

## PRODUCT SHEET / TECHNICAL DATA

### ECO FLX S



ECO FLX S The unit can be mounted on wall or in 19"-rack.

#### Technical specifications

These technical specifications are subject to change without notice.

#### Name, article number and e-number

Name	Article number	E-number (SV)
ECO 12V 10A FLX S	FS01C10112P100	52 136 44
ECO 24V 5A FLX S	FS01C10124P050	52 136 45
ECO 24V 10A FLX S	FS01C10124P100	52 136 46

#### About

The ECO series are reliable and smaller battery backups for use with access control systems, locking systems and other loads. The battery backups have controlled charging \*.

\* Controlled charging prevents batteries from being overcharged, which significantly extends their service life.

- For AGM batteries.
- Can be tested with only batteries connected.
- Has controlled charging for better operating economy.

#### Areas of use

Most used in:

#### Alarm

The device alarms for:

Undervoltage/low battery voltage.

#### Fixed installation

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

#### Test before installation of 230 V

"Cold start" means that the battery backup can be commissioned with only the batteries connected without the battery backup being connected to 230 V. This is practical if the installer is not a qualified electrician but still wants to be able to test the system.

## REGULATIONS AND CERTIFICATIONS

#### Requirements that the product meets

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



## EXPECTED OPERATING TIME IN THE EVENT OF A POWER FAILURE ( WITH NEW BATTERIES)

System voltage	Number of batteries	Battery type	Load: 0.5 A	Load: 1 A	Load: 2 A	Load: 4 A	Load: 6 A	Load: 8 A
12 V	2 pcs	7.2 Ah	24 h	12 h	5 h	2 h	1 h	30 min.
12 V	2 pcs	14 Ah	48 h	24 h	10 h	4 h	2 h	1.5 h
24 V	2 pcs	7.2 Ah	12 h	5 h	2 h	1 h	30 min.	15 min.
24 V	2 pcs	14 Ah	24 h	12 h	5 h	2 h	1 h	45 min.

## CIRCUIT BOARDS - TECHNICAL DATA

#### Technical data: CEO 3

#### CEO3-ECO

Info	Explanation
Article name	CEO3-ECO
Product description	CEO 3 is the next generation circuit board for simpler battery backups. Advanced functions that were not previously possible in simpler battery backups are now available as standard. CEO 3 is manufactured with fewer components than before, which reduces the environmental impact.
Measure	120 x 55 mm x 52 mm
Own consumption	50 mA
Fuses	See table: Fuses.
Outputs	Output: two load outputs.
Insurance	Load output: + secured.
Max load	Maximum load is 10 A per load output (T2A is mounted from the factory) and the card's total load must not exceed 16 A.
Alarm outputs	Alarm outputs: Sum alarm in case of fuse fault, see indication below. Alarm on potential-free relay contact.
Alarm	Undervoltage, lights up red in the event of a power failure until the battery voltage drops below the alarm limit.
Alarm via	Triggered load securing, potential-free shifting, CO / NO.
Indication	Display showing operating status, alarms and faults. Operating indication: one indication diode per load output +/- . Solid green light = normal operation.

## CONTROL ALARM LIMIT WITH JU2

### CONTROL ALARM LIMIT

Alarm for low battery voltage in battery operation can be controlled.

By jumpering JU2, the limit for when the unit should give an alarm can be lowered.

Alarms are given when the battery voltage in battery drops below the limit.

Low battery voltage alarm limit	JU2 with jumper <sup>a</sup> .	JU2 without jumper
12 V	12.0V	13.2V
24 V	24.0V	26.5V

<sup>a</sup>The unit is delivered with jumper on JU2

### FUSES

Unit	Fuse	Type	Explanation
All units	F1	T2,5A	Mains fuse
ECO 24V 5A FLX S.	F2, F6	T5A	Load fuse +
ECO 12V 10A FLX S. ECO 24V 10A FLX S.	F2, F6	T10A	Load fuse +
All units	F7	T16A	Battery fuse



### FUSE REPLACEMENT WARNING (A)

There is a risk of damage if the fuse is changed to a larger one than what the unit is delivered with. The function of the fuse is to protect the connected load and cables against damage and fire. It is not possible to change the fuse to a larger one to increase the power output.

## POWER SUPPLY

### Power supply - Technical Data LRS-150-12

In:	
ECO 12V 10A FLX S	
Info	Explanation
Output voltage	13,6 V
Output current	0 A - 12.5 A
Output voltage, ripple	150 mVp-p
Overvoltage	13,8 V - 16,2 V
Voltage recharge, ripple / current limitation	Less than 0.6 Vp-p
Efficiency	87.5%
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	150 W
Temperature range	-30°C - +70°C
Humidity range	20% - 90% RH non-condensed

Info	Explanation
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 LRS-150-24

In:
ECO 24V 5A FLX S

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
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 RSP-320-24

In:
ECO 24V 10A FLX S

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
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.	

## TECHNICAL DATA ENCLOSURES

### Enclosures - Technical Data FLX S

Info	Explanation
Name	FLX S
Enclosure class	IP 32

Info	Explanation
Measure	Height: 222 mm, width 437 mm, depth 145 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 pcs 7.2 Ah or 4 pcs 7.2 Ah.
Place for fan	Yes

## LINK TO THE LATEST INFORMATION

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

[ECO](#)

## WARRANTY, SUPPORT, COUNTRY OF MANUFACTURE AND COUNTRY OF ORIGIN

### Warranty

The product has a two-year warranty, from the date of purchase (unless otherwise agreed). Support during the warranty period can be reached at support@milleteknik.se or telephone, +46 31-34 00 230. Compensation for travel and / or working hours in connection with locating faults, installing 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 costs may (at Milleteknik's discretion) occur after the warranty period has expired.

### Support

Do you need help with installation or connection?

You will find answers to many questions at: [www.milleteknik.se/support](http://www.milleteknik.se/support)

Phone: +46 31-340 02 30

Support is open: Monday-Thursday 08:00-16:00, Fridays 08:00-15:00. Closed 11:30-13:15.

### SPARE PARTS

Contacted support for questions about spare parts.

### SUPPORT AFTER THE WARRANTY PERIOD

Milleteknik provides support during the life of the product, but no longer than 10 years after the date of purchase. Replacement for an equivalent product may occur if the manufacturer deems that repair is not possible. Costs for support and replacement are added after the warranty period has expired.

### Country of manufacture

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

Designed and produced by: Milleteknik AB

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## BATTERIES - RECOMMENDED, NOT INCLUDED

Batteries are not included they are sold separately

Batteries are sold separately.

### 7.2 Ah, 12 V AGM battery

Fits in	Number of batteries	
Battery type	V	Ah
Maintenance-free AGM, lead-acid battery.	12 V	7.2 Ah

10+ Design life \* battery

Article number	E-number	Article name	Terminal	Measure. Height width depth	Weight per piece	Make
MT113-12V07-01	5230536	UPLUS 12V 7.2Ah 10+ Design Life battery	Flat pin 6.3 mm	151 x 65 x 100 mm.	2.4 kg	UPLUS

\*Design life is the shelf life in years for an unused battery. Environmental factors such as heat and load affect the service life. Batteries that have a durability (+10 Design Life) of 10+ years usually need to be replaced after 5-6 years.

### 14 Ah, 12 V AGM battery

Fits in	Number of batteries	
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 shelf life in years for an unused battery. Environmental factors such as heat and load affect the service life. Batteries that have a durability (+10 Design Life) of 10+ years usually need to be replaced after 5-6 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

Subject to typos.