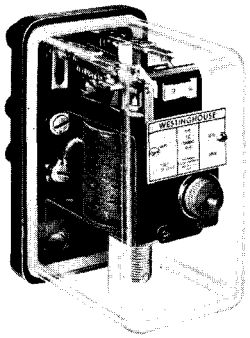
general purpose relays
instantaneous • adjustable

current: types SC, SC-1, SCT
voltage: types SV, SV-1, SVF, SVF-1

small glass projection case

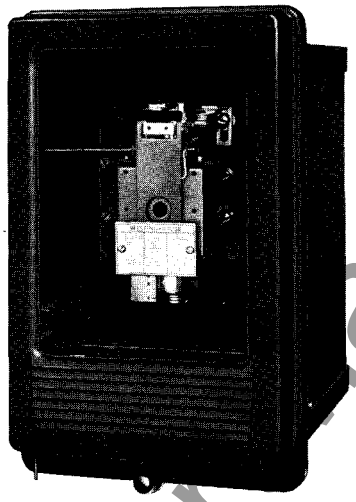
type SC
in rear-connected
small glass case



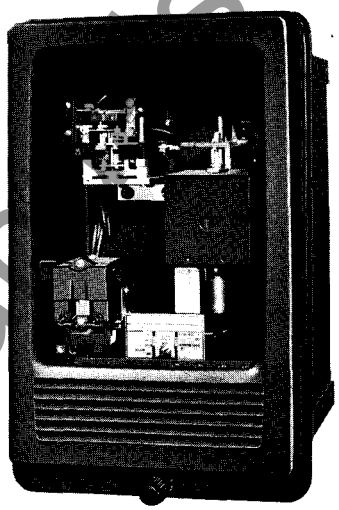
front-connected small glass case also available; see figure 3

Flexitest case

type SC-1



type SCT



application

SC, SC-1, SV, SV-1

for fast operating protective or auxiliary service

(a-c relay trips in one cycle or less on 60 cycles, at 200% pick-up setting)

instantaneous protection of motors: To prevent damage from high current or low voltage under abnormal conditions, where time-delay relays would not operate fast enough.

fault detectors in system relaying: SC and SV relays can be used as fault detectors to supervise main protective relays. Typical application utilizes an SV voltage operated relay in generator back-up protection to supervise an overcurrent unit where it is desired to have the overcurrent unit set to operate on less than full load current when voltage falls below a predetermined value.

high-speed non-directional tripping: Where economically justified on the end of outlying feeder lines.

ground protection: Where fast operation is required. Types SC and SC-1 can be used on d-c to 60 cycle service without coil changeover. SV and SV-1 are supplied for either d-c, or 50-60 cycle a-c service.

SCT

For overcurrent protection where a definite time delay of 0-2 seconds is required.

SVF, SVF-1

Types SVF and SVF-1 relays are instantaneous voltage-operated relays calibrated to dropout or close their contacts when voltage drops to a predetermined value as determined by the relay setting. Both types have a maximum variation in dropout of ±5% of voltage setting and are independent of frequency over a range of 20 to 60 cycles.

typical application: Use as a supervising or interposing relay during initiation of bus transfer, where the SVF or SVF-1 responds to the residual voltage of the connected motor.

device numbers

	SC, SC-1	SCT	SV, SV-1	SVF, SVF-1
undercurrent	37	..	..	..
a-c overcurrent	50	50	..	..
d-c overcurrent	76	..	..	..
undervoltage	..	..	27	27
overvoltage	..	..	59	..

September, 1961
supersedes descriptive bulletin 41-765 dated October, 1959; and supplement, pages .01-.02, dated February, 1960
mailed to: E/326/DB; D/821/DB; C/377/DB

construction

Relays consist of a wound operating coil, magnetic shunt for adjustable pick-up or dropout (as determined by type of relay), stationary core, and moving plunger. The plunger floats in its energized position (centered in graphite bearings) without being held against a stop, or touching the walls of the tube. Consequently, noise is negligible on heavy overloads or 25-cycle operation.

types available

relay	operation	service		reset	
		pick-up	dropout	self	hand
SC	current	X	X	X	..
SC-1	current	X	X	X	X♦
SCT	current	X	..	X	..
SV	voltage	X	X	X	..
SV-1	voltage	X	X	X	X♦
SVF	undervoltage	..	X	X	..
SVF-1	undervoltage	..	X	X	..

♦ On these types, the plunger rises with enough force to latch itself in place and deflect the contacts sufficiently to prevent contact re-opening when the relay is de-energized.

SC and SC-1 relays can be used on d-c to 60 cycle service without coil changeover.

SCT relays are supplied for either 50 or 60 cycle a-c service.

SV and SV-1 relays are supplied for either d-c, or 50 or 60 cycle a-c service.

