

LoRaConfig

User Manual



Version 1.0 2020/08/25

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Revision History

Revision Date	Document Ver.	Pages Revised	Revised/Added/Removed	Details of Revision
2020.08.25	1.0	All	-	New

Contents

1. LORA TECHNOLOGY	5
2. FEATURE	6
3. GET STARTED.....	7
4. CONFIGURATION	8
5. COPYRIGHT	32

Please be sure to read this manual before using and use the product safely and accurately.

- Pictures and photos in the manual may be different from the physical, and the document is subject to change without notice to improve performance. For the last information, please visit our website (www.sysbas.com).
- To view frequently asked questions and answers, please visit our website and find Support –Technical Support –FAQ section.
- Documents can be downloaded from the product page or Download section.
- Sellers or users should be aware of the fact that this device is intended for industrial use(Class A), not for residential use.
- This device has a potential for radio interference during use and may receive harmful interference from other devices.
- Warranty policy is included in the product packaging.
- The exchange/return of the device can be handled by the procedure described in the Warranty Policy.

1. LoRa Technology

There is a term called IoST(Internet of Small Things) as a concept of narrowing the scope of IoT. It is a technology that connects small objects which measure and process small amount of simple information such as temperature, humidity, weight and location through a wireless network. LTE-class wireless communication technology is costly and wasteful of bandwidth itself for these small items. So LPWA technology as a network for small internet has emerged and LoRa technology is the most popular wireless technology among them.

- LoRa is an abbreviation of Long Range, optimized for IoT due to low standby power and low module cost, using 900MHz of unlicensed frequency band.
- LoRa is a wireless technology of LoRa signal, a type of LPWA(Low Power Wide Area) wireless communication technology.
- LoRa can connect equipment up to 20km in open areas.
- LoRa saves time and money by eliminating the need to lay cables over long distance



Benefits that users can gain from using LoRa technology are:

- Long distance communication(up to 20km) with low installation cost
- Simple access procedure for quick installation and application
- Low-power communication which allows battery operation outdoors
- Secure through encrypted communication

3. Feature

LoRaConfig is a Windows application that connects equipment with sLory, uLory, and rLory among the LoRa converters and configures the equipment, performing the functions below.

- In addition to the existing AT Command method, the Windows LoRaConfig utility makes easy configuration, providing user convenience through various setup methods.

- Offers an intuitive and user-friendly interface.

The user setting error is minimized by showing the necessary settings for each equipment.

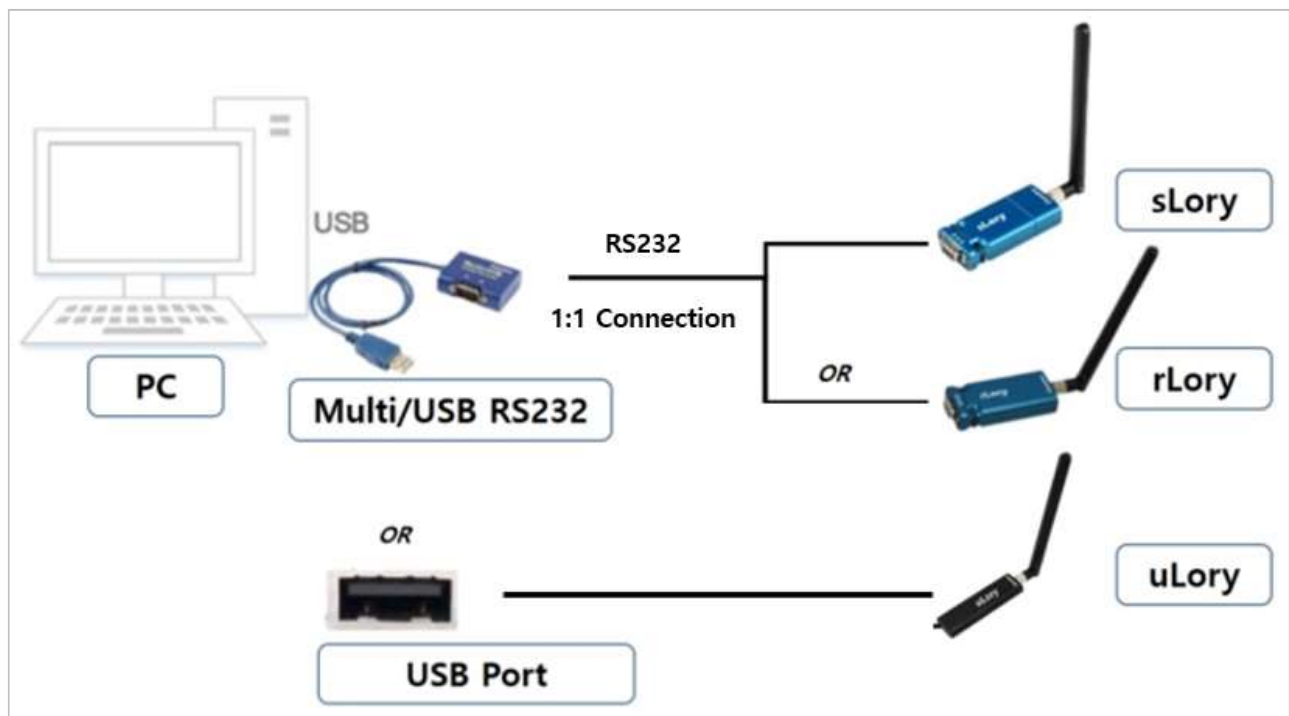
- The LoRaConfig(PC) and the interface for setting up the equipment described in this manual are RS-232 Serial communications.

[Note] To set up using LoRaConfig while using RS422/485, the PC must have RS422/485 port.

If the PC has RS232 port, you must switch the LoRa product to RS232 port and set it up.

4. Get Started

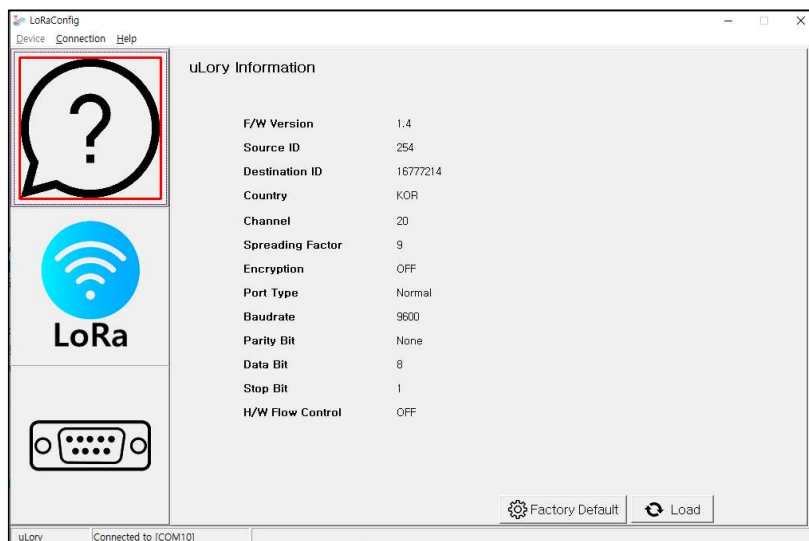
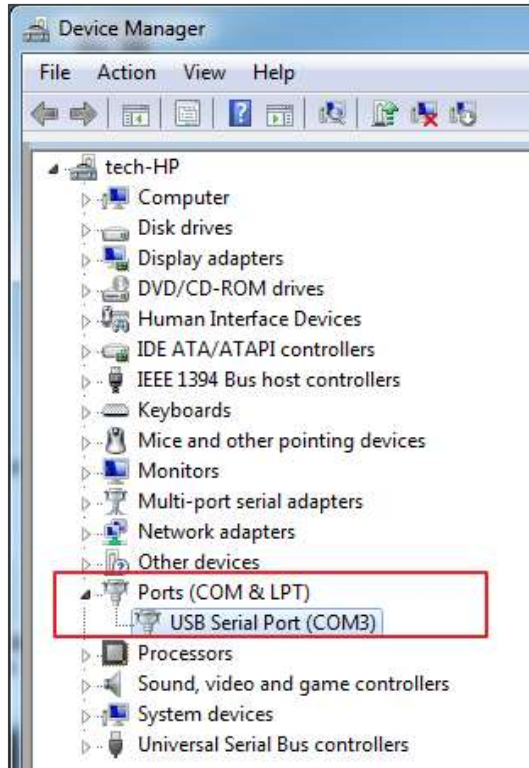
- 1) Supply power to the product you want to set up and try booting.
- 2) Change the product to setup mode.
 - Switch **ON** the no.1 switch on the product to change to setup mode.
- 3) Serial connection
 - sLory, rLory: Connect the product directly to the serial port(RS232) on the PC. If there is no serial port, connect using USB to RS232 devices such as SystemBase Multi-1/USB RS232.
 - uLory: Plug in to USB port, then it will be recognized as COM, the communication port of the USB Serial.
- 4) Try to connect with the product by running the LoRaConfig utility on the PC.



