

AUTOMATION SYSTEMS

Version 1.3

ENGLISH

GARAGE DOOR OPENER

Assembly manual

GO801/1001

SAFETY OF THE IMPLEMENTATION OF THE AUTOMATION SYSTEM

Before starting the installation, carefully read the entire product installation and operation manual. Non-observance and non-compliance with the notes in this manual may lead to an accident, resulting in personal injury or material damage.

The gate drive ensures correct and safe operation only if the installation and use comply with the following safety rules. DTM System is not responsible for accidents caused by improper use or unprofessional installation of devices.

The drive has an electronic obstacle detection mechanism. In order to ensure an adequate level of safety, the adjustment of the force should be performed with particular care.

- Do not leave packaging materials within the reach of children, as they are potentially dangerous;
- This product has been designed and manufactured solely for the intended use described in this documentation. Using it for any other purpose may adversely affect the technical condition and operation of the device and is a potential source of danger;
- DTM System is not responsible for the consequences of improper use, inconsistent with the intended use;
- The drive must be operated in a dry room;
- Do not install the device in environments with an increased risk of explosion or containing aggressive air;
- If possible, the drive should be mounted at least 2.1 meters above the ground;
- For a heavy gate, use a second ceiling suspension together with the drive;
- The half-open gate must remain in this position. If the gate moves up or down, it must be mechanically adjusted;
- It is allowed to install the drive moved away from the symmetry axis of the gate, if it does not cause deformation of the gate itself and allows the gate to move properly in the guides;
- Automatic swing gates should comply with the standards as well as with any applicable local regulations, and must also comply with the requirements of EN 12604;
- DTM System is not responsible for the consequences of design defects of the driven elements or for their deformation that may occur during use;
- Walls and ceilings to which the drive will be mounted must be strong and stable;
- The installation must conform to the requirements of EN 12453. The safety level of the C + D automated system is required;
- Before starting any work on the system, disconnect all power sources;
- The electrical installation to which the automation is connected must comply with the applicable standards and be properly made;
- The installer should provide the device with a switch that ensures that the devices are cut off from the main power supply. The standards require a separation of the contacts of at least 3mm in each pole (EN 60335-1). It is recommended to use a 6A thermal fuse with a circuit breaker for all circuits;
- Take care to protect the power circuit with a residual current device;
- Safety mechanisms (standard EN12978) provide protection against the risks associated with the movement of moving mechanical parts, such as crushing, snagging or detachment;
- DTM System is not responsible for the safety and efficient operation of the automation system in the event of using components that are not products offered by DTM System;
- Only genuine parts should be used for servicing;
- Do not modify the automation components in any way;
- The end user should be informed about the method of handling, dealing with failures and about the dangers of using the automation system
- During the operation of the automation system, both children and adults must keep a safe distance from the operating automation;
- The automation system can only be operated by properly trained adults;
- Control devices should be kept out of the reach of children in order to protect the automation system against accidental activation;
- Movement in the light of the gate is allowed only when it is fully open;
- The device may only be serviced by qualified personnel;

- During assembly or repair work of the automatic gate, be careful not to wear jewelery, watches or loose clothing;
- In order to avoid damage to the gate and / or the drive, remove any locks, ropes or loops installed on the gate that are used to open the gate manually;
- After installation, it is necessary to check that the mechanism is correctly set and that the drive, safety system and emergency unlocking function properly;
- The gate drive cannot be started and continue to operate when there is a wicket in the gate and it is not properly closed;
- Crush or injury protection systems (e.g. photocell systems) must work properly after the drive has been mounted and connected to the mains;
- The radio remote control may only be used when a safe force value is set;
- The radio remote control may only be used if it is possible to observe the gate movement and there are no people or objects in the movement area;



SAFETY IN THE USE OF THE AUTOMATION SYSTEM

Non-observance and non-compliance with the notes in this manual may lead to an accident, resulting in personal injury or material damage. Please read the following warnings carefully. The gate drive ensures correct and safe operation only if the installation and use comply with the following safety rules. DTM System is not responsible for accidents caused by improper use or unprofessional installation of devices.

