DINGO BACnet Gateway Order Guide

2022 V0.2

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1.Introduction

The Go-IoT DINGO BACnet Gateway product line comprises of highly-configurable multi-option modular DIN assemblies. Available in various sizes to increase the number of optional 'plug-ins' and also available in custom housings such as IP67 etc. For the latter please enquire.

New options are being introduced weekly so please enquire if the option you need does not exist in this guide or on the website.

Along with various sizes (DIN widths) there are power supply options, either internal or external, to suite your particular application. Again, if you cannot find the power option you need then please enquire as we probably have it already.

Depending on the DIN width and PSU option there will be 1-4 'stations' for additional expansion. If more than 4 options are required then it is possible to have a slave DINGO connected to a master DINGO – please enquire about this option if required. Furthermore, a new range is in development which will expand the number of stations in a single DINGO to 7.

Connectivity options are extensive although as standard the DINGO Gateway has 2 x RJ45 Ethernet Ports. A port upgrade option adds 1 x USB 2.0 Type A, 1 x HDMI and a multi-purpose RJ45 for RS485 (not isolated), RS232 & 1-Wire.

Backhaul connectivity options (if not using fixed Ethernet) are available using WiFi, GSM/2G/3G/4G/LTE, NB-IoT, LoRaWAN, SigFox and Thread.

Input/Output (I/O) and Bus options include Analog I/O, Digital I/O, Modbus/RTU, RS485 (Isolated), Modbus/IP, MBUS, Wireless MBUS, Powerline (CENELEC & Homeplug), LoRaWAN, SigFox, Thread, ZigBee, EnOcean and many more.

All sizes of the DINGO BACnet Gateway have two SMA connectors for attaching antenna for wireless options except for that of WiFi which is currently provided by way of a USB Dongle.

The following guide is not intended to be exhaustive but will assist in your selection of the correct DINGO BACnet Gateway for your application. Don't forget that the range is a highly-configurable multi-option modular DIN assembly which can be changed at a later date as your site requirements evolve and adopt new technologies. Therefore, you might want to allow for such and select a larger size for adding an option later. Future proofing at its best! And remember the DINGO Stack and DINGO Manager support most of the current options without the need to upgrade or buy additional firmware.

2.Selecting the right size (DIN width)

All DINGO BACnet Gateways are 90mm tall by 58mm deep and fit the standard 7.5mm T35 or 'top hat' DIN Rail sections (EN 50022). Alternatively, there are pop-out lugs for screw-fixing to a vertical surface. Currently available in three widths –

'2-Station' = 106mm	'3-Station' = 159mm	'4-Station' = 212mm

The number of stations directly equate to the number of additional expansion options that can be selected. However, when an internal power supply option is selected this will reduce by one.

3.Power Supply Options

As standard the DINGO BACnet Gateway is powered by connecting a 12V DC 1.5A to screw wire terminals which are easily accessed on the uppermost side of the housing.

In addition, there are various power supply options-

1. 110-240V AC internal PSU connected using screw wire terminals on the lowermost side.
2. 110-240V AC to 12V DC 2A external PSU (country specific IEC cord will be required).
3. 16-26V AC to 12V DC 1.5A external PSU with screw wire terminals.
4. 15-42V DC internal wide-range input using screw wire terminals on the uppermost side.

Note that the 110-240V AC internal PSU reduces the number of available additional expansion options by one.

4.Backhaul Connectivity Options

As standard the DINGO BACnet Gateway has one fixed Ethernet 10/100Mbit/s RJ45 for connection to a local network. In addition, there are various connectivity options-

1. WiFi using a USB2.0 Type A plug-in Dongle (needs port upgrade).
2. GSM/2G/3G supplied for country specific band.
3. 4G/LTE via full size SIM supplied for country specific band.
4. 4G/LTE via eSIM supplied for country specific band.
5. NB-IoT – please enquire.
6. LoRaWAN supplied for country specific band.
7. SigFox – please enquire.
8. Thread using 2.4GHz ISM band – please enquire.

When ordering, country specific bands are selected using dropdown menus. Please enquire if the required band cannot be selected.

Note that all options except WiFi reduce the number of available additional expansion options by one. A maximum of two non-WiFi wireless backhaul options can be accommodated as these terminate at the two SMA connectors accessed on the lowermost side of the housing. If one or two wireless I/O option(s) are needed then this will reduce the number of wireless backhaul options by one or two. It is possible to add additional SMA bulkhead connectors to the housing by special order – please enquire.

5.I/O and Bus Options

As standard the DINGO BACnet Gateway has one fixed Ethernet 10Mbits/s (Rev2.x) or 10/100Mbit/s (Rev3.x) RJ45 for Modbus/IP.

