

## PowAirBox®

Type A, Type B (12 V, 24 V, 230 V)

Supply system for electricity and compressed air with automatic ejection



## User Manual

## Welcome

With the LEAB PowAirBox, you have opted for a modern and technically innovative supply system for electricity and compressed air. Read this manual carefully before installing and commissioning, and retain it for future reference.

If you have any suggestions or comments about this manual, please let us know by email: [techdoc@leab.eu](mailto:techdoc@leab.eu).

Our website, [www.leab.eu](http://www.leab.eu), contains further information on the device (including data sheets and installation videos) as well as the latest version of the manual. Here you will also find information about optional accessories or variants of your device.




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## 1 About this Manual

The technical data, information and illustrations are carefully compiled and correspond to the state of the art at the time of printing. LEAB reserves the right to change devices and documentation without prior notice at any time in accordance with technical requirements and new developments.

Throughout the manual, you will be alerted to warnings and safety notices about potential hazards associated with handling the device. The colours and signal words indicate the severity of the hazard:

Signal word	Meaning
 <b>DANGER</b>	Warns of imminent danger resulting in death or serious injury.
 <b>WARNING</b>	Warns of a potentially dangerous situation that can result in death or serious injury.
 <b>CAUTION</b>	Warns of a potentially dangerous situation that can result in moderate or minor injuries.
<b>NOTICE</b>	Warns of a potentially dangerous situation that can result in material and environmental damage.

In this manual you will also find the following symbols:



Shows you useful tips and information about the device.



Indicates a mandatory requirement for the following instruction.



Shows the result of an instruction.

It is prohibited to copy, duplicate, translate or otherwise pass on the content of this manual to third parties without the express written permission of LEAB.

## 2 General Safety

This manual supports safe handling of the device. Use the device solely in accordance with its intended use:

The LEAB PowAirBox is a system for supplying electricity and compressed air to emergency vehicles.

Assembly and installation should only be carried out by qualified electricians. Any modifications to the device or its components are prohibited and do not conform to its intended use. Only use original LEAB or LEAB-approved accessories.

When installing and using the PowAirBox, observe the basic safety instructions:

- Electric current hazard: Before operation, make sure there are no open or damaged cables.
- Replace defective parts or damaged cables immediately.
- Only use the PowAirBox within the specified voltage limits.
- Device defect and faulty ejection due to control modules: Do not connect control modules directly to the PowAirBox. Always use an additional relay for this purpose.
- Reverse polarity can damage the unit: Before operation, make sure that all cables are connected correctly in accordance with the connection diagram (see page 13).

## 3 About the PowAirBox

With the LEAB PowAirBox, the supply is fed in via a special plug connection and combines electricity and compressed air in a single cable. When the vehicle engine is started, the coupling is automatically disconnected from the vehicle and the protective cover closes automatically. The status display provides reliable information about the current charge status of the connected battery and the charging process. Two auxiliary contacts installed in the PowAirBox serve to establish a start locking mechanism.

There are two types of the PowAirBox:

- PowAirBox Type A (supply of electricity and compressed air)
- PowAirBox Type B (supply of electricity)

Both types are available for 12 V, 24 V or 230 V. Due to coding, supplies and couplings of different voltages are not interchangeable. However, types A and B are compatible at the same voltage and can be inserted together to supply a vehicle with electricity. There is no air supply when doing this, but also no air loss. The supply unit and coupling are supplied with prefabricated connecting cables. The connection in the vehicle is made via lockable plug-in connectors.

### The PowAirBox System



When installing the PowAirBox system in the vehicle depot, LEAB recommends direct connection to the electricity and compressed air distribution with the LEAB PowAirBox ceiling bracket ①. The combination cable (electricity and compressed air) leads from the ceiling bracket to the supply unit installed in the vehicle ②. LEAB also recommends the use of LEAB ABC, LEAB CPC or LEAB Champ Pro built-in chargers.

For vehicle depots without a complete PowAirBox system, LEAB also offers supply adapters with different plug connections (e.g. CEE).

