POTTER & BRUMFIELD'S RELAY SERIES





impulse/sequencing relay

ENGINEERING DATA

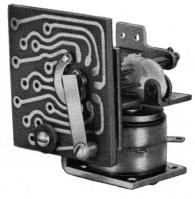
The GM is a reliable, low cost, impulse/sequencing relay offered in a wide choice of switching configurations, making it practical for an extremely broad range of applications.

Unusual Flexibility

The operating flexibility of this relay is accomplished by three different methods of contact action:

The first is by means of a pawl that engages a 10 or 12-step ratchet, which through action of cams, opens or closes the contacts. The contact action takes place during the *drop-out* of the armature. The motive power is the armature's return spring, a constant force providing smooth, dependable contact operation. Contacts rated 3 amps with contact arrangements for standard versions to 4PST can be used. Positive contact action and increased reliability are assured by the effortless flexing of the unusually long contact arms. Within certain limitations additional contacts can be supplied.





The second method of contact action is by means of auxiliary contacts which operate during pull-in and is obtained by levers attached to the back of the armature. Contacts rated 3 amps with arrangements to two DPDT can be used as auxiliaries.

The third contact configuration consists of a uni-directional printed circuit board with either 10 or 12 stations. The board is attached to an extension of the ratchet shaft. The movable contact arm advances one position each time the armature drops out. Contacts are rated at 250 milliamps.

Four Sets of Contacts

When greater than standard coil-power is permissible, as many as two sets of regular contact arms, and two sets of auxiliary contacts, may be used in conjunction with the printed circuit board. GM coils may be either AC or DC powered. A pulse of only 20 milliseconds will effect switching. Alternating current coils operate on a 5 minute maximum on, 5 minute minimum off, 50% coil duty cycle. Direct current coils may be operated continuously.

Wide Variety of Applications

GM relays are adaptable to automatic vending equipment, coin counting devices, remote television set controls, self-interrupting and homing circuits and many other applications. They possibly are the most versatile relays in the P&B line. A particularly useful adaptation is in counting applications. A counting wheel or read-out drum added to the ratchet shaft (in a similar manner by which the printed circuit board is operated) will turn one position each time the relay is activated. Care must be observed in this design because of the flywheel effect on the shaft sometimes caused by these appendages. P&B application engineers are at your disposal to evaluate each particular design requirement.



POTTER & BRUMFIELD

DIVISION OF AMERICAN MACHINE & FOUNDRY COMPANY, PRINCETON, INDIANA

GENERAL:

Description: 10 or 12-position uni-directional impulse/sequen-

cing relays. GM = 2 Form C contacts. GM with auxiliary contacts = 4 Form C contacts. GM with

printed circuit boards.

Insulating Material: Phenolic.

Insulation Resistance: 100 megohms minimum. Expected Life: 500,000 mechanical operations.

Breakdown Voltage: 1000 volts rms between all elements and

ground.

Temperature Range: AC: -45°C to +45°C (intermittent

duty only).

DC: -45° C to $+75^{\circ}$ C.

Operate: AC: 78% or less of nominal voltage @ +25°C.

DC: 75% or less of nominal voltage @ +25°C.

Terminals: Pierced solder lugs are standard. Quick-connect ter-

minals available.

Enclosure: Plastic dust cover available on special order.

CONTACTS:

Arrangements: GM: Two Form C (ratchet operated).

GM with auxiliary contacts: Two Form C (auxiliary), and two Form C (ratchet

operated).

Special: Modification of GM with 10 or 12position uni-directional printed circuit stepping switch, and with certain limitations, with added

other contact arrangements.

Material: Silver standard. Other materials available.

Standard GM relays are stocked by leading electronic parts distributors throughout the United States and Canada.

Ratings: GM: to 3 amps 115 volts AC 60 cycle (non-inductive).

GM with auxiliary contacts: to 3 amps 115 volts AC 60 cycle (non-inductive).

Special: to 3 amps 115 volts AC 60 cycle (non-inductive) for ratchet operated or auxiliary contacts and to 250 milliamps for 10 or 12-position stepping switch (printed circuit). Higher than above contact ratings

on special order.

COILS:

Voltage: AC: to 230 volts, 60 cps.

DC: to 110 volts.

Power: AC: 9 voltamps maximum.

DC: 2.5 watts minimum, 4 watts maximum.

Resistance: See coil data table.

Duty: AC: 50% coil duty cycle—5 minutes maximum on, 5

minutes minimum off.

DC: Continuous @ 4 watts at 25°C.

Higher powered coils available on special request.

