USER MANUAL

Netbiter® EasyConnect

Starter Kit

Doc ID: SP1706
Version: 3.00

HMS Connecting Devices™

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HMS Industrial Networks
Mailing address: Box 4126, 300 04 Halmstad, Sweden
Visiting address: Stationsgatan 37, Halmstad, Sweden

E-mail: info@hms-networks.com
Web: www.netbiter.com

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Netbiter® EasyConnect Starter Kit User Manual
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1 Preface

1.1 About This Document

This manual describes how to install the Netbiter EasyConnect Starter Kit and set up a basic configuration.

For additional related documentation and file downloads, please visit the Netbiter support website at www.netbiter.com/support.

1.2 Related Documents

Related documents

Document	Author
Netbiter Argos Administration Manual	HMS
Netbiter EasyConnect Gateway Installation Guides	HMS
Netbiter EasyConnect User Manual	HMS

1.3 Document history

Summary of recent changes (version 2.20 to 3.00)

Change	Where (section no.)
New document layout	—
Footnote regarding stub antenna	*2.1*

Revision list

Version	Date	Author	Description
1.00	March 2014	SDa	Initial release
2.00	May 2015	ThN	Major update
3.00	August 2015	ThN	Minor update, new layout

1.4 Conventions

Unordered (bulleted) lists are used for:

- Itemized information
- Instructions that can be carried out in any order

Ordered (numbered or alphabetized) lists are used for instructions that must be carried out in sequence:

1. First do this,
2. Then open this dialog, and
    a. set this option...
    b. ...and then this one.

Bold typeface indicates interactible parts, such as connectors and switches on the hardware, or menus and buttons in a graphical user interface.

```
Monospaced text is used to indicate program code and other
kinds of data input/output such as configuration scripts.
```

This is a cross-reference within this document: *About This Document, page 3*

This is an external link (URL): www.netbiter.com/support

This is additional information which may facilitate installation and/or operation.

This instruction must be followed to avoid a risk of reduced functionality and/or damage to the equipment, or to maintain network security.

Caution

This instruction must be followed to avoid a risk of personal injury.

2 Before Installation

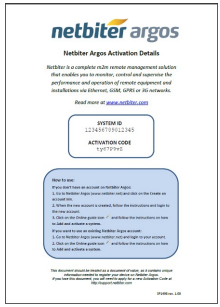
2.1 Starter Kit Contents Checklist

Unpack the Starter Kit and check that all the items in the checklist are included. If an item is missing, please contact Netbiter support.

Netbiter EasyConnect Starter Kit Contents:

☐	Netbiter EasyConnect gateway	
☐	Power supply	
☐	DIN rail mounting kit	
☐	USB cable	
☐	Stub antenna[1]	
☐	Magnetic antenna with extension cable	
☐	Connectors	

1. Stub antenna is not included in the U.S.

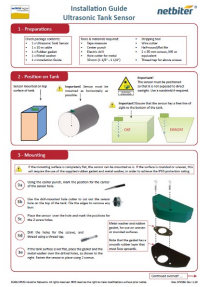
☐	Netbiter SIM card	
☐	Netbiter Argos Activation Details	

The Netbiter EasyConnect Gateway cannot be activated without the System ID and Activation Code. Keep the Netbiter Argos Activation Details safe for later reference.

Temperature Sensor Starter Kit:

☐	Temperature sensor and wiring kit	

Tank Sensor Starter Kit:

☐	Tank sensor	
☐	Tank sensor connection cable	
☐	Rubber gasket	
☐	Metal washer	
☐	Tank Sensor Installation Guide	 Installation Guide Ultrasonic Tank Sensor netbiter 1 - Preparations 2 - Position on Tank 3 - Mounting

2.2 Network Configuration and Security

2.2.1 Ethernet Networks

Before installing a Netbiter EC350 gateway on an Ethernet network, make sure that you have the following information about the network environment. Contact your network administrator if in doubt.

- Network addressing mode (DHCP or static IP)
- IP address range, netmask, and default gateway (if not using DHCP)
- Firewall restrictions and policies

Netbiter EC350 communicates via port 443. This port must be open in the firewall to allow communication with Netbiter Argos.

The gateway should only be installed in a network which is protected by a firewall. Contact your network administrator if in doubt.

2.2.2 Mobile Networks

The Netbiter EasyConnect Starter Kit is primarily intended to be used with the included Netbiter SIM card, which is configured ready to use and with PIN code security disabled.

If you are using a SIM card which was not provided by HMS, make sure before installing the Netbiter that you have the following information:

- The phone number for the SIM card
- The APN (Access Point Name) for the mobile network
- The username and password (if required by the network operator)

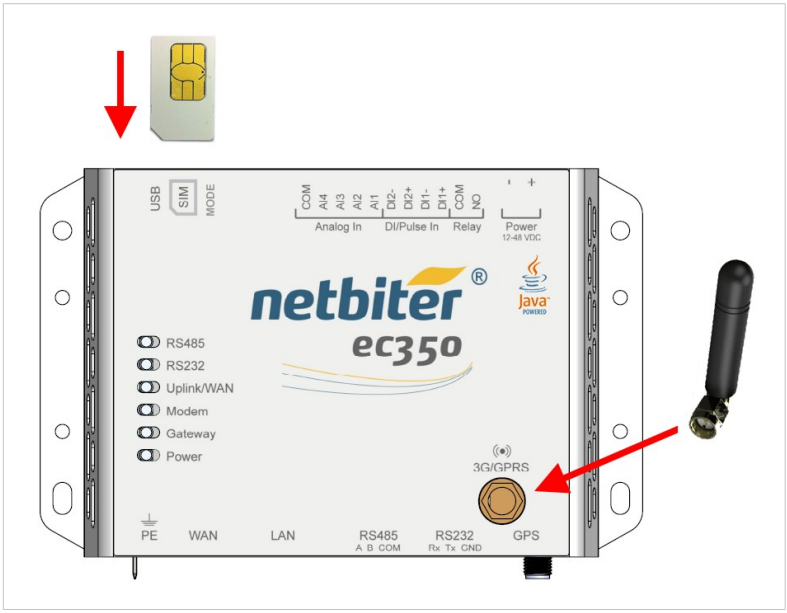
Also make sure that PIN code security has been disabled for the SIM card.

The details about your SIM card such as phone number and serial number should always be stored safely.

