

PC-32 User and Installation Guide

The PC-32 is an essential component in your system, designed to improve the performance and security of your devices. However, it is important to follow the precautions and recommendations provided to ensure proper operation and prevent potentially dangerous situations. Please read and follow the instructions carefully to ensure safe operation of the device.



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1. Precautionary measures

1. **Don't Disassemble:** Never attempt to disassemble the device. If the device is damaged, if the power cables are not insulated or the insulation is damaged, refrain from unplugging and avoid touching the device.
2. **Wireless Impact:** Please be aware that all wireless data devices may cause interference that may affect nearby devices. Place your device wisely to avoid interference problems.
3. **Qualified Personnel:** Only qualified personnel should install and service the device. This ensures that the device is connected and configured correctly.
4. **Reliable Installation:** The PC32 device must be securely fixed at a predetermined location to avoid unexpected movement or damage.
5. **PC requirements:** Programming of the device must be done using a second-class PC with an independent power supply to avoid failures.
6. **Moisture:** The device is exposed to water and humidity. Take measures to protect yourself from their exposure.
7. **Thunderstorms:** It is strictly prohibited to carry out any installation or work during a thunderstorm.



2. PC-32 Review

2.1 PC-32 backup power supply device

PC-32 is a specialized device for providing continuous power to 12-volt equipment:

Backup power: The PC-32 is designed to provide backup and auxiliary power to 12-volt equipment.

Improved switching algorithm: The device controls multiple input sources to provide continuous 12V power output while simultaneously charging the optional 12V 7A battery.

Protection and safety: The PC-32 offers reliable protection against overvoltage, reverse polarity and short circuits, and is designed to withstand vibration and harsh environments.

Uninterruptible power supply: The device provides uninterrupted power supply by seamlessly switching between sources as needed, making it a reliable and efficient solution for mission-critical systems such as alarms, GSM devices and semi-trailer door locks.

2.2 Algorithm of operation of the PC-32 power supply switch

The PC-32 power supply switch uses an intelligent algorithm to manage multiple input sources with different priorities, ensuring continuous and efficient power supply. Here is a detailed overview of its operating algorithm:

Prioritization of input data sources:

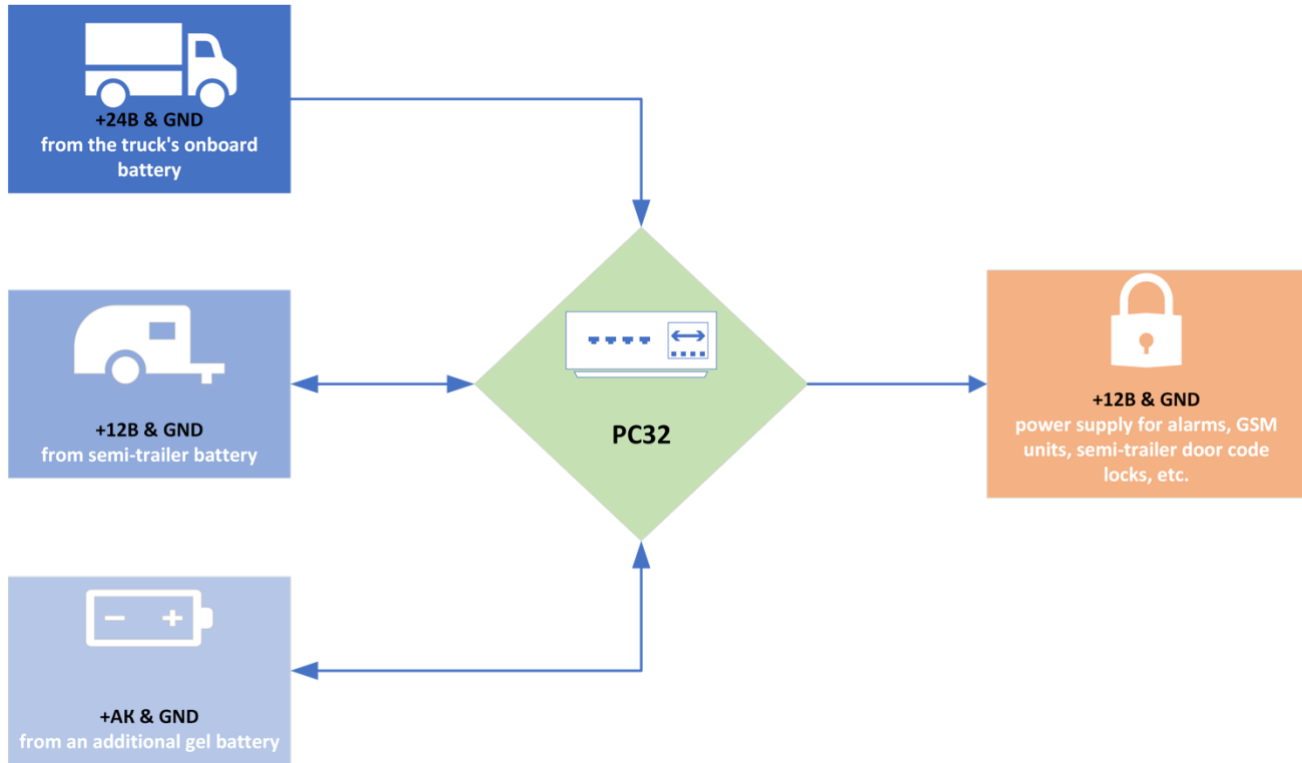
The PC-32 assigns different priorities to input sources.

