PoE Switch 4p FLX S

PoE switch with battery backup

Table of Contents

1. BEFORE YOU BEGIN

1.1. Information

⚠️ **READ THIS FIRST!**
Electronics, regardless of enclosure, are intended for use in a controlled indoor environment. Mains voltage should be disconnected during installation.

It is the installer's responsibility that the system is suitable for its intended use. It is the installer's responsibility that the system is suitable for its intended use. Only authorized persons should install and maintain the system.

All information subject to change.

Instruction manual in Swedish in original[1].

1.1.1. Support

Phone: +46 31-340 02 30

This installation sheet's article number:

You will find answers to many questions at: www.milleteknik.se/support

Telephone: +46 31- 340 02 30, e-mail: support@milleteknik.se.

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

1.1.2. Link to the latest information

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

PoE

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

1.1.3. Help us make better products

With your help we can develop and produce better products, please fill in our form customer satisfaction survey.

2. ABOUT POE FROM MILLETEKNIK

The series is designed to power PoE devices such as access systems, surveillance cameras and other equipment that can be operated with Power over Ethernet. Through its function as a battery backup, the PoE device can continue to be powered in the event of a power failure.

PoE switch 4p M, PoE switch 4p FLX S and PoE switch 4p FLX M are for security systems where a, reliable power supply with battery backup and PoE function is needed. Our PoE have something we call "controlled charging", which is a safety function that means that batteries are not charged with more than 0.5 A. By controlling the charging of batteries, the lifespan of batteries is significantly extended.

The PoE Switch 4p Expansion kit is for expanding the number of PoE ports in PoE switch 4p FLX S and PoE switch 4p FLX M.

3. HOW POE POWERS DEVICES CONNECTED TO THE POWER SUPPLY
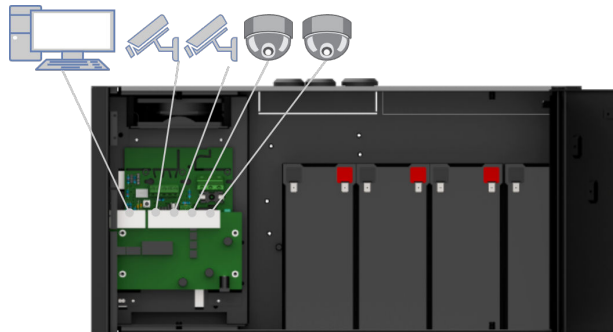
PoE can power, for example, surveillance cameras.

Connect external devices to be powered via PoE in ports 1-4.

Connect other devices that do not need to be power supplied with PoE in LAN1-2.

4. COMPONENT OVERVIEW POE FLX S
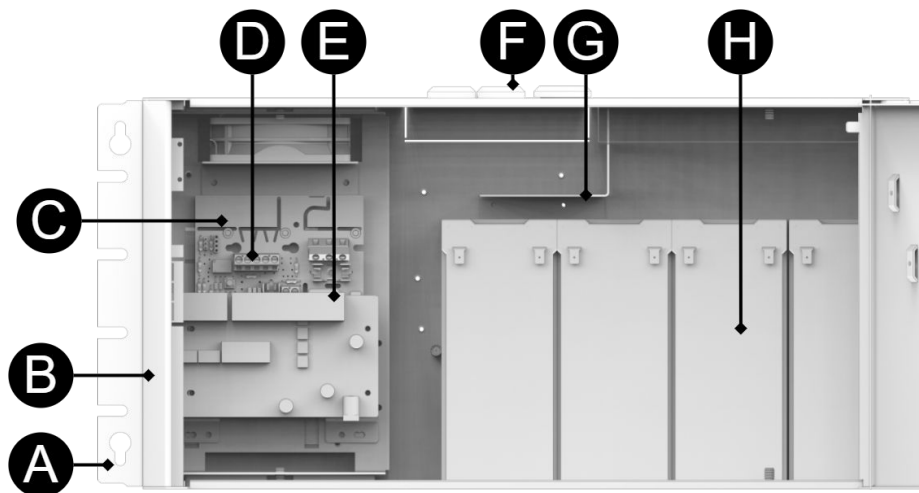
Table 1. Component overview

Symbol	Explanation
A	Brackets, reversible.
B	Casing in powder-coated sheet metal.
C	Power supply, (placed on the other side of the motherboard).
D	Motherboard.
E	PoE-switch.
F	Cable entries.
G	
H	Space for batteries.

