authorized IPs), Serial Settings (Serial Port RS232, Serial Port RS485), External Devices (Logger configuration, ModBus Devices), and Other (AT Command). The main content area is titled 'Other → DynDNS' and contains the following settings:

- Enabled:** A checkbox that is currently unchecked. To its right is the text 'Enable DynDNS'.
- Server:** A text input field. To its right are the URLs 'http://members.dyndns.org,' and 'https://dynupdate.no-ip.com, ...'. Below these is a note: 'Note: If HTTPS is used CA Certificates menu must be configured'.
- Domain:** A text input field. To its right is the text 'Your domain. For example myDomain.dyndns.org'.
- Login:** A text input field. To its right is the text 'Login of your account'.
- Password:** A text input field. To its right is the text 'Password of your account'.
- Period:** A text input field containing the value '60'. To its right is the text 'Minutes. Public IP in sent every time it changes. But it is recommended force an update every 60 minutes.'

At the bottom of the configuration area is a button labeled 'SAVE CONFIG'.

#### Additional Notes.

- Once the configuration process is finished, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.
- The IP is updated on the DynDNS or NO-IP servers every time it changes. However, we recommend the IP use the configuration parameter “Period”, e.g. at a value of 60, so that whatever happens, the IP is sent every hour.

## 4.4.5 Other → Private DynDNS

The Private DynDNS service enables the current IP address of the Webdyn EasyDot and certain status values to be sent to its own server. Data can be sent either via HTTP (HTTP/S GET, HTTP/S POST) or via MQTT/MQTTS.

### HTTP method

- **Enabled:** check this box if you wish to enable the use of Private DNS
- **Mode:** you can choose between HTTP/S GET and HTTP/S POST
- **Server:** IP or DNS of the remote server
- **Server Login:** login of your web server (if you use “HTTP” mode)
- **Server Password:** password of your web server (if you use “HTTP” mode)
- **ID:** identifier string (for “HTTP” mode)
- **Period:** the period, in minutes, in which the current IP is refreshed on your server. Please bear in mind that, regardless of this period, as soon as the Webdyn EasyDot’s IP changes, it is sent.
- **Custom header1:** Custom HTTP header 1
- **Custom header2:** Custom HTTP header 2
- **Custom header3:** Custom HTTP header 3
- **Client cert for HTTPS:** client certificate in PEM format for HTTPS connections. Enter your digital certificate here, if required on your server.
- **Client KEY for HTTPS:** KEY of the client certificate in PEM format for HTTPS connections. Enter the KEY of your digital certificate here, if required on your server.

### MQTT method

- **Enabled:** check this box if you wish to enable MQTT
- **Period:** period, in minutes, in which the current IP of the Webdyn EasyDot device will be sent to your server via MQTT. Please bear in mind that, regardless of this period, as soon as the IP changes, it is sent.
- **MQTT Topic:** MQTT topic to be used to send data
- **MQTT QoS:** quality of service used by MQTT to send data

- ★ **Mobile**
  - Status
  - Basic Settings
  - Keep Online
- ★ **Firewall**
  - Authorized IPs
- ★ **Serial Settings**
  - Serial Port RS232
  - Serial Port RS485
- ★ **External Devices**
  - Logger configuration
  - ModBus Devices
- ★ **Other**
  - AT Command
  - DynDns
  - Private DynDns
  - Sms control
  - Periodic Autoreset
  - Time Servers
  - Remote Console
  - Mqtt
  - Http
  - CA Certificates
  - Syslog
  - Backup / Factory
  - Firmware Upgrade
  - Reboot
  - Logout

▶ **Other** ▶ Private DynDns

**Communication mode: WEB PLATFORM (HTTP REST)**

Enabled:  Communication mode HTTP Enabled

Mode:  Method of sending data.  
Note: If HTTPS is used CA Certificates menu must be configured

Server:  IP or DNS of remote server. Example: www.myweb.com/set.php?data=

Server username:  Optional. Blank if no server authentication required

Server password:  Optional. Blank if no server authentication required

ID:  String for device identification

Period:  Minutes. Public IP in sent every time it changes. But it is recommended force an update every 60 minutes (0...1440)

Custom header1:  Optional. Custom header1. For example: Content-type;application/json

Custom header2:  Optional. Custom header2.

Custom header3:  Optional. Custom header3.

**Communication mode: MQTT**

Enabled:  Communication mode MQTT enabled

Period:  Minutes. Public IP in sent every time it changes. But it is recommended force an update every 60 minutes. (0...1440)

MQTT Topic:  MQTT Topic. Example: [IMEI]/dns

MQTT QoS:  MQTT QoS for Private DynDNS. Normally 0

Note: MQTT menu must be configured

### Additional Notes.

- Once the configuration process is finished, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.
- Example of the JSON format frame sent:

```
{ "IMEI": "866069061410252", "RSRP": -78, "CID": "214;07;0x219b;0x15f2d23", "RSRQ": -15, "P": "", "MOD": "000000000", "IP": "95.125.137.178", "IMSI": "214075536243578", "CSQ": 31, "TECH": "4G", "VER": "1.0.1", "TYPE": "DNS", "TS": "2024-08-08T13:02:06Z", "RSSI": -51 }
```

Where:

- TYPE: type of frame. In this case, DNS.
- IMEI: device identification number. Unique for each device
- P: Logger ID field (External Devices > Logger configuration)
- IP: IP of WAN interface (4G / 2G)
- CSQ: 0...31 (signal strength)
- MOD: Part number of the device
- See: FW Version
- IMSI: IMSI of the SIM card
- TECH: technology used (2G, 4G)
- TS: timestamp
- CID: identification of telephone cell used
- RSSI: signal strength level.
- RSRP: 4G rsrp
- RSRQ: 4G rsrq

## 4.4.6 Other → SMS Control

This section lets you configure control of the device using SMS messages. For example, you can configure this section to restart the device by sending an SMS message, to get coverage or to get the current IP of the device, among other things. From here, you can also specify the phone numbers authorised for this purpose.

- **AT enabled:** check this box if you wish to send AT commands to the device via SMS, e.g. to find out the coverage remotely, to perform a re-set or to change a configuration, etc.
- **AT header:** here you can enter the header text for SMS command messages. For example, if you type the text “mtx” in this box, when an AT command is sent by SMS to the device, e.g. the “AT+CSQ” command to find out the general coverage level, you must send an SMS message with the following text “mtx AT+CSQ”.
- **All phones:** check this box if you want all phone numbers to be authorised to send AT commands to the Webdyn EasyDot by SMS. Do not check this box if you want to specify a set of authorised phone numbers to enhance security (recommended).
- **Authorized Number X:** in these boxes you can specify up to 10 authorised telephone numbers.



