



Power Supply

en

BT-15 FLX Large COM Gen2, BT-25 FLX Large COM Gen2



350-257

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Table of Contents

Revisions and the edition of this document	5
You can find manuals at: www.rco.se/file	5
Links to manuals and product sheets	5
Address and contact details	6
Component overviews	7
Component overview BT FLX Large COM Gen2	7
Optional cards for power supply	8
Enclosures	8
Bracket	8
Mounting	9
Batteries - placement and connection	9
Connecting batteries in FLX M	9
Connection of batteries in FLX S, FLX M and FLX L	9
PRO2 V3	10
PCB description of PRO2v3	10
Fuses	11
Connect the mains to the motherboard (PCB)	11
Connect load	12
Connection of load 15 A - 25 A units	13
Load cards with blade fuses	13
Alarm via communication	14
Communication to a parent system	14
Configuration of communication via RS-485	14
Dip switch 1-8	15
Reboot to confirm changes in address, battery and alarm settings to parent system	17
Alarm card for PRO2	17
Multiple units into one parent system	18
Bridge of UC-50 Gen2	19
Bus communication - connection to UC-50 Gen2	20
Card description BT FUSE 5	22
Connections from battery backup to BT FUSE 10	23
Connections - Battery backup and option card	23
Connect BT FUSE 10 for motherboards: PRO2 v3 15 A and 25 A	24
Connection of load on BT FUSE 10	25
Commissioning - how to start the unit	25
Commissioning when connected to UC-50	25
System test	26
Recovery	26
Alarm displayed on cabinet door	26
Adjustment of tamper switch	27
Maintenance	27
About batteries	28
battery change	28
Battery recycling	28
Power supply - product sheet	29
SSF1014 certified battery backup with communication	29

Name, article number and e-number	29
About BT FLX COM Gen2	29
Area of use	30
Regulations and certifications	30
Standards that product (s) meet and are approved for	30
Requirements that the product meets	30
Power outlet per product	31
Circuit boards - Technical data	31
Technical data, motherboard: PRO 2 V3	31
Technical data, alarm cards for PRO 2 and PRO2 V3	33
Technical data - 2+2 Output module	33
Technical data - BT FUSE 10	34
Power supply	35
Power supply - Technical Data RSP-320-24	35
Power supply - Technical Data HRP-600-24	35
Technical data enclosures	36
Enclosures - Technical Data FLX L	36
Warranty, support, country of manufacture and country of origin	36
Warranty 5 years	36
Support	37
Country of manufacture	37
Designed and produced by: Milleteknik AB	37
Batteries - recommended, not included	37
Batteries are not included they are sold separately	37
Battery combinations BT FLX Large COM Gen2	37
45 Ah, 12 V AGM battery	38
Technical data - BT FUSE 10	38
Connection of battery box	39
Mounting battery box with battery backup	39
Installation of battery box, what to do in battery backup	39
Connection to batterybox	40
Tamper switch when using battery box(-es)	41
Address and contact details	41

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 original¹.



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.

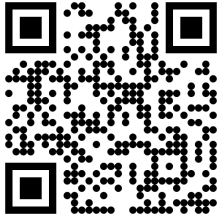
The installer is responsible for ensuring that there is an energy buffer of at least 150 ms in systems that the battery backup supplies power to or accepts a power failure of 150 ms.

You can find manuals at: www.rco.se/file

Links to manuals and product sheets

You will find manuals and product sheets at: www.rco.se/file

¹Translations 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

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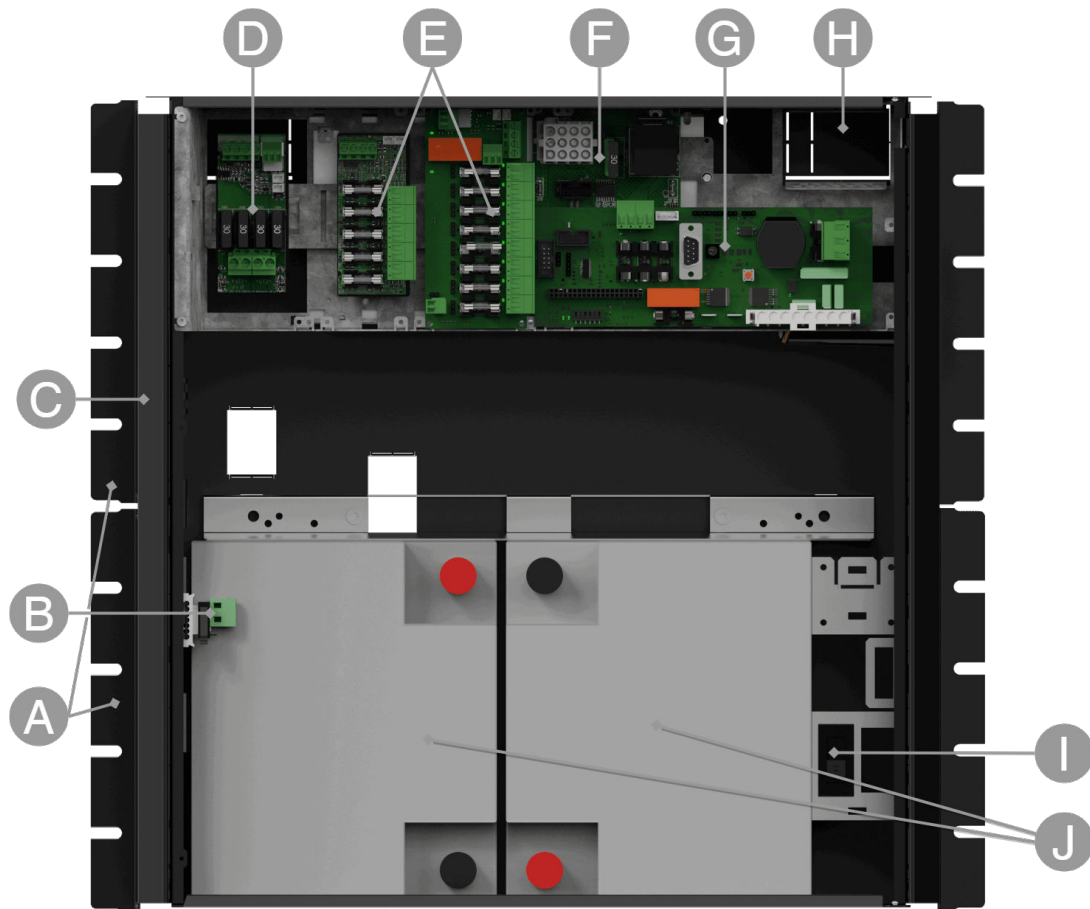
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This installation sheet article number:

Component overviews

Component overview BT FLX Large COM Gen2



Batteries should be placed as in the picture.

