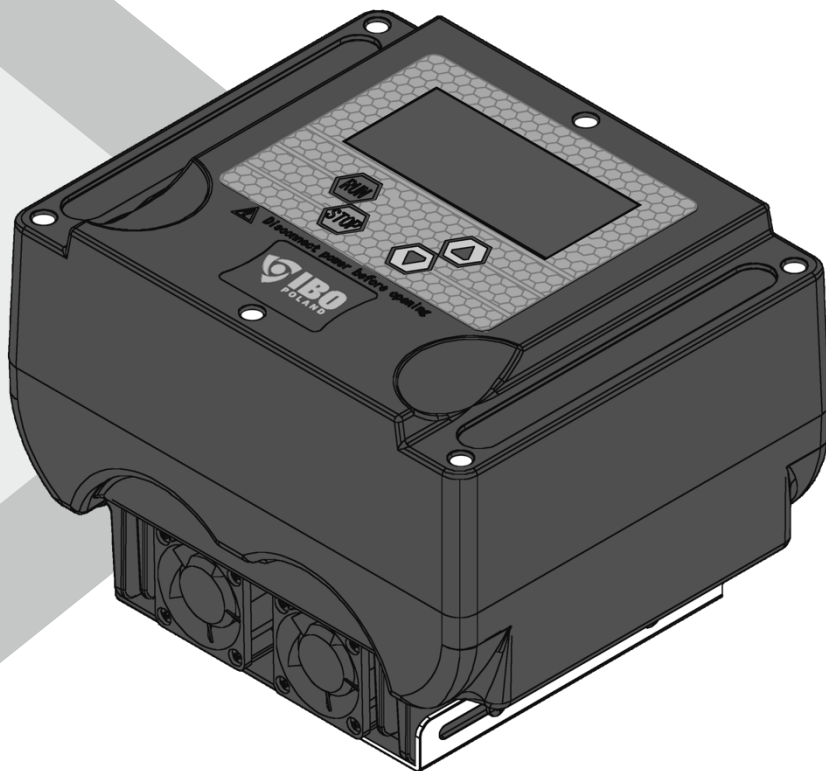




## IVR-10 User Manual



IVR-10 Constant Pressure Water Supply Controller



This manual provides instructions installation, operating parameters, routine maintenance, fault diagnosis, safety notes etc.

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The symbol "danger" is used for remarks, the non-observance of which may cause danger to life or health from the electrical system. Before carrying out operations marked with this symbol, the power cord of the pump must be disconnected from the electrical supply.



The symbol "danger" is used for remarks, the non-observance of which may cause danger to life or health.

REMARK

Symbol used for remarks, the non-observance of which may result in the risk of damage to the device and danger to life or health.

REMARK

- Before any installation or operation can be performed, the controller must be disconnected from the power source.
- Do not open the cover while the control unit is running.
- Do not open the control unit cover for a minimum of 5 minutes after disconnecting the power supply.
- Do not insert cables, metal wires, etc. to the controller.
- Do not pour water or other liquids on the control unit.
- This equipment is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or persons with no experience or knowledge of the equipment, unless this is done under the supervision or instructions for use of the equipment provided by persons responsible for their safety.
- You should pay attention to children so that they do not play with the equipment.



REMARK

DAMBAT is not responsible for damage to the device, property, as well as injury to people as a result of failure to follow the recommendations contained in the manual, including incorrect selection of the device, installation inconsistent with the instructions, applicable standards and national regulations, improper maintenance of the device and the entire system.

This equipment is not intended for use by persons (including children) whose

- physical, sensory or mental capabilities; or
- lack of experience and knowledge prevents them from using the appliance safely without supervision or instruction"

# INFORMATION

## ADMISSION

Thank you for choosing our products. We provide our customers with friendly and competent service. Our Intelligent Pump Controller, model IVR-10 is an easy-to-use control and protection device for direct connection of submersible pumps, surface pumps, submersible pumps, etc. maintaining a constant, set water pressure to support a change in the rotational speed of the pump motor. The IVR-10 inverter adopts SPWM (Sinusoidal Pulse Width Modulation) and high-performance spatial vector technology using VVVF (Variable Speed, Variable Frequency) V/F control.

With real-time pressure analysis, the inverter adjusts the pump speed to the current system demand. The variable speed of the pump stabilizes the pressure, thus significantly saving water and electricity consumption.

**It's important feature that distinguishes it from popular on/off control devices is:**

1. Energy efficiency. Compared with the traditional way of water supply, the constant pressure water supply system with frequency converter saves energy 30%-60%.
2. Simple operation: easy operation, all functions can be completed by pressing a button, no need to hire specialists for programming.
3. Reliability for years of cooperating pumps: Average torque and shaft abrasion is reduced due to a decrease in average speed, resulting in a longer pump life. Thanks to the built-in soft start and stop function, the device allows you to eliminate water hammer. (Impact effect hydraulic means a sudden increase in pressure accompanying a rapid stop or start of the flow of liquid.)
5. Comprehensive protection: the system has the most comprehensive technology for overcurrent, overvoltage, undervoltage, short-circuit, rotor blockage, the ability to protect the pump from dry-running without the need to install probes/sensors in the well.
6. Ability to control the operation of several pumps supplying the system.

## Applications

IVR-10 can be used to pressurize water in a variety of installations such as residential homes, service outlets, industry, water treatment plants, agriculture, etc.

- Easy to install and use. No need for a qualified service technician to connect the device
- Advanced technology, PID algorithm control, technology addressed to pump drive control
- Reliable and reliable. The device has various built-in security features. Protection against dry-running, short circuit, overload, undervoltage, overvoltage, rotor lockout, etc.
- Energy efficient. The controller effectively saves electricity in the range of 20% to 60%.
- Meets CE product safety requirements and meets environmental requirements
- Improves quality of life

REMARK

## Safety of use

- Check that the packaging is not damaged, the data on the rating plate is consistent with the order
- Please read this user manual thoroughly before installation and use
- Check if the device is not mechanically damaged, e.g. in transport. Do not connect the controller if uszkodzenie jest widoczne.
- The appliance must only be connected to an electrical network with a working earthing connection. Ensure that the grounding is proper and reliable
- Failure to comply with safety precautions may result in damage to the equipment, injury to the staff, or other material loss. If the safety instructions in this user manual are not observed, the manufacturer does not accept any liability for possible losses on the part of the user
- This equipment is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or persons with no experience or knowledge of the equipment, unless this is done under the supervision or instructions for use of the equipment provided by persons responsible for their