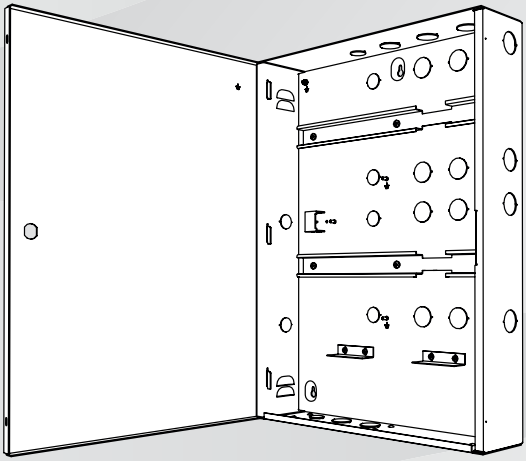
AMC2 enclosure with 2 DIN rails

AEC-AMC2-UL02



en Installation manual

Table of contents

1 System overview

1.1 Components of the enclosure

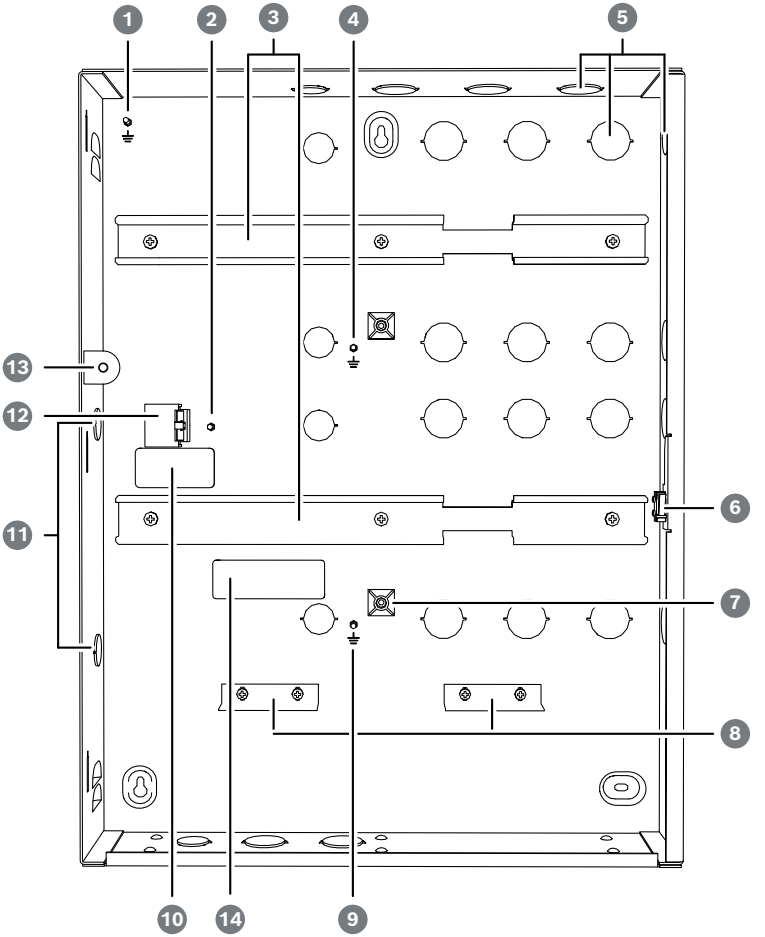
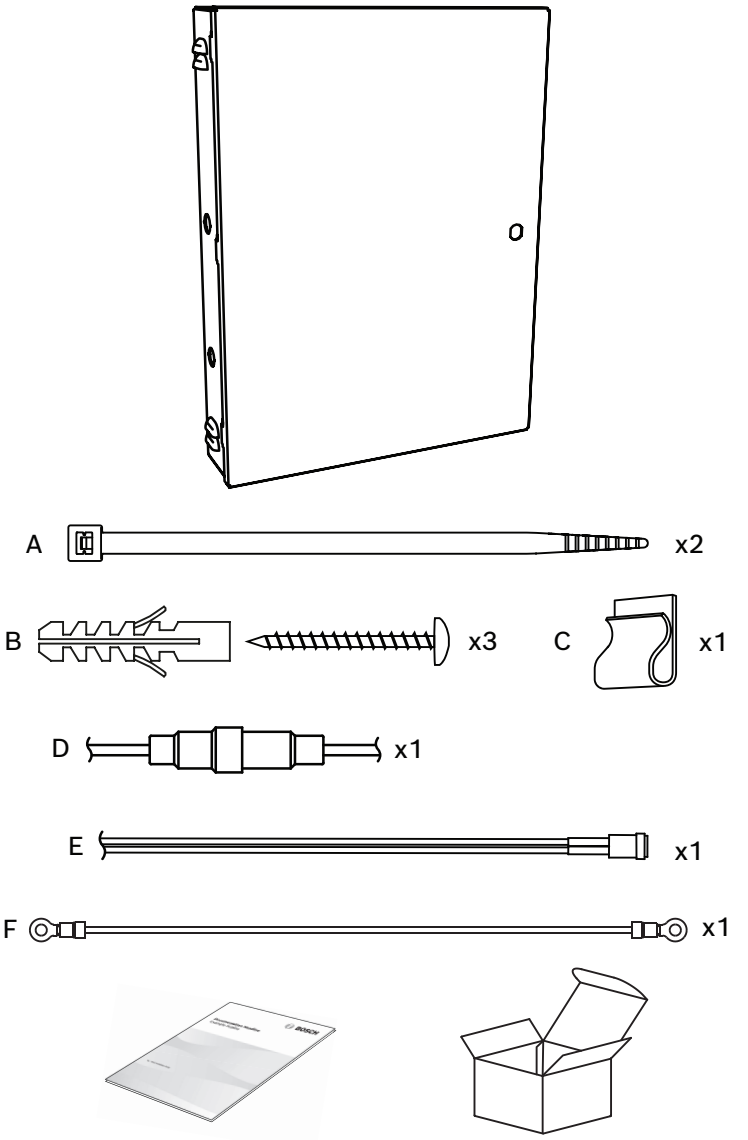


