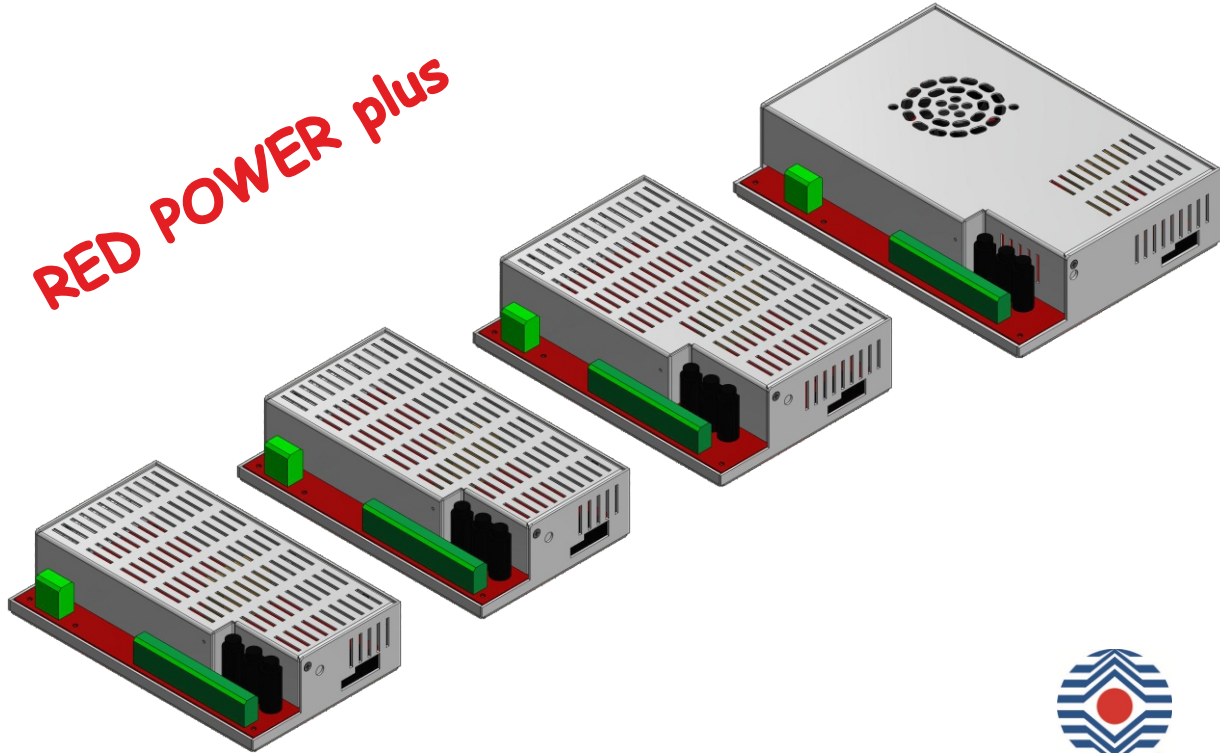


CODE: Modules EN54M series v.1.0/III
TYPE: Power supply modules for built-in fire alarm systems and smoke and heat control systems.

EN



"This product is suitable for the systems designed in compliance with the standards EN 54-4 and EN 12101-10"

Functional requirements	Requirements according to standards	Power supplies EN54M series
Two independent power sources	YES	YES
External Power Supply failure indication	YES	YES
Two independent power supply outputs protected against short-circuit	YES	YES
Temperature-compensated battery charging	YES	YES
Measurement of the resistance of the battery circuit	YES	YES
Low battery indication	YES	YES
Recharging the battery to 80% of the rated capacity within 24 hours	YES	YES
Deep discharge battery protection	YES	YES
Short-circuit protection of battery terminals	YES	YES
Charging circuit failure indication	YES	YES
Short-circuit protection	YES	YES
Overload protection	YES	YES
Output of collective failure ALARM	YES	YES
EPS technical output	YES	YES
Low output voltage indication	-	YES
High output voltage indication	-	YES
Indication of power supply failure	-	YES
Overvoltage protection	-	YES
Input of an external failure indication EXTi	-	YES