## 4 Installation of the Supply Unit



Number	Description
1	Connector A: Ejection
2	Connector B: Battery
3	Connector C: Start locking mechanism
4	Compressed air hose (with Type A)
5	Load output
6	Protective cover
7	Operating display

## 5 Installation of the Coupling



Number	Description
1	Combination cable
2	Coupling socket

## 6 Package Contents

Scope of delivery of the supply unit	No.	
	Type A	Type B
PowAirBox supply unit	x1	1x
Connection cable for connector A, B, C	x3	3x
Connection cable for load output	x1	1x
Compressed air hose	x1	-
Connector, compressed air (IQS)	x1	-
Mounting frame with seal	x1	1x
Body seal	x1	1x
Threaded pin	x6	6x
M4 screw (Allen 2.5 mm)	x6	6x
Adhesive tapes for mounting frame	x2	2x
User Manual	x1	1x



You can order spare parts and accessories either through your dealer or directly from LEAB. Just visit our webshop at

[www.leab.eu](http://www.leab.eu) or call us on:

☎ +49(0) 4621 9 78 60-110.

Scope of delivery of the coupling	No.	
	Type A	Type B
PowAirBox coupling	x1	1x
User Manual	x1	1x

## 7 Assembly and Installation

This chapter describes the assembly and installation of the PowAirBox.



An installation video and FAQs can be found at

[www.powairbox.de](http://www.powairbox.de).



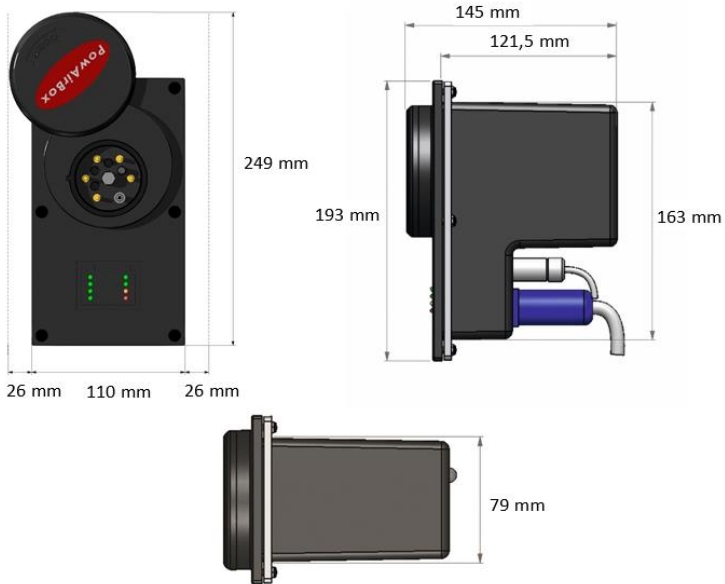
## 7.1 Assembling and Connecting the Supply Unit

### Notes on the Assembly Site

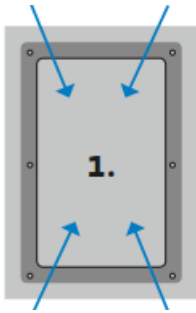
#### NOTICE

##### Device defect due to incorrect installation

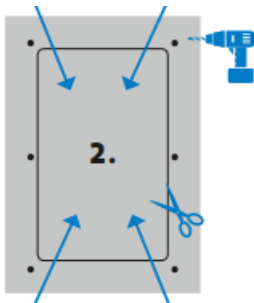
- Choose an upright and level surface.
- Choose a site that has minimum dust and is protected from jet water.
- Ensure that there is sufficient space at the assembly site (see illustration).



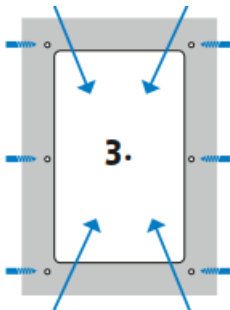
### 7.1.1 Creating a Body Cutout



- a) Undo the 6 M4 screws (Allen 2.5 mm) from the power supply.
- b) Remove the mounting frame.
- c) Place the mounting frame at the assembly site.
- d) Mark the inside contour of the frame and the 6 screw holes.



