

The background of the advertisement is a photograph of a wooden utility pole with several cross-arms. Each arm holds electrical equipment, including fuses and insulators. The sky is a clear, bright blue with some light clouds. The Siemens logo is positioned in the top left corner, overlaid on a white rectangular background.

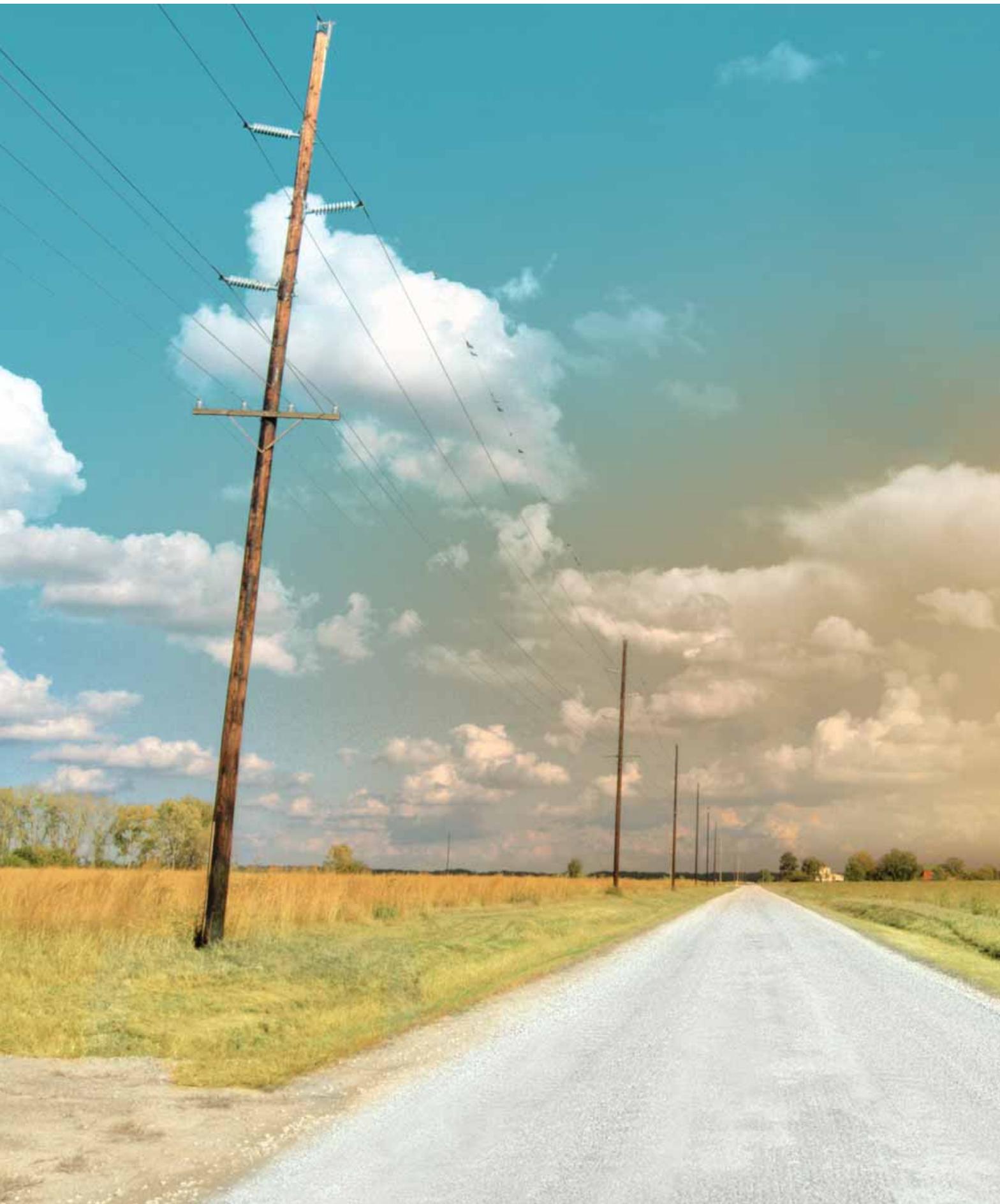
SIEMENS

www.siemens.com/Fusesaver

Siemens Fusesaver™

Highest availability and cost savings
for your MV distribution network

Answers for infrastructure and cities.