The screenshot shows the Webdyn configuration interface. At the top, the Webdyn logo is displayed with the Flexitron Group tagline. On the left, a sidebar menu lists various configuration categories: Mobile, Firewall, Serial Settings, External Devices, and Other. The 'Other' category is selected, and the 'SMS control' sub-section is active. The main configuration area contains the following settings:

- Enabled:** A checked checkbox labeled 'Enable AT commands by SMS'.
- AT header:** A text input field containing 'mtx' with the label 'Text header for SMS'.
- Authorized phone numbers:** A radio button labeled 'all phones' with the text 'All Phones are allowed' next to it.
- Authorized number 1 through 10:** Ten empty text input fields, each with a corresponding label 'Authorized number 1' through 'Authorized number 10'.

### Additional Notes.

- Once the configuration process is finished, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.

## 4.4.7 Other → Periodic autoreset

In this section you can configure a scheduled autoreset for the Webdyn EasyDot device.

- **Disabled:** enable the option if you do not want the Webdyn EasyDot to reset periodically.
- **Timer autoreset:** enable the option if you want the device to autoreset every X hours.
- **Number of hours:** if you select autoreset every X hours (Timer autoreset enabled), you must specify in this box the number of hours after which the reset takes place. Specify 24 to generate a daily reset.
- **Hour autoreset:** enable this option if you want the device to autoreset at a certain time of day.
- **Selected hour:** specific time for daily autoreset.
- **IP reset enabled:** highly recommended option for situations where context is lost. For example, it lets you specify the number of minutes after which the device will reset itself if it cannot obtain an IP address.
- **Time for reset:** If the “IP reset enabled” box is checked, it allows you to set the number of minutes without obtaining an IP address for autoreset.



The screenshot shows the Webdyn configuration interface. At the top, the Webdyn logo and 'flexitron group' are displayed. On the left, a sidebar menu lists various settings categories: Mobile, Firewall, Serial Settings, External Devices, and Other. The 'Other' category is selected, and the 'Periodic Autoreset' sub-section is active. The main configuration area contains the following settings:

- Disabled:** A radio button is selected, with the text 'Periodic autoreset not enabled' to its right.
- Timer autoreset:** An unselected radio button, with the text 'Autoreset every X hours' to its right.
- Number of hours:** A text input field containing '24', with a range indicator '1 ... 24' to its right.
- Hour autoreset:** An unselected radio button, with the text 'Autoreset at specific hour' to its right.
- Selected hour:** A text input field containing '0', with a range indicator '0 ... 23' to its right.
- IP Reset enabled:** A checked checkbox, with the text 'Reset if modem can't obtain IP after X minutes' to its right.
- Time for reset:** A text input field containing '30', with a range indicator '5 ... 60 min.' to its right.

At the bottom of the configuration area, there is a 'SAVE CONFIG' button.

### Additional Notes.

- Once the configuration process is finished, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.

## 4.4.8 Other → Time Servers (NTP)

The modem has a built-in, real-time clock that enables it to keep the time even if power is lost for several hours. This built-in clock must be synchronised periodically with time servers via the NTP protocol.

### Time Servers (NTP)

- Enabled: check this box if you want to use NTP time servers.
- NTP Server 1: IP or DNS address of the NTP 1 time server
- NTP Server 2: IP or DNS address of the NTP 2 time server



The screenshot shows the Webdyn configuration interface. At the top, the Webdyn logo and Flexitron Group branding are visible. On the left, a sidebar menu lists various settings categories: Mobile (Status, Basic Settings, Keep Online), Firewall (Authorized IPs), Serial Settings (Serial Port RS232, Serial Port RS485), External Devices (Logger configuration, ModBus Devices), and Other (AT Command, DynDns, Private DynDns). The main content area is titled 'Other > Time Servers (NTP)'. It features an 'Enabled' checkbox which is currently unchecked, with the label 'Enable NTP' to its right. Below this, there are two input fields for 'NTP Server 1' and 'NTP Server 2', both containing the value 'time1.google.com' and 'time2.google.com' respectively, with the label 'IP or DNS Address' to the right of each field. A 'Current Time (UTC):' field displays '2024-08-09T13:05:36Z' with the label 'Current date & time of the system' to its right. At the bottom of the configuration area, there is a 'SAVE CONFIG' button.

### Additional Notes.

- At start-up, the modem will attempt to synchronise the time with the network of the telephone operator, provided that the network offers this functionality. However, it is strongly recommended to use NTP, as it is a significantly more accurate and more secure method of ensuring that the correct time is obtained.
- Once the configuration process is finished, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.

## 4.4.9 Other → Remote Console

If at any time you need to perform a special operation on the device using a “Telnet” type connection, you can do so by configuring this section. This special connection makes it possible to send AT commands to the Webdyn EasyDot device. This lets you change the configuration, consult status data, etc. See section 5 of this manual for a list of available AT commands.

- **Enabled:** check this box if you want to use this connection.
- **TCP Port:** listening TCP port of the device where the connection must be made.
- Username: username that will be requested after establishing the connection.
- **Password:** user password (will be requested after entering the username)



The screenshot shows the Webdyn configuration interface. At the top is the Webdyn logo and the Flexitron Group logo. On the left is a navigation menu with categories: Mobile (Status, Basic Settings, Keep Online), Firewall (Authorized IPs), Serial Settings (Serial Port RS232, Serial Port RS485), and External Devices (Logger configuration, ModBus Devices). The main content area is titled 'Other → Remote Console' and contains the following configuration options:

- Enabled:** A checkbox that is currently unchecked. To its right is the text 'Enable remote console'.
- TCP port:** A text input field containing the value '20023'. To its right is the text 'TCP port for remote console. 1 ... 65535'.
- Username:** A text input field. To its right is the text 'Username'.
- Password:** A text input field. To its right is the text 'password' and a note: 'Note: Min. 10 characters. Must include uppercase, lowercase, and numbers.'
- Password:** A second text input field. To its right is the text 'Re-enter password of console'.

At the bottom of the configuration area is a button labeled 'SAVE CONFIG'.

### Additional Notes.

- Once the configuration process is finished, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.

