

Application Note Real time monitoring of 210 strain gauges

Customer Requirements

To verify the mathematical modeling of a new train, the manufacturer engaged a firm of independent consulting engineers to verify the design and proof load the structure to ensure the design criteria had been met.



Equipment

- 7 DT800s
- 1 Network switch
- PC with Windows 2000
- 14 Strain gauge bridge completion units
- DeLogger™ 4 Pro Software

Sensors

- 210 Strain Gauges
- 5 Resistance displacement transducers
- 1 Load cell

Datataker Solution

After reviewing the Finite Element Analysis model the consulting engineers selected the optimum locations for and applied 210 strain gauges and 5 resistance displacement transducers and a load cell.

Datataker provided contract programming and commissioning of the DT800s and DeLogger 4 Pro software and on-site training for the consulting engineers. The seven dataTaker DT800s were configured for TCP/IP connections and attached to a local area network running from the PC. Using TCP/IP allows for the automatic error correction ensuring data integrity and also enables the user to scale up the number of dataTaker DT800s if more channels are to be added.

The structure was dead weight loaded to pre-determined load levels and the strain gauge responses recorded. During tests the data was viewed in real-time and DeLogger™ 4 Pro database was used to store the data. Microsoft Excel Pivot tables were then used to recover the data from the database for analysis. This greatly simplifies the data collection, manipulation and analysis providing the necessary information to verify design and proof load the structure ensuring the design criteria has been met.

If you need more detail on this application please contact joyce.reid@datataker.com.au

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