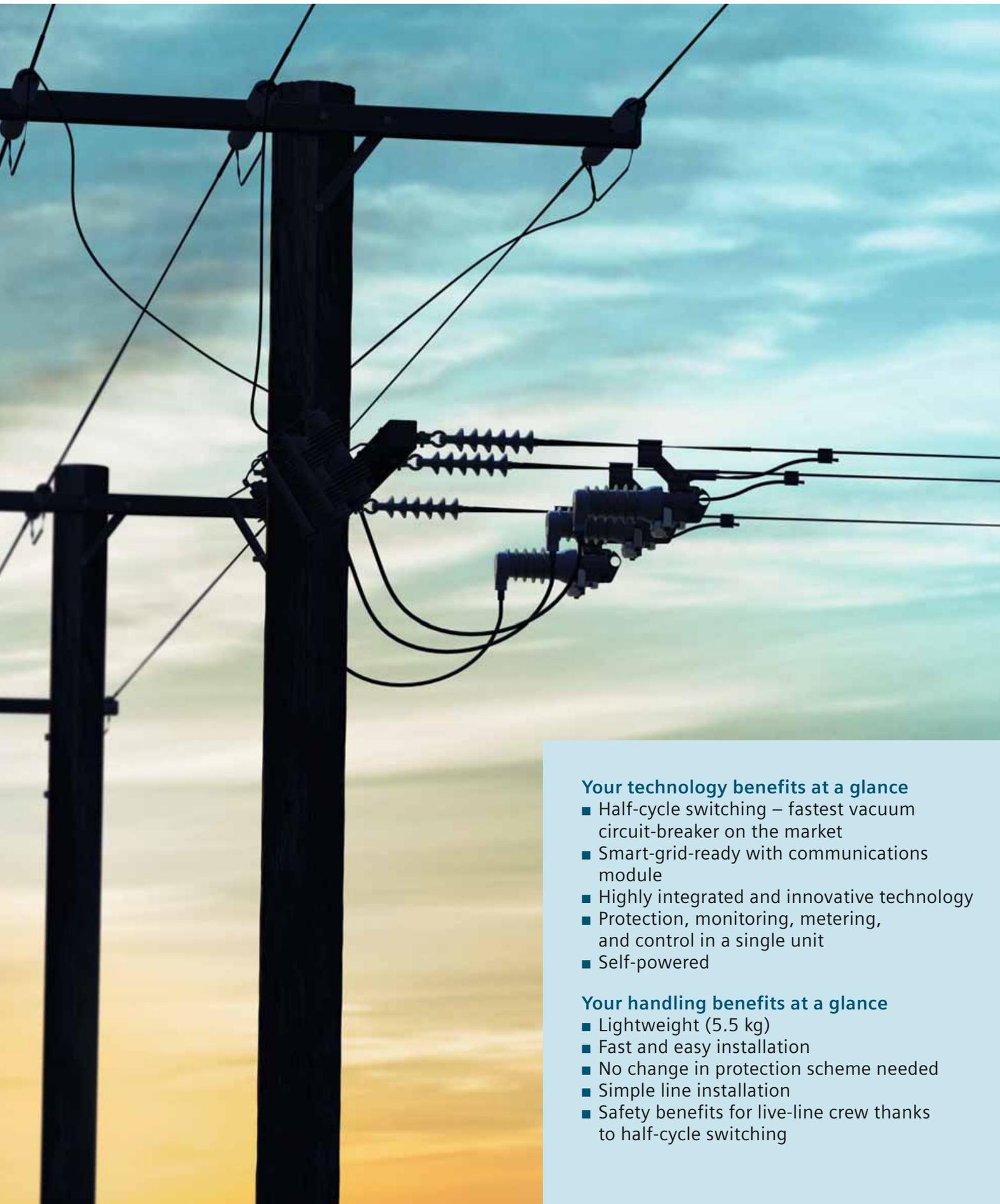




In high demand: An intelligent solution

Improving power quality in a demanding and competitive business environment is one of the most challenging tasks for power utilities today.

