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LAMBRECHT meteo

BROCHURE:

Maritime Applications

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LAMBRECHT meteo

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Meteorological sensors for any type of vessel

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Lambrecht meteo, an AEM brand, is a leading global supplier of meteorological senors and data loggers. Our products are used onboard inland vessels, cruise ships, tankers, container ships, and luxury yachts – wherever high-quality, reliable sensors and solutions are required.

THE STANDARD FOR MARITIME USE

National Marine Electronics Association (NMEA) is the standard for maritime use. Lambrecht meteo has been working with NMEA 0183 since 1997 and now offers a wide range of sensors for use at sea and on-ship weather stations.

TESTED UNDER THE HARSHEST ENVIRONMENTAL CONDITIONS

All our sensors and systems are built with high-quality, seawater-resistant materials and are designed for long-term use on the world's oceans. Our sensors work with the standard NMEA 0183 protocol.

Wherever your ship travels, our maritime equipment ensures a safe return.

- Seawater-resistant housings with special finishes
- High-quality and durable construction
- Measure wind speeds up to 85 m/s
- Powerful heating systems for year-round use
- Service-friendly sensor technology saves time and costs

FOR ALL VESSEL TYPES:

Reliable data on all cruise ships worldwide

Ideal for container ships and industrial and port facilities

For every ship, from inland vessel to luxury yacht

Overview:
NMEA 0183 Sensors

Overview: NMEA 0183 Sensors

On the following pages, you will find our sensors for maritime applications. Additionally, you can explore indicators and data loggers with customizable software solutions for smooth data management.

WIND SENSOR

u[sonic] Ultrasonic Combined Sensor
ID 00.16470.100000

Measuring range: Wind direction: 0...359.9° • Wind speed: 0...75 m/s

Operating range: –40...+70 °C (with heating –50...+70 °C) • 0...100 % r. h.

Accuracy:

Wind direction: < 2° (> 1 m/s) RMSE
Wind speed: 0.2 m/s RMSE (v < 10 m/s) • 2 % RMSE (10 m/s < v < 65 m/s)

WEATHER SENSOR

u[sonic]WS6 Ultrasonic Weather Sensor
ID 00.16480.000000

Measuring range: Wind direction: 0...359.9° • Wind speed: 0...65 m/s

Operating range: –40...+70 °C (with heating –50...+70 °C) • 0...100 % r. h.

Accuracy:

Wind direction: < 2° (> 1 m/s) RMSE
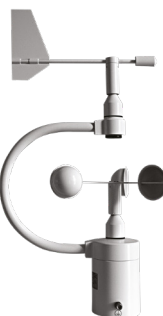Wind speed: 0.2 m/s RMSE (v <10 m/s) • 2 % RMSE (10 m/s <v < 65 m/s)
Air temperature: 0.1 K (0...60 °C) • 0.2 K (–40...0 °C)
Relative humidity: typically 1.5 % (0...80 %) r.h. • 2 % (>80 %) r. h.
Air pressure: 0.5 mbar

WIND SENSOR

25413 Combined Ship Wind Sensor
ID 00.24513.205010

Measuring range: Wind direction: 0...360° • Wind speed: 0.4...60 m/s

Operating range: –35...+70 °C (heated) • 0...100 % r. h.

Accuracy:

Wind direction: ± 2.5°
Wind speed: ± 2 % FS

WIND SENSOR

ARCO–NAV Combined Wind Sensor
ID 00.14581.110010

Measuring range: Wind direction: 0...360° • Wind speed: 0.3...75 m/s

Operating range: –30...+70 °C (heated) • 0...100 % r. h.

Accuracy:

Wind direction: ± 1°
Wind speed: ± 2 % FS 0.3...50 m/s

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Overview: NMEA 0183 Sensors

EOLOS–NAV2 Static Weather Sensor
ID 00.16432.210002

Measuring range: Wind direction: 0...360° • Wind speed: 0.1...85 m/s •
Air temperature: -40...+70 °C • Relative humidity: 0...100 % r. h. •
Air pressure: 600...1100 hPa

Operating range: -40...+70 °C • 0...100 m/s gusts • Humidity 0...100 % r. h.
Accuracy:

Wind direction: 3° • Wind speed: 0.5 m/s ± 5 % of measured value
Air temperature: 0.8 °C (v > 2 m/s)
Relative humidity: 3 % (10...90 %) • 4 % (0...100 %)
Air pressure: 2 hPa (-40...+85 °C) • 0.5 hPa at 25 °C

WENTO–IND Weather Sensor
Id 00.14516.210001

Measuring range: Wind direction: 0...360° • Wind speed: 0.3...75 m/s •
Temperature: -30...+70 °C • Relative humidity: 0...100 % r.h. •
Barometric pressure: 600...1100 hPa

