



## **INSTRUCTIONS**

**GEI-33895**

**INSTANTANEOUS AUXILIARY RELAY  
TYPE HGA14AH**

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**GENERAL  ELECTRIC**



# INSTANTANEOUS AUXILIARY RELAY

## TYPE HGA14AH

### INTRODUCTION

The Type HGA14AH relay consists of a double-pole, hinged armature type auxiliary unit assembled in a single-unit, single-end case of drawout construction. It is suitable for application wherever a high-speed, low-energy relay is required.

### RATINGS

The Type HGA14AH relay is available with coil ratings for standard voltages up to 230 volts at 25, 50, or 60 cycles a-c, and up to 250 volts d-c.

The contacts will make and carry 12 amperes continuously or 30 amperes for one minute. The interrupting ratings for non-inductive circuits for various voltages are given in Table I.

TABLE I

	D-C				A-C	
VOLTS	24	48	125	250	115	230
*AMPS	3	1.5	0.8	0.25	20	10

\* These interruption values are for the low pick-up adjustment. If pick-up adjustment is raised to 60 per cent of rating for d-c relays or 80 per cent for a-c with a corresponding increase in contact gaps, as described in the section on ADJUSTMENTS,

the d-c interruption rating will be approximately three times that shown, and the a-c rating will increase by approximately 50 per cent.

### BURDENS

TABLE II

D-C COILS			A-C COILS			
Coil Rating Volts	R Ohms	Watts	Coil Rating V.	Cyc.	Z Ohms	Volt-Amps.**
250	12,900	4.84				
125	3,250	4.82				
48	500	4.81	230	60	3,800	13.9
32	205	4.97	115	60	1,000	13.2
24	130	4.43				
12	35	4.11				
6	9	4.00	230	50	4,250	12.4
			115	50	1,020	13.0
			230	25	7,070	7.5
			115	25	1,768	7.45

\*\* Armature in the closed position. With the armature in the open position, the burdens are increased by approximately 75 per cent of the values listed above.

### RECEIVING, HANDLING AND STORAGE

These relays, when not included as a part of a control panel, will be shipped in cartons designed to protect them against damage. Immediately upon receipt of the relay, an examination should be made for any damage sustained during shipment. If injury or damage resulting from rough handling is evident, a claim should be filed at once with the transportation company and the nearest Sales Office of the General Electric Company notified promptly.

Reasonable care should be exercised in unpack-

ing the relay in order that none of the parts are injured or the adjustments disturbed.

If the relays are not to be installed immediately, they should be stored in their original cartons in a place that is free from moisture, dust, and metallic chips. Foreign matter collected on the outside of the case may find its way inside when the cover is removed and cause trouble in the operation of the relay.

### DESCRIPTION

The Type HGA14AH relay is hinge-type in construction and has double-pole contacts. The contacts are closed or opened by moving contact arms controlled by the armature, which in turn is actuated by the operating coil and restrained by an adjustable control spring. The armature, magnet assembly,

and contact assemblies are all mounted on a compact molded Textolite base. The length of the contact gap is adjusted by means of screw contacts and locknuts in the front fixed-contact positions. The armature gap and back contact wipe can be controlled by the screws and locknuts located on the

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

To the extent required the products described herein meet applicable ANSI, IEEE and NEMA standards; but no such assurance is given with respect to local codes and ordinances because they vary greatly.