contact arrangement

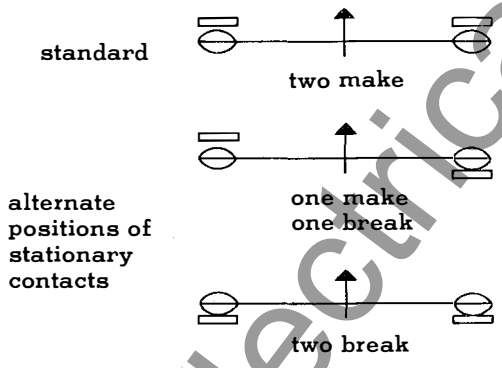


fig. 1

small glass projection case

rear-connected

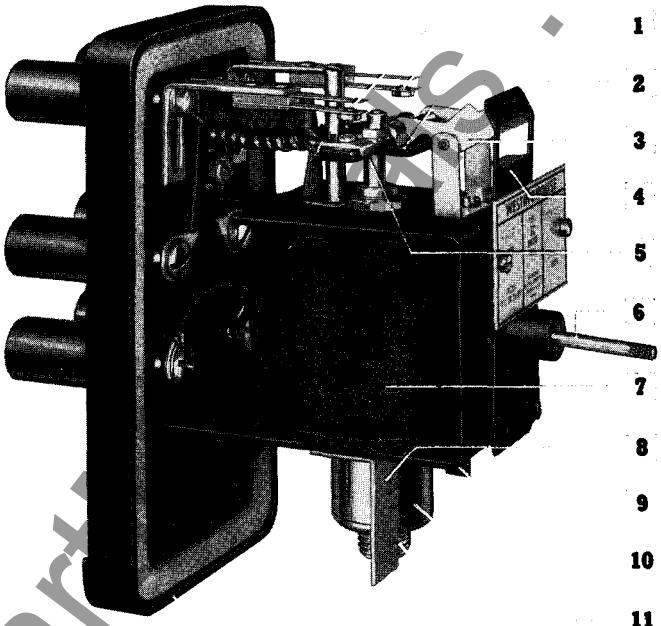


fig. 2

front-connected

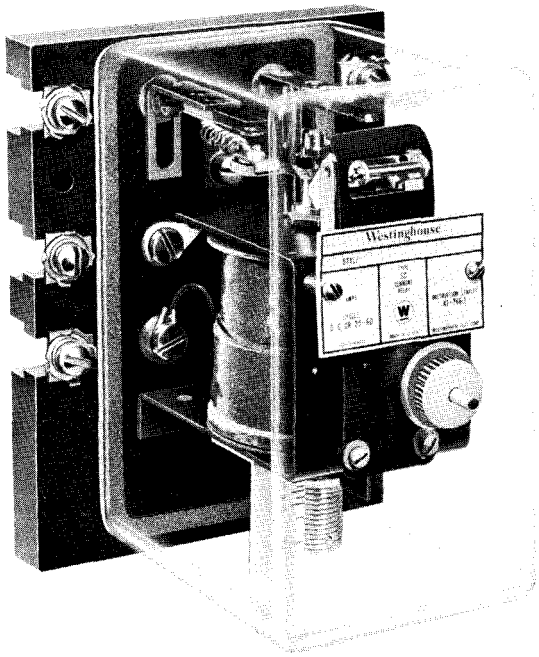


fig. 3

Flexitest universal case

type SC-1

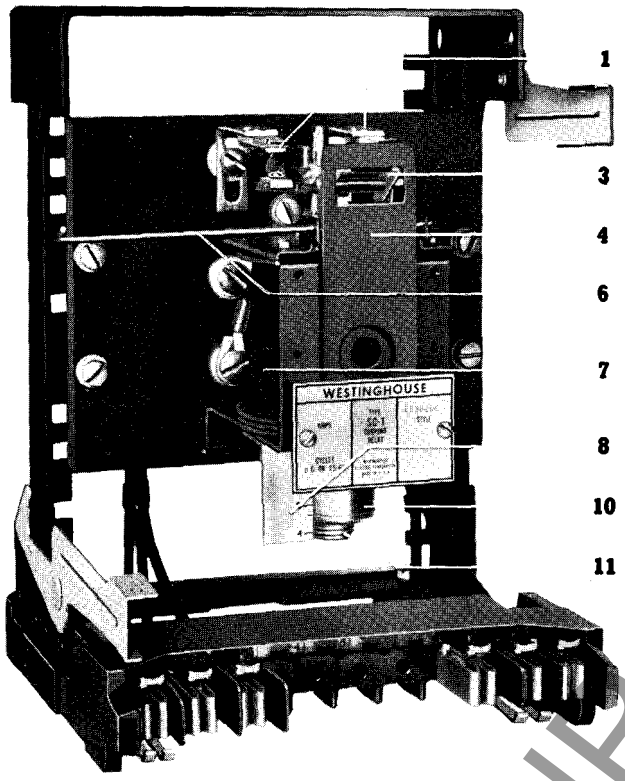


fig. 4

type SCT

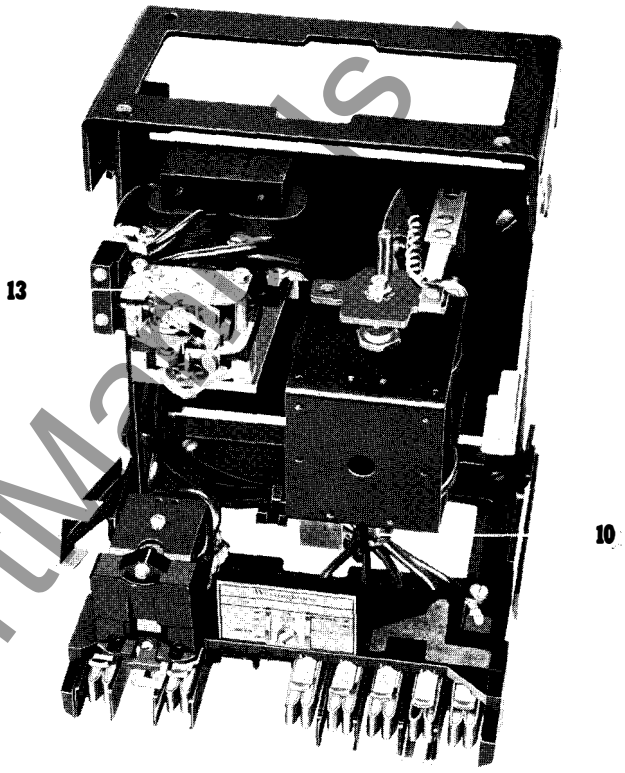


fig. 5

1 two independent reversible, silver stationary contacts

2 insulating moving contact arm with two silver contacts

3 operation indicator target, reversible to indicate up or down strokes (on hand-reset SC-1, SV-1 relays, target has extended lower lip to hold contacts closed until reset)

4 target latch

5 plunger

6 target reset

7 coil

8 calibrated scale

9 shunt locking device

10 adjustable magnetic shunt

11 core screw

12 one-piece molded base

13 moving contact arm pointer

adjustment

SC, SC-1, SV, SV-1: These types may be set for a specific value of pick-up by adjusting the magnetic shunt (item 10, fig. 2) to the desired value indicated on the calibrated scale. The relay may be set by test for desired dropout values.

SC and SC-1 relays have a normal current adjustment range of 4 to 1.

For use on extremely wide current ranges, SC and SC-1 relays with 4–100 amps range of adjustment are supplied with tapped coils. Taps are brought out to a tap block which has a connector plate marked with the minimum pick-up value of each tap. The relay shunt is adjustable over pick-up setting ranges listed below. On these relays, the adjustable scale plate is supplied blank so that the user can mark the individual relay settings desired.

SVF, SVF-1: On these types, the adjustable scale is calibrated in voltage dropout values.

pick-up adjustment range for 4–100 amp SC and SC-1 relays

tap setting	pick-up range
4 amps	4-16 amps
10 amps	10-40 amps
30 amps	30-100 amps

construction continued

specific SCT data

SCT relays are available in 10-40 ampere range, with 0-120 cycle (60 cycle base) time delay.

construction and operation

A type SC current unit is combined with a synchronous motor timing unit, which is actuated by a small saturating transformer.

The motor drives a moving contact arm (through a gear train) over a semi-circular arc. A pointer on the arm indicates the time delay on a calibrated scale at the top of the timer unit.

The synchronous motor has a floating rotor which is in mesh with the gear train only when energized. The rotor falls out of mesh instantly upon de-energization, permitting a spring to reset the moving contact arm.

adjustment

The SC instantaneous current unit is adjusted by setting the magnetic shunt (item 10, figure 5) to the desired value. The unit may also be set by test for a desired dropout value.

Time delay is adjusted by setting the moving contact arm pointer to the desired value on the calibrated scale (item 13, figure 5).

As the timing motor is controlled by the instantaneous unit contact, the trip circuit will not be energized until the timing unit has completed its timing cycle.

case

SCT relays are supplied in the FT-21 Flexitest universal case.

specific SVF, SVF-1 data

SVF and SVF-1 relays are available in single- or three-phase designs.

The single-phase design is used on balanced, three-phase applications whereas the three-phase type is recommended for applications where one or more of the phase voltages may be unbalanced by a fault on the system.

construction and operation

single-phase: Single-phase types consist of an SV or SV-1 voltage unit, a reactor, series resistor, and a full-wave rectifier. Insensitivity to frequency is obtained by operating the voltage unit on full-wave, rectified a-c voltage. The reactor in the a-c circuit is used to compensate for the tendency of the voltage unit to respond to the instantaneous voltage values and, as a result, drop out at higher r. m. s. values. The reactor causes the rectified current in the voltage unit to increase slightly as the frequency decreases, thereby maintaining a dropout value of approximately the same r. m. s. voltage over a 20 to 60 cycle frequency range.

The series resistor in the operating coil circuit minimizes the effect of relay coil temperature variation.

three-phase: Three-phase types consist of an SV or SV-1 voltage unit, a series resistor, and a three-phase bridge rectifier.

adjustment

The scale on both single- and three-phase types is calibrated in voltage drop-out values; 24 to 36 volts for type SVF, and 30 to 45 volts for the SVF-1.

A typical value of pick-up voltage for the SVF relay is 95 volts for a 45-volt dropout setting. A similar value for the SVF-1 is 100 volts for a 36-volt dropout setting.

