Panel builders

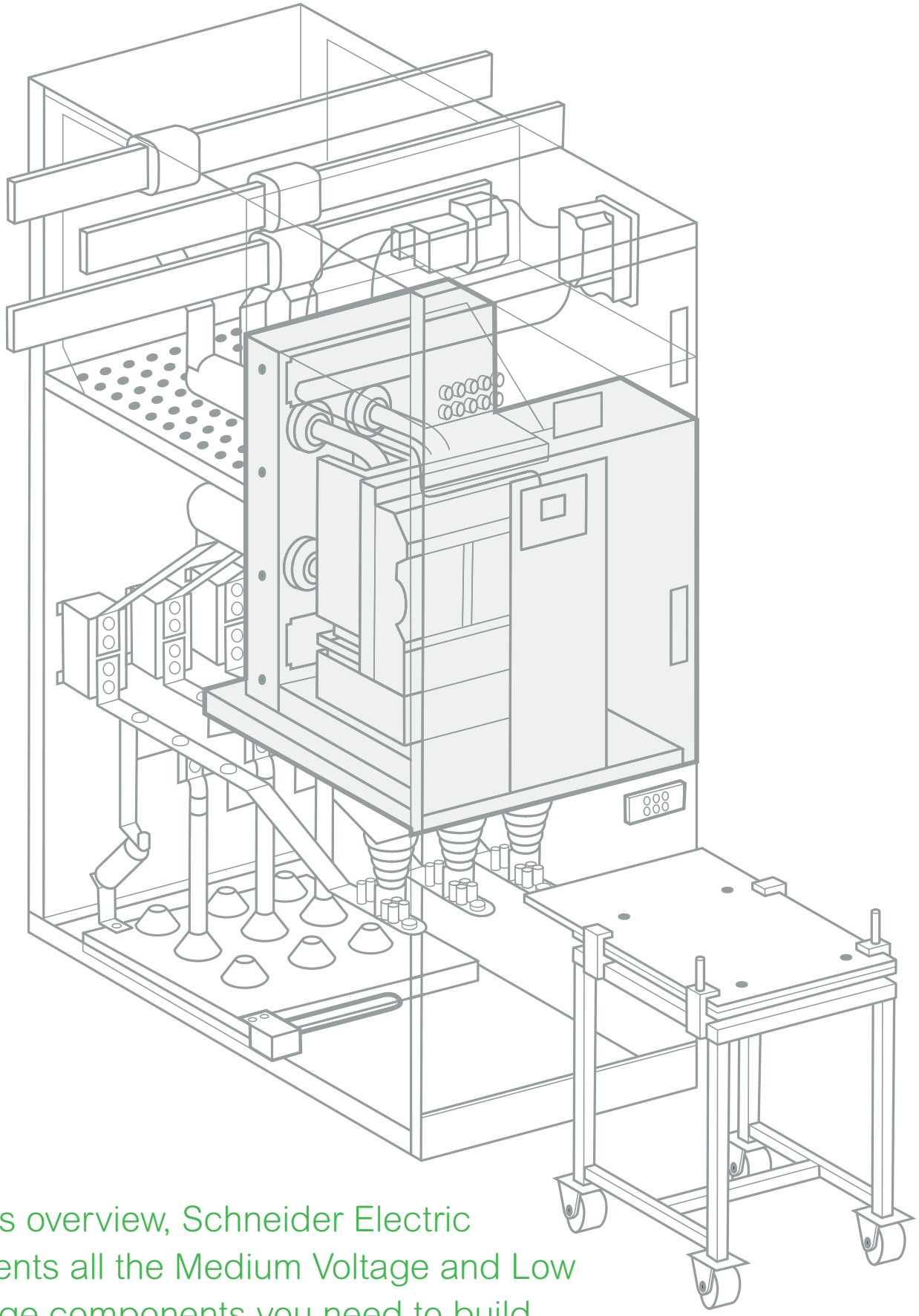
The widest range of components to meet all your requirements

Catalog 2021

Components for Medium Voltage Switchgear

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.

Content

How can you make easily your switchgear smarter?

Better connectivity and data analytics bring great benefits


5R2A5705

Connectivity combined with IoT, brings more value in power management.

More than remote control facilities, digital offers better versatility, especially when it comes to adapt or setup products quickly and to answer your customers specific needs.

Analytics and operational data allow enhanced asset management, and thus optimized operating conditions for end users that can now anticipate maintenance needs.

Digitization benefits don't end at interoperability, data or predictive maintenance. It permits you to enhance safety, reliability and efficiency of the solution provided.

Adding more connectivity, practicality and analytics will allow you to provide smarter switchgear and get a step ahead in a more competitive world.

	Easergy P1	Easergy P5	EasyPact EXE
	New  PM107253	New  PM107320 PM107307	New  PM106461
Simplicity	• Easy to order with short delivery time and optimized stock • Easily configured, intuitive HMI • Easy to use and intuitive setting tool • Easy and fast (10 sec) mounting with spring clips • Easy commissioning, operation and maintenance	• Scalable hardware making it easy to customize late or upgrade as you application evolve • Low Power Instrument Transformers compatible to make your installation lighter • Excellent connectivity with 8 communication protocols supported	• Easy selection and ordering • Off-the-shelf availability for fast deliveries • IOT-connected thermal monitoring available for simple and affordable fire prevention • Service enabler for Partners (see page 52) • No impact on existing switchgear structure
Flexibility	• Applicable on LV applications when ANSI functions are required • Cost and size optimized protection relay for compact switchgears • Same protection relay for many applications, in green and brown fields • Model breakdown to allow tailor the product to the application • Ideal for back-up protection	• Easier operation with digital tools through the entire product lifecycle • Intuitive and efficient user interface and configuration tools	• Modular kits for a wide choice of customizations including thermal monitoring • Ecostruxure ready digital solutions and services
Efficiency	• One simple product to cover the most common needs in Feeder and Voltage protection • Low device energy consumption	• Built-in arc flash protection with a complete set of protection • Quicker maintenance thanks to withdrawable design • Latest cybersecurity features with IEC 62443 standard compliance and Achilles certification	• Designed for greater safety • Fast delivery, less stock, more productivity

How can digital bring more value at work?

Simplify your life at all steps of your business

Connect Panel Builder Portal

The Schneider Electric™ Panel Builder Portal can help you find what you need to create better, more efficient Low Voltage or Medium Voltage Switchboards, in less time.

panel builders web page

You'll get:

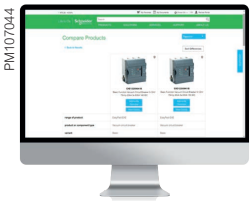
- Productivity tools
- Personalized resources
- Collaborative sales support
- Trainings


PM107043

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


PM107044

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


PM108872

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

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

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.

Compatible with smart grid applications

Given the demand for an increasing number of energy production sources and the increasingly significant obligations of network adaptability, operators have to know, understand and act appropriately:

- Know the switchboards' status at all times
- Act with full knowledge of the facts

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.

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

PM108490

True Peace of Mind

PM1088873

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

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

Benefit from Schneider Electric brand image and know-how

5R2A1643-RET

The experience of a world leader in Medium Voltage

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

A long history of innovation for a global offer

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

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

Quality certification: ISO 9001 and ISO 14001

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

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

The quality system for design and manufacturing is certified in compliance with the requirements of the ISO 9001 quality assurance model.

Schneider Electric:
A brand you can trust

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

There are always Schneider Electric experts to support you!

