Structural monitoring

Infrastructure | Buildings | Industrial structures

ROBO®SMART Monitoring – making structural components intelligent

ROBO®SMART Portable Unit

real-time, user-friendly, flexible

mageba

Integrated smart system

Introduction

Structural bearings allow – in the intended direction(s) – relative displacements and/or rotations between structural members whilst transmitting loads in the other direction(s). Their life expectancy depends on traffic loading, accumulated movements, climatic conditions, and above all the type of bearing and the quality of its design, fabrication and installation.

The use of a ROBO®SMART Portable Unit can enable the life-cycle cost of a bearing to be optimised. Using such a system, the structure's behaviour can be assessed on the basis of punctually individual measured parameters, with live data viewable at any common Laptop.

mageba smart bearings

mageba has an extensive track record of supplying structural health monitoring (SHM) systems for various applications, and is also a leading manufacturer of bearings for bridges and other structures. Combining the expertise in both fields enables mageba to now offer "smart" bearings. Any type of bearing from mageba's wide range can be designed and manufactured with an integrated sensing unit – considerably simplifying its installation and reducing the total cost of ownership. Therefore, the potential use of an SHM system should ideally be considered already when specifying the bearing. Previously installed bearings can also be retrofitted for obtaining such measurements.

Features

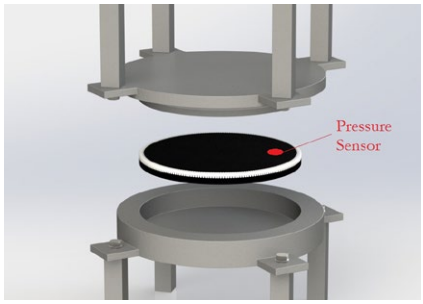
- Small, self-powered and integrated acquisition unit
- Precise and durable sensors
- Robust electronics
- Robust case with carrying strap
- Data transfer via USB to any common laptop
- Data presentation via desktop application (software included)
- Allows measurements at up to two bearings in parallel

Sample benefits for the end user

- Measurement of actual load distribution (e.g. overload or underload as a result of soil settlements, bridge refurbishments, extraordinary heavy load transports)
- Measurement of maximum loads and movements for bearing replacement projects, leading to optimised design of the new bearings/expansion joints based on actual required load, rotational and movement capacities
- Real-time availability of other parameters (e.g. structural and air temperature, bridge deck displacement, traffic load, etc.)

ROBO®SMART Portable – key data:

Measurements:	Displacement, load, inclination (max, min, accumulated)
Hardware:	Sensors, acquisition unit, battery, durable enclosures
Software:	delivered with portable unit (desktop application)
Installation:	Integrated load cell or movements sensor ex-works in bearing
Accuracy:	Up to 0.1 % of full scale measurements
Frequency:	1 Hz



Load measurement


Displacement measurement


Portable measurement unit

mageba ROBO®CONTROL systems


"Portable"


Permanent "BASIC"


Permanent "ADVANCED"

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