LAMBRECHT meteo

rain[e]observer

The rain[e]observer combines the most innovative technologies for precipitation detection and measurement in one complete system.

The rain[e] weighing sensor precisely determines the amount and intensity of precipitation from the first drop. The extension set and the observer acquisition module also classify the precipitation data into 16 classes (defined by WMO) using radar measurement technology.

rain[e]observer

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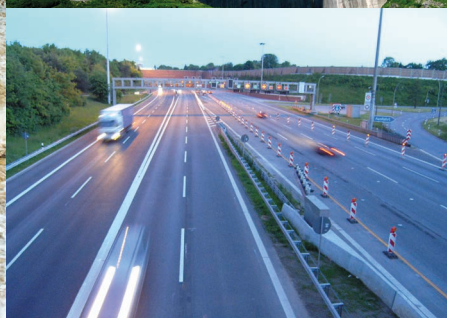
Precipitation detection with rain[e]observer

Advanced technology for your most demanding measurement tasks

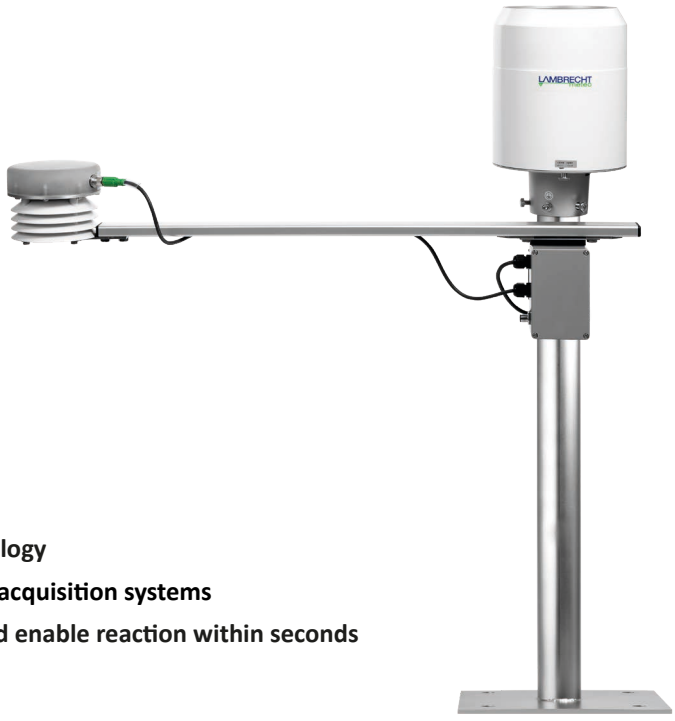
The important task of precipitation measurement is a complex one. In times of climate change, precipitation measurement plays a crucial role, especially for flood forecasting. In this context, the types of precipitation - rain, snow, freezing rain or hail - confront meteorological measurements with very different challenges.

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

Time critical and water management applications



- ✓ Precipitation measurement networks
- ✓ Measuring networks in the water industry
- ✓ Weather services
- ✓ Early flood warning
- ✓ Traffic Meteorology
- ✓ Wastewater treatment plants
- ✓ General meteorology and hydrology



- Fast, secure, easy to install and maintenance-free
- Reliable detection of precipitation types with radar technology
- Universally usable with all common data loggers and data acquisition systems
- Advanced technology designed to prepare for disasters and enable reaction within seconds

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

Precipitation amount and 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/m²) while preventing the measurement errors of other weighing systems. 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.

