Panel builders
The widest range of components to meet all your requirements

Catalog 2022
Components for Medium Voltage Switchgear
In this overview, Schneider Electric presents all the Medium Voltage and Low Voltage components you need to build your Medium Voltage switchgear.
Contents

Medium Voltage switching devices

Protection, Metering and Feeder Automation

Accessories

Services
Electricity is getting more Digital & Sustainable, will you be ready?

Better connectivity and data analytics bring great benefits

Digitization with IoT and Connectivity, brings huge value in power management.

Beyond remote control of equipment, it brings better versatility, adapting to customers needs faster and facilitating quicker setup of products.

Operational data combined with analytics helps: enhance asset management, interoperability, optimize operating conditions and anticipate maintenance needs. Supplying smarter switchgear helps businesses stay a step ahead in a more competitive world.

SF₆-free for Partners

Our commitment to more sustainable, efficient electricity is now available to our partners. Compact and innovative features combining pure air and vacuum breaking, without SF₆ greenhouse gases.

<table>
<thead>
<tr>
<th>Simplicity</th>
<th>PowerLogic P1</th>
<th>EasyPact EXE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure air to go SF₆-free and future proof against regulatory considerations on gases</td>
<td>Easy to order with short delivery time and optimized stock</td>
<td>Easy selection and ordering</td>
</tr>
<tr>
<td>Reduce assembly time</td>
<td>Easily configured, intuitive HMI</td>
<td>Off-the-shelf availability for fast deliveries</td>
</tr>
<tr>
<td>New technology allows narrow space for panel builders switchgear</td>
<td>Easy to use and intuitive setting tool</td>
<td>IOT-connected thermal monitoring available for simple and affordable fire prevention</td>
</tr>
<tr>
<td>End-to-end digital ecosystem from selection to delivery ease project management</td>
<td>Easy and fast (10 sec) mounting with spring clips</td>
<td>Service enabler for Partners (see page 50/D2)</td>
</tr>
<tr>
<td></td>
<td>Easy commissioning, operation and maintenance</td>
<td>No impact on existing switchgear structure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flexibility</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy &amp; flexible to upgrade to</td>
<td>Applicable on LV applications when ANSI functions are required</td>
<td>Modular kits for a wide choice of customizations including thermal monitoring</td>
</tr>
<tr>
<td>Easy to adopt for panel builders familiar with LBSKit</td>
<td>Cost and size optimized protection relay for compact switchgears</td>
<td>Ecostruxure ready digital solutions and services</td>
</tr>
<tr>
<td></td>
<td>Same protection relay for many applications, in green and brown fields</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Model breakdown to allow tailor the product to the application</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ideal for back-up protection</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Efficiency</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure air and vacuum are tested &amp; proven solutions</td>
<td>One simple product to cover the most common needs in Feeder and Voltage protection</td>
<td>Designed for greater safety</td>
</tr>
<tr>
<td>Cutting-edge CompoDrive mechanism</td>
<td>Low device energy consumption</td>
<td>Fast delivery, less stock, more productivity</td>
</tr>
<tr>
<td>Embedded IoT connectivity with advanced sensors</td>
<td>Cyber security enhanced by access control with three levels of password</td>
<td></td>
</tr>
</tbody>
</table>

SF₆-free for Partners

Our commitment to more sustainable, efficient electricity is now available to our partners. Compact and innovative features combining pure air and vacuum breaking, without SF₆ greenhouse gases.

New

<table>
<thead>
<tr>
<th>AirPacT</th>
<th>PowerLogic P1</th>
<th>EasyPact EXE</th>
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</thead>
<tbody>
<tr>
<td>PM106461</td>
<td>PM107253</td>
<td>PM109061</td>
</tr>
</tbody>
</table>

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How can working digitally bring more value?

Simplify your life at all steps of your business

Connect mySchneider

Register to mySchneider help you find what you need to create better and more efficient Low Voltage or Medium Voltage Switchboards, easily and in less time.

You’ll get:
- Productivity tools
- Personalized resources
- Collaborative sales support
- Trainings

With Schneider Electric Partner Program,

get more done!

Think big. Partner up!

Visit our page and get more:

Get support anytime
- 24/7 self-service, mobile catalog and access to expert help
- Off-line and on-line catalog
- Manage and track your orders
- Advanced support

Discover, select and define
Experience our advanced WEB functionalities that help to:
- Select and compare components
- Build easily and automatically your technical documentation with ready to use tools

Order and check ordering information
A self-service ordering platform to access detailed information:
- Check real-time price and availability information
- Order online
- Check order status and tracking information
- Get financial documentation
High quality components
Based on our expertise in building Medium Voltage cubicles, all the proposed components are designed to be fully consistent with the others. This assures complete interoperability, which has been tested in our own Medium Voltage cubicles equipped with these components. Moreover, our industrialized processes and quality controls guarantee the highest level of component quality to meet your most demanding expectations.

Easy to integrate
As industrial manufacturer, we value simplicity, and thus we put as priority to always increase your product knowledge and ensure easy integration with our tools and training package, allowing you to be more efficient in your business. All necessary information on mounting and assembly is supplied with each component.

Digital transformation and connectivity
We innovate to bring more values to our partners and customers helping them to get the most of their equipment and installation. We develop connected product contributing to improved safety and efficiency and offering modern remote monitoring simplifying operation and maintenance for a more profitable and long time of service duration. Medium Voltage switchboards demand more remote measurement and control capabilities.
You will find a whole range of modern monitoring and control devices acting in full complementarity with Medium Voltage switching devices.

Our purpose is to empower all to make the most of our energy and resources
• Act for a climate positive world
• Be efficient with resources
• Live up to our principles of trust
• Create equal opportunities
• Harness the power of all generations
• Empower local communities
True Peace of Mind

Fully type-tested products compliant with the latest international and local standards

We have a particular attention to safety and reliability of our products, thus during all the process from conception, and all along the manufacture, our components are following stringent tests and rigorous control routine. In addition, our devices undergo tests in laboratories across the world and are compliant with latest standards globally and locally.

More than quality and safest products we provide tools to help your business

Ease and secure your designs:
• CAD and drawings accessible from our Web and Partner Portal
• Access to product videos of installation

Share simply with your customers all technical documentations:
• Technical manuals (user guides, installation manuals, etc.)
• Products catalogs
• Maintenance guides and end-of-life manuals

Gain more autonomy and productivity using our suite of software EcoStruxure™ Power Build:
• Configure your projects simply and quickly
• Get a quick quotation
• Set up and share documentation
• Order automatically
The experience of a world leader in Medium Voltage

Schneider Electric has been manufacturing MV cubicles for more than 50 years and has an installed base of millions of products and devices. The Schneider Electric brand is known worldwide and recognized.

A long history of innovation for a global offer

Based on this experience as a world leader, Schneider Electric has developed a large and comprehensive range innovative Medium Voltage devices employing field proven and latest breaking technologies. You benefit from a global leader’s experience and know-how in electric distribution, automation and power and control.

All the devices included in this overview have been designed and manufactured to incorporate the benefits of this extensive experience. Schneider Electric devices can easily benefit from advanced functionalities of communication and monitoring enabled by IoT devices to give final switchboard and installation valuable information and enhanced operability of the complete system.

Quality certification: ISO 9001 and ISO 14001

In each of its units, Schneider Electric has an operating organization whose main role is to verify quality and ensure standards compliance. This procedure is:

• Uniform for all departments
• Recognized by numerous customers and official organizations

The quality system for design and manufacturing is certified in compliance with the requirements of the ISO 9001 quality assurance model.
Schneider Electric:  
A brand you can trust

Schneider Electric’s policy has always been to provide its customers with very close support in their daily activities to enable them to achieve operational excellence.

There are always Schneider Electric experts to support you!

Locally or on demand, our team of experts accompanies you during integration and discovering of our products.

We will add value:
• To SPEED UP adoption of our offers
• To SIMPLIFY components integration
• To PROVIDE technical knowledge/solutions

We will help you, by providing:
• Support on integration of Schneider Electric components
• Simulation of Panel Builder’s cubicles into CAE tool by our core experts, before going for extensive type testing
• Support to prepare Panel Builder’s switchgears for type testing
• Training on our products
• And welcome you in our factories!

• Our common values
  – Quality
  – Safety
  – Professionalism

• 5% of sales devoted to R&D

• Local support all over the world

• 160,000 people in more than 100 countries

• Over 100 years of protection relay experience
Medium Voltage switching devices
Medium Voltage switching devices

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## Medium Voltage Switching Devices

### Circuit-Breakers

Vacuum circuit-breakers

Protection and operation of network

<table>
<thead>
<tr>
<th>EasyPact EXE</th>
<th>EvoPact HVX - Embedded pole</th>
<th>Evolis</th>
</tr>
</thead>
<tbody>
<tr>
<td>New</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Rated Voltage (kV)

<table>
<thead>
<tr>
<th>Voltage</th>
<th>EasyPact EXE</th>
<th>EvoPact HVX - Embedded pole</th>
<th>Evolis</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>31.5 kA</td>
<td>31.5 kA</td>
<td></td>
</tr>
<tr>
<td>17.5</td>
<td>50 kA</td>
<td>50 kA</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>31.5 kA</td>
<td>31.5 kA</td>
<td>24</td>
</tr>
<tr>
<td>36</td>
<td>25 kA</td>
<td>25 kA</td>
<td></td>
</tr>
<tr>
<td>40.5</td>
<td>25 kA</td>
<td>25 kA</td>
<td></td>
</tr>
</tbody>
</table>

#### Max. Rated Short-Circuit Current

<table>
<thead>
<tr>
<th>Current</th>
<th>EasyPact EXE</th>
<th>EvoPact HVX - Embedded pole</th>
<th>Evolis</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.5 kA</td>
<td>31.5 kA</td>
<td>31.5 kA</td>
<td></td>
</tr>
<tr>
<td>50 kA</td>
<td>50 kA</td>
<td>50 kA</td>
<td></td>
</tr>
<tr>
<td>24 kA</td>
<td>25 kA</td>
<td>25 kA</td>
<td></td>
</tr>
<tr>
<td>36 kA</td>
<td>25 kA</td>
<td>25 kA</td>
<td></td>
</tr>
<tr>
<td>40.5 kA</td>
<td>25 kA</td>
<td>25 kA</td>
<td></td>
</tr>
</tbody>
</table>

