

EmpirBus NXT WDU User manual



1. Introduction

The WDU, Web Display Unit, is an add-on product to the EmpirBus NXT product family. This document contains basic specifications and installation instructions. This and other documents are available at www.empirbus.com.

2. Scope of Delivery

All WDU models are shipped with a Micro 5pin M12 Male power cable, Ethernet cable (with Garmin RJ45 connector) and Wi-Fi antenna.

3. Model Range

Both the unit and the box are marked with model number.

Model	WDU-100 010-02226-00
Ethernet (RJ45)	X
Wi-Fi	X
USB-A Host	X

Table 3.1: Model range

4. Installation

4.1 Mounting

The WDU should be mounted on a flat vertical surface with four screws (not included), with the orientation as shown in figure 4.1.

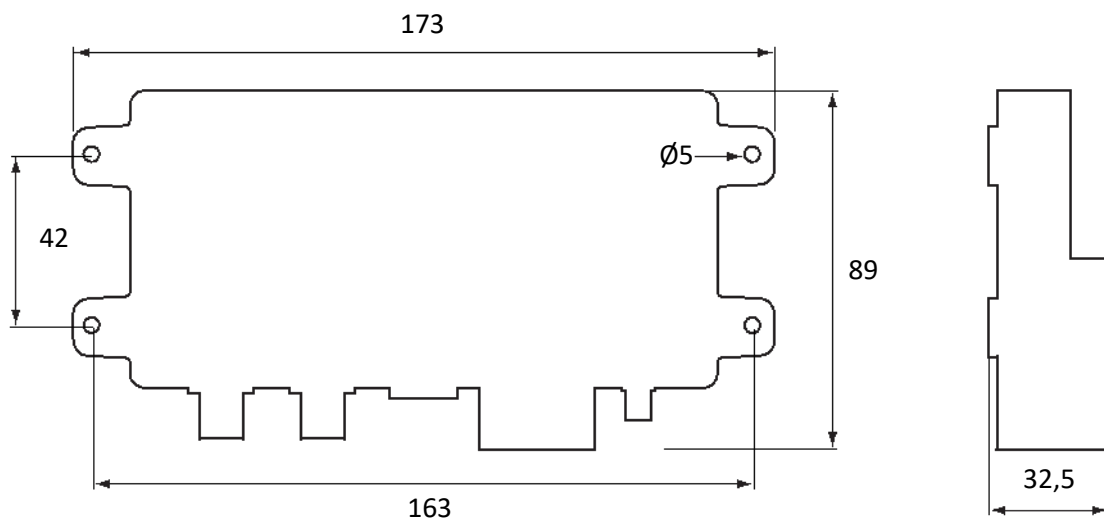


Figure 4.1: Dimensions

[mm] (Drawing is not to scale.)



4.2 Connectors

The bus connector is an NMEA 2000 compatible male Micro-C 5 pin connector. It is not recommended to connect a T-connector directly on to the unit, a drop cable should be between the main bus and the unit. All WDU models are equipped with a female SMA connector for Wi-Fi.



1. Power
2. NMEA
3. Ethernet
4. USB-A Host (under black cap)
5. Wi-Fi antenna connector (SMA)

Note that the wires for the included power cable uses white as minus, and brown as plus.

5. Software Installation & Setup

5.1 Loading WDU firmware with USB flash drive

1. Do a full export (“Graphics and WDU firmware”) of your preferred graphics project from EmpirBus Graphics and download the generated export.
2. Extract the exported file into the root file system of a USB flash drive.
3. Put the USB flash drive into the WDU and do a power cycle.
4. Wait for the WDU to load the WDU firmware, which might take a minute. The SW LED should then light up. If the SW LED blinks or doesn’t light up at all, it means that something has gone wrong (corrupt or missing files, problems with USB flash drive, etc.)
5. Disconnect the USB flash drive and reboot the WDU by doing another power cycle.
6. The WDU should be online within a minute.

5.2 Loading graphics only

Exported graphics packages without firmware (exported as “Graphics only” from EmpirBus Graphics) can be loaded onto the WDU through the WDU Supervisor (see 5.3.2 Accessing Supervisor pages) in the *Graphics* section.

