Medium-voltage product offer

ANSI Panorama

Click to begin

schneider-electric.us/mediumvoltage
## Main contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV Air-insulated switchgear (AIS)</td>
<td>04</td>
</tr>
<tr>
<td>Masterclad metal-clad switchgear</td>
<td>04</td>
</tr>
<tr>
<td>VR circuit breaker</td>
<td>05</td>
</tr>
<tr>
<td>HVL metal-enclosed load interrupter</td>
<td>06</td>
</tr>
<tr>
<td>HVL/cc metal-enclosed load interrupter</td>
<td>07</td>
</tr>
<tr>
<td>MiniBreak metal-enclosed switch</td>
<td>08</td>
</tr>
<tr>
<td>MV Shielded Solid Insulated Switchgear (2SIS)</td>
<td>09</td>
</tr>
<tr>
<td>PremSet metal-enclosed VCB switchgear</td>
<td>09</td>
</tr>
<tr>
<td>MV Motor Control</td>
<td>10</td>
</tr>
<tr>
<td>Motorpact reduced voltage motor controls</td>
<td>10</td>
</tr>
<tr>
<td>Motorpact sequential smart start motor controls</td>
<td>10</td>
</tr>
<tr>
<td>Motorpact full voltage motor controls</td>
<td>11</td>
</tr>
<tr>
<td>MV Gas-insulated switchgear (GIS)</td>
<td>12</td>
</tr>
<tr>
<td>GHA VCB switchgear</td>
<td>12</td>
</tr>
<tr>
<td>CBGS-0 SF6 circuit breaker switchgear</td>
<td>13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH110 – Thermal Monitoring</td>
<td>14</td>
</tr>
<tr>
<td>Switchgear Monitoring Device (SMD)</td>
<td>14</td>
</tr>
<tr>
<td>MV Distribution transformers</td>
<td>15</td>
</tr>
<tr>
<td>Model III packaged unit substation</td>
<td>15</td>
</tr>
<tr>
<td>Power-Cast II and Uni-Cast II transformers</td>
<td>16</td>
</tr>
<tr>
<td>Power-Dry II transformers</td>
<td>16</td>
</tr>
<tr>
<td>Liquid-filled substation transformer</td>
<td>17</td>
</tr>
<tr>
<td>Liquid-filled pad mount transformers</td>
<td>17</td>
</tr>
<tr>
<td>Metal-enclosed bus duct system</td>
<td>18</td>
</tr>
<tr>
<td>Power-Zone non-segregated busway system</td>
<td>18</td>
</tr>
<tr>
<td>Walk-in substations</td>
<td>19</td>
</tr>
<tr>
<td>Powerhouse/Power-Zone Center</td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Protection and control</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sepam™ 20 series</td>
<td>20</td>
</tr>
<tr>
<td>Sepam 40 series</td>
<td>20</td>
</tr>
<tr>
<td>Sepam 80 series</td>
<td>20</td>
</tr>
<tr>
<td>MiCOM™ 10 Series</td>
<td>21</td>
</tr>
<tr>
<td>MiCOM 20 Series</td>
<td>21</td>
</tr>
<tr>
<td>MiCOM 30 Series</td>
<td>21</td>
</tr>
<tr>
<td>MiCOM 40 Series</td>
<td>21</td>
</tr>
<tr>
<td>Easergy™ P3U</td>
<td>22</td>
</tr>
<tr>
<td>Easergy P3X</td>
<td>22</td>
</tr>
<tr>
<td>Easergy V125</td>
<td>22</td>
</tr>
<tr>
<td>ECOFIT 50/51</td>
<td>22</td>
</tr>
<tr>
<td>PM5000 series</td>
<td>23</td>
</tr>
<tr>
<td>PM8000 series</td>
<td>23</td>
</tr>
<tr>
<td>ION9000 series</td>
<td>23</td>
</tr>
</tbody>
</table>
### Market segments