- During the operation of the automation system, both children and adults must keep a safe distance from the operating automation.
- The automation system can only be operated by properly trained adults.
- Control devices should be kept out of the reach of children in order to protect the automation system against accidental activation.
- Movement between the gate leaves is allowed only when it is fully open.
- Do not obstruct the gate movement.
- Remove any obstacles that impede the movement of the gate.
- Signal lamps and information boards must be clearly visible.
- Manual operation of the gate is possible only when the power supply is disconnected and the gate is unlocked.
- In the event of a failure, disconnect the power, release the gate to allow access, and then call the service center for necessary repairs.
- Do not attempt to repair or maintain the system yourself. The system may only be serviced by qualified personnel.
- At least every 6 months, the operation of the automation system, protection devices and protective circuits should be checked by qualified personnel.
- Make sure that the persons who install, maintain or operate the gate automation follow these instructions. Keep these instructions in a place where you can refer to them quickly when needed.



1. Introduction

1.1 General information

Electromechanical drive, designed to automate garage doors. The assembled and launched system can be conveniently operated by radio transmitters (remote controls).

1.2. Technical data GO801/1001

- power supply: 230-240 V AC 50/60 Hz
- nominal power: 235/245 W
- maximum gate movement speed: 180 mm/s
- nominal traction force: 350N/400N
- maximum pulling force: 800N/1000N
- temperature range: -20 °C to + 40 °C
- built-in lighting, lighting time: permanent LED, 3min.
- total length with head and handle: 3480 mm, 2x1.65m folding rail with toothed belt
- maximum stroke of the trolley: 2820mm
- maximum door width: 5000 mm
- maximum door area: 12.6 m²
- Ingress Protection Code: IP-20

1.3 Mechanical components

Before starting work, make sure you have all the elements shown in Figure 1, and then read the entire manual.

2. MECHANICAL ASSEMBLY

2.1. Verification of the type and structure of the gate

In order to properly complete and install the automation system, verify the type of your gate and check the structure of the existing or installed gate in terms of the requirements presented below:

- The basic set enables the automation of sectional gates with an ordinary running rail - it is recommended to use a "boomerang" type handle, with a double running rail - without a "boomerang", overhead gates - without a "boomerang" and side gates, fig.2;
- The structural elements of the gate must meet the requirements of EN 12604;

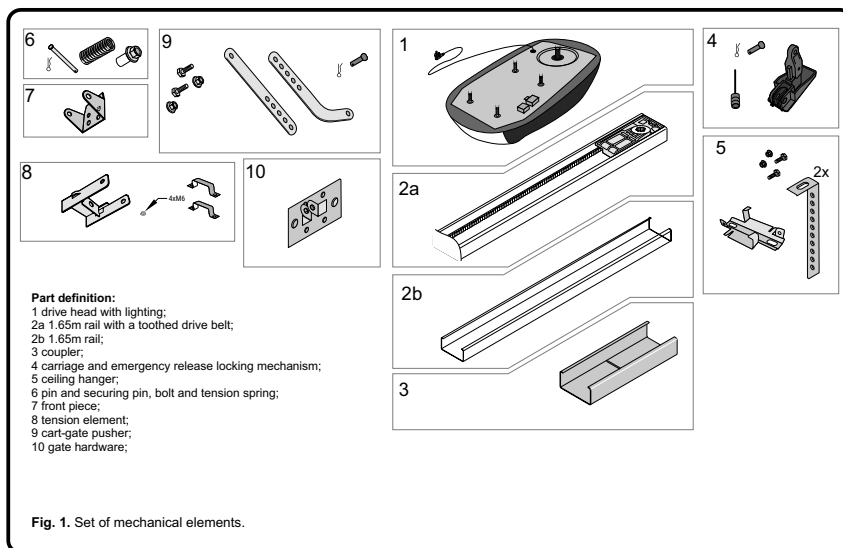


Fig. 1. Set of mechanical elements.

- The dimensions of the gate must not exceed the dimensions given in the parameters of the drive;
- You should check the drive can be installed, taking into account the dimensions of the installation;
- The drive mechanism requires sufficient space between the ceiling and the door for mounting the running rail. It should also be checked whether the part of the drive protruding beyond the load-bearing structure of the gate has sufficient space.
- The structure of the gate must be sufficiently strong and rigid for the assembly of the automated system;
- The gate must move smoothly and freely throughout the entire range of motion without any resistance;
- After opening the gate to half its height, the gate must remain in this position, free movement up or down should be corrected by appropriate adjustment of the gate itself;
- Check that the electrical installation allows the connection of the drive. If this is not the case, qualified personnel must provide a 230VAC power socket at a distance of about 0.5m from the drive head.

