



OILFIELD SOLUTIONS

POWERCELL[®]

DATA ACQUISITION SYSTEM

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TECHNICAL HOTLINE: 1 (800) 570-1426



Set-up

MGB Oilfield Solutions coordinates and installs the data acquisition system in the Frac data van to collect read-only specific engine parameters.

The hardware is a small black box that easily fits inside a computer rack-mount or other place out of the way.

The hardware installation is simple, takes minimal time, and does not interrupt current operations or require a power off of the data van.

The data collection system records the same types of information that CAT or Cummins technicians would access through the pump ECMs. The read data points can include or exclude available engine parameters and are configurable based on the setup with the Frac provider.

The data provides insight into fuel consumption and associated emissions and optimizes an overall solution to cut engine hours, minimizing maintenance costs. The goal of the data collection is to maximize the benefits of the PowerCELL solution and achieve fuel and emissions associated with best-in-class operations minimums.

Data Acquisition System

A SECURE IOT SOLUTION

The data acquisition box is the most secure Industrial IoT solution, simplifying your connection between processes and your business. With its ease of use and highly compatible nature, the Data Acquisition System offers a simple solution to the challenges of traditional SCADA systems.

Features

Intelligence at the edge of your control system takes decision-making off your central SCADA system.

Information at your fingertips helps you manage operations and respond quickly to notifications.

Industrial strength for your complex processes to help you stay in control of your business.

Simple solutions to plug-and-play or personalize, supporting most industrial and cloud protocols.

Secure your system with unique embedded device IDs for unparalleled cyber security.

Store and forward data to prevent loss during communication interruptions.

Specifications

Digital Inputs: 10 Channels, Active 3-30VDC

Analog Inputs: 4 Channels, 4-20mA or 0-5VDC, 16-bit

Serial: USB 2.0 & RS-485

Ethernet: Dual 10/100 Mbps Ports

External: 5.25" x 3.15" x 1.37"

Input Voltage: 12-30VDC

Consumption: 3.5W Avg., 5W max

Circuit Protection: 30.5VDC or 2.24A trip

Data Acquisition System

FAQ

What type of protocol does the device run on?

The system supports many common industrial protocols, but for these applications, it uses ASCII over Ethernet locally and MQTTS over cellular.

How does the device connect?

The system connects locally to the ECM via a WebSocket. The ECM has a static local IP which is hit by the data acquisition system over the local LAN port. Specific static IP addresses are determined during installation and startup. The cellular connection of the system is a dynamic IP that only allows outbound connection requests.

What type of hardware connection is required?

A CAT5 cable is plugged into the local network switch to achieve communication with the Frac Van controller. There is an onboard cellular modem on the system that will be used for internet access to send the data to the cloud server.

Who will be granted access to this information?

Only MGB employees are required to QA/QC and process the data. No raw data is shared or distributed beyond collection.

Who's responsible for installing the hardware?

MGB handles the installation of the hardware, which only takes a few minutes.

How do you send information out, and do you provide your own network?

The box installed has dual sim cards inside and makes use of local cellular services.

What type of security/encryption are provided and used?

The connection with the cloud uses TCP encryption over a NAT'd cellular network. The system must initiate the connection with the cloud server. Connecting to the system directly is password protected and must be done on the local network. Remote access to the system for remote support is possible only for specific ports by select support personnel and for limited amounts of time through a dedicated support server over secure SSH tunnels.

How is the server secured, and how is the data collected protected?

Data reaches the cloud through a single MQTTS endpoint requiring authentication via a device-specific certificate. ACLs in the MQTT broker limit which topics (or tags) a specific device is able to read or write. Data from a specific serial number is associated in the cloud with an "organization" or specific client and stored in a database instance specific to that organization. Access to that database is controlled via a unique username/password and IP address white-listing. The database is not exposed to the internet.