3 Installation – Netbiter EC350 Starter Kit

3.1 Mobile Network

Ignore this step if you are only going to connect via Ethernet.



1. Insert the SIM card carefully into the EC350 as shown in the figure. Observe the position of the cut-off corner and the contact surfaces.

When inserting the SIM card, make sure it does not accidentally slip behind the SIM card holder.

2. Push the SIM card firmly down into the holder until it clicks into place.
3. Connect an antenna to the **3G/GPRS** SMA antenna connector on the front panel of the EC350.

3.2 Ethernet Network

Ignore this step if you are only going to connect via mobile network.

1. Connect an Ethernet cable with an RJ-45 plug to the **WAN** port.
2. Connect the other end to a network with Ethernet access.

Read Network Configuration and Security, page 8 before attempting to connect to an Ethernet network.

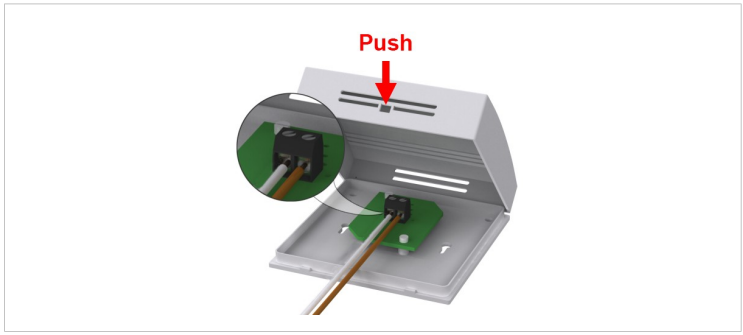
3.3 Connecting the Power Supply

1. Insert the 2–pin connector block into the Netbiter EC350.
2. Connect the **red** wire to the **+** connector.
3. Connect the **black** wire to the **–** connector.

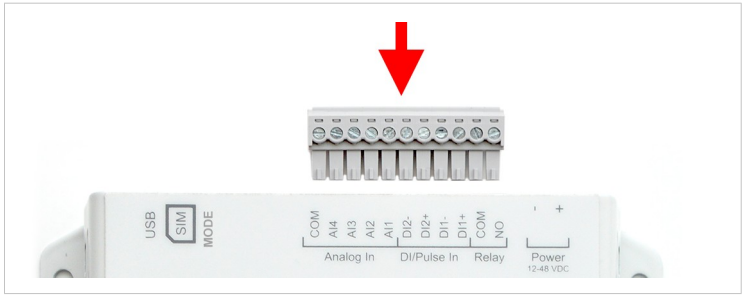
3.4 Connecting the Temperature Sensor

Switch off or unplug the power supply before continuing.

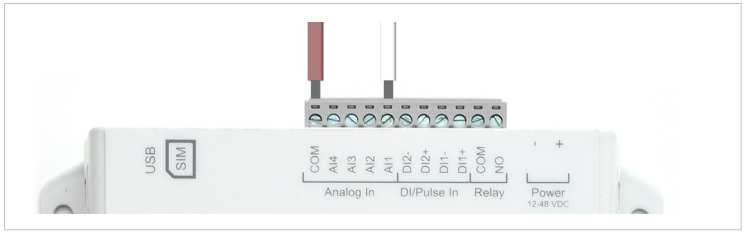
1. Open the sensor housing and connect the supplied wires to the terminals.



2. Insert the 11-pin connector block into the connector slot on the EC350.



3. Connect one of the wires to the **Analog In/COM** terminal and the other wire to the **Analog In/AI 1** terminal.

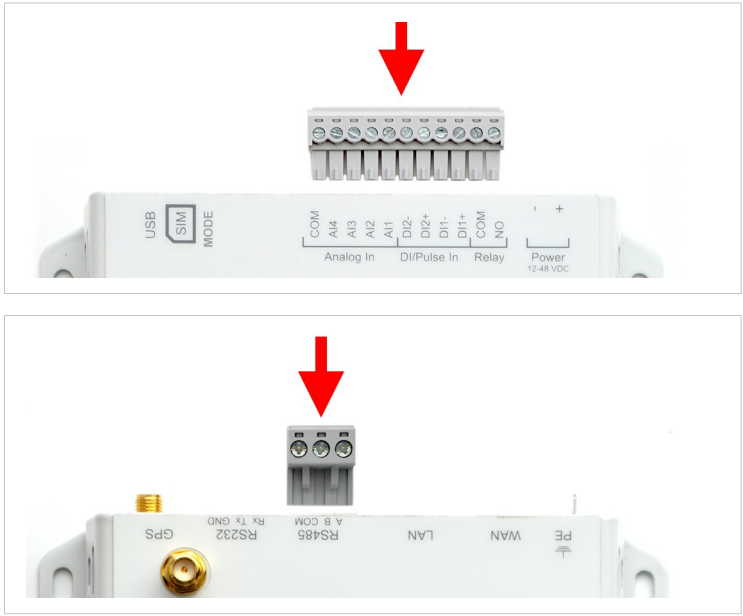


3.5 Connecting the Tank Sensor

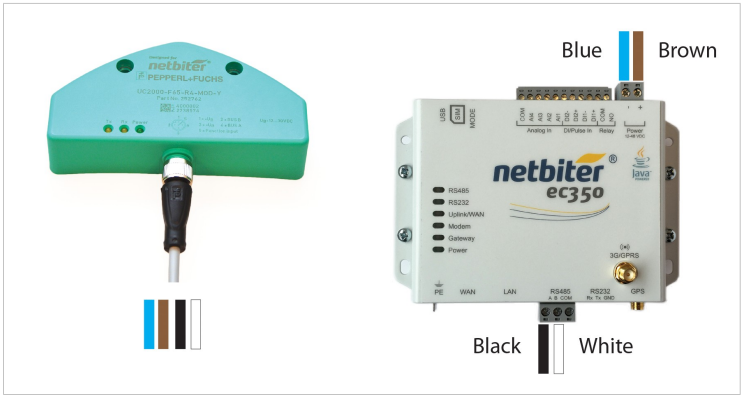
> *Switch off or unplug the power supply before continuing.*

> *For instructions on how to physically install the tank sensor, please refer to the Netbiter Tank Sensor Installation Guide.*

1. Connect the plug end of the supplied cable to the tank sensor.
2. Insert the 11–pin connector block into the large connector slot on the EC350, and a 3–pin connector block into the **RS-485** slot.



