



ECO

ECO 12V 5A S, ECO 24V 3A S, ECO 12V 10A M, ECO 24V 5A M, ECO 24V 10A M

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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 its

1.1. Revisions and the edition of this document

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








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

Instructions for use in Swedish in original.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.

1.1.1. Symbols


Table 1. Symbol Explanation

Symbols	Denomination	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.

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





Symbols	Denomination	Explanation
	Recycling	Packaging, products and other materials that do not contain electronics must be recycled in accordance with local environmental regulations.



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.

1.2. Installation — general information

Installation shall be carried out by a competent electrician in accordance with the applicable national electrical installation rules.

The product is of protection class I and must be connected to a grounded 230 V AC circuit.

- A main switch according to IEC 60947-1 shall be provided in the fixed installation. The switch should be easily accessible and clearly marked with its function.
- The area of the supply cable shall be at least 1,0 mm² and fitted with a fuse T 2,5 A (slow-blown) or equivalent.
- AC and low voltage cables must not be pulled together. Keep separate cable chutes or bundles
- Check that protective earth (PE) is properly connected before turning on voltage.
- Ensure free air circulation around the enclosure at least 100 mm, unless otherwise specified. Ventilation openings must not be covered.
- The product is intended for indoor installation in normal environment (pollution number 2 and indoor class 1).

These general requirements apply to all Milletechnik products with 230 V mains connection.

1.2.1. Requirements for main switch, fuse and cable area

In order to comply with applicable electrical safety requirements, the installation shall be equipped with a main switch according to IEC 60947-1.

Table 2. Main switch and fuse

Component	Requirements
Main switch	A main switch according to IEC 60947-1 shall be included in the installation and be easily accessible. Separated phase (F) and neutral (N)
Fuse	The supply circuit shall be protected by a fuse or automatic fuse with rated current according to the product specification (normally T 2,5 A slow-blown or equivalent). Refer to the device's nameplate.
Fuses	Approved type according to IEC 60127.
Cross-sectional area (230 V)	At least 1,0 mm ²
Cable length	In the case of longer wiring, voltage drops should be taken into account so that the operating voltage does not fall below 230 V ± 10% at the unit.





Component	Requirements
Strain relief	All cables must be properly secured and strain relief checked before energizing the unit.

These requirements apply to all Milletechnik products with 230 V mains connection.

The table below shows recommended cable area for low current installations at different voltages, current strengths and cable lengths. Values are based on copper cable and a maximum voltage drop of approximately 3% to ensure operational reliability.

Table 3. Cable area weak current

V	Current strength (A)	Cable length 10 meters	Cable length 30 meters	Cable length 60 meters	Cable length 100 meters
24V	1 A	0,75 mm ²	0,75 mm ²	1,5 mm ²	1,5 mm ²
24V	3A	0,75 mm ²	0,75 mm ²	1,5 mm ²	2,5 mm ²
24V	5A	0,75 mm ²	1,5 mm ²	2,5 mm ²	4 mm ²
24V	10A	1,5 mm ²	2,5 mm ²	6 mm ²	-*
24V	15A	1,5 mm ²	4 mm ²	-*	-*
24V	25A	2,5 mm ²	6 mm ²	-*	-*
24V	40A	4,0 mm ²	-*	-*	-*

* Cable area would exceed connector terminal dimensions therefore it is not possible to use cable larger than 6 mm^{1 2}

1.3. Name, article number and e-number

Table 4. Name, article number and email number.

Name	Article number	E-number (SV)
		52 137 81
		52 137 82

2. COMPONENT OVERVIEWS

2.1.

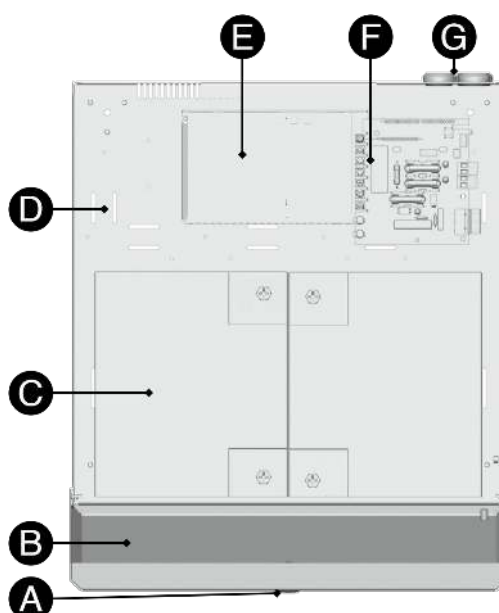




Table 5.