Treatment: Coils are centrifugally impregnated with high

quality electrical insulating varnish.

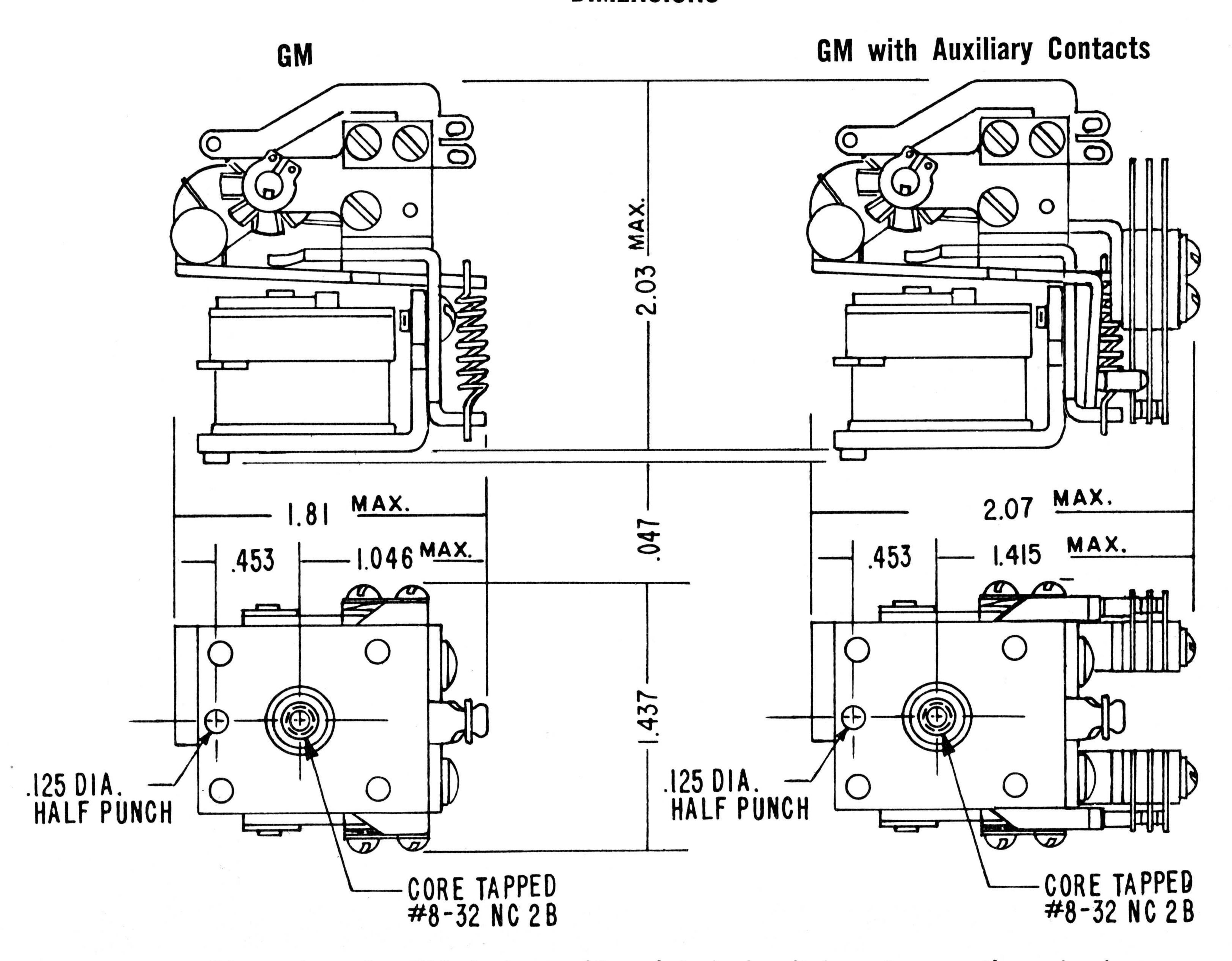
MOUNTING:

Open relay: on 8-32 tapped core with locating boss.

COIL DATA FOR GM RELAYS

DC COILS			AC COILS (50/60 Cycles)	
Nominal Voltage	DC Resistance In Ohms ±10% at +25°C.	Average Current In Milliamps	Nominal Voltage	DC Resistance In Ohms
6	9	666	6	1.1
12	36	333	12	4.2
24	144	161	24	16.0
48	580	82	115	420.0
110	3030	39	230	1550.0

DIMENSIONS



Dimensions for GM designs with printed circuit boards, counting wheels, or read-out drums, furnished upon request.