3. Connect the **black** wire to the **RS485 A** terminal.



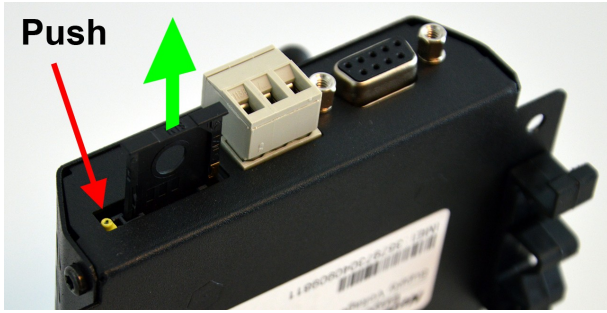
4. Connect the **white** wire to the **RS485 B** terminal.
5. Connect the **brown** wire to the **+** terminal.
6. Connect the **blue** wire to the **–** terminal.

> *If using the same power source to power both units, make sure that it has the sufficient capacity. The power supply included in the Netbiter EC350 Starter Kit is capable of powering both the tank sensor and the Netbiter EC350. See also* *Technical Data, page 33*.

4 Installation – Netbiter EC220 Starter Kit

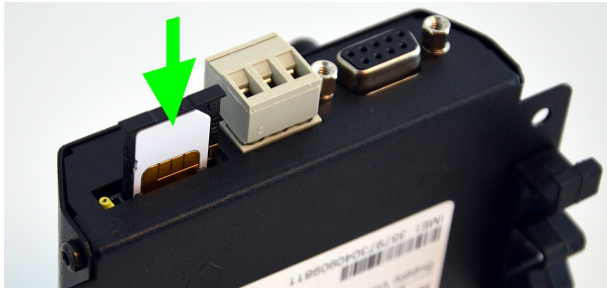
4.1 Installing the SIM Card

1. Push the yellow button next to the SIM card holder and remove the holder from the EC220.



2. Place the SIM card into the holder. Observe the correct position of the cut-off corner and the contact surfaces.

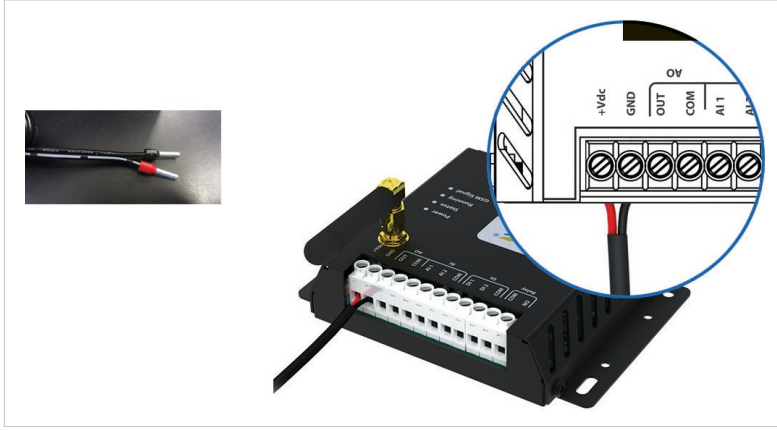
3. Insert the SIM card holder with the SIM card into the EC220.



4.2 Installing the Antenna

- Connect the stub antenna or external antenna to the SMA antenna connector on the front panel of the EC220.

4.3 Connecting the Power Supply

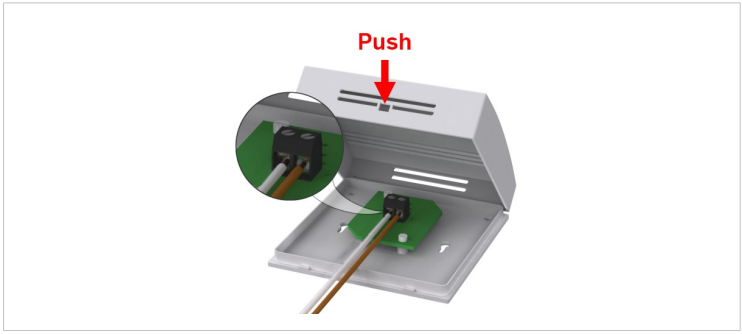


1. Connect the **red** wire to the **+Vdc** terminal.
2. Connect the **black** wire to the **GND** terminal.

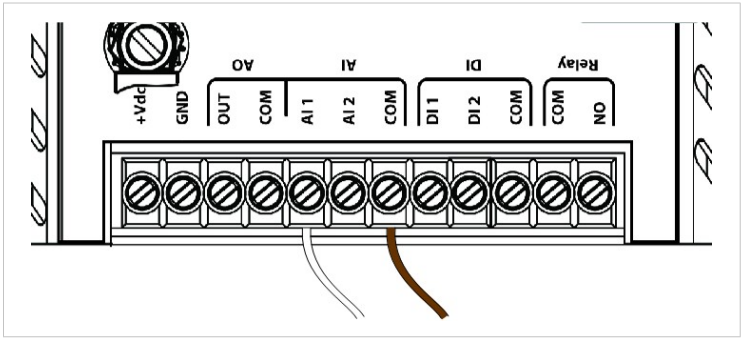
4.4 Connecting the Temperature Sensor

Switch off or unplug the power supply before continuing.

1. Open the sensor housing and connect the supplied wires to the terminals.



2. Connect one of the wires to the **AI/A1** terminal and the other to the **AI/COM** terminal on the EC220.

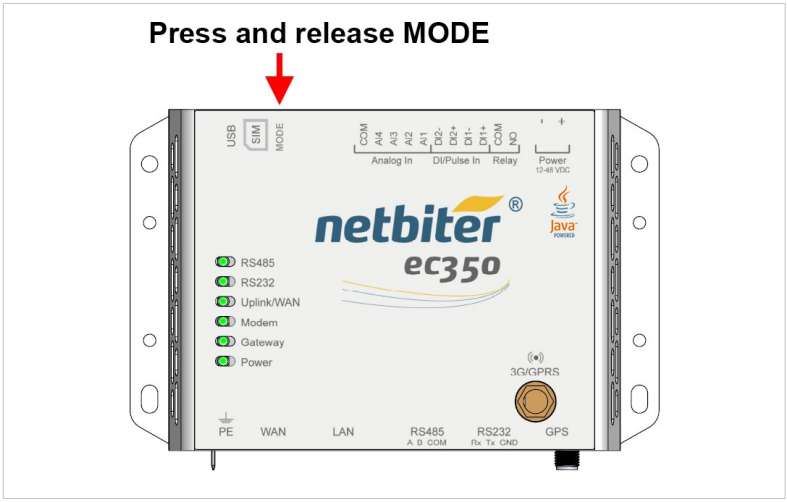


5 LED Status Indicators

5.1 EC350 LED Indicators

All 6 LED indicators will light up while the gateway is starting up. After the startup sequence has completed they will indicate system status.