Both types are designed for a nominal 120-volt system.

case

SVF and SVF-1 relays are available in the FT-21 Flexitest universal case only.

motor transfer schemes

On motor transfer schemes, the three-phase SVF or SVF-1 relay senses the magnitude of residual voltage in a motor, and allows transfer of the motor to an alternate supply source when the residual voltage has decreased to a value determined by the selected dropout voltage setting of the relay.

drop-out to pick-up ratio

Relays can be set for specific values of either pick-up or drop-out. For example, if a relay is adjusted for any pick-up value, the corresponding drop-out ratio will fall well within the limits given in the table below. This ratio will vary with different types of relays, as shown, or may change somewhat at different settings, but remains substantially constant at any one setting. Drop-out to pick-up ratio is closely repetitive at the same setting independent of the number of operations or temperature increase.

current relays: SC and SC-1

types	cycles:■	drop-out to pick-up ratios		range of pickup adjustment	max amp continuous	one-second rating in amperes	burden◆ 5 amp at 60 cycles	
		a-c	d-c	amps			watts	volt-amps
SC	d-c or 25 to 60	90-98%	65-80%	.5-2	1.5	70	99	225
				1-4	3	140	28	65
				2-8	6	280	6.9	19
				4-16	12	460	1.5	5
				10-40	25	460	.24	.7
				20-80	40🌡	460	.07	.16
				40-160	40🌡	460	.03	.05
				4-100✣	10-15-20	460	1.7-.6-.18	5-1-.2
SC-1	d-c or 25 to 60	35-60%	25-40%	.5-2	1.5	70	100	210
				1-4	3	140	24	60
				2-8	6	280	6	16
				4-16	12	460	1.5	5
				10-40	25	460	.25	.65
				20-80	40🌡	460	.07	.16
				40-160	40🌡	460	.03	.05
				4-100✣	10-15-20	460	1.7-.6-.18	5-1-.2

voltage relays: SV and SV-1

types	cycles	drop-out to pick-up ratios		range of adjustment	max volts continuous‡	burden◆ 120v, a-c or 125v, d-c	
		a-c	d-c	volts		watts	volt-amps
SV	60	90-98%	....	7-16	16	...	2.8+
	60	90-98%	....	70-160	160	3.4	7.3
	50	90-98%	....	70-160	180	2.8	6.1
	d-c	....	65-80%	50-150	150	4.8	...
	d-c	....	65-80%	100-300	300	1.11	...
SV-1	60	40-80%	....	70-160	160	4.1	8.5
	50	40-80%	....	70-160	180	3.5	7.1
	d-c	....	25-40%	50-150	150	4.8	...
	d-c	....	25-40%	100-300	300	1.11	...

■ Standard current relays are calibrated on 60 cycles. This calibration is correct for 25 cycle and d-c applications, within 10% to 15%.

◆ Values of watts and volt-amperes in the tables are average for various plunger and shunt positions.

‡ Maximum continuous volts for the a-c SV and SV-1 relays at **minimum** pick-up. At **maximum** pick-up the continuous voltage can be increased 10% to 20%.

🌡 Relays in Flexitest case have a maximum continuous current rating of 30 amperes.

✣ See page 3 for scale marking and adjustment ranges.

\+ At minimum pickup.

voltage relays: SVF, SVF-1

single phase‡

relays energized with 120 volts

relay type	frequency in cycles	volt-amperes burden
SVF	60	17
	25	18.5
SVF-1	60	17
	25	18.5

three phase‡

relays energized with 120 volts, balanced three-phase voltage

relay type	frequency in cycles	volt-amperes burden		
		phase A	phase B	phase C
SVF	60	9.6	9.6	9.6
	25	9.6	9.6	9.6
SVF-1	60	9.6	9.6	9.6
	25	9.6	9.6	9.6

‡ Values of volt-amperes listed are average values for various plunger and shunt positions.

additional burden data: SC, SC-1

relay	burden	at minimum pick-up			at multiples of minimum pick-up (60 cycles)			at maximum pick-up
		cycles		d-c				
		60	25		3	10	20	
SC	watts	1.0	0.65	0.57	..	...	...	multiply minimum values by 16
	volt-amps	3.4	1.4	....	31	240	770	
SC-1	watts	1.3	0.7	0.57	..	...	...	
	volt-amps	3.5	1.3	....	31	240	770	

contact rating: amps

SC, SC-1, SV, SV-1
SVF, SVF-1

control circuit		contacts will:		
volts	cycles	close	open	carry
120	60	30	5	5
125	d-c	30	1	5

