

## TECHNICAL FEATURES

All sensors used by the GRIFFON system are based only on passive optical technology: strain gauges for deformation, accelerometers for traffic-induced dynamics, tiltmeters and displacement sensors for **structural movement**, environmental sensors for **temperature and humidity and other**. A high-sampling datalogger collects and processes data in real-time.

# GRIFFON<sup>®</sup>

BY iWiM

All the GRIFFON structural health monitoring sensors share the same common specifications:

TECHNOLOGY:	passive optical fiber
DURABLE ENCASING:	corrosion-resistant stainless steel
PROTECTION RATING:	IP67
EXTENDED OPERATING TEMPERATURE:	-30°C / +80°C working range
HIGH SAMPLING FREQUENCY:	up to 6 kHz
TOTAL IMMUNITY to TEMPERATURE VARIATIONS and ELECTROMAGNETIC INTERFERENCE	

### SENSORS INSTALLATION



### SENSOR FIXED ON THE STRUTTURE

#### OPTICAL ACCELEROMETER

MEASUREMENT RANGE:	up to 30 g
FREQUENCY BAND:	up to 1 kHz
ACCURACY:	57 µg
SPECTRAL NOISE:	1.8 µg/√Hz

#### OPTICAL STRAIN GAUGE

MEASUREMENT RANGE:	up to ±5000 µε
GAUGE LENGTH:	up to 2 m
ACCURACY:	<0.18% f.s.
PRECISION:	<0.1% f.s.

#### OPTICAL TILT METER

MEASUREMENT RANGE:	10°
ACCURACY:	10 mdeg
RESSOLUTION:	8.33 µdeg

#### OPTICAL DISPLACEMENT SENSOR

MEASUREMENT RANGE:	up to ±50 mm
ACCURACY:	0.3 mm
PRECISION:	±0.12 mm
RESOLUTION:	0.03 mm

# THE INFRASTRUCTURE MONITORING SYSTEM.



INTEGRATED STRUCTURAL HEALTH & WEIGH-IN-MOTION.  
EARLY WARNING ON STRUCTURAL FATIGUE.  
ANALYZE HEAVY TRAFFIC IMPACT FOR SMART MAINTENANCE.

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## IWIM COMPANY

iWIM is an Italian **manufacturer and unique provider** of Weigh-in-Motion (WIM) sensors and infrastructure monitoring solution based on fiber optic technology.

The company has over 15 years of experience in the production and implementation of WIM systems. To date, more than 300 sensors have been installed worldwide across Europe, South America, Asia, and Africa.

## THE WEIGH IN MOTION SYSTEM



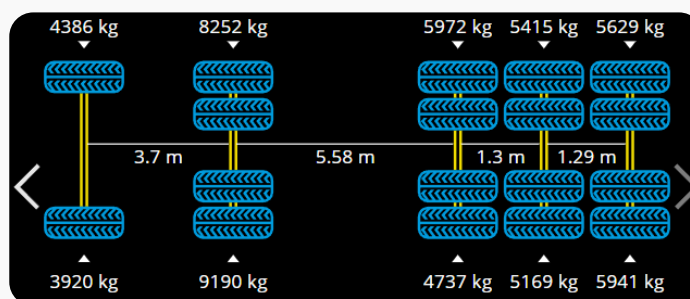
BISON – the advanced Fiber Optic Weigh-In-Motion system developed by iWIM – is composed of **two stainless-steel bending plates** integrating **high-precision fiber optic sensors**.

**BISON WIM is OIML R134 certified:**

- For high-speed applications up to 100 km/h
- for low-speed environments up to 20 km/h with high metrological accuracy class A(5).



## TRAFFIC DETECTION by WIM SENSORS



# GRIFFON

## THE INFRASTRUCTURE MONITORING SYSTEM.

The GRIFFON system is the first in the world to integrate **Structural Health Monitoring** and **Weigh-In-Motion solution**. The system links **traffic load measurement** with **structural response** in a single coordinated system.

Using advanced high-frequency optical fiber technology, the GRIFFON system accurately captures rapid dynamic events, providing a clear real-time view of **infrastructure behavior and its response to heavy vehicle loads**.



