EN

ECO

ECO 12V 5A S

Publication date 2026-07-06

Table of Contents

1. ABOUT

The ECO series are reliable and small battery backups for use with access systems, locking systems and other loads. The battery backups have controlled charging* which prevents batteries from over-charging, which significantly prolongs their service life.

NOTICE

This unit should be installed on a wall or in a 19" rack, indoors.

The temperature must be 15 - 30 ° C.

Mains voltage must be disconnected during installation.

Only authorized persons should install and maintain the unit.

1.1. Installation video

https://www.milleteknik.se/eco-s-och-eco-m-installation-och-driftsattning/

1.2. Product Identification

Table 1. Product designation, article number and e-number.

Product designation	Article number	E-number (SE)
ECO 12V 5A S	SM01C10112P050	52 136 50

1.3. Revisions and the edition of this document

The current and most recently published edition of this document is available at www.milleteknik.com.

The validity of this document can not be guaranteed, as new editions are published without prior notice.

Original instructions for use: Swedish.[1].

Instructions for use, technical data and translations thereof may contain errors. It is always the responsibility of the installer to install the product in a safe manner.

1.3.1. Symbols

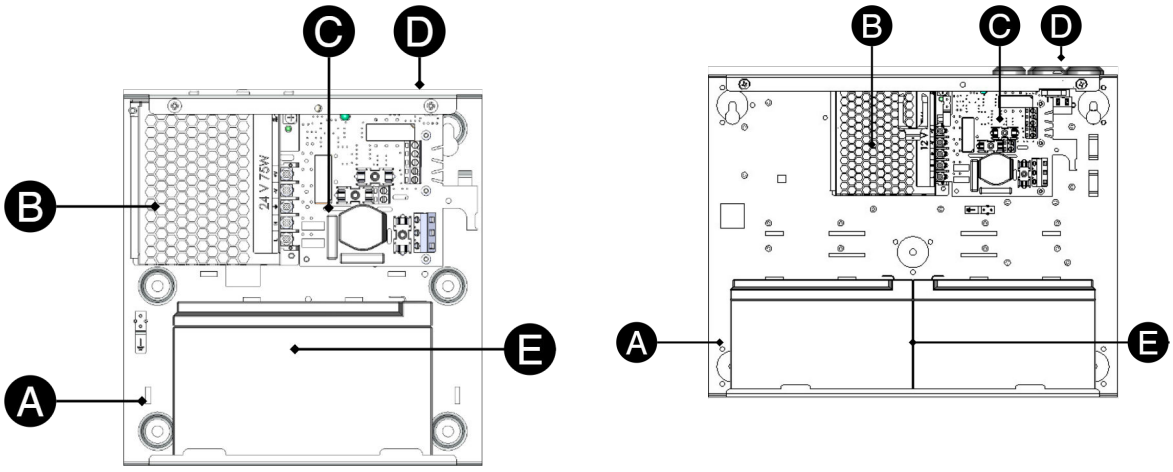
Table 2. Symbol Explanation

Symbols	Name	Explanation
	Warning	Risk of electric shock, improper installation or hot surfaces. Appears in some manuals
	Note	Used for supplementary information that clarifies the text.
	Caution/Important	Indicates the risk of equipment damage or malfunction. Also used for information that is important but not security-related
	Tips	Displays practical advice or shortcuts for installation, operation, or service.
	CE marking	The product complies with applicable EU directives and harmonised standards.
	Read the manual	Please read manual before installation and service.
	Do not dispose of in household waste	The product is covered by the WEEE Directive and must not be disposed of with household waste, it must be recycled and delivered to a recycling centre.
	Recycling	Packaging, products and other materials that do not contain electronics must be recycled in accordance with local environmental regulations.

[1]Translations in languages other than Swedish are indicative only and not verified. Translation should always be checked against the Swedish original to ensure accurate information

2. COMPONENT OVERVIEWS

2.1. Component overview ECO 12V 10A M, ECO 24V 5A M, ECO 24V 10A M



Left: ECO S. Right ECO M.

Table 3. Component overview

Number	Explanation
A	Cabinet in powder-coated sheet metal.
B	The power supply, location and type vary with configuration.
C	Motherboard.
D	Cable entries.
E	Space for batteries.