#### Max. Rated Current

<table>
<thead>
<tr>
<th>Current</th>
<th>EasyPact EXE</th>
<th>EvoPact HVX - Embedded pole</th>
<th>Evolis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 500 A</td>
<td>3 150 A</td>
<td>3 150 A</td>
<td></td>
</tr>
<tr>
<td>4 000 A</td>
<td>4 000 A</td>
<td>4 000 A</td>
<td></td>
</tr>
<tr>
<td>2 500 A</td>
<td>2 500 A</td>
<td>2 500 A</td>
<td></td>
</tr>
<tr>
<td>3 150 A</td>
<td>3 150 A</td>
<td>3 150 A</td>
<td></td>
</tr>
<tr>
<td>1 250 A</td>
<td>1 250 A</td>
<td>1 250 A</td>
<td></td>
</tr>
</tbody>
</table>

#### Versions

- Fixed
- Withdrawable

#### Number of Poles

- 3p

#### Mechanical Switching Cycles (ON/OFF)

- 10 000

#### Mounting

- Frontal

#### Mechanism

- Conventional spring

#### Standards

- IEC
- GOST

#### Benefits

- Kit and web ordering
- Attractive price
- Better safety
- Opex optimization (thermal sensors replace infrared thermography)
- Service enabler for Partners (see page 50/02)
- See video

- Embedded pole for better dielectric & environmental pollution withstand
- Compact dimensions
- Reliable spring mechanism for open pole technology

(1) Need forced cooling
(2) Only 36 kV & 40.5 kV
### Medium Voltage switching devices

#### Circuit-Breakers

**SF₆ Circuit-Breakers**

Protection and operation of network

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage (kV)</th>
<th>Max. Rated Short-Circuit Current (kA)</th>
<th>Max. Rated Current (A)</th>
<th>Versions</th>
<th>Number of Poles</th>
<th>Mechanical Switching Cycles (ON/OFF)</th>
<th>Mounting</th>
<th>Mechanism</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EvoPact LF</strong></td>
<td>12</td>
<td>50 kA</td>
<td>3 150 A</td>
<td>Fixed</td>
<td>3p</td>
<td>10 000</td>
<td>Frontal</td>
<td>Conventional spring</td>
<td>IEC, GOST</td>
</tr>
<tr>
<td></td>
<td>17.5</td>
<td>40 kA</td>
<td>1 250 A</td>
<td>Withdrawable</td>
<td></td>
<td>10 000</td>
<td>Frontal</td>
<td></td>
<td>IEC</td>
</tr>
<tr>
<td><strong>EvoPact SF1</strong></td>
<td>12</td>
<td>25 kA</td>
<td>3 150 A</td>
<td>Fixed</td>
<td>3p</td>
<td>10 000</td>
<td>Frontal and lateral</td>
<td>Conventional spring</td>
<td>IEC, GOST</td>
</tr>
<tr>
<td></td>
<td>17.5</td>
<td>25 kA</td>
<td>2 500 A</td>
<td>Withdrawable</td>
<td></td>
<td>10 000</td>
<td></td>
<td></td>
<td>IEC</td>
</tr>
<tr>
<td><strong>EvoPact SF2</strong></td>
<td>24</td>
<td>25 kA</td>
<td>2 500 A</td>
<td>Fixed</td>
<td>3p</td>
<td>10 000</td>
<td>Frontal</td>
<td>Conventional spring</td>
<td>IEC</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>40 kA</td>
<td>3 150 A</td>
<td>Withdrawable</td>
<td></td>
<td>10 000</td>
<td></td>
<td></td>
<td>IEC</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>40 kA</td>
<td>2 500 A</td>
<td></td>
<td></td>
<td>10 000</td>
<td></td>
<td></td>
<td>IEC</td>
</tr>
<tr>
<td></td>
<td>40.5</td>
<td>31.5 kA</td>
<td></td>
<td></td>
<td></td>
<td>10 000</td>
<td></td>
<td></td>
<td>IEC</td>
</tr>
</tbody>
</table>

**Benefits**

- Referenced product for Nuclear Power plants
- Marine solutions certified
- Seismic version available
- Integrated VIP trip unit (without auxiliary power supply) in SF₆ up to 24 kV
- Well suited for capacitor bank and inductive load applications
- Particularly adapted for high voltage ratings and harsh environment
- Well suited for capacitor bank and inductive load applications
## Vacuum Circuit-Breaker

### Function
- **Protection for generator in power plants up to 130 MVA**
- **Arc furnace**

### Rated voltage (kV)
- VAH: 12, 13.8, 17.5, 31.5, 38 kV
- VXC: 12, 13.8, 17.5, 31.5, 38 kV

<table>
<thead>
<tr>
<th>Component</th>
<th>Max. rated short-circuit current (kA)</th>
<th>Max. rated current (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAH</td>
<td>63 kA</td>
<td>5 000 - 8 000 A*</td>
</tr>
<tr>
<td>VXC</td>
<td>40 kA</td>
<td>2 500 A, 4 000 A</td>
</tr>
</tbody>
</table>

### Versions
- **Fixed**

### Number of poles
- 3p

### Mechanical switching cycles (ON/OFF)
- VAH: 10 000
- VXC: 25 000

### Mounting
- Frontal

### Mechanism
- Conventional spring

### Standards
- **IEC**
- **ANSI**
- **IEEE C37.013**

### Benefits
- Extremely robust design
- Optimized maintenance
- Extremely robust and simple construction
- Extra high mechanical and electrical switching capacity
- Designed for high operating cycles
- Minimum maintenance
# Contactors

## Vacuum and SF₆ contactors

Protection and control of network

<table>
<thead>
<tr>
<th>SF₆ Contactor</th>
</tr>
</thead>
</table>

### CBX

- **Rated voltage (kV)**: 7.2, 12
- **Max. rated short-circuit current**: 6 kA, 4 kA
- **Max. rated current**: 400 A (AC4)
- **Versions**: Fixed
- **Number of poles**: 1p - 3p
- **Mechanical switching cycles (ON/OFF)**: 300 000 (mechanical latch), 1 000 000 (magnetic held)
- **Mechanism**: Magnetic holding or mechanical latch
- **Standards**: IEC, GB (chinese)
- **Benefits**: Version available for capacitor banks, 1 pole version available for neutral Earthing, Specific version available for capacitor banks

<table>
<thead>
<tr>
<th>CVX</th>
</tr>
</thead>
</table>

- **Rated voltage (kV)**: 7.2, 12
- **Max. rated short-circuit current**: 6 kA (50 kA in conjunction with fuses), 4 kA (50 kA in conjunction with fuses)
- **Max. rated current**: 400 A (AC4), 315 A (AC4)
- **Versions**: Fixed
- **Number of poles**: 3p
- **Mechanical switching cycles (ON/OFF)**: 300 000 (mechanical latch), 1 000 000 (magnetic held)
- **Mechanism**: Magnetic holding or mechanical latch
- **Standards**: IEC
- **Benefits**: LV supply thanks to optional on board VT, High short circuit breaking capacity in combination with fuses, Cradle available (consult us)

<table>
<thead>
<tr>
<th>Rollarc</th>
</tr>
</thead>
</table>

- **Rated voltage (kV)**: 7.2, 12
- **Max. rated short-circuit current**: 10 kA, 8 kA
- **Max. rated current**: 400 A (AC4), 315 A (AC4)
- **Versions**: Basic, Withdrawable
- **Number of poles**: 3p
- **Mechanical switching cycles (ON/OFF)**: 100 000 (mechanical latch), 300 000 (magnetic held)
- **Mechanism**: Magnetic holding or mechanical latch
- **Standards**: GB
- **Benefits**: Reference product in SF₆ contactor market, Nuclear powerplant & Marine applications, Soft breaking, suited for capacitor bank, power transformers and motors applications
## Medium Voltage Switching Devices

### Switches and Disconnectors

Indoor load break switch, disconnector and earthing switch

<table>
<thead>
<tr>
<th>SF₆-free switch &amp; disconnector</th>
<th>SF₆ switch &amp; disconnector</th>
<th>Earthing switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>AirPacT</td>
<td>LBSkit</td>
<td>EISC</td>
</tr>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
</tbody>
</table>

**Function**

- Indoor load break switch, disconnector and accessories
- Earthing switch

#### Rated Voltage (kV)

<table>
<thead>
<tr>
<th>Function</th>
<th>AirPacT</th>
<th>LBSkit</th>
<th>EISC</th>
<th>Earthing switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td>36</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td>36</td>
</tr>
</tbody>
</table>

#### Max. Rated Short-circuit Current

<table>
<thead>
<tr>
<th>Max. Rated Short-circuit Current</th>
<th>25 kA/1 s</th>
<th>25 kA/1 s</th>
<th>25 kA/1s</th>
<th>31.5 kA</th>
<th>31.5 kA</th>
<th>31.5 kA</th>
<th>31.5 kA</th>
<th>50 kA</th>
<th>31.5 kA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25 kA/1 s</td>
<td>25 kA/1 s</td>
<td>25 kA/1s</td>
<td>31.5 kA</td>
<td>31.5 kA</td>
<td>31.5 kA</td>
<td>31.5 kA</td>
<td>50 kA</td>
<td>31.5 kA</td>
</tr>
<tr>
<td>Pole center distance</td>
<td>165</td>
<td>210</td>
<td>165</td>
<td>350</td>
<td>160</td>
<td>200-240</td>
<td>240</td>
<td>175</td>
<td>210</td>
</tr>
<tr>
<td>Mechanical switching cycles (ON/OFF)</td>
<td>1 000 O/C cycles (Class M1)</td>
<td>1 000 cycles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standards</td>
<td>IEC</td>
<td>IEC 62271-102</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Benefits**

- Green Premium
- Insensitive to environment
- Reduced maintenance
- Easy & flexible integration
- Insensitive to environment
- Reduced maintenance
- Earthing switch for a wide range of rated voltages
- Simple and robust design easy to adapt with a large choice of options
## Cradle