## 4.4.10 Other → MQTT

The Webdyn EasyDot device can work as an MQTT client by connecting against a broker. A configuration as an MQTT client allows the Webdyn EasyDot to send the data collected in its internal datalogger (from reading Modbus devices) via MQTT. You must properly configure this section if you select sending by MQTT in the LOGGER section.

- **MQTT Enabled:** Select whether you wish to enable the MQTT Client service
- **Broker:** URL to the mqtt broker. Format: `tcp://urlbroker:port` for mqtt connections and `ssl://urlbroker:port` for ssl/tls connections
- **MQTT Username:** MQTT username. Blank if not used
- **MQTT Password:** MQTT password. Blank if not used
- **MQTT ID:** Device identification field. You can use the [IMEI] tag if you want to use the device IMEI as the MQTT identifier
- **MQTT QoS:** Quality of service (0,1,2)
- **MQTT KeepAlive:** Seconds for keepalive (recommended 300)
- **AT Topic:** Topic 1 to which Webdyn EasyDot will subscribe. AT commands sent to this mqtt topic will be executed on the Webdyn EasyDot.
- **AT Resp Topic:** Responses to AT commands received via MQTT by the device in the “AT Topic” will be sent to this Topic via MQTT.
- **AT Topic 2:** Topic 2 to which Webdyn EasyDot will subscribe. AT commands sent to this mqtt topic will be executed on the Webdyn EasyDot.
- **AT Resp Topic 2:** Responses to AT commands received via MQTT by the device in the “AT Topic 2” will be sent to this Topic via MQTT.
- **AT Topic 3:** Topic 3 to which Webdyn EasyDot will subscribe. AT commands sent to this mqtt topic will be executed on the Webdyn EasyDot.
- **AT Resp Topic 3:** Responses to AT commands received via MQTT by the device in the “AT Topic 3” will be sent to this Topic via MQTT.
- **Client Certificate:** When using MQTTS with client authentication, you will need to enter the client certificate in PEM format in this field.
- **Client KEY:** When using MQTTS with client authentication, you will need to enter the KEY of the client certificate in PEM format in this field.

- ★ **Mobile**
  - Status
  - Basic Settings
  - Keep Online
- ★ **Firewall**
  - Authorized IPs
- ★ **Serial Settings**
  - Serial Port RS232
  - Serial Port RS485
- ★ **External Devices**
  - Logger configuration
  - ModBus Devices
- ★ **Other**
  - AT Command
  - DynDns
  - Private DynDns
  - Sms control
  - Periodic Autoreset
  - Time Servers
  - Remote Console
  - Mqtt
  - Http
  - CA Certificates
  - Syslog
  - Backup / Factory
  - Firmware Upgrade
  - Reboot
  - Logout

▶ **Other** ▶ **MQTT Client**

MQTT Enabled:  Enable MQTT client

Broker:  Destination MQTT Broker. Examples:  
tcp://test.mosquitto.org:1883  
ssl://test.mosquitto.org:8883 (certificate needed)  
ssl://test.mosquitto.org:8884 (certificates needed)  
**Note:** If ssl/tls is used **CA Certificates** menu must be configured

MQTT Username:  Username (blank if not used)

MQTT Password:  Password (blank if not used)

MQTT ID:  Device identification

MQTT QoS:  Default Quality Of Service (0 ... 2)

MQTT Keepalive:  Seconds for keepalive (30 ... 3600)

MQTT AT Topic:  This topic will be subscribed for receiving AT Commands (usefull for individual device)

MQTT AT Resp Topic:  This topic will be used for publishing the AT Command Responses of AT Topic

MQTT AT Topic 2:  This topic will be subscribed for receiving AT Commands (usefull for groups)

MQTT AT Resp Topic 2:  This topic will be used for publishing the AT Command Responses of AT Topic 2

MQTT AT Topic 3:  This topic will be subscribed for receiving AT Commands (usefull for all devices)

MQTT AT Resp Topic 3:  This topic will be used for publishing the AT Command Responses of AT Topic 3


### Additional Notes.

- Once the configuration process is complete, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.
- Please note that it is possible to enter the text [IMEI] instead of the IMEI number. That is, if the IMEI is 012345678912345, that would be the same as using TOPIC /0123456789012345/TEST as the topic /[IMEI]/ TEST
- Please note that if you use MQTTS, you must include the CA certificate used by the MQTT broker in the “Other → CA Certificates” section.

## 4.4.11 Other → HTTP

HTTP configuration and HTTPS activation for the configuration environment.

- **Remote access:** Check the box if you want to enable remote access to the device’s configuration interface.
- **HTTP Port:** Indicates the TCP port for HTTP remote configuration. For example, if you specify 8080, the configuration URL will be <http://x.x.x.x:8080>. By default, the standard port is 80, but it is recommended to use another port, especially if you are going to use SIM cards with Public IPs.
- **Username:** Username to access the web configuration. Default “admin”
- **Password:** Password to access the web configuration. Default “admin”



The screenshot shows the webdyn configuration interface. At the top, there is the webdyn logo and the Flexitron Group logo. On the left side, there is a navigation menu with categories: Mobile (Status, Basic Settings, Keep Online), Firewall (Authorized IPs), Serial Settings (Serial Port RS232, Serial Port RS485), and External Devices (Logger configuration, ModBus Devices). The main content area is titled 'Other > Http' and contains the following configuration options:

Remote access:	<input type="checkbox"/>	Enable remote access to webservice
Http port:	<input type="text" value="80"/>	1 ... 65535. (Note: is not recommended to use 80 port in public networks).
Username:	<input type="text" value="admin"/>	Username of webservice
Password:	<input type="password" value="*****"/>	Password of webservice
Password:	<input type="password" value="*****"/>	Re-enter password of webservice

At the bottom of the configuration area, there is a 'SAVE CONFIG' button.

