

# User Manual

# Netbiter<sup>®</sup> EasyConnect Gateway

Doc: HMSI-168-92  
Rev: 3.00



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# Important User Information

This document is intended to provide an understanding of the functionality offered by the Netbiter EasyConnect Gateways. The document describes the physical design and function of the products. For further information regarding the installation and use of the product, please refer to the documentation for Netbiter Argos.

## Liability

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## Trademark Acknowledgements

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Warning:	This is a class A product. in a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
ESD Note:	This product contains ESD (Electrostatic Discharge) sensitive parts that may be damaged if ESD control procedures are not followed. Static control precautions are required when handling the product. Failure to observe this may cause damage to the product.

Netbiter EasyConnect Gateway User Manual

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## P. About This Document

### P.1 Related Documents

Document	Author
Netbiter Argos Administration Manual	HMS
Netbiter EasyConnect Gateway Installation Guides	HMS
Netbiter Remote Access User Manual (EC310/EC350)	HMS

### P.2 Document History

#### Summary of Recent Changes (2.50... 3.00)

Change	Page(s)
Restructured document and revised content	All

#### Revision List

Revision	Date	Author(s)	Chapter(s)	Description
1.00	Nov 2012	SDa		First official release.
1.10	Mar 2013	SDa	9	New chapter on Ethernet installation.
2.00	November 2013	SDa	Multiple	Added EC350.
2.10	January 2014	SDa	Multiple	Removed EC150-M. Removed info on relay in EC150.
2.11	April 2014	SDa	Specs	Minor correction to dimensions. Added Japanese approval information.
2.20	May 2014	SDa	Multiple	Added EC310. Updated LEDs for EC350.
2.30	September 2014	SDa	Intro, 12	Certifications updated for EC310/EC350.
2.40	November 2014	SDa	4, 12	Added EtherNet/IP support. Updated specs for EC3xx.
2.50	December 2014	ThN	4, 12	Changed tolerance values.
3.00	May 2015	ThN	All	Multiple corrections and updates. Revised document structure and layout.

## P.3 Conventions & Terminology

- Unordered (bulleted) lists are used for information such as feature lists, and for instructions that can be carried out in any order.
- 1. Ordered lists are used for instructions that must be carried out in sequence.

**Bold text** is used to indicate interactible named parts such as connectors and switches on the hardware, or clickable objects in a graphical user interface.

Monospaced text is used to indicate configuration file entries, program code examples, etc.

*This is a cross-reference to another page in this document.*

[This is a link to a resource on the Internet \(URL\).](#)



*This is an important instruction which must be followed!*

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*This is additional information that will facilitate installation and/or operation.*

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## P.4 Support

For additional documentation, general information and technical support, please refer to the contact and support pages at [www.netbiter.com/support](http://www.netbiter.com/support).

# 1. Installation

## 1.1 Netbiter EC150 / EC250

### DIN Rail Mount

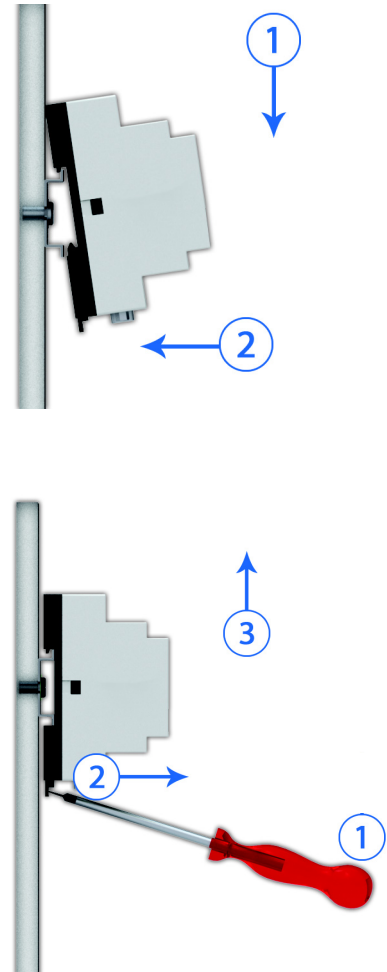
Netbiter EC150 and Netbiter EC250 are supplied ready for mounting on a DIN rail.

#### Mounting

1. Lower the unit onto the upper lip of the rail.
2. Press the unit towards the rail. It will snap into place on the lower lip.

#### Removing

1. Insert a flat-head screwdriver into the slotted tab on the bottom of the unit and pull the tab gently downwards.
2. Pull the lower side of the unit free of the rail.
3. Lift the unit from the rail.



## 1.2 Netbiter EC220, EC310 and EC350

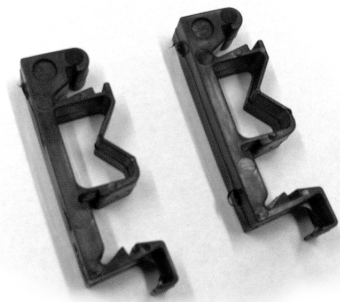
### Wall Mount

The Netbiter EC220, EC310 and EC350 can be screw-mounted directly to a flat surface using the screw holes in the metal casing.



### DIN Rail Mount

The Netbiter EC220, EC310 and EC350 can also be mounted on a DIN rail using an optional rail mounting kit.





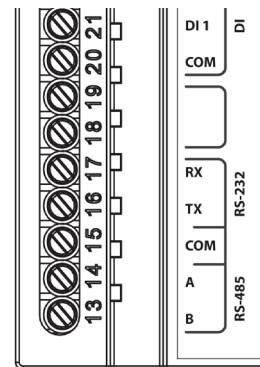
## 2. Connections

- ① *Netbiter EasyConnect gateways can be connected to Modbus devices via different interfaces and physical connections. Which interface(s) to use must be selected in Netbiter Argos.*

### 2.1 Netbiter EC150

#### 2.1.1 Terminal Block (12-pin)

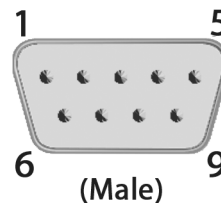
Pin	Label	Function	Note
24	Vin+	Power 9–24 VDC/VAC	
23	GND	PE ground	
22	DI:DI 2	Digital input #2	Low = 0–1 VDC, High = 10–24 VDC
21	DI:DI 1	Digital input #1	Low = 0–1 VDC, High = 10–24 VDC
20	DI:COM	Digital input common	
17	RS-232:RX	RS-232 Receive	
16	RS-232:TX	RS-232 Transmit	
15	COM	Serial interface common	Shared between RS-232 and RS485
14	RS-485:A	RS-485 Line A	
13	RS-485:B	RS-485 Line B	



#### 2.1.2 D-sub Connector

The 9-pin D-sub connector provides connectivity for Modbus RTU slave units via RS-232.

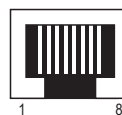
Pin	Function
1	CD (Carrier Detect)
2	Rx (Receive)
3	Tx (Transmit)
4	DTR (Data Terminal Ready)
5	GND
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)



#### 2.1.3 Ethernet Connector

The RJ-45 socket provides Ethernet network connection. It also supports Modbus TCP via Ethernet, which can be used at the same time as Modbus RTU units on another interface.

Pin	Function
1	TD+
2	TD-
3	RD+
4, 5, 7, 8	Termination
6	RD-

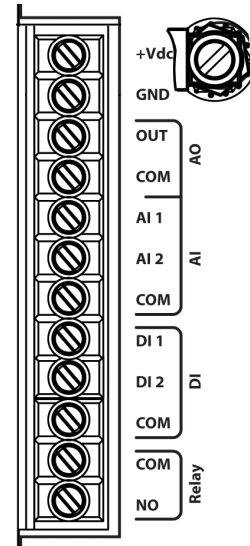


## 2.2 Netbiter EC220

### 2.2.1 Terminal Block (12-pin)

Pin	Function	Note
+Vdc	Power 12–24 VDC	
GND	PE ground	
AO:OUT	Analog output	0–10 VDC
AO:COM	Analog output common	Internally connected to GND
AI:AI 1	Analog input #1	PT100, current or voltage (selected with internal switch)
AI:AI 2	Analog input #2	
AI:COM	Analog input common	Internally connected to GND
DI:DI1	Digital input #1	Low = 0–1 VDC, High = 9–24 VDC
DI:DI2	Digital input #2	
DI:COM	Digital input common	
Relay:COM	Relay output common	
Relay:NO	Normally open connected	Rated load: 1 A @ 24 VDC <sup>a</sup>

a. The relay output must be supplied from an isolating transformer using a secondary listed fuse rated at maximum 3.3 A and minimum 30 VDC.

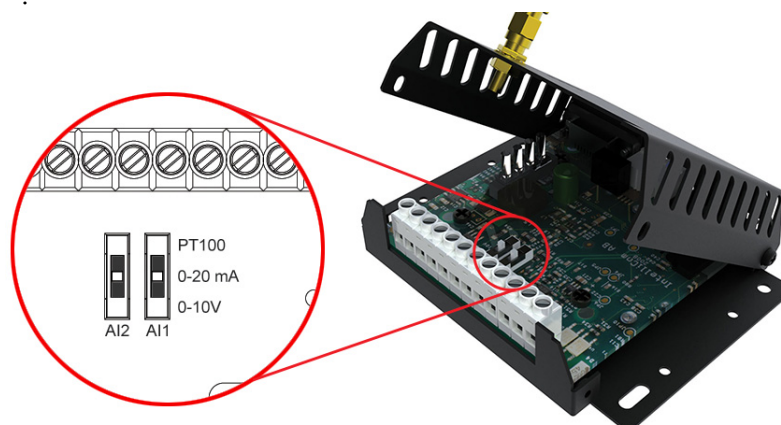


#### Analog Input Configuration Switches

The function of each analog input can be selected with an internal DIP switch. The default setting is PT100 (temperature sensor).

Setting	Function	Note
PT100	Temperature sensor	-50 to +150 °C (default)
0–20 mA	Current	Input resistance 270 Ω
0–10 VDC	Voltage	Input resistance 280 Ω

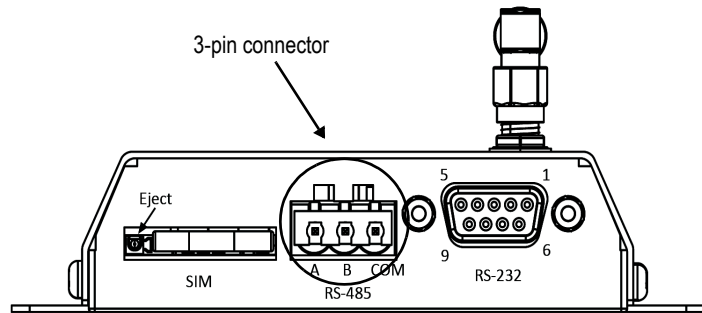
1. Unscrew the two top screws (A) using a T10 torx screwdriver.
2. Loosen the two lower screws (B) but do not remove them.
3. Lift the cover carefully. Take care not to damage the antenna cable.
4. Set the switch to match the desired function for the analog input.
5. Replace the cover, again taking care not to damage the antenna cable.
6. Re-tighten all 4 screws



## 2.2.2 RS-485 Serial Interface (3-pin Connector)

The RS-485 serial interface is used to connect Modbus RTU devices to the Netbiter EC220.

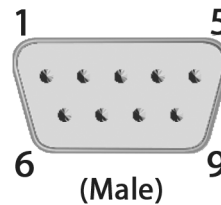
Pin	Function
A	RS-485 A line
B	RS-485 B line
COM	RS-485 common



## 2.2.3 D-sub Connector

The 9-pin D-sub connector provides connectivity for Modbus RTU slave units via RS-232 and for connecting a GPS receiver.

Pin	Function
1	CD (Carrier Detect)
2	Rx (Receive)
3	Tx (Transmit)
4	DTR (Data Terminal Ready)
5	GND
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)



## 2.2.4 Antenna Connector

The antenna connector is a standard SMA screw connector. Optional external antennas are available from your supplier.

## 2.2.5 SIM Card

### Netbiter SIM card

The Netbiter SIM cards supplied by HMS are pre-configured and ready for use and have PIN code security disabled as default.

### Other SIM cards

To use any other SIM card, the following information is required:

- The phone number for the SIM card
- The Access Point Name (APN) to connect to
- User name and password (if required by the network operator)

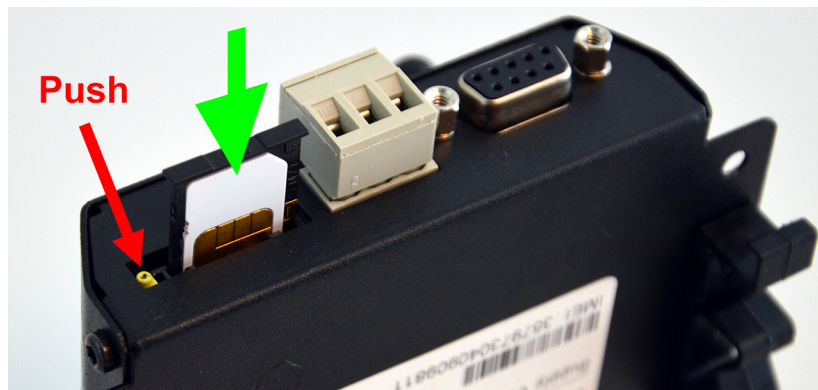
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**⚠** *SIM cards with active PIN codes cannot be used in Netbiter EC220. The PIN code cannot be disabled in the gateway or in Netbiter Argos. To disable the PIN code, put the SIM card in a mobile phone and follow the manufacturer's instructions.*

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### Installing the SIM card

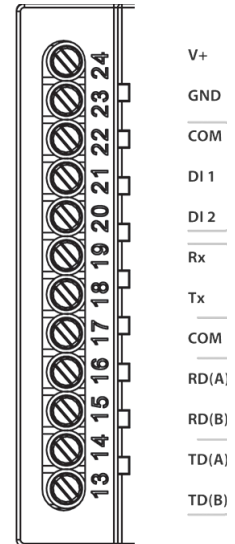
1. Push the yellow button next to the SIM card holder and remove the holder.
2. Place the SIM card in the holder and insert the holder into the unit as shown in the figure. Observe the position of the cut-off corner and the contact surfaces.



