Hydro-Control (HC07) Safety Information

To re-order quote part number:	hd1100
Revision:	1.5.0
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ACKNOWLEDGEMENTS

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Revision history

Revision No	Software Version	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
1.2.1	1.2.0.0	Aug 2023	Revised electrical safety information
1.3.0	1.3.0.0	May 2024	Revised network connection set up information, Electrical safety section revisions
1.4.0	1.6.0.0	June 2026	Revised Electrical Ratings section information
1.5.0	1.6.0.0	October 2026	Added Cyber Security Information section

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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.

The assembler of the system must read and understand this safety information guide before attempting to install or use the device.

The assembler of the system must read and understand the HD1074 Hydro-Control (HC07) Installation Guide before carrying out the installation.

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 Electrical Safety information

3.1 Protective Earthing Information

System earthing is essential to the proper operation of the device. Installation or use of the Hydro-Control without connecting the Protective Earth is forbidden.

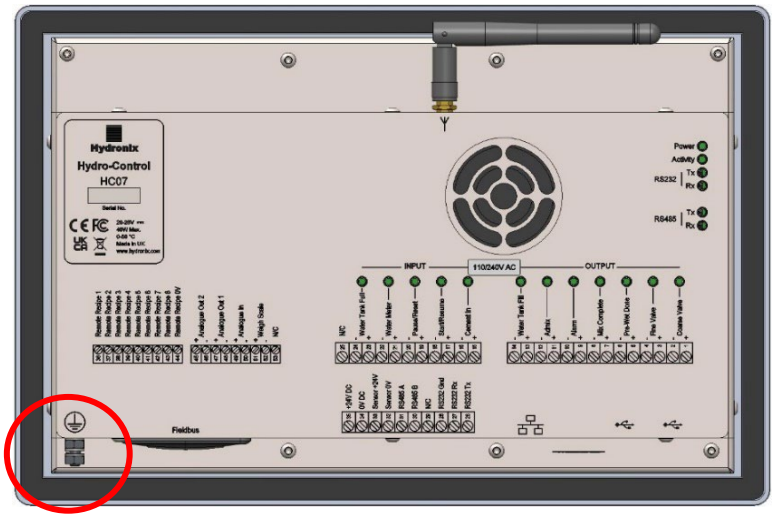

Figure 1: Location of the Protective Earth

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

3.2 Protective Earth Installation Recommendation

When carrying out electrical installation adhere to the following requirements:

Protective conductor connections of outgoing cables must be accessible, protected against accidental loosening and individually detachable.

Connections for outgoing protective conductors must be so arranged or marked that the associated circuit is clearly visible.

If one protective conductor is used jointly for several circuits, the cross-section of this conductor must correspond to the largest conductor.

Protective earth wiring must be able to withstand all thermal and dynamic stresses to which it could be subjected to before overcurrent of a protective device disconnects the equipment from the supply.

When installing Hydro-Control (device model HC07-110) ensure that the equipment connected to the I/O card of the device is fitted with appropriate protective wiring.

If the Protective earth wiring is also used for other bonding purposes, the protective conductor shall be applied first and secured independently of other connections.

3.3 Live mains terminals

Disconnect all power and cables completely before performing any maintenance work on the device. Refer to Section 8.3 for more information.

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.

