Hydro-Control (HC07)

Safety Information

To re-order quote part number:	hd1100
Revision:	1.2.0
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The customer in applying the product described in this documentation accepts that the product is a programmable electronic system which is inherently complex, and which may not be completely free of errors. In doing so the customer therefore undertakes responsibility to ensure that the product is properly installed commissioned operated and maintained by competent and suitably trained persons and in accordance with any instructions or safety precautions made available or good engineering practice and to thoroughly verify the use of the product in the particular application.

ERRORS IN DOCUMENTATION

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Hydronix welcomes comments and suggestions relating to the product and this documentation

ACKNOWLEDGEMENTS

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If your feedback is concerning an Atex certified product or associated service, it would be very helpful for you to give us your contact details and the model number and serial number of the product if possible. This will enable us to contact you with any relevant safety advice should this be necessary. It is not obligatory to leave your contact details and any information will be treated as confidential.

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Revision No	Date	Description of Change
1.0.0	May 2023	First Release
1.1.0	June 2023	Editable warning labels added, WiFi section modified
1.2.0	July 2023	Updated referenced documents list

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1 Introduction

1.1 Purpose and scope

This document is aimed at installers, integrators, and operators of the Hydro-Control (HC07). This document contains general and electrical safety information for system maintenance engineers and describes the configuration of the built-in radio equipment.

This safety information guide is designed to accompany the following documentation:

1. HD1074 – Hydro-Control (HC07) Installation Guide
2. HD1048 – Hydro-Control (HC07) Operators Guide

Outside the scope of this guide, but covered by separate documentation is:

Warning	Document ref. No.	Document name
	HD1061	HC07 Fan replacement guide
	HD1087	HC07 Battery replacement instructions
	EN0111	HC07 AC IO Board Fuse Replacement Guide
	EN0112	HC07 IO Board Replacement Guide

All above mentioned documents are available on request or on www.Hydronix.com website.

1.2 Responsibilities

The safety of any system incorporating the equipment described in this documentation is the responsibility of the assembler of the system.

Read this safety information guide before attempting to install or use the device.

The products covered by this document must be installed as per the manufacturer's instructions and used only within the conditions defined in Section 5 of this safety information guide.

All installation work must comply with and meet the relevant local standards of electrical installations. The safety of any system incorporating Hydro-Control is the responsibility of the assembler of the system. If Hydro-Control is used in a manner not specified, the protection provided by this equipment may be impaired.

2 Classifications and Markings

The following approvals and certifications are provided: The Hydro-Control (HC07) has been designed to meet the requirements of UL/IEC 61010-1 Edition 3.1.

Contains FCC ID: 2ABCB-RPIRM0, IC: 20953-RPIRM0

This device complies with part 15 of the FCC Rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

A full declaration of conformity, along with other relevant documentation is available by following this QR code.

3 Basic Electrical Safety

3.1 Protective Earthing

System earthing is essential to the proper operation of the protective device. Installation or use of the Hydro-Control (Model HC07-110) without earthing wire is forbidden. Figure 1 shows the location of the device's earthing point.

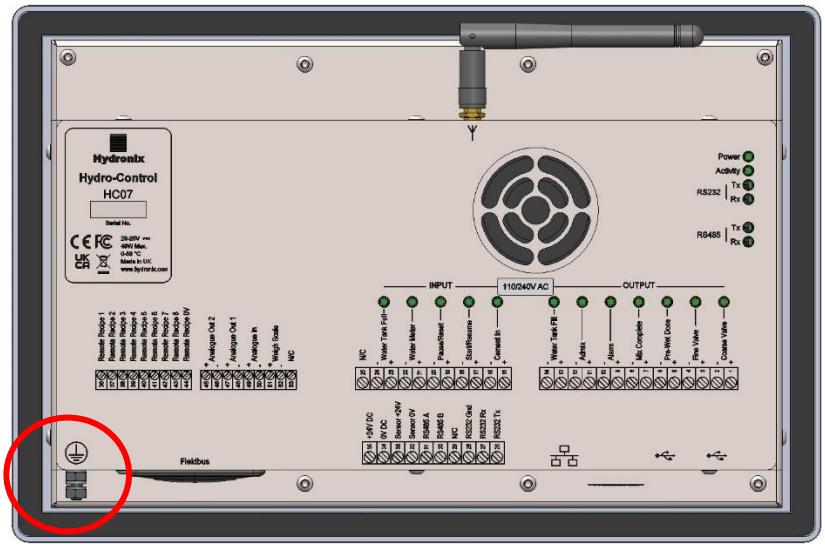

Figure 1: Location of the protective earthing connection point.

