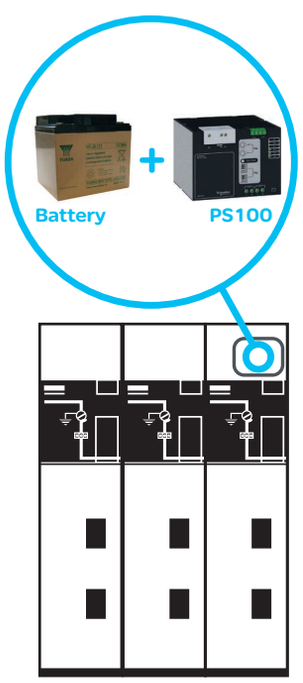
PS100

High-reliability power supply

PM100592

DC power supply solution for applications which require the voltage to be maintained in the event of a pro-longed power failure.
• Simple maintenance with a single battery
• Remote battery monitoring
• Designed for severe environments with a high level of insulation (IEC 60 255-5 – 10 kV)

PM102306



Références

PS100-24V	EMS58580	Power unit 12V, 24V
PS100-48V	EMS58581	Power unit 12V, 48V
Bat24AH	EMS58582	10 year battery life 12V - 24 Ah
Bat38AH	EMS58583	10 year battery life 12V - 38 Ah

PS100 DC power supply with battery

Applications for MV substation

The PS100 power supply unit provides enough power to supply:
- The circuit breaker and switch motor mechanisms on MV cubicles, trip coils and the main LV switchboard lead circuit-breakers.
- The telecommunications equipment (eg: radio, modem)
- The MV substation supervisory control systems (Remote control and monitoring, automatic transfer system, etc)
- The protection relays, fault detectors and other MV substation electronic components

High-reliability power supply

The power unit, combined with a battery, ensures high availability of the backup power supply, even in the event of a power failure. The power unit:
- Includes a battery charger with optimised temperature-dependent electronic control
- Stops battery charging before deep discharge
- Regularly carries out a battery check
- Measures battery ageing
- Forwards information on availability of the power supply via a Modbus RJ45 communication port and output relays

Avantages

Only one battery

Traditional battery chargers require several batteries in series to produce 24 V and 48 V voltages, which complicates replacement of the battery packs. These should consist of 12 V modules adjusted to one another.

The PS100 only uses one battery, speeding up replacement. The battery is a standard 12 V sealed, maintenance-free lead battery with a 10-year service life.
It can be purchased easily, anywhere in the world.

High availability

The PS100 provides independent operation for up to 48 hours. The battery capacity should be selected to comply with the required hold time. For example, a 38 Ah battery provides 12 hours independent operation for a switchboard including 4 Sepam protection relays and a remote control and monitoring device.

To ensure reliability of the backup power supply, the PS100 tests the battery on every cycle, optimises its charging and warns of any anomaly. Maintenance is made easier by transmission of alarms and date-stamped information such as battery life and status, output voltage values and power failures.

For remote monitoring of the power supply using WEB pages, SMS messages or communication protocols, it is advisable to use the Easergy MV substation remote monitoring unit.

Compliant with standard NF C 13100, the PS100 holds a reserve energy source for resetting the circuit-breakers with a deliberate manual action (button on front) after an extended power interruption. For better availability, a redundant solution is possible by connecting 2 power supplies in parallel.

Designed for severe environments

With 10 kV insulation, electronic protection against overloads and overvoltages and automatic restarting after a fault, the PS100 is ideal for isolated sites which are regularly struck by lightning.

Main characteristics

- DIN rail mounting in a cubicle low voltage compartment
- 2 output voltages:
- 12 VDC - 18 W continuous / 100 W 20 s (for communication, modem, radio, etc)
- 48Vdc or 24 Vdc - 300W / 1 minute (for switchgear operating mechanism motors) and 90 W continuous (for protection relays, electronic devices, etc)
- Modbus RJ45 communication port
- 2 output relays (mains voltage present, Battery OK)
- LED diagnosis
- A 12 V sealed lead battery – 10 years service life (24 Ah to 40 Ah)
- Redundancy possible by connecting a second PS100 in parallel, ensuring high availability
- - 40°C to + 70°C operating temperature
- Dimensions : 125 x 165 x 160 mm (H x W x D mm)