- ✓ DAkkS certification for non-influence of the measuring sensor by wind and solar irradiation
- ✓ Best connectivity by multiple interfaces
- ✓ All-metal housing, weatherproof and durable

Overview rain[e] sensors

rain[e]

- Standard instrument with 200 cm² collecting surface (WMO-compliant)
- DAkkS verification of non-influence of the measuring sensor by wind and solar radiation
- Best connectivity with multiple interfaces
- Lightweight with approx. 2.5 kg

rain[e]H3

- Meets the stringent requirements of the German Weather Service (DWD) and is used at all DWD stations with automatic precipitation measurement
- Electronically controlled ring, funnel and drain heater

rain[e]314

- Collecting area: 314 cm²
- All-metal housing, weatherproof and durable
- Uses the most advanced weighing technology
- Maintenance free for long-term use even under extreme weather conditions

rain[e]400

- Collecting area: 400 cm²
- Compact and rugged design with very low weight
- Easy to install and maintain
- Environmentally friendly (free of antifreeze)

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Technical data precipitation sensors rain[e]

Sensitive measuring principle with state-of-the-art weighing technology

An important advantage of a rain[e] precipitation sensor (ombrometer, pluviometer) is the continuously self emptying collection system. If one chamber of the collection chamber is filled, the chamber tips to empty, while measurement continues in the other chamber. During tipping, the rain[e] performs appropriate compensation calculations.
The weighing precipitation sensor of the rain[e] series enables measurement of every drop with a high resolution of 0.001 mm/m², but is smaller and more compact than many other pluviometers.

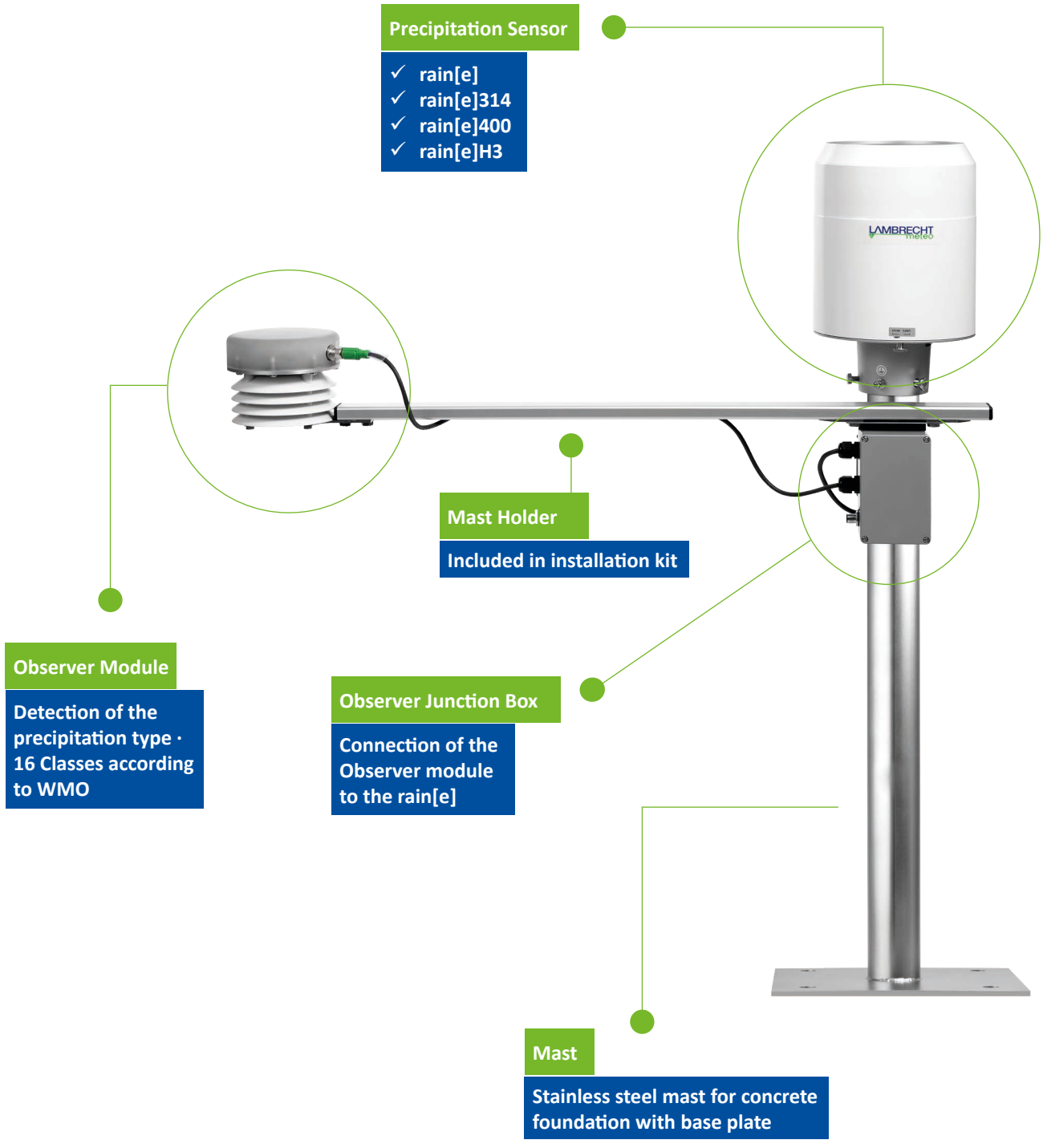
	rain[e] **heated**	**rain[e]314** **heated**	**rain[e]400** **heated**	**rain[e]H3** **heated**
Id No.	**00.15184.400900**	**00.15184.403900**	**00.15184.404900**	**00.15184.540920**
Measurable precipitation types:	liquid, solid, mixed			
Measuring principle:	weighing, with automatic self-emptying			
Operating temperature:	-40…+70 °C *)			
Storage temperature:	-40…+70 °C			
Collecting area:	200 cm²	314 cm²	400 cm²	200 cm²
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