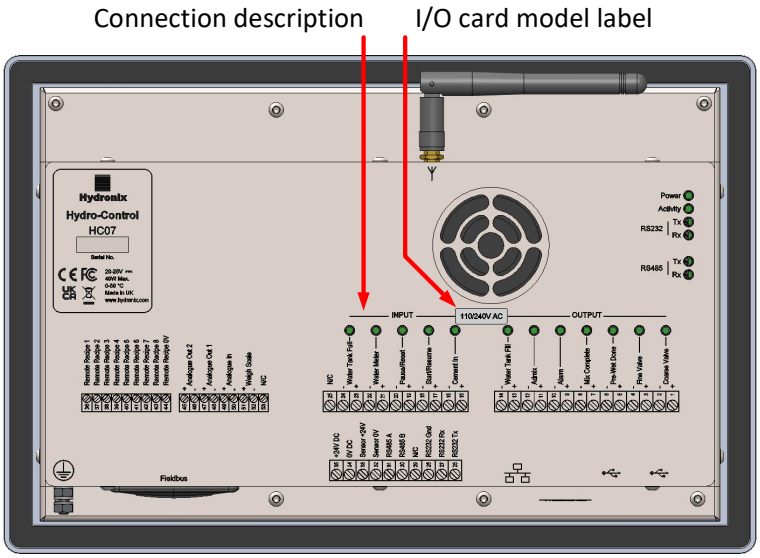

Figure 2: The rear of the Hydro-Control – connector labels

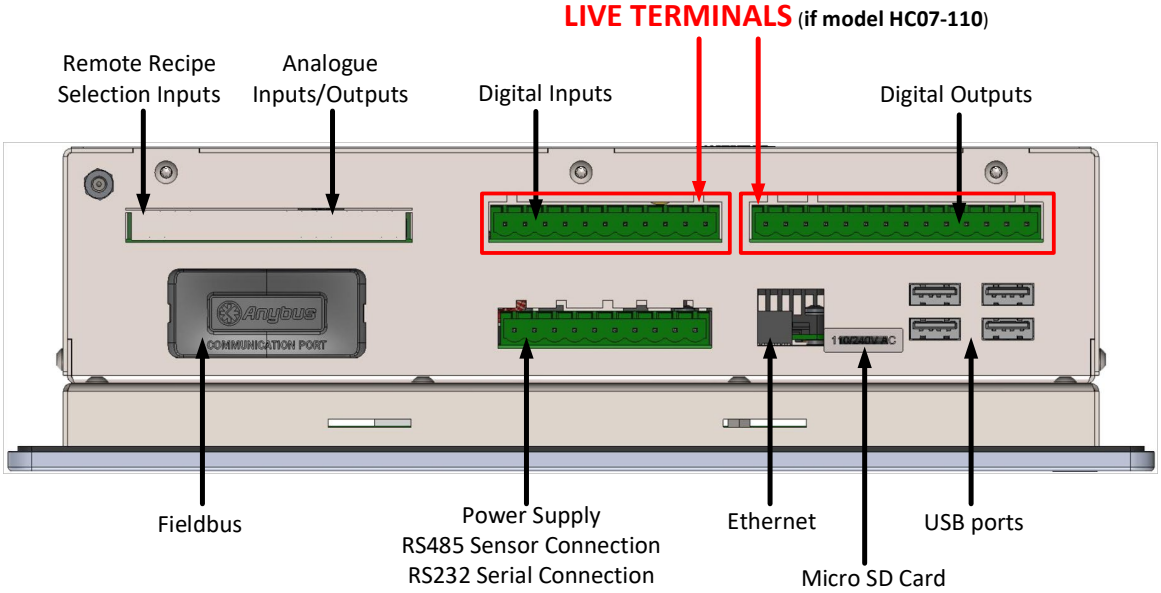

Figure 3: The base of the Hydro-Control showing electrical connectors

3.4 Wiring information

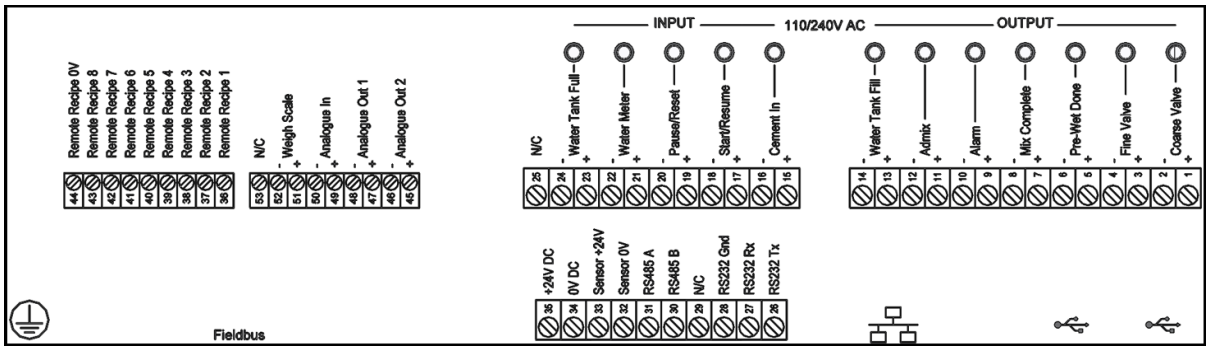

Figure 4: Electrical connections description label

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.