### Components for Medium Voltage Switchgear

<table>
<thead>
<tr>
<th>Function</th>
<th>L-Frame Cradle</th>
<th>M1-M2 Cradle</th>
<th>MC Cassette</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage (kV)</td>
<td>12</td>
<td>17.5</td>
<td>24</td>
</tr>
<tr>
<td>Max. rated short-circuit current</td>
<td>50 kA</td>
<td>31.5 kA</td>
<td>40 kA</td>
</tr>
<tr>
<td>Max. rated current</td>
<td>3 150 A</td>
<td>2 500 A</td>
<td>2 500 A</td>
</tr>
<tr>
<td>Recommended cubicle width</td>
<td>650 - 1 000 mm</td>
<td>800 - 1 000 mm</td>
<td>1 100 mm</td>
</tr>
<tr>
<td>Integration of switching device</td>
<td>HVX Embedded Pole + EasyPact EXE</td>
<td>SF</td>
<td>LF + EasyPact EXE</td>
</tr>
<tr>
<td>Version</td>
<td>With and without earthing switch</td>
<td>Without earthing switch</td>
<td>With earthing switch in option</td>
</tr>
<tr>
<td>Benefits</td>
<td>Fully assembled by Schneider Electric</td>
<td>Two different arrangements for HV connection using the upper and lower bushings</td>
<td>Full type tested solution including internal arc protection with MV door</td>
</tr>
</tbody>
</table>
## Fuses

### Current limiting fuses

<table>
<thead>
<tr>
<th></th>
<th>Fusarc CF</th>
<th>Solefuse</th>
<th>Tepefuse</th>
<th>MGK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated voltage (kV)</strong></td>
<td>3.6</td>
<td>7.2</td>
<td>7.2</td>
<td>7.2</td>
</tr>
<tr>
<td>7.2</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>12</td>
<td>17.5</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>24</td>
<td>36</td>
<td>36</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max. rated short-circuit current</strong></td>
<td>Up to 63 kA</td>
<td>Up to 50 kA</td>
<td>Up to 40 kA</td>
<td>Up to 50 kA</td>
</tr>
<tr>
<td><strong>Max. rated current</strong></td>
<td>Up to 250 A</td>
<td>Up to 125 A</td>
<td>Up to 0.3 A</td>
<td>Up to 250 A</td>
</tr>
</tbody>
</table>
| **Applications** | • Motors  
• Power Transformers  
• Capacitors  
• Metering Transformers  | • Power Transformers  
• Capacitors  
• Voltage Transformers  | Motors  |
| **Standards** | • IEC 60282-1  
• DIN 43625  
• VDE 0670-402  | • IEC 60282-1  
• UTE C64200, C64210  | • IEC 60282-1  
• UTE C64200, C64210  |
| **Benefits** | • High breaking capacity  
• High current limitation  
• Low I²t values  
• Low breaking overvoltage  
• Low dissipated power  
• For indoor and outdoor applications  
• With a thermal striker |

For additional information consult our MV fuses catalogue (ref: AC0479EN)
Protection, Metering and Feeder Automation
Protection, Metering and Feeder Automation

Protection relays B-2
Arc fault detection and protection B-6
MV-LV substation remote control and monitoring B-8
Substation power supply B-10
Voltage Presence relay B-11
Voltage Presence Indicator (VPIS) B-12
Fault Passage Indicators B-13
Energy management and control B-14
Medium Voltage instrument transformers B-17
Low Voltage protection B-18
Low Voltage relays B-19
Low Voltage control and signalling B-20
**PowerLogic Easergy P3 Contains**

Two main devices, each with specific functions to address your needs in a one-box design, regardless of application.

### Application

<table>
<thead>
<tr>
<th>PowerLogic Easergy P3 Standard</th>
<th>PowerLogic Easergy P3 Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feeder</strong></td>
<td></td>
</tr>
<tr>
<td>Transformer</td>
<td>P3U10</td>
</tr>
<tr>
<td>Motor</td>
<td>P3U20</td>
</tr>
<tr>
<td><strong>Generator</strong></td>
<td>P3U30</td>
</tr>
</tbody>
</table>

### Characteristics

<table>
<thead>
<tr>
<th><strong>Phase current</strong></th>
<th>1/5A CT or LPCT (x3) (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Residual current</strong></td>
<td>1/5A CT or 0.2/1A CT or CSH 2A/20A</td>
</tr>
<tr>
<td><strong>Voltage</strong></td>
<td>VT (x1)</td>
</tr>
<tr>
<td><strong>Arc-flash sensor input</strong></td>
<td>Loop sensor: 1 Point sensor: 2, 4 or 6 (1)</td>
</tr>
<tr>
<td><strong>Digital</strong></td>
<td>Input: 2, 10/8, 14/16</td>
</tr>
<tr>
<td><strong>Analogue</strong></td>
<td>Output: 5 + SF, 5/8 + SF, 11/8 + SF</td>
</tr>
<tr>
<td><strong>Temperature sensor input</strong></td>
<td>0 or 4 (5)</td>
</tr>
<tr>
<td><strong>Front port</strong></td>
<td>USB type B</td>
</tr>
<tr>
<td><strong>Nominal power supply</strong></td>
<td>24V dc or 24-48V dc or 38.4-265V dc or 48-230V ac (6)</td>
</tr>
<tr>
<td><strong>Ambient temperature, in service</strong></td>
<td>-40 to 60°C (-40 to 140°F)</td>
</tr>
</tbody>
</table>

### Communication

| **Rear ports**                | RS232, IRIG/B, RS485, Ethernet |
| **Protocols**                 | IEC61850 ed1 & ed2             |
| **Modbus serial**             | Modbus over Ethernet           |
| **Ethernet IP**               | Profibus DP                    |
| **Profibus DP**               | -                              |
| **SPAbus**                    | -                              |
| **Redundancy protocols (RSTP/PRP)** | -                              |

### Others

| **Control**                   | 1 object 4 objects 4 objects 8 objects |
| **Logic (Matrix + Logic equation)** | 1 display 4 display 4 display 8 display |
| **Withdrawable CT connector with shorting** | -                              |
| **Remote HMI**                | -                              |

| **Hardware dimensions (W/H/D)** | 171 x 176 x 214(5) mm | 6.73 x 6.93 x 8.43 in |

<table>
<thead>
<tr>
<th><strong>PowerLogic Easergy P3 Standard</strong></th>
<th><strong>PowerLogic Easergy P3 Advanced</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transformer</strong></td>
<td>P3U10</td>
</tr>
<tr>
<td><strong>Motor</strong></td>
<td>P3U20</td>
</tr>
<tr>
<td><strong>Generator</strong></td>
<td>P3U30</td>
</tr>
<tr>
<td><strong>Transformer</strong></td>
<td>P3T32</td>
</tr>
<tr>
<td><strong>Motor</strong></td>
<td>P3M30</td>
</tr>
<tr>
<td><strong>Generator</strong></td>
<td>P3G30</td>
</tr>
</tbody>
</table>

(1) Depends on optional module
(2) P3L30 can have 1 loop or 2 point sensors only
(3) 226 mm (8.90 in) with ring-lug connectors
(4) Check the available power supply range from the device's serial number label
(5) P3U30, P3F30, P3M30 relays only. Consult us for other models
(6) Consult us for availability
**PowerLogic P5 contains**

Two main devices, each with specific functions to address your needs in a one-box design, regardless of application.

### Application

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Feeder</th>
<th>Transformer</th>
<th>Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>PSV20</td>
<td>P5U20 with directional in LPCT/LPVT version</td>
<td>P5F30 with directional</td>
</tr>
<tr>
<td>P5U20</td>
<td>P5F30</td>
<td>P5M30 with directional</td>
<td></td>
</tr>
</tbody>
</table>

### Characteristics

<table>
<thead>
<tr>
<th>Measuring inputs</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase current</td>
<td>1/5A CT (x3) or LPCT (x3) (1)</td>
</tr>
<tr>
<td>Residual current</td>
<td>1/5A CT &amp; 1A CT or CSH core balance CT</td>
</tr>
<tr>
<td>Voltage</td>
<td>VT (x4) or LPVT (x4) (1)</td>
</tr>
</tbody>
</table>

- Arc flash sensor inputs: 0 to 6 point sensors
- Digital Inputs: 4 to 16
- Outputs: 3 to 8 + Watchdog (WD)
- Temperature sensor input: 0 to 16 (external modules)
- Front ports: 1 USB for configuration
- Power supply: 24-250 VDC ; 100-230 VAC
- Ambient temperature, in service: -40 to 70°C (-40 to 158°F)

### Communication

<table>
<thead>
<tr>
<th>Hardware modules</th>
<th>Protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension(2) + Backup memory</td>
<td>IEC 61850 Ed.1 &amp; Ed.2</td>
</tr>
<tr>
<td>Serial</td>
<td>IEC 60670-5-103 &amp; 101</td>
</tr>
<tr>
<td>Ethernet</td>
<td>DNP3 Ethernet</td>
</tr>
<tr>
<td>2nd Ethernet</td>
<td>DNP3 serial</td>
</tr>
<tr>
<td>Modbus Ethernet</td>
<td>Modbus serial</td>
</tr>
<tr>
<td>Modbus serial</td>
<td>EtherNet IP</td>
</tr>
<tr>
<td></td>
<td>RSTP</td>
</tr>
<tr>
<td></td>
<td>PRP / HSR</td>
</tr>
<tr>
<td></td>
<td>Pulse, IRIG-B(3)</td>
</tr>
<tr>
<td></td>
<td>SNTP, PTP IEEE 1588 v2(4)</td>
</tr>
</tbody>
</table>

### Others

- Control: 6 controlled + 2 monitored objects Mimic
- Logic (Matrix + Programmable logic): 6 controlled + 2 monitored objects Mimic
- Optional Advanced Logic Engine: 6 controlled + 2 monitored objects Mimic
- Cybersecurity: Basic or Advanced
- Draw-out device (withdrawability): Basic or Advanced
- Hardware dimensions (WxHxD): 102 / 176 / 219 mm

(1) In case P5U20 is chosen for cooperation with low power sensors, it contains LPCT (x3) and LPVT (x4) channels
(2) For connection of RTD module and IRIG-B module
(3) IRIG-B module is a separate accessory
(4) PTP IEEE 1588 v2 is available with HSR/PRP communication board
# Protection relays

VIP, PowerLogic & MiCOM ranges

## Application

<table>
<thead>
<tr>
<th>Component</th>
<th>Phase and earth-fault</th>
<th>Voltage and frequency</th>
<th>Transformer (Phase and earth-fault)</th>
<th>Motor (Phase and earth-fault)</th>
<th>Generator (Phase and earth-fault)</th>
<th>Busbar (With busbar differential)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Sensors

- CSH (0.2 A to 2 In) LPCT
- CT (1 or 5 A) or VT
- CT (1 or 5 A)

## Display

- VIP 40/45: 4 digits display
- VIP 400/410: Graphical LCD
- 16 characters LCD 2 lines

