

EN54-4 CERTIFIED / SBF110:8 APPROVED BATTERY BACKUP

EN54 FLX M



The battery backup can be mounted on a wall or in a 19" rack.

Technical specifications

These technical specifications are subject to change without notice.

Name, article number, e-number and certificate number

Name	Article number	E-number
EN54 24V 5A FLX M	FM01P20024P050-EN54	5213551
EN54 24V 10A FLX M	FM01P20024P100-EN54	5213552
EN54 24V 15A FLX M	FM01P20024P150-EN54	5213553
EN54 24V 25A FLX M	FM01P20024P250-EN54	5213554

Area of use

EN54 powers fire alarms with 24 V DC. The rectifier in the power supply converts 230 V AC down to 24 V DC and supplies power to all important parts of the fire alarm system. Batteries continue to power the fire alarm system when the power goes down. EN54 power supply is certified to be used in security facilities that must meet EN54-4 or be approved for SBF 110:8.

Batteries drive, for example, the access system, when the power grid goes down.

Long life, energy efficient and support is available if something goes wrong, now or in 10 years.

FLEXIBILITY

EN54 can be mounted with 1-4 extra battery boxes. The battery boxes and shelves are connected via a 9-pin connector. The battery box has room for up to 2 pcs. 45 Ah batteries per battery box.

Fixed installation

The product is intended for fixed installation. The battery backup must be installed by a qualified installer.

Area of use

EN54 is used for fire alarm systems in public environments such as schools, offices and commercial properties.



REGULATIONS AND CERTIFICATIONS

Standards that product (s) meet and are approved for

EN54

EN 54-4:1997, EN 54-4:1997/AC:1999, EN 54-4:1997/A1:2002 and EN 54-4:1997/A2:2006.

EN50131-6 Security Grade 3 (1-3).

SBF

SBF 110:8

Certificate and certificate number

Certificate number, SBSC

No. 18-243

Requirements that the product meets

EMC:	EMC Directive 2014 / 30EU
Electricity:	Low voltage directive: 2014/35 / EU
CE:	CE directive according to: 765/2008



Translation table certified / marketed units

Certified name:	Marketed as:
NOVA 27 50-FLX	EN54 24V 5A FLX M
NOVA 27 100-FLX	EN54 24V 10A FLX M
NOVA 27 150-FLX	EN54 24V 15A FLX M
NOVA 27 250-FLX	EN54 24V 25A FLX M
Battery box 24V-FLX	Battery box 24V FLX M

RESERVE OPERATING TIMES, POWER OUTLET AND LOAD OUTPUT CURRENT

Load current EN54

EN54 24V 5A FLX M

Battery size	Maximum Power outlet i network operation (Imax. A)	Maximum recharge time to 80%
20 Ah	3.5 A	24 h
45 Ah	2 A	24 h
60 Ah	0.7 A	24 h
90 Ah	-	-
110 Ah	-	-
130 Ah	-	-
155 Ah	-	-
180 Ah	-	-
200 Ah	-	-
Maximum charging current with recharging (ie maximum charging current at the same time as batteries are charged): 4.5 Ah.		
Maximum power outlet in battery mode (same as Imax. B): 5A		

EN54 24V 10A FLX M

Battery size	Maximum Power outlet i network operation (Imax. A)	Maximum recharge time to 80%
20 Ah	8.5 A	24 h
45 Ah	7 A	24 h
60 Ah	5.7 A	24 h
90 Ah	4.2 A	24 h
110 Ah	2.9 A	24 h
130 Ah	1.4 A	24 h
155 Ah	0.1A	24 h
180 Ah	-	-
200 Ah	-	-
Maximum charging current with recharging (ie maximum charging current at the same time as batteries are charged): 9 Ah.		
Maximum power outlet in battery mode (same as Imax. B): 10A		

