# MeteoStation[economic]



# Cost-effective weather station for professional applications

### MONITORING IN REAL TIME, MAKING WORK MORE EFFICIENT

MeteoStation[economic] is the ideal solution for budget-conscious users seeking accurate weather data without compromising quality. The weather station is easy to use yet offers high accuracy in measuring weather parameters. With this cost-effective weather station, users such as farmers, industries, or utilities can access vital weather information to enhance daily planning and decision-making.

### DATA LOGGER SER[LOG] FOR LONG-TERM WEATHER ANALYSIS

Accurate data acquisition is a critical component of any weather monitoring solution. Ser[LOG] is a scalable communication platform for professional meteorological data acquisition and data processing.
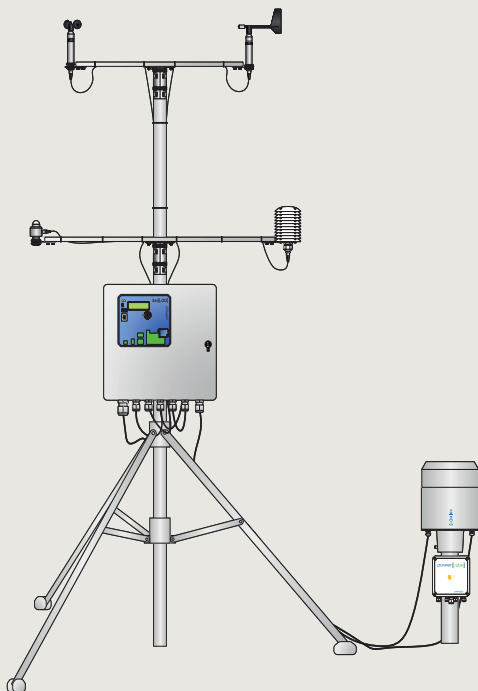
### OVERVIEW METEOSTATION[ECONOMIC]

Track and monitor nine weather parameters directly at your location:

- Wind direction
- Wind speed
- Air temperature
- Relative humidity
- Precipitation amount & intensity
- Barometric pressure
- Global radiation
- Dew point (calculated value)



**POSSIBLE APPLICATIONS:**

- Agriculture
- Industry
- Public utilities
- Road maintenance depots
- Sewage treatment plants

### BENEFITS

- Capture the accurate, localized weather data you need to make timely, critical decisions
- Ser[LOG] for data acquisition and data processing with minimal effort and high flexibility
- Low-maintenance deployment-ready weather station featuring durable, cost-effective sensors

# Cost-effective weather station you can rely on

As severe weather events continue to increase in frequency and severity, more and more businesses, government agencies, and individuals are concerned about the conditions surrounding them. More people are embracing proactive weather monitoring to understand how the world is changing, but too often, entry level costs become a barrier to weather readiness.

Government, commercial, and private organizations need accurate weather information to make critical planning decisions. Using the budget-friendly MeteoStation[economic], organizations can prepare better for weather events and improve time-critical decisions using real-time meteorological conditions for their specific area

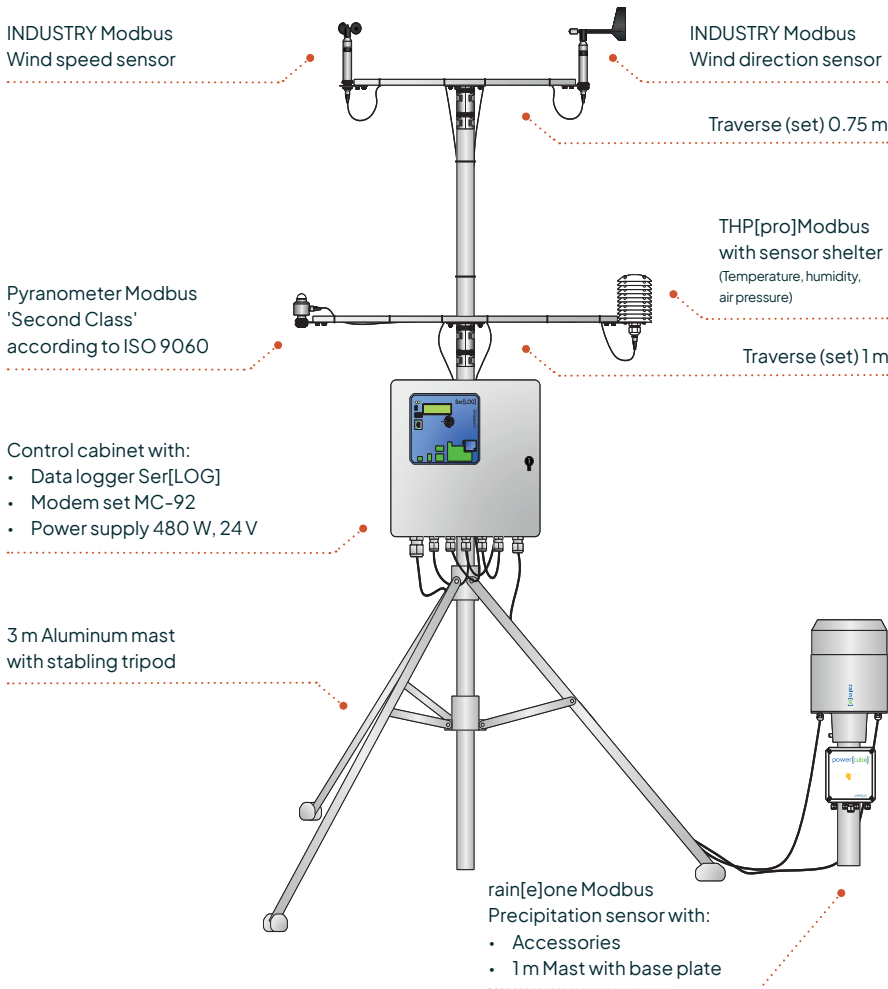# The MeteoStation[economic] overview:

ID 21.82001.138400

INDUSTRY Modbus
Wind speed sensor

INDUSTRY Modbus
Wind direction sensor

Traverse (set) 0.75 m

THP[pro]Modbus
with sensor shelter
(Temperature, humidity,
air pressure)

Pyranometer Modbus
'Second Class'
according to ISO 9060

Traverse (set) 1 m

Control cabinet with:
• Data logger Ser[LOG]
• Modem set MC-92
• Power supply 480 W, 24 V

3 m Aluminum mast
with stabling tripod

rain[e]one Modbus
Precipitation sensor with:
• Accessories
• 1 m Mast with base plate

## Key features
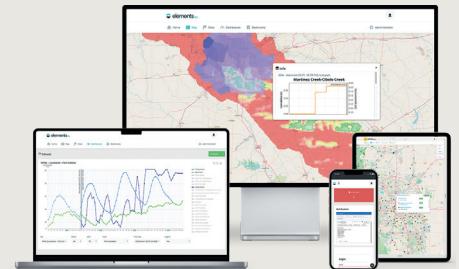
### PROVEN, FIRST-CLASS METEOROLOGICAL SENSORS

• Durable technology provides research quality in any location

• Individual sensors can be replaced easily without losing all measurement data

• Straightforward assembly and do-it-yourself service

### SER[LOG] DATA LOGGER

• Alarm system for 10 warning channels using built-in and external relays (e-mail, SMS)

• Stores data reliably for one year in ring buffer

• User-friendly with free access to all connections and controls

### AEM ELEMENTS™ 360 SOFTWARE (OPTIONAL)

• Analyze real-time data from your station for better decision-making and planning

• Customize alerts to your specific thresholds and receive timely notifications when conditions change

• Edge-to-cloud data security protects your data and privacy and ensures accurate measurements

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# MeteoStation[cold climate]

# Reliable weather data even in icy conditions

## MONITORING WEATHER CONDITIONS IN EXTREME ENVIRONMENTS

The MeteoStation[cold climate] is robust and resistant to the extreme temperatures and conditions in cold climates. Its advanced sensors are specifically designed to operate reliably in very low temperatures and deliver precise data so weather services, meteorologists, and researchers can accurately monitor and analyze conditions in challenging environments. With reliable data, communities can better prepare for extreme weather and minimize potential risks.

## DATA LOGGER SER[LOG] FOR LONG-TERM WEATHER ANALYSIS

Accurate data acquisition is a critical component of any weather monitoring solution. Ser[LOG] is a scalable communication platform for professional meteorological data acquisition and data processing.