Reducing the number and duration of power outages and limiting the number of affected customers are important steps toward this goal.



Your technology benefits at a glance

- Half-cycle switching – fastest vacuum circuit-breaker on the market
- Smart-grid-ready with communications module
- Highly integrated and innovative technology
- Protection, monitoring, metering, and control in a single unit
- Self-powered

Your handling benefits at a glance

- Lightweight (5.5 kg)
- Fast and easy installation
- No change in protection scheme needed
- Simple line installation
- Safety benefits for live-line crew thanks to half-cycle switching

Our answer: Siemens Fusesaver

In most network configurations, the feeder is protected by a circuit breaker or recloser. Spur lines* are usually protected by fuses. However, a fuse is unable to distinguish between temporary and permanent faults. Since 80 percent of a network's faults are temporary, 80 percent of its fuses are blown unnecessarily.

This means that:

- the fuse is needlessly damaged,
 - the line crew spends time detecting the fault location and replacing the fuse, and
 - downstream users are left without power for no good reason,
- resulting in high material costs and personnel expenses as well as potential penalty payments.

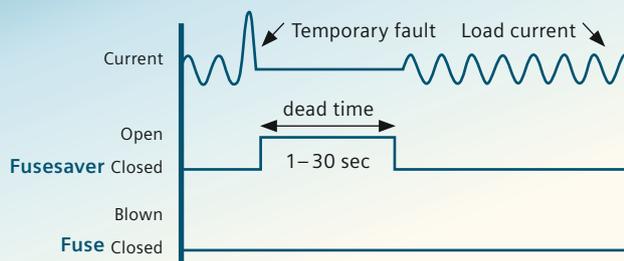
Siemens' Fusesaver is the perfect protection solution for overhead spur lines. It is capable of almost completely removing the impacts of temporary fault currents on your spur lines. Thanks to its unique fault-clearing speed (one-half cycle), the Siemens Fusesaver protects the fuse in the case of temporary faults.

The Fusesaver is designed to be installed in series to the fuse. When it senses a fault current, it will open and stay

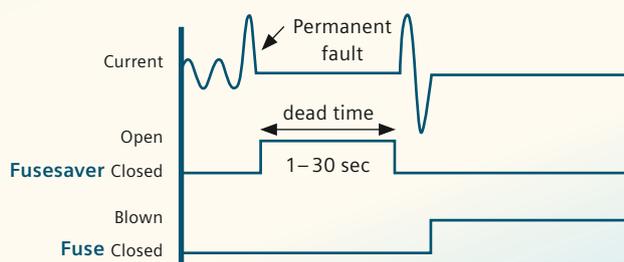


open for a pre-determined time (dead time). Then the Fusesaver closes again and remains closed. Depending on the type of fault, there are distinct effects on the feeder.

Performance with temporary faults



Performance with permanent faults



Performance with temporary faults

In this case, the fault disappears during the Fusesaver's dead time. After closing the power supply is restored. The fuse did not operate, and the Fusesaver is ready for the next fault. Only the customers on the affected spur experienced an interruption in power during the Fusesaver's dead time, while all other customers on the feeder, including nearby spurs, did not even notice its operation – in less than one cycle.

Performance with permanent faults

When the Fusesaver closes, the fault is still present, resulting in an immediate fault current. The Fusesaver will not operate again and allow the fault current to blow the fuse. Loss of power is unavoidable for customers on this spur, while all other customers receive an uninterrupted power supply. The Siemens Fusesaver restricts blown fuses on spur lines to unavoidable cases of permanent faults.