EN54 24V 15A FLX M

Battery size	Maximum Power outlet i network operation (Imax. A)	Maximum recharge time to 80%
20 Ah	12.6 A	24 h
45 Ah	11 A	24 h
60 Ah	9.7 A	24 h
90 Ah	8.2 A	24 h
110 Ah	6.9 A	24 h
130 Ah	5.4 A	24 h
155 Ah	4.1 A	24 h
180 Ah	2.5 A	24 h
200 Ah	1.3 A	24 h
Maximum charging current with recharging (ie maximum charging current at the same time as batteries are charged): 14 Ah.		
Maximum power outlet in battery mode (same as Imax. B): 15A		

EN54 24V 25A FLX M

Battery size	Maximum Power outlet i network operation (Imax. A)	Maximum recharge time to 80%
20 Ah	-	-
45 Ah	24 A	24 h
60 Ah	22 A	24 h
90 Ah	21.2 A	24 h
110 Ah	19.9 A	24 h
130 Ah	18.3 A	24 h
155 Ah	17.1 A	24 h
180 Ah	15.5 A	24 h
200 Ah	14.3 A	24 h
Maximum charging current with recharging (ie maximum charging current at the same time as batteries are charged): 25 Ah.		
Maximum power outlet in battery mode (same as Imax. B): 25A		

Reserve operating times for different alarm classes - overview

Alarm class	Spare operating time in the event of a power failure	Maximum number of hours of battery re-charging (80%)
EN54-4	-	24 h

Alarm class	Spare operating time in the event of a power failure	Maximum number of hours of battery re-charging (80%)
SBF110: 8	30 h + 10 min	24 h
EN50131-6 grades 1-2	12 h	72 h
EN50131-6 grade 3	24 h	24 h
SSF1014 Alarm class 1/2	12 h	72 h
SSF1014 Alarm class 3/4	30 h	24 h

The table shows the requirements for backup operating time and recharging of batteries for different alarm classes.

CIRCUIT BOARDS - TECHNICAL DATA

Technical data, motherboard: PRO 2

Info	Explanation
Short name:	PRO 2
Version:	2.11
Product description	Motherboard in battery backup with advanced functions and communication to parent system.
Own consumption, with relay card	Less than 210 mA. 100 mA without power stage with all relays retracted on external alarm card in normal mode.
Switching time from mains voltage to battery operation	When batteries are idle: <5 microseconds. When batteries are in charge cycle: 0 (none). Batteries rest for 20-day cycles, after which a charging cycle picks up and charges the batteries for 72 hours. If there is a power failure when batteries are in the charge cycle, there is no switching time.
Incoming electricity network	230 V AC -240 V AC, 47-63 Hz.
Fuse on mains	See table: Fuses.
Indication	Indicator diode on circuit board / cabinet door

ALARM

Alarm displayed on indicator LED on the front of the cabinet.

- Cell fault in battery or unconnected battery.
- Charger fault, undervoltage.
- Charger fault, overvoltage.
- Low system voltage, system voltage below 24.0 V in mains operation.
- Low battery voltage, below 24.0 V DC, or mains interruption.
- Power failure alarm.
- Sabotage switch. Optional for EN54.
- Fuse fault.

Expanding alarm functions are available via communication or with alarm cards.

Outputs

Info	Explanation
Alarm on alternating relay? (Yes No)	Yes
Alarm output protocol (communication protocol)	RS-485 and I ² C
Load outputs, number	2
Voltage at load output	27.3 V DC
Voltage limit, upper, on load output	27.9 V DC
Voltage limit, lower, on load output. For battery operation and disconnected mains voltage.	20 V DC
Priority (always voltage) load outputs (Yes / No)	
Maximum load, per output	10 A
Maximum load, total, (must not be exceeded).	10 A
Load output plus (+) secured? (Yes No)	
Load output minus (-) secured (Yes / No)	

Info	Explanation
Fuses on output	Yes, see table: Fuses.
Connection to buzzer? (Yes No)	

Fuses

Fuses	Type
1.5 A	F1.5A
3 A	T3A
5 A	T5A
10 A	T10A
15 A	T15A
25 A	T25A
Power supply fuse of 12V one	T2.5AH250V. Ceramic.
Mains fuse for 24 V units up to 15 A	T2.5AH250V. Ceramic.
Mains fuse for 24 v units over to 15 A	T4AH250V. Ceramic.

