



### PROTECT VALUABLE EQUIPMENT

**Motors and Pump Controls** are used in lift stations, booster stations, treatment plants, water well pumps, and more. **Motor/Pump Protection** is used in single- and three-phase water well pumps, center pivot irrigation, and aerators. **Timing Controls** are used in single- and three-phase motors in water well pumps, center pivot irrigation, and in water and wastewater treatment plants

	Littelfuse Part # Product Description	Product Images	Benefits	Features	Competitor Part #
Motor Protection	<b>201A-AU, 460</b> Three-phase voltage monitors	 	Protects motors from adverse voltage conditions, which damage the motor windings.	<ul style="list-style-type: none"> <li>■ <b>201A-AU</b> 8-pin plug-in style. DIN-rail or surface mountable via OT08PC octal base.</li> <li>■ <b>460</b> Standard surface or DIN-rail mountable.</li> <li>■ Protects from phase loss, low and high voltage, voltage unbalance, and phase reversal and rapid cycling conditions.</li> <li>■ Universal range from 190-480 VAC and 50/60 Hz.</li> <li>■ Transient protection meets IEEE and IEC standards.</li> <li>■ Adjustable nominal voltage, trip delay, restart delay, and unbalance trip provide versatility for a variety of applications.</li> </ul>	<p><b>201A-AU</b> <b>Diversified:</b> SLAXXXASA, SUAXXXASA, SLDXXXASA, SLU 100ASA, PRA100AFA <b>Time Mark:</b> 257B, A257B, 258B, A258B, 257BM, A257BM <b>Macromatic:</b> PMPU</p> <p><b>460</b> <b>Diversified:</b> SLBXXXALEA, SLBXXXALER, SLU100ASD, SLA230ALE, SLCXXXALE, SLJXXXALE, SLMXXXASE, SLIXXXALE, SLMXXXASE <b>Time Mark:</b> series 263, 265, 200, 2642, 2652, 2644, 158, 246 <b>Macromatic:</b> PMDU <b>A-1 Components:</b> EAC-800 series <b>Agastat:</b> PMA series <b>Crouzet:</b> UFR2 series Siemens (Furnas): 470A32*X1 (*=D, E, G, H, R) <b>Watsco:</b> EAC-800 series <b>RK Electronics:</b> PVC400AR</p>
	<b>MP8000</b> Bluetooth* overload relay		Smart, universal, and enhanced overload relay can communicate directly with smartphones and tablets from Bluetooth. Monitor and control the relay without the need to open the panel.	<ul style="list-style-type: none"> <li>■ Stand next to motor—not and relay—and monitor motor startup.</li> <li>■ Improves safety: monitor the motor from up to 30 feet away.</li> <li>■ Minimal wiring allows for quick setup.</li> <li>■ One model works on all single- and three-phase motors with operating voltages of 90-690 VAC and more than 700 V via the use of potential transformers.</li> </ul>	In some applications, <b>MP8000</b> can replace some of the Siemens Simocode, Eaton C441 Motor Insight, Franklin Submonitor, Square-D TeSys-T, Rockwell E-3 products and some GE Multilin products. Contact technical support for details.
	<b>777-KW/HP-P2</b> Three-phase voltage and current monitors		Protects motors from adverse voltage and current conditions that damage to the motor windings. Provides underload protection depending on power, which is ideal for pumping applications.	<ul style="list-style-type: none"> <li>■ Protects from overloads (of any trip class), underloads. (dry running pumps), low and high voltage, phase loss, phase reversal, and unbalanced voltage and currents.</li> <li>■ Provides Class II ground fault detection.</li> <li>■ Optional communications to SCADA.</li> </ul>	In some applications, <b>777-P2</b> series can replace some of the Siemens Simocode, Eaton C441 Motor Insight, Franklin Submonitor, Square-D TeSys-T, Rockwell E-3 and some of the GE Multilin products. Contact tech support for details.
Alternating Relays	<b>ALT115-S-SW</b> Duplex alternating relay for pumps with one float input		Alternates between two pumps within each demand cycle to balance the runtime of each cycle.	<ul style="list-style-type: none"> <li>■ Input voltage 95-125 VAC (24 VAC and 230 VAC models available).</li> <li>■ Compact design saves panel space. Uses 8-pin base.</li> <li>■ Use in single high level float applications.</li> </ul>	<p><b>Diversified:</b> ARB120ABA, ARA120ABA <b>Time Mark:</b> 261S120, 261ST120 <b>Macromatic:</b> ARP120A6R <b>Crouzet:</b> PJRS110A <b>Motor Protection Electronics:</b> 008-120-10S</p>
	<b>ALT115-X-SW</b> Cross-connected duplex alternating relay for pumps with two float inputs		Alternates between two pumps within each demand cycle to balance the runtime of each cycle.	<ul style="list-style-type: none"> <li>■ Input voltage 95-125 VAC (24 VAC and 230 VAC models available).</li> <li>■ Compact design saves precious panel space, uses 8 pin base.</li> <li>■ Cross connected DPDT relay.</li> </ul>	<p><b>Diversified:</b> ARB120ACA, ARA120ACA <b>Time Mark:</b> 261DX120, 261DXT120 <b>Macromatic:</b> ARP120A3R <b>Crouzet:</b> PJRXS110A <b>Motor Protection Electronics:</b> 008-120-11S <b>Dayton:</b> 6C052 <b>Multicomp:</b> MCY98 <b>Warrick Controls:</b> AM1A2</p>
	<b>PC-105</b> Five-channel multiple pump controller and relay switch		Operates up to four pumps for a variety of configurations. Provides optional high-level, low-level, and out-of-sequence alarms are selectable. Saves panel space, and reduces wiring and labor.	<ul style="list-style-type: none"> <li>■ Duplex, duplex SPS, triplex and quadplex pump control.</li> <li>■ Pump up or pump down functions.</li> <li>■ DIN-rail or surface mountable.</li> </ul>	<p><b>Diversified:</b> ISO-120-AFN</p>