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

We will add value:

- To **SPEED UP** adoption of our offers
- To **SIMPLIFY** components integration
- To **PROVIDE** technical knowledge/solutions

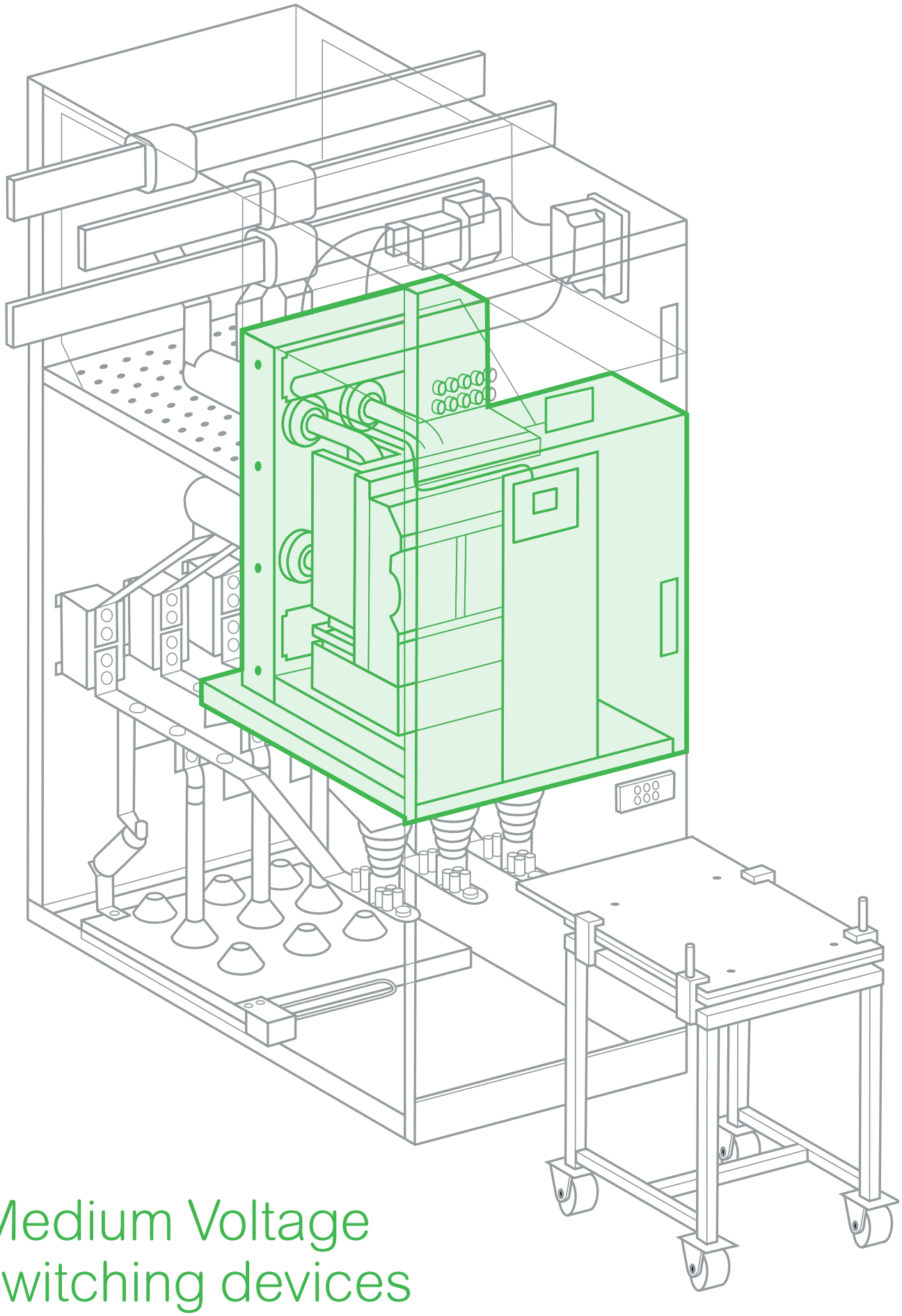
We will help you, by providing:

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

PM105557

- **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**

DM105004



Medium Voltage switching devices

Medium Voltage switching devices

Circuit-Breakers

Vacuum circuit-breakers

Protection and operation of network

	EasyPact EXE		HVX - Embedded pole					Evolis 24
								
Rated voltage (kV)	12	17.5	12	17.5	24	36	40.5	24
Max. rated short-circuit current	31.5 kA	31.5 kA	50 kA	50 kA	31.5 kA	31.5 kA	31.5 kA	25 kA
Max. rated current	2 500 A		3 150 A / 4 000 A (1)	3 150 A / 4 000 A (1)	2 500 A	2 500 A / 3 150 A (1)		1 250 A
Versions	• Fixed • Withdrawable		• Fixed • Withdrawable					• Fixed
Number of poles	3p		3p					3p
Mechanical switching cycles (ON/OFF)	10 000		10 000					10 000
Mounting	Frontal		Frontal					Lateral
Mechanism	Conventional spring		Conventional spring					Conventional spring
Standards	• IEC • GOST		• IEC • GB (Chinese) • GOST (2)					• IEC • GOST
Benefits								
	• Kit and web ordering • Attractive price • Better safety • Opex optimization (thermal sensors replace infrared thermography) • Service enabler for Partners (see page 52)		• Embedded pole for better dielectric & environmental pollution withstand					• Compact dimensions • Reliable spring mechanism for open pole technology

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

Circuit-Breakers

SF6 Circuit-Breakers

Protection and operation of network

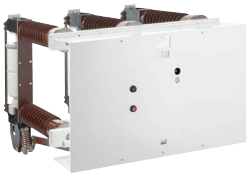
	LF	SF1	SF2
	 PE57191	 PE41059	 PE56501
Rated voltage (kV)	12 / 17.5	12 / 17.5 / 24 / 36	36 / 40.5
Max. rated short-circuit current	50 kA / 40 kA	25 kA / 25 kA / 25 kA / 25 kA	40 kA / 31.5 kA
Max. rated current	3 150 A	1 250 A	3 150 A / 2 500 A
Versions	• Fixed • Withdrawable	• Fixed • Withdrawable	• Fixed • Withdrawable
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	• IEC • GOST	• IEC	• IEC
Benefits			
	• Referenced product for Nuclear Power plants • Marine solutions certified • Seismic version available	• Integrated VIP trip unit (without auxiliary power supply) in SFset up to 24 kV • Well suited for capacitor bank and inductive load applications	• Particularly adapted for high voltage ratings and harsh environment • Well suited for capacitor bank and inductive load applications

Circuit-Breakers

Specific Applications Circuit-Breakers

Protection and operation of network

Vacuum Circuit-Breaker

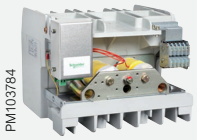
	VAH			VXC	
	 PM106142			 PM106143	
Function	Protection for generator in power plants up to 130 MVA			Arc furnace	
Rated voltage (kV)	 12	13.8	 17.5	 36	 38
Max. rated short-circuit current	63 kA	63 kA	63 kA	40 kA	40 kA
Max. rated current	5 000 - 8 000 A*			2 500 A	4 000 A
Versions	• Fixed			• Fixed • Withdrawable	
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 SF6 contactors

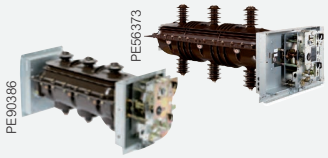
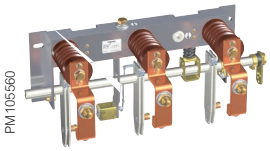
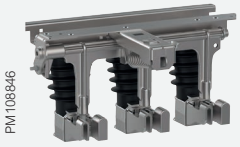
Protection and control of network

SF6 Contactor

	CBX		CVX		Rollarc	
	 PM103784		 PM103792		 PM107151	
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	• Fixed	• Fixed	• Withdrawable version equipped with DIN or BS fuses • Optional on board auxiliary voltage transformer		• Basic • Fixed • Withdrawable	
Number of poles	1p - 3p		3p	3p	3p	3p
Mechanical switching cycles (ON/OFF)	• 300 000 (mechanical latch) • 1 000 000 (magnetic held)		• 300 000 (mechanical latch) • 1 000 000 (magnetic held)		• 100 000 (mechanical latch) • 300 000 (magnetic held)	
Mechanism	Magnetic holding or mechanical latch		Magnetic holding or mechanical latch		Magnetic holding or mechanical latch	
Standards	• IEC • GB (chinese)		• IEC • GB		• IEC	
Benefits						
	Version available for capacitor banks: • 1 pole version available for neutral Earthing • Specific version available for capacitor banks		• LV supply thanks to optional on board VT • High short circuit breaking capacity in combination with fuses • Cradle available (consult us)		• Reference product in SF6 contactor market • Nuclear powerplant & Marine applications • Soft breaking, suited for capacitor bank, power transformers and motors applications	

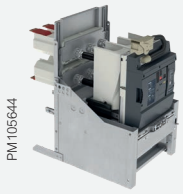
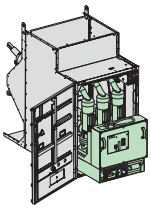
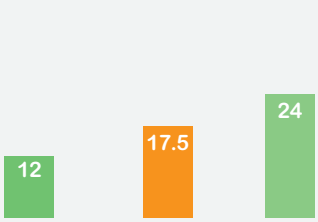
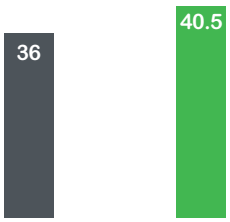
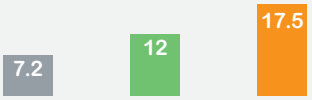
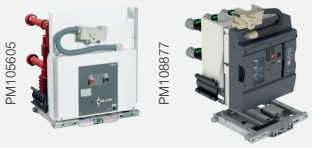
Switches and Disconnectors

