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INSTRUCTIONS

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RELAYS

DIFFERENTIAL VOLTAGE RELAY  
TYPE PVD12B

GENERAL  ELECTRIC

A

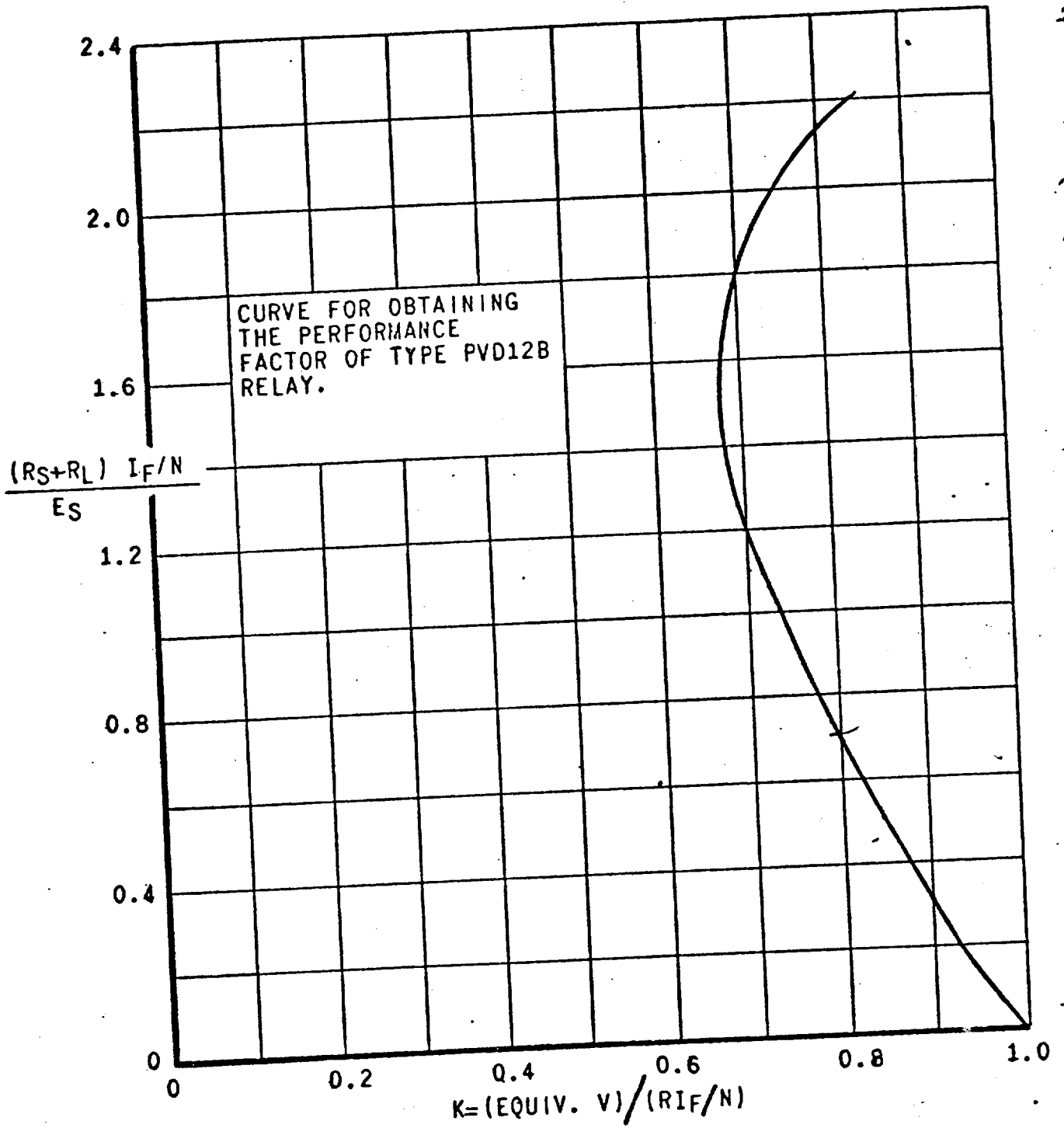


Fig. 1 (376A979)

Fig. 1 Characteristic Curve For The Type PVD12B Relay

# DIFFERENTIAL VOLTAGE RELAY TYPE PVD12B

## INTRODUCTION

These instructions supplement instruction book GEH-1770 which is included in this book. The combination of the two forms complete instructions for the Type PVD12B relay.

The Type PVD12B relay is a differential voltage relay designed primarily to provide instantaneous bus differential protection on 25-cycle systems. The relay can be applied to differentiate between internal faults on the protected bus section and external faults on any of the feeders or sources.

The Type PVD12B relay is similar to the Type PVD11C relay except for the points mentioned in this supplement.

All figures referred to in this supplement are found in the included instructions with the exception of the outline and panel drilling diagram and the

performance factor curve which are shown in Figs. 1 and 2 of this supplement.

## RATINGS AND BURDENS

The models covered by these instructions have a continuous rating of 150 volts, 25 cycles. The available operating ranges are listed in the following table:

Model	Freq.	87L Range (Volts)	87H Range (Amps)
12PVD12B1A	25	50/200	2/50
12PVD12B2A	25	100/400	2/50

The resonant circuit of the Type PVD12B relays can be assumed to have a constant resistance of 2500 ohms. The Thyrite characteristic shown in Fig. 2 applies to the 25-cycle relays also.

## INSTALLATION

### MOUNTING

The outline and panel drilling dimensions for the Type PVD12B relay are shown in Fig. 2 of this supplement.

### CONNECTIONS

The internal connection diagram for the Type PVD12B relay is shown in Fig. 3. Typical external connections are shown in Fig. 5.