A port upgrade option adds a multi-purpose RJ45 for RS485 (non-isolated), RS232 and 1-Wire communication.

An Input / output option adds 8 (4 dry and 4 wet) opto-isolated inputs accessible by screw wire terminals on the uppermost side. It also adds 2 Relays with 240VAC 0.5A / 30VDC 1.0A switching capability accessed by screw terminals on the lowermost side.

In addition, there are an ever-growing number of connectivity options-

1. Modbus RTU / RS485 (opto-isolated) accessed by screw wire terminals on the uppermost side.
2. MBUS 5 loads accessed by screw wire terminals on the uppermost side.
3. MBUS 80 loads accessed by screw wire terminals on the uppermost side.
4. Wireless MBUS via SMA on lowermost side supplied for country specific band.
5. Powerline (CENELEC or Homeplug) via mains input screw wire terminals on lowermost side.
6. LoRaWAN via SMA on lowermost side supplied for country specific band.
7. SigFox – via SMA on lowermost side supplied for country specific band - please enquire.
8. Thread using 2.4GHz ISM band – please enquire.
9. ZigBee – please enquire.
10. EnOcean – please enquire.
11. Mini PCIe for full size minicard.
12. Click for MikroBus modules.
13. ADC – 4 Channel Analogue to Digital (Selectable 0V to +2V, -2 to +2V, 0V to +5V, 0V to +10V, -10V to +10V and 0mA to 20mA). Please enquire for other ranges.
14. DALI – Please enquire.

I/O and Bus connectivity options can be mixed such that it is possible to have a DINGO BACnet Gateway that serves many different I/O and Bus standards in one powerful solution. For example, one can support an existing bus network like MBUS and a newer one like Wireless MBUS in the same Gateway.

Note that the ADC and Click connectivity options when fitted into the leftmost station one will have a reduced number of I/O.

6.Master / Slave Options

The DINGO BACnet Gateway can be further expanded using a master / slave topology. Hence it is possible to have many more expansion options. For example, this is particularly useful for installations which require a large number of ADC Inputs – a 4-Station master and 4-Station slave could have up to 32 inputs with an external DC PSU and Ethernet backhaul. Please enquire for information about the master / slave option.

7.Software Options

The DINGO BACnet Gateway is supplied with a 1-year license for the core DINGO Stack Base Engine and an optional number of BACnet Objects, selected using dropdown menus, as required to support the number of sensors and sensor parameters to be monitored and trend logged. Keep in mind when calculating the number of objects that each node / sensor will typically require 6-10 objects. Parameters such as Battery Voltage and RSSI (Received Signal Strength Indicator) are often overlooked. You will also need 2 objects for every parameter if trend logging is required. Contact us if

you are unsure about the number required. Alternatively, further objects can be purchased through the DINGO Manager at a later date.

Customers purchasing their first DINGO BACnet Gateway also receive 1 hour of free online 'get started' support and access to comprehensive set-up guides and videos. Yearly maintenance contracts can be purchased separately – please enquire.
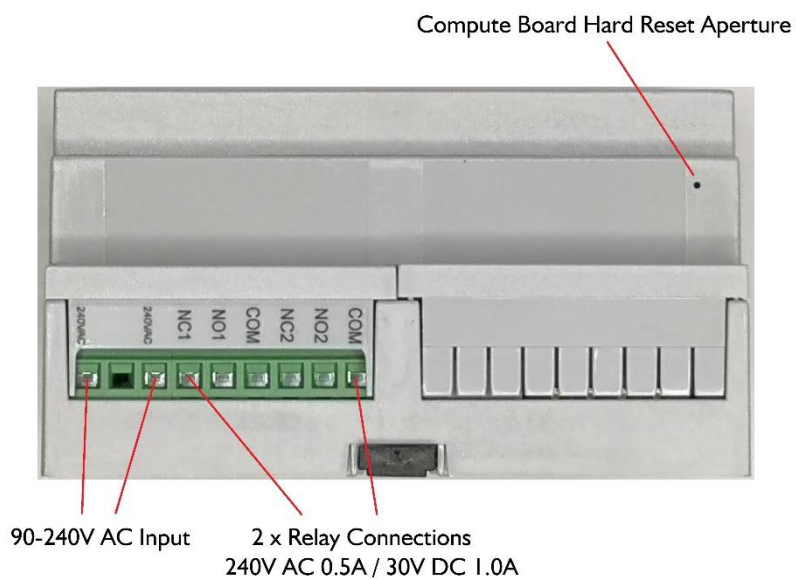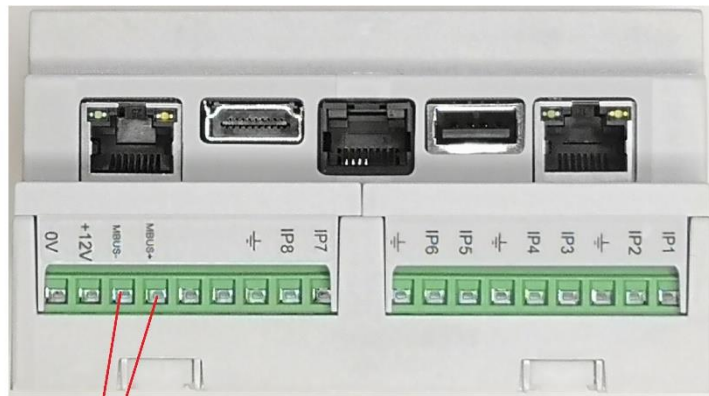
8.Appendix