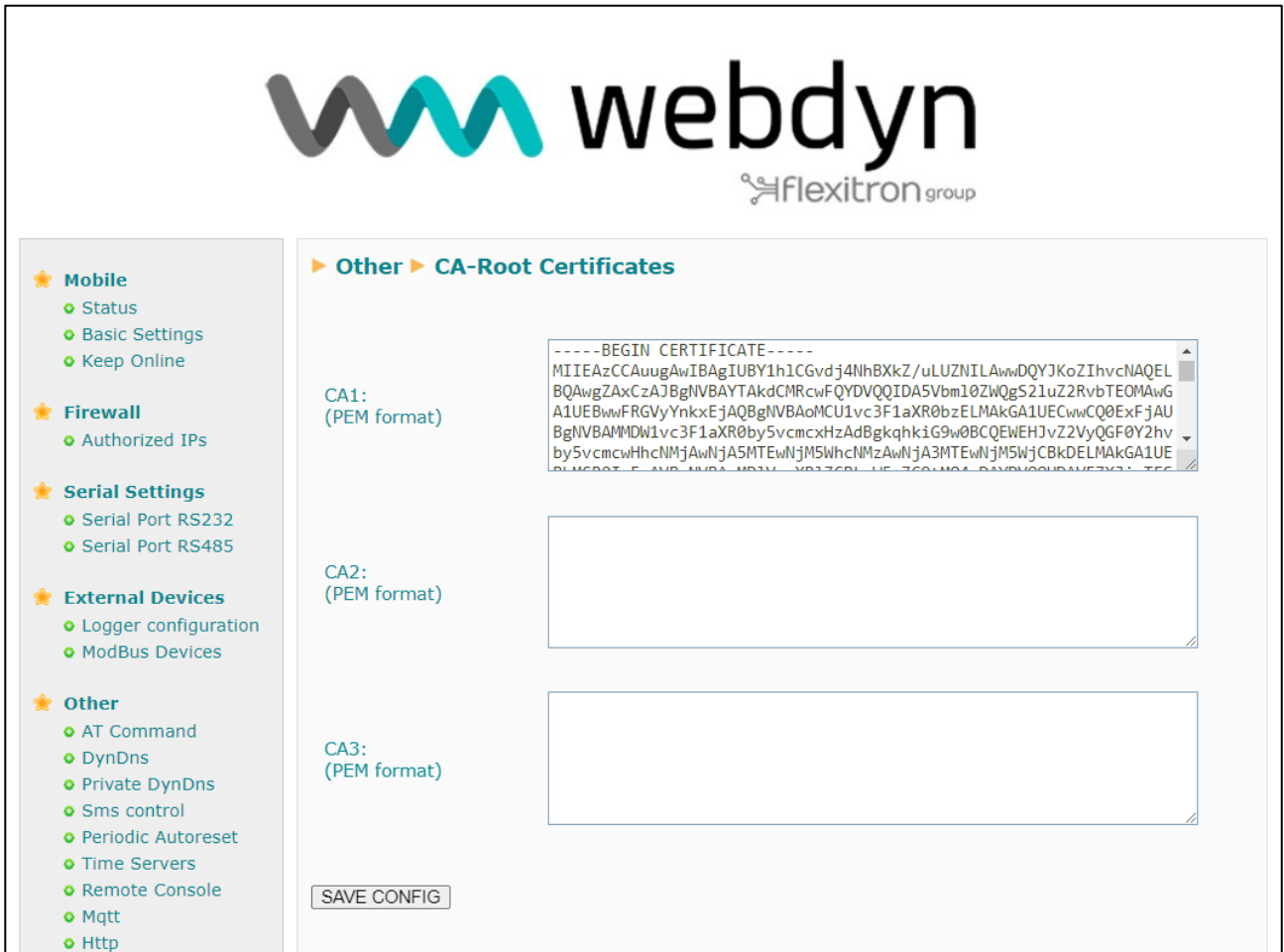
### Additional Notes.

- Once the configuration process is complete, click on the “SAVE CONFIG” button to save the changes. Remember that you must restart the device for the new changes to take effect.

## 4.4.12 Other → CA Certificates

All services using secure connections under SSL/TLS connected to HTTPS or MQTTS servers must have the CA Root certificate used by that server, in order to verify the server's certificate. In this section, you can enter up to 3 custom CA Root servers (in PEM format).

It is also possible to select the “Allow all certificates” option. This is not recommended unless you have a secure connection (SIM with private APN), as the certificate of the remote server you want to connect to will not be verified.



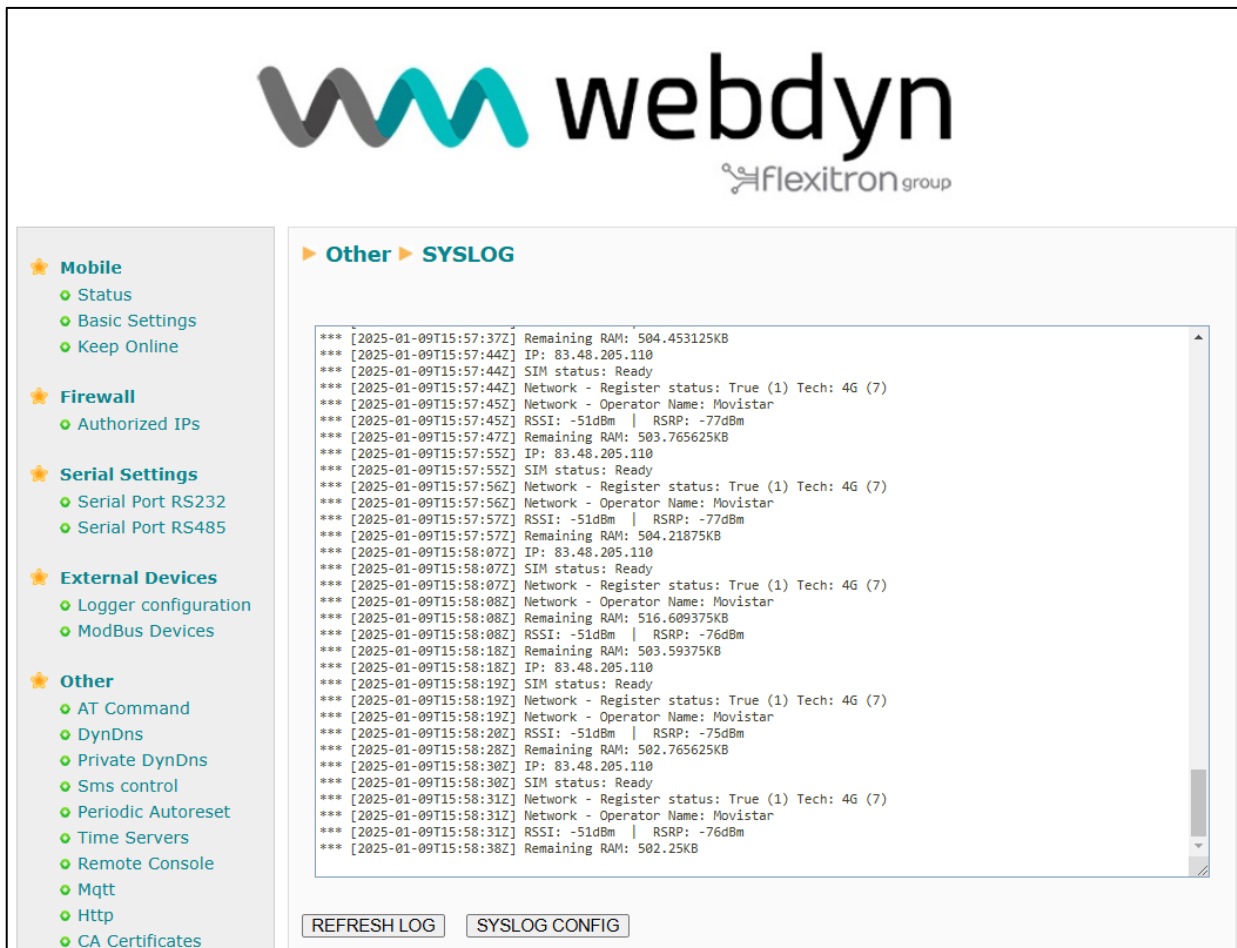
The screenshot shows the webdyn configuration interface. At the top, the webdyn logo and Flexitron Group branding are visible. On the left, a sidebar menu lists various settings categories: Mobile (Status, Basic Settings, Keep Online), Firewall (Authorized IPs), Serial Settings (Serial Port RS232, Serial Port RS485), External Devices (Logger configuration, ModBus Devices), and Other (AT Command, DynDns, Private DynDns, Sms control, Periodic Autoreset, Time Servers, Remote Console, Mqtt, Http). The main content area is titled "Other → CA-Root Certificates" and contains three input fields for CA certificates, labeled "CA1: (PEM format)", "CA2: (PEM format)", and "CA3: (PEM format)". The CA1 field is populated with a sample PEM certificate, starting with "-----BEGIN CERTIFICATE-----" and ending with "-----END CERTIFICATE-----". A "SAVE CONFIG" button is located at the bottom of the configuration area.