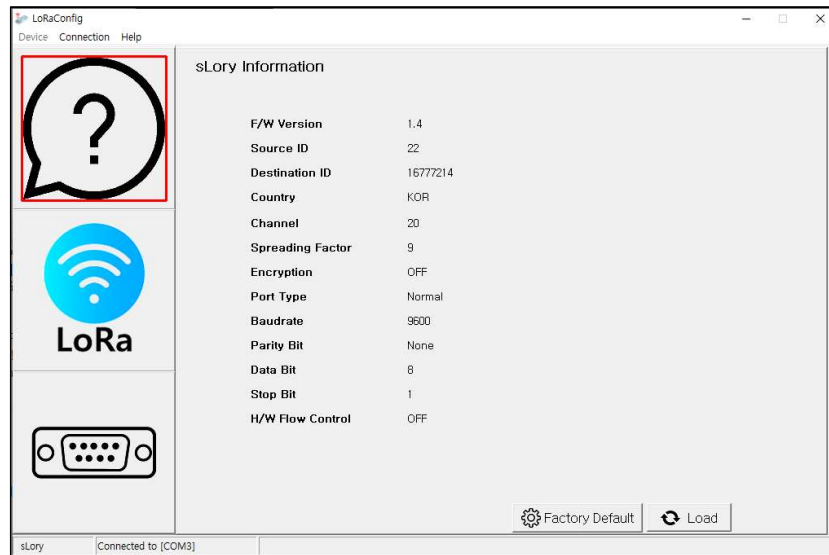
5. Configuration

Before running the LoRaConfig utility, to know the serial port number of the product connected to the PC, please check the connected COM number in "Port (COM & LPT)" in Device Manager.

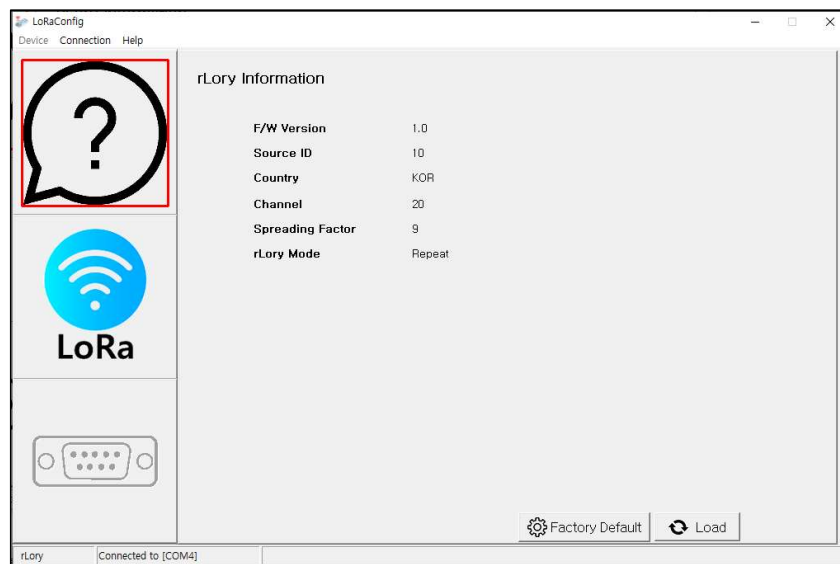
You can see the product is connected to COM3 on the PC in the example figure below.



uLory



sLory

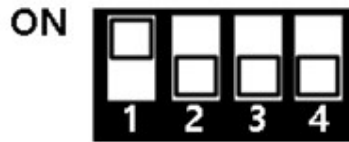


rLory

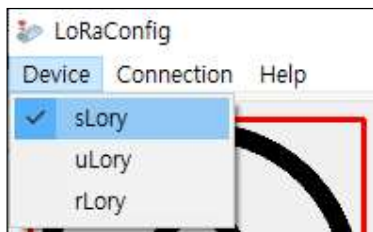
(1) sLory Configuration

First, change the product to setup mode. As shown in the figure below, change switch no.1 status to **ON**.

After the setup is complete, you must re-change it to the original state to use the product function.



In the LoRaConfig utility, first select **sLory** from the Device menu for sLory setup.

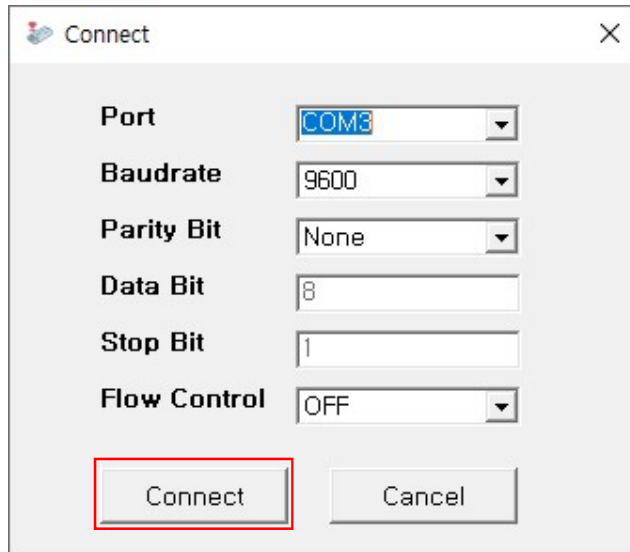


[Caution] As LoRaConfig does not know which product it is connected to, so user must select the device. Without this process, the product information may not be accurately recalled.

Select device as sLory and click **Connect** in the Connection menu.



The Comport setup windows will pop up as shown below. Please enter the correct port number, speed(Baudrate), parity and so on, and click **Connect** button to try to connect with the product.

A screenshot of a 'Connect' dialog box. The dialog has a title bar with a red icon and a close button. It contains several configuration options: 'Port' (COM3), 'Baudrate' (9600), 'Parity Bit' (None), 'Data Bit' (8), 'Stop Bit' (1), and 'Flow Control' (OFF). Each option is in a dropdown menu. At the bottom, there are two buttons: 'Connect' and 'Cancel'. The 'Connect' button is highlighted with a red rectangular border.

