Life Is On Schneider Electric

Premset
Maintenance guide 2017

First-class innovation
and reliability for MV distribution

schneider-electric.com/premset

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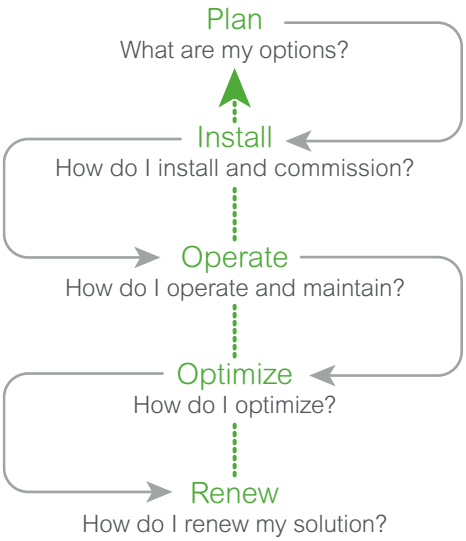
Schneider Electric Services

Peace of mind throughout your installation life cycle

Life Cycle Services



When it comes to your electrical distribution installation, we can help you:

- increase productivity, reliability, and safety,
- mitigate risk and limit downtime,
- keep equipment up to date and extend lifespan,
- cut cost and increase savings,
- improve your return on investment.

FACILITY HERO
THE SMART LOGBOOK

New improve the efficiency on maintenance:
Access automatically to your Premset equipment maintenance planning by flashing the QR code. Find the QR codes on your products or on the catalogue product data sheet.

Flash only with Facility Hero app
Free Download:

> Download the free version of Facility Hero

Plan

Schneider Electric helps you to plan the full design and execution of your solution, looking at securing your process and optimising your time:

- **Technical feasibility studies:** Accompany customer to design solution in his given environment.
- **Preliminary design:** Accelerate turn around time to come to a final solution design.

Install

Schneider Electric will help you to install efficient, reliable and safe solutions based on your plans.

- **Project Management:** Designed to help you complete your projects on time and within budget.
- **Commissioning:** Ensures your actual performance versus design, through on site testing & commissioning, tools & procedures.

Operate

Schneider Electric helps you maximize your installation uptime and control your capital expenditures through its services offering.

- **Asset Performance Management as a service (APMaaS):** Most equipment generates data that Schneider Electric can collect, analyze, and consolidate to optimize operations and detect malfunctions before they occur, reducing costly shutdowns.
- **Advantage Service Plans:** Customized service plans which cover corrective, preventive and on-site condition maintenance with advanced diagnotics.
- **On site Maintenance services:** Extensive knowledge and experience in electrical distribution maintenance.
- **Spare parts management:** Ensure spare parts availability and optimised maintenance budget of your spare parts.
- **Technical Training**: To build up necessary skills and competencies in order to properly operate your installations in safety.

Optimise

Schneider Electric propose recommendations for improved safety, availability, reliability & quality.

- **MP4 Electrical Assessment:** Define improvement & risk management program.

Renew

Schneider Electric extends the life of your system while providing upgrades. Schneider Electric offers to take full responsibility for the end-of-life processing of old electrical equipments.

- **ECOFIT™:** Keep up to date & improve performances of your electrical installations (LV,MV, Protection Relays…).
- **MV product End of life:** recycle & recover outdated equipment with end of life services.

Frequency of maintenance intervention on Premset

Schneider Electric equipment manufacturers recommend 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 follows:

Maintenance	Minimal frequency (1) (every)	Who		
		Manufacturer	Certified Partner	End user/other
Exclusive	On demand	•		
Advanced	5 years	•	•	
Light	3 years	•	•	•

(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.

Facility Hero

Preventive & predictive maintenance using QR codes

FACILITY HERO
THE SMART LOGBOOK

PE60529

What is Facility Hero?

Facility Hero is a smart maintenance log book that can be accessed from any smartphone, tablet, or computer. This 100% collaborative, connected system keeps maintenance technicians in the field in constant contact with their maintenance community: manager, customer, contractors and peers for fast and effective interventions.