The Protective Earth symbol indicates that the earth must be connected to this point.

3.2 Live mains terminals

IMPORTANT NOTE: When fitted with the **AC I/O card** (device model HC07-110) the Hydro-Control may have some of its electrical connections carrying mains voltage. **This is true for terminals 1-24**. Please check the label indicated on Figure 2 for details.

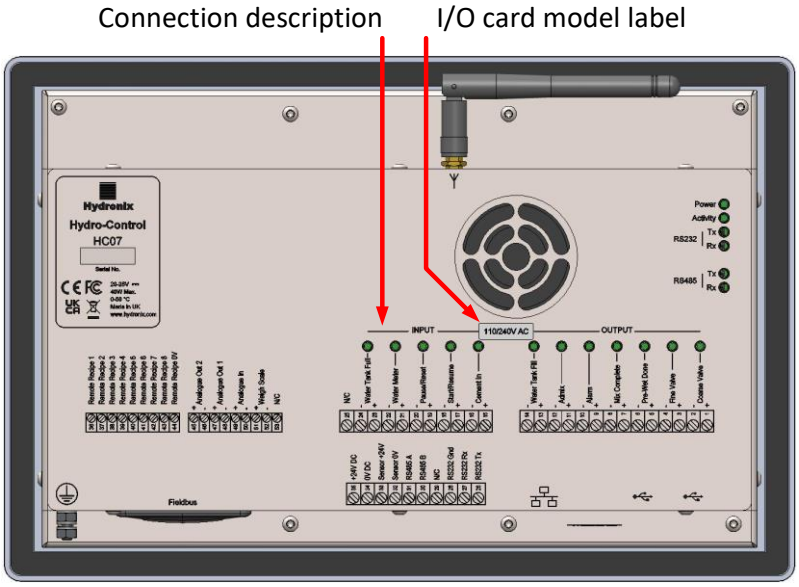

Figure 2: The rear of the Hydro-Control – connector labels

Disconnect all power and cables completely before performing any maintenance work on the device. Refer to Section 8.2 for more information.