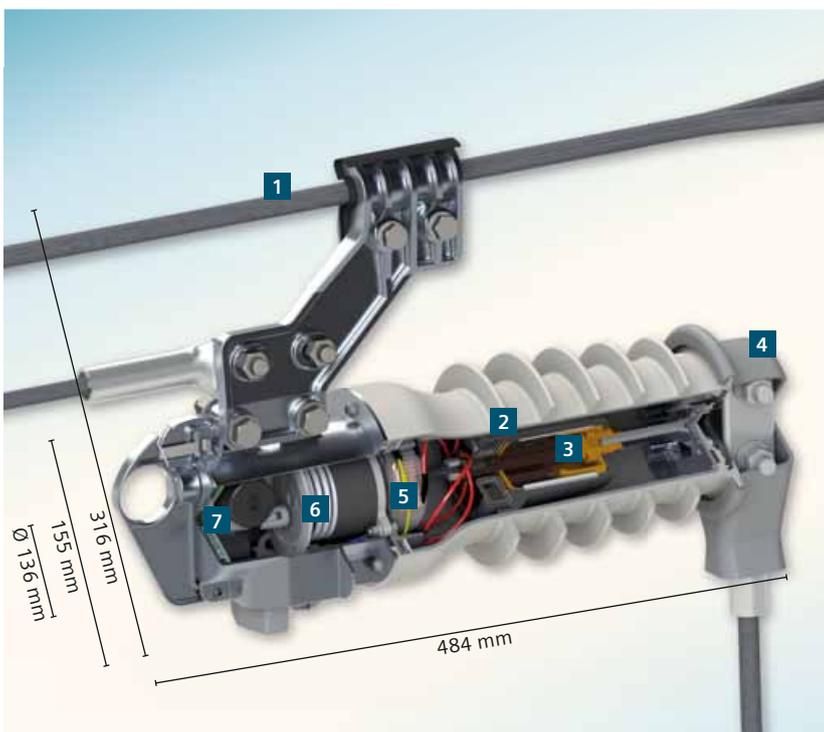
* also referred to as T-offs or laterals

Siemens' Fusesaver – an optimally compact design matched with rapid ROI*

The first saved fuse pays the installation costs, the second saves your money ...

In a typical distribution network, the average outage duration per year (SAIDI) is within the range of hours.

Installing a Siemens Fusesaver can reduce this duration to an absolute minimum, saving you thousands of dollars every year.



- 1 Dead-end
- 2 Fault-detection current transformer
- 3 Vacuum interrupter
- 4 Birdguard (optional)
- 5 Power current transformer
- 6 Magnetic actuator
- 7 Electronic module



Your cost benefits at a glance

- Return on investment typically in less than two years
- Improved network reliability means fewer penalty payments for both
 - SAIFI and
 - SAIDI
- Reduced operating costs thanks to reduced maintenance callouts

Siemens Fusesaver – a well thought-out system

In order to minimize installation and operating costs, the Siemens Fusesaver was developed as part of an integrated system of tools and accessories. All system components work together, which permits easy installation, fast commissioning, and reliable operation in all conditions.

The communications module

Functions:

- manual operation using the Siemens Connect PC application or the exposed trip-and-close levers under the module
- if a number of Fusesavers have been configured as a group on a poly-phase line, tripping and closing will be executed synchronously on all grouped modules
- displays the Fusesaver's status data as well as phase currents and time/magnitude of the most recent fault via Siemens Connect PC application
- downloads the event log from the Fusesaver memory to the PC
- uses energy from the module's battery pack if the line is dead (to maintain time and date)
- integrates into the smart grid via the utility's SCADA system

The module allows the crew to interface with Siemens Fusesaver from ground level using a laptop or handheld device. It can be installed from the ground using a live-line stick equipped with a special communications-module attachment tool.

The communications module allows the crew to:

- program the utility's policy settings
- select unique names that identify individual locations and power lines
- set or change the fuse type and rating
- set positions (latitude and longitude)

PC communications kit

Communication with the Fusesaver is performed using a special Fusesaver PC application, a USB radio antenna, and a short-range (approximately 15-meter) radio integrated in the module.

Communications module attachment tool

The module may be installed from ground level using a live-line stick equipped with the communications module attachment tool.

Line clamping assembly

This is used to mechanically mount the Fusesaver to the overhead line.