time curves

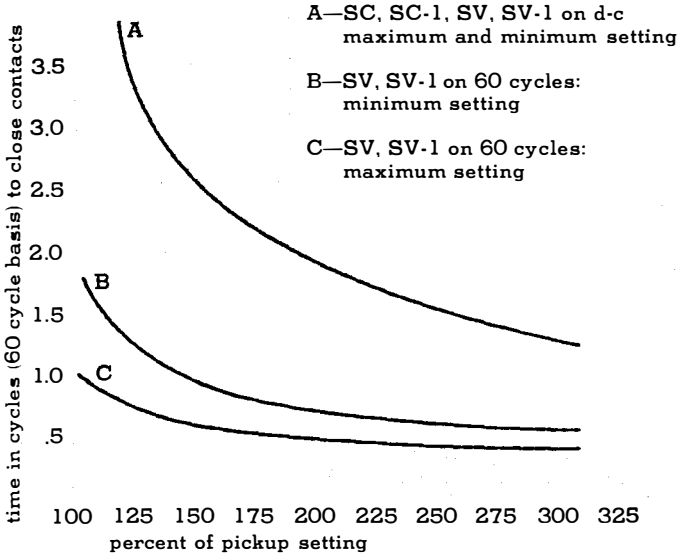


fig. 6

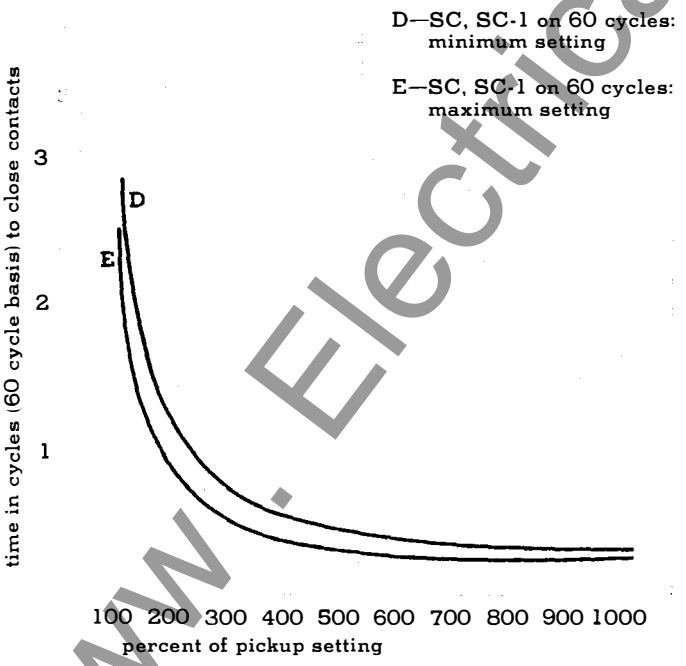


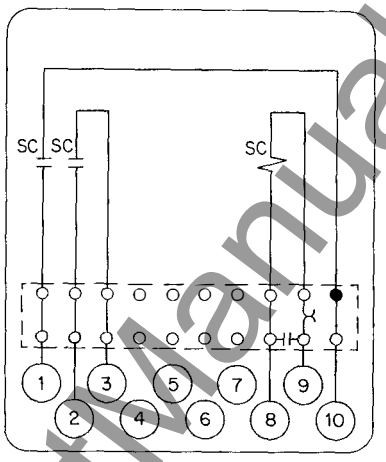
fig. 7

internal wiring front view

Flexitest case types

SC, SC-1 • current operated

single unit in FT-21 case



unit tapped for 4 to 100 amp range

Flexitest switch

current test jack

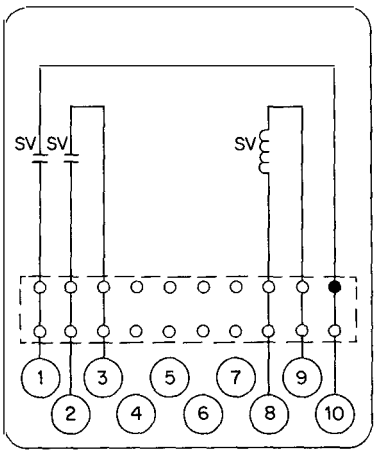
shorting switch

case terminals

fig. 8

SV, SV-1 • voltage operated

single unit in FT-21 case

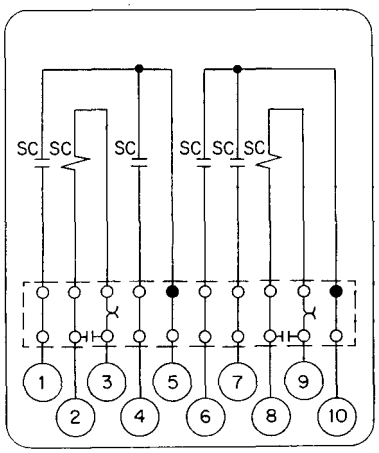


Flexitest switch

case terminals

fig. 11

two unit in FT-21 case



left unit

right unit

Flexitest switch

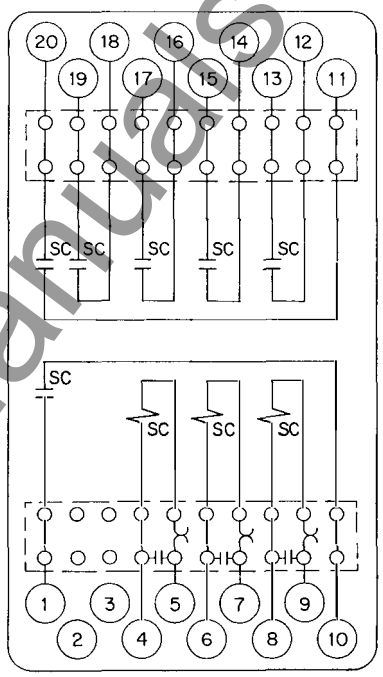
current test jack

shorting switch

case terminals

fig. 9

three unit in FT-32 case



bottom unit

top left unit

top right unit

current test jack

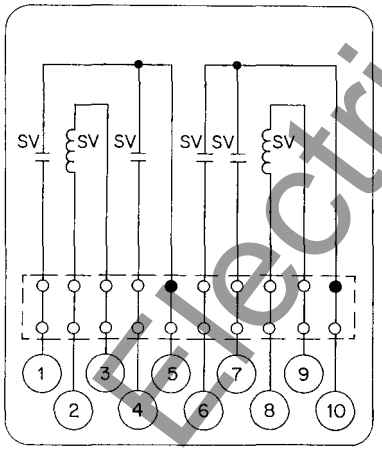
Flexitest switch

shorting switch

case terminals

fig. 10

two unit in FT-21 case



left unit

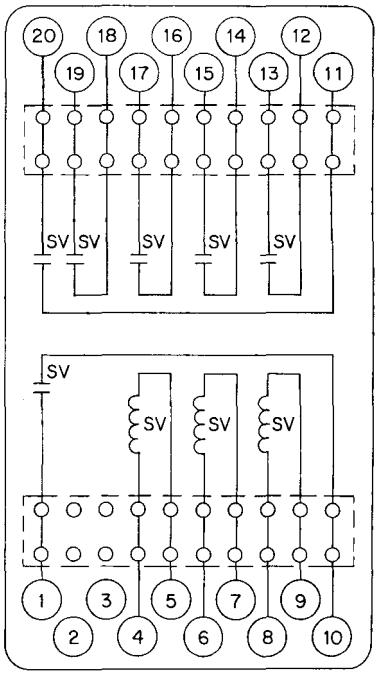
right unit

Flexitest switch

case terminals

fig. 12

three unit in FT-32 case



bottom unit

top left unit

top right unit

Flexitest switch

case terminals

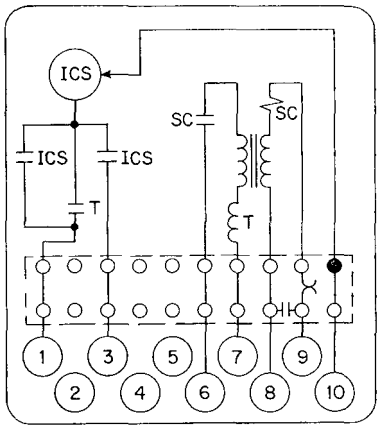
fig. 13

internal wiring front view

Flexitest case types, continued

SCT • current operated

adjustable definite time delay in FT-21 case

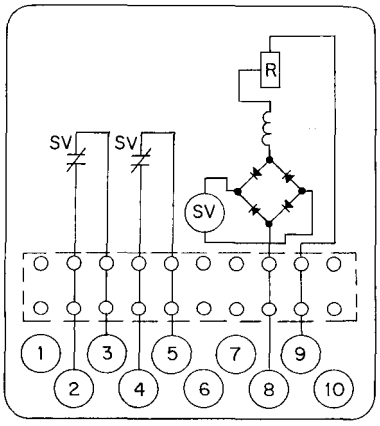


Indicating Contactor Switch
overcurrent unit
saturating transformer
timer unit
Flexitest switch
current test jack
shorting switch
case terminals

fig. 14

SVF, SVF-1 • undervoltage operated

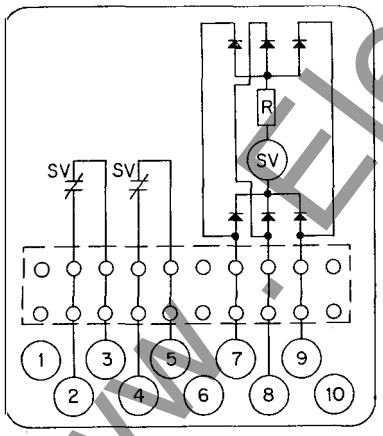
single phase in FT-21 case



resistor
reactor
Flexitest switch
case terminals

fig. 15

three phase in FT-21 case



resistor
voltage unit
Flexitest switch
case terminals

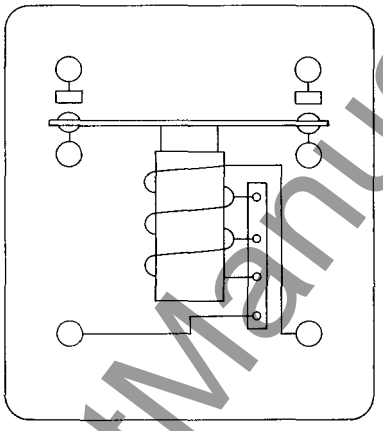
fig. 16

small glass projection case types

SC, SC-1, SV, SV-1

current and voltage operated

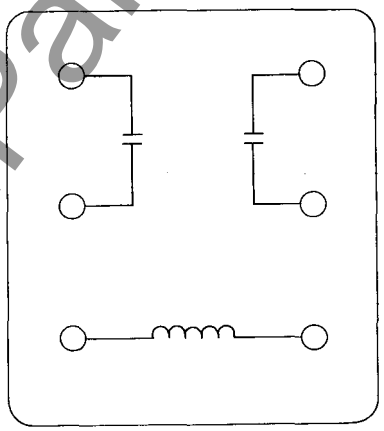
rear connected



terminals
stationary contacts
moving contacts
insulator support
tap block supplied only on 4—100 amp SC, SC-1 relays

fig. 17

front connected



terminals
contacts
coil

fig. 18

ordering information • list prices

see price list 41-020.

case dimensions

Flexitest case types: see descriptive bulletin 41-075.
Other case types: see descriptive bulletin 41-075A.

carton dimensions and weights

case type	no. of units	weight, lb net	weight, lb shipping	domestic shipping carton, in.
small glass	1	2	6	9½ x 10½ x 11
Flexitest: FT-21	1	10	13	9 x 12 x 13
	2	12	15	
FT-32	3	15	19	13 x 13 x 21
	4	18	22	