### Additional Notes.

- The certificates entered must be in PEM format, including the tags “-----BEGIN CERTIFICATE-----” and “-----END CERTIFICATE-----”

## 4.4.13 Other → SYSLOG

In this section, you can access an internal log of the device, where you will be able to see the status of the device itself (coverage, network registration, operator, result of sending data to servers, etc.). It also has a button to configure the syslog to send it via MQTT if necessary.



**webdyn**  
flexitron group

Other ▶ **SYSLOG**

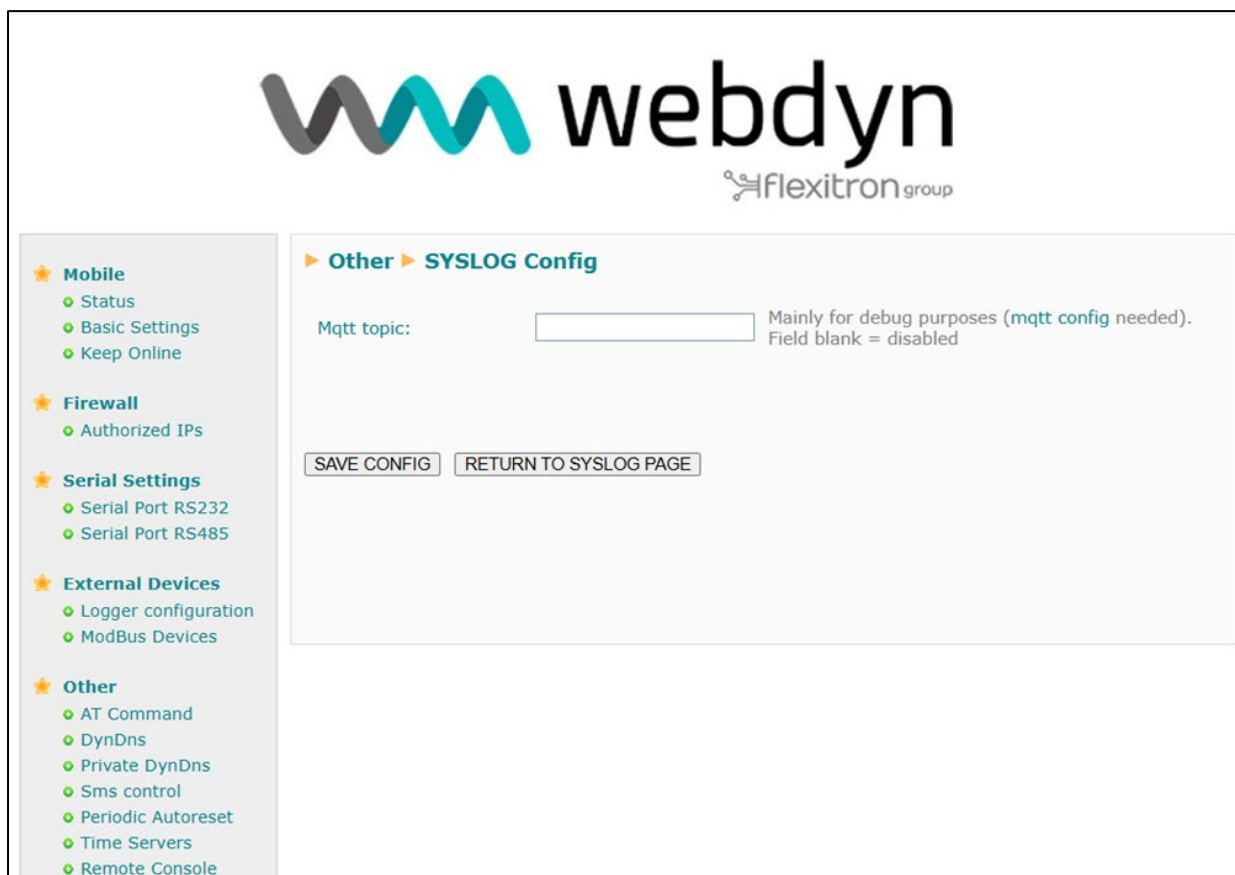
```
*** [2025-01-09T15:57:37Z] Remaining RAM: 504.453125KB
*** [2025-01-09T15:57:44Z] IP: 83.48.205.110
*** [2025-01-09T15:57:44Z] SIM status: Ready
*** [2025-01-09T15:57:44Z] Network - Register status: True (1) Tech: 4G (7)
*** [2025-01-09T15:57:45Z] Network - Operator Name: Movistar
*** [2025-01-09T15:57:45Z] RSSI: -51dBm | RSRP: -77dBm
*** [2025-01-09T15:57:47Z] Remaining RAM: 503.765625KB
*** [2025-01-09T15:57:55Z] IP: 83.48.205.110
*** [2025-01-09T15:57:55Z] SIM status: Ready
*** [2025-01-09T15:57:56Z] Network - Register status: True (1) Tech: 4G (7)
*** [2025-01-09T15:57:56Z] Network - Operator Name: Movistar
*** [2025-01-09T15:57:57Z] RSSI: -51dBm | RSRP: -77dBm
*** [2025-01-09T15:57:57Z] Remaining RAM: 504.21875KB
*** [2025-01-09T15:58:07Z] IP: 83.48.205.110
*** [2025-01-09T15:58:07Z] SIM status: Ready
*** [2025-01-09T15:58:07Z] Network - Register status: True (1) Tech: 4G (7)
*** [2025-01-09T15:58:08Z] Network - Operator Name: Movistar
*** [2025-01-09T15:58:08Z] Remaining RAM: 516.609375KB
*** [2025-01-09T15:58:08Z] RSSI: -51dBm | RSRP: -76dBm
*** [2025-01-09T15:58:18Z] Remaining RAM: 503.59375KB
*** [2025-01-09T15:58:18Z] IP: 83.48.205.110
*** [2025-01-09T15:58:19Z] SIM status: Ready
*** [2025-01-09T15:58:19Z] Network - Register status: True (1) Tech: 4G (7)
*** [2025-01-09T15:58:19Z] Network - Operator Name: Movistar
*** [2025-01-09T15:58:20Z] RSSI: -51dBm | RSRP: -75dBm
*** [2025-01-09T15:58:28Z] Remaining RAM: 502.765625KB
*** [2025-01-09T15:58:30Z] IP: 83.48.205.110
*** [2025-01-09T15:58:30Z] SIM status: Ready
*** [2025-01-09T15:58:31Z] Network - Register status: True (1) Tech: 4G (7)
*** [2025-01-09T15:58:31Z] Network - Operator Name: Movistar
*** [2025-01-09T15:58:31Z] RSSI: -51dBm | RSRP: -76dBm
*** [2025-01-09T15:58:38Z] Remaining RAM: 502.25KB
```