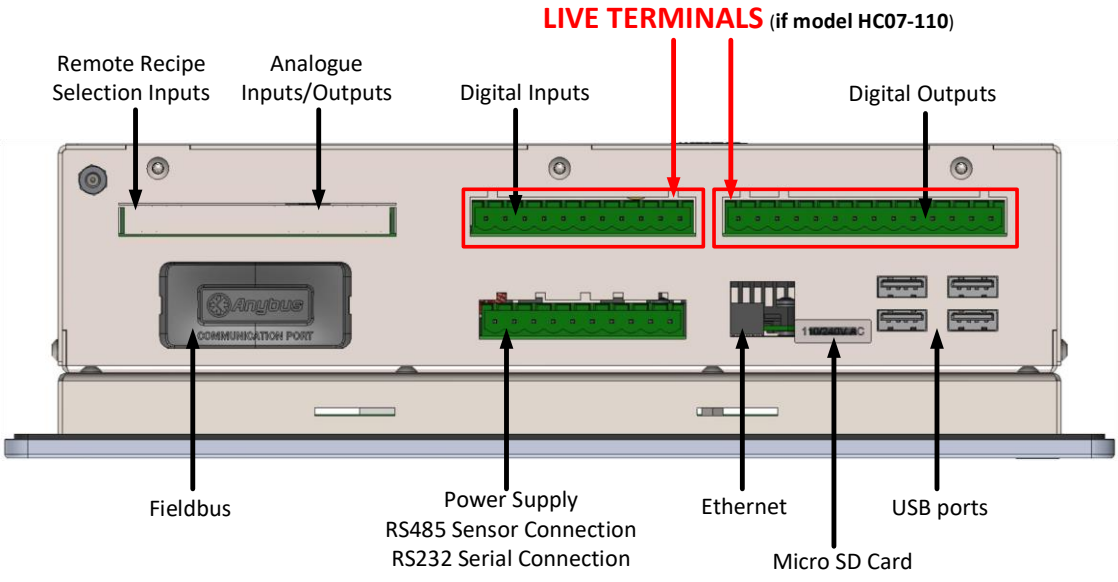

Figure 3: The base of the Hydro-Control showing electrical connectors

4 Special Considerations

4.1 Installing Hydro-Control (HC07) as a replacement for the Hydro-Control VI

CAUTION

DO NOT CONNECT existing HC06 wiring to HC07 device!
Refer to Chapter 4 of the HD1074 Hydro-Control (HC07) Installation Guide before making any electrical connections to the device.

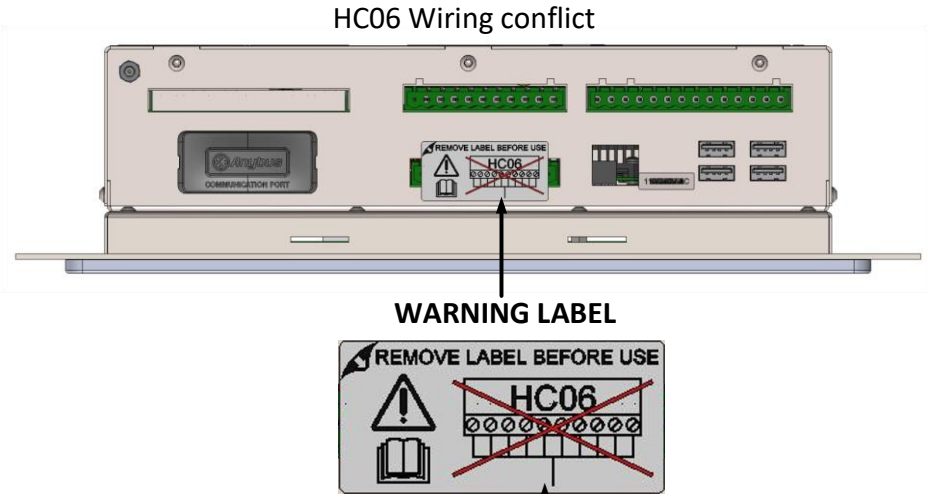

Figure 4: HC06 wiring conflict warning label

5 Specifications and Ratings

5.1 Intended use

The Hydro-Control (HC07) intended use is to work with the Hydronix range of sensors to monitor the moisture level in a process and to send signals to adjust the flow of water into the process using water valves.

5.2 Electrical Ratings

Maximum Power Consumption:	40W	
Supply Voltage Range:	Minimum	12V DC
	Maximum:	28V DC
DC I/O Card Input Voltage Range :	Minimum:	9V DC
	Maximum:	28V DC
AC I/O Card Input Voltage Range :	Minimum:	110V AC
	Maximum:	240V AC

5.3 Radio Ratings

Frequency Range 1	Minimum	2400 MHz
	Maximum	2500 MHz
Frequency Range 2	Minimum	5100 MHz
	Maximum	5800 MHz
Maximum radio-frequency power (range 1)		34.7mW
Maximum radio-frequency power (range 2)		66.1mW

5.4 Software

Operating System:	HS0126
Application Software:	HS0127

5.5 Environmental and Conditions

Operation Temperature Range:	Minimum	0°C (32°F)
	Maximum:	+40°C (104°F)
Storage Temperature Range:	Minimum:	-20°C (-4°F)
	Maximum:	+75°C (167°F)
Maximum Altitude:	2000 m	
Mass:	2.25kg (4.96lbs) ±5%	
Intended Use Location Type	Indoor Use Only	
Maximum Relative Humidity:	80%*	
Pollution Degree:	3**	

NOTE: Where ambient temperatures vary, a temperature regulation system may need to be installed.

