



Width 10", Depth 9", Height 10½"

**STYLE SV-20 AND SV-21 TIME ELEMENT VANE RELAY**

The SV-20 Vane Relay can be wound for any standard voltage and frequency for line operation. It requires no external resistor or other phase splitting devices. The principal application of this relay is for special conditions of railway signaling where it is essential to introduce time intervals after which signal functions should be operable.

The SV-21 is the same as the SV-20 except that an adjustment is provided so that the time range may be halved.

**Contact Capacity:** Twelve independent contacts, ten of which may be front contacts, is the maximum equipment; except when the checking contact is used, the maximum number of regular contacts that can be supplied is eleven independent contacts because two terminal posts on the top plate must be used to terminate the checking contact.

**Operation:** When energy at any voltage above the minimum operating voltage (85% of normal) of the relay is applied to the relay coils, the vane at once rotates until the countershaft segment is driven against the stop, thereby extending the spring on the link connected to the time element device. The tension of the spring serves to drive the retarding vane at a uniform rate, thus providing a time element that is independent of the applied voltage. No movement of the contacts occurs until nearing the completion of the time element, when the arm driving the gear train lifts the contact arm to open the back and close the front contacts. When the relay is de-energized, the gear segment falls by gravity due to the counterweight, carrying with it contacts and all connected

UNION SWITCH & SIGNAL CO.  
**Zachary C. Gillihan 2008**  
 VANE TIME ELEMENT RELAYS  
 SV-20 and SV-21

FOR DETAILS OF TOP PLATE AND CONTACT SPRINGS SEE PLATE E-1035  
 FOR DETAILS OF RELAY SEE PLATE E-1055

Order by Plate, Piece, Reference and Abbreviated Description Given in  
 Heavy Face Type Only

Piece	Ref.	Description	Drawing Reference
	A	Style SV-20 Vane Time Element Line Relay, complete	C-8298
	B	Style SV-21 Vane Time Element Line Relay, complete, with magnetic shunt.....	C-8298-2
		Orders must specify Voltage and Frequency of alternating current available and number of Front and Back Contacts required, also time interval in seconds desired, unless otherwise specified Front and Back Contacts will be non-independent.	

parts. Pawls acting on a ratchet wheel allow the relay to release without rotating the train of gears. The relay will therefore open its front and close its back contacts immediately after being de-energized.

When specified on the order the SV-20 and SV-21 relays will be equipped with a special contact actuated by the retarding mechanism, which can be used to check that the retarding mechanism has returned to the fully de-energized position thus insuring that the time element for the next operation of the relay will be that for which the relay has been adjusted.

**Adjustment:** The time element of the SV-20 relay may be adjusted to operate at any interval between the limitations of either 3 to 15 or 5 to 25 seconds, and the time element of the SV-21, which is equipped with a magnetic shunt, is adjustable between 1½ and 15 seconds, without opening the case. This adjustment is obtained by varying the stroke of the gear segment by means of an adjustable back stop, the position of which is determined by a filister head screw extending through the top plate. Provision is made to seal this screw when the desired adjustment has been made.