Protection

Info	Explanation
Deep discharge protection (Yes / No)	Yes. 12 V units protection at 10V, +/- 0.5 V. 24 V units protection at 20, +/- 0.5 V.
Surge protection (Yes / No)	Yes
Overtemperature protection (Yes / No)	Yes
Short circuit protected = (Yes / No)	Yes

Technical data, alarm cards for PRO 2 and PRO2 V3

Info	Explanation
Card name:	PRO2 larmkort
Version:	2.0
Product description	Alarm card for PRO2 and PRO2 V3 with alarm on alternating relay. All relays are normally energized and give an alarm in a voltage-free position.
self-consumption	40 mA

Manufactured in Milleteknik's factory in Partille, Sweden.

This translation is not verified and should be cross referenced with the swedish original before use.

Alarm overview

Alarm overview in alphabetical order	Relay 1 * / Alarm output 1	Relay 2 * / Alarm output 2	Relay 3 * / Alarm output 3	Relay 4 * / Alarm output 4	Communication (P1: 1-12)	Indicator LED on motherboard and LED on door.
Network outages	X	-	-	-	X	X
Fuse fault	-	X	-	-	X	X
Sabotage switch	-	-	-	X	X	X
Fan fault	-	-	-	-	X	-
Charger fault, overvoltage	-	X	-	-	X	X
Charger fault, undervoltage	-	X	-	-	X	X
Cell fault or unconnected battery	-	X	-	-	X	X
Low system voltage. **	-	-	X	-	X	X
Low battery voltage (<24.0 V DC) or power failure	-	X	-	-	X	X
Overtemperature	-	-	-	-	X	-
Undertemperature	-	-	-	-	X	-
Undertemperature	-	-	-	-	X	-
Short battery life left	-	-	-	-	X	-
Aged battery	-	X	-	-	X	X
Overcurrent 100%, minute average	-	-	-	-	X	-
Overcurrent 80%, daily average	-	-	-	-	X	-

Alarm overview in alphabetical order	Relay 1 * / Alarm output 1	Relay 2 * / Alarm output 2	Relay 3 * / Alarm output 3	Relay 4 * / Alarm output 4	Communication (P1: 1-12)	Indicator LED on motherboard and LED on door.
Overcurrent 175%, second average	-	-	-	-	X	-

* Alarm on potential-free relay contact.

** System voltage in mains operation is below 24.0 V.

350-232

POWER SUPPLY

Power supply - Technical Data DR-120-24

Sits in	
EN54 24V 5A FLX M	
Info	Explanation
Output voltage	27.3 V
Output current:	0 A - 5 A
Output voltage, ripple	80 mVp-p
Overvoltage	29 V - 33 V
Voltage recharge, ripple / current limitation	Less than 2 Vp-p
Efficiency	84%
Current limitation	15% - 150%
Constant voltage	+/- 1.0%
Regulatory accuracy	* / - 1.0%
Input current (230 V)	1,6 A
Mains voltage frequency	47 Hz- 63 Hz
Mains voltage	230 V AC - 240 V AC
Brand effect	120 W
Temperature range	-30°C - +70°C
Humidity range	20% - 90% RH non-condensed
The power supply is adapted and calibrated with the battery / hardware of the battery backup. Only power and calibrated power supplies may be used. Contact support when changing power supplies. Use of power supplies coming from another source may cause damage not covered by the warranty. Warranty is canceled if power supplies (from a source other than support / designated by support) that are not correctly calibrated are used.	