***** for temperatures up to 31 °C decreasing linearly to 50% relative humidity at 40 °C

****** (Electrical Equipment in industrial or farming areas, untreated rooms and Boiler rooms)

6 Pre-Installation

- The installer is responsible for determining if this Hydro-Control is suitable for the application and location. Check the marking above and on the device before installation.
- The Hydro-Control shall only be installed by qualified personnel with the necessary knowledge of the protection ratings required for the location and local regulations, and hold all relevant certifications.

- If in any doubt about the suitability of the installation location of the Hydro-Control, do not install it.
- If the Hydro-Control is damaged, do not install it.
- The grounding of the device shall be assessed in the end-user's application.

7 Special Conditions of Use

- The Hydro-Control must be installed in a suitable enclosure. Once installed no Mains-voltage carrying parts are to be exposed. Responsibility for ensuring the suitability of the enclosure is defined in Chapter 1 Section 1.2.
- All hazardous-live parts are only to be accessible via tooled or keyed access.
- Only power supplies that meet the requirements of the device are to be used to power the Hydro-Control.
- The Hydro-Control shall only be utilised in accordance with its intended use.
- The device is to be disposed of in a manner that conforms to local regulations for Waste Electronic and Electrical equipment (WEEE).

8 Installation

8.1 General

- During installation, all relevant local regulations must be followed.
- See the HD1074 Hydro-Control installation guide for detailed installation and electrical connection instructions.

8.2 Maintenance

- Before carrying out work that involves accessing and interacting with the Hydro-Control's wiring, disconnect the power supply to the device.
- Before carrying out work on a Hydro-Control fitted with the AC I/O card, disconnect power supply of the devices that connect to the input terminals (No.15 to No.24) and outputs terminals (No.1 to No.14) of the Hydro-Control.
- Ensure that the power supply of the Hydro-Control and the power supply of the equipment connected to the device's Inputs and Outputs remain isolated for the duration of work carried out on the device.
- Works on the device or its wiring must be carried out by competent personnel
- The only serviceable parts of the device are the internal cooling fan, real-time clock battery, I/O board and fuses (AC variant only) and expansion board. If other parts are damaged the device must be returned for repair.
- Do not disconnect any wiring when energised.
- Regular inspections of the device shall be carried out to ensure it is not damaged. If damage is discovered, immediately stop using the device.

9 Using the Built-In Radio Module

9.1 Network Connections

The Hydro-Control has two network connection types: a wired Ethernet connection and a wireless Wi-Fi connection. The Wi-Fi antenna must be installed before setting up and using the device's wireless network connection.

9.2 Installing Wi-Fi Antenna and extension cable

For a reliable Wi-Fi signal, the Wi-Fi antenna must be mounted externally when the Hydro-Control is mounted in an enclosure. Figure 5 and Figure 6 show the Wi-Fi antenna connector and its location on the Hydro-Control.

Figure 5: The Wi-Fi antenna connector

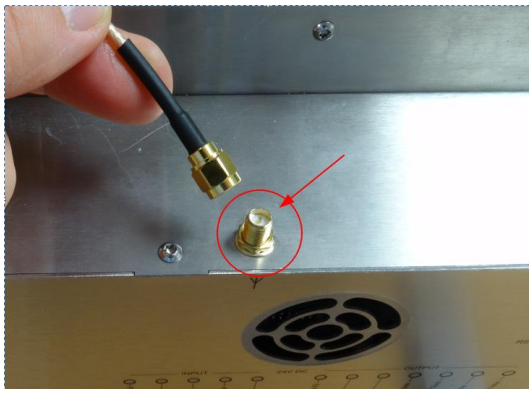

Figure 6: Wi-Fi antenna connector location

To install the Wi-Fi antenna, a 7mm hole needs to be drilled in a desired location in the Hydro-Control's enclosure. Insert the female end of the antenna extension cable into the hole in the enclosure and secure the connector using the nut supplied in the kit as shown in **Figure 8**.

Connect the male end of the cable to the Hydro-Control as indicated in **Figure 6**. Offer the extension cable to the connector on the Hydro-Control and turn it in a clockwise direction until resistance is felt. Then offer the Wi-Fi antenna to the connector on the enclosure and turn the antenna in a clockwise direction until resistance is felt.