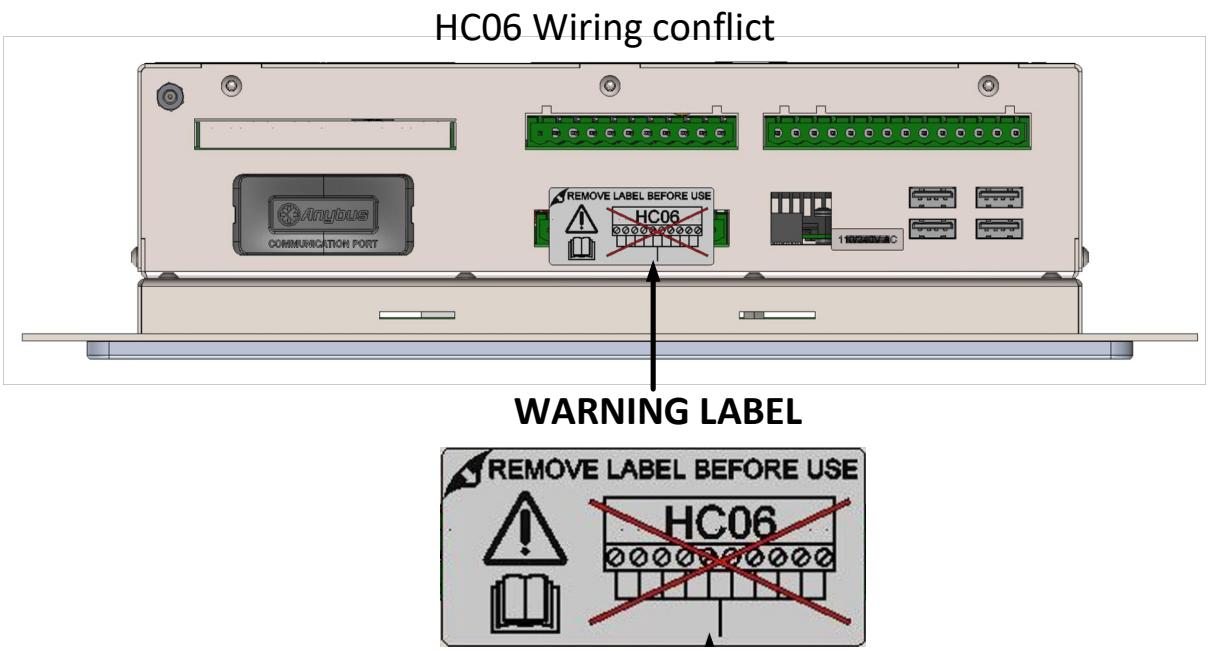

Figure 5: HC06 wiring conflict warning label

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	20V DC
	Maximum:	28V DC
DC I/O Card Input/Output Voltage Range:	Minimum:	9V DC
	Maximum:	28V DC
DC I/O Card Output Current:	Maximum:	2 A
DC I/O Card Trigger Signal Voltage Range :	OFF state max:	1V DC
	ON state min:	10V DC
AC I/O Card Input Voltage Range :	Minimum:	110V AC
	Maximum:	240V AC
AC I/O Card Output Current:	Minimum:	20 mA
	Maximum:	1 A

5.3 Wiring specification

The wiring used to make electrical connection to the device must meet the minimum criteria listed below:

Standard: Defence Standard 61-12 Part 6 Type 2, or BS4808 Part 2 Class 2 wire

Max working voltage:	1000V AC
Min. Insulation Resistance @ 20ºC:	10MΩ.km
Radial thickness of insulation:	0.3mm
Conductor rated temperature:	85 ºC

Power supply Conductors: 24AWG, 7/0.2mm, Cross-sectional Area: 0.22mm^2

I/O Conductors:

For Output Current <= 1A: 24AWG, 7/0.2mm, Cross-sectional Area: 0.22mm^2

Protective Earthing Conductor minimum cross-sectional area:

2.5 mm² if the PE conductor is mechanically protected,

4 mm² if the PE conductor is not mechanically protected

5.4 Power Supply System

Recommended supply: The power supply unit used must meet power consumption requirements of the Hydro-Control and must be IECEE certified**.**

Minimum supply: 24VDC, 1.66A (40W)

Important: The power supply designated to supply the Hydro-Control must not be used to power any external circuit to reduce the likelihood of interference between the two systems.

