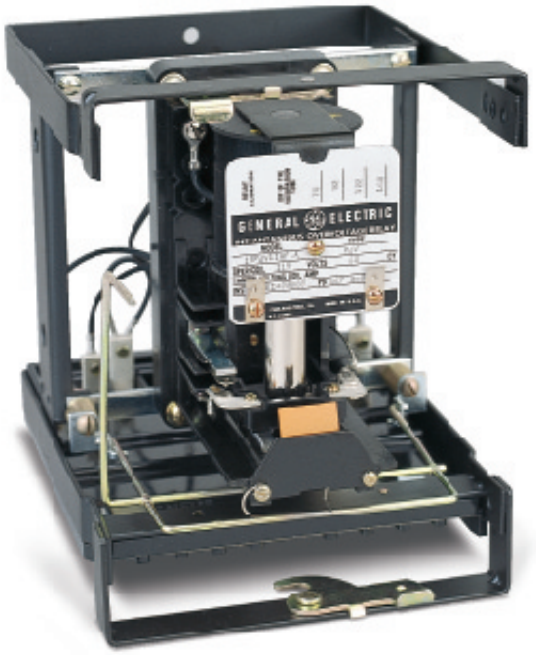
High speed overvoltage protection of AC and DC circuits and DC undervoltage protection.

PJV

Instantaneous Voltage Relay



Application

- Instantaneous overvoltage
- Low voltage conditions caused by faults, overloads, etc.
- Battery failure
- Sequential control operations (e.g. throwover scheme)

Protection and Control

- Instantaneous DC undervoltage
- Instantaneous DC and AC overvoltage

Features

- Mechanical targets
- Drawout or molded case available
- Up to 3 independent units per case

DESCRIPTION

PJV relays consist of one or more units mounted in a molded case or in a drawout relay case. The units are plunger type relays with the armature adjustable on the plunger rod to vary the pickup. The movable contacts are fastened directly to the armature assembly on each side of the calibrating tube.

APPLICATION

These relays are high speed, plunger-type voltage relays used where instantaneous operation is required. Different model numbers are available for: AC overvoltage, DC overvoltage, DC undervoltage

Overvoltage: These relays are calibrated in terms of the voltage required to close the N.O. (normally open) contacts and open the N.C. (normally closed) contacts on increasing voltage when the pickup setting is reached. The target, when available, operates for pickup operations only.

Undervoltage: These relays are calibrated in terms of the DC voltage required to open the N.O. (normally open) contact and close the N.C. (normally closed) contacts on decreasing voltage when the dropout setting is reached. They may be used where instantaneous operation is required because of low-voltage conditions caused by faults, overloading, blowing of fuses, battery failure, or sequential control operations. The target, when available, operates for dropout operation only. For AC undervoltage applications, the NGV relay is recommended.

RELAY CHARACTERISTICS

Pickup Times for AC overvoltage relays are approximately 1 cycle at voltages of 1.5 times the pickup voltage setting.

Reset Times for AC overvoltage relays are less than 2 cycles to close the normally closed contact at voltages of 80 percent or less of pickup voltage.

Continuous Rating: The PJV relay coils are continuously rated as specified on the nameplate and will stand 10 percent overrated voltage continuously without injury to the coil with the plunger set for any position within the calibration range. Ratings for continuous operation on AC are for the non-picked-up position only. However, the limitation is mechanical, not thermal, and the relay life expectancy under continuously picked-up conditions is a matter of months. If the relay application is such that continuous operation in the picked-up position is anticipated, then the type NGV relay should be used.

RELAY CHARACTERISTICS

For certain molded case PJV11 relays for DC voltage applications, an external resistor is included for series connection with the operating coil to improve the relay performance.

Self Reset: All overvoltage models listed in this section have self-reset contacts.

The AC rated models will dropout between 90 and 95 percent of pickup volts while the DC rated models will dropout between 70 and 90 percent of pickup volts.

These standard percentage values are not adjustable and are for contact arrangements of one normally open and one normally closed contact.

When a **DC undervoltage** relay with 95 percent or better is required, the Type PJV17 is applicable. This relay has an auxiliary AC winding in addition to the main DC operating coil and its effect is to increase the percentage. The PJV17 can be used with battery chargers and voltage regulators.

Targets are mechanically operated by the movement of the relay plunger. **Targets** on **overvoltage** relays with a pickup voltage calibration operate when the voltage equals or exceeds the pickup voltage setting.

Targets on **undervoltage** relays with a dropout voltage calibration operate when the voltage is equal to or lower than the dropout setting.

Molded and drawout case construction are both available. The molded-case relays are surface mounted and back connected.

RATINGS OF CONTACTS

The current-closing rating of the contacts is 30 A. The current-carrying rating is 5 A continuously or 30 A for 2 sec. Interrupting ratings are listed in the following table.