## 2.3 Netbiter EC250

### 2.3.1 Terminal Block (12-pin)

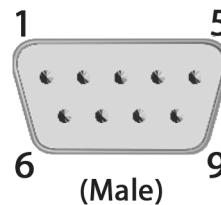
Pin	Label	Function	Note
24	V+	Power 9–24 VDC	
23	GND	PE ground	
22	DI:COM	Digital input common	
21	DI:DI 1	Digital input #1	Low = 0–1 VDC, High = 10–24 VDC
20	DI:DI 2	Digital input #2	Low = 0–1 VDC, High = 10–24 VDC
19	RS-232:RX	RS-232 Receive	
18	RS-232:TX	RS-232 Transmit	
17	COM	Serial interface common	
16	RS-422:RD(A)	RS-422 Receive A	
15	RS-422:RD(B)	RS-422 Receive B	
14	RS-485:TD(A) RS-422	RS-485 Line A RS-422 Transmit A	
13	RS-485:TD(B) RS-422	RS-485 Line B RS-422 Transmit B	



### 2.3.2 D-sub Connector

The 9-pin D-sub connector provides connectivity for Modbus RTU slave units via RS-232, and for connecting a GPS receiver.

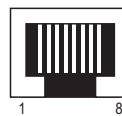
Pin	Function
1	CD (Carrier Detect)
2	Rx (Receive)
3	Tx (Transmit)
4	DTR (Data Terminal Ready)
5	GND
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)



### 2.3.3 Ethernet Connector

The RJ-45 socket provides Ethernet network connection. It also supports Modbus TCP via Ethernet, which can be used at the same time as Modbus RTU units on another interface.

Pin	Function
1	TD+
2	TD-
3	RD+
4, 5, 7, 8	Termination
6	RD-



### 2.3.4 Antenna Connector

The antenna connector is a standard female SMA screw connector. Optional external antennas are available from your supplier.

### 2.3.5 SIM Card

#### Netbiter SIM card

The Netbiter SIM cards supplied by HMS are pre-configured and ready for use and have PIN code security disabled as default.

#### Other SIM cards

To use any other SIM card, the following information is required:

- The phone number for the SIM card
- The Access Point Name (APN) to connect to
- User name and password (if required by the network operator)

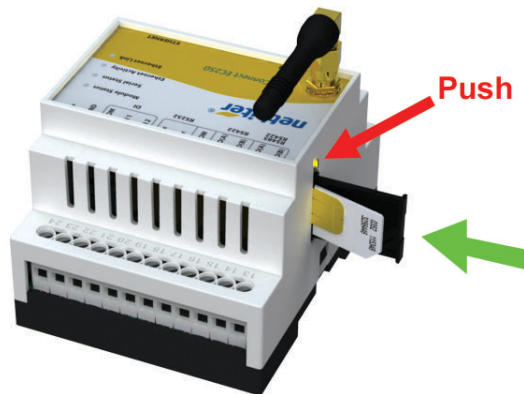
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**⚠** *SIM cards with active PIN codes cannot be used in Netbiter EC250. The PIN code cannot be disabled in the gateway or in Netbiter Argos. To disable the PIN code, put the SIM card in a mobile phone and follow the manufacturer's instructions.*

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#### Installing the SIM card

1. Push the yellow button next to the SIM card holder and remove the holder.
2. Place the SIM card in the holder and insert the holder into the unit as shown in the figure. Observe the position of the cut-off corner and the contact surfaces.



## 2.4 Netbiter EC310 / EC350

### 2.4.1 Terminal Block (11-pin)

Pin	Label	Function	Note
11	COM	Analog input common	
10	AI4	Analog Input #4	0–20 mA or 0–10 VDC <sup>a</sup>
9	AI3	Analog Input #3	0–20 mA or 0–10 VDC or PT100 <sup>a</sup>
8	AI2	Analog Input #2	0–20 mA or 0–10 VDC <sup>a</sup>
7	AI1	Analog input #1	0–20 mA or 0–10 VDC or PT100 <sup>a</sup>
6	DI2-	Digital input 2	Dry contact type (see below)
5	DI2+	Digital input 2 current source	
4	DI1-	Digital input 1	
3	DI1+	Digital input 1 current source	
2	COM	Relay output common, isolated	Rated load: 1 A @ 24 VDC <sup>b</sup>
1	NO	Relay output, NO, isolated	



a. Configured in Netbiter Argos

b. The relay output must be supplied from an isolating transformer using a secondary listed fuse rated at maximum 3.3 A and minimum 30 VDC.

### Digital Inputs

Netbiter EC310/350 features 2 digital inputs of the dry contact type which do not require any control voltage and will function with a switch or breaker.

**⚠** *The digital inputs on EC310/350 are of the “dry contact” type which do not require any control voltage and will function with a switch or breaker. Do not connect a power source to the digital inputs, as this may damage the unit.*

**i** *Maximum recommended cable length for the digital inputs is 3 m.*

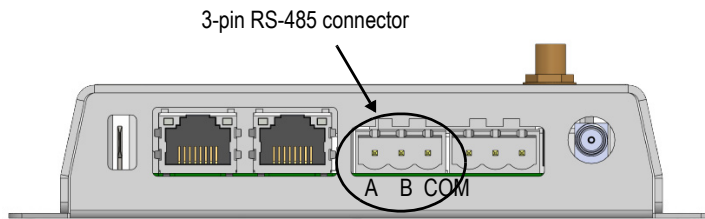
### 2.4.2 Power connector

Pin	Function
-	12–48 VDC
+	



### 2.4.3 RS-485 Serial Interface (3-pin Connector)

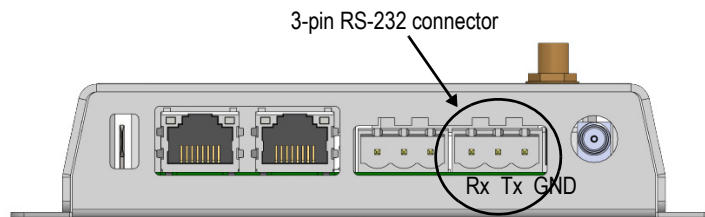
The RS-485 serial interface can be used to connect Modbus devices.



Pin	Function
A	RS-485 Line A
B	RS-485 Line B
COM	ISO GND (Isolated ground)

### 2.4.4 RS-232 Serial Interface (3-pin Connector)

The RS-232 serial interface can be used to connect a single Modbus device.

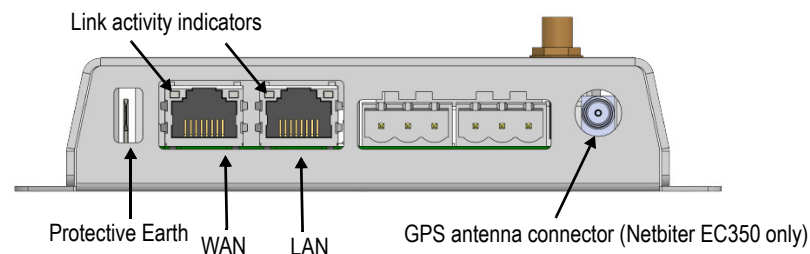


Pin	Function
Rx	Rx Receive input
Tx	Tx Transmit output
GND	Signal ground

### 2.4.5 Ethernet Connectors (RJ-45)

WAN: For connecting to the Internet and Netbiter Argos.

LAN: For EtherNet/IP, Modbus TCP, and Remote Access.



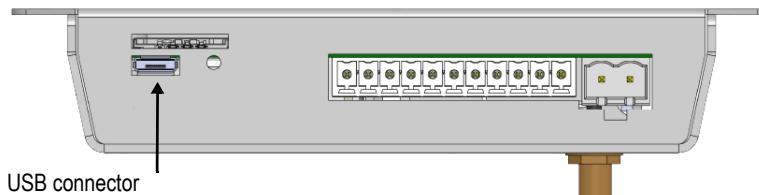
*Do not connect the LAN and WAN ports to the same physical network.*



## 2.4.6 USB Connector

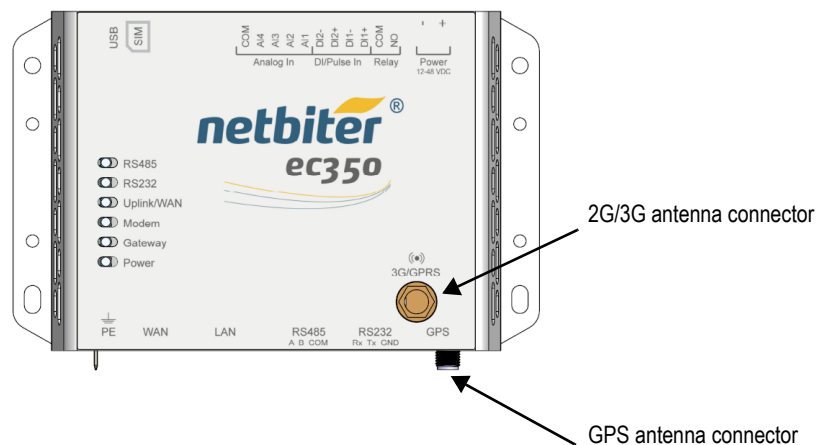
The USB connector can be used to connect locally to the Netbiter EC310/350 for firmware upgrades, configuration or troubleshooting.

See also *“Local Configuration” on page 37.*



## 2.4.7 3G/GPRS Antenna Connector (Netbiter EC350 only)

The 3G/GPRS antenna connector on the front of the unit is a standard female SMA screw connector. A stub antenna is supplied as standard, and optional external antennas are available from your supplier.



## 2.4.8 GPS Antenna Connector (Netbiter EC350 only)

The Netbiter EC350 has a built-in GPS receiver. An external GPS antenna (not included) should be connected to the female SMA screw connector on the underside of the unit. The connector also provides power for active GPS antennas.

## 2.4.9 SIM Card (Netbiter EC350 only)

### Netbiter SIM card

The EC350 will automatically detect a Netbiter SIM card and apply the correct APN settings for connection with Netbiter Argos. No further SIM card configuration is needed.

### Other SIM cards

To use any other SIM card, the following information is required:

- The phone number for the SIM card
- The Access Point Name (APN) to connect to
- User name and password (if required by the network operator)

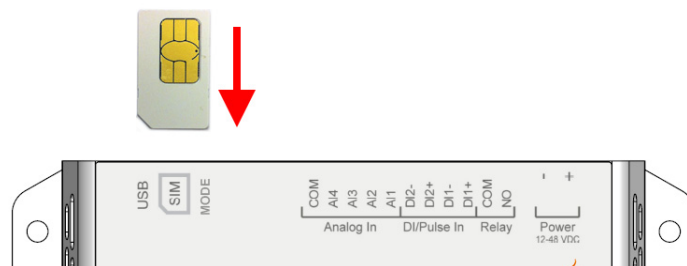
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**⚠** *SIM cards with active PIN codes cannot be used in Netbiter EC350. The PIN code cannot be disabled in the gateway or in Netbiter Argos. To disable the PIN code, put the SIM card in a mobile phone and follow the manufacturer's instructions.*

---

### Installing a SIM card

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.
2. Push the SIM card firmly down into the holder until it clicks into place. To remove the SIM card, press the edge of the card and release it.