SF6 and Air - Indoor load break switch, disconnector and earthing switch

	SF6 switch & disconnector		Earthing switch						
	LBSkit		**EISC**				**Earthing switch 17/24 kV**		
									
Function	Indoor load break switch, disconnector and accessories		Earthing switch				Earthing switch		
Rated voltage (kV)	24	36	12	17.5	24	36	12	17.5	24
Max. rated short-circuit current	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							
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 cycles		
Standards	IEC						IEC 62271-102		
Benefits									
	• 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

Cradle

	L-Frame Cradle	M1-M2 Cradle	MC Cassette
	 PM105644	 DE57396	 PM110893
Function	Integration of switching device	Integration of switching device	Integration of switching device
Rated voltage (kV)			
Max. rated short-circuit current	50 kA / 31.5 kA	40 kA / 31.5 kA	50 kA
Max. rated current	3 150 A / 2 500 A	2 500 A / 1 250 A	3 150 A
Recommended cubicle width	650 - 1 000 mm / 800 - 1 000 mm	1 100 mm	570 - 900 mm
Integration of switching device	HVX Embedded Pole + EasyPact EXE  PM105605 PM108877	SF  PM108519	LF + EasyPact EXE  PE58239 PM108877
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

Function

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

	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	• Motors • Power Transformers • Capacitors • Metering Transformers	• Power Transformers • Capacitors	Voltage Transformers	Motors
Standards	• IEC 60282-1 • DIN 43625 • VDE 0670-402	• IEC 60282-1 • UTE C64200, C64210	• IEC 60282-1 • UTE C64200, C64210	• IEC 60282-1

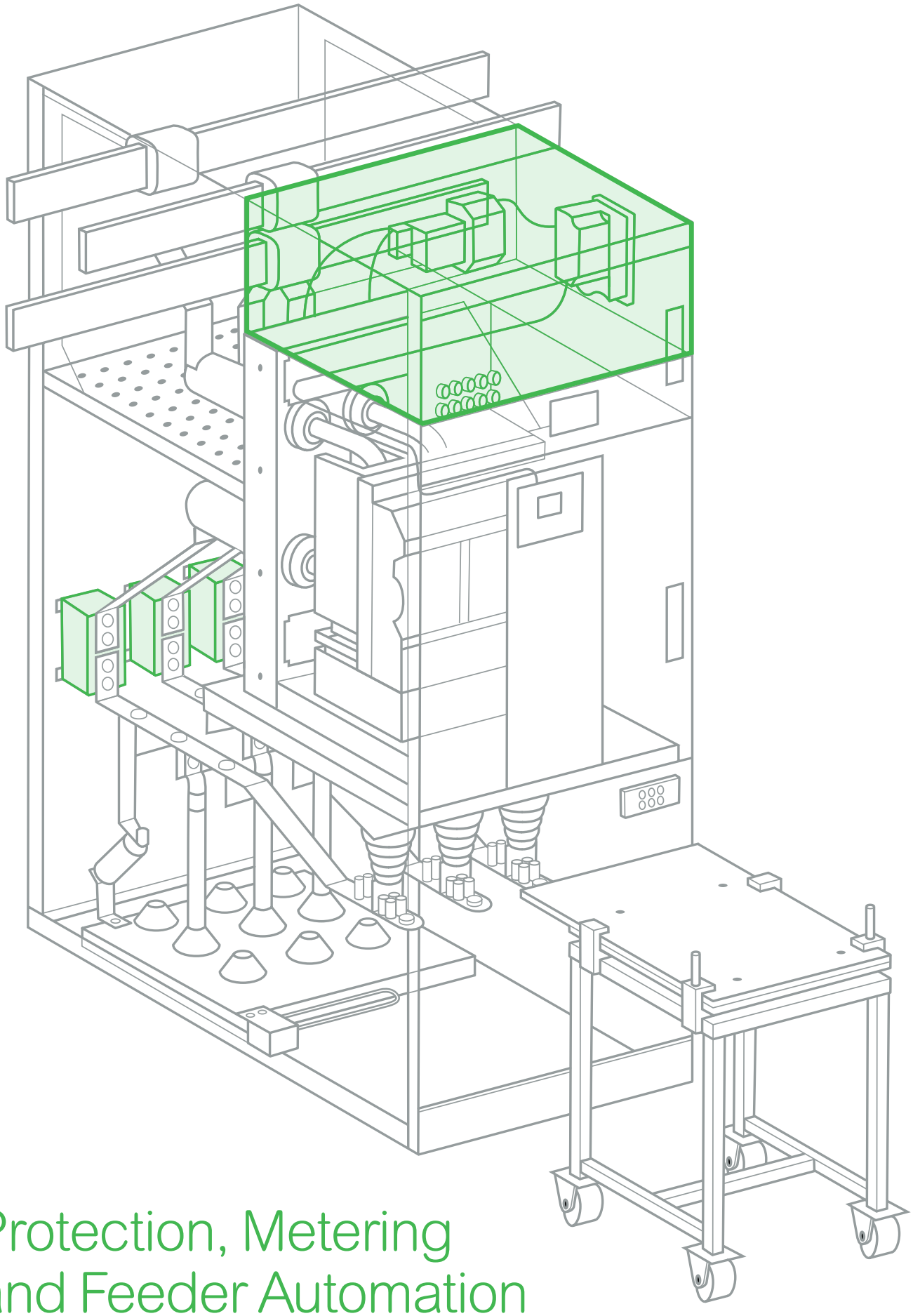
Benefits

- High breaking capacity
- High current limitation
- Low I2t values
- Low breaking overvoltage
- Low dissipated power
- For indoor and outdoor applications
- With a thermal striker

For additional information consult our MV fuses catalogue (ref: AC0479EN)

Notes

DM105005

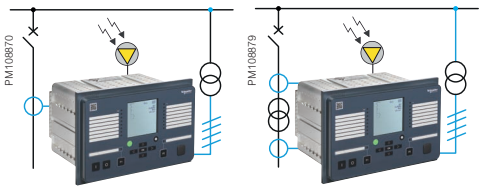


Protection, Metering and Feeder Automation

Protection, Metering and Feeder Automation

Protection relays

Easergy P3 Range

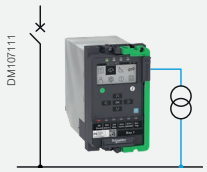
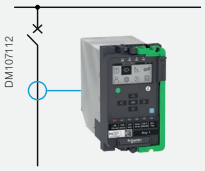
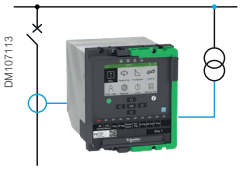
		Easergy P3 Standard			Easergy P3 Advanced	
Application						
Feeder		P3U10	P3U20	P3U30 with directional O/C with voltage protection	P3F30 with directional P3L30 line diff. & distance	-
Transformer					-	P3T32 with differencial
Motor					P3M30	P3M32 with differencial
Generator					P3G30	P3G32 with differencial
Characteristics						
Measuring inputs	Phase current	1/5A CT or LPCT (x3) (5)			1/5A CT (x3) or LPCT (5)	1/5A CT (x6)
	Residual current	1/5A CT or 0.2/1A CT			(1/5A+0.2/1A) CT	2 x (1/5A+0.2/1A), 1/5A CT
	Voltage	VT (x1)		VT (x4) or LPVT (x4) (5)	VT (x4)	VT (x4)
Arc-flash sensor input		-		-	Loop sensor: 1 Point sensor: 2, 4 or 6 (1) (2)	Loop sensor: 1 Point sensor: 2, 4 or 6 (1)
Digital	Input	2	8/10	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 (1)		0 or 4 (1)	
	Output	-	0 or 4 (1)		0 or 4 (1)	
Temperature sensor input		-	0 or 8 or 12 (1)		0 or 8 or 12 (1)	
Front port		USB type B			USB type B	
Nominal power supply		24V dc or 24–48V dc or 48-230V ac/dc (4)			24 to 48V dc or 110-240V ac/dc	
Ambient temperature, in service		-40 to 60°C (-40 to 140°F)			-40 to 60°C (-40 to 140°F)	
Communication						
Rear ports RS232, IRIG/B, RS485, Ethernet		-	●	●	●	●
Protocols	IEC61850 ed1 & ed2	-	●	●	●	●
	IEC 60870-5-101 & 103	-	●	●	●	●
	DNP3 over Ethernet	-	●	●	●	●
	DNP3 serial	-	●	●	●	●
	Modbus serial	-	●	●	●	●
	Modbus over Ethernet	-	●	●	●	●
	Ethernet IP (6)	-	●	●	●	●
	DeviceNet	-	●	●	●	●
	Profibus DP	-	●	●	●	●
	SPAbus	-	●	●	●	●
Redundancy protocols (RSTP/PRP)		-	●	●	●	●
Others						
Control		1 object 1 display	4 objects 4 display	4 objects 8 display	5-6 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(3) 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) LPCT for P3U30, P3F30 and P3M30 relays only. Consult us for other models
(6) Consult us for availability

