

Molded vacuum recloser (MVR) FAQ

No.	Question	Answer
1	What is the MVR operation sequence time?	This is controlled by the SEL [®] control. When programming the sequence on a 351R control, the sequence entered should not be faster than the fastest sequence possible on the 651R or Kestrel control.
2	What is the MVR operation time for open/close?	12 msec./24 msec.
3	What is the trip and closing voltage?	155 V DC
4	What is the terminals' cantilever strength?	60 lbs.
5	How does the trip handle mechanically open the three magnetic actuators?	The trip rod has three integrated levers (one for each phase) that push down on the trip ring on each phase when the trip handle is pulled down. The applied force breaks the holding force of the magnets, and the opening springs in the magnetic actuators cause each phase to open.
6	What is the power required to operate the magnetic actuators and how is it achieved?	The power is achieved by capacitive discharge through a single coil. When applied in a forward direction, the magnetic actuator is pulled closed, where the magnet holds the actuator in the closed position. When applied in a reverse direction, the force generated overcomes the holding force of the magnet, and the opening springs take over to pop the actuator open.
7	Since the MVR is electronically ganged, how is it guaranteed that the three phases will open/close at the same time? What is the time difference, or open/close threshold?	Sync is verified at the factory before shipment. Open/close threshold is <4 msec. for 15/27 kV units and <2 msec. for 38 kV units.
8	What happens if one of the magnetic actuators has a malfunction?	The phase with the malfunction will not operate. The SEL control will generate an error report.
9	What is the safety feature for avoiding one or two phases staying open or closed during a magnetic actuator malfunction?	If desired, the SEL control can be programmed to open or close all phases if one phase does not open/close correctly.
10	Does the MVR have an alarm if one of the magnetic actuators fails?	The MVR does not, but the SEL control can be programmed to provide an alarm.
11	What power is required for the MVR power box?	24 V DC is supplied through the main SEL cable from the SEL control unit. No additional power is needed.
12	Does the MVR power box draw its power from the battery?	The MVR power box charges from a combination of AC and the battery. With the 351R control, both the battery and AC voltage must be present to perform a full reclose sequence. If AC power is not present or the battery is bad or disconnected, the control will initiate a single open if a fault occurs and then drive to lockout.
13	How are the current and voltage sensors brought to the power box on a 351R and then fed through to the 351R control?	Voltage sensing is not available with the 351R control, but only with the 651R controls. Currents are fed directly through the power module onto the 351R control.
14	How many operations can the MVR perform when using the 351R and the power module if AC power is lost?	See line 12.

No.	Question	Answer
15	What testing was performed on the silicone sheds and EPDM insulation pole to guarantee material compatibility?	Testing included environmental aging, chemical analysis and analysis of the physical properties.
16	What testing was performed on the removable silicone sheds to avoid external expansion and avoid water ingress?	The physical properties of the EPDM are matched to that of the silicone so that they expand and contract at the same rate.
17	The bottom removable shed has a very small gap between it and the housing. Is there a possibility of arcing at this point?	No. The MVR passed more than 1600 hours of salt fog testing at 38 kV system levels.
18	What is the accuracy of the current and voltage sensors?	Accuracy is Class 1 for CT; 3% for VT load side and 1% for VT source side.
19	What are the current and voltage sensors' ratios?	Current sensor: 1000:1 or 500:1. Voltage sensor: 10,000:1.
20	Do the SEL controls require AC external power, and if so, how much?	A user-supplied 120 V AC power source is required to power the SEL controls.
21	If an external potential transformer (PT) is used to provide the control power source, what is the PT kVA size recommended?	Customers can use a 0.5 kVA or larger PT for the control power source.
22	What is the maximum wire capacity of the MVR ground lugs or the recommended size of a ground wire?	The ground lug connector can accommodate a 1/0 AWG cable. We recommend using at minimum a #6 AWG grounding cable.
23	What is the maximum weight for a PT mounted on the arrester frame?	Maximum weight for a PT mounted on the arrester frame is 100 lbs.

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