Accessible by anyone, anywhere, anytime

Facility Hero works on 3G, 4G, and Wi-fi networks and can also be used offline. Simply download the application right to your smartphone or tablet, set up an account, and get started.

The right information, fast

- Overall view of equipment (status, tasks, the week's reminders).
- Full maintenance logs (breakdowns, maintenance reports).
- Fast access to history equipment maintenance logs via the QR code on the equipment.
- Rich maintenance reports including voice memos, notes, photos, and measurements.

The right decision and the right action at the right time

- Quickly add a new piece of equipment.
- Access periodic reading measurements, recent malfunctions, etc.
- Locate equipment by GPS in real time.
- Monitor equipment remotely and in real time.

Manage your maintenance teams and interventions effectively

- Real-time work orders sharing, and reporting with selected users.
- Get inspection reports by mail and share them in just two clicks.
- Monitor all regular operations such as scheduling, and incomplete or upcoming tasks.

Facility Hero benefits

Enhance the efficiency of maintenance operations and insure your uptime:

- access automatically to the maintenance recommendations of your equipments by flashing the QR codes,
- cloud Logbook to organise and follow your maintenance,
- remote alarming on connected equipments.

Circuit breaker function

Switch function

Metering & other functions

Premset, designed for a long service life over 30 years

Premset Maintenance & Service program:

1. Reduction of total cost of ownership and easy budget control
- Optimized maintenance program according to the installation environment and operation conditions.
- Total budget control through services agreement.

2. Improved availability & "best in class" life time of equipment
- Preventive maintenance adapted to local operation conditions will ensure extended life time of the equipment.
- Specific on-site condition maintenance program, linked with the high technology design of Premset, will help to know and act before any serious failure occurs (diagnostic of metallic painting, diagnostic of ageing & circuit breaker…). These programs will contribute to the reduction of down time and critical loss and to the improved safety & security.

3. Peace of mind due to our reactivity commitment
- Through our services agreement, we assure a total peace of mind: In case of failure, our Field Services Engineers will go on site within the defined time in the agreement to fix the issue and change parts if needed.

1

Corrective maintenance

Emergency On-Site intervention
- Guarantee Expert intervention on your site in a lead time which is defined by a mutual agreement.
- Diagnose problems, evaluate a solution and prepare the fixing.

Emergency spare parts delivery
- Spare parts delivery lead time guaranteed.

2

Preventive maintenance

Premset		Preventive maintenance
MV main circuit	Core unit (encapsuled Vacuum interrupter + earthing switch tank)	Metallisation check-up to ensure earth continuity
	Busbar + cable connection	Earth continuity check-up
Mechanism	Mechanism	1. Check open/close/charging 2. Check humidity & corrosion status of the mechanism
LV parts	Auxiliary contacts	Check the continuity of the contacts in different states
	Coil & electrical operation	Test tripping chain
	Protection relays	Refer to maintenance manual of VIP/Sepam or other relay
	Other electronic devices	Flair & PS100: battery check
CTs & VTs	Shielded	Metallisation check-up to ensure earth continuity

- The entire MV circuit of Premset is insensitive to harsh environment thanks to Shielded Solid Insulation.
- No specific tools are required for the preventive maintenance of Premset.
- Mechanical parts are surface-treated to prevent corrosion.


Schneider Electric
Premsat
ATS100
Single Line View
Genset

Content

General

PM100020

Warning

Preventive maintenance operations must be carried out regularly on medium-voltage equipment.

Trained technicians only can work on this type of equipment.
Two skills are essential:
- electrical qualifications,
- knowledge of the equipment to be maintained.

This document does not apply to protection relays.
Please refer to the maintenance documents specific to each type of relay.
If necessary, you can also contact your Product, Country, Services agent.

Electrical qualifications

Only technicians with appropriate electrical qualifications will be allowed to carry out these maintenance operations.

Training

Schneider Electric offers a wide choice of training courses on operating or maintaining its equipment.

Training program

This training is delivered in our training centres by Schneider Electric's accredited skilled staff.