Protection relays

Easergy P5 range

New

		Easergy P5x20		Easergy P5x30
				
Application				
Voltage		P5V20	-	-
Feeder		-	P5U20 with directional in LPCT/LPVT version	P5F30 with directional
Transformer		-		-
Motor		-		P5M30 with directional
Characteristics				
Measuring inputs	Phase current	-	1/5A CT (x3) or LPCT (x3) (1)	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) (1)	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(2) + Backup memory	●		●
	Serial	●		●
	Ethernet	●		●
	2nd 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, IRIG-B(3)	●		●
	SNTP, PTP IEEE 1588 v2(4)	●		●
Others				
Control		6 controlled + 2 monitored objects Mimic		6 controlled + 2 monitored objects Mimic
Logic (Matrix + Logic Equations)		●		●
Cybersecurity		●		●
Draw-out device (withdrawability)		●		●
Hardware dimensions (H/W/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 choosen for cooperation with low power sensors, it contains LPCT (x3) and LPVT (x4) channels
(2) for connection of RTD module and IRIG-B module
(3) IRIG-B module is a separate accessory
(4) PTP IEEE 1588 v2 is availaible with HSR/PRP communication board

Protection relays

VIP, Easergy & MiCOM ranges

		VIP Relays VIP40/45 VIP400/410	New Easergy (1) P1F/P1V	MiCOM (2) P111	MiCOM P115 / P116
			 PM107253	 PM105561	 PE90624
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) or VT	CT (1 or 5 A)
Display		VIP 40/45: 4 digits display VIP 400/410: Gaphical LCD	Graphical LCD	16 characters LCD 2 lines	16 characters LCD 2 lines
Other characteristics		Self/Dual Powered			Withdrawable hardware Self/Dual Powered
Input/Output (up to)		1/3	8/6	8/7	6/6
I/O terminals		Screw type	Screw type	Screw type	Screw type
Temp. sensors (up to)					
Communication protocol		• Modbus RTU-RS485 (plug and play with T300) • IEC 60870-5-104 • IEC 60850 • DNP3	• Modbus RTU • IEC 60870-5-103	• Modbus RTU • IEC 60870-5-103	• Modbus RTU • IEC 60870-5-103
Logic equations					
Standards			IEC, EAC, UKSA	IEC, EAC	IEC, EAC

(1) Available on January 2021

(2) End of life: June 2021

Protection relays

Sepam & Easergy MiCOM ranges

Sepam series 60	Sepam series 80	Easergy MiCOM P30	Easergy MiCOM P40
 PM105661	 PM105662	 PM108873	 8297098
●	●	●	●
●	●	●	●
		●	●
		●	●
●	●	●	●
●	●	●	●
	●	●	●
●	●	●	●
●	●	●	●
	●		●
●	●		●
●	●		●
	●		●
			●
●	●		
• CT (1 or 5 A) or LPCT • VT	• CT (1 or 5 A) or LPCT • VT	• CT (1 or 5 A) • VT	• CT (1 or 5 A) • VT
• Standard UMI • Remote UMI • Mimic based UMI	• Standard UMI • Remote UMI • Mimic based UMI	• Large color LCD type display with single-line diagram (mimic) • Remote UMI	• Standard UMI
Removable S/W cartridge	Removable S/W cartridge	• Multifunction; integrated Bay controller • High firmware/hardware variability	
28/16	42/23	80/45	32/32
• Screw type • Ring lug	• Screw type • Ring lug	• Screw type • Ring lug	Ring lug
8 to 16	8 to 16	10	10
• Modbus RTU • IEC 60870-5-103 • DNP3 • Modbus TCP/IP • IEC 61850 with GOOSE • RSTP	• Modbus RTU • IEC 60870-5-103 • DNP3 • Modbus TCP/IP • IEC 61850 with GOOSE • RSTP	• Modbus RTU • IEC 60870-5-101/103 • DNP3 • IEC 61850 with GOOSE • RSTP • PRP / HSR / DUAL-IP • IEC 6870-5-104	• Modbus RTU • IEC 60870-5-103 • DNP3 serial/DNP3oE • IEC 61850 with GOOSE • RSTP/SHP/DHP • HSR/PRP
Comprehensive logic equations	Control logic by ladder diagram	Comprehensive logic equations	Comprehensive logic equations
UL, CSA, EAC, ATEX	IEC 61508-SIL2, UL, CSA, EAC, ATEX	• Cyber security • IEC, EAC, ATEX	• Cyber security (IEC 62351) • IEC, UL, CSA, EAC, ATEX

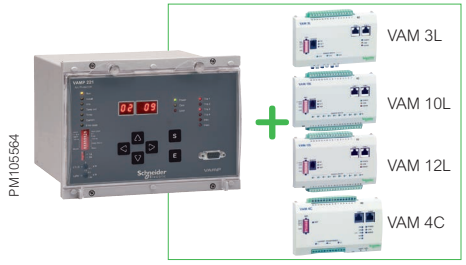
Arc fault detection and protection

Easergy Arc protection range

Function	Easergy Arc V125	Easergy Arc V121
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.	 PM106411	 PM105563
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 comissioning • 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 lenghts 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 lenghts 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)*
	
• Current and light tripping criteria (possibility of tripping by light only) • Typical operation time 7 ms (electromechanical contact) • Accurate location of arc fault utilizing point sensors • Four selective protection zones per system • Self-supervision of the entire system • Up to 160 sensors (with I/O modules) • Easy interconnect using VX001 cables • Phase current measuring • Earth fault current measuring • Personal portable sensor option • Panel or rail mount I/0 units • Circuit breaker fail protection (CBFP)	• Three phase current, zero sequence voltage and current • Event logs, disturbance recording and real time clock • Operation on simultaneous current and light or light only • Informative display LCD (single line diagram) • Up to four fast trip contacts • Direct light sensors and fiber optic up • Support up to 170 arc flash point sensors (with I/O modules) • One normally open and one change over alarm contact • Typical operation time: less than 7 ms (including the output relay) • Optionally 2 ms typical operation time when semi-conductor outputs are used • Programmable operation zones • Continuous system self supervision • PC configurable • Communication ports supporting a wide range of communication protocols which are intended for a SCADA interface
• Arc detection from compartments • Self-monitored • 6 m and 20 m cable lengths available	• Arc detection from compartments • Self-monitored • 6 m and 20 m cable lengths available
• Self-monitored • 6 m and 20 m cable lengths available	• Self-monitored • 6 m and 20 m cable lengths available
• Snap-in connection to I/O unit • Enhanced work safety	• Snap-in connection to I/O unit • Enhanced work safety
• Monitors various compartments • Small bending radius for easy installation	• Monitors various compartments • Small bending radius for easy installation
IEC	IEC

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

* I/0 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

Advanced Supervision and Control of MV-LV Distribution system

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

The Easergy T300 Feeder RTU is compliant with IEC 62351 and IEEE 1686 standards. It offers SCADA communication security and a role-based access control (RBAC) system to help protect your electrical infrastructure from cyber attacks.