Pressing and releasing the **MODE** button will temporarily change the function of the top 5 LED indicators to show the strength of the mobile network signal. After 60 seconds the indicators will revert to showing system status.



EC350 Signal Strength (press and release MODE)

LED indication	Meaning
1 red LED (flashing)	No/unknown signal
1 orange LED (flashing)	Poor mobile network signal • Make sure the antenna is correctly installed and pointing upwards. • Try a different antenna placement. • Use an external antenna.
1 green LED (flashing)	Acceptable mobile network signal
2–5 green LEDs (flashing)	Good to optimum mobile network signal

EC350 System Status (default mode)

LED	Indication	Meaning
RS485/RS232	Off	Port not in use
	Red (steady)	Port failure – contact Netbiter support
	Green (steady)	Port enabled in Netbiter Argos
Uplink/WAN	Red (steady)	Incorrect IP address settings • DHCP: Check for a working DHCP server on the network. • Static IP: Check that the IP address, gateway and DNS are correctly set.
	Red (flashing)	No connection to Netbiter Argos • Check your network settings. • Check that port 443 is open in the firewall.
	Green (steady)	Connected to Netbiter Argos
Modem	Off	Modem disabled
	Red (steady)	Modem failure – contact Netbiter support
	Red (flashing)	SIM card failure • Check that the SIM card is correctly inserted and undamaged.
	Orange (steady)	PIN code is activated for the SIM card • Disable the PIN code on the SIM card.
	Orange (flashing)	APN (Access Point Name) missing *This is normal when connecting the first time as APN has not yet been set. APN settings are configured in Netbiter Argos and then uploaded to the EC350.*
	Green (flashing)	Searching for mobile network
	Green (steady)	Connected to mobile network
Gateway	Off	No power, or unit is starting up
	Red (steady)	Hardware failure – contact Netbiter support
	Red (flashing)	Application failure – contact Netbiter support
	Green (flashing)	Firmware update in progress
	Green (steady)	Unit is operational
Power	Off	No power
	Green (steady)	Unit has power

5.2 EC220 LED Indicators

All 4 LED indicators will be lit while the gateway is starting up. After the startup sequence has completed they will indicate system status.

EC220 LED Indicators

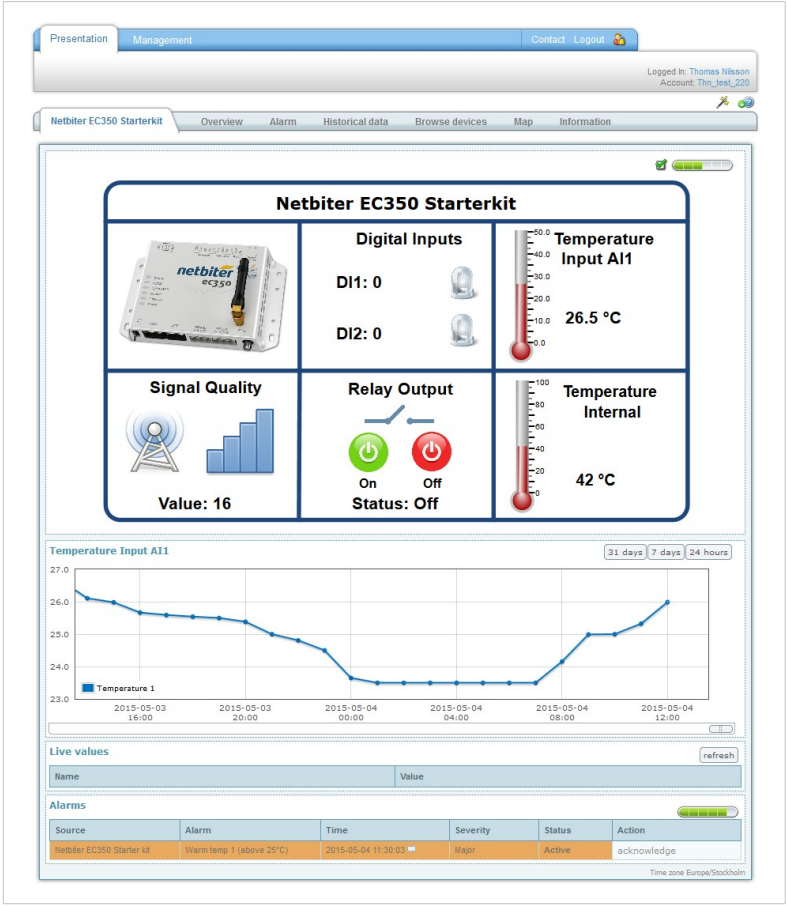
LED	Indication	Meaning
Power	Off	No power
	Green (steady)	Unit has power
Status	Off	Normal operation
	Red (1 flash)	SIM card not registered on HMS Home Network • Check that the SIM card is correctly inserted and undamaged, and that PIN security is disabled.
	Red (2 flashes)	Invalid network settings • Check that the APN (Access Point Name) has been set in Netbiter Argos.
	Red (3 flashes)	No connection to Netbiter Argos • Check that the mobile network provider grants access to port 5222.
Running	Off	Contact Netbiter support
	Green (flashing)	Normal operation
GSM Signal	Off	Contact Netbiter support
	Green (1 flash)	Poor mobile network signal • Make sure the antenna is correctly installed and pointing upwards. • Try a different antenna placement. • Use an external antenna.
	Green (2 flashes)	Acceptable mobile network signal
	Green (3 flashes)	Good mobile network signal

6 Adding the Netbiter to Netbiter Argos

6.1 About Netbiter Argos

Before a Netbiter EasyConnect gateway can be used, it must be registered and activated from a user account in Netbiter Argos.