Schneider Electric maintenance service

Level of intervention	People	Methods	Tools	Spare Parts	Services coverage	Maintenance execution	Examples of actions
EXCLUSIVE	**Master** technician in several technologies / processes with industrial support equipment when factory repair is requested	Recall action when identification and on-site troubleshooting is not possible. Return to the factory for deep inspection and repair	Industrial (logistic / technical) support available when a recall is required	Equipment / moving parts will generally be returned to the factory for thorough inspection and repair. Parts assortment / availability is secured for a full repair	ED Equipment Manufacturer services	Manufacturer's factory or workshop	General overhaul/review with dismantling of whole equipment Replace obsolete/worn-out equipment
EXCLUSIVE	**Master** technician in: • particular technique / technology of a specialist support equipment • ED equipment **assembly / manufacturing process** that may affect equipment performance after intervention (ie. switchgear for adjustments of spare parts)	**Important** and complex Corrective / Preventive / **Diagnostic** activities, with **very heavy** equipment disassembly, described in manufacturer's maintenance guides (activities / operations procedures)	**Proprietary** / specialist support equipment / test tools / software (enriched with original equipment manufacturing technical data). Recommended for intervention when applicable (see ProDiag tools table p. 25)	Complex components KITs for upgrading functionality that needs **Heavy** later adjustments as Latching box, Dumpler, Pressure switch Exclusive availability to Schneider Electric services for next intervention	ED Equipment Manufacturer services	On-site	Technical upgrading. Change of function performance. Change of use. ED equipment diagnosis
ADVANCED	Technician qualified to use complex tools/measures/ setting devices thanks to **advanced** training modules in use of complex manufacturer's maintenance guides	**Complex** Corrective/ Preventive activities, with **heavy** equipment disassembly, described in manufacturer's maintenance guides	**Standard** support equipment (market metering tools) complex to use	Complex components that needs **light** later adjustment such as Mechanical links, Bearings, Auxiliary contacts Available/ dispatched to Schneider Electric /Partner for next preventive intervention	Manufacturer Services/Certified Partner	On-site	Replacement of manufacturer's original parts. Complex general adjustments, realignment. Identification and troubleshooting
BASIC	Technician accredited in basic training modules in use of **simple** manufacturer' s maintenance guides	**Simple** Corrective/ Preventive activities, with **light** equipment disassembly, described in manufacturer's maintenance guides	Built-in or external Mechanical Tools, easy to use	Simple components to be exchanged as Motors, Coils, Relays Available / dispatched to customer for next preventive intervention	End-User/Non certified partner	On-site	Replacement / exchange of components. Simple inspections
BASIC	Certified customer employee according to the manufacturer maintenance instructions	Basic knowledge in the Electrical field	No special tool is requested	Consumables as Fuses, Bulbs, Plug-in, sockets equipments easily removable Available / dispatched to customer for next preventive intervention	End-User/Non certified partner	On-site	Adjustment. Level check. Replacement of consumable parts

Operations to be performed

Power circuits & Control mechanisms

Dust, impacts, aggressive atmosphere, insufficient or excessive lubrication may adversely affect the mechanical operation of a device.

Operations

The necessity for an installation to run continuously generally means that the power devices are seldom operated.
Although the ageing process of a device may be accelerated if it is used too frequently, mechanical malfunctions may occur if it is not operated for a long period of time.

Regular operation is necessary to maintain the original performance of each operating unit.

Interlocking with keys or padlocks must be fully tested to check that they are working correctly.

PM 100597

Operations to be performed

Low Voltage auxiliary circuits

Auxiliary wiring

It is used to transmit orders to the various control units of the device and retrieve its states.

A degraded connection or insulating material may prevent the device from operating or cause unwanted tripping. Auxiliary wiring must be checked and replaced at regular intervals, if necessary, especially in the event of vibrations, a high ambient temperature or corrosive atmospheres.

Signalling contacts

The contacts indicating the position of the circuit breaker, earthing switch, voltage transformer truck and ready-to-operate circuit breaker allow the operator to view the states and to act accordingly. Any incorrect signalling can lead to device control errors that may endanger the operators.

Contact failure (worn contacts, loose terminals) may be the result of vibrations, corrosion or abnormal overheating; preventive maintenance must ensure good continuity (or non-continuity) of the contact in the different states.

