



## **Maintenance guide**

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## 1 Introduction

The members of the EuroProt+ protection product line, made by Protecta are designed basically to require no special maintenance.

The periodic revision of the device can improve long-term error-free operation, and if possible, it supports the required maintenance.

## 2 Safety precautions

The members of the EuroProt+ protection product line – depending on the type – operate with dangerous power supply voltage (110 VDC, 220 VDC, 230 VAC, 60 VDC, 48 VDC).



In all cases, when the connections of the device are mounted or the device is opened, the operation should be performed in all cases by qualified personnel.

In all cases the first step of this kind of operation should be the disconnection of all power sources.

The internal operating temperature of the devices of the EuroProt+ product line is relatively high. When contacting the device, immediately after operation, the hot parts can cause dangerous burning damages.



The activities related to the device may be performed by qualified personnel only.

The hardware and software of the EuroProt+ protection devices compose a complex system. Setting, modifying, mounting the individual components may influence the operation of the whole system.



In all cases, when the device is operated or maintained, the activities should be performed by qualified personnel only.

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## 3 Hardware maintenance

In order to assure long term, continuous error-free operation, the components with the longest possible life-time were selected to compose the device.

In case of certain components, e.g. electrolytic capacitors, backlight of the LCD, optical transmitter-receiver etc., after increased operating time, the availability of the components or parts may decrease, requiring supervision or replacement as follows.

### 3.1 Maintenance of the power supply unit

The power supply units are composed of electrolytic capacitors of longest possible life-time. The rated operating time is 10-70 thousand operating hours. This life-time depends on the environment of the device. Violating the permitted values does not cause immediate operation errors, but is advised that:

- After 4 years, a qualified expert should check the power supply unit to detect any deviations of the capacitors, leakage of the electrolytic fluid of considerable loss of capacitance.
- After 8 years, the capacitors or the whole power supply unit should be replaced in the laboratory of the supplier.



Replacing the components cannot be performed in lack of special soldering procedures!

To perform the prescribed replacement, please contact the supplier in the following link:  
<http://buy.protecta.hu/support/?language=English>

### 3.2 Maintenance of the CPU

In the CPU the actual date and time of the real-time clock is running for a certain time even in disconnected state. The required power is supplied by a battery, with the rated life-time of 2-30 thousand of operating hours, depending of the temperature of the environment.

Violating the permitted temperature does not cause immediate operating error, but the correct date and time is kept for shorter time only, if the device is disconnected.

It is advised that

- After 4 years, a qualified expert should check the capacitance of the power supply battery in the CPU module.
- After 8 years, the battery should be replaced in the laboratory of the supplier.

To perform the prescribed replacement, please contact the supplier in the following link:  
<http://buy.protecta.hu/support/?language=English>

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### 3.3 Maintenance of the display

The operating time of the front panel LCD is about 5000 operating hours. Depending on the usage of the display, after a certain time the brightness decreases, the readability gets worse.

This functionality is advised to be checked. With normal usage of the display the readability can be tested.

If the readability of the display does not meet the requirements, please contact the supplier to perform the exchange of the display.

The supplier can be contacted in the following link:

<http://buy.protecta.hu/support/?language=English>

### 3.4 Maintenance of the optical data communication

The sender – receiver units of the optical data communication can get weaker, depending on the frequency of the usage; they cannot transmit information with the required power.

Checking of this part is advised to be performed by dedicated experts or by the supplier:

- 10 years after commissioning
- After subsequent 5 years
- Then in each year

If the communication module is replaced then the checking cycle restarts.

If the data communication does not fulfill the requirements, please contact supplier to repair or replace the components.

The product support homepage of Protecta is the following link:

<http://buy.protecta.hu/support/?language=English>

### 3.5 Maintenance of the optically isolated binary inputs

After a time period.– depending on the frequency of operation and on the ambient conditions - the optical interfaces of the binary inputs cannot generate the required signal power.

Accordingly it is advised to supervise these components by an expert or by the manufacturer as follows:

- 10 years after the commissioning
- After the subsequent 5 years
- Then in each year

If the module is replaced then the cycles above restart.

If the data transfer does not fulfill the requirements, please contact the manufacturer to perform repair or replacement as soon as possible.

The link to contact manufacturer is: <http://buy.protecta.hu/support/?language=English>

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## **3.6 Maintenance of the batteries**

The members of the EuroProt+ product line made by Protecta do not contain single-use or rechargeable batteries, except battery of the CPU module (See Chapter 3.2).

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## 4 Maintenance of the software

The device can be operated during the lifetime of the device with the software installed by the manufacturer. No software maintenance is needed.

The development of the hardware and software of this product type is terminated.

In case of any questions or remarks related to the operation of the software please contact the manufacturer using the following link:

<http://buy.protecta.hu/support/?language=English>



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## 5 Checking and maintenance of the mechanical parts

### 5.1 Detecting damages

The qualified personnel responsible for the maintenance and operation of the device should check during any other activities the state of the device for damages, cracking, discolor due to overheating or high current, or any other disorder.

If any disorder is detected, please act according to the prescriptions of the company, and if needed, please contact also the manufacturer. The link is:

<http://buy.protecta.hu/support/?language=English>

### 5.2 Cleaning

No additional external cleaning is needed, only the usual cleaning procedure applied in the power industry.

If a device is hardly contaminated especially at the human-machine interface then contact the manufacturer the find the cleaning method to be applied:

<http://buy.protecta.hu/support/?language=English>

### 5.3 Fastening the screws of the cable connections

The devices of the EuroProt+ product line made by Protecta are equipped with screwed connectors to connect the cables.

These kinds of connectors do not need any maintenance and fastening the screws. Accordingly no periodic maintenance or repair is prescribed by the manufacturer.

In order to assure long-term error-free operation it is advised during the cyclic maintenance to check also the state of the connections.

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## 6 Repairs

In case of any errors which cannot be repaired by the qualified personnel trained for operating protection devices please contact the manufacturer. The link is:

<http://buy.protecta.hu/support/?language=English>