Figure 1.1: Components of the enclosure

Position	Description
1	Cover grounding point
2	Main grounding point

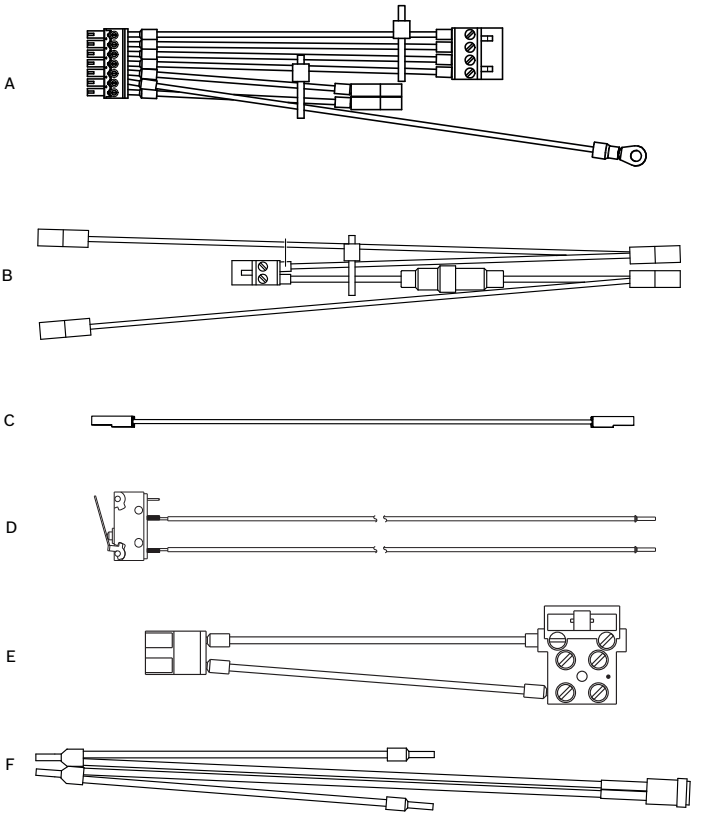
Position	Description
3	Mounting rail for power supply unit (PSU) and Access Modular Controller (AMC2)
4	AMC2 grounding point
5	Cable knock-outs for reader and signal cables
6	Tamper contact
7	Temperature sensor bracket
8	Fixing bracket for rechargeable batteries
9	AMC-EXT grounding point
10	Label
11	Knock-out for the power cable connection
12	Three pin connector
13	Bracket for LED
14	Name plate

1.2 Parts included



Position	Description
A	Cable ties to secure cables
B	Three screw anchors S8 and M6 × 50 screws
C	Bracket for cable fixing
D	Fuse and fuse holder
E	LED
F	Cover grounding cable

1.3 Cables to be assembled



Position	Description
A	Power supply cable (AMC2)
B	Power supply cable (battery)
C	Battery cable
D	Cover contact wired
E	Power cable

Position	Description
F	Power cable with LED indicator (UL required)

2 Mounting the enclosure

The enclosure is designed to be mounted on a wall.

