# Non-Intrinsically Safe Relays
# Boost Your Sensor's Load Handling Ability

- SPST, N.O. Operation
- AC or DC models
- Amplify current handling capability of sensors for controlling high power loads
- Compact, polysulfone bodies are totally encapsulated
- Impervious to shock or vibration
- Solid-state reliability

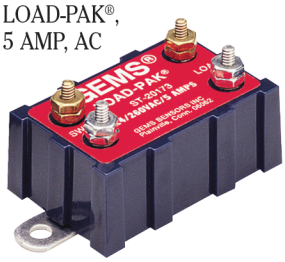
GEMS solid-state switching units perform the functions of electro-mechanical relays, with the added reliability and advantages inherent in solid-state. Compact, totally encapsulated, and impervious to shock or vibration, these units mount anywhere… even directly on working machinery.

**LOAD-PAKS:** integrated, solid-state switches that amplify current handling capabilities of sensors for controlling high power loads. SPST, N.O. operation, AC and DC models.

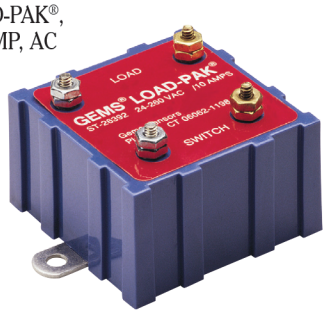
**SPDT-PAKS:** enable one low-current sensor to control two independent loads up to 5 amps each. Switching is N.O. for one load and N.C. for the other.

**FLIP-PAKS:** provide low-current, "Start-stop" or "on-off" switching for industrial motor, liquid level and other control systems. Units hold operational state up to 1/2 second during momentary power loss to cut nuisance shutdowns; low voltage protection is inherent. 120 VAC and 240 VAC models handle loads to 5 amps.

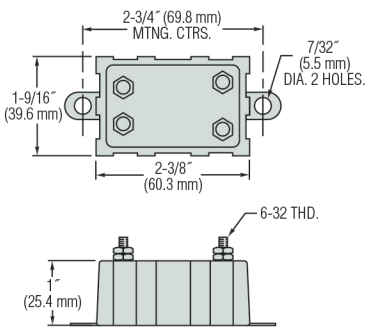
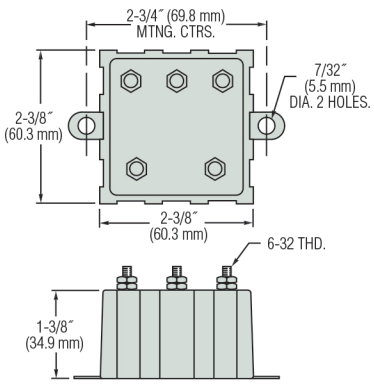
LOAD-PAK®, 5 AMP, AC



LOAD-PAK®, 10 AMP, AC




## Dimensions

| LOAD-PAK, 5 Amp. A.C. | LOAD-PAK, 10 Amp, A.C.<br>LOAD-PAK, 2 Amp, D.C.<br>SPDT-PAK, FLIP-PAK |
|---|---|
|  |  |

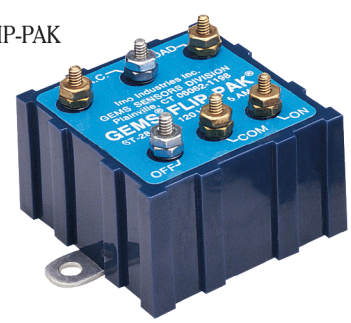


## Intrinsically Safe

LOAD-PAK®, 2 AMP, DC

Certified intrinsically safe under MSHA Certification No. 1951 for use on permissible equipment, for Group D use only.


FLIP-PAK




SPDT-PAK


## Electrical Information

**DC LOAD-PAK:** Switching is by means of B+ closure. . .the DC LOAD-PAK must be wired to the polarity shown. REVERSING POLARITY WILL DESTROY THIS UNIT.

**SPDT-PAK:** This unit is designed to operate with a load connected to each of the two outputs. These loads must be 10 watts, minimum, for correct SPDT switching. One load used alone must be connected to the N.O. terminal. With this load, which may be less than 10 watts, the unit will operate the same as an SPST unit.

**Line Transients:** While random line transients will not normally harm LOAD-PAKS, they may pass current to some loads for up to 1/2 cycle duration*. AC LOAD-PAKS and the DC LOAD-PAK include transient protection. . .the SPDT-PAK does not. If load transients are a problem, the external protective circuit, a properly-sized metal oxide varistor, may be used.

* Mechanical holding or latching contacts (contactors) may cause some loads to latch under transient conditions.

**Switch or Sensor Wiring:** Wires connecting external sensor switches to LOAD-PAKS should not be placed in raceways or conduits containing high voltage lines. Voltages induced from these lines trigger the low-power, solid-state triac, causing it to turn "on" momentarily.

## Surge Current Ratings of LOAD-PAKS.

Non-repetitive.

| LOAD-PAK Rating | Overload Time | | |
|---|---|---|---|
| | .010 Sec. | 1.0 Sec. | 10 Sec. |
| | Overload, Amps | | |
| 5 Amps, AC | 30 | 20 | 10 |
| 10 Amps, AC | 50 | 30 | 15 |

*Mechanical holding or latching contacts (contactors) may be cause some loads to latch under transient conditions.