- **+24V and GND** have the highest priority. If the voltage at this input drops below 16 volts, the PC-32 will turn it off and switch to a source with lower priority. It will regain its highest priority status when the voltage rises to 16.8 volts.
- Notably, when +24V and GND are given high priority, they also control the charging of the auxiliary battery. Voltage and current levels during charging are carefully controlled by a microprocessor to maximize battery capacity and lifespan.
- **+12V and GND** have second highest priority. If the voltage drops below 11 volts, the PC-32 will turn off that source and switch to a lower priority input. It will return to priority status as soon as the voltage reaches 12 volts.
- **AK and GND** have the lowest priority. If the voltage drops below 10 Volts, the PC-32 will turn off that source and connect to the lower priority source. It will restore priority when the voltage rises to 11 volts.

Source selection based on priority:

When a higher priority source becomes available, the PC-32 seamlessly switches to that power source, ensuring continuous and reliable operation.

2.3 Scheme of the operation algorithm of the PC-32 power supply switch



2.4 Specification

Model	PC-32
Package weight (kg)	0.30
Dimensions	15.00cm x 8.00cm x 6.00cm
Input channels	
24V/GND-highest priority-1	24V power supply (for example 24V from a truck)
Rated voltage (V)	24
Maximum voltage (V)	36
Battery charging voltage (V)	16-36

Channel disconnect voltage from OUT/GND output (V)	16
Rated Battery Charge Current (A)	1A (adjustable*)
Charging current protection (A)	2.5 A automatic
Input current protection (A)	5A (SMD fuse)
Indication	Light-emitting diode 24V Constantly on - there is voltage at the input, off - no voltage at the 24V input or it is below 16V
12V/GND -priority-2	12V power source (for example 12V from a refrigerator battery)
Rated voltage (V)	12
Maximum voltage (V)	24
Battery charging voltage (V)	This channel does not charge
Channel disconnect voltage from OUT/GND output (V)	10
Input current protection (A)	5A car mini fuse
Indication	Light-emitting diode 12V Constantly on - there is voltage at the input, off - no voltage at the 12V input or it is below 10V
Bat./GND -priority-3	Additional battery input/output 7A/h 12V
Battery used	7A/h 12V gel or acid
Rated supply voltage (V)	12
Charging voltage (V)	13,8
Battery disconnect voltage from OUT/GND output (V)	10

Charging current (A)	1
Minimum battery voltage to start charging (V)	6
Indication	Light-emitting diode AKUM blinks - charging is in progress, stays on - the battery is charged, does not light - discharged or disconnected.
Output OUT/GND	Output for power supply of additional equipment
Rated voltage (V)	12
Maximum current (A)	2
Indication of output voltage presence	Lit Outp Light-emitting diode
Common parameters	
Galvanic isolation	Self-recovering SMD fuses
Power consumption (mA)	10
Storage temperature	-25 ° C + 55 ° C
Humidity	0 to 90% (no condensation)
External battery life	48 hours
External battery charging time	7 o'clock

3. Connecting the PC-32 power cable

3.1 Connection Instructions

1. Route the cables from the instruments, external battery, and power cables through the appropriate holes in the box.
2. Connect the wires according to the illustration below.
3. The power cable has four extra wires, allowing you to connect up to four device inputs/outputs. To connect the power cable wires and device inputs/outputs, use the connection block.



Ensure that all connections are secure and connected correctly to ensure safe and efficient operation of the device.

4. Examples of using

4.1 Semi-trailer with freezer:

In scenarios with a semi-trailer equipped with a freezer, the PC-32 works as follows: it first receives power from the truck's +24V supply, then charges the auxiliary battery and supplies voltage to power the GSM unit or alarm system. When the trailer is disconnected from the truck, the PC-32 seamlessly switches to using the +12V source from the freezer battery to power the GSM or alarm unit. At this stage, the additional battery remains uncharged. As an additional level of intelligence, when the freezer battery voltage drops below 11V, the PC-32 turns it off and redirects power to the GSM module or an alarm from an additional battery. If the battery voltage drops below 10V, the PC-32 initiates a battery switch, allowing the GSM module and the alarm to draw power from the appropriate internal batteries, if any.

4.2 Trailer with standard truck or flatbed:

In cases where the trailer is towed by a standard truck or flatbed, the PC-32 operates as follows: it initially draws power from the truck's +24V source, while simultaneously charging the auxiliary battery and providing voltage to power the GSM unit or alarm system. After disconnecting the trailer from the truck, the PC-32 smoothly switches to using an additional battery to power the GSM module or alarm. If battery voltage drops below 10V, the PC-32 automatically switches to the internal batteries of the GSM unit and alarms if such batteries are present, ensuring continued operation of these critical systems.