



OPERATOR-FRIENDLY ALL-IN-ONE SOLUTION

CONTINUOUS MONITORING OF EMISSIONS
IN ASPHALT MIXING PLANTS

Construction materials

SICK
Sensor Intelligence.

NEW STANDARDS FOR ASPHALT MIXING PLANT OPERATION





Since 2015, operating entities of asphalt mixing plants have faced a new challenge. Since that time, the authorities have demanded that continuous emission monitoring systems be installed in asphalt mixing plants. These systems must be performance-tested and certified in accordance with EN 15267, and must also be operated in accordance with the specifications of EN 14181. The problem: Hardly any system provider has been able to guarantee continuous emission monitoring system without great expense for the plant operators. Monitoring the limit values for total hydrocarbons and checking the associated boundary parameters according to TA Luft (Prevention of Air Pollution) in particular are new challenges that are difficult to manage.

CONTINUOUS MEASUREMENT MADE EASY

SICK was one of the first suppliers to succeed in developing a complete solution: It meets the requirements of the authorities, takes into account individual conditions on site, and ensures reliable operation of the measurement technology. With its many years of experience, SICK has already developed and successfully installed the first emission measurement systems for asphalt mixing plants. Constructive cooperation with plant operators and authorities has resulted in many more practical insights, making it possible for SICK to advance the solutions even further. Subsequently, other plants in Germany and Luxembourg were equipped with measurement systems.

ALL IN ONE: THE ENTIRE MEASUREMENT SYSTEM IN ONE CONTAINER

Meeting Point Router MPR-LAN

enables remote maintenance of the measurement system by expert service staff as well as Condition Monitoring.

MCS200HW filter photometer with integrated GMS800 FIDOR for measuring TOC, H₂O and O₂.



MEAC300, certified data acquisition system for preparing emission data and transmitting it to the responsible authority.

For SICK, the experience gained with emission measurement devices at the first asphalt mixing plants formed the foundation for the development of a comprehensive measurement system: At its core is a autonomous turnkey container that contains the entire measurement system with all supply media and the emission evaluation device. Due to the rugged design of the container, it can be placed almost anywhere in an asphalt mixing plant. The sample gas extraction line runs from the container to the probe on the stack. Customers only need a voltage supply.

In addition to TOC, H₂O and O₂, additional measurement components such as CO, SO₂ or NO_x can be evaluated, which

increases the efficiency of asphalt mixing plants and contributes to environmental protection. The measurement system can optionally be expanded to include a measuring device, also certified to EN 15267, for determining the total dust content and the exhaust gas volume flow. For this purpose, SICK has been using proven measurement devices such as the Dusthunter SP100 combined with the FLOWSIC100 gas flow measuring instrument, a pressure sensor and a temperature measurement device, which are housed in just one spigot in the stack. All devices and measurement systems used are also optimized for use in harsh environments, e.g. in the cement or steel industry.

Integrated compressor with air dryer for compressed air supply of the MCS200HW and for probe backflushing (cleaning).



The **pipe fan** with large filter cassette ensures good ventilation, even in very dusty environments. The integrated differential pressure measurement signals when it is time to clean the filter.



The **air conditioning unit** ensures consistent ambient conditions, thus further increasing the reliability of the measurement.

A PEEK INSIDE THE CONTAINER

The container contains the very rugged EN 15267-certified MCS200HW analyzer system, a hot extractive filter photometer with integrated flame ionization detector for total carbon measurement. In addition, up to 10 other gas components and the oxygen concentration can be measured at the same time. Comparable analyzer systems from SICK are in use in large

numbers in very harsh environments and have proven themselves for legally regulated emission measurement in many industries for over 20 years. This way, you are well prepared for the future, should the authorities impose further requirements for emission measurement in the coming years.

COMPREHENSIVE SERVICE FOR ALL YOUR CEMS SYSTEM NEEDS

Remote maintenance and service

SICK also performs the necessary monitoring and some of the maintenance tasks for its devices and systems via remote monitoring. The remote monitoring functions that can be called up via the Meeting Point Router MPR-LAN and the associated service concept are basic components of the complete solutions from SICK. Within the scope of its service contracts, SICK assumes all maintenance tasks arising on its measurement devices in the analyzer shelter and on the measurement

devices and sampling devices installed on the stacks. It is also possible to use Condition Monitoring to evaluate the status of the measurement technology with regular proactive monitoring of system data and to start maintenance if necessary. The qualified service department at SICK looks after all measurement devices and systems in use in your asphalt mixing plant.



- Simple remote maintenance
- Assured productivity
- Modular service contracts

JUST A FEW STEPS TO A DIGITAL OVERVIEW

1

A SICK service employee installs and activates the gateway. Your devices are connected and data transmission begins immediately.

2

You register with your SICK ID and select the appropriate SensorApps according to the base device to start Condition Monitoring.

3

You get e-mail alerts if there are error messages, status changes or overshooting of limit values, meaning you can react quicker and easier.



Monitoring Service – device monitoring by SICK

The monitoring of your devices can, if you wish, be completely taken care of by SICK. SICK will perform all monitoring tasks for you as a part of your service contract. We not only monitor devices from the SICK product range, but also integrate third-party devices.



Forecasts for predictive maintenance

As soon as you have collected sufficient data using the Monitoring Box, you can analyze that data and use it for prediction purposes.

MEAC300 DATA ACQUISITION SYSTEM: THE LICENSE MODEL

For asphalt mixing plants, compliance with total carbon emission limits depends on the formulations used in the plants and the frequently changing operating modes. A continuously operating evaluation system is ideal for monitoring and logging these emissions, e.g. a data acquisition system from SICK. Emission data evaluation systems must be certified for use in Germany according to the current guideline “Bundeseinheitliche Praxis bei der Überwachung der Emissionen” (EN: Uniform Federal Practice for Monitoring Emissions) from 2017. This ensures correct implementation of the general evaluation rules. This is also the basis for parameterizing the MEAC300, which allows data evaluation to be tailored to specific applications in the respective plant.

Certified data acquisition system

In August 2019, uniform federal specifications were published in Germany that also regulate the parameterization concepts for data acquisition systems used in asphalt mixing plants. SICK was the first manufacturer to implement these specifica-

tions with its certified MEAC300 evaluation system in a modern asphalt mixing plant in southern Germany and to specify them in the parameterization in coordination with the operating entity and the authorities. For a whole year, the responsible specialist authority checked the emission data logged by MEAC300 – with positive results. Criteria for the continuous monitoring of your asphalt mixing plant can also be derived from the corresponding results report.

Safe and easy use

For the monitoring of your asphalt mixing plant, SICK offers a proven, powerful data acquisition system equipped with the MEAC300-DE software license. This enables you to use the data acquisition system safely and conveniently after experienced SICK experts have initialized and parameterized it for your plant. Since support services are included in the license, your own support expenditures for the MEAC300 is minimal during the entire runtime.



SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 10,000 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents, and preventing damage to the environment.

SICK has extensive experience in various industries and understands their processes and requirements. With intelligent sensors, SICK delivers exactly what the customers need. In application centers in Europe, Asia, and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes SICK a reliable supplier and development partner.

Comprehensive services round out the offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

That is “Sensor Intelligence.”

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations → www.sick.com