Parameter	Value
Port	COM3
Baudrate	9600
Parity Bit	None
Data Bit	8
Stop Bit	1
Flow Control	OFF

Information

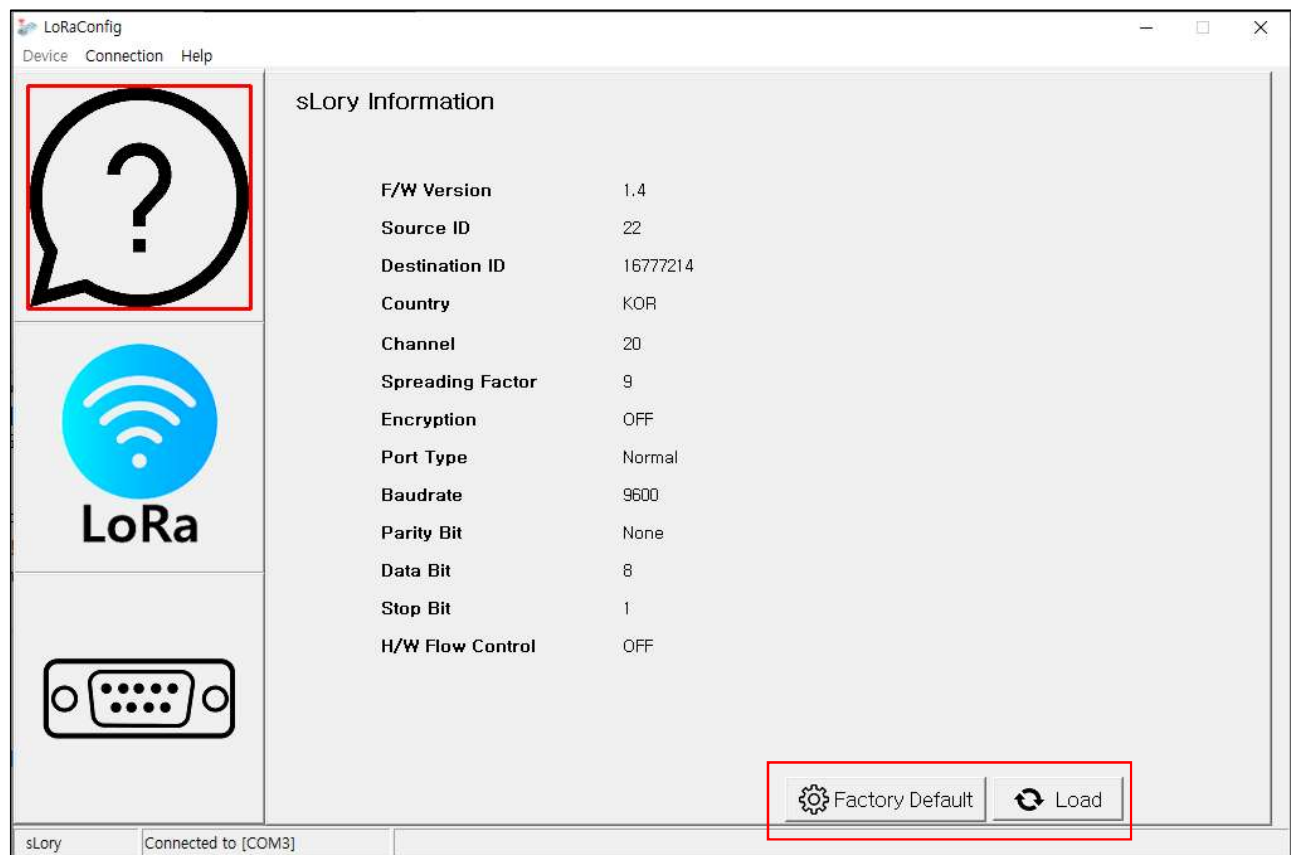
Click the button below the left menu to go to the information screen.



In the Information menu, you can check the default setting information of sLory.

Click **Load** to read the current status from the product and display it on the screen.

As the **Factory Default** is a return button to factory status, please carefully select it and execute.



LoRa

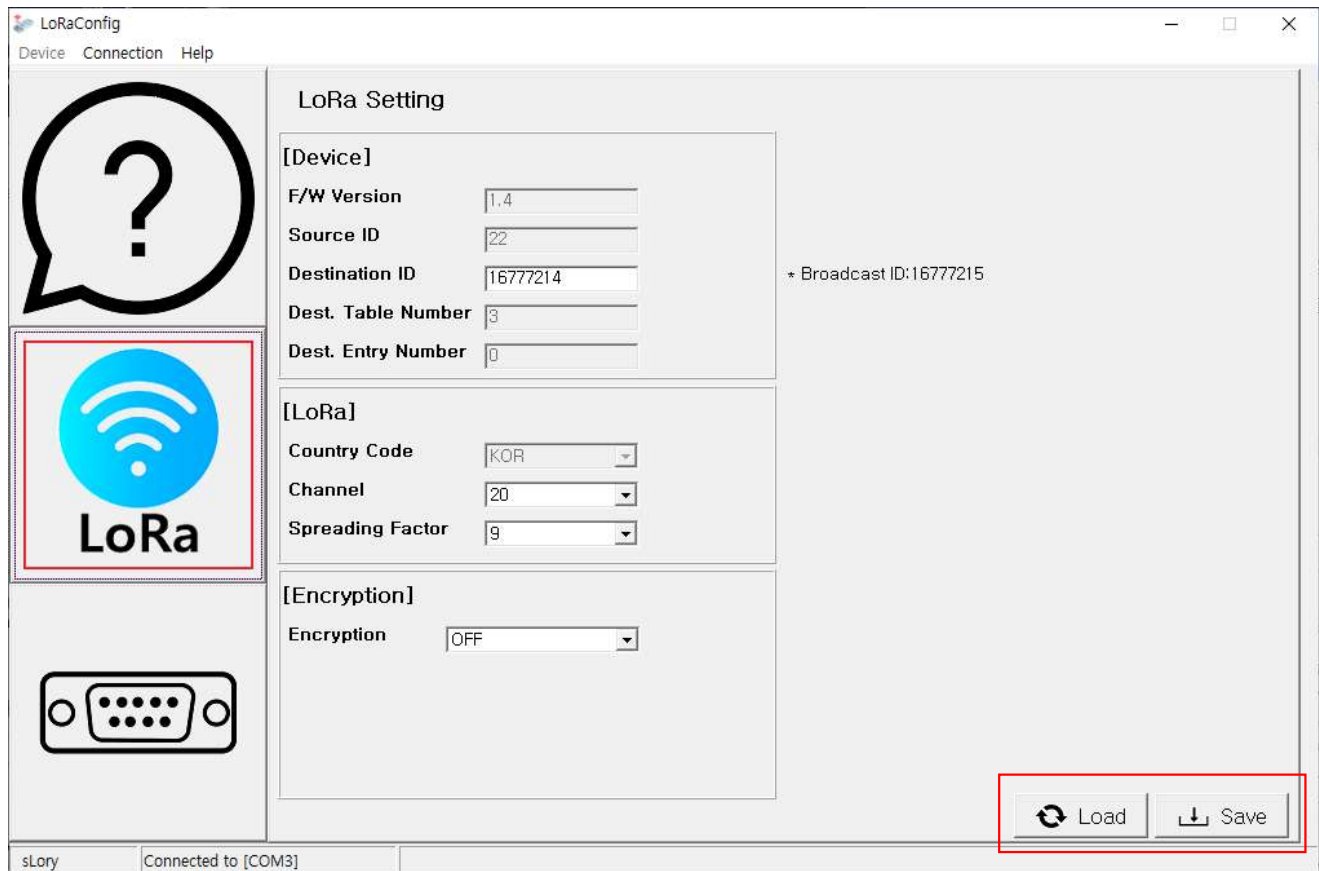
Click the 'LoRa' button below the left menu to move to the LoRa screen.