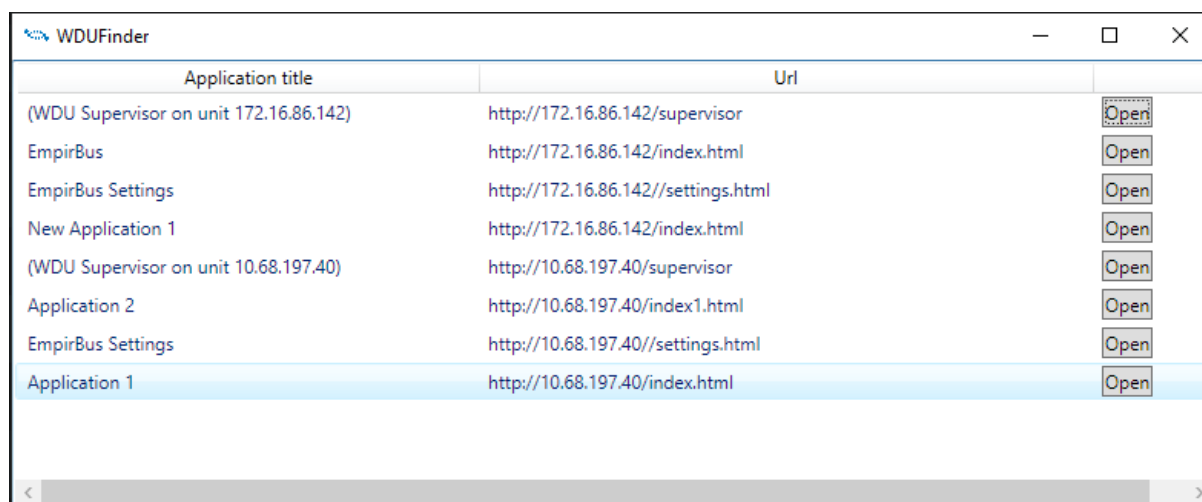
5.3 Settings & Supervisor

5.3.1 Accessing settings pages

The WDU settings pages will appear as a separate OneHelm application icon on a Garmin MFD, if the MFD and the WDU are correctly connected (Ethernet or Wi-Fi).

It is also possible to reach the settings pages by connecting a PC to the same network as the WDU and using the WDUFinder functionality of EmpirBus Studio (Figure 5-1).



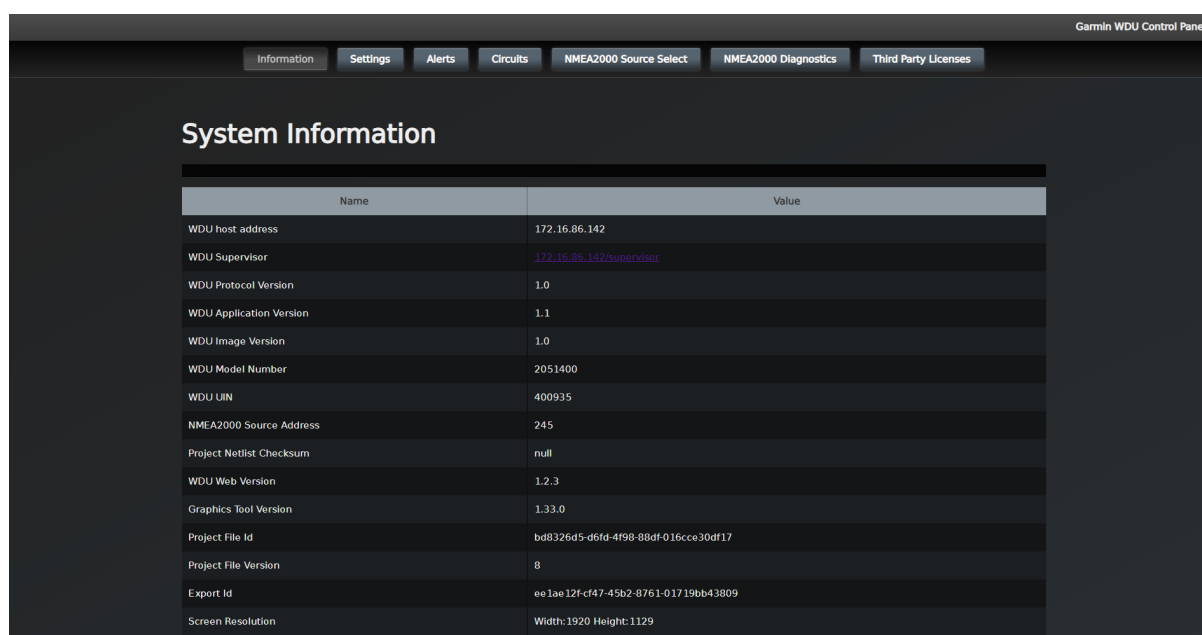


Application title	Url	
(WDU Supervisor on unit 172.16.86.142)	http://172.16.86.142/supervisor	Open
EmpirBus	http://172.16.86.142/index.html	Open
EmpirBus Settings	http://172.16.86.142//settings.html	Open
New Application 1	http://172.16.86.142/index.html	Open
(WDU Supervisor on unit 10.68.197.40)	http://10.68.197.40/supervisor	Open
Application 2	http://10.68.197.40/index1.html	Open
EmpirBus Settings	http://10.68.197.40//settings.html	Open
Application 1	http://10.68.197.40/index.html	Open

Figure 5-1: WDU finder in EmpirBus Studio.

5.3.2 Accessing Supervisor pages

On an MFD, the Supervisor pages can be reached through the “Information” tab on the Settings pages where a “WDU Supervisor” link is shown¹ (Figure 5-2).



