Power Supply

EN

BT-5 FLX Large COM Gen2, BT-10 FLX Large COM Gen2,

350-256
Publication date 2025-04-16

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REVISIONS AND THE EDITION OF THIS DOCUMENT

The current and most recently published edition of this document is available at www.rco.se.

Audit log can be requested, see contact information for address or e-mail address.

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

User manual in original language: Swedish.

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.

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. Only authorized persons should install and maintain the system.

All information subject to change.

Instruction manual in Swedish in original[1].

ABOUT GLASS TUBE FUSES ON CERTIFIED DEVICES

There are glass tube fuses on the circuit board's load outputs, these have a tripping time of approx. 150 ms. In the event that a glass tube fuse trips on ONE load output, the voltage on ALL load outputs drops to 0 V for 150 ms.

The installer is responsible for ensuring that there is an energy buffer of at least 150 ms in systems that the battery backup supplies power to or accepts a power failure of 150 ms.

YOU CAN FIND MANUALS AT: WWW.MILLETEKNIK.SE/RCO-DOKUMENT

LINKS TO MANUALS AND PRODUCT SHEETS

You will find manuals and product sheets at: www.milleteknik.se/rco-dokument

[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.

ADDRESS AND CONTACT DETAILS

RCO Security AB
Box 3130
S-169 03 Solna
Sweden
+46 8-546 560 00
info@rco.se
www.rco.se

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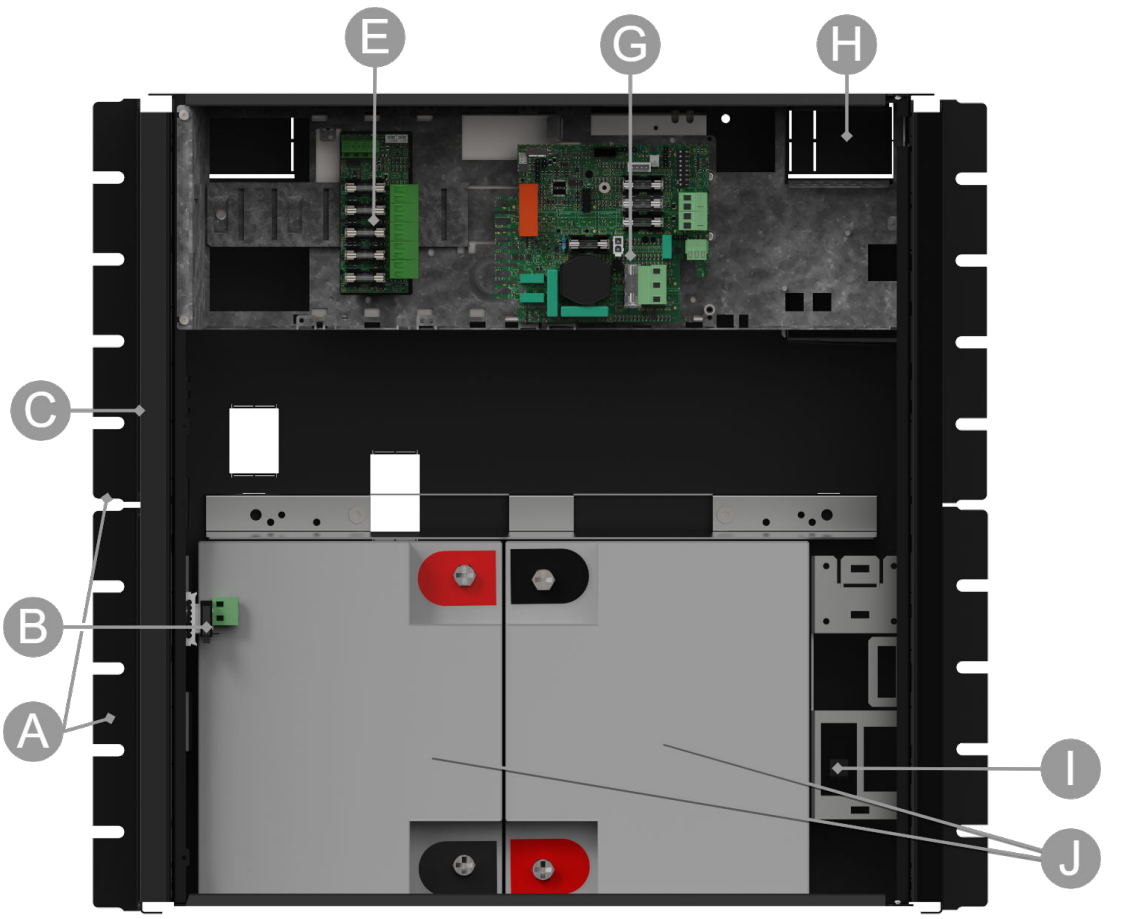
COMPONENT OVERVIEWS

COMPONENT OVERVIEWBT FLX LARGE COM GEN2



Batteries should be placed as in the picture.

Table 1. Component overview

Letter	Explanation
A	Bracket, reversible for wall mounting or 19 "rack.
B	Tamper switch. If alarm class 3 (SSF) is to be met, the tamper contact must be on the wall.
C	Cabinet in powder-coated sheet metal.
E	Space for mounting optional cards
G	Motherboard, (varies with configuration).
H	Cable entries.
I	Battery fuse.
J	Space for batteries.

OPTIONAL CARDS FOR POWER SUPPLY

Table 2. Optional cards for power supply

Power supply	Optional cards fitted on delivery	Additional cards that can be mounted
BT-5 FLX Large COM Gen2	1 pc. BT-Fuse 5.	1 pc. BT-Fuse 5 or 1 pc. BT-Fuse 10.
BT-10 FLX Large COM Gen2	1 pc. BT-Fuse 5.	1 pc. BT-Fuse 5 or 1 pc. BT-Fuse 10.

ENCLOSURES

CONSOLE

The supplied brackets can be attached in two ways: When mounting on a wall, the brackets must sit backwards, against the wall. When mounting in a 19" rack, the bracket must sit at the front of the unit.

Table 3. Console

[sv] Bokstav	Explanation
A	Console is pushed in from the bottom up. Slide the top bracket in first.
B	Clip clicks in when bracket is pushed in correctly.