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.
D	Load card - load is connected here.
E	Space for mounting optional cards
F	Power card - in units 15 A and 25 A.
G	Motherboard, (varies with configuration).
H	Cable entries.
I	Battery fuse.
J	Space for batteries.



CAUTION

For 15 A and 25 A units, loads may not be connected to the motherboard but must be connected to the power board or to the option board.

Optional cards for power supply

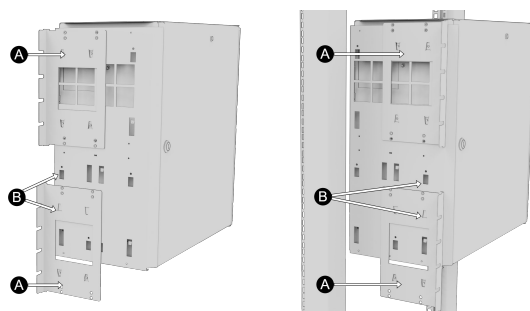
Table 1. Optional cards for power supply

Power supply	Optional cards fitted on delivery	Additional cards that can be mounted
BT-5 MEDIUM	-	1 BT-Fuse 5.
BT-5 FLX Small COM Gen2	-	1 pc. BT-Fuse 5 or 1 pc. BT-Fuse 10.
BT-10 FLX Small COM Gen2	-	1 pc. BT-Fuse 5 or 1 pc. BT-Fuse 10.
BT-5 FLX Medium COM Gen2	-	2 pcs. BT-Fuse 5 or 2 pcs. BT-Fuse 10.
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.
BT-15 FLX Large COM Gen2	1 pc. BT-Fuse 10.	1 pc. BT-Fuse 5 or 1 pc. BT-Fuse 10.
BT-25 FLX Large COM Gen2	2 pcs. BT-Fuse 10.	-

Enclosures

Bracket

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.



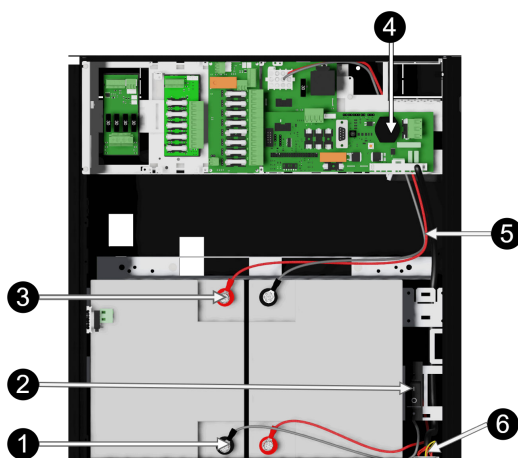
No	Explanation
A	Console is pushed in from the bottom up. Slide the top bracket in first.
B	Clip clicks in when bracket is pushed in correctly.

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.

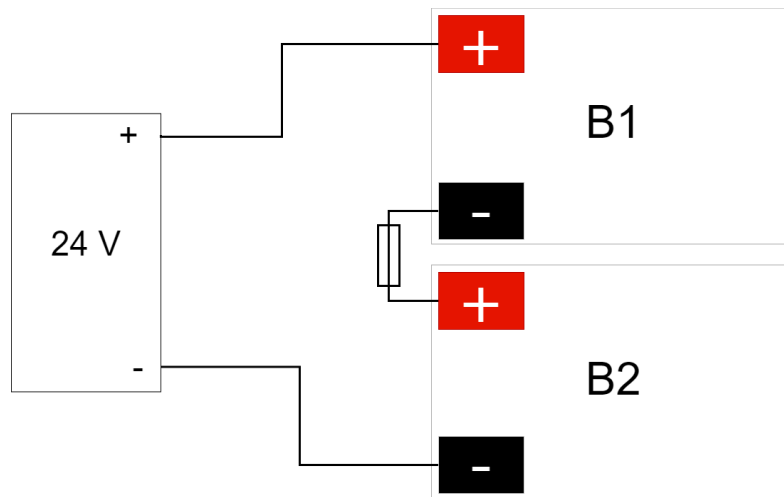
No	Explanation
1	Minus coil for battery cable from 4.
2	Fuse.
3	Plus terminal for battery cable from 4.
4	Motherboard, varies with configuration.
5	Battery cables are located on the system board.
6	Connection for connection of battery box.

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

PRO2 V3

PCB description of PRO2v3

The motherboard controls the device, distributes power and communicates with other systems. See technical data for more information.

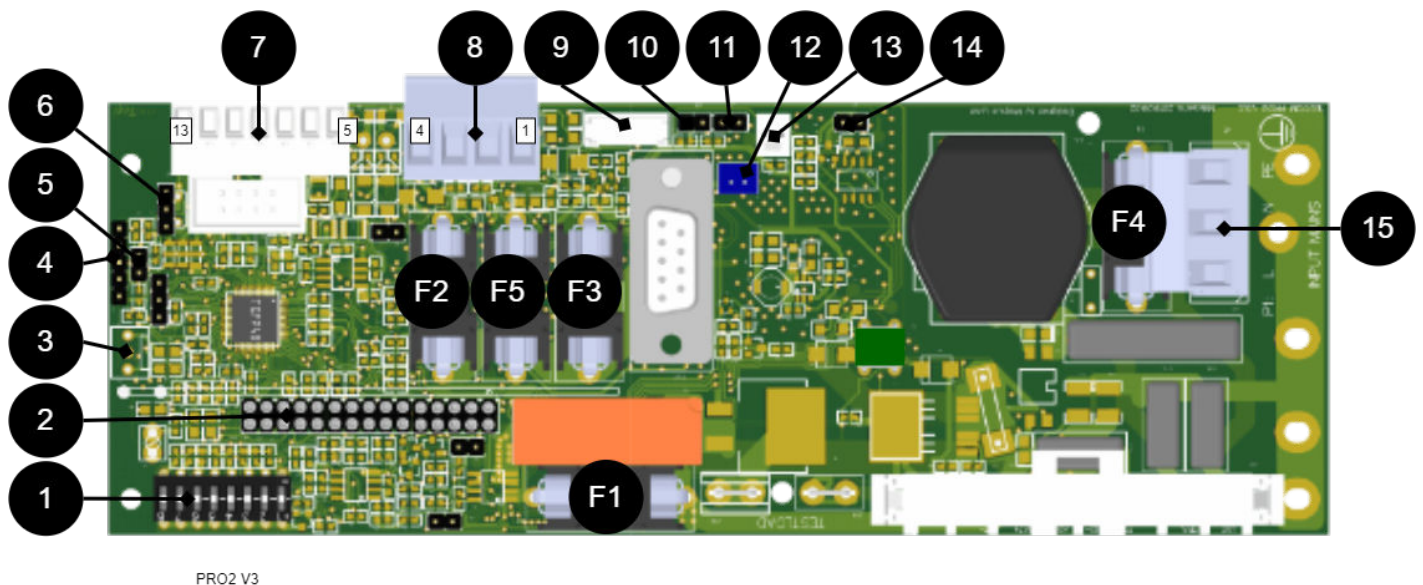


Figure 3. PRO2 v3

Table 2. Circuit board overview, explanation

No .	On circuit board	Explanation
1	Dip SW	Dip switch 1-8
2	J20	Connection relay board.

