



**Littelfuse®**

Expertise Applied | Answers Delivered

WATER/WASTEWATER  
PRODUCT CAPABILITIES

# Robust Protection and Controls for Water/Wastewater Critical Infrastructure

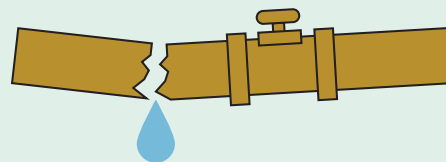


Trust your motor and pump protection to the experts. Littelfuse industrial products continuously protect critical water/wastewater operations with robust designs that stand up to harsh conditions such as vibration, hydrogen-sulfide, extreme temperatures, and humidity.

## **Field Success Story**

*One customer completely trusts Littelfuse MotorSaver® after experiencing a phase-loss situation on a 200 hp motor. The customer had upgraded and installed a 201A-AU protection relay for the motor. The Littelfuse relay saved them from replacing their \$30,000 motor and kept their de-rag operation from going offline and instantly backing up the entire treatment plant and spilling waste in multiple locations.*

Littelfuse protects the most critical parts of your operation. Our field application engineers can help you update your protection to extend the life of your equipment and improve worker safety.



**More than 50% of U.S. municipal water & wastewater infrastructure is nearing the end of its useful life.**

*Source: Bluefield Research, May 2016*



**Over the next 10 years, municipal utilities are set to invest over US \$532 billion in capital improvements to address aging water & wastewater infrastructure and rising population demands for new water supplies.**

*Source: Bluefield Research, May 2016*

# Upgrade Your Protection and Controls to Extend Equipment Life

LITTELFUSE RECOMMENDED PROTECTION	WATER/WASTEWATER APPLICATIONS					
	WATER TREATMENT PLANTS	LIFT STATIONS	WATER TOWER	WATER WELL SYSTEMS	ODOR CONTROL SYSTEMS	PUMPING STATIONS
UL Fuses	✓	✓	✓	✓	✓	✓
Class CC & Midget Fuses	✓	✓	✓	✓	✓	✓
Power Distribution Blocks	✓	✓	✓	✓	✓	✓
Bluetooth* Overload Relays	✓	✓	✓	✓	✓	✓
Enhanced Overload Relays	✓	✓	✓	✓	✓	✓
Voltage/Phase Monitors	✓	✓	✓	✓	✓	✓
Alternating Relays	✓	✓				✓
Intrinsically Safe Relays	✓	✓				
Seal-Leak Detectors		✓				
Pump Controllers		✓	✓			✓
Time-Delay Relays	✓	✓				✓
Flashers		✓			✓	✓
Arc-Flash Relays	✓	✓			✓	✓
Industrial GFCIs	✓					✓
Ground-Fault Relays	✓	✓	✓	✓	✓	✓
Contactors					✓	✓
Transformers	✓	✓		✓		✓

\*Bluetooth is a trademark of its respective owner.



# Product Portfolio and Features

## MOTOR & PUMP PROTECTION

### Bluetooth\* Enabled Overload Relay

Communicate directly with multiple MP8000 relays through the Littelfuse App on your smartphone. Monitor and control without the need to open the panel.



- Stand next to the motor or pump—not the relay—to monitor start up on new installations
- Control and view relay settings from up to 30 feet away\*\*
- Stores up to 1,000 date/time stamped events with trip cause and more
- One model works on all motors 90 V ac to 690 V ac single or 3-phase (and medium voltages with use of PTs)



### Enhanced Overload Relay

Combines voltage/phase protection in addition to under/overload protection for motors. Protects motors from conditions resulting in motor windings overheating and burning insulation causing motor failure. Communications optional.



- Protects against phase loss, reverse phase, over/under voltage and unbalanced voltage
- Underload protection keeps motors from running unloaded
- Real-time voltage/current readings and fault codes
- Overload protection for up to 600 hp motors, any trip class

### Voltage/Phase Monitors

Prevent motors from running at temperatures above approved ratings, and provide protection due to blown fuses, broken wires or worn contacts. These monitors help to prevent damaged machinery and injury of personnel.



- Protects against phase loss and phase reversal
- Unbalanced voltage protection
- Low- and high-voltage trip

### Alternating Relays

Used to alternate between two loads and are commonly used in duplex pumping applications to balance the runtime of both pumps. The built-in debounce feature prevents the relay from changing state if the switch or float contact bounces momentarily.



- Debounce time delay prevents nuisance actuating caused by waves in the tank
- Duplexing models to handle lag vs lead pump applications
- LED indicators for quick visual load operation reference in duplexing applications

### Pump Controller

This 5-channel pump controller handles multiple pump applications and can even act as a 5-channel switch. Supports industry standards for pump-up and pump-down configurations and can indicate low, high, and out-of-sequence alarms. Can also be used as alternating and non-alternating pump control for jockey or emergency pumps.