IMPORTANT

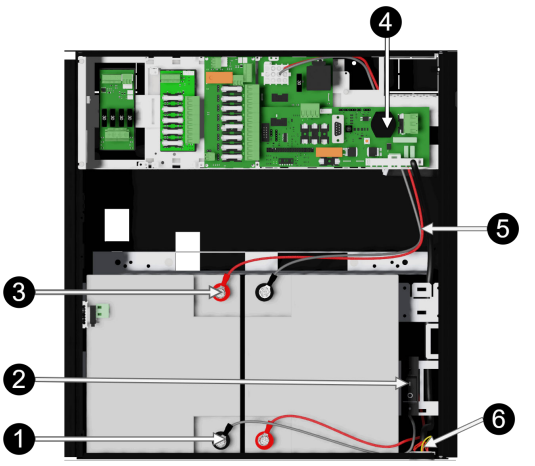
If alarm class 3 (SSF) is to be met, the cabinet and tamper switch must be mounted on the wall. Optional, Cabinet tamper M/L to put a tamper switch on the wall is available.

MOUNTING

Use the appropriate screw for mounting on a wall or in a 19" rack. Screws for mounting on a wall or in a rack are not included.

BATTERIES - PLACEMENT AND CONNECTION

CONNECTING BATTERIES IN FLX M



Note that cards (4) differ from different configurations.

Figure 1. Connection of batteries in FLX M. Motherboards may differ depending on the configuration, but connection of batteries takes place in the same way.

Table 4. Connecting batteries.

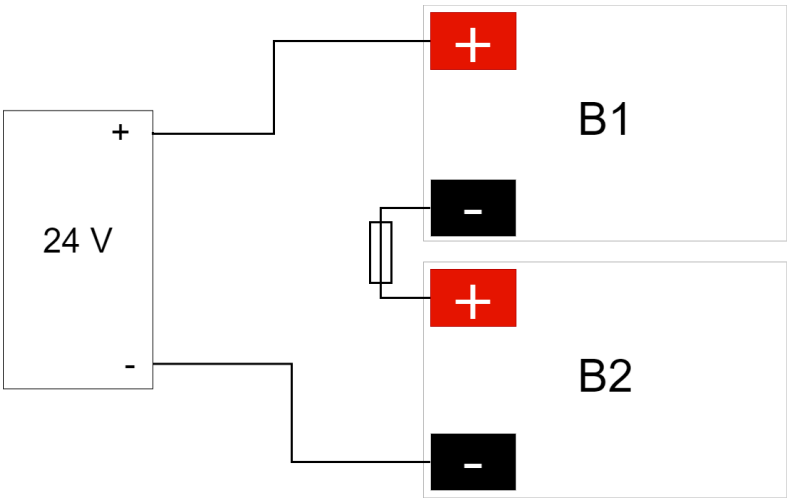
No	Explanation
1	Minus coil for battery cable from 4.
2	Fuse.
3	Plus terminal for battery cable from 4.
4	Motherboard, varies with configuration.
5	Battery cables are located on the system board.
6	Connection for connection of battery box.

CONNECTION OF BATTERIES IN FLX S, FLX M AND FLX L

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.
2. Connect the battery cable. Red cable on + and black cable on -.

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

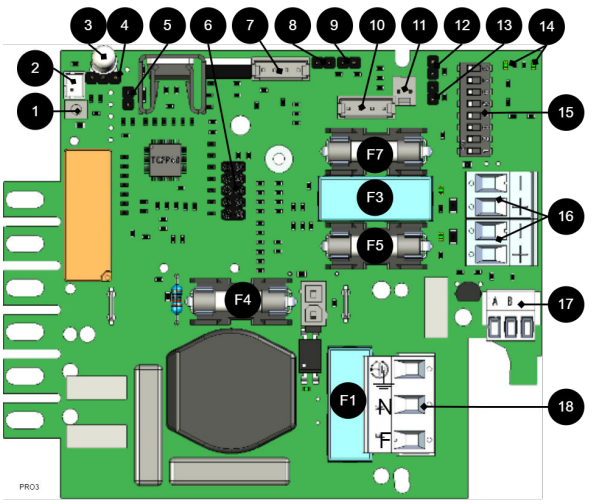


Connect the terminals correctly so that you do not damage the equipment.

Figure 2. Wiring diagram for batteries in battery backup

PRO3 MOTHERBOARD

MOTHERBOARD - DESCRIPTION



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

Figure 3. PRO3

Table 5. *[sv] Kretskortsöversikt, förklaring*

No .	On circuit board	Explanation
1	J24	*[sv] Styrning till nätaggregat. Internt bruk.*
2	J5	*[sv] 1=Oprio 2=externt larm.*
3	D9	LED.
4	JU1	For external LED in door.
5	J11	Reset jumper, used when changing batteries.
6	JU6	*[sv] Anslutning för reläkort eller kommunikationskort eller för uppdatering av firmware. Endast ett kort eller kontakt åt gången får plats.*

No .	On circuit board	Explanation
7	J29	Connection to fan.
8	J101	Connection to tamper contact.
9	J17	Connection to tamper switch from battery box.
10	J35	Not used.
11	J14	Alarm input from external battery fuse, from battery box.
12 and 13	J10 and J100	Alarm from external option card.
14	D18, D19	LEDs show the status of communication (RS-485).
15	S3	Dip switch
16	P2:1-4	Load outputs
17	P3:1-3	Communication connection, RS-485.
18	P1:1-3	Connection to the mains.

FUSES

Table 6. Fuses on PRO3 / NEO3

Fuse	Type	Explanation
F1	T2.5A	Mains fuse
F3	T16A	Load fuse 1 - (for P2:2)
F4	T16A	Battery fuse
F5	T3A-T10A*	Load fuse 1+ (for P2: 1)
F7	T3A-T10A*	Load fuse 2 + (for P2:3)

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.

CONNECT THE MAINS TO THE MOTHERBOARD (PCB)

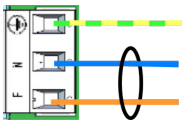
CONNECT MAINS

Pull wiring through the cable entry on the cabinet.

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

IMPORTANT

[sv] Elnätskablage skall hållas åtskilt annat kablage för att undvika EMC-störningar.



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.

Figure 4. Connect the mains to the motherboard

Table 7. 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.

CONNECT LOAD

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

LOAD OUTPUTS WHEN SSF CERTIFIED
In order for certificates to be maintained, only one load output must be used.

If there are one or more connection cards (to increase the number of load outputs), load must be connected there and not on the main board.

Table 8. Load connections

[sv] På kretskort	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 -

DIP SWITCH 1-8

Dip-Switch has several different modes:

Table 9. Dip switch 1-8

Dip switch	In mains operation or in battery operation
1	Address for external communication.
2	Address for external communication
3	Address for external communication
4	Address for external communication
5	Sets alarm for mains failure delay
6	Sets alarm for mains failure delay
7	Sets alarm limit for low battery voltage in battery operation.
8	Turns LED off or on.
8 in sequence	Performs battery test

ADDRESS SETTING FOR EXTERNAL COMMUNICATION (DIP SWITCH 1-4)

Dip-Switch S1: 1-4 sets addressing.