- a) Cut out the marked area.
- b) Drill the marked holes (4.5 mm - 5 mm).



- a) Screw the 6 threaded pins by hand into the smooth side of the mounting frame.
- b) Glue the 2 adhesive strips to the smooth side of the mounting frame.
- c) Check that the threaded pins fit through the holes from the inside.
- d) To prevent corrosion, seal the cut surfaces and boreholes.
- e) Remove the protective film from the adhesive strips.
- f) Glue the mounting frame into the cutout from the inside.



The body cutout is created and you can connect the supply unit.

## 7.1.2 Connecting and Assembling the Supply Unit

### **⚠ WARNING**

#### **Danger of pressure loss in the compressed air tank.**

- Never heat the compressed air hose.

Before connecting the supply unit:



1. Lay the connecting cables supplied and the compressed air hose in the vehicle.
2. Install suitable fuses for the connection cables A and B (see connection diagram on page 13).
3. Attach the connection cables to the vehicle installation.
4. Connect the compressed air hose to the vehicle's compressed air tank.

**Warning:** To avoid pressure loss, make sure that a non-return valve is installed on the vehicle side.

### Connecting the Supply Unit



A detailed connection diagram can be found on page 13.



Number	Description
1	Connector A: Ejection
2	Connector B: Battery
3	Connector C: Start locking mechanism
4	Compressed air hose (with Type A)
5	Load output

1. Connect terminal 50 (starter motor control) or terminal 15 (switched ignition plus) with connector A **1**. The pulse duration of the start signal must be at least 2 seconds (for delayed ejection).  
**Notice:** To avoid a device defect, do not use any tools for the connection and make sure that the polarity of the connections is correct (see connection diagram on page 13).
2. Connect the starter battery for the supply voltage of the PowAirBox to connector B **2**.
3. Optional: Use the two bridged auxiliary contacts at connector C **3** to create a start locking mechanism.  
**Notice:** Max. voltage: 24 V (5 A)

4. Connect the consumers (e.g. charger) to the load output 5.
5. With type A: Connect the compressed air hose 4 to the compressed air hose already installed in the vehicle.

**Warning:** Only use the IQS connector supplied to connect the compressed air hoses.

### Assembling the Supply Unit



Before assembling the supply unit:  
Check that all cables are correctly connected on the back of the PowAirBox.



1. Push the supply unit into the body cutout.
2. Remove the 6 threaded pins.
3. Insert the 6 M4 screws (Allen 2.5 mm) and tighten them until the body seal is flat.
4. To prevent unintentional loosening of the screws, apply a screw locking lacquer.



The PowAirBox supply unit is assembled and ready to use.

## 7.2 Connecting the Coupling

### NOTICE

#### Device defect due to faulty ejection

- Do not use cable winders or similar in the vehicle depot.
- Be sure that the combination cable is not under power when connecting it.



The auxiliary contacts in the coupling are bridged at the factory in order to establish a start locking mechanism.

Connect the coupling lines with the power and compressed air distribution at the vehicle depot. (see connection diagram on page 13).



The complete PowAirBox system is installed and ready to use.

### 7.3 Optional: Mounting the Ceiling Bracket



To ensure smooth operation, ensure that the coupling does not touch the depot floor when unplugged. LEAB recommends a distance of approx. 70 cm from the depot floor.



1. Select a mounting location at a lateral distance of approx. 30 cm from the vehicle.
2. Install the mounting frame ❶ on the depot ceiling.
3. Guide the cover ❷ onto the coupling's combination cable.
4. Insert the combination cable through the bracket opening on the mounting frame.



If necessary, remove individual sealing rings from the bracket opening.

5. Connect the coupling lines with the power and compressed air distribution at the vehicle depot. (see connection diagram on page 13).
6. Slide the cover over the mounting frame ❸ and fasten it with the screw cap.