Protection relay

An electrical fault on the installation is detected by the relay which orders the circuit breaker to open in order to ensure that the equipment and operators are protected. Electronic components and cards are sensitive to the environment (ambient temperature, humid and corrosive atmosphere) and to harsh operating conditions (magnetic fields, vibrations, etc.).

To ensure safe operation, the following must be checked at regular intervals:
- the tripping chain,
- the intervention times according to fault current levels.

Refer to the documents specific to the protection relay used.

The equipment must be switched off

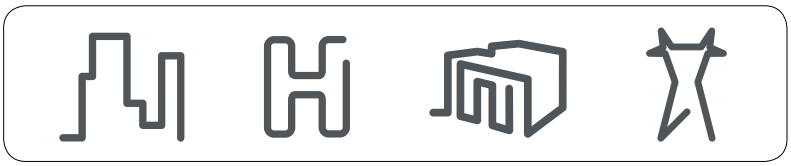
Do not walk on the parts, assemblies and areas identified by this pictogram

Recommended frequency

3 to 5 years
Normal operating conditions

The maintenance programme must be carried out on the cubicles as soon as they are commissioned and then every five years at most; the maintenance operator must have the required skill level (see the description in the table below).

These operations are applicable for the environmental and operating conditions that meet the normal service conditions, in accordance with IEC 60694 for indoor switchgear.



Ambient air temperature

- Less than or equal to 40°C.
- Less than or equal to 35°C, on average over 24 hours.
- Greater than or equal to -25°C.

Altitude

- Less than or equal to 3000 m.
- Above 3000 m, a derating coefficient will be applied (please consult us).

Ambience

No dust, smoke, salt, corrosive or flammable gas and vapour (clean industrial air).

Humidity

- Average relative humidity over 24 hours < 95%.
- Average relative humidity over 1 month < 90%.
- Average vapour pressure over 24 hours < 2.2 kPa.
- Average vapour pressure over 1 month < 1.8 kPa.

Recommended frequency

3 to 5 years
Normal operating conditions

Check	Frequency (year)		Intervention level	Power down		Approximate intervention time
	3	5		Cubicle	Switchboard	
Switchgear						
Visually check the general condition of the cubicle (front panel, control unit, box, frame)	●	-	Basic	-	-	15 min
Power circuit						
Core unit (encapsulated vacuum interrupter + earthing switch tank): metallisation checkup to ensure earth continuity	-	●	Advanced	●	-	Contact us
Busbar + cable connection: earth continuity checkup	-	●	Advanced	-	●	Contact us
Control mechanisms						
Open / Close the main switch manually and electrically	●	-	Basic	●	-	15 min
Open / Close the earthing switch manually	●	-	Basic	●	-	15 min
Check humidity & corrosion status of mechanism	●	-	Basic	●	-	15 min
Operate the key-operated interlocks	●	-	Basic	●	●	30 min
Control and signalling auxiliaries						
Check that the auxiliary wiring is uninterrupted and the appearance of the insulating material	●	-	Basic	●	●	1 h
Check the tripping chain	●	-	Basic	●	●	30 min - 1 h
On demand maintenance						
Schneider Electric Services	-	-	Exclusive	-	-	Contact us

Digital tool

Operate and maintain with augmented reality

Are you ready to go beyond digitization ?

When Schneider Electric gathers its best-in-class know how to go one step further into digitization: download Premset Live app.

This new iPad application allows you to discover, configure and maintain Premset, based on 3D modeling, virtual reality and augmented reality technologies.

iPad application: increase efficiency by discovering and designing Premset Medium Voltage switchgear in 3D modelling. Schneider Electric partners can operate and maintain through augmented reality, for maximized reliability and safety.

Download it on your iPad !