Table 10. Addressing Dip-Switch 1-4

	Dip: 1	Dip: 2	Dip: 3	Dip:4
Adress 1	ON	OFF	OFF	OFF
Adress 2	OFF	ON	OFF	OFF
Adress 3	ON	ON	OFF	OFF
Adress 4	OFF	OFF	ON	OFF
Adress 5	ON	OFF	ON	OFF
Adress 6	OFF	ON	ON	OFF
Adress 7	ON	ON	ON	OFF
Adress 8	OFF	OFF	OFF	ON
Adress 9	ON	OFF	OFF	ON
Adress 10	OFF	ON	OFF	ON
Adress 11	ON	ON	OFF	ON
Adress 12	OFF	OFF	ON	ON
Adress 13	ON	OFF	ON	ON
Adress 14	OFF	ON	ON	ON
Adress 15	ON	ON	ON	ON

MAINS FAILURE DELAY (DIP 5-6)

It is possible to change the time for when the alarm for a power outage should be given. Use the matrix to set the alarm.

Table 11. Mains failure delay

Alarms for mains failure are given after:	Dip 5	Dip 6
3 seconds	OFF	OFF
30 minutes	ON	OFF
60 minutes	OFF	ON
240 minutes (4 hours)	ON	ON

LOW BATTERY VOLTAGE (DIP 7)

Dip: 7 has the same function regardless of whether the unit is in mains or battery operation or whether the tamper switch is held down.

Table 12. Low battery voltage

Alarm for low battery voltage is given when	Dip 7
22,8 V*	ON
24 V	OFF
*25% of battery capacity remains.	

LED (DIP 8)

LED/battery-test always lights up when the door is open.

Dip-switch 8=ON turns off the LED.

Dip-switch 8=OFF turns on the LED.

BATTERY TEST (DIP 8)

To do a battery test, dip 8 needs to change position and five seconds need to pass before the test is initiated.

- If dip 8 in original position is on OFF then switch dip 8 to: ON (wait 5 seconds) and then switch back to OFF.
- If dip 8 in original position is on ON then switch dip 8 to: OFF (wait 5 seconds) and then switch back to ON.

This activates the battery test after 3-8 seconds. The battery test lasts for about 6 seconds and then the LED flashes yellow quickly. Aged battery alarms may be indicated while the battery test is being performed.

Only reset dip 8 when the test is complete.

REBOOT TO CONFIRM CHANGES IN ADDRESS, BATTERY AND ALARM SETTINGS TO PARENT SYSTEM

After the dip-switch has been set for various parameters, the device's software needs to be restarted. This is for the new settings to be stored and take effect.

IMPORTANT

Rebooting according to this procedure does not interrupt the output voltage.

Restarting the device software is done by jumpering J11 (PRO3)

IMPORTANT

Reboot must be done every time a change is made to the device.

NEO cannot be connected to communication/UC.

RESET AFTER BATTERY REPLACEMENT -PRO3

After battery replacement, the device needs to measure the capacity of new batteries and clear previously set battery capacity. All alarms are cleared from the units memory, statistics remains and can not be cleared.

- Insert jumper on J11 and remove jumper on J11

After doing step, the battery capacity is cleared in the units memory and is ready to read the new battery capacity.

This procedure needs to be done each time the batteries are replaced or when connecting a battery box.

NOTE ON TEST OF BATTERIES

At start-up, it takes 72 hours before the system performs battery tests. This is to ensure fully charged batteries and to collect averages / history for at least 72 hours. Thereafter, every four hours, a qualified cell sample of the batteries is performed.

NOTE ON START-UP WITH SHORT-CIRCUITED BATTERIES

Peak current at start-up with short-circuited batteries: Up to 30 A p-p for 200 ms. Always follow the start-up procedure.

CARD DESCRIPTION BT FUSE 5

[sv] Last kopplas in på 9, nedan.

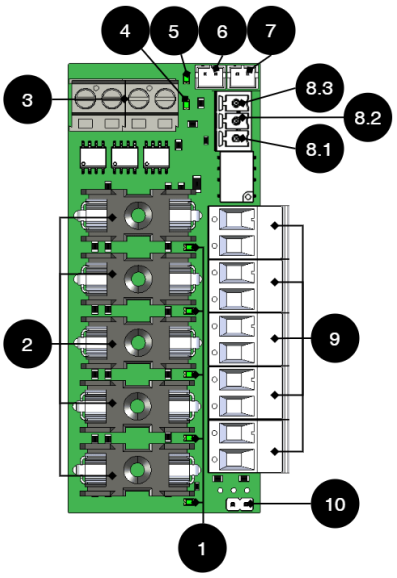
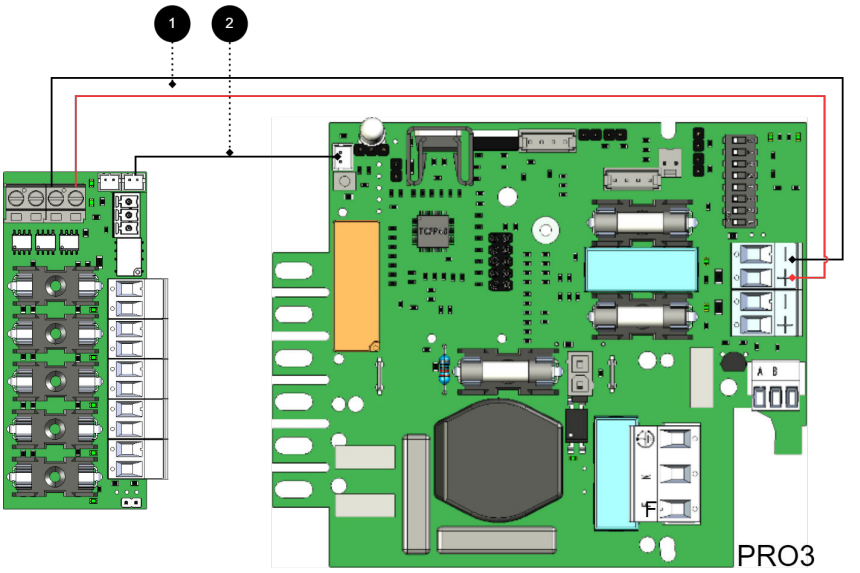


Table 13. Circuit Board Overview - BT FUSE 5

Nr	On circuit boards	Explanation
1	D1-D4	Green indicator LED, illuminates with a solid green light when the fuse is ok.
2	F1-F5	Fuses
3	J22, J23	Incoming voltage from motherboard, 24 V.
4	D29	Red indicator LED, illuminates with a solid green light when a fuse is broken.
5	D30	Green indicator LED, illuminates with a solid green light when the fuse is ok.
6	J6	Connection to alarm on motherboard.
7	J7	Bridging connection for alarms from another card.
8.1	P3: 1-3	Alarm output, NC.
8.2	P3:2	Alarm output, Com,
8.3	P3:3	Alarm output, NO,
9	P2: 1-10	Load output +/-
10	JU4	Jumper for setting the voltage in the card. Unbuilt = 24 V (factory setting). Built = 12 V. * * The card must have the same voltage as the motherboard.