#### Product list by application type

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Utilities</th>
<th>Renewables</th>
<th>Oil &amp; Gas</th>
<th>Mines &amp; Metals</th>
<th>Healthcare</th>
<th>Water</th>
<th>Data Center</th>
<th>Industrial/Building</th>
<th>OEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medium-voltage (MV) circuit breakers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VR</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air-insulated switchgear (AIS)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masterclad™</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>Masterclad arc resistant</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>HVL</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>HVL/cc</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>MiniBreak</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td><strong>Shielded solid insulation system</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PremSet™</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td><strong>Motor control centers (MCCs)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MotorPact</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td><strong>Gas-insulated switchgear (GIS)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DVCAS</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBGS-0</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>GHA</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td><strong>Packaged substations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model III</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td><strong>Transformers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power-Cast™/Uni-Cast™ transformer</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>Power-dry</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>Liquid pad mount</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>Liquid substation</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td><strong>Busway</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power-Zone™ center</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protective relays</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easergy P3</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>SEPAM</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>MiCOM</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
</tr>
</tbody>
</table>
MV Air-insulated switchgear (AIS)

Masterclad metal-clad switchgear

Ratings/features
Meets IEEE/ANSI C37.20.2 metal-clad switchgear standards

- NEMA 1 enclosure
  - 5/15 kV, 1200 – 4000 A (force cooled), 25 – 63 kA, 95 kV BIL, 2-high
  - 27 kV, 1200 – 2750 A, 16 – 40 kA, 125 kV BIL, 2-high

- NEMA 3R enclosure
  - 5/15 kV, 1200 – 3000 A, 25 – 63 kA, 95 kV BIL, 2-high
  - 27 kV, 1200 – 2750 A, 16 – 40 kA, 125 kV BIL, 2-high

- Arc-resistant switchgear (NEMA 1)
  - Meets IEEE/ANSI C37.20.7 metal-clad switchgear Type 2B
  - 5/15 kV, 1200 – 4000 A (force cooled), 25 – 63 kA, 95 kV BIL, 2-high

Benefits
- Long life and minimum maintenance
  - Vacuum Interrupters are sealed for life
  - Capable of 20 – 100 full-fault interruptions
- Grounded metal barriers between compartments and insulated bussing — live parts are not exposed
- Interlocks with the breaker racking system
- Direct connections (throat) to cast, liquid, or dry transformers
- UL, cUL, and CSA listing
- Allows for customized system designs and applications
- When inspection or maintenance is required, the draw-out circuit breaker and instrument drawers allow easy access
MV Air-insulated switchgear (AIS)

VR circuit breaker

**Ratings/features**
- 3-cycle vacuum circuit breaker
- Up to 27 kV
- Up to 63 kA/164 kA pk
- Up to 4,000 A at 5/15 kV, 2,000 A at 27 kV
- Capacitive switching rated C1 at 410A
- Generator switching per ANSI/IEEE C37.013A
- Adheres to C37.04, C37.06, and C37.09 ANSI/IEEE standards

**Benefits**
- Maintenance requirements are minimized with the use of enclosed long-life vacuum interrupters for the VR circuit breaker
- Special wheel design allows for easy maneuvering of the breaker in the rail channel support internal to the breaker section
- The inherent rigidity and mechanical strength of the circuit breaker design complement the operating mechanism, resulting in increased endurance and reliability
MV Air-insulated switchgear (AIS)

HVL metal-enclosed load interrupter

Ratings/Features

- Current-carrying capacity up to 1,200 A at 5/15 kV, 600 A up to 38 kVA
- Switch interrupting capacity of 1,200 A up to 5/15 kV, 600 A up to 25 kV, 400 A up to 38 kV
- Short-time rating of 50 kA up to 5/15 kV and 25 kA up to 38 kV
- Over-toggle and stored-energy operating mechanism options
- Direct connections available for Schneider Electric transformers
- Fuselogic — missing/blown fuse indication (optional with CLE Din-E fuses)
- Duplex switch options available
- Many options available including NEMA 3R, boric acid fuses, and motor operated
- Fusible or non-fusible load interrupter switchgear