In the LoRa menu, you can check and modify information related to LoRa settings of sLory. It is divided into Device, LoRa and Encryption sections.

Click the **Load** button to retrieve the current status.

After modifying the settings, please click **Save** button to apply the change to the product.



1) Device

LoRa Setting

[Device]

F/W Version

1.4

Source ID

22

Destination ID

16777214

Dest. Table Number

3

Dest. Entry Number

0

* Broadcast ID:16777215

The Device section allows you to view and change equipment-related settings(F/W Version, Source ID, DID).

2) LoRa

[LoRa]

Country Code

KOR

Channel

20

Spreading Factor

9

You can check and change the LoRa related settings such as country code, LoRa channel and Spreading Factors in LoRa section.

3) Encryption

Encryption section provides encryption related functions.

When Encryption is **OFF**, the AES Key and AES IV input item do not appear. They will only appear when the Encryption value is **ON**.

Click the **show** checkbox to view the character you entered.

You can view the current encryption settings by pressing **Load** button.

[Encryption]

Encryption

[Encryption]

Encryption

AES KEY ☐ show

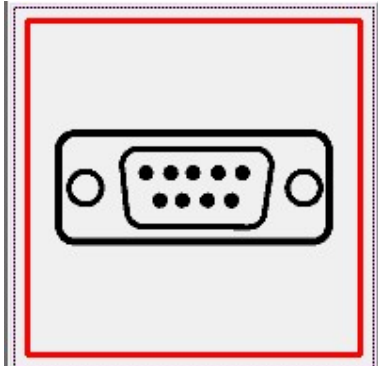
AES IV ☐ show

In order to save settings, the AES Key and AES IV(Initialization Vector) must be exactly 16 digits.



Serial

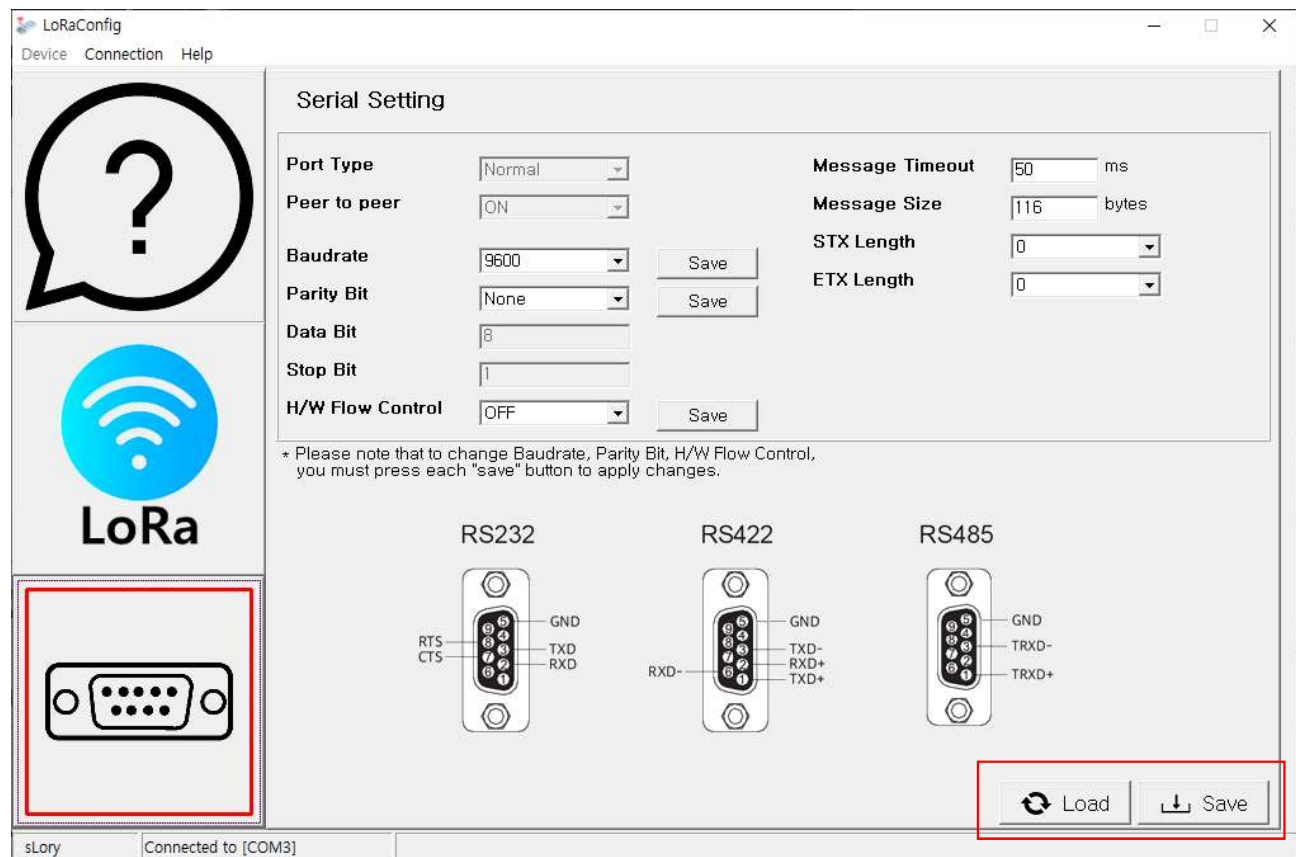
Click the DB9 shaped button among the left menu to move to the Serial setup screen.



In the Serial menu, you can check and modify the serial information of sLory.

Click **Load** button to read the current status from the product and display it on the screen.

After modifying the settings, please click **Save** button to apply the change to the product.

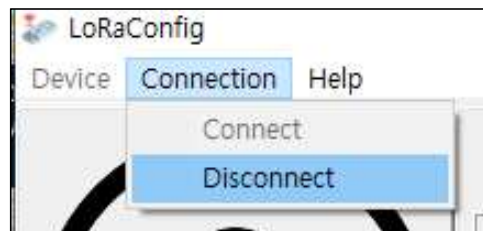


Baudrate	9600	Save
Parity Bit	None	Save
Data Bit	8	
Stop Bit	1	
H/W Flow Control	OFF	Save

[Caution] Each **Save** buttons must be pressed respectively when changing the Baudrate, Parity Bit and H/W Flow Control value to apply. Also, as communication settings have been changed together when these settings were changed, it will revert to Connect state with the modified value after disconnection. Reconnect it to use normal setting function.



The Save button at the bottom saves the remaining items(Message Timeout, Message Size, STX/ETX related settings listed on the right) except for the three items: Baudrate, Parity Bit and H/W Flow Control.



Once all set, disconnect the port with **Disconnect** and switch **OFF** the switch no.1 to change to operation mode.

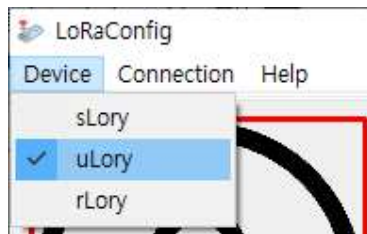
(2) uLory Configuration

First, change the product to setup mode. As shown in the figure below, change switch no.1 status to **ON**.

After the setup is complete, you must re-change it to the original state to use the product function.



In the LoRaConfig utility, first select **uLory** from the Device menu for uLory setup.