## OVERVIEW METEOSTATION[COLD CLIMATE]

Track and monitor eight weather parameters directly at your location:

- Wind direction
- Wind speed
- Air temperature
- Relative humidity
- Precipitation amount
- Precipitation rate
- Barometric pressure
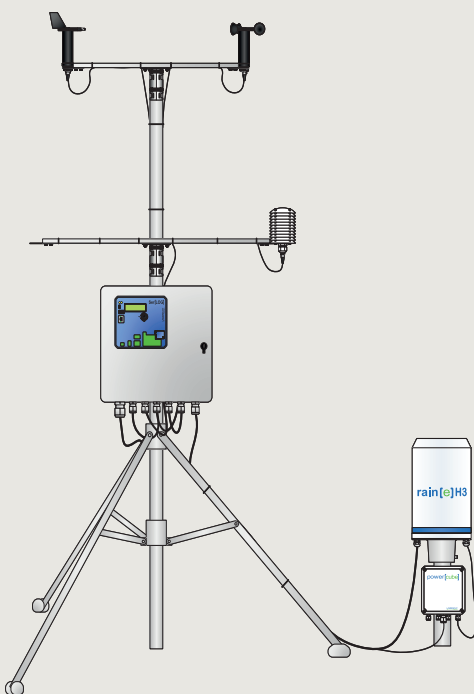- Dew point (calculated value)

## BENEFITS

- Capture the accurate, localized weather data you need to make timely, critical decisions
- Ser[LOG] for data acquisition and data processing with minimal effort and high flexibility
- Low-maintenance deployment-ready weather station featuring special, cold-resistant sensors

## POSSIBLE APPLICATIONS:

- Weather services
- Universities
- Cable cars
- Research
- Meteorological studies

# Precise data acquisition and analysis in cold regions

As severe weather events continue to increase in frequency and severity, more and more businesses, government agencies, and individuals are concerned about the conditions surrounding them. More people are opting for proactive weather monitoring to understand how the world is changing and what they need to do to respond.

Government, commercial, and private organizations need accurate weather information to make critical planning decisions. For example, parks and resorts require reliable data for volatile alpine weather to keep people safe. The same information can help community leaders understand spring thaws better to protect people and infrastructure in the floodplain. That's why the MeteoStation[cold climate] was created to improve weather intelligence and time-critical decisions in extreme conditions.

# The MeteoStation[cold climate] overview:

ID 21.81003.138500
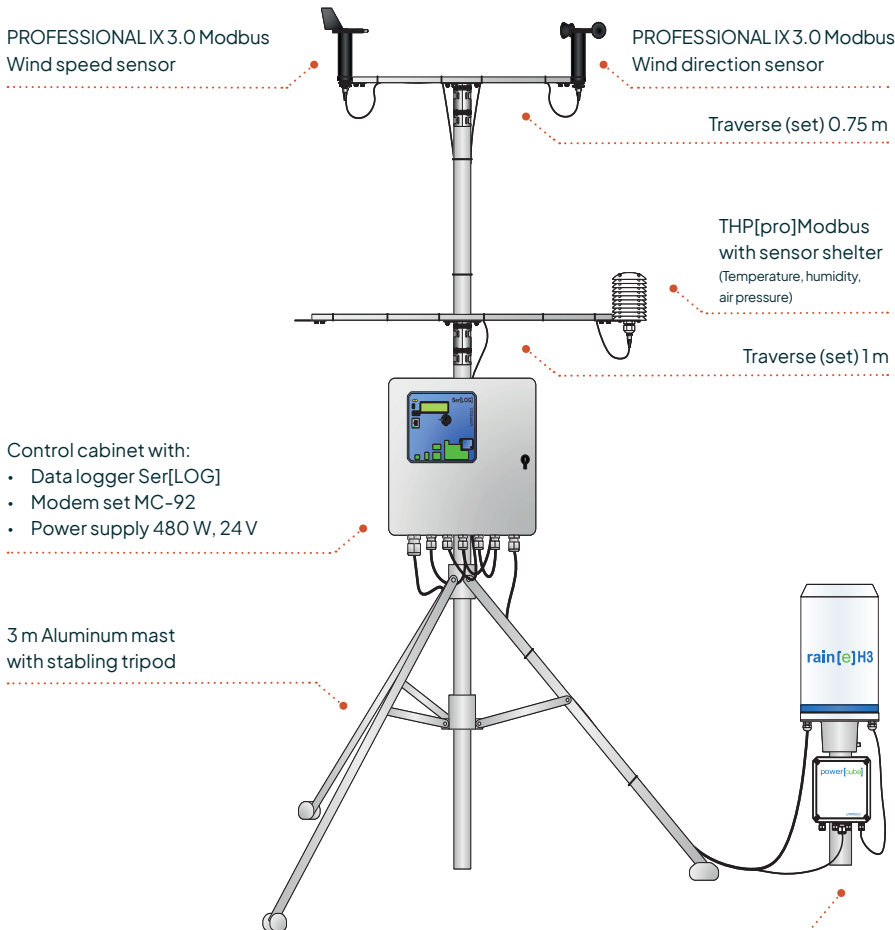


PROFESSIONAL IX 3.0 Modbus Wind speed sensor

PROFESSIONAL IX 3.0 Modbus Wind direction sensor

Traverse (set) 0.75 m

THP[pro]Modbus with sensor shelter
(Temperature, humidity, air pressure)

Traverse (set) 1 m

Control cabinet with:
- Data logger Ser[LOG]
- Modem set MC-92
- Power supply 480 W, 24 V

3 m Aluminum mast with stabling tripod

rain[e]H3

power[cube]

Photo credits/Copyright: © fraenz@AdobeStock.com

# Key features
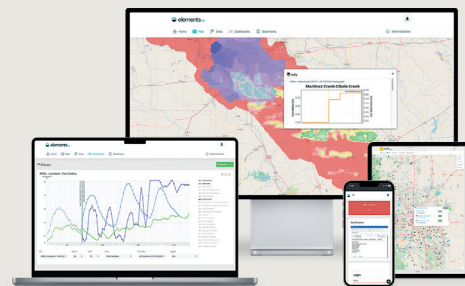
## PROVEN, FIRST-CLASS METEOROLOGICAL SENSORS

- Durable technology delivers scientific accuracy in cold climate regions
- Individual sensors can be replaced easily without losing all measurement data
- Straightforward assembly and do-it-yourself service

## SER[LOG] DATA LOGGER

- Alarm system for 10 warning channels using built-in and external relays (e-mail, SMS)
- Stores data reliably for one year in ring buffer
- User-friendly with free access to all connections and controls

## AEM ELEMENTS™ 360 SOFTWARE (OPTIONAL)

- Analyze real-time data from your station for better decision-making and planning
- Customize alerts to your specific thresholds and receive timely notifications when conditions change
- Edge-to-cloud data security protects your data and privacy and ensures accurate measurements



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info@lambrecht.net   |   lambrecht.net

# MeteoStation[harbor]

# Engineered to withstand storms and seawater

## REAL-TIME MONITORING OPTIMIZES OPERATIONS AND MINIMIZES RISKS

The MeteoStation[harbor], specially designed for use at sea and in waters, is not only extremely reliable, it's also seawater-proof. Thanks to its robust design, it withstands the tough conditions on and in the water and continuously provides accurate measurement data for weather and water monitoring. In port facilities, the precise weather data from the MeteoStation[harbor] help to ensure the safety of ships and crews as well as increasing the efficiency of operations.

## DATA LOGGER SER[LOG] FOR LONG-TERM WEATHER ANALYSIS

Accurate data acquisition is a critical component of any weather monitoring solution. Ser[LOG] is a scalable communication platform for professional meteorological data acquisition and data processing.

## OVERVIEW METEOSTATION[HARBOR]

Track and monitor eleven weather parameters directly at your location:

- Wind direction
- Wind speed
- Air temperature
- Relative humidity
- Global radiation
- Barometric pressure
- Dew point (calculated value)
- Precipitation amount & intensity
- Water temperature
- Water level

## POSSIBLE APPLICATIONS:

- Port facilities
- Shipyards
- Weather services
- Climate research
- Meteorological & hydrological studies

## BENEFITS

Capture the accurate, localized weather data you need to make timely, critical decisions

Ser[LOG] for data acquisition and data processing with minimal effort and high flexibility

Low-maintenance deployment-ready weather station featuring seawater-resistant, state-of-the-art sensors

