



# Panel builders

The widest range of components  
to meet all your requirements

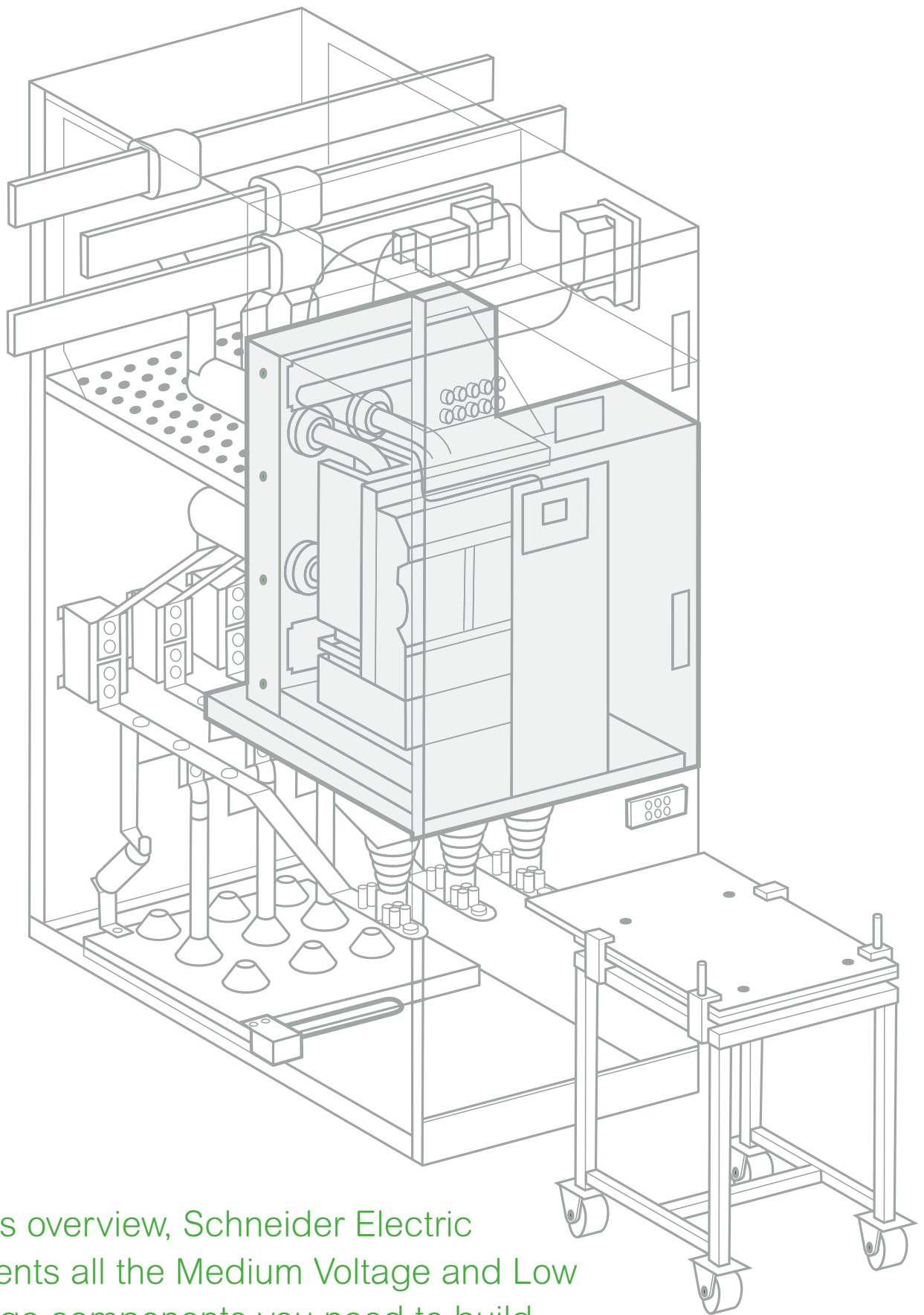
Catalog 2022

Components for Medium Voltage Switchgear

[se.com/mv-panelbuilder](https://se.com/mv-panelbuilder)

Life Is On

**Schneider**  
Electric



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

A

Protection, Metering and Feeder Automation

B

Accessories

C

Services

D



# 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.

## SF<sub>6</sub>-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 SF<sub>6</sub> greenhouse gases.

	AirPacT 	PowerLogic P1 	EasyPacT EXE 
	 <p>PM105061</p>	 <p>PM107253</p>	 <p>PM106461</p>
<b>Simplicity</b>	<ul style="list-style-type: none"> <li>• Pure air to go SF<sub>6</sub>-free and future proof against regulatory considerations on gases</li> <li>• Reduce assembly time</li> <li>• New technology allows narrow space for panel builders switchgear</li> <li>• End-to-end digital ecosystem from selection to delivery ease project management</li> </ul>	<ul style="list-style-type: none"> <li>• Easy to order with short delivery time and optimized stock</li> <li>• Easily configured, intuitive HMI</li> <li>• Easy to use and intuitive setting tool</li> <li>• Easy and fast (10 sec) mounting with spring clips</li> <li>• Easy commissioning, operation and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Easy selection and ordering</li> <li>• Off-the-shelf availability for fast deliveries</li> <li>• IOT-connected thermal monitoring available for simple and affordable fire prevention</li> <li>• Service enabler for Partners (<a href="#">see page 50/D2</a>)</li> <li>• No impact on existing switchgear structure</li> </ul>
<b>Flexibility</b>	<ul style="list-style-type: none"> <li>• Easy &amp; flexible to upgrade to</li> <li>• Easy to adopt for panel builders familiar with LBSKit</li> </ul>	<ul style="list-style-type: none"> <li>• Applicable on LV applications when ANSI functions are required</li> <li>• Cost and size optimized protection relay for compact switchgears</li> <li>• Same protection relay for many applications, in green and brown fields</li> <li>• Model breakdown to allow tailor the product to the application</li> <li>• Ideal for back-up protection</li> </ul>	<ul style="list-style-type: none"> <li>• Modular kits for a wide choice of customizations including thermal monitoring</li> <li>• Ecostruxure ready digital solutions and services</li> </ul>
<b>Efficiency</b>	<ul style="list-style-type: none"> <li>• Pure air and vacuum are tested &amp; proven solutions</li> <li>• Cutting-edge CompoDrive mechanism</li> <li>• Embedded IoT connectivity with advanced sensors</li> </ul>	<ul style="list-style-type: none"> <li>• One simple product to cover the most common needs in Feeder and Voltage protection</li> <li>• Low device energy consumption</li> <li>• Cyber security enhanced by access control with three levels of password</li> </ul>	<ul style="list-style-type: none"> <li>• Designed for greater safety</li> <li>• Fast delivery, less stock, more productivity</li> </ul>



# How can working digitally bring more value?

Simplify your life at all steps of your business

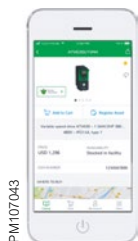
## Connect mySchneider

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.

[panel builders web page](#)

### You'll get:

- Productivity tools
- Personalized resources
- Collaborative sales support
- Trainings



### 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

[MySchneider App](#)



### 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

[www.se.com](#)

### 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

[mySE](#)

With  
Schneider Electric  
Partner Program,

get more  
done!

Think big.  
Partner up!

Visit our page and get more:

[panel builders web page](#)

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# Schneider Electric's commitments

## 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

PM110162



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# True Peace of Mind

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

P101573



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

PM108873



#### 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

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# Benefit from Schneider Electric brand image and know-how

PMT 10167



## 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.

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# 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