5. KEYSTONE

A plate for keystone modules makes the installation of PoE devices easier.

6. CONNECTION OF BATTERIES

Battery wiring is mounted on the circuit board upon delivery. Pictures below only show how to connect wiring.

1. Place the batteries in the cabinet with the battery terminals facing outwards, against the cabinet door.
2. Connect the battery cable. Red cable on plus and black cable on minus.

• If possible, disconnect mains voltage when replacing the battery.

Figure 1. Wiring diagram for batteries in battery backup
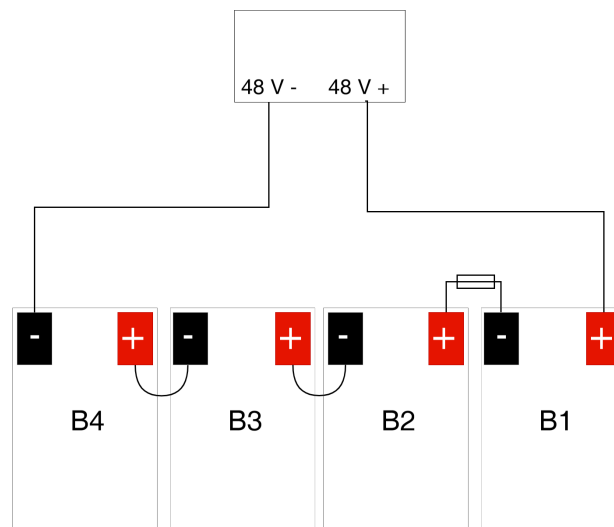
Connect the terminals correctly so that you do not damage the equipment.

7. MOTHERBOARD - DESCRIPTION

See technical data for more information.

Figure 2. CEO
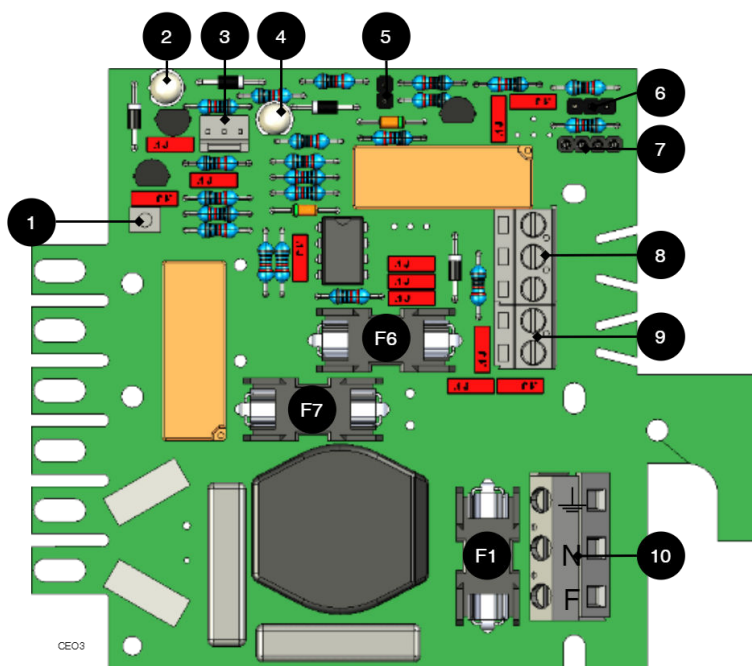
The motherboard controls the device and distributes power. See technical data for more information.

Table 2. Circuit board overview, explanation

No	On the circuit board	Explanation
1	J24	Connection for control of power supply.
2	D6	LED 1.
3	J11	connection external LED.
4	D11	LED 2.
5	JU2	Control of alarm threshold.
6	JU3	Connection to external alarm.
7	J6	Connection to buzzer.
8	P2:3-5	Connection to sum alarm.
9	P2:1-2	Load output
10	P1:1-3	Connection to the mains.

7.1. Connect the mains to the motherboard (PCB)

7.1.1. Connect mains

Pull wiring through the cable entry on the cabinet.

If possible, secure the mains cable with cable ties where possible.

Electrical network cabling shall be kept separate from other cabling to avoid EMC interference.