## APPLICATION CONSIDERATIONS

### GENERAL

The Type PVD12B relay can be applied on 25-cycle systems for bus protection in most instances where bushing-type current transformers are in use, and in metal-clad equipments where General Electric Type JS-2 current transformers are to be employed.

#### BUSHING CTs

When the Type PVD12B relay is to be used with bushing-type CTs, refer to RELAY SETTINGS of this supplement. Note that the information listed in Table I of the included instructions does not apply at 25 cycles.

#### TYPE JS-2 CTs

All 25-cycle applications in metal-clad equipments, where the use of window-type CTs is desirable, should be referred to the factory. The information listed in Table II of the included instructions does not apply at 25 cycles.

### RELAY SETTINGS

For installations involving bushing-type CTs

at 25 cycles, the Model 12PVD12B1A relay is usually recommended. An 87L unit setting determined by means of equation (1) of the included instructions will be satisfactory in the majority of cases. If the indicated 87L setting is beyond the saturation point of the CTs in use or if the resulting sensitivity is not satisfactory, the setting should be determined by means of equation (2) of the included instructions. Note that when equation (2) is used the value of the performance factor K should be obtained from the 25 cycle curve in Fig. 1 of this supplement and not from Fig. 10 of the included instructions which applies only at 60 cycles.

The minimum internal fault required to trip the 87L unit for a 25-cycle application can be determined by means of equation (3) of the included instructions. Note that it is essential that a 25-cycle CT excitation curve be used in determining  $I_e$ .

The setting of the 87H unit of the Type PVD12B relay can be determined from the curves in either Fig. 11 or Fig. 12 and the description in the included instructions.

*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.*

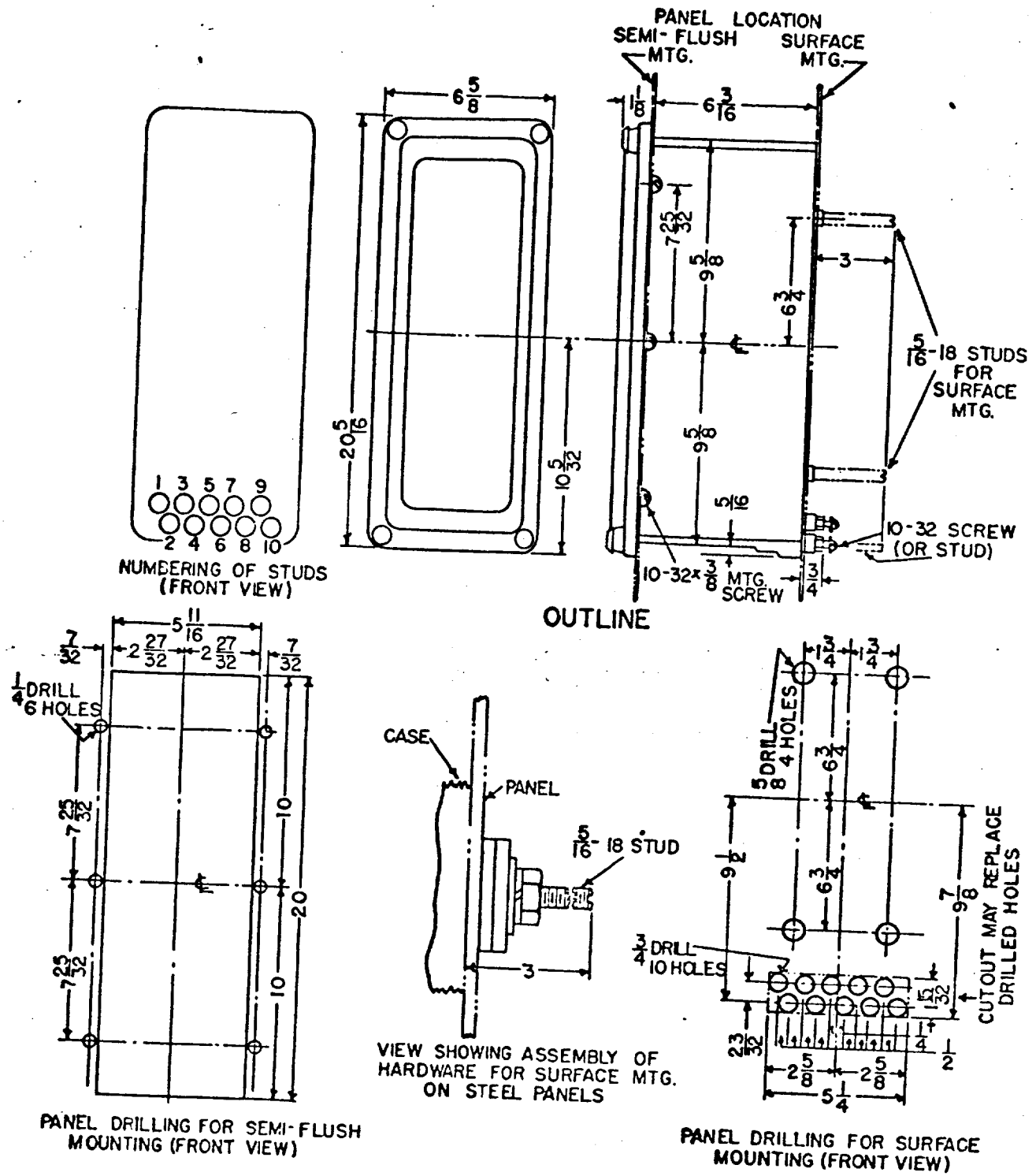


Fig. 2 Outline And Panel Drilling Dimensions For The Type PVD12B Relay

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