

User Manual

Revision 0.000
English

BACnet Master / MQTT Broker - Converter

(Order Code: HD67C08-IP-B2, HD67C08-IP-G43-B2, HD67C08-IP-G43-E-B2, HD67C08-IP-G43-VPN-B2, HD67C08-IP-G43-E-VPN-B2, HD67C08-MSTP-B2, HD67C08-MSTP-G43-B2, HD67C08-MSTP-G43-E-B2, HD67C08-MSTP-G43-VPN-B2, HD67C08-MSTP-G43-E-VPN-B2)

For Website information:

www.adfweb.com?Product=HD67C08-IP-B2
www.adfweb.com?Product=HD67C08-IP-G43-B2
www.adfweb.com?Product=HD67C08-IP-G43-E-B2
www.adfweb.com?Product=HD67C08-IP-G43-VPN-B2
www.adfweb.com?Product=HD67C08-IP-G43-E-VPN-B2
www.adfweb.com?Product=HD67C08-MSTP-B2
www.adfweb.com?Product=HD67C08-MSTP-G43-B2
www.adfweb.com?Product=HD67C08-MSTP-G43-E-B2
www.adfweb.com?Product=HD67C08-MSTP-G43-VPN-B2
www.adfweb.com?Product=HD67C08-MSTP-G43-E-VPN-B2

For Price information:

www.adfweb.com?Price=HD67C08-B2

Benefits and Main Features:

- ⊕ Power Supply 18...35V DC and 8...24 V AC
- ⊕ Temperature range: -40°C/+85°C (-40°F/+185°F)



User Manual

For others MQTT Broker products, see also the following links:

Converter MQTT Broker to

www.adfweb.com?Product=HD67C00
www.adfweb.com?Product=HD67C03
www.adfweb.com?Product=HD67C04
www.adfweb.com?Product=HD67C05
www.adfweb.com?Product=HD67C06
www.adfweb.com?Product=HD67C07
www.adfweb.com?Product=HD67C09
www.adfweb.com?Product=HD67C10
www.adfweb.com?Product=HD67C11
www.adfweb.com?Product=HD67C12
www.adfweb.com?Product=HD67C13
www.adfweb.com?Product=HD67C14
www.adfweb.com?Product=HD67C15
www.adfweb.com?Product=HD67C16
www.adfweb.com?Product=HD67C17
www.adfweb.com?Product=HD67C18
www.adfweb.com?Product=HD67C19
www.adfweb.com?Product=HD67C20
www.adfweb.com?Product=HD67C21
www.adfweb.com?Product=HD67C22
www.adfweb.com?Product=HD67C23
www.adfweb.com?Product=HD67C24
www.adfweb.com?Product=HD67C25
www.adfweb.com?Product=HD67C26
www.adfweb.com?Product=HD67C27
www.adfweb.com?Product=HD67C28
www.adfweb.com?Product=HD67C29
www.adfweb.com?Product=HD67C30
www.adfweb.com?Product=HD67C31
www.adfweb.com?Product=HD67C32
www.adfweb.com?Product=HD67G68
www.adfweb.com?Product=HD67G69

(MQTT Broker)
 (Serial)
 (Modbus Master)
 (Modbus Slave)
 (Modbus TCP Master)
 (Modbus TCP Slave)
 (BACnet Slave)
 (CAN)
 (CANopen)
 (DALI)
 (DeviceNet Master)
 (DeviceNet Slave)
 (DMX)
 (EtherNet/IP Slave)
 (J1939)
 (KNX)
 (NMEA 0183)
 (NMEA 2000)
 (PROFIBUS Master)
 (PROFIBUS Slave)
 (PROFINET Slave)
 (SNMP Manager)
 (SNMP Agent)
 (EtherNet/IP Master)
 (PROFINET Master)
 (OPC UA Client)
 (OPC UA Server)
 (Ethernet)
 (IEC61850 Server)
 (IEC61850 Client)
 (HTTP/REST Client)
 (HTTP/REST Server)

Do you have an your customer protocol?

www.adfweb.com?Product=HD67003

Do you need to choose a device? do you want help?

www.adfweb.com?Cmd=helpme



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UPDATED DOCUMENTATION:

Dear customer, we thank you for your attention and we remind you that you need to check that the following document is:

- ✚ Updated
- ✚ Related to the product you own

To obtain the most recently updated document, note the “document code” that appears at the top right-hand corner of each page of this document.

With this “Document Code” go to web page www.adfweb.com/download/ and search for the corresponding code on the page. Click on the proper “Document Code” and download the updates.

REVISION LIST:

| Revision | Date | Author | Chapter | Description |
|----------|------------|--------|---------|-----------------------|
| 0.000 | 22/05/2025 | Mdb | All | First release version |
| | | | | |
| | | | | |

WARNING:

ADFweb.com reserves the right to change information in this manual about our product without warning. ADFweb.com is not responsible for any error this manual may contain.

TRADEMARKS:

All trademarks mentioned in this document belong to their respective owners.

SECURITY ALERT:**GENERAL INFORMATION**

To ensure safe operation, the device must be operated according to the instructions in the manual. When using the device, legal and safety regulation are required for each individual application. The same applies also when using accessories.

INTENDED USE

Machines and systems must be designed so the faulty conditions do not lead to a dangerous situation for the operator (i.e. independent limit switches, mechanical interlocks, etc.).

QUALIFIED PERSONNEL

The device can be used only by qualified personnel, strictly in accordance with the specifications. Qualified personnel are persons who are familiar with the installation, assembly, commissioning and operation of this equipment and who have appropriate qualifications for their job.