## Other characteristics

- Self/Dual Powered
- Withdrawable hardware
- Self/Dual Powered

## Input/Output (up to)

- 1/3
- 8/6
- 6/6

## I/O terminals

- Screw type
- Screw type
- Screw type

## Temp. sensors (up to)

- Modbus RTU
- Modbus RTU
- Modbus RTU

## Communication protocol

- Modbus RTU-RS485 (plug and play with T300)
- Modbus RTU
- Modbus RTU

## Logic equations

- Comprehensive logic equations
- Control logic by ladder diagram
- Comprehensive logic equations
- Comprehensive logic equations

## Standards

- IEC, EAC, UKSA
- IEC, EAC
Protection relays
Sepam & Easergy MiCOM ranges

<table>
<thead>
<tr>
<th>Sepam series 60</th>
<th>Sepam series 80</th>
<th>Easergy MiCOM P30</th>
<th>Easergy MiCOM P40</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Sepam series 60" /></td>
<td><img src="image2" alt="Sepam series 80" /></td>
<td><img src="image3" alt="Easergy MiCOM P30" /></td>
<td><img src="image4" alt="Easergy MiCOM P40" /></td>
</tr>
<tr>
<td>• CT (1 or 5 A) or LPCT</td>
<td>• CT (1 or 5 A) or LPCT</td>
<td>• CT (1 or 5 A)</td>
<td>• CT (1 or 5 A)</td>
</tr>
<tr>
<td>• VT</td>
<td>• VT</td>
<td>• VT</td>
<td>• VT</td>
</tr>
<tr>
<td>• Standard UMI</td>
<td>• Standard UMI</td>
<td>• Large color LCD type display with single-line diagram (mimic)</td>
<td>• Standard UMI</td>
</tr>
<tr>
<td>• Remote UMI</td>
<td>• Remote UMI</td>
<td>• Remote UMI</td>
<td></td>
</tr>
<tr>
<td>• Mimic based UMI</td>
<td>• Mimic based UMI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Removable SW cartridge</td>
<td>Removable SW cartridge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Multifunction, integrated Bay controller</td>
<td></td>
<td>High firmware/hardware variability</td>
<td></td>
</tr>
<tr>
<td>28/16</td>
<td>42/23</td>
<td>80/45</td>
<td>32/32</td>
</tr>
<tr>
<td>• Screw type</td>
<td>• Screw type</td>
<td>• Screw type</td>
<td>• Ring lug</td>
</tr>
<tr>
<td>• Ring lug</td>
<td>• Ring lug</td>
<td>• Ring lug</td>
<td></td>
</tr>
<tr>
<td>8 to 16</td>
<td>8 to 16</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>• Modbus RTU</td>
<td>• Modbus RTU</td>
<td>• Modbus RTU</td>
<td>• Modbus RTU</td>
</tr>
<tr>
<td>• IEC 60870-5-103</td>
<td>• IEC 60870-5-103</td>
<td>• IEC 60870-5-101/103</td>
<td>• IEC 60870-5-103</td>
</tr>
<tr>
<td>• DNP3</td>
<td>• DNP3</td>
<td>• DNP3</td>
<td>• DNP3 serial/DNP3oE</td>
</tr>
<tr>
<td>• Modbus TCP/IP</td>
<td>• Modbus TCP/IP</td>
<td>• IEC 61850 with GOOSE</td>
<td>• IEC 61850 with GOOSE</td>
</tr>
<tr>
<td>• IEC 61850 with GOOSE</td>
<td>• IEC 61850 with GOOSE</td>
<td>• RSTP</td>
<td>• RSTP/SHP/DHP</td>
</tr>
<tr>
<td>• RSTP</td>
<td>• RSTP</td>
<td>• PRP / HSR / DUAL-IP</td>
<td>• HSR/PRP</td>
</tr>
<tr>
<td>• PRP / HSR / DUAL-IP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehensive logic equations</td>
<td>Control logic by ladder diagram</td>
<td>Comprehensive logic equations</td>
<td>Comprehensive logic equations</td>
</tr>
<tr>
<td>UL, CSA, EAC, ATEX</td>
<td>IEC 61508-SIL2, UL, CSA, EAC, ATEX</td>
<td>• Cyber security</td>
<td>• Cyber security (IEC 62351)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• IEC, EAC, ATEX</td>
<td>• IEC, UL, CSA, EAC, ATEX</td>
</tr>
</tbody>
</table>
## Arc fault detection and protection
### Easergy Arc protection range

### Function
The arc protection unit detects an arc flash in an installation and trips the feeding breaker. An arc flash protection maximizes personnel safety and minimizes material damage caused by arc faults.

### System features
<table>
<thead>
<tr>
<th>Easergy Arc V125</th>
<th>Easergy Arc V121</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stand-alone arc flash protection light detection for typical configurations:</td>
<td>Operation on light only</td>
</tr>
<tr>
<td>• 4 Arc inputs (point sensors)</td>
<td>• Up to 10 sensors arc or smoke sensors</td>
</tr>
<tr>
<td>• Integrated 24…230Vac/dc power supply</td>
<td>• Single trip contact</td>
</tr>
<tr>
<td>• High speed trip output (1 to 2 ms operation time)</td>
<td>• Straight-forward installation</td>
</tr>
<tr>
<td>• 1 self supervision output</td>
<td>• Typical operation time 9 ms (including the output relay)</td>
</tr>
<tr>
<td>• D-rail or flush mounting</td>
<td>• Cost efficient solution</td>
</tr>
<tr>
<td>• Master trip I/O for simple arc selectivity</td>
<td>• Self-supervision</td>
</tr>
<tr>
<td>• Direct installation with basic comissioning</td>
<td>• Binary input for blocking or resetting (programmable) the unit</td>
</tr>
<tr>
<td>• Front status LEDs</td>
<td>• Possibility for double arc channel activation trip criteria</td>
</tr>
<tr>
<td></td>
<td>• BIo light transfer possibility to other Vamp device</td>
</tr>
</tbody>
</table>

### Sensors
<table>
<thead>
<tr>
<th>Point sensor - Surface</th>
<th>Point sensor - pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Arc detection from compartments</td>
<td>• Self-monitored</td>
</tr>
<tr>
<td>• Self-monitored</td>
<td>• 6 m and 20 m cable lengths available, shielded or not shielded</td>
</tr>
<tr>
<td>• 6 m and 20 m cable lengths available, shielded or not shielded</td>
<td>• 6 m and 20 m cable lengths available</td>
</tr>
</tbody>
</table>

### Portable sensor
- Snap-in connection to I/O unit
- Enhanced work safety

### Loop sensor (fibre)
- Monitors various compartments
- Small bending radius for easy installation

### Standards
| IEC, UL, Marine | IEC |

### Benefits
- Personnel safety
- Reduces production losses
- Extended switchgear life cycle
- Reduced insurance costs
- Low investment costs and fast installation
- Reliable operation
Arc fault detection and protection
Easergy Arc protection range

Easergy Arc V221 (+ I/O units)*

- Current and light tripping criteria (possibility of tripping by light only)
- Typical operation time 7 ms (electromechanical contact)
- Accurate location of arc fault utilizing point sensors
- Four selective protection zones per system
- Self-supervision of the entire system
- Up to 160 sensors (with I/O modules)
- Easy interconnect using VX001 cables
- Phase current measuring
- Earth fault current measuring
- Personal portable sensor option
- Panel or rail mount I/O units
- Circuit breaker fail protection (CBFP)

Easergy Arc V321 (+ I/O units)*

- Three phase current, zero sequence voltage and current
- Event logs, disturbance recording and real time clock
- Operation on simultaneous current and light or light only
- Informative display LCD (single line diagram)
- Up to four fast trip contacts
- Direct light sensors and fiber optic up
- Support up to 170 arc flash point sensors (with I/O modules)
- One normally open and one change over alarm contact
- Typical operation time: less than 7 ms (including the output relay)
- Optionally 2 ms typical operation time when semi-conductor outputs are used
- Programmable operation zones
- Continuous system self supervision
- Communication ports supporting a wide range of communication protocols which are intended for a SCADA interface

- Arc detection from compartments
- Self-monitored
- 6 m and 20 m cable lengths available

- Arc detection from compartments
- Self-monitored
- 6 m and 20 m cable lengths available

- Snap-in connection to I/O unit
- Enhanced work safety
- Monitors various compartments
- Small bending radius for easy installation

- Snap-in connection to I/O unit
- Enhanced work safety
- Monitors various compartments
- Small bending radius for easy installation

IEC
IEC

- Personnel safety
- Reduces production losses
- Large scale installation like substation
- Reduced insurance costs
- Low investment costs and fast installation
- Reliable operation

* I/O units: 4 ref. available (VAM 3L, VAM 10L/LD, VAM 12L/LD, VAM 4C/CD).
The choice is to be made according to the needs of type and number of sensors. Please contact us.
### Components for Medium Voltage Switchgear

#### MV-LV substation remote control & monitoring

**Easergy T300**

**Advanced Supervision and Control of Medium Voltage & Low Voltage Distribution System**

### Easergy T300: A modular RTU solution for any kind of applications

- **Developed according to IEC 62443-4-2,** Easergy T300 has been designed with a cyber security package. This shall help reduce exposure to cyber threats and improved operational security. It includes important features such as password management, firmware signature, port hardening, and secured communication compliant to the latest international standards.