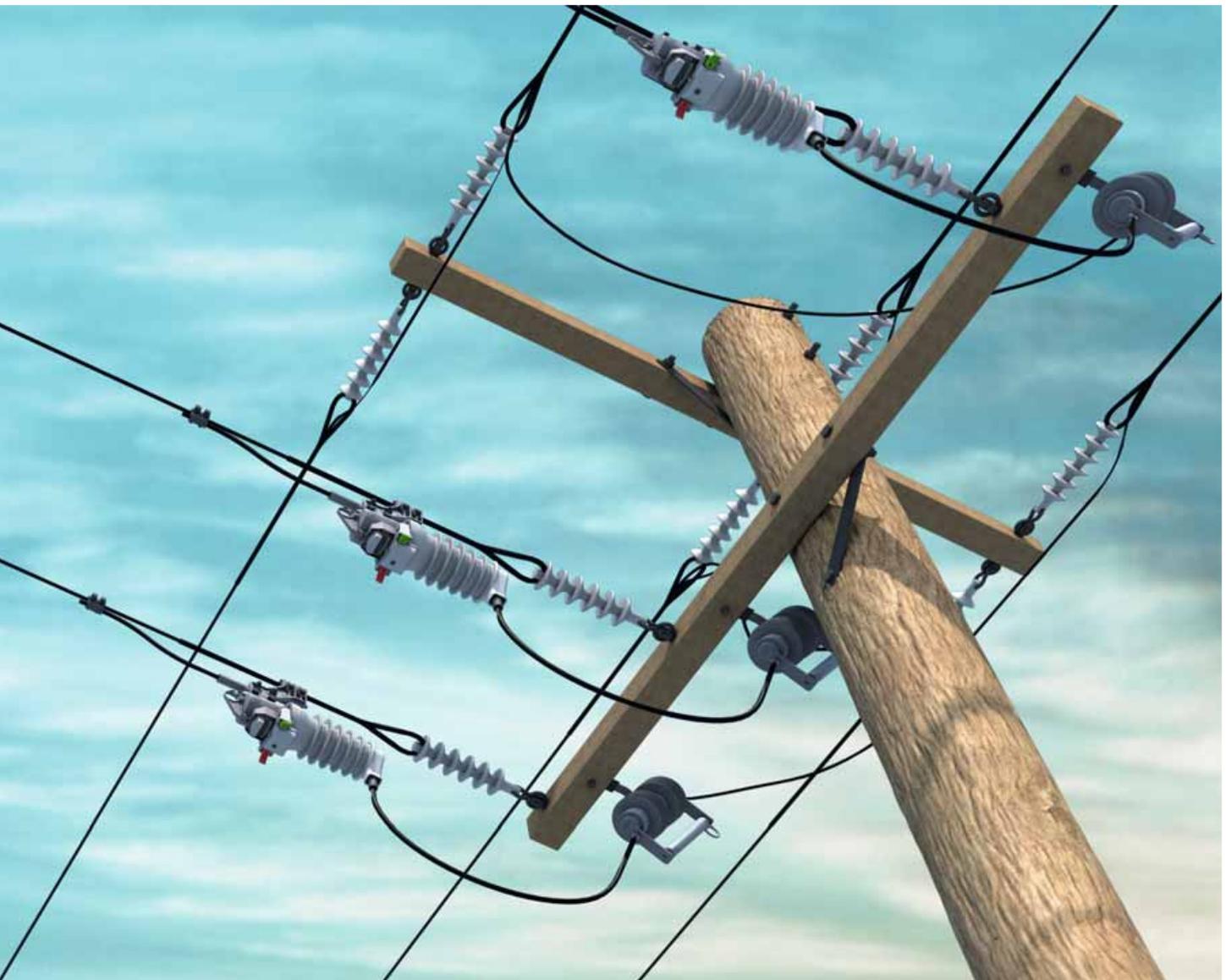
Cross-arm and pole mounting assembly

Where mounting directly on the line is impractical, a cross-arm and pole mounting assembly can be employed. It consists of a station-post insulator with custom end fittings that connect to the Siemens Fusesaver and the cross-arm.

Bird guards

Available for the free end of the Siemens Fusesaver and the connection to the pole or cross-arm mounting assembly.

