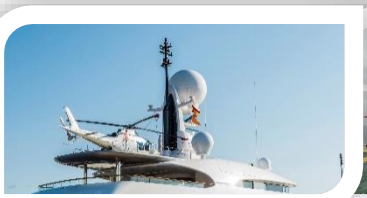

Datasheet

OIC-2021 HMS 3.0 Server

With a marine track record dating back to 1924, Observator is a well-known partner for meteorological and hydrological solutions within the marine market and offshore industry. Meteorological measurements are critical for daily operations in harsh conditions like this. Examples include (un)loading at sea and crane and installation works, which all depend on wind, but also approaching thunderstorms that may affect general operations.

Taking crew members and other people to and from moving or non-moving offshore objects is often done with a helicopter. Here too, meteorological information is of critical importance. To this end, Observator has been developing and supplying its own Helideck Monitoring Systems (HMS) for many years. These meet the most stringent standards, such as those of the UK CAA CAP437, Norwegian CAA BSL D 5-1 and the Brazilian DPC Normam-27.

However, the Helideck Certification Agency (HCA) tightened the standards for moving objects. The HCA 9.x ‘Standard Helideck Monitoring Systems’ prescribes new algorithms, calculations and pages. This guideline, mandatory as of April 2021, apply to all floating objects – equipped with a helideck – operating in European waters or overseas where UK-registered helicopters operate. Examples are FPSO's, FSO's, offshore installation vessels, mega yachts, offshore supply vessels, diving support vessels, etc.

For this purpose, Observator developed her completely new HMS 3.0 line. Just like its predecessor, the OIC-2020 Helideck Monitoring System 2.0, the hardware is compact on the outside, and smart on the inside. Thanks to our MeteoLink concept, it is possible to integrate third party sensors, allowing us to update helideck monitoring systems of other suppliers as well.

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General

The OIC-2021 is Observator's latest HMS / MetOcean / EMS Server, provided with dedicated software to meet the HCA (Helideck Certification Agency) Standard Helideck Monitoring System rev 9.x.

Obviously, the complete system fully complies with CAP437, Normam-27 and BSL D 5-1 and others as well.
The unit comes in a 19" sub-rack of 3 HE only and comprises an industrial PC and all required i/o, based on Observator's MeteoLink concept.

Backside of the OIC-2021. On the left side: sensor or MeteoLink inputs. On the right side: the Auxiliary ports and ports to drive e.g. dedicated displays and contact outputs for the helideck repeater lights.

The server is an industrial DNV 2.4 compliant, IEC 60945 certified, head-less PC with Intel® Core™ i5-7300U 2.6 GHz*/i5-6300U 2.4 GHz processor, Chipset: SoC integrated; System Memory 2 x DDR4-1866/2133 SO-DIMM, 4GB (32GB max); BIOS: AMI; Memory SSD 128GB.

The 2 swappable 2.5" SAT drives are easily accessible, by removing the cover plate at the front of the OIC-2021. The OIC-2021 is a Linux-operated server that standard comes with Observator's pre-installed software package.

The OIC-2021 HMS 3.0 Server further contains two accurate barometric pressure sensors, which can be accessed by the same cover plate, for calibration purposes. A common air-pressure inlet (conform CAP-regulations) is available on the backside as well. The barometric pressure sensors are specified as follows:

- Range: 750..1.150 hPa
- Accuracy: 0,2 hPa (typical 0,1 hPa)
- Drift: max 0,1 hPa/year
- Temp.: -40°C..+85°C (fully compensated over the temperature range)
- Number of sensors: 2

Integrated I/O

In previous standards of the HCA, a traffic light was already prescribed for the software pages. Within the last 9.x standard, the control of these algorithms have changed, as well as the requirement to send warnings to the helideck itself. So-called helideck-repeater lights, located at four points on the deck, display the status. The OIC-2021 is equipped with 3 contact outputs, which can control these lights as follows:

Helideck Status	HMS output #1	HMS output #2	HMS output #3	Repeater Light Mode
	0	0	0	N/A
safe to land	0	1	0	
MSI/WSI exceedance	1	0	0	
do not land	1	1	0	
	0	0	1	N/A
RWD within limits	0	1	1	
Mitigation act considered	1	0	1	
Mitigation act required	1	1	1	

The Orga L430 can be used as helideck repeater lights, in combination with the controller. The lights have an integrated photocell to automatically control the required dimming at twilight and at night. No separate photocell is required. They also include failure monitoring so that the control panel can show any errors that may occur.