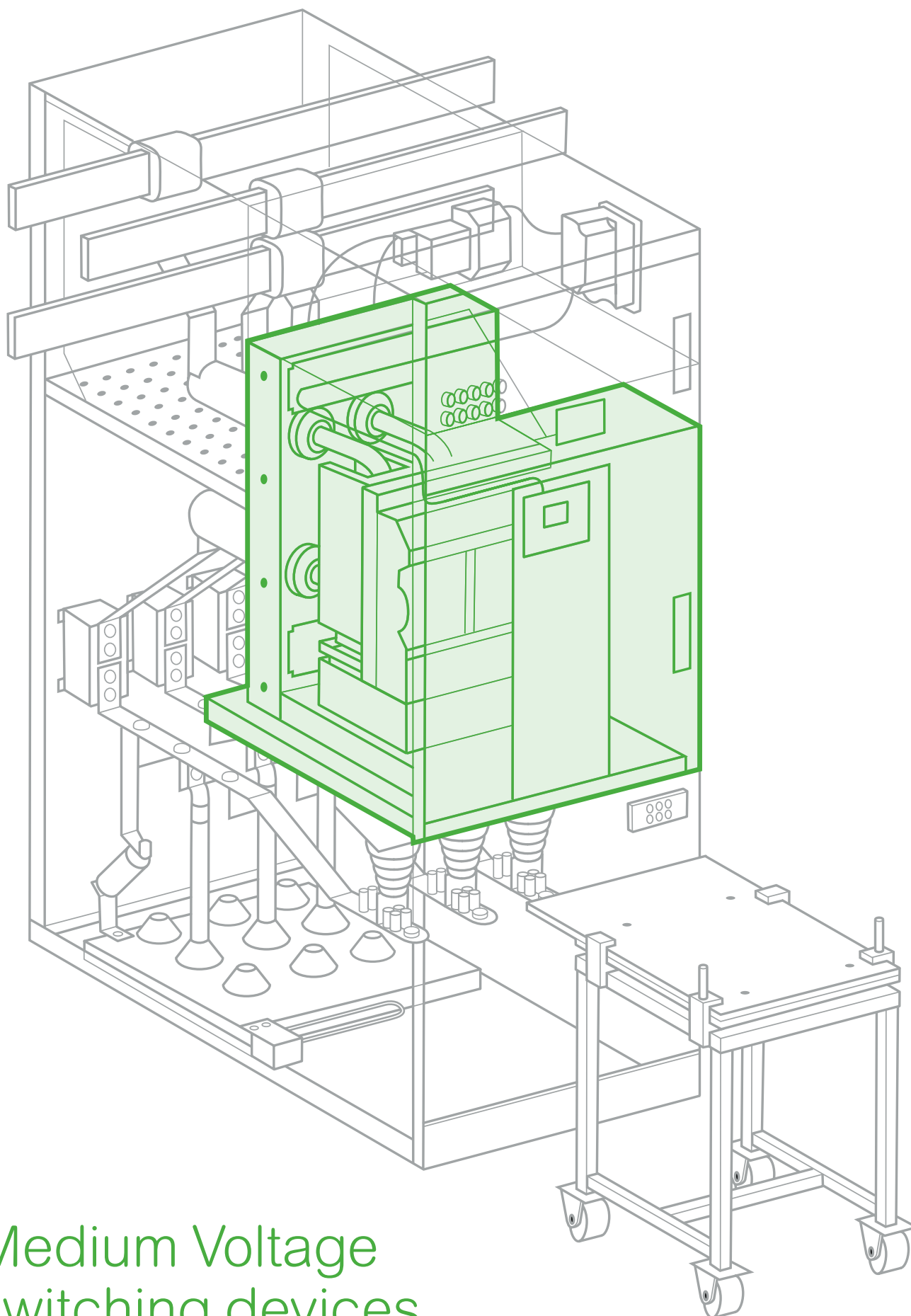
### • 5% of sales devoted to R&D

### • 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

A

## Circuit-Breakers

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# Circuit-Breakers

## Vacuum circuit-breakers





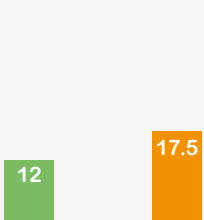
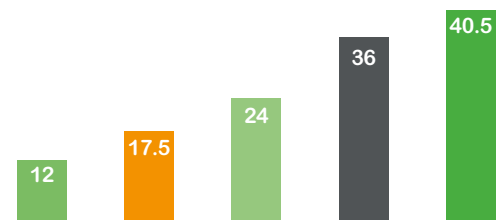


Protection and operation of network

A

B

C

D

EasyPact EXE		EvoPact HVX - Embedded pole					Evolis
 PM108877		 PM109084					 PE59085
							
31.5 kA	31.5 kA	50 kA	50 kA	31.5 kA	31.5 kA	31.5 kA	25 kA
2 500 A		3 150 A / 4 000 A <sup>(1)</sup>		2 500 A	2 500 A / 3 150 A <sup>(1)</sup>		1 250 A
<ul style="list-style-type: none"><li>• Fixed</li><li>• Withdrawable</li></ul>		<ul style="list-style-type: none"><li>• Fixed</li><li>• Withdrawable</li></ul>					<ul style="list-style-type: none"><li>• Fixed</li></ul>
3p		3p					3p
10 000		10 000					10 000
Frontal		Frontal					Lateral
Conventional spring		Conventional spring					Conventional spring
<ul style="list-style-type: none"><li>• IEC</li><li>• GOST</li></ul>		<ul style="list-style-type: none"><li>• IEC</li><li>• GB (Chinese)</li><li>• GOST <sup>(2)</sup></li></ul>					<ul style="list-style-type: none"><li>• IEC</li><li>• GOST</li></ul>
<b>Benefits</b>							
<ul style="list-style-type: none"><li>• Kit and web ordering</li><li>• Attractive price</li><li>• Better safety</li><li>• Opex optimization (thermal sensors replace infrared thermography)</li><li>• Service enabler for Partners <a href="#">(see page 50/D2)</a></li><li>• See video </li></ul>		<ul style="list-style-type: none"><li>• Embedded pole for better dielectric &amp; environmental pollution withstand</li></ul>			<ul style="list-style-type: none"><li>• Compact dimensions</li><li>• Reliable spring mechanism for open pole technology</li></ul>		





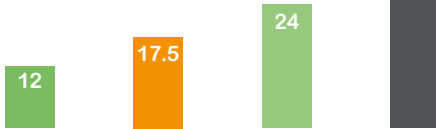
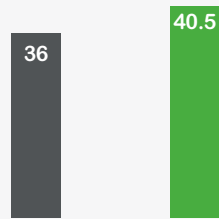
(1) Need forced cooling  
(2) Only 36 kV & 40.5 kV



# Circuit-Breakers

## SF<sub>6</sub> Circuit-Breakers

Protection and operation of network

	EvoPact LF		EvoPact SF1				EvoPact SF2	
								
Rated voltage (kV)								
Max. rated short-circuit current	50 kA	40 kA	25 kA	25 kA	25 kA	25 kA	40 kA	31.5 kA
Max. rated current	3 150 A		1 250 A				3 150 A	2 500 A
Versions	<ul style="list-style-type: none"><li>• Fixed</li><li>• Withdrawable</li></ul>		<ul style="list-style-type: none"><li>• Fixed</li><li>• Withdrawable</li></ul>				<ul style="list-style-type: none"><li>• Fixed</li><li>• Withdrawable</li></ul>	
Number of poles	3p		3p				3p	
Mechanical switching cycles (ON/OFF)	10 000		10 000				10 000	
Mounting	Frontal		Frontal and lateral				Frontal	
Mechanism	Conventional spring		Conventional spring				Conventional spring	
Standards	<ul style="list-style-type: none"><li>• IEC</li><li>• GOST</li></ul>		<ul style="list-style-type: none"><li>• IEC</li></ul>				<ul style="list-style-type: none"><li>• IEC</li></ul>	
Benefits								
	<ul style="list-style-type: none"><li>• Referenced product for Nuclear Power plants</li><li>• Marine solutions certified</li><li>• Seismic version available</li></ul>		<ul style="list-style-type: none"><li>• Integrated VIP trip unit (without auxiliary power supply) in SFset up to 24 kV</li><li>• Well suited for capacitor bank and inductive load applications</li></ul>				<ul style="list-style-type: none"><li>• Particularly adapted for high voltage ratings and harsh environment</li><li>• Well suited for capacitor bank and inductive load applications</li></ul>	



# Circuit-Breakers

## Specific Applications Circuit-Breakers

Protection and operation of network

A

Vacuum Circuit-Breaker

VAH



VXC



Function	Protection for generator in power plants up to 130 MVA			Arc furnace	
Rated voltage (kV)					
Max. rated short-circuit current	63 kA			40 kA	
Max. rated current	5 000 - 8 000 A*			2 500 A	
Versions	• Fixed			• Fixed	
Number of poles	3p			3p	
Mechanical switching cycles (ON/OFF)	10 000			25 000	
Mounting	Frontal			Frontal	
Mechanism	Conventional spring			Conventional spring	
Standards	• IEC • ANSI • IEEE C37.013			• IEC	
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 SF<sub>6</sub> contactors

Protection and control of network

SF<sub>6</sub> Contactor

	CBX 		CVX 		Rollarc 	
						
Rated voltage (kV)	7.2	12	7.2	12	7.2	12
Max. rated short-circuit current	6 kA	4 kA	6 kA (50 kA in conjunction with fuses)	4 kA (50 kA in conjunction with fuses)	10 kA	8 kA
Max. rated current	400 A (AC4)	315 A (AC4)	400 A (AC4)	315 A (AC4)	400 A (AC4)	
Versions	<ul style="list-style-type: none"><li>• Fixed</li><li>• Fixed</li></ul>		<ul style="list-style-type: none"><li>• Withdrawable version equipped with DIN or BS fuses</li><li>• Optional on board auxiliary voltage transformer</li></ul>		<ul style="list-style-type: none"><li>• Basic</li><li>• Fixed</li><li>• Withdrawable</li></ul>	
Number of poles	1p - 3p		3p	3p	3p	3p
Mechanical switching cycles (ON/OFF)	<ul style="list-style-type: none"><li>• 300 000 (mechanical latch)</li><li>• 1 000 000 (magnetic held)</li></ul>		<ul style="list-style-type: none"><li>• 300 000 (mechanical latch)</li><li>• 1 000 000 (magnetic held)</li></ul>		<ul style="list-style-type: none"><li>• 100 000 (mechanical latch)</li><li>• 300 000 (magnetic held)</li></ul>	
Mechanism	Magnetic holding or mechanical latch		Magnetic holding or mechanical latch		Magnetic holding or mechanical latch	
Standards	<ul style="list-style-type: none"><li>• IEC</li><li>• GB (chinese)</li></ul>		<ul style="list-style-type: none"><li>• IEC</li><li>• GB</li></ul>		<ul style="list-style-type: none"><li>• IEC</li></ul>	
Benefits						
	<p>Version available for capacitor banks:</p> <ul style="list-style-type: none"><li>• 1 pole version available for neutral Earthing</li><li>• Specific version available for capacitor banks</li></ul>		<ul style="list-style-type: none"><li>• LV supply thanks to optional on board VT</li><li>• High short circuit breaking capacity in combination with fuses</li><li>• Cradle available (consult us)</li></ul>		<ul style="list-style-type: none"><li>• Reference product in SF<sub>6</sub> contactor market</li><li>• Nuclear powerplant &amp; Marine applications</li><li>• Soft breaking, suited for capacitor bank, power transformers and motors applications</li></ul>	