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
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
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 - 3G/4G modem box for WAN communication • 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 availibility : 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 and an application building block for Medium Voltage and Low Voltage public distribution network management
- 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

Functions

- Flexible communication to control centre and other customers' IT applications
- Open peer-to-peer communication for self-healing applications*
- Open to third-party devices with many protocol capabilities
- Embedded IEC 601131-3 PLC for automation design
- Cyber security management:
  Compliance to the security standards/regulations (IEC 62351/IEEE 1686)
- Configurable Sequence of Events (SOE) for data logs
- Software integrity with firmware signature on all modules:
  - Secure communication between Easergy T300 and associated webserver tool with local or remote conn ections using HTTPS, SSH, SFTP
  - User identification and authentication according to IEC 62351-8
  - User access management according to IEC 62351-8
  - Communication authentication according to IEC62351-5 when using DNP3 and IEC60870-5-104 protocols
  - Port hardening management.
  - IP communication filter
  - Security events log storage and transmission according to Syslog protocol

- Controlling and monitoring of all switchgear type
- Advanced fault Passage Indicator (FPI) algorithms:
  - P-P, P-E, O/C, 50/51, 50/51N
  - Directional P-P, P-E, O/C, 67/67N
- Broken conductor detection 47BC
- MV Network monitoring : Current, Voltage and Power measurements according to IEC61557-12
- Power quality according to IEC 61000-4-30, Class S
- Large voltage and current measurement capabilities:
  Standard CT, VT, LPVT, VDS, VPIS and capacitor interface for voltage

* Consult us for availability

Easergy LV150
Transformer and LV monitoring

Functions

- Current and voltage measurements according to IEC 61557-12
- Broken conductor detection 47BC
- Power quality according to IEC 61000-4-30, Class S
- Transformer temperature monitoring

Substation power supply

Easergy PS100 and PS50

	Easergy PS100 Control & Monitoring	Easergy PS50 Monitoring
	 PM100615	 PM104366
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 availability due to the separate voltage output for IEDs, 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	
	• 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
	 PM105571
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

	Easergy VPIS V2	Easergy VPIS V3	Phase Concordance Unit VPI62421
	 PM106903	 PM106733	 PM107048
Functions	• Self-powered Voltage Presence Indicating System • Including voltage output version (VPIS-VO) for connection to: - Flair 2xD, VD23 voltage presence relay (VPIS V2) - T300 (VPIS V3) • Needs phase concordance unit for phase concordance checking (reference VPI62421)		
Technical specifications	• Plugs on the front panel allowing to use a phase concordance unit. A colored removable rubber joint (black for VPIS V2 and green for VPIS V3) closes these plugs to prevent penetration of humidity, salted spray, ... • Light indication using LEDs • Made in 2 parts: surge protection part, always connected and voltage presence indication part, replaceable for maintenance • VPIS V2 voltage sensing to Flair 22D, 23D or 23DM for fault detection on compensated and isolated networks and voltage sensing for VD23 or Flair 23DM Voltage presence relay functions • VPIS V3 voltage sensing to T300 for voltage presence/absence detection, phase and earth directional fault detection and basic measurement		
Reference numbers	• 18 VPIS variants of each VPIS version (9 variants each for VPIS & VPIS-VO): - without Voltage Output: VPI62401 to VPI62409 for VPIS V2 variants VPI62601 to VPI62609 for VPIS V3 variants - With Voltage Ouptut: 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

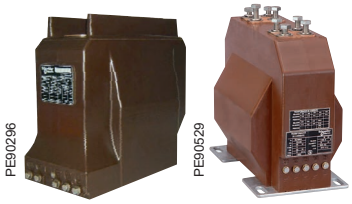
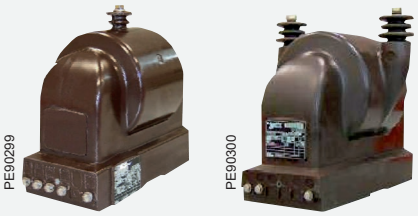
Fault Passage Indicators

Easergy Flair range

	Easergy Flair 21D-22D-23D-23DM
	
Functions	• Provides phase and earth fault local indication on MV-LV underground network • Ammetric FPI, self powered by measurement sensors, integrated in MV switchgear or in wall-mounted box
Detection	Phase and earth fault
Setting	By dip switches or menu on LCD display
Installation	Embedded in the switchgear
Earthing system	Direct, impedant, compensated, isolated
Supply	Self powered by current sensor and 3 backup supply solutions when network is dead: • Super capacitor (Flair 21D) • Li battery (Flair 22D) • External VDC supply (Flair 23D/23DM)
Measurement	• Ammeter • Maxmeter
Communication	• Dry output contact (Flair 21D-22D-23D-23DM) • Modbus RS485 (23DM)
Standards	IEC
Benefits	
	All-In-One device: • Reliability • Single configuration and diagnostic tool Opens the door to the most advanced Smart grid monitoring needs

Medium Voltage instrument transformers

Current & voltage transformers

	Current Transformers CT		Voltage Transformers VT
	 PE90298	 PE90296 PE90529	 PE90299 PE90300
Function	For protection or metering purpose		
Highest voltage for equipment (kV)	0.72	40.5	40.5
Max.rated short-circuit current	50 kA	60 kA	
Max.rated Primary current	5 000 A	5 000 A	
Max.rated Primary voltage			36 kV
Technology	LV insulation technology for MV applications	MV insulation technology for MV applications	MV insulation technology for MV applications
Main characteristics	• PX accuracy class can be respected in accordance to the relay formula • CT types available with primary winding (wound or bar type) or without primary winding (toroid or window type) • Ratio change (tapping) on primary or secondary side according to CT types		• Available types for connection between phases or between phase and earth. • Voltage factor 1.9 Um x 8 h (phase-earth) or 1.2 Um continuously (phase-phase) • Rated primary voltage up to 35:√3 kV (phase-earth) or 35 kV (phase-phase) • Available offers for applications in earthed or insulated neutral systems • Available types with metal screened surface according to application
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)		
Standards	• Specific country standards: IEC, IEEE, NBR, NFC, GOST, ... • IEC 61508-SIL2 for safety		

Benefits

- For indoor and outdoor applications
- DIN standard range available
- Lack of emissions of any harmful substances in case of fire

Medium Voltage instrument transformers

Low power transformers

Low Power Current Transformers LPCT		Low Power Voltage Transformers LPVT
 PE90303	 PE90302	 PM105566
Allows protection or metering with the same product		
0.72	24	24
40 kA	40 kA	
2 500 A	2 500 A	
		20 kV
LV insulation technology for MV applications	MV insulation technology for MV applications	MV insulation technology for MV applications
Rated nominal secondary voltage 22.5 mV	Rated nominal secondary voltage 22.5 mV	Rated nominal secondary voltage 3,25/√3 V
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)
IEC 60044-8		IEC 60044-7
• Operating safety: no danger in the event of any accidental opening of the secondary circuit • Can be installed in 24 kV, 36 kV or 40.5 kV networks without any specific MV insulation		• Operating safety: no danger in the event of any accidental short-circuit of the secondary • Resistive divider insensible to ferroresonance • Proper to measure energy in secondary MV loops

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/ 5500**	**PM8000**
	 PB101118	 PB115488	 PB111776	 PB113683
Function		kW/h meters • IEC 62053-22 Class 0.5S • IEC 62053-21 Class 1 • IEC 62053-23 Class 2 • IEC 61557-12 • EN 50470-1/3	Metering and sub-metering • IEC 62053-22 Class 0.5S • IEC 62053-22 Class 0.2S (PM55xx) • IEC 62053-23 Class 2 • IEC 61557-12 • EN 50470-1/3	Energy and intermediate power quality meter • IEC 61557-12 • IEC 62053-22 Class 0.2S • IEC 61000-4-30 Class S • IEC 62856-1 • ANSI C12.20 Class 0.2 • PMD /Sx/K70/0.2
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

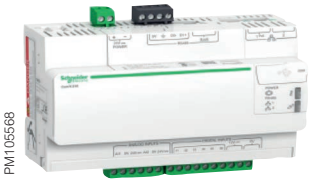
Energy management and control

Advanced and utility meters

Advanced meters		Utility meters	
ION7400	**ION9000**	**ION8650 A/B/C**	**ION8800 A/B/C**
 PB115151	 PB115917/PB115914	 PB107500	 PE86145
Energy and basic power quality meter • IEC 61557-12 • IEC 62053-22 • IEC 61000-4-30 Class S • ANSI C12.20 Class 0.2 • PMD /Sx/K70/0.2	Energy and advanced quality meter • IEC 61557-12 • IEC 62053-22 Class 0.1S • IEC 61000-4-30 Class A • IEC 62856-1 / IEC 62856-2 - PQI class A • ANSI C12.20 Class 0.1 • PMD /Sx/K70/0.2	Energy and power quality meter • IEC 62052-11 • IEC 62053-22/23 Class 0.2S • IEC 61000-4-30 Class A • ANSI C12.20 Class 0.1	Energy and power quality meter • IEC 62052-11 • IEC 62053-22/23 Class 0.2S • IEC 61000-4-30 Class A
I, U, F, P, Q, S, PF, E, THD min/max, harm., alarm, I/O (I, U, unbalance, demand, clock/cal, flicker)	I, U, F, P, Q, S, PF, E, THD min/max, harm., alarm, I/O (I, U, unbalance, demand, clock/cal)	I, U, F, P, Q, S, PF, E (demand, min/max values, unbalance, flicker, transient, sag/swell)	I, U, F, P, Q, S, PF, E (demand, min/max values, unbalance, flicker, transient, sag/swell)
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•		•	•
• IEC 62053-22 Class 0.2S • ANSI 12.20 Class 0.2S	• IEC 61053-22 Class 0.1S • ANSI 12.20 Class 0.1S	• IEC 62053-22 Class 0.2S • ANSI 12.20 Class 0.1	• Class 0.2S
• Flush & DIN rail mounted 96 x 96 mm	• DIN rail mounted	• ANSI socket mounting 9S, 35S, 36S, 39S and 76S • FT21 switchboard case	• DIN 43862 rack
• 57-400 VAC L-N 3P (100-690 VAC L-L)	• 57-400 VAC L-N 3P (100-690 VAC L-L)	• 57-277 V L-N AC (9S, 36S); 100-480 V L-L AC (35S)	• 57-288 V L-N AC or 99-500 V L-L AC
• External CT	• External CT	• External CT	• External CT
• Modbus RTU • Modbus TCP • ION • DNP 3.0 • DLMS • HTTPS • SFTP	• Modbus RTU • Modbus TCP • ION • DNP 3.0 • DLMS • HTTPS • SFTP	• Modbus RTU • Modbus TCP • ION • DNP 3.0 • DLMS • SFTP • HTTP	• Modbus RTU • Modbus TCP • ION • DNP 3.0 • DLMS • FTP • HTTP
• Up to 27 DI, 9 DO • Up to 16 AI, 8 AO	• Up to 32 DI, 4 DO, 10 RO • Up to 16 AI, 8 AO	• Up to 22 I/O	• Up to 16 I/O
512 MB	2 GB	A: 128 MB B: 64 MB C: 32 MB	• Up to 10 MB