3. ENCLOSURES

3.1. General assembly instructions

3.1.1. Mounting - wall mounting

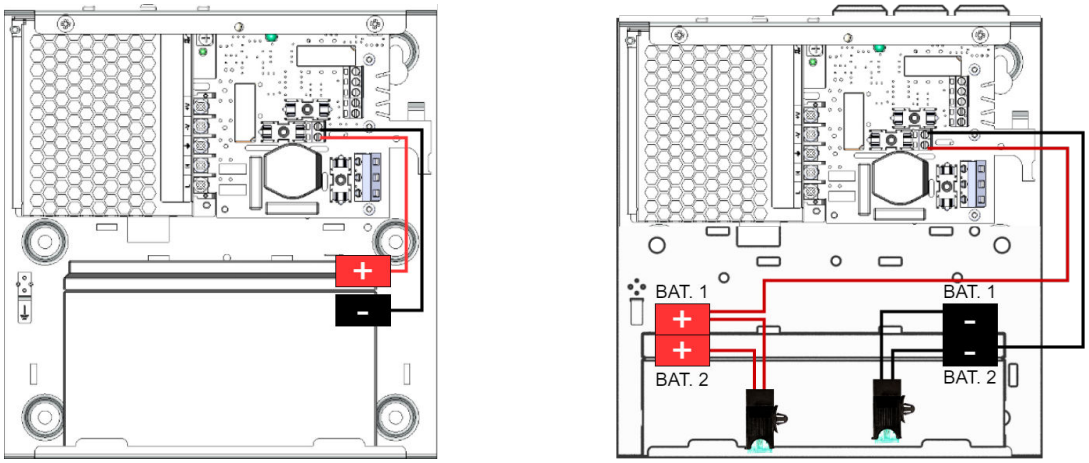
- Enclosure must be mounted vertically.
- For good ventilation, at least 100 mm of free space should be provided above and on the sides of the enclosure. Do not block the flow of air on the sides
- The device should be mounted at a comfortable working height, normally between 1.4 and 1.8 m.
- Recommended distance between screw head and wall should be 1.5-2 mm.
- Avoid placement in direct sunlight, near heat sources, or in environments with high humidity or dust.
- Installation shall be carried out in accordance with the applicable installation rules and by a competent installer.

4. BATTERIES - PLACEMENT AND CONNECTION

4.1. Connection of battery ECO S 12 V

CAUTION
Check battery voltage before switching on. Before installation, the voltage of each individual battery must be measured. Never connect two batteries if their terminal voltage differs by more than 0.3 V (max 0.4 V). Too large a voltage difference may indicate a damaged battery and lead to performance degradation, battery damage or overheating with the risk of fire.

Figure 1. Connecting a battery



Left ECO 12V with 1 battery. Right ECO 12 V with two batteries.

12 V with a battery: Battery cables from motherboard are connected to battery plus and minus pole. Battery fuse is on circuit board.

12 V with two batteries: Battery cables from motherboard are connected to battery plus and minus pole of each battery. Fuses must be connected to each battery pole. A fuse on minus poles and a fuse on plus poles.

NOTE
Fuses that come with the device in a bag should not be used when using 1 battery.

4.2. Connection of batteries, 24V

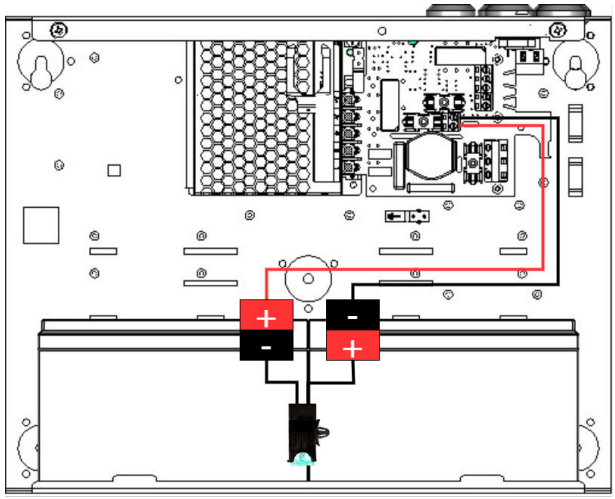
CAUTION

Check battery voltage before switching on. Before installation, the voltage of each individual battery must be measured. Never connect two batteries if their terminal voltage differs by more than 0.3 V (max 0.4 V). Too large a voltage difference may indicate a damaged battery and lead to performance degradation, battery damage or overheating with the risk of fire.