# Seawater-resistant weather station for use at the seaside

As severe weather events continue to increase in frequency and severity, more and more businesses, government agencies, and individuals are concerned about the conditions 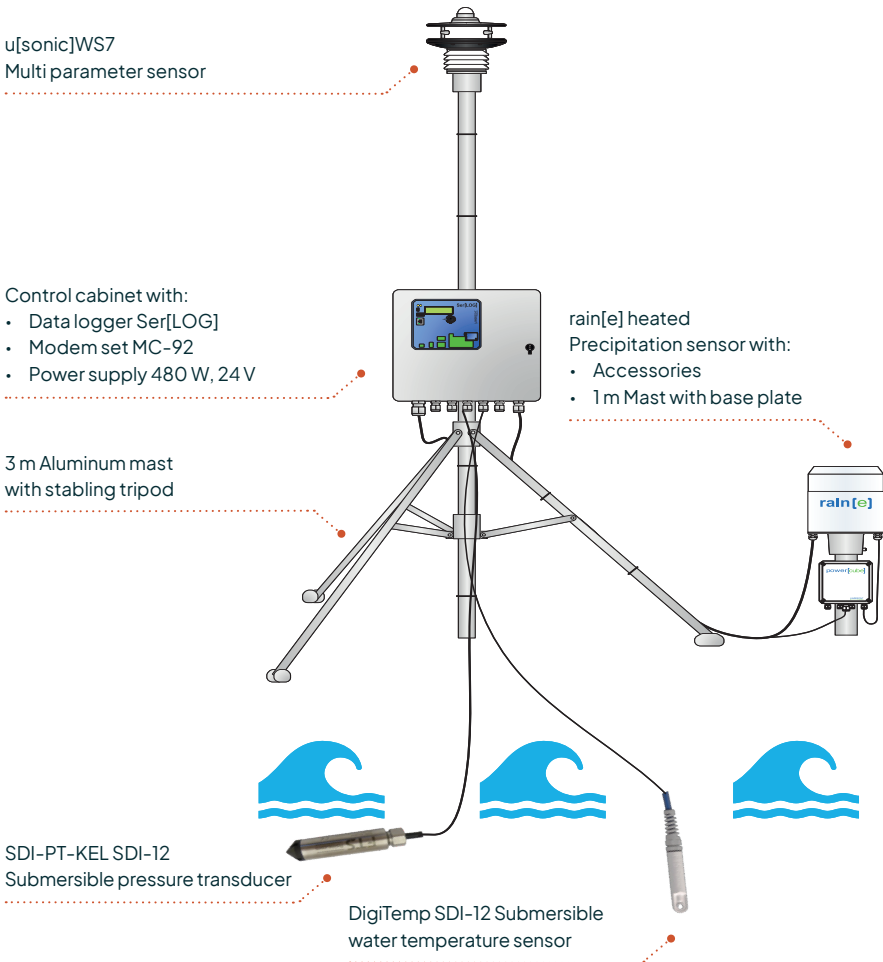surrounding them. More people are opting for proactive weather monitoring to understand how the world is changing and what they need to do to respond.

Government, commercial, and private organizations need accurate weather information to make critical planning decisions. Using the seawater-resistant MeteoStation[harbor], organizations can prepare better for weather events and improve time-critical decisions to protect the supply chain and global economy.

# The MeteoStation[harbor] overview:

ID 21.83002.138700

u[sonic]WS7
Multi parameter sensor

Control cabinet with:
· Data logger Ser[LOG]
· Modem set MC-92
· Power supply 480 W, 24 V

rain[e] heated
Precipitation sensor with:
· Accessories
· 1 m Mast with base plate

3 m Aluminum mast
with stabling tripod

SDI-PT-KEL SDI-12
Submersible pressure transducer

DigiTemp SDI-12 Submersible
water temperature sensor

Photo credits/Copyright: © Thomas@AdobeStock.com

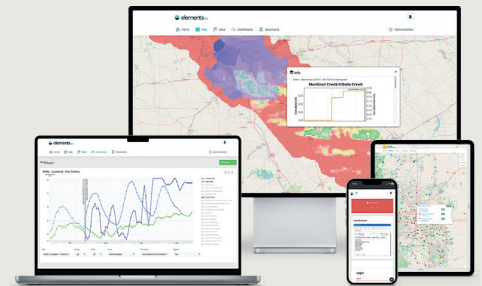# Key features

## PROVEN, FIRST-CLASS METEOROLOGICAL SENSORS

· Robust technology with independent, integrated sensors and no moving parts for superior accuracy of each measurement
· Innovative, compact design minimizes labor and installation costs for easy setup

## SER[LOG] DATA LOGGER

· Alarm system for 10 warning channels using built-in and external relays (e-mail, SMS)
· Stores data reliably for one year in ring buffer
· User-friendly with free access to all connections and controls

## AEM ELEMENTS™ 360 SOFTWARE (OPTIONAL)

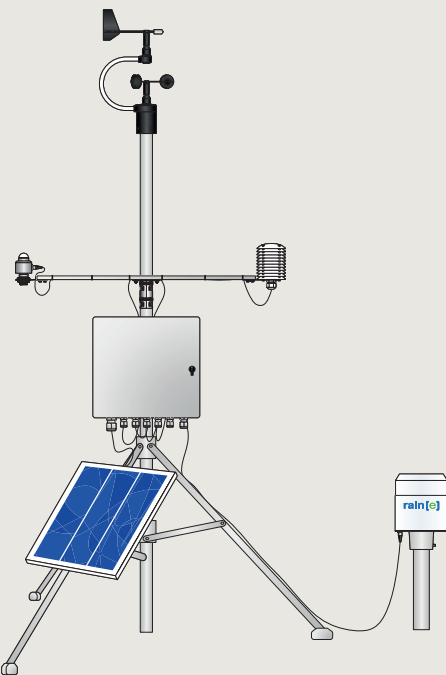· Analyze real-time data from your station for better decision-making and planning
· Customize alerts to your specific thresholds and receive timely notifications when conditions change
· Edge-to-cloud data security protects your data and privacy and ensures accurate measurements

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# MeteoStation[solar]

## Self-contained automatic weather station with solar energy

### MONITORING IN REAL TIME, USING SUSTAINABLE ENERGY

Climate change is increasing the frequency of extreme weather events. Accurate and timely weather monitoring data is required to provide timely alerts for approaching storms and carry out longterm studies that increase weather preparedness. LAMBRECHT meteo, an AEM brand, is your partner for individual systems and high-quality automatic standard weather stations. Our robust, energy-saving sensors provide a long lifespan and ensure accurate measurement data in all weather conditions.

### DATA LOGGER SER[LOG] FOR LONG-TERM WEATHER ANALYSIS

Accurate data acquisition is a critical component of any weather monitoring solution. Ser[LOG] is a scalable communication platform for professional meteorological data acquisition and data processing.

### OVERVIEW METEOSTATION[SOLAR]

Track and monitor nine weather parameters directly at your location:

- Wind direction
- Wind speed
- Air temperature
- Relative humidity
- Precipitation amount & intensity
- Barometric pressure
- Global radiation
- Dew point (calculated value)

### BENEFITS

Capture the accurate, localized weather data you need to make timely, critical decisions

Ser[LOG] for data acquisition and data processing with minimal effort and high flexibility

Low-maintenance deployment-ready weather station featuring seamless plug-and-play with other Lambrecht tools

### POSSIBLE APPLICATIONS:

- Agriculture
- Forestry
- Commercial weather monitoring
- Weather measurement networks
- Meteorological & hydrological studies

# Energy-efficient weather station you can rely on

As severe weather events continue to increase in frequency and severity, more and more businesses, government agencies, and individuals are concerned about the conditions surrounding them. More people are opting for proactive weather monitoring to understand how the world is changing and what they need to do to respond.

Government, commercial, and private organizations need accurate weather information to make critical planning decisions. Using the self-contained MeteoStation[solar], organizations can prepare better for weather events and improve time-critical decisions using real-time meteorological conditions for their specific area

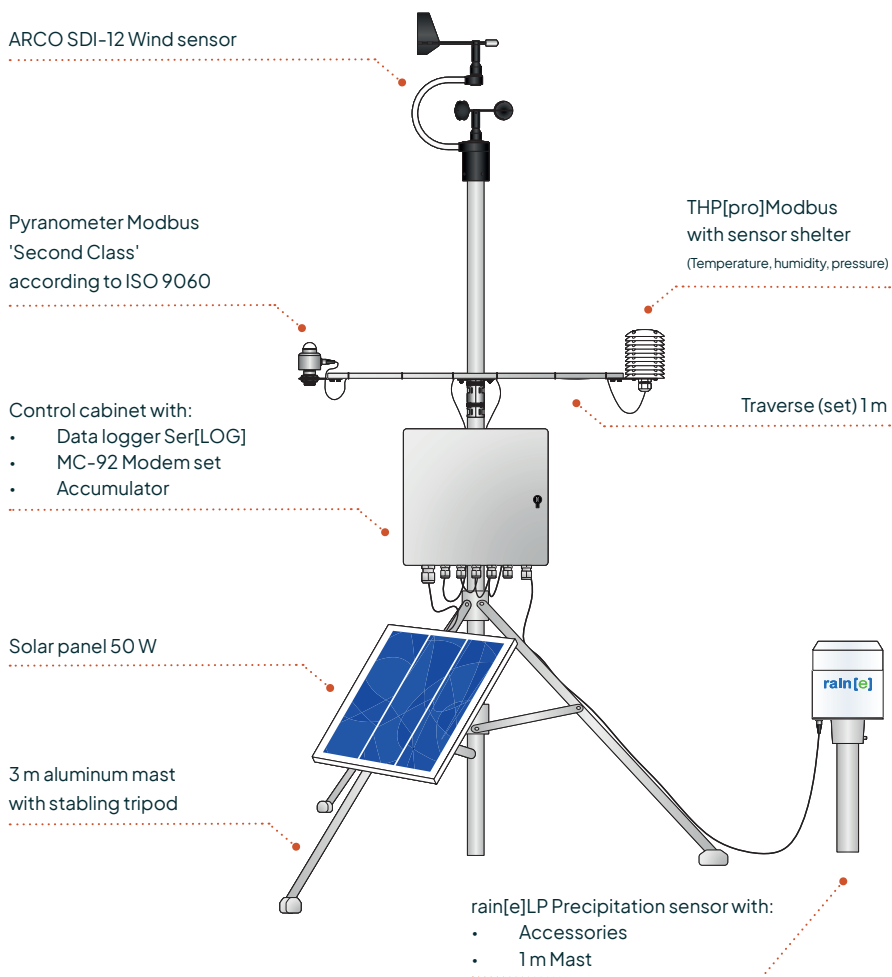# The MeteoStation[solar] overview:

ID 30.00850.100003

ARCO SDI-12 Wind sensor

Pyranometer Modbus 'Second Class' according to ISO 9060

THP[pro]Modbus with sensor shelter
(Temperature, humidity, pressure)

Control cabinet with:
• Data logger Ser[LOG]
• MC-92 Modem set
• Accumulator

Traverse (set) 1 m

Solar panel 50 W

rain[e]

3 m aluminum mast with stabling tripod

rain[e]LP Precipitation sensor with:
• Accessories
• 1 m Mast

Photo credits/Copyright: alexanderuhrin@AdobeStock.com

## Key features

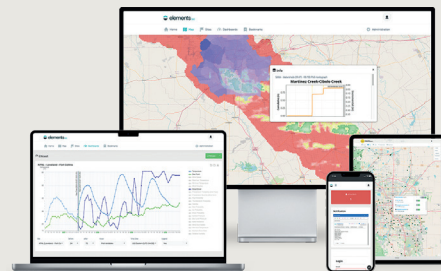### PROVEN, FIRST-CLASS METEOROLOGICAL SENSORS

- Durable technology provides research quality in any location
- Individual sensors can be replaced easily without losing all measurement data
- Straightforward assembly and do-it-yourself service

### SER[LOG] DATA LOGGER

- Alarm system for 10 warning channels using built-in and external relays (e-mail, SMS)
- Stores data reliably for one year in ring buffer
- User-friendly with free access to all connections and controls

### AEM ELEMENTS™ 360 SOFTWARE (OPTIONAL)

- Analyze real-time data from your station for better decision-making and planning
- Customize alerts to your specific thresholds and receive timely notifications when conditions change
- Edge-to-cloud data security protects your data and privacy and ensures accurate measurements

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# MeteoStation[energy]

# Optimize energy production with precise weather data

### REAL-TIME MONITORING FOR A SUSTAINABLE ENERGY FUTURE

The MeteoStation[energy] weather station is an essential device for monitoring and optimizing the performance of photovoltaic systems and other energy producers. This station acquires critical weather data in real time to maximize system efficiency and detect potential problems at an early stage. Continuous and precise monitoring allows operators to manage their systems better, maximize yields, minimize outages, and extend the life of their infrastructure.

### DATA LOGGER SER[LOG] FOR LONG-TERM WEATHER ANALYSIS

Accurate data acquisition is a critical component of any weather monitoring solution. Ser[LOG] is a scalable communication platform for professional meteorological data acquisition and data processing.

### OVERVIEW METEOSTATION[ENERGY]

Track and monitor nine weather parameters directly at your location:

- Wind direction
- Wind speed
- Air temperature
- Relative humidity

- Precipitation amount & intensity
- Barometric pressure
- Global radiation
- Dew point (calculated value)

### BENEFITS

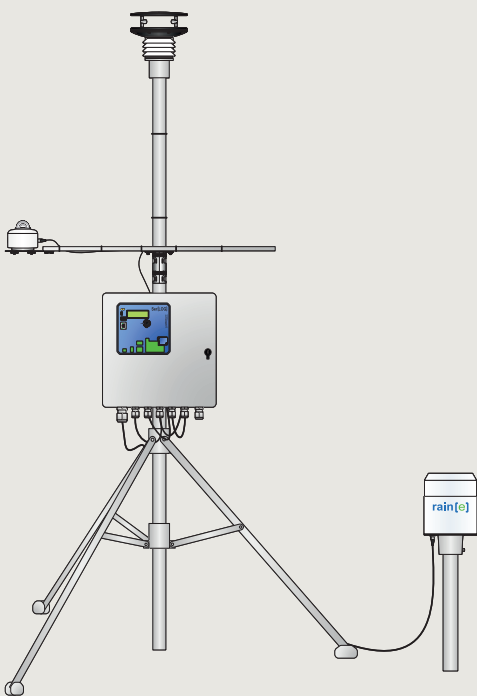Capture the accurate, localized weather data you need to make timely, critical decisions

Ser[LOG] for data acquisition and data processing with minimal effort and high flexibility

Low-maintenance deployment-ready weather station featuring durable, state-of-the-art sensors

**POSSIBLE APPLICATIONS:**

- Photovoltaic plants
- Energy producers
- Grid operators
- Universities
- Meteorological studies

# Efficient monitoring of energy generation in focus

As renewable energy becomes a bigger part of our energy present and future, more and more businesses, government agencies, and private landowners are looking to make a thoughtful investment in solar and wind energy. Installing that infrastructure in the correct place based on past, present, and future weather is key to making the best of those efforts.

Government, commercial, and private organizations need accurate weather information to make critical planning decisions. Using the reliable MeteoStation[energy], organizations can determine the best locations for renewable investments, uncover insights that optimize generation, and track weather strain on equipment over time..

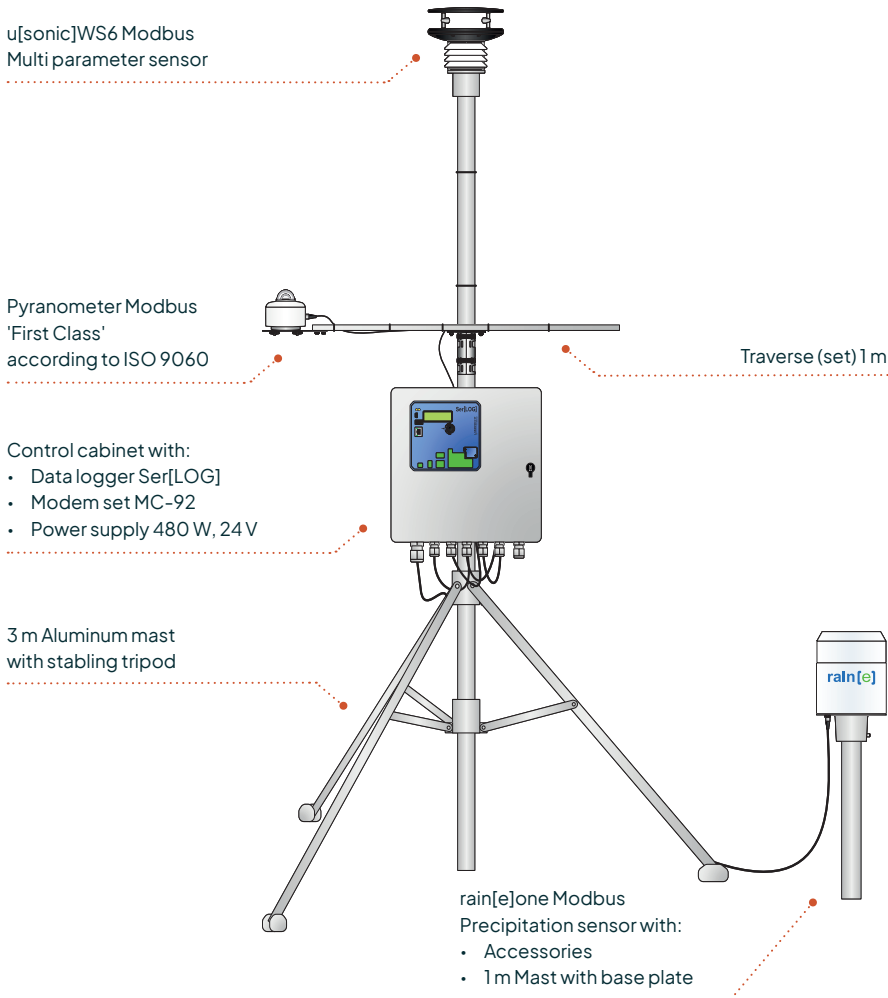# The MeteoStation[energy] overview:

ID 21.86004.138600

u[sonic]WS6 Modbus
Multi parameter sensor

Pyranometer Modbus
'First Class'
according to ISO 9060

Traverse (set) 1 m

Control cabinet with:
- Data logger Ser[LOG]
- Modem set MC-92
- Power supply 480 W, 24 V

3 m Aluminum mast
with stabling tripod

rain[e]one Modbus
Precipitation sensor with:
- Accessories
- 1 m Mast with base plate

## Key features

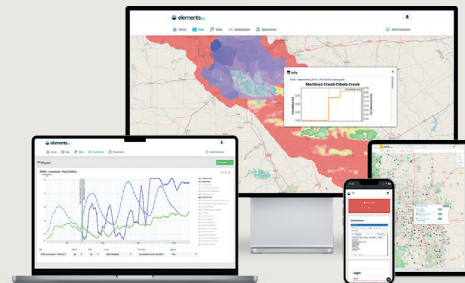### PROVEN, FIRST-CLASS METEOROLOGICAL SENSORS

- Robust technology with independent, integrated sensors and no moving parts for superior accuracy of each measurement
- Innovative, compact design minimizes labor and installation costs for easy setup

### SER[LOG] DATA LOGGER

- Alarm system for 10 warning channels using built-in and external relays (e-mail, SMS)
- Stores data reliably for one year in ring buffer
- User-friendly with free access to all connections and controls

### AEM ELEMENTS™ 360 SOFTWARE (OPTIONAL)

- Analyze real-time data from your station for better decision-making and planning
- Customize alerts to your specific thresholds and receive timely notifications when conditions change
- Edge-to-cloud data security protects your data and privacy and ensures accurate measurements

### ELEVATE YOUR WEATHER MONITORING CAPABILITIES TODAY

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info@lambrecht.net | lambrecht.net

# Weather Data Acquisition for Solar Park Management



# Intelligent solutions for photovoltaic park management

Phoenix Contact, based in Germany, is the global market leader in end-to-end solar park management solutions.