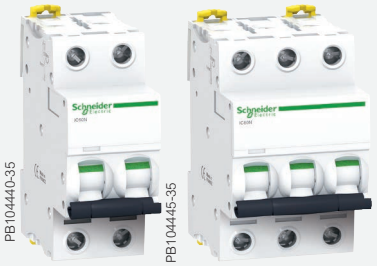
Energy management and control

Communication

	Link 150	Com'X 200/210	Com'X 510
	 PM105567	 PM105568	 PM105569
Function	The Link 150 serves as an Ethernet gateway for PowerLogic system devices and any other communicating devices utilising the Modbus protocol. The Link 150 gateway offers complete access to status and measurement information provided by the connected devices via software.	• Auto discovery of Modbus devices • Data Logger - Push to Cloud • Remote data push to a hosted platform • Software as a service support • Modbus gateway	• Auto discovery of Modbus devices • Data Logger - Push to Cloud • Remote data push to a hosted platform • Software as a service support • Modbus gateway • Entry-Level Energy Management in a Box (embedded) • View web pages and dashboards using only your web browser • Site server for Schneider Electric Smart Panels™
Characteristics			
Storage temperature	-40°C to +85°C	-40°C to +85°C (- 40°F to 185°F)	
Operating temperature	-25°C to +70°C	-25°C to +60°C (-13°F to +140°F) Com'X200 -25°C to +70°C (-13°F to +158°F) Com'X210/510	
Humidity	5% to 95% @ +55°C	5% to 95% relative humidity (without condensation) @ +55°C	
Pollution degree	Class 2	Class III	
Accessories		GPRS dongle operating temperature:	-20°C to +60°C (-4°F to +140°F)
		GPRS dongle storage temperature:	-40°C to +85°C (-40°F to +185°F)
		WiFi dongle operating temperature:	0°C to +50°C (32°F to +122°F)
		WiFi dongle storage temperature:	- 20°C to +80°C (-4°F to +176°F)
Communication	• Power Over Ethernet • Dual Ethernet • DNS support • IP V6 support • Master or Slave mode • RS232 or RS485 via RJ45 port	• Connect isolated sites via GPRS (3G available in 2016) • WiFi/Zigbee connectivity • Dual Ethernet Ports - RJ45 • Power Over Ethernet • Modbus Serial - RS485 • 6 Digital Inputs • 2 Analog Inputs	
Standards	• Safety - IEC: IEC 60950 • Safety UL: UL 60950 UL 61010-2-201 • EMC: IEC 61000-6-2 • Australia: Ctick - RCM • Sustainability: Green Premium • EMC: FCC Class A	Safety standards/regulations: • International (CB scheme): IEC 60950 • USA: UL 508 • USA: UL 60950 (Com'X 210 - Com'X 510 only) • Canada: cUL 60950 (Com'X 210 - Com'X 510 only)/cULus 508 • Europe: EN 60950 Quality brands: CE, UL	
Benefits			
	• Easy to install - Easy to setup - Easy to maintain • Compatible with PowerLogic software (PowerSCADA Expert, Power Monitoring Expert, etc.) • Reliable Modbus to Ethernet protocol conversion	• Easy to install - Easy to configure • Compatible with Schneider Electric Software & Hosted Cloud Platforms • Cost effective solution to log data to the cloud (hosted platform)	• Easy to install - Easy to configure • Embedded Entry-Level Power Monitoring Software and Dashboards - No software to install • Compatible with Schneider Electric Software & Hosted Cloud Platforms

Low Voltage protection

Acti**9** range

	Acti9 iC60N	Acti9 C60H-DC	Electrical auxiliairies OF	Electrical auxiliairies SD
	 PB104440-35 PB104445-35	 PB107193-34 PB107193-34	 PB104474-35	 PB104476-35
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	• 1P/1P+N: 12 to 240 VAC • 2P/3P/4P: 12 to 440 VAC	• 1P: 24 to 250 VDC • 2P: 24 to 500 VDC	• 240 to 415 VAC • 24 to 30 VDC	
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	Miniature relays RXM	Universal relays RUM
Designed for the adaptation, amplification, multiplication and processing of information in automated systems	 PM106144	 PM106145
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

	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				
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/CSA, IEC, CCC, UAC	• UL/CSA, IEC, CCC, EAC • Marine: BV, LROS, DNV, GL	• UL/CSA, IEC, CCC, EAC • Marine: BV, LROS, DNV, GL	• UL/CSA, IEC

Benefits

Standard version

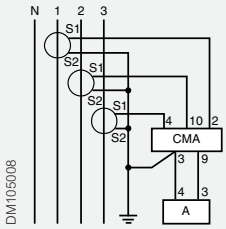
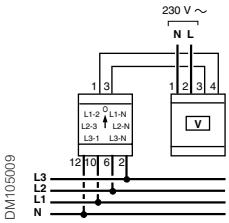
- Easy to select and install
- A wide choice of functions
- Robustness and mechanical durability
- High protection degree
- Excellent aesthetics and ergonomics

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		500 V
Max. rated current	20 A	
Mounting	48 x 48 Flush mounted	48 x 48 Flush mounted
Standards	IEC 60947-3	IEC 60947-3

Benefits

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

Discover more products on www.se.com

Legend panels

3 phase pilot lights

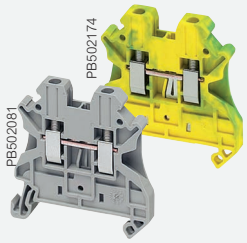
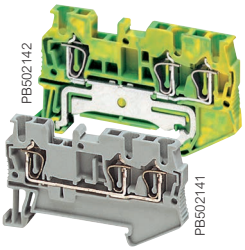
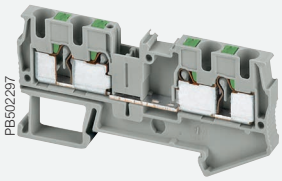
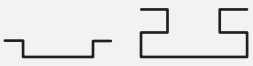
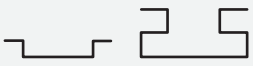
Diam 12/10/8 pilot lights

New signaletic pilot lights from XA2 (Not UL certified)

Harmony Hub + Temperature sensors & current monitoring

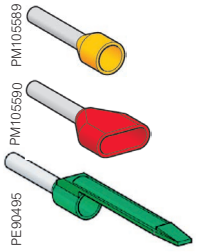
Low Voltage control and signalling

Linergy 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	• Passthrough (2.5 - 150 mm²) • Protective earth • Disconnect type (blade or fuse) • Double deck, multi-pole • Multifunction • Neutral disconnect	• Passthrough (2.5 - 35 mm²) • Protective earth • Disconnect type (blade or fuse) • Double deck, multi-pole	• Passthrough (2.5 - 4 mm²) • Protective earth • Disconnect type (blade or fuse) • Double deck, multi-pole
Conductor nominal c.s.a. (cross section area)	2.5 mm² to 150 mm²	2.5 mm² to 35 mm²	2.5 mm² and 4 mm²
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			
	Rugged and reliable This technology not only provides quality, safety and availability of equipment but optimizes installation setup and operation with their simple integrated functions	**Cost effective (quick and reliable)** Spring technology is a maintenance-free connection method assuring separation of mechanical and electrical functions. It also eliminates the need for regular re-tightening	**Quick and innovative** Solid conductors or conductors with cable-ends can be directly inserted into the terminal block without tools. The actuation lever can be operated with any tool for releasing conductors