Power supply - Technical Data HRP-300-24

In:	
EN54 24V 15A FLX M	
EN54 24V 10A FLX M	
Info	Explanation
Output voltage	27.3 V
Output current	0 A - 14 A
Output voltage, ripple	150 mVp-p
Overvoltage	30 V - 34.8 V
Voltage recharge, ripple / current limitation	Less than 1.2 Vp-p
Efficiency	87%
Current limitation	105% - 135%
Constant voltage	+/- 0.5%
Regulatory accuracy	+/- 1.0%
Input current (230 V)	1,8 A
Mains voltage frequency	47 Hz- 63 Hz
Mains voltage	230 V AC - 240 V AC
Brand effect	336 W

Info	Explanation
Temperature range	-40 ° C - + 70 ° C
Humidity range	20% - 90% RH non-condensed
<p>The power supply is adapted and calibrated with the battery / hardware of the battery backup. Only power and calibrated power supplies may be used. Contact support when changing power supplies. Use of power supplies coming from another source may cause damage not covered by the warranty. Warranty is canceled if power supplies (from a source other than support / designated by support) that are not correctly calibrated are used.</p>	

Power supply - Technical Data HRP-600-24

In:
EN54 24V 25A FLX M

Info	Explanation
Output voltage	27.3 V
Output current	0 A - 27 A
Output voltage, ripple	150 mVp-p
Overvoltage	30 V - 34.8 V
Voltage recharge, ripple / current limitation	Less than 1.2 Vp-p
Efficiency	88%
Current limitation	105% - 135%
Constant voltage	+/- 0.5%
Regulatory accuracy	+/- 1.0%
Input current (230 V)	3,6 A
Mains voltage frequency	47 Hz- 63 Hz
Mains voltage	230 V AC - 240 V AC
Brand effect	648 W
Temperature range	-30°C - +70°C
Humidity range	20% - 90% RH non-condensed
<p>The power supply is adapted and calibrated with the battery / hardware of the battery backup. Only power and calibrated power supplies may be used. Contact support when changing power supplies. Use of power supplies coming from another source may cause damage not covered by the warranty. Warranty is canceled if power supplies (from a source other than support / designated by support) that are not correctly calibrated are used.</p>	

TECHNICAL DATA ENCLOSURES

Enclosures - Technical Data FLX M

Info	Explanation
Name	FLX M
Enclosure class	IP 32
Measure	Height: 224 mm, width 438 mm, depth 212 mm
Height units	5 HE
Mounting	Wall or 19 "rack
Ambient temperature	+ 5 ° C - + 40 ° C. For best battery life: + 15 ° C to + 25 ° C.
Environment	Environmental class 1, indoors. 20% ~ 90% relative humidity
Material	Powder coated sheet
Color	Black
Cable entries, number	4
Batteries that fit	2 pieces 12 V, 20 Ah.
Fan	Yes

LINK TO THE LATEST INFORMATION

Products and software are subject to updates, you will always find the latest information on our website.

EN54

All information is published with the reservation of possible errors.

WARRANTY, SUPPORT, COUNTRY OF MANUFACTURE AND COUNTRY OF ORIGIN

Warranty 5 years

The product has a five-year warranty, from the date of purchase (unless otherwise agreed). Free support during the warranty period is reached at support@milleteknik.se or telephone, +46 31-34 00 230. Compensation for travel and or working hours in connection with the location of faults, installation of repaired or replaced goods is not included in the warranty. Contact Milleteknik for more information. Milleteknik provides support during the product's lifetime, however, no later than 10 years after the date of purchase. Switching to an equivalent product may occur if Milleteknik deems that repair is not possible. Support may be added (at Milleteknik's discretion) after the warranty period has expired.

Support

Do you need help with installation or connections? Our support phone is available: Monday-Thursday 08: 00-16: 00 and Fridays 08: 00-15: 00. Telephone support is closed between 11: 30-13: 15.

You can also send e-mail, we respond, on weekdays, usually in 24 hours.

Phone: +46 31-340 02 30

SPARE PARTS

Support handles questions about spare parts, see contact information above.

Country of manufacture

Country of manufacture / country of origin is Sweden. For more information, contact your seller.

Designed and produced by: Milleteknik AB

Designed and produced by Milleteknik AB

BATTERIES - RECOMMENDED, NOT INCLUDED

Batteries are not included they are sold separately

Batteries are sold separately.