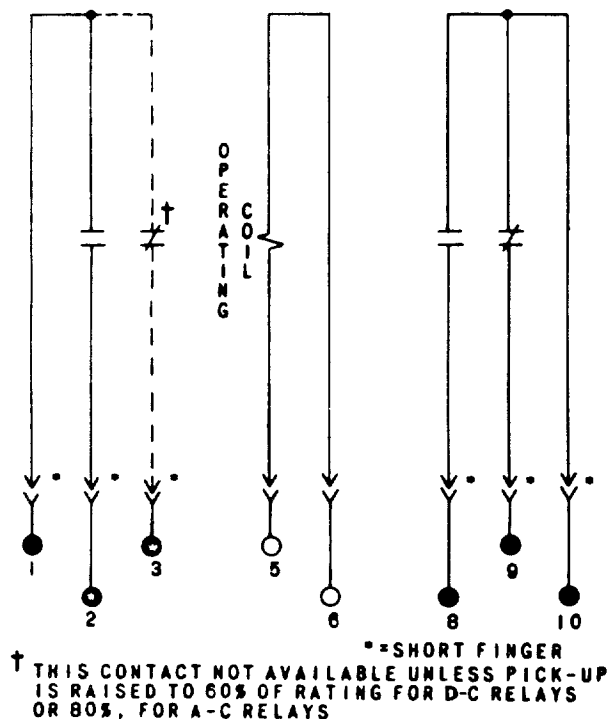


Fig. 1 Internal Connection Diagram For Type HGA14AH Relay

moving contact arms. These latter features make it possible to reduce the pick-up energy and pick-up time to relatively low values.

### CASE

The case is suitable for either surface or semi-flash panel mounting and an assortment of hardware

## INSTALLATION

### LOCATION

The location should be clean and dry, free from dust and excessive vibration, and well lighted to facilitate inspection and testing.

### MOUNTING

The relay should be mounted on a vertical surface. The outline and panel drilling dimensions are

## MAINTENANCE

Auxiliary relay equipment should be checked for operation at regular intervals, preferably at the same time that the associated protective devices are inspected. The units should be checked for pick-up and drop-out values. Normally these set-

tings should not require readjustment but if changes are necessary the points discussed under ADJUSTMENTS AND INSPECTION should be observed.

If it is necessary to clean the contact buttons,

The relay mechanism is mounted in a steel framework called the cradle and is a complete unit with all leads being terminated at the inner block. This cradle is held firmly in the case with a latch at the top and the bottom and by a guide pin at the back of the case. The cases and cradles are so constructed that the relay cannot be inserted in the case upside down. The connecting plug, besides making the electrical connections between the respective blocks of the cradle and case, also locks the latch in place. The cover, which is fastened to the case by thumbscrews, holds the connecting plug in place.

To draw out the relay unit the cover is first removed, and the plug drawn out. The latches are then released, and the relay unit can be easily drawn out. To replace the relay unit, the reverse order is followed.

A separate testing plug can be inserted in place of the connecting plug to test the relay in place on the panel either from its own source of current and voltage, or from other sources. Or, the relay unit can be drawn out and replaced by another which has been tested in the laboratory.

### CONNECTIONS

The internal connection diagram is shown in Fig. 1.

One of the mounting studs or screws should be permanently grounded by a conductor not less than No. 12 B & S gage copper wire or its equivalent.

do so with a clean, fine file. Never use emery or crocus cloth for this purpose as insulating particles may be come embedded in the contact surface.

## ADJUSTMENTS

The relay has been adjusted at the factory to pick up at 30 per cent of rating for d-c relays and 40 per cent for a-c relays, and the contacts have been adjusted so that there is but one normally closed contact available. This latter feature is necessary with the low pick-up adjustment because of the low control spring tension and short armature gap. Pickup may be adjusted by shifting the position of the control spring in the notches on the armature tail-piece; or a finer adjustment may be made by changing the contact gap by means of the screw contacts and locknuts in the front fixed-contact positions. The contact gap should not be decreased beyond the minimum recommended gap given in the following paragraph.

With the low pick-up adjustment the minimum recommended contact wipe is one full turn of the screw in each moving contact arm. In setting the wipe the armature should be closed by hand and the screws turned in until they just touch the projection on the contact carrier. They should then be backed off one turn and locked securely in position by the locknut. The minimum recommended contact gap is 3-3/4 turns of the back contact screw. This adjustment is made by turning the right-hand contact screw in until the normally open contacts are just making, and then backing it off 3-3/4 turns and locking it securely in position with the locknut. Note that the left-hand contact screw should be set far enough back so that it clears the left moving

contact when the relay is in the dropped-out position.

The preceding adjustments are for minimum recommended contact gap and wipe. If the contact gaps are made shorter it must be realized that the interrupting ratings previously mentioned will no longer apply.

