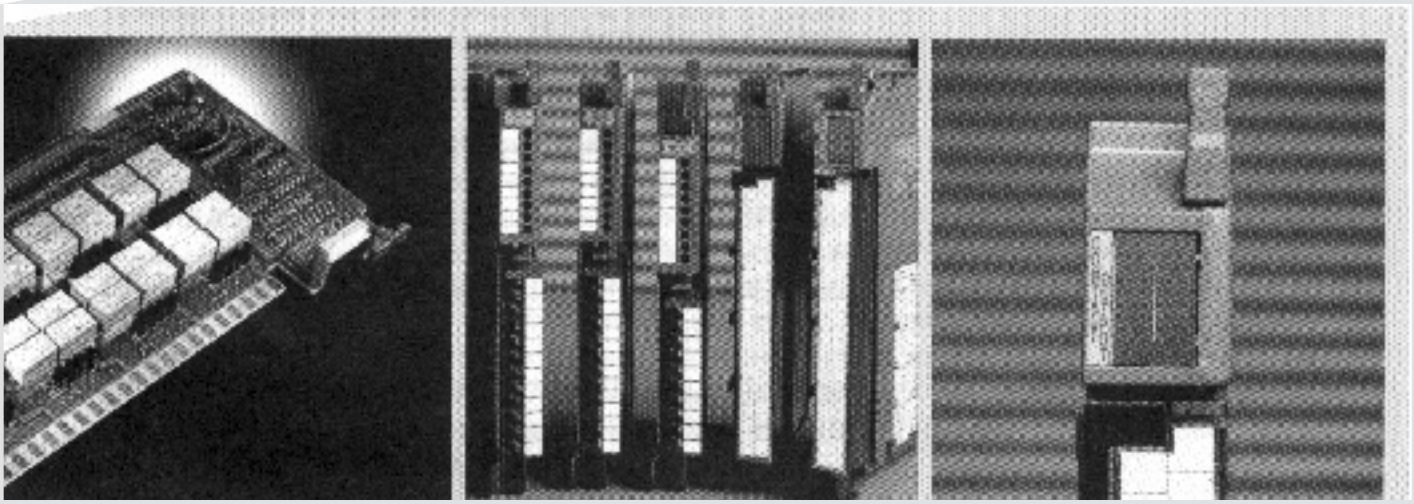
1771 Digital I/O
Relay Contact Output Modules

(Cat. Nos. 1771-OW, -OW16, -OWN, -OWNA, -OX, -OYL, -OZL)

Product Data



Eliminate leakage current. Relay contact output modules offer dry circuits, that is, circuits without leakage current. Leakage currents are present on solid-state outputs; these currents are capable of energizing highly sensitive output load devices such as low-power latching relays. Open contacts on output relays assure that no leakage currents occur in critical applications.

Select the configuration mode for outputs. Allen-Bradley relay contact output modules offer either normally-open (Form A) or normally-closed (Form B) configurations. You can select the form configuration for four of the contact output modules, the 1771-OW, -OW16, -OWN, and -OX. The 1771-OW has eight selectable outputs. The 1771-OW16 has eight normally-open and eight selectable outputs. The 1771-OWN has 32 selectable outputs.The 1771-OX has four selectable outputs. Selectable–configuration means you can predetermine whether an output will be on or off when local power is lost to the control system or the output module. The 1771-OWNA has 32 non-selectable normally-open contacts.

Rockwell Automation
Allen-Bradley

Publication 1771-2.181 – September 1997

Allen-Bradley relay contact output modules use one of the following relay types:

Relay Type	Catalog Number
Electromechanical	1771-OW 1771-OW16 1771-OWN 1771-OWNA
Dry-Reed	1771-OYL, 1771-OYZ
Mercury-Wetted	1771-OX

Electromechanical Relays

Electromechanical relays contain the most economical design for power applications. These modules typically can handle line surges and noise through closed contacts. Electromechanical relays are not recommended for low voltage/low current applications. Electromechanical relays are generally slower than dry-reed relays. They are not recommended for use in environments with contaminants such as acid, ammonia, nitrogen, or chlorine (noxious environments) because they are not hermetically sealed. Allen-Bradley modules that use electromechanical relays include the 1771-OW, 1771-OW16, 1771-OWN, and 1771-OWNA modules.