AC Noninductive Circuits		DC Noninductive Circuits	
V	A	V	A
115	5	24	5
230	2	48	2
460	1	125	1
—	—	250	0.3

SELECTION GUIDE

WITH MECHANICAL TARGETS

No. Units	Continuous Rating		Model Number				Contact	Case Size	Approx. Wt. in lbs (kg)	
	Volts	Frequency (Hz)	Calibration Range (V)	Overvoltage Calibrated in Pickup	Calibration Range (V)	Undervoltage Calibrated in Dropout			Net	Ship
1	24	DC	10-31	12PJV11A12	10-21	12PJV11BB6①	② Code 20, 11, or 02	Molded	2.5 (1.1)	4 (1.8)
	48		20-62	A13	20-42	BB4①				
	62.5		25-80	A43	25-54	BB3①				
	125		50-160	A10	50-109	BB2①				
	250		100-320	A11①	100-218	BB1①				
	67	60	60-93	12PJV11A19	- - - -	- - - -				
	115		70-160	A1	- - - -	- - - -				
	230		140-320	A2	- - - -	- - - -				
	460		280-640	A3	- - - -	- - - -				
	115	50	70-160	12PJV11A4	- - - -	- - - -				
	230		140-320	A5	- - - -	- - - -				
	460		280-640	A6	- - - -	- - - -				
	24	DC	10-31	12PJV11AM6A	10-21	12PJV11BA5A		S1	8 (3.6)	12 (5.4)
	48		20-62	AM4A	20-42	BA4A				
	62.5		25-80	AM3A	- - - -	- - - -				
	125		50-160	AM2A	50-109	BA2A				
	220		88-282	AM7A	- - - -	- - - -				
	250		100-320	AM1A	100-218	BA1A				
	35	60	15-45	12PJV11AF21A	- - - -	- - - -				
	67		41-93	AF16A	- - - -	- - - -				
	115		70-160	AF1A	- - - -	- - - -				
	230		140-320	AF2A	- - - -	- - - -				
	460		280-640	AF3A	- - - -	- - - -				
	115	50	70-160	12PJV11AF4A	- - - -	- - - -				
	230		140-320	AF5A	- - - -	- - - -				
	460		280-640	AF6A	- - - -	- - - -				

① Includes an external resistor.
② Code 20 = 2 N.O. contacts; Code 11 = 1 N.O. and 1 N.C. contact; Code 02 = 2 N.C. contacts; Code 22 = 2 N.O. and 2 N.C. contacts.

SELECTION GUIDE

WITH MECHANICAL TARGETS (CONT.)

No. Units	Continuous Rating		Model Number				Contact	Case Size	Approx. Wt. in lbs (kg)	
	Volts	Frequency (Hz)	Calibration Range (V)	Overvoltage Calibrated in Pickup	Calibration Range (V)	Undervoltage Calibrated in Dropout			Net	Ship
2	115	60	70-160	12PJV11AH1A	----	----	② Code 20, 11, or 02	S2	10 (4.5)	15 (6.8)
	230		140-320	AH2A	----	----				
	460		280-640	AH3A	----	----				
	115	50	70-160	12PJV11AH4A	----	----				
	230		140-320	AH5A	----	----				
	460		280-640	AH6A	----	----				
3	67	60	41-93	12PJV11AS7A	----	----		M2	14 (6.4)	19 (8.6)
	115		70-160	AS1A	----	----				
	230		140-320	AS2A	----	----				
	460		280-640	AS3A	----	----				
	115	50	70-160	12PJV11AS4A	----	----				
	230		140-320	AS5A	----	----				
	460		280-640	AS6A	----	----				

HIGH DROPOUT (95 PERCENT)

No. Units	Continuous Rating		Dropout Calibration (VDC)	Aux. Winding		Model Number	Aux. Winding		Model Number	Aux. Winding		Model Number	Contact	Case Size	Approx. Wt. in lbs (kg)	
	Volts	Freq. (Hz)		Volts	Freq. (Hz)		Volts	Freq. (Hz)		Volts	Freq. (Hz)				Net	Ship
1	12	DC	6-12.5	115	50/60	12PJV17A27	230	50/60	----	460	50/60	----	② Code 11 only	Molded	4 (1.8)	7 (3.2)
	24		9-25			A12			12PJV17A19			----				
	32		12-33.3			A28			----			----				
	48		18-50			A1			A17			----				
	125		50-130			A2			A15			12PJV17A13				
	250		100-260			A8			A20			----				
	24	DC	9-25			12PJV17B5A			12PJV17B3A			----		S2	10 (4.5)	15 (6.8)
	48		18-50			B1A			----			----				
	125		50-130			B2A			B6A			----				
	250		100-260			B7A			B4A			----				

① Includes an external resistor.
② Code 20 = 2 N.O. contacts; Code 11 = 1 N.O. and 1 N.C. contact; Code 02 = 2 N.C. contacts; Code 22 = 2 N.O. and 2 N.C. contacts.

STV Overexcitation Relays

Overexcitation protection of transformers and generators.

Application

- Transformer and generator protection
- Alarm and backup protection

Protection and Control

- Overexcitation
- Adjustable pick-up voltage
- Adjustable time delay

Features

- Target seal-in units
- Drawout case

More information is available on the 1998 GE Power Management CD.