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

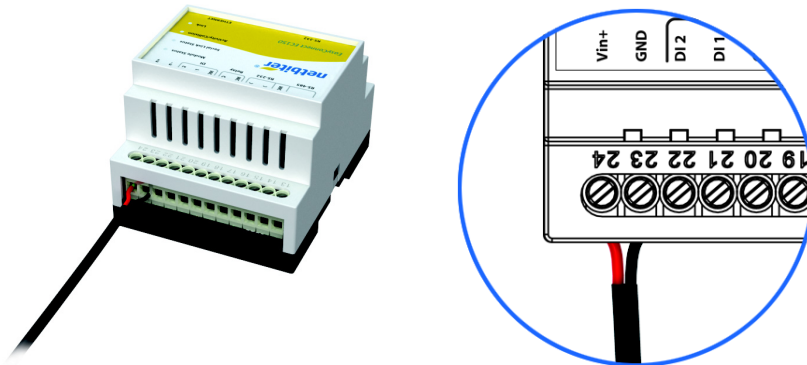
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## 2.5 Power

**⚠** *Make sure that the power supply is correctly connected. Connecting with reverse polarity or using the wrong type of power supply may damage the unit.*

### Netbiter EC150 and EC250

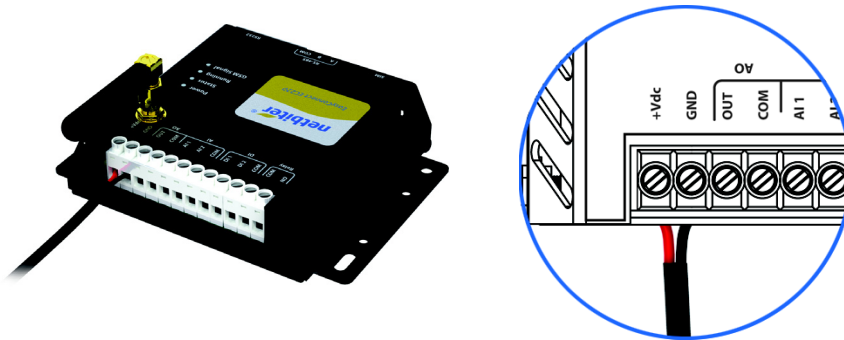
Connect 9–24 VDC to **Vin+** (EC150) or **V+** (EC250), and connect ground to **GND**.



**i** *Netbiter EC150 can alternatively be powered by 9–24V AC.*

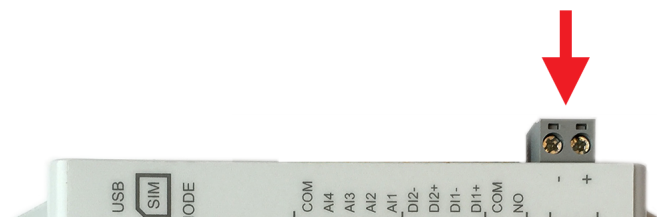
### Netbiter EC220

Connect 9–24 VDC to **+VDC**, and connect ground to **GND**



### Netbiter EC310/350

Connect 12–48 VDC to **+** (plus), and connect ground to **-** (minus).



## 3. LED Indicators

### 3.1 Netbiter EC150



#### 3.1.1 Module Status

The Module Status LED indicates the functional status of the unit. During startup the Module Status LED will first show orange, then steady green until startup has completed.

Indication	Meaning
Off	No power
Orange / Green (steady)	Unit is starting up (ca. 30 seconds)
Green (3 flashes)	Unit is operating normally
Red (2 flashes)	Invalid network settings <ul style="list-style-type: none"> <li>• DHCP: Check that there is a working DHCP server on the network.</li> <li>• Static IP: Check that the IP address, default gateway and DNS are correctly set.</li> <li>• If a proxy is used, check that the proxy settings are correct.</li> </ul>
Red (3 flashes)	No connection to Netbiter Argos <ul style="list-style-type: none"> <li>• Check the network settings.</li> <li>• If a proxy is used, check that the proxy settings are correct.</li> <li>• Check that at least one of ports 443, 80 or 5222 are open in the firewall.</li> </ul>

#### 3.1.2 Serial Link Status

Indication	Meaning
Green (flashing)	Receiving serial packet
Red (flashing)	Transmitting serial packet

#### 3.1.3 Activity/Collision

Indication	Meaning
Green (flashing)	Receiving Ethernet packet
Red (flashing)	Ethernet collision detected

#### 3.1.4 Link

Indication	Meaning
Green	10 Mb/s Ethernet network detected
Orange	100 Mb/s Ethernet network detected

## 3.2 Netbiter EC220

When power is applied all the LED indicators will be lit while the gateway is starting up. After the startup sequence has completed they will indicate system status.



### 3.2.1 Power

Indication	Meaning
Off	No power
Green (steady)	Unit has power

### 3.2.2 Status

Indication	Meaning
Off	Unit is operating normally
Red (1 flash)	SIM card not registered on HMS home network <sup>a</sup> <ul style="list-style-type: none"> <li>• Check that the SIM card is correctly inserted and undamaged, and PIN code is disabled.</li> <li>• Check that there is mobile network coverage for your operator.</li> </ul>
Red (2 flashes)	Invalid network settings <ul style="list-style-type: none"> <li>• Check that the APN (Access Point Name) has been set in Netbiter Argos.</li> </ul>
Red (3 flashes)	No connection to Netbiter Argos <ul style="list-style-type: none"> <li>• Check that the mobile network provider grants access to port 5222.</li> </ul>

a. The Netbiter SIM card will automatically connect to a network in the global HMS “home network” group of network operators. A list of these operators can be found at the Netbiter support website, [www.netbiter.com/support](http://www.netbiter.com/support).

### 3.2.3 Running

Indication	Meaning
Off	Contact Netbiter support
Green (flashing)	Unit is operating normally

### 3.2.4 GSM Signal

Indication	Meaning
Off	Contact Netbiter support
Green (1 flash)	Poor mobile network signal <ul style="list-style-type: none"> <li>• Check that the antenna is correctly installed and pointing upwards.</li> <li>• Use an external antenna. Try different antenna placements to get an optimal signal.</li> </ul>
Green (2 flashes)	Acceptable mobile network signal
Green (3 flashes)	Good mobile network signal

## 3.3 Netbiter EC250



### 3.3.1 Module Status

During startup the Module Status LED will first show red and then steady green. It will take approximately 40 seconds for the unit to complete the startup sequence.

The Module Status LED then alternates between displaying system status and mobile network signal strength for 2 seconds each in a 4-second cycle. If a mobile network connection has not been set up, the LED will stay unlit during the second part of the cycle.

#### System Status

Indication	Meaning
Off	Unit is operating normally
Red / Green (steady)	Unit is starting up (ca. 40 seconds)
Red (1 flash)	SIM card not registered on HMS home network <sup>a</sup> <ul style="list-style-type: none"> <li>• Check that the SIM card is correctly inserted and undamaged, and PIN code is disabled.</li> <li>• Check that there is mobile network coverage for your operator.</li> </ul>
Red (2 flashes)	Invalid network settings <p><b>Mobile</b></p> <ul style="list-style-type: none"> <li>• Check that the APN (Access Point Name) has been set in Netbiter Argos.</li> </ul> <p><b>Ethernet</b></p> <ul style="list-style-type: none"> <li>• DHCP: Check that there is a working DHCP server on the network.</li> <li>• Static IP: Check that the IP address, default gateway and DNS are correctly set.</li> <li>• If a proxy is used, check that the proxy settings are correct.</li> </ul>
Red (3 flashes)	No connection to Netbiter Argos <p><b>Mobile</b></p> <ul style="list-style-type: none"> <li>• Check that the APN (Access Point Name) has been set in Netbiter Argos.</li> <li>• Check that the mobile network provider grants access to port 5222.</li> </ul> <p><b>Ethernet</b></p> <ul style="list-style-type: none"> <li>• Check the network settings.</li> <li>• If a proxy is used, check that the proxy settings are correct.</li> <li>• Check that at least one of ports 443, 80 or 5222 are open in the firewall.</li> </ul>

a. The Netbiter SIM card will automatically connect to a network in the global HMS "home network" group of network operators. A list of these operators can be found at the Netbiter support website, [www.netbiter.com/support](http://www.netbiter.com/support).

#### Signal Strength

Indication	Meaning
Green (1 flash)	Poor mobile network signal <ul style="list-style-type: none"> <li>• Check that the antenna is correctly installed and pointing upwards.</li> <li>• Use an external antenna. Try different antenna placements to get an optimal signal.</li> </ul>
Green (2 flashes)	Acceptable mobile network signal
Green (3 flashes)	Good mobile network signal

### 3.3.2 Serial Status

Indicates data traffic on the RS-232, RS-422 and RS-485 serial ports as well as GPRS traffic.

Indication	Meaning
Green (flashing)	Receiving serial packet
Red (flashing)	Transmitting serial packet
Orange (steady)	Unit is starting up

### 3.3.3 Ethernet Activity

Indication	Meaning
Green (flashing)	Receiving Ethernet packet

### 3.3.4 Link

Indication	Meaning
Green (steady)	10 Mb/s Ethernet network detected
Orange (steady)	100 Mb/s Ethernet network detected

## 3.4 Netbiter EC310



When power is applied all the LED indicators will be lit while the gateway is starting up. After the startup sequence has completed they will indicate system status.

### 3.4.1 RS485 / RS232

Indication	Meaning
Off	RS485 / RS232 port not in use
Green (steady)	RS485 / RS232 port enabled in Netbiter Argos
Red (steady)	Port failure <ul style="list-style-type: none"> <li>• Contact Netbiter support.</li> </ul>

### 3.4.2 Uplink/WAN

Green (steady)	Connected to Netbiter Argos
Red (steady)	Invalid network settings <ul style="list-style-type: none"> <li>• DHCP: Check that there is a working DHCP server on the network.</li> <li>• Static IP: Check that the IP address, default gateway and DNS are correctly set.</li> <li>• If a proxy is used, check that the proxy settings are correct.</li> </ul>
Red (flashing)	No connection to Netbiter Argos <ul style="list-style-type: none"> <li>• Check the network settings.</li> <li>• If a proxy is used, check that the proxy settings are correct.</li> <li>• Check that port 443 is open in the firewall.</li> </ul>

### 3.4.3 Gateway

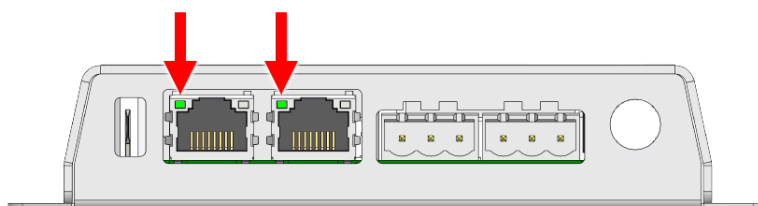
Indication	Meaning
Off	No power, or unit is starting up
Green (steady)	Unit is operating normally
Green (flashing)	Firmware update in progress
Red (steady)	Hardware failure <ul style="list-style-type: none"> <li>• Contact Netbiter support.</li> </ul>
Red (flashing)	Application failure <ul style="list-style-type: none"> <li>• Contact Netbiter support.</li> </ul>

### 3.4.4 Power

Indication	Meaning
Off	No power
Green (steady)	Unit has power



### 3.4.5 Ethernet Link LED:s (on RJ-45 ports)



Indication	Meaning
Off	No Ethernet traffic
Orange (flashing)	Activity on 10 Mbit/s Ethernet network
Green (flashing)	Activity on 100 Mbit/s Ethernet network

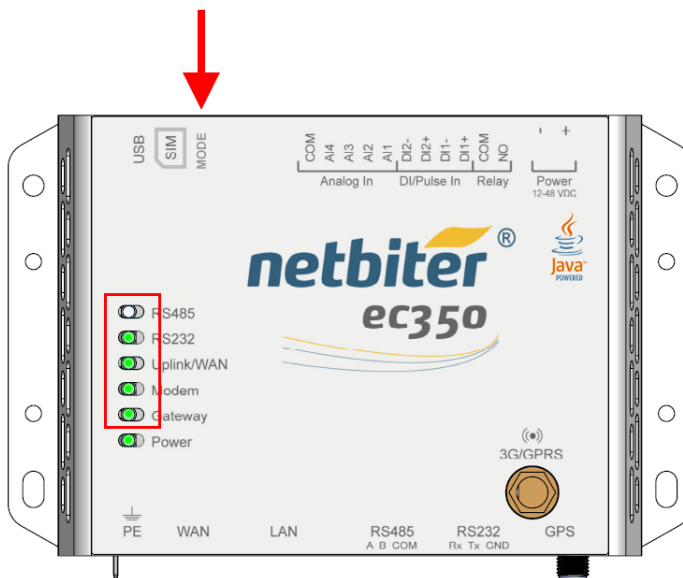
## 3.5 Netbiter EC350



When power is applied all the LED indicators will be lit while the gateway is starting up. After the startup sequence has completed they will indicate system status.

Pressing 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 LED indicators will revert to indicating system status.

**Press and release MODE**



### 3.5.1 Signal strength (press and release MODE button)

Indication	Meaning
1 red LED (flashing)	No signal, or unknown signal
1 orange LED (flashing)	Poor mobile network signal <ul style="list-style-type: none"> <li>• Check that the antenna is correctly installed and pointing upwards.</li> <li>• Use an external antenna. Try different antenna placements to get an optimal signal.</li> </ul>
1 green LED (flashing)	Acceptable mobile signal
2–5 green LEDs (flashing)	Good to optimum mobile signal

### 3.5.2 RS485 / RS232

Indication	Meaning
Off	RS485 / RS232 port not in use
Green (steady)	RS485 / RS232 port enabled in Netbiter Argos
Red (steady)	Port failure <ul style="list-style-type: none"> <li>• Contact Netbiter support.</li> </ul>

### 3.5.3 Uplink/WAN

Green (steady)	Connected to Netbiter Argos
Red (steady)	Invalid network settings <ul style="list-style-type: none"> <li>• DHCP: Check that there is a working DHCP server on the network.</li> <li>• Static IP: Check that the IP address, default gateway and DNS are correctly set.</li> <li>• If a proxy is used, check that the proxy settings are correct.</li> </ul>
Red (flashing)	No connection to Netbiter Argos <ul style="list-style-type: none"> <li>• Check the network settings.</li> <li>• If a proxy is used, check that the proxy settings are correct.</li> <li>• Check that port 443 is open in the firewall.</li> </ul>

### 3.5.4 Modem

Indication	Meaning
Off	Unit is operating normally
Red (1 flash)	SIM card not registered on HMS home network <sup>a</sup> <ul style="list-style-type: none"> <li>• Check that the SIM card is correctly inserted and undamaged, and PIN code is disabled.</li> <li>• Check that there is mobile network coverage for your operator.</li> </ul>
Red (2 flashes)	Invalid network settings <ul style="list-style-type: none"> <li>• Check that the APN (Access Point Name) has been set in Netbiter Argos.</li> </ul>
Red (3 flashes)	No connection to Netbiter Argos <ul style="list-style-type: none"> <li>• Check that the mobile network provider grants access to port 5222.</li> </ul>

a. The Netbiter SIM card will automatically connect to a network in the global HMS "home network" group of network operators. A list of these operators can be found at the Netbiter support website, [www.netbiter.com/support](http://www.netbiter.com/support).