## How To Order

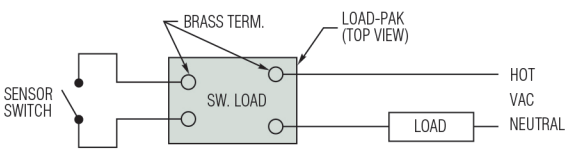
Specify Part Number based on the specifications tabulated below.

| | LOAD-PAK 5 AMP, AC | LOAD-PAK 10 AMP, AC | LOAD-PAK 2 AMP, DC | SPDT-PAK 5 AMP, AC | FLIP-PAK 5 AMP, AC | |
|---|---|---|---|---|---|---|
| **Part Number** | **20173** ⚡ | **26392** ⚡ | **25763** ⚡ | **22155** | **28196** ⚡ | **28244** |
| **Operating & Load Voltage Range** | 24 to 260 VAC | | 6 to 48 VDC | 100 to 130 VAC | 100 to 130 VAC | 200 to 250 VAC |
| **Voltage Loss** | 2 VAC | | 2 VDC | 3 VAC | 2 VAC | |
| **Sensor Current, Max.** | 20 mA | | 35 mA | 20 mA | 20 mA | |
| **Allowable Resistance in Sensor Circuit to Turn "ON" (Max.)** | 4 k at Nom. Volt. | | 0 to 4 k | 4 k at Nom. Volt. | — | |
| **Leakage Current Thru Load Term.** | 12 mA @ 240 VAC | | 2 mA | 20 mA | 12 mA @ 240 VAC | |
| **Switching Mode** | SPST, N.O. | | | SPST, N.O. & N.C. | SPST, N.O. | |
| **Operating Temperature** | 0°F to 120°F (-17.8°C to 48.9°C) | | 32°F to 120°F (0°C to 48.9°C) | 0°F to 120°F (-17.8°C to 48.9°C) | | |

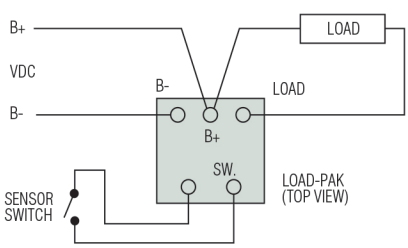
Note: All AC voltage and current specifications are RMS values unless otherwise stated.

⚡ – Stock Items

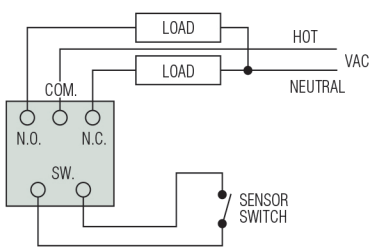
## Typical Wiring



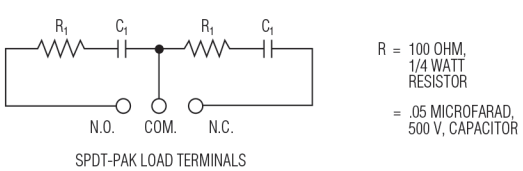

**LOAD-PAK**, Part Numbers 20173 and 26392 actuated by dry contact sensor to control load up to 10 amps, AC.



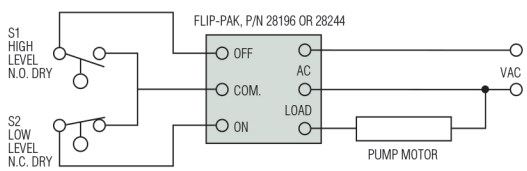

**LOAD-PAK**, Part Number 25763, actuated by dry contact sensor to control load up to 2 amps, DC.




**SPDT-PAK,** actuated by a single sensor to control two separate loads.



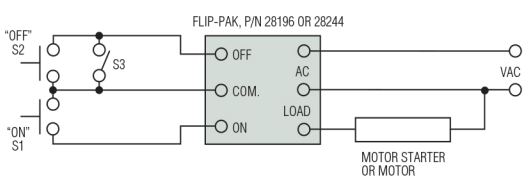

**TRANSIENT PROTECTION FOR THE SPDT-PAK**, The circuit shown or a properly-sized metal oxide varistor may be used.




**FLIP-PAK**, providing pump up/down control.

**Refill:** Low level permits S2 to close, starting refill pump. Rising level allows S2 to open, and eventually closes S1 to actuate the FLIP-PAK "OFF" circuit and stop the pump motor. The FLIP-PAK "OFF" override assures pump shut-down even if S2 failed to open.

**Pump-Down:** With "ON" and "OFF" connections of S1 and S2 transposed at the FLIP-PAK, the pump is started by S1 and stopped by S2 at low level. The same "OFF" override prevails.




With two normally open, momentary contact push buttons (S1 and S2), the **FLIP-PAK** provides solid-state control of the motor starter or the motor itself… if load requirements are within FLIP-PAK ratings. S3 provides a safety shut-down. With S3 closed, the "ON" push button (S1) is rendered ineffective by the "OFF" override feature of the FLIP-PAK.