Notes on the gate and its surroundings:

- The area of the gate is an approximate parameter. However, the maximum permissible door size should not be exceeded. The actual force transmitted by the drive is influenced by: gate type, gate weight, air movement around the gate;
- Low temperatures and high humidity may make it difficult or impossible to start the automation;
- The drives are not designed for continuous operation, the maximum operating frequency specified in the drive parameters must be maintained;
- The gate must operate smoothly and impact-free, the movement must be smooth and unobstructed;
- The drive cannot be used to operate emergency exits or gates on an escape route (see escape routes);
- If there is a pedestrian door on the powered door, a safety switch shall be installed to prevent the automatic system from operating when the door is open;
- The condition of the door structure has a direct impact on the reliability and safety of use of the entire system;
- It is recommended to complete the assembly of the steel structure before installing the drive;
- Specify what materials are needed to install the kit and provide them before starting the assembly. This applies to anchors, bolts, brackets, cables, electrical fittings, tools.

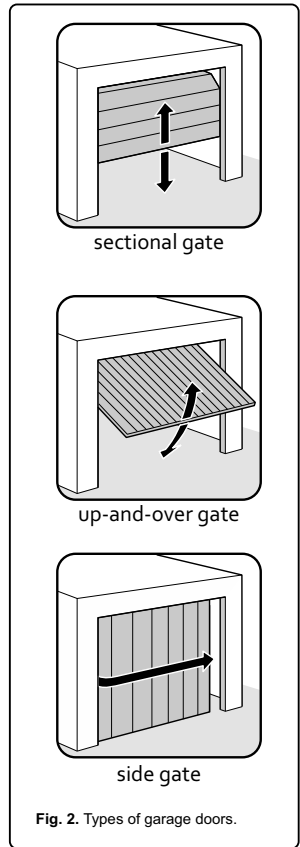


Fig. 2. Types of garage doors.

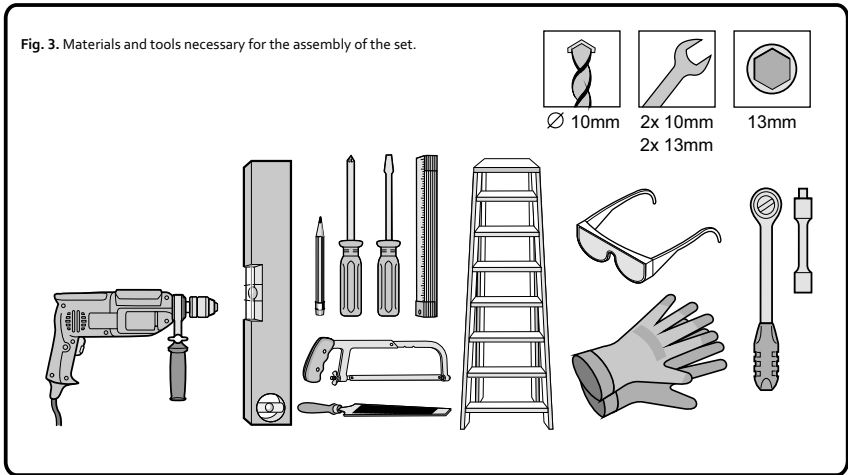
2.2. Preparation of the gate

The type of gate determines the position in which the drive will be installed. The gate hardware should be attached to the main frame or to the gate panel through a suitable holder. The place of installation is specified in the door assembly manual. If there are no instructions, install the handle as close as possible to the edge of the mainframe or the last door panel. When the bracket is not sufficiently stable, it must be strengthened. When we have a wooden gate, the gate hardware should be screwed "through". In this case, it is advisable to use the board from the outside so that the fastening cannot loosen over time. Delicate aluminum, wooden gates, must be further strengthened.

2.3. Stops and locks

Any cables or loops used to open and close the gate manually and any locking mechanisms on the gate should be removed, unless they are automatically activated by the drive!