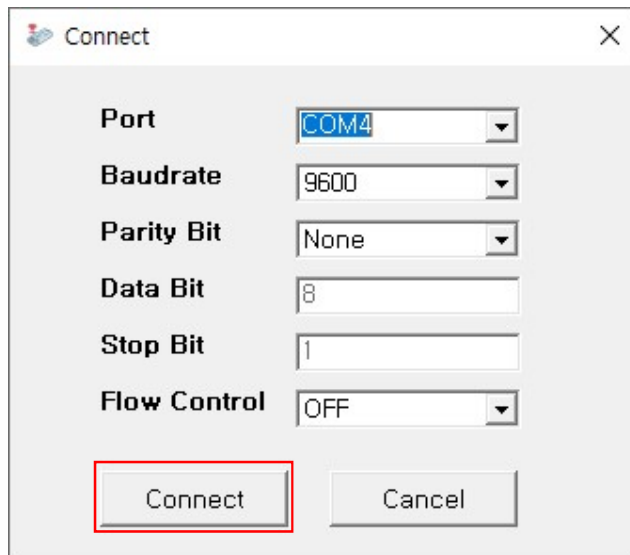


[Caution] As LoRaConfig does not know which product it is connected to, so user must select the device. Without this process, the product information may not be accurately recalled.

Select device as uLory and click **Connect** in the Connection menu.



The Comport setup windows will pop up as shown below. Please enter the correct port number, speed(Baudrate), parity and so on, and click **Connect** button to try to connect with the product.

A screenshot of a 'Connect' dialog box. The dialog has a title bar with a red icon and a close button. It contains several configuration options: 'Port' (COM4), 'Baudrate' (9600), 'Parity Bit' (None), 'Data Bit' (8), 'Stop Bit' (1), and 'Flow Control' (OFF). Each option is in a dropdown menu. At the bottom, there are two buttons: 'Connect' and 'Cancel'. The 'Connect' button is highlighted with a red rectangular border.

Connect

Port COM4

Baudrate 9600

Parity Bit None

Data Bit 8

Stop Bit 1

Flow Control OFF

Connect Cancel

Information

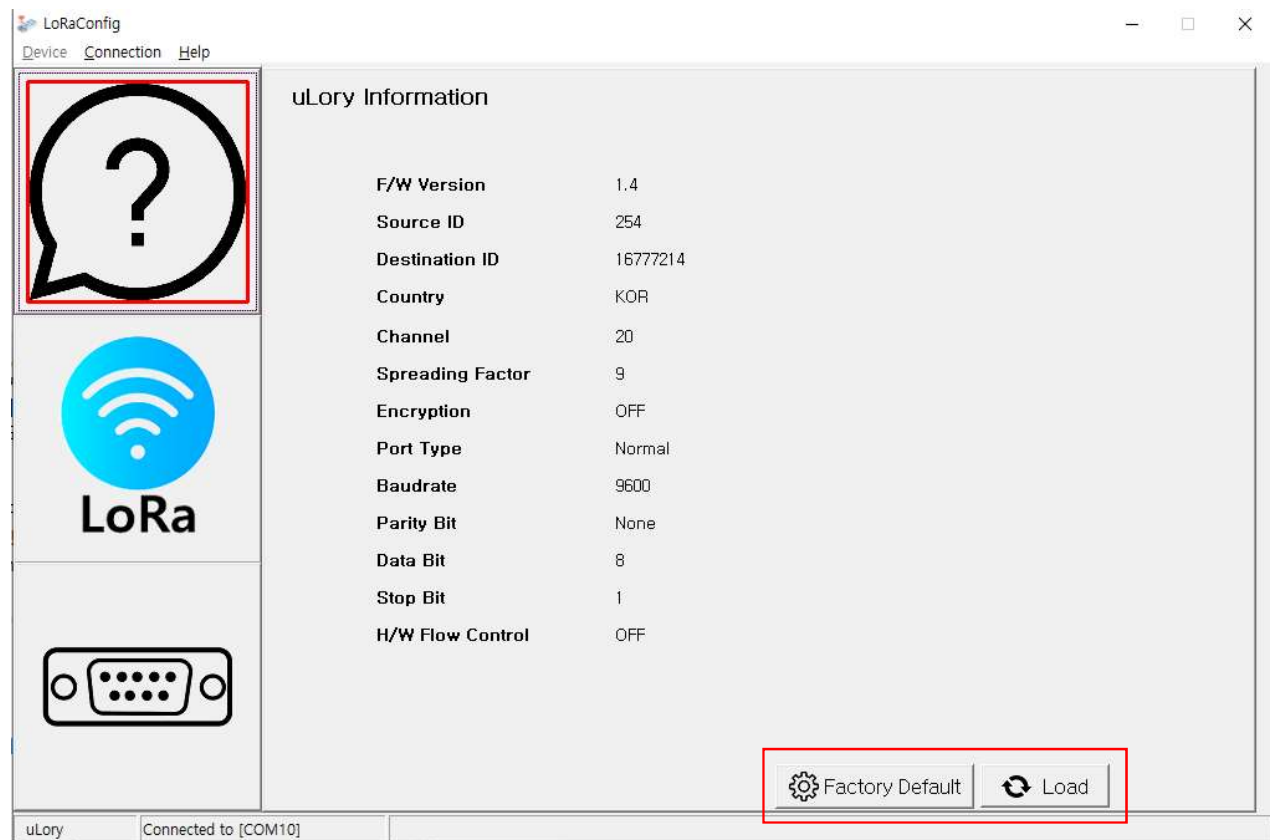
Click the button below the left menu to go to the information screen.



In the Information menu, you can check the default setting information of uLory.

Click **Load** to read the current status from the product and display it on the screen.

As the **Factory Default** is a return button to factory status, please carefully select it and execute.



LoRa

Click the 'LoRa' button below the left menu to move to the LoRa screen.

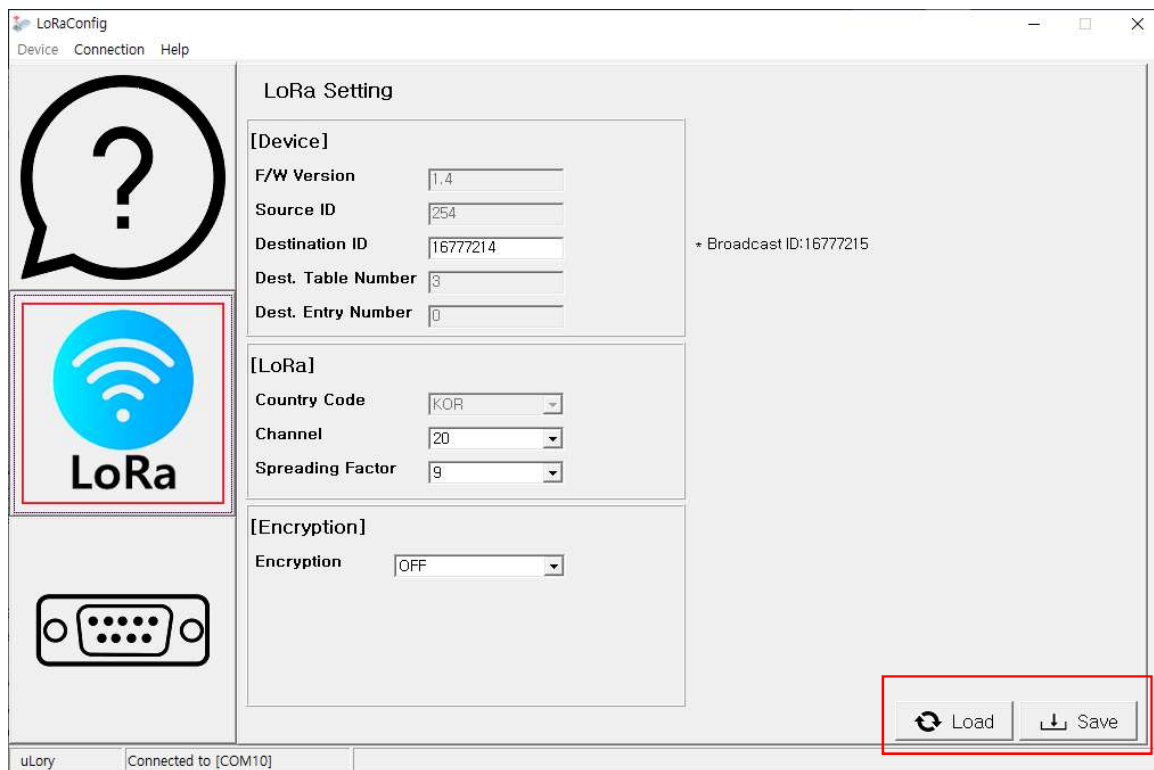


In the LoRa menu, you can check and modify information related to LoRa settings of uLory. It is divided into Device, LoRa and Encryption sections.