Power supply

No .	On circuit board	Explanation
3	JU17	Connection external indicator diode.
4	-	Programming contact.
5	J13	Reset of data after battery replacement.
6	J6	Temperature sensor.
7	P2:7-13	Connection communication
	7-8	I ² c
	9-10	PE
	11	SDA
	12	SCL
	13	+5V
8	P2:1-4	Load outputs.
	1	+
	2	-
	3	+
	4	-
9	J29	Connection to fan.
10	J14	Tamper switch connection.
11	J3	Connection tamper switch from battery box.
12	J1	Connection option card.
13	J4	Connection external fuse (NO).
14	J7/21	Connection to external fuse (NC).
15	P1:1-3	Incoming mains, (230 V). L, N, PE.

Fuses

Table 3. Fuses on PRO2 / PRO2 V3

Fuse	Type	Explanation
F1	T16A	Mains fuse
F2	T2A	Load fuse 2 + (for P2: 4)
F3	T2A	Reading protection 1 + (for P2: 1)
F4	T2.5A / T4A	Mains fuse, the lower valute for units 5 A - 15 A and the higher value for 25 A units.
F5	T16A	Load fuse 1+ (for P2: 2)



FUSE REPLACEMENT WARNING (A)

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

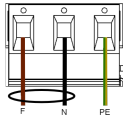
Connect the mains to the motherboard (PCB)

Connect mains

Pull wiring through the cable entry on the cabinet.

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

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



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 4. 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 5. 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 -



CAUTION

Load may only be connected to the motherboard in 5 A and 10 A units. For other units, load must be connected via power board or option board.

Connection of load 15 A - 25 A units

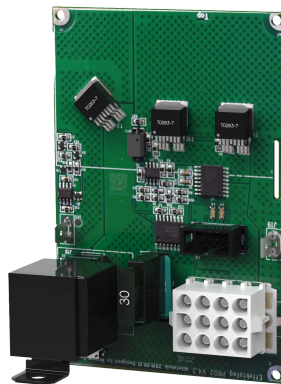
For units with a effect card, which is available to handle the higher currents (15 ampere and above), the load must be connected on an optional board.

See documentation for option board for how to connect load.



WARNING

Load must not be connected to the motherboard if the device is a 15 A or 25 A, as it will be destroyed during commissioning. Motherboards that are faulty due to incorrect connections are not covered by warranty.



The effect card increases the current for 15 A and 25 A units.

Figure 5. Effect card

Load cards with blade fuses

The card replaces the load output on the motherboard.

The load card has a different type of fuse that is easier to change and at the same time the card provides a easier connection of the load.

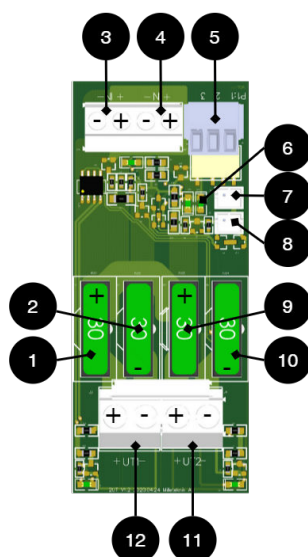


Table 6. Circuit board overview, explanation

No .	On circuit board	Explanation
1, 9	FUS2, FUS4	+ fuse, 10 A- 25 A depending on the product.
2, 10	FUS1, FUS3	- fuse, 30A.
3, 4	IN1, IN2	Incoming connection 24 V, (from motherboard).
5	P1:1-3	Alarm relay: NC, Com, NO
6	D29, D30	LED.
7	J1	Fuse alarm.
8	J2	Fuse alarm for forwarding to several cards.
11, 12	+UT1-, +UT2-	Load connection, outgoing, 24 V

Load is connected to 11 or 12 on fuse card, see component overview.

Alarm via communication

Connection of communication to the parent system takes place via JU6. See the parent system documentation for more information.

Communication to a parent system

It is possible to connect communication to a superior system via connections on P2. See also the parent system's documentation for compatible protocol. See technical data for more information on alarms.

Table 7. Connections over communication

Terminal block	Explanation
P2: 7	RS-485 -
P2: 8	RS-485 +
P2: 9	System minus -
P2: 10	System-minus -
P2: 11	RXD
P2: 12	TXD
P2: 13	+5 V

Configuration of communication via RS-485

Communication via RS-485 is connected to P2: 7- & P2: 8+.

The address is set binary on the switch.

ADDRESS configuration:

Table 8. S1 Dip switch

Dip switch	Value
Dip switch 1=	1
Dip switch 2=	2
Dip switch 3=	4
Dip switch 4=	8

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	Comment
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	Available from software v1.5
6	Sets alarm for mains failure delay	Available from software v 1.5
7	Sets alarm limit for low battery voltage in battery operation.	Available from software v 1.5
8	Turns LED off or on.	Upcoming feature through software update
8 in sequence	Performs battery test	Not available in NEO.

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

	Dip: 1	Dip: 2	Dip: 3	Dip:4
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.



NOTICE

For certified units:

To comply with SSF-1014 up to alarm class 4, the LED on the door must be off (Dip-switch 8 to ON).

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 J13 (PRO2)



IMPORTANT

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

NEO cannot be connected to communication/UC.

Alarm card for PRO2

Relay card - description, connections and alarm outputs.

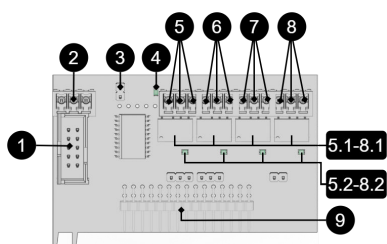
- All fault arm relays must be in the drawn state. Check that there is a gap between CO and NC. Put the measuring instrument on continuity measurement and test closure. This should then indicate a short circuit.
- All relay outputs are normally live and give an alarm in the event of no voltage.



IMPORTANT

There is normally a 10 second delay in alarm reset. The software on the main board must be configured for a different time period.