# Switches and Disconnectors

Indoor load break switch, disconnecter  
and earthing switch

A

SF<sub>6</sub>-free switch &  
disconnecter

SF<sub>6</sub> switch &  
disconnecter

Earthing switch

AirPacT

LBSkit

EISC

Earthing switch  
17/24 kV

New

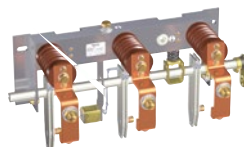
PM109061



PE56373



PM105560



PM108646



B

Function

Indoor load break  
switch, disconnecter  
and accessories

Earthing switch

Earthing switch

C

Rated voltage  
(kV)

24

24

36

12

17.5

24

36

12

17.5

24

D

Max. rated short-  
circuit current

25 kA/1 s

25 kA/1 s

25 kA/1s

31.5 kA

31.5 kA

31.5 kA

25 kA

31.5 kA

50 kA

31.5 kA

Max. rated current

1 250 A

1 250 A

1 250 A

Pole center distance

165

210

165

350

160

200-240

240

175

210

370

210

215

400

215

250

460

250

275

300

Mechanical switching  
cycles (ON/OFF)

1 000 O/C cycles  
(Class M1)

1 000 cycles

Standards

IEC

IEC 62271-102

Benefits

- Green Premium
- Insensitive to environment
- Reduced maintenance
- Easy & flexible integration

- Insensitive to environment
- Reduced maintenance


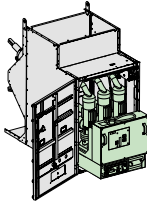

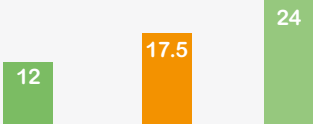
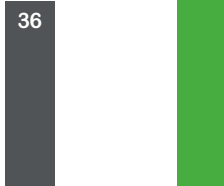



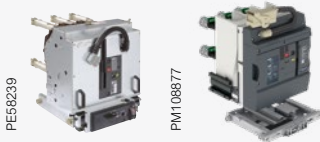
Earthing switch for a wide range  
of rated voltages

Simple and robust  
design easy to adapt  
with a large choice of  
options





Cradle

	L-Frame Cradle	M1-M2 Cradle	MC Cassette
	 PM105644	 DE57396	 PM10893
Function	Integration of switching device	Integration of switching device	Integration of switching device
Rated voltage (kV)			
Max. rated short-circuit current	50 kA31.5 kA	40 kA31.5 kA	50 kA
Max. rated current	3 150 A2 500 A	2 500 A1 250 A	3 150 A
Recommended cubicle width	650 - 1 000 mm800 - 1 000 mm	1 100 mm	570 - 900 mm
Integration of switching device	HVX Embedded Pole + EasyPact EXE  PM105605PM108877	SF  PM108519	LF + EasyPact EXE  PE58239PM108877
Version	With and without earthing switch	Without earthing switch	With earthing switch in option
Benefits	Fully assembled by Schneider Electric	Two different arrangements for HV connection using the upper and lower bushings	Full type tested solution including internal arc protection with MV door



# Fuses

## Current limiting fuses

A

### Function

Protection to Medium Voltage distribution devices (from 3.6 to 36 kV) from both the dynamic and thermal effects of short-circuit currents



B

C

D

Rated voltage  
(kV)

	Fusarc CF	Solefuse	Tepefuse	MGK
Rated voltage (kV)	3.6, 7.2, 12, 17.5, 24, 36	7.2, 12, 24, 36	12, 24	7.2
Max. rated short-circuit current	Up to 63 kA	Up to 50 kA	Up to 40 kA	Up to 50 kA
Max. rated current	Up to 250 A	Up to 125 A	Up to 0.3 A	Up to 250 A
Applications	<ul style="list-style-type: none"> <li>Motors</li> <li>Power Transformers</li> <li>Capacitors</li> <li>Metering Transformers</li> </ul>	<ul style="list-style-type: none"> <li>Power Transformers</li> <li>Capacitors</li> </ul>	Voltage Transformers	Motors
Standards	<ul style="list-style-type: none"> <li>IEC 60282-1</li> <li>DIN 43625</li> <li>VDE 0670-402</li> </ul>	<ul style="list-style-type: none"> <li>IEC 60282-1</li> <li>UTE C64200, C64210</li> </ul>	<ul style="list-style-type: none"> <li>IEC 60282-1</li> <li>UTE C64200, C64210</li> </ul>	<ul style="list-style-type: none"> <li>IEC 60282-1</li> </ul>

### Benefits

- High breaking capacity
- High current limitation
- Low I<sup>2</sup>t 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)



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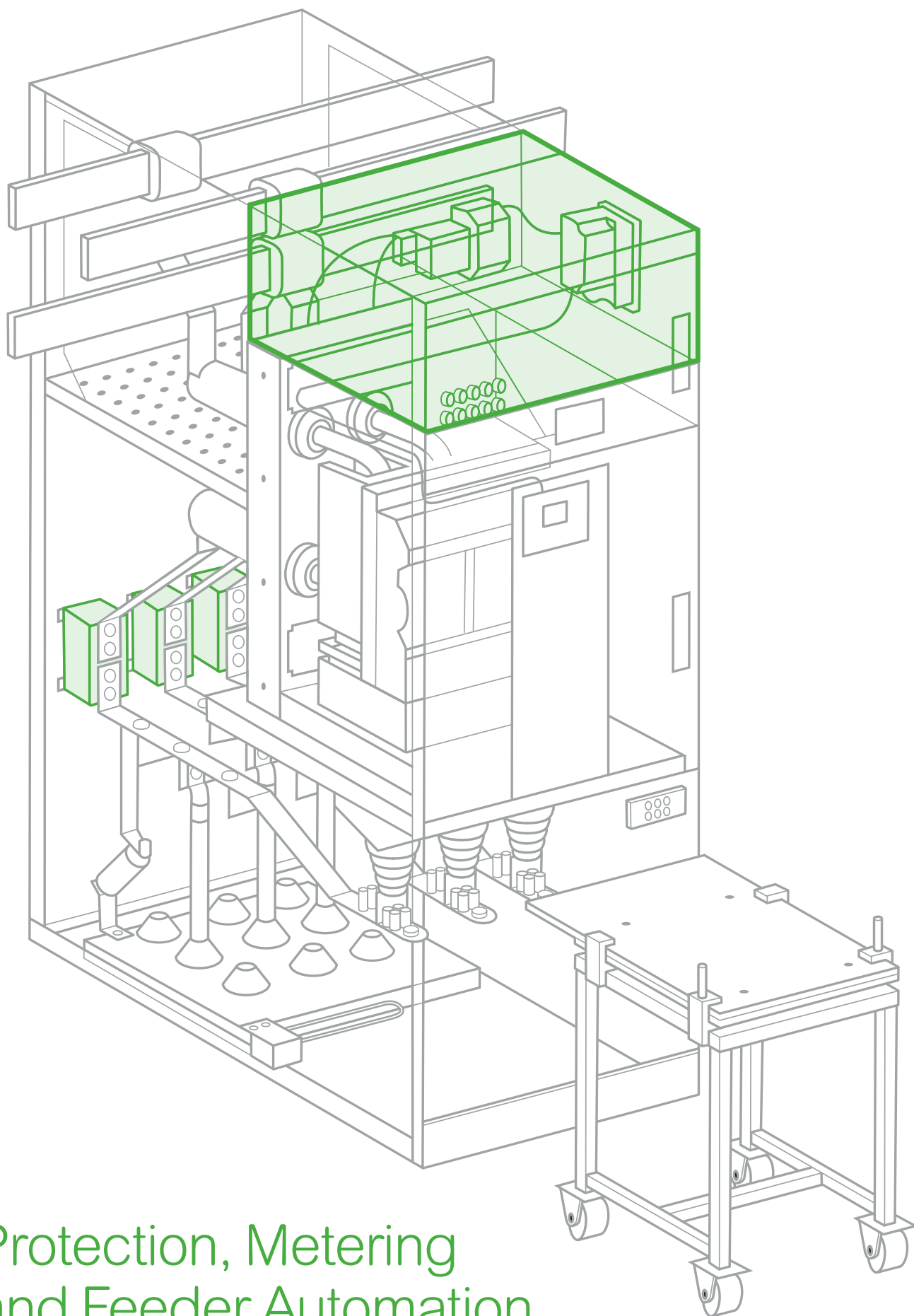
A

B

C

D





## 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

B



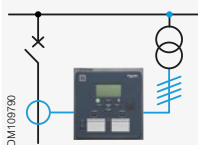
# Protection relays

## PowerLogic Easergy P3 Range

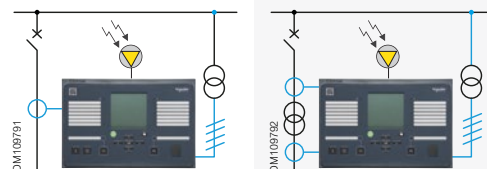
### PowerLogic Easergy P3 contains

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

### PowerLogic Easergy P3 Standard



### PowerLogic Easergy P3 Advanced



### Application

#### Feeder

#### Transformer

#### Motor

#### Generator

P3U10

P3U20

P3U30  
with directional O/C  
with voltage protectionP3F30  
with directional  
P3L30  
line diff. & distance