Low Voltage control and signalling

Linergy TR - Terminal blocks

	Cable ends
	
Function	• Facilitates the insertion of wires into the terminals and assures the insulation between adjacent connection • Allows the identification of the wires
Technology	Insulated cable ends
Connection functions	Four available versions: • Single conductor cable ends • Single conductor markable cable ends • Uninsulated cable ends • Twin conductor cable ends
Conductor nominal c.s.a. (cross section area)	0.25 mm² to 50 mm²
Certifications	UL, CSA

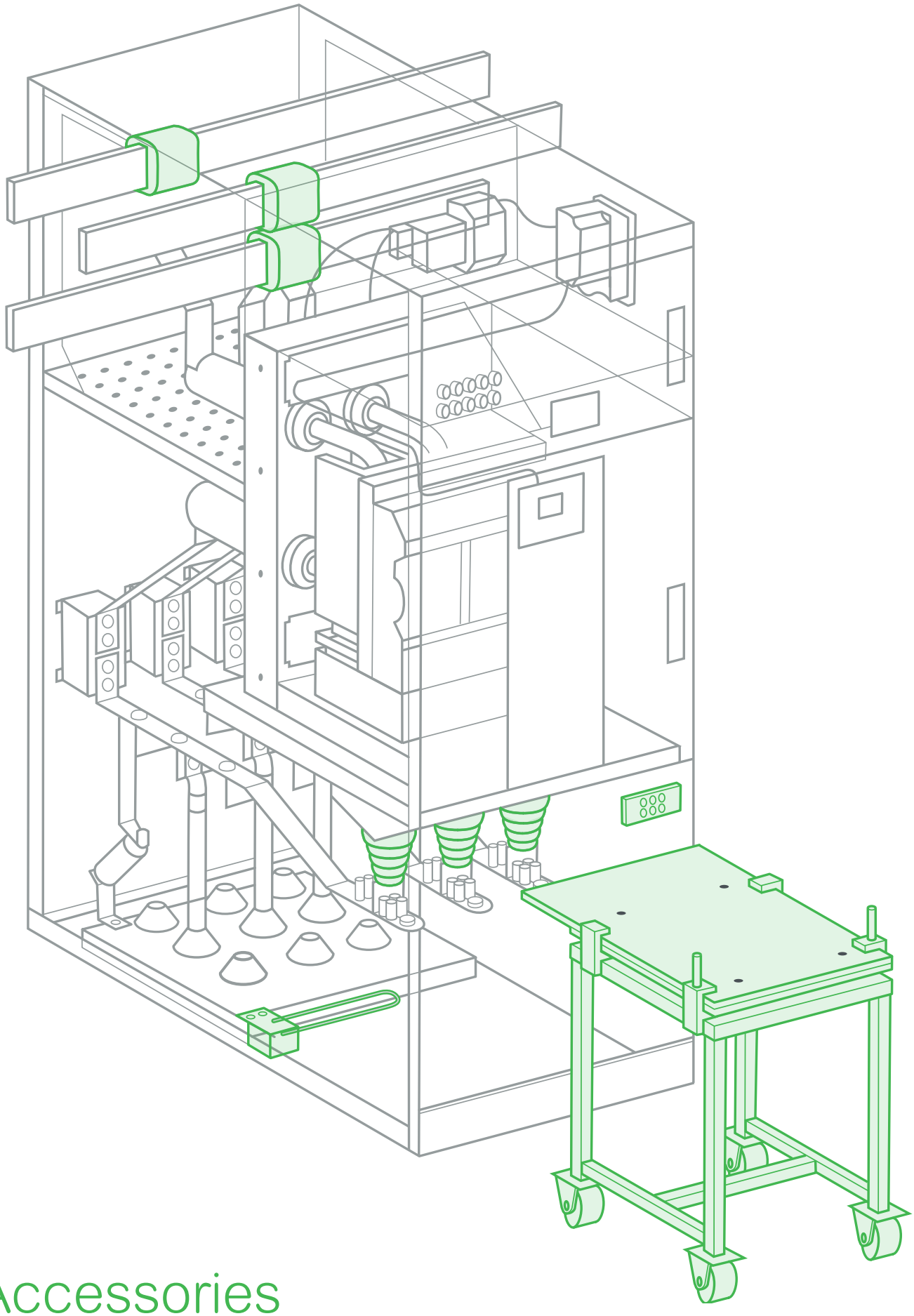
Benefits

Fast and reliable wiring

Use the AZ5 and DZ5 ranges of cable ends to simplify wiring and provide optimum electrical continuity between wire and terminal block.

Notes

DM105007

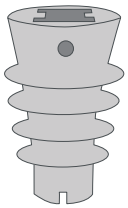


Accessories

Accessories

Accessories

Characteristics and references


PE90500-B?

Insulating holder with or without capacitive divider

Function

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

Technical specifications

- Height: 175 mm
- Capacitive divider: ISO 35 pf

Reference numbers

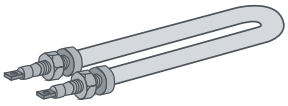
- **3 insulating holders:**
  - 17.5 kV ref. 59431
  - 24 kV ref. AAA10075
- **3 insulating holders with capacitive divider:**
  - 17.5 kV ref. 59430
  - 24 kV ref. AAA10074

Standards

IEC

Benefits

- Dielectric withstand
- Mechanical robustness


DE56927

Anti-condensation heating element

Function

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

Technical specifications

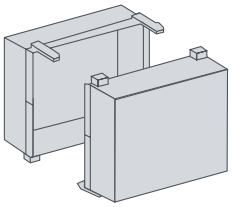
- 220 VAC
- 150 W
- Length: 432 mm
- Supplied with its support without thermostat

Reference numbers

59280

Benefits

Avoid condensation in the cubicle


DE90216

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

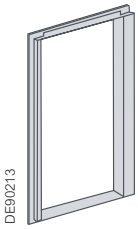
59420

Benefits

Can be adjusted according to number of busbars

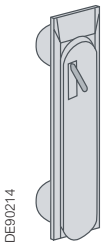
Accessories

Characteristics and references


DE90213

High resistance plastic window

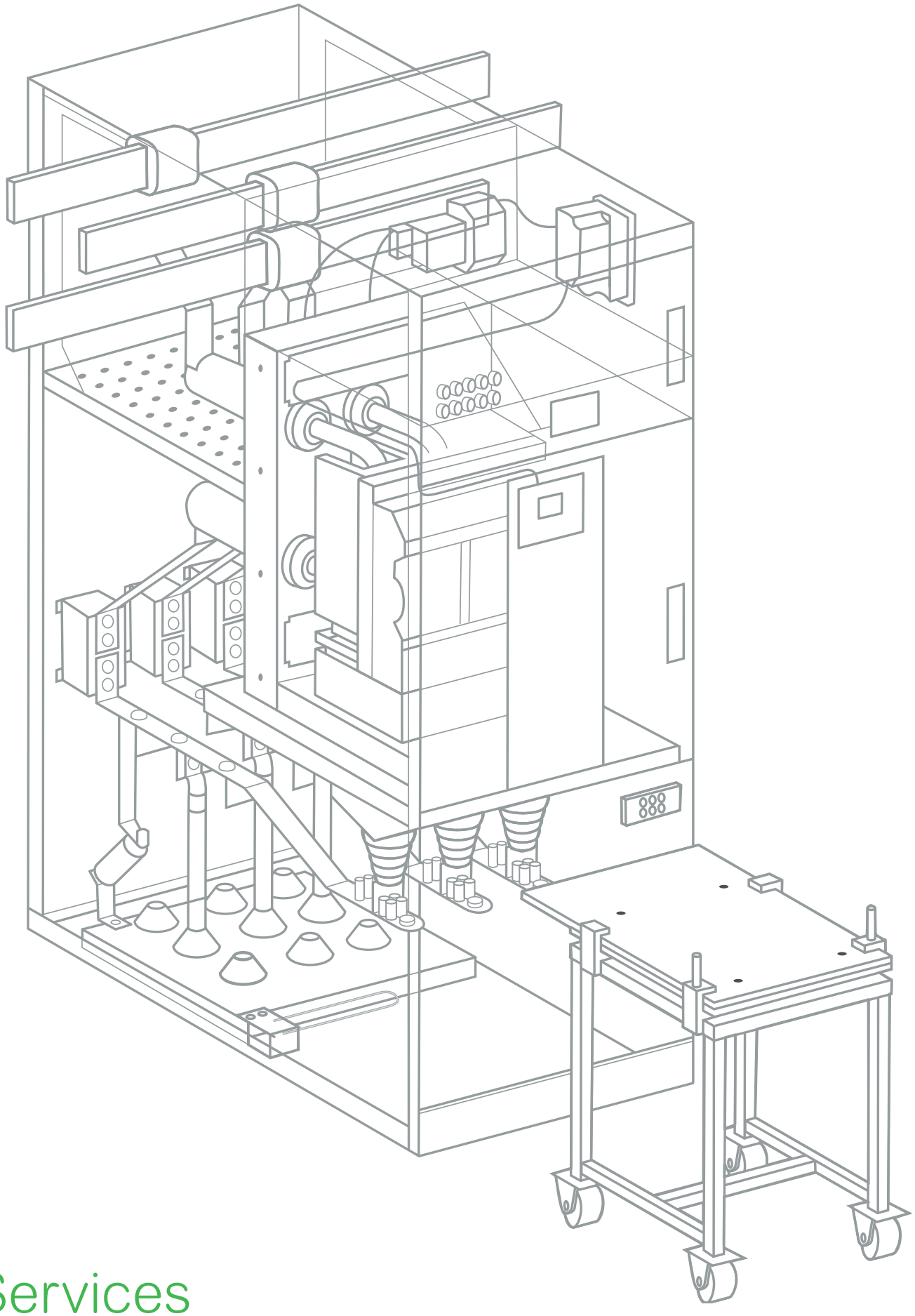
Function	Located on the panel or the door, allows you to see inside a cubicle
Technical specifications	• 3 mm thick transparent polycarbonate window • Dimensions:138 mm x 85 mm
Reference numbers	59105
Benefits	Internal arc withstand up to 31.5 kA