1. Open the door lock of the enclosure with the provided key.
2. Hold the enclosure at the desired position against the wall.
3. Mark the mounting holes on the wall with a pencil.
4. Put the enclosure aside.
5. Drill the holes at the points that you previously marked on the wall.
6. Insert the screw anchors in the drilled holes.
7. Drive the screws halfway into the top and bottom left screw anchors.
8. Hang the enclosure on the wall, according to the position of the screw anchors.
9. Drive the third screw into the anchor on the bottom right.
10. Tighten all screws.

– The enclosure is installed.

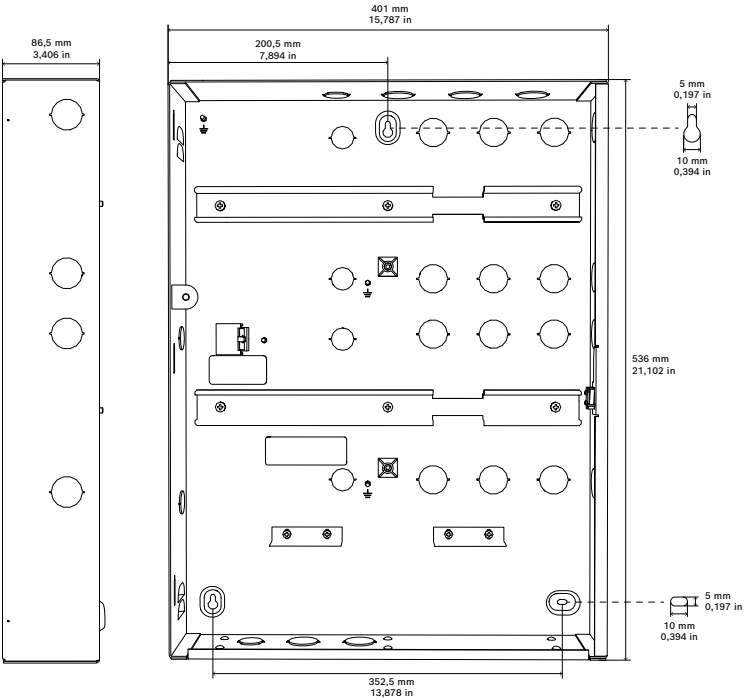


Figure 2.1: Dimensions of the enclosure

3 Connections

3.1 Connecting the devices

Precondition: Install readers and other peripheral devices as described in the corresponding technical documentation.