HMS CIP Modbus control module, suitable for DIN rail installation

HMS repeater light L430, suitable for safe area

Specifications

Power	24VDC/4A
I/O	NMEA input (6 ports)
	Rain (pulse) input
	LAN (UTP) (2)
	NMEA output (2 ports)
	Helideck Lights (HCA 9.x) output
	HDMI (service only)
	USB 2.0 (2 ports)
	Baro port for poly flow 6/4mm
IP rating	IP2x according to IEC EN 60529
Indication	Green Power led in front
Buttons	ATX power button (back), service button (back)
Fuses	F1: 3.15A (CPU)
	F2: 1A NMEA INPUT 1-6 (1A is default, see manual)
	F3: 230mA (IO)
Housing	19" rack mount, height: 3U, weight: approx. 12 kg
Environment	Indoor use only
	Operating Temperature: -25 .. 55 deg C
	Humidity: 5-95% RH noncondensing
Certificates	EN IEC 61162-1:2016
	EN IEC 60945
	EN IEC 60297-100:2009

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Integrated I/O

The OIC-2021 is provided with a fully wired MeteoLink Smart node with NMEA extension PCB resulting in 6 NMEA (or MeteoLink) inputs. MeteoLink is an Observator concept, enabling sensors to be linked through to each other, creating one industrial standard for all parameters (M<EA0183), while not losing the flexibility to install sensors at their right locations.

Within a standard helideck monitoring system, a wind sensor (or two) will be connected to a temperature humidity probe (OIC-406), resulting in the first link to the main unit. Observator's most common wind sensors are:

OMC-118
ultrasonic
anemometer

OMC-160
cup and vane
type wind sensor

OMC-116m
ultrasonic
anemometer

OIC-406
temperature
humidity node

A second MeteoLink is often created for the parameters visibility, present weather and cloud base/coverage. Since these sensors are often installed close to each other, Observator offers a field combiner with one common serial output which takes care of the power supply as well.

VPF-730 visibility /
present weather sensor

CBME-80
cloud ceilometer

Integrated I/O (II)

The third sensor/NMEA port will standard be used for one of the most critical parameters of HMS 3.0: a Motion Reference Unit. Our R&D department has chosen to use the MRU3000, which fully complies with the required specifications.

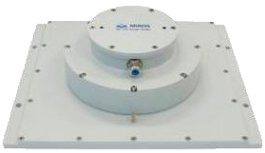
MRU3000 Motion Reference Unit

A fourth sensor/NMEA port will commonly be used to obtain info regarding the position, speed and direction of the vessel, by means of on board installed GPS/Gyro.

This leaves at least two non-used and available NMEA inputs. Other I/O:

- 2 NMEA outputs (e.g. to connect OMC-140 display units)
- Variety of aux ports
- Pulse input (rain sensor)
- Ethernet
- Server/service ports USB connectors
- 3 helideck status outputs to be used for helideck repeaters

The above may be used to add non-mandatory sensors to the HMS server as well. For example, Observator can implement the sensors below to her system. Please note that in case wave is measured on board, it is mandatory to offer the data to the used HMS (conform CAP437).