PSU features

- Built-in power supply module
- In accordance with standards: EN 54-4, EN12101-10
- 27,6 V DC uninterruptible power supply
- available versions with **2 A/3 A/5 A/10 A** current efficiencies
- available versions with space for **7 Ah – 65 Ah** batteries
- independently protected outputs AUX1 and AUX2
- DIN rail mounting using additional EN54M-DIN1 bracket (optional equipment)
- cooperation with EN54C-LB4 and EN54C-LB8 fuse modules (optional equipment)
- cooperation with EN54C-LS4 and EN54C-LS8 sequential modules (optional equipment)
- optical indication – LED panel EN54M-LED (option)
- high efficiency (up to 89%)
- low level of voltage ripple
- microprocessor-based automation system
- measurement of the resistance of the battery circuit
- automatic temperature-compensated charging
- automatic battery test
- two-stage battery charging process
- accelerated battery charging
- monitoring of the continuity of the battery circuit
- monitoring of the battery voltage
- monitoring of charging and maintenance of the batteries
- deep discharge battery protection (UVP)
- battery overcharge protection
- the LoB low battery voltage indication
- battery output protection against short-circuit and reverse connection
- output voltage control
- fuse monitoring of AUX1 and AUX2 outputs
- relay output of collective failure ALARM
- EPS relay output indicating 230 V power loss
- the EXTi input of external failure
- protections:
 - SCP short-circuit protection
 - OLP overload protection
 - OVP overvoltage protection
 - Surge protection
- convection cooling (forced only in the EN54M-10Axx)
- warranty - 3 years from the production date



To be able to install module of PSU in the fire alarm system, it must be placed in enclosure of appropriate design and make complementary examinations to achieve certificate EN54-4+A1+A2 or PN-EN12101-10+AC in accredited institution.

Buffer power supply modules has been designed for an uninterrupted supply of fire alarm systems, smoke and heat control systems, fire protection equipment and fire automatics requiring stabilized voltage of 24 V DC ($\pm 15\%$). The power supplies are fitted with two independently protected AUX1 and AUX2 outputs, which provide a voltage of **27,6 V DC** and the total current efficiency depending on the version:

Built-in power supply module model	Battery	Continuous operation $I_{max a}$	Instantaneous operation $I_{max b}$
EN54M-2A7	7,2 Ah	1,6 A	2 A
EN54M-2A7-17	7÷20 Ah	1,2 A	
EN54M-3A7-17	7÷20 Ah	2,2 A	3 A
EN54M-3A17-40	17÷45 Ah	1,2 A	
EN54M-5A7-17	7÷20 Ah	4,2 A	5 A
EN54M-5A17-40	17÷45 Ah	3,2 A	
EN54M-5A40-65	40÷65 Ah	2,4 A	
EN54M-10A17-40	17÷45 Ah	8,2 A	10 A
EN54M-10A40-65	40÷65 Ah	7,4 A	

In case of power loss, the PSU switches to battery power, providing uninterruptible power supply.

The power supply modules units works with maintenance-free lead acid batteries made with AGM technology or gel technology.

EN54M series power supplies module
Power supplies for fire alarm systems 27,6 V DC