Click the **Load** button to retrieve the current status.

After modifying the settings, please click **Save** button to apply the change to the product.

Click the 'Load' button to retrieve the current status.



1) Device

LoRa Setting

[Device]

F/W Version

1.4

Source ID

254

Destination ID

16777214

Dest. Table Number

3

Dest. Entry Number

0

* Broadcast ID:16777215

The Device section allows you to view and change equipment-related settings(F/W Version, Source ID, DID).

2) LoRa

[LoRa]

Country Code

KOR

Channel

20

Spreading Factor

9

You can check and change the LoRa related settings such as country code, LoRa channel and Spreading Factors in LoRa section.

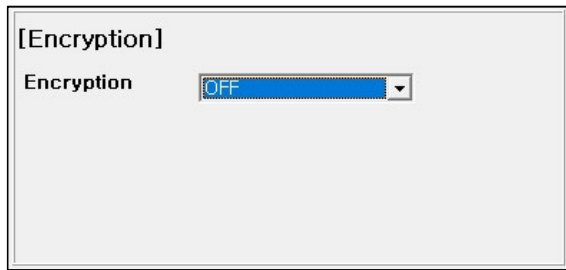
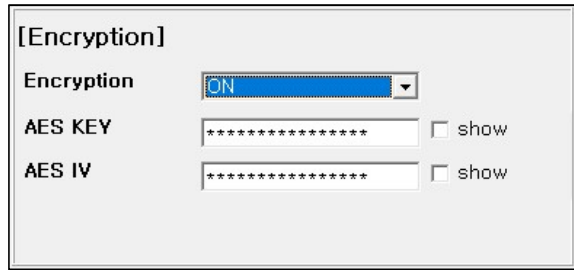
3) Encryption

Encryption section provides encryption related functions.

When Encryption is **OFF**, the AES Key and AES IV input item do not appear. They will only appear when the Encryption value is **ON**.

Click the **show** checkbox to view the character you entered.

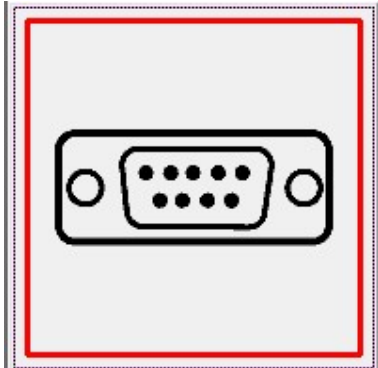
You can view the current encryption settings by pressing **Load** button.

A screenshot of the 'Encryption' settings panel. The title is '[Encryption]'. Below it, the label 'Encryption' is followed by a dropdown menu showing 'OFF'.A screenshot of the 'Encryption' settings panel. The title is '[Encryption]'. Below it, the label 'Encryption' is followed by a dropdown menu showing 'ON'. Underneath, there are two rows: 'AES KEY' and 'AES IV'. Each row has a text input field filled with asterisks and a 'show' checkbox to its right.

In order to save settings, the AES Key and AES IV(Initialization Vector) must be exactly 16 digits.

Serial

Click the DB9 shaped button among the left menu to move to the Serial setup screen.

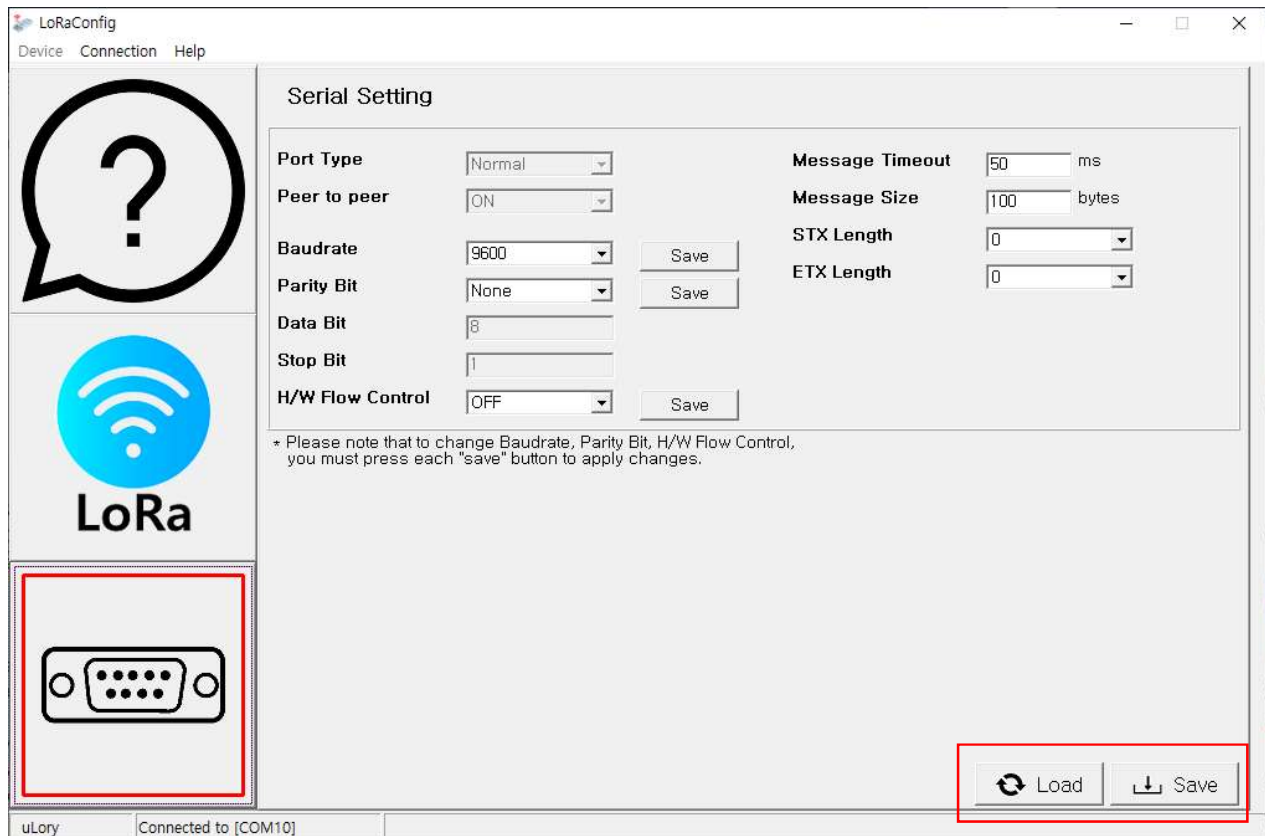


In the Serial menu, you can check and modify the serial information of uLory.

Click **Load** button to read the current status from the product and display it on the screen.

After modifying the settings, please click **Save** button to apply the change to the product.

