



Case Details

The national gymnasium in Beijing, China played a key role during the Olympic Games in 2008. Its iconic status remains afterwards in the country's landscape as a multifunctional gymnasium capable of hosting sporting events and large-scale functions. It is critical that the building structure maintain its rigidity and integrity during the entire designated life-span of the Gymnasium. The Gymnasium structure to date is the widest span of bi-directional spread wire truss frame construction in the world. Due to a lack of engineering research and real application experience it is necessary to carry out a permanent structural monitoring scheme.

Key Requirements

- Long term monitoring solution
- Capacity for high number of sensors

dataTaker Data Logging Products

- 1 Cost effective data logging solutions
- 2 Capable of measuring and logging DC voltage, current and resistance sources in addition to digital signals
- 3 Suitable for small to large scale applications
- 4 Rugged design and construction provides reliable operation under extreme conditions
- 5 Designed and manufactured in Australia to the highest quality standards



An integrator sets up the dataTaker logging system, which monitors the structural integrity of the National Gymnasium

dataTaker Solution

Equipment

- dataTaker DT615 data logger
- dataTaker Channel Expansion Module (CEM)
- GSM Module

Sensors

- Anchor Load Cell sensors
- Vibrating Wire Strain Gauge sensors

Implementation Notes

Following a rigorous evaluation process, the dataTaker DT615 was selected due to its industry-leading capabilities and reliability. Due to the large number of load-cells and strain gauges being used, a dataTaker channel expansion module (CEM) was paired with the logger. The dataTakers flexible power supply ensures guaranteed operation with any power source available on-site anytime.

The DT615 was also paired with a GSM module, which allowed for remote configuration and data retrieval. Alarms were used to identify whether any of the monitored forces were outside their accepted ranges. These alarms could be sent as SMS text messages to the engineers' mobile phone(s). The DT615 can even accept commands sent from selected mobile phone via SMS, offering more controllability for remote monitoring.

DataTaker China further enhanced the already-powerful products by integrating the DT615 data logger, CEM and GPS module into their proprietary DTCL-6152C enclosure which has transformed the entire system to a solid Remote Terminal Unit (RTU). The system has proven to be the ultimate solution, offering the robustness required to sustain the harsh weather conditions for decades to come, yet provides the versatility for real-time equipment management, data exchange and remote monitoring.