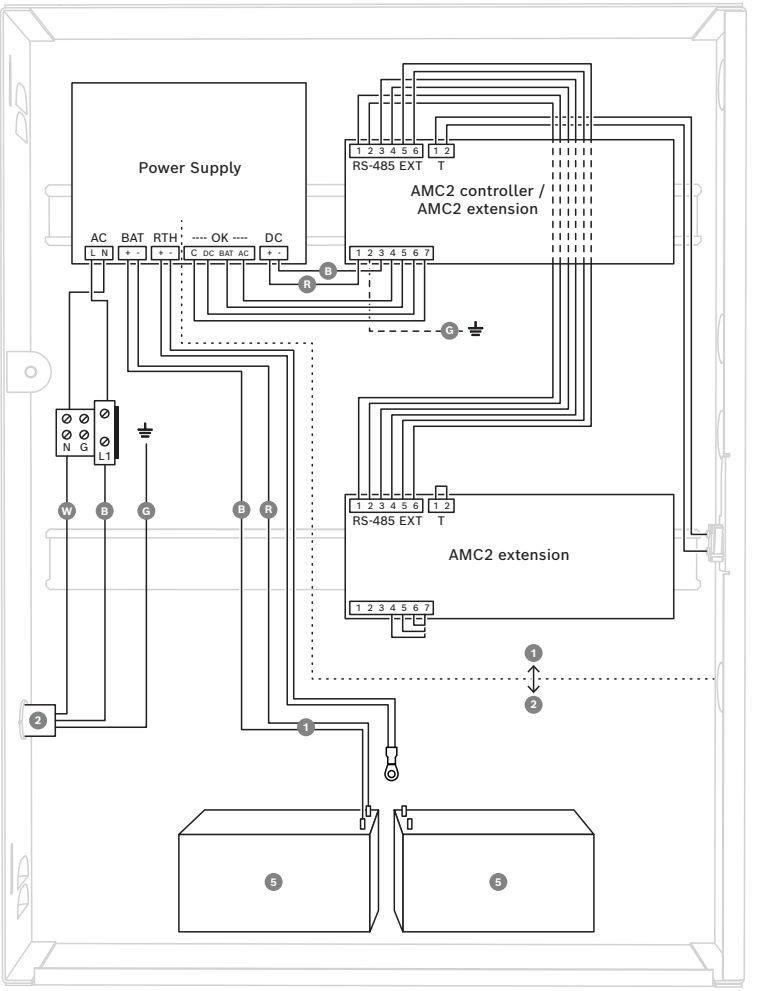


Figure 3.1: Connections in the enclosure

1. Insert the cables of the device through the knock-outs at the top-right side wall of the enclosure, or through the rear of the enclosure.
2. Provide an appropriate disconnect device to the supply line.

Warning!
Risk of electric shock!
Disconnect the mains supply voltage before you work on the devices inside the enclosure.

Installing the components

1. Mount the Access Modular Controller (AMC2) on the right-hand side of the mounting rail.
2. Mount the power supply unit on the left-hand side of the mounting rail.
3. If you are using rechargeable batteries, install the batteries at the bottom of the enclosure and secure them with a fixing bracket.

3.2 Connecting the cables

Notice!
See chapter *Cable assembly, page 22* for a list of UL approved/listed cables and UL authorized suppliers.

Connecting the AMC2 power cable (A)

1. Connect the 7-pin plug A7 (Figure 4.1) to the power supply connector (label: POWER) of the AMC2.
2. Attach connector A8 (Figure 4.1) to the power supply connection labeled OK.
3. Attach connector A9 (Figure 4.1) to the power supply connection DC.
4. Connect the grounding cable A6 (Figure 4.1) to the AMC2 grounding point.

Connecting the AC power cable (F)

1. Use the cables to connect the three-pin connector (Figure 1.1, position 12) to the AC connector (Figure 4.6, position F4) of the power supply.
2. Connect the blue wire to the port marked with N (Figure 3.2, positions 2 and 4).
3. Connect the brown wire to the port marked with L (Figure 3.2, positions 1 and 3).

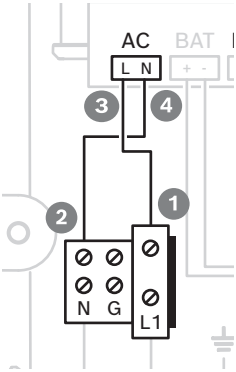


Figure 3.2: Connections of the LED indicator

Mounting and connecting the power cable with LED indicator (G)

Notice!
Use this cable (G) instead of cable F if you are installing a system that is to be UL approved.

1. Pass the cable end through the front of the LED bracket hole (Figure 1, position 13).
2. Carefully pull the cable through the back of the LED bracket.
3. Make sure that the LED reaches and fits the LED bracket hole.

4. Connect the single brown wire to position 3, marked with L (Figure 3.2).
5. Connect the other end from the brown wire to position 1, marked with L1 (Figure 3.2).
6. Connect the single blue wire to the position 4, marked with N (Figure 3.2).
7. Connect the other end from the blue wire to the position 2, marked with N (Figure 3.2).

Connecting the tamper contact (E)

1. Mount the micro switch with two screws M2 x 10 mm (Figure 1.1, position 6) at the right side of the enclosure.
2. Connect the loose ends of the tamper contact cable to the two-pin screw connector (marked with T) at the top of the AMC2.
3. Position the cable in the space between the housing and the mounting rail.

Danger!
Risk of electric shock
Make sure that all wires have zero potential.

Connecting the main AC supply X

1. Connect the ground cable to the main grounding point (Figure 1.1, position 2).
2. Connect the neutral wire to terminal N (Figure 3.2).
3. Connect the phase wire to terminal L1 (Figure 3.2).
4. Shorten the external supply wires so that the ground wire is a minimum of 20 mm longer than the live wires.
   – This will prevent the ground wire from being accidentally disconnected.