2.4. Mechanical assembly



2.4.1. Pre-assembly Drive - preparation for mounting the actuator on the gate

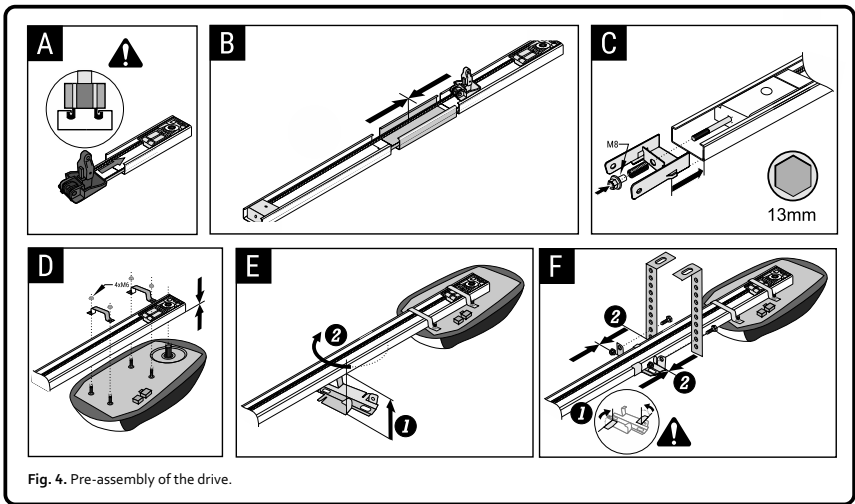
Prepare the elements as shown in Fig. 1. Slide the trolley, Fig.1 [4] on the rail, as shown in Fig.4A.

Assemble the rail as shown in Fig. 4B, paying attention to the precise sliding of the rail elements with the connecting fitting.

Slip the front element on the rail and put the bolt through it so that it is possible to "grab it" from the other side with the help of a spring and a nut, Fig.4C. Using a suitable wrench **tighten the screw until the toothed belt is stretched.**

Referring to Figure 4D, mount the drive head to the rail, paying attention to the correct positioning of the drive shaft in the toothed belt pulley spline.

After mounting the drive head, you can proceed to install the ceiling hanger as shown in Figs 4E and 4F. Other slings can be used if required, e.g. for a much higher mounting surface. Also install the cable supporting the unlocking of the drive.



2.4.2. Installation of the drive and manual control of working conditions

Measure the center of the gate and mark it at the leaf and lintel above the gate.

Open the door slowly and determine the smallest distance between the most protruding movable element of the door and the ceiling - THP. This dimension must be at least 35 mm. The distance between the THP and the lower edge of the C-profile rail must be at least 5 mm and maximum 65 mm (so that the bogie arm is at an angle of 30°, Fig. 5).

Close the gate and, depending on the available space, install the drive to the lintel. Route horizontally, symmetrically, two holes at a distance of 16 mm from the gate axis each and 20-80 mm above the THP, as shown in Fig. 5. Drill, depending on the type of substrate, with a 10 mm drill in concrete or 5 mm in wood.

Fasten the front handle of the drive to the lintel prepared in this way, Fig. 6A [1] - so that the fixing would ensure a sufficient level of safety (expansion bolts, anchors, etc.). These activities should be entrusted to a qualified person with the necessary experience. Then, using the pin and cotter pin, connect the front of the rail to the handle, Fig. 6A [2].

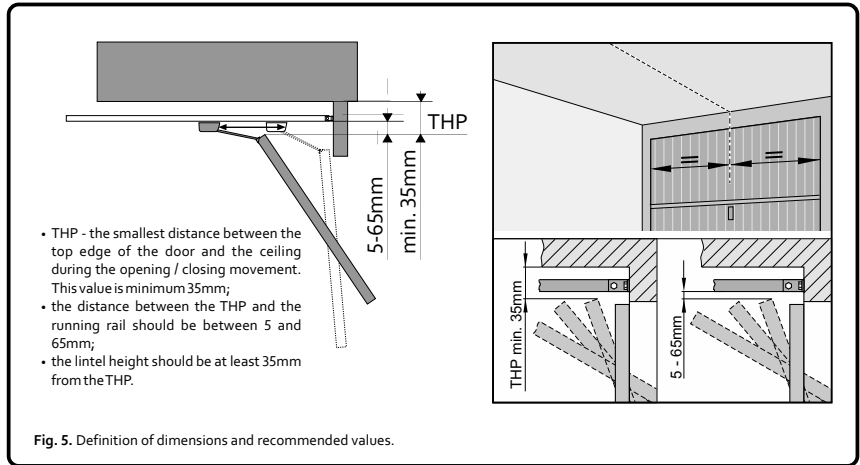


Fig. 5. Definition of dimensions and recommended values.

