

ENVIRONMENTAL MONITORING SENSORS

Safe environmental
monitoring solution

Industrial Motors
Commercial &
Appliance Motors
**Automation &
Systems**
Energy
Transmission &
Distribution
Coatings



Driving efficiency and sustainability





Efficient and safe environmental monitoring solution

The **EMSW product line (WEG Environmental Monitoring Sensors)** was developed to provide a safe solution for environmental monitoring, combining gas (ammonia), temperature, and humidity measurement with integrated audible and visual signaling in a single device. Compact, rugged, and easy to install, **EMSW** sensors help protect people, processes, and assets in industrial, commercial, and agribusiness environments.

In addition to enhancing operational safety, the **EMSW** is an important ally in meeting occupational health and safety requirements, supporting compliance with occupational safety standards regarding the control of exposure to chemical agents, environmental conditions, and the continuous monitoring of workplaces.

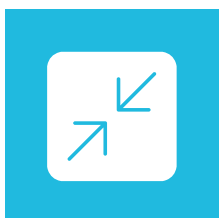
Intelligent environmental monitoring in different versions

The **EMSW** product line consists of three versions, allowing users to select the interface best suited to the automation architecture of each application:

- EMSW ANG – sensor with analog output (0–10 V / 4–20 mA) and IO-Link + NFC communication, ideal for integration into modern automation systems and decentralized architectures.
- EMSW MOD – sensor with Modbus-RTU communication via RS485 + NFC, designed for monitoring in industrial networks and integration with PLCs, gateways, and supervisory systems.
- EMSW RLY – sensor with configurable NO/NC relay output + NFC, ideal for direct control of contactors, relays, and local alarm systems.

In all versions, the **EMSW** provides complete environmental monitoring by combining gas concentration measurement with temperature and humidity monitoring, while supplying local alarms and signals to the control system.

Benefits



Compact



Rugged



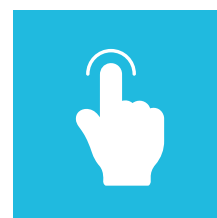
Reliable and accurate



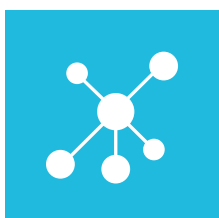
Easy installation and integration



Modbus, IO-Link, or NFC communication



Intuitive interface



Flexible integration



Real-time monitoring



Support for occupational safety standards



Applications

EMSW sensors can be used in a wide range of applications requiring environmental monitoring. Key applications include:

Gas leak detection in:

- Chemical, petrochemical, pharmaceutical, and processing industries.
- Commercial environments where ammonia is used.
- Ammonia production, storage, and handling facilities.

Environmental monitoring in industrial processes:

- Production lines where ammonia is generated or used.
- Environments with critical temperature and humidity control requirements.
- Slaughtering, deboning, processing, and packaging areas using NH_3 refrigeration systems.
- Industrial and agribusiness wastewater treatment plants.
- Supports compliance with environmental monitoring requirements.

Agribusiness:

- Poultry houses, livestock facilities, and animal production environments, monitoring ammonia, temperature, and humidity to support animal welfare.
- Environments where ammonia is generated from waste or enclosed areas with high organic loads.
- NH_3 monitoring for ventilation, exhaust, and environmental management, reducing health risks to animals and workers.
- Ammonia-based irrigation and fertilization applications.

Personnel protection:

- Gas monitoring in occupied areas, with installation at average breathing height (~160 cm).
- Circulation areas, technical rooms, and corridors within industrial facilities.
- Cold storage rooms, freezing tunnels, and storage facilities.
- Supports occupational safety requirements.

