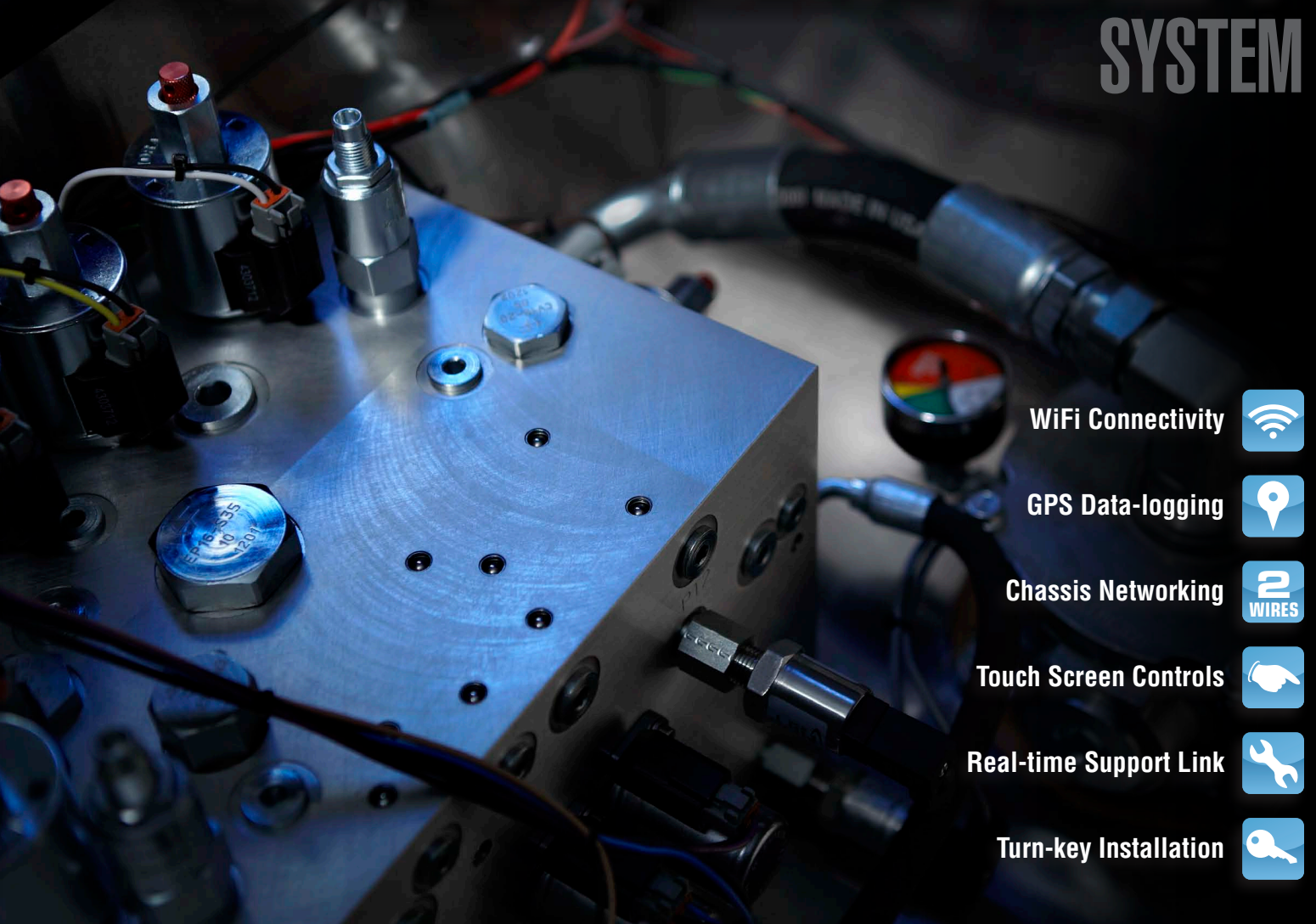


ADVANTAGE+ SYSTEM



WiFi Connectivity



GPS Data-logging



Chassis Networking



Touch Screen Controls



Real-time Support Link



Turn-key Installation



SIMPLY BETTER TECHNOLOGY



**WE BUILD
TRUST.**



SNOW AND ICE SOLUTIONS from MUNCIE POWER PRODUCTS

KEY FEATURES:

- + Expandable functionality for scrapers, wings, etc.
- + Software updates will be available from our website
- + Cylinder functions are operable from touch-button panels and joysticks
- + All cylinder functions are designed for proportional control
- + All system adjustments (including flow metering) to cylinders is controlled from the System Configuration Menu (no screwdriver adjustments)
- + System Configurations can be stored to a thumb drive, PC or the Advantage+ Support Link website server for retrieval and instant upload.
- + Advantage+ is available in a Spreader/Liquid only package
- + Advantage+ valve outputs are current controlled for operational stability
- + Advantage+ valve outputs are monitored for open and short circuit conditions. Operational displays will indicate the current circuit status.
- + Advantage+ controls will change color confirming electric current is flowing to a valve. A better solution to LED's on the valves.