Battery combinations

Battery capacity (Ah)	Battery type	Number of batteries	Batteries in unit
20 Ah	20 Ah	2 pcs	2 in Battery Backup
45 Ah	45 Ah	2 pcs	0 in Battery Backup 2 in Battery Box 1
65 Ah	20 Ah + 45 Ah	4 st	2 in Battery Backup 2 in Battery Box 1
90 Ah	45 Ah	4 st	0 in Battery Backup 2 in Battery Box 1 2 and Batteribox 2
110 Ah	20 Ah + 45 Ah	6 st	2 in Battery Backup 2 in Battery Box 1 2 and Batteribox 2

Battery capacity (Ah)	Battery type	Number of batteries	Batteries in unit
135 Ah	45 Ah	6 st	0 in Battery Backup 2 in Battery Box 1 2 and Batteribox 2 2 and Batteribox 3
155 Ah	20 Ah + 45 Ah	8 st	2 in Battery Backup 2 in Battery Box 1 2 and Batteribox 2 2 and Batteribox 3
180 Ah	45 Ah	8 st	0 in Battery Backup 2 in Battery Box 1 2 and Batteribox 2 2 and Batteribox 3 2 and Batteribox 4
200 Ah	20 Ah + 45 Ah	10 pieces	2 in Battery Backup 2 in Battery Box 1 2 and Batteribox 2 2 and Batteribox 3 2 and Batteribox 4

Battery combinations

Battery combinations possible with
EN54 5A FLX M
EN54 10A FLX M
EN54 15A FLX M
EN54 25A FLX M

Battery combinations for FLX M and battery box 24V FLX M

Battery capacity	Number of batteries	Unit + battery box
20 Ah	2 pcs 20 Ah	24V 5A-10A FLX M
45 Ah	2 pcs 45 Ah*	24V 5A-10A FLX M Battery box 24V FLX M
65 Ah	2 pcs 20 Ah 2 pcs 45 Ah	24V 5A-10A FLX M Battery box 24V FLX M
90 Ah	2 pcs 45 Ah* 2 pcs 45 Ah*	24V 5A-10A FLX M Battery box 24V FLX M
110 Ah	2 pcs 20 Ah 2 pcs 45 Ah* 2 pcs 45 Ah*	24V 5A-10A FLX M Battery box 24V FLX M Battery box 24V FLX M
135 Ah	2 pcs 45 Ah* 2 pcs 45 Ah* 2 pcs 45 Ah*	24V 5A-10A FLX M Battery box 24V FLX M Battery box 24V FLX M
155 Ah	2 pcs 20 Ah 2 pcs 45 Ah* 2 pcs 45 Ah* 2 pcs 45 Ah*	24V 5A-10A FLX M Battery box 24V FLX M Battery box 24V FLX M Battery box 24V FLX M

Battery capacity	Number of batteries	Unit + battery box
180 Ah	2 pcs 45 Ah*	24V 5A-10A FLX M
	2 pcs 45 Ah*	Battery box 24V FLX M
	2 pcs 45 Ah*	Battery box 24V FLX M
	2 pcs 45 Ah*	Battery box 24V FLX M
200 Ah	2 pcs 20 Ah	24V 5A-10A FLX M
	2 pcs 45 Ah*	Battery box 24V FLX M
	2 pcs 45 Ah*	Battery box 24V FLX M
	2 pcs 45 Ah*	Battery box 24V FLX M
	2 pcs 45 Ah*	Battery box 24V FLX M

It is the installer's responsibility to check that the battery combinations are possible.

* Batteries in battery box.

Certified with battery type

The device is certified with a UPLUS battery that must be used to maintain the certificate.

20 Ah, 12 V AGM battery

Fits in	Number of batteries
EN54 24V 5A FLX M	2
EN54 24V 10A FLX M	2
EN54 24V 15A FLX M	2
EN54 24V 25A FLX M	2

Battery type	V	Ah
Maintenance-free AGM, lead-acid battery.	12 V	20 Ah

10+ Design life * battery

Article number	E-number	Article name	Terminal	Measure. Height width depth	Weight per piece	Make
MT113-12V20-01	5230538	UPLUS 12V 20Ah 10+ Design Life battery	M5 Bult	182x77x168 mm	6.0 kg	UPLUS

* Design Life is the durability this year for unused battery. Environmental factors such as heat and load affect service life. Batteries that have a durability (+10 Design lLife) of 10+ years usually need to be replaced after 4-5 years.