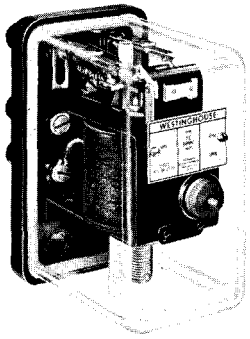
Westinghouse Electric Corporation
relay dept: meter division Newark plant Newark, N. J.
printed in U.S.A.

general purpose relays
instantaneous • adjustable

current: types SC, SC-1, SCT
voltage: types SV, SV-1, SVF, SVF-1

small glass projection case

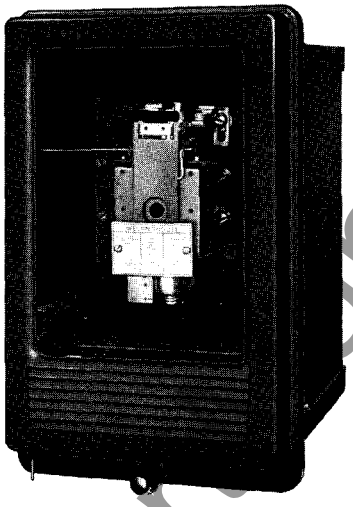
type SC
in rear-connected
small glass case



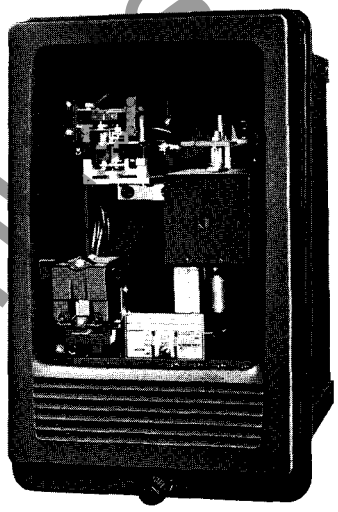
front-connected small glass case also available; see figure 3

Flexitest case

type SC-1



type SCT



application

SC, SC-1, SV, SV-1

for fast operating protective or auxiliary service

(a-c relay trips in one cycle or less on 60 cycles, at 200% pick-up setting)

instantaneous protection of motors: To prevent damage from high current or low voltage under abnormal conditions, where time-delay relays would not operate fast enough.

fault detectors in system relaying: SC and SV relays can be used as fault detectors to supervise main protective relays. Typical application utilizes an SV voltage operated relay in generator back-up protection to supervise an overcurrent unit where it is desired to have the overcurrent unit set to operate on less than full load current when voltage falls below a predetermined value.

high-speed non-directional tripping: Where economically justified on the end of outlying feeder lines.

ground protection: Where fast operation is required. Types SC and SC-1 can be used on d-c to 60 cycle service without coil changeover. SV and SV-1 are supplied for either d-c, or 50-60 cycle a-c service.

SCT

For overcurrent protection where a definite time delay of 0-2 seconds is required.

SVF, SVF-1

Types SVF and SVF-1 relays are instantaneous voltage-operated relays calibrated to dropout or close their contacts when voltage drops to a predetermined value as determined by the relay setting. Both types have a maximum variation in dropout of ±5% of voltage setting and are independent of frequency over a range of 20 to 60 cycles.

typical application: Use as a supervising or interposing relay during initiation of bus transfer, where the SVF or SVF-1 responds to the residual voltage of the connected motor.

device numbers

	SC, SC-1	SCT	SV, SV-1	SVF, SVF-1
undercurrent	37	..	..	..
a-c overcurrent	50	50	..	..
d-c overcurrent	76	..	..	..
undervoltage	..	..	27	27
overvoltage	..	..	59	..

September, 1961
supersedes descriptive bulletin 41-765 dated October, 1959; and supplement, pages .01-.02, dated February, 1960
mailed to: E/326/DB; D/821/DB; C/377/DB

construction

Relays consist of a wound operating coil, magnetic shunt for adjustable pick-up or dropout (as determined by type of relay), stationary core, and moving plunger. The plunger floats in its energized position (centered in graphite bearings) without being held against a stop, or touching the walls of the tube. Consequently, noise is negligible on heavy overloads or 25-cycle operation.

types available

relay	operation	service		reset	
		pick-up	dropout	self	hand
SC	current	X	X	X	..
SC-1	current	X	X	X	X🌡
SCT	current	X	..	X	..
SV	voltage	X	X	X	..
SV-1	voltage	X	X	X	X🌡
SVF	undervoltage	..	X	X	..
SVF-1	undervoltage	..	X	X	..

🌡 On these types, the plunger rises with enough force to latch itself in place and deflect the contacts sufficiently to prevent contact re-opening when the relay is de-energized.

SC and SC-1 relays can be used on d-c to 60 cycle service without coil changeover.

SCT relays are supplied for either 50 or 60 cycle a-c service.

SV and SV-1 relays are supplied for either d-c, or 50 or 60 cycle a-c service.

