

Datasheet

OIC-2021 HMS 3.0 Server

With a marine background dating back to 1924 and a worldwide experience in meteorological stations, it is clear that Observator systems are widely used in offshore applications. 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 the aid of helicopters. Here too, meteorological information is of critical importance. To this end, Observator has been supplying its widely used 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 HCA, which certifies helidecks worldwide, tightens these standards when it comes to moving objects. Especially when it comes to the parameter 'movement'. Recently she published the HCA 9.x 'Standard Helideck Monitoring Systems' which describes new algorithms, calculations and new pages to be used. This guideline will become mandatory as of 1 April 2021 for FPSO's, FSO's, offshore installation vessels, mega yachts, offshore supply vessels, diving support vessels etc., which are equipped with a helideck.

For this purpose Observator developed her completely new HMS 3.0 line. Now that the hard- and software is available, all users have the opportunity to update their systems on time.

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 sensor or MeteoLink inputs, right on this 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 easy acceptable at the front of the OIC-2021 while removing the cover plate. The OIC-2021 uses a Linux operation system while the HMS 3.0 will come as pre-installed software.

The OIC-2021 HMS 3.0 Server further contains two accurate high 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 back side 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 described which was mandatory on the software pages. Within the last 9.x standard not only the algorithms have changed how to control this, it has also become an obligation to send these warnings to the helideck itself. So-called helideck-repeater lights at four points on the deck display the status. At this point 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	

As helideck repeater lights the Orga L430 can be used 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 500W (max)
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	10 A slow for external sensors (accessible on the back) 5 A slow internal (service only)
Housing	19" rack mount Height: 3U Weight: approx. 12 kg
Environment	Indoor use only Operating Temperature: -25 .. 55 deg C Humidity: 5-95% RH non condensing
Certificates	EN IEC 61162-1:2016 EN IEC 60945 EN IEC 60297-100:2009

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 Observer 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 HMS 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. Observer'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, Observer 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, and is reserved for a Motion Reference Unit. Our R&D department has chosen to use the MRU3000 which fully comply with required specifications.



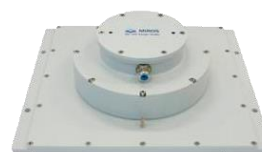
MRU3000 Motion Reference Unit

A fourth sensor/NMEA port will commonly be used to offer vessels position, speed and direction 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. As example Observer can implement these underneath sensors to her system. Please note that in case wave is measured on board it is mandatory conform CAP437 to offer the data to the used HMS.



Miros SM-140 wave radar

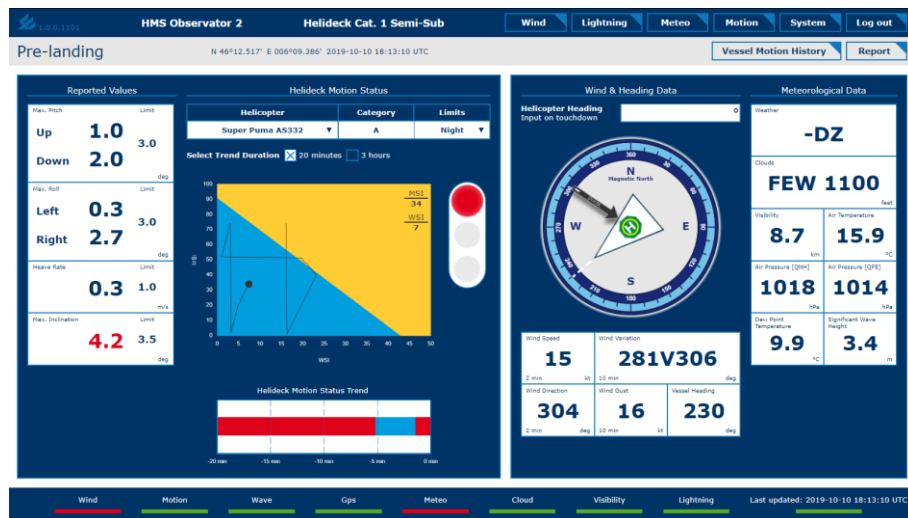
Radac
WaveGuide
direction



BTD-350
thunderstorm
detector

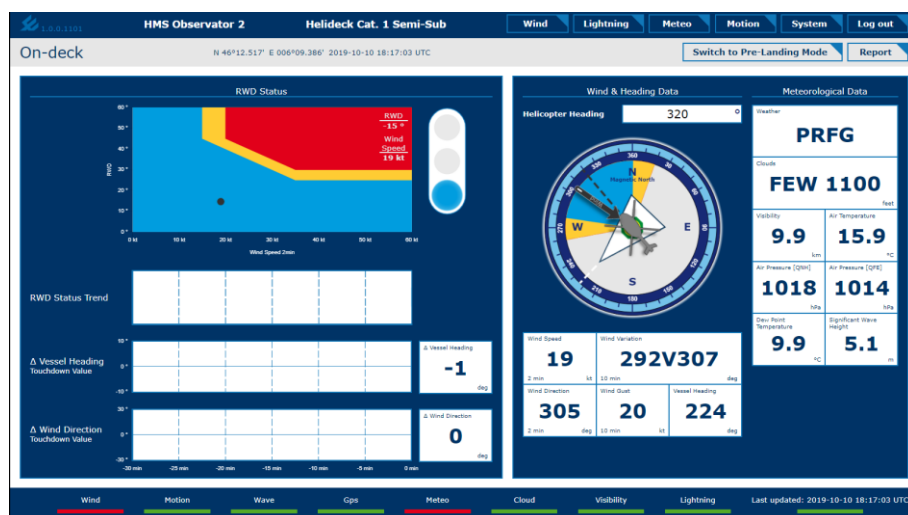


The pre-installed HMS 3.0 software



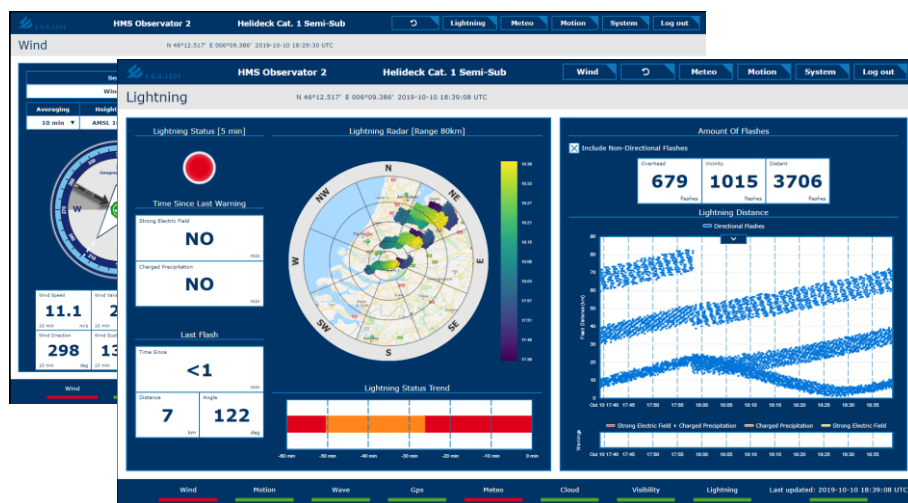
Pre-landing page

Within Observer'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 Observer while 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 while the relation between MSI and WSI is given in the graph.



On-deck page

While landing the helicopter the 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, in stead 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 while a date/time selection can be made to act as play-back function. On the left the optional available lightning page.

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Since 1924 Observer has evolved to be a trend-setting developer and supplier in a wide variety of industries. Originating from the Netherlands, Observer 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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