Figure 7: Wi-Fi antenna extension cable

Figure 8: Antenna extension cable installed

9.3 Network settings menu

To access the network settings menu, navigate to the 'Settings' screen and then to the 'Network' page. Refer to Section 2 and Section 8 in Chapter 2 of the Operators Guide (HD1048) for more details regarding navigation.

Two buttons appear at the bottom throughout the Network settings pages:

- Save – Saves changes to the network configuration settings.
- Close – If unsaved changes are detected, the user is given the option to 'Discard' and return to the main Overview screen or 'Cancel' and return to editing the network settings.

9.4 Ethernet connection settings

To edit the Ethernet settings, select the Ethernet tab on the Network page, by pressing on its name.

The unit has two network modes, 'DHCP' and 'Static'. Selecting the desired mode is done by pressing the circle icon on the left of the mode's name.

In DHCP mode, changing the IP details is impossible, as the network handles the addressing (see Figure 9).

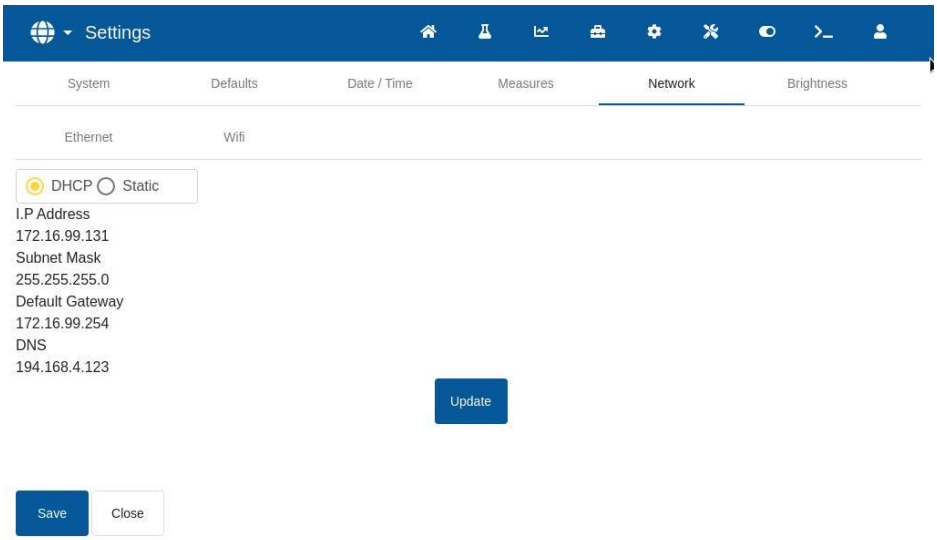

Figure 9: Settings – network set to DHCP

In Static IP mode, the fields are editable (see Figure 10). To change the static IP mode details, press on the field to be edited, type in desired values using the on-screen keypad (see Figure 11), and press the 'Update' button. A notification stating 'Operation Successful' will appear briefly.