If two normally closed contacts are desired it will be necessary to raise the pick-up lever of the relay as described below. The control spring should be anchored in the rear hole of the supporting post. The adjusting screws in the moving contact arms should be backed off to a position where they will no longer engage the molded contact support and should be locked in this position. The control spring tension should be increased by shifting the position of the spring on the notched armature tail-piece until the normally closed contact pressure is at least ten grams. There must be 1/32-1/16 inch wipe on the normally closed contacts; this should be adjusted, if necessary, by bending the contact arms. This adjustment will give a pick up of approximately 50 per cent of the rating for d-c relays and 60 per cent of the rating for a-c relays.

If a standard gap HGA relay is desired, both screw contacts should be backed off to a point where they project approximately 3/32 inch beyond the contact plates and locked securely in addition to the adjustments given in the preceding paragraph. The pickup for this adjustment should be 60 per cent of the rating for d-c relays and 80 per cent of the rating for a-c relays.

Drop-out voltage should be approximately 10 per cent of the rating for d-c relays and 30 per cent of the rating for a-c relays.

## RENEWAL PARTS

It is recommended that sufficient quantities of renewal parts be carried in stock to enable the prompt replacement of any that are worn, broken, or damaged.

When ordering renewal parts, address the near-

est Sales Office of the General Electric Company, specify quantity required, name of part wanted, and give complete nameplate data, including serial number. If possible, give the General Electric Company requisition number on which the relay was furnished.