<table>
<thead>
<tr>
<th>Main functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV network remote control of all UG and OH equipment: Fault Location Isolation system and restoration for all neutral system - centralized and decentralized network management</td>
</tr>
<tr>
<td>LV switchboard monitoring</td>
</tr>
<tr>
<td>Voltvar optimisation support</td>
</tr>
<tr>
<td>MV and LV power and quality measurement</td>
</tr>
<tr>
<td>Thermal monitoring and asset management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>HU250 - Head unit communication/gateway</td>
</tr>
<tr>
<td>SC150 - MV Switch controller</td>
</tr>
<tr>
<td>LV150 - Transformer and LV monitoring</td>
</tr>
<tr>
<td>PS100/PS50 - Wide range of backup power supply</td>
</tr>
<tr>
<td>SC160 Switchgear Controller</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEC 60870-5-101/104 slave and master (standard and secure)</td>
</tr>
<tr>
<td>DNP3 serial and TCP slave and master (standard and secure)</td>
</tr>
<tr>
<td>Modbus serial and TCP slave and master (standard and secure)</td>
</tr>
<tr>
<td>IEC 61850 slave and master</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transmission system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two flexible communication ports accommodated with modem boxes:</td>
</tr>
<tr>
<td>- RS232/RS485 modern box for WAN or LAN communication</td>
</tr>
<tr>
<td>- 2G/3G modem box for WAN communication</td>
</tr>
<tr>
<td>- 4G European and US standard modem box with GPS clocks for accurate time synchronization</td>
</tr>
<tr>
<td>- Two Ethernet ports (for WAN and LAN communication)</td>
</tr>
<tr>
<td>- 1 Ethernet port for WAN communication</td>
</tr>
<tr>
<td>- 1 Ethernet port for LAN communication with third party devices</td>
</tr>
<tr>
<td>- 1 serial RS232/RS485 for Modbus LAN communication</td>
</tr>
<tr>
<td>- Zigbee modem for communication with thermal sensors</td>
</tr>
<tr>
<td>- Secure WiFi for local connection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEC</td>
</tr>
</tbody>
</table>

**Benefits**

- Easergy T300 address the follow customer challenges:
  - Evolve with the grid: manage bidirectional and intermittent power flow
  - Increase availability: improve SAIDI and optimise MV networks
  - Maintain power quality
  - Manage the costs: reduce installation, operation and maintenance expenditures
  - Deliver efficiency: optimise network to manage growing consumption
  - Improve Cybersecurity: help defend against malicious software and unauthorised access

- Easergy T300 is a modular FRTU platform, hardware, firmware. Modular approach ensures T300 will be configurable to your exact needs e.g. packaged solutions, embedded solutions, open solutions

- This open architecture supports different applications, from a single communication gateway to large substation management

- Built-in web server for commissioning and maintenance with local and remote access, compatible with PC, tablet and smartphone devices

- High availability back up power supplies range PS100/50/25 for control and monitoring applications
**Easergy T300**

**Easergy HU250**  
Head unit communication - Gateway

**Easergy SC150**  
MV Switch controller

**Easergy LV150**  
Transformer and LV monitoring

**Easergy SC160**  
Switchgear controller

---

### Functions

**Easergy SC150 – Switchgear controller**
- Control and monitoring of all switchgear types
- Advanced Fault Passage Indicator (FPI) algorithms:
  - Phase-phase and phase-ground detection (ANSI 50/51, 50N/51N)
  - Directional phase-phase and phase-ground detection (ANSI 67/67N)
  - Broken conductor detection (one phase lost) (ANSI 47)
- MV Voltage monitoring (ANSI 27, 59, 59N)
- MV Current monitoring (ANSI 37)
- Directional active overpower detection (ANSI 32P)
- Large current and voltage measurement capabilities: standard CT for current, LPVT, VT and from capacitor divider and voltage presence indicator (VDS, VPIS) for voltage
- Power measurement according to IEC 61557-12
- Power quality according to IEC 61000-4-30, Class S
- Specific application automation: sectionalizer
- Disturbance recording

**Easergy SC160** is a modular switchgear controller configurable as protection with Circuit Breaker (CB) use or Fault current indicator with Low Break Switch (LBS) use.
- Control and monitoring of all switchgear types
- Protection or fault passage indication function:
  - Phase overcurrent (ANSI 50/51)
  - Ground/earth fault overcurrent (ANSI 50N/51N)
  - Directional phase overcurrent fault (ANSI 67)
  - Directional ground/earth fault overcurrent (ANSI 67N)
  - Cold load pickup
  - Inrush restraint

---

**Protection, Metering & Feeder Automation**

**Components for Medium Voltage Switchgear**

---

**New**
# Substation power supply

**Easergy PS100 and PS50**

## Functions

The Easergy PS100/PS50 power supplies, associated with a backup battery, are designed to maintain control and monitoring of the entire MV substation during long power supply interruptions (up to 48 hours). They are designed to supply:

- MV switchgear motor mechanism and circuit-breaker coils
- Transmission equipment (e.g. radio)
- Electronic modules of T300
- All other devices in MV/LV substations (Protection relays, Fault Passage Indicators or others IEDs, low voltage breakers, PLC concentrators, etc.)

## Power supply outputs

<table>
<thead>
<tr>
<th>Easergy PS100</th>
<th>Easergy PS50</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control &amp; Monitoring</strong></td>
<td><strong>Monitoring</strong></td>
</tr>
<tr>
<td>12 VDC, 18 W permanent and 100 W/20 s (for modem, radio, RTU, etc.)</td>
<td>12 VDC, 18 W permanent for telecom equipment</td>
</tr>
<tr>
<td>48 VDC or 24 VDC 90 W permanent (for protection relays, electronic devices, etc.) and 300 W/1min. (for switchgear operating mechanism motors)</td>
<td>12 VDC, 36 W permanent for IEDs</td>
</tr>
<tr>
<td>12 VDC, 18 W permanent for telecom equipment</td>
<td>48 VDC or 24 VDC 10 W permanent (for protection relays, electronic devices, etc.) and 300 W/1min (for switchgear operating mechanism motors).</td>
</tr>
</tbody>
</table>

## Protocols

<table>
<thead>
<tr>
<th>Protocols</th>
<th>Modbus RS485</th>
<th>Modbus RS485</th>
</tr>
</thead>
</table>

## Standards

<table>
<thead>
<tr>
<th>Standards</th>
<th>IEC 60255-5 (10 kV level)</th>
<th>IEC 60255-5 (10 kV level)</th>
</tr>
</thead>
</table>

## Benefits

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High availability due to the separate voltage output for telecom and motor</td>
<td>• High availability due to the separate voltage output for IEDs, telecom and motor</td>
</tr>
<tr>
<td>• High efficiency and high energy backup autonomy</td>
<td>• Designed for severe environment with higher insulation (10 kV)</td>
</tr>
<tr>
<td>• Designed for severe environment with higher insulation (10 kV)</td>
<td>• Easy maintenance with only one battery, 24 Ah or 38 Ah robust life span (&gt; 10 years)</td>
</tr>
<tr>
<td>• Battery charging and monitoring for longer battery life</td>
<td>• Modbus communication for battery monitoring to allow optimised maintenance operations</td>
</tr>
<tr>
<td>• Battery end-of-life monitoring and anticipated maintenance</td>
<td>• Designed for long outage time</td>
</tr>
<tr>
<td>• Designed for long outage time</td>
<td></td>
</tr>
</tbody>
</table>
### Functions
- Indicates presence or absence of voltage through 1 or 2 relays
- For MV networks from 3 kV to 36 kV
- Associated with VPIS-VO V2 (see next page)

### Technical specifications
- Self-adapted to network voltage
- Displays the voltage in % of nominal
- Output contacts behaviour configurable according to various combinations of phase and unbalance voltage status
- DIN format
- Allows to address various applications:
  - Automatic transfer systems
  - Alarms on voltage loss
  - Automation on voltage loss
  - Earth locking on voltage presence
  - Alarms on voltage presence

### Reference numbers
- Voltage presence relay (VD23): ref. EMS58421
- Combined voltage presence relay + Fault Passage Indicator (Flair 23DM): ref. EMS58355

### Standards
- IEC

### Benefits
- Fits all MV network neutral systems
- Compact (DIN format)
- Output contact behavior highly configurable according to application needs
Components for Medium Voltage Switchgear

Voltage Presence Indicators

Easergy VPIS* Range

Functions

- Self-powered Voltage Presence Indicator System (VPIS)
- Including voltage output version (VPIS-VO) for connection to:
  - Flair 2xD, VD23 voltage presence relay (VPIS V2)
  - T300 (VPIS V3)
- Needs phase concordance unit for phase concordance checking (reference VPI62421)

Technical specifications

- Plugs on the front panel allowing to use a phase concordance unit. A colored removable rubber joint (black for VPIS V2 and green for VPIS V3) closes these plugs to prevent penetration of humidity, salted spray, ...
- Light indication using LEDs
- Made in 2 parts: surge protection part, always connected and voltage presence indication part, replaceable for maintenance
- VPIS V2 voltage sensing to Flair 22D, 23D or 23DM for fault detection on compensated and isolated networks and voltage sensing for VD23 or Flair 23DM Voltage presence relay functions
- VPIS V3 voltage sensing to T300 for voltage presence/absence detection, phase and earth directional fault detection and basic measurement

Reference numbers

- 18 VPIS variants of each VPIS version (9 variants each for VPIS & VPIS-VO):
  - without Voltage Output:
    VP162401 to VP162409 for VPIS V2 variants
    VP162601 to VP162609 for VPIS V3 variants
  - With Voltage Output:
    VP162411 to VP162419 for VPIS V2 variants
    VP162611 to VP162619 for VPIS V3 variants
- These are selected based on:
  - Network nominal voltage
  - Value of capacitive sensor used inside the MV cubicle
  - Network frequency

Standards

IEC 62271-206

Benefits

- High reliability thanks to:
  - Harsh environment design
  - LED indication: extended lifetime
- Provides Voltage sensing for basic (Voltage relay) to advanced (directional detection) functions

* VPIS: Voltage Presence Indicator System
### Functions
- Provides phase and earth fault local indication on MV-LV underground network
- Ammetric FPI, self powered by measurement sensors, integrated in MV switchgear or in wall-mounted box

### Detection
- Phase and earth fault

### Setting
- By dip switches or menu on LCD display

### Installation
- Embedded in the switchgear

### Earthing system
- Direct, impedant, compensated, isolated

### Supply
- Self powered by current sensor and 3 backup supply solutions when network is dead:
  - Super capacitor (Flair 21D)
  - Li battery (Flair 22D)
  - External VDC supply (Flair 23D/23DM)

### Measurement
- Ammeter
- Maxmeter

### Communication
- Dry output contact (Flair 21D-22D-23D-23DM)
- Modbus RS485 (23DM)

### Standards
- IEC

### Benefits
- All-In-One device:
  - Reliability
  - Single configuration and diagnostic tool
- Opens the door to the most advanced Smart grid monitoring needs
### Components for Medium Voltage Switchgear

- External CT
- ION7400
- ION9000
- ION8650

### Advanced meters

- Utility meters
- 512 MB
- 2 GB
- A: 128 MB
- B: 64 MB
- C: 32 MB
- Up to 10 MB

### Protection, Metering & Feeder Automation

### Basic and advanced meters

#### Function
- kWh meters
  - IEC 62053-22 Class 0.5S
  - IEC 62053-22 Class 1
  - IEC 62053-23 Class 2
  - IEC 61557-12
  - EN 50470-1/3
- Metering and sub-metering
  - IEC 62053-22 Class 0.5S (PM55xx)
  - IEC 62053-23 Class 2
  - IEC 61557-12
  - EN 50470-1/3
- Energy and intermediate power quality meter
  - IEC 61557-12
  - IEC 62053-22 Class 0.2S
  - IEC 62053-23 Class 0.2
  - IEC 61000-4-30 Class S

