



# MICROENER

## MAINTENANCE GUIDE PROTECTA LINE

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## INTRODUCTION

The protective relays of the **PROTECTA** line, proposed by MICROENER are designed basically to require no special maintenance.

In each sampling cycle the device performs self-check in the analog input channels to detect possible errors as soon as possible.

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

## SAFETY PRECAUTIONS

The protective relays of the **PROTECTA** line – depending on the type – operate with dangerous power supply voltage (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 **PROTECTA** 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 **PROTECTA** 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.

## **HARDWARE MAINTENANCE**

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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.

### **Maintenance of the power supply unit**

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The power supply units are composed of electrolytic capacitors of longest possible life-time. This expected life-time depends on the environment of the device.

If the device is operated in the range of the permitted temperature limit, then in certain time periods the state of the capacitors is advised to be checked.

During this supervision a qualified expert should check the power supply unit to detect any deviations of the capacitors, leakage of the electrolytic fluid or considerable loss of capacitance.

In case of problems, please contact the Technical support in the following link:  
<https://www.microener.com/js-support-ticket-controlpanel>

### **Maintenance of the CPU**

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In the real-time clock of the CPU the actual date and time is running for a certain time even in disconnected state. The required power is supplied by an EDLC, the expected life time of which depends on the temperature of the environment.

If the device is operated in the range of the permitted temperature limit, then in certain time periods the state of the capacitors is advised to be checked.

During this supervision, a qualified expert should check the CPU to detect any deviations of the capacitors, leakage of the electrolytic fluid or considerable loss of capacitance.

In case of problems, please contact the Technical support in the following link:  
<https://www.microener.com/js-support-ticket-controlpanel>

### **Maintenance of the display**

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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 Technical support can be contacted in the following link: <https://www.microener.com/js-support-ticket-controlpanel>

### **Maintenance of the optical data communication**

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

Accordingly, in certain time periods the state of this unit is advised to be checked by a qualified expert or by MICROENER.

In case of problems, please contact the Technical support in the following link:  
<https://www.microener.com/js-support-ticket-controlpanel>

### **Maintenance of the batteries**

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The protective relays of the **PROTECTA** line proposed by MICROENER do not contain single-use of rechargeable batteries.

## **MAINTENANCE OF THE SOFTWARE**

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

This chapter lists the software components applied in the device. Also the procedures are described to achieve the most effective operation of the protection.

### **Upgrading the firmware**

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If MICROENER detects any critical errors in the applied firmware, then based on the available device database the users of the device are informed and contacted to coordinate the needed operations.

Additionally, the firmware is continuously developing. If the usage of the latest version is required, then please contact the Technical support to get information concerning the availability and need of a new firmware. The link is:

<https://www.microener.com/js-support-ticket-controlpanel>

### **Upgrading EuroCAP**

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If MICROENER detects any critical errors in the applied software, then based on the available device database the users of the software are informed and contacted to coordinate the needed operations.

If the user operates several protective devices from one location and some problems are detected with the application of EuroCAP in case of devices installed recently then please contact the Technical support in the following link:

<https://www.microener.com/js-support-ticket-controlpanel>

Additionally, the software is continuously developing. If the usage of the latest version is required, then please contact the Technical support to get information concerning the availability and need of a new firmware. The link is: <https://www.microener.com/js-support-ticket-controlpanel>

### **Updating the Ethernet browser**

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MICROENER does not define preferred browsers. The requirement is the HTML5 compatibility only.

If any problem is detected related to the browser then please contact the Technical support. The link is:

<https://www.microener.com/js-support-ticket-controlpanel>

Upgrading the browser is the responsibility of the developer of the browser. Please check the related product support.

## **CHECKING AND MAINTENANCE OF THE MECHANICAL PARTS**

### **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 Technical support. The link is:

<https://www.microener.com/js-support-ticket-controlpanel>

### **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 Technical support to find the cleaning method to be applied:

<https://www.microener.com/js-support-ticket-controlpanel>

### **Fastening the screws of the cable connections**

The devices of the **PROTECTA** line proposed by MICROENER 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 MICROENER.

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

## **REPAIRS**

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

<https://www.microener.com/js-support-ticket-controlpanel>