	Littelfuse Part # Product Descriptions	Product Images	Benefits	Features	Competitor Part #
Intrinsically Safe Relays	<b>ISS-105-ISO</b> Five-channel intrinsically safe <sup>1</sup> relay switch		Five-channel relay switch designed for applications with switch inputs in hazardous locations.	<ul style="list-style-type: none"> <li>Five-channel intrinsically-safe switch.</li> <li>LEDs provide proof of input and output activation.</li> <li>DIN-rail mounted. 120 VAC input, AC line frequency 50/60 Hz. for a single-channel version, use our <b>ISS-100</b> or <b>ISS-101</b>.</li> </ul>	<b>ISS-105-ISO &amp; ISS-101</b> Contact technical support for competitor cross references. <b>ISS-100 Single-Channel Model</b> <b>Diversified:</b> ISO-120-AFN
	<b>ISS-105</b> Five-channel intrinsically safe pump controller and relay switch		Operates up to four pumps in a wide variety of configurations, such as duplex, triplex or quadplex, with selectable alarm output options.	<ul style="list-style-type: none"> <li>DIN-rail or surface mountable. Finger-safe terminals.</li> <li>Duplex, duplex SPS, triplex and quadplex pump control.</li> <li>Pump disable switches and pump up or pump down control.</li> </ul>	<b>Diversified:</b> ARM-2003, ARM-2010, ARM-2011, ARM-120-AFE, ARM-120-AFEP, ARM-120-AAE, ARM-120-ABE, RM-120-ACE, ARM-120-ADE, ARM-120-AGE, ARM-120-AHE, ARM-120-AJE.
Seal-Leak Detectors	<b>201-100-SLD</b> Seal-leak detector		Detects seal leaks submersible pumps to prevent damage.	<ul style="list-style-type: none"> <li>LED Status Indicator. 4.7 k to 100 kΩ adjustable sensitivity.</li> <li>8-pin plug-in style. DIN-rail/surface mountable via octal base. Use <b>460-15-100-SLD</b> for a surface or DIN-rail mount application.</li> </ul>	<b>Time Mark:</b> 409 <b>Macromatic:</b> SFP120A100 <b>Diversified:</b> SPM120AAA100K
	<b>PC-102CICI-DL</b> Dual-channel seal-leak detector		Designed for use with two submersible pumps. Detects seal leaks in pumps to prevent damage.	<ul style="list-style-type: none"> <li>Two form c-isolated contacts with LED status indicator.</li> <li>4.7k to 100kΩ adjustable sensitivity.</li> <li>DIN-rail or surface mountable.</li> </ul>	<b>Macromatic:</b> SFP120C100 (8-pin plug-in) <b>Diversified:</b> SPM120ABA100K (8-pin plug-in) <b>Time Mark:</b> 4092-120 (8-pin plug-in)
Flashers	<b>FS126 &amp; FS126RC</b> Pump control panel flasher		Flashes an alarm indication light and/or pulse an audible alarm when a high level condition occurs.	<ul style="list-style-type: none"> <li>Fixed-flash rate 75 FPM.</li> <li>1A AC, fullwave output. Input voltage 120 VAC.</li> <li>Compact size.</li> <li>CE and CSA Approved; UL Recognized.</li> </ul>	<b>FS100</b> series (e.g. FS126, FS126RC) can replace multiple flashers from Airotronics TEKR, Infitec TFS, Artisan 4210, Amperite DF and Diversified's ETN series. Contact technical support for details.
The FS126 is designed for incandescent and resistive loads, such as lamps or small heating elements. The FS126RC can also be used with inductive loads like electromechanical relays, contactors, small motors, and transformers.					