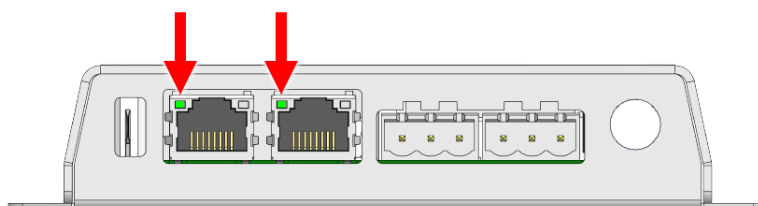
### 3.5.5 Gateway

Indication	Meaning
Off	No power, or unit is starting up
Green (steady)	Unit is operating normally
Green (flashing)	Firmware update in progress
Red (steady)	Hardware failure <ul style="list-style-type: none"> <li>• Contact Netbiter support.</li> </ul>
Red (flashing)	Application failure <ul style="list-style-type: none"> <li>• Contact Netbiter support.</li> </ul>

### 3.5.6 Power

Indication	Meaning
Off	No power
Green (steady)	Unit has power

### 3.6 Ethernet Link LED:s (on RJ-45 ports)



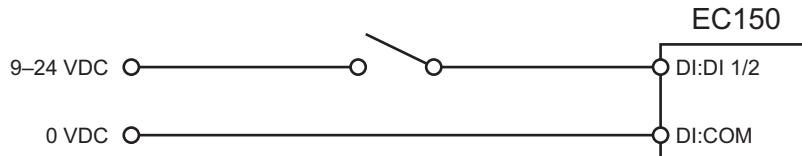
Indication	Meaning
Off	No Ethernet traffic
Orange (flashing)	Activity on 10 Mbit/s Ethernet network
Green (flashing)	Activity on 100 Mbit/s Ethernet network

## 4. Wiring Examples

### 4.1 Netbiter EC150/EC250

#### 4.1.1 Digital Input Wiring Example

##### Digital Input

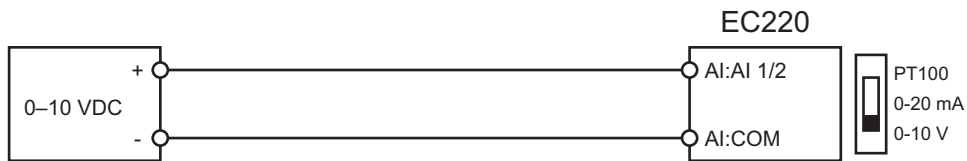


### 4.2 Netbiter EC220

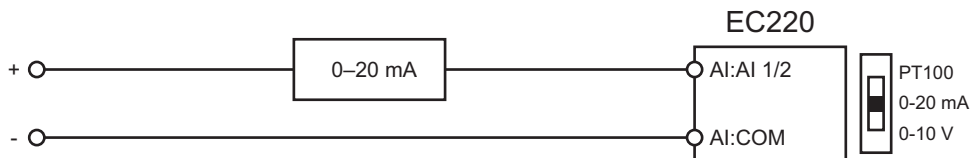
#### 4.2.1 Input Wiring Examples

See also [“Analog Input Configuration Switches” on page 8.](#)

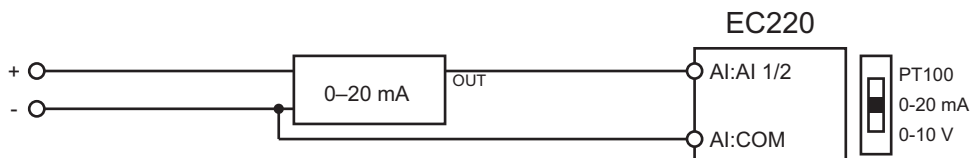
##### Analog Input – Voltage Sensor



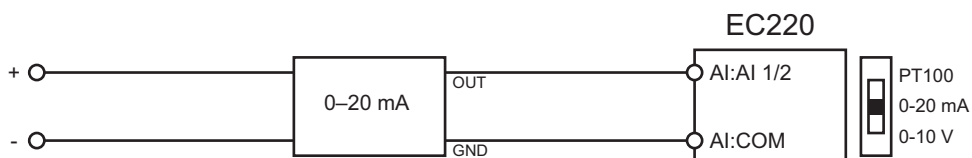
##### Analog Input – 2-wire Current Sensor



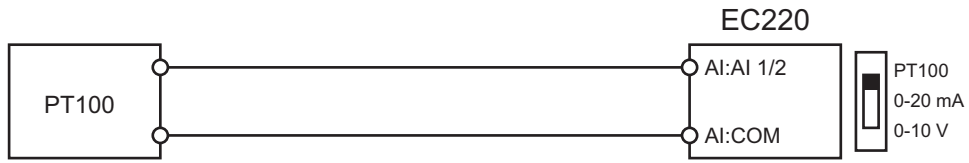
##### Analog Input – 3-wire Current Sensor



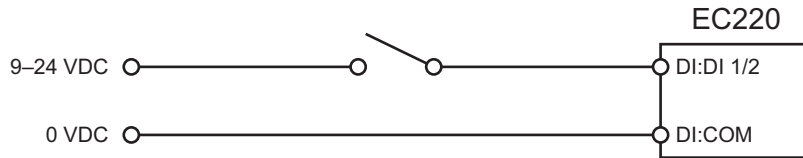
##### Analog Input – 4-wire Current Sensor



**Analog Input – Temperature Sensor**

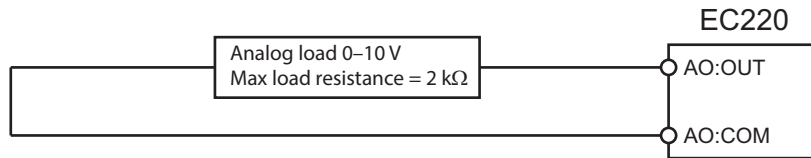


**Digital Input**

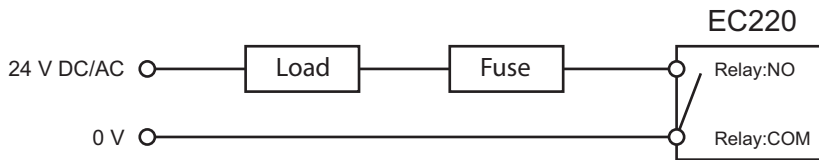


**4.2.2 Output Wiring Examples**

**Analog output**



**Relay output**




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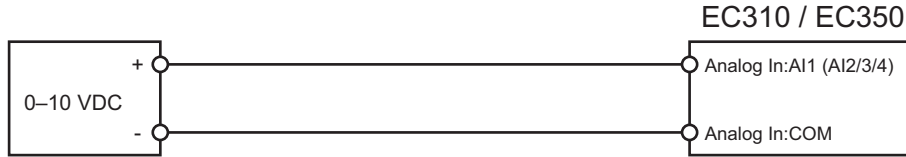
**⚠** *The relay output must be supplied from an isolating transformer using a secondary listed fuse rated at maximum 3.3 A and minimum 30 VDC.*

---

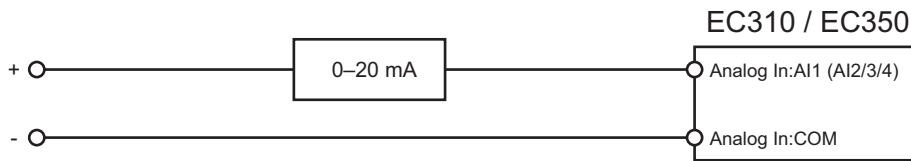
## 4.3 Netbiter EC310 / EC350

### 4.3.1 Input Wiring Examples

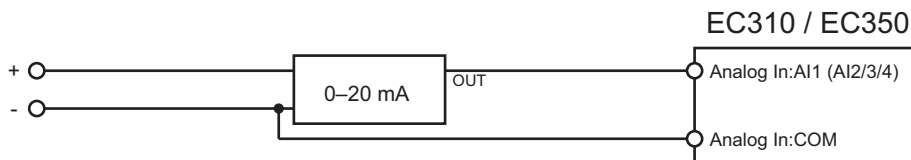
#### Analog Input – Voltage Sensor



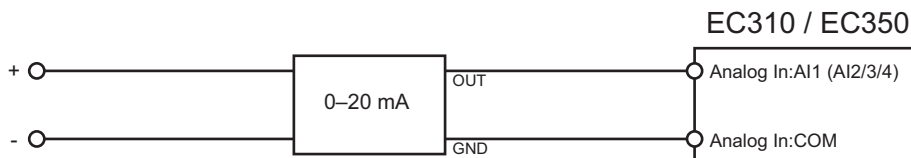
#### Analog Input – 2-wire Current Sensor



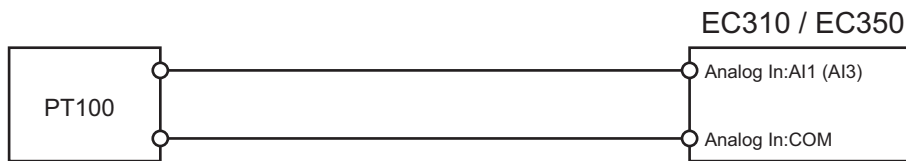
#### Analog Input – 3-wire Current Sensor



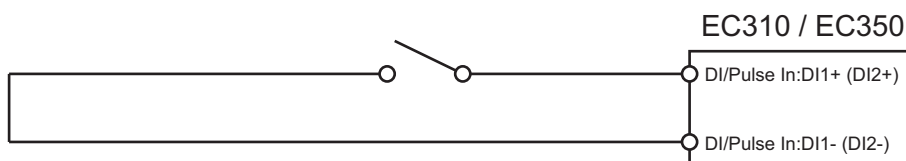
#### Analog Input – 4-wire Current Sensor



#### Analog Input – Temperature Sensor



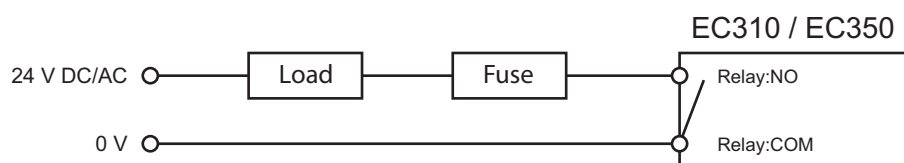
#### Digital Input



**⚠ Do not connect a power source to the digital inputs, as this may damage the unit.**

### 4.3.2 Output Wiring Example

#### Relay Output



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**⚠** *The relay output must be supplied from an isolating transformer using a secondary listed fuse rated at maximum 3.3 A and minimum 30 VDC.*

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## 5. GPS

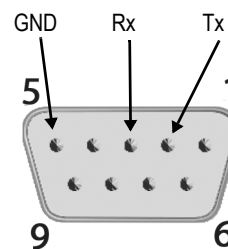
### 5.1 Connecting GPS Devices

- ① For information on how to power an external GPS device, please refer to the documentation supplied with the device.

#### 5.1.1 Netbiter EC220

To connect a GPS device to Netbiter EC220, a 9-pin **male** D-sub connector is needed.

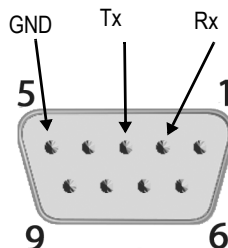
Pin	Function
2	Tx (Transmit to GPS)
3	Rx (Receive from GPS)
5	Ground



#### 5.1.2 Netbiter EC250

To connect a GPS device to Netbiter EC250, a 9-pin **female** D-sub connector is needed.

Pin	Function
2	Tx (Transmit to GPS)
3	Rx (Receive from GPS)
5	Ground



#### 5.1.3 Netbiter EC350

The Netbiter EC350 has a built-in GPS receiver. To use the GPS function, connect a suitable GPS antenna (not included) to the unit.

### 5.2 Activating the GPS Function

GPS functionality must be activated in Netbiter Argos before it can be used. Instructions on how to activate the function can be found in the online documentation in Netbiter Argos.