Connecting the cover grounding cable (D)

1. Connect the mounted grounding cable (see position F of *Parts included, page 6*) to the cover grounding point (Figure 1.1, position 1) and to the grounding point on the cover of the enclosure.
2. Make sure that the screws of the two earthing points are sufficiently tightened.

Refer to

– *Parts included, page 6*
– *Cable assembly, page 22*

3.3 Connections for supporting Universal Power Supply

Precondition: Before switching to battery operation, disconnect the AC power cable.

Notice!
Use 12 V 7 (7,2) Ah lead batteries only.

Notice!
Change the lead batteries every 5 years.

3.3.1 12 V mode operation

Notice!
Make sure that the power supply has the correct output voltage (12 V).

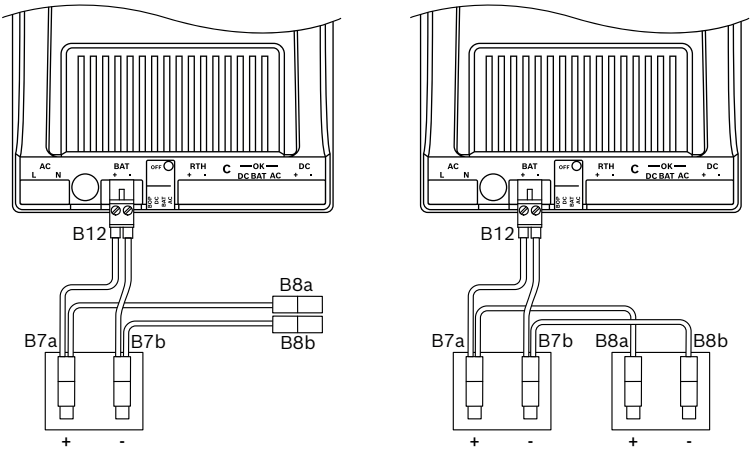


Figure 3.3: 12 V mode with one battery (left); 12 V mode with two batteries (right)

12 V mode operation using one battery

1. Set the switch of the power supply unit to 12 V.
2. Connect B12 to the power supply interface labeled BAT.
3. Connect B7b (black) to the rechargeable negative (-) terminal of the battery.
4. Connect B7a (red) to the rechargeable positive (+) terminal of the battery.
5. Attach the bracket to the back of the housing next to the batteries.
6. Attach the connectors B8a and B8b to the bracket**.**

12 V mode operation using two batteries

1. Set the switch of the power supply unit to 12 V.
2. Connect B12 to the power supply interface labeled BAT.
3. Connect B7b (black) to the rechargeable negative (-) terminal of the battery.
4. Connect B7a (red) to the rechargeable positive (+) terminal of the battery.
5. Connect B8b (black) to the second rechargeable negative (-) terminal.
6. Connect B8a (red) to the second rechargeable positive (+) terminal of the battery.

3.3.2 24 V mode operation

Notice!
Make sure that the power supply has the correct output voltage (24 V).

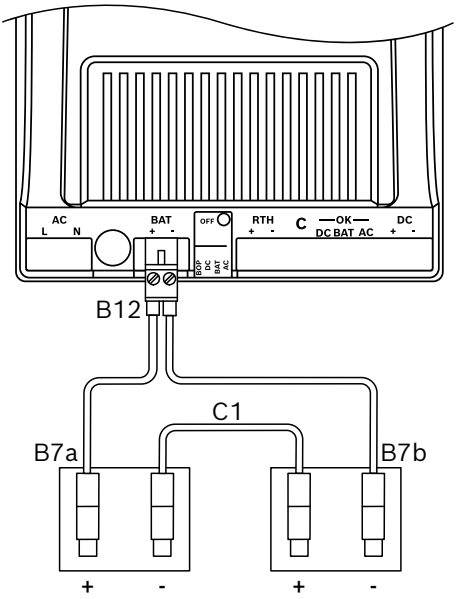


Figure 3.4: 24 V mode

Connecting the battery cables

1. Set the switch of the power supply unit to 24 V.
2. Connect B12 to the power supply interface labeled BAT.
3. Connect B7a (red) to the positive (+) pin of the first rechargeable battery.
4. Connect B7b to the negative (-) pin of the second rechargeable battery.
5. With cable C1 (black), connect the negative (-) pin of the first rechargeable battery to the positive (+) pin of the second rechargeable battery.
6. Attach the connectors B8a and B8b to the bracket**.**

7. Attach the bracket to the back of the housing next to the batteries.

4 Appendices

4.1 UL requirements

Notice!
All cables connected to the AMC2 modules and the power supply are classified as Class 2 conductors. The battery cable and the AC input cable are non-power limited circuits.