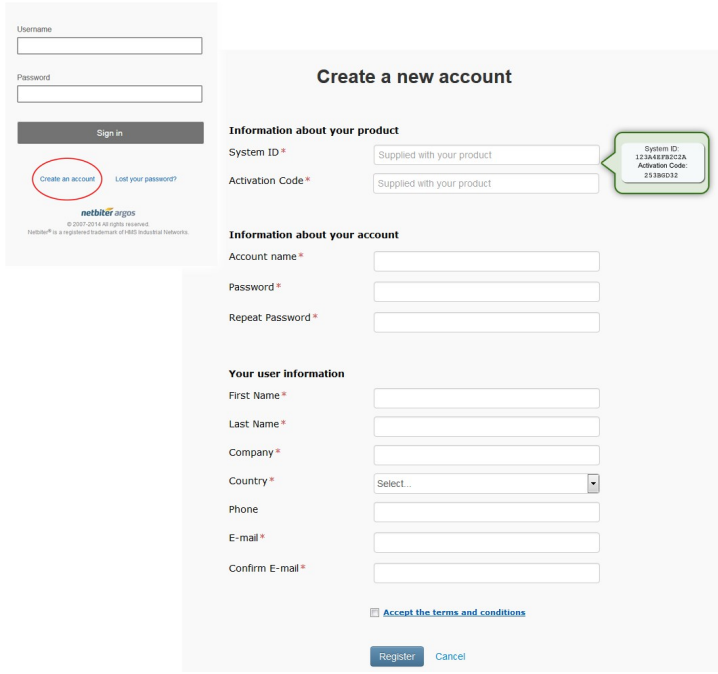
Netbiter Argos is a web-based communications centre for all your connected Netbiter EasyConnect gateways, accessible from any Internet connected browser. It is used for activating and configuring your Netbiter gateways and provides access to control functions, logs and stored data, and can be customized to fit your needs.



6.2 Creating a Netbiter Argos Account

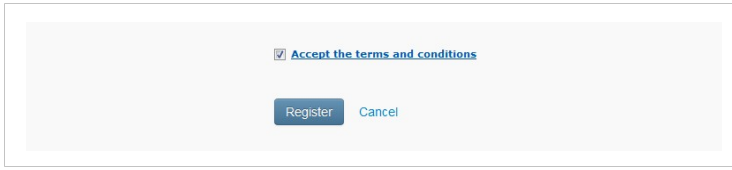
To register a Netbiter Argos account you will need the System ID and Activation Code supplied with the Netbiter. If the Activation Code has been lost, please contact Netbiter support.

1. Go to the Netbiter Argos website at www.netbiter.net.
2. Click on **Create an account** and enter the required information in the registration form. See also *Password recommendations, page 22*.

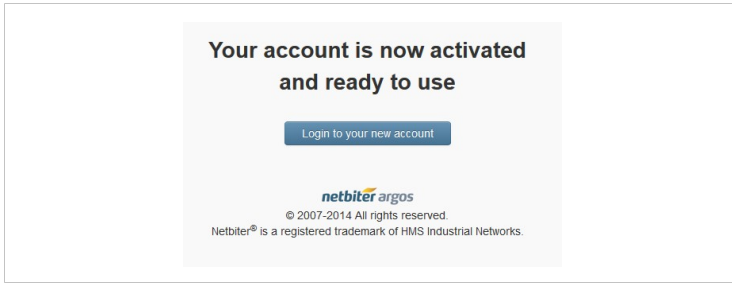


3. Click on the **Accept the terms and conditions** link at the bottom of the registration form. If you approve of the terms and conditions for using Netbiter Argos that are presented, continue to the next step.

4. Close the Terms and Conditions popup window, tick the checkbox and click on **Register**. An email containing an activation link will be sent to the email address that you provided.



5. Click on the activation link in the email sent to you by Netbiter Argos. When the account has been activated you will see a confirmation screen.



You can now log in to your new Netbiter Argos account using the username and password that you supplied in the registration form.

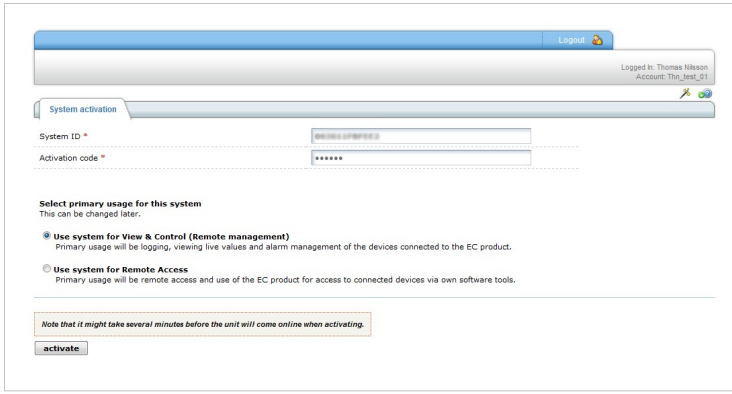
6.2.1 Password recommendations

Selecting a strong password is important to prevent unauthorized access. The password you select for your Netbiter Argos account should:

- consist of at least 8 characters including upper and lower case letters, numerals, and special characters
- not contain personal user information
- not be the same as the username or the user's email address
- not be used on multiple sites

6.3 Activating a Netbiter EC350

1. Make sure that the Netbiter is operating and connected to the network. See *LED Status Indicators, page 17*.
2. Log in to the account at www.netbiter.net.
3. On the **System activation** tab, your System ID and Activation code should already be filled in. If not, enter them now.



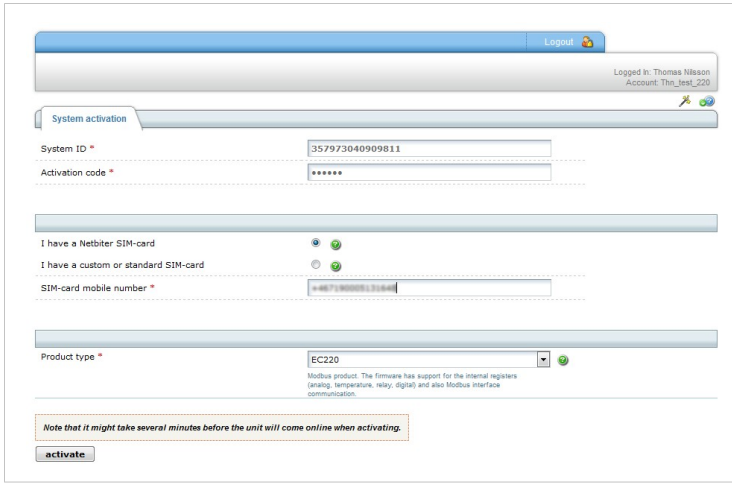
4. Select **Use system for View and Control (Remote Access)**.
5. Click on **Activate**. You will now be redirected to the **Management** page.

