

SSF1014 CERTIFIED BATTERY BACKUP WITH COMMUNICATION

NOVA FLX M



NOVA FLX M 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
NOVA 24V 15A FLX M	FM01P23024P150-SSF	5213639
NOVA 24V 25A FLX M	FM01P23024P250-SSF	5213640

About

is mainly used in safety systems where SSF 1014 approved battery backup is required or where the requirements are higher. Requirements such as better flexibility, more alarm functions, longer backup operating times or where the battery backup needs to handle higher loads.

The NOVA series is system certified according to SSF1014 together with most systems on the Swedish market. Milleteknik has the right to sell two different systems on the Swedish market; Sentrion NOVA The series has communication via RS485 to Sentrion S4, S4 DUO and CISS. Integra. Together with MOVEO kit (optional) there is RS232 communication with Integra MOVEO and MOVEO XL.

- SSF1014, Alarm class 1-3 approved battery backups / power supply.
- Controlled charging function.
- Qualified battery capacity test
- Can be supplemented with several different optional cards.
- Mounted on a wall or in a 19 "rack.
- Flexible battery capacity with battery boxes increases backup operating time.

FLEXIBILITY

NOVA FLX S can have an extra battery box. NOVA FLX M and NOVA FLX L with 1-4 extra battery boxes *. NOVA FLX M and NOVA FLX L with battery shelves in 19" rack *. * 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. Battery shelves have room for 2 pcs. 45 Ah batteries (Medium) and up to 2 pcs. 150 Ah batteries (Large) per each battery shelf.

FIXED INSTALLATION

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

Area of use

is mostly used for: Access control systems, fire alarms, burglar alarms, (integrated security systems), in public environments such as schools, offices and commercial properties.



The unit meets the requirements for installation in systems that must be SSF 1014 approved. SSF 1014 certificate is only valid for certification together with a higher-level system.



IMPORTANT

In order for the SSF 1014 certificate to be valid, only one (1) load output may be used.

Installation video



<https://www.milleteknik.se/nova-24-v-5-a-25-a-pro2-flx-l-installation-och-driftsattning/>

REGULATIONS AND CERTIFICATIONS

Standards that product (s) meet and are approved for

SSF

SSF1014 Alarm class 1-4 (burglar alarm).

SSF1014, Issue 5.

Certificate and certificate number

Certificate number, SBSC
No. 18-246
No. 20-117

Requirements that the product meets

EMC:	EMC Directive 2014 / 30EU
Electricity:	Low voltage directive: 2014/35 / EU
CE:	CE directive according to: 765/2008
Emission:	EN61000-6-: 2001 EN55022: 1998: -A1: 2000, A2: 2003 Klass B, EN61000-3-2: 2001
Immunity:	EN61000-6-2:2005, EN61000-4-2, -3, 4, -5, -6, -11 SS-EN 50 130-4:2011 Edition 2, EN50131-6



RESERVE OPERATING TIMES, POWER OUTLET AND LOAD OUTPUT CURRENT

Charging current for batteries and battery capacity

The unit reads the connected system load and charges the batteries with available residual current from the power supply. The device performs qualified* battery tests and notifies when batteries need to be replaced. The batteries are charged gently to extend their life and protection is available against overcharging.

12 V / 24 V	Maximum charging current for batteries
NOVA FLX M	6 A

The battery backup has controlled charging ** (controlled charging) which prevents batteries from being overcharged and extends their service life significantly. The NOVA series must be used with AGM batteries.

Battery capacity in 24 V units

24 V	Battery capacity	Maximum battery capacity with 1 battery box	Maximum battery capacity with 2 battery boxes	Maximum battery capacity with 3 battery boxes	Maximum battery capacity with 4 battery boxes
NOVA FLX M, 24 V	20 Ah (2 x 20 Ah)	65 Ah (4 x 20 Ah)	110 Ah (2 x 20 Ah + 2 x 45 Ah)	155 Ah (6 x 20 Ah + 2 x 45 Ah)	200 Ah (2 x 20 Ah + 8 x 45 Ah)

* Battery test is done with power resistor and the unit is tested and certified together with UPLUS 10+ Design life AGM batteries according to SSF1014. It is these batteries that must be used to maintain the certificate.

** Controlled charging means that when the batteries are fully charged, they will be disconnected electronically for standby mode for up to 20 days or when the batteries have reached 26.7 V (24 V). By discharging the batteries and charging them continuously (instead of never using them), the system extends the battery life by up to 50%. The batteries connect automatically in less than 50 microseconds.

Power outlet

	Unit without battery box	Unit with 1 battery box	Unit with 2 battery boxes	Unit with 3 battery boxes	Unit with 4 battery boxes
Battery	2 st 20 Ah	2 st 45 Ah / 2 st 20 Ah + 2 st 45 Ah	4 st 45 Ah / 2 st 20 Ah + 4 st 45 Ah	64 st 45 Ah / 2 st 20 Ah + 6 st 45 Ah	8 st 45 Ah / 2 st 20 Ah + 8 st 45 Ah
Max battery capacity	20 Ah	45 Ah / 65 Ah	90 Ah / 110 Ah	135 Ah / 155 Ah	180 Ah / 200 Ah
According to SSF1014, Alarm Class 1-2	1.5 A	3.6 A / 5.2 A	7.3 A / 9.0 A	11.1 A / 12.7 A	14.8 A / 16.5 A

	Unit without battery box	Unit with 1 battery box	Unit with 2 battery boxes	Unit with 3 battery boxes	Unit with 4 battery boxes
According to. SSF1014, Alarm Class 3-4	0.55 A	1.4 A / 2.0 A	2.9 A / 3.5 A	4.4 A / 5.0 A	5.9 A / 6.5 A
I _{max} A (max discharge current)	15 A	13 A / 13 A	13 A / 13 A	13 A / 13 A	13 A / 13 A
I _{max} b (max charging current)	15 A	15 A / 15 A	15 A / 15 A	15 A / 15 A	15 A / 15 A
I _{min} is always 0 A.					
Not all devices may be certified, see device certificate.					

