



1 Wiring diagram

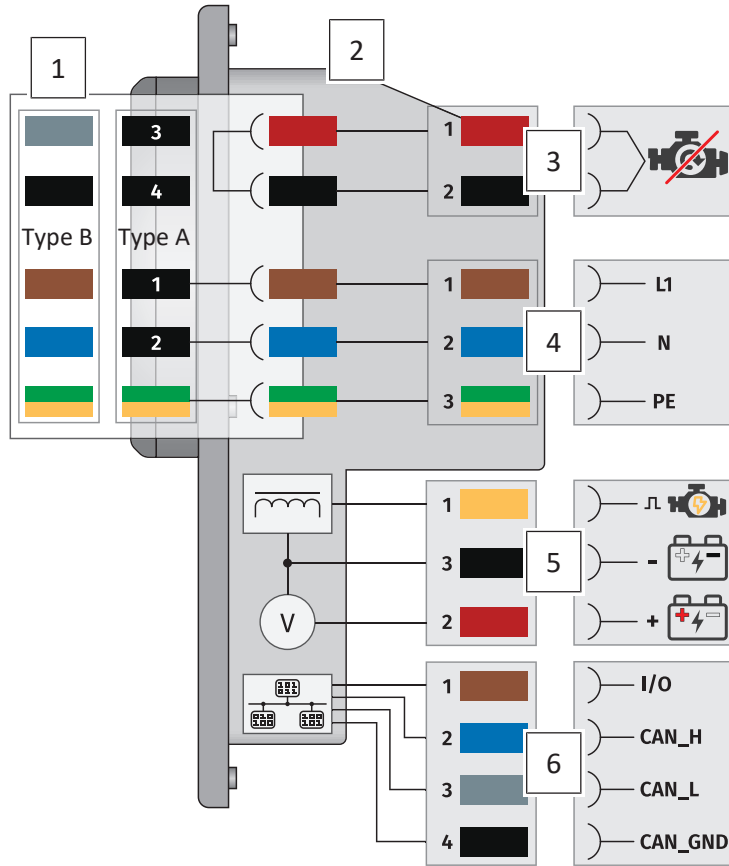


Fig. 1: Schematic diagram of the connectors

1	PowAirBox coupling	2	PowAirBox II supply unit
3	Socket C: Start locking mechanism	4	Load output connection
5	Socket A/B: Connection for the battery and the ejection signal	6	Socket D: Connection for FireCAN and auxiliary contact 3

2 Pin assignment

2.1 PowAirBox coupling [1]

Depending on the PowAirBox II model, the wires in the combination cable are labelled as follows:

Type A (with compressed air)	Type B (without compressed air)	Wire
Number '1'	brown	L1 230 V
Number '2'	blue	N 230 V
yellow-green	yellow-green	PE
Number '3'	grey	Not connected
Number '4'	black	Not connected

NOTE! The auxiliary contacts in the coupling are short-circuited at the factory to enable a start prevention function.

2.2 Socket C: Start prevention [3]

Pin	Wire colour	Signal / Function
1	red	Auxiliary contact 1, potential-free
2	black	Auxiliary contact 2, potential-free

NOTE! When the PowAirBox coupling (factory configuration) is plugged in, the circuit between the two auxiliary contacts 1 and 2 is closed.

2.3 Load output [4]

Pin	Wire colour	Signal / Function
1	brown	L1 230 V
2	blue	N 230 V
3	yellow-green	PE Protective earth conductor

NOTE! The load output is rated for a maximum continuous load of 250 V/16 A.

2.4 Socket A/B: Operating voltage and ejection signal [5]

Pin	Wire colour	Signal / Function
1	yellow	Ejection signal (+12 / +24 V) for automatic ejection of the PowAirBox II coupling [1], e.g. via a tap from terminal 50 (start signal) or terminal 15 (switched ignition power).
2	red	+12 / +24 V continuous operating voltage
3	black	Ground 12 / 24 V

NOTE! Fuse the wires in the vehicle as close as possible to the connection points in accordance with ISO 8820-3.

Wire to be fused	Required fuse
Ejection signal 12/24 V	1 A
Supply voltage 12 V	6 A
Supply voltage 24 V	3 A

2.5 Socket D: FireCAN bus and auxiliary contact 3 [6]

NOTE! The functions of socket D described here are available as standard from serial number 26310032001 onwards. Older models require a software update beforehand. Please contact the customer service department at Micropower GmbH for this.

Pin	Wire colour	Signal / Function
1	brown	Auxiliary contact 3, I/O: Applying a +12 V/+24 V signal activates the error indicator (LED status indicator: battery off, power supply red) in order, e.g., to signal externally that other components fitted in the vehicle are malfunctioning. Optionally, this connection can also be used for other input or output signals (requires programming by Micropower GmbH).
2	blue	CAN_HIGH
3	grey	CAN_LOW
4	black	Ground (common with pin 3 of socket A/B [5])

NOTE! When using the CAN_HIGH signal, terminate both ends of the FireCAN bus with a terminating resistor (120 Ω).

