Badger Meter's

Data Acquisition System (DAS)

BadgerMeter, Inc.

Data Industrial®

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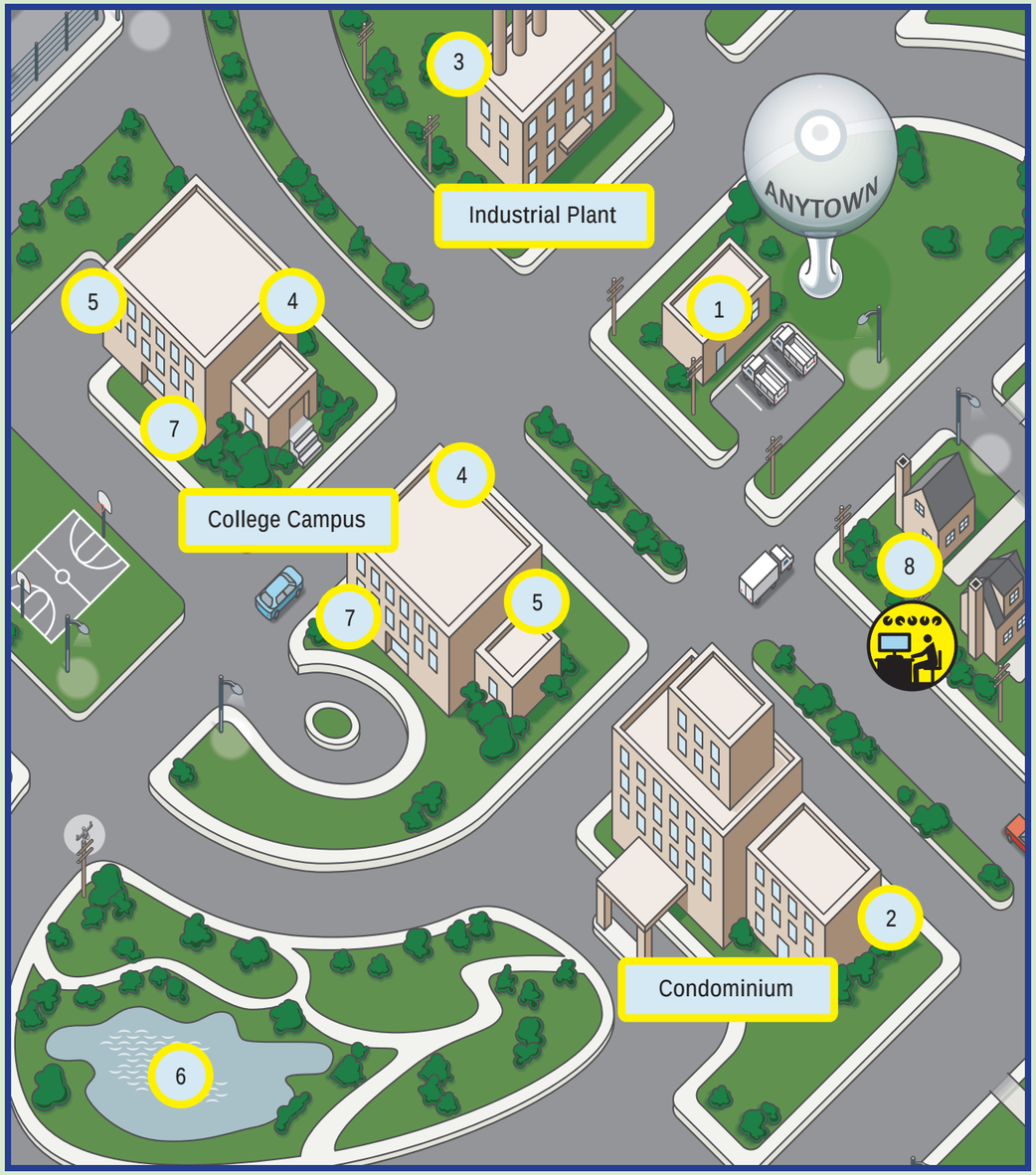
Badger Meter, Inc. is a leading supplier of flow meters and related equipment. Established in 1905, Badger Meter has continued to innovate flow measurement solutions that provide benefits in many applications. Accurately measuring flow and other instrument data is the first part of obtaining information from an application. Collecting and managing that information is the next part.

Instrument data has been collected in a variety of manners. Observing a local display has been a traditional method and remains popular today. Connecting output from a sensor to a data management system on a pulse, analog, or bus communication line is also widely used. In the recent past, wireless technology has allowed for remote connectivity without the need for wires. This of course simplifies the installation of each device.

No matter your choice of how data is gathered, either wired or wireless, the data needs to be stored and managed so it can be used. Dataloggers, databases, and other data storage methods are all found in applications around world. Many of these systems require custom software and hardware and use closed protocol systems that lock a user into that specific infrastructure.

Gathered data can then be used to benefit the user by demonstrating instrument conditions at the times that the data was collected. This is what many users are trying to accomplish in the most simple and cost effective manner possible. This is where the Data Acquisition System (DAS) from Badger Meter comes in by offering these and many more features.