Functional class EN 12101-10:2007	A
Mains supply	~230 V; 50 Hz
Efficiency	89% max
Output voltage at 20 °C	22,0 V+ 27,6 V DC – buffer operation 20,0 V+ 27,6 V DC – battery-assisted operation
Maximal resistance of the battery circuit	300m Ohm
Ripple voltage (max.)	30÷150mVp-p max.
Current consumption by the PSU during battery-assisted operation	52 ÷ 85mA
Coefficient of temperature compensation of the battery voltage	-36mV/ °C (-5 °C ÷ 40 °C)
The LoB low battery voltage indication	U _{BAT} < 23 V, during battery mode
Overvoltage protection OVP	U>32 V±2 V, automatic recovery
Short-circuit protection SCP	F _{AUX1} , F _{AUX2} melting fuse (failure requires fuse replacement)
Overload protection OLP	105-150% of power supply, automatic recovery
Battery circuit protection SCP and reverse polarity connection	F _{BAT} melting fuse (failure requires fuse replacement)
Deep discharge battery protection UVP	U<20 V (± 2%) – disconnection of the batteries
Technical outputs:	- relay type: 1 A@ 30 V DC /50 V AC - 10s time lag.
- EPS FLT; indicating AC power failure	
- ALARM; indicating collective failure	- relay type: 1 A@ 30 V DC /50 V AC
EXTi technical inputs	Closed input – no indication Open input - alarm
Optical indication:	- LEDs on the PCB of the power supply unit
Additional equipment (not included)	- fuse modules: EN54C-LB4, EN54C-LB8 - sequential modules: EN54C-LS4, EN54C-LS8 - the EN54M-LED external optical indication panel - bracket EN54M-DIN1
Operating conditions	2nd environmental class (EN12101-10:2007), -5 °C+75 °C
Certificates, declarations, warranty	Certificate of constancy of performance CNBOP-PIB No 1438-CPR-0630 CE, RoHS, 3 years from the production date
Notes:	Convictional cooling (fan cooling only for EN54M-10A version)

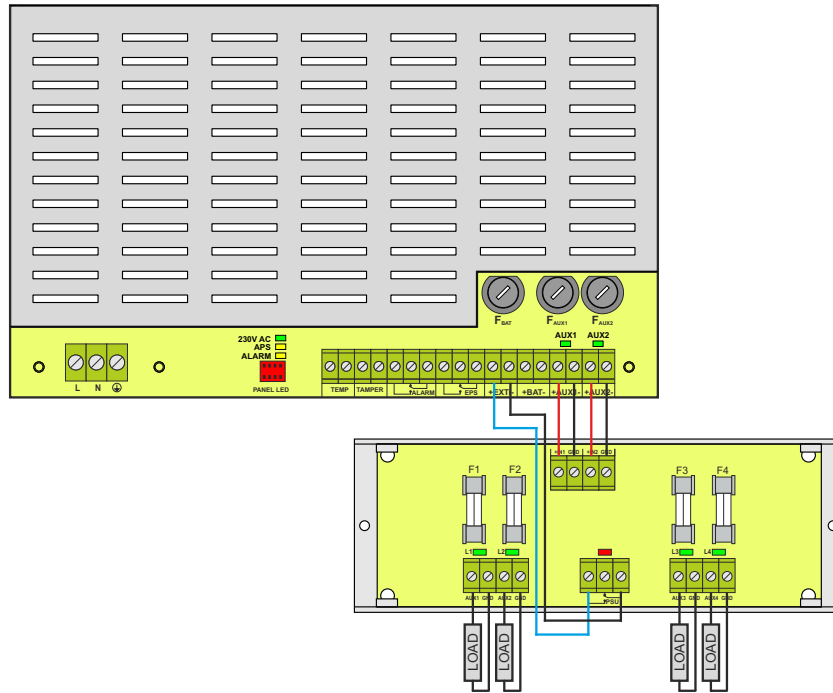
	PSU power	Output current I_{max b}	Output current I_{max a}	Charging current	Operation with battery	Dimensions WxHxD [mm]
EN54M-2A7	56,8 W	2 A	1,6 A	0,4 A	7,2 Ah	200 x 120 x 48
EN54M-2A7-17			1,2 A	0,8 A	7-20 Ah	
EN54M-3A7-17	85,2 W	3 A	2,2 A	0,8 A	7-20 Ah	
EN54M-3A17-40			1,2 A	1,8 A	17-45 Ah	
EN54M-5A7-17	142 W	5 A	4,2 A	0,8 A	7-20 Ah	204 x 141 x 52
EN54M-5A17-40			3,2 A	1,8 A	17-45 Ah	
EN54M-5A40-65			2,4 A	2,6 A	40-65 Ah	
EN54M-10A17-40	284 W	10 A	8,2 A	1,8 A	17-45 Ah	237 x 168 x 55
EN54M-10A40-65			7,4 A	2,6 A	40-65 Ah	

Fuse modules EN54C-LB4 and EN54C-LB8.