Product overview					
Rated voltage	12 kV	15.5 kV	24 kV		27 kV
Fuse ratings	Up to 50 A	Up to 50 A	Up to 16 A	Up to 50 A	Up to 50 A
Rated normal current	100 A	100 A	32 A	100 A	100 A
Rated short-circuit breaking current	4 kA RMS	4 kA RMS	1 kA RMS	4 kA RMS	4 kA RMS
Rated short-circuit making current	10 kA peak	10 kA peak	2.5 kA peak	10 kA peak	10 kA peak
Rated lightning impulse withstand voltage	75 kV	110 kV	125 kV	125 kV	125 kV
Minimum line current for operation	0.5 A	0.5 A	0.15 A	0.5 A	0.5 A
Fault break operations at 100 %	30				
Minimum tripping current (configurable)	x 2 fuse rating				
Mechanical operations	2,000				
Rated frequency	50/60 Hz				
Weight	5.5 kg				



Communications module



Bird guard



PC communications kit



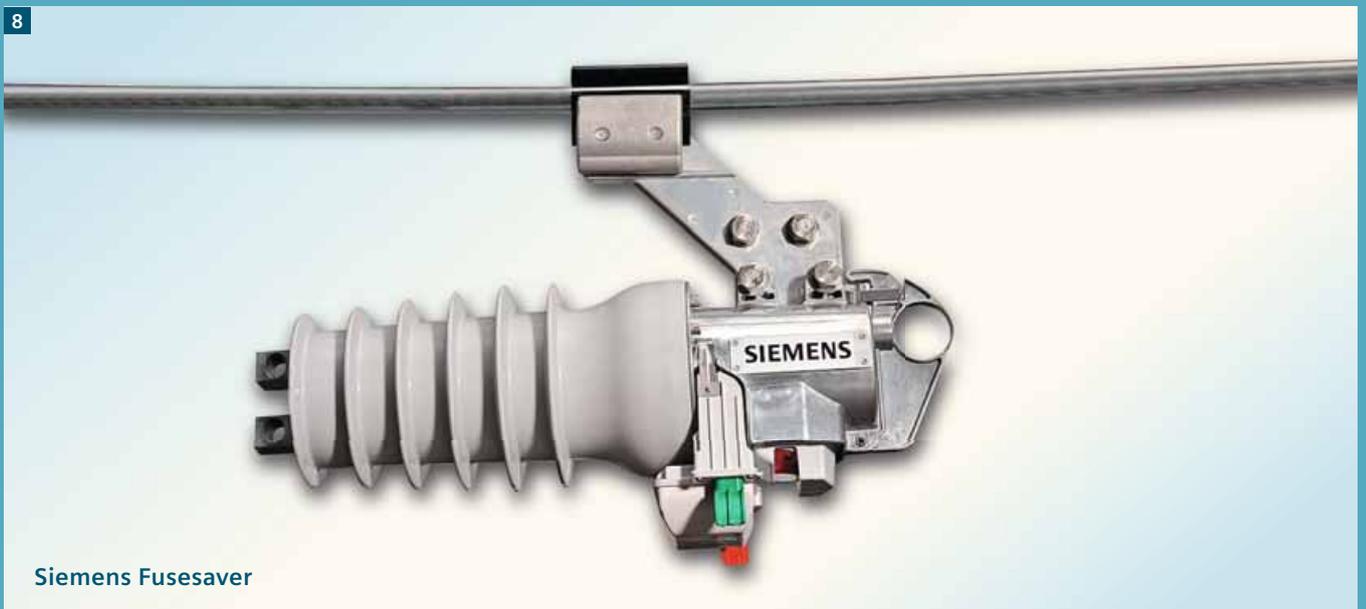
Fusesaver with line-clamping assembly