Timers	<b>KRDM421</b> Delay-on-make timer <sup>2</sup> <b>KRDB421</b> Delay-on-break timer <sup>3</sup>		Provides a debounce delay (for turbulence) and prevent rapid cycling of a pump, or to eliminate contactor chattering, which can be caused by a defective float switch. Extends the runtime of pumps (when necessary) after demand is met.	<ul style="list-style-type: none"> <li>On-board knob adjusts delays from 1–100 s.</li> <li>10 A, SPDT output contacts, 2 in. x 2 in. panel-mount package.</li> <li>Input voltages 120 VAC, AC line frequency 50/60 Hz-. Solid-state timing circuit provides excellent repeat accuracy and stability.</li> <li>Fully encapsulated to protect against shock, vibration and humidity.</li> </ul>	<b>KRDM421</b> <b>Macromatic:</b> THR-10262-31 <b>Airotronics:</b> TGC10100A1 <b>Ametek NCC:</b> Q1T-00060-341 <b>KRDB421</b> <b>Macromatic:</b> THR-11662-31T <b>Airotronics:</b> TGML10100A1 <b>Diversified &amp; Time Mark:</b> Several options are available (Contact technical support for details)
UL Class fuses/Blocks	<b>FLNR_ID, FLSR_ID, LLNRK, LLSRK_ID</b> series U L class RK5/RK1 fuses <b>JTD_ID</b> series U L class J fuse <b>CCMR</b> series U L class CC fuse		Allows for motor startups while providing optimal short circuit and overload protection for critical motor and pump applications.	<ul style="list-style-type: none"> <li>Class R fuses offered in 250 VAC (<b>FLNR_ID/LLNRK</b>) and 600 VAC (<b>FLSR_ID/LLSRK_ID</b>) options up to 600 A.</li> <li>Class J fuses provide similar protection to Class R but in a physically smaller case.</li> <li>Class CC fuses offer the smallest 600 VAC protection available up to the 30 A size.</li> <li>Extremely current-limiting to help minimize potential damage to equipment in the event of short a circuit.</li> </ul>	<b>FLNR_ID / FLSR_ID / LLNRK / LLSRK_ID</b> <b>Eaton Bussmann:</b> FRNR / FRSR / LPNRK(SP) / LPSRK(SP) <b>Mersen:</b> TRNR / TRSR / A2DR / A6DR <b>JTD_ID</b> <b>Eaton Bussmann:</b> LPJ(SP) <b>Mersen:</b> AJT <b>CCMR</b> <b>Eaton Bussmann:</b> LPCC <b>Mersen:</b> ATDR

<sup>1</sup> Intrinsically safe: specially sealed relay switch for hazardous locations that limits the available electrical energy to nonincendive levels. This prevents sparks from occurring during short circuit or failure, which can cause an explosive atmosphere (i.e. flammable gas in a waste plant) to ignite.

<sup>2</sup> Delay-on-make timer: upon application of input voltage, the time delay (t) begins. At the end of the time delay (t), the output is energized. Input voltage must be removed to reset the time delay relay & de-energize the output.

<sup>3</sup> Delay-on-break timer: once the input voltage is applied, the time delay relay is ready to be activated. When the relay is activated, the output is energized. Once the relay is deactivated, the time delay will begin and the output will remain energized during timing. At the end of the time delay, the output becomes de-energized.

This tool is intended to be used only as a guide. The user must verify that the part is appropriate for the application.

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