The precipitation measurement system rain[e]observer

Precipitation measured and classified into 16 categories

Using the extension set and the acquisition module, the rain[e] can distinguish precipitation into 16 precipitation types with radar measurement, as well as measuring quantity and intensity. This makes it a rain[e] observer.

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. This allows the exact falling speed of the drops (particles) to be calculated, which, combined with the measured values of air temperature and humidity, allows the approximate determination and differentiation of 16 types of precipitation.



Example illustration; mast is not included in the scope of delivery

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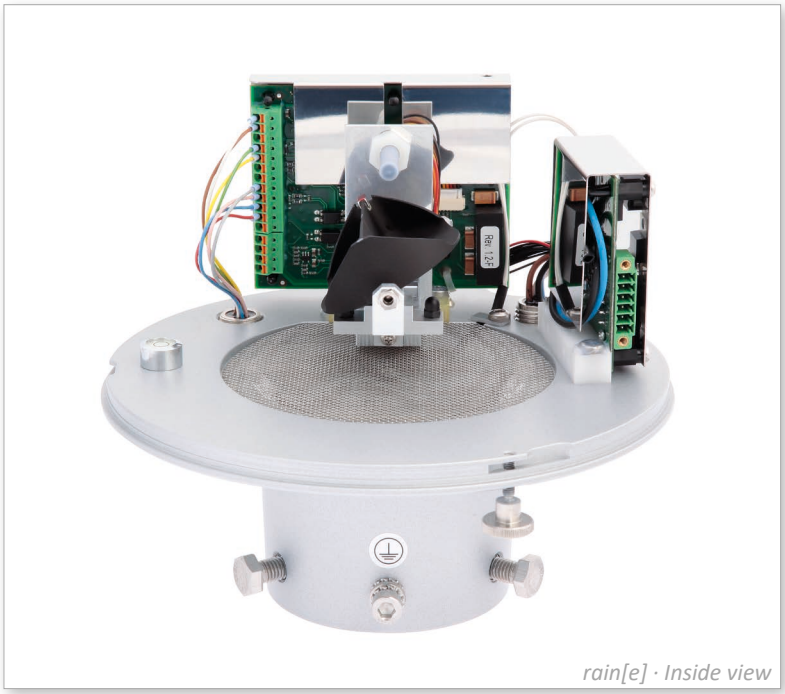
Why rain[e]observer

No compromise on quality, for you and our environment

High quality, long lifespan and well thought-out product details are the strengths of the Lambrecht meteo brand. Lambrecht's continuous development of outstanding products has one ultimate goal: satisfied users.