REFRESH LOG    SYSLOG CONFIG

### Additional Notes.

- Press the “REFRESH LOG” button for the latest status of the log.

To enable the syslog to be sent by MQTT, it is necessary to specify the sending TOPIC in the “MQTT topic” box. To disable it, simply leave the box blank. If enabled, the MQTT service must also be activated from the configuration menu “Other → Mqtt”.



The screenshot displays the webdyn configuration interface. At the top, the webdyn logo is shown next to the flexitron group logo. On the left side, there is a navigation menu with the following categories and items:

- ★ **Mobile**
  - Status
  - Basic Settings
  - Keep Online
- ★ **Firewall**
  - Authorized IPs
- ★ **Serial Settings**
  - Serial Port RS232
  - Serial Port RS485
- ★ **External Devices**
  - Logger configuration
  - ModBus Devices
- ★ **Other**
  - AT Command
  - DynDns
  - Private DynDns
  - Sms control
  - Periodic Autoreset
  - Time Servers
  - Remote Console

The main content area is titled "Other ► SYSLOG Config". It contains a form with the following elements:

- A label "Mqtt topic:" followed by an empty text input field.
- To the right of the input field, a note reads: "Mainly for debug purposes (mqtt config needed). Field blank = disabled".
- At the bottom of the form, there are two buttons: "SAVE CONFIG" and "RETURN TO SYSLOG PAGE".

#### 4.4.14 Other → Backup / Factory.

You can make a full backup of the device configuration in this menu. You can save the configuration to a file and restore it back to the device when needed. You can also re-set the device to factory settings.

- “Factory Settings” button: press this button if you wish to restore the device to the default factory configuration.
- **“Download Configuration” button:** click on the button to download the device configuration as a file named “config.mtx”.
- **“Select file” button:** to restore a saved configuration, after indicating the configuration file to be used, press the “Upload” button to upload the file.

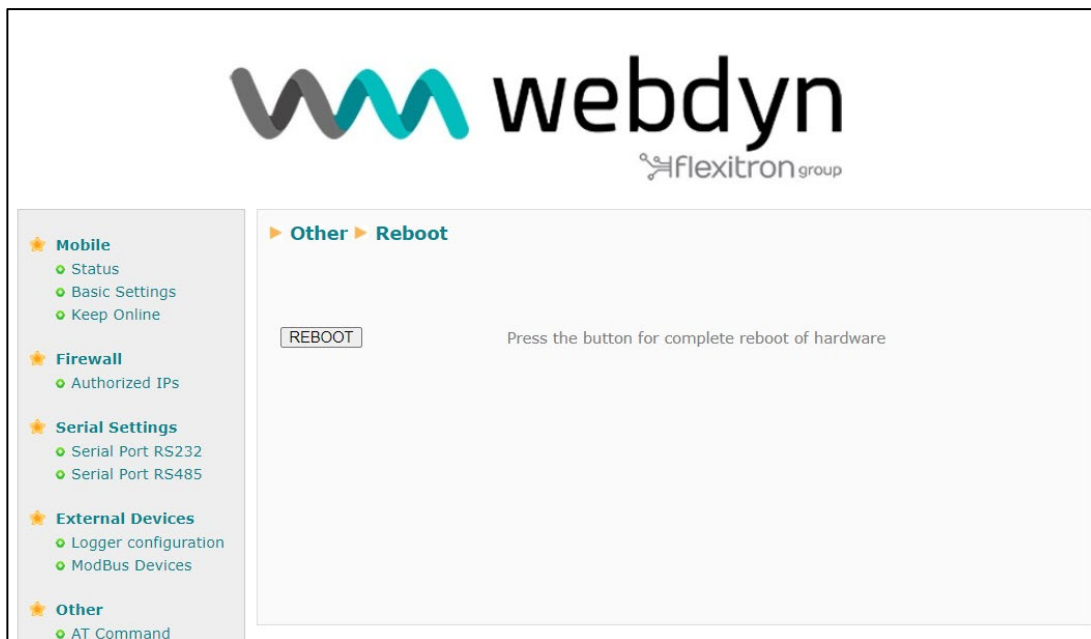


#### Additional Notes.

- It is also possible to reset to factory settings by pressing a physical button. To reset to factory settings using this button: 1) Switch off the power to the device 2) Use a paper clip to keep the button pressed 3) Switch on the power to the device. 4) Wait about 10 seconds (until the yellow and blue LEDs flash). 5) Release the button. The device will restart automatically.