contact arrangement

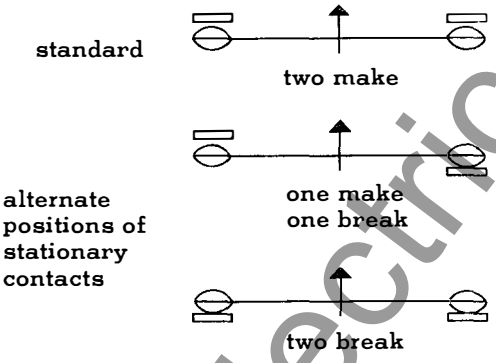


fig. 1

small glass projection case

rear-connected

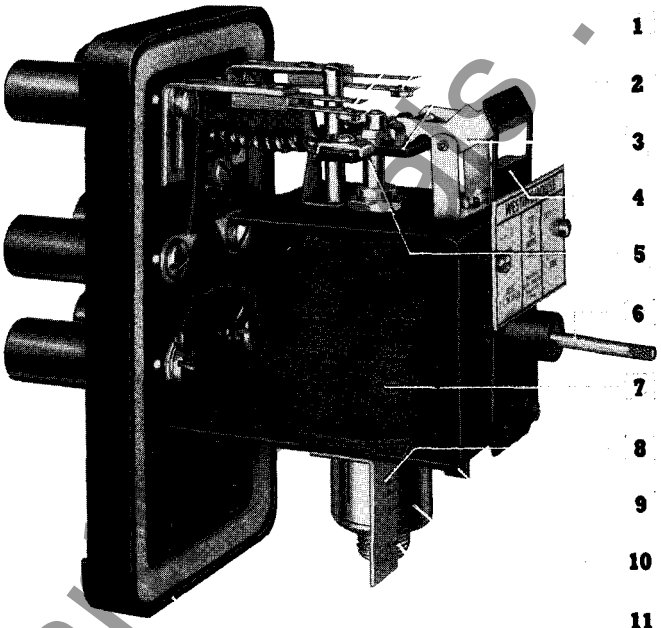


fig. 2

front-connected

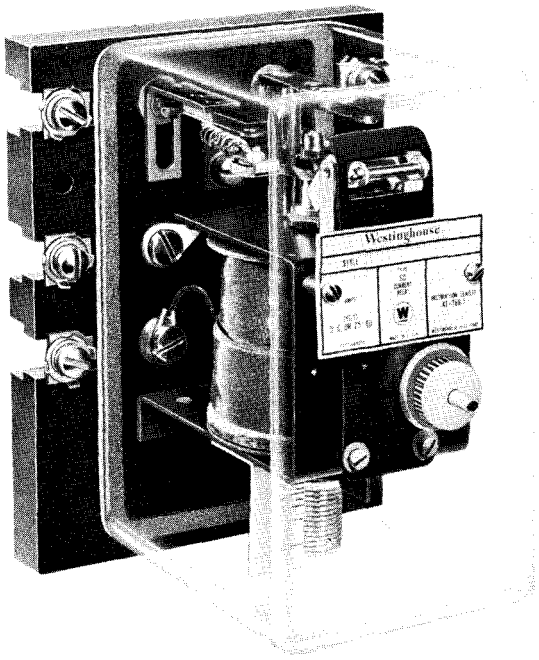


fig. 3

1 2 3 4 5 6 7 8 9 10 11 12

Flexitest universal case

type SC-1

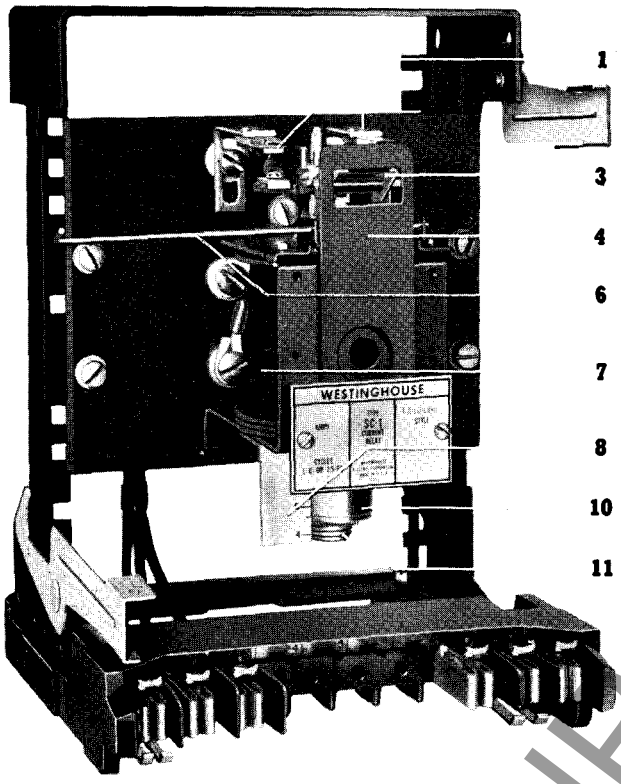


fig. 4

type SCT

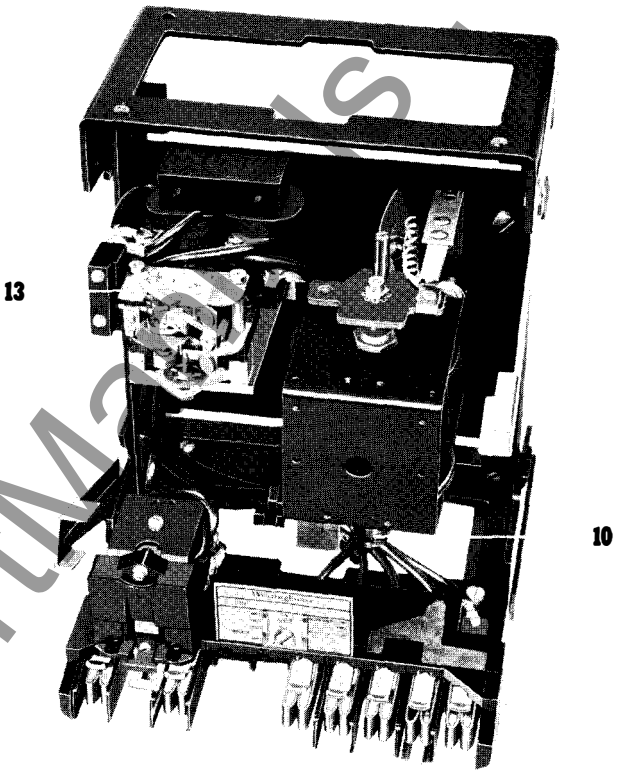


fig. 5

1 two independent reversible, silver stationary contacts

2 insulating moving contact arm with two silver contacts

3 operation indicator target, reversible to indicate up or down strokes (on hand-reset SC-1, SV-1 relays, target has extended lower lip to hold contacts closed until reset)

4 target latch

5 plunger

6 target reset

7 coil

8 calibrated scale

9 shunt locking device

10 adjustable magnetic shunt

11 core screw

12 one-piece molded base

13 moving contact arm pointer

adjustment

SC, SC-1, SV, SV-1: These types may be set for a specific value of pick-up by adjusting the magnetic shunt (item 10, fig. 2) to the desired value indicated on the calibrated scale. The relay may be set by test for desired dropout values.

SC and SC-1 relays have a normal current adjustment range of 4 to 1.

For use on extremely wide current ranges, SC and SC-1 relays with 4–100 amps range of adjustment are supplied with tapped coils. Taps are brought out to a tap block which has a connector plate marked with the minimum pick-up value of each tap. The relay shunt is adjustable over pick-up setting ranges listed below. On these relays, the adjustable scale plate is supplied blank so that the user can mark the individual relay settings desired.

SVF, SVF-1: On these types, the adjustable scale is calibrated in voltage dropout values.

pick-up adjustment range for 4–100 amp SC and SC-1 relays

tap setting	pick-up range
4 amps	4-16 amps
10 amps	10-40 amps
30 amps	30-100 amps

construction continued

specific SCT data

SCT relays are available in 10-40 ampere range, with 0-120 cycle (60 cycle base) time delay.

construction and operation

A type SC current unit is combined with a synchronous motor timing unit, which is actuated by a small saturating transformer.

The motor drives a moving contact arm (through a gear train) over a semi-circular arc. A pointer on the arm indicates the time delay on a calibrated scale at the top of the timer unit.

The synchronous motor has a floating rotor which is in mesh with the gear train only when energized. The rotor falls out of mesh instantly upon de-energization, permitting a spring to reset the moving contact arm.

adjustment

The SC instantaneous current unit is adjusted by setting the magnetic shunt (item 10, figure 5) to the desired value. The unit may also be set by test for a desired dropout value.

Time delay is adjusted by setting the moving contact arm pointer to the desired value on the calibrated scale (item 13, figure 5).

As the timing motor is controlled by the instantaneous unit contact, the trip circuit will not be energized until the timing unit has completed its timing cycle.

case

SCT relays are supplied in the FT-21 Flexitest universal case.

specific SVF, SVF-1 data

SVF and SVF-1 relays are available in single- or three-phase designs.

The single-phase design is used on balanced, three-phase applications whereas the three-phase type is recommended for applications where one or more of the phase voltages may be unbalanced by a fault on the system.

construction and operation

single-phase: Single-phase types consist of an SV or SV-1 voltage unit, a reactor, series resistor, and a full-wave rectifier. Insensitivity to frequency is obtained by operating the voltage unit on full-wave, rectified a-c voltage. The reactor in the a-c circuit is used to compensate for the tendency of the voltage unit to respond to the instantaneous voltage values and, as a result, drop out at higher r. m. s. values. The reactor causes the rectified current in the voltage unit to increase slightly as the frequency decreases, thereby maintaining a dropout value of approximately the same r. m. s. voltage over a 20 to 60 cycle frequency range.

The series resistor in the operating coil circuit minimizes the effect of relay coil temperature variation.

three-phase: Three-phase types consist of an SV or SV-1 voltage unit, a series resistor, and a three-phase bridge rectifier.

adjustment

The scale on both single- and three-phase types is calibrated in voltage drop-out values; 24 to 36 volts for type SVF, and 30 to 45 volts for the SVF-1.

A typical value of pick-up voltage for the SVF relay is 95 volts for a 45-volt dropout setting. A similar value for the SVF-1 is 100 volts for a 36-volt dropout setting.

