SHM602 Structural Health Monitoring System

SHM602 is an advanced integrated system for structural health monitoring (SHM) of buildings and civil structures based on the analysis of the response of these structures to environmental (traffic or wind action) or artificial excitations. Differently from traditional systems, based on expensive seismic analog transducers and on invasive radial connections with the control unit, the SHM602 relies on digital technologies and on bus connections of the sensors that assure an high degree of reliability and of insensitivity to electromagnetic interferences. The **SHM602** has been developed by Teleco SHM Systems in cooperation with Bologna University and relies on proprietary technologies and algorithms. The system is composed by:

Storage and Control Unit TSD10

- Display: Touch Screen 10"
- Operating temperature: 0°C ÷ +70°C
- Operating humidity: 0 – 85% (non-condensing)
- Consumption: 12W
- Ports: USB, CF, Ethernet 100Mb, RS232
- Bus: 2 RS485 buses
- Max. number of sensors on every bus: 16@20Hz, 8@40Hz, 4@80Hz

Backup power supply TSP02

- Configurable according to specific application requirements

Sensors TSM02

- Operating temperature: -20°C ÷ +80°C
- Operating humidity: 0 – 95% (non-condensing)
- Environment protection level: IP67
- Acceleration range: ± 1500 mg (two axes)
- Noise: σ = 0.32 mg @ 20 Hz
- Temperature measurement range: -20°C ÷ +80°C
- Interface: RS485 bus

Configuration and data acquisition software TBH02

- Selection of the sample frequency (20/40/80 Hz)
- Start/Stop of data acquisition
- Monitoring of acquisition errors

Features

- Sensors endowed with local computational capabilities for the identification of dynamic models
- Connection with the central control and storage unit by means of RS485 bus
- Sampling frequency selectable between 20 and 80 Hz
- Logging of accelerations, temperatures and models
- Access to the recorded data and models also via Internet
- Real-time visualization of the identified model poles and of the power spectra of the signals
- Identification of dynamic models of structures on the basis of environmental excitations (traffic, wind action).

Applications

- Continuous monitoring of the structural integrity of buildings, bridges and other civil and industrial structures
- Evaluation of the integrity of structures after seismic events.
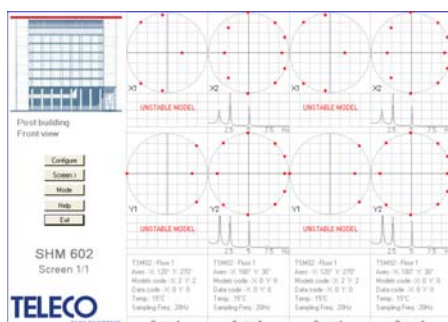
Analysis and visualization software TGH04

- Computation of the power spectrum of the measured signals
- Visualization of the poles of the identified models
- Visualization of the power spectrum of the signals
- Visualization of the sensors allocation
- Analysis of the reliability of the models
- Analysis of the suitability of the structure excitation
- Comparison of the measured frequencies with reference ones