Model 3700

Model 345WT

Model 350T

A8923-4

Example Product Configurations

1. **Water Treatment Plant** 8" mag meter(s) measuring raw sewage coming into the plant
2. **Condo/Apartment** Model 25 used for sub-metering tenants
3. **Industrial Plant** Measuring water used in multiple processes or test labs
4. **College Campus** Sub-metering of water to all buildings on campus
5. **College Campus** Condensate return metering using Model 250B
6. **Irrigation Flow Sensor** on pond pump outlet, Model 220B
7. **Condominium** 6 btu meters per floor, Model 250B with Model 340MB
8. **Industrial Plant Manager** at home, logging onto Model 3700 to respond to alarm

What is it?

The Badger® Model 3700 is a TCP/IP based DAS that allows for simple setup and configuration. Simply connect an Ethernet cable and use standard browser software to connect and configure the unit. The Model 3700 also uses a standard modbus input. Data exchange on this protocol on wired devices or through the Model 345WT modbus mesh network transceiver greatly expands the number of inputs that can be acquired.

How does it work?

Like other technologies, the Model 3700 DAS records input data into a log file that a user can view when needed. The eight dynamic inputs can receive a variety of instrument connections. These can be pulse, resistance, current or voltage. The modbus input allows for up to 250 additional channel inputs. These could be used for expansion of pulse and analog inputs or for adding a variety of modbus based devices.

What is the Model 345WT and how does it work?

The Badger® Model 345WT is a modbus based transceiver. When more than one of these units are used, it creates a self-healing mesh network. This network can be connected directly to the Model 3700 via the modbus input. Each Model 345WT allows for two pulse inputs and a modbus input. These transceivers create a wireless network that benefits many applications by simplifying installation and reduces cost, while adding a large number of device inputs and offering easy expandability for the future.

What is the Model 350T?

The Badger® Model 350T is a short hop Radio Frequency (RF) transmitter that can connect to many scaled pulse outputs. The 350T is a battery powered unit which allows for remote connectivity. The Model 350M is the receiving end of the 350T. This can be installed with a Model 345WT or a Model 3700 and add data into the network.

What if I need more inputs?

The A8923-4 is an I/O expansion module that is modbus based. It allows for four additional pulse inputs and four analog inputs. This device can be added on the modbus network either at the Badger Model 3700 or at any Badger Model 345WT.

Put it all together

Using the Model 3700 by itself or with multiple Model 345WT units and/or with multiple A8923-4 modules creates a data acquisition system that is both highly functional and simple to use and maintain. Adding devices can be done quickly for future expansion. The user can plug the Model 3700 into a LAN and collect the data from literally anywhere in the world.

Where would I use this system?

There are countless applications that could benefit from this technology. College campuses, industrial facilities, military bases, shopping centers, condominiums, irrigation, and remote applications are very common users of these systems.

Badger Meter products compatible with the Data Acquisition System:

SDI Series

The SDI Series is a line of full-featured stainless steel or bronze body insertion flowmeters suited for a wide variety of applications.

200 Series

200 Series flowmeters are available in bronze, stainless steel and plastic versions.They may be mounted in pipe sizes of 2.5” or greater and have a hot tap option.

228 and 250 Series

These meters are part of the 200 Series which utilize a variety of plastic and metal service tees. Ranging in pipe sizes from 1⁄2” to 4”, these meters offer a simple method of installing a flowmeter into smaller line sizes.

4000 Series

The 4000 Series is a compact in-line style impeller flowmeter. Units are available in pipe sizes ranging from 1⁄2” to 3⁄4”, and 1” line sizes in either PVC or PVDF materials.

Wireless Flow Meter

The 350T Radio Transmitter and 350R Radio Receiver pair provide a wireless solution for a variety of flow meter applications.

Accessories

Badger offers transmitters, monitors, relays, and many other accessory items. All of these expand the versatility of our meter products and other technologies.

RCDL Disc Meters -

Positive Displacement - Nutating Disc

The RCDL Disc Meter combines the accuracy of positive displacement design with the reliability and economy of nutating disc technology. Well suited for measuring the flow of water and other fluids, hot or cold, this meter can be combined with most Badger® mechanical and electronic accessories for applications from batching to inventory control.

Industrial Turbo Meters - Turbine Flow

With its rugged design, the Industrial Turbo Meter can withstand the toughest flow conditions. This meter is ideally suited where continuous service and minimal maintenance are required. It is available in various materials and pressure ratings, and can be combined with Badger’s large selection of accessories to suit numerous applications.

Recordall® Turbo Meters - Turbine Flow

The Recordall Turbo Meter is ideally suited for any water application, performing with great accuracy over a wide flow range. It also has very low pressure loss, increasing system efficiency. Sizes available are 11⁄2˝ to 20˝ (DN 40 to DN 500).

Electromagnetic Flow Meters -

Models Magnetoflow®, RESEARCH CONTROL® Mag and M-Series® M-3000 & M-4000

Badger Meter’s advanced electromagnetic designs deliver up to 0.25% accuracy. The non-intrusive design virtually eliminates pressure loss. Since there are no moving parts in the flow stream, maintenance is kept to a minimum. A large variety of size configurations and liner materials are available ranging is sizes from 1/24” to 54” (DN1 - DN1400). Connections are available in flanged, wafer and 3A approved sanitary fittings. Applications can be found in various industries including food and beverage, pharmaceutical, chemical, pulp and paper and mining and water/waste water treatment.

Other Technologies

Many other manufacturer’s devices can be connected to this Data Aquisition System. Intruments with an output can be connected either directly or conditioned with a signal transmitter. This additionally expands the functionality of this sytem.

Connection Devices and Example Applications

Please refer to Application Brief DAB-054-01/DAS FLYER for additional information on connection devices and example applications.

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