A green star in the tab bar indicates when the gateway is online.

If using a mobile connection with a SIM card not supplied by HMS, please refer to the Netbiter EasyConnect User Manual for instructions.

6.4 Activating a Netbiter EC220

1. Make sure that the Netbiter is operating and connected to the network. See *LED Status Indicators, page 17*.
2. Log in to the account at www.netbiter.net.
3. On the **System activation** tab, your System ID and Activation code should already be filled in. If not, enter them now.

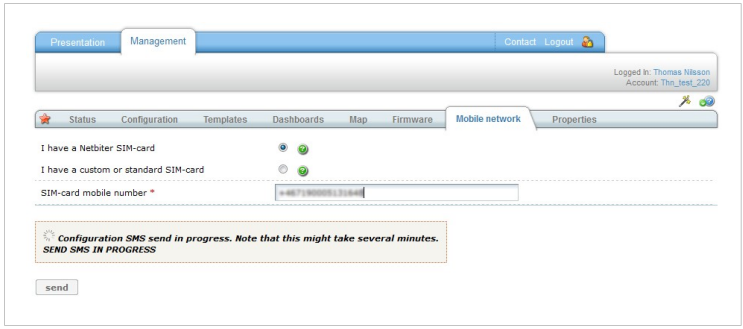


4. Click **I have a Netbiter SIM-card** and enter the phone number for the SIM card.

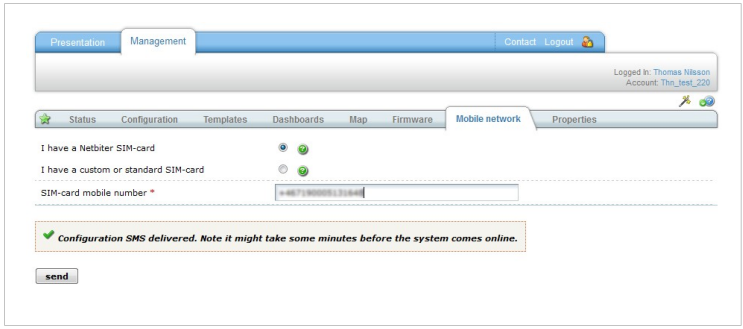
> *The phone number for the Netbiter SIM card is printed on the document the SIM card was attached to.*

5. Select **EC220** as product type.
6. Click on **Activate**. You will now be redirected to the **Management** page.

7. On the **Management** page, click on **Send**. Netbiter Argos will now send an SMS to the gateway to confirm the activation. Please note that this may take several minutes.



8. When the configuration SMS has been received the red star in the tab bar will change to green, indicating that the gateway is online.



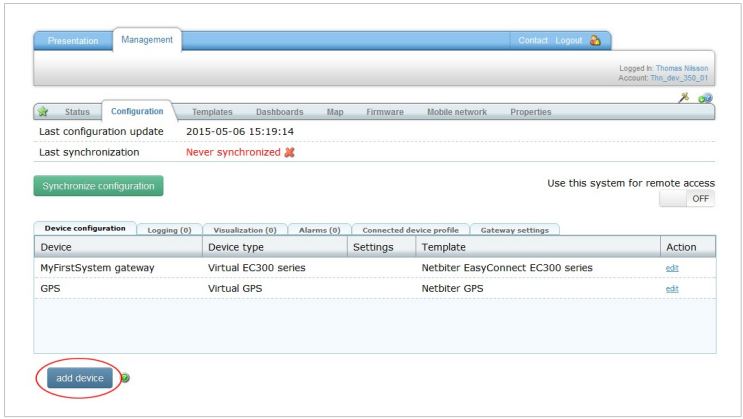
7 Configuring the Netbiter

Netbiter EasyConnect gateways are normally configured using device-specific configuration sets called *device profiles*.

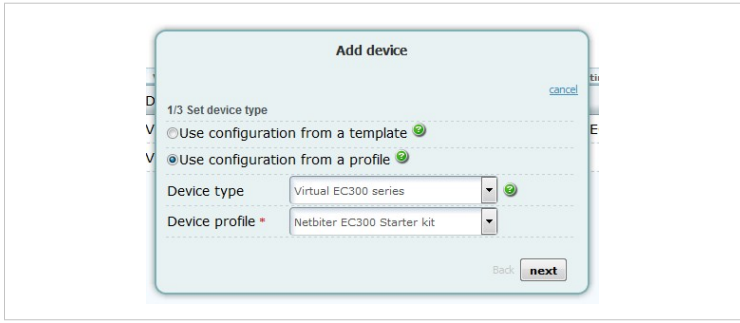
In the following chapter you will add a device profile in Netbiter Argos and then upload it to the gateway. The procedure is slightly different depending on whether you are using a temperature sensor or a tank sensor.

7.1 Temperature Sensor

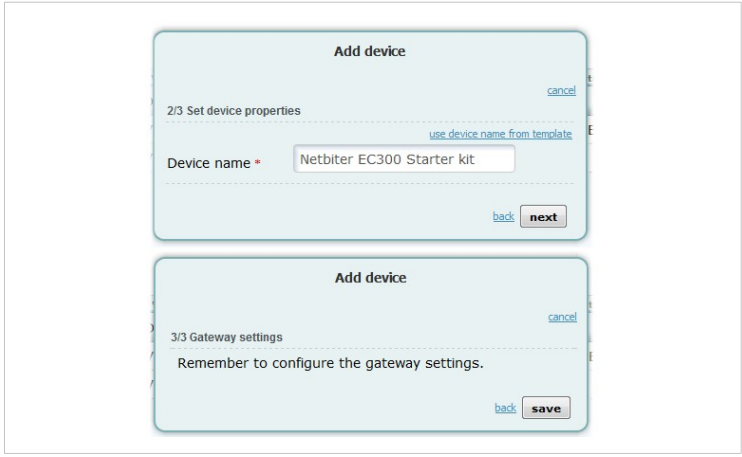
1. On the **Management** page, select **Configuration** and click on **Add device**.