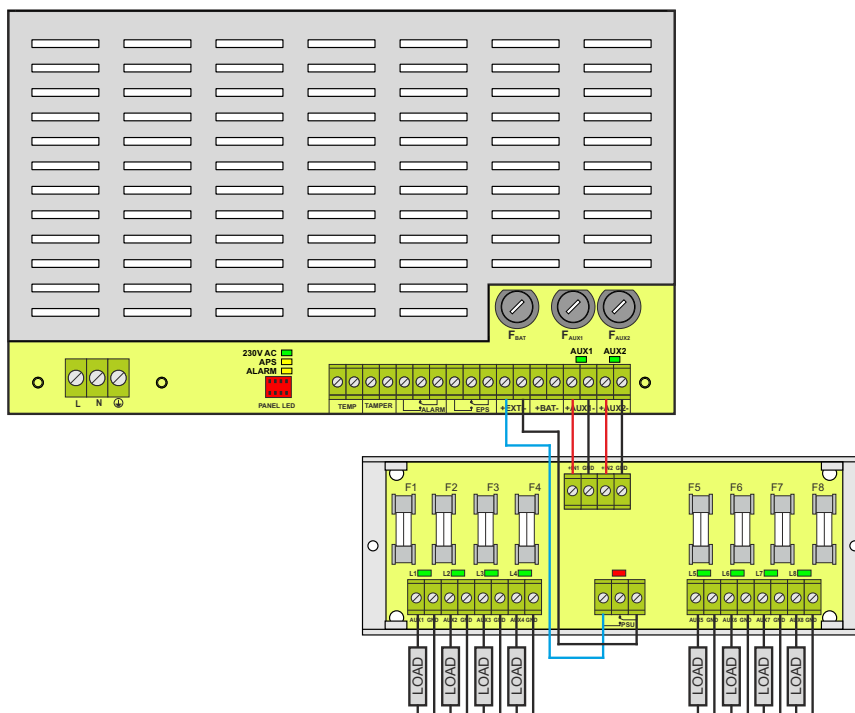
Fuse modules EN54C-LB4 and EN54C-LB8 allow to connect 4 or 8 receivers to the PSU. Output state is indicated by green LEDs.

Blown fuse signal is transmitted to the input of collective failure EXTi (ALARM) and saved in the internal memory of PSU.

The PSU's relay output can also be used for remote control, including external optical indication.



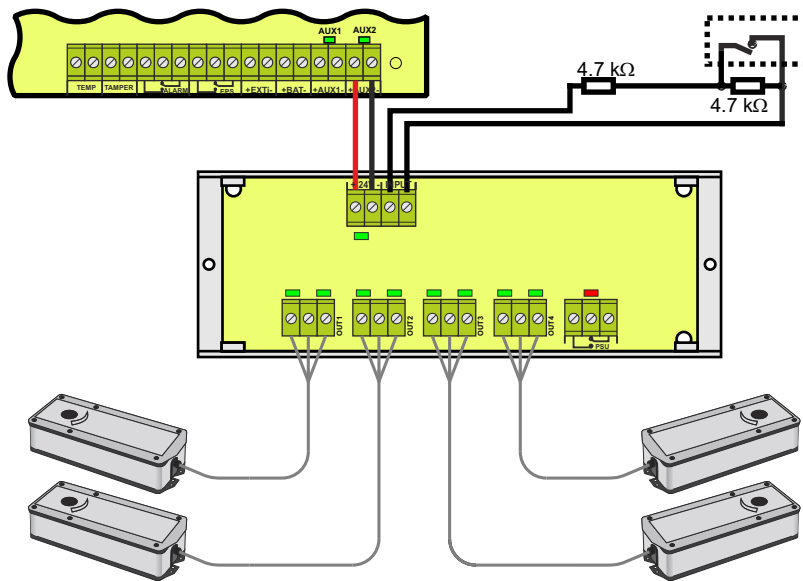
Example of a connection with the fuse module EN54C-LB4.



