

TYPE VSO RECLOSER

EQUIPMENT SPECIFICATIONS: Type VSO Recloser

Automatic Circuit Recloser with static control, vacuum interruption and oil insulation.

STANDARDS

The recloser covered by this specification shall be manufactured and tested in accordance with ANSI C37.60.

RATINGS

Maximum Design Voltage, kV	38.0
Nominal Operating Voltage, kV	34.5
Basic Insulation Level (BIL), kV	150
60 Cycle Withstand	
Dry, One Minute, kV	70
Wet, Ten Seconds, kV	60
Continuous current, amperes	800
Interrupting rating, RMS, symmetrical amps	12,000

DUTY CYCLE

<u>PERCENT OF INTERRUPTING RATING</u>	<u>NUMBER OF UNIT OPERATIONS</u>	<u>MAXIMUM CIRCUIT X/R VALUE</u>
15-20	88	4
45-55	112	8
90-100	<u>32</u>	15
total:	232	

RECLOSER FEATURES

The recloser shall be mechanically and electrically trip free.

All three poles of the recloser shall be operated simultaneously.

The recloser shall be opened and closed by means of energy provided by a motor operating at 230-vac, 60 hertz and stored in springs for both tripping and closing operations.

Bushings shall be of "wet" process porcelain and shall have a minimum creepage distance of 23 1/2 inches. Bushing terminals shall be of the universal clamp type and shall accommodate conductors ranging in size from 1/0 to 500 MCM inclusive.

A four-stage auxiliary switch shall be provided with all contacts wired to a terminal strip in the motor-operated cabinet.

Current interruption shall occur in sealed vacuum interrupters, one interrupter per pole.

The recloser interrupting time shall be 0.025 seconds maximum.

The recloser shall be shipped mounted on a substation type frame. The frame shall have a tank lifting windlass.

The recloser shall be shipped filled with oil to the proper level. A dipstick shall be provided for checking oil level. A low oil level sight gauge shall be provided.

The mounting frame shall have a grounding pad which will accommodate two No. 2/0 to 250 MCM conductors.

Sensing bushing current transformers, 1000:1 ratio, for use with the static overcurrent control, shall be mounted internally in the recloser on bushings 1, 3 or 5.

CONTROL FEATURES

The operating sequence of the recloser shall be controlled by an electronic control assembly that can be located remotely from the recloser. The control shall be housed in a weatherproof cabinet with a door that can be padlocked.

Energy for initiating tripping and closing operations shall be supplied by a nickel-cadmium battery in the electronic control cabinet.

The battery charger will be maintained by a battery charger in the control powered by an externally provided 120-vac source.

All adjustments in operating sequence shall be capable of being made without untanking or deenergizing the recloser.

The number of operations to lockout shall be determined by a four-position rotary selector switch with a clamping device on the control panel. The positions shall be designated 1 - 2 - 3 - 4.

The number of fast phase trip operations in the operating sequence shall be determined by a five-position rotary selector switch with a clamping device on the control panel. The positions shall be designated 0 - 1 - 2 - 3 - 4.

The number of fast ground trip operations in the operating sequence shall be determined by a second five-position rotary selector switch with a clamping device on the control panel. The positions shall be designated 0 - 1 - 2 - 3 - 4.

The three reclosing intervals shall be individually selected by plug-in components inserted in three receptacles on the control panel.

The resetting interval shall be determined by a plug-in component in a receptacle on the control panel.

Phase trip minimum trip values shall be determined by three cartridge type resistors inserted in clips on the control panel.

The recloser shall be capable of being closed or locked out manually from the control panel by one spring-loaded rotary control switch with "CLOSE", "TRIP", and center or neutral positions.

To facilitate picking up cold load without blocking tripping operations, holding the control switch in the "CLOSE" position shall make all tripping operations in the operating sequence retarded.

One-operation lockout shall be accomplished by a toggle switch on the control panel with "NORMAL RECLOSING" and "NONRECLOSING" positions.

Ground trip blocking shall be accomplished by a toggle switch on the control panel with "NORMAL" and "GROUND TRIP BLOCK" positions.

Recloser lockout indication shall be provided on the control panel by a lamp energized by the control battery through a spring-loaded toggle switch with "LAMP TEST" and "LOCKOUT TEST" positions. The spring shall return the switch to the center position to disconnect the battery from the lamp.

The number of tripping operations shall be recorded by an electrical operations counter on the control panel.

A thermostatically controlled heater which turns "on" at 85° F and "off" at 100° F and operated at 120-vac shall be provided to minimize condensation.