NOTE! A 120 Ω terminating resistor can be enabled via DIP switch 6 on the main circuit board.

NOTE! Please refer to the information on the FireCAN bus and the DIP switch settings in the appendix to this manual.



3 Appendix

3.1 Opening and closing the housing

Tools required

- Torx bit T10
- Torque wrench / torque screwdriver 1 Nm

Opening the housing

To open the PowAirBox II housing, proceed as follows:

- ✓ The PowAirBox II is not mounted in the vehicle.
 - ✓ No connection cables are connected to the PowAirBox II..
1. Loosen and remove the 4 screws (T10) located at the corners of the rear of the housing.
 2. Carefully pull the front panel of the PowAirBox II forwards to remove it from the housing.
- ⇒ The PowAirBox II housing is open.

Closing the housing

To close the PowAirBox II housing, proceed as follows:

- ✓ The housing seal is undamaged, clean and fits flush against the housing body.
 - ✓ The contact surfaces for the seal on the front panel are clean.
1. Place the front panel parallel above the PowAirBox II body so that the electrical connectors on the two parts of the housing fit together perfectly when assembled.
 2. Carefully guide the front panel towards the housing until it lies flush against the housing seal.
- CAUTION! Take care not to bend the contact pins on the connector between the main board and the front panel's display board.**
3. Reinsert the 4 screws (T10) into the corners of the rear of the housing and tighten them (tightening torque 1 Nm).
- ⇒ The PowAirBox II housing is closed.

3.2 DIP switches

To use advanced functions, such as controlling the charge status indicator via the FireCAN bus, it may be necessary to adjust the configuration of the PowAirBox II. This adjustment is made using the 6-pin DIP switch on the main board inside the PowAirBox II housing.

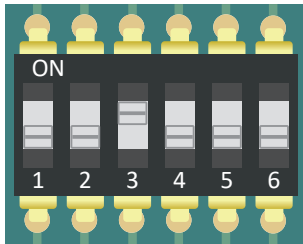


Fig. 2: DIP-Schalter

No.	Function	Default
1	n/a	OFF
2	n/a	OFF
3	n/a	ON
4	ON: Control of the battery status indicator via FireCAN	OFF
5	n/a	OFF
6	ON: Integrated 120 Ω FireCAN bus terminating resistor	OFF

3.3 FireCAN protocol

FireCAN data can be sent and received via socket D on the PowAirBox II. The bus speed is set to 250 kbit/s. The byte ordering is 'Little Endian'. This means that, for data longer than one byte, the least significant bit (LSB) is transmitted first.

NOTE! When using the CAN_HIGH signal, terminate both ends of the CAN bus with a terminating resistor (120 Ω)..

NOTE! A 120 Ω terminating resistor can be enabled via DIP switch 6 on the main circuit board.

The Tx message is sent at 3-second intervals if the signal content does not change. If changes occur, the message is sent immediately (with the exception of the battery voltage).

CAN Rx ID 0x14FF00

Byte 0	Bit 1 – 7	reserved	Ejection signal
Byte 0	Bit 0	Ejection	Ejection signal
Byte 1	Bit 0 – 7	LED 1 – 8	LED control
Byte 2	Bit 1 – 7	reserved	LED control
Byte 2	Bit 0	LED 9	LED control
Byte 3	Bit 1 – 7	reserved	Buzzer
Byte 3	Bit 0	Buzzer	Buzzer
Byte 4	Bit 0 – 7	reserved	
Byte 5	Bit 0 – 7	reserved	
Byte 6	Bit 0 – 7	reserved	
Byte 7	Bit 0 – 7	reserved	

Tab. 1: CAN Rx

Byte 0 can be used to trigger the ejection. The PowAirBox II only triggers the ejection routine when there is a bit change from 0 to 1 (rising edge).

Bytes 1 – 2 can be used to control the LEDs of the battery status indicator. If these are to be controlled via FireCAN, DIP switch 4 must be set to ON.

Byte 3 is used to activate the buzzer.

CAN Tx ID 0x15FF00

Byte 0	Bit 6 – 7	reserved	Status signal
Byte 0	Bit 4 – 5	Touch signal	Status signal
Byte 0	Bit 2 – 3	Error 230 V	Status signal
Byte 0	Bit 0 – 1	Input 230 V	Status signal
Byte 1 – 4	Bit 0 – 31	Number of switching operations	
Byte 5	Bit 0 – 7	reserved	
Byte 6 – 7	Bit 0 – 15	Battery voltage in mV	

Tab. 2: CAN Tx

The status signals (byte 0) are represented using 2 bits, in accordance with SAR J1939/71.

Bit coding	Information content
00	OFF
01	ON
10	Error
11	Function not available / not integrated

Tab. 3: Status signals

Bytes 1 – 4 provide the total number of switching operations performed by the PowAirBox II. Bytes 6 – 7 provide the battery voltage in millivolts; one bit represents 1 mV.