A	
B	
C	
D	
E	
F	
G	

3.



NOTICE

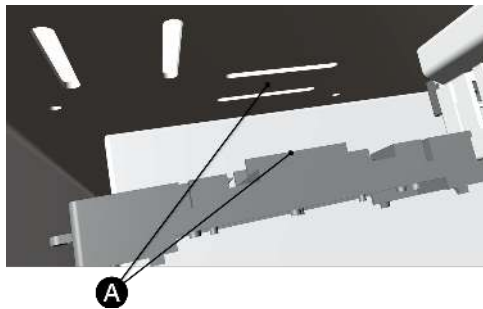
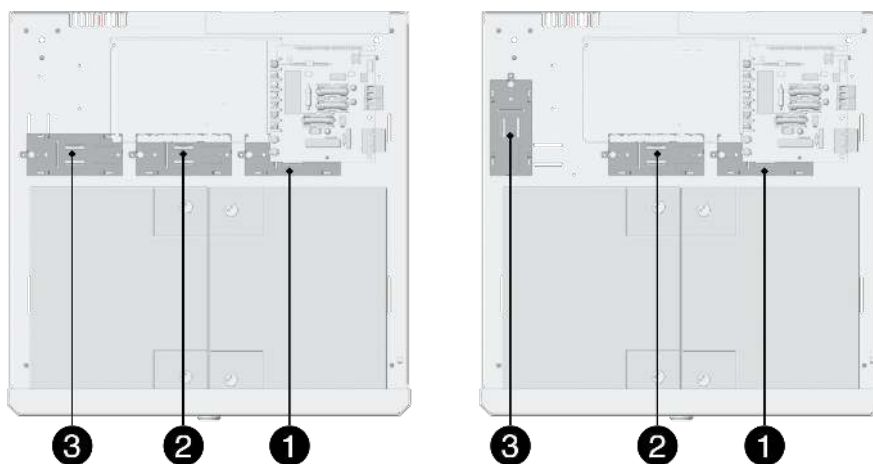


Figure 1.



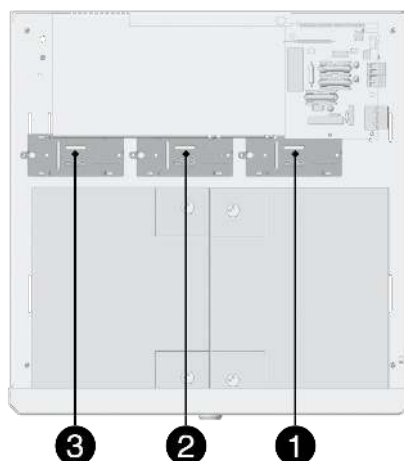


Table 6.

A	
1	
2	
3	



IMPORTANT

4. ENCLOSURES

4.1. Mounting - wall mounting

- The products shall be mounted on a stable wall or mounting plate with sufficient bearing capacity for the weight of the enclosure, including batteries.
- The enclosure is mounted vertically.
- Use four screws with a diameter of 4—5 mm, depending on the substrate.
- Recommended distance between screw head and wall should be 1.5-2 mm. The supplied spacers provide an additional distance of + 20 mm.
- For mounting on drywall, wall anchors or expanders should be used.
- When mounting on concrete or brick, dowels or equivalent fastening are used.
- For good ventilation, at least 100 mm of free space should be provided above and on the sides of the enclosure.
- The unit should be mounted at a comfortable working height, normally between 1.4 and 1.8 m above the floor.
- Avoid placement in direct sunlight, near heat sources, or in environments with high humidity or dust.
- For outdoor use, only enclosures with the specified IP class for outdoor use shall be used.
- Installation shall be carried out in accordance with the applicable installation rules and by a competent installer.





4.2.