It is applied to the product when you click the 'Save' button after modifying the item you want to change the settings.

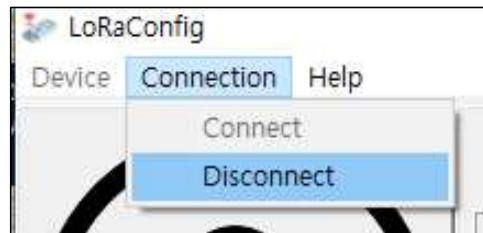


Baudrate	9600	Save
Parity Bit	None	Save
Data Bit	8	
Stop Bit	1	
H/W Flow Control	OFF	Save

[Caution] Each **Save** buttons must be pressed respectively when changing the Baudrate, Parity Bit and H/W Flow Control value to apply. Also, as communication settings have been changed together when these settings were changed, it will revert to Connect state with the modified value after disconnection. Reconnect it to use normal setting function.



The Save button at the bottom saves the remaining items(Message Timeout, Message Size, STX/ETX related settings listed on the right) except for the three items: Baudrate, Parity Bit and H/W Flow Control.

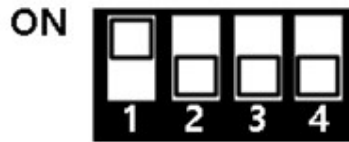


Once all set, disconnect the port with **Disconnect** and switch **OFF** the switch no.1 to change to operation mode.

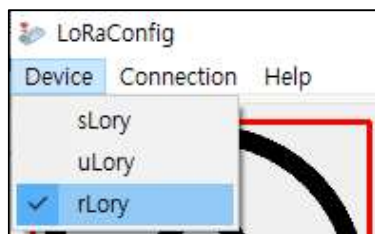
(3) rLory Configuration

First, change the product to setup mode. As shown in the figure below, change switch no.1 status to **ON**.

After the setup is complete, you must re-change it to the original state to use the product function.

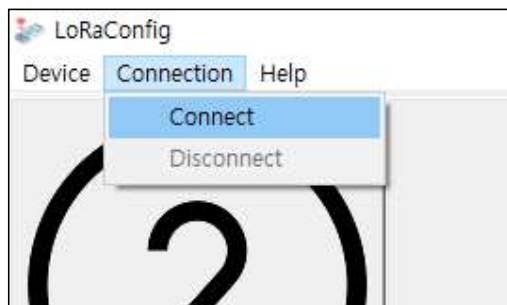


In the LoRaConfig utility, first select **rLory** from the Device menu for uLory setup.

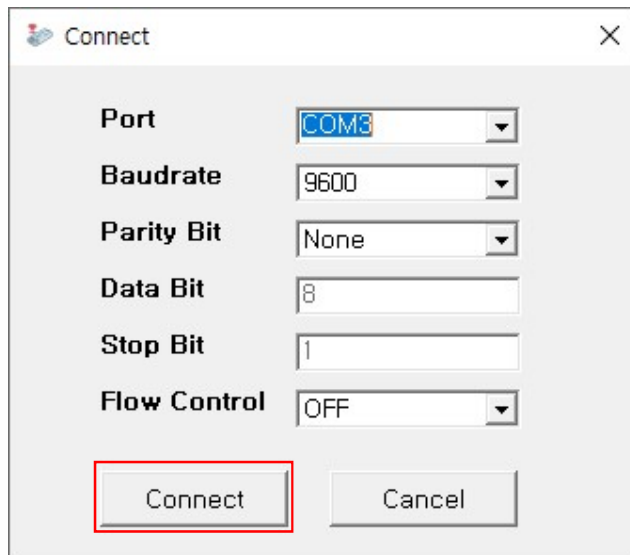


[Caution] As LoRaConfig does not know which product it is connected to, so user must select the device. Without this process, the product information may not be accurately recalled.

Select device as rLory and click **Connect** in the Connection menu.



The Comport setup windows will pop up as shown below. Please enter the correct port number, speed(Baudrate), parity and so on, and click **Connect** button to try to connect with the product.

A screenshot of a 'Connect' dialog box. The dialog has a title bar with a red icon and a close button. It contains several configuration options: 'Port' (COM3), 'Baudrate' (9600), 'Parity Bit' (None), 'Data Bit' (8), 'Stop Bit' (1), and 'Flow Control' (OFF). Each option is in a dropdown menu. At the bottom, there are two buttons: 'Connect' and 'Cancel'. The 'Connect' button is highlighted with a red rectangular border.

Connect

Port COM3

Baudrate 9600

Parity Bit None

Data Bit 8

Stop Bit 1

Flow Control OFF

Connect Cancel

Information

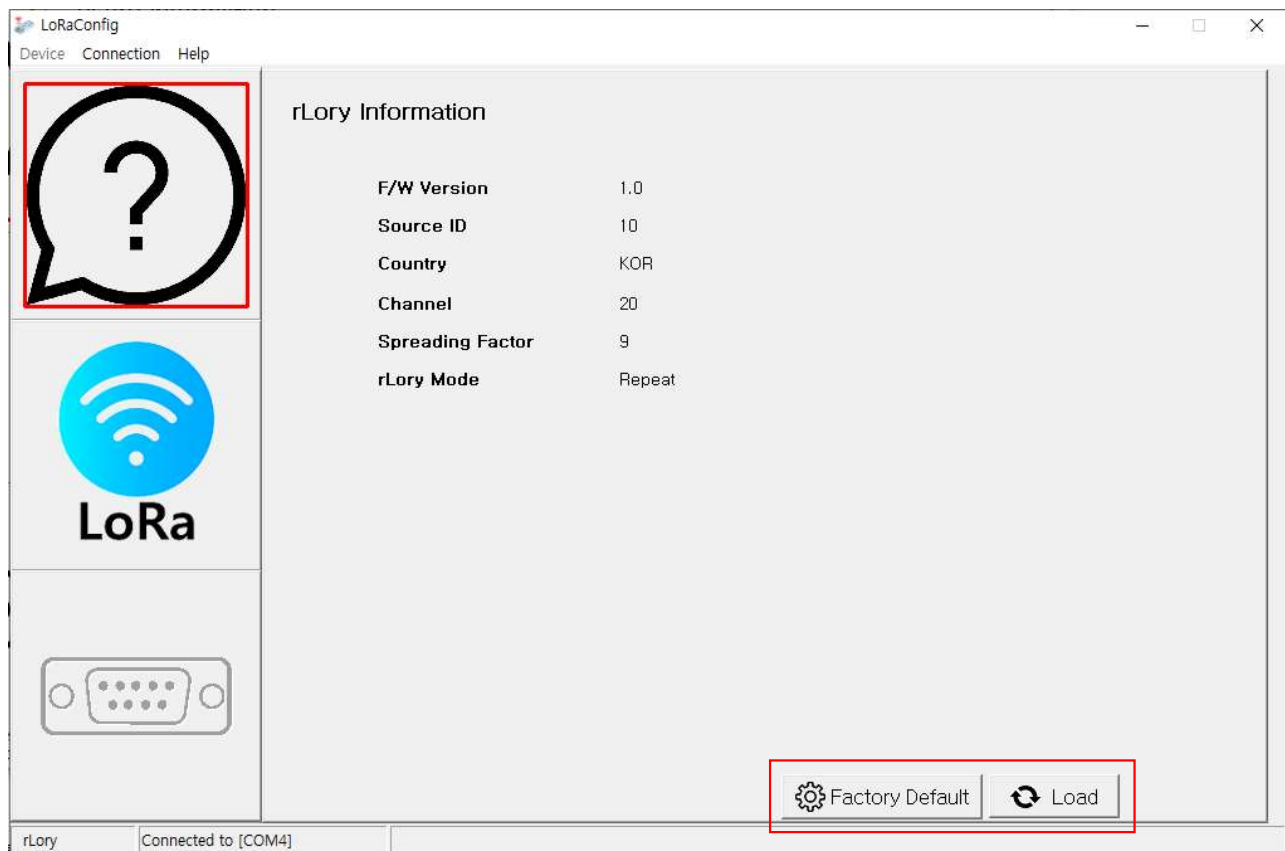
Click the button below the left menu to go to the information screen.