Benefits

- Air-insulated load break switch
- Low price circuit protection
- Fuselogic protection system blocks closing of the switch if a fuse is blown or has not been installed
- Direct drive operating mechanism adds dependability and consistency
- Arc chute design reduces contact erosion and prolongs product life
- All live parts are mounted on insulators and attached to grounded sheet metal of the enclosure, minimizing the potential of phase-to-phase faults
MV Air-insulated switchgear (AIS)

HVL/cc metal-enclosed load interrupter

**Ratings/features**
- Current-carrying capacity up to 1,200 A at 5/15 kV, 600 A up to 38 kV
- Short-time current rating of 25 kA up to 38 kV
- Dimensions as small as 14.75” W
- 20” W and 29.5” W options available
- Over-toggle and stored-energy operating mechanism options
- Quick ship options available
- Direct connections available for Schneider Electric transformers
- Fusible or non-fusible load interrupter switchgear
- Front access only options available

**Benefits**
- Load break switch is inside a sealed-for-life tank, significantly reducing maintenance requirements
- Smallest footprint in the industry
- Fully compartmentalized
- Fuselogic — missing/blown fuse indication (available option)
MV Air-insulated switchgear (AIS)

MiniBreak metal-enclosed switch

Ratings/features
- Up to 5.5 kV and 200 A
- 12.5 kA, 2 s short-circuit rating
- 100 load-break operations
- Fused or non-fused versions
- Indoor or outdoor applications

Benefits
- Only 66 inches in height
- Easy to handle due to its lightweight and compact design
- Ideal for small to medium industrial applications and installations in which space is limited
- Free-standing enclosures
MV Shielded Solid Insulated Switchgear (2SIS)

PremSet metal-enclosed VCB switchgear

Ratings/features

- Rated up to 15 kV, 1,200 A, 25 kA
- Suitable for indoor or outdoor applications
- UL listed metal-enclosed vacuum circuit breaker switchgear
- Dimensions as small as 14.75” W
- Modular busbar system with shielded solid insulation
- Disconnecting circuit breaker using vacuum interrupters
- Built-in voltage and current sensors available
- Low power voltage transformer for protection or measurement
- Built-in isolation and grounding switch

Benefits

- Completely shielded solid insulation system design provides optimized insulation and extended equipment life
- Mix-and-match modular architecture based on functional blocks grants unsurpassed simplicity
- 3-in-1 integrated architecture for breaking, disconnection, and grounding helps insure operation with built-in mechanical interlocking
- Reduced footprint and front access only designs
- Up to 10 year maintenance cycle
**MV Motor Control**

Motorpact reduced voltage motor controls

**Ratings/features**
- Up to 7.2 kV, 50 kA 3 s, 3,000 A
- 200 A, 400 A, 450 A, and 720 A available contactor ratings
- IEEE C37.20.7 Type 2B arc resistant (optional)

**Benefits**
- Eases the impact of motor starting on your electrical infrastructure
- Voltage taps permit the adjustment of starting voltage to suit system capabilities (RVAT)
- Acceleration times up to 30 seconds for medium duty making it suitable for a long starting period (RVAT)
- Starting parameters can be fine-tuned to meet wide variety of unique load conditions (RVSS)
- Advanced protection module helps protects both the motor and the solid-state power structure (RVSS)

Motorpact sequential smart start motor controls center

**Ratings/features**
- Cascade the starting and stopping of three or more motor starters within a single soft starter or drive
- 450 A continuous

**Benefits**
- Optimized cost by sharing a single soft start for multiple motors
- Depending on the application and number of motors being controlled, the S3 can lower your implementation costs between 25% and 65% per motor
- Reduces size and weight of installation by sharing the soft start or drive
- Lighter weight parts reduce personnel requirements for installation
MV Motor Control

Motorpact full voltage motor controls

Ratings/Features

- Up to 7.2 kV, 50 kA 3 s, 3,000 A
- 200 A, 400 A, 450 A, and 720 A available contactor ratings
- IEEE C37.20.7 Type 2B Arc Resistant