#### Applications

<table>
<thead>
<tr>
<th>Panel instrumentation</th>
<th>I/U</th>
<th>I, U, F, P, Q, S, PF, E alarm, I/O, energy</th>
<th>I, U, F, P, Q, S, PF, E, THD min/max, harm., alarm, I/O (I, U, unbalance, demand, clock/cal)</th>
<th>I, U, F, P, Q, S, PF, E, THD min/max, harm., alarm, I/O (I, U, unbalance, demand, clock/cal)</th>
</tr>
</thead>
</table>

#### Energy efficiency and cost

- Sub-billing & cost allocation
- Demand and load management
- Billing analysis

#### Power availability and reliability

- Harmonics
- Dip/swell, transient
- Compliance monitoring

#### Revenue metering

#### Characteristics

- Measurement accuracy (active energy)
  - Class 1.5
  - Class 0.5S/Class 1
  - Class 0.2S (PM55xx)
  - Class 0.5S
  - IEC 61053-22 Class 0.2S
  - ANSI 12.20 Class 0.2S

- Installation
  - Flush mounted
  - 72 x 72 mm
  - 96 x 96 mm
  - DIN rail
  - 5 or 7 x 18 mm modules
  - 96 x 96 mm
  - Remote display option in PM55xx
  - Flush & DIN rail mounted 96 x 96 mm

- Voltage measurement
  - VLT: 500 VAC direct or external VT
  - 50 V to 330 V (Ph-N)
  - 80 V to 570 V (Ph-Ph)
  - Up to 1 MVAC (ext VT)
  - 20 V L-N/35V L-L to 400V L-N/690V L-L
  - Up to 1 MVAC (ext VT)
  - 57-400 VAC L-N
  - 3P

- Current measurement
  - AMP, external CT
  - External CT

- Communication ports
  - Modbus serial
  - Modbus TCP/IP
  - M-bus
  - Ethernet IP
  - ION
  - BACnet IP
  - DNP 3.0
  - HTTPS
  - SFTP

- Inputs/Outputs
  - 2 I/O
  - 4 I/O, Relay Option
  - 6 I/O (PM55xx)

- Memory capacity
  - 256 kB & 1.1 MB (PM55xx)
  - 512 MB
## Energy management and control

### Advanced and utility meters

<table>
<thead>
<tr>
<th>Advanced meters</th>
<th>Utility meters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ION7400</strong></td>
<td><strong>ION9000</strong></td>
</tr>
<tr>
<td><strong>ION8650</strong></td>
<td><strong>ION8800</strong></td>
</tr>
</tbody>
</table>

### Energy and basic power quality meter
- IEC 61557-12
- IEC 62053-22 Class 0.2S
- ANSI C12.20 Class 0.2
- PMD /Sx/K70/0.2

### Energy and advanced quality meter
- IEC 61557-12
- IEC 62053-22 Class 0.1S
- IEC 61000-4-30 Class A
- IEC 62866-1 / IEC 62866-2 - PQI class A
- ANSI C12.20 Class 0.1
- PMD /Sx/K70/0.2

### Energy and power quality meter
- IEC 62052-11
- IEC 62053-22/23 Class 0.2S
- IEC 61000-4-30 Class A
- ANSI C12.20 Class 0.1

### Applications
- I, U, F, P, Q, S, PF, E

<table>
<thead>
<tr>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>kW/h meters</td>
</tr>
<tr>
<td>Basic panel meters</td>
</tr>
<tr>
<td>Basic energy meters</td>
</tr>
<tr>
<td>Advanced meters</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I, U, F, P, Q, S, PF, E, THD</th>
</tr>
</thead>
<tbody>
<tr>
<td>min/max, harm., alarm, I/O (I, U, unbalance, demand, clock/cal, flicker)</td>
</tr>
</tbody>
</table>

### Measurements
- Voltage (VLT): (active energy)
- Current (AMP): external CT
- Power availability and reliability
- Billing analysis
- Demand and load management
- Sub-billing & cost allocation
- Energy efficiency and cost
- Panel instrumentation

### Compliance
- EN 50470-1/3
- IEC 61557-12
- IEC 62053-23 Class 2
- IEC 62053-22 Class 0.5S
- LON works

### Communication Ports
- Modbus TCP
- Modbus RTU
- Ethernet IP
- DLMS
- HTTP
- SFTP

### Panel instrumentation
- 96 x 96 mm

### Components for Medium Voltage Switchgear
- ION8800 A/B/C
- ION8650 A/B/C
- ION9000
- ION7400
Protection, Metering & Feeder Automation

Energy management and control
EcoStruxure Panel Server

Function
Function All-in-one gateway devices concentrator with wireless and/or Modbus RS485 to Modbus TCP platform, capable of connecting multiple, simultaneous edge control or cloud applications.

- Connect to your monitoring and control software such as EcoStruxure™ Power Monitoring Expert, EcoStruxure™ Power Operation or to your Building Management System
- Connect to Schneider cloud applications such as Facility Expert or Asset Advisor

Characteristics

<table>
<thead>
<tr>
<th>Feature</th>
<th>Entrance PAS400</th>
<th>Universal PAS600</th>
<th>Advanced PAS800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage temperature</td>
<td>-40°C to +85°C</td>
<td>-40°C to +85°C</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-25°C to +60°C</td>
<td>-25°C to +70°C</td>
<td>-25°C to +70°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>≤ 93%</td>
<td>≤ 93%</td>
<td>≤ 93%</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>Class II</td>
<td>Class II: PAS600T, PAS600L</td>
<td>Class II: PAS800P, PAS800L</td>
</tr>
<tr>
<td></td>
<td>Class III: PAS600P, PAS600L</td>
<td>Class III: PAS800L</td>
<td></td>
</tr>
<tr>
<td>Number of devices</td>
<td>Total 20</td>
<td>100(1)</td>
<td>100(1)</td>
</tr>
<tr>
<td></td>
<td>PowerTag Energy &amp; Ambient(1) 20</td>
<td>100(2)</td>
<td>100(2)</td>
</tr>
<tr>
<td></td>
<td>Other types of devices(1) 20</td>
<td>20(2)</td>
<td>20(2)</td>
</tr>
<tr>
<td>External IEEE 802.15.4 Antenna</td>
<td>Yes (2022)</td>
<td>PASA-ANT1</td>
<td></td>
</tr>
<tr>
<td>Modbus RS485 Master</td>
<td>Max. number of devices w/o repeater N.A.</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Max. number of devices with repeater N.A.</td>
<td>128</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>Maximum Length</td>
<td>N.A.</td>
<td>1000 m</td>
</tr>
<tr>
<td></td>
<td>Baudrate</td>
<td>N.A.</td>
<td>1200; 4800; 9600; 19200; 38400; 57600; 115200</td>
</tr>
<tr>
<td>Communication</td>
<td>Ethernet 10/100base T, Wi-Fi, TCP/IP, IP V4 / V6, DPWS, DHCP, Modbus/TCP Server, Modbus/TCP Client(3), Schneider Cloud Services, HTTPS, External Wi-Fi/Bluetooth Antenna(3), GPRS/3G/4G</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standards</td>
<td>IEC 61010-2; UL 61010-2; CSA C22.2; IEC 62974-1; IEC 62443-4-1; IEC 61326-1; EN 301-489; EN 55032; CISPR 11; EN 300-328; IEEE 802.15.4; IEEE 802.11 a/b/g/n; IEEE 802.3 af/at (PAS800P)(4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Benefits

- Easy installation
- Easy commissioning with EcoStruxure Power Commission, a single tool that auto discovers, configures, tests and maintenance
- Embedded web pages for complete, accurate and engaging views into power network energy and operations efficiency
- Enhanced cybersecurity design at every phase of the product life cycle

(1) Consult the User Manual or other documentations to check the limit applicable to your wireless device
(2) Lower limits may apply depending the firmware version, consult the User Manual, Release Notes or other documentations
(3) Only Universal PAS600 and Advanced PAS800
(4) Only Advanced PAS800
# Medium Voltage instrument transformers
## Low power transformers

<table>
<thead>
<tr>
<th>Function</th>
<th>Allows protection or metering with the same product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest voltage for equipment (kV)</td>
<td>0.72</td>
</tr>
<tr>
<td>Max. rated short-circuit current</td>
<td>40 kA</td>
</tr>
<tr>
<td>Max. rated Primary current</td>
<td>2 500 A</td>
</tr>
<tr>
<td>Max. rated Primary voltage</td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>LV insulation technology for MV applications</td>
</tr>
<tr>
<td>Main characteristics</td>
<td>Rated nominal secondary voltage 22.5 mV</td>
</tr>
<tr>
<td>Insulation</td>
<td>Class A (covering and insulation realized by vacuum casting EPOXY resin and APG technology with excellent electrical characteristics, high mechanical strength and high aging resistance)</td>
</tr>
<tr>
<td>Standards</td>
<td>IEC 60044-8</td>
</tr>
</tbody>
</table>

**Benefits**

- Operating safety: no danger in the event of any accidental opening of the secondary circuit
- Can be installed in 24 kV, 36 kV or 40.5 kV networks without any specific MV insulation
- Operating safety: no danger in the event of any accidental short-circuit of the secondary
- Resistive divider insensitive to ferroresonance
- Proper to measure energy in secondary MV loops
**Low Voltage protection**

**Acti9 range**

### Components for Medium Voltage Switchgear

#### Acti9 C60N
- **Function**: DIN rail miniature circuit-breakers. Circuit-breaker used in auxiliary power supply circuits providing overload and short-circuit protection.
- **Rated voltage**: 1P/1P+N: 12 to 240 VAC, 2P: 24 to 250 VDC, 2P: 24 to 500 VDC
- **Number of poles**: 1, 1P+N, 2, 3, 4
- **Nominal current**: 0.5 to 63 A
- **Connection**: Screw
- **Standard**: IEC/EN 60947-2
- **Tripping curves**: Standard C (8 In ± 20 %)
  - Inrush current D (12 In ± 20 %)
  - Electronics or high cable length B (4 In ± 20 %)
- **Benefits**: The Acti 9 circuit-breaker is recognised in over 100 countries for its quality and the breadth of its range, making it an indispensable component for your Low Voltage cabinet with complete peace of mind.