Dry-Reed Relays

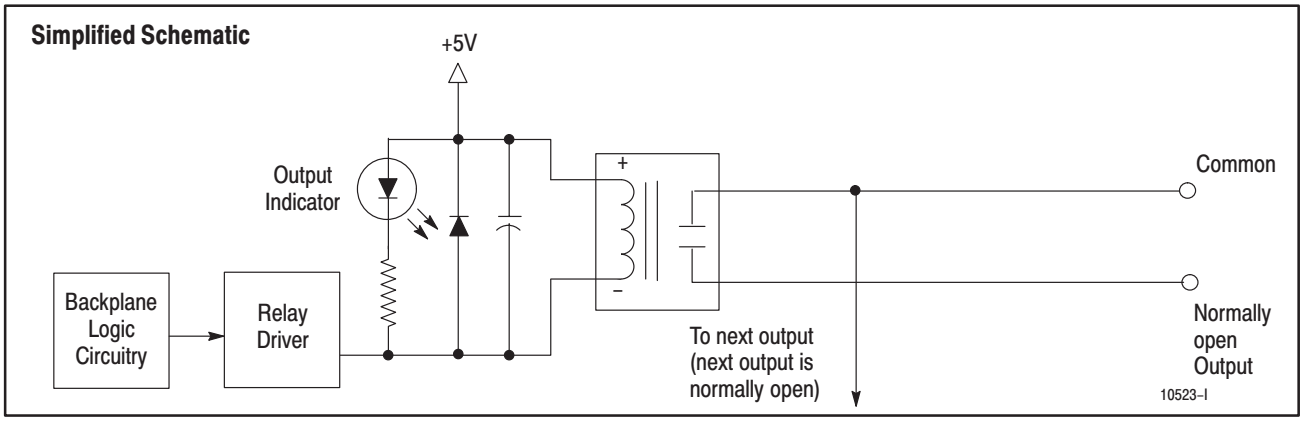
Dry-reed relays are noted for their speed. These relays are well-suited for low-voltage, low-power applications. They are hermetically sealed and thus offer protection in noxious environments. Dry reeds, however, cannot handle surge currents due to their low-voltage design. Allen-Bradley modules that use dry-reed relays are the 1771-OYL and 1771-OZL modules.

Mercury-Wetted Relays

The mercury-wetted relay is a power version of the dry-reed switch. These relays feature long life and high contact reliability because the mercury re-coats the contacts on every operation. Mercury-wetted relays are also hermetically sealed and have no bounce on outputs and offer a clean switch. Of the three types of relays, mercury-wetted relays are the slowest (10 ms). ATTENTION: The 1771-OX module contains mercury-wetted relays. At the end of the equipment's life, it should be collected separately from any unsorted municipal waste.

0-24V Relay Contact Output Module (Cat. No. 1771-OZL)