Overcurrent Protection: A suitable circuit breaker must be installed

Overvoltage Category: Category II up to 300V

Disconnection: A disconnection device (i.e. Circuit breaker or switch) must be installed. The OFF position of the disconnect device must be clearly marked. The disconnect device must be mounted near the Hydro-Control device, easily accessible and not require tooled access.

For device power ratings see section 5.2 of HD1100 (Safety Information).

The external circuits must have their own power supply and circuit braker and not be supplied via the circuit breaker designated for the Hydro-Control.

5.5 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

5.6 Environmental and Conditions

Operation Temperature Range:	Minimum	0°C (32°F)
	Maximum:	+50°C (122°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:	2**	

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)

5.7 Software

Operating System:	HS0126
Application Software:	HS0127

6 Pre-Installation

NOTE: Protection will be impaired if the unit is used in a manner not specified by the manufacturer

- 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 Hydro-Control shall not be used when the screen is damaged.
- The device is to be disposed of in a manner that conforms to local regulations for Waste Electronic and Electrical equipment (WEEE).

7.1 Cyber Security

To report a potential security vulnerability or incident related to Hydronix products, please contact security@hydronix.com. This ensures compliance with EU 2024/2847 reporting obligations.

8 Installation

8.1 General

- During installation, all relevant local regulations must be followed.
- See the HD1074 Hydro-Control installation guide for detailed mechanical installation and electrical connection instructions.
- When installing the device adhere to the requirements described in section 8.2.
- When installing do not position the Hydro-Control so that it is difficult to operate the disconnect device.

8.2 Clearance Requirements

It is important to ensure that the Hydro-Control has adequate clearance for ventilation and access. The side vents and fan vents on the back of the unit should not be restricted. Sufficient ventilation of the cabinet where the Hydro-Control is installed is required so that the device is kept within its operating temperature range. The minimum clearance for the back and sides of the enclosure is 60mm.

8.3 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.

8.4 Cleaning

The front panel of the Hydro-Control should be cleaned with a soft cloth. Abrasive materials and liquids must not be used.

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 6 and Figure 7 show the Wi-Fi antenna connector and its location on the Hydro-Control.

Figure 6: The Wi-Fi antenna connector

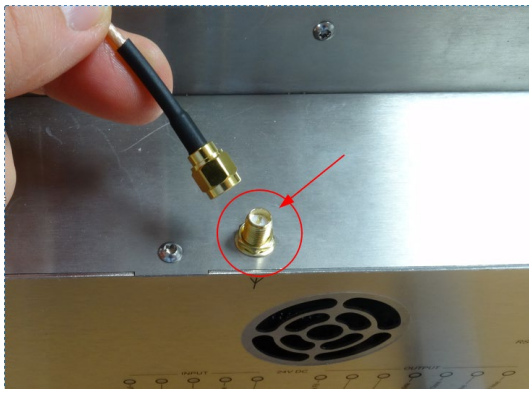

Figure 7: Wi-Fi antenna connector location

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 9**.

Connect the male end of the cable to the Hydro-Control as indicated in **Figure 7**. 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 8: Wi-Fi antenna extension cable

Figure 9: 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 10).