DE90214

Cubicle compartment handle

Function	Enables the front panel door of the cubicle to be closed.
Technical specifications	• Material: Zamak • A version with key is available
Reference numbers	• 59270 (handle) • 59271 (handle with key)
Benefits	Robustness

DM105010



Services

Services

Schneider Electric Services

For Panel Builders

Be identified as a trusted partner all along life cycle of your product

Don't be considered as simple product supplier! Your product will last for a long time of service, and your Customer will need to have trust in your Expertise including your capability in providing services.

All along the asset's life cycle, Services help improve your customer's safety, reliability, efficiency and reduce downtime.

Take the opportunity to be a trusted advisor for your customer and help him through the full life cycle of the panel with services offers:

Maintenance contract

- For panel you are delivering
- For existing installed base panels

Schneider Electric can help you to offer:

- On-demand and routine maintenance
- Preventive manufacturer maintenance
- Service Plans for preventive maintenance including diagnosis and corrective maintenance with agreed response time
- Remotely diagnose through Remote Expertise

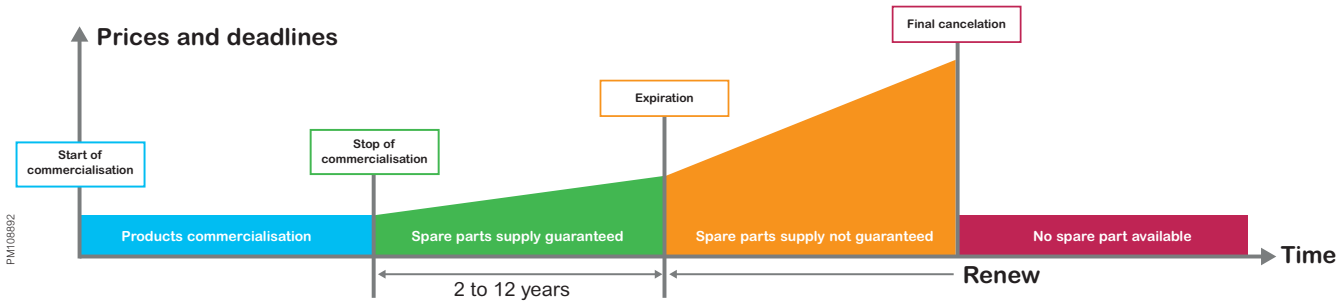
Spare Parts

- For panel you are delivering
- For existing installed base panels

An easier way to upgrade the installation:

- Spare parts kit - also available for new equipment to reduce time of installation and avoid long shutdowns

Product Life Cycle Services



Modernization plan

- For existing installed base panels
- For panel you are delivering from now on

Modernize up to digital services:

- Upgrade equipment with sensors and connectivity to perform thermal monitoring and asset management services.
- Asset Connect helps you to upgrade your installation with smart sensors, transforming non-communicating equipment into connected assets.

Audits

- For existing installed base panels

Schneider Electric can help you assessing your customer's installed base:

- After MPS Walkthrough audit performed by Schneider Electric, you can provide recommendations to your customer on how to maintain, modernize and repair their equipement to expand life span of your customer installation.

Schneider Electric Services

For Panel Builders

Become the trusted advisor of your customer all along life cycle of the equipment you delivered.

Providing Services to your customer you:

- Keep equipment up to date and extend lifespan
- Reduce risk of unexpected downtime
- Keep a strong relationship with your customer

CONTACT US!

https://www.schneider-electric.com/en/work/services/

Renew

Schneider Electric extends the life of your system while providing upgrades.

We take full responsibility for the end of life processing of old electrical equipment.

- **ECOFIT™:** Keep up to date and improve the performance of your electrical installations (LV, MV, protection relays, etc.)
- **MV product end of life:** Recycle and recover outdated equipment with end of life services

Frequency of maintenance intervention

Schneider Electric recommends implementing a schedule for maintenance activities to extend electrical distribution equipment performance over time.

Frequencies under normal/healthy operation (minor equipment criticality and optimal environmental conditions) can be generally defined as described in the table below:

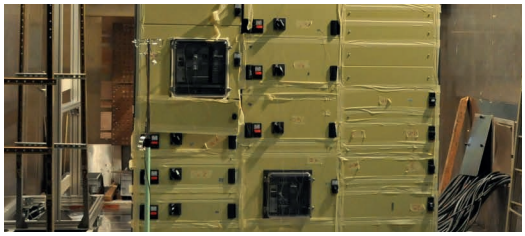
Maintenance	Min. freq.(1)	Who		
		Manufacturer	Certified Partner	End user
Exclusive	every 5 years	●		
Advanced	every 2 years	●	●	
Light	every 1 year	●	●	●

(1) Recommended under normal operating conditions (minor equipment criticality and optimal environmental conditions). However, this recommended frequency should be increased according to:
a) the level of criticality (low, major, critical)
b) the severity of environment conditions (i.e.corrosive, naval, offshore) following recommendations of Manufacturer's services

Labs Volta

A full range of testing and auditing services

- 80 years of technical LV & MV expertise
- 7,000 m^2 of product testing and validation facilities
- St-ct up to 400kA / Temp-rise up to 10kA at 55°C
- Located in Grenoble, France



Labs Volta

We leverage 80 years of experience in the testing and certification of electrical equipment to deliver a full range of services:

- Product and equipment testing and validation according to the standards covered by our accreditations and customer specifications
- End-to-end management of your certification projects in line with the most demanding industry standards (IEC/EN 61439, IEC/TR 61641, IEC 61921, IEC/EN 62271)
- And, as needed, support from a technical expert to maximize your chances of obtaining validation and certification.

We provide our services in accordance with quality procedures that meet ISO/IEC 17025 standards ensuring our independence, as well as ISO 9001 and ISO 14001 standards.

Power and functional tests

- Short-Circuit making and breaking
- Internal arc
- Short-time current withstand
- Overload/endurance
- Dielectric power frequency
- HV impulse
- Temperature-rise (inside climatic chambers)
- Glow wire

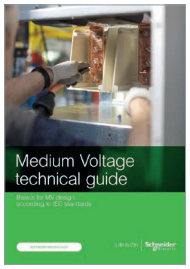
Environmental tests

- Climatic
- Corrosion
- Vibration and shock
- Mechanical
- Acoustic
- International Protection Marking: IP/IK
- EMC

Consult us for more information

Complementary litteratures

Learn more on our Medium Voltage products and technology ?



Helping you design MV products according to IEC standards

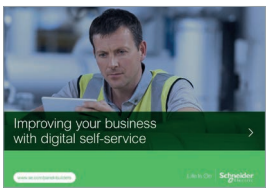
- Our talented electrical distribution experts share their industry-leading knowledge of technological developments and evolving medium-voltage standards.

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

Schneider Electric Partner Program,

Stay up to date!

and get more resources by connecting us!

connect us / register

Green Premium™

An industry leading portfolio of offers delivering sustainable value

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_2 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_2 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.

Notes

Life Is On | Schneider Electric™

Green Premium™ ecolabel product - Sustainable performance, by design

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