P3M30

P3G30

P3T32  
with differentialP3M32  
with differentialP3G32  
with differential

### Characteristics

Measuring inputs	Phase current	1/5A CT or LPCT (x3) <sup>(5)</sup>			1/5A CT or LPCT (x3) <sup>(5)</sup>	1/5A CT (x6)
	Residual current	1/5A CT or 0.2/1A CT or CSH 2A/20A			(1/5A+0.2/1A) CT (1/5A + CSH 2/20A)	2 x (1/5A+0.2/1A) CT, 1 x (1/5A) CT
	Voltage	VT (x1)	VT (x4) or LPVT (x4) <sup>(5)</sup>	VT (x4) or LPVT (x4) <sup>(5)</sup>	VT (x4) or LPVT (x4) <sup>(5)</sup>	VT (x4)
Arc-flash sensor input		-			Loop sensor: 1 Point sensor: 2, 4 or 6 <sup>(1) (2)</sup>	Loop sensor: 1 Point sensor: 2, 4 or 6 <sup>(1)</sup>
Digital	Input	2	10/8	14/16	6 to 36	6 to 16
	Output	5 + SF	5/8 + SF	11/8 + SF	10 to 21 + SF	10 to 13 + SF
Analogue	Input	-	0 or 4 <sup>(1)</sup>			0 or 4 <sup>(1)</sup>
	Output	-	0 or 4 <sup>(1)</sup>			0 or 4 <sup>(1)</sup>
Temperature sensor input		-	0 or 8 or 12 <sup>(1)</sup>			0 or 8 or 12 <sup>(1)</sup>
Front port		USB type B			USB type B	
Nominal power supply		24V dc or 24-48V dc or 38.4-265V dc or 48-230V ac <sup>(4)</sup>			24 to 48V dc or or 38.4-265V dc or 110-240V ac	
Ambient temperature, in service		-40 to 60°C (-40 to 140°F)			-40 to 60°C (-40 to 140°F)	

### Communication

Rear ports		-	•	•	•	•
RS232, IIRIG/B, RS485, Ethernet		-	•	•	•	•
Protocols	IEC61850 ed1 & ed2	-	•	•	•	•
	IEC 60870-5-101 & 103	-	•	•	•	•
	DNP3 over Ethernet	-	•	•	•	•
	DNP3 serial	-	•	•	•	•
	Modbus serial	-	•	•	•	•
	Modbus over Ethernet	-	•	•	•	•
	Ethernet IP <sup>(6)</sup>	-	•	•	•	•
	Profibus DP	-	•	•	•	•
	SPABus	-	•	•	•	•
Redundancy protocols (RSTP/PRP)		-	•	•	•	•

### Others

Control	1 object 1 display	4 objects 4 display	4 objects 8 display	8 objects 3-8 display
Logic (Matrix + Logic equation)		•		•
Withdrawable CT connector with shorting		•		-
Remote HMI		-		•
Hardware dimensions (W/H/D)	171 x 176 x 214 <sup>(3)</sup> mm / 6.73 x 6.93 x 8.43 in			264 x 177 x 208 mm / 10.39 x 6.97 x 8.19 in

(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

## Voltage

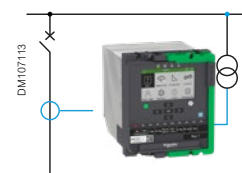
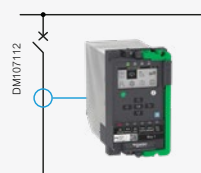
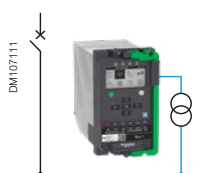
## Feeder

## Transformer

## Motor

## PowerLogic P5x20

## PowerLogic P5x30



## Characteristics

Measuring inputs	Phase current	-	1/5A CT (x3) or LPCT (x3) <sup>(1)</sup>	1/5A CT (x3) or LPCT (x3)
	Residual current	-	1/5A CT & 1A CT or CSH core balance CT	1/5A CT & 1A CT or CSH core balance CT
	Voltage	VT (x4)	LPVT (x4) <sup>(1)</sup>	VT (x4) or LPVT (x4)
Arc-flash sensor inputs		-		0 to 6 point sensors
Digital	Inputs	4 to 16		4 to 40
	Outputs	3 to 8 + Watchdog (WD)		3 to 18 + Watchdog (WD)
Temperature sensor input		-	0 to 16 (external modules)	0 to 16 (external modules)
Front ports		1 USB for configuration 1 USB for USB key		1 USB for configuration 1 USB for USB key
Power supply		24-250 VDC ; 100-230 VAC		24 - 48 VDC or 48-250 VDC ; 100-230 VAC
Ambient temperature, in service		-40 to 70°C (-40 to 158°F)		-40 to 70°C (-40 to 158°F)

## Communication

Hardware modules	Extension <sup>(2)</sup> + Backup memory	•	•
	Serial	•	•
	Ethernet	•	•
	2 <sup>nd</sup> Ethernet	-	•
Protocols	IEC 61850 Ed.1 & Ed.2	•	•
	IEC 60870-5-103 & 101	•	•
	DNP3 Ethernet	•	•
	DNP3 serial	•	•
	Modbus Ethernet	•	•
	Modbus serial	•	•
	EtherNet IP	•	•
Redundancy protocols	RSTP	•	•
	PRP / HSR	•	•
Time synchronization	Pulse, IIRIG-B <sup>(3)</sup>	•	•
	SNTP, PTP IEEE 1588 v2 <sup>(4)</sup>	•	•

## Others

Control	6 controlled + 2 monitored objects Mimic	6 controlled + 2 monitored objects Mimic
Logic (Matrix + Programmable logic)	•	•
Optional Advanced Logic Engine	•	•
Cybersecurity	Basic or Advanced	Basic or Advanced
Draw-out device (withdrawability)	•	•
Hardware dimensions (W/H/D)	102 / 176 / 219 mm 4.01 / 6.93 / 8.62 in	152 / 176 / 219 mm 6.0 / 6.93 / 8.62 in

(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 IIRIG-B module

(3) IIRIG-B module is a separate accessory

(4) PTP IEEE 1588 v2 is available with HSR/PRP communication board

# Protection relays




VIP, PowerLogic P1 & MiCOM ranges

A

B

C

D

		VIP Relays VIP40/45 VIP400/410	PowerLogic P1 P1F/P1V	MiCOM P115 / P116
Application				
Feeder	Phase and earth-fault	•	•	•
	With directional			
	With line differential			
	With distance			
Voltage	Voltage and frequency		•	
Transformer	Phase and earth-fault		•	•
	With transformer differential			
Motor	Phase and earth-fault			
	With voltage			
	With machine differential			
Generator	Phase and earth-fault			
	With directional			
	With machine differential			
Busbar	With busbar differential			
Capacitor bank				
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	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)				
Communication protocol		<ul style="list-style-type: none"> <li>Modbus RTU-RS485 (plug and play with T300)</li> <li>IEC 60870-5-104</li> <li>IEC 60850</li> <li>DNP3</li> </ul>	<ul style="list-style-type: none"> <li>Modbus RTU</li> <li>IEC 60870-5-103</li> </ul>	<ul style="list-style-type: none"> <li>Modbus RTU</li> <li>IEC 60870-5-103</li> </ul>
Logic equations				
Standards			IEC, EAC, UKSA	IEC, EAC





☐ A

☒ B

☐ C

☐ D

# Arc fault detection and protection

## Easergy Arc protection range

A

### 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.

B

C

D

### Easergy Arc V125



### Easergy Arc V121



### System features

Stand-alone arc flash protection light detection for typical configurations:

- 4 Arc inputs (point sensors)
- Integrated 24...230Vac/dc power supply
- High speed trip output (1 to 2 ms operation time)
- 1 self supervision output
- D-rail or flush mounting
- Master trip I/O for simple arc selectivity
- Direct installation with basic commissioning
- Front status LEDs

- Operation on light only
- Up to 10 sensors arc or smoke sensors
- Single trip contact
- Straight-forward installation
- Typical operation time 9 ms (including the output relay)
- Cost efficient solution
- Self-supervision
- Binary input for blocking or resetting (programmable) the unit
- Possibility for double arc channel activation trip criteria
- BIO light transfer possibility to other Vamp device

### Sensors

#### Point sensor - Surface

- Arc detection from compartments
- Self-monitored
- 6 m and 20 m cable lengths available, shielded or not shielded

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

#### Point sensor - pipe

- Self-monitored
- 6 m and 20 m cable lengths available, shielded or not shielded

- Self-monitored
- 6 m and 20 m cable lengths available

#### Portable sensor

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

#### Loop sensor (fibre)

### 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)*		Easergy Arc V321 (+ I/O units)*	
			
<ul style="list-style-type: none"><li>• Current and light tripping criteria (possibility of tripping by light only)</li><li>• Typical operation time 7 ms (electromechanical contact)</li><li>• Accurate location of arc fault utilizing point sensors</li><li>• Four selective protection zones per system</li><li>• Self-supervision of the entire system</li><li>• Up to 160 sensors (with I/O modules)</li><li>• Easy interconnect using VX001 cables</li><li>• Phase current measuring</li><li>• Earth fault current measuring</li><li>• Personal portable sensor option</li><li>• Panel or rail mount I/O units</li><li>• Circuit breaker fail protection (CBFP)</li></ul>		<ul style="list-style-type: none"><li>• Three phase current, zero sequence voltage and current</li><li>• Event logs, disturbance recording and real time clock</li><li>• Operation on simultaneous current and light or light only</li><li>• Informative display LCD (single line diagram)</li><li>• Up to four fast trip contacts</li><li>• Direct light sensors and fiber optic up</li><li>• Support up to 170 arc flash point sensors (with I/O modules)</li><li>• One normally open and one change over alarm contact</li><li>• Typical operation time: less than 7 ms (including the output relay)</li><li>• Optionally 2 ms typical operation time when semi-conductor outputs are used</li><li>• Programmable operation zones</li><li>• Continuous system self supervision</li><li>• PC configurable</li><li>• Communication ports supporting a wide range of communication protocols which are intended for a SCADA interface</li></ul>	
<ul style="list-style-type: none"><li>• Arc detection from compartments</li><li>• Self-monitored</li><li>• 6 m and 20 m cable lengths available</li></ul>		<ul style="list-style-type: none"><li>• Arc detection from compartments</li><li>• Self-monitored</li><li>• 6 m and 20 m cable lengths available</li></ul>	
<ul style="list-style-type: none"><li>• Self-monitored</li><li>• 6 m and 20 m cable lengths available</li></ul>		<ul style="list-style-type: none"><li>• Self-monitored</li><li>• 6 m and 20 m cable lengths available</li></ul>	
<ul style="list-style-type: none"><li>• Snap-in connection to I/O unit</li><li>• Enhanced work safety</li></ul>		<ul style="list-style-type: none"><li>• Snap-in connection to I/O unit</li><li>• Enhanced work safety</li></ul>	
<ul style="list-style-type: none"><li>• Monitors various compartments</li><li>• Small bending radius for easy installation</li></ul>		<ul style="list-style-type: none"><li>• Monitors various compartments</li><li>• Small bending radius for easy installation</li></ul>	
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.

