

# STRUCTURAL MONITORING SYSTEM



RAW DATA. REFINED RESULTS.



MONITORING CRITICAL  
INFRASTRUCTURE

SINCE 1989

OUR STRUCTURAL MONITORING SYSTEM IS AN INDUSTRIAL AND FLEXIBLE SYSTEM THAT IS DESIGNED TO MEASURE A WIDE RANGE OF STRUCTURAL RESPONSES THROUGH VARIOUS SENSOR TYPES.

BDI HAS DESIGNED THE SYSTEM SO THAT FIELD DEPLOYMENT IS SIMPLE AND QUICK, MAKING THIS SYSTEM ONE OF THE MOST ECONOMICAL CHOICES ON THE MARKET.



# THE STRUCTURAL MONITORING SYSTEM

## PLATFORM INTERACTIVE DATA HOSTING

Data hosting through Microsoft® Azure that allows:

- + Simple and secure data measurement
- + 24/7 staffed service center
- + Custom alerts and notifications
- + Advanced graphing options



## DATA TRANSFER

- + **STS-SYNC:** Microsoft® Windows® application to collect data on a defined schedule.
- + **Client Servers:** The Core Data Logger can be configured to push data to a client designated server.



## SETUP/CONFIGURATION

- + STS-MONITOR is used for configuring the system, either remotely or through direct on-site connection.
- + Systems can be preconfigured by BDI or by the Client.

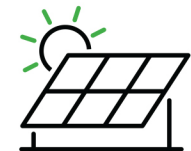


## POWER

Many solutions are available depending on site requirements:

- + 90-220 VAC line input
- + Wide range of solar power options
- + UPS battery backup system
- + Remotely monitor the power system with email/SMS alerts directly from the Core Data Logger in the event of a power failure.

100-240 VAC POWER

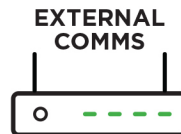


EXTERNAL POWER SOURCE

## EXTERNAL COMMS

Data transfer from the Core Data Logger to an off-site location can be accomplished by:

- + Hard line communication link
- + Cellular modem
- + Satellite modem



## CORE DATA LOGGER

Our industrial-rated Core Data Logger is the essential component that collects, processes, and stores the data from the distributed DAQ nodes.

- + Solid state hard drive
- + Dual network ports
- + Data processing
- + Custom alerts

CORE DATA LOGGER



INTERNAL COMM + POWER



## INTERNAL COMMS & POWER

The communication backbone is standard TCP/IP and the power distribution is 24/48 Vdc. To support this design, we supply the following components:

- + Industrial Ethernet switches
  - Passive Power over Ethernet injection
- + Industrial Ethernet cable
- + Armored Ethernet & power cable
- + Wireless point-to-point comms

REMOTE DAQ CABINET



MAIN CORE DATA LOGGER CABINET

REMOTE DAQ CABINET

## THIRD PARTY HARDWARE/SENSORS

BDI recognized the need to integrate key components that are manufactured by third party vendors so that we can supply a complete system and continue to expand our capability.

- + Vibrating wire sensor interface
- + Environmental sensors
- + Digital cameras
- + Digital sensors
- + Ask us to integrate your sensors!

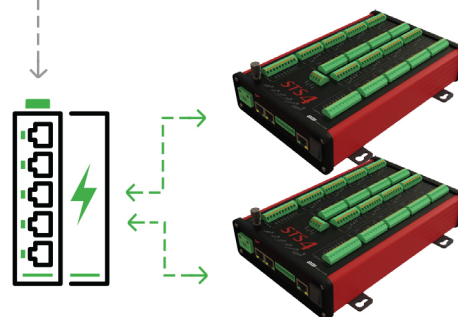
3RD PARTY HARDWARE SENSORS

OR

## DISTRIBUTED NODAL DAQ NETWORK

The architecture of our SMS is to easily distribute remote data acquisition cabinets throughout a structure where individual sensors are connected. We can supply the DAQ nodes or a turn-key solution.

- + 4- or 16-Channel Terminal Input Nodes
- + Ethernet and power distribution
- + Nema 4X enclosures
- + Easy to expand
- + Up to 1kHz sample rate
- + Local disaster recovery data storage



REMOTE DAQ CABINET

# SMS UNIQUE FEATURES

## SOFTWARE

- + Easy-to-configure
- + Powerful features

## POWER

- + 90-220 VAC input
- + Solar power
- + Battery backup

## DIAGNOSTICS

- + Power failure warnings
- + Self testing routines

## OPERATION MODES

- + Triggered events
- + Historic trends
- + Rainflow histogram
- + Frequency response

## DATA

- + Sample up to 1,000 Hz
- + 128 GB local storage

## COMMUNICATION

- + TCP/IP
- + Passive power over Ethernet
- + Cellular/satellite/land line

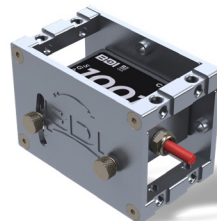
# COMPATIBLE SENSORS



STRAIN TRANSDUCER



ACCELEROMETER



TILTMETER



DISPLACEMENT



PRESSURE TRANSDUCER



FOIL GAGE + COMPLETION MODULE



LOAD CELL



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