Muncie's Advantage+ systems combine two new and unique technologies to increase reliability and revolutionize the method in which snow and ice removal fleets are operated and maintained.

Our Wi-Fi powered real-time support link enables technicians to remotely view hydraulic system information, electronically adjust valves and system parameters, and keep the truck on the road instead of returning to the garage.

The system employs Muncie's Chassis Network which is a two-wire communication system that eliminates the need for wire harnesses between the operator controls and the valve enclosure.



**DESIGNED FOR UNMATCHED
SERVICE, SUPPORT and VALUE**



REAL-TIME SUPPORT LINK

All of the advantages of having factory support on-site in a matter of minutes. The Advantage+ is equipped with Wi-Fi and an App on its touch screen that connects your truck to Muncie engineers through a dedicated web server.

*In real-time,
Muncie engineers can see:*

- the operation of all controls
- the electrical measurements from inputs and the outputs to valves
- the hydraulic pressures of the pump and valves
- error reports from the system micro-controllers
- all of the system configuration values and even make adjustments



DIAGNOSTIC DATA-LOGGER

Troubleshooting is especially challenging when you cannot see or experience the problem firsthand. Advantage+ has a unique data-log function designed to capture problems that are intermittently present. It continually runs in the background and monitors controls, inputs, outputs and certain microprocessor activities, all at very high sampling rates. It is similar in concept to a high-speed camera.

It allows our engineers to see things like momentary power glitches, intermittent connection problems, and possible operator errors.



CHASSIS NETWORKING

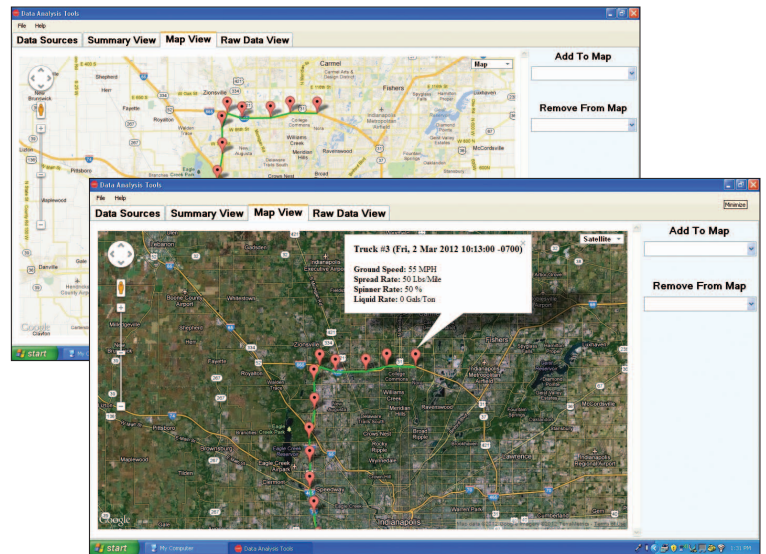
Operator control panel and valve master module commands/data are sent and received through the power connections to the truck. This eliminates wire harnesses between the cab controls and the hydraulic valves.



DATA-LOGGING & GPS

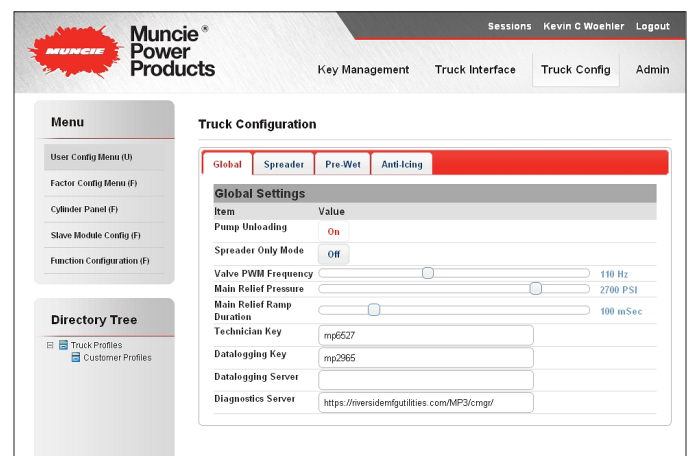
Advantage+ is standard equipped with built-in GPS that records into the data-log output. The data-log can be transmitted automatically by the Advantage+ Wi-Fi to a designated host or can be retrieved with a thumb-drive inserted in the top of the Advantage+ Operator Panel.