Mains voltage should be disconnected when connecting batteries

1. Slide the batteries in from the side with the terminals facing each other (toward the center). Only use new batteries during installation and battery replacement.
2. Connect fuses on batteries. Connect red cable to + (plus) and black cable to - (minus)
3. Connect cables from battery backup to batteries. Connect red cable to + (plus) and black cable to - (minus)

Figure 2. Slide the battery from the side with the battery terminals toward the center.



The picture shows how cables should be connected.

5. CEO3 V5 UP

5.1. Motherboard description

The card has several connections, below they are described those that are needed to connect the device.

5.1.1. Connect in this order

To minimize the risk of short-circuit errors, connect the components to the motherboard in the following order.

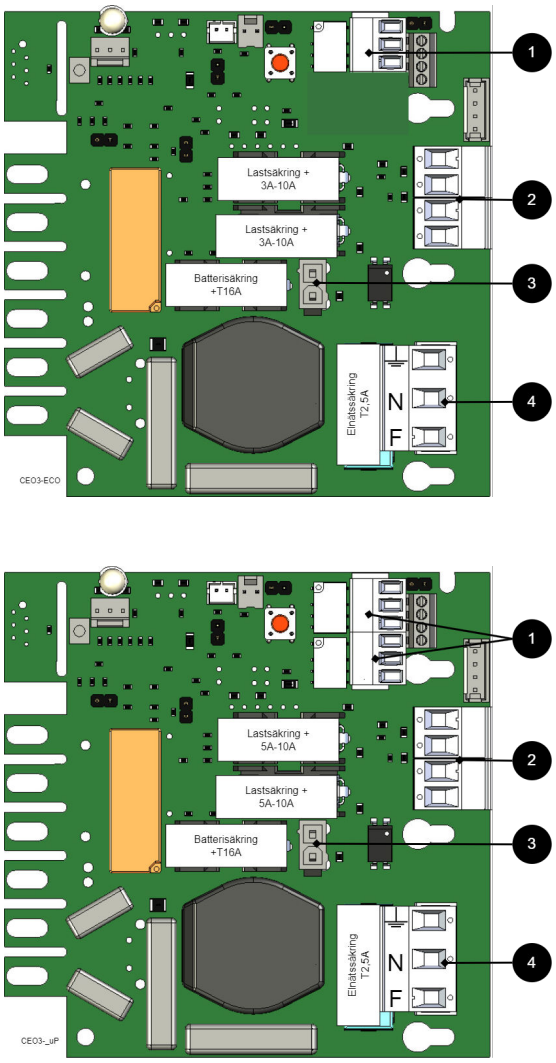


Table 4. Connect in this order

Nr	Explanation
1	Connect alarm.
2	Connect load.
3	Connect batteries
4	Connect mains.

5.1.2. Connect alarm

Connect alarm on terminal P3.

Table 5. Connect alarm P3

P3: 4-6	Explanation
Sum-alarm	
P3: 4	NC
P3: 5	Com

P3: 4-6	Explanation
P3: 6	NO

5.1.3. Connect load

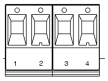


Table 6. Load connections

Circuit board number	Explanation
P2: 1	Connection for load 1 +
P2: 2	Connection for load 1 -
P2: 3	Connection for load 2 +.
P2: 4	Connection for load 2 -.

MAX CURRENT

The maximum current must not be exceeded. Max current is indicated on the rating plate on the device.

DANGER

Mains voltage must be disconnected when working with stripped cables. It is the installer's responsibility to ensure that the correct skills are available for connecting 230 V to the unit. Maximum cable area is 4 mm^2

5.1.4. Connect mains

Before connecting, the supply circuit should be disconnected and voltage-free. Verify that the conductor area and cable type meet the applicable installation rules and that the strain relief and insulation levels comply with the requirements for 230 V AC

After connection, all screw connections should be checked and tightened. Tensioning shall only take place after mechanical protection, caps and housing have been reassembled and comply with the contact protection according to EN 62368-1

Secure F and N with cable ties.

IMPORTANT

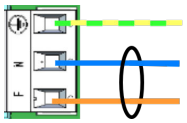
Protective earth (PE) must be connected to the PE terminal on the motherboard. The motherboard is grounded via its mounting points in the enclosure, ensuring proper potential equalization between PCB and enclosure. Also the cover is grounded through ground cable/earth braid between cover and enclosure to maintain continuity and EMC

Mains wiring must be kept separate from other wiring to avoid EMC interference.