Benefits

- Vacuum contactor is capable of 2.5 million mechanical operations
- Available in three widths (14.75", 20", 29.5") for optimal footprint
- Robust construction and compact design
- No ventilation openings
- Withdrawable vacuum contactor
MV Gas-insulated switchgear (GIS)

GHA VCB Switchgear

Ratings/features
- Up to 38 kV, 2,500 A, 40 kA, and 170 kV BIL
- Fixed vacuum circuit breaker
- Modular design of switchgear sections
- Internal arc tested 40 kA/0.5 s per IEEE C37.20.7

Benefits
- Installation and removal of vertical sections without gas handling
- Innovative bus bar link “B-link” enables rapid on-site assembly through robust solidly shielded insulation
- Customizable LV cabinet
- Intelligent Gas Density Information System (IDIS) for gas monitoring
- Camera system provides visible disconnect of the isolation and grounding switch
- Sealed-for-life maintenance-free circuit breaker and bus bar compartments
- Use of T-type connectors insulates live components from cable compartment
- Completely front-accessible
- Up to 10 year maintenance cycle
MV Gas-insulated switchgear (GIS)

CBGS-0 SF6 circuit breaker switchgear

Ratings/features
- Up to 38 kV, 2,000 A, 31.5 kA, and 150 kV BIL
- Compact design 24” W for mains/feeders and 48” W for tie
- Fixed vacuum or SF6 circuit breaker
- Solid insulated and shielded bus bar system
- Internal arc tested 31.5 kA/1 s per IEC 62271-200
- Complies with ANSI/IEEE C37.20.3 metal-enclosed switchgear
- UL listed per applicable IEEE standards

Benefits
- Installation and removal of vertical sections without gas handling
- Increased resistance to environmental influences due to MV components being protected in a sealed pressure system
- Camera system provides visible disconnect of the isolation and grounding switch
- Sealed-for-life maintenance-free gas filled compartment
- Use of T-type connectors removes live components from cable compartment
- Completely front-accessible
- Up to 10 year maintenance cycle
TH110 – Thermal Monitoring

Switchgear Monitoring Device (SMD)

Ratings/Features
- Real time thermal and environmental condition monitoring.
- Wireless sensors communicate via the Zigbee® protocol.
- Self powered thermal sensors. (No batteries to change)
- Available across MV product offer up to 38KV
- Uses local HMI or communicates directly with customers SCADA system.

Benefits
- Reduces cost of ownership by replacing annual thermal scans with continuous monitoring.
- Increases uptime through early identification of thermal issues.
- An EcoStruxure™ solution through integration with the Asset Advisor/PME/PSO Powerlogic offers.

Modbus SL
Sologate Wireless Concentrator

Thermal monitoring
TH110

Environmental monitoring
CL110
MV Distribution transformers

Model III packaged unit substation

Ratings/features

- Primary voltages: 2.4 kV – 13.8 kV
- Ratings of 75 kVA – 1,000 kVA at 480 V
- Ratings of 75 kVA – 500 kVA at 240 V
- Branch circuit breakers from 15 A – 1,200 A
- 80, 115, 150 °C transformer temperature rise

Benefits

- Combines primary switch, dry-type transformer, and I-Line™ distribution into a single, compact unit
- Efficient performance — Meets 2016 DOE new transformer efficiencies
- Compact design — Small size allows passing through standard-size doorways and narrow hallways
- Easy expansion — Substations divide a system into isolated areas
- Primary power is purchased from the utility at the lower primary power rates, resulting in operational cost savings throughout the life of the equipment
- Overall installed cost is lower because of the cost benefits of MV distribution cable as compared to LV cable or busway
- Efficient design — Can be installed against a wall or in a corner without derating
MV Distribution transformers