RESIDUAL RISKS

The device is state-of-the-art and is safe. The instruments can represent a potential hazard if they are inappropriately installed and operated by untrained personnel. These instructions refer to residual risks with the following symbol:

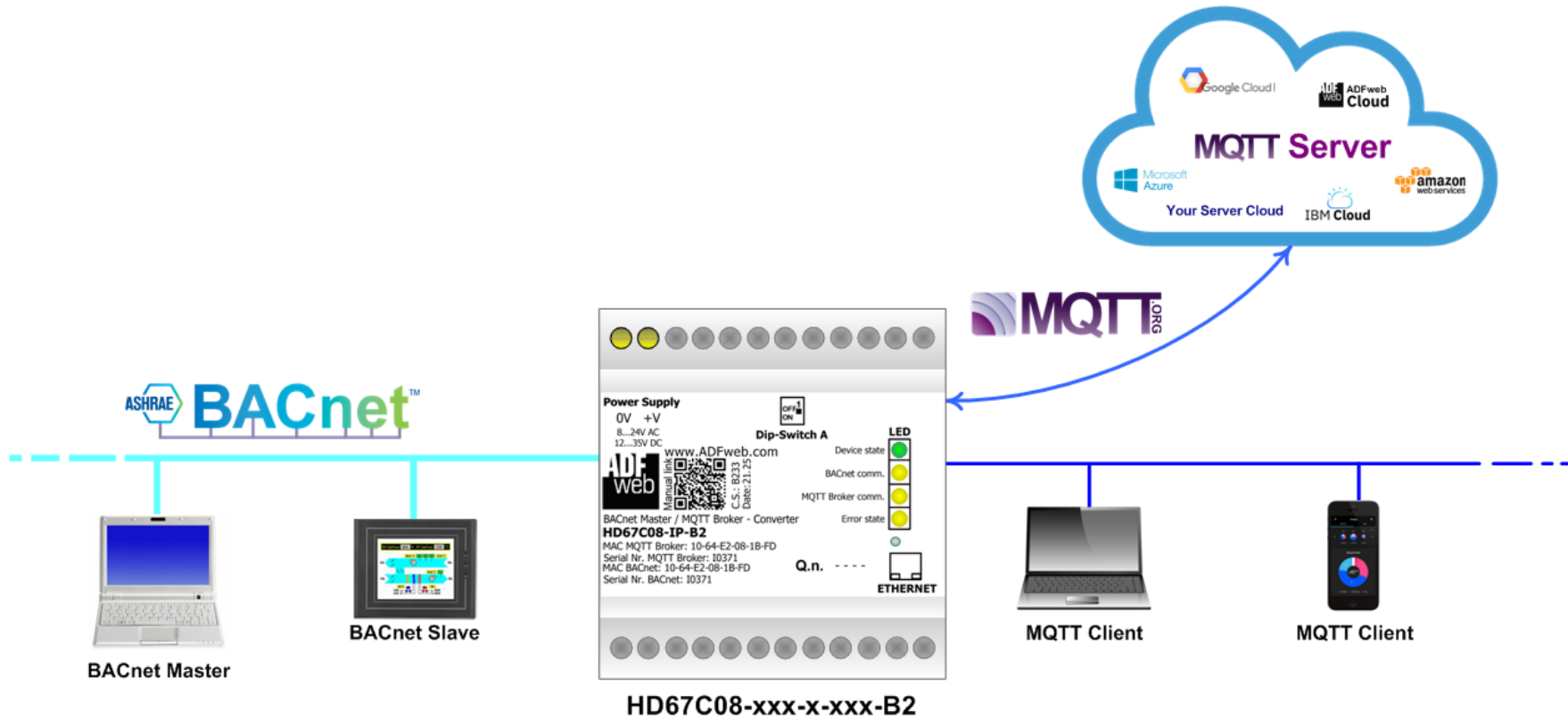


This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

CE CONFORMITY

The declaration is made by our company. You can send an email to support@adfweb.com or give us a call if you need it.

EXAMPLE OF CONNECTION:



CONNECTION SCHEME:

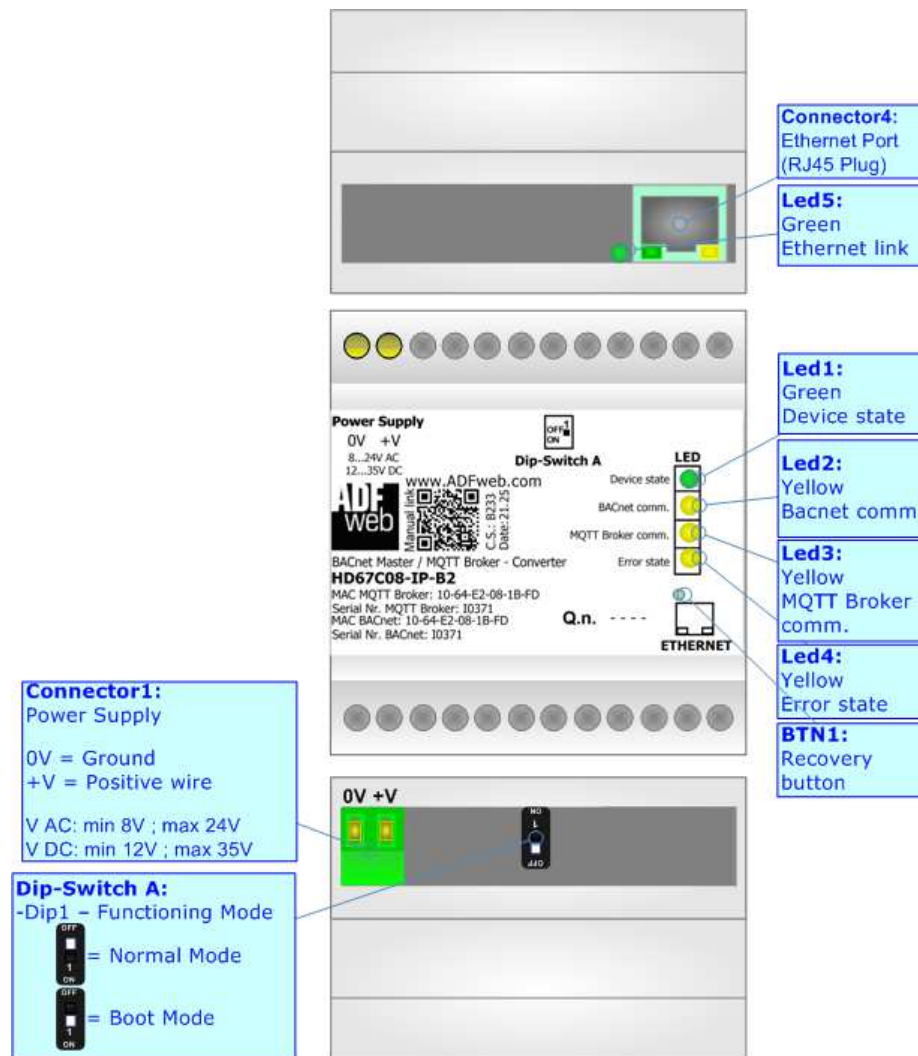


Figure 1a: Connection scheme for HD67C08-IP-B2

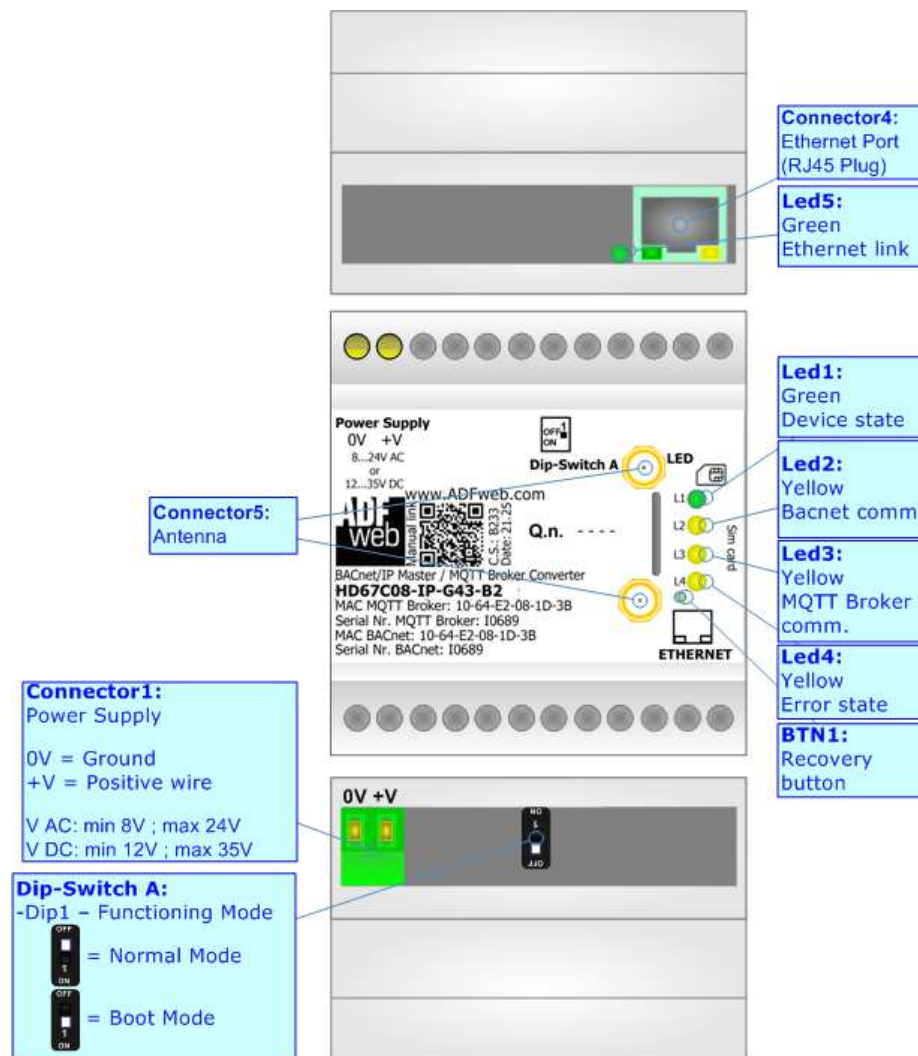


Figure 1b: Connection scheme for HD67C08-IP-G43-x-xxx-B2

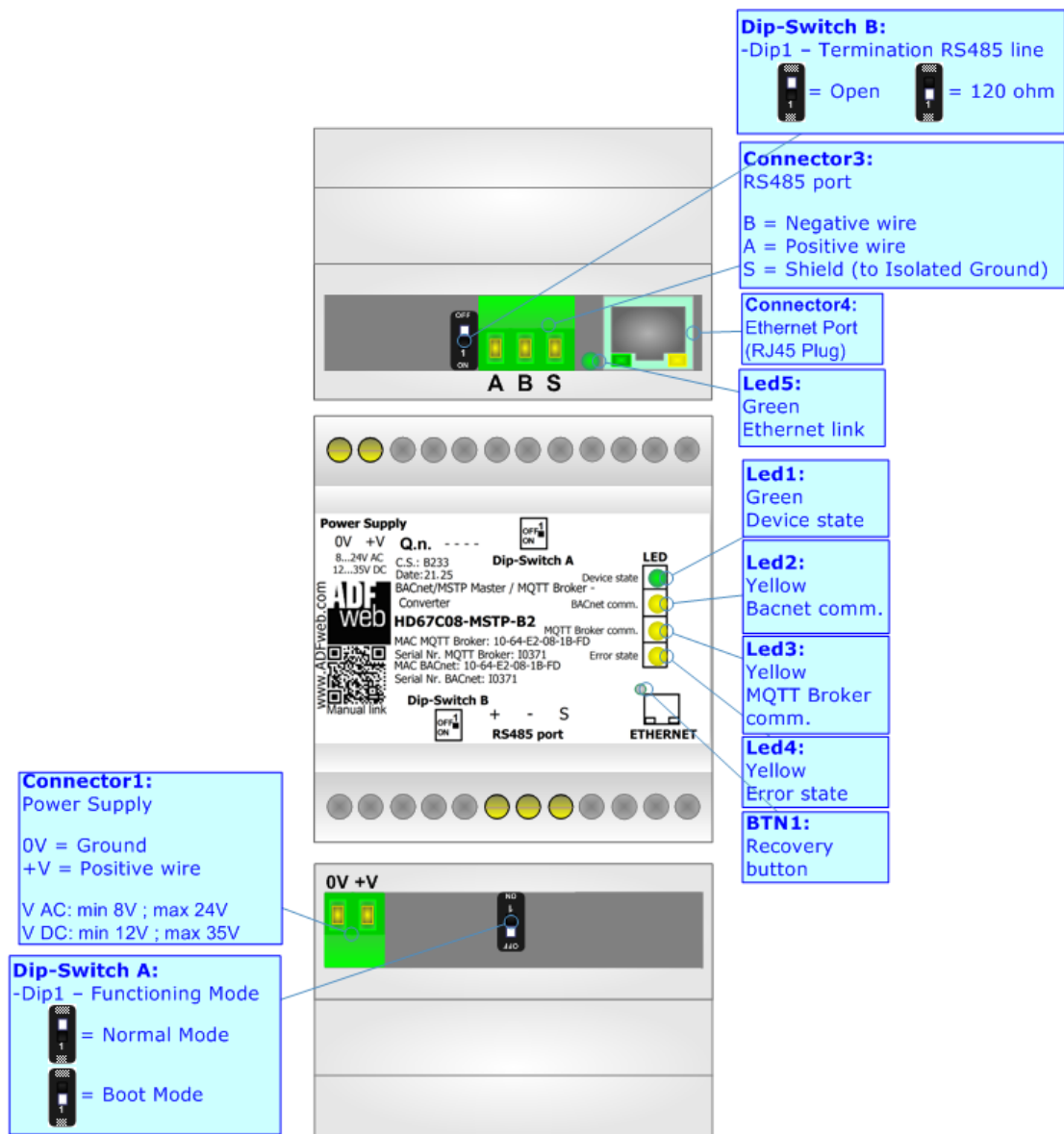


Figure 1c: Connection scheme for HD67C08-MSTP-B2

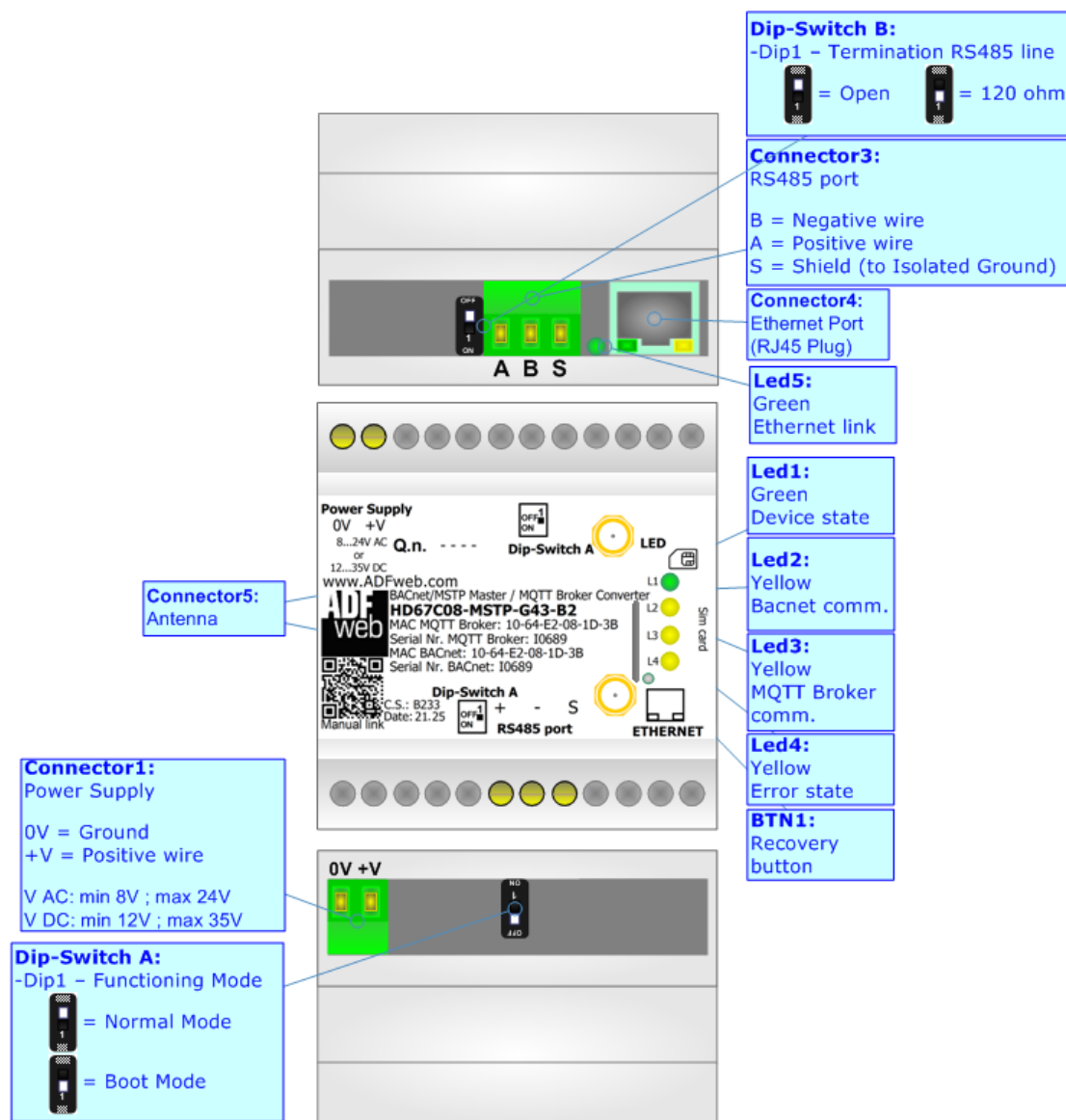


Figure 1d: Connection scheme for HD67C08-MSTP-G43-x-xxx-B2

CHARACTERISTICS:

The HD67C08-xxxx-xxx-x-xxx-B2 is a BACnet Master / MQTT Broker Converter.

It allows the following characteristics:

- Electrical isolation between Ethernet and Power Supply;
- Mountable on 35mm Rail DIN;