The protective earth (PE) must be connected to the PE terminal on the motherboard. The motherboard is grounded via its mounting points in the enclosure, ensuring correct equipotential bonding between the circuit board and the enclosure. The cover is also grounded via a grounding cable / grounding braid between the cover and the enclosure to maintain continuity and EMC function.

Check that the marking on the circuit board matches the wiring order on the terminal block.

Figure 3. Mains connection is made to the terminal block on the motherboard.



Connect the mains cable to the terminal block before it is re-inserted into the motherboard. Secure L (F in picture) and N with cable ties for electrical safety.

Table 7. Electrical network connections

Letter	Explanation
L	Fas
N	Neutral
PE	

5.1.5. Control alarm limit

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

Table 8. Low battery voltage alarm limit

Low battery voltage alarm limit	JU2 with jumper[a.]	JU2 without jumper
12 V	12.0V	13.2V

[a.]The unit is delivered with jumper on JU2

5.1.6. Fuses

Table 9. Fuses.

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

WARNING FOR REPLACING FUSES (CURRENT STRENGTH, 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.

6. ALARM DISPLAYED ON CABINET DOOR

In normal mode, the indicator LED shows a solid green light.

Table 10. Alarm displayed on cabinet door / indicator diode.

The display LED shows	Explanation
Solid green light	Normal operation.
Solid red light	Undervoltage, LED is green in the event of a power failure until the battery voltage drops below the alarm limit.

When operating system: If the indicator LED is off, deep discharge protection has come into force.

7. ECO PRODUCT SHEET

7.1. Product sheet / technical data

Figure 4. ECO S

ECO S The unit must be wall-mounted.

7.1.1. Technical specifications

These technical specifications are subject to change without notice.

7.1.2. Product Identification

Table 11. Product designation, article number and e-number.

Product designation	Article number	E-number (SE)
ECO 12V 5A S	SM01C10112P050	52 136 50

7.1.3. About

The ECO series are reliable and small battery backups for use with access systems, locking systems and other loads. The battery backups have controlled charging* which prevents batteries from over-charging, which significantly prolongs their service life.

- For AGM batteries.

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

7.1.4. Areas of use

Most used in:

7.1.5. Alarm

The device alarms for:

Undervoltage/low battery voltage.

7.1.6. Fixed installation

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

7.1.7. 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.

7.2. Regulations and certifications

7.2.1. Requirements that the product meets

Table 12. The product meets the following requirements.

EMC:	EMC Directive 2014/30/EU
Electricity:	Low Voltage Directive 2014/35/EU
CE marking:	Regulation (EC) No 765/2008
Machinery Directive	The product is part of electrical systems, is subject to the relevant electrical and safety directives and is not a machine according to the Machinery Directive (2006/42/EC).
Ecodesign	Milleteknik's products are intended for professional use and are therefore not directly covered by the Ecodesign Regulation (EU 2019/1782). As some components may be covered, we nevertheless disclose relevant information to give our customers confidence in their choice

Denomination	Efficiency (%)[a.]	Standby consumption, typical (W):
	87%	0.90 W

[a.] At rated load.

7.3. Expected operating time in the event of a power failure (with new batteries)

Table 13. Expected operating time in the event of a power failure (applies to new batteries):

System voltage	Number of batter-ies	Battery type	Load: 0.1 A	Load: 0.3 A	Load: 0.6 A	Load: 1 A	Load: 1.5 A	Load: 2 A
12 V	1 psc	2.3 Ah	12 h	4 min	2 h	1 h	40 min	20 min
12 V	1 pcs	7.2 Ah	42 h	19 h	10 h	5 h	3 h	2 h

7.4. Circuit boards - Technical data

7.4.1. Technical data: CEO 3

Table 14. 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.

Table 15. Low battery voltage alarm limit

Low battery voltage alarm limit	JU2 with jumper[a.]	JU2 without jumper
12 V	12.0V	13.2V

[a.]The unit is delivered with jumper on JU2

FUSES

Table 16. Fuses.

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

WARNING FOR REPLACING FUSES (CURRENT STRENGTH, 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.

7.5. Power supply

7.5.1. Power supply - Technical Data LRS-75-12

In:
ECO 12V 5A S

Info	Explanation
Output voltage	13.6 V
Output current	0 A - 6 A
Output voltage, ripple	120 mVp-p
Overvoltage	13.8 V - 16.2 V
Voltage recharge, ripple / current limitation	Less than 0.6 Vp-p
Efficiency	84.5%
Current limitation	110% - 180%
Constant voltage	+/- 1.0%
Regulatory accuracy	+ / - 0.5%
Input current (230 V)	1,2 A
Mains voltage frequency	47 Hz- 63 Hz
Mains voltage	85 V AC - 264 V AC
Brand effect	25,2 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.	