CONNECT BT FUSE 5 FOR MOTHERBOARD: PRO3



+ and - from load on motherboard is connected to + and - on the option card.

Communication is connected between terminals as the solid line shows.

Figure 5. Connect the card as shown in the illustration.

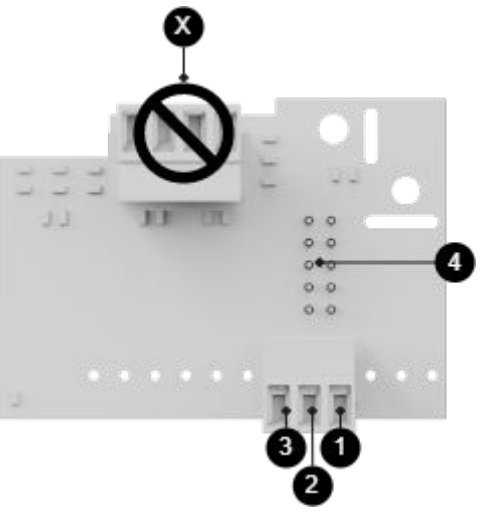
Table 14. Connections from battery backup to security card

Nr	Couplings	5 Output module	Motherboard
1	Power supply connection:	IN 12 V / 24 V	Load output 1
2	Connection to alarm on motherboard:	J7	J5
	bridging of alarms to / from additional option cards.	J6	-

CARD DESCRIPTION - RELAY CARD NOVA SERIES (PRO3)

Relay card - description, connections and alarm outputs.

The card is connected to the 10-pin header (6) on the PRO3 card.



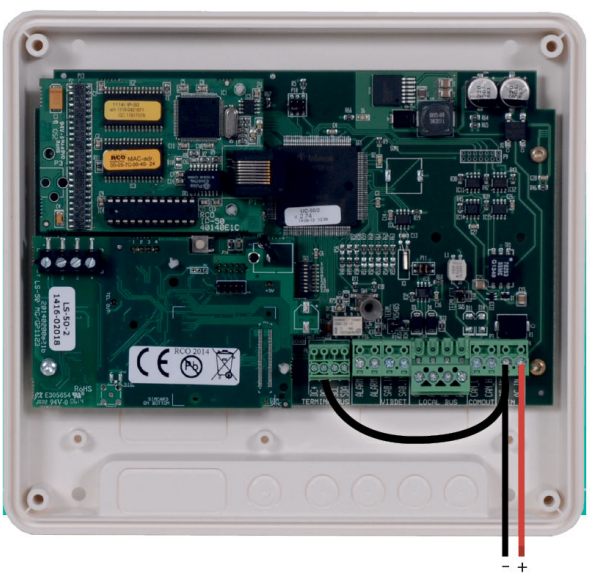
No	On circuit board	Explanation
IN^{2}C		
1	P5:9	SDA
2	P5:8	SCL
3	P5:7	System minus
4	JU5	Connection to PRO3 card.
X	For internal programming. Do not use.	

IMPORTANT
Do you use I^{2}C cards, you cannot use relay cards.

BRIDGE OF UC-50 GEN2

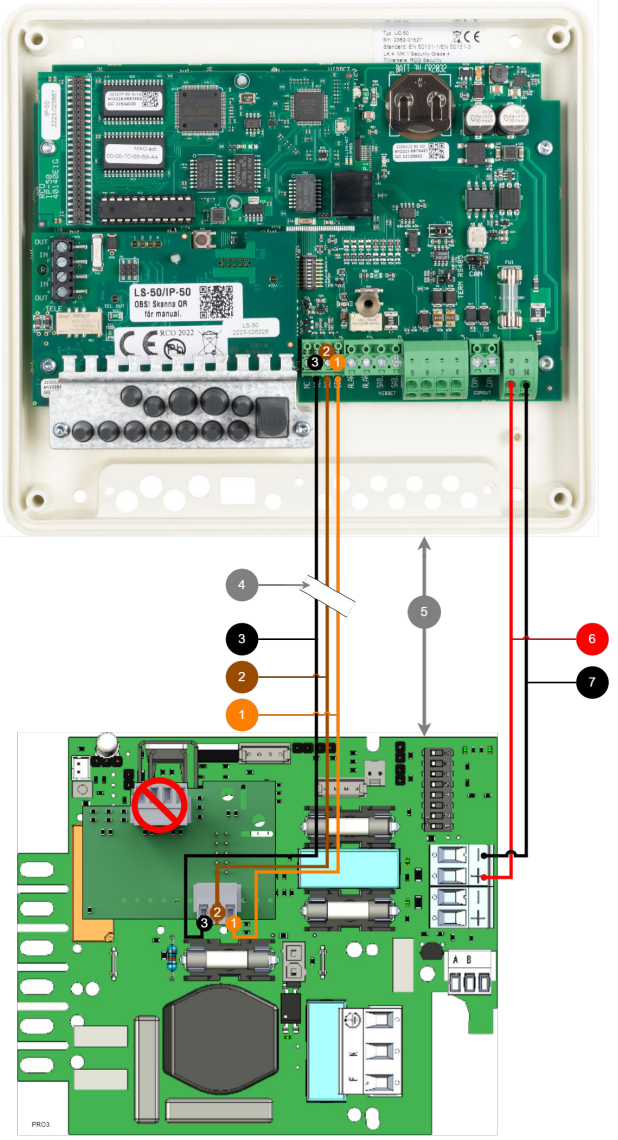
When installing in environments sensitive to interference, communication interruptions may occur. By bridging to 0 V on the UC-50 Gen2, interference can be avoided.

IMPORTANT
The bridge must be located: i^{2}C, P6 to DC-IN, P6:12.



BUS COMMUNICATION - CONNECTION TO UC-50 GEN2

Connection to UC-50 Gen2 is made according to sketch.



The picture shows the connection from the battery backup to the UC-50 Gen2.