#### Acti9 C60H-DC
- **Function**: DIN rail miniature circuit-breakers. Circuit-breaker used in auxiliary power supply circuits providing overload and short-circuit protection.
- **Rated voltage**: 1P: 24 to 250 VDC, 2P: 24 to 500 VDC
- **Number of poles**: 1 or 2
- **Nominal current**: 0.5 to 63 A
- **Connection**: Screw
- **Standard**: IEC/EN 60947-2
- **Tripping curves**: Standard C (8.5 In ± 20 %)
  - Electronics or high cable length B (4 In ± 20 %)
- **Benefits**: The Acti 9 circuit-breaker is recognised in over 100 countries for its quality and the breadth of its range, making it an indispensable component for your Low Voltage cabinet with complete peace of mind.

#### OF
- **Function**: Open/ closed contact, Fault signalisation contact
- **Rated voltage**: 240 to 415 VAC, 24 to 30 VDC
- **Number of poles**: 1 or 2
- **Nominal current**: 0.5 to 63 A
- **Connection**: Screw
- **Standard**: IEC/EN 60947-2
- **Tripping curves**: Standard C (8 In ± 20 %), C (8.5 In ± 20 %)
  - Inrush current D (12 In ± 20 %)
  - Electronics or high cable length B (4 In ± 20 %)
- **Benefits**: The Acti 9 circuit-breaker is recognised in over 100 countries for its quality and the breadth of its range, making it an indispensable component for your Low Voltage cabinet with complete peace of mind.

#### SD
- **Function**: Open/ closed contact, Fault signalisation contact
- **Rated voltage**: 240 to 415 VAC, 24 to 30 VDC
- **Number of poles**: 1 or 2
- **Nominal current**: 0.5 to 63 A
- **Connection**: Screw
- **Standard**: IEC/EN 60947-2
- **Tripping curves**: Standard C (8 In ± 20 %), C (8.5 In ± 20 %)
  - Inrush current D (12 In ± 20 %)
  - Electronics or high cable length B (4 In ± 20 %)
- **Benefits**: The Acti 9 circuit-breaker is recognised in over 100 countries for its quality and the breadth of its range, making it an indispensable component for your Low Voltage cabinet with complete peace of mind.
Low Voltage relays
Zelio relays

Function
Designed for the adaptation, amplification, multiplication and processing of information in automated systems

<table>
<thead>
<tr>
<th>Function</th>
<th>Miniature relays RXM</th>
<th>Universal relays RUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switching voltage</td>
<td>12/240 VAC/DC</td>
<td>12/230 VAC/DC</td>
</tr>
<tr>
<td>Number of contacts</td>
<td>2, 3 or 4 CO</td>
<td>2 or 3 CO</td>
</tr>
<tr>
<td>Current</td>
<td>3 - 6 - 10 - 12 A</td>
<td>10 A</td>
</tr>
<tr>
<td>Mounting</td>
<td>Plugs into socket (DIN rail)</td>
<td>Plugs into socket (DIN rail)</td>
</tr>
<tr>
<td>Standards</td>
<td>IEC61810-1</td>
<td>IEC61810-1</td>
</tr>
</tbody>
</table>

Benefits
- Wide choice of number of contacts (up to 4)
- Simplicity of installation and maintenance
- Push-in wiring
- Standardization of relay pin arrangement on its socket
- Lockable test button to close manually the contacts and test the application during commissioning or debugging phase
- Clear indication of the contact status by mechanical flag, and power on coil by LED
<table>
<thead>
<tr>
<th>XB7</th>
<th>ZB5/XB5</th>
<th>ZB4/XB4</th>
<th>K1/K2</th>
</tr>
</thead>
</table>

### Standard version

**Function:** Enables operation of the Low Voltage circuits of the Medium Voltage cubicle

**Illuminated version: Pushbuttons/Pilot lights/Switches**

**Function:** Provides status information and enables control of Low Voltage circuits

<table>
<thead>
<tr>
<th>Mounting hole</th>
<th>22</th>
<th>22/30</th>
<th>22/30</th>
<th>16/22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Plastic</td>
<td>Plastic</td>
<td>Metallic</td>
<td>Plastic or metallic</td>
</tr>
<tr>
<td>Head shape</td>
<td>圆形</td>
<td>圆形</td>
<td>圆形</td>
<td>圆形</td>
</tr>
<tr>
<td>Composition type</td>
<td>Unibody</td>
<td>Modular</td>
<td>Modular</td>
<td>Modular</td>
</tr>
<tr>
<td>Panel fixing</td>
<td>Plastic nut</td>
<td>Plastic nut</td>
<td>3 points metal</td>
<td>Plastic nut or 4 screws</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP 65</td>
<td>IP66, IP67, IP69, IP69K</td>
<td>IP66, IP67, IP69, IP69K</td>
<td>IP 40/IP 65</td>
</tr>
<tr>
<td>Rated insulation voltage</td>
<td>250 V</td>
<td>600 V</td>
<td>600 V</td>
<td>690 V</td>
</tr>
<tr>
<td>Standards</td>
<td>250 V</td>
<td>600 V</td>
<td>600 V</td>
<td>690 V</td>
</tr>
</tbody>
</table>

### Standard & Illuminated versions

- **Standard version:** UL/CSA, IEC, CCC, UAC
- **Illuminated version:** UL/CSA, IEC, CCC, EAC
- **Marine:** BV, LROS, DNV, GL

### Benefits

#### Standard version

- Easy to select and install
- A wide choice of functions
- Robustness and mechanical durability
- High protection degree
- Excellent aesthetics and ergonomics

#### Illuminated version

- Long life resistance (LED technology)
- True colors and excellent brightness
- A wide choice of voltages
- High protection degree
- Easy mounting
# Low Voltage control and signalling

## Selector switches

<table>
<thead>
<tr>
<th>CMA</th>
<th>CMV</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="CMA diagram" /></td>
<td><img src="image2.png" alt="CMV diagram" /></td>
</tr>
</tbody>
</table>

**Function**
- CMA uses a single ammeter (by means of Current Transformers) for successive measurement of the currents of a three-phase circuit
- CMV uses a single voltmeter for successive measurement of voltages (phase-to-phase and phase-to-neutral) of a three-phase circuit

<table>
<thead>
<tr>
<th>Mechanical switching cycles</th>
<th>2,000,000</th>
<th>2,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical switching cycles</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Max. rated voltage</td>
<td>500 V</td>
<td></td>
</tr>
<tr>
<td>Max. rated current</td>
<td>20 A</td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td>48 x 48 Flush mounted</td>
<td>48 x 48 Flush mounted</td>
</tr>
<tr>
<td>Standards</td>
<td>IEC 60947-3</td>
<td>IEC 60947-3</td>
</tr>
</tbody>
</table>

**Benefits**
- AgNi contact ensures mechanical durability
- IP 65 on front face

Discover more products on [www.se.com](http://www.se.com)
## Low Voltage control and signalling

**Linergy TR - Terminal blocks**

<table>
<thead>
<tr>
<th>NSY TRV</th>
<th>NSY TRR</th>
<th>NSY TRP</th>
</tr>
</thead>
<tbody>
<tr>
<td>![NSY TRV Image]</td>
<td>![NSY TRR Image]</td>
<td>![NSY TRP Image]</td>
</tr>
</tbody>
</table>

### Components for Medium Voltage Switchgear

**Function**

- Ensures connection of Low Voltage cables or wires
- Ensures connection of Low Voltage cables or wires
- Ensures connection of Low Voltage cables or wires

**Technology**

- Screw clamp technology
- Spring clamp technology
- Push-in technology

**Connection functions**

- **NSY TRV**
  - Passthrough (2.5 - 150 mm²)
  - Protective earth
  - Disconnect type (blade or fuse)
  - Double deck, multi-pole
  - Multifunction
  - Neutral disconnect
- **NSY TRR**
  - Passthrough (2.5 - 35 mm²)
  - Protective earth
  - Disconnect type (blade or fuse)
  - Double deck, multi-pole
- **NSY TRP**
  - Passthrough (2.5 - 4 mm²)
  - Protective earth
  - Disconnect type (blade or fuse)
  - Double deck, multi-pole

**Conductor nominal c.s.a. (cross section area)**

- **NSY TRV**: 2.5 mm² to 150 mm²
- **NSY TRR**: 2.5 mm² to 35 mm²
- **NSY TRP**: 2.5 mm² and 4 mm²

**Number of poles**

- **NSY TRV**: 1 - 1 x 1/1 - 2 x 2
- 2 - 1 x 1/3 - 1 x 1
- **NSY TRR**: 1 - 1 x 1/1 - 1 x 2/1 - 2 x 2
- 2 - 1 x 1/2 - 1 x 2/3 - 1 x 1
- **NSY TRP**: 1 - 1 x 1/1 - 1 x 2/1 - 2 x 2
- 2 - 1 x 1/2 - 1 x 2/3 - 1 x 1

**Clip-on mounting on rail type**

- **NSY TRV**: 25
- **NSY TRR**: 25
- **NSY TRP**: 25

**Certifications**

- **NSY TRV**: UL, CSA, VDE, ATEX, LR, GL, DNV, EAC
- **NSY TRR**: UL, CSA, VDE, ATEX, LR, GL, DNV, EAC
- **NSY TRP**: UL, CSA, VDE, ATEX, LR, GL, DNV, EAC

### Benefits

**Rugged and reliable**

This technology not only provides quality, safety and availability of equipment but optimizes installation setup and operation with their simple integrated functions.

**Cost effective (quick and reliable)**

Spring technology is a maintenance-free connection method assuring separation of mechanical and electrical functions. It also eliminates the need for regular re-tightening.

