OBSERVATOR
instruments

Installation manual

OIC-2022

Observator Helideck monitoring system

Version: 1.03
Status: Released
Confidentiality: Not confidential
Date: 27 November 2023
Author: Observator

Document history

The Observator range is in continuous development and so specifications may be subject to change without prior notice. When in doubt about the accuracy of this document, contact the Observator Group.

Revision history

Version	Date	Amendments	Company, position
1.01	2022-10-28	Initial document creation	Observator Instruments
1.02	2023-03-03	1e release	Observator Instruments
1.03	2023-11-27	Update pictures	Observator Instruments

Preface

This manual is intended for the installer of the Observator OIC-2022.

Summary

This manual will give general information concerning installation the Observator OIC-2022.
It does not include project specific information.
Network addresses & Port numbers mentioned are defaults, which might be altered for specific projects.

Table of contents

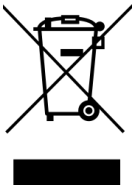
Indoor us only.

For correct functioning of this system the OIC-2022 sever and connected sensors must be installed and commissioned according installation instructions.

Remember: instruments are tools.
They do NOT replace your own observations!

Note the correct power supply voltage:

This a 24VDC system and requires an UPS backup power supply.



After end of life dispose this product according local regulations or return to manufacturer.

1 Introduction

The Observator HMS / EMS Helideck or Environmental Monitoring System is an advanced monitoring system.
The Observator HMS / EMS is a network server. The system can be viewed using a Chrome browser on most operating systems.

The OIC-2022 control & server unit is the reliable heart of the system.
All sensors will connected to the OIC-2022, where all data will be processed and stored.
The OIC-2022 will act as a webserver to produce the required HMS / EMS pages.

2 Requirements

2.1 Power

The OIC-2022 requires 24VDC 4A (4 -15A depending on system configuration) from an uninterrupted power supply.
An UPS should be used in case no uninterrupted power supply can be guaranteed.

2.2 Location

The OIC-2022 is a 4U 19” rack system.
For service purposes both front & the back should be accessible.
For service purposes a monitor & keyboard are recommended.

2.3 Network

The OIC-2022 act as a server and therefore should be connected to a network with DHCP server.
We do advise to use a dedicated network for the most reliable and save communication.

Since April 2022 the system will use a network for motion sensor and optional the Orga Helideck Repeater Lights. In the next stage other sensors will follow like for example lightning and wave.

The OIC-2022 has a dedicated UTP connector for sensors.
There are several options to route the sensor data:

1. Via the existing network (using fixed IP addresses on a separate subnet).
2. Direct connection (1 sensor only)
3. Via a switch on a dedicated network (multiple sensors).

2.3.2 Sensor network subnet and IP

Subnet Mask: 255.255.255.0
IP addresses: 192.168.209.x

2.3.3 Port numbers

Webserver:	9090	
Meteolink:	8080	(for configuration)

2.4 Viewers

The OIC-2022 is a server and does not have a viewer output (HDMI output is for service purposes only).
The webpages can be viewed on any device capable of running Chrome or Chromium web browser.
For optimum presentation experience we recommend a 16/9 format screen with HD (1920x1080) resolution.
The default licence allows 4 users simultaneously, optional a license for 10 simultaneous viewers can be obtained.

2.4.1 Viewer device requirements

The viewer device must be able to run Google Chrome.

Minimum hardware requirements:

Processor:	recent Celeron or equivalent.
RAM:	4GB
Screen resolution:	HD (1920 x 1080) recommended.