Figure 6. Connection to UC-50 Gen2

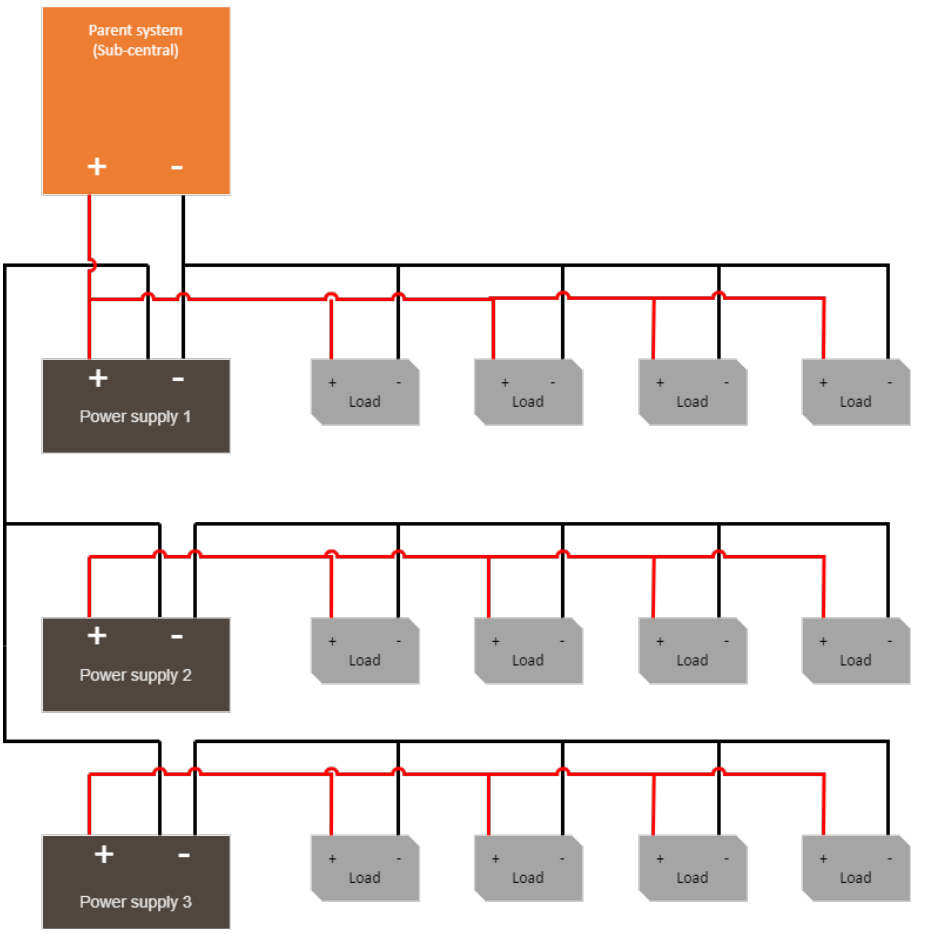
Table 15. Bus communication - connection to UC-50 Gen2.

No	On PCB in UC-50 Gen2	On PCB in power supply	Color of cable	Explanation
1	SDA, P6:42	P5:9	Orange	SDA/DATA.
2	SCL, P6:41	P5:8	Brown	SCL/CLOCK.
3	I^2C 0V, P6:40	P5:7	Black	V-Ground / minus. Choose any.
4	-	-	-	Untwisted cable. Maximum three meters.
5	-	-	-	Max distance between power supply and UC-50 Gen2: 3 meters.
6	DC+ IN, P4:14	P2:3	RED	24 V.
7	DC- IN, P4:14	P2:4	Black	24 V.

IMPORTANT
Cable length max 3 meters. Cable must not be twisted in pairs.

MULTIPLE UNITS INTO ONE PARENT SYSTEM

To connect several units to a higher system, the load-minus between several battery backups must be connected together.



COMMISSIONING - HOW TO START THE UNIT

1. Connect batteries
2. Connect / switch on fuses
3. connect load, alarm and possibly. other connections.
4. Screw the mains cable into the terminal block and attach the terminal block to the motherboard.
5. Switch on mains voltage.

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.

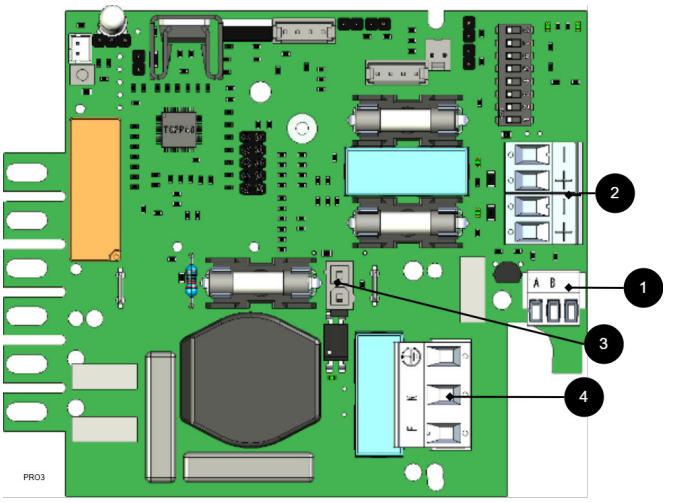


Table 16. Connect in this order

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

IMPORTANT

[sv] För inställning av dip-switchar och adressering – se online-manual via QR-kod.

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.

SYSTEM TEST

Test the connected device by performing a system test afterwards commissioning [19].

IMPORTANT

Let the batteries charge for a couple of hours, use a multimeter to measure the voltage on each battery. The voltage must be at least 12.7 V per battery.

- Switch on incoming mains voltage.
- Indicator LED on the outside of the cabinet door lights up with a solid green light. Disconnect the mains voltage to check that the unit is operating in battery mode and alarms.

- LED on the cabinet door indicates, see panel for alarm type.
- Switch on incoming mains voltage. Indicator LED, on the outside of the cabinet door, lights up with a solid green light. Normal operation.

RECOVERY

Reset the unit by completely de-energizing the unit.

Disconnect battery wiring and mains voltage and reconnect after 5 seconds.

ALARM DISPLAYED ON CABINET DOOR

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

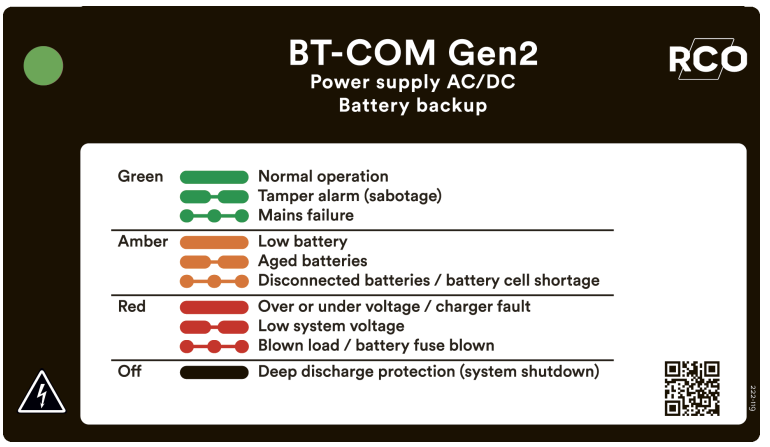


Table 17. The indicator diode shows.