Figure 3. Connect the mains to the motherboard
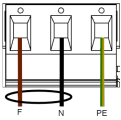
Connect the mains cable to the terminal before it is put back on the motherboard. Secure F and N with cable ties for electrical safety.

Table 3. Electrical network connections

Letter	Explanation
F	Phase
N	Neutral
PE	Protective earth

> **ELECTRICAL MAINS CONNECTION 230 V AC ON CIRCUIT BOARD**
> Check that the marking on the circuit board matches the cable arrangement on the terminal block.

7.2. Connect load

> **MAX CURRENT**
> The maximum current must not be exceeded. Max current is indicated on nameplate on the device.

Table 4. Load connections

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

7.3. 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[a.]	JU2 without jumper
48 W	47 W	51 W

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

8. SHORT DESCRIPTION FOR POE SWITCH 4P
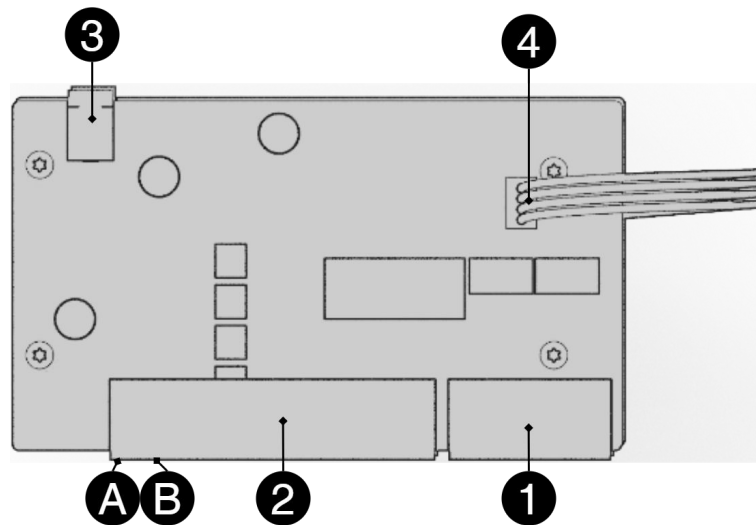
No	Terminal no	Explanation
1	J5	2 pcs RJ-45 ports for data, not PoE, (powered).
2	J5	4 pcs RJ-45 powered ports for connecting PoE devices.
3	J2	Power supply 48 V.
4	J8	Connection for data transmission when additional PoE switch 4p card is connected.
A	-	Indication, yellow LED lights when data is being transferred.
B	-	Indication, green LED lights up when device is plugged in. This is only an indication that the port is connected and not the connected device's status.

Figure 4. PoE switch with extra card
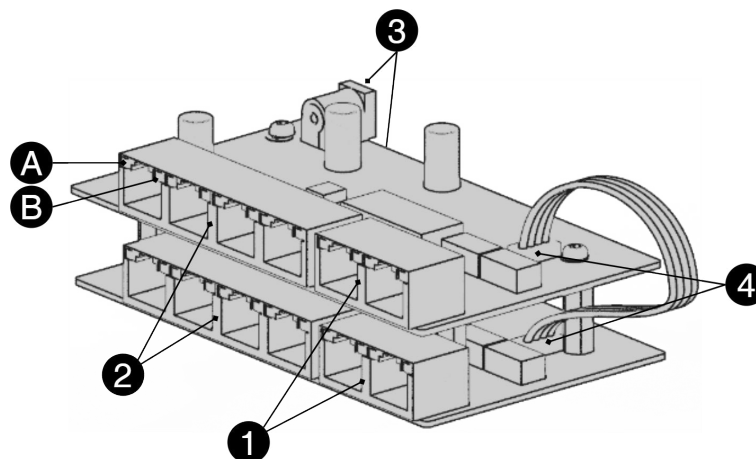
Two cards are connected with cable on 4, or a patch cable between 1 on each card.

The picture shows how cards sit on top of each other in the PoE switch 4p FLX S. In the PoE switch 4p FLX M, the cards are connected separately in mounting plate.

9. COMMISSIONING - HOW TO START THE UNIT

The unit works normally when the indicator LED on the outside of the cabinet door lights up with a solid green light. See front panel for other status indications.

It may take up to 72 hours before the batteries are fully charged.