**Quick and innovative**

Solid conductors or conductors with cable-ends can be directly inserted into the terminal block without tools. The actuation lever can be operated with any tool for releasing conductors.
### Low Voltage control and signalling

#### Linergy TR - Terminal blocks

| **Function** | • Facilitates the insertion of wires into the terminals and assures the insulation between adjacent connection  
| | • Allows the identification of the wires |
| **Technology** | Insulated cable ends |
| **Connection functions** | Four available versions:  
| | • Single conductor cable ends  
| | • Single conductor markable cable ends  
| | • Uninsulated cable ends  
| | • Twin conductor cable ends |
| **Conductor nominal c.s.a. (cross section area)** | 0.25 mm² to 50 mm² |
| **Certifications** | UL, CSA |
| **Benefits** | Fast and reliable wiring  
| | Use the AZ5 and DZ5 ranges of cable ends to simplify wiring and provide optimum electrical continuity between wire and terminal block. |
Accessories
Accessories

- Insulating holder with or without capacitive divider: C-2
- Anti-condensation heating element: C-2
- Insulation busbar cover: C-2
- High resistance plastic window: C-3
- Cubicle compartment handle: C-3
**Anti-condensation heating element**

**Function**
Heating the inside of the cubicle when the ambient temperature is too low

**Technical specifications**
- 220 VAC
- 150 W
- Length: 432 mm
- Supplied with its support without thermostat

**Reference numbers**
59280

**Benefits**
Avoid condensation in the cubicle

---

**Insulating holder with or without capacitive divider**

**Function**
- **Without capacitive divider**: Provides mechanical support and insulation through their rigid fin arrangement; used to support busbars and cable ends
- **With capacitive divider**: Provides mechanical support and insulation. The embedded capacitors in this insulating holder provide voltage output to indicate the voltage presence, up to 24 kV

**Technical specifications**
- Height: 175 mm
- Capacitive divider: ISO 35 pf

**Reference numbers**
- 3 insulating holders:
  - 17.5 kV ref. 59431
  - 24 kV ref. AAA10075
- 3 insulating holders with capacitive divider:
  - 17.5 kV ref. 59430
  - 24 kV ref. AAA10074

**Standards**
IEC

**Benefits**
- Dielectric withstand
- Mechanical robustness

---

**Insulation busbar cover**

**Function**
Set of three insulating covers which enables improved dielectric withstand at the busbars connections in the cubicle

**Technical specifications**
For 1 to 4 busbars (100 mm x 800 mm each)

**Reference numbers**
59420

**Benefits**
Can be adjusted according to number of busbars
## Accessories

### Characteristics and references

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High resistance plastic window</strong></td>
<td>Located on the panel or the door, allows you to see inside a cubicle.</td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td>Enables the front panel door of the cubicle to be closed.</td>
</tr>
<tr>
<td><strong>Technical specifications</strong></td>
<td>• 3 mm thick transparent polycarbonate window</td>
</tr>
<tr>
<td></td>
<td>• Dimensions: 138 mm x 85 mm</td>
</tr>
<tr>
<td><strong>Reference numbers</strong></td>
<td>59105</td>
</tr>
<tr>
<td><strong>Benefits</strong></td>
<td>Internal arc withstand up to 31.5 kA</td>
</tr>
</tbody>
</table>

| **Cubicle compartment handle** | Enables the front panel door of the cubicle to be closed.                  |
| **Function**                 | Located on the panel or the door, allows you to see inside a cubicle.      |
| **Technical specifications** | • Material: Zamak                                                           |
|                              | • A version with key is available                                           |
| **Reference numbers**        | • 59270 (handle)                                                            |
|                              | • 59271 (handle with key)                                                  |
| **Benefits**                 | Robustness                                                                  |
Services

Services for Panel Builders  D-2
EcoStruxure Ready Solutions  D-4
F-Lab Laboratory  D-5
Sustainability  D-6
Complementary literatures  D-7
Services

Components for Medium Voltage Switchgear

PM110154     PM110155     PM110153

Services

The equipment has a long lifespan and your customer will need trusted partners and manufacturers like you to make their operations safe, reliable, efficient and sustainable. Take a step-by-step look at the world of Services and learn the advantages of becoming a Schneider Electric Services partner.

Business opportunities don’t stop after your product is delivered. Be identified as a trusted partner throughout your product’s entire life cycle.

The equipment has a long lifespan and your customer will need trusted partners and manufacturers like you to make their operations safe, reliable, efficient and sustainable. Take a step-by-step look at the world of Services and learn the advantages of becoming a Schneider Electric Services partner.

Resell an Innovative Services Plan to increase your business

EcoStruxure Service Plan is a personalized service contract that combines continuous environmental and asset health monitoring with advanced analytics, 24/7 remote technical support and uses expert consultants’ advice in fire prevention, asset management and manufacturer field services execution.

Best of field services

On-site services are carried out by highly qualified technicians:

- Preventive and corrective manufacturer maintenance
- Proprietary diagnostics with ProDiag tools
- 24/7 emergency support

Best of digital services

Digital services are available using the EcoStruxure Asset Advisor platform:

- Continuous asset monitoring with advanced analytics and alerts
- Expert recommendations from our Connected Services Hub
- Dynamic condition-based maintenance to optimize maintenance cycles

Peace of mind

Service plans boost your peace of mind:

- Reduce the risk of electrical failure by up to 75%
- Extend the asset’s lifetime by up to 25%

Optimize equipment’s lifespan

Anticipate any actions and investment

Reduce risk of unscheduled downtime

Discover EcoStruxure Service Plan

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Discover EcoStruxure Service Plan
Services for Panel Builders
Diversify your activity

Perform maintenance services to diversify your activities

Upgrade electrical equipment with simple smart sensors kits
For existing installed base panels and future installations

Schneider Electric Asset Connect offers upgrade solutions that use smart sensors to transform your non-communicating equipment into connected assets and captures information on your electrical installation’s health.

Gain field expertise by becoming an EcoXpert Power Services partner

EcoXpert Power Services partners are trained on our field and digital services offers and use diagnostic tools to maintain optimal services continuity on electrical MV and LV installations. Partners have the expertise to modernize brownfield installations and implement connected equipment with digital capabilities and a remote cloud platform for monitoring.

- **Enhanced expertise**: Receive training on Schneider Electric offers, procedures and tools
- **Maintenance and modernization of equipment and devices**: Receive training on how to assess LV and MV installed base to increase life duration

Discover EcoXpert Power Services
EcoStruxure™ Connected solutions

What is EcoStruxure™?

EcoStruxure™ is our open, interoperable, IoT-enabled system architecture and platform. EcoStruxure delivers enhanced value around safety, reliability, efficiency, sustainability, and connectivity for our customers. EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity to deliver Innovation at Every Level. This includes Connected Products, Edge Control, and Apps, Analytics & Services, which are supported by Customer Lifecycle Software.

Turn data into action

EcoStruxure™ architecture lets customers maximize the value of data. Specifically, it helps them:
- Translate data into actionable intelligence and better business decisions
- Take informed decisions to secure uptime and operational efficiency thanks to real-time control platforms
- Gain visibility to their electrical distribution by measuring, collecting, aggregating, and communicating data

Efficient asset management
Greater efficiency with predictive maintenance helping to reduce downtime.

24/7 connectivity
Real-time data everywhere anytime to make better informed decisions.

Increased protection
Proven design and experience combined with internal arc designs to enhance people and equipment protection.

EcoStruxure™ has been deployed in almost 500,000 sites with the support of some 20,000 developers, 650,000 service providers and partners, and 3,000 utilities, and connects over 2 million assets under management.

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Services

F-Lab Laboratory
Expertise at your side

Experienced F-lab Volta and Amplitude laboratories cooperates with several Schneider Electric entities throughout the world supporting development of quality and safety (robustness and reliability) of products and systems in conformity with various standards covering most of the global market.

Power laboratory
The power laboratory has acquired extensive experience in short-circuit tests on low and medium voltage products. The tests are conducted in compliance with standards IEC, IEEE, ANSI, UL, HN, etc. and others depending on the specifications of our customers.

The laboratory is equipped with 3 power alternators (2 x 600 MVA and 1 x 2500 MVA).

Medium Voltage tests
- Bench to conduct make and break tests under MV downstream load: up to 36 kV - 3 phases (inductive, resistive and capacitive loads)
- Bench to conduct MV short-circuit make and break tests: up to 18 kV - 80 kA - 3 phases
- Bench to conduct tests on arc due to MV internal fault: 31.5 kA - 1s; 40 kA - 0.5 s; 50 kA - 0.25 s.

Functional laboratory
Functional laboratory check behavior of the devices under their normal and specific operating conditions.

It provides support throughout all the development, checking and certification phases, including quality sampling to monitor performance.

Functional tests
This laboratory proposes a wide range of test services (heating, triggering, dielectric, etc.) at high performance levels and using unique means such as tests on the energy measuring devices.

- Temperature rises up to 15 kA AC and 7 kA DC - climatic chamber up to 100 m³
- Triggering of overload and short-circuit
- LV and MV dielectric
- Aging tests
- Specific 230 m³ climatic chamber for dielectric, water and ice

Explore all F-lab Expertise
Sustainability
Green Premium™

The Green Premium program stands for our commitment to deliver customer valued sustainable performance. It has been upgraded with recognized environmental claims and extended to cover all offers including Products, Services and Solutions.

CO₂ and P&L impact through... Resource Performance
Green Premium brings improved resource efficiency throughout an asset’s lifecycle. This includes efficient use of energy and natural resources, along with the minimization of CO₂ emissions.

Cost of ownership optimization through... Circular Performance
We’re helping our customers optimize the total cost of ownership of their assets. To do this, we provide IoT-enabled solutions, as well as upgrade, repair, retrofit, and remanufacture services.

Peace of mind through... Well-being Performance
Green Premium products are RoHS and REACh compliant. We’re going beyond regulatory compliance with step-by-step substitution of certain materials and substances from our products.

Improved sales through... Differentiation
Green Premium delivers strong value propositions through third-party labels and services. By collaborating with third-party organizations we can support our customers in meeting their sustainability goals such as green building certifications.

More than 75% of our product sales offer superior transparency on the material content, regulatory information and environmental impact of our products:

- RoHS compliance
- REACh substance information
- Industry leading # of PEP’s*
- Circularity instructions

Discover what we mean by green
Check your products!

*PEP: Product Environmental Profile (i.e. Environmental Product Declaration)
Learn more on our Medium Voltage products and technology

Helping you design MV products according to IEC standards
• Our talented electrical distribution experts share their industry-leading knowledge of technological developments and evolving medium-voltage standards.

Helping protect people and systems from arc flash in medium voltage equipment
• Easy to understand approach on arc flash systems installed in MV switchgear

Improving your business with digital self-service
• Digital self-service helps your business improve flexibility and productivity, allowing you to quickly adapt to customer needs in changing times.

Discover in a single catalog all assets and services to modernize existing MV and LV installations by adding sensors and communication capabilities.
Green Premium™ ecolabel product - Sustainable performance, by design