Power supply

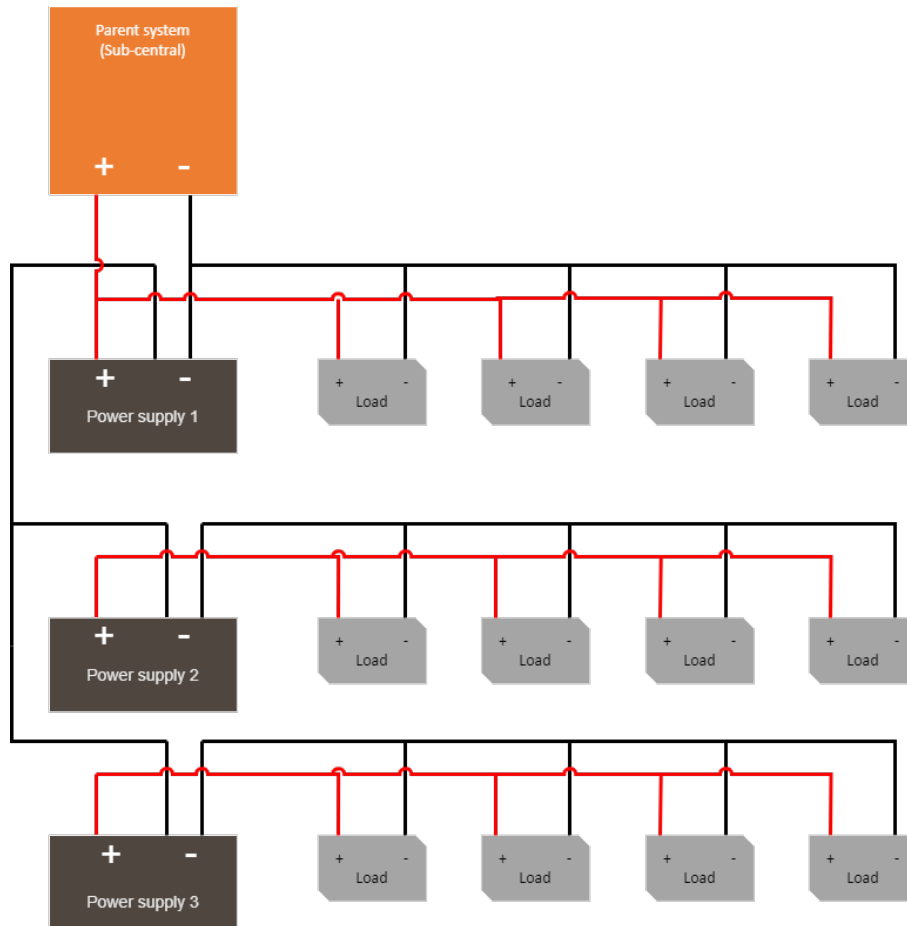


No .	Relay (Terminal no.)	The relay is normally energized.	Alarm type / explanation
1	J7	-	Connection for RS-232 cable.
2	P4:1	-	RS-232: TxD, data OUT from motherboard.
	P4:2	-	RS-232: RxD, data IN to motherboard.
	P4:3	-	RS-232: Ground, do not connect ground to another terminal.
3	J6	-	Reset jumper.
4	D7	-	Indicator diode, flashes green during normal operation.
5,5.1, 5.2	P5:1-3	NO, COM, NC	Tamper alarm, (optional for EN54). 5.1 Relay. 5.2 LED, lights up green when relay is energized.
6, 6.1, 6.2	P5:4-6	NO, COM, NC	Alarm for: Low system voltage. 6.1 Relay. 6.2 LED, lights up green when relay is energized.
7, 7.1, 7.2	P5:7-9	NO, COM, NC	Alarm for: Fuse failure, charger failure overvoltage, charger failure under-voltage, cell failure/not connected battery, low battery voltage in case of mains failure and aged battery. 7.1 Relay. 7.2 LED, lights up green when relay is energized.
8, 8.1, 8.2	P5:10-12	NO, COM, NC	Power failure alarm. 8.1 Relay. 8.2 LED, lights up green when relay is energized.
9	J11	-	Connection to motherboard.

Via communication on PRO1 card: All alarms and alarms for: Fan fault, overtemperature, subtemperature, short battery life left, overcurrent 100% of minute average, overcurrent 80% daily average and overcurrent 175% second average.

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.