Notice!
Maintain a minimum of 6.4 mm spacing between all class 2 or 3 conductors and all electric, light, power, Class 1 conductors, non-Class 2 or 3 signaling conductors, or medium-power network-powered broadband communications-circuit conductors (Figure 3.1, position 1 and 2).

Notice!
When the fuse (5A) of cable B (power supply battery) is blown, replace it with a UL listed fuse and reseal the fuse holder with a heat shrink tube.

Notice!
If the system is to be UL294 compliant, make sure that all the cables and the respective parts are UL listed or approved.

Notice!
All supplier examples given in chapter Cable assembly are UL authorized.

Access Control Performance Levels UL 294

Line Security	Destructive Attack	Endurance	Standby Power
I	I	IV	II

4.2 Cable assembly

Notice!
For instructions on how to assemble these components see *Connecting the cables, page 14*.

Notice!
These components must be assembled by a qualified installer.

A - Power supply (AMC2)

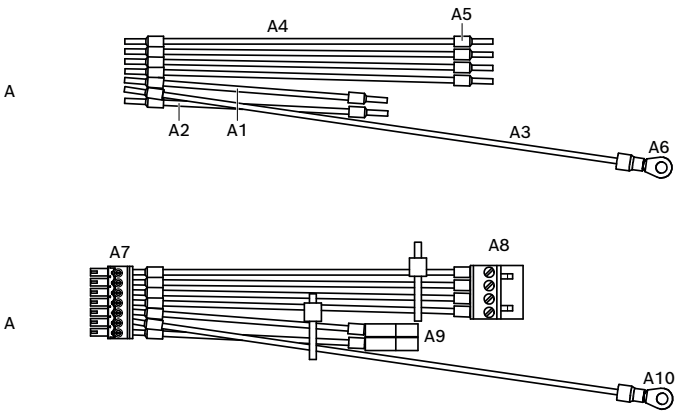


Figure 4.1: Power cable (AMC2)

Position	Description	Quantity	Size	Supplier example
A1	Wire 18 AWG black	1	100 mm	MediKabel UL Style 1015 121180 08
A2	Wire 18 AWG red	1	100 mm	MediKabel UL Style 1015 121180 07
A3	Wire 18 AWG GN/ YL	1	200 mm	MediKabel UL Style 1015 121180 49

Position	Description	Quantity	Size	Supplier example
A4	Wire 18 AWG blue	4	140 mm	MediKabel UL Style 1015 121180 06
A5	End splice insulated red 1,5	13		Klauke - 172RK
A6	Ring terminal red 4-1	1		Klauke - 6204
A7	Power connector of AMC2	1		
A8	Power supply control connector 4 pin	1		
A9	Power supply DC connector	1		
A10	Grounding cable	1		

B - Power supply (battery)

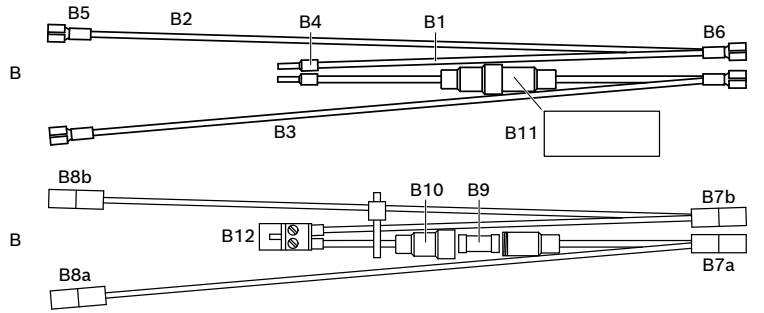


Figure 4.2: Power supply (battery)