- Wide power supply input range: 12...35V DC and 8...24V AC;
- Wide temperature range: -40°C / +85°C [-40°F / +185°F].


CONFIGURATION:

You need Compositor SW67C08 software on your PC in order to perform the following:

- Define the parameter of MQTT;
- Define the parameter of BACnet line;
- Define the list of allowed MQTT Clients;
- Define the list of MQTT topic published and subscribed from/to BACnet;
- Define the list of topics to be forwarded via the internal bridge;
- Update the device.

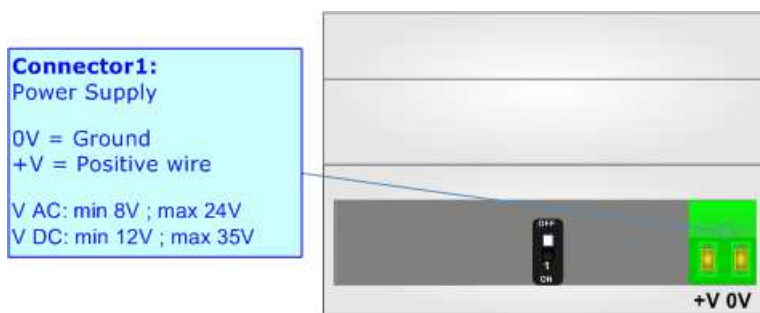
POWER SUPPLY:

The devices can be powered at 8...24V AC and 12...35V DC. For more details see the two tables below.