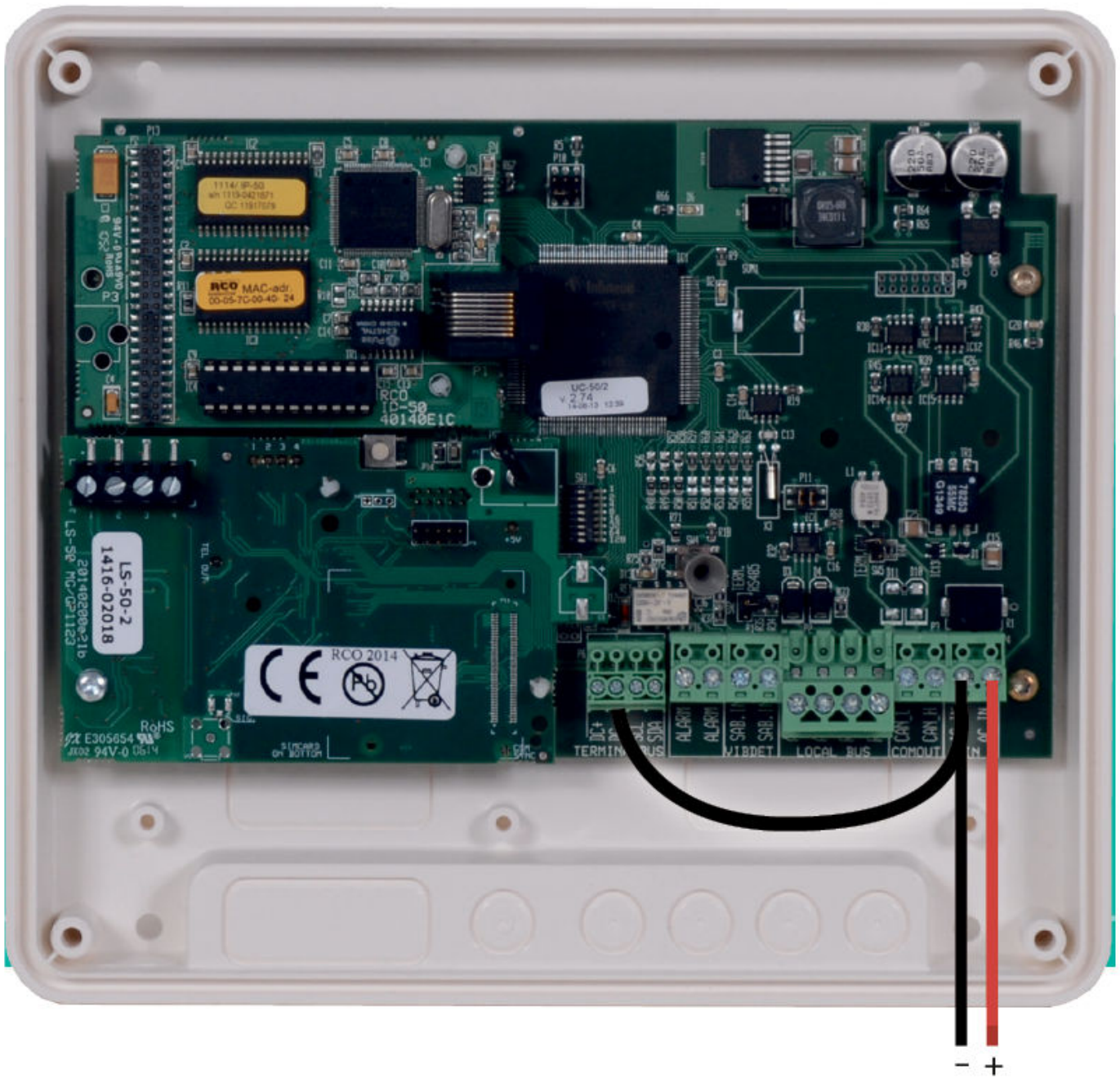
Bridge of UC-50 Gen2

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.



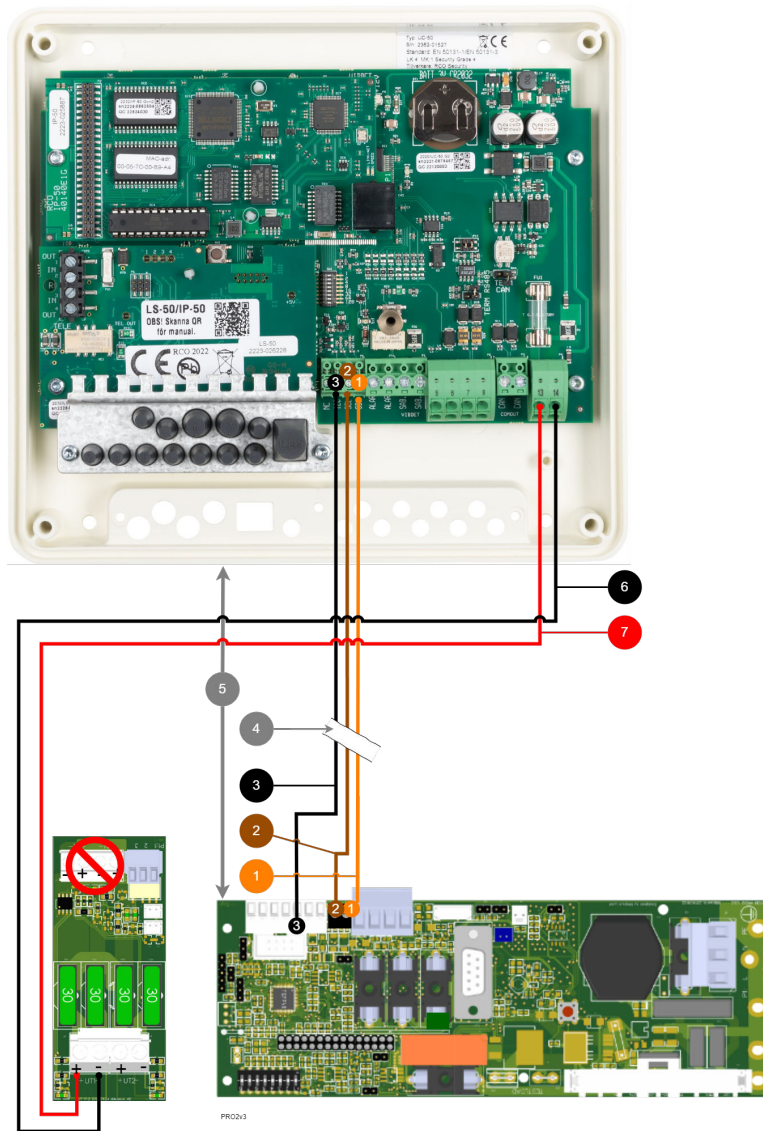
IMPORTANT

The bridge must be located: i²C, 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

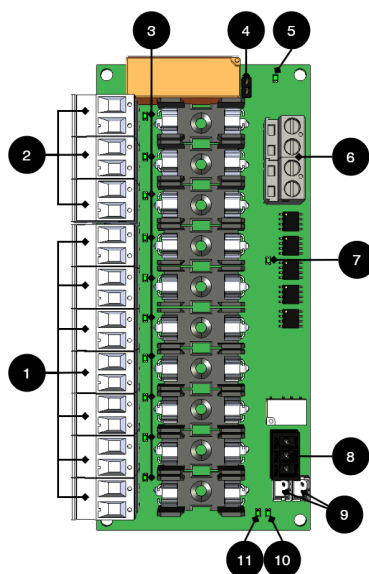
No	On PCB in UC-50 Gen2	On PCB in power supply	Color of cable	Explanation
1	SDA, P6:42	P2:5	Orange	SDA/DATA.
2	SCL, P6:41	P2:6	Brown	SCL/CLOCK.
3	I ² C 0V, P6:40	P2:4, P2:9 or P2:10	Black	V-Ground / minus. Choose any.
4	-	-	-	Untwisted cable. Maximum three meters.
5	-	-	-	Max distance between power supply and UC-50 Gen2: 3 meters.
6	DC+ IN, P4:14	+UT1	RED	24 V.
7	DC- IN, P4:14	UT1-	Black	24 V.



IMPORTANT

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

Card description BT FUSE 5



IMPORTANT

From the factory, all ten outputs are prioritized, (4 are jumpered).