In the Information menu, you can check the default setting information of rLory.

Click **Load** to read the current status from the product and display it on the screen.

As the **Factory Default** is a return button to factory status, please carefully select it and execute.



LoRa

Click the 'LoRa' button below the left menu to move to the LoRa screen.

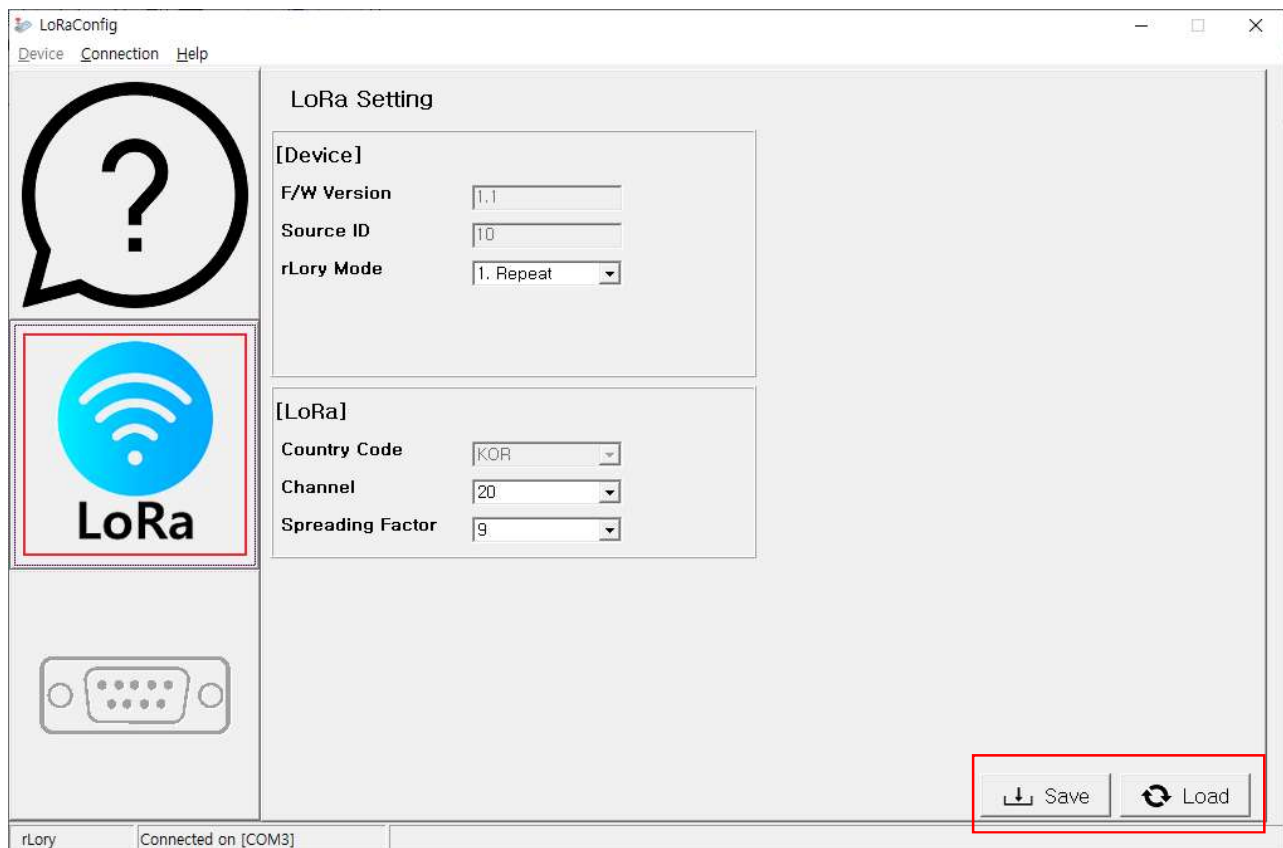


In the LoRa menu, you can check and modify information related to LoRa settings of rLory. It is divided into Device, LoRa and Encryption sections.

Click the **Load** button to retrieve the current status.

After modifying the settings, please click **Save** button to apply the change to the product.

Click the 'Load' button to retrieve the current status.



1) Device

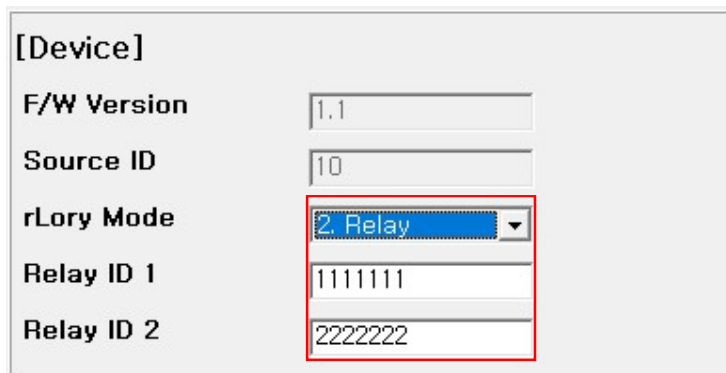
The Device section allows you to view and change equipment-related settings(F/W Version, Source ID, DID).

* Repeat mode is a mode which transmits and relays the received LoRa data without any setup. Unlike the Relay mode which enters the ID of the equipment to be relayed, it resend and relay the received locket without any change only by setting Repeat mode.



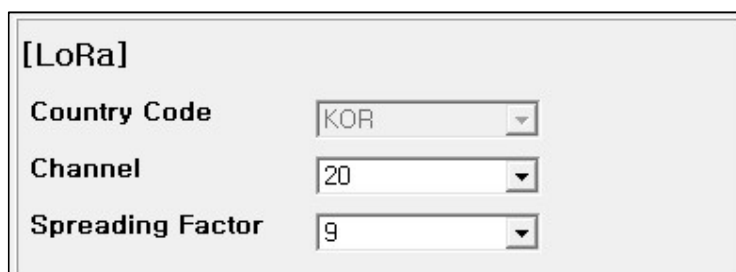
The screenshot shows the [Device] configuration form. It has three fields: F/W Version with value 1.1, Source ID with value 10, and rLory Mode with a dropdown menu showing '1. Repeat'. The dropdown menu is highlighted with a red rectangle.

* Relay mode is a mode that converts and communicates the ID of the origin and destination equipment, so that it is not confused with other equipment by pre-entering the ID of the equipment to be replayed.



The screenshot shows the [Device] configuration form. It has five fields: F/W Version with value 1.1, Source ID with value 10, rLory Mode with a dropdown menu showing '2. Relay', Relay ID 1 with value 1111111, and Relay ID 2 with value 2222222. The dropdown menu and the two ID fields are highlighted with a red rectangle.

2) LoRa



The screenshot shows the [LoRa] configuration form. It has three fields: Country Code with value KOR, Channel with value 20, and Spreading Factor with value 9. All three fields are dropdown menus.

You can check and change the LoRa related settings such as country code, LoRa channel and Spreading Factors

in LoRa section.



Once all set, disconnect the port with **Disconnect** and switch **OFF** the switch no.1 to change to operation mode.

6. Copyright

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Working Hour

MON ~ FRI 9:00 ~ 18:00