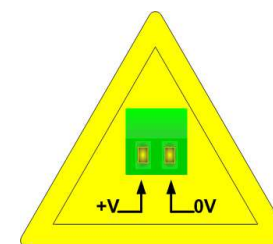
| VAC  | | VDC  | |
|---|------|---|------|
| Vmin | Vmax | Vmin | Vmax |
| 8V | 24V | 12V | 35V |

Consumption at 24V DC:

| Device | Consumption [W/VA] |
|----------------------|--------------------|
| HD67C08-xxx-x-xxx-B2 | 5 |



Caution: Not reverse the polarity power

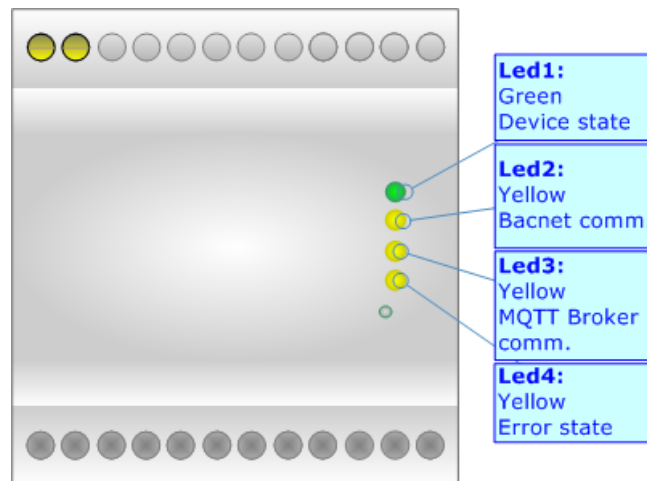


HD67C08-xxx-x-xxx-B2

LEDS:

The device has got four LEDs that are used to give information of the functioning status.
The various meanings of the LEDs are described in the table below.

| LED | Normal Mode | Recovery Mode |
|-------------------------------|---|----------------|
| 1: Device State (green) | Blinks slowly (~1Hz) | Blinks quickly |
| 2: BACnet comm. (yellow) | Blinks when BACnet communication is running | Blinks quickly |
| 3: MQTT Broker comm. (yellow) | Blinks when a MQTT topic is received | Blinks quickly |
| 4: Error State (yellow) | ON: an error occurs OFF: no errors | Blinks quickly |



ETHERNET:

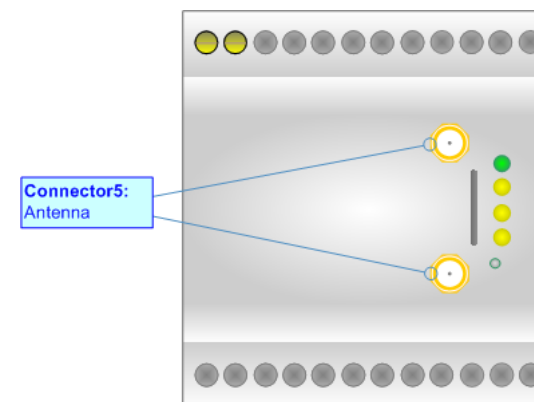
The Ethernet port is used for programming the device, for MQTT communication and for BACnet IP communication. The Ethernet connection must be made using Connector4 of HD67C08-xxxx-xxx-x-xxx-B2 with at least a Category 5E cable. The maximum length of the cable should not exceed 100m. The cable has to conform to the T568 norms relative to connections in cat.5 up to 100 Mbps. To connect the device to an Hub/Switch is recommended the use of a straight cable, to connect the device to a PC is recommended the use of a cross cable.

The interface has two different MAC Addresses, one for MQTT and one for BACnet/IP side.



MOBILE:

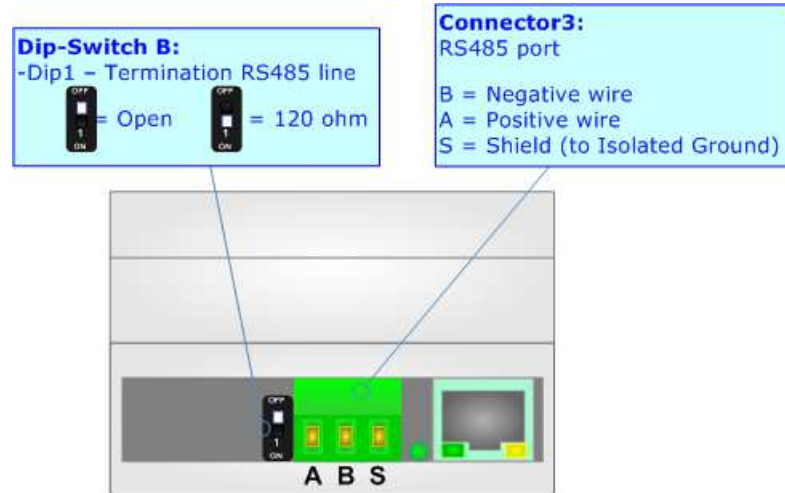
The HD67C08-xxxx-G43-x-xxx-B2 uses LTE module. The Antenna connector is a SMA Female ('Female Outer Shell' and 'Female Receptacle') so the Antenna must have a SMA Male connector. The physical SIM card type is Micro-Sim.



RS485 (HD67C08-MSTP-B2 SERIE):

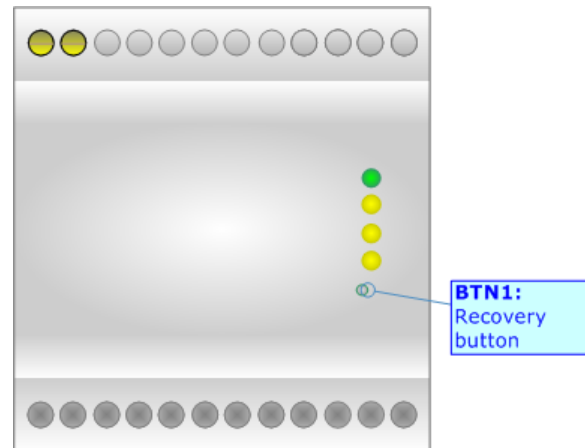
BACnet MS/TP connection must be made using Connector3 of HD67C08-MSTP-B2.

To terminate the RS485 line with a 120Ω resistor it is necessary to put ON dip 1, like in figure. The maximum length of the cable should be 1200m (4000 feet).