## THE UNIQUE INTEGRATED SOFTWARE INTERFACE



### INSTANT CAUSE-EFFECT ANALYSIS

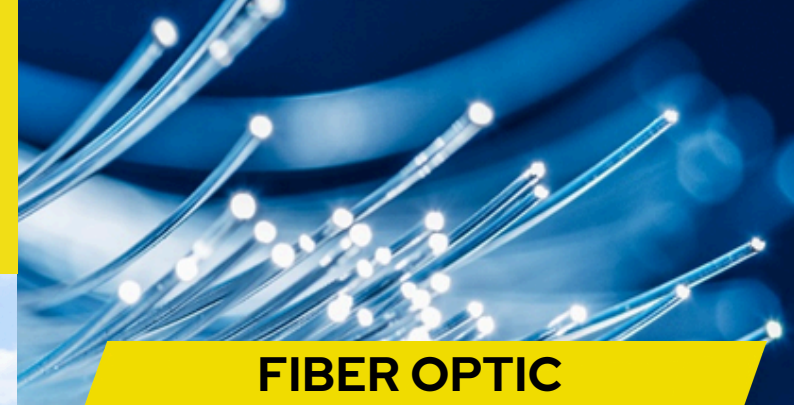
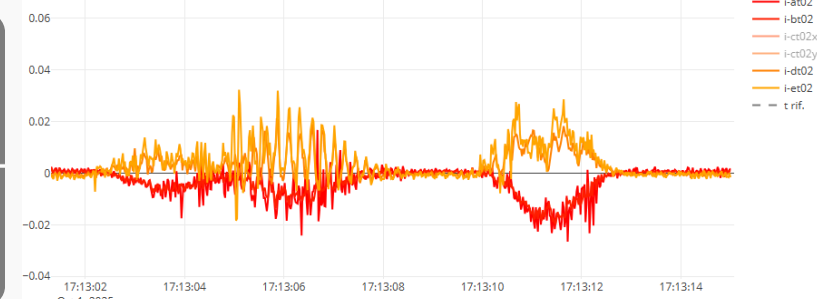
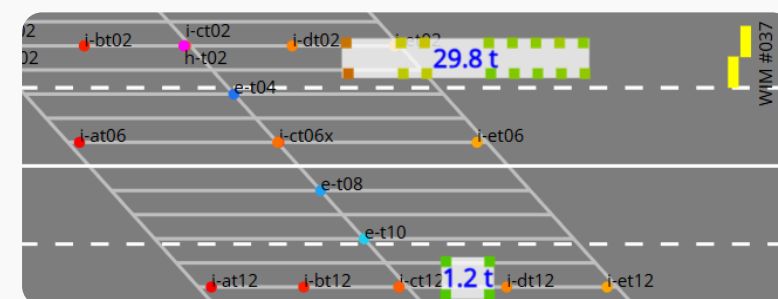


iWIM has developed an intuitive interface for real-time monitoring of sensor and vehicle data.

When a heavy vehicle crosses the bridge, the optical **WIM sensors** instantly capture its **total weight, axle and semi-axle loads, speed, and classification**.

Structural monitoring sensors are displayed on the dashboard and can be analyzed over selected time.

Selecting a vehicle isolates its transit and shows the **synchronized structural response (strain, displacement, inclination)**.



## FIBER OPTIC TECHNOLOGY

The GRIFFON system is built entirely on advanced **passive optical fiber technology**. No electrical components are required in the sensors. All sensors are connected to the datalogger by **only fiber optical cable**. Optical fiber sensors operate reliably in harsh environments. By transmitting data through light rather than electricity, the system ensures **stable, high-frequency acquisition** for both dynamic weighing and structural monitoring.

## ADVANTAGES

- \* **Insensitive to temperature variations.**
- Not affected by humidity**
- No Sensitivity to electromagnetic fields**
- Operation in extreme weather conditions.**
- Minimal maintenance. Only periodic checks.**

## EASY ACCESS TO DATA

The software enables accurate **correlation between traffic loads and structural behavior** for monitoring and early warning.

Data can be downloaded and integrated into third-party software such as digital twins or FEM.