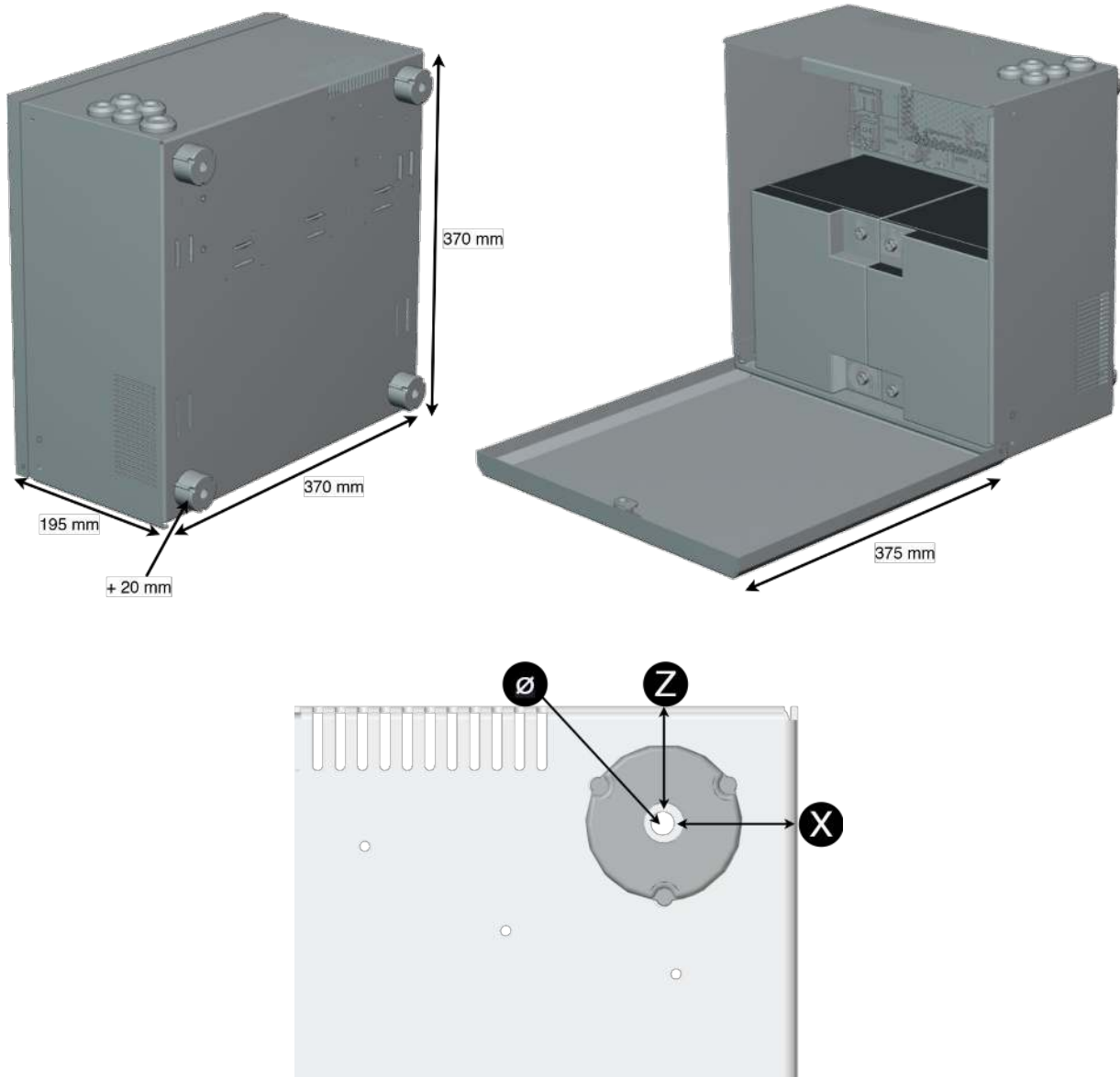


Table 7.

Ø	
Z	
X	



5. BATTERIES - PLACEMENT AND CONNECTION

5.1. Connection of batteries, 24V



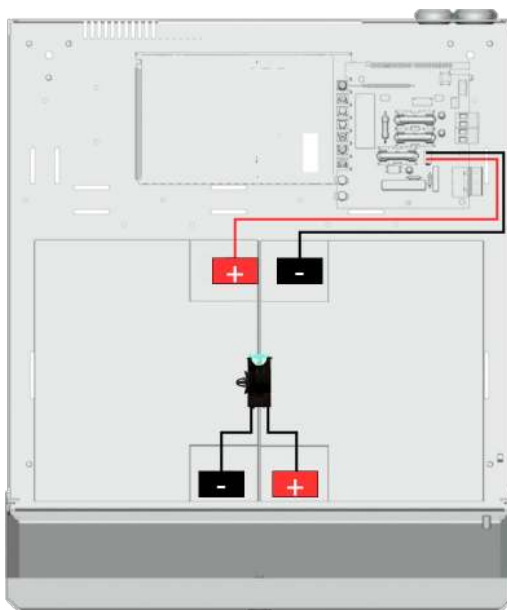
CAUTION

Check battery voltage when switching on. Before installation, the voltage of each individual battery must be measured. Never connect two batteries whose 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 batteries from the side with the battery terminals 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.