Simplified Schematic



Application Notes

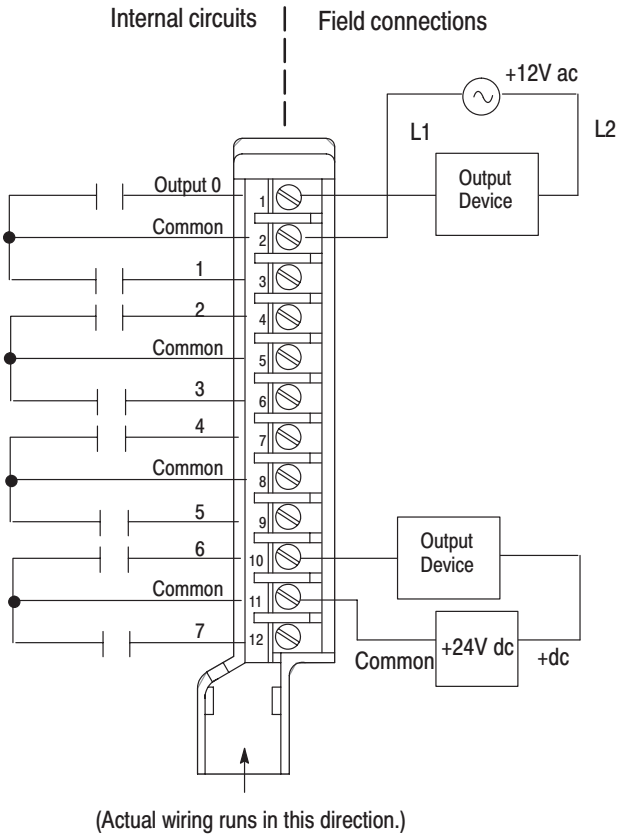
Load Type. 1771-OZL modules do not contain surge limiting circuitry. Use these modules for switching resistive loads only (e.g., lamps, indicators, heating elements). They are not recommended for inductive or capacitive loads (e.g., motor starters, solenoids, relays).

Isolation. The 1771-OZL module has 8 normally-open (Form A) relays.The outputs are arranged in 4 groups of 2, each with its own common. Each output is electrically isolated from module logic circuitry. The module can simultaneously switch all 8 outputs to separate loads, each conducting a maximum load of 100mA continuously, at rated power. AC loads switched by the modules should have a power factor of 1.0.

Connection to Input Modules. You can use the 1771-OZL module to drive an ac input module up to 24V ac. The 1771-OYL module can drive an input of the following dc modules: 1771-IB, -IBD, -IBN, -IG, -IGD,-IH, -IN, -IND, -IQ, -IQ16, -IT, -IV, and -IVN.

No Increase from Parallel Operation. Do not attempt to increase load current or wattage capability beyond the rating by connecting two or more outputs in parallel.The slightest variation in output relay switching time may cause one set of the contacts to switch the total load current.

Connection Diagram



Specifications (Cat. No. 1771-OZL)

Outputs per Module	8 (4 groups of 2)
Module Location	1771 I/O chassis
Contact Configuration	8 Form A (N.O.)
Voltage Rating	0–24V ac rms 0–24V dc
Current Rating[1]	100mA per output (maximum)
Surge Current	100mA maximum per output[2] (at rated power)
Power Rating	dc: 2.4W per output (resistive) ac (suppressed)[2]: 2.4W per output (resistive)
Minimum Contact Load	dc: 1mA @ 0–24V ac: 1mA @ 0–24V
Operate/Release Time	1ms maximum
Bounce Time	1ms maximum
Switching Frequency	10Hz maximum
Power Dissipation	2.2 Watts (max.), 2 Watts (min.)
Thermal Dissipation	7.6 BTU/hr (max.), 6.9 BTU/hr (min.)
Backplane Current	420mA maximum
Isolation Voltage	1000V between open contacts 1500V between coil and contact
Conductors Wire Size Category	14 gauge (2mm^2) stranded maximum 3/64 inch (1.2mm) insulation maximum 1[3]
Environmental Conditions Operating Temperature Storage Temperature Relative Humidity	 0 to 60°C (32 to 140°F) –40 to 85°C (–40 to 185°F) 5 to 95% (without condensation)
Keying	Between 6 and 8 Between 16 and 18
Field Wiring Arm	1771-WD
Wiring Arm Screw Torque	7-9 inch-pounds
Agency Certification (when product or packaging is marked)	• CSA certified • CSA Class I, Division 2, Groups A, B, C, D certified • UL listed • CE marked for all applicable directives
Installation Data	1771-2.129

1 Spikes, peaks, and surges must be within the power rating. Resistive loads only.
ac or dc power = 2.4W max

2 Surge limiting circuitry is not provided in the module. For reliable operation, the user must ensure that surges do not exceed either the voltage or current rating of the module.

3 You use this conductor category information for planning conductor routing as described in the system level installation manual.

Sample Connection Diagram for the 1771-OZL Module Driving an ac Input Module