Table 13. Circuit Board Overview - BT FUSE 10

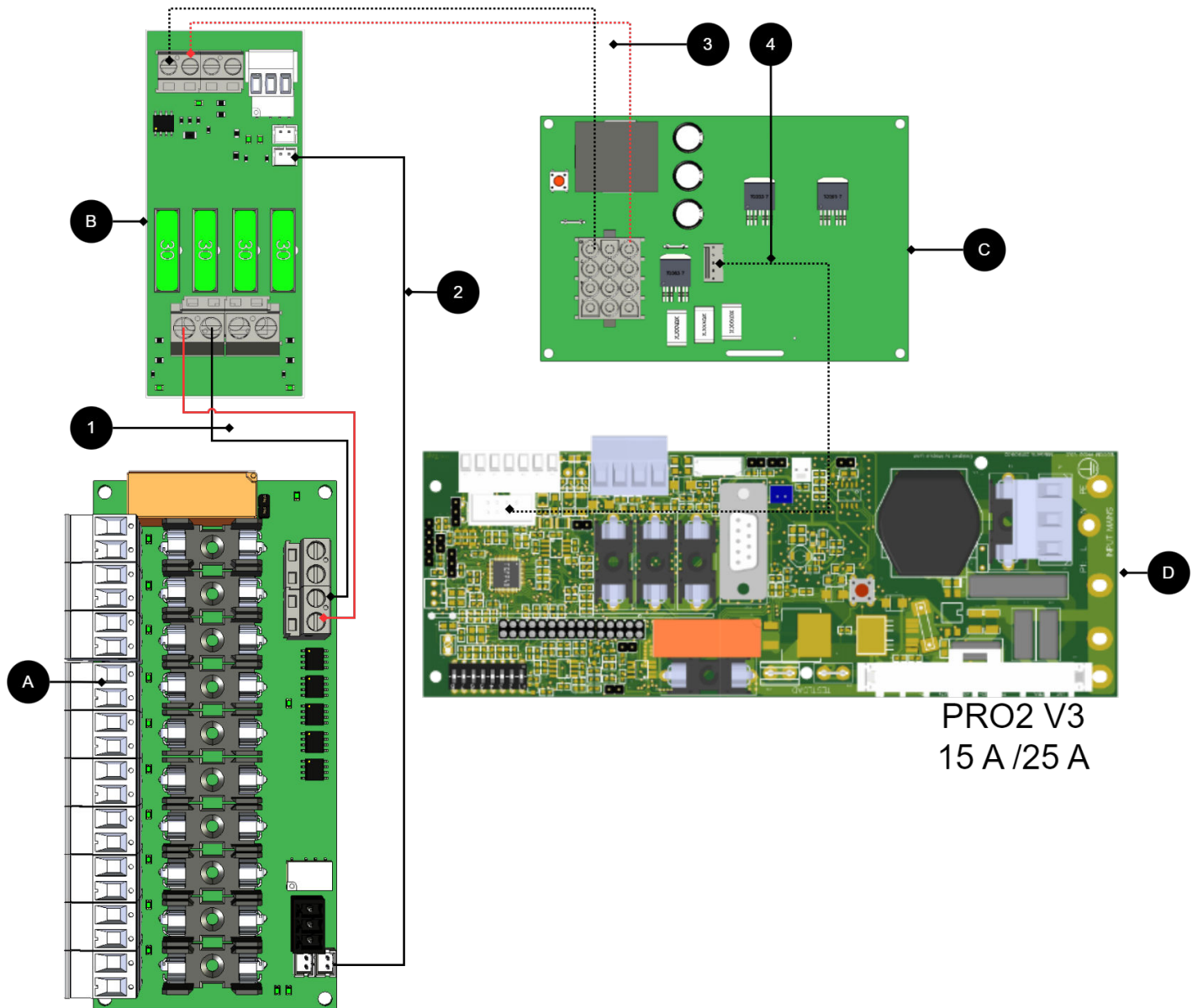
No .	On circuit board	Explanation
1	P1:1-14	Priority load outputs +/- (Odd numbers = minus, even numbers = plus). A prioritized load output always has voltage.
2	P1:15-20	Unprioritized load outputs +/- (Odd numbers = minus, even numbers = plus). In battery operation, the load is released if 4 is not bridged. If the jumper is on 4, the load outputs are prioritized.
3	D1-D10	Green indicator diode, lights up with a solid green light when the fuse is ok.
4	JU1	Jumper to control three outputs. Factory setting is mounted jumper = all 10 outputs are activated. Without a jumper, only priority outputs (1) P1:1-14 are activated. If the jumper is removed, the outputs, 2, are controlled from 9.
5	D10	Green indicator diode, lights up with a solid green light when all outputs are activated.
6	P2:1-4	Incoming voltage from motherboard, 24 V. (1,3=+, 2,4=-).
7	D17	Indicator diode lights up orange if priority outputs are activated.
8	P1:1-3	Alarm output, NO, Com, NC.
9	J11-J12	Connection of alarms to motherboard and/or bridging of alarms from another board. Use any connection to connect alarm to motherboard. If the jumper, 4, is removed, the outputs, 2, are controlled with the coupling, see connection to the board.
10	D29	Indicator diode that lights up with a solid green light when all fuses are ok.
11	D30	Indicator diode that lights up with a solid red light if any fuse is faulty.

Connections from battery backup to BT FUSE 10

Connections - Battery backup and option card

Main board in battery backup, connected from	Connects to optional cards
PRO1	Optional card
Alarm: J15	FUSE ALARM 2-3
Load: Load output 1	IN 12 V / 24 V
PRO2, PRO2 V3 & PRO 3	Optional card
Alarm: J7	FUSE ALARM 2-3
Load: Load output 1	IN 12 V / 24 V

Connect BT FUSE 10 for motherboards: PRO2 v3 15 A and 25 A



+ and - from load on motherboard are connected to + and - on the option board.

Communication is connected between terminals as the solid line shows.

Figure 7. Connect the card as shown in the picture.



IMPORTANT

Early versions of PRO1 and PRO2 may lack white terminal (JST), which lacks a JST contact, then the alarm is connected via relay switching. P3:1-3. [If the card lacks a white \(JST\) contact or if the alarm is to be given via relay switching](#)

Table 14. Connections 15 A and 25 A units

No/letter	On circuit board	Explanation
A	10 Output modules	Optional card.
B	2 Output module	Card for connection of load and power supply to 10 Output module.
C	Effect card	Available in 15 A and 25 A units.
D	PRO2 v3	Motherboard in battery backup.
1	P2:3-4	Connect power supply from 2 Output module (B) to 10 Output Module (A)
2	J11	Alarm output, connects to load card.
3,4	-	Internal power supply between cards.

Connection of load on BT FUSE 10



WARNING

Maximum load is 10A per load output, and the card's total load must not exceed 16 A.

1. Connect load wiring to P1:1-20 on fuse module for load.
2. Alarm is connected to P3:1-3.

Only then can battery backup be put into operation.

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.

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.

Commissioning when connected to UC-50

Commision in this order when simultaneously connected to the UC-50

1. Connecting and energizing the batteries.
2. Connect to mains.
3. Connect the alarm system according to [connection UC50 \[20\]](#).

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

System test

Test the connected device by performing a system test afterwards [commissioning \[25\]](#).



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

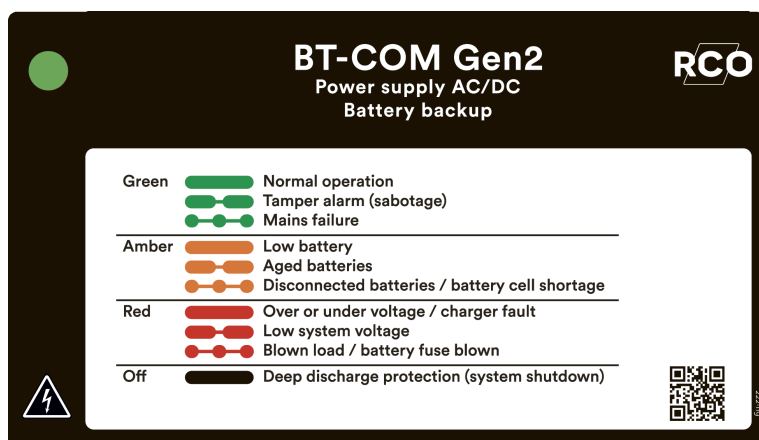
Recovery

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.