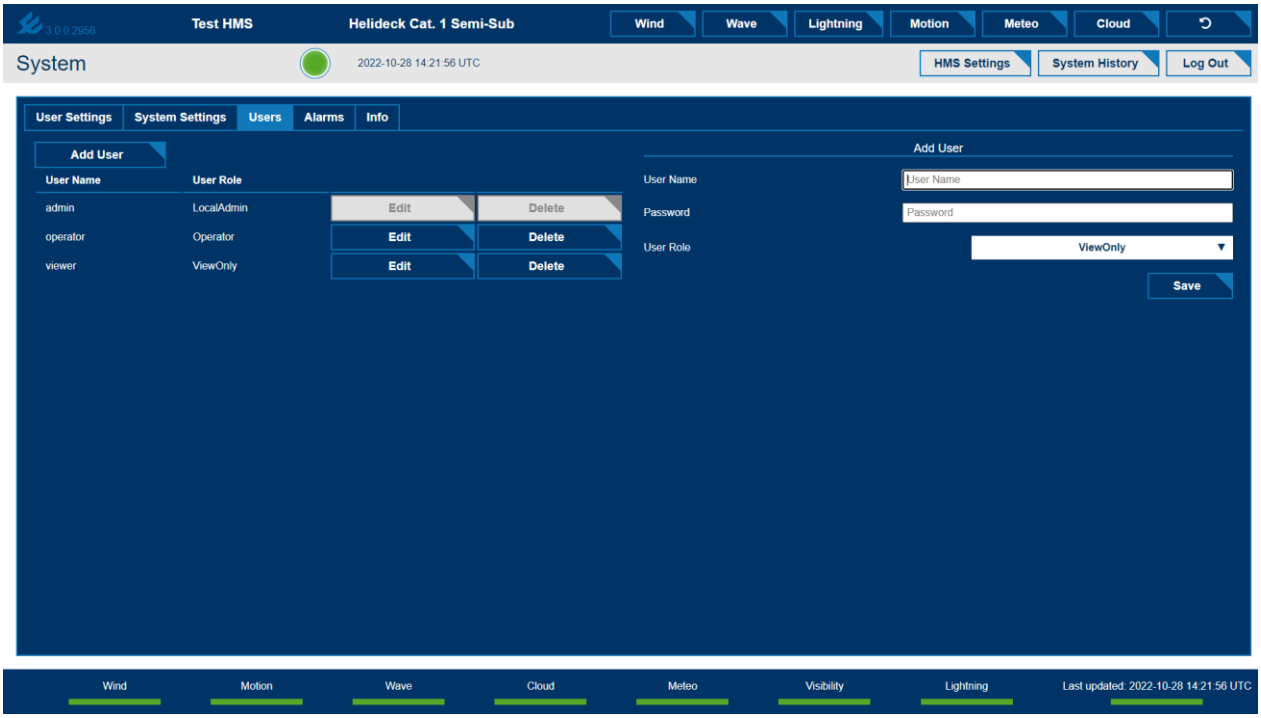
Lower specs might work, but could cause slower response.
Higher specs will have a positive influence on response (for example when viewing historical data).

2.5 Available Connections

Most sensors will be connected via one of the 6 available NMEA inputs or LAN. This should be sufficient for normal HMS / EMS systems. All NMEA inputs are default NMEA 4800.

A pulse input for a rain gauge (like the OMC-210/212) is also available.
For connection with HCA compliant Helideck Repeater Lights the Helideck lights connector is available. .

The build in high accuracy barometric pressure sensors require ventilation to outdoors via a tube, a pressure port outside is recommended.

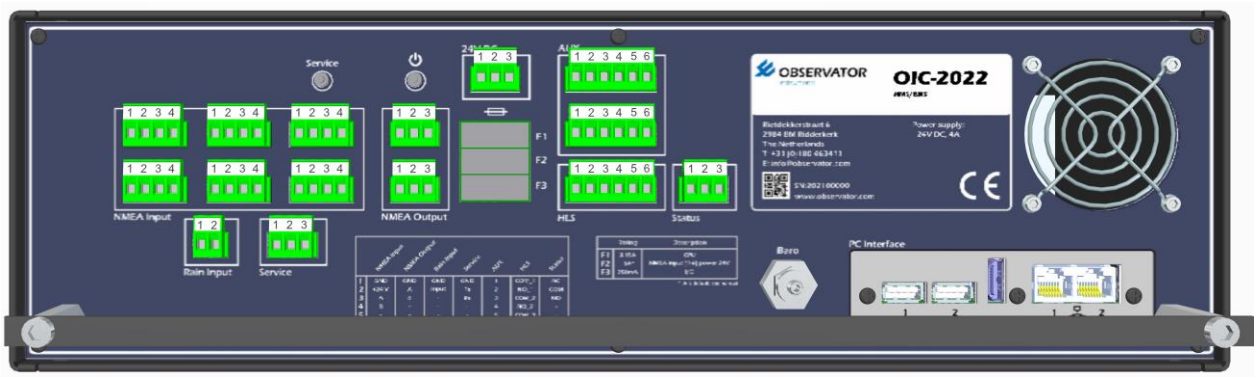


Changes must be confirmed with the Save button.

3 Frontpanel

The green power led (PWR) indicates the server is running.
The front panel has a removable panel for access to the server and barometric pressure sensors (if installed).

4 Backpanel

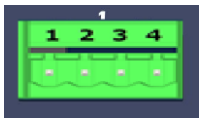


4.1 NMEA IN 1 - 6

Sensor power comes direct from the supply power (fused at 1A).
Do not use for heated sensors (or any other high power requirements)!

NMEA 1 & 2 have sentence filter options.
It is recommended to reserve these for GPS & Gyro, to minimize the amount of unnecessary data.

Pin	Description
1	Sensor Power Ground
2	+24VDC
3	NMEA A input
4	NMEA B input



4.2 RAIN IN

Pin	Description
1	GND input
2	Input (sensor contact)

4.3 AUXILIARY 1 - 2

The Auxiliary ports are reserved for project specific purposes and default not wired.

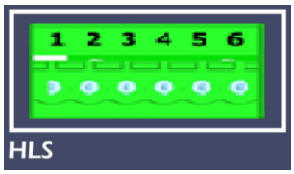
Pin	Description
1	Not Connected
2	Not Connected

3	Not Connected
4	Not Connected
5	Not Connected
6	Not Connected

4.4 HELIDECK REPEATER LIGHTS

Only functional when Observator HMS system is installed.