Power-Cast™ II and Uni-Cast II transformers

Ratings/features
- Cast windings designed with a solid resin dielectric and a 185 °C insulation system
- Available with copper or aluminum windings
- Partial discharge free
- Superior dynamic short-circuit current strength
- Resistance to moisture and atmospheric contaminants
- Optional blower cooling provides as much as 50% increase in capacity
- 2016 Department of Energy; energy-efficiency compliant
- Transient voltage resistant Transformer Turt

Benefits
- Designed to meet the demands of higher operating voltages
- Rugged durability for harsh environments
- Superior dynamic short-circuit current strength
- UL and CSA listed

<table>
<thead>
<tr>
<th>Power-Cast II</th>
<th>Uni-Cast II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>Cast</td>
</tr>
<tr>
<td>Secondary</td>
<td>Cast</td>
</tr>
<tr>
<td>Primary voltage</td>
<td>Up to 46 kV</td>
</tr>
<tr>
<td>Secondary voltage</td>
<td>Up to 15 kV</td>
</tr>
<tr>
<td>kVA</td>
<td>112.5 kVA thru 13 MVA</td>
</tr>
</tbody>
</table>

Power-Dry II transformers

Ratings/features
- Available with primary voltages up to 35 kV in 112.5 kVA through 13 MVA sizes with a 220 °C insulation system
- Secondary voltages available through 15 kV
- Vacuum pressure impregnated
- Can be used stand-alone with air terminal chambers for cable termination or as part of a substation lineup
- Optional fan cooling provides 33.33% increase in capacity
- 2016 Department of Energy; energy-efficiency compliant

Benefits
- Liquid-free and lighter weight than cast-coil units
- Low installation, maintenance, and energy costs
- Flexible design ideal for power upgrades or retrofit applications
- No special waste disposal considerations
**MV Distribution transformers**

**Liquid-filled transformers**

- **Ratings/features**
  - Available in primary voltages up to 69 kV in 225 kVA through 20 MVA
  - Secondary voltages ratings from 600 V through 35 kV
  - Available as stand-alone installation using terminal compartments or close-coupled to primary and secondary switchgear providing a complete substation lineup
  - Mineral oil or high-fire-point fluids options
  - Higher standard impulse levels than conventional dry-type units
  - Self-cooled and fan-cooled overload capabilities
  - Copper or aluminum windings
  - Secondary busway connection option
  - 2016 Department of Energy; energy-efficiency compliant

- **Benefits**
  - Increased reliability
  - High efficiency
  - Sealed-tank construction allows for installation in less-than-ideal environments

**Liquid-filled substation transformer**

**Liquid-filled pad mount transformers**

- **Ratings/features**
  - Available with primary voltages up to 46 kV in 45 kVA through 20 MVA, sizes with 600 V through 25 kV secondary ratings
  - Copper or aluminum windings
  - Mineral oil or high-fire-point fluid available
  - Self-cooled overload capabilities
  - Fusing and switching options
  - Loop feed option available
  - Secondary busway connections and circuit breaker options available
  - 2016 Department of Energy; energy-efficiency compliant

- **Benefits**
  - Compact and tamper-resistant for underground power distribution systems
  - Designed to save space and energy
  - High efficiency with low operating costs
  - Sealed-tank construction allows for installation in less-than-ideal environments
Metal-enclosed bus duct system

Power-Zone non-segregated busway system

Ratings/features
- 600 V up to 38 kV
- 5 kV, 15 kV, or 38 kV fluidized bed epoxy insulation
- 1,200 A up to 6,000 A bus ratings
- Copper or aluminum construction
- Aluminum, steel, or stainless steel housing
- Weatherproof housing available as an option
- Components include: equipment terminations, elbows and tees, expansion joints, fire, and smoke barriers

Benefits
- Custom designed and manufactured for each application
- The bus conductors are enclosed in a grounded metal housing
Walk-in substations

