

Welver, Germany

Precipitation measurement network



Local precipitation measurement network to improve water management

OVERVIEW:

PRECIPITATION MEASURING NETWORK OF THE MUNICIPALITY OF WELVER

The municipality of Welver in North Rhine-Westphalia is supplied fresh water by the Ruhr Valley Waterworks, but wastewater disposal is the town's responsibility. Those responsibilities include the discharge of wastewater and rainwater as well as water from property drainage systems. For this purpose, Welver operates a network of combined sewage pumping stations.

For the combined sewage pumping stations, the utilization and on/off behavior of the pumps and compressors are monitored and adjusted to the current precipitation rate. For the wastewater pumping stations, the amount of extraneous water that is discharged is considered; if necessary, discharge checks are carried out at the pump houses.

Learn more about the municipality of Welver: <https://www.welver.de>

BENEFITS OF THE PRECIPITATION MEASUREMENT NETWORK

Due to the increasing heavy rain events as an effect of climate change in recent years, the communities are more sensitized. The local precipitation measurement network supports the precaution against hazards and prevents damage to buildings, infrastructure and designed nature in the community.

- Precise evaluation and monitoring of precipitation focal points and sewer network utilization is the basis for further adjustments and measures
- Reliable project planning of used pumps and compressors saves energy and costs when correctly dimensioned
- Improvement of pump control and therefore utilization and efficiency of wastewater treatment plant utilization result in 10-15% reduction of electricity costs
- Early warning of flooding in the remote monitoring network puts the on-call service on alert in time for heavy rainfall

REQUIREMENTS

A reliable and durable precipitation sensor was needed to achieve timely flood risk detection at the pumping stations and to ensure real-time monitoring during heavy rainfall. The integration of the sensor into the existing control room infrastructure had to be quick and easy.

SOLUTION

The municipality of Welver is using the heated **precipitation sensor type 15189** at several locations to support and strengthen the work of the local water management.



We decided on the type 15189 because of the decades of experience of other Lambrecht meteo customers, such as the DWD [the German Weather Service], and the convincing presentation of the hardware and project planning. The quality of the products and the after-sales service convince us we've made the right decision to this day.

— Lukas Schenkel
Building Administrator, Welver

Solution: The heated precipitation sensor 15189

Water infrastructure in cities and communities is increasingly confronted with the challenges of climate change. The 15189 sensor offers a flexible, virtually maintenance-free precipitation measurement network. This provides the community with reliable precipitation data in real time for planning the operation of its drainage systems.



ROBUSTNESS MEETS DESIGN

Only weather-resistant materials such as aluminum and stainless steel are used for the robust and well-designed precipitation sensor type 15189. This results in a long service life. Two separately controlled heating circuits ensure precise temperature control, which normally prevents the precipitation sensor from being snowed in and minimizes evaporation on the heated surfaces. The precipitation sensor is simply mounted on a pipe or pole with a diameter of 60 mm, which allows a wide range of installation options.



RELIABLE TIPPING BUCKET SYSTEM

The 15189 precipitation sensor works with a low-friction tipping bucket. The capacity of the tipping bucket is 2 cm³ (2 g) or 4 cm³ (4 g) of water. In relation to the collecting area of 200 cm² (WMO standard), one filling of the tipping bucket corresponds to the precipitation height of 0.1 mm or 0.2 mm per square meter. When the tipping bucket is tilted, a built-in reed switch within the precipitation sensor is closed. The pulse output can be electronically scanned, remotely transmitted, and registered.

Installation options:



WHY AEM?

Lambrecht meteo, an AEM brand, develops and manufactures world-class meteorological sensors and measurement solutions for wind, precipitation, pressure, temperature, and humidity serving various classical meteorological and highly specific environmental and industrial end-markets. Our highest goal is to deliver state-of-the-art sensors and customer-friendly complete measurement solutions including data acquisition, maintenance, and service. With our products and the portfolio of the AEM family of innovative brands, we aim to be a globally established brand and to provide a wide range of meteorological applications with flexible and high-quality solutions for our customers' weather measurement tasks.