# MV-LV substation remote control & monitoring

## Easergy T300

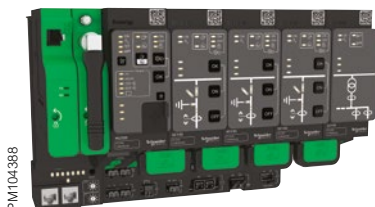
A

Advanced Supervision and Control of Medium Voltage & Low Voltage Distribution system

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



B



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.

C

### Main functions

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

- LV switchboard monitoring
- Voltvar optimisation support
- MV and LV power and quality measurement
- Thermal monitoring and asset management

### Main modules

- HU250 - Head unit communication/gateway
- SC150 - MV Switch controller
- LV150 - Transformer and LV monitoring
- PS100/PS50 - Wide range of backup power supply
- SC160 Switchgear Controller

### Protocols

- IEC 60870-5-101/104 slave and master (standard and secure)
- DNP3 serial and TCP slave and master
- Modbus serial and TCP slave and master (standard and secure)
- IEC 61850 slave and master

D

### Transmission system

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

### Standards

IEC



### Benefits

- Easergy T300 adress 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





# MV-LV substation remote control & monitoring

Easergy T300

Easergy HU250 Head unit communication - Gateway	Easergy SC150 MV Switch controller
 <p>PM104385</p>	 <p>PM104382</p>
<p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Flexible communication to control centre and other customers' IT applications</li> <li>• Open peer-to-peer communication for self-healing applications*</li> <li>• Open to third-party devices with many protocol capabilities</li> <li>• Embedded IEC 601131-3 PLC for automation design</li> <li>• Cyber security management: Compliance to the security standards/regulations (IEC 62351/IEEE 1686)</li> <li>• Configurable Sequence of Events (SOE) for data logs</li> <li>• Software integrity with firmware signature on all modules: <ul style="list-style-type: none"> <li>- Secure communication between Easergy T300 and associated webserver tool with local or remote connections using HTTPS, SSH, SFTP</li> <li>- User identification and authentication according to IEC 62351-8</li> <li>- User access management according to IEC 62351-8</li> <li>- Communication authentication according to IEC62351-5 when using DNP3 and IEC60870-5-104 protocols</li> <li>- Port hardening management.</li> <li>- IP communication filter</li> <li>- Security events log storage and transmission according to Syslog protocol</li> </ul> </li> </ul>	<p><b>Easergy SC150 – Switchgear controller</b></p> <ul style="list-style-type: none"> <li>• Control and monitoring of all switchgear types</li> <li>• Advanced Fault Passage Indicator (FPI) algorithms: <ul style="list-style-type: none"> <li>- Phase-phase and phase-ground detection ANSI 50/51, 50N/51N</li> <li>- Directional phase-phase and phase-ground detection ANSI 67/67N</li> <li>- Broken conductor detection (one phase lost) ANSI 47</li> </ul> </li> <li>• MV Voltage monitoring ANSI 27, 59, 59N</li> <li>• MV Current monitoring ANSI 37</li> <li>• Directional active overpower detection ANSI 32P</li> <li>• Large current and voltage measurement capabilities: standard CT for current, LPVT, VT and from capacitor divider and voltage presence indicator (VDS, VPIS) for voltage</li> <li>• Power measurement according to IEC 61557-12</li> <li>• Power quality according to IEC 61000-4-30 class S</li> <li>• Specific application automation: sectionalizer</li> <li>• Disturbance recording</li> </ul>

\* Consult us for availability

Easergy LV150 Transformer and LV monitoring	Easergy SC160 Switchgear controller
 <p>PM104381</p>	 <p>PM108159</p>
<p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Current and voltage measurements according to IEC 61557-12</li> <li>• Broken conductor detection 47BC</li> <li>• Power quality according to IEC 61000-4-30, Class S</li> <li>• Transformer temperature monitoring</li> </ul>	<p><b>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.</b></p> <ul style="list-style-type: none"> <li>• Control and monitoring of all switchgear types</li> <li>• Protection or fault passage indication function : <ul style="list-style-type: none"> <li>- Phase overcurrent (ANSI 50/51)</li> <li>- Ground/earth fault overcurrent (ANSI 50N/51N)</li> <li>- Directional phase overcurrent fault (ANSI 67)</li> <li>- Directional ground/earth fault overcurrent (ANSI 67N)</li> <li>- Cold load pickup</li> <li>- Inrush restraint</li> </ul> </li> </ul>

# Substation power supply

## Easergy PS100 and PS50

A

B

C

D

### Easergy PS100 Control & Monitoring



### Easergy PS50 Monitoring



#### 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

- 12 VDC, 18 W permanent and 100 W/20 s (for modem, radio, RTU, etc.)
  - 48 VDC or 24 VDC 90 W permanent (for protection relays, electronic devices, etc.) and 300 W/1min. (for switchgear operating mechanism motors)
- 12 VDC, 18 W permanent for telecom equipment
  - 12 VDC, 36 W permanent for IEDs
  - 48 VDC or 24 VDC 10 W permanent (for protection relays, electronic devices, etc.) and 300 W/1min (for switchgear operating mechanism motors).

#### Protocols

Modbus RS485

Modbus RS485

#### Standards

IEC 60255-5 (10 kV level)

IEC 60255-5 (10 kV level)

#### Benefits

- High availability due to the separate voltage output for telecom and motor
  - High efficiency and high energy backup autonomy
  - Designed for severe environment with higher insulation (10 kV)
  - Easy maintenance with only one battery, 24 Ah or 38 Ah robust life span (> 10 years)
  - Modbus communication for battery monitoring to allow optimised maintenance operations
- High availability due to the separate voltage output for IEDs, telecom and motor
  - Battery charging and monitoring for longer battery life
  - Battery end-of-life monitoring and anticipated maintenance
  - Designed for long outage time





# Voltage presence relay

## Easergy VD23

Easergy VD23



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



# Voltage Presence Indicators

## Easergy VPIS\* Range

A

Easergy VPIS V2



Easergy VPIS V3



Phase Concordance  
Unit VPI62421



B



C

### 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)

D

### 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:
    - VPI62401 to VPI62409 for VPIS V2 variants
    - VPI62601 to VPI62609 for VPIS V3 variants
  - With Voltage Output:
    - VPI62411 to VPI62419 for VPIS V2 variants
    - VPI62611 to VPI62619 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



# Fault Passage Indicators

## Easergy Flair range

Easergy  
Flair 21D-22D-23D-23DM



Functions	<ul style="list-style-type: none"><li>Provides phase and earth fault local indication on MV-LV underground network</li><li>Ammetric FPI, self powered by measurement sensors, integrated in MV switchgear or in wall-mounted box</li></ul>
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	<p>Self powered by current sensor and 3 backup supply solutions when network is dead:</p> <ul style="list-style-type: none"><li>Super capacitor (Flair 21D)</li><li>Li battery (Flair 22D)</li><li>External VDC supply (Flair 23D/23DM)</li></ul>
Measurement	<ul style="list-style-type: none"><li>Ammeter</li><li>Maxmeter</li></ul>
Communication	<ul style="list-style-type: none"><li>Dry output contact (Flair 21D-22D-23D-23DM)</li><li>Modbus RS485 (23DM)</li></ul>
Standards	IEC
Benefits	

- All-In-One device:
- Reliability
  - Single configuration and diagnostic tool
- Opens the door to the most advanced Smart grid monitoring needs

# Energy management and control









## Basic and advanced meters

Basic panel meters

Basic energy meters

Basic panel meters

Advanced meters

	AMP/VLT 	IEM3000 series 	PM5100/5300/ PM5500/5600/5700 	PM8000 
				
Function		kW/h meters <ul style="list-style-type: none"> <li>• IEC 62053-22 Class 0.5S</li> <li>• IEC 62053-21 Class 1</li> <li>• IEC 62053-23 Class 2</li> <li>• IEC 61557-12</li> <li>• EN 50470-1/3</li> </ul>	Metering and sub-metering <ul style="list-style-type: none"> <li>• IEC 62053-22 Class 0.5S</li> <li>• IEC 62053-22 Class 0.2S (PM55xx)</li> <li>• IEC 62053-23 Class 2</li> <li>• IEC 61557-12</li> <li>• EN 50470-1/3</li> </ul>	Energy and intermediate power quality meter <ul style="list-style-type: none"> <li>• IEC 61557-12</li> <li>• IEC 62053-22 Class 0.2S</li> <li>• IEC 61000-4-30 Class S</li> <li>• IEC 62856-1</li> <li>• ANSI C12.20 Class 0.2</li> <li>• PMD /Sx/K70/0.2</li> </ul>
Applications				
Panel instrumentation	I/U	I, U, F, P, Q, S, PF, E alarm, I/O, enegy	I, U, F, P, Q, S, PF, E min/max, harm., alarm, I/O (I, U, unbalance, demand, clock/cal)	I, U, F, P, Q, S, PF, E, THD min/max, harm., alarm, I/O (I, U, unbalance, demand, clock/cal)
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	• Flush mounted 96 x 96 mm. Remode 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)	• 20V L-N/35V L-L to 400V L-N/ 690V L-L • Up to 1 MVAC (ext VT)	• 57-400 VAC L-N 3P (100-690 VAC L-L)
Current measurement	• AMP: external CT	• External CT	• External CT	• External CT
Communication ports		• Modbus serial • BACnet IP • M-bus • LON works	• Modbus serial • Modbus TCP/IP • Ethernet IP • BACnet IP • DNP 3.0	• Modbus RTU • Modbus TCP • ION • DNP 3.0 • HTTPS • SFTP
Inputs/Outputs		• 2 I/O	• 4 I/O, Relay Option • 6 I/O (PM55xx)	• Up to 27 DI, 9 DO • Up to 16 AI, 8 AO
Memory capacity			256 kB & 1.1 MB (PM55xx)	512 MB