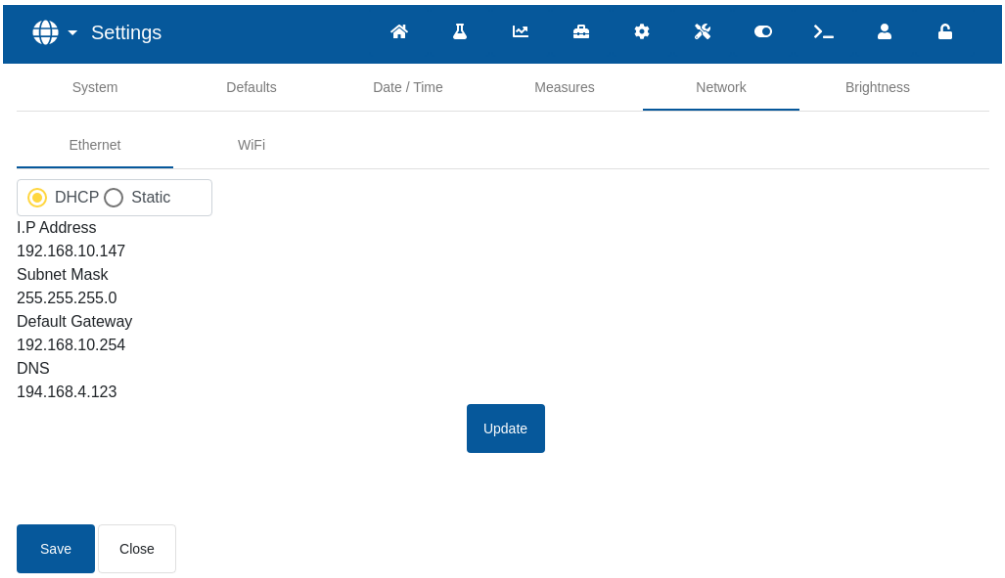

Figure 10: Settings – network set to DHCP

In Static IP mode, the fields are editable (see Figure 11).

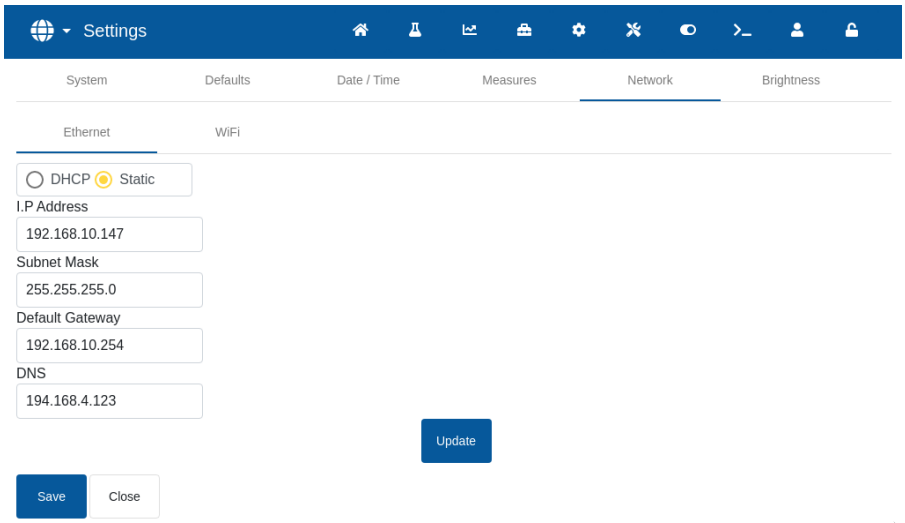

Figure 11: Settings – network set to static IP

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 12), and press the 'Update' button. A notification stating 'Operation Successful' will appear briefly.

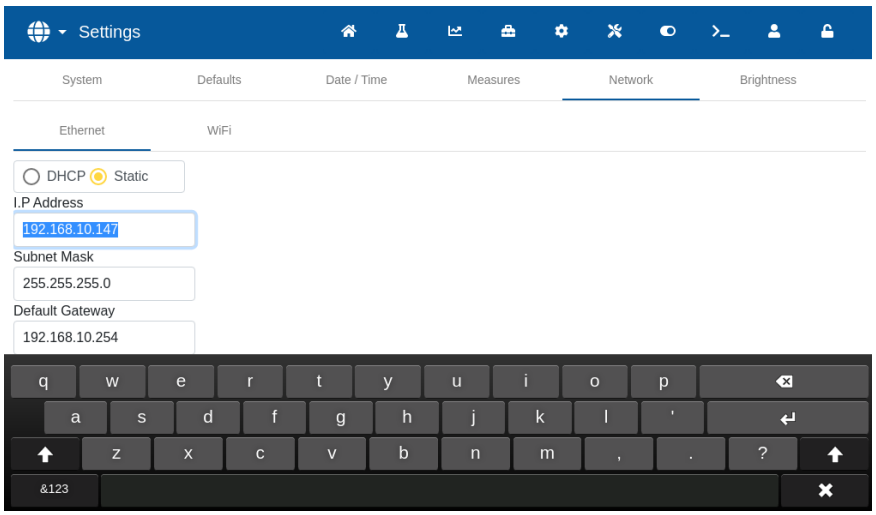

Figure 12: Settings - editing IP details

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

Settings parameter	Description
PreferredDNS	Displays the preferred DNS address
Static	Sets network to Static IP Address mode
IPAddress	Sets the IP address
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 13).