## 6. Activation

Before the Netbiter EasyConnect Gateway can be used, it must be registered and activated in **Netbiter Argos**. This can be done in one of two ways:

- By using the gateway to **create a completely new user account** in Netbiter Argos.
- By adding the gateway to **an existing account** in Netbiter Argos.

### About 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.


## 6.1 Adding a Gateway to Netbiter Argos

For more information on the installation process, please refer to the Installation Guide supplied with the gateway and to the Netbiter Argos Administration Manual.

The Netbiter Argos Administration Manual is available at [www.netbiter.com/support](http://www.netbiter.com/support).

## 7. Installation on an Ethernet Network

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 *Netbiter EasyConnect gateways should only be installed in networks with firewall protection. Contact your network administrator if in doubt.*

---

In order to connect to Netbiter Argos, Netbiter EasyConnect gateways require outbound (outgoing) access to the Internet on the TCP ports listed below.

### Ports for connecting to Netbiter Argos

Netbiter model	TCP ports
EC310, EC350	443
EC150, EC220, EC250	5222, 443, 80 (the ports are tried in the order shown)

Connection attempts will be made to 3 different servers with a timeout of 30 seconds each. This means that it may take up to 4 min 30 sec to establish a connection for EC150/220/250 (3 ports x 3 servers x 30 seconds).

### Other ports

The following ports may also need to be opened in the firewall:

- 502                                      Default port for Modbus TCP
- 8080                                      Extra web server

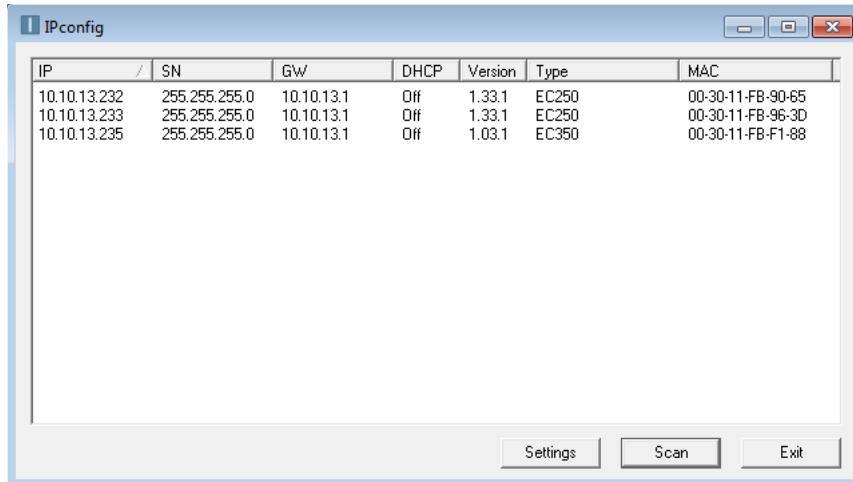
## 7.1 Network Setup - Dynamic IP Address

When using DHCP (the default setting), there is no need to configure any of the IP address related settings. The only changes that may be required are the settings needed to pass through a proxy server on the network, see *“Local Proxy Setup” on page 42*.

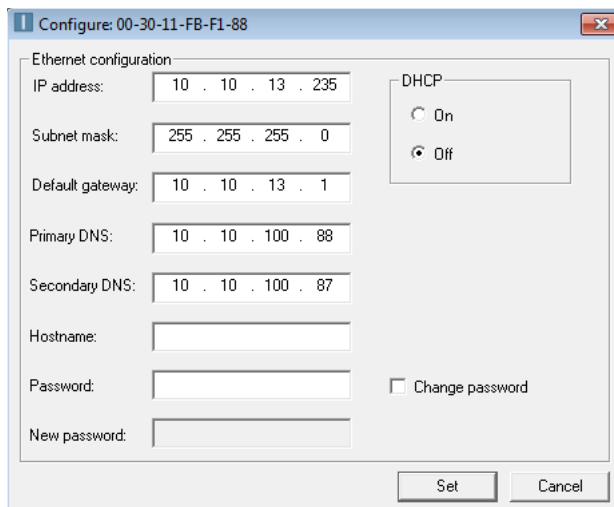
## 7.2 Network Setup - Fixed IP Address

Fixed IP address settings for the Netbiter EasyConnect Gateway must be configured using the **IPconfig** utility available from [www.netbiter.com/support](http://www.netbiter.com/support).

1. Start IPconfig and double-click on the unit you wish to configure.  
(MAC = the System ID for the gateway)



2. Set **DHCP** to **Off**, then enter the IP address and the other parameters as required.  
Contact your network administrator if in doubt.



3. Click the **Set** button to save the configuration.

## 8. EtherNet/IP Implementation

Please refer to the Netbiter Argos Administration Manual on configuring EtherNet/IP.

### 8.1 Client

#### Connection Type

UCMM (Class 1 and 3 connection not supported)

#### Adapter Timeout

1000 ms

#### Services

The following services are implemented:

Code	Service Name
0x0E	Get_Attribute_Single
0x10	Set_Attribute_Single

#### Addressing

Class, Instance, Attribute

### 8.2 Adapter

#### 8.2.1 Identity Object (0x01)

##### Class Attributes

No attributes are implemented.

##### Instances

Instance 1 is implemented with the following attributes:

ID	Access	Name	Value
1	Get	Vendor ID	90
2	Get	Device Type	100
3	Get	Product Code	85
4	Get	Revision	1
5	Get	Status	1
6	Get	Serial Number	...
7	Get	Product Name	Netbiter

##### Services

The following services are implemented:

Code	Class	Instance	Service Name
0x01	No	Yes	Get_Attributes_All
0x0E	No	Yes	Get_Attribute_Single

## 8.2.2 TCP/IP Interface Object (0xF5)

### Class Attributes

The following class attributes are implemented:

ID	Access	Name
1	Get	Revision

### Instances

Instance 1 is implemented with the following attributes:

ID	Access	Name
1	Get	Status
2	Get	Configuration Capability
3	Get	Configuration Control
4	Get	Physical Link Object
5	Get	Interface Configuration
6	Get	Hostname
13	Get/Set	Encapsulation Inactivity Timeout

### Services

The following services are implemented:

Code	Class	Instance	Service Name
0x0E	No	Yes	Get_Attribute_Single
0x10	No	Yes	Get_Attributes_Single

## 8.2.3 Ethernet Link Object (0xF6)

### Class Attributes

No attributes are implemented (= Rev 1).

### Instances

Instance 1 is implemented with the following attributes:

ID	Access	Name
1	Get	Interface Speed
2	Get	Interface Flags
3	Get	Physical Address

### Services

The following services are implemented:

Code	Class	Instance	Service Name
0x0E	No	Yes	Get_Attribute_Single

## 9. Local Configuration

**⚠** *Local configuration is normally not required and should only be carried out when necessary. Please read the instructions below carefully.*

The Netbiter EasyConnect gateways (except EC220) contain a built-in local web server that can be used for initial configuration and troubleshooting.

Netbiter Argos is the preferred way of configuring the gateway and should be used whenever possible. The only settings that should be made from the local web pages are:

- Proxy settings (if required)
- Modem / Ethernet connection mode (EC250/EC350 only)
- PIN code settings – if using a PIN code for the SIM card (EC250 only)

### 9.1 Ethernet Connection

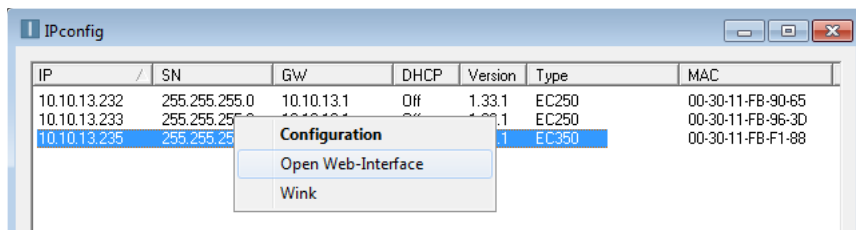
The PC used to access the local configuration must be on the same Ethernet network subnet as the gateway. The PC can also be connected directly to the gateway with an Ethernet cable. This may require the IP address for the Ethernet interface on the PC to be changed.

#### Finding the IP address of the Netbiter gateway

Download and use the **IPconfig** utility available from [www.netbiter.com/support](http://www.netbiter.com/support). The utility scans the local network for Netbiter gateways and displays their IP addresses.

Right-click on the entry for a gateway in IPconfig and select **Open Web Interface** to open its local web server in your default browser. You can also type the IP address directly into the web browser address field.

(MAC = System ID for the gateway)



When using DHCP, you can also find the IP address of the gateway by logging in to the DHCP server on your network. Contact your network administrator if required.

### 9.2 USB Connection (EC310 / EC350)

Netbiter EC310 and EC350 also have a USB connector for accessing the local web server. See *“Netbiter EC310 / EC350” on page 43*.

## 9.3 Netbiter EC150

### 9.3.1 Login

Enter the IP address of the gateway in a web browser to log in. The default user name is *admin*, and the password is the activation code supplied with the unit.

The only changes that should be made locally are the settings for the network connection and/or firmware updates. All other settings are provided for troubleshooting and informational purposes only. Changes made to these other settings will not be synchronized with Netbiter Argos.

### 9.3.2 Ethernet Settings

When DHCP addressing is enabled the unit will automatically receive the settings for IP address, subnet mask, default gateway, and DNS. If not using DHCP, these settings must be entered manually. Contact your network administrator if in doubt.



### 9.3.3 System Settings

This page is mainly used when updating the firmware in the unit.

netbiter EasyConnect  
EC150

System ID: 003011FB6F91 Logout

**Status** Modbus Ethernet **System** Netbiter Argos About

---

**Firmware**

Select an update file (.nbu or .nbp)  No file selected.

Name	Version	Information
<b>Kernel version</b>	1.2.26	
<b>Application version</b>	1.31.0 (build 314)	

---

**Tools**

Get system log files

Restart module

Reset to factory default settings

---

**User interface**

Language English ▼

Password Change password:

Repeat password

Check for firmware updates at [support.netbiter.com](http://support.netbiter.com)

#### Updating the Netbiter EC150 Firmware

1. Download the latest firmware file from [www.netbiter.com/support](http://www.netbiter.com/support) to your PC.
2. On the **System** page, press **Browse** and locate the firmware file that you downloaded.
3. Press **Update** to start the update.



*Do not close the web browser page while the update is in progress.*

## 9.4 Netbiter EC250

### 9.4.1 Login

Enter the IP address of the gateway in a web browser to log in. The default user name is *admin*, and the password is the activation code supplied with the unit.

The only changes that should be made locally are the settings for the network connection and the PIN code. All other settings are provided for troubleshooting and informational purposes only. Changes made to these other settings will not be synchronized with Netbiter Argos.

### 9.4.2 Modem Settings/PIN code

If using a SIM card with an active PIN code, click **Enable** and enter the PIN code provided by the card supplier. Click **Test PIN** to test the PIN code.



*This setting cannot activate/deactivate PIN code security or change the PIN code on the SIM card. To do this, install the SIM card in a mobile phone and follow the instructions from the manufacturer.*

### 9.4.3 GPRS/Ethernet Failover Settings

GPRS / Ethernet failover Settings	
Connection mode	Ethernet failover to GPRS
Connection time before restore to Ethernet	Try Ethernet after 8 hour
Access point name (APN)	apn.tele
User name	
Password	

#### Connection Mode

Connection mode	Explanation
GPRS only	Ethernet disabled (default mode)
Ethernet failover to GPRS	The unit will automatically switch to GPRS if Ethernet connection is lost.
Ethernet only	GPRS modem disabled

#### Connection Time Before Restore to Ethernet

Sets the time before the gateway should retry the Ethernet connection after a failover to GPRS. The cycle will be repeated until Ethernet communication has been reestablished.

#### Access Point Name (APN)

The identifying name used to connect to a mobile network. The network operator for the SIM card can supply this information.

#### User name / Password

Required by some mobile network operators.

Click **Save settings** to save changes.

## 9.4.4 Proxy Servers

### TCP Ports

First check that the proxy server is set up to use at least one of the following ports:

- Port 443
- Port 80
- Port 5222

If not, the gateway will automatically try to use a port that is open to the Internet.

**⚠** *The ports listed above must be used to communicate with Netbiter Argos. A port on the LAN side might have another port defined for the proxy, but still needs to use one of the above ports on the WAN side (port forwarding).*

### Proxy Types

The type of proxies that can be used are:

- HTTP
- Socks 4(a)
- Socks 5

## 9.4.5 Local Proxy Setup

1. Select **Netbiter Argos** in the local configuration menu.
2. Select the proxy type to use.

The screenshot shows the 'Netbiter Argos configuration' window. The 'Use proxy to connect to internet' dropdown menu is open, showing options: None, HTTP, SOCKS4(a), and SOCKS5. The 'None' option is currently selected.

3. Enter the proxy server address.

The screenshot shows the 'Netbiter Argos configuration' window with the 'Use proxy to connect to internet' dropdown menu set to 'HTTP'. Below this, there are input fields for 'Server', 'Port', 'Username', and 'Password'. The 'Port' field currently contains the value '0'.

4. Enter the port to use on the LAN side. If left blank, this will be set to port 443.
5. Enter the user name and password (if required).
6. Click **Save settings**.