Pin	Description
1	Contact 1
2	Contact 1
3	Contact 2
4	Contact 2
5	Contact 3
6	Contact 3



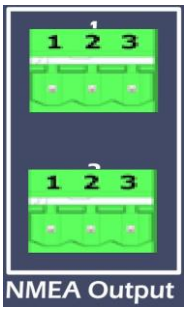
4.5 BARO

Connection for venting barometric sensors outdoors.

For 4/6 mm tubing.

4.6 NMEA OUT 1 – 2

Pin	Description
1	Signal Ground
2	NMEA A output
3	NMEA B output



4.7 Service Port & Pushbutton

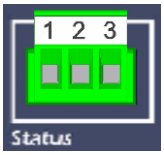
Dedicated for Observator Service purposes.

Pin	Description
1	Signal ground
2	Rx
3	Tx

4.8 STATUS

Relay output for system status.
Pin 3 is closed when system is operational.

Pin	Description
1	NC
2	COM
3	NO



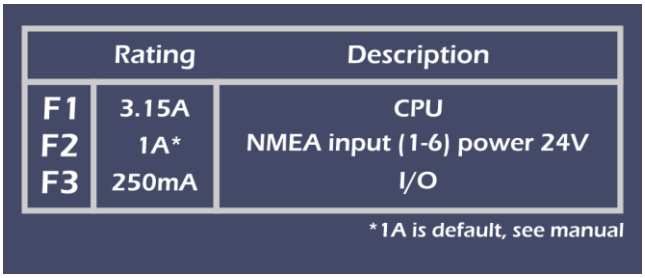
4.9 SERVER INTERFACE

For the server interface 6 connections are available.
The type and number of connections may vary depending on the system requirements.

Default the following connections are available:

Connector	Description
USB 1	Service
USB 2	Service
HDMI	Monitor for Service purposes only!
LAN 1	Network Server
LAN 2	Network Sensors (Motion & Helideck Repeater Lights)

4.10 FUSES



The OIC-2022 has 3 user accessible fuses, all of the slow type.

Fuse F1 secures the CPU unit.

Fuse F2 secures the +24V sensor power of the NMEA input ports and has a default value of 1A.
This is usually sufficient.
In case more power is required via the NMEA ports, the fuse can be replaced up to a maximum of 10A, however the power supply should be able to deliver at least 3A more as the rating of fuse F2.
Also if an external fuse is used (not mandatory), it should have a rating of at least 4A higher than the rating of fuse F2.

Example:

F2 = 10 A
Power supply 24VDC should be 13A as a minimum (recommended 15A)
If an external fuse is used (not mandatory) it should have a rating of at least 14A (slow) Recommended 15A (slow).

A fault in the sensor power should never lead to disruption of the 24VDC power to the CPU and I/O of the OIC-2022!

Fuse F3 secures the NMEA input (signal only), NMEA output, Rain input and Service port interface.

4.11 POWER BUTTON

ATX Power (push) button of the server.
Push once to shut down the server in a secure way, Wait until the Power LED on the front is out before removing power.

To start server again after a shutdown, push twice.

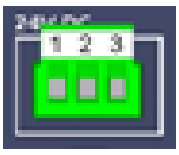
The server will auto start if power is applied (no need to use the POWER BUTTON)

4.12 POWER CONNECTION

Power connection 24VDC (UPS power)

System itself requires 5 A maximum.
Via the NMEA IN connectors sensors can be powered (10A maximum).

Pin	Description
1	GND power
2	+24VDC
3	Ground



5 Specifications

5.1 Power:

Power supply:	uninterrupted power supply	
Voltage:	24VDC	
Current:	4A for system	
	Up to 15A if sensors are fed via the server.	
Fuses:	F1 CPU	3.15A slow
	F2 Sensor power	1A slow (default, max 10A slow)
	F3 I/O interface	250mA slow
	Optional External fuse should have a higher rating than the total of F1-F3!	

5.2 I/O

NMEA in:	6 ports
NMEA out:	2 ports
Rain pulse input:	1 port (currently not implemented in HMS software)
Auxiliary:	2 connectors (only project specified defined)
USB:	2 ports (Service use only)
HDMI:	1 port (Service use only)
RS232:	1 port (Service use only)
LAN1 (UTP):	WebServer
LAN2 (UTP):	Sensor / Helideck Repeater Lights
Helideck Lights:	Contact output conform Standard for Helideck monitoring
Baro port:	Poly flow 6/4mm

5.3 Environment

Indoor use only

IP rating:	IP2x according to IEC EN 60529
Operating Temp.:	-25 .. 55 deg C
Humidity:	5 – 95%RH noncondensing

5.4 Housing

Dimensions server:	19” rack 3U
Weight server:	approx. 12 kg

Since 1924 Observator has evolved to be a trend-setting developer and supplier in a wide variety of industries. Originating from the Netherlands, Observator has grown into an internationally oriented company with a worldwide distribution network and offices in Australia, Germany, the Netherlands, Singapore and the United Kingdom.