45 Ah, 12 V AGM battery

Fits in	Number of batteries

Battery type	V	Ah
Maintenance-free AGM, lead-acid battery.	12 V	45 Ah

10+ Design life * battery

Article number	E-number	Article name	Terminal	Measure. Height width depth	Weight per piece	Make
MT113-12V45-01	5230546	UPLUS 12V 45Ah 10+ Design Life battery	M5 Bult	197x165x170 mm	14.5 kg	UPLUS

* Design Life is the durability this year for unused battery. Environmental factors such as heat and load affect service life. Batteries that have a durability (+10 Design lLife) of 10+ years usually need to be replaced after 4-5 years.

Reserve operating times for different alarm classes - overview

The table shows the requirements for backup operating time and recharging of batteries for different alarm classes.



IMPORTANT

This is a guide and all times are approximate and may differ from actual times. Load, temperature and other factors come into play, which is why exact time can not be provided.

Applies to new batteries.

Amperage and batteries vary with configuration, check if the configuration can handle batteries and amperage.

Backup operating times 24 V units - without battery box

Medium current	7.2 Ah	14 Ah	28 Ah	45 Ah
Loading	Backup operating time (approx.), Minutes			
0.5 A	450	820	1650	2350
1 A	260	485	970	1460
2 A	150	280	560	920
4 A	90	165	335	550
6 A	67	125	245	405
8 A	57	105	210	350
10 A	44	80	160	270
12 A	38	70	140	235
14 A	33	60	120	200
16 A	28	50	100	170
18 A	25	45	89	150
20 A	23	42	84	142

Backup operating times 24 V units - with battery box, 28 Ah - 70 Ah

Medium current	28 Ah	42 Ah	65 Ah	70 Ah
-	4 batteries (14 Ah)	6 batteries (14 Ah)	4 batteries (20Ah + 45 Ah)	10 batteries (7 Ah)
Loading	Backup operating time (approx.), Minutes			
0.5 A	1650	2090	5574	3440
1 A	970	865	3252	2118
2 A	560	815	1770	1329
4 A	335	490	930	864
6 A	245	360	600	605
8 A	210	310	426	544
10 A	160	240	342	414
12 A	140	210	270	363
14 A	120	180	234	311
16 A	100	150	204	286
18 A	90	130	150	254
20 A	84	126	138	241

Backup operating times 24 V units - with battery box, 90 Ah - 155 Ah

Medium current	90 Ah	110 Ah	135 Ah	155 Ah
-	4 batteries (45 Ah)	6 batteries (20 Ah + 45 Ah)	6 batteries (45 Ah)	8 batteries (20 Ah + 45 Ah)
Loading	Backup operating time (approx.), Minutes			
0.5 A	4705	5796	7056	8215
1 A	2928	3582	4392	5070
2 A	1836	2247	2754	3230
4 A	1183	1438	1762	2018
6 A	788	959	1175	1345

Medium current	90 Ah	110 Ah	135 Ah	155 Ah
8 A	748	861	1048	1150
10 A	570	689	839	920
12 A	499	603	699	765
14 A	427	516	629	655
16 A	404	499	592	590
18 A	359	444	526	520
20 A	340	420	498	495

Backup operating times 24 V units - with battery box, 180 Ah - 225 Ah

Medium current	180 Ah	200 Ah	225 Ah
-	8 batteries (45 Ah)	10 batteries (20 Ah + 45 Ah)	10 batteries (45 Ah)
Loading	Backup operating time (approx.), Minutes		
0.5 A	9408	12972	11760
1 A	5856	7872	7320
2 A	3672	4548	4590
4 A	2365	2670	2945
6 A	1577	1780	1960
8 A	1500	1558	1800
10 A	1140	1246	1410
12 A	950	1038	1200
14 A	855	890	1055
16 A	810	902	995
18 A	715	802	885
20 A	680	722	840

Subject to typos.