Position	Description	Quantity	Size	Supplier example
B1	Wire 18 AWG black	1	400 mm	MediKabel UL Style 1015 121180 08
B2	Wire 18 AWG black	1	240 mm	MediKabel UL Style 1015 121180 08
B3	Wire 18 AWG red	1	240 mm	MediKabel UL Style 1015 121180 07
B4	End sleeves insulated red 1,5	2		Klauke - 172RK
B5	Non-insulated receptacle 4,8-1	2		Klauke - 18203 TYCO - 5-160430-7
B6	Non-insulated receptacle 4,8-2,5	2		Klauke - 18303 TYCO - 5-160429-2
B7	Conduit sleeve 4,8	2		Stocko - EH 650.110.PA66

Position	Description	Quantity	Size	Supplier example
				Ettinger - 12.99.491
B8	Conduit sleeve 4,8	2		Stocko - EH 650.110.PA66 Ettinger - 12.99.491
B9	Fuse 125V 5A 2AG	1		Littlefuse - 0229005.HXP
B10	Fuse holder In-Line for 5 mm × 20 mm fuses"	1		Littlefuse - 01500274Z
B11	Shrink tube	1	50 mm	Hellermann Tyson - HIS-3-12/4 308-31200
B12	Power supply BAT connector	1		

C - Battery cable

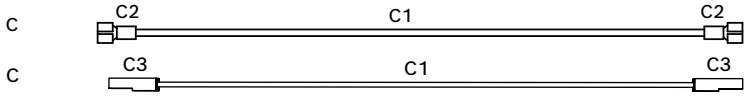


Figure 4.3: Battery cable

Position	Description	Quantity	Size	Supplier example
C1	Wire 18 AWG blue	1	250 mm	MediKabel UL Style 1015 121180 06
C2	Non-insulated receptacle 4,8-1	2		Klauke - 18203 TYCO - 5-160430-7

Position	Description	Quantity	Size	Supplier example
C3	Conduit sleeve 4,8 mm	4		Stocko - EH 650.110.PA66 Ettinger - 12.99.491

D - Tamper contact cable

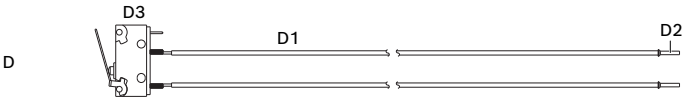
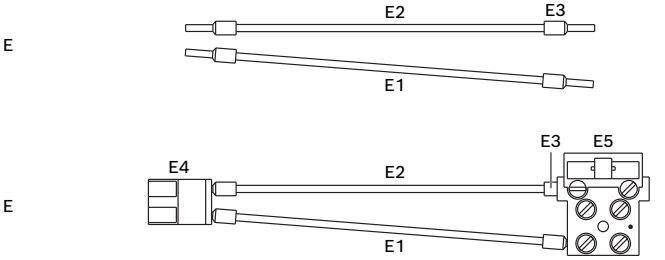


Figure 4.4: Tamper contact cable

Position	Description	Quantity	Size	Supplier example
D1	Wire 22 AWG black	2	400 mm	MediKabel UL Style 1007 120227 08
D2	End splice orange 0,5	2		Klauke - 169OK
D3	Micro switch	1		Saia-Burgess - V4NST7Y1UL

E - Power cable



Position	Description	Quantity	Size	Supplier example
E1	Wire 18 AWG blue	1	120 mm	MediKabel UL Style 1015 121180 06

Position	Description	Quantity	Size	Supplier example
E2	Wire 18 AWG brown	1	120 mm	MediKabel UL Style 1015 121180 01
E3	End splice insulated red 1,5	4		Klauke - 172RK
E4	Power supply AC connector			
E5	Enclosure Power connector			

F - LED power indicator

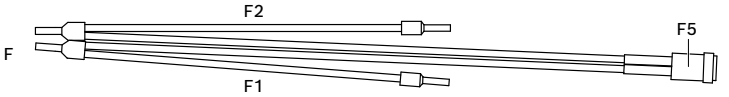


Figure 4.5: LED power indicator

Position	Description	Quantity	Size	Supplier example
F1	Wire 18 AWG blue	1	120 mm	MediKabel UL Style 1015 121180 06
F2	Wire 18 AWG brown	1	120 mm	MediKabel UL Style 1015 121180 01
F3	End splice insulated red 1,5	2		Klauke - 172RK
F4	Twin cable end sleeve grey 2 x 0,75	2		Klauke - 8708
F5	LED indicator 125-250V green	1		Bulgin - 2950MG9

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