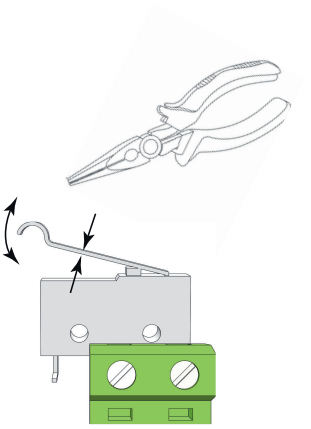
The indicator diode (LED) shows	Explanation
Solid green light	Normal operation.
Slow green flashes	Sabotage alarm.
Fast green flashes	Mains failure.
Solid yellow light	Low battery voltage.
Slow yellow flashes	Aged batteries.
Rapid yellow flashes	Disconnected batteries / battery cell shortage.
Solid red light	Overvoltage or undervoltage or charger fault.
Slow red flashes	Low system voltage.
Rapid red flashes	Blown load / battery fuse has blown.
No light / off	Deep discharge protection is activated. (System shutdown).

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

NOTICE

[sv] Om indikeringsdioden blinkar till var 15:e sekund är batteriet fulladdat och laddningen är i vilofas för att förlänga batteriets livslängd. Vid nätavbrott under vilofasen övergår batteribackupen till batteridrift som vanligt.

ADJUSTMENT OF TAMPER SWITCH



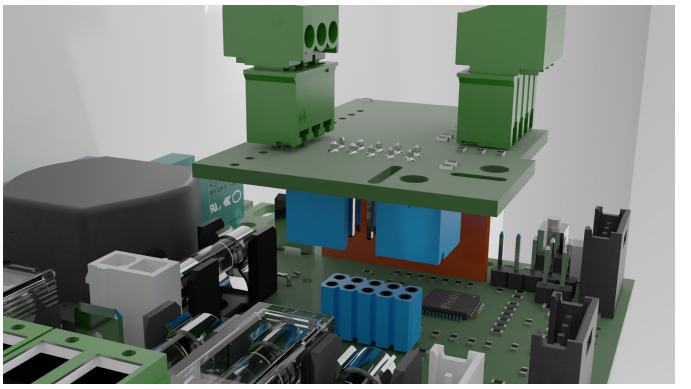
The tamper switch lever must be in the closed position when the cabinet door is closed. If the alarm goes off ("tamper alarm"), the lever may needs to be adjusted.

The lever is adjusted by the following steps:

1. Pinch with pliers in the middle of the lever.
2. Carefully adjust the lever in the desired direction (up / down).
3. Check by closing the door. A click is heard when the contact is closed.

NOTICE
Tamper switch will not give an alarm when closed and locked the door.

APPENDIX: MOUNT I2C BOARD



The board is pressed into place on the motherboard in the power supply.

The power supply may be commissioned.

MAINTENANCE

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

Check the fan annually. The fan should rotate smoothly without any noise. Clean the fan from dust and dirt. The fan must be replaced if it does not rotate smoothly or is so dirty that it cannot be completely cleaned. If the fan does not work well, the air flow in the unit will be obstructed, which leads to an increase in heat in the enclosure, which can lead to a deterioration of the battery capacity and to a significantly shorter battery replacement interval.

ABOUT BATTERIES

Batteries generate electricity through a chemical process and there is thus a natural degradation of capacity. The biggest factor in battery life is temperature. The higher the temperature, the shorter the battery life. The date of manufacture stamped on the battery and the service life (as stated by the battery manufacturer). An ideal temperature is 20 °C both in operation and in storage. Higher ambient temperature greatly reduces the service life. Thus, actual lifespan varies when used. Batteries should be replaced after half specified (from the battery manufacturer) lifetime for safe operation. Batteries purchased through the manufacturer of the battery backup have a lifespan (from the battery manufacturer) of between 10-12 years with recommended replacement after 5-6 years.

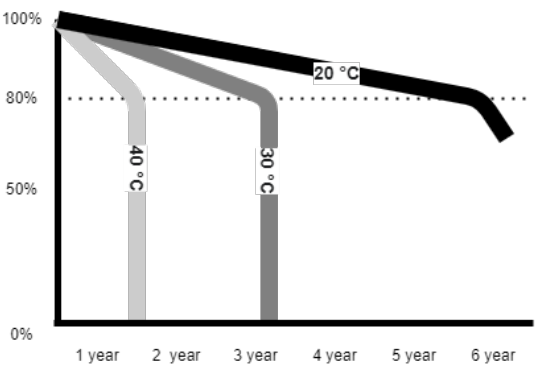


Table 18. *[sv] Tillverkares angivna livslängd och rekommenderat batteribyte*

[sv] Tillverkarens angivna livslängd[a.]	*[sv] Batteri i drift bör bytas efter*[b.].
[sv] 3-5 år	*[sv] 2-3 år*
[sv] 6-9 år	*[sv] 3-5 år*
[sv] 10-12 år	*[sv] 5-7 år*
[sv] 15+ år	*[sv] 8-10 år*

[a.] Gäller vid helt outnyttjat batteri som är lagrat under optimala förhållanden.

[b.] Vid drift i idela omgivningstemperatur, 20 °C.

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.

BATTERY RECYCLING

All batteries must be recycled. Return to manufacturer or return to recycling station.

POWER SUPPLY - PRODUCT SHEET

SSF1014 CERTIFIED BATTERY BACKUP WITH COMMUNICATION

NAME, ARTICLE NUMBER AND E-NUMBER

Table 19. Name, article number and email number.

Name	Article number	E-number
BT-10 FLX Large COM Gen2 - from 20240101	28160155	52 57 701
BT5-FLX2 LARGE COM Gen2	28160153	52 577 00

ABOUT BT FLX COM GEN2

BT FLX COM Gen2 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.

- 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

Power supply BT-5 FLX Small COM Gen 2 and BT-10 FLX Small COM Gen 2 can be expanded with an extra battery box: Battery box 24V FLX S with space for four 14 Ah batteries. Power supply BT-5 FLX Medium COM Gen 2, BT-5 FLX Large COM Gen 2, BT-10 FLX Large COM Gen 2, BT-15 FLX Large COM Gen 2 and BT-25 FLX Large COM Gen 2 can be extended by 1- 4 extra battery boxes*. Power Supply Medium and Power Supply Large can also be expanded with battery shelves in 19” racks*. Battery box Battery box 24V FLX M Has room for two 45 Ah batteries. Battery shelves have room for two 45 Ah batteries (Medium) and two 150 Ah batteries (Large) on each battery shelf*. *Adapter required.