10. STATUS INDICATIONS

Solid green light: Normal operation.

Solid yellow glow: Low battery voltage.

Solid red light: Lights up red when the following three conditions are met (in order): 1. The device goes into battery operation. 2. Fuse trips in battery operation. 3. Batteries have dropped below the alarm limit.

11. MAINTENANCE

The system with the exception of batteries is maintenance-free when installed in an indoor environment.

11.1. battery change

- If possible, disconnect mains (voltage) when replacing the battery.
- Disconnect battery cables. Note how battery cables are mounted before removing them.
- Remove battery fuse between batteries.
- Insert and fasten the new batteries.
- Connect the battery cables in the same way as before.
- Connect battery fuse between batteries.
- Switch on mains voltage. The indicator LED may not be green (up to 72 hours), until the batteries are charged.
- Test the system by briefly disconnecting the mains voltage, (= the load is driven by the batteries), and then switch on the mains voltage again.

12. 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.

13. FAQ - POE

14. PRODUCT DATA SHEET

14.1. PoE

Figure 5. PoE Switch 4p FLX S

PoE switch with 4 PoE ports.

14.1.1. Technical specifications

These technical specifications are subject to change without notice.

14.1.2. Name, article number and e-number

Name	Article number	E-number (SV)
PoE Switch 4p FLX S	FS01C10048P02504PU	51 719 52

More information

14.1.3. About PoE from Milleteknik

The series is designed to power PoE devices such as access systems, surveillance cameras and other equipment that can be operated with Power over Ethernet. Through its function as a battery backup, the PoE device can continue to be powered in the event of a power failure.

PoE switch 4p M, PoE switch 4p FLX S and PoE switch 4p FLX M are for security systems where a, reliable power supply with battery backup and PoE function is needed. Our PoE have something we call "controlled charging", which is a safety function that means that batteries are not charged with more than 0.5 A. By controlling the charging of batteries, the lifespan of batteries is significantly extended.

The PoE Switch 4p Expansion kit is for expanding the number of PoE ports in PoE switch 4p FLX S and PoE switch 4p FLX M.

POE SWITCH 4P FLX S

Power supply with backup power to power PoE devices such as surveillance cameras and other PoE powered devices. The power supply has batteries that keep powering on when the power grid goes down. Long life, energy efficient and support is available if something goes wrong, now or in 10 years.

14.1.4. Power over Ethernet from Milleteknik

- PoE for security applications with the need for power supply with backup power.
- Proven, reliable technology.
- For fixed installation.
- Swedish made.

14.1.5. Limitations

> **IMPORTANT**
>
> Note that 802.3at type2 is not supported, as the PoE card lacks a handshake function for type 2. Read more. [14]
>
> The product is tested and verified against Axema access systems and Dinbox access systems and is therefore recommended for use only with these systems. The product is currently not recommended for other products that have an af/at handshake procedure. The product deviates from standard IEEE 802.3af per port and IEEE 802.3at as the power is modified to be used together with Axema passer system and Dinbox passer system, which leads to shortcomings, (PoE-connected product does not start), against products that require handshake.

14.1.6. Areas of use

- Power supply for camera surveillance and other applications that can be powered by PoE.
- Security applications powered by PoE that need backup power in the event of a power outage.

14.1.7. Alarm

The device alarms for:

Low battery voltage, low battery voltage in the event of a broken fuse on the load output.

14.1.8. Fixed installation

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

14.1.9. Battery types

The ECO series can be used with AGM batteries. Do not mix types of batteries, brand or used and new batteries.

14.2. Regulations and certifications

14.2.1. Requirements that the product meets

EMC:	EMC Directive 2014 / 30EU
Electricity:	Low voltage directive: 2014/35 / EU
PoE:	IEEE 802.3af, IEEE 802.3at/30.8 W Note that 802.3at type2 is not supported, as the PoE card lacks a handshake function for type 2.
CE:	CE directive according to: 765/2008
Emission:	EN61000-6-: 2001 EN55022: 1998: -A1: 2000, A2: 2003 Klass B, EN61000-3-2: 2001
	EN55022 (CISPR22), GB9254 Class B, EN55014, EN61000-3-2Class A(75% Load),EN61000-3-3