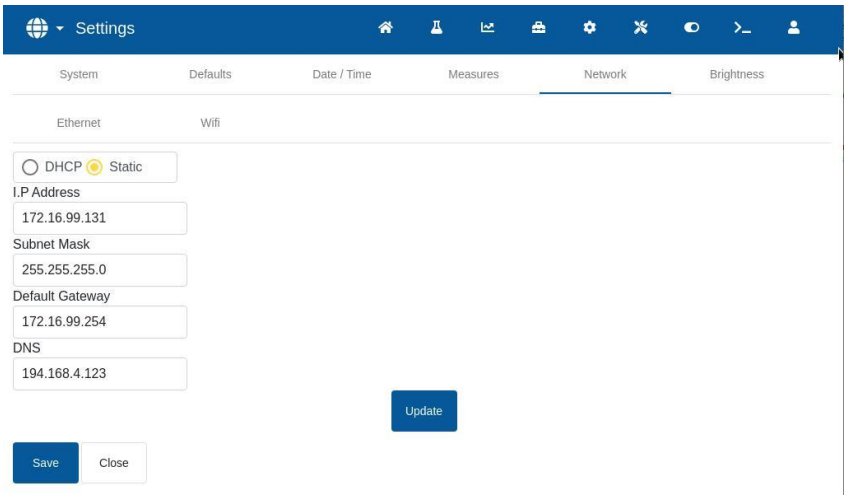

Figure 10: Settings – network set to static IP

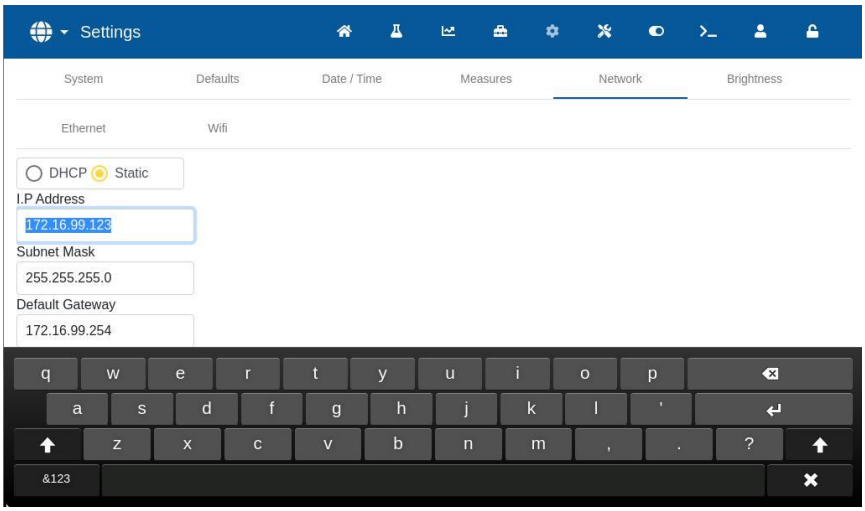

Figure 11: Settings - editing IP details

Settings parameter	Description
DHCP	Sets network to DHCP mode
IPAddress	Displays the IP address
SubnetMask	Displays the subnet mask
DefaultGateway	Displays the default gateway address
PreferredDNS	Displays the preferred DNS address
Static	Sets network to Static IP Address mode
IPAddress	Sets the IP address

Settings parameter	Description
SubnetMask	Sets the subnet mask
DefaultGateway	Sets the default gateway address
PreferredDNS	Sets the preferred DNS address

9.5 Wi-Fi connection settings

The Wi-Fi connection status information and the connection wizard are accessible via the main page of the Wi-Fi tab (see Figure 12).

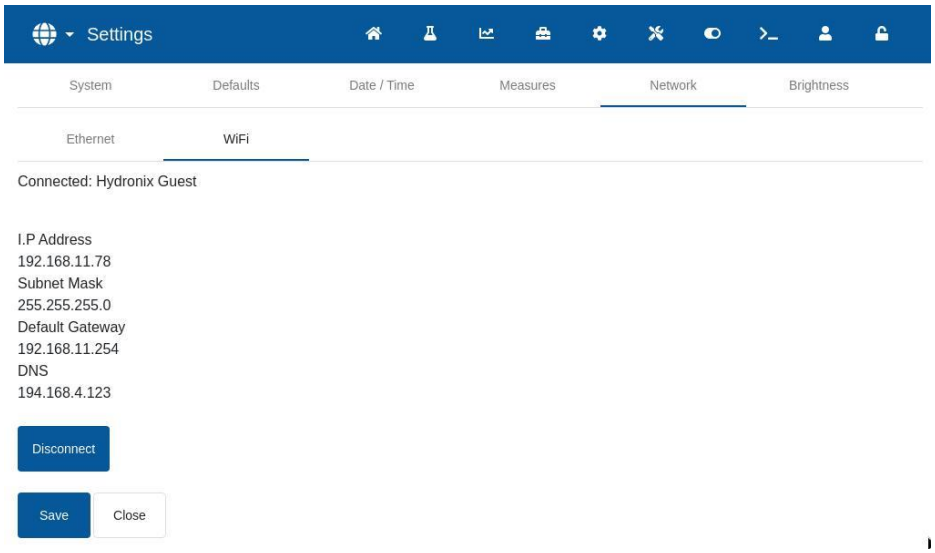

Figure 12: Wi-Fi connection status

To access the WiFi connection wizard, press the ‘Search Networks’ button. If the Hydro-Control is connected a network via WiFi already, the current connection needs to be stopped first. To do this, press the ‘Disconnect’ button.