FIXED INSTALLATION

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

AREA OF USE

BT FLX COM Gen2 mostly used for: Access control system, 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.

REGULATIONS AND CERTIFICATIONS

STANDARDS THAT PRODUCT (S) MEET AND ARE APPROVED FOR

Table 20. SBF

SBF 110:8

Table 21. SSF

SSF1014 Alarm class 1-4 (burglar alarm).

Table 22. Certificate and certificate number

Certificate number, SBSC	Designation SBSC
No. 20-117	NOVA 27 50-FLX S • NOVA 27 100-FLX S • NOVA 27 50-FLX M • NOVA 27 100-FLX M • NOVA 27 150-FLX M • NOVA 27 250-FLX M • NOVA 27 50-FLX L • NOVA 27 100-FLX L • NOVA 27 150-FLX L • NOVA 27 250-FLX L Unison Facility Cabinet

REQUIREMENTS THAT THE PRODUCT MEETS

Table 23. The product meets the following requirements.

EMC:	EMC Directive 2014 / 30EU
Electricity:	Low voltage directive: 2014/35 / EU
CE:	CE directive according to: 765/2008
Emission	EN55032 (CISPR32) Class B

NOTE
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).

CE

POWER OUTLET PER PRODUCT

Article name:	Battery capacity:	Possible average load according to LK1 / LK2:	Possible average load according to LK3 / LK4:
BT-5 FLX Small COM Gen2 + Batteribox 24V FLX S	6 pcs 14 Ah (42 Ah)	3.4 A	1.4 A
BT-5 FLX Large COM Gen2	2 pcs. 45 Ah	3.7 A	1.5 A
BT-10 FLX Large COM Gen2	2 pcs. 45 Ah	3.7 A	1.5 A
BT-10 FLX Large COM Gen2 + 1 pcs. Battery box 24V FLX M	4 pcs 45 Ah (90 Ah)	7.4 A	3.0 A
BT-10 FLX Large COM Gen2 + 2 pcs.Battery box 24V FLX M	6 pcs 45 Ah (135 Ah)	11.2 A	4.5 A

CIRCUIT BOARDS - TECHNICAL DATA

TECHNICAL DATA, MOTHERBOARD: PRO 3

Info	Explanation
Short name:	PRO 3
Product description	Motherboard in battery backup with advanced functions and communication to parent system.
Own consumption, with relay card	Less than 100 mA. All relays retracted on external alarm card in normal mode.

Info	Explanation
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 in case of mains failure.
- Power failure alarm.
- Sabotage switch.
- Fuse fault.
- Aged battery

Expanding alarm functions are available via communication or with alarm cards.

Table 24. Fuses

Fuses	Type
5 A	T5A
10 A	T10A
Mains fuse for 24 V units up to 15 A	T2.5AH250V. Ceramic.

Table 25. 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, PRO3 I2C BOARD

Info	Explanation
Card name:	PRO3 I2C board
Version:	1.6
Product description	Card that makes it possible to communicate with UC via i2C.
Recommended environment	Indoors, class 1. Ambient temperature: + 5 ° C - 40 ° C.
Protection class	IPX0
Recommended installation	Battery backup with PRO3 motherboard.
Input voltage	27,3 VDC
Self-consumption	10 mA
Alarm via	I^2C

Info	Explanation
Number of alarm outputs	4 pcs
The product meets the requirements according to	CE directive according to: 765/2008, EMC Directive 2014 / 30EU, Emission: EN61000-6-: 2001, EN55022: 1998: -A1: 2000, A2: 2003 Class 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 & SSF1014 Alarm class 1-4 (Burglar alarm).

Manufactured in Milleteknik's factory in Partille, Sweden.

This translation is not verified and should be cross referenced with the swedish original before use.

Table 26. Alarm overview

Alarm overview in alphabetical order	Communication (P5: 1-9)	Indicator LED on main card and LED on door.
Network outages	X	X
Fuse fault	X	X
Sabotage switch	X	X
Fan fault	X	-
Charger fault, overvoltage	X	X
Charger fault, undervoltage	X	X
Cell fault or unconnected battery	X	X
Low system voltage. **	X	X
Low battery voltage (<24.0 V DC) or power failure	X	X
Overtemperature	X	-
Undertemperature	X	-
Undertemperature	X	-
Short battery life left	X	-
Aged battery	X **	X **
Overcurrent 80%, daily average	X	-
Overcurrent 100%, minute average	X	-
Overcurrent 175%, second average	X	-

TECHNICAL DATA - BT FUSE 5

Info	Explanation
Short name:	BT FUSE 5
Product description	BT FUSE 5 is a fuse module with five fully fused outputs.
The product fits in	Battery backups with motherboards: PRO1, PRO2, PRO2 V3, PRO3 and NEO3.
Measure	85 x 37 mm
Own consumption	35 mA
Tension	12 V or 24 V
Fuses	On load outputs.
Indication	Yes, LED on circuit board

Table 27. Outputs

Info	Explanation
Alarm outputs, number	1
Alarm on alternating relay? (Yes No)	Yes, sum alarm in case of fuse fault
Alarm output protocol (communication protocol)	-
Load outputs, number	5

Info	Explanation
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)	Yes
Maximum load, per output	10 A
Maximum load, total, (must not be exceeded).	16 A
Load output plus (+) secured? (Yes No)	Yes
Load output minus (-) secured (Yes / No)	No
Connection to buzzer? (Yes No)	No

Manufactured in Milleteknik's factory in Partille, Sweden.

This translation is not verified and should be cross referenced with the swedish original before use.

POWER SUPPLY

POWER SUPPLY - TECHNICAL DATA LRS-150-24

In:
BT-5 FLX LARGE COM Gen 2

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:
BT-10 FLX Large COM Gen 2

Info	Explanation
Output voltage	27.3 V

Info	Explanation
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 L

Info	Explanation
Name	FLX L
Enclosure class	IP 32
Measure	Height: 444 mm, width 438 mm, depth 212 mm
Height units	10 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 st 12 V 45 Ah
Place for fan	Yes

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 Millteknik's desrection) 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

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

Designed and produced by Milleteknik AB

BATTERIES - RECOMMENDED, NOT INCLUDED

BATTERIES ARE NOT INCLUDED THEY ARE SOLD SEPARATELY

Batteries are sold separately.