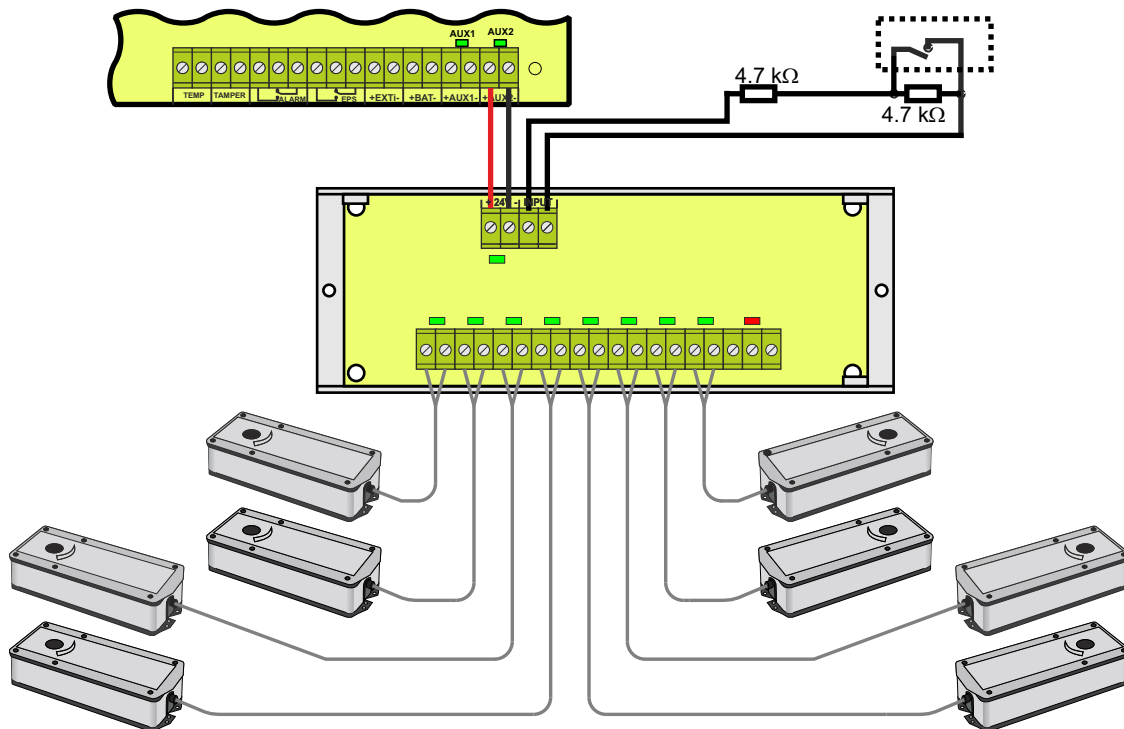
Example of a connection with the fuse module EN54C-LB8.

EN54C-LS4 and EN54C-LS8 sequential modules.

The sequential modules are designed for use with electric actuators without return spring (EN54C-LS4) and with electric actuators with return spring (EN54C-LS8) used for fire dampers and smoke vents. When switching on the electric actuator, a short-term current surge, exceeding its rated current, may occur. If multiple electric actuators are connected, the above-mentioned surge current poses a risk of incorrect operation of the power supply (e.g. triggering the protection of output circuit), despite not exceeding the current capacity of the power supply. The sequential switching module causes the receivers connected to its outputs to be sequentially switched, with a delay of 100 ms. Thanks to this solution, the surge current is reduced to the value ensuring correct operation of the power supply.



Example of connection of the EN54C-LS4 sequential module.



Example of connection of the EN54C-LS8 sequential module.