

Product comparison

Medium-voltage CMR compact modular recloser
and Fusesaver™ overhead circuit breaker

This document is intended to compare the [CMR compact modular recloser](#) to the [Fusesaver overhead circuit breaker](#) to help a reader identify the right product for their application.

CMR compact modular recloser

Applications:

- Single-phase, oil-filled recloser replacement.



Problems solved:

- Reduces routine maintenance OPEX.
- Reduces risk of injury to the public and operators, and damage to the environment from burning oil should it fail catastrophically.

Fusesaver circuit breaker

Applications:

- Helps save fuses from transient faults and mitigates wildfire risk.



Problems solved:

- Reduces OPEX spend on rolling trucks to replace unnecessarily blown fuses. This saved OPEX could then be used elsewhere in the system.
- Improves distribution system's reliability performance beyond the improvement already provided by traditional reclosers.
- Provides a better understanding of what is happening on the system beyond the feeder recloser.
- Reduces insurance premiums by reducing the risk of assets igniting a fire where the distribution system runs through a wildfire risk zone.

Needs fulfilled

CMR

- Eliminates hydraulic (oil-filled) single-phase reclosers from the network.



Fusesaver

- Improves reliability in remote or lightly loaded areas of the network, such as spur lines and laterals.
- Gives a better situational awareness of the remote parts of the distribution system.
- Reduces the wildfire risk from fault-protection devices on the distribution system.

Value proposition

CMR



OPEX reduction:

CMR is a drop-in replacement for single-phase oil-filled reclosers to reduce oil in the distribution system. By offering a vacuum interrupting, lightweight, fully insulated, reduced-maintenance alternative that matches the protection speeds of hydraulic reclosers, CMR minimizes the operator learning curve. Equipped with operating levers that match those on oil-filled reclosers, CMR is intuitive to use.

Fusesaver

OPEX reduction:

As the world's fastest circuit breaker, Fusesaver pays itself back in four operations by reducing unnecessary truck rolls. Clearing faults in less than one cycle, Fusesaver clears transient faults before the fuse blows unnecessarily. Its light weight and short installation time (less than 30 minutes) makes it ideal for quick deployment and rapid ROI.



Improve distribution system reliability:

Fusesaver improves distribution system reliability by clearing transient faults before they blow a fuse unnecessarily. Fusesaver is a self-powered, lightweight, ultra-fast circuit breaker (the world's fastest) that can work in single-phase or multi-phase configurations.



Wildfire risk mitigation:

As a CAL FIRE exempt device, Fusesaver is a vacuum interrupting, ultra-fast circuit breaker that extinguishes an arc in less than one cycle. Fusesaver breaks the arc before the arc has enough energy to ignite surrounding fuel (in less than 20 ms). Optional remote control allows Fusesaver to be tripped remotely to shut off power on high-risk days. While it is a short-sequence reclosing device to further minimize wildfire ignition risk, reclose can be turned off remotely if desired.



Advantages, applications, and technical data

CMR

Fusesaver

Key advantages:

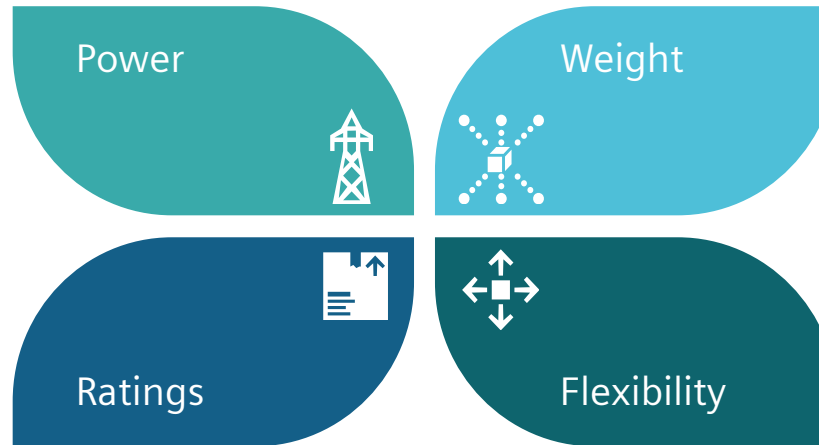
- Ratings: 12.5 kA, 630 A, insulated housing
- Hydraulics: <6 kA, <280 A
- Light weight, wireless peer-to-peer communications for multi-phase operation, remotely resettable.

Item	Compact modular recloser (CMR)	Fusesaver overhead circuit breaker
Applications	<ul style="list-style-type: none"> • High-volume replacement • Up to 12.5 kA 	<ul style="list-style-type: none"> • Improve rural reliability • Reduce unnecessary outages in remote areas • Minimize wildfire ignition risk
Function	Recloser	Reclosing circuit breaker
Interrupting medium	Vacuum	Vacuum
Rated operating sequence	O-0.3 s-CO-2 s-CO-2 s-CO	O-1 s-C with partner fuse; O-2s-CO without partner fuse
Manual control	Hookstick; computer	Hookstick (Communications Module required); computer
Grounding required	Yes	No
Design	Insulated housing	Live housing
I_{cc}	630 A	100 A/200 A depending upon model
I_{sc}	6.3 kA/12.5 kA depending on model	4 kA/6.3 kA depending on model
U_n	Up to 38 kV	Up to 27 kV
Lightning impulse withstand (BIL)	110 kV/125 kV/150 kV/170 kV	110 kV/125 kV
Weight in lbs	44	12
Mounting	Pole/crossarm	Conductor/pole/crossarm
Number of operations at I_{cc}	10,000	2,000
Number of operations at 100% I_{sc}	70/240 depending on model	70/30 depending on model
Voltage sensing – line	Yes	No
Voltage sensing – load	No	No
Actuator	Magnetic	Magnetic
Power source	Line voltage	Line current (0.35/0.5/1 A minimum) depending on model
Battery backup	Rechargeable	Primary cell or rechargeable
GPS time-sync - standard	Yes	No
GPS location – standard	Yes	No
Non-reclosing (NR) lever	Yes	Yes, external lever is configured for NR function
Color	Red	Brushed metallic
Manual trip/close lever	Yellow	Trip and close in Communications Module
Mechanical trip	Yes	No
Base protection curves	Recloser curves	Fuse curves

Features and benefits

	CMR	Fusesaver
Feature	Voltage powered	Powered by as little as 350 mA
Benefit	No load current required	Low cost, but high availability


	CMR	Fusesaver
Feature	630 A/12.5 kA	200 A/6.3 kA
Benefit	Reduced inventory	Reduces roll-outs to the remotest, most lightly loaded parts of the network



	CMR	Fusesaver	
Feature	Only 44 lbs	Only 12 lbs	Feature
Benefit	Single bucket installation	Single bucket installation	Benefit

	CMR	Fusesaver	
Feature	Behaves like a hydraulic recloser	Configurable behavior	Feature
Benefit	Familiar functionality so minimal operator learning curve	Can be adapted to the system conditions in remote network locations	Benefit

Where found



CMR

- Anywhere on rural overhead distribution outside the substation: feeders, spurs, laterals.

Fusesaver

- On overhead distribution at the start of spur/laterals/taps some distance from the substation.
- At the top of a riser or a dip (transition from underground cable to overhead line).

Published by Siemens Industry, Inc. 2020.

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Article No. SIDS-B40057-00-4AUS

Printed in U.S.A.

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