Appendice

2016 spare parts list

Spare parts	Commercial reference	
	630 A	1250 A
Motor Block		
Motor Block 24-30 V DC	P7M12001	P7M12001
Motor Block 48-60 V AC/DC	P7M12002	P7M12002
Motor Block 100-130 V AC/DC	P7M12003	P7M12003
Motor Block 200-250 V AC/DC	P7M12004	P7M12004
Trip coil MX1&2/XF		
Shut trip/close coil MX/XF 24-30 V DC	P7M12005	P7M12005
Shut trip/close coil MX/XF 48-60 V AC/DC	P7M12006	P7M12006
Shut trip/close coil MX/XF 100-130 V AC/DC	P7M12007	P7M12007
Shut trip/close coil MX/XF 200-250 V AC/DC	P7M12008	P7M12008
Replace closing coil MN		
Undervoltage coil 24-30 V DC	P7M12012	P7M12012
Undervoltage coil 48-60 V AC/DC	P7M12013	P7M12013
Undervoltage coil 100-130 V AC/DC	P7M12014	P7M12014
Undervoltage coil 200-250 V AC/DC	P7M12015	P7M12015
Micro switch		
2 switches for interlock and wiring	P7M12009	P7M12009
1 switch for interlock and wiring	P7M12010	P7M12010
1 switch for malt and wiring	P7M12011	P7M12011
Replace SC100 tdb		
SC100A 24 V - 60 V	EMS58560	EMS58560
SC100E 110 - 250 V	EMS58561	EMS58561
SC110A 24 V - 60 V avec com	EMS58563	EMS58563
SC110E 110 - 250 V avec com	EMS58564	EMS58564
Mitop		
Low energy shunt trip Mitop	P7M13001	P7M13001
Aux. Contacts Main switch and/or Earthing switch		
BLOCK OF 4 OF CONTACTS	47887	47887
WIRE AUXILIARY TERMINAL BLOCK FOR FIXE	47074	47074
Voltage presence indicator/detector		
VPIS 3 kV	VPI62403	VPI62403
VPIS-VO 3 kV	VPI62413	VPI62413
VPIS 6,6 kV	VPI62404	VPI62404
VPIS-VO 6,6 kV	VPI62414	VPI62414
VPIS 15 kV	VPI62406	VPI62406
VPIS-VO 15 kV	VPI62416	VPI62416
VDS 3-7,2 kV L1 long (M06A CB)	P7M14008	P7M14008
VDS 3-7,2 kV L2 short	P7M14009	P7M14009
VDS 12-24 kV L1 long (M06A CB)	P7M14010	P7M14010
VDS 12-24 kV L2 short	P7M14011	P7M14011
Live cable interlock		
Electrical device LCI 24-30 V DC for Live Cable Interlock	P7M12016	P7M12016
Electrical device LCI 48-60 V AC/DC for Live Cable Interlock	P7M12017	P7M12017
Electrical device 100-130 V AC/DC for Live Cable Interlock	P7M12018	P7M12018
Electrical device 200-250 V AC/DC for Live Cable Interlock	P7M12019	P7M12019
Electronic device ESL100 A 24-48 V DC for LCI Live Cable Interlock	P7M12020	P7M12020
Electronic device ESL100 E 110-250 V AC/DC for LCI Live Cable Interlock	P7M12021	P7M12021
Cable box door interlock		
Interlock main SW and ESW cable box door	P7M17020	P7M17078
Fuse VT protection M06A	tdb	tdb
Power supply PS100		
Long life battery - 12 V - 24A.h	EMS58582	EMS58582
Long life battery - 12 V - 38A.h	EMS58583	EMS58583
Flair 22D battery	tdb	tdb
VIP battery	tdb	tdb
Busbars		
Set of 3 straight (flat) busbars	P7M17001	P7M17101
Set of 3 offset (bent) busbars	P7M17002	P7M17102
Caps		
3 Caps with short stud	P7M17003	P7M17003
3 Caps with medium stud	P7M17004	P7M17004
3 Caps with long stud	P7M17005	P7M17005
3 VPIS Caps with short stud	P7M17006	P7M17006
3 VPIS Caps with medium stud	P7M17007	P7M17007
3 Capacitive Caps earth connection without VPIS	P7M17037	/
VT connection for VRU1		
2 Flexible links	P7M17026	P7M17026
1 Flexible links	P7M10029	P7M10029
VT connection for VRT4		
3 Flexible links	P7M10030	/
Busbar Installation		
1 tube of silicone grease	51191816f0	51191816f0
1 cleaning wipe	AAV27065	AAV27065
Operating handle	P7M17079	P7M17079

Life Is On | Schneider Electric

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