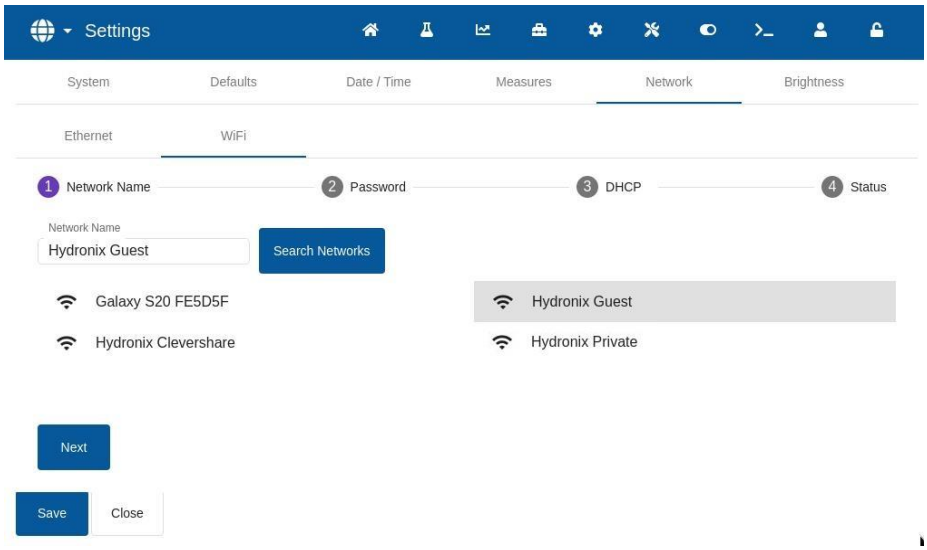

Figure 13: Selecting Wi-Fi network to join

Settings parameter	Description
Disconnect	Stops current WiFi network connection.
Search Networks	Triggers Wi-Fi networks search

After pressing the ‘Search Networks’ button, a list of available networks will appear in the lower section of the screen. To join the desired network, select it by pressing on its name, then press the 'Next' button (see Figure 13). A password prompt window will pop up.

Press on the Password field and type in the desired password using on-screen keypad then press the ‘Next’ button (see Figure 14).

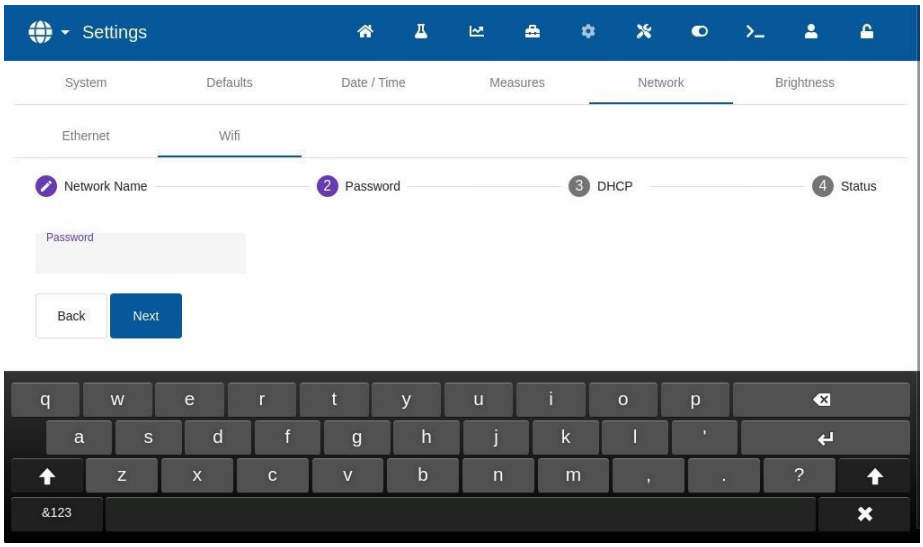

Figure 14: Joining Wi-Fi network - password input

Select between DHCP or static IP mode and confirm the choice by pressing the 'Submit' button (see Figure 15).