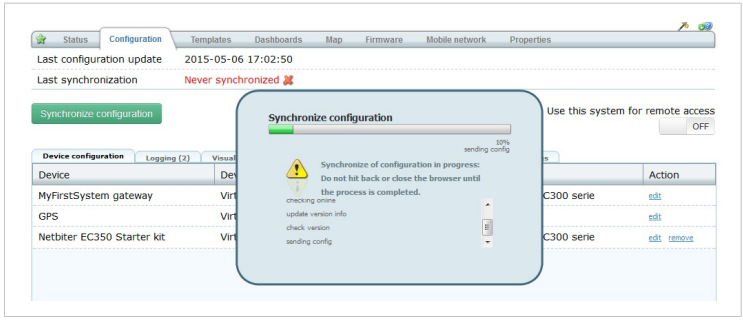
2. Select **Use configuration from a profile**, and in the **Device type** drop-down menu, select **Virtual ECxxx series**. This will load the associated pre-configured device profile.



3. Click **Next** in this and the following dialog, then click **Save** to save the new device configuration in Netbiter Argos.



4. Finally, click on **Synchronize configuration**. Netbiter Argos will now upload the configuration to the Netbiter gateway, which will automatically reboot. When the process has completed, data from the gateway will be available in Netbiter Argos.

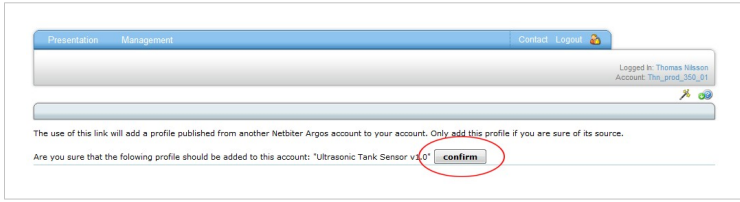


Synchronization can take some time depending on the speed of your network connection. Do not close the web page until synchronization is complete.

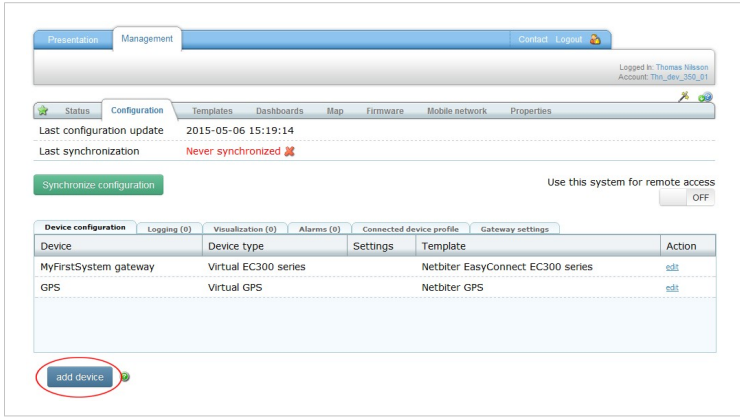
See the ***Netbiter Argos Administration Manual*** for further information on how to use Netbiter Argos.

7.2 Tank Sensor

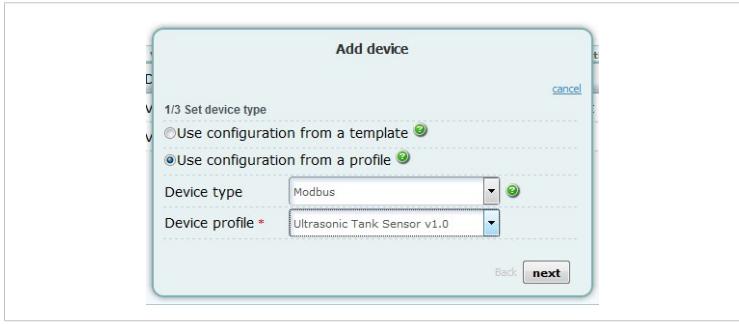
1. Go to the Netbiter support website www.netbiter.com/support and select **File and document downloads/Netbiter Accessories**.
2. Click on the link for **Ultrasonic Tank Sensor Device Profile**.
3. You will now be automatically redirected back to Netbiter Argos. Press **Confirm** to add the new device profile to the list of profiles in your Netbiter Argos account.



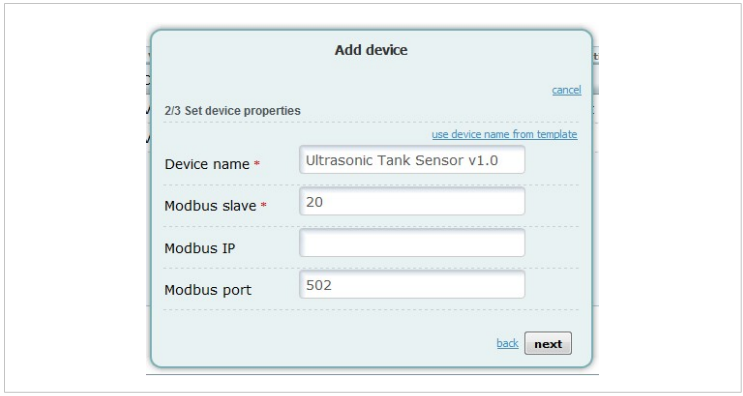
4. On the **Management** page, select **Configuration** and click on **Add device**.



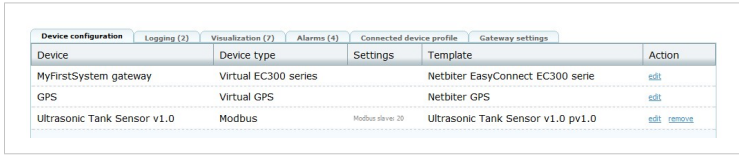
5. Select **Use configuration from a profile**. and for **Device type**, select **Modbus**; for **Device profile**, select **Ultrasonic Tank Sensor**; then click **Next**.