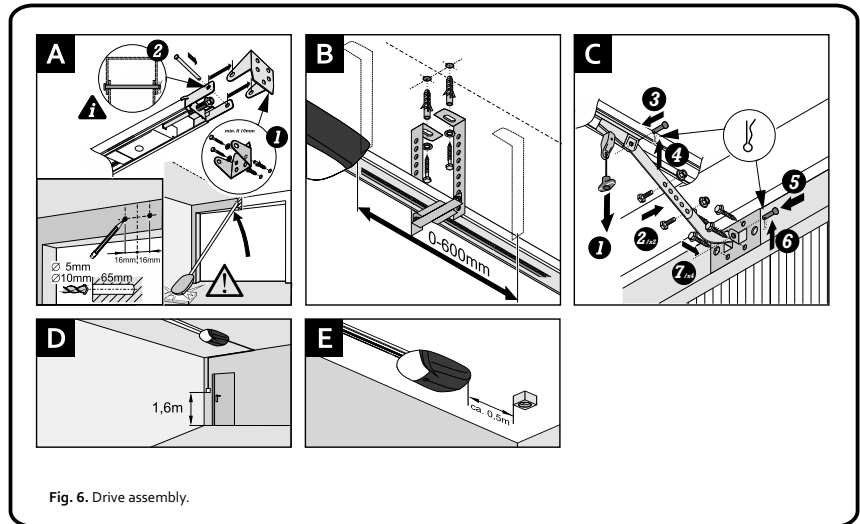


Fig. 6. Drive assembly.

Then, using e.g. a ladder (suitably solid and stable), initially level the drive.

If necessary, disengage the trolley by pulling it down once on the emergency release mechanism, Fig. 6C [1]. Move the trolley back and open the gate.

Position the ceiling hanger approx. 300 mm from the controller housing (depending on the door structure and the ceiling, the hanger can be mounted in the range from 0 to 600 mm relative to the controller housing, Fig. 6B). Hanger angles should be positioned vertically and the drive rail in a line parallel to the gate axis (if there was no need to move the front fixing relative to the gate axis, the center of the gate will be the center of the drive rail).

Mark, drill and attach the hanger to the ceiling, fig. 6B. If necessary, shorten the ends of the angles that protrude downwards.

Move the trolley with the attached bar and gate hardware, Fig. 6C [2..6] towards the closed gate and centrally (if the entire drive has not been moved) fix the fitting to the gate leaf with the use of self-selected fixing elements, Fig. 6C [7].

Couple the trolley with the gate by pulling the cable to the "rear". The lever to which the cable is attached must change from vertical to horizontal, see paragraph 4.6.

3. Electrical installation

IMPORTANT REMINDER

Electrical installations and automation of the drive must be performed by experienced and qualified personnel in accordance with applicable legal regulations. There are dangerous voltages of 230V 50Hz in the devices, therefore all connections must be made with the voltage switched off. The installer's task is to mount the system safely enough to minimize the risks associated with its use. Anyone who installs the device without complying with all applicable regulations is responsible for any damage that the device may cause.

3.1. Preparation of electrical installation components

If provided, install the manual button outside the door movement area in such a way that the operator is outside the door movement area and the door in operation is always visible. The button is mounted essentially 1.6 meters above the ground. When laying the control cable, avoid running it along the power line that may cause interference in the control signal, Fig. 6D. If there are safety devices in the installation, e.g. photocells, emergency STOP buttons, etc., install them in accordance with the installation manual of these devices.

If there is no power socket, it must be installed in accordance with the applicable standards, at a distance of about 0.5 meters from the controller housing, fig. 6E.

3.2. Connecting devices to the controller

Connecting devices to the controller should be the last installation operation performed in accordance with the connection and programming manual. First install the actuator, arrange the necessary cables and attach the photocells. During the assembly of the installation, use the main switch which cuts off the mains voltage. It should be remembered that moisture and water destroy electronic devices, therefore it is necessary to protect the controller against these factors. All openings and cable entries must be sealed in order to maintain the desired IP protection class.