# 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

Storage temperature		-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Operating temperature		-25°C to +60°C	-25°C to +70°C	-25°C to +70°C
Humidity		≤ 93%	≤ 93%	≤ 93%
Pollution degree		Class II	Class II: PAS600T, PAS600 Class III: PAS600L	Class II: PAS800P, PAS800 Class III: PAS800L
Number of devices	Total	20	100 <sup>(2)</sup>	100 <sup>(2)</sup>
	PowerTag Energy & Ambient <sup>(1)</sup>	20	100 <sup>(2)</sup>	100 <sup>(2)</sup>
	Other types of devices <sup>(1)</sup>	20	20 <sup>(2)</sup>	20 <sup>(2)</sup>
External IEEE 802.15.4 Antenna			Yes (2022)	PASA-ANT1
Modbus RS485 Master	Max. number of devices w/o repeater	N.A.	32	32
	Max. number of devices with repeater	N.A.	128	128
	Maximum Length	N.A.	1000 m	1000 m
	Baudrate	N.A.	1200; 4800; 9600; 19200; 38400; 57600; 115200	1200; 4800; 9600; 19200; 38400; 57600; 115200

### Communication

Ethernet 10/100base T; Wi-Fi; TCP/IP; IP V4 / IP V6; DPWS; DHCP; Modbus/TCP Server; Modbus/TCP Client<sup>(3)</sup>; Schneider Cloud Services; HTTPS; External Wi-Fi/Bluetooth Antenna<sup>(3)</sup>; GPRS/3G/4G

### Standards

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)<sup>(4)</sup>

### 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

	Low Power Current Transformers LPCT		Low Power Voltage Transformers LPVT
			
<b>Function</b>	Allows protection or metering with the same product		
Highest voltage for equipment (kV)	0.72	24	24
Max. rated short-circuit current	40 kA	40 kA	
Max. rated Primary current	2 500 A	2 500 A	
Max. rated Primary voltage			20 kV
Technology	LV insulation technology for MV applications	MV insulation technology for MV applications	MV insulation technology for MV applications
Main characteristics	Rated nominal secondary voltage 22.5 mV	Rated nominal secondary voltage 22.5 mV	Rated nominal secondary voltage 3,25/√3 V
Insulation	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)		Class E (insulation realized by vacuum casting EPOXY resin with MV cone interface Type C)
Standards	IEC 60044-8		IEC 60044-7
<b>Benefits</b>	<ul style="list-style-type: none"> <li>Operating safety: no danger in the event of any accidental opening of the secondary circuit</li> <li>Can be installed in 24 kV, 36 kV or 40.5 kV networks without any specific MV insulation</li> </ul>		<ul style="list-style-type: none"> <li>Operating safety: no danger in the event of any accidental short-circuit of the secondary</li> <li>Resistive divider insensible to ferroresonance</li> <li>Proper to measure energy in secondary MV loops</li> </ul>

# Low Voltage protection





## Acti9 range

A

B

C

D

Electrical auxiliaries						
	Acti9 iC60N		Acti9 C60H-DC		OF	SD
						
Function	DIN rail miniature circuit-breakers. Circuit-breaker used in auxiliary power supply circuits providing overload and short-circuit protection		DIN rail miniature circuit-breakers. Circuit-breaker used in auxiliary power supply circuits providing overload and short-circuit protection		Open/ closed contact	Fault signalisation contact
Rated voltage	<ul style="list-style-type: none"><li>• 1P/1P+N: 12 to 240 VAC</li><li>• 2P/3P/4P: 12 to 440 VAC</li></ul>		<ul style="list-style-type: none"><li>• 1P: 24 to 250 VDC</li><li>• 2P: 24 to 500 VDC</li></ul>		<ul style="list-style-type: none"><li>• 240 to 415 VAC</li><li>• 24 to 30 VDC</li></ul>	
Number of poles	1, 1P+N, 2, 3, 4		1 or 2			
Nominal current	0.5 to 63 A		0.5 to 63 A		Maximum operating current: 10 mA mini, 6 A maxi	
					24 VDC      6 A 48 VDC      2 A 60 VDC      1.5 A 130 VDC     1 A 24 to 240 VAC   6 A 415 VAC       3 A	
Connection	Screw		Screw		Screw	
Standard	IEC/EN 60947-2		IEC/EN 60947-2		IEC/EN 60947-5-1	
Type of loads						
Tripping curves						
Standard	C (8 In ± 20 %)		C (8.5 In ± 20 %)			
Inrush current	D (12 In ± 20 %)					
Electronics or high cable lenght	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

Miniature relays RXM



Universal relays RUM



Switching voltage	12/240 VAC/DC	12/230 VAC/DC
Number of contacts	2, 3 or 4 CO	2 or 3 CO
Current	3 - 6 - 10 - 12 A	10 A
Mounting	Plugs into socket (DIN rail)	Plugs into socket (DIN rail)
Standards	IEC61810-1	IEC61810-1

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

# Low Voltage control and signalling

## Pushbuttons & Switches

A

B

C

D

XB7



ZB5/XB5



ZB4/XB4



K1/K2



### 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



	XB7	ZB5/XB5	ZB4/XB4	K1/K2
Mounting hole	22	22/30	22/30	16/22
Material	Plastic	Plastic	Metallic	Plastic or metallic
Head shape	●	●■	●	■
Composition type	Unibody	Modular	Modular	Modular
Panel fixing	Plastic nut	Plastic nut	3 points metal	Plastic nut or 4 screws
Degree of protection	IP 65	IP66, IP67, IP69, IP69K	IP66, IP67, IP69, IP69K	IP 40/IP 65
Rated insulation voltage	250 V	600 V	600 V	690 V
Standards	250 V	600 V	600 V	690 V
Standard & Illuminated versions	<ul style="list-style-type: none"> <li>UL/CSA, IEC, CCC, UAC</li> </ul>	<ul style="list-style-type: none"> <li>UL/CSA, IEC, CCC, EAC</li> <li>Marine: BV, LROS, DNV, GL</li> </ul>	<ul style="list-style-type: none"> <li>UL/CSA, IEC, CCC, EAC</li> <li>Marine: BV, LROS, DNV, GL</li> </ul>	<ul style="list-style-type: none"> <li>UL/CSA, IEC</li> </ul>

### Benefits

#### Standard version

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

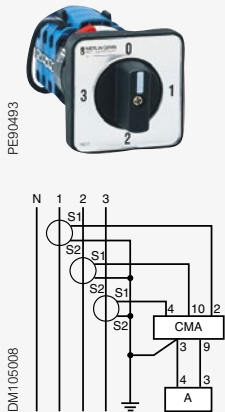
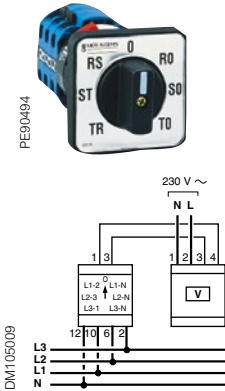
#### Illuminated version

- 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

	CMA	CMV
		
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
Mechanical switching cycles	2 000 000	2 000 000
Electrical switching cycles	100 000	100 000
Max. rated voltage		500V
Max. rated current	20A	
Mounting	48 x 48 Flush mounted	48 x 48 Flush mounted
Standards	IEC 60947-3	IEC 60947-3
Benefits		
<ul style="list-style-type: none"><li>• AgNi contact ensures mechanical durability</li><li>• IP 65 on front face</li></ul>		


Discover more products on [www.se.com](http://www.se.com)




Legend panels




3 phase pilot lights



Diam 12/10/8 pilot lights






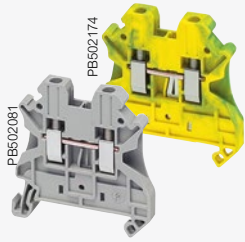
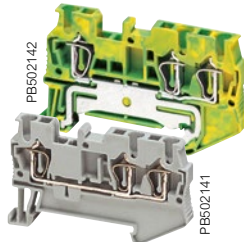
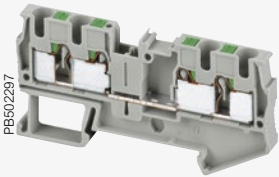
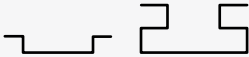
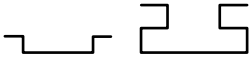
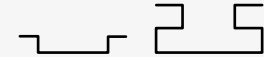
New signaletic pilot lights from XA2 (Not UL certified)