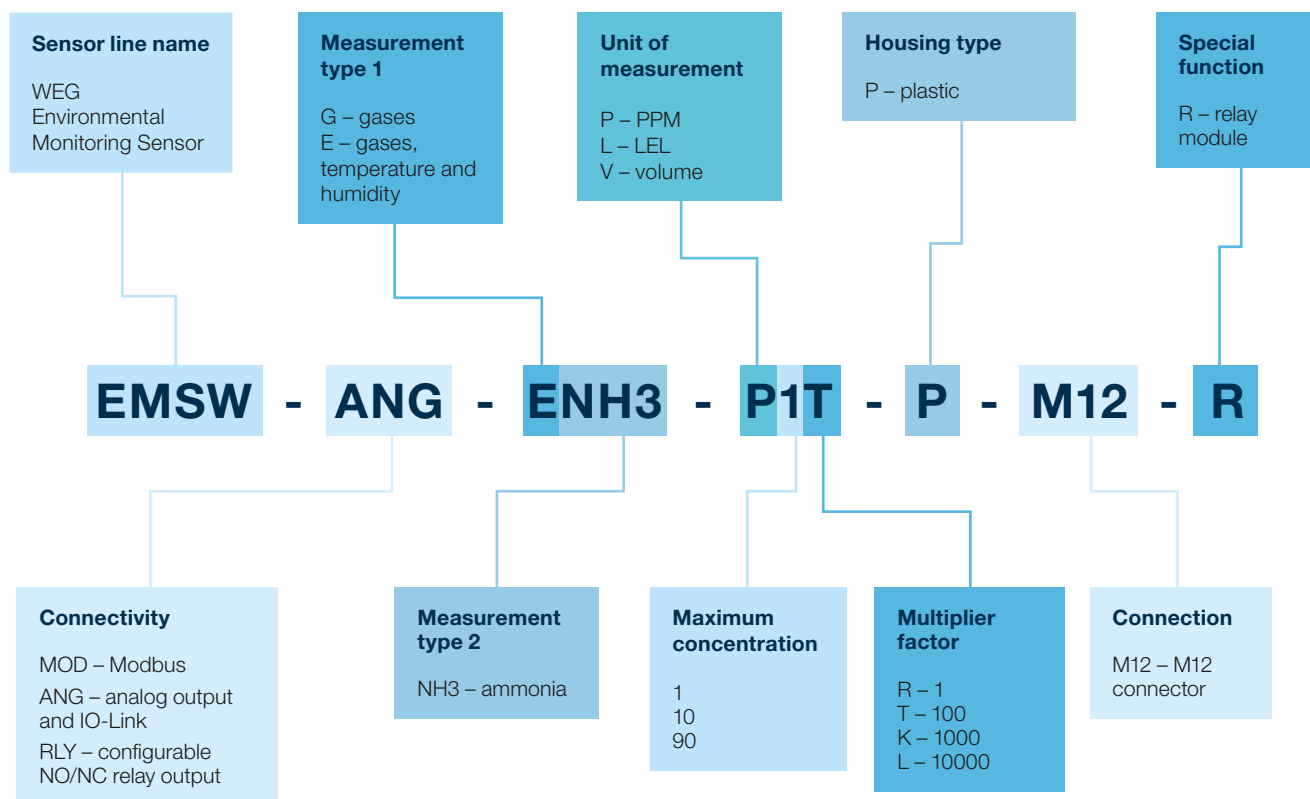
All models feature:

- Integrated audible and visual signaling.
- Status and alarm LEDs with color- and frequency-coded indication.
- Push-button interface for testing, adjustment, and calibration.

The **EMSW** product line is suitable for both permanent and temporary installations and supports periodic calibration and testing, ensuring reliable performance throughout its service life.

Smart code – EMSW line

Understand the smart code of WEG line of environmental monitoring sensors.



Technical characteristics

Model	EMSW-ANG-ENH3-P1T-P-M12	EMSW-MOD-ENH3-P1T-P-M12	EMSW-RLY-ENH3-P1T-P-M12
Code	17783400	17783403	17783406
Supply voltage	13 to 32 V _{DC}	13 to 32 V _{DC}	127/220 V _{AC}
Digital communication	IO-Link, NFC	Modbus-RTU (RS485), NFC	RTU, NFC
Main output type	Analog 0–10 V / 4–20 mA	Data via Modbus-RTU	NO/NC relay contact
Degree of protection	IP66	IP66	IP66
Operating temperature	0 to 50 °C	0 to 50 °C	0 to 50 °C
Housing	Polyamide (PA)	Polyamide (PA)	Polyamide (PA)
Target gas resolution	1 ppm	1 ppm	1 ppm
Temperature resolution	0.01 °C	0.01 °C	0.01 °C
Temperature accuracy	±0.2 °C	±0.2 °C	±0.2 °C
Humidity resolution	0.01%	0.01%	0.01%
Humidity accuracy	±2.5%	±2.5%	±2.5%
Modbus baud rate (when applicable)	-	115200	-
Default Modbus ID	-	1	-
Connector	Male 4-pin M12	Male 4-pin M12	Male 4-pin M12
Certification	CE	CE	In the process of certification

Installation

Whether installed in suspended or surface-mounted applications, it is recommended that the **EMSW** be positioned approximately 20 cm from the source of the target gas vapors, such as poultry litter, gas pipelines, and similar sources. For gas monitoring intended to protect personnel, the sensor should ideally be installed at average breathing height, approximately 160 cm above the floor.