CE

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

PoE	Bat-tery	Power 15.4 W	Power 30.8 W	Power 62 W	Power 90 W	Power 100 W	Power 120 W	Power 180W	Power 240 W
PoE switch 4p FLX S (48 V)	4 pcs 7.2 Ah	18 h 30 min.	8 h 30 min.	3 h 45 min.	-	2 h 10 min.	1 h 45 min.	-	-

14.4. Circuit boards - Technical data

14.4.1. Technical data: CEO 3

Table 5. CEO3 V 2.5

Info	Explanation
Article title	CEO3
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 a reliable heart in simpler battery backups with fewer components than before, which reduces the environmental impact.
Measure	120 x 55 mm x 52 mm
Own consumption	32 mA
Fuse on output	F1: T2.5A, mains fuse. F6: T5A, load fuse +, P2:1. F7: T16A, battery fuse.
Outputs	One cargo outlet, fused.
Insurance	Load output: + secured.
Alarm via	Triggered load securing, potential-free shifting. Conclusion CO / NO. PRO1: Via alarm terminal J13 (NC-CO). PRO2: Via alarm terminal J13 (NC-CO). PRO2 v3: Via J11 and J12 to motherboard on to the parent system. PRO 3: Via J11 and J12 to motherboard on to the parent system.
Protection against:	Deep discharge, short circuit, overload and overvoltage.

Table 6. Indications

Indicator diode	Green	Orange	RED
(2) / D2	OK	Low battery voltage / fuse fault.	Low battery voltage with broken fuse on output.
(4) / D11	-	Overvoltage.	Batteries incorrectly connected.

Table 7. Alarm limits

Alarm limit at low battery voltage	48 V
(5) / JU2 with jumper	47 V
(5) / JU 2 without jumper	51 V
The unit is delivered without a jumper on (8) / JU2	

Table 8. sum alarm

sum alarm	
(8) P2: 3	NO
(8) P2: 4	CO
(8) P2: 5	NC

14.4.2. Technical data: PoE card

LIMITATIONS

> ⓘ **IMPORTANT**
>
> Note that 802.3at type2 is not supported, as the PoE card lacks a handshake function for type 2. Read more. [14]
>
> The product is tested and verified against Axema access systems and Dinbox access systems and is therefore recommended for use only with these systems. The product is currently not recommended for other products that have an af/at handshake procedure. The product deviates from standard IEEE 802.3af per port and IEEE 802.3at as the power is modified to be used together with Axema passer system and Dinbox passer system, which leads to shortcomings, (PoE-connected product does not start), against products that require handshake.

Product	Number of PoE / LAN ports	Max power per port	PoE, continuous power	Ethernet type	Network ports	Interface	Functions	Type, injector and switch
PoE Switch 4p FLX S	4/2	30,8 @ 54,6 V DC	150 W	Fast Ethernet Mbit PoE switch	10 / 100 PoE	1000Base-T RJ-45	Auto-negotiation, Auto-uplink (auto MDI/MDI-X)	Unmanaged. There is no software interface to control the switch.

14.5. Power supply

14.5.1. Power supply - Technical Data LRS-150-48

Info	Explanation
Output voltage	54.6 V
Output current	0 A - 3.3 A
Output voltage, ripple	200 mVp-p
Overvoltage	55.2 V - 64.8 V
Voltage recharge, ripple / current limitation	Less than 0.6 Vp-p
Efficiency	90%
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	158.4 W
Temperature range	-30°C - +70°C

Info	Explanation
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.

14.6. Technical data enclosures

14.6.1. Enclosures - Technical Data FLX S

Info	Explanation
Name	FLX S
Enclosure class	IP 32
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

14.7. Link to the latest information

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

PoE

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

14.8.1. 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.

14.8.2. 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 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

14.8.3. Country of manufacture

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

14.8.4. Designed and produced by: Milleteknik AB

Designed and produced by Milleteknik AB

14.9. Batteries - recommended, not included

14.9.1. Batteries are not included they are sold separately

Batteries are sold separately.

14.9.2. 7.2 Ah, 12 V AGM battery

Fits in	Number of batteries
PoE switch 4p FLX S	4

Battery type	V	Ah
Maintenance-free AGM, lead-acid battery.	12 V	7.2 Ah

Table 9. 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.

15. 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 ambient 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.

16. ADDRESS AND CONTACT DETAILS

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This installation sheet's article number:

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