RECOVERY BUTTON:

In order to recover the device in case of wrong firmware updating or any error that compromises correct functioning of the device, it is necessary to press the BTN1. After pressing, the device will be switched in Recovery Mode and it will be possible to update again the firmware or reset the device using the default IP address 192.168.2.206 via webserver.





USE OF ADFWEB DISCOVERY TOOL SOFTWARE:

To discover the device into the network and see its IP Address, use the available software that runs with Windows called "ADFweb Discovery Tool". It is downloadable from here: www.adfweb.com/download/filefold/ADFweb_Discovery_Tool.zip. The software works with MSWindows (XP, Vista, Seven, 8, 10, 11; 32/64bit).

USE OF COMPOSITOR SW67C08:

To configure the Converter, use the available software that runs with Windows called SW67C08. It is downloadable on the site www.adfweb.com and its operation is described in this document. The software works with MS Windows (XP, Vista, Seven, 8, 10, or 11; 32/64bit).

**Note:**

It is necessary to have installed .Net Framework 4.

TEMPLATE STRING: DEFINITION OF MQTT PAYLOAD

Mode 1: mapping a single variable for each topic using tables

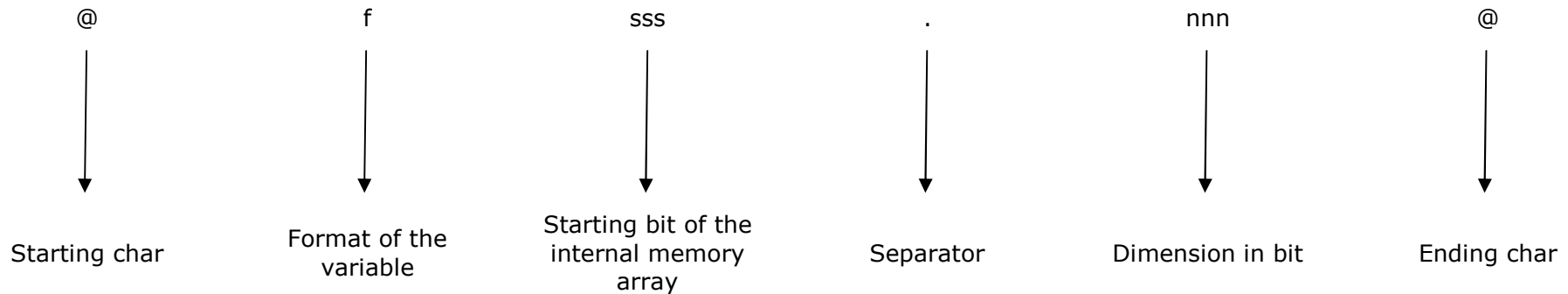
In this mode, it is possible to define which is the BACnet data to map inside the MQTT topics using the Position field inside "MQTT Set Topic" section. This simplifies the configuration because the variable to be mapped is selected using the table, but it allows you to map a single variable for each topic.

In order to link the data into the MQTT topic, you can use the keyword \$VALUE\$. The keyword will be replaced with the real value coming from/to BACnet.

Mode 2: mapping more variables for each topic using keywords

In this mode, it is possible to define which is the BACnet object to map inside the MQTT topics specific keywords. Position field, format and dimension of "MQTT Set Topic" section will be ignored.

In order to link the data into the MQTT topic, you can use these keywords:



Below the type of format allowed:

| FORMAT | IDENTIFIER |
|------------------|------------|
| Unsigned Integer | u |
| Signed Integer | i |
| Float | f |
| Binary | b |
| String | s |
| Hexadecimal | x |
| Base64 | l |

Example:

We have two variables mapped respectively into Position 0 and 4. The first one is an signed integer value of 16 bit, the second one is a floating point. In order to compose a JSON, the template can be filled in this way:

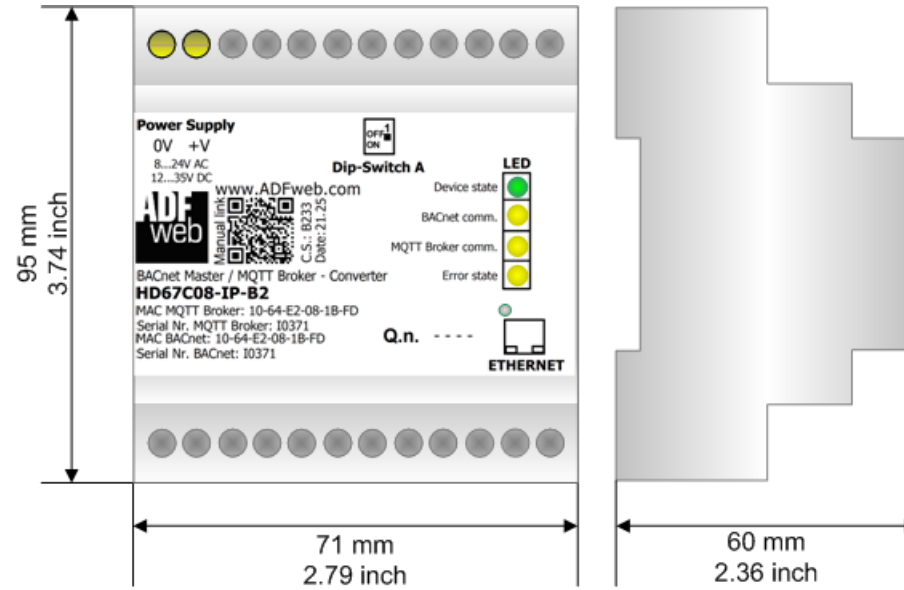
```
{
  "var1": @i0.16@,
  "var2": @f32.32@
}
```



Note:

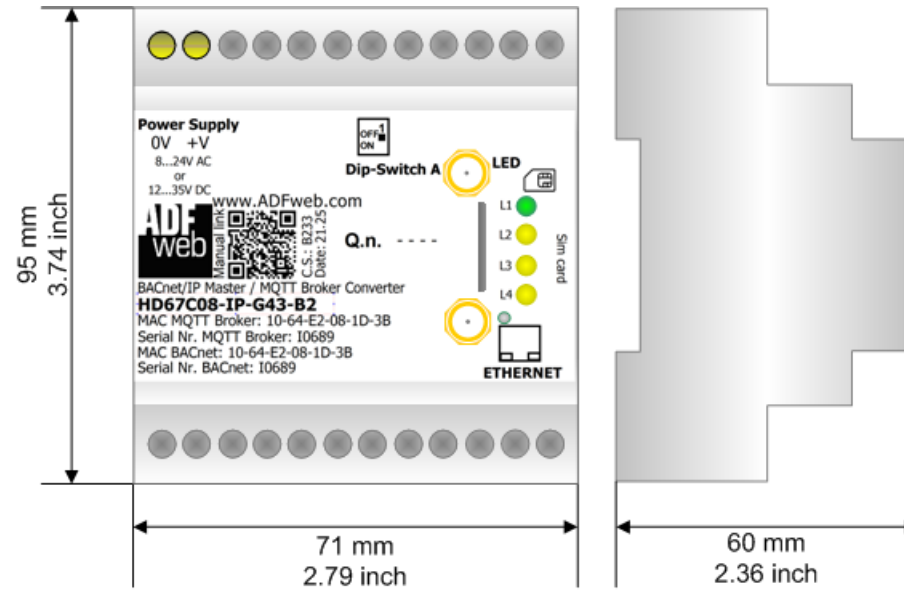
It is not possible to use both modes in the template.

MECHANICAL DIMENSIONS:



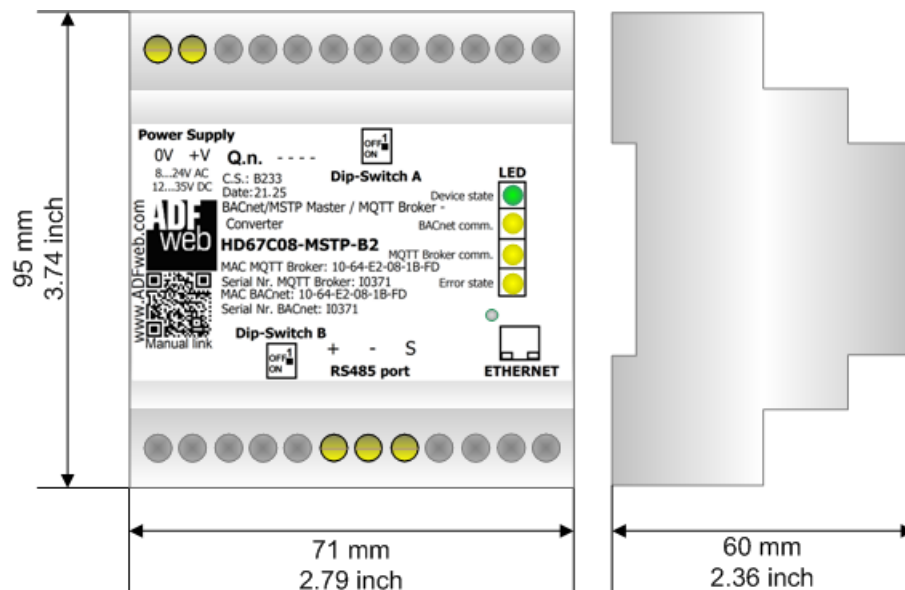
Housing: PVC
Weight: 200g (Approx)

Figure 2a: Mechanical dimensions scheme for HD67C08-IP-B2



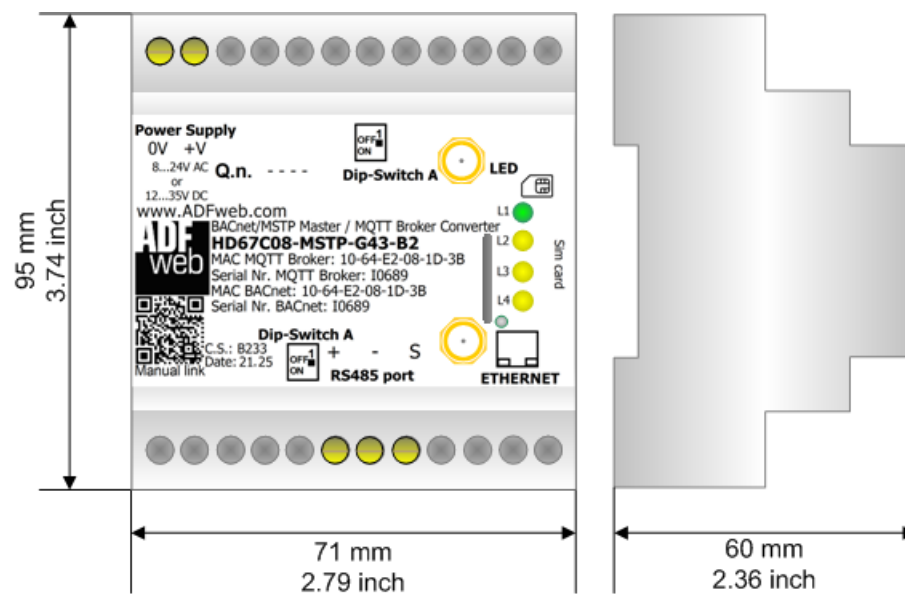
Housing: PVC
Weight: 200g (Approx)

Figure 2b : Mechanical dimensions scheme for HD67C08-IP-G43-x-xxx-B2



Housing: PVC
Weight: 200g (Approx)