## Meteorological data from your own weather station

The Phoenix Contact weather data acquisition system can be implemented as an independent system or part of a seamless park management solution. With the power and reliability of LAMBRECHT meteo's Modbus sensor portfolio, Phoenix Contact can offer compact weather stations customized to individual needs. LAMBRECHT's sensors can be integrated directly into the Phoenix control system, providing total compliance for Class A monitoring under IEC 61724-1. The preconfigured sensors are immediately available to transmit weather data. This makes it a perfect system for PV utility scale plants.

## SEAMLESS DATA ACQUISITION

LAMBRECHT meteo's Modbus weather sensors connect directly to the Phoenix Contact control system to provide real-time data for all measured parameters.

## Your benefits

Maximum accuracy:
All sensors meet the requirements of IEC 61724-1 for Class A systems (highest precision)

Rapid deployment:
Easy connection with M12 circular connectors; quick configuration with plug and play

High flexibility:
Custom configuration of weather station sensors based on your needs

# Industrial quality

## Customized weather stations

Weather stations from Phoenix Contact and LAMBRECHT meteo provide 24/7 insights into the efficiency of your photovoltaic system.

## Ready to use

M12 connectors with Y distributors make it incredibly easy to configure a series of sensors without individual wiring. This greatly reduces the amount of cabling work required on site while also making it easier to integrate the sensors into the system as a whole.
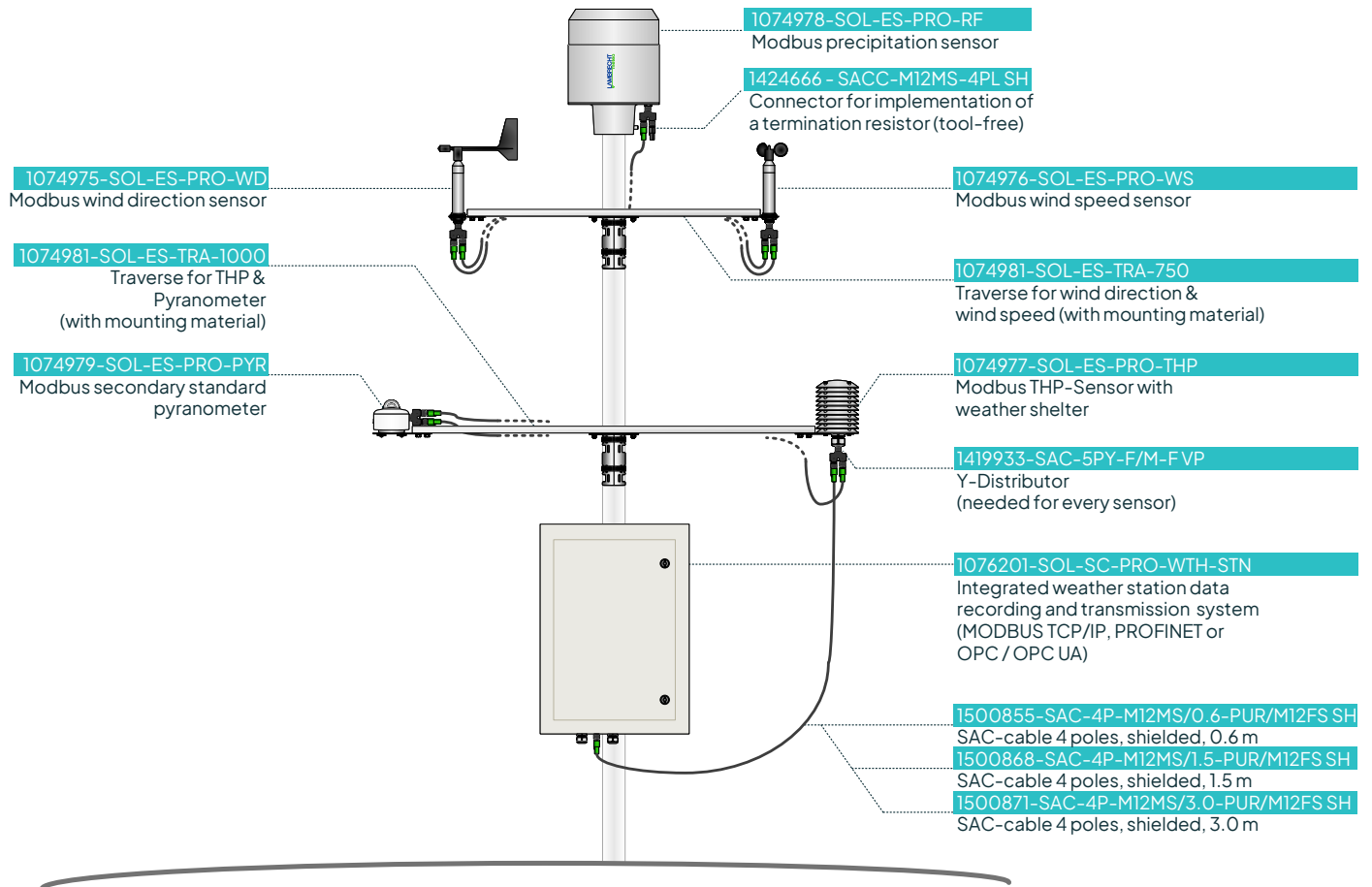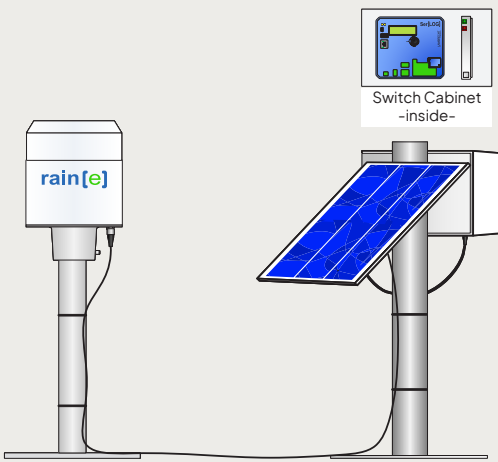
# The weather station in detail

**1074978-SOL-ES-PRO-RF**
Modbus precipitation sensor

**1424666 - SACC-M12MS-4PL SH**
Connector for implementation of a termination resistor (tool-free)

**1074975-SOL-ES-PRO-WD**
Modbus wind direction sensor

**1074976-SOL-ES-PRO-WS**
Modbus wind speed sensor

**1074981-SOL-ES-TRA-1000**
Traverse for THP & Pyranometer (with mounting material)

**1074981-SOL-ES-TRA-750**
Traverse for wind direction & wind speed (with mounting material)

**1074979-SOL-ES-PRO-PYR**
Modbus secondary standard pyranometer

**1074977-SOL-ES-PRO-THP**
Modbus THP-Sensor with weather shelter

**1419933-SAC-5PY-F/M-F VP**
Y-Distributor (needed for every sensor)

**1076201-SOL-SC-PRO-WTH-STN**
Integrated weather station data recording and transmission system (MODBUS TCP/IP, PROFINET or OPC / OPC UA)

**1500855-SAC-4P-M12MS/0.6-PUR/M12FS SH**
SAC-cable 4 poles, shielded, 0.6 m

**1500868-SAC-4P-M12MS/1.5-PUR/M12FS SH**
SAC-cable 4 poles, shielded, 1.5 m

**1500871-SAC-4P-M12MS/3.0-PUR/M12FS SH**
SAC-cable 4 poles, shielded, 3.0 m

Photo credits/Copyright: © Thinapob@AdobeStock.com; Phoenix Contact

Please contact: phoenixcontact.com

# rain[e]solar and FTS360

## Precipitation measurement station

**Switch Cabinet**
-inside-

**rain[e]**

Software FTS360, the complete solution for your network (optional)

# Self-contained automated solar weather station

### Precipitation sensor rain[e]LP

The rain[e]solar automated weather station captures and processes precipitation data in any area, no matter how remote, without a power supply. Precipitation amount and intensity are precisely measured by the rain[e]LP. Due to its extremely low power consumption, this weighing precipitation sensor is ideal for long-term use at solar-powered and battery-powered measuring stations.
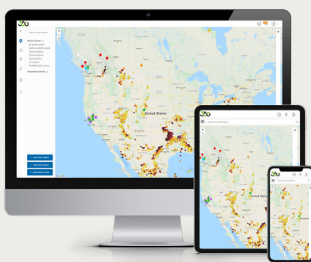
### Data logger Ser[LOG]

Ser[LOG] is a scalable communication platform for professional meteorological data acquisition and data processing. The Ser[LOG] gathers your weather data in one place and visualizes it in real-time.