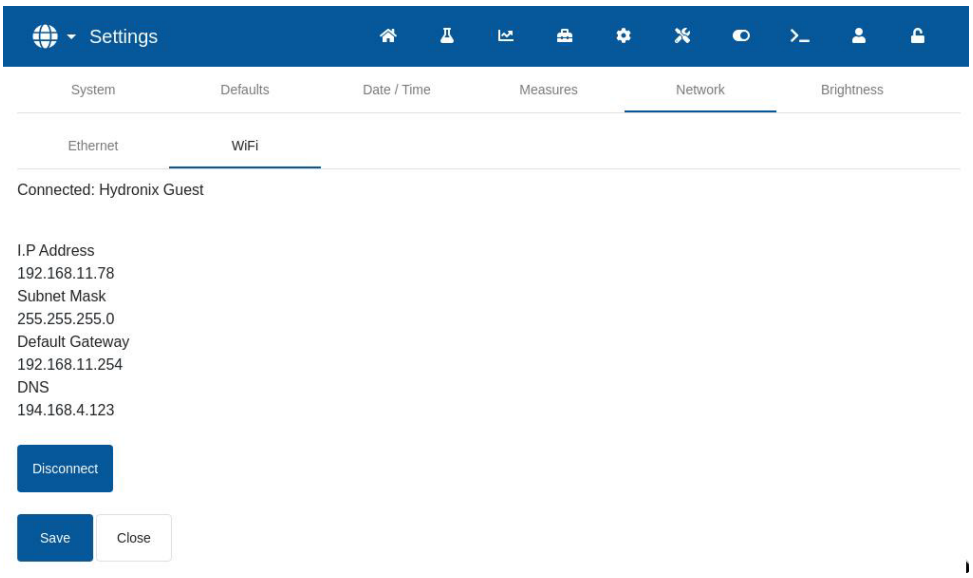

Figure 13: Wi-Fi connection status when connected

To access the Wi-Fi connection wizard, press the ‘Search Networks’ button (see Figure 14).

If the Hydro-Control is connected to a network via Wi-Fi already, the current connection needs to be stopped first. To do this, press the ‘Disconnect’ button (see Figure 13: Wi-Fi connection status when connected).

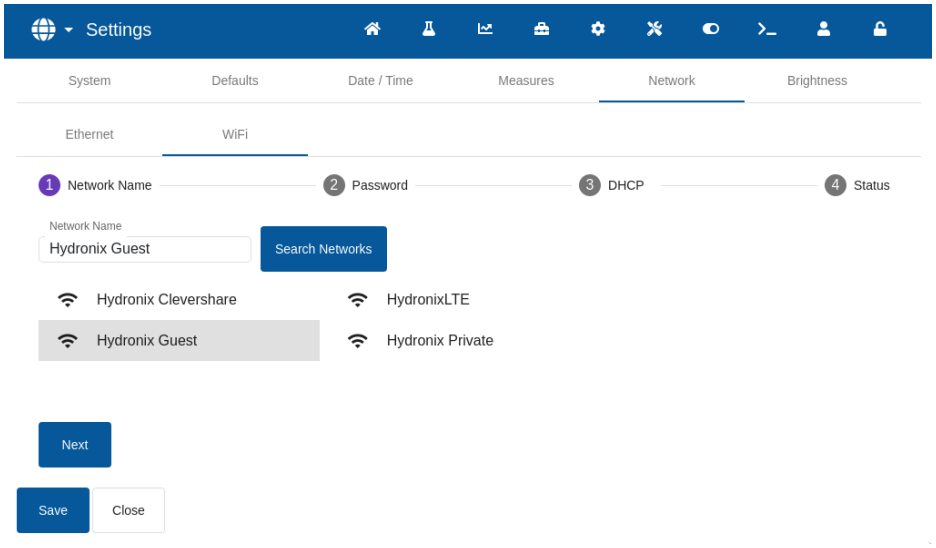

Figure 14: Selecting Wi-Fi network to join

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 14). 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 15).