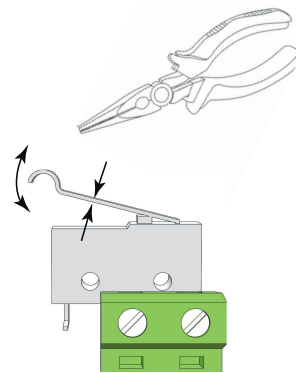


The indicator diode (LED) shows	Explanation
Solid green light	Normal operation.
Slow green flashes	Sabotage alarm.

The indicator diode (LED) shows	Explanation
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.

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 need 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.

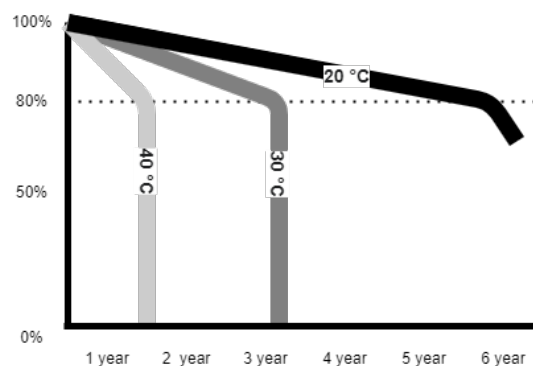
Maintenance

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.



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.

Have you changed the size of the battery? Then don't forget to change the battery capacity, see ???

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

Name	Article number	E-number
BT15-FLX2 LARGE COM Gen2 - from 20240101	28160157	52 577 02
BT-15 FLX LARGE COM - to 20231231	28160156	52 574 58
BT25-FLX2 LARGE COM Gen2 - from 20240101	28160159	52 577 03
BT-25 FLX LARGE COM - to 20231231	28160158	52 574 59

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 15. SBF

SBF 110:8

Table 16. SSF

SSF1014 Alarm class 1-4 (burglar alarm).

Table 17. 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

EMC:

EMC Directive 2014 / 30EU

Power supply

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



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-15 FLX Large COM Gen2	2x 45 Ah	3.6 A	1.4 A
BT-15 FLX Large COM Gen2 + 1 pc. Battery box 24V FLX M	4 pcs 45 Ah (90 Ah)	7.3 A	2.9 A
BT-15 FLX Large COM Gen2 + 2 pcs. Battery box 24V FLX M	6 pcs 45 Ah (135 Ah)	11.1 A	4.4 A
BT-15 FLX Large COM Gen2 + 3 pcs. Battery box 24V FLX M	8 pcs 45 Ah (180 Ah)	14.8 A	5.9 A
BT-25 FLX Large COM Gen2	2 pcs. 45 Ah	3.6 A	1.4 A
BT-25 FLX Large COM Gen2 + 1 pc. Battery box 24V FLX M	4 pcs 45 Ah (90 Ah)	7.3 A	2.9 A
BT-25 FLX Large COM Gen2 + 2 pcs. Battery box 24V FLX M	6 pcs 45 Ah (135 Ah)	11.1 A	4.5 A
BT-25 FLX Large COM Gen2 + 3 pcs. Battery box 24V FLX M	8 pcs 45 Ah (180 Ah)	14.8 A	5.9 A
BT-25 FLX Large COM Gen2 + 4 pcs. Battery box 24V FLX M	10 pieces. 45 Ah (225Ah)	18,6 A	7,4 A

Circuit boards - Technical data

Technical data, motherboard: PRO 2 V3

Info	Explanation
Short name:	PRO 2 V3
Product description	Motherboard in battery backup with advanced functions and communication to parent system.
Own consumption, with relay card	Less than 210 mA. 100 mA without power stage with all relays retracted on external alarm card in normal mode.
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 18. Outputs

Info	Explanation
Alarm on alternating relay? (Yes No)	Yes
Alarm output protocol (communication protocol)	RS-485 and I ² C
Load outputs, number	2
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)	-
Maximum load, per output	10 A
Maximum load, total, (must not be exceeded).	10 A
Load output plus (+) secured? (Yes No)	-
Load output minus (-) secured (Yes / No)	-
Fuses on output	Yes, see table: Fuses.
Connection to buzzer? (Yes No)	-

Table 19. Fuses

Fuses	Type
1.5 A	F1.5A
3 A	T3A
5 A	T5A
10 A	T10A
15 A	T15A
25 A	T25A
Power supply fuse of 12V one	T2.5AH250V. Ceramic.
Mains fuse for 24 V units up to 15 A	T2.5AH250V. Ceramic.
Mains fuse for 24 v units over to 15 A	T4AH250V. Ceramic.

Table 20. 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, alarm cards for PRO 2 and PRO2 V3

Info	Explanation
Card name:	PRO2 larmkort
Version:	2.0
Product description	Alarm card for PRO2 and PRO2 V3 with alarm on alternating relay. All relays are normally energized and give an alarm in a voltage-free position.
self-consumption	40 mA

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 21. Alarm overview

Alarm overview in alphabetical order	Relay 1 * / Alarm output 1	Relay 2 * / Alarm output 2	Relay 3 * / Alarm output 3	Relay 4 * / Alarm output 4	Communication (P1: 1-12)	Indicator LED on motherboard and LED on door.
Network outages	X	-	-	-	X	X
Fuse fault	-	X	-	-	X	X
Sabotage switch	-	-	-	X	X	X
Fan fault	-	-	-	-	X	-
Charger fault, overvoltage	-	X	-	-	X	X
Charger fault, undervoltage	-	X	-	-	X	X
Cell fault or unconnected battery	-	X	-	-	X	X
Low system voltage. **	-	-	X	-	X	X
Low battery voltage (<24.0 V DC) or power failure	-	X	-	-	X	X
Overtemperature	-	-	-	-	X	-
Undertemperature	-	-	-	-	X	-
Undertemperature	-	-	-	-	X	-
Short battery life left	-	-	-	-	X	-
Aged battery	-	X	-	-	X	X
Overcurrent 100%, minute average	-	-	-	-	X	-
Overcurrent 80%, daily average	-	-	-	-	X	-
Overcurrent 175%, second average	-	-	-	-	X	-

* Alarm on potential-free relay contact.