System Information	
Name	Value
WDU host address	172.16.86.142
WDU Supervisor	172.16.86.142/supervisor
WDU Protocol Version	1.0
WDU Application Version	1.1
WDU Image Version	1.0
WDU Model Number	2051400
WDU UIN	400935
NMEA2000 Source Address	245
Project Netlist Checksum	null
WDU Web Version	1.2.3
Graphics Tool Version	1.33.0
Project File Id	bd8326d5-d6fd-4f98-88df-016cce30df17
Project File Version	8
Export Id	ee1ae12f-cf47-45b2-8761-01719bb43809
Screen Resolution	Width:1920 Height:1129

Figure 5-2: WDU settings, information tab.

It is also possible to reach the Supervisor pages from another client (e.g. a PC) by entering the supervisor URL in the address bar of a web browser.

The WDU finder in EmpirBus Studio (mentioned in 5.3.1 Accessing settings pages) can also be used for navigating to the Supervisor pages.

¹ On earlier versions the WDU Supervisor link and the WDU host address weren’t available. If they’re not available and you wish to use them, please upgrade to the latest version.

If the WDU has been configured to be a Wi-Fi Hotspot (see 5.4 Wi-Fi Settings), it is possible to reach the Supervisor pages from another client (e.g. a PC) by navigating to <http://192.168.5.1/supervisor/>.

5.4 Wi-Fi Settings

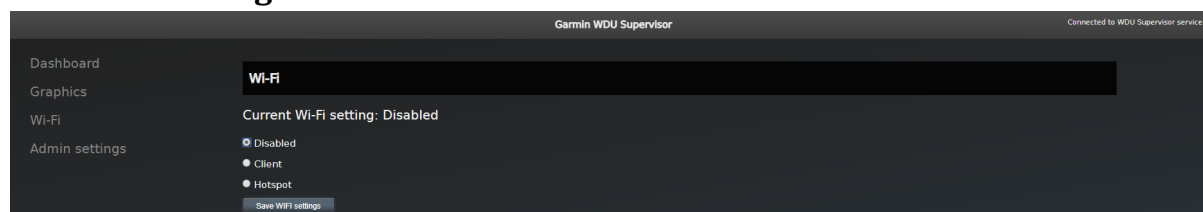


Figure 5-3: Wi-Fi settings in WDU Supervisor.

Wi-Fi settings for the WDU are available on the Supervisor pages. There are three modes available:

- *Disabled*. This means that the Wi-Fi is completely disabled.
- *Client*. This means that the WDU uses its Wi-Fi as client and connects to another Wi-Fi access point. SSID and passphrase/key to the target wireless network is required in order to connect successfully.
- *Hotspot*. This will make the WDU into a hotspot/access point, allowing other Wi-Fi clients to connect to it. SSID and Passphrase/key are both required to set this up. The WDU will get the IP address 192.168.5.1.

6. Product specifications

See table 3.1 for model specification and hardware support

Communication <i>CAN-bus</i> <i>Wi-Fi</i>	NMEA 2000
Power supply <i>Max/average</i> <i>Supply voltage</i>	180mA/80 mA @ 12V 9-32VDC (Note: Power feed is through the Power Cable)
Connectors <i>NMEA 2000</i> <i>Power supply</i> <i>Antenna</i> <i>USB host interface</i>	Micro 5pin M12 Male Micro 4pin M12 Male SMA female (Wi-Fi) USB A
Environment <i>Ambient temperature</i> <i>Enclosure</i>	-20 to +55 degrees Celsius Ingress Protection IP65, Polycarbonate ¹
Physical data <i>Size</i> <i>Weight</i>	173 x 89 x 32.5 mm 0.2 kg

¹ Exposure to solvents and/or water above 60°C may cause cracking on polycarbonate.



Notes:

Notes:



DECLARATION OF CONFORMITY

We, manufacturer Garmin Sweden Technologies AB, Sweden, declare that the articles:
010-02226-00

are in conformity with are in conformity
with EC Directive RED 2014/53/EU.



We also declare that the articles:
010-02226-00



comply with
FCC 47 CFR Part 15, Subpart B, Class A.

SIGNS ON BEHALF OF	Garmin Sweden Technologies AB
Name:	Henrik Niklasson
Position:	Product & Sales Manager
Location and date:	Uddevalla, Sweden, December 1 st 2019

Signature: Henrik Niklasson



RoHS CERTIFICATE OF CONFORMANCE

We, manufacturer, Garmin Sweden Technologies AB, Sweden, declare that the articles:

010-02226-00

are in compliance with Directive 2011/65/EU on the restriction of the use of certain hazardous substances in mechanics, electrical and electronic equipment (RoHS Directives).

SIGNS ON BEHALF OF	Garmin Sweden Technologies AB
Name:	Henrik Niklasson
Position:	Product & Sales Manager
Location and date:	Uddevalla, Sweden, December 1 st 2019
Signature:	<u>Henrik Niklasson</u>



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