## 9.5 Netbiter EC310 / EC350

### 9.5.1 Select Login Method

The Netbiter EC310/350 models provide local access via either Ethernet or USB cable.

#### USB connection

Connect a USB Micro B cable between the PC and the gateway. After the device driver is installed, a virtual network card will automatically be created.



The local configuration pages of the gateway can now be accessed by entering the IP address **169.254.200.200** in a web browser.

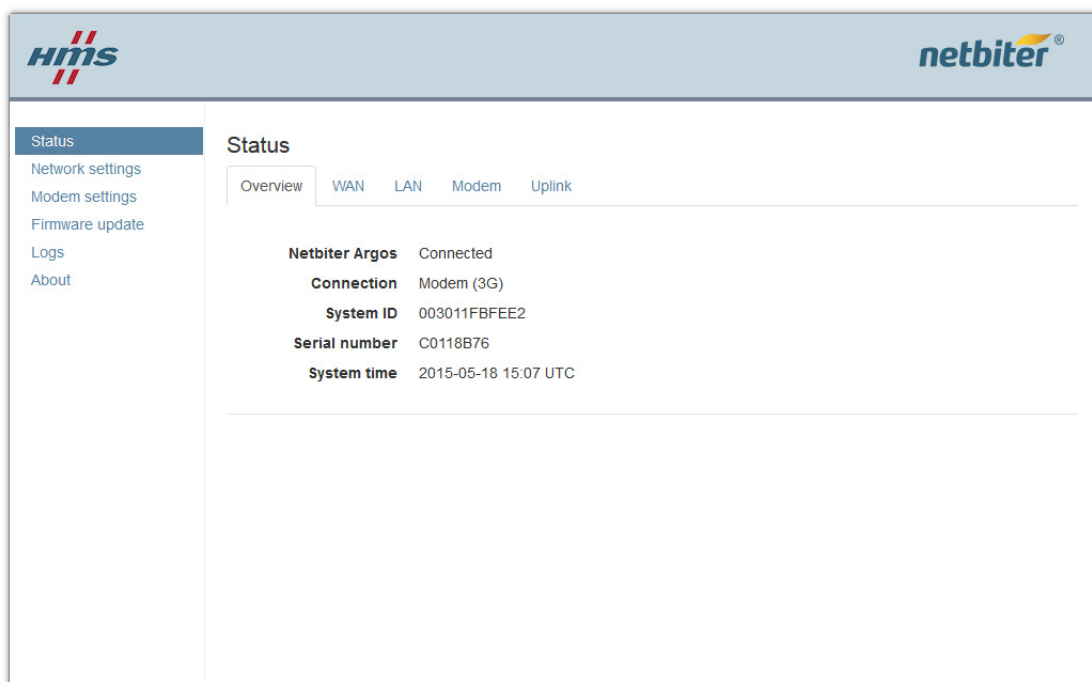
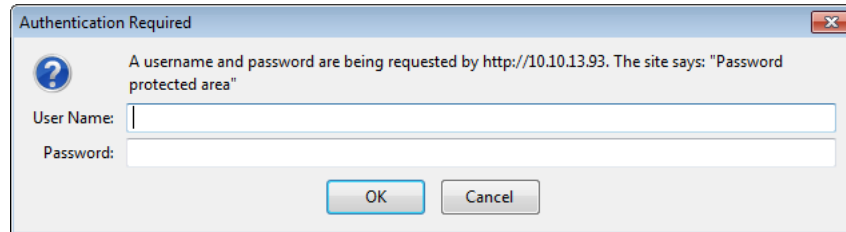
#### Ethernet Connection

Connect an Ethernet cable to the **WAN** socket on the Netbiter EC310/350, and then log in to the unit by entering the IP address of the unit in the URL field of a web browser.

See *“Ethernet Connection” on page 37* on how to obtain the IP address of the gateway.

## 9.5.2 Login

Enter the IP address of the gateway in a web browser to log in. The default user name is *admin*, and the password is the activation code supplied with the unit.



The only changes that should be made locally are the settings for the network connection, and the modem settings (EC350 only). All other settings are provided for troubleshooting and informational purposes only. Changes made to these other settings will not be synchronized with Netbiter Argos.

### 9.5.3 WAN Settings

The screenshot shows the Netbiter configuration interface for WAN settings. The 'WAN' tab is active. The left sidebar contains navigation links: Status, Network settings (highlighted), Modem settings, Firmware update, Logs, and About. The main content area has two tabs: 'WAN' and 'LAN'. Under the 'WAN' tab, there are two checked checkboxes: 'Enable WAN interface' and 'Use DHCP to assign an IP address automatically'. Below these are input fields for: IP address assigned to the system (10.10.50.158), Netmask (255.255.255.0), Gateway (10.10.50.1), Primary DNS (10.10.100.88), and Secondary DNS (10.10.100.87).

The WAN interface should be enabled when connecting to Netbiter Argos via Ethernet.

When DHCP addressing is enabled the unit will automatically receive the settings for IP address, subnet mask, default gateway, and DNS. If not using DHCP, these settings must be entered manually. Contact your network administrator if in doubt.

### 9.5.4 Proxy Settings

The screenshot shows the Netbiter configuration interface for Proxy settings. The 'Enable Proxy settings' checkbox is checked. Below it are three input fields: 'Proxy IP address', 'Proxy port', and 'Proxy protocol' (set to SOCKS4).

If using a proxy server, check the box and enter the IP address, port and protocol to use.

### 9.5.5 LAN Settings

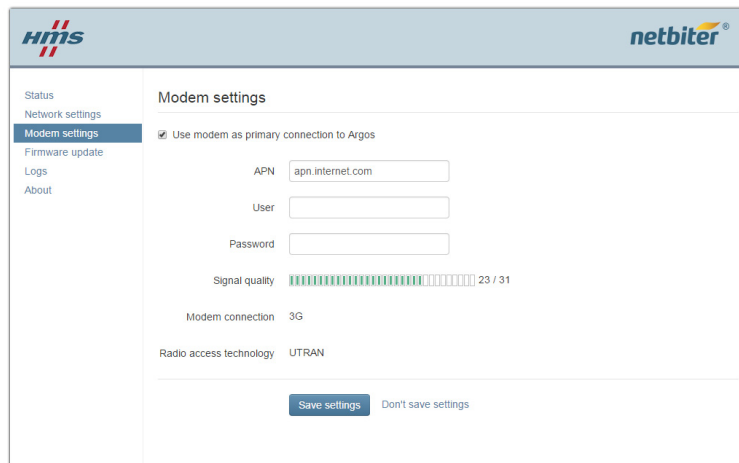
The LAN interface should be enabled when using EtherNet/IP or Modbus TCP applications, or when using the Remote Access feature.

The screenshot shows the Netbiter configuration interface for LAN settings. The 'LAN' tab is active. The left sidebar contains navigation links: Status, Network settings (highlighted), Modem settings, Firmware update, Logs, and About. The main content area has two tabs: 'WAN' and 'LAN'. Under the 'LAN' tab, there are two checkboxes: 'Enable LAN interface' (checked) and 'Use DHCP to assign an IP address automatically' (unchecked). Below these is an input field for: IP address assigned to the system (192.168.1.100).



***Do not connect the LAN and WAN ports to the same physical network.***

## 9.5.6 Modem Settings (Netbiter EC350 only)



The screenshot shows the 'Modem settings' page in the HMS Netbiter web interface. The page has a sidebar on the left with navigation links: Status, Network settings, Modem settings (highlighted), Firmware update, Logs, and About. The main content area is titled 'Modem settings' and contains the following elements:

- A checked checkbox: 'Use modem as primary connection to Argos'
- APN: 'apn.internet.com' (text input field)
- User: (text input field)
- Password: (text input field)
- Signal quality: A progress bar showing 23 / 31 bars filled.
- Modem connection: '3G'
- Radio access technology: 'UTRAN'
- Buttons: 'Save settings' and 'Don't save settings'

**Important!** - There is no support in the Netbiter EC350 for using a PIN code on the SIM card. For a SIM card with an active PIN code, the code must first be deactivated by inserting the card into a mobile phone and performing the operation there. The PIN code **cannot** be deactivated in the Netbiter EC350.

### Enable data connection on modem (Use modem for Argos connection)

Sets the modem to be used for communication as default as long as there is a good mobile signal. If the WAN interface is also enabled, the gateway will automatically switch to Ethernet communication if mobile communication is interrupted.

### APN (Access Point Name)

This is the identifying name used to connect to a mobile network. The network operator for the SIM card can supply this information.

### User name / Password

Required by some mobile network operators.

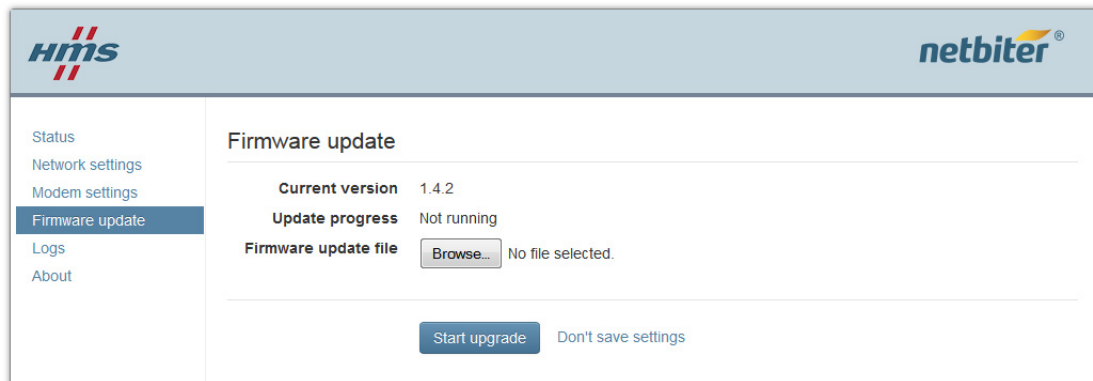
Click **Save settings** to save changes.

### Signal Quality, Modem Connection, Radio Access Technology

These sections provide information about the modem's current connection.




## 9.5.7 Firmware Update



1. Download the latest firmware file from [www.netbiter.com/support](http://www.netbiter.com/support) to your PC.
2. On the **Firmware update** page, press **Browse** and locate the new firmware file that you downloaded.
3. Press **Start upgrade** to start the update.

---

 *Do not close the web browser page while the update is in progress.*

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## 10. Firmware Update

### Alternative Methods

The easiest way to perform a firmware update is from the Netbiter Argos web pages. Please refer to the *Netbiter Argos User Manual* for instructions.

If Netbiter Argos cannot be used, the firmware update can also be carried out via the local configuration web pages. See "*Local Configuration*" on page 37.

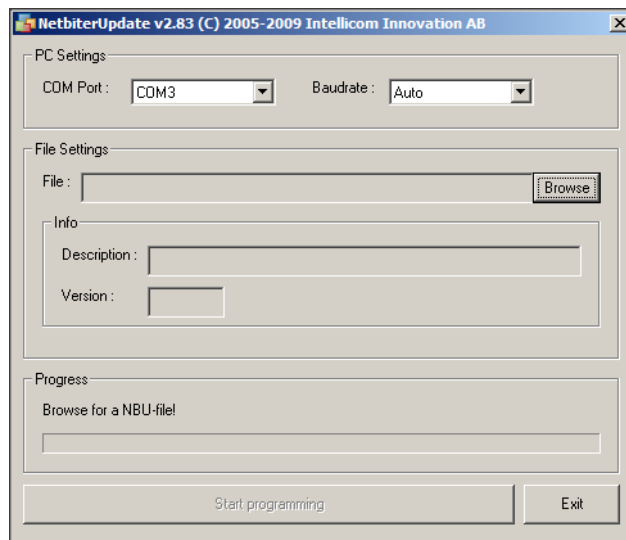
If none of the above methods can be used, it is also possible to update the firmware in EC150 and EC250 via a connection to a local PC using the free tool **Netbiter Update**.

### 10.1 Using Netbiter Update (EC150/250)

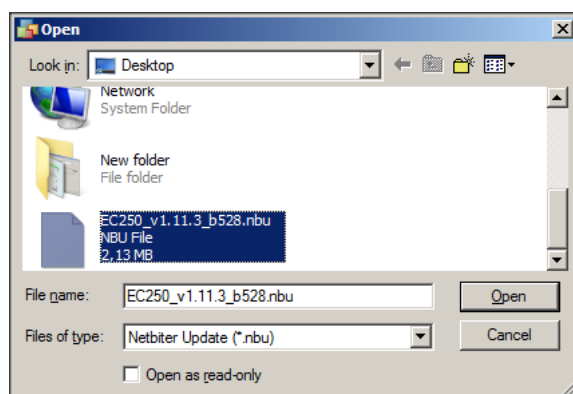
#### Requirements

- Null-modem cable
- PC with COM port

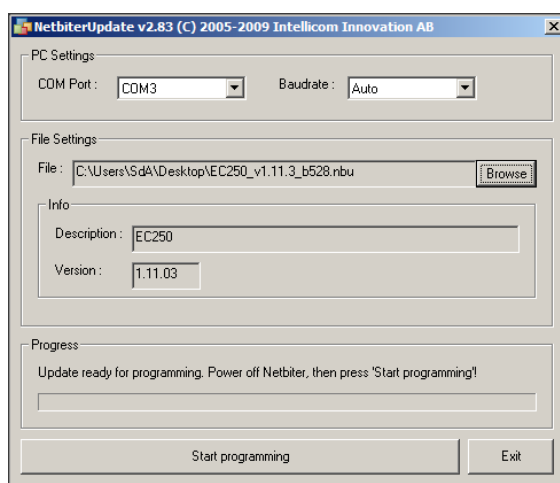
1. Download **Netbiter Update** from [www.netbiter.com/support](http://www.netbiter.com/support) to your PC.
2. Connect a null-modem cable between the COM port on your PC and the 9-pin D-sub connector on the Netbiter gateway.
3. Start Netbiter Update.  
COM Port should already be selected. Leave the **Baudrate** setting at **Auto**.