A high-quality, robust and durable product like the rain[e]observer also has a positive effect on the economic efficiency for you as a customer and the sustainability for our environment.

rain[e] · Front view

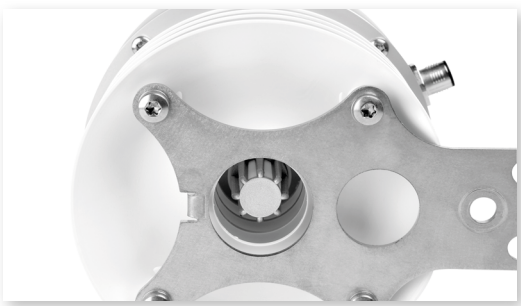


rain[e] · Inside view

Observer Module · Front view

Observer Module · Top view

Observer Module · Top view



Observer Module · Bottom view

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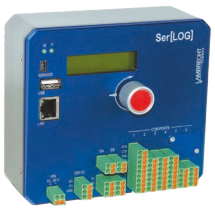
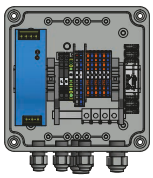
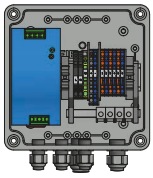
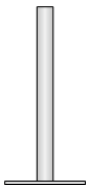
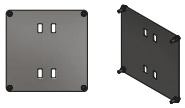
Discover a wide range of accessories

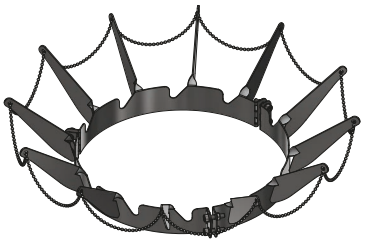
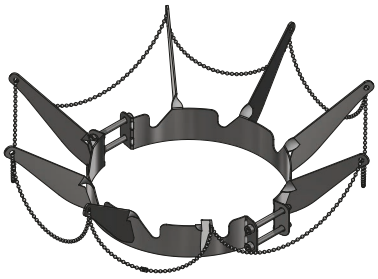
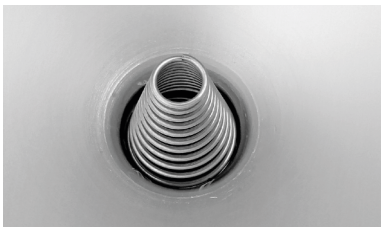
Accessories for optimal use of your rain[e]observer

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 department for further assistance. You can contact us at: info@lambrecht.net or 0551 4958-0.

Id-No.	Telemetry	
00.95770.000000	**Data Logger Ser[LOG]** Simple configuration with the “Ser[LOG] Commander” App. Large sensor library with predefined Lambrecht meteo sensors. The sensor library can be easily expanded with sensors from other manufacturers.	
Id-No.	**Power Supply Units in Housing**	
00.14966.715000	Power: 150 W (@230 VAC; 125 W @115 VAC) Output: 24 VDC (6.5 A @ 230 VAC; 5.2 A @115 VAC) Input: 90…264 VAC in plastic housing, gray, IP66 included distribution terminals	
00.14966.724000	Power: 240 W Output: 24 VDC (10 A) Input: 90…264 VAC in plastic housing, gray, IP66 included distribution terminals	
Id-No.	**Power Supplies for DIN Rail TS35**	
64.59021.070000	Power: 150 W (@230 VAC; 125 W @115 VAC) Output: 24 VDC (6.5 A @ 230 VAC; 5.2 A @115 VAC) Input: 90…264 VAC	
64.59021.080000	Power: 240 W Output: 24 VDC (10 A) Input: 90…264 VAC	
Id-No.	**Masts, Traverses and Accessories**	
00.15180.800050	Stainless steel mast with base plate for rain[e]	
00.15180.300000	Stainless steel mast with screw foundation for rain[e]	
32.14966.030000	Mast support for power[cube]	

Accessories for optimal use of your rain[e]observer

(continued)

Id-No.	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-No.	**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-No.	**Other**
33.15189.049010	Debris trap (spiral) 
32.15184.080000	Calibration set rain[e]

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