** System voltage in mains operation is below 24.0 V.

350-232

Technical data - 2+2 Output module

Info	Explanation
Short name:	2+2 Output module
Product description	2+2 Output module is a hedging module with four fully secured outputs, two of which are prioritized and two are non-prioritized.
The product fits in	Battery backups with motherboards: PRO1, PRO2, PRO2 V3, PRO3 and NEO3.
Measure	85 x 37 mm

Info	Explanation
Own consumption	35 mA
Tension	24 V
Fuses	On exits.
Indication	Yes, LED on circuit board

Table 22. 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, (of which priority).	4 (2)
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	5 A
Maximum load, total, (must not be exceeded).	10 A
Load output plus (+) secured? (Yes No)	Yes
Load output minus (-) secured (Yes / No)	No
Fuses on output	F2A
Connection to buzzer? (Yes No)	No

The article number of the manual

Manufactured in Milleteknik's factory in Partille, Sweden.

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

Technical data - BT FUSE 10

Info	Explanation
Short name:	BT FUSE 10
Product description	BT FUSE 10 is a hedging module with 10 fully secured outputs, of which seven are prioritized and three are non-prioritized.
The product fits in	Battery backups with motherboards: PRO1, PRO2, PRO2 V3, PRO3 and NEO3.
Measure	120 x 45 mm
Own consumption	70 mA
Tension	24 V
Fuses	F10A
Indication	Yes, LED on circuit board

Table 23. 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	10
Voltage at load output	27.3 V DC

Power supply

Info	Explanation
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
Fuses on output	Yes, see table: Fuses.
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 RSP-320-24

In:
BT-15 FLX Large COM Gen 2

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.

Power supply - Technical Data HRP-600-24

In:
BT-25 FLX LARGE COM Gen 2

Info	Explanation
Output voltage	27.3 V

Power supply

Info	Explanation
Output current	0 A - 27 A
Output voltage, ripple	150 mVp-p
Overvoltage	30 V - 34.8 V
Voltage recharge, ripple / current limitation	Less than 1.2 Vp-p
Efficiency	88%
Current limitation	105% - 135%
Constant voltage	+/- 0.5%
Regulatory accuracy	+/- 1.0%
Input current (230 V)	3,6 A
Mains voltage frequency	47 Hz- 63 Hz
Mains voltage	230 V AC - 240 V AC
Brand effect	648 W
Temperature range	-30°C - +70°C
Humidity range	20% - 90% RH non-condensed
<p>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.</p>	

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 Milleteknik's discretion) 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

Power supply

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-15 FLX Large COM Gen 2	2
BT-25 FLX Large COM Gen 2	2

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

Table 24. 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 10

Info	Explanation
Short name:	BT FUSE 10
Product description	BT FUSE 10 is a hedging module with 10 fully secured outputs, of which seven are prioritized and three are non-prioritized.
The product fits in	Battery backups with motherboards: PRO1, PRO2, PRO2 V3, PRO3 and NEO3.
Measure	120 x 45 mm
Own consumption	70 mA
Tension	24 V
Fuses	F10A
Indication	Yes, LED on circuit board

Table 25. 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	10
Voltage at load output	27.3 V DC

Info	Explanation
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
Fuses on output	Yes, see table: Fuses.
Connection to buzzer? (Yes No)	No

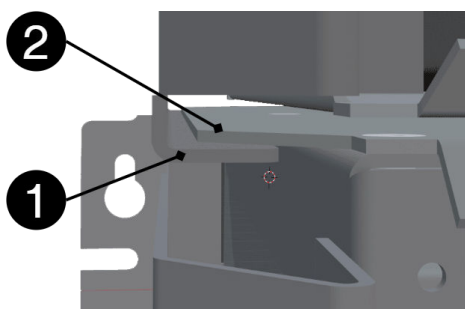
Manufactured in Milleteknik's factory in Partille, Sweden.

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.



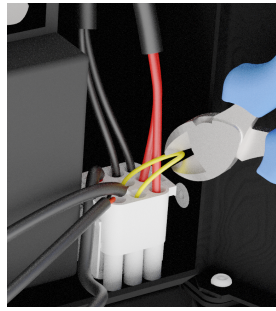
Nr	Explanation
1	Track in battery backup.
2	Protruding part on the roof of the battery box.

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.

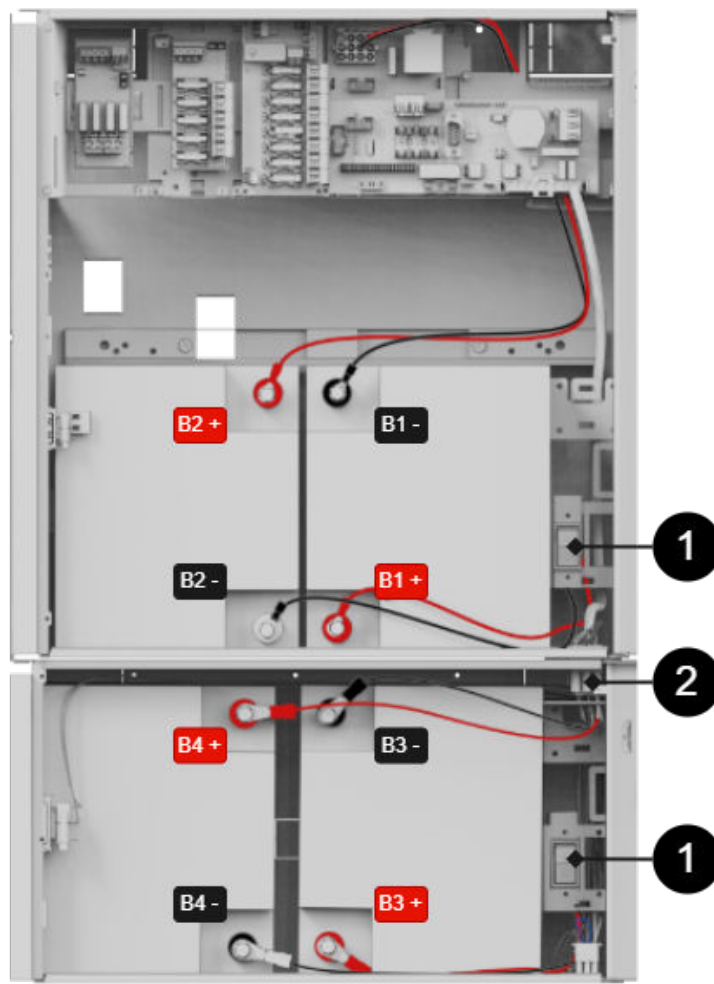
The unit must be de-energized during installation and connection.

- 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.

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

Table 26. Connection

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

Tamper switch when using battery box(-es)

If one or more battery boxes have been connected to the unit, the tamper switch must be connected in series in order for alarms from all units to be given. It is important that the series connection ends at the last tamper contact. The series connection must start in the battery backup unit and return to the last battery box.

All tamper contacts must be in series for everyone to be part of the alarm chain. Therefore, the yellow cable that is in the jackable connector must be cut on all connecting cables, except the last one. The cable must not be cut on the last connection / battery box.

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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