4. Acceptance tests and handing over the automation to the user

CAUTION!

After installing the controller and all cooperating devices, especially safety devices, final tests should be made in order to check the entire automation. These tests should be performed by competent personnel who are aware of the risks involved! Final tests are the most important phase in the implementation of automation. Individual components, such as the motor, photocells, etc., may require specific checks, therefore it is recommended to follow the checking procedures contained in the manuals for the given components.

Final tests include the following steps

4.1. Gate movement control

It should be checked whether the automation physically moves without jams or resistance, and whether the movement is quiet and smooth.

4.2. Safety control

Control the force settings in the drive. Check, by putting a slight resistance on the gate, whether the automation correctly responds to the increased resistance during the actuator's operation (stops or changes direction). If safety devices such as photocells are installed, break the photocells beam and check that the control unit reacts appropriately. The same should be done for the other safety devices if fitted.

4.3. Checking the functions controlling the movement of the actuator

Check that all devices (especially the safety devices), buttons and radio transmitters correctly control the movement of the gate. If not, make the necessary corrections.

4.4. Control of emergency gate opening mechanisms

Make a trial unlocking of the emergency unlocking mechanism with the gate closed in order to check the forces required for this operation. If the garage is not equipped with an additional entrance door, we check the correct operation of the Bowden cable or other emergency door opening mechanism from the outside.

4.5. Providing the automation system to the user

Demonstrate the correct operation and maintenance of the automated system to the user or their representative, paying attention to potentially hazardous areas in which it operates.

4.6. Unlocking - manual operation of the drive / blocking the drive

The drive mechanism can be unlocked. The gate can then be operated manually (in the event of a power failure or automation failure). **Unlocking / locking procedure:** Disconnect the gate automation circuits from the power supply (also in the event of a power failure). Pull the release cable once. The lever will be set vertically and the mechanism will disengage the drive from the trolley, allowing the door to move manually. Restoring normal operation of the automation - pull the unlocking rod again, directing the force towards the "rear" of the drive, so that the unlocking lever is in the horizontal position again. **After the drive is blocked, before the actuators are activated for the first time, move the gate manually until the clutch mechanism is engaged (movement until the leaf stops).** This operation significantly increases the service life of the clutch components and thus significantly affects the failure-free operation of the automation system.

CAUTION! THE FORCE SHOULD BE ADJUSTED IN THE CONTROLLER IN THIS WAY THAT, AFTER COMPLETELY CLOSING THE DOOR, IT WILL BE POSSIBLE TO EMERGENCY UNLOCKING!

4.7. Service and maintenance

The running rail with the drive belt must be inspected annually and if the dirt is large, it should be cleaned with a dry cloth. Moving parts are lubricated with PTFE grease. Also inspect other elements of the automation system and check whether they work properly. This is critical to ensuring long-term, safe operation of the system.

Especially control the safety mechanisms. You should also unlock the drive and check that the gate is working properly. If the gate requires it, we carry out its maintenance. **The drive cannot eliminate the problems caused by a malfunctioning gate.**

All service and inspection must be performed by qualified personnel.

DISPOSAL



Electrical and electronic devices must not be disposed of with household waste. The correct disposal of the device enables the preservation of the Earth's natural resources for longer and prevents the degradation of the natural environment.

WARRANTY

DTM System provides the devices that are operational and ready for use. The introducer grants a warranty on the basis of a correctly completed warranty card and sales document. The introducer undertakes to repair the device free of charge, if during the warranty period there were defects caused by the introducer's fault. The defective device must be delivered to the place of purchase, including a copy of the proof of purchase, a correctly completed warranty card and a short, unambiguous description of the damage. The cost of disassembly and assembly of the device is borne by the user. The warranty does not cover batteries in remote controls, any damage resulting from improper use, unauthorized adjustments, alterations and repairs as well as damage caused by lightning, overvoltage or short circuit of the power supply network. The detailed terms and conditions of granting a guarantee are regulated by relevant legal acts.



DTM System hereby declares that the device complies with Directive 2014/53/EU; 2014/30/EU; 2014/35 /EU; 2006/42/EC. The full text of the EU declaration of conformity is available at the internet address: www.dtm.pl

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DESIGN AND PRODUCTION
OF ELECTRONIC DEVICES