6.

6.1.

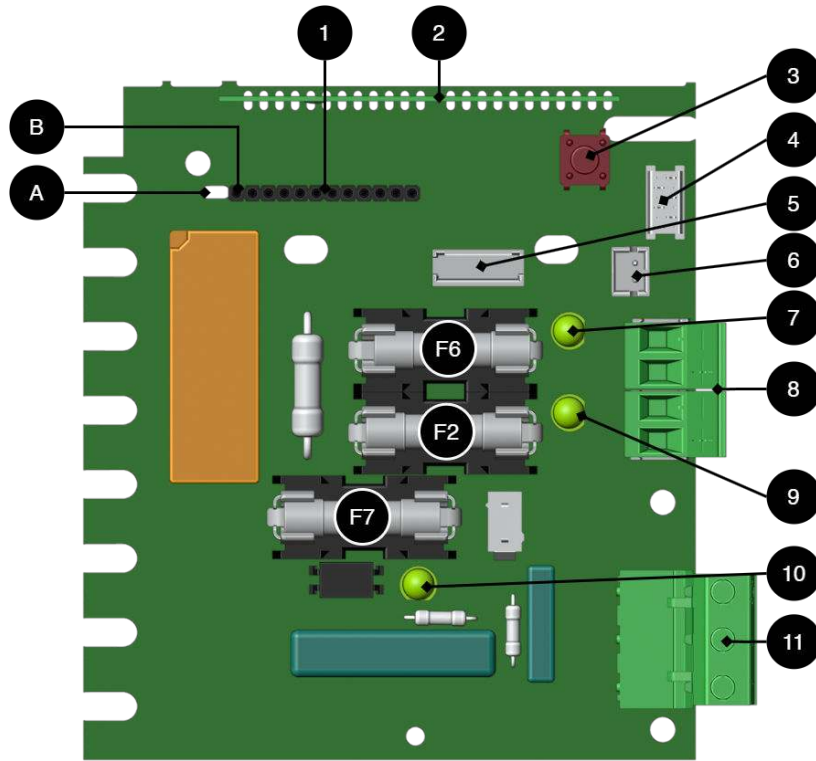


Table 8.

A	-	
B	-	
1	-	
2	-	
3		
4		
5		
6		
7		
8		
9		
10		
11		

Table 9.





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.

6.1.1. Connect the mains to the motherboard (PCB)

CONNECT MAINS

Pull wiring through the cable entry on the cabinet.

Secure F and N with cable ties.



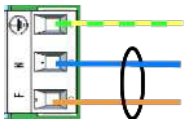
IMPORTANT

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



IMPORTANT

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 10. Electrical network connections

Letter	Explanation
F	Fas
N	Neutral
PE	



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.





Table 11.



MAX CURRENT

The maximum current must not be exceeded. Max current is indicated on [nameplate](#) on the device.

7.



IMPORTANT

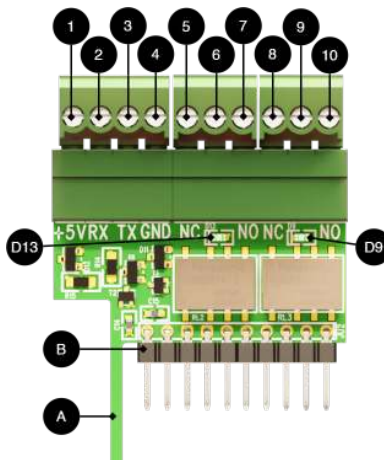


Table 12.

K	-	
A	-	
B	-	
1		
2		
3		
4		
5		





6		
7		
8		
9		
10		

7.1.

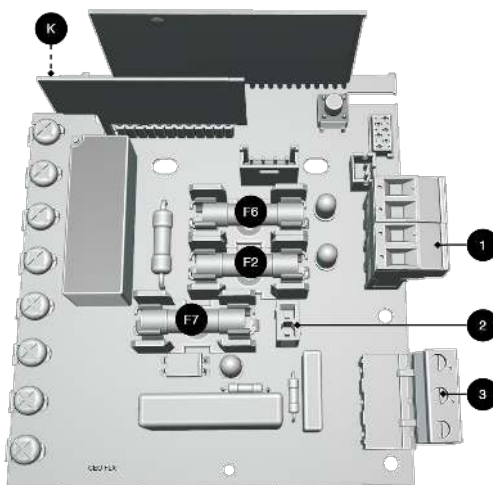


TIP

8. COMMISSIONING - HOW TO START THE UNIT

8.1. Connect in this order

To minimize the risk of errors that may occur in connection with a short circuit, connections to the motherboard must be made in this order.