The complete PowAirBox system is installed and ready to use.

## 8 Operation

### NOTICE

#### Contact erosion when pulling under load

- Do not pull the coupling out of the supply unit when under load.
- LEAB recommends using only automatic ejection.



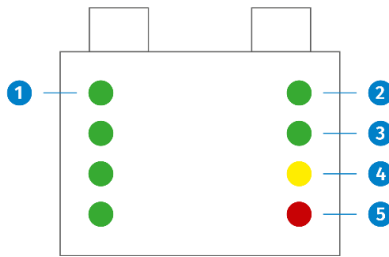
1. Turn the protective cover sideways pointing upwards.  
**Notice:** Observe the direction arrow and do not use the protective cover as a bracket for jackets or the like.

2. Plug the coupling into the supply unit.

**Notice:** When plugging in, make sure that the nose of the coupling is facing to the blue dot on the PowAirBox.



The voltage input is provided at the load output of the supply unit. Connected consumers are supplied. The status display indicates the status of the PowAirBox and the connected battery (see illustration).



Number	Function	Battery voltage	
		12-V battery	24-V battery
1	<b>Chaser:</b> Battery is fully charged	> 13.3 V	> 26.5 V
2	<b>Operating display:</b> Current voltage of the battery.	12.6 V ...	25.2 V ...
3		13.2 V	26.4 V
4		12.2 V ...	24.4 V ...
5		12.5 V	25.1 V
4		12.1 V ...	23.1 V ...
5		11.6 V	24.3 V
5	<b>Low voltage alarm</b>	< 11.5 V	< 23.0 V

### Ejecting the coupling

To eject the coupling automatically and interrupt the electricity and compressed air supply, start the vehicle engine.



The automatic ejection has a delay to protect the contacts. The delay is so minimal that there is no disturbance to driving operation.

## 9 Cleaning and Maintenance

### **⚠ WARNING**

#### **Injury from electric shock**

- Before doing any work, make sure that the PowAirBox system is de-energised.

### **NOTICE**

#### **Strong jet water can damage the unit**

- Do not aim the pressure washer or other devices directly at the PowAirBox supply unit.

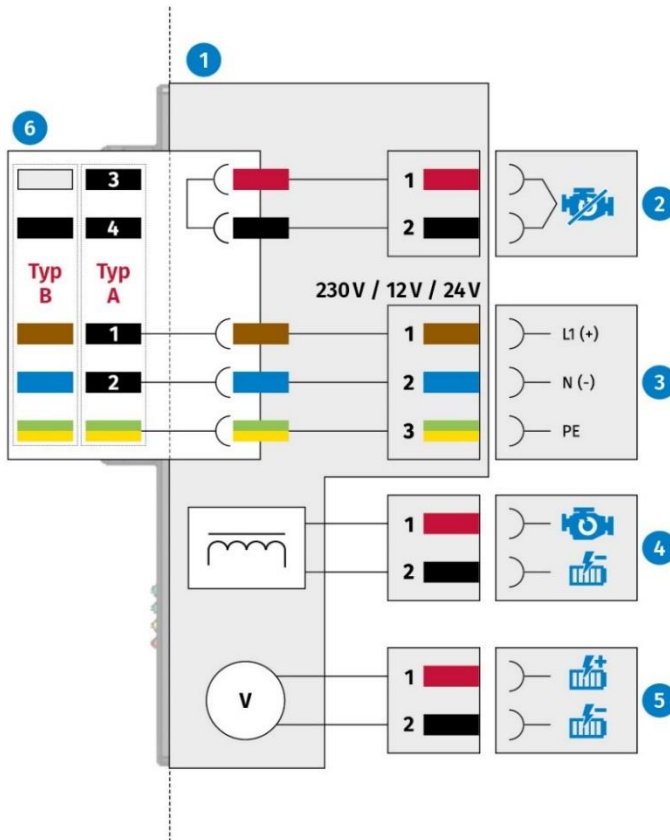
### Regular Activities

- Always check the PowAirBox for external damage before using it.
- Clean the coupling, power supply and cable regularly.
- Protect the coupling and cable from being run over, getting wet and other liquids.
- Regularly check the screw connections of the supply unit to the vehicle body.