Fleet manager data-log report software provides formatted reports with filtering options for specific information, date range, etc. There is also a menu option that generates a Google map with the truck route highlighted. Placing a mouse cursor on a route waypoint will generate a pop-up with recorded data.



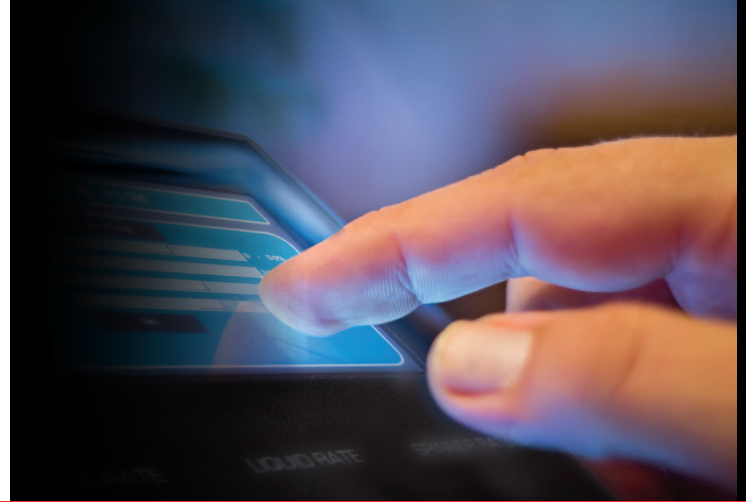
SYSTEM CONFIGURATION MENUS

Advantage+ set-up has been constructed to be intuitive and easy. Menus appear on the screen as folders with tabs labeled by function (Plow, Spreader, Liquid, etc). Most variables can be adjusted from displayed slider bars. System Configurations Menus are pass code protected and are accessible from the Operator Control touch-screen or remotely via Wi-Fi from PC's and laptops. Development work is underway to extend this to Tablets and Smartphones.



TOUCH-SCREEN DISPLAY

The Advantage+ Operator Control Panel uses a color touch-screen that creates vivid easily readable displays. System Configuration Menus are easy to interact with and well organized. Most Configuration Variables are adjusted with slider bars directly on the screen.



PRESSURE SENSORS

Pressure transducers are installed in the Advantage+ Hydraulic Manifold. Hydraulic Pump and Load pressures are displayed on the Operator Control Panel and are part of the measured data sent on the Real-time Support Link to Muncie engineers.

CARTRIDGE VALVE TECHNOLOGY

Cartridge valves are the premium design solution for hydraulic circuit development. Manifolds reduce hose connections and along with cartridge valve choices can greatly reduce operational issues due to contamination. From a maintenance standpoint, cartridge valves can be serviced in minutes and at a fraction of the cost of servicing and replacing stack valves.

HYDRAULIC FLOW SHARING

The Advantage+ Hydraulic design incorporates flow sharing technology. This insures that simultaneous operation of two pieces of equipment (like a plow and spreader) will be able to function even when a pump is at low flow conditions.

SOLENOID CONTROLLED PRESSURE RELIEF VALVES

A very unique aspect of the Advantage+ is its electronically controlled relief valve settings. Pressure relief settings are easily set from slider bar controls in the System Configuration Menus. The system also uses this technology to control pressure spikes in the hydraulics to minimize potential wear and damage to all of the hydraulic components on the truck.

DESIGNED TO SUPPORT

- Gear Pumps and Variable Displacement Piston Pumps
- Spreader operations
 - *Open or Closed-Loop Control*
 - *Groundspeed or Manual control*
- Pre-wetting operations
 - *Configurable for electric or hydraulic pumps*
 - *Open or Closed-Loop Control*
- Anti-Icing operations
 - *Open or Closed-Loop Control*
- Road/Air Temperature Sensors
 - *Displayed readings as well as an active input to the spreader and liquid operations*
- Cylinder operations for Dump Bodies and Plows
- Data-logging with built in GPS and Google mapping
- Wi-Fi is built in for wireless connectivity