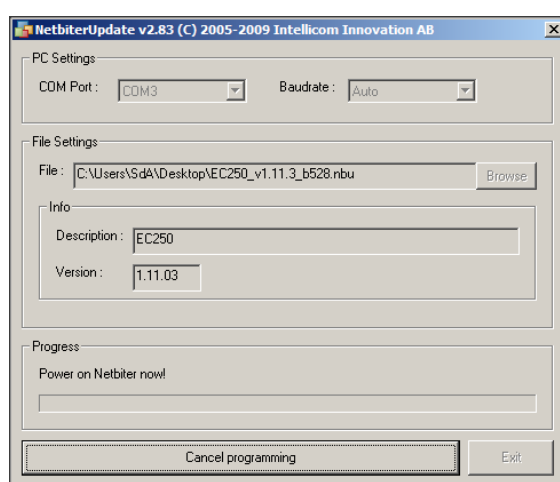
- Click **Browse** to locate the firmware file you downloaded, then click **Open**.



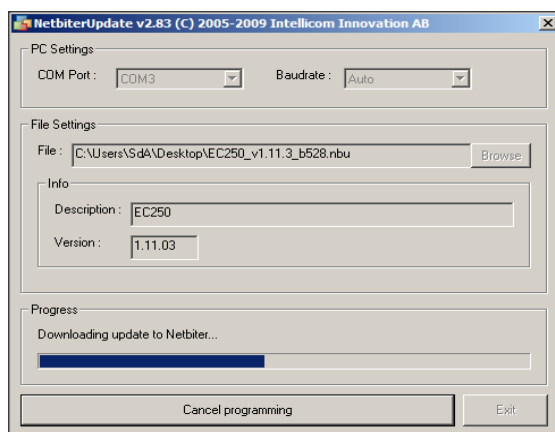
- Power OFF the Netbiter gateway.
- Click **Start Programming** and wait for the process to complete.



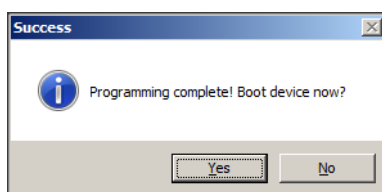
- Power ON the Netbiter gateway when prompted to do so.



8. Wait while the tool upgrades the gateway..



9. When the update is complete you will be asked if you wish to reboot the unit. Click **Yes** to complete the process.

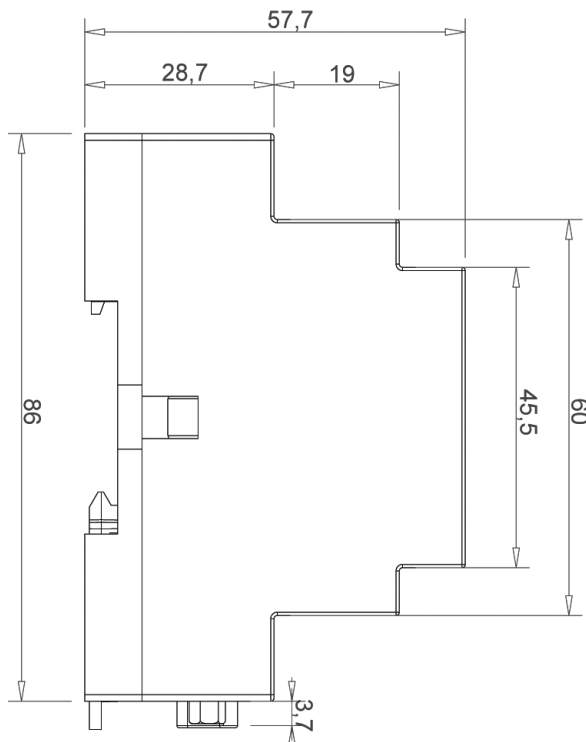
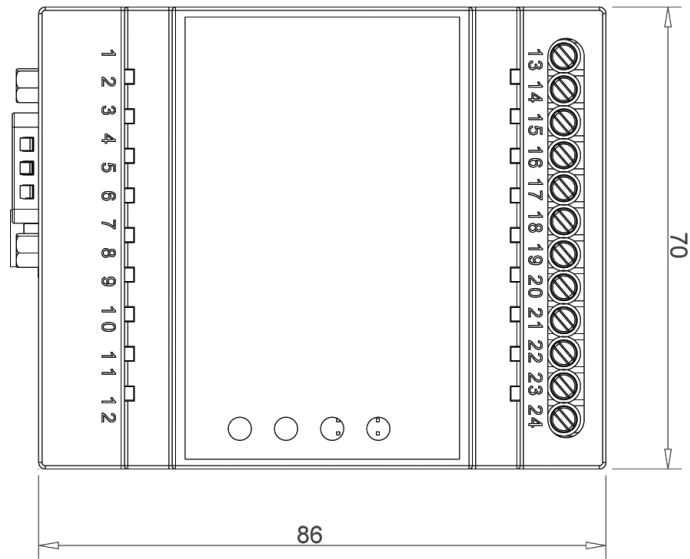


# 11. Technical Specifications

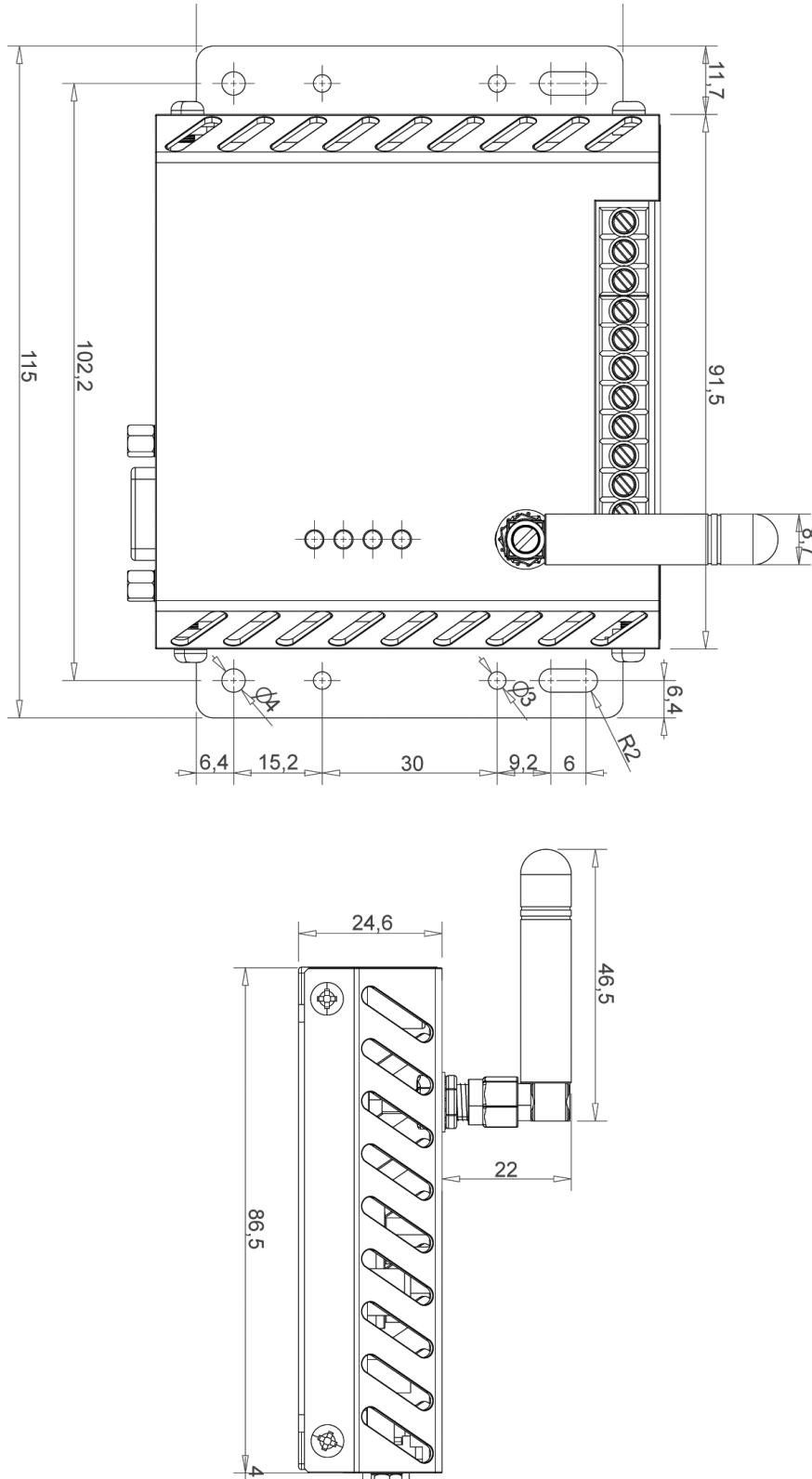
## 11.1 Dimensions

All measurements are in millimetres unless otherwise specified.

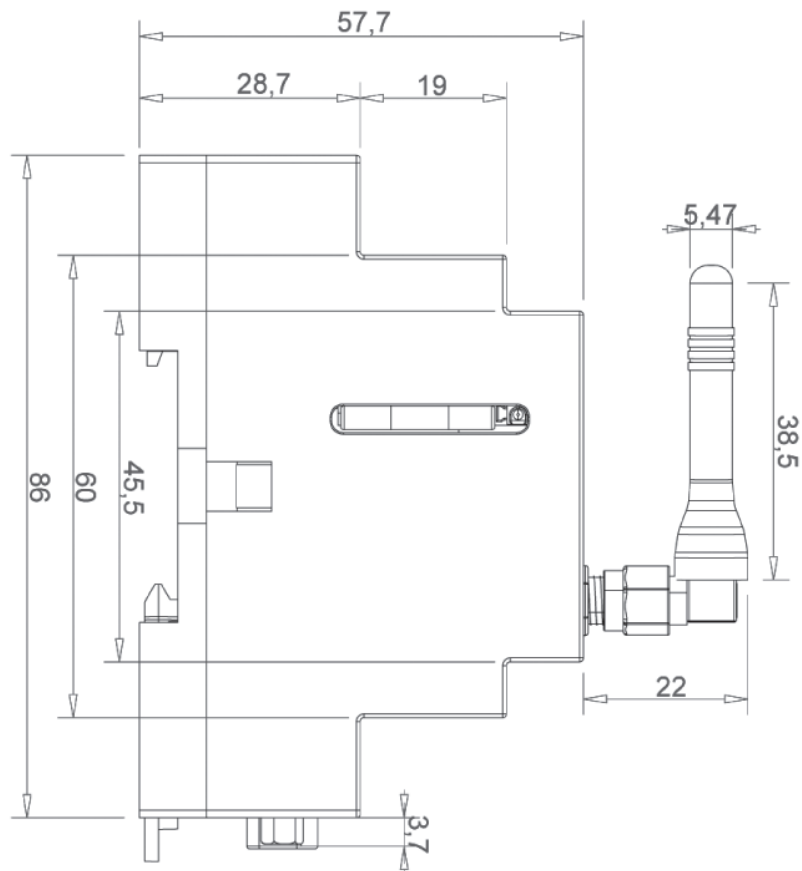
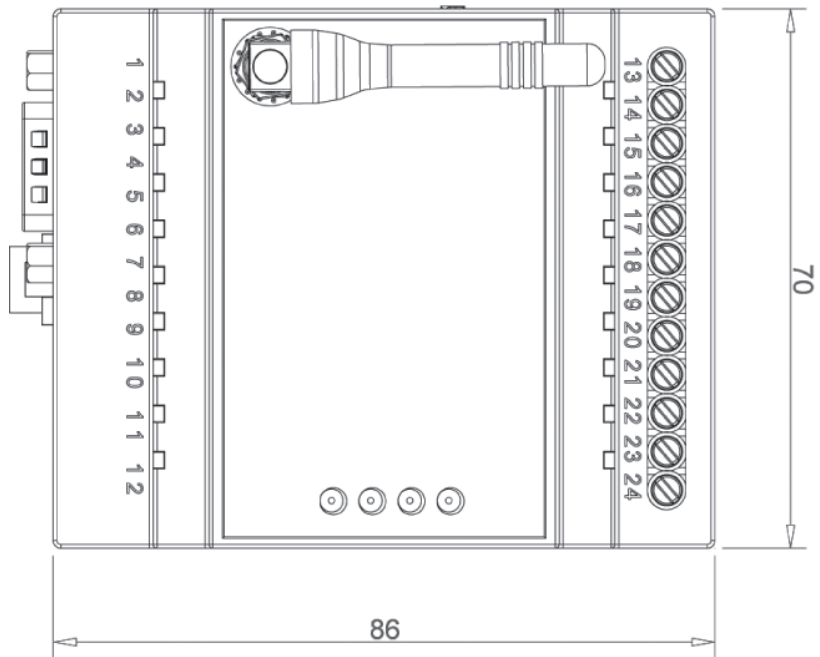
### Netbiter EC150