7.5.2. Power supply - Technical Data LRS-150-12

In:

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%

Info	Explanation
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

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.

7.5.3. Power supply - Technical Data LRS-75-24

In:

Info	Explanation
Output voltage	27.3 V
Output current	0 - 3.2 A
Output voltage, ripple	150 mVp-p
Overvoltage	28.8 V - 33.6 V
Voltage recharge, ripple / current limitation	Less than 0.6 Vp-p
Efficiency	90%
Current limitation	110% - 150%
Constant voltage	+/- 1.0%
Regulatory accuracy	* / - 0.5%
Input current (230 V)	0,85 A
Mains voltage frequency	47 Hz- 63 Hz
Mains voltage	85 V AC - 264 V AC
Brand effect	76.8 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.

7.5.4. 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

Info	Explanation
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.	

7.5.5. Power supply - Technical Data RSP-320-24

In:

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.	

7.6. Technical data enclosures

7.6.1. Enclosures - Technical Data S

Info	Explanation
Name	S
Enclosure class	IP 20
Measure	Height: 230 mm, width: 216 mm, depth: 85 mm.
Height units	-
Mounting	Wall
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	White
Cable entries, number	3

Info	Explanation
Batteries that fit	1 pc 12 V 2.3 Ah or 2 pcs 12 V 2.3 Ah or
Place for fan	No

7.6.2. Enclosures - Technical Data M

Info	Explanation
Name	M
Enclosure class	IP 20
Measure	Height: 242 mm, width: 350 mm, depth: 150 mm.
Height units	-
Mounting	Wall
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	White
Cable entries, number	5
Batteries that fit	2 pcs 12 V 7.2 Ah or 2 pcs 12 V 14 Ah.

7.7. Link to the latest information

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

ECO

7.8. Warranty, support, country of manufacture and country of origin

7.8.1. 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) occour after the warranty period has expired.

7.8.2. CE marking

Each product has a CE label with information about the product and contact information for the manufacturer. If you are missing something or need more information, you should firstly turn to retailers who will also be able to answer questions about warranty and support. You can always contact the manufacturer if you have questions about the product's performance.

CE

7.8.3. Support

Do you need help with installation or connection?

You will find answers to many questions at: 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.

QUESTIONS ABOUT PRODUCT PERFORMANCE?

Contact sales: 46 31-340 02 30, e-mail: sales@milleteknik.se

7.8.4. Contact us

Milleteknik AB

Ögärdesvägen 8 B

S-433 30 Partille

Sweden

+46 31-34 00 230

www.milleteknik.se

7.8.5. Country of manufacture

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

7.8.6. Designed and produced by: Milleteknik AB

Designed and produced by Milleteknik AB

7.9. Batteries - recommended, not included

7.9.1. Batteries are not included they are sold separately

Batteries are sold separately.

7.9.2. 2.3 Ah, 12 V AGM battery

Battery type	V	Ah
Maintenance-free AGM, lead-acid battery.	12 V	2.3 Ah

Table 17. 6+ Design life * battery

Article number	E-number	Article name	Terminal	Measure. Height width depth	Weight per piece	Make
MT113-12V02-01	5230578	UPLUS 12V 2.3Ah 6+ Design Life battery	Flat pin 4.8 mm	60x178x35 mm	1.0 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 (+6 Design lLife) of 6+ years usually need to be replaced after 2-3 years.

7.9.3. 4.5 Ah 12 V AGM battery

Battery type	V	Ah
Maintenance-free AGM, lead-acid battery.	12 V	4.5 Ah

Table 18. 6+ Design life * battery

Article number	E-number	Article name	Terminal	Measure. Height width depth	Weight per piece	Make
MT113-12V04-01	5230577	UPLUS 12V 4.5Ah 6+ Design Life battery	Flat pin 4.8 mm	107x90x70 mm	1.5 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 (+6 Design lLife) of 6+ years usually need to be replaced after 2-3 years.

8. ADDRESS AND CONTACT DETAILS

Milleteknik AB
Ögärdesvägen 8 B
S-433 30 Partille
+46 31 340 02 30
www.milleteknik.com

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