### Software FTS360 (optional)

FTS360 is a GDPR-compliant and reliable cloud-based IoT platform for users who want to set up, configure, and manage their own platform. Users can view and process sensor and station data, camera images, and videos.

## POSSIBLE APPLICATIONS

- Agriculture and forestry
- Flood warning
- Public safety and storm response
- Meteorological and hydrological applications

The sensitive weighing measuring principle of the rain[e]LP enables the measurement of each individual drop of precipitation with the resolution of 0.001 mm/m$^2$.

Ser[LOG] provides data acquisition and processing with minimal effort and great flexibility.

The edge-to-cloud data security of the FTS360 software protects your data and privacy. No personal user data is collected.

# Improving risk management with local weather monitoring

Understanding the amount and intensity of precipitation is key to the success of any community, particularly when it comes to agriculture, conservation, and public safety. Severe weather with heavy rain or snow can lead to flooding and destroy environmental systems. Likewise, lack of precipitation can lead to disasters such as droughts and crop failures.

Governmental, commercial, and private organizations need accurate precipitation information to enable critical planning decisions. With the self-contained, solar-powered rain[e]solar station, organizations can prepare better for severe weather events and improve time-critical decisions using real-time local precipitation data.

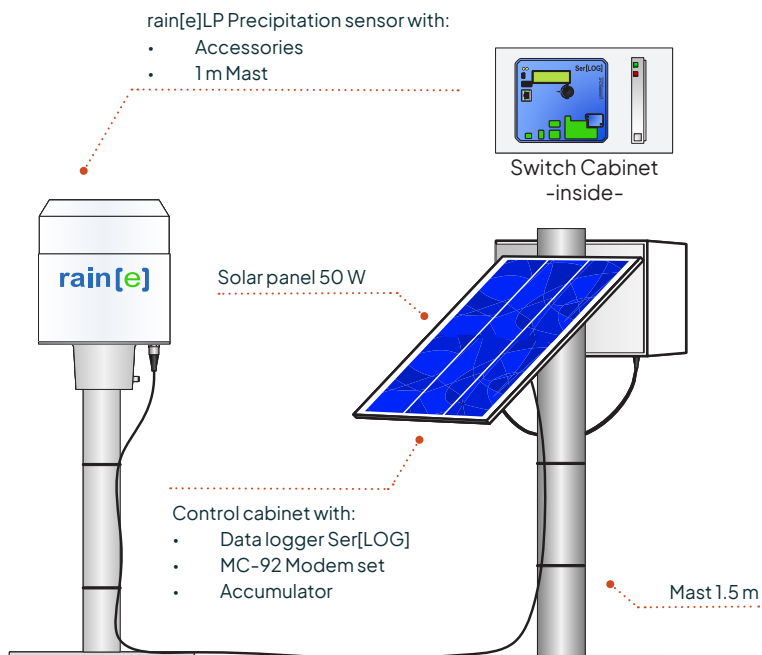# The rain[e]solar precipitation station overview

ID 30.00851.500002



rain[e]LP Precipitation sensor with:
- Accessories
- 1 m Mast

Switch Cabinet
-inside-

rain[e]

Solar panel 50 W

Control cabinet with:
- Data logger Ser[LOG]
- MC-92 Modem set
- Accumulator

Mast 1.5 m

# Key Features

## rain[e]LP Precipitation Sensor

- Highest resolution combined with a very compact, weatherproof all-metal housing
- Minimum power consumption: typically 6.9 mA with 12 V supply
- Particularly environmentally friendly (no antifreeze)

## Ser[LOG] Data Logger

- Alarm system for 10 warning channels using built-in and external relays (e-mail, SMS)
- Stores data reliably for one year in ring buffer
- User-friendly with free access to all connections and controls

## FTS360 Software (optional)

- GDPR-compliant, cloud-based IoT platform
- Edge-to-cloud data security protects your data and privacy
- Designed for emergency response, interagency collaboration, and public awareness



LAMBRECHT
meteo

Ask about: **rain[e]solar**

To learn more about our technologies, visit **lambrecht.net** or contact us at **info@lambrecht.net**.

**LAMBRECHT**
meteo

AN **aem** BRAND

## Weather Backpack

# MOBILE, PROFESSIONAL WEATHER STATION

Up to seven measurable parameters in research quality

Weather Backpack is the professional automatic weather station (AWS) for temporary measurement campaigns. This portable station measures all relevant meteorological parameters.

### All-in-one station for all critical applications

Weather Backpack is the high-precision weather station that provides important data in meteorological research quality. Its outstanding measurement quality, reliability and durability will meet the highest demands in science and governmental environmental applications. The station can be easily stowed in its carrying case and quickly transported from one location to another. Since the station is mobile, even large areas can be covered.

VERSATILE

PROFESSIONAL

ROBUST

NO MOVING PARTS

WEATHER STATION

## APPLICATIONS

· Tracking of industrial emissions
· Disaster control
· Test tracks and test sites for vehicles
· Sporting events
· Wind warning for event security
· Diagnostics in building physics
· Research and science
· Environmental Agencies

| Professional Line | Weather Backpack |
|---|---|
| Id-No. | 30.00852.000001 • with weather sensor u[sonic]WS7 |
| Meas. range wind direction | 0...359.9° |
| Meas. range wind speed | 0...65 m/s |
| Meas. range air temperature | -40...+70 °C |
| Meas. range rel. humidity | 0...100 % r. h. |
| Meas. range barometric pressure | 300...1100 mbar |
| Meas. range global radiation | 0...2000 W/m$^2$; global radiation within range of 285...3000 nm |
| Accuracy wind direction | < 2° (> 1 m/s) RMSE |

**LAMBRECHT**
**meteo**

AN **aem** BRAND

| Professional Line | Weather Backpack |
|---|---|
| Accuracy wind speed | ± 0.2 m/s RMSE (v 10 m/s); ± 2 % RMSE (10 v 65 m/s) |
| Accuracy air temperature | ± 0.1 K (0...60 °C); ± 0.2 K (-40...0 °C) > 2 m/s |
| Accuracy rel. humidity | typically ± 1.5 % r. h. (0...80 %); ± 2 % r. h. (> 80 %) |
| Accuracy barometric pressure | ± 0.5 mbar |
| Resolution wind direction | 0.1° |
| Resolution wind speed | 0.1 m/s |
| Resolution air temperature | 0.1 °C |
| Resolution rel. humidity | 0.1 % r. h. |
| Resolution barometric pressure | 0.1 mbar |
| Resolution global radiation | 0.2 W/m$^2$ |
| Range of application | Outdoor |
| Environmental conditions | Sensor: -40...+70 °C; 0...100 % r. h. <br> Battery: -10...+40 °C; 0...100 % r. h |
| Battery life | Battery life: approx. 8 days |
| Ethernet | 10/100 BaseT; plug RJ45 shielded |
| Dimensions | Height mast: approx. 3 m |
| Protection class | IP 65 |
| Weight | approx. 27 kg |
| Material | Case: Polypropylene; Mast: Aluminum |
| Included in delivery | Weather sensor u[sonic]WS7 Modbus, telescopic mast, outdoor case, mast mount, control cabinet with energy management, data cable with bayonet lock, mast adapter (clampable), rechargeable battery (12 V, 26 Ah), data logger met[LOG] |
| Options (order separately) | 32.00852.060012 Sensor cable for additional Modbus sensor |

As of: 25.11.2024

# rain[e]observer
# Precipitation System

# Contents

# Precipitation detection with the rain[e]observer

# Precipitation detection with the rain[e]observer

Lambrecht meteo, an AEM brand, is a leading global supplier of sensors for rain measurement and precipitation detection.

### TIME-CRITICAL AND WATER MANAGEMENT APPLICATIONS

Measuring precipitation for water management and public safety is a complex, crucial task. In these times of climate change, precipitation monitoring and measurement is more important than ever, especially as floods and major storms increase around the world. Each individual type of precipitation – rain, snow, freezing rain, or hail – presents unique measurement challenges.

Our real-time complete system facilitates measurement and data collection while ensuring the fastest possible response to flood events or road condition reports.