Powerhouse/Power-Zone Center

Ratings/features

- Containerized substation comprised of:
  - MV switchgear (AIS, GIS)
  - LV switchboards
  - Monitoring, control, protection, and measurement devices
- Pre-engineered, pre-assembled, and pre-commissioned custom designed solution
- Designed to satisfy various NEMA classifications, including NEMA 3R, 4, 4X, 7, 9, or 12
- Base constructed of welded steel channels and angle supports, sized and reinforced to accommodate specific loading requirements
- Flooring constructed of 1/4” steel plate finished with ANSI-61 skid-resistant epoxy
- Optional tread plate steel available for flooring
- Wall panels formed of galvanized steel with interlocking, self-framing design
- Standard peaked roof or single sloped roof
- Equipped with removable lifting lugs
- Skid mounted unit substations with or without Power-Zone Center also available

Benefits

- Single-source responsibility of designing, engineering, and manufacturing saves time and causes minimal disruption
- Increased reliability owing to full assembly and quality control in the factory
- Interlocking panel design allows easy adaptability to various equipment layouts
- Rear-hinged access doors grant easy access to electrical equipment without the need of additional building space
- Portability and classification as electrical equipment allow faster depreciation than a block building
# Protection and control

<table>
<thead>
<tr>
<th>Sepam 20 Series</th>
<th>Sepam 40 Series</th>
<th>Sepam 80 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applications</strong></td>
<td>Feeder/Main, Motor, Transformer, BusBar</td>
<td>Feeder/Main, Motor, Transformer, Generator</td>
</tr>
<tr>
<td><strong>Intro</strong></td>
<td><strong>Basic Applications</strong></td>
<td><strong>Standard Applications</strong></td>
</tr>
<tr>
<td></td>
<td>Consists of high-performing solutions suited for standard applications requiring current or voltage protection.</td>
<td>Designed to provide the necessary protection for the operation of machines, industrial electrical distribution networks and substations for all voltage levels.</td>
</tr>
<tr>
<td></td>
<td><em>Protection functions vary by application</em></td>
<td><em>Protection functions vary by application</em></td>
</tr>
<tr>
<td><strong>Communication Protocols</strong></td>
<td>Modbus, DNP3</td>
<td>Modbus, DNP3, Modbus TCP/IP, IEC61850 MMS</td>
</tr>
</tbody>
</table>

*Protection functions vary by application*
### Protection and control

<table>
<thead>
<tr>
<th>MiCOM 10 Series</th>
<th>MiCOM 20 Series</th>
<th>MiCOM 30 Series</th>
<th>MiCOM 40 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applications</strong></td>
<td>Feeder/Main Motor</td>
<td>Feeder/Main Motor</td>
<td>Feeder/Main Motor</td>
</tr>
<tr>
<td></td>
<td>Line Differential Busbar</td>
<td>Transformer Distance</td>
<td>Transformer Distance</td>
</tr>
<tr>
<td><strong>Self-Powered/Basic Applications</strong></td>
<td>Consists of high-performing solutions suited for standard applications requiring current protection. The P116 offers self-powered options with fuse curves.</td>
<td>Designed to provide the necessary protection for the operation of machines, industrial electrical distribution networks and substations for all voltage levels.</td>
<td>Designed to adapt to demanding applications including those with 16.5Hz, 16.67Hz, 25Hz, 50Hz, and 60Hz systems helping to provide complete coverage with one series of relay targeted to railways.</td>
</tr>
<tr>
<td><strong>Overview</strong></td>
<td><strong>Standard Applications</strong></td>
<td><strong>Advanced Applications</strong></td>
<td><strong>Advanced Applications</strong></td>
</tr>
<tr>
<td><strong>Communication Protocols</strong></td>
<td>Modbus DNP3</td>
<td>Modbus DNP3</td>
<td>Modbus DNP3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protected Functions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Protection functions vary by application*
# Protection and control