BATTERY COMBINATIONS BT FLX LARGE COM GEN2

Battery capacity (Ah)	Battery type	Number of batteries	Batteries in unit
45 Ah	45 Ah	2 pcs.	2 in Battery Backup
90 Ah	45 Ah	4 pcs	2 in Battery Backup 2 in Battery Box 1
155 Ah	45 Ah	6 pcs	2 in Battery Backup 2 in Battery Box 1 2 and Batteribox 2
180 Ah	45 Ah	8 pcs	0 in Battery Backup 2 in Battery Box 1 2 and Batteribox 2 2 and Batteribox 3

Battery capacity (Ah)	Battery type	Number of batteries	Batteries in unit
225 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

45 AH, 12 V AGM BATTERY

Fits in	Number of batteries
BT-5 FLX Large COM Gen 2	2

Battery type	V	Ah
Maintenance-free AGM, lead-acid battery.	12 V	45 Ah

Table 28. 10+ Design life * battery

Article number	E-number	Article name	Terminal	Measure. Height width depth	Weight per piece	Make
MT113-12V45-01	5230546	UPLUS 12V 45Ah 10+ Design Life battery	M5 Bult	197x165x170 mm	14.5 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.

TECHNICAL DATA - BT FUSE 5

Info	Explanation
Short name:	BT FUSE 5
Product description	BT FUSE 5 is a fuse module with five fully fused outputs.
The product fits in	Battery backups with motherboards: PRO1, PRO2, PRO2 V3, PRO3 and NEO3.
Measure	85 x 37 mm
Own consumption	35 mA
Tension	12 V or 24 V
Fuses	On load outputs.
Indication	Yes, LED on circuit board

Table 29. Outputs

Info	Explanation
Alarm outputs, number	1
Alarm on alternating relay? (Yes No)	Yes, sum alarm in case of fuse fault
Alarm output protocol (communication protocol)	-
Load outputs, number	5
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)	Yes

Info	Explanation
Maximum load, per output	10 A
Maximum load, total, (must not be exceeded).	16 A
Load output plus (+) secured? (Yes No)	Yes
Load output minus (-) secured (Yes / No)	No
Connection to buzzer? (Yes No)	No

Manufactured in Milleteknik's factory in Partille, Sweden.

This translation is not verified and should be cross referenced with the swedish original before use.

CONNECTION OF BATTERY BOX

MOUNTING BATTERY BOX WITH BATTERY BACKUP

The battery box is pushed in during the battery backup, (or previous battery box). The battery box is then screwed to a rack or wall. The two enclosures must meet each other without gap.

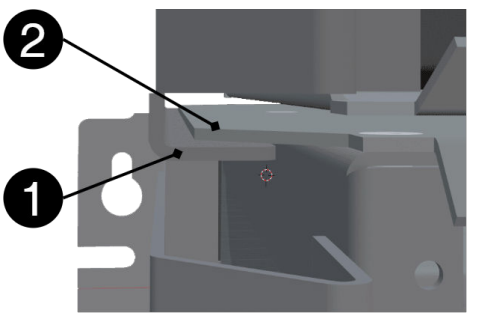


Table 30. Mounting FLX on FLX.

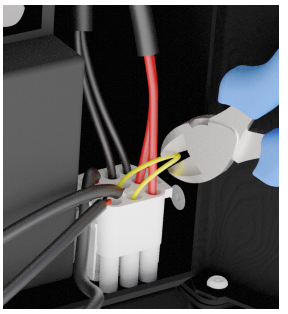
Nr	Explanation
1	Track in battery backup.
2	Protruding part on the roof of the battery box.

INSTALLATION OF BATTERY BOX, WHAT TO DO IN BATTERY BACKUP

Cable gland / knock-out is located on the underside of the battery backup and must be disconnected before mounting.

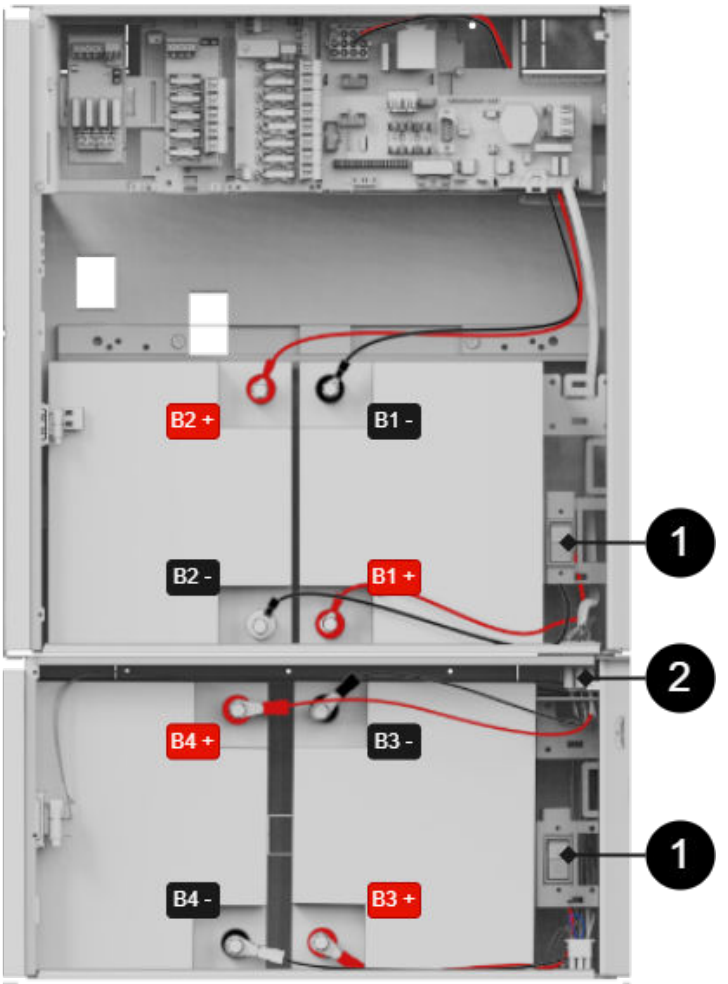
The unit must be de-energized during installation and connection.

- Use the wiring that comes with the battery box to meet the wiring from the battery backup. See picture.



The picture shows cable wiring from the battery backup that meets cables from the battery box

CONNECTION TO BATTERYBOX



The picture also gives an overview of connection points for battery cables and battery fuses.

Table 31. Connecting battery box with battery backup.

Battery cables	Explanation
B1+	Connects to fuse .
B1-	Cable from motherboard is connected to battery .
B2+	Cable from motherboard is connected to battery .
B2-	Connects to fuse .
B3+	Connects to fuse .
B3-	Connected via connector to battery in battery backup .

Battery cables	Explanation
B4+	Connected via connector to battery in battery backup .
B4-	Connects to fuse .

Table 32. Connection

Number	Explanation
1	Battery fuse.
2	Connect battery backup and battery box with white square connector.

ADDRESS AND CONTACT DETAILS

RCO Security AB
Box 3130
S-169 03 Solna
Sweden
+46 8-546 560 00
info@rco.se
www.rco.se

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