- Duplex, triplex, or quadplex pump control
- Variable time delay/lag pump delay from 2 to 255 seconds
- Intrinsically safe version available

### Time-Delay Relays

Regulate the timing of pump controls; for example, delaying the restart of pumps after a power loss.



- Prevents rapid cycling of pumps
- Backup resistive heating sensor
- Encapsulated to protect against shock vibration
- Multifunction model replaces thousands of competitive models

### UL Fuses

Littelfuse UL fuses protect your system from overload and high overcurrent. Littelfuse fuses are chosen over breakers due to their higher interrupt ratings, quicker response time, easy coordination, and no calibration required.



- Indicating and non-indicating versions
- Engineered to maximize longevity and minimize opening times
- High short-circuit current rating (SCCR)

### Midget & Class CC Fuses

10 x 38 mm midget and Class CC fuses help provide supplemental overcurrent protection and have the capability to limit currents with fast-acting reliability.



- Save 45 % to 75 % space
- Fast-acting
- High-interrupting capacity
- Excellent current limitation

### Fuse Blocks & Holders

Enable easy fuse installation and replacement with fuse blocks, fuse holders, and fuse accessories.



- Compact design provides space savings
- Universal and DIN-rail mounting with optional DIN-clip covers
- Indication available
- Snap to release, no tools required

### Power Distribution Blocks

Specially designed covers provide protection against accidental shorting between poles caused by loose wires, tools, or other conductive material. They also protect personnel from accidentally contacting energized connectors.



- Meets UL standards
- Space-saving designs
- Integrated touch-safe cover to increase safety
- Mounts to DIN rail or panels

\*Bluetooth is a trademark of its respective owner.

\*\*Bluetooth connectivity range may be reduced depending on the smartphone/tablet used, enclosure type or environmental factors.

## SAFETY

### Intrinsically Safe Relays

Single or multi-channel, intrinsically safe switch for interfacing between hazardous and non-hazardous areas. Designed to handle multiple uses including pump-up/pump-down controller or switch.



- Meets UL 913
- Finger safe terminals meet IEC 61000 safety requirements
- Isolated output relay allows connection to PLC or control voltage
- ISS-105 meets IEC EMC standards for EFT, ESD, and RFI

### Arc-Flash Relays

Installed in new electrical gear, or easily retrofitted into existing switchgear with little or no configuration. Rapidly detect an impending arc flash and send a signal to interrupt power to protect your personnel and equipment.



- Lower the Incident Energy (IE) and PPE rating of your equipment
- Fast detection in less than 1 ms (select models)
- Flexible sensor configuration for any application
- Continuous sensor health monitoring

### Ground-Fault Relays

Sensitive ground-fault relays featuring advanced filtering will quickly and reliably detect the breakdown of insulation resistance caused by moisture, vibration, chemicals, or dust.



- Microprocessor-based solutions with advanced digital harmonic filtering to prevent nuisance trips
- Non-volatile trip memory retains trip state when de-energized to simplify troubleshooting
- Complete and sensitive protection of variable frequency drives (VFDs) to catch high-resistance ground faults before they escalate, from dc to 6000 Hz

### Industrial Shock Block® GFCI

The SB6100 is vital anywhere people, equipment, and water are present. This product is the first ground-fault circuit interrupter (GFCI) to be listed UL 943C Standard for People Protection in three phase applications. It is the only GFCI device on the market that also monitors the continuity of the ground circuit.



- UL 943C inverse time trip curve detects and interrupts to protect people and reduce the probability of nuisance tripping
- Minimum trip time <20 ms reduces the risk of ventricular fibrillation for leakage current of 250 mA and above
- Exceeds UL 943C Class A standard with fixed trip level of 20 mA to provide personnel protection for systems with leakage current higher than the required 6 mA
- Provides shock protection in a variety of applications, including on portable/submersible pumps



## INDUSTRIAL CONTROLS

### Contactors

Act as an on/off switch controlled by thermostats, pushbuttons and manual interfaces, using a low current signal to switch a high current load.



- Designed with consistent silver thickness for increased product life
- Rigorously tested and validated in house
- Available in multiple mounting and termination options
- Listed to UL 508
- CSA File No. 221260 (1456104)

### Transformers

Engineered to change one ac voltage to another by magnetic induction.



- Available with primary and secondary voltages between 20 to 500 VA
- UL/CUL recognized 5085

## NOTIFICATION

### Flashers

Used to control inductive, incandescent or resistive loads, the FS100 series offers 1 A (fullwave) or a 2 A (halfwave) steady state, with a factory fixed flash rate of 75 FPM or fixed, custom flash rate ranging from 45 to 150 FPM. Ideal for applications where cost is a factor.