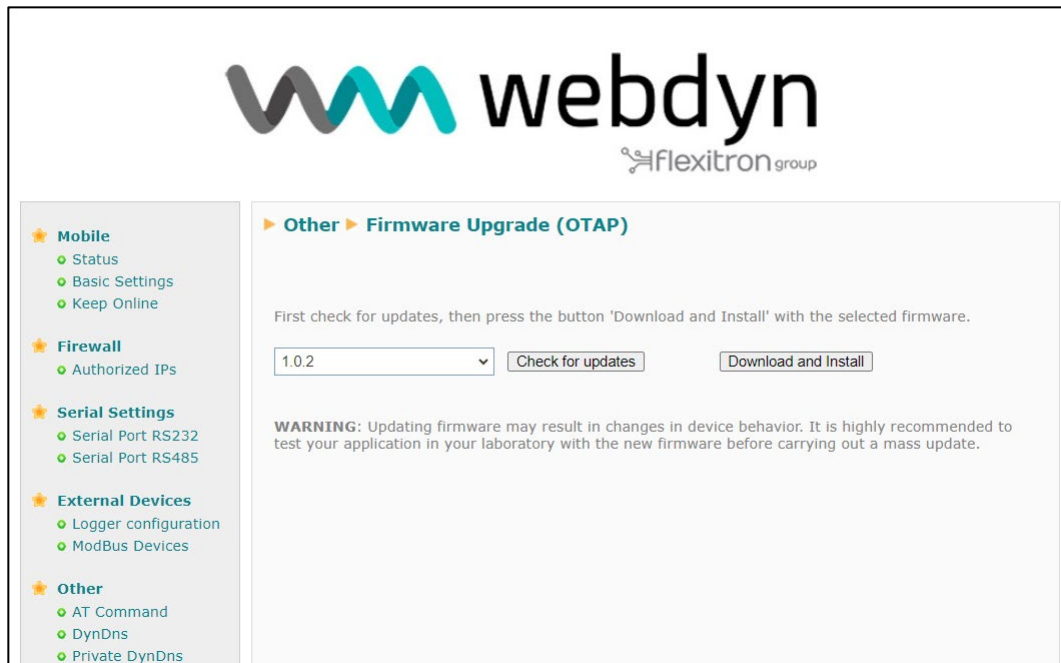
#### 4.4.15 Other → Reboot.

In this section, you can restart the device. For example, to apply the changes after a configuration change. To do so, simply press the “**Reboot**” button.



## 4.4.16 Other → Firmware Upgrade

In this section, you can update the device's firmware.



### Firmware Upgrade (OTAP)

To use this option, the device must have a SIM with Internet access, as the firmware will be downloaded from Webdyn's servers. To carry out the OTAP process, click on the "Check for updates" button. After a few seconds, if there are firmware updates available for your device, they will appear in the drop-down list. Select the firmware version you wish to install and click on the "Download and Install" button to start the process.

Remember that any firmware change process on any device carries risks. It is highly recommended that you verify that the scenario you have configured on the Webdyn EasyDot works correctly in the lab with the firmware version you intend to install before proceeding with mass firmware upgrades of remotely located devices.

## 5 AT commands

Webdyn EasyDot devices allow AT commands to be sent directly to the internal modem through multiple interfaces:

- 1.- Via a serial port.
- 2.- Via a 4G/2G-Serial Gateway through embedded AT commands.
- 3.- By SMS
- 4.- Via Telnet (Remote Console, via 4G/2G)
- 5.- Via Webserver (via 4G/2G)

You can therefore send AT commands to the device at your own risk.

- **AT^MTXTUNNEL=REBOOT**

**Action:** resets the device.

**Result:**

OK: Command executed correctly.  
ERROR: Command executed, but with an error.

**Example:**

OK

AT^MTXTUNNEL=REBOOT

- **AT^MTXTUNNEL=VERSION**

**Action:** returns the firmware version of the device.

**Result:**

OK: Command executed correctly.  
ERROR: Command executed, but with an error.

**Example:** AT^MTXTUNNEL=VERSION 5.2.6.17 OK

- **AT^MTXTUNNEL=GETIP**

**Action:** returns the WAN IP address (2G/4G)

**Result:**

OK: Command executed correctly.  
ERROR: Command executed, but with an error.

**Example:** AT^MTXTUNNEL=GETIP 88.28.221.14 OK

- **AT^MTXTUNNEL=GETIMEI**

**Action:** returns the IMEI of the internal modem

**Result:**  
OK: Command executed correctly.  
ERROR: Command executed, but with an error.

**Example:** AT^MTXTUNNEL=GETIMEI 869101054255506 OK

#### AT commands related to messaging:

- AT^MTXTUNNEL=SMS,<telephoneNumber>,<message>

**Action:** allows you to send an SMS message to a specific telephone number.

**Parameters:**

<telephoneNumber>: phone number to which the SMS message <message> will be sent:  
text message to be sent

**Result:**

OK: Command executed correctly. SMS message sent to the outgoing queue.  
ERROR: Command executed, but with an error.

**Example:** AT^MTXTUNNEL=SMS,+34677123456,burglar alarm  
OK

#### AT commands related to MODBUS:

- AT^MTXTUNNEL=GETMODBUS,<modbusAddress>;<addressFirstRegister>;<numWords>;<command>

**Action:** returns the value of one of more Modbus registers for a particular device. Please note: Modbus-related parameters are separated by “;” not “,”

**Parameters:**

<modbusAddress>: Modbus device address (1 ... 255) IP address @dir:puerto  
<addressFirstRegister>: address of the first register to be read (0 ... 65,535)  
<numWords>: number of Modbus registers to be read (1 ... 64)  
<command>: Write Modbus command (5,6,15,16)

**Result:**

OK: Command executed correctly. This will return the words read, separated by “ ”  
ERROR: Command executed, but with an error.