### APPLICATIONS:

Water management, measuring networks, hydrology

Early flood warning, weather services

Traffic meteorology, road weather monitoring
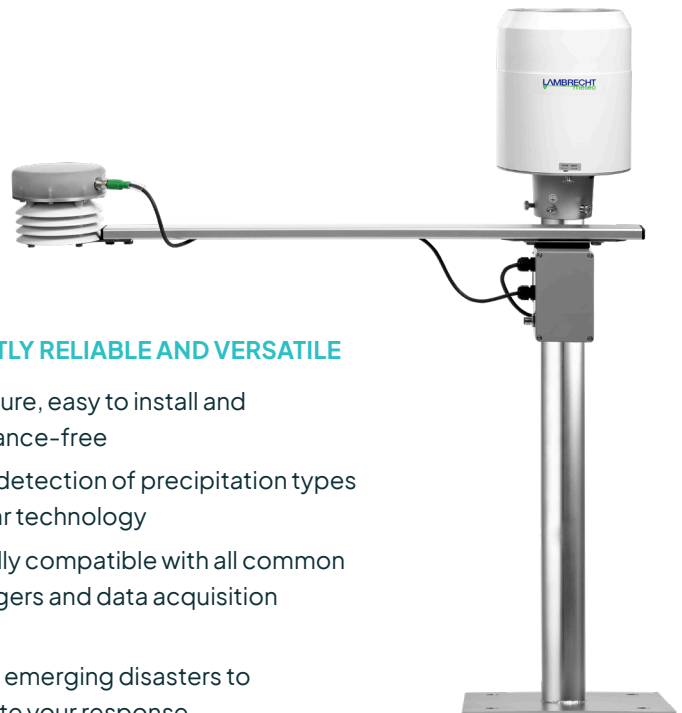
### CONSISTENTLY RELIABLE AND VERSATILE

- Fast, secure, easy to install and maintenance-free
- Reliable detection of precipitation types with radar technology
- Universally compatible with all common data loggers and data acquisition systems
- Monitors emerging disasters to accelerate your response

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# Which rain[e] is the the right one for you?

# Which rain[e] is the right one for you?



| rain[e] | rain[e]H3 | rain[e]314 | rain[e]400 |

## The rain[e] measures precipitation totals and precipitation intensity with astonishing precision

The rain[e] is a compact precipitation sensor with a unique, sensitive measuring principle that combines the advantages of weighing and collecting rain gauges. The continuously self-emptying collection device ensures the measurement of every single drop with high resolution (0.001 mm/m$^2$) while preventing the measurement errors often found with other devices. The high measurement accuracy meets the requirements of WMO Guideline No. 8.

The rain[e] series can be used universally with all common data loggers and data acquisition systems, as our Ser[LOG], and is ideal for setting up measurement networks. The rain[e]H3 sensors meet the stringent requirements of the German Weather Service (DWD) and are used at all DWD stations with automatic precipitation measurement.

MORE BENEFITS

- DAkkS verification of non-influence of the measuring sensor by wind and solar radiation

- Best connectivity with multiple interfaces

# Technical specifications of the rain[e] series
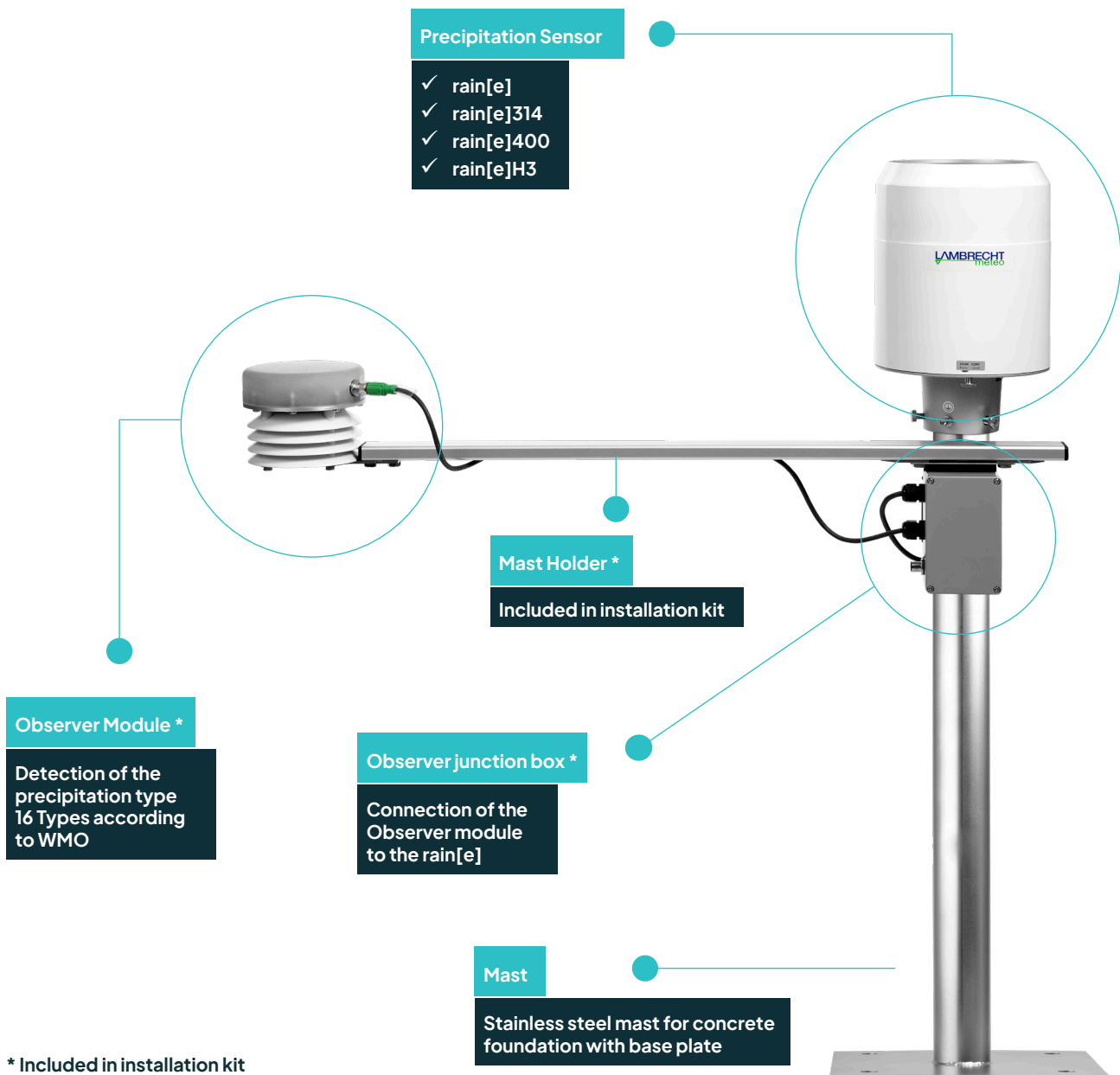
# Technical specifications of the rain[e] series

| | rain[e]<br>heated, preconfigured | rain[e]314<br>heated, preconfigured | rain[e]400<br>heated, preconfigured | rain[e]H3<br>heated, preconfigured |
|---|---|---|---|---|
| **ID** | **00.15184.400900** | **00.15184.403900** | **00.15184.404900** | **00.15184.540920** |
| **Measurable precipitation types:** | liquid, solid, mixed | | | |
| **Measuring principle:** | weighing, with automatic self-emptying | | | |
| **Operating temperature:** | -40…+70 °C *) | | | |
| **Storage temperature:** | -40…+70 °C | | | |
| **Collecting area:** | 200 cm$^2$ | 314 cm$^2$ | 400 cm$^2$ | 200 cm$^2$ |
| **Measuring range (Amount):** | without limitation (0.005…∞ mm) | without limitation (0.0032…∞ mm) | without limitation (0.0025…∞ mm) | without limitation (0.005…∞ mm) |
| **Resolution (Amount):** | 0.001 mm (pulse output: 0.01 mm) | | | 0,001 mm |
| **Accuracy (Amount):** | 0.1 mm or 1 % at < 6 mm/min and 2 % at ≥ 6 mm/min | 0.1 mm or 1 % at < 3.82 mm/min and 2 % at ≥ 3.82 mm/min | 0.1 mm or 1 % at < 3 mm/min and 2 % at ≥ 3 mm/min | 0.1 mm or 1 % at < 6 mm/min and 2 % at ≥ 6 mm/min |
| **Measuring range (Intensity):** | 0…20 mm/min resp. 0…1200 mm/h | 0…12 mm/min resp. 0…720 mm/h | 0…10 mm/min resp. 0…600 mm/h | 0…20 mm/min resp. 0…1200 mm/h |
| **Resolution (Intensity):** | 0.001 mm/min resp. 0.001 mm/h | | | |
| **Accuracy (Intensity):** | 0.1 mm/min resp. 6 mm/h | | | |
| **Measured value output:** | SDI-12 • Modbus RTU | | | |
| **Plug:** | 8-pole M12 (sensor) · 4-pole T-coded (heating) | | | 8-pole M12 (sensor) · 4-pole T-coded (heating) · 4-pole D-coded (Ethernet) |
| **Dimensions:** | 292 mm x 190 mm (H x D) | 311 mm x 256 mm (H x D) | 311 mm x 256 mm (H x D) | 377 mm x 190 mm (H x D) |
| **Mountable on:** | Mounting mast Ø 60 mm | | | |
| **Weight:** | approx. 2.5 kg | approx. 4 kg | approx. 4 kg | approx. 4 kg |
| **Standards:** | WMO-No. 8 • VDI 3786 Bl. 7 • EN 61000-2, -4 • EN 61000-4-2, -3, -4, -5, -6, -11 • NAMUR NE-21 | | | |
| **Protection class load cell:** | IP67 | | | |
| **Current consumption:** | max. 45 mA at 24 V power supply and analog output • typ. 7.5 mA at 24 V power supply and pulse output • typ. 12.5 mA at 12 V | | | max. 45 mA at 24 V power supply and analog output • typ. 12.5 mA at 12 V • max. 150 mA at 12 V supply with Ethernet |
| **Supply voltage:** | 9.8…30 V | | | |
| **Heating** | | | | |
| **Heating data:** | electronically controlled, 2 heating circuits | | | electronically controlled, 3 heating circuits: ring, funnel and drain heating |
| **Target temperature:** | +2 °C funnel surface temperature | | | |
| **Accuracy:** | ± 1 °C | | | |
| **Heating power:** | 80 W (funnel) · 60 W (drain/ collecting vessel) | 150 W (funnel) · 60 W (drain/ collecting vessel) | 150 W (funnel) · 60 W (drain/ collecting vessel) | 70 W (funnel) · 60 W (drain/ collecting vessel) · 70 W ring heating |
| **Supply voltage:** | 24 VDC / 140 W | 24 VDC / 210 W | 24 VDC / 210 W | 24 VDC / 200 W |