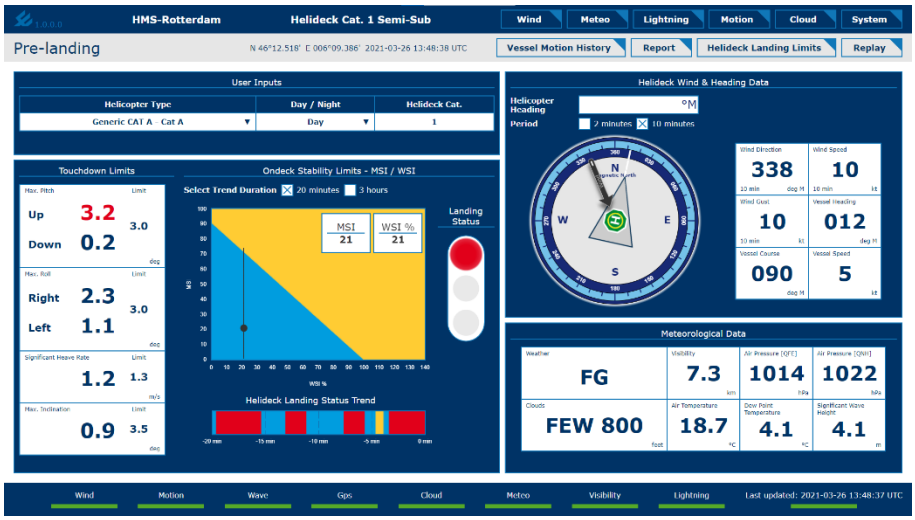


Miros SM-140 wave radar

Radac
WaveGuide
direction

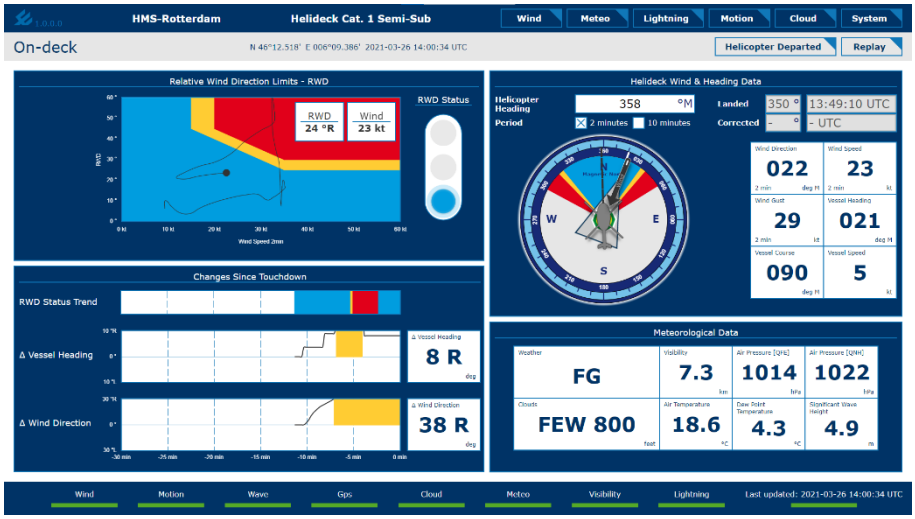
BTD-350
thunderstorm
detector

The pre-installed HMS 3.0 software



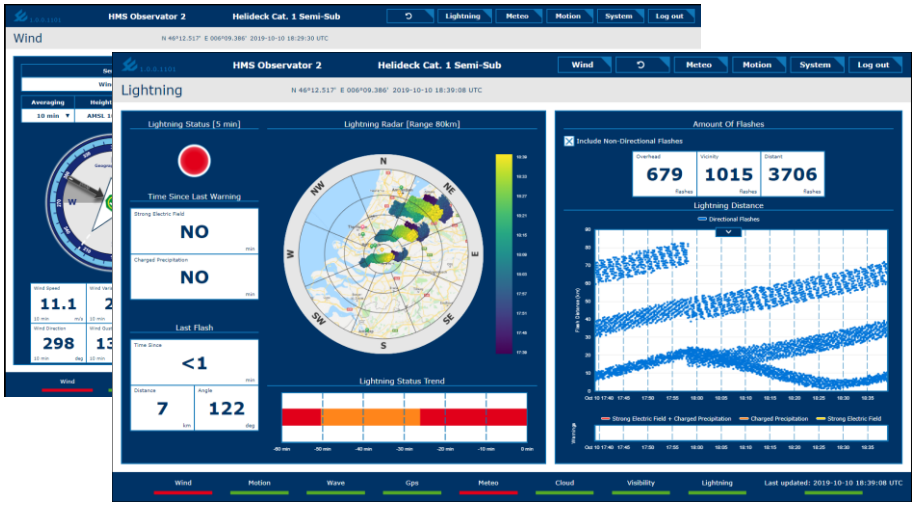
Pre-landing page

Within Observator's HMS 3.0 software, this will probably be the most used screen: the pre-landing page, mandatory conform HCA. The name of the vessel or installation should be mentioned on this page, as well as the helideck category. These are obviously pre-set by Observator. The user may select incoming helicopter type and category, and day/night by means of drop-boxes. On this page, all meteorological parameters are available as per CAP and BSL requirements, motion is given as per latest HCA recommendations, and the relation between MSI and WSI is displayed in the graph.



On-deck page

While landing, the helicopter operator enters the heading (reported by the pilot, relative magnetic North). The on-deck page will appear automatically, given the Relative Wind Direction (RWD). Stoplight algorithm will change as well. Instead of MSI/WSI relation, the stoplight is controlled by the wind direction relative to the helicopter in combination with wind speed. Other meteorological parameters required for a safe take off will still be available.



Parameter (EMS/MetOcean) pages

As standard or as option, all measured parameters, or group of parameters, have their own specific pages with clear trend graphs. A selection can be made to show combined trends or single parameters. A date/time selection can be made to act as play-back function.

Welcome to the world of Observator

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.

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