Harmony Hub + Temperature sensors & current monitoring

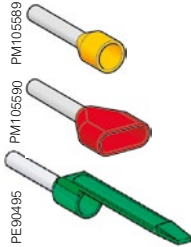
# Low Voltage control and signalling

## Lineryg TR - Terminal blocks

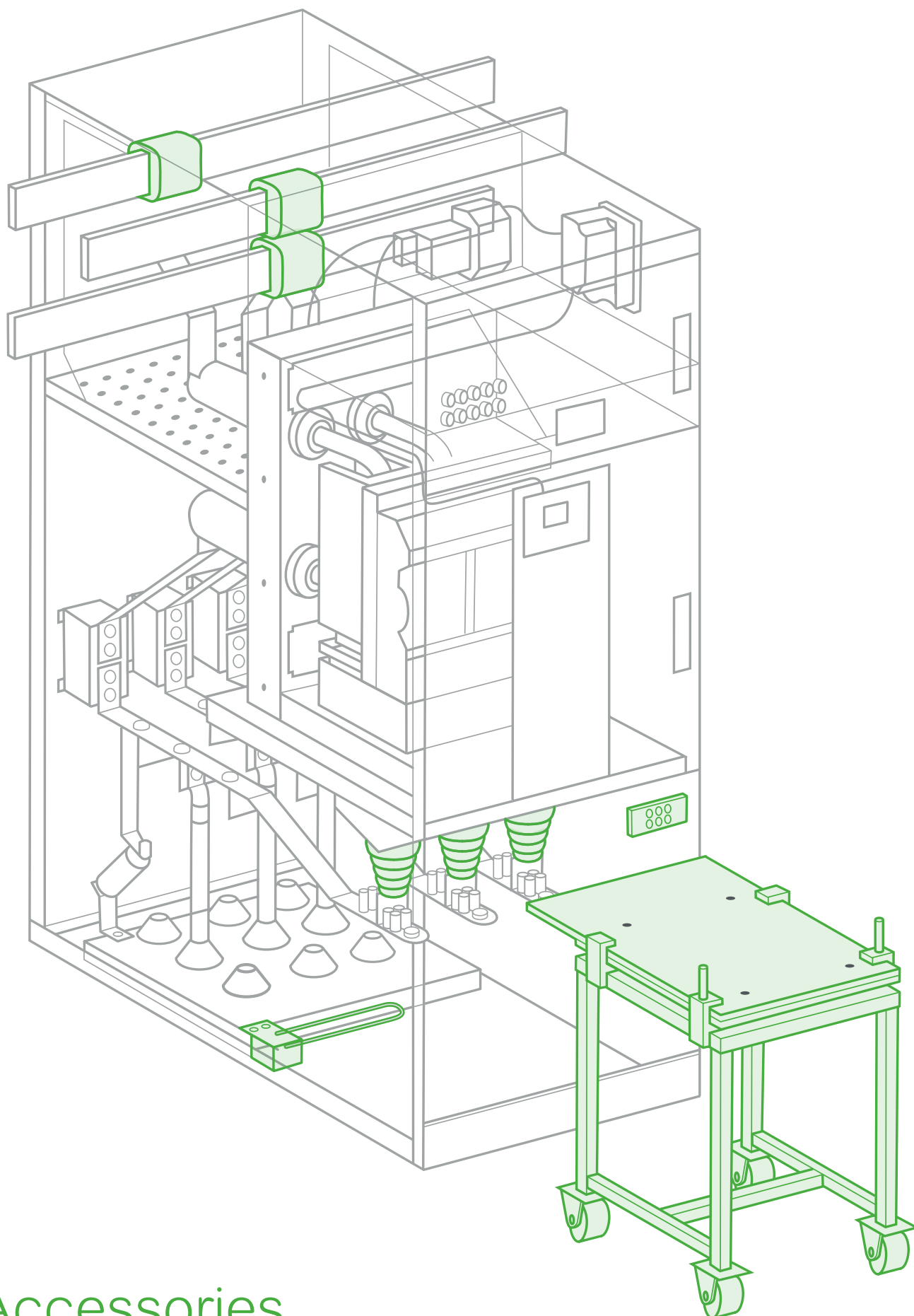
	NSY TRV 	NSY TRR 	NSY TRP 
			
Function	Ensures connection of Low Voltage cables or wires	Ensures connection of Low Voltage cables or wires	Ensures connection of Low Voltage cables or wires
Technology	Screw clamp technology	Spring clamp technology	Push-in technology
Connection functions	<ul style="list-style-type: none"> <li>• Passthrough (2.5 - 150 mm<sup>2</sup>)</li> <li>• Protective earth</li> <li>• Disconnect type (blade or fuse)</li> <li>• Double deck, multi-pole</li> <li>• Multifunction</li> <li>• Neutral disconnect</li> </ul>	<ul style="list-style-type: none"> <li>• Passthrough (2.5 - 35 mm<sup>2</sup>)</li> <li>• Protective earth</li> <li>• Disconnect type (blade or fuse)</li> <li>• Double deck, multi-pole</li> </ul>	<ul style="list-style-type: none"> <li>• Passthrough (2.5 - 4 mm<sup>2</sup>)</li> <li>• Protective earth</li> <li>• Disconnect type (blade or fuse)</li> <li>• Double deck, multi-pole</li> </ul>
Conductor nominal c.s.a. (cross section area)	2.5 mm <sup>2</sup> to 150 mm <sup>2</sup>	2.5 mm <sup>2</sup> to 35 mm <sup>2</sup>	2.5 mm <sup>2</sup> and 4 mm <sup>2</sup>
Number of poles	1 - 1 x 1/1 - 2 x 2 2 - 1 x 1/3 - 1 x 1	1 - 1 x 1/1 - 1 x 2/1 - 2 x 2 2 - 1 x 1/2 - 1 x 2/3 - 1 x 1	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			
Certifications	UL, CSA, VDE, ATEX, LR, GL, DNV, EAC	UL, CSA, VDE, ATEX, LR, GL, DNV, EAC	UL, CSA, VDE, ATEX, LR, GL, DNV, EAC
Benefits			
	<b>Rugged and reliable</b> This technology not only provides quality, safety and availability of equipment but optimizes installation setup and operation with their simple integrated functions	<b>Cost effective (quick and reliable)</b> Spring technology is a maintenance-free connection method assuring separation of mechanical and electrical functions. It also eliminates the need for regular re-tightening	<b>Quick and innovative</b> 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

	<div>Cable ends</div> <div></div>
Function	<ul style="list-style-type: none"><li>Facilitates the insertion of wires into the terminals and assures the insulation between adjacent connection</li><li>Allows the identification of the wires</li></ul>
Technology	Insulated cable ends
Connection functions	<p>Four available versions:</p> <ul style="list-style-type: none"><li>Single conductor cable ends</li><li>Single conductor markable cable ends</li><li>Uninsulated cable ends</li><li>Twin conductor cable ends</li></ul>
Conductor nominal c.s.a. (cross section area)	0.25 mm <sup>2</sup> to 50 mm <sup>2</sup>
Certifications	UL, CSA
Benefits	<p><b>Fast and reliable wiring</b></p> <p>Use the AZ5 and DZ5 ranges of cable ends to simplify wiring and provide optimum electrical continuity between wire and terminal block.</p>





## Accessories

# Accessories

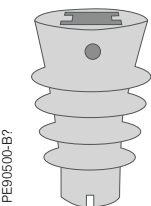
Insulating holder with or without capacitive divider	C-2
Anti-condensation heating element	C-2
Insulation busbar cover	C-2
High resistance plastic window	C-3
Cubicle compartment handle	C-3

C

# Accessories

## Characteristics and references

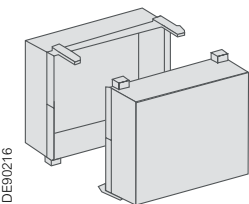
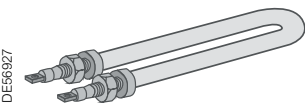
A



B

C

D



### 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

- |                                |  |
|--------------------------------|--|
| • <b>3 insulating holders:</b> | • <b>3 insulating holders with capacitive divider:</b> |
| - 17.5kV ref. <b>59431</b>     | - 17.5 kV ref. <b>59430</b>                            |
| - 24 kV ref. <b>AAA10075</b>   | - 24 kV ref. <b>AAA10074</b>                           |

