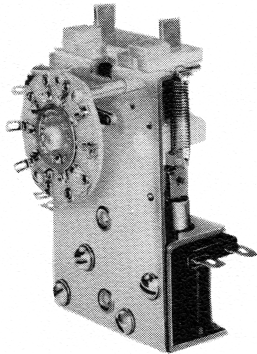


## POTTER & BRUMFIELD'S RELAY SERIES

# GR



FRONT VIEW

### bi-directional stepping relay

#### ENGINEERING DATA

The GR is a bi-directional stepping relay employing two solenoids for contact operation. Audio control, speed, temperature or other factors may be increased or decreased remotely with this versatile impulse/stepping relay. Vending machines, accounting and inventory control equipment and other devices that necessitate adding and subtracting functions are typical applications.

The contacts are switched by either of two solenoids. When a solenoid is energized, its plunger activates a pawl that engages a ratchet which rotates a shaft one step. The shaft rotation advances a ten-position wafer switch in a clockwise or counter-clockwise direction, depending upon which coil is energized. The GR can also be furnished with a cam operated set of up to 1 Form C (SPDT) contacts operating in addition to the wafer switch.

Reliability of the GR is enhanced by its positive-acting solenoids, and its unique electro-mechanical design.

**Application Note:** To overcome the residual magnetism of the solenoids which may occur during the life of the relay, a high value resistor should be placed across each coil's keying switch. This allows a minute current to flow during the time the coil is de-energized, thus dissipating any residual magnetism which may occur. A 20,000 ohm 1 watt resistor is recommended to be used with the standard 120V AC Type GR relay.

#### GENERAL:

**Description:** Bi-directional impulse/stepping relay operated by solenoids.

**Insulating Material:** Phenolic.

**Expected Life:** Mechanical: 1,000,000 operations.  
Electrical: 100,000 operations.

**Breakdown Voltage:** 500 volts rms 60 Hz between all elements and ground.

**Temperature Range:**  $-45^{\circ}\text{C}$  to  $+45^{\circ}\text{C}$  (intermittent duty only).  
**Operate:** 85% or less of nominal voltage @  $+25^{\circ}\text{C}$ .

**Max. Cycling Rate:** 20 operations per second.

**Terminals:** Pierced solder lugs are standard.

#### CONTACTS:

**Arrangements:** Single-pole 10-position wafer switch, single deck.  
Single-pole 10-position auxiliary switch with up to 1 Form C (SPDT) cam operated contacts.

**Material:** Silver standard.

**Ratings:** Wafer switch to 2 amps 120 volts AC 60 Hz (non-inductive).  
Separate (cam-operated) contacts: to 3 amps 120 volts AC 60 Hz (non-inductive).

#### COILS:

**Voltage:** AC: to 240 volts, 60 Hz.  
DC: Consult factory for details.

**Duty:** AC: 50% coil duty cycle—intermittent, 5 minutes maximum on, 5 minutes minimum off.

**Treatment:** Solenoid coils are potted in epoxy.

#### MOUNTING:

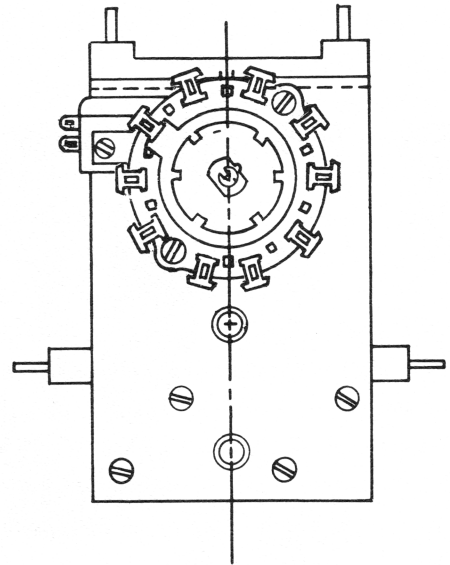
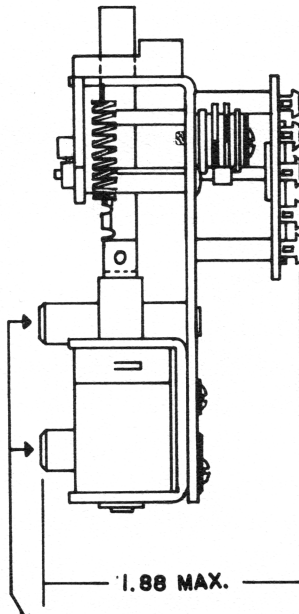
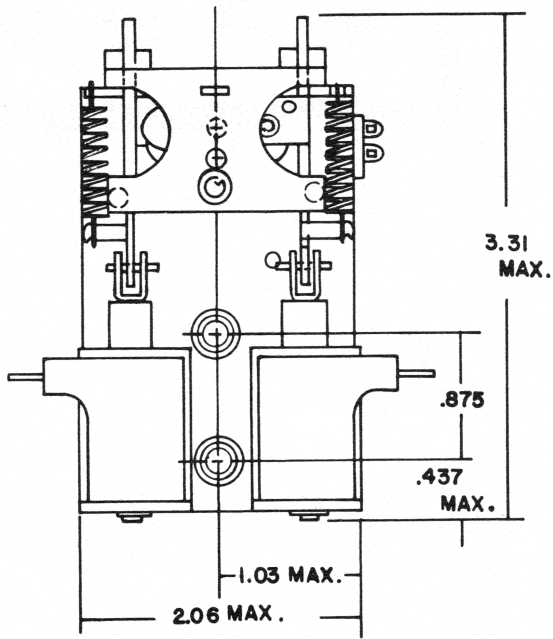
Two 6-32 tapped mounting bosses on .875 centers.



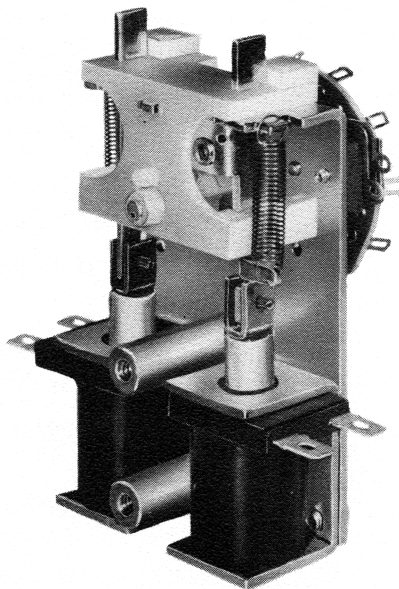
# POTTER & BRUMFIELD

DIVISION OF AMERICAN MACHINE & FOUNDRY COMPANY, PRINCETON, INDIANA

DIMENSIONS



2 MTG. BOSSES  
TAPPED 6-32 UNC-2B  
X .375 MIN. DEEP



Back view of GR showing  
positive-acting solenoids.