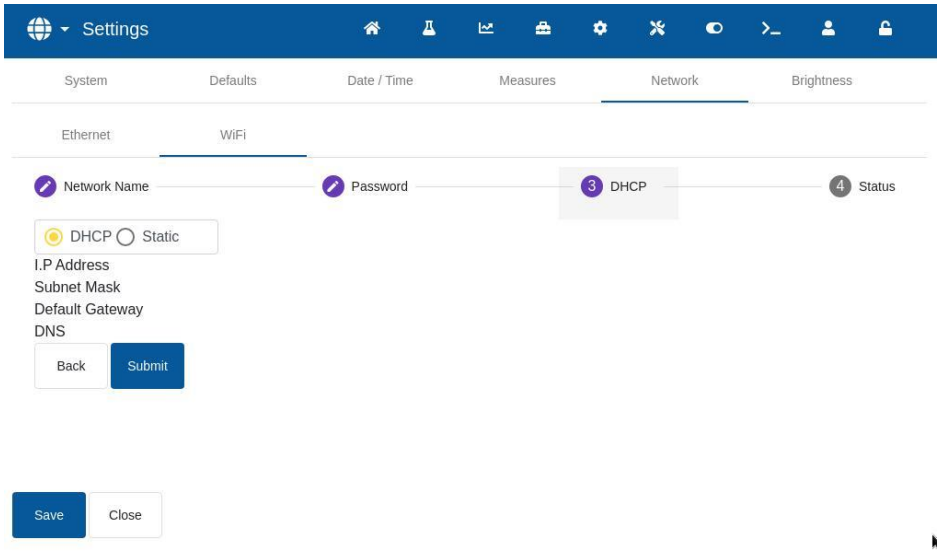

Figure 15: Wi-Fi network mode selection

A status notification will appear. If correct details were input, the 'Operation Successful' notification will appear at the top of the screen. Press the 'Save' button to retain the settings.

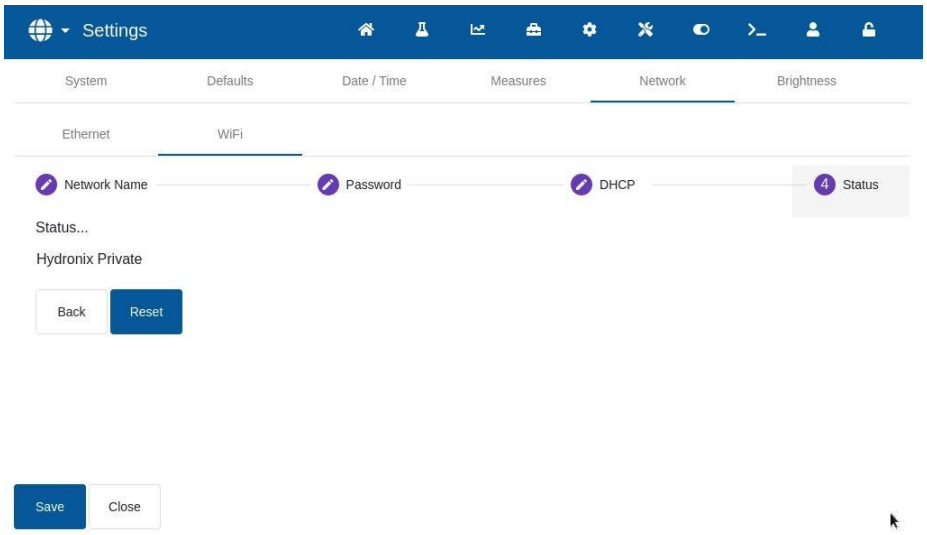

Figure 16: Wi-Fi connection wizard status notification

1 Document Cross Reference

This section lists all of the other documents that are referred to in this User Guide. It is beneficial to have a copy available when reading this guide.

Document Number	Title
HD1048	Hydro-Control (HC07) Operators Guide
HD1074	Hydro-Control (HC07) Installation Guide
HD1061	HC07 Fan replacement guide
HD1087	HC07 Battery replacement instructions
EN0111	HC07 AC IO Board Fuse Replacement Guide
EN0112	HC07 IO Board Replacement Guide

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