<table>
<thead>
<tr>
<th>Easergy P3U</th>
<th>Easergy P3X</th>
<th>Easergy V125</th>
<th>ECOFIT 50/51</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applications</strong></td>
<td>Feeder/Main Motor Transformer Generator</td>
<td>Feeder/Main Motor Transformer Generator Line Differential Distance</td>
<td>Optical Arc Flash</td>
</tr>
<tr>
<td><strong>Overview</strong></td>
<td><strong>Standard Applications</strong> Designed to provide the necessary protection for the operation of machines, industrial electrical distribution networks and substations for all voltage levels.</td>
<td><strong>Advanced Applications</strong> Designed to adapt to demanding applications with a full suite of protection, metering, and control functions. Includes built in automatic transfer schemes, load shedding, etc to simplify programming and ease of use.</td>
<td><strong>Optical Arc Flash Applications</strong> Dedicated arc flash relay with dedicated signal for relay-to-relay communications. Each V125 can accept up to 4 point sensors and has the ability to trip breakers in different zones with our proprietary MasterTrip signal. With the MasterTrip signal the V125 can detect an arc flash in the system, and send a trip signal to the appropriate breaker in less than 2ms.</td>
</tr>
</tbody>
</table>
### Protection and control

<table>
<thead>
<tr>
<th>PM5000 series</th>
<th>PM8000 series</th>
<th>ION 9000 series</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applications</strong></td>
<td><strong>Overview</strong></td>
<td><strong>Communication Protocols</strong></td>
</tr>
<tr>
<td>Energy cost management</td>
<td>Ideal for high-end cost management applications, and deliver the measurement and accuracy capabilities (Class 0.2S (PM5500 models) and 0.5S (PM5100, PM5300 models) for active energy metering to allocate energy usage, perform tenant metering and sub-billing, pin-point energy savings, optimize equipment efficiency and utilization.</td>
<td>Ethernet/serial Modbus RTU and ASCII 2 wires BACNet/IP Ethernet/IP</td>
</tr>
<tr>
<td>Power quality assessment</td>
<td>Multifunction power meters that help ensure the reliability and efficiency of a power-critical facility. Reveal and understand complex power quality conditions. Measure, understand, and act on insightful data gathered from your power system. Designed for installation at key metering points throughout an electrical infrastructure.</td>
<td>DNP3 IEC 61850 Modbus RTU 2-wire: 115 kbauds, ION 2-wire: 115 kbauds, Modbus TCP/IP Ethernet Modbus TCP/IP daisy chain: 10/100 Mbit/s, RSTP 802.1d-2004 DPWS device discovery Modbus TCP to Modbus serial gateway HTTPS, SFTP, SSH, DHCP, DNS, NTP, PTR, DPWS, SNMP, SMTP, Syslog</td>
</tr>
<tr>
<td>Tenant metering and sub-billing</td>
<td>Advanced power quality meters that provide the flexibility and adaptability needed for today and for the IoT-enabled future. Third-party certified Class 0.1S accuracy surpasses every key revenue metering standard, unlocking significant new savings for an innovative competitive edge. Simply open your web browser for comprehensive PQ analysis according to both EN50160 and IEEE519 standards.</td>
<td>IEC 61850 DLMS Modbus RTU at 2400...115200 bps 2-wire ION at 2400...115200 bps 2-wire DNP3 at 2400...115200 bps 2-wire Modbus TCP at 10/100 Mbit/s ION TCP at 10/100 Mbit/s DNP3 TCP at 10/100 Mbit/s Ethernet Modbus TCP/IP daisy chain at 10/100 Mbit/s</td>
</tr>
<tr>
<td>Identify savings opportunities</td>
<td></td>
<td>DHCP DNS RSTP 802.1d-2004 DPWS device discovery Modbus TCP to Modbus serial gateway HTTPS, SFTP, SSH, DHCP, DNS, NTP, PTR, DPWS, SNMP, SMTP, Syslog</td>
</tr>
<tr>
<td>Equipment optimization</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Solutions From the Global Specialist in Energy Management!

We design energy management solutions…

**Reliable**: Delivering ultra-secured power for critical applications.

**Efficient**: Building integrated solutions for energy efficiency.

**High-performing**: Deploying life cycle services and connectivity everywhere.

**Green**: Implementing state-of-the-art solutions for renewable energies.