Both types are designed for a nominal 120-volt system.

case

SVF and SVF-1 relays are available in the FT-21 Flexitest universal case only.

motor transfer schemes

On motor transfer schemes, the three-phase SVF or SVF-1 relay senses the magnitude of residual voltage in a motor, and allows transfer of the motor to an alternate supply source when the residual voltage has decreased to a value determined by the selected dropout voltage setting of the relay.

drop-out to pick-up ratio

Relays can be set for specific values of either pick-up or drop-out. For example, if a relay is adjusted for any pick-up value, the corresponding drop-out ratio will fall well within the limits given in the table below. This ratio will vary with different types of relays, as shown, or may change somewhat at different settings, but remains substantially constant at any one setting. Drop-out to pick-up ratio is closely repetitive at the same setting independent of the number of operations or temperature increase.

current relays: SC and SC-1

types	cycles:■	drop-out to pick-up ratios		range of pickup adjustment	max amp continuous	one-second rating in amperes	burden◆ 5 amp at 60 cycles	
		a-c	d-c	amps			watts	volt-amps
SC	d-c or 25 to 60	90-98%	65-80%	.5-2	1.5	70	99	225
				1-4	3	140	28	65
				2-8	6	280	6.9	19
				4-16	12	460	1.5	5
				10-40	25	460	.24	.7
				20-80	40🌡	460	.07	.16
				40-160	40🌡	460	.03	.05
				4-100✣	10-15-20	460	1.7-.6-.18	5-1-.2
SC-1	d-c or 25 to 60	35-60%	25-40%	.5-2	1.5	70	100	210
				1-4	3	140	24	60
				2-8	6	280	6	16
				4-16	12	460	1.5	5
				10-40	25	460	.25	.65
				20-80	40🌡	460	.07	.16
				40-160	40🌡	460	.03	.05
				4-100✣	10-15-20	460	1.7-.6-.18	5-1-.2

voltage relays: SV and SV-1

types	cycles	drop-out to pick-up ratios		range of adjustment	max volts continuous‡	burden◆ 120v, a-c or 125v, d-c	
		a-c	d-c	volts		watts	volt-amps
SV	60	90-98%	....	7-16	16	...	2.8+
	60	90-98%	....	70-160	160	3.4	7.3
	50	90-98%	....	70-160	180	2.8	6.1
	d-c	....	65-80%	50-150	150	4.8	...
	d-c	....	65-80%	100-300	300	1.11	...
SV-1	60	40-80%	....	70-160	160	4.1	8.5
	50	40-80%	....	70-160	180	3.5	7.1
	d-c	....	25-40%	50-150	150	4.8	...
	d-c	....	25-40%	100-300	300	1.11	...

■ Standard current relays are calibrated on 60 cycles. This calibration is correct for 25 cycle and d-c applications, within 10% to 15%.

◆ Values of watts and volt-amperes in the tables are average for various plunger and shunt positions.

‡ Maximum continuous volts for the a-c SV and SV-1 relays at **minimum** pick-up. At **maximum** pick-up the continuous voltage can be increased 10% to 20%.

🌡 Relays in Flexitest case have a maximum continuous current rating of 30 amperes.

✣ See page 3 for scale marking and adjustment ranges.

\+ At minimum pickup.

voltage relays: SVF, SVF-1

single phase‡

relays energized with 120 volts

relay type	frequency in cycles	volt-amperes burden
SVF	60	17
	25	18.5
SVF-1	60	17
	25	18.5

three phase‡

relays energized with 120 volts, balanced three-phase voltage

relay type	frequency in cycles	volt-amperes burden		
		phase A	phase B	phase C
SVF	60	9.6	9.6	9.6
	25	9.6	9.6	9.6
SVF-1	60	9.6	9.6	9.6
	25	9.6	9.6	9.6

‡ Values of volt-amperes listed are average values for various plunger and shunt positions.

additional burden data: SC, SC-1

relay	burden	at minimum pick-up			at multiples of minimum pick-up (60 cycles)			at maximum pick-up
		cycles		d-c				
		60	25		3	10	20	
SC	watts	1.0	0.65	0.57	..	...	...	multiply minimum values by 16
	volt-amps	3.4	1.4	....	31	240	770	
SC-1	watts	1.3	0.7	0.57	..	...	...	
	volt-amps	3.5	1.3	....	31	240	770	

contact rating: amps

SC, SC-1, SV, SV-1
SVF, SVF-1

control circuit		contacts will:		
volts	cycles	close	open	carry
120	60	30	5	5
125	d-c	30	1	5