Figure 2c: Mechanical dimensions scheme for HD67C08-MSTP-B2



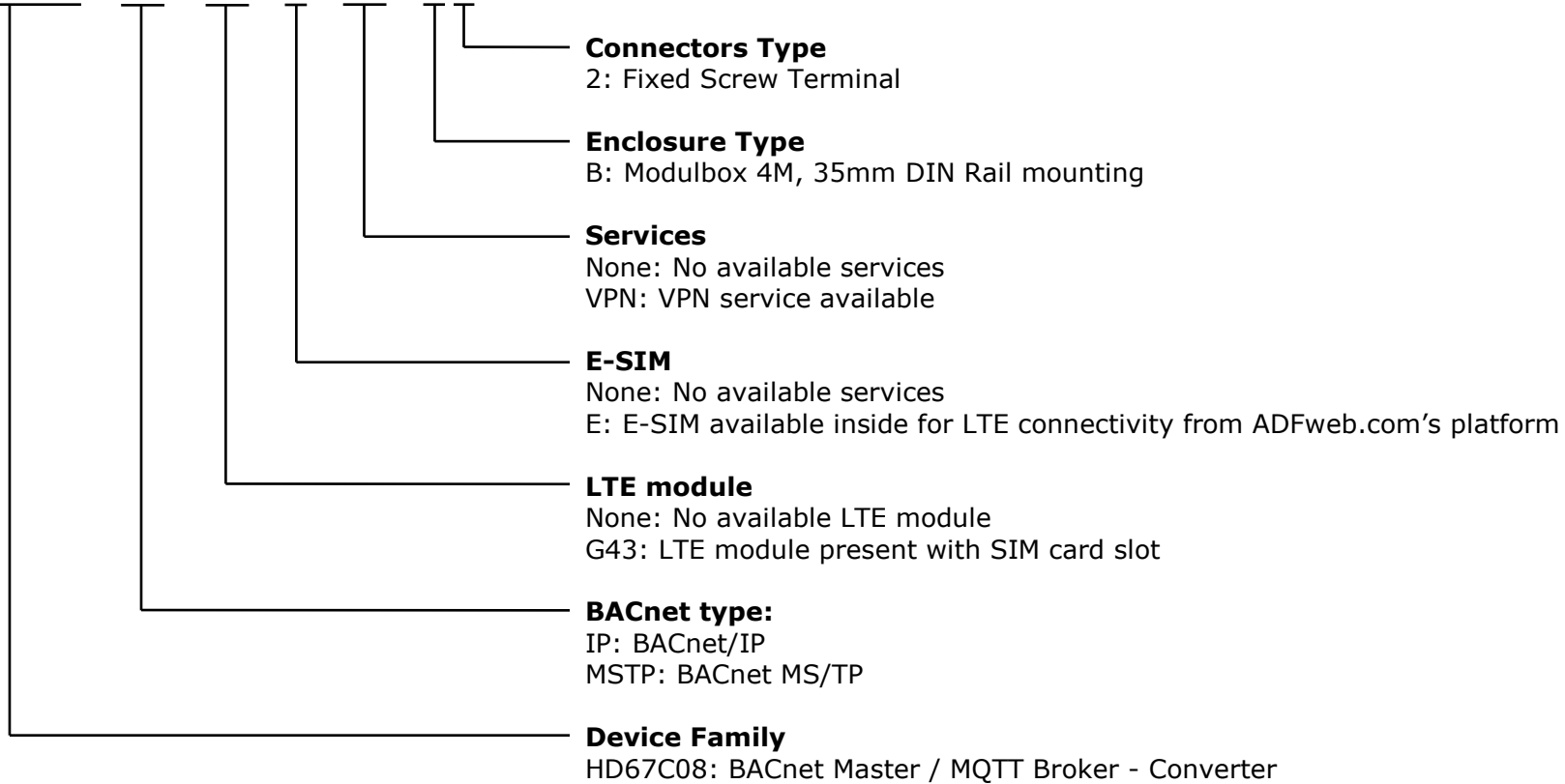
Housing: PVC
Weight: 200g (Approx)

Figure 2d: Mechanical dimensions scheme for HD67C08-MSTP-G43-x-xxx-B2

ORDERING INFORMATIONS:

The ordering part number is formed by a valid combination of the following:

HD67C08 - xxx - xxx - x - xxx - B 2



- | | | |
|--|---|--|
| Order Code: HD67C08-IP-B2 | - | BACnet IP Master / MQTT Broker – Converter |
| Order Code: HD67C08-IP-G43-B2 | - | BACnet IP Master / MQTT Broker – Converter (LAN + SIM LTE) |
| Order Code: HD67C08-IP-G43-E-B2 | - | BACnet IP Master / MQTT Broker – Converter (LAN + SIM LTE+E-SIM) |
| Order Code: HD67C08-IP-G43-VPN-B2 | - | BACnet IP Master / MQTT Broker – Converter (LAN + SIM LTE, VPN) |
| Order Code: HD67C08-IP-G43-E-VPN-B2 | - | BACnet IP Master / MQTT Broker – Converter (LAN + SIM LTE+E-SIM, VPN) |
| Order Code: HD67C08-MSTP-B2 | - | BACnet MSTP Master / MQTT Broker – Converter |
| Order Code: HD67C08-MSTP-G43-B2 | - | BACnet MSTP Master / MQTT Broker – Converter (LAN + SIM LTE) |
| Order Code: HD67C08-MSTP-G43-E-B2 | - | BACnet MSTP Master / MQTT Broker – Converter (LAN + SIM LTE+E-SIM) |
| Order Code: HD67C08-MSTP-G43-VPN-B2 | - | BACnet MSTP Master / MQTT Broker – Converter (LAN + SIM LTE, VPN) |
| Order Code: HD67C08-MSTP-G43-E-VPN-B2 VPN) | - | BACnet MSTP Master / MQTT Broker – Converter (LAN + SIM LTE+E-SIM, VPN) |

ACCESSORIES:

- | | | |
|----------------------------|---|--|
| Order Code: AC34011 | - | 35mm Rail DIN - Power Supply 220/240V AC 50/60Hz – 12 V DC |
| Order Code: AC34012 | - | 35mm Rail DIN - Power Supply 220/240V AC 50/60Hz – 24 V DC |

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OTHER REGULATIONS AND STANDARDS:**WEEE INFORMATION**

Disposal of old electrical and electronic equipment (as in the European Union and other European countries with separate collection systems).

— This symbol on the product or on its packaging indicates that this product may not be treated as household rubbish. Instead, it should be taken to an applicable collection point for the recycling of electrical and electronic equipment. If the product is disposed correctly, you will help prevent potential negative environmental factors and impact of human health, which could otherwise be caused by inappropriate disposal. The recycling of materials will help to conserve natural resources. For more information about recycling this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE

The device respects the 2002/95/EC Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (commonly referred to as Restriction of Hazardous Substances Directive or RoHS).

CE MARKING

The product conforms with the essential requirements of the applicable EC directives.

WARRANTIES AND TECHNICAL SUPPORT:

For fast and easy technical support for your ADFweb.com SRL products, consult our internet support at www.adfweb.com.
Otherwise contact us at the address support@adfweb.com

RETURN POLICY:

If while using your product you have any problem and you wish to exchange or repair it, please do the following:

- Obtain a Product Return Number (PRN) from our internet support at www.adfweb.com. Together with the request, you need to provide detailed information about the problem.
- Send the product to the address provided with the PRN, having prepaid the shipping costs (shipment costs billed to us will not be accepted).

If the product is within the warranty of twelve months, it will be repaired or exchanged and returned within three weeks. If the product is no longer under warranty, you will receive a repair estimate.



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