10. MAINTENANCE

The system, with the exception of the fan and batteries, is maintenance-free.

11. SAFETY INFORMATION - SERVICE AND TROUBLESHOOTING

- If possible, disconnect the mains supply before starting any work, such as servicing, battery replacement, metering or troubleshooting.
- Remove the battery fuse/plug before working on the DC side.
- Check that all cables are properly connected and grounded before re-energizing the unit.
- The product may contain components that become hot during operation. Avoid touching internal parts immediately after the power has been switched off.
- If fuses disengage repeatedly see [Troubleshooting \[16\]](#) or disconnect the device and contact Milleteknik technical support.
- In case of suspicion of damage, liquid ingress or burnt odour, the product must not be used until it has been checked by competent personnel.
- During operation, the housing should be closed and locked (if the device has a lock).
- Only authorized service personnel may perform repairs on the device.
- Use only original fuses and batteries of the same type and value as specified in the manual/product sheet.

Milleteknik is not responsible for damage caused by improper handling, modification or unapproved components.

11.1. Troubleshooting

If the device does not work as expected, go through the following checks:

Table 15. Troubleshooting

Problem	Possible cause	Action
No output voltage.	No mains voltage, fuse triggered or battery failure.	Check the supply, fuses and battery connections.
Battery does not charge.	Faulty battery connection or battery fuse has blown.	Check battery cables and replace battery fuse if necessary.
The device starts but alarms.	Batteries not sufficiently charged or faulty load or battery.	Wait 72 hours until the batteries are fully charged. Ensure that the connected load does not exceed the rated current.
LED flashes.	Information, warning or error.	See panel or manual for explanation.
Fuses blow frequently.	Short circuit or overload.	Check connected devices, change the fuse only after the cause is fixed.
The device gets hot	High load or insufficient ventilation	Check that the rated current is not exceeded and that air flow is present around the housing.

If the problem persists after these checks, contact Milleteknik support and provide the product name, serial number and a brief error description.





12. PRODUCT SHEET - POWER SUPPLY / BATTERY BACKUP

12.1. Product sheet - power supply from Milleteknik

12.1.1. ECO power supply with battery backup

Figure 4.



12.1.2. Name, article number and e-number

Table 16. Name, article number and email number.

Name	Article number	E-number (SV)
		52 137 81
		52 137 82

12.1.3.

Table 17.

12.1.4.

	✓	



	✓	
	✓	

12.1.8.

Table 23.

	✓		



Table 24.

		52 137 06

12.1.9.

Table 25.

12.1.10.

Table 26.

	10





12.1.11.

Table 27.

Table 28.

Table 29.

12.1.12.

Table 30.

Table 31.

	✓		-

Table 32.

	✓	x	
	✓	✓	
	✓	x	
	✓	x	
	✓	x	

12.1.13.

Table 33.

		-





Table 34.

✓			
	✓		

Table 35.

Table 36.

12.1.14. Backup operating time on batteries

The reserve operating time in battery operation depends on how large a load is connected to the power supply. If the load varies, as with frequent opening of door locks, the time that batteries can continue to power the security system decreases. To get an estimate of reserve operating times see: www.milleteknik.se/Manualer/FaQ/Reservdrifttider/

12.1.15.

Table 37.

12.1.16.

Table 38.

	✓		-
	✓		
	✓		
	✓		-
	✓		
	✓		





	✓		
	x		-

CE



The product is designed and constructed for a long service life, which reduces the environmental impact. The life of the product (except wearing parts) depends on, among other things, environmental factors, mainly ambient temperature, unforeseen load on components such as lightning strikes, external impact, handling errors, etc. Products are recycled, simply because they are modular, by being left at the nearest recycling station or sent back to the manufacturer.²Contact your distributor for more information.

12.1.17.

Table 39.

12.1.18.

Table 40.

²Costs incurred in connection with recycling are not reimbursed.





12.1.19.

Table 41.

	031-340 02 30

12.1.20. About this information

All information is published subject to possible errors. Information is updated without prior notice.

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