## 10 Technical Specifications

Technical Specifications	
Nominal voltage, supply unit	12 V, 24 V, 230 V (depending on variant)
Supply current, max.	16 A (AC), 20 A (DC)
Voltage, vehicle battery	12 V or 24 V (universal)
Compressed air (Type A), max.	13 bar
IP rating	IP55
Protection class	II
Cable length, supply	4 m
Auxiliary contacts	2
Operating display	LED
Low voltage alarm	LED + acoustic (interval: 6 s)
Material	Polyamide, glass fibre reinforced (PA6 GF30)
Weight, supply	1.2 kg
Installation depth, supply	121 mm
Dimensions, supply	110 x 193 x 145 mm

## 11 Connection Diagram





Connection Diagram	
1	PowAirBox supply unit
2	Connector C: Start locking mechanism <ul style="list-style-type: none"> <li>The auxiliary contacts in the coupling are bridged at the factory.</li> </ul> <b>Notice:</b> Max. voltage: 24 V (5 A)
3	Load output <ul style="list-style-type: none"> <li>2-pin with direct current (12 V and 24 V)</li> <li>3-pin with alternating current (230 V)</li> </ul>
4	Connector A: Ejection <ul style="list-style-type: none"> <li>Connect the red wire to terminal 50 or terminal 15 for the transmission of the start signal.</li> <li>Connect the black wire to the negative terminal of the starter battery.</li> <li>Install a fuse (in accordance with ISO 8820-3): 12 V: 3 A 24 V: 6 A</li> </ul>
5	Connector B: Battery <ul style="list-style-type: none"> <li>Connect the red wire to the positive terminal of the starter battery.</li> <li>Connect the black wire to the negative terminal of the starter battery.</li> <li>Install a fuse (in accordance with ISO 8820-3): 12 V: 1 A 24 V: 1 A</li> </ul>
6	PowAirBox coupling <ul style="list-style-type: none"> <li>Connect the wires of the electrical cable (for <b>type B</b>) or the combination cable (for <b>type A</b>) with the power and compressed air distribution in the vehicle depot. The wires are numbered accordingly in the combination cable (for <b>type A</b>).</li> </ul>

## 12 Disposal

Dispose of the device in accordance with the Waste Electrical and Electronic Equipment Regulations (WEEE).



The device must not be disposed of with household waste. Take it to a recycling point or send it to your point of sale.

## 13 Accessories and Spare Parts

You can order spare parts and accessories either through your dealer or directly from LEAB. Just visit our webshop at [www.leab.eu](http://www.leab.eu) or call us on:

☎ +49(0) 4621 9 78 60-110.

Part number	Description
1549000000	Ceiling bracket
1549230022	Supply adapter, Schuko, 5 m
1549230017	Supply adapter, CEE, combination cable, 1 m
9970360000	Mounting frame
0101043890	Champ 1230 Pro charger
0101043891	Champ 2420 Pro charger
0101036930	CPC 1230 charger
0101036931	CPC 2430 charger
1501035013	PCM4 electric switch panel with installation relay
1501035006	PCM4 electric switch panel

## 14 EU Declaration of Conformity

The **LEAB PowAirBox (type A and B)**

complies with the requirements of the following directives:

2014/30/EC:	EMC
2014/35/EC:	NRL
2011/65/EU:	RoHs



## 15 Warranty

LEAB grants a legal guarantee from the date of purchase if the installation of the device has been carried out by a specialist and if it has been used in accordance with the intended use.

Requirements for the completion of work under warranty are:

- Invoice or delivery note
- Model name or type
- Serial number
- Detailed description of the fault and the installation

Note the serial number and the purchase date here.

**Serial number:**

**Purchase date:**

The serial number is printed on the device label.

### Procedure

If the device does not operate correctly following the instructions in this manual, or if the error persists, contact your dealer or LEAB.

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