- Compact size: 38 x 23.9 mm (1.5" x 0.94")

### Seal-Leak Detectors/Liquid Level Control

Detect the presence of conductive liquids and sense seal failures on submersible pumps.



- Debounce time delay prevents nuisance actuating caused by waves in the tank
- Versatile use in pump up or pump down applications
- Compact design
- Single or dual channel models

# Water/Wastewater Applications

## A Water and wastewater treatment plants

### Safety

- Arc-Flash Relays
- Ground-Fault Protection
- Intrinsically Safe Relays



### Motor and Pump Protection

- Bluetooth\* Overload Relays
- Enhanced Overload Relays
- Voltage Monitors
- Alternating Relays
- Time-Delay Relays
- UL Fuses, Blocks and Holders
- Power Distribution Blocks

### Industrial Controls

- Transformers

## B Water wells and pumping stations containing booster pumps, switchgear and MCC to move fresh water, wastewater, and treated water

### Safety

- Arc-Flash Relays
- Ground-Fault Protection
- Industrial Shock Block® GFCIs

### Motor and Pump Protection

- Bluetooth\* Overload Relays
- Enhanced Overload Relays
- Voltage Monitors
- Alternating Relays
- Pump Controllers
- Time-Delay Relays
- UL Fuses, Blocks and Holders
- Power Distribution Blocks

### Industrial Controls

- Transformers

### Notification

- Flashers



## C Water tower pumps to keep tanks full of fresh water

### Safety

- Arc-Flash Relays
- Ground-Fault Protection

### Motor Protection

- Bluetooth\* Overload Relays
- Enhanced Overload Relays
- Voltage Monitors
- Pump Controllers
- UL Fuses, Blocks and Holders
- Power Distribution Blocks



**D Storm-water pumping stations to move water runoff from reservoirs to irrigation systems**

**Motor and Pump Protection**

- Bluetooth\* Overload Relays
- Enhanced Overload Relays
- Voltage Monitors
- Alternating Relays
- Pump Controllers
- Time-Delay Relays
- UL Fuses, Blocks and Holders

**Industrial Controls**

- Contactors
- Transformers

**Notification**

- Flashers
- Seal-Leak Detectors



**E Odor control systems with switchgear and motors**

**Safety**

- Arc-Flash Relays
- Ground-Fault Protection

**Motor and Pump Protection**

- Bluetooth\* Overload Relays
- Enhanced Overload Relays
- Voltage Monitors
- UL Fuses, Blocks and Holders
- Power Distribution Blocks

**Notification**

- Flashers



**F Lift stations to pump wastewater from municipalities to treatment plants**

**Safety**

- Intrinsically Safe Relays

**Pump Protection**

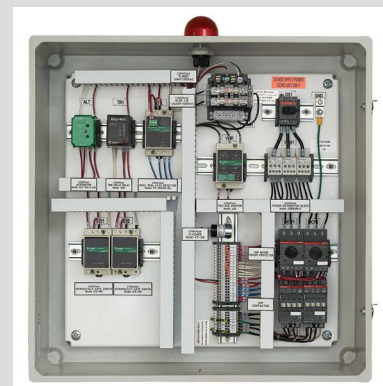
- Bluetooth\* Overload Relays
- Enhanced Overload Relays
- Voltage Monitors
- Alternating Relays
- Time Delay Relays
- UL Fuses, Blocks and Holders
- Power Distribution Blocks
- Pump Controllers