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Alimentation		PS100-48V	PS100-24V
Input voltage Single	phase connection (N-L1)	~ 110V to 240V, +10%, -15%, 50 Hz and 60Hz (+/-5%) = 110V, +20%, -20%	
	Limits	380 V ac/dc	
	Protection	Electronic protection against reverse polarity, overvoltage, overload and short-circuits Automatic restarting after a fault	
VDC output	Output voltage	48 Vdc ± 10%	24 Vdc ± 10%
	Output current	2 A rated 8 A for 15 s , 17 A peak for 50 ms	4 A rated 16 A for 15 s , 25 A peak for 50 ms
	Power	90 W without battery, 300 W (1 min) with battery	
	Protection	Electronic protection. Automatic restarting after a fault	
	Limits	Without battery the output power is 90 W	
	Redundancy	by connecting a second PS100 in parallel, ensuring high availability	
12 V output – radio	Output voltage	12Vdc -10% + 25%	
	Output current	1.5A rated 8A 20s	
	Power	18W / 100W 20s	
	Protection	Electronic protection. Automatic restarting after a fault	
	Limits	Limit A limit dedicated to use of a radio is configured to avoid the battery discharging (1.5 A in transmission mode 3 min, 8 A peak once a minute)	
Battery	Redundancy	Sealed lead battery - no risk of explosion or leaks – maintenance-free	
	Capacity	24 Ah to 38 Ah. 2 models are available: 24 Ah and 38 Ah. For other capacities see your supplier	
	Independent	Operation depends on the charge. Normal use: up to 16 hrs with 10 switchgear opening and closing cycles	
	Monitoring	• protection against deep discharges • battery test at regular intervals • battery fault indication • capacity indication by communication	
	Charging time	<24 hrs	
	Standard service life	10 years	
	Backup energy source	A backup energy source is available to reset the circuit-breakers with a deliberate manual action (button on front) after an extended power interruption. Optional backup source 300 W – 1 min	
Auxiliary contacts	2 Volt-free contacts	Battery “ON” and “Mains present”	
	Alarm feedback type relay – breaking capacity	2A 24V, 1A 48V , 0,15A 220V	
Local HMI			
LEDs		Mains AC voltage absence	
		Battery fault: at end of life, needs replacing	
		PS100 operating status (watchdog)	
	24V ⎓	24/48 VDC output voltage presence	
	12V ⎓	12 VDC output voltage presence	
		Modbus communication indicator	
Test/ Reset pushbutton	PS100 ON	Restart a battery test	
	PS100 OFF	Restart the backup energy source after an extended power interruption	
Communication and Monitoring			
Protocol	Modbus	Modbus RS 485 protocol - Address configured using 2 thumbwheels	
Connector	RJ45	2	
Data exchanged	Status information	• Mains AC voltage presence • Battery status (disconnected, or faulty, capacity available, optional backup source) • PS100 Overall operating status (Ready/Internal fault) • Status of the 12 V, 24 V or 48 V output voltages • Battery in deep discharge or on backup source • Charging indication • Reset	
	Settings	• 2 AC voltage thresholds (low threshold and cut-off threshold) • Critical discharge threshold, backup energy threshold • Battery test frequency • Backup energy ON/OFF option	
	Commands	• Restart 24 V/48 V (Backup energy)	
	Time-stamped events	100 events	
Characteristics (Extracts)			
Dielectric	IEC 60 255-5	Insulation (50 Hz/1 min): 10 KV Wave (1.2/50 µs): 20 KV	
Electromagnetic (extract)	IEC 61 000-4-4	(level 4) 4KV CM; 5kHz - 100 Khz	
Climatic	IEC 61 000-4-8	(level 5) 100A/m continuous; 1000 A/m 1 - 3s	
Mechanical	IEC 61 000-4-12	(level3) 100kHz, 2kV CM, 1kV DM	
		-40°C +70°C Operation.. -40°C +85°C Storage	
	Size	125x165x160 mmv(HxLxP)	
	Weight	2,8 kg	
	IEC 60 068-2-5	Vibration 10 to 500Hz : 2g	
	IEC 60529	IP 20 IK 7	
	Battery size	Bat24Ah : 125x175x166 (HxLxP)	
		Bat38Ah : 170x165x197 (HxLxP)	
Sécurity	IEC 60255-5		
Energy efficiency = 92%	≥ 92%		

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