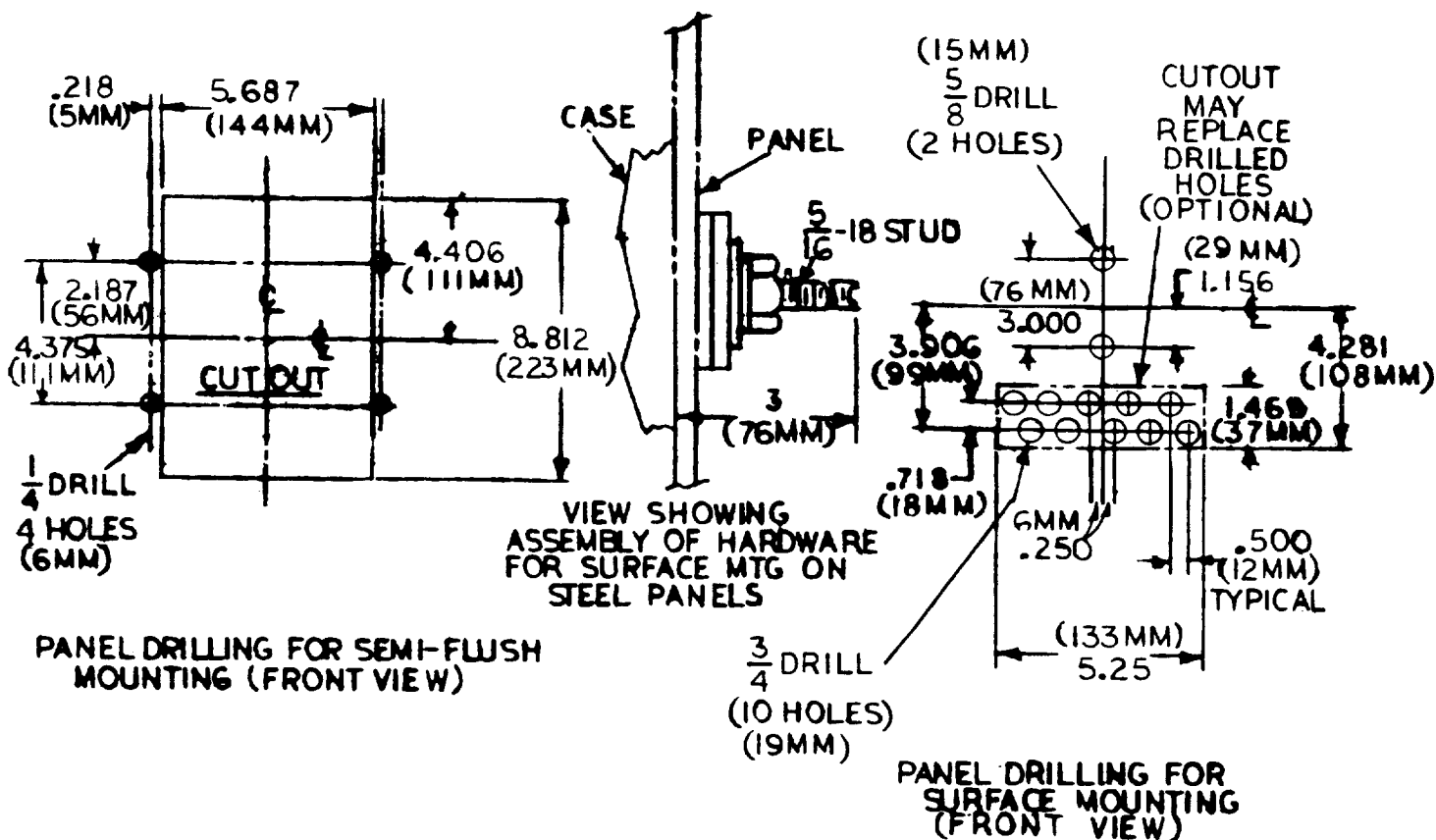
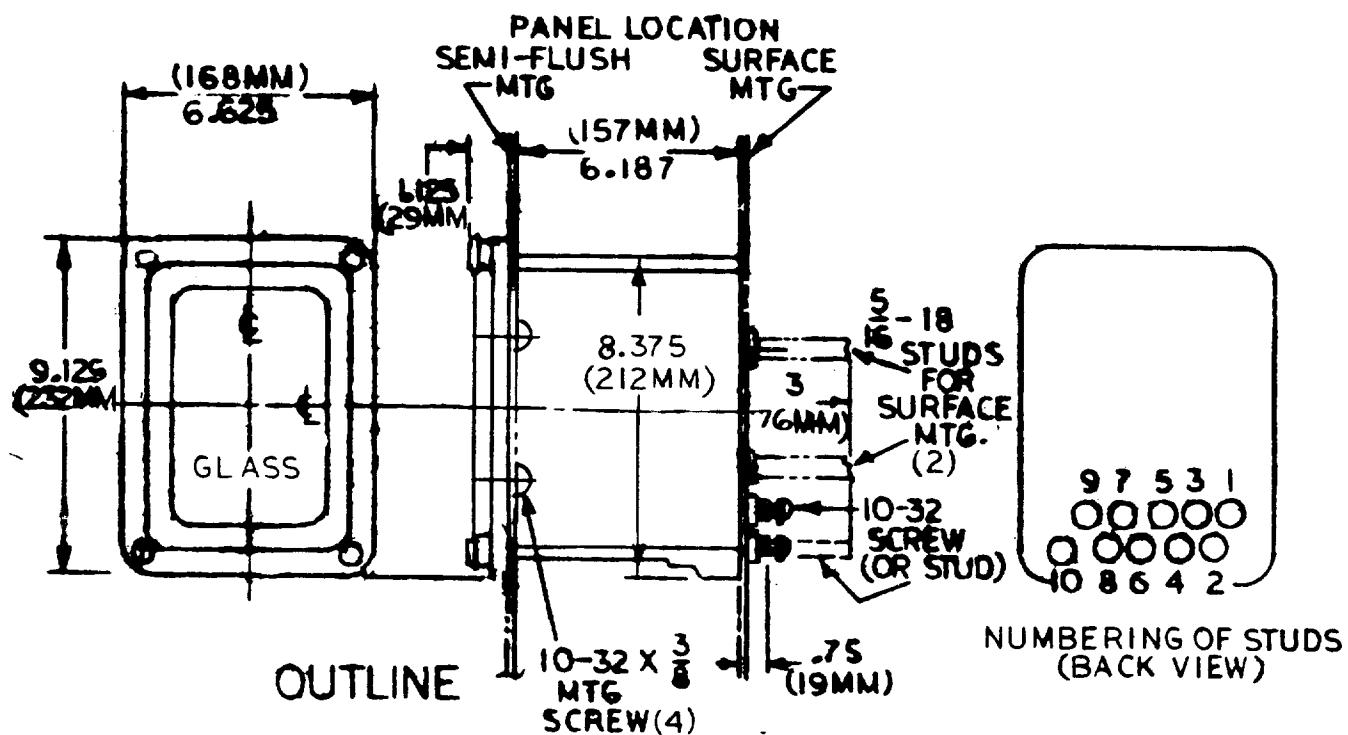


Fig. 2 Outline and Panel Drilling Dimensions For Type HGA14AH Relay





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