**Industrial Controls**

- Transformers

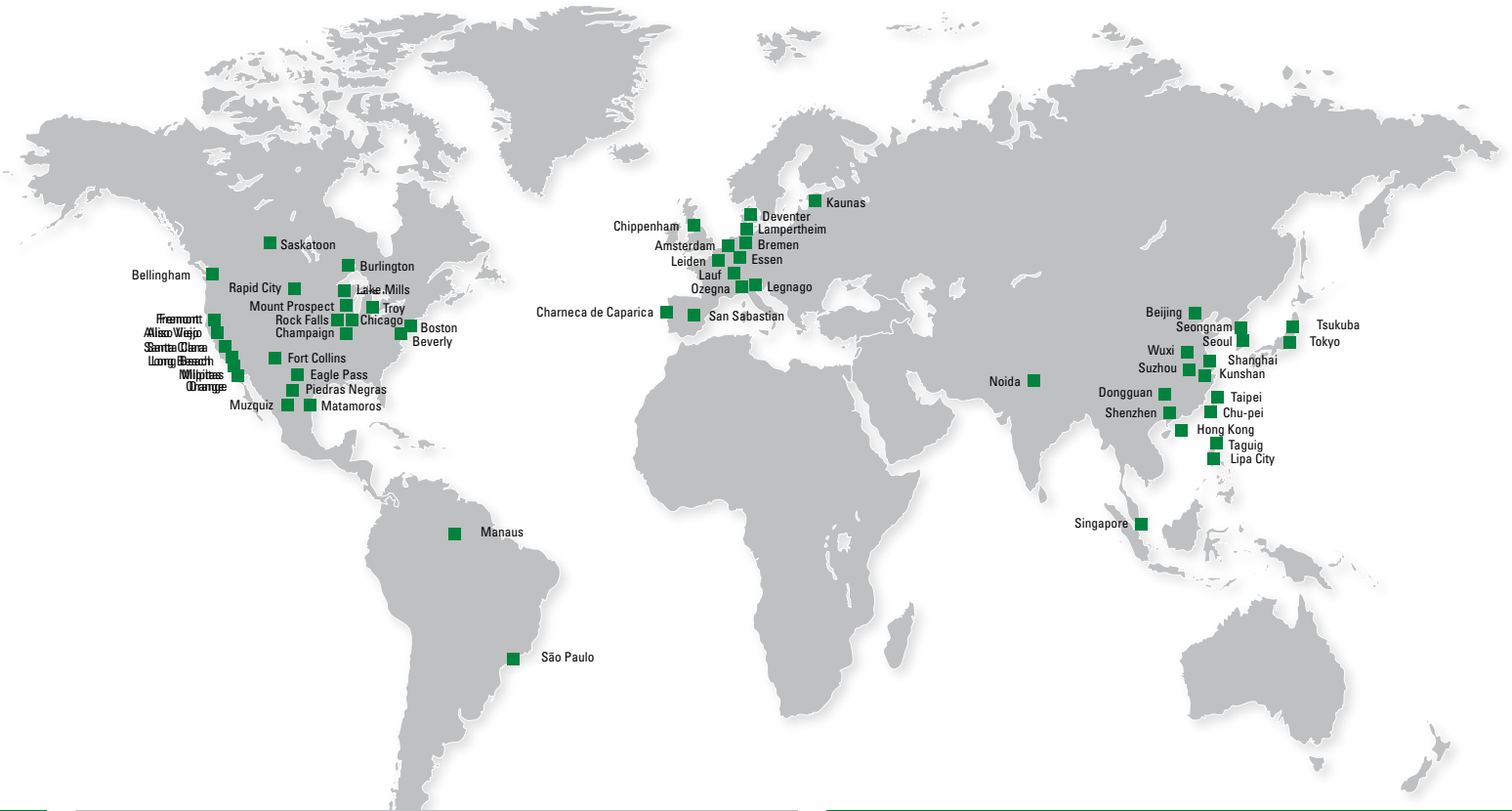
**Notification**

- Flashers
- Seal-Leak Detectors



\*Bluetooth is a trademark of its respective owner.

# LOCAL RESOURCES FOR A **GLOBAL** MARKET



## Littelfuse.com/Water

For a comprehensive library of resources including datasheets, product manuals, white papers, application guides, demos, online design tools, catalogs, and more, visit [Littelfuse.com/TechnicalResources](https://www.littelfuse.com/TechnicalResources)

### North America

**Littelfuse World Headquarters**  
8755 West Higgins Road, Suite 500  
Chicago, IL 60631, USA

**Littelfuse SymCom**  
1241 Concourse Drive  
Rapid City, SD 57703, USA

**Littelfuse Startco**  
140 – 15 Innovation Boulevard  
(The Galleria Building)  
Saskatoon, SK S7N 2X8, Canada  
Tel: +1-306-373-5505

**Hartland Controls** now part of **Littelfuse**  
807 Antec Road  
Rock Falls, IL 61071, USA  
Tel: +1-815-626-5170

**Technical Support:**  
Tel: +1-800-TEC-FUSE  
E-mail: [techline@littelfuse.com](mailto:techline@littelfuse.com)

**Customer Service:**  
Tel: +1-800-227-0029  
E-mail: [PG\\_CSG@littelfuse.com](mailto:PG_CSG@littelfuse.com)

### Asia

**Littelfuse**  
Unit 1604B Desay Building,  
Gaoxin Nanyi Ave.  
Hi-Tech Industrial Park  
Nashan District  
Shenzhen, 518057, China  
+86 755 8207 0760

### Europe

**Littelfuse**  
Julius-Bamberger-Str. 8a  
Bremen, D-28279, Germany  
+49 421 82 87 3 147



Littelfuse products are certified to many standards around the world. To check certifications on specific components, please refer to the specific product datasheet on Littelfuse.com.

**Disclaimer Notice** – Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at [www.littelfuse.com/product-disclaimer](https://www.littelfuse.com/product-disclaimer).