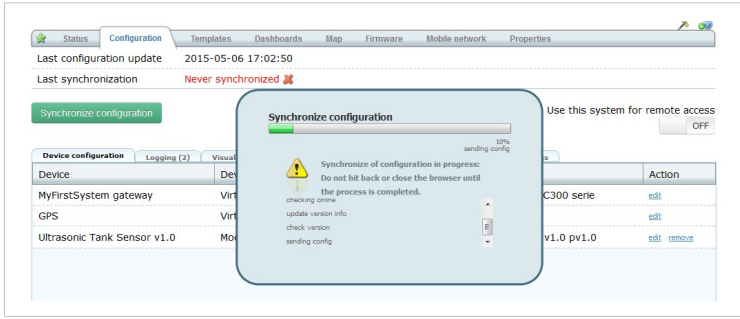
6. Click **Next** in the following dialog to accept the default Modbus settings.



7. Click **Save** to save the new device configuration in Netbiter Argos.



8. Finally, click on **Synchronize configuration**. Netbiter Argos will now upload the configuration to the Netbiter gateway, which will automatically reboot. When the process has completed, data from the gateway will be available in Netbiter Argos.



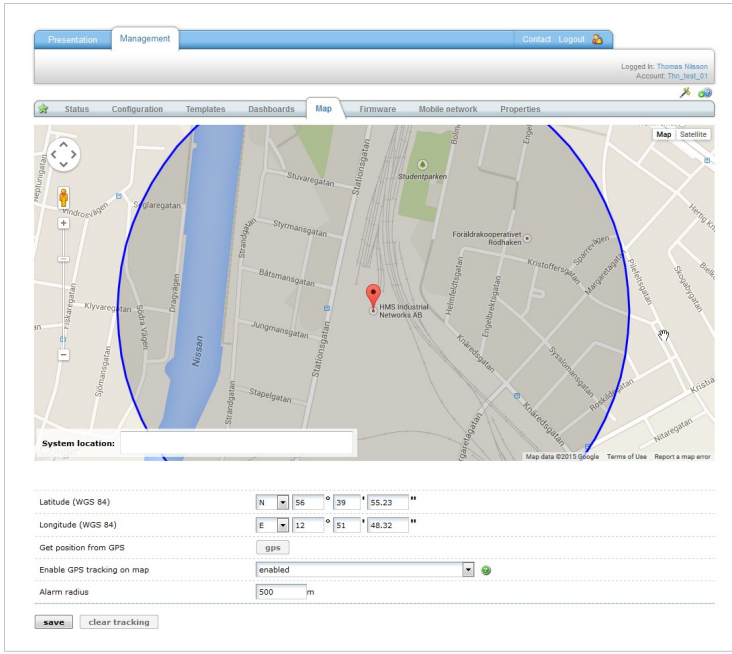
Synchronization can take some time depending on the speed of your network connection. Do not close the web page until synchronization is complete.

See the full documentation for Netbiter Argos for further information.

7.3 Geographical Location

The location of the Netbiter can be graphically represented on a map. This feature is for presentation only and will not affect the function of the system.

1. On the **Management** tab, select **Map**.



2. Use the mousewheel or the slider in the map to zoom, and click and drag to pan. Center the map on the location of your installation, then click on the location to enter the coordinates.

   The position can also be set by entering the coordinates in WGS84 format.

   If a GPS receiver is connected to the gateway (EC350 only) and enabled in Netbiter Argos, the coordinates can be retrieved by clicking on **GPS**. See the documentation for Netbiter Argos for further information.

3. Click **Save** to store the coordinates.

7.4 Viewing the Project

Now that you have added your first field system to your first project, it can be viewed in Netbiter Argos.

Select the **Presentation** tab to access the new project.

For more information about how to proceed with configuring your projects and devices, see the full documentation for Netbiter Argos.

8 Technical Data

8.1 Netbiter EC350

Mobile communication	5-band 3G/UMTS (WCDMA/FDD): 800/850, 900, 1900, 2100 MHz Quad-band GSM/GPRS: 850, 900, 1800, 1900 MHz
Ethernet	10/100 Mbit/s
Proxy types supported	SOCKS (authentication: none, username/pwd) Web (authentication: none, basic)
Alarms	Email, SMS
Relay outputs	1 (max 24 V AC/DC, 1A)
Digital inputs	2 (dry contact type)
Analog inputs	All 4 inputs with support for V and mA 2 inputs with support for Pt100
Serial ports	RS232, RS485
Antenna connector, mobile	SMA female
Antenna connector, GPS	SMA female (active or passive)
USB interface	Micro USB, USB 2.0
Supported protocols	Modbus RTU
Mounting	DIN rail (EN 50022) or wall mounting
Dimensions (H x W x D)	25.6 x 135 x 92 mm
Operating temperature	-40 °C to +65 °C
Storage temperature	-45 °C to +85 °C
Humidity range	5–95 % RH, non-condensing
Power supply	12–48 VDC, 6 W, LPS
Power consumption, typical	4.5 W
IP rating	IP20
Certifications	CE, ROHS, Telec, JATE, $_{C}UL_{US}$, FCC, IC, PTCRB, RCM

8.2 Netbiter EC220

Mobile communication	Quad-band GSM/GPRS: 850, 900, 1800, 1900 MHz
Alarms	Email, SMS
Relay outputs	1 (max 24 V AC/DC, 1A)
Digital inputs	2
Analog inputs	2, both with support for V, mA, Pt100
Serial ports	RS232, RS485
Antenna connector	SMA female
Supported protocols	Modbus RTU
Mounting	DIN rail (EN 50022) or wall mounting
Dimensions (H x W x D)	25 x 115 x 92 mm
Operating temperature	-30 °C to +65 °C
Storage temperature	-40 °C to +85 °C
Humidity range	5–95 % RH, non-condensing
Power supply	9–24 VDC, 2 W
Power consumption, typical	2 W
IP rating	IP20
Certifications	CE, ROHS, $_{C}$UL$_{US}$, FCC/IC, PTCRB

8.3 Temperature Sensor

Type	Pt100
Dimensions (H x W x D)	25 x 84.5 x 84.5 mm
Measuring range	-50 °C to +50 °C
Storage temperature	-35 °C to +70 °C
IP rating	IP30
Certifications	CE

8.4 Tank Sensor

Type	Ultrasonic sensor
Measuring range	80–2000 mm
Accuracy	<1.5 %
Serial port	RS485 Modbus, isolated
Connector type	M12
Mounting	Screws on top of tank
Dimensions (H x W x D)	30 x 125 x 76.5 mm
Operating temperature	-15 °C to +70 °C
Storage temperature	-40 °C to +85 °C
Power supply	12–30 VDC, 0.6 W
IP rating	IP67
Certifications	UL, CE

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