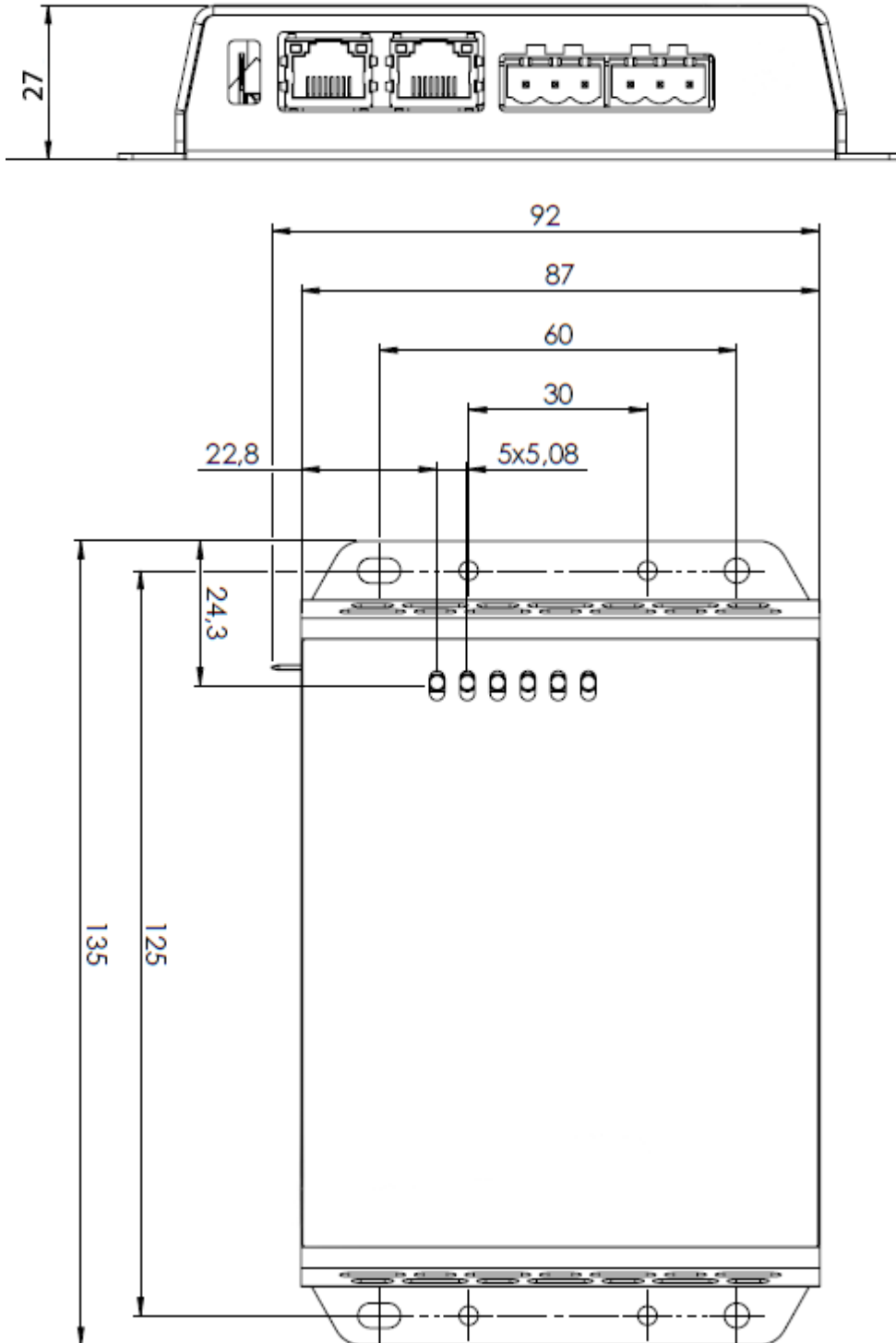
### Netbiter EC220



### Netbiter EC250

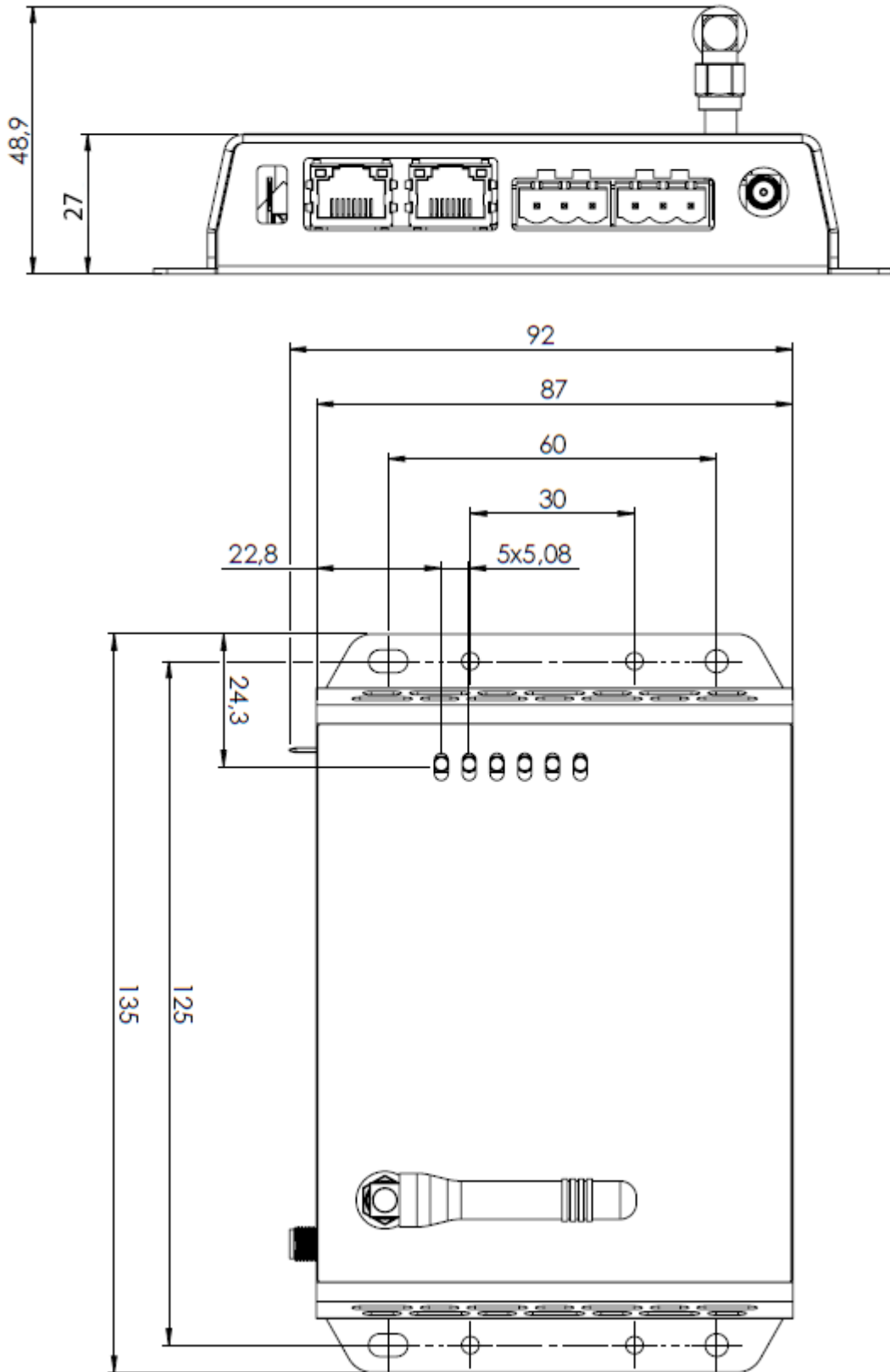


### Netbiter EC310





### Netbiter EC350



## 11.2 Specifications EC150 & EC220

	Netbiter EC150	Netbiter EC220
Order code	NB1001	NB1000
Ethernet	10/100 Mbit/s	-
GPRS	-	Quad band GPRS Class 12 850/900/1800/1900 MHz
Alarms	Email, SMS	Email, SMS
Relay output (max 24 V AC/DC, 1 A)	-	1
Digital inputs (isolated max 24 VDC)	2	2
Analog inputs	-	2 inputs (PT100, 0–10 V or 0–20 mA) Resolution: 11.25 bit (raw value 0–2400) Input tolerance 0–10 V: R=1.55 %, A/D=2 mV Input tolerance 4–20 mA: 2.14 %, A/D=2 mV
Analog output (0–10 V)	-	1
Serial port #1	RS-232 up to 115.2 kbit/s	RS-232 up to 115.2 kbit/s
Serial port #2	RS-232/RS-485 up to 115.2 kbit/s (isolated)	RS-485 up to 115.2 kbit/s (isolated)
Antenna connector	-	SMA female
Protocols	Modbus-RTU, ASCII, TCP/IP	Modbus-RTU
Connected devices	32	16
Baud rates	300–115200 baud	300–115200 baud
Wall mounting	No	Yes
DIN rail mounting	Yes	Yes (optional)
Dimensions (WxDxH)	90 x 70 x 58 mm	92 x 115 x 25 mm
Operating temperature	-40 to +65 °C	-30 to +65 °C
Storage temperature	-40 to +85 °C	-40 to +85 °C
Housing class	IP20	IP20
Power supply	9–24 V DC or AC	9–24 V DC
Power consumption	2 W	2 W
Certifications	CE, ROHS	CE, cULUS, FCC/IC, PTCRB

## 11.3 Specifications EC250, EC310 & EC350

	Netbiter EC250	Netbiter EC310	Netbiter EC350
Order codes	NB1003	NB1007	NB1005 (NB1008 - Without antenna)
Ethernet	10/100 Mbit/s	10/100 Mbit/s	
Mobile communication	Quad band GPRS Class 12 850/900/1800/1900 MHz	N/A	5-band 3G/UMTS (WCDMA/FDD): 800/850, 900, 1900, 2100 MHz Quad-band GSM/GPRS: 850, 900, 1800, 1900 MHz
Alarms	Email, SMS	Email, SMS	
Relay output (max 24V AC/DC, 1A)	N/A	1	
Digital inputs	2, isolated max 24 VDC	2, dry contact type	
Analog inputs	N/A	4 inputs, all supporting 0–10 V or 0–20 mA. Current: 0–20 mA, R=3.3 %, A/D=0.1 mV+0.15 % Voltage: 0–10 VDC, R=1.7 %, A/D=0.1 mV+0.15 % Support for PT100 on AI1 and AI3. Sensor range -50 to +150 °C. 16-bit resolution.	
Serial port #1	RS-232 up to 115.2 kbit/s	RS-232 up to 115.2 kbit/s	
Serial port #2	RS-485 up to 115.2 kbit/s	RS-485 up to 115.2 kbit/s	
Antenna connector	SMA female	N/A	SMA female
Protocols	Modbus-RTU, ASCII, TCP	Modbus-RTU, Modbus TCP. EtherNet/IP	
Connected devices	32	32	
Baud rates	300–115200 baud	1200–115200 baud	
Wall mounting	No	Yes	
DIN rail mounting	Yes	Yes (optional)	
Dimensions (WxDxH)	90 x 70 x 58 mm	135 x 92 x 27 mm	
Operating temperature	-30 to +65 °C	-40 to +65 °C	
Storage temperature	-40 to +85 °C	-45 to +85 °C	
Housing class	IP20	IP20	
Power supply	9–24 VDC	12–48 VDC	
Power consumption	3 W	4.5 W (typical) 6 W (maximum)	
Certifications	CE RoHS cUL-us FCC/IC (Pending) PTCRB (Pending)	CE RoHS cUL-us ATEX/Haz.Loc (Pending)	CE RoHS cUL-us Telec JATE FCC IC PTCRB RCM ATEX/Haz.Loc (Pending)

## 11.4 Regulatory notices

### 11.4.1 FCC Compliance Statement

The design of this equipment complies with U.S. Federal Communications Commission (FCC) guidelines respecting safety levels of radio frequency (RF) exposure for Mobile devices.

This product contains FCC ID: **QIPPHS8-P**

RF Exposure - This device is only authorized for use in a mobile application. At least 20 cm of separation distance between the device and the user's body must be maintained at all times.

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**⚠ CAUTION:** *Any changes or modifications not expressly approved by HMS Industrial Networks AB could void the user's authority to operate the equipment.*

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**⚠** *This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*

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### 11.4.2 Industry Canada Statement

This product contains IC ID: **7380A-PHS8P**

### 11.4.3 Netbiter EC350 Telecommunications Compliance

***Japanese Radio Law and Japanese Telecommunications Business Law Compliance.***

*This device is granted pursuant to the Japanese Radio Law (電波法)*

*and the Japanese Telecommunications Business Law (電気通信事業法)*

*This device should not be modified (otherwise the granted designation number will become invalid)*