



DEK Series Solution Profile

Water Supply and Wastewater Management



Break out from the four walls of your enterprise and monitor anywhere with the DXM Enclosure Kit Series.

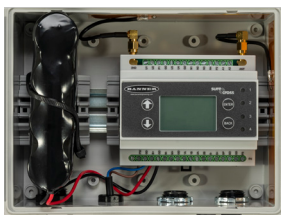
Build standalone monitoring systems with a kit that includes everything needed to deploy an end-to-end solution. This cellular-enabled offering from Banner Engineering arrives complete with a weatherproof enclosure, world class gateway controller, and an optimized solar-charging system with battery power supply.

Prepaid access to cloud software tools will capture critical data allowing you to acquire insights and make data-driven decisions about your operation. Monitor vibration, temperature, humidity, material levels, duty cycles, and pressure while creating alerts to prevent failures and costly downtime.



Kit Features

- Cellular-enabled gateway controller with battery power supply and optimized solar-charging circuit
- Kit includes environmentally rated enclosure, solar panel, battery, antennas, mounting and cabling hardware
- Data inputs include analog and discrete signals with modbus, SDI-12, and wireless data communication
- Prepaid 90 day trial for Banner Cloud Data services and cellular service management with the Banner Cell Data web portal



DXM Enclosure Kit



5W Solar Panel



Banner Cloud Data Services



Banner Cell Data

Model	Description	Radio Frequency	Cell Carrier
DEK100-A1-V	DXM100-A1 VZW Controller, Enclosure with Glands, Solar Panel, and Battery	—	Verizon
DEK100-A1-A	DXM100-A1 ATT Controller, Enclosure with Glands, Solar Panel, and Battery	—	AT&T
DEK100-A2R1-V	DXM100-A1 VZW Controller, Enclosure with Glands, RF Module, Solar Panel, and Battery	900 MHz	Verizon
DEK100-A2R1-A	DXM100-A1 ATT Controller, Enclosure with Glands, RF Module, Solar Panel, and Battery	900 MHz	AT&T



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Customer Industry

Water supply and wastewater management ensures that safe, adequate, and dependable supplies of water will be available for consumption and use.

Background

Water supply and wastewater management is critical to municipal, industrial, and consumer markets. Due to variable consumption rates throughout any given day, it is important to monitor potable water consumption and volume of flow into the wastewater system and the effluent from these systems.

Requirements

Maintain water quality and consumption parameters that meet federal and state compliance regulations

- Water quality monitoring
 - Dissolved oxygen
 - pH
 - Temperature
 - Salinity
- Water level monitoring
 - Reservoirs, tanks, and wells
 - Lakes, ponds, and rivers
- Water Distribution and Effluent Monitoring
 - Pressure
 - Flow rate

Monitor asset performance of water distribution system

- Pumps, motors, and VFDs
- Pipelines
- Valves

Challenges

- Remote locations of assets without available power and network communication
- Collection of data to common repository for analysis and visualization of trends is often difficult with independent systems
- Maintenance checks are costly without preemptive alerts

Solution

The DXM Enclosure Kit (DEK) Series is well equipped to address the requirements of monitoring water supply and wastewater systems and operations. The modbus RTU and SDI-12 capabilities of this solution are standards in this market, and are heavily supported by sensor manufacturers who service this industry. The solution is the pivotal component that can collect data from water quality sensors, flowmeters, pressure sensors, vibration and temperature sensors, as well as liquid level measurement devices. The data is processed and stored within the Banner Cloud where it can be analyzed, visualized, and alert notifications can be delivered.





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The DEK Series is designed to easily implement Banner solutions, as well as sensors and equipment from other manufacturers that assist you with creating the most comprehensive solution for your needs. Below are monitoring considerations within your industry and recommended Banner offerings that meet the requirements of your application.



Water Quality

Water quality metrics can easily be monitored with the DEK solution using your preferred supplier of analytical equipment. These sensors can be integrated with the controller using SDI-12 inputs to measure dissolved oxygen, pH, temperature, salinity, and nutrients within the water source.

Motor and Pump Health

Banner's QM30VT2 Vibration and Temperature sensor can monitor the health of rotating shaft assets such as blowers, pumps, and motors. Monitor pump run time, pump starts/stops, through-current monitoring and water pressure using our BWA-PRESSURE-SENSOR analog transducers. Configure an input on the DXM controller as a pulse counter to monitor flow rates from most flow meters on the market.



Environmental Conditions

The DXM Controller can integrate to SDI-12 and serial weather stations and rain gauges as either wired or wireless connections. Monitor ambient temperature, humidity, wind speed and direction, or full weather station data.

Water Levels

Monitor the level within chemical and day tanks using the K50U ultrasonic sensor that is well suited for those applications. The BWA-PRESSURE-SENSOR-15L is a submersible pressure transducer that can easily monitor water levels within reservoirs, ponds, rivers, and lakes.