The Siemens outdoor portfolio

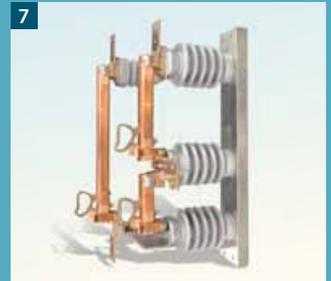
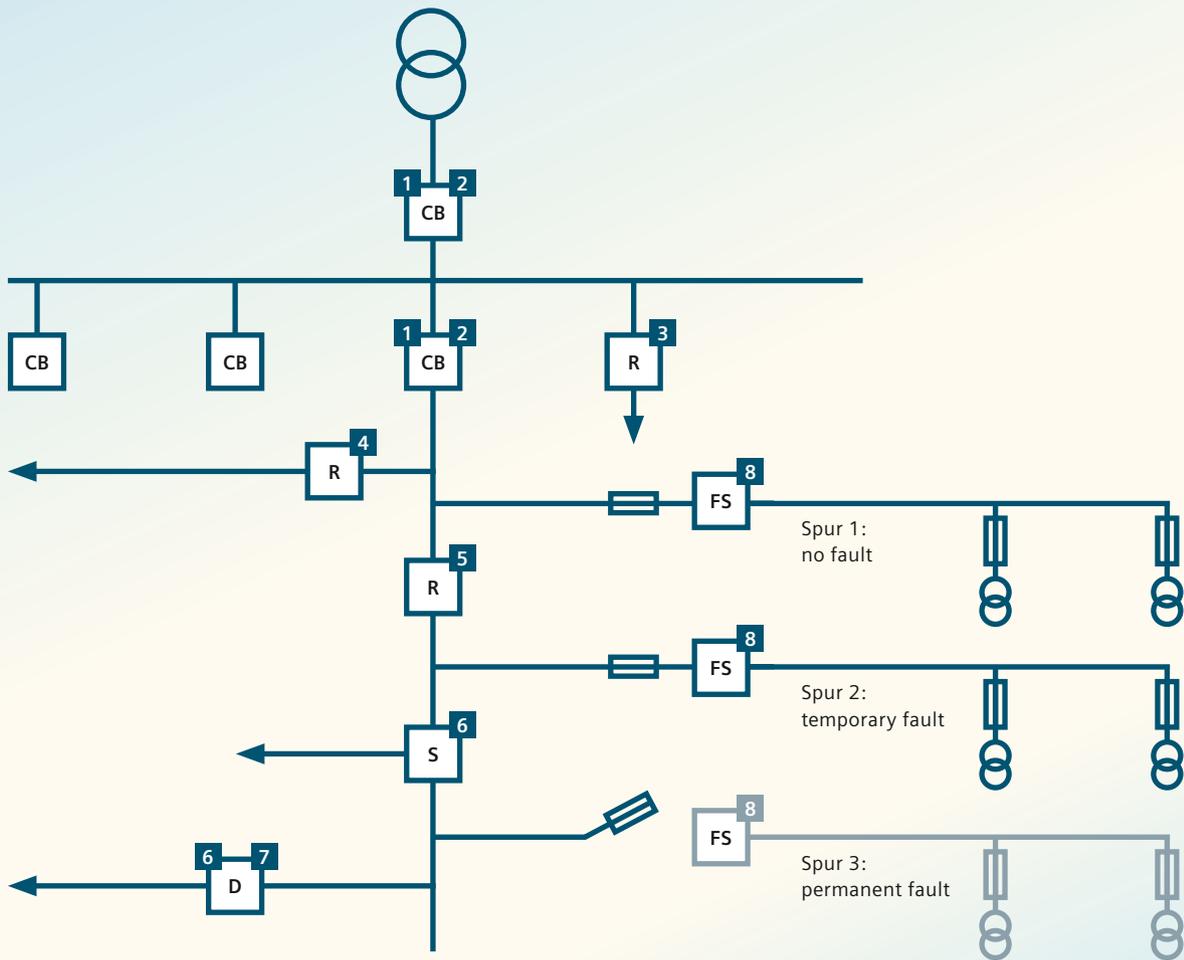
Quality products for reliable and cost-efficient rural overhead distribution networks



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Siemens Fusesaver



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Siemens AG
Infrastructure & Cities Sector
Wittelsbacherplatz 2
80333 Munich, Germany

Siemens AG
Infrastructure & Cities Sector
Low and Medium Voltage Division
Nonnendammallee 104
13629 Berlin, Germany

For more information, please contact
our Customer Support Center.

Phone: +49 180/524 70 00

Fax: +49 180/524 24 71

(Charges depending on provider)

E-mail: support.energy@siemens.com

Low and Medium Voltage Division
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