The **EMSW** sensor features two signaling LEDs with distinct functions: Status LED and Alarm LED. The Status LED alerts the user to the current operating mode of the EMSW and indicates sensor-related faults. The Alarm LED is dedicated exclusively to indicating alarms associated with gas concentration monitoring.

The **EMSW** sensor features four push-buttons. Each button provides two distinct functions depending on how it is actuated. A short press corresponds to a duration between 0.2 and 2 seconds, while a long press corresponds to a duration greater than 2 seconds. The sensor operates in two distinct modes: *Operating mode* and *Calibration mode*. The functions assigned to buttons 3 and 4 vary according to the active mode.

The following tables describe the visual indications provided by each LED and the functions assigned to each button for the three available models:

EMSW-ANG-ENH3-P1T-P-M12

Status LED				
LED color	State	Freq.	Diagnostic	Analog output
Blue	Blinking	1 Hz	Normal operation	Current (4 to 20 mA)
Red	Blinking	1 Hz	Normal operation	Voltage (0 to 10 V)
Blue	Blinking	5 Hz	Calibration mode	Current (4 to 20 mA)
Red	Blinking	5 Hz	Calibration mode	Voltage (0 to 10 V)
Blue	Steady	-	Communication failure	-
Red	Steady	-	Sensor failure	-
Alarm LED				
LED color	Freq.	Active alarm		
Blue	1 Hz	None		
Blue	5 Hz	TWA alarm		
Red	1 Hz	STEL alarm		
Red	5 Hz	Instantaneous alarm		

Push-button	Short press	Long press
Operating mode		
B1	Voltage output (0-10 V)	Current output (4-20 mA)
B2	Operating mode	Calibration mode
B3	V- alarm	Disable audible alarm
B4	V+ alarm	Enable audible alarm
Calibration mode		
B1	Voltage output (0-10 V)	Current output (4-20 mA)
B2	Operating mode	Calibration mode
B3	Audible alarm test	Calibrate to 0 ppm
B4	Visual alarm test	Calibrate to 50 ppm

EMSW-MOD-ENH3-P1T-P-M12

Status LED			
LED color	State	Freq.	Diagnostic
Blue	Blinking	1 Hz	Normal operation
Blue	Blinking	5 Hz	Calibration mode
Blue	Steady	-	Communication failure
Red	Steady	-	Sensor failure
Alarm LED			
LED color	Freq.	Active alarm	
Blue	1 Hz	None	
Blue	5 Hz	TWA alarm	
Red	120 Hz	STEL alarm	
Red	120 Hz	Instantaneous alarm	

Push-button	Short press	Long press
Operating mode		
B1	Audible alarm test	Visual alarm test
B2	Operating mode	Calibration mode
B3	V- alarm	Disable audible alarm
B4	V+ alarm	Enable audible alarm
Calibration mode		
B1	Reset Modbus ID	Reset Modbus baud rate
B2	Operating mode	Calibration mode
B3	Audible alarm test	Calibrate to 0 ppm
B4	Visual alarm test	Calibrate to 50 ppm