time curves

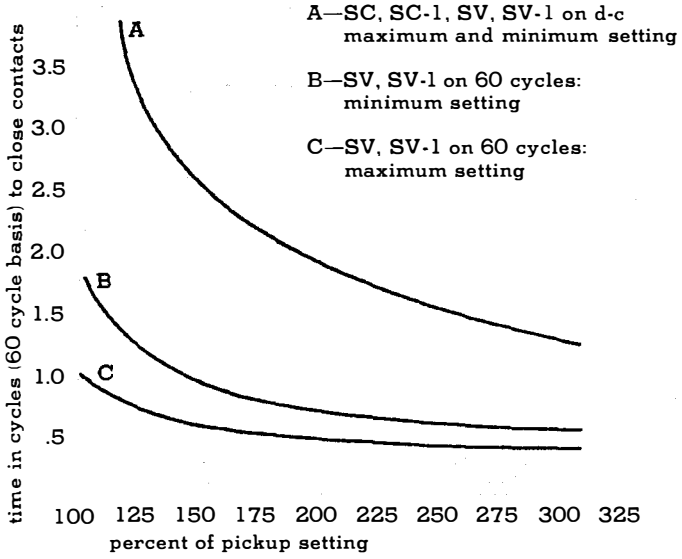


fig. 6

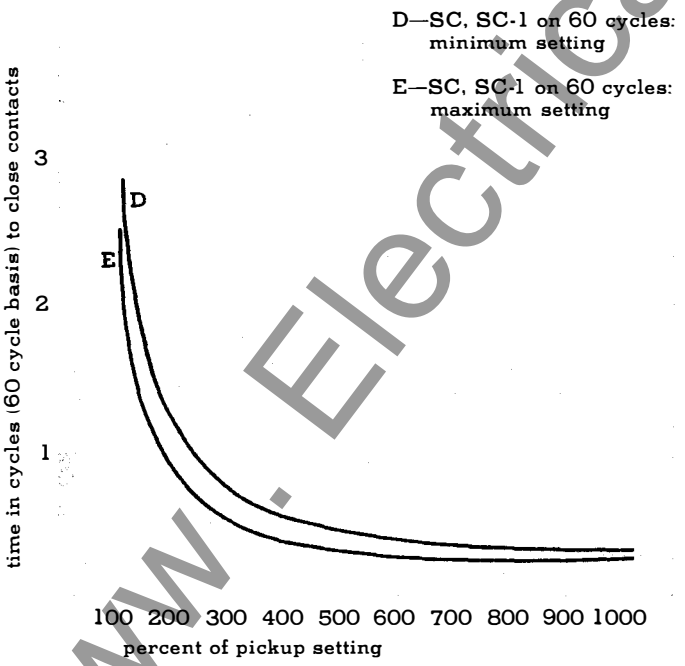


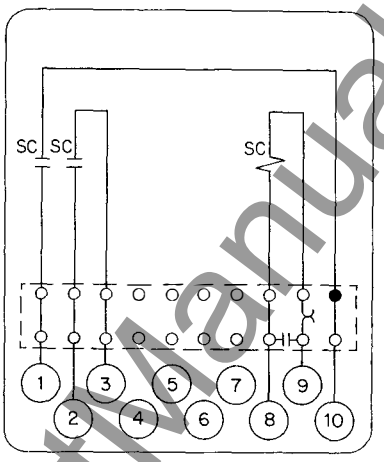
fig. 7

internal wiring front view

Flexitest case types

SC, SC-1 • current operated

single unit in FT-21 case



unit tapped for 4 to 100 amp range

Flexitest switch

current test jack

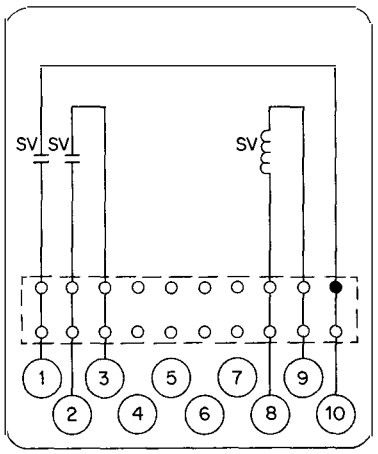
shorting switch

case terminals

fig. 8

SV, SV-1 • voltage operated

single unit in FT-21 case

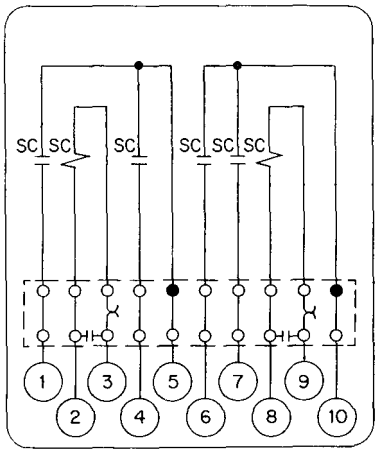


Flexitest switch

case terminals

fig. 11

two unit in FT-21 case



left unit

right unit

Flexitest switch

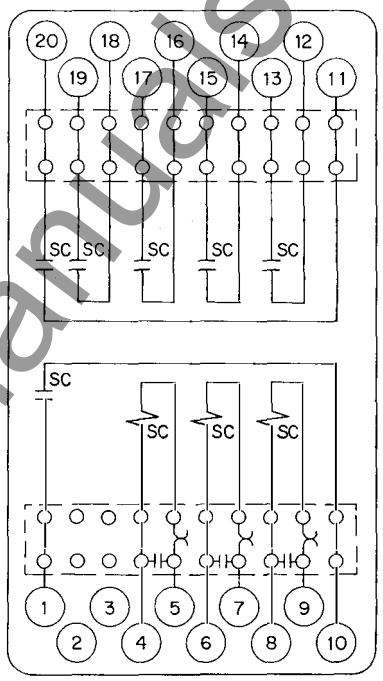
current test jack

shorting switch

case terminals

fig. 9

three unit in FT-32 case



bottom unit

top left unit

top right unit

current test jack

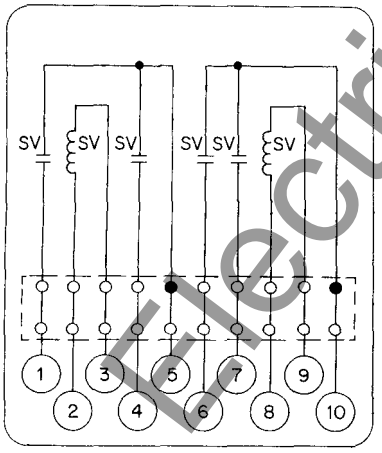
Flexitest switch

shorting switch

case terminals

fig. 10

two unit in FT-21 case



left unit

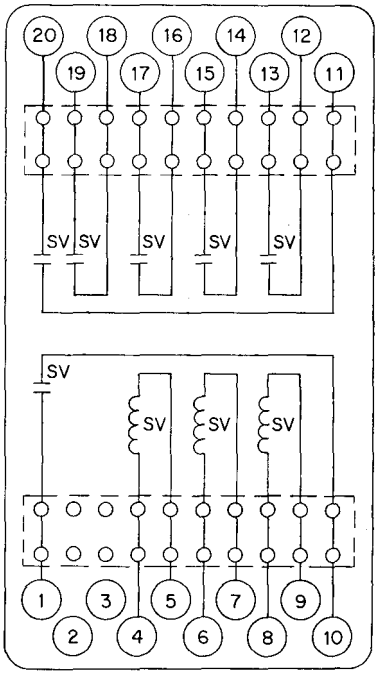
right unit

Flexitest switch

case terminals

fig. 12

three unit in FT-32 case



bottom unit

top left unit

top right unit

Flexitest switch

case terminals

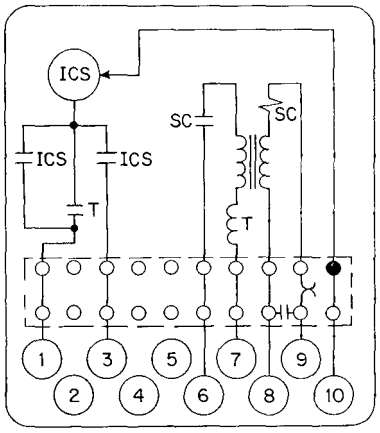
fig. 13

internal wiring front view

Flexitest case types, continued

SCT • current operated

adjustable definite time delay in FT-21 case

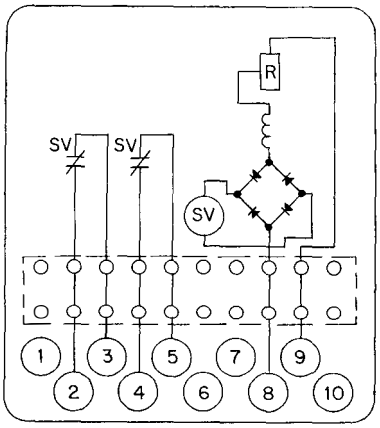


Indicating Contactor Switch
overcurrent unit
saturating transformer
timer unit
Flexitest switch
current test jack
shorting switch
case terminals

fig. 14

SVF, SVF-1 • undervoltage operated

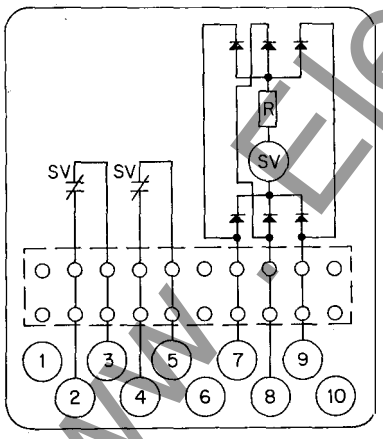
single phase in FT-21 case



resistor
reactor
Flexitest switch
case terminals

fig. 15

three phase in FT-21 case



resistor
voltage unit
Flexitest switch
case terminals

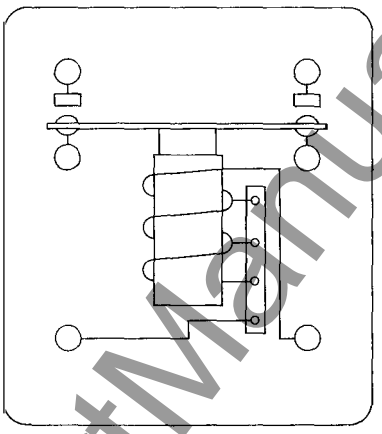
fig. 16

small glass projection case types

SC, SC-1, SV, SV-1

current and voltage operated

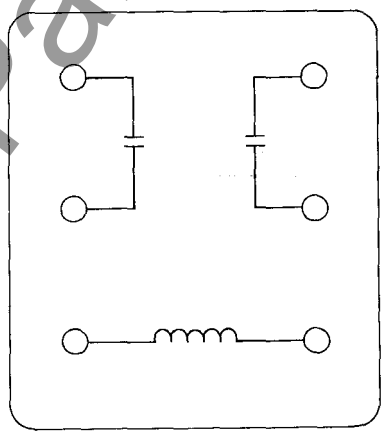
rear connected



terminals
stationary contacts
moving contacts
insulator support
tap block supplied only on 4—100 amp SC, SC-1 relays

fig. 17

front connected



terminals
contacts
coil

fig. 18

ordering information • list prices

see price list 41-020.

case dimensions

Flexitest case types: see descriptive bulletin 41-075.
Other case types: see descriptive bulletin 41-075A.

carton dimensions and weights

case type	no. of units	weight, lb net	weight, lb shipping	domestic shipping carton, in.
small glass	1	2	6	9½ x 10½ x 11
Flexitest: FT-21	1	10	13	9 x 12 x 13
	2	12	15	
FT-32	3	15	19	13 x 13 x 21
	4	18	22	

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