# Overview of the rain[e]observer

# Overview of the rain[e]observer

You can turn your rain[e] precipitation sensor into a rain[e]observer by connecting the Observer installation kit. The Doppler radar of the rain[e]observer emits electromagnetic waves in the mW range upwards, i.e. towards the precipitation, via a transmitting antenna array. The frequency used is internationally approved for measurements of this type. The receiving antenna array of the sensor receives the signal reflected from droplets or particles, from which the difference of frequency between the two signals is determined. That means you can calculate the exact speed of falling drops, which, combined with air temperature and humidity values, allows you to measure and differentiate 16 different types of precipitation.

**Precipitation Sensor**

- ✓ **rain[e]**
- ✓ **rain[e]314**
- ✓ **rain[e]400**
- ✓ **rain[e]H3**

**Mast Holder ***

**Included in installation kit**

**Observer Module ***

**Detection of the precipitation type 16 Types according to WMO**

**Observer junction box ***

**Connection of the Observer module to the rain[e]**

**Mast**

**Stainless steel mast for concrete foundation with base plate**

**\* Included in installation kit**

# Our "No compromise on quality" pledge

# Our "No compromise on quality" pledge

At Lambrecht meteo, an AEM brand, we pride ourselves on the high quality, long lifespan, and thoughtful design of our products. We are committed to delivering robust and durable solutions, like the rain[e]observer, which support both business optimization and environmental sustainability. If you already have an existing rain[e] precipitation monitoring installation, upgrading to Lambrecht's rain[e]observer is a simple and rewarding process.

## TECHNICAL DATA OBSERVER INSTALLATION SET



Figure: Complete Observer installation kit



| ID 32.15184.300000 | Observer installation kit with installation material |
|---|---|
| Power characteristics | In addition to the rain[e] 14 mA at 24 V; max. 25 W in heating mode |
| Area of application | -40...70 °C (heated, no icing, no snow drifting) |
| Storage conditions | -55...+80 °C |
| Protection type | IP65 / IP67 |
| Materials | • Brackets and fasteners: V4A<br>• Cover: PC (Polycarbonate – UV stabilized)<br>• Base plate: Aluminum, anodized<br>• Lamellae: ASA<br>• Traverse profile: Aluminum<br>• Junction Box: PA6 |
| Weight | 2.1 kg |
| Mounting type | Tab to mount on system traverse.<br>The traverse can be fastened to pipes of up to 80 mm diameter. |

| Precipitation Types (according to SYNOP table 4680) |
|---|
| No precipitation |
| Precipitation present |
| Light drizzle |
| Moderate drizzle |
| Heavy drizzle |
| Light rain |
| Moderate rain |
| Heavy rain |
| Light rain and/or drizzle with snow |
| Moderate rain and/or drizzle with snow |
| Snow |
| Light snow |
| Moderate snow |
| Heavy snow |
| Ice grains |
| Heavy hail |

# Accessory overview and specifications

# Accessory overview and specifications

We offer many accessories for customizing and enhancing your rain[e]observer system. If an accessory you need is not listed, please contact our sales team for further assistance.
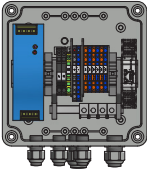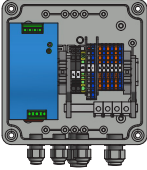You can contact us at **info@lambrecht.net** or **+49 551 4958 – 0**.
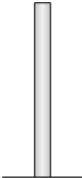
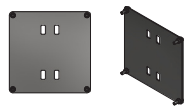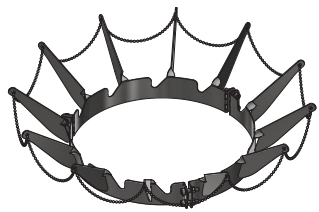| ID | Product | |
|---|---|---|
| 00.15184.400900 | **rain[e] heated, preconfigured**<br>Weighing precipitation sensor |  |
| 00.15184.403900 | **rain[e]314 heated, preconfigured**<br>Weighing precipitation sensor |  |
| 00.15184.404900 | **rain[e]400 heated, preconfigured**<br>Weighing precipitation sensor |  |
| 00.15184.540290 | **rrain[e]H3 heated, preconfigured**<br>Weighing precipitation sensor |  |
| 32.15184.300000 | **Observer installation kit**<br>Included installation material |  |

# Accessory overview and specifications

Customize your rain[e]observer.

| ID | Telemetry | |
|---|---|---|
| 00.95770.000000 | **Data Logger Ser[LOG]**<br><br>Simple configuration with the **Ser[LOG] Commander** App.<br><br>Large sensor library with predefined Lambrecht meteo sensors.<br><br>The sensor library can be easily expanded with sensors from other manufacturers. |  |
| 36.09340.000000 | **MeteoWare-CS3 Standard**<br><br>PC software package for Lambrecht systems for acquisition,<br><br>evaluation of meteorological data;<br>supporting three stations / one user;<br>incl. data retrieval service, wind statistics, SQL interface |  |
| **ID** | **Power Supply Units in Housing** | |
| 00.14966.715000 | Power: 150 W (@230 VAC; 125 W @115 VAC)<br><br>Output: 24 VDC (6.5 A @ 230 VAC; 5.2 A @115 VAC)<br><br>Input: 90…264 VAC<br><br>in plastic housing, gray, IP66<br><br>included distribution terminals |  |
| 00.14966.724000 | Power: 240 W<br><br>Output: 24 VDC (10 A)<br><br>Input: 90…264 VAC<br><br>in plastic housing, gray, IP66<br><br>included distribution terminals |  |
| **ID** | **Power Supply Units for DIN Rail TS35** | |
| 64.59021.070000 | Power: 150 W (@230 VAC; 125 W @115 VAC)<br><br>Output: 24 VDC (6.5 A @ 230 VAC; 5.2 A @115 VAC)<br><br>Input: 90…264 VAC |  |
| 64.59021.080000 | Power: 240 W<br><br>Output: 24 VDC (10 A)<br><br>Input: 90…264 VAC |  |
| **ID** | **Masts, Traverses and Accessories** | |
| 00.15180.800050 | Stainless steel mast with base plate for rain[e] |  |

# Accessory overview and specifications

Customize your rain[e]observer.

| | | |
|---|---|---|
| 00.15180.300000 | Stainless steel mast with screw foundation for rain[e] |  |
| 32.14966.030000 | Mast support for power[cube] |  |

| ID | Cable | |
|---|---|---|
| 32.15184.060000 | Connection cable with M12 plug (sensor - data logger) Length = 10 m (8-core) | |
| 32.15184.061000 | Connecting cable (heating ) for mounting on the mast L ≈ 1 m ( 4-core) | |
| 32.15184.061010 | Connecting cable (heating) for mast mounting L ≈ 10 m (4-core), T-coded | |

| ID | Bird Defense Ring | |
|---|---|---|
| 32.15180.022040 | Bird defense ring for rain[e]400 and rain[e]314 |  |
| 32.15180.023020 | Bird defense ring for: rain[e], rain[e] Modbus, rain[e]one, rain[e]one Modbus, rain[e]LP |  |

| ID | Other | |
|---|---|---|
| 33.15189.049010 | Debris trap (spiral) |  |
| 32.15184.080000 | Calibration set rain[e] | |

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Advanced Environmental Monitoring

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