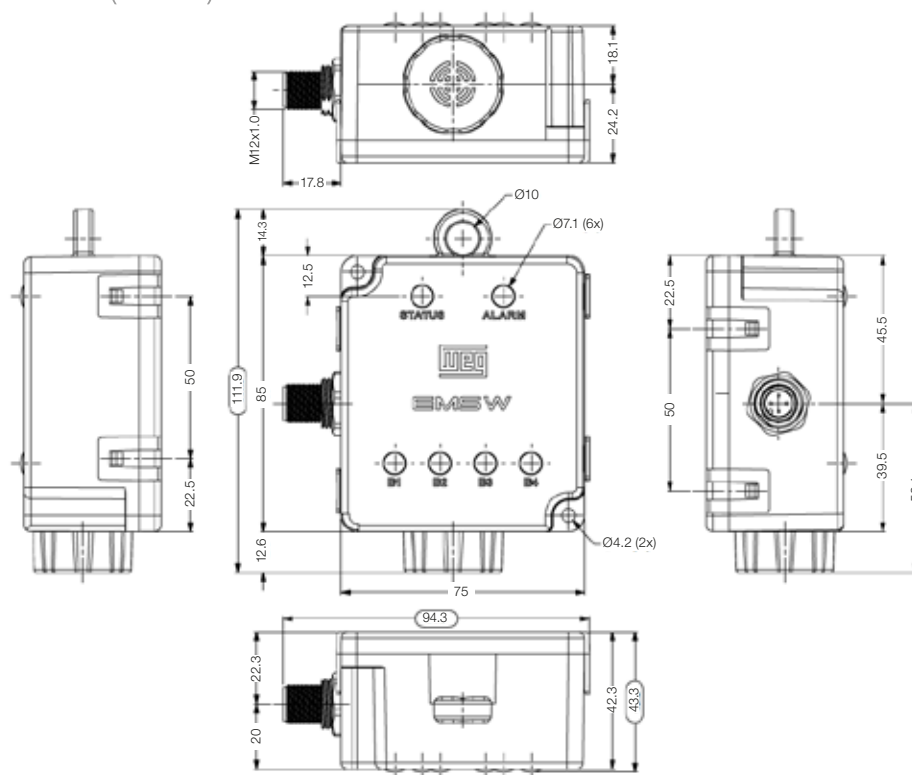
Installation

EMSW-RLY-ENH3-P1T-P-M12

Status LED				
LED color	State	Freq.	Diagnostic	Relay output
Blue	Blinking	1 Hz	Normal operation	NO output
Red	Blinking	1 Hz	Normal operation	NC output
Blue	Blinking	5 Hz	Calibration mode	NO output
Red	Blinking	5 Hz	Calibration mode	NC output
Blue	Steady	-	Communication failure	-
Red	Steady	-	Sensor failure	-
Alarm LED				
LED color	Freq.	Active alarm		
Blue	1 Hz	None		
Blue	5 Hz	TWA alarm		
Red	1 Hz	STEL alarm		
Red	5 Hz	Instantaneous alarm		

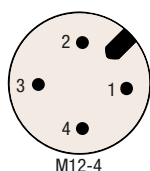
Push-button	Short press	Long press
Operating mode		
B1	NO relay output	NC relay output
B2	Operating mode	Calibration mode
B3	V- alarm	Disable audible alarm
B4	V+ alarm	Enable audible alarm
Calibration mode		
B1	NO relay output	NC relay output
B2	Operating mode	Calibration mode
B3	Audible alarm test	Calibrate to 0 ppm
B4	Visual alarm test	Calibrate to 50 ppm

Dimensions (mm)



Connection

M12



Pin	Wire color	EMSW-ANG	EMSW-MOD	EMSW-RLY
1	Brown	13 to 32 Vdc supply	13 to 32 Vdc supply	AC supply (L/N)
2	White	Analog output	(-) RS485	AC supply (L/N)
3	Blue	GND (-)	GND (-)	Relay common (COM)
4	Black	C/Q (I/O-Link)	(+) RS485	Relay contact (NO/NC)

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Global presence

is essential, as much
as understanding
your needs.

Global Presence

With more than 49,000 employees worldwide, WEG is one of the largest electric motors, electronic equipment and systems manufacturers. We are constantly expanding our portfolio of products and services with expertise and market knowledge. We create integrated and customized solutions ranging from innovative products to complete after-sales service.

WEG's know-how guarantees our **Environmental Monitoring Sensors** are the right choice for your application and business, assuring safety, efficiency and reliability.



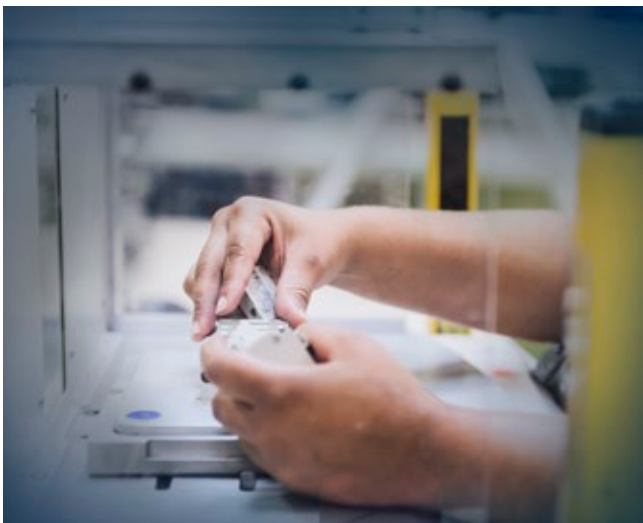
Availability is to have a global support network



Partnership is to create solutions that suits your needs



Competitive edge is to unite technology and innovation



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High performance and reliable products to improve your production process.



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www.weg.net



+55 47 3276.4000



digitalesistemas@weg.net



Jaraguá do Sul - SC - Brazil

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The values shown are subject to change without prior notice.
The information contained is reference values.