Accuracy:

Wind direction: ± 1° • Wind speed: ± 2 % FS at 0.3...50 m/s
Temperature: ± 0.8 °C
Relative humidity: ± 3 % (10...90 %) ; ± 4 % (0...100 %)
Barometric pressure: ± 2 hPa (-30...+70 °C)

THP[pro]NAV Combined Sensor **ID 00.08095.101000**
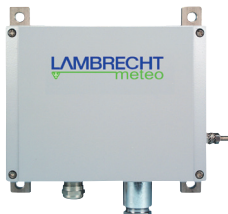**Weather and Radiation Sensor Shelter NAV** **ID 00.08141.620000**

Measuring range: Temperature: -40...+70 °C • Relative humidity: 0...100 % r. h. •
Barometric pressure: 500...1100 hPa

Accuracy:

Temperature: 0.3 °C at (v > 2 m/s) • 0.4 °C (10...40 °C) • 0.8 °C (–10...+70 °C)
Relative humidity: 3 % (10...90 %) r. h. • 4 % (0...100 %) r. h.
Barometric pressure: ± 2 hPa (-30...+70 °C); ± 1 hPa (–10...+60 °C); ± 0.5 hPa (25 °C)

8126 X81 Precision air pressure sensor
ID 00.08126.481002

Measuring range: 35...2000 hPa

Accuracy: ± 0.1 hPa in calibrated range of 750...1150 hPa

8282 Water temperature sensor
ID 00.08282.100000

Measuring element: Pt 100 according to DIN 60751 B, 1/3 tolerance

Operating range: –30...+40 °C

Data logger SYNMET-NAV: The high standard

SYNMET-NAV: The high standard

SYNMET-NAV is a configurable and adaptable data acquisition and monitoring system. The robust and reliable data logger includes a cast aluminum housing and EMC-safe cable glands. With freely configurable sensor inputs, the SYNMET-NAV meets the highest demands.

OVERVIEW:

The SYNMET-NAV professionally records heading, course, and speed data and integrates with on-board computers and navigation systems to inform control of the ship. Calculations like **True Wind** and **Speed over Ground** are automatically calculated. The data logger also supports redundant on-board computer systems. Hardware and software merge seamlessly to protect passengers, crew, and load.

SYNMET-NAV Features:

- Automatic port-starboard wind sensor selection
- True Wind calculation
- Ring memory for one year
- Ethernet interface
- Freely configurable sensor inputs (60 channels)
- Six serial, galvanically-isolated interfaces
- Integrated sensor and hardware monitoring

Algorithm for more security:

Ship weather stations must record weather data, including wind speed, and display this data continuously on the ship's bridge. This gives the captain the data needed for ship navigation and control, such as for safe docking maneuvers in the harbor.

The multi-wind sensor system and sensor switch increase safety at sea and when navigating into the harbor. The twin sensors continually monitor winds, with the system performing regular error checks on both devices. If both sensors are working correctly, the system displays the higher wind values by default.

We've refined our approach over more than 160 years to create perfectly matched hardware and software components that ensure our systems' proven reliability.
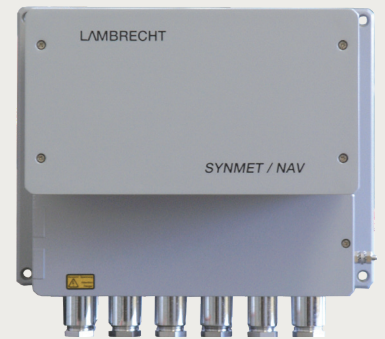
SYNMET-NAV ID 00.95664.639011
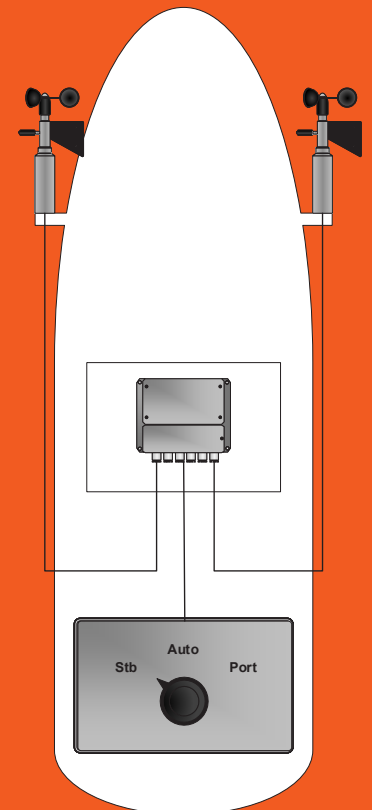
Example application with sensor switch (port-starboard), automatic or manual

METEO-LCD-NAV
Digital ship's indicator

METEO-LCD-NAV:
Digital ship's indicator with shock class A

This steadfast all-rounder has passed shock and vibration tests (according to BV 0440 and BV 0430) for maritime use on the high seas with excellence. The digital indicator is multi-functional, compact, and available with a waterproof front panel.