#### Standards

IEC

#### Benefits

- Dielectric withstand
- Mechanical robustness

### 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: 432mm
- Supplied with its support without thermostat

#### Reference numbers

**59280**

#### Benefits

Avoid condensation in the cubicle

### 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

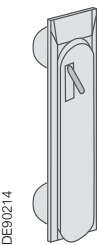


# Accessories

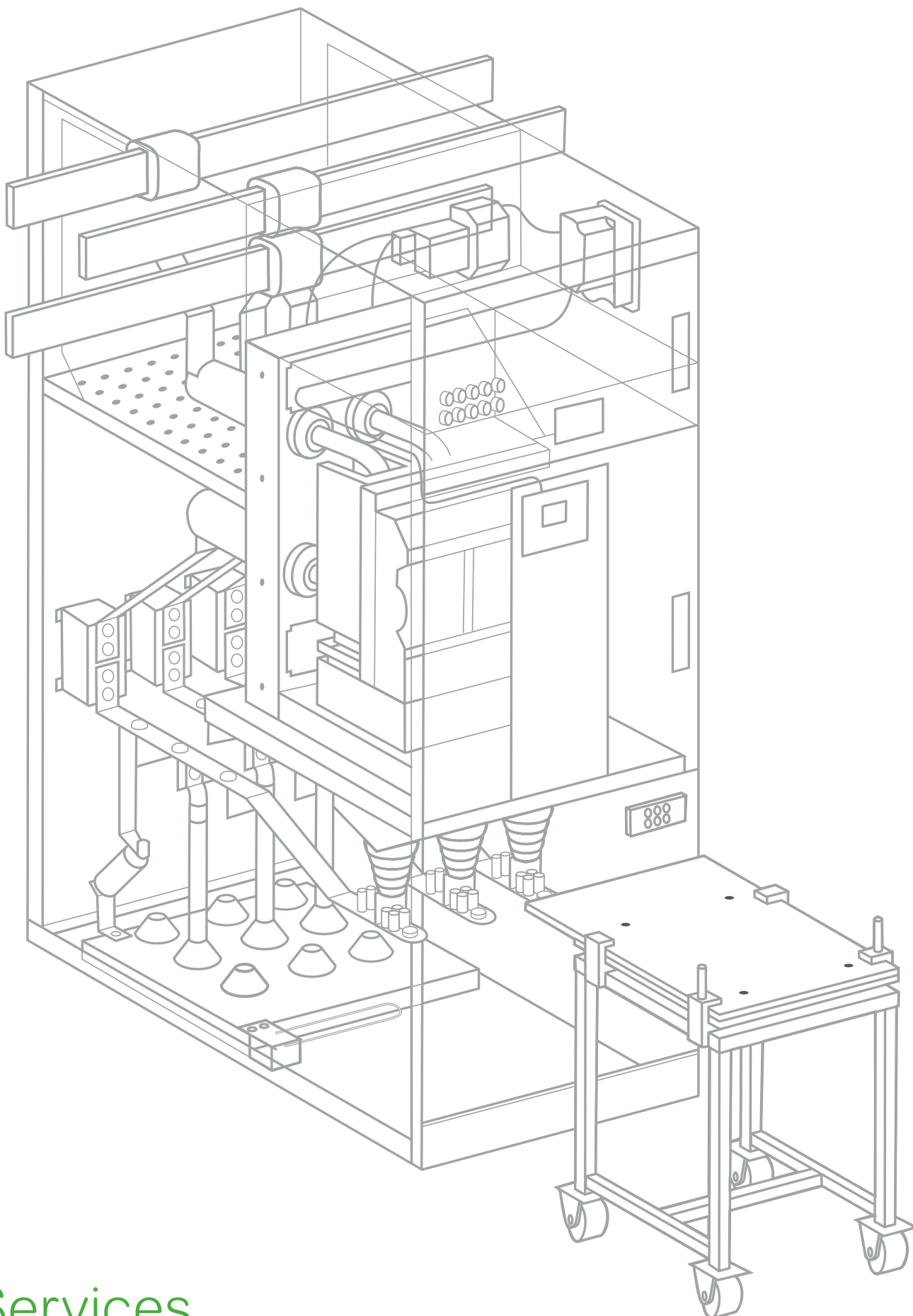
## Characteristics and references



High resistance plastic window	
Function	Located on the panel or the door, allows you to see inside a cubicle
Technical specifications	<ul style="list-style-type: none"><li>• 3 mm thick transparent polycarbonate window</li><li>• Dimensions: 138 mm x 85 mm</li></ul>
Reference numbers	59105
Benefits	Internal arc withstand up to 31.5 kA



Cubicle compartment handle	
Function	Enables the front panel door of the cubicle to be closed.
Technical specifications	<ul style="list-style-type: none"><li>• Material: Zamak</li><li>• A version with key is available</li></ul>
Reference numbers	<ul style="list-style-type: none"><li>• 59270 (handle)</li><li>• 59271 (handle with key)</li></ul>
Benefits	Robustness



## Services

# Services

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

D

# Services for Panel Builders

Increase your business

A

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

B

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.

C

## 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.

D

### Best of field services



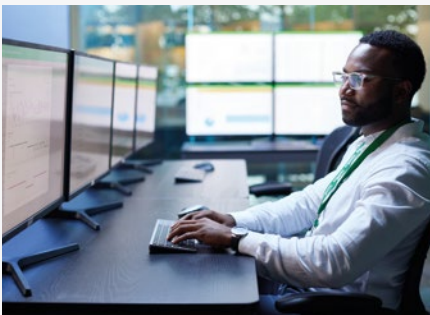
On-site services are carried out by highly qualified technicians:

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



Optimize  
equipment's lifespan

### Best of digital services



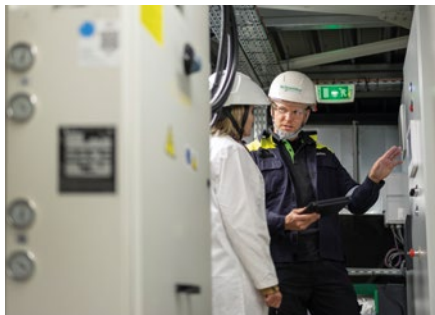
Digital services are available using the EcoStruxure Asset Advisor platform:

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



Anticipate any actions  
and investment

### 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%



Reduce risk of  
unscheduled downtime

Discover EcoStruxure Service Plan





## 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.

[Discover Asset Connect](#)

### 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™?

**500 000**

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.

### EcoStruxure™ Connected



#### 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.

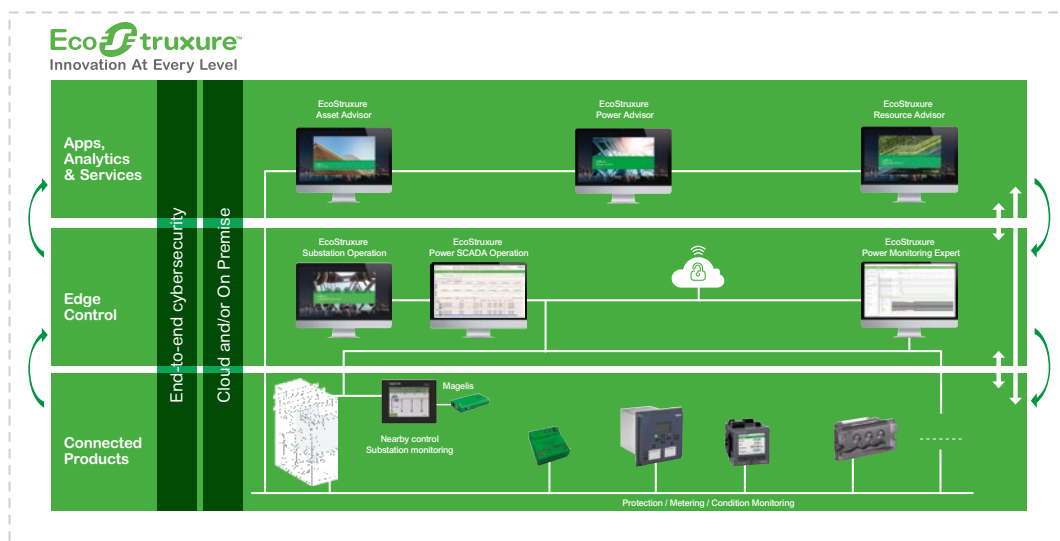
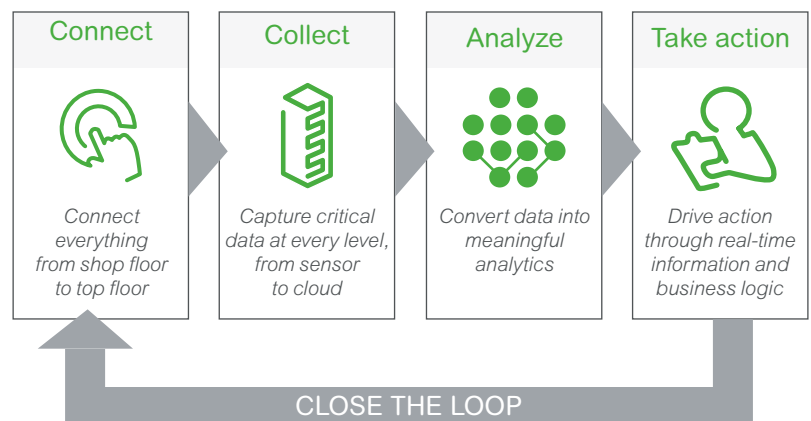
EcoStruxure™ is our open, interoperable, IoT-enabled system architecture and platform. EcoStruxure delivers enhanced value around **safety, reliability, efficiency, sustainability, and connectivity** for our customers. EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and 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



# F-Lab Laboratory

Expertise at your side

PM110149



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.



Accreditation  
N° 1-0140 et  
N° 1-0254  
Listes des  
sites et  
portées  
disponibles  
sur  
[www.cofrac.fr](http://www.cofrac.fr)



PM110150



## 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.

PM110151



## 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 m<sup>3</sup>
- Triggering of overload and short-circuit
- LV and MV dielectric
- Aging tests
- Specific 230 m<sup>3</sup> climatic chamber for dielectric, water and ice

Explore all F-lab Expertise







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)

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.

### CO<sub>2</sub> 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 CO<sub>2</sub> 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.

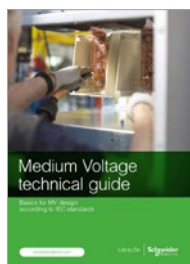
### Peace of mind through... Well-being Performance

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.

## 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.

## MV Technical Guide



## Helping protect people and systems from arc flash in medium voltage equipment

- Easy to understand approach on arc flash systems installed in MV switchgear

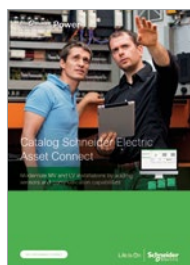
## Arc Flash eGuide



## 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.

## Digital Life Cycle eGuide



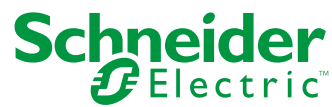
## Catalog Schneider Electric Asset Connect

- Discover in a single catalog all assets and services to modernize existing MV and LV installations by adding sensors and communication capabilities.

## Catalog Asset Connet



Life Is On



Green Premium™ ecolabel product -  
Sustainable performance, by design

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MVComponent\_NRJED111211EN\_210622 - 21<sup>st</sup> June 2022