Back-up Images

DINGO 2-Station Gateway showing 12V DC Input and 8 Opto Isolated Inputs
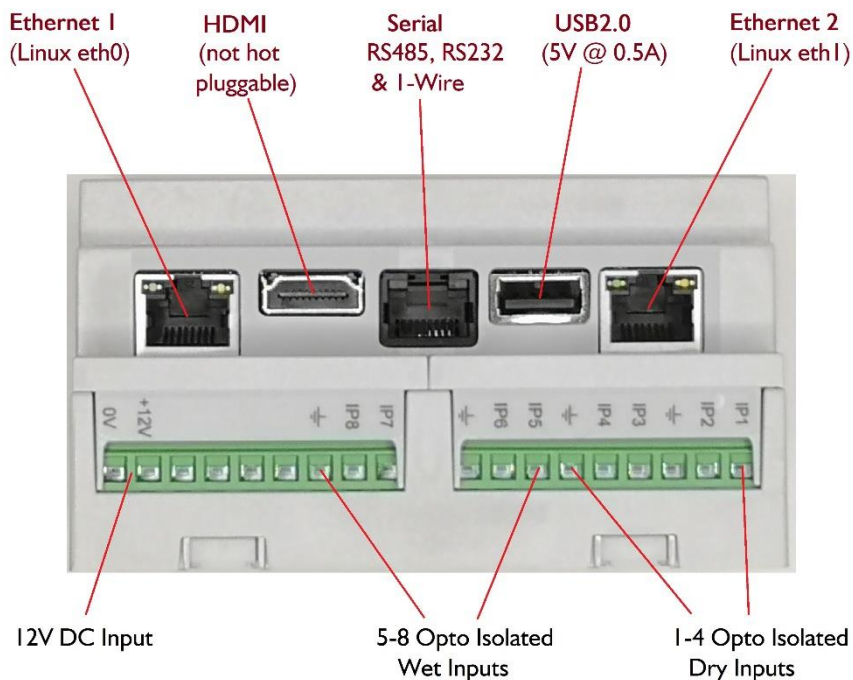
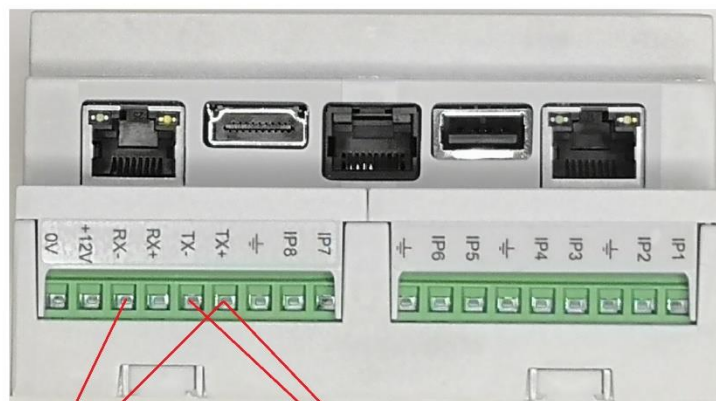DINGO 2-Station Gateway showing 90-240V AC Input and Relay Connections

DINGO 2-Station Gateway showing wired MBUS connections in Station 2

Wired MBUS Connections
(Not polarity sensitive)

DINGO 2-Station Gateway showing Opto Isolated RS485 Connections

Full Duplex
OUT=TX+TX-
IN=RX+RX-

Half Duplex
Bi-Directional=TX+TX-
RX+RX- Not Connected

DINGO 2-Station Gateway with terminal covers removed showing
Antenna SMA connectors (one with red protective cover)

DINGO 2-Station Gateway showing lugs extended for screw mounting

61mm

98.1mm

Note lug centres for 3-Station = 103.8mm and 4-Station = 166.8mm