**Example:** AT^MTXTUNNEL=GETMODBUS,192.168.1.200:502;1;1;3;3

sent from the Web configuration environment (but it could also be sent by SMS or Remote Console (Telnet)), obtaining the values 20, 21 and 22 as responses.



**Example:** AT^MTXTUNNEL=SETMODBUS,192.168.1.202@1:502;3;16;10;11;12;13;14;15

writes to the Modbus TCP device with IP address 192.168.1.202 the values 10,11,12,13,14 and 15, using RTU address @1 and TCP port 502, starting in register 3 and using the Modbus write command 16.

**Example:** AT^MTXTUNNEL=SETMODBUS,1;3;6;10

writes to the Modbus RTU device with address 1 the value 10, starting in register 3 and using the Modbus write command 6.

**Example:** AT^MTXTUNNEL=SETMODBUS,1;18;5;1

writes to the Modbus RTU device with address 1 the value 1, in coil 18 and using the Modbus write command 5.

**Example:** AT^MTXTUNNEL=SETMODBUS,1;25;15;1;0;1;0;1

writes to the Modbus RTU device with address 1 the coil values 1.0,1.0 and 1, from coil 25 and using the Modbus write command 15.

#### AT commands related to system time:

- AT^MTXTUNNEL=GETTIME

**Action:** returns the current system time in YYYY-MM-DDTHH:NN:SSZ (UTC) format

**Result:**

OK: Command executed successfully ERROR: Command executed, but with an error.

**Example:**

```
AT^MTXTUNNEL=GETTIME
2024-08-09T08:54:39Z
OK
```

- `AT^MTXTUNNEL=SETTIME,<dateAndHour>` `AT^MTXTUNNEL=SETTIME,<dateAndHour>`

**Action:** displays the current time.

**Parameters:**

<dateAndHour> date / time in UTC format YYYY-MM-DDTHH:NN:SSZ

**Result:**

OK: Command executed successfully ERROR: Command executed, but with an error.

**Example:**

```
AT^MTXTUNNEL=SETTIME,2023-01-10T14:42:23Z OK
```

### AT commands related to the Webdyn EasyDot device configuration:

- `AT^MTXTUNNEL=GETPARAM,<paramName>`

**Action:** lets you read the value of any configuration parameter of the device. If you need the name of the configuration parameters, please contact [soporte@matrix.es](mailto:soporte@matrix.es)

**Parameters:**

<paramName> name of the configuration parameter to be read

**Result:**

OK: Configuration parameter read correctly ERROR: Configuration parameter read, but with an error

**Example:**

```
AT^MTXTUNNEL=GETPARAM,WAN_APN m2m.movistar.es OK
```

- **AT^MTXTUNNEL=SETPARAM,<paramName>,<paramValue>**

**Action:** lets you change the value of any configuration parameter of the device. If you need the name of the configuration parameters, please contact [soporte@matrix.es](mailto:soporte@matrix.es)

**Parameters:**

<paramName> name of the configuration parameter to be modified <paramValue> New value of the configuration parameter

**Result:**

OK: The configuration parameter value has been edited correctly ERROR: Configuration parameter edited, but with an error.

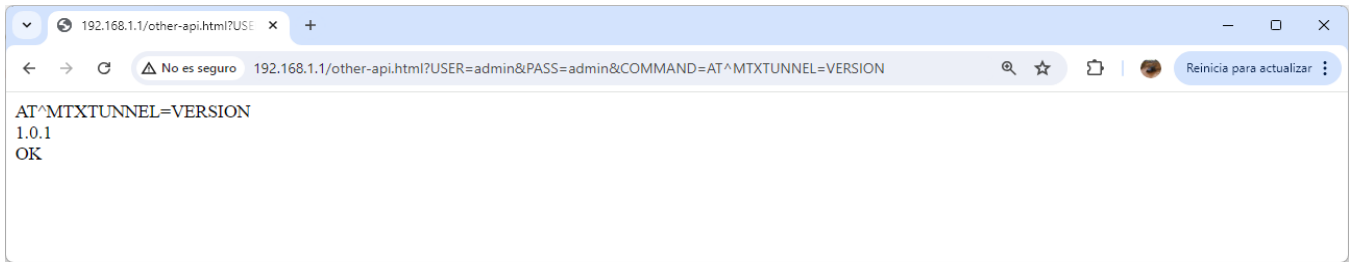
**Example:**

```
AT^MTXTUNNEL=SETPARAM,WAN_APN,m2m.movistar.es OK
```

For the rest of the standard commands, please refer to the AT commands manual for the internal gsm module for information on the exact format and functionality of each of the module's commands. If you do not have this documentation, please send an email to [soporte@matrix.es](mailto:soporte@matrix.es)

In addition to sending AT commands via SMS, Telnet, etc., it is possible to send AT commands via HTTP GET, both locally and remotely. For example, to execute a device FW version reading command, you would need to make a call like this:

http://192.168.1.1/other-api.html?USER=admin&PASS=admin&COMMAND=AT^MTXTUNNEL=VERSION



## 6 New Firmware releases

**1.1.0** Initial version of the Webdyn EasyDot device

# 7 Sales & Support

## SPAIN

C/ Alejandro Sánchez 109  
28019 Madrid

Telephone: +34.915602737  
Email: [contact@webdyn.com](mailto:contact@webdyn.com)

## FRANCE

26 Rue des Gaudines  
78100 Saint-Germain-en-Laye

Telephone: +33.139042940  
Email: [contact@webdyn.com](mailto:contact@webdyn.com)

## INDIA

803-804 8th floor, Vishwadeep Building  
District Centre, Janakpurt, 110058 Delhi

Telephone: +91.1141519011  
Email: [contact@webdyn.com](mailto:contact@webdyn.com)

## PORTUGAL

Av. Coronel Eduardo Galhardo 7-1°C  
1170-105 Lisbon

Telephone: +351.218162625  
Email: [comercial@lusomatrix.pt](mailto:comercial@lusomatrix.pt)

## SUPPORT

### Madrid

Telephone: +34.915602737  
Email: [iotsupport@matrix.es](mailto:iotsupport@matrix.es)

### Saint-Germain-en-Laye

Telephone: +33.139042940  
Email: [support@webdyn.com](mailto:support@webdyn.com)

### Delhi

Telephone: +91.1141519011  
Email: [support-india@webdyn.com](mailto:support-india@webdyn.com)