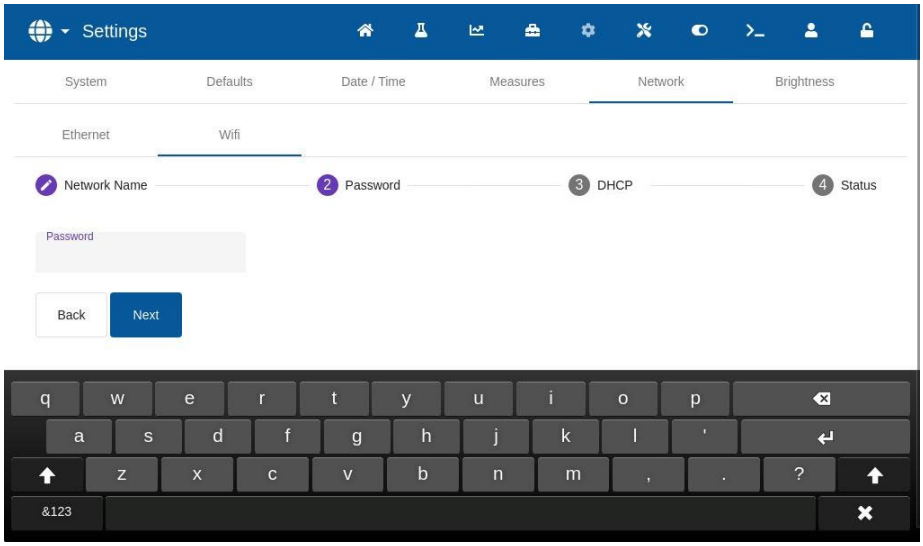

Figure 15: Joining Wi-Fi network - password input

Select between DHCP or static IP mode and confirm the choice by pressing the 'Submit' button (see Figure 16).

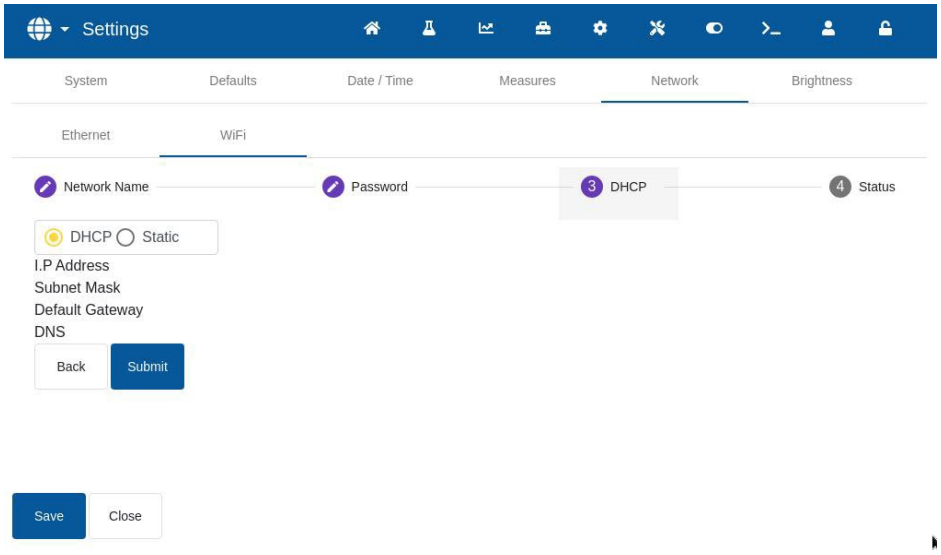

Figure 16: Wi-Fi network mode selection

If the correct password was typed the screen will display the connection status and details (see Figure 13). Press the 'Save' button to retain the settings.

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

1 Risk Assessment

Information in this section aims to assist with risk analysis.

Severity Group	People	Equipment / Facility	Environment
Catastrophic	Once or more fatalities	System or facility loss	No catastrophic environmental impact
Severe	Disabling injury/illness	Major subsystem loss of facility damage	N/A
Moderate	Medical treatment or restricted work activity.	Minor subsystem loss of facility damage	N/A
Minor	First aid only	Non-serious equipment or facility damage	N/A

Table 1: Severity of harm

Likelihood	Expected rate of occurrence
Frequent	More than five times a year.
Likely	More than once per year, but not more than five times a year.
Possible	More than once in five years, but not more than one a year.
Rare	More than once in ten years, but no more than one in five years.
Unlikely	No more than once in ten years.

Table 2: Probability of harm

Risk assessment / Risk category			
Risk	**Probability of Harm**	**Severity**	**Remark**
Electric shock (HC07-24)	Unlikely	Minor	Sensor is supplied with 24VDC will not cause harm.
Electric shock (HC07-110)	Unlikely	Minor	The power source must be isolated before accessing the enclosure. The operator has no access to live terminals during operation. The manual stipulates that the device must be installed in a suitable enclosure.
Cuts	Unlikely	Minor	The device must not be used when the device's screen is damaged.

Table 3: Risk category

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