WHAT IS METEO-LCD?

The METEO-LCD-NAV is an essential part of the proven Lambrecht meteo system solution alongside SYNMET-NAV and various other sensors. This highly qualified display unit includes high-contrast graphic LCD and the ability to integrate several devices into a network.

Features METEO-LCD-NAV:

- Indication of specific weather parameters: True Wind as well as relative wind direction and wind speed, air temperature, humidity, air pressure with trend reading, dew point
- Large, multi-function display with dimmable backlighting
- Version **W** with waterproof front panel (IP66-rated)
- Galvanically-isolated supply and signal inputs
- Instantaneous, average, and extreme values

Software package Meteoware CS:

Our scalable **MeteoWare CS** software is the perfect complement to your Lambrecht ship weather station for visualizing and evaluating data. Daily data acquisition, as provided by weather stations on land, is rare on the seas, so measuring stations on ships are an important source for increasing data density.

In the network version of **MeteoWare CS**, the data can be distributed to numerous information systems for access by crew or passengers. Central storage of the data enables various evaluations, such as for use in climate change research.
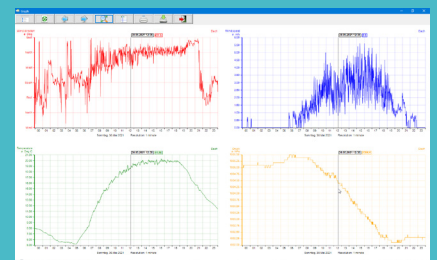

METEO-LCD-NAV

Software MeteoWare CS:

Advanced visualization of weather data on the PC screen and in information systems

Central storage of data for further evaluation (tabular and graphical)

Simple data export for external use

List of sensors, accessories, and services

List of sensors, accessories, and services

Parameter	Description	ID
	Data Logger, Software and Indicators	
	SYNMET-NAV Data Logger	00.95664.639011
	Sensor Switch (if two wind sensors are installed)	00.90227.300000
	Configuration SYNMET-NAV	97.95664.000001
	MeteoWare CS Software	36.09340.000000
	METEO-LCD-NAV Indicator	00.14742.301002
	METEO-LCD-NAV W, IP66 Indicator	00.14742.011002
	Single and Combined Sensors	
W + THP	u[sonic] Ultrasonic Combined Wind Sensor	00.16470.100000
W + THP	u[sonic]WS6 Ultrasonic Weather Sensor	00.16480.000000
W	24513 Combined Ship Wind Sensor	00.24513.205010
W	ARCO-NAV Combined Wind Sensor	00.14581.110010
W + THP	EOLOS-NAV2 Static Weather Sensor	00.16432.210002
W + THP	WENTO-IND Weather Sensor	00.14516.210001
TH	TH[pro]NAV Combined Sensor	00.08095.101001
THP	THP[pro]NAV Combined Sensor	00.08095.101000
P	8126 X81 Precision Air Pressure Sensor	00.08126.481002
T	Water Temperature Sensor	00.08282.100000
	Accessories	
	Weather and Radiation Sensor Shelter NAV	00.08141.620000
	Sensor Cable 24513 / EOLOS / WENTO, 10 m, 6–wire, Bayonet Plug	32.16420.066100
	Sensor Cable u[sonic], 15 m, 8–wire, M12 plug	32.16470.060000
	Sensor Cable ARCO-NAV, 10 m, 5–wire, M12 plug	32.14581.060000
	Sensor Cable THP[pro]NAV, 15 m, 4–wire, M12 plug	32.14567.060010
	Sensor Cable DPS8100 / Water Temperature Sensor, 4–wire (meter goods)	79.11200.000004
	Weld-in Plunger for Water Temperature Sensor	00.08282.200000
	Mast Junction Box with 4 VG Cable Inlets	00.90185.000005
	Services	
	Document Preparation (FAT, HAT, SAT)	96.00004.000000
	Service FAT: Factory Acceptance Test	99.00004.000000
	Service HAT: Harbor Acceptance Test	97.00003.000000
	Service SAT: Sea Acceptance Test	97.00004.000000
	Service IDS: Interface Design Specification	96.00008.000000
	Preparation of Wiring Diagram	96.00000.100000

W = Wind   T = Air temperature   H = Relative Humidity   P = Air Pressure

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