	Unit without battery box	Unit with 1 battery box	Unit with 2 battery boxes	Unit with 3 battery boxes	Unit with 4 battery boxes
Battery	2 st 20 Ah	2 st 45 Ah / 2 st 20 Ah + 2 st 45 Ah	4 st 45 Ah / 2 st 20 Ah + 4 st 45 Ah	64 st 45 Ah / 2 st 20 Ah + 6 st 45 Ah	8 st 45 Ah / 2 st 20 Ah + 8 st 45 Ah
Max battery capacity	20 Ah	45 Ah / 65 Ah	90 Ah / 110 Ah	135 Ah / 155 Ah	180 Ah / 200 Ah
According to. SSF1014, Alarm Class 1-2	1.5 A	3.6 A / 5.2 A	7.3 A / 9.0 A	11.1 A / 12.7 A	14.8 A / 16.5 A
According to. SSF1014, Alarm Class 3-4	0.55 A	1.4 A / 2.0 A	2.9 A / 3.5 A	4.4 A / 5.0 A	5.9 A / 6.5 A
I _{max} A (max discharge current)	25 A	25 A / 25 A	25 A / 25 A	25 A / 25 A	25 A / 25 A
I _{max} b (max charging current)	30 A	30 A / 30 A	30 A / 30 A	30 A / 30 A	30 A / 30 A
I _{min} is always 0 A.					
Not all devices may be certified, see device certificate.					

Permitted average load according to SSF1014 Alarm class 1-4:

NOVA 24 V FLX M

Permitted average load according to SSF1014 Alarm class 1-4:	NOVA 24V 5A FLX M	NOVA 24V 10A FLX M	NOVA 24V 25A FLX M	NOVA 24V 25A FLX L
FLX M without battery box according to Alarm class 1-2 / 3-4	1.6 A / 0.55 A	1.6 A / 0.55 A	1.6 A / 0.55 A	1.6 A / 0.55 A
Including 1 pc. Battery box FLX M, according to Alarm class 1-2 / 3-4:	3.7 A / 1.5 A	3.7 A / 1.5 A	3.6 A / 1.4 A	3.6 A / 1.4 A
Including 2 pcs. Battery box FLX M, according to Alarm class 1-2 / 3-4:	-	7.4 A / 3A	7.3 A / 2.9 A	7.3 A / 2.9 A
Including 3 pcs. Battery box FLX M, according to Alarm class 1-2 / 3-4:	-	-	11.1 A / 4.4 A	11.1 A / 4.4 A
Including 4 pcs. Battery box FLX M, according to Alarm class 1-2 / 3-4:	-	-	-	14.8 A / 5.9 A

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
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.
- 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)	
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

Fuses	Type
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	-
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 LRS-150-24

In:	
Info	Explanation
Output voltage	27.3 V
Output current:	0 A - 6.5 A
Output voltage, ripple	200 mVp-p
Overvoltage	28.8 V - 33.6 V
Voltage recharge, ripple / current limitation	Less than 0.6 Vp-p
Efficiency	89%
Current limitation	110% - 140%
Constant voltage	+/- 0.5%
Regulatory accuracy	+ / - 1.0%
Input current (230 V)	1,7 A
Mains voltage frequency	47 Hz- 63 Hz
Mains voltage	230 V AC - 240 V AC
Brand effect	156 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>	

Power supply - Technical Data RSP-320-24

In:	
NOVA 24V 15A FLX M	
Info	Explanation
Output voltage	27.3 V
Output current	0 A - 13.4 A
Output voltage, ripple	150 mVp-p
Overvoltage	27.6 V - 32.4 V
Voltage recharge, ripple / current limitation	Less than 1.2 Vp-p
Efficiency	89%
Current limitation	105% - 135%
Constant voltage	+/- 0.5%
Regulatory accuracy	+/- 1.0%
Input current (230 V)	2 A
Mains voltage frequency	47 Hz- 63 Hz
Mains voltage	230 V AC - 240 V AC
Brand effect	321.6 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

Info	Explanation
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.

NOVA

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 descretion) 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

PRODUCT LIFE CYCLE, ENVIRONMENTAL IMPACT AND RECYCLING

The product is designed and constructed for a long service life, which reduces the environmental impact. The product's service life depends on, among other things, environmental factors, mainly ambi-

ent temperature, unforeseen load on components such as lightning strikes, external damage, handling errors, and more. Products are recycled by being handed over to the nearest recycling station or sent back to the manufacturer. Contact your distributor for more information. Costs that arise in connection with recycling are not reimbursed.



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
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

14 Ah, 12 V AGM battery

Fits in	Number of batteries
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Battery type	V	Ah
Maintenance-free AGM, lead-acid battery.	12 V	14 Ah

10+ Design life * battery

Article number	E-number	Article name	Terminal	Measure. Height width depth	Weight per piece	Make
MT113-12V14-01	5230537	UPLUS 12V 14Ah 10+ Design Life battery	Flat pin 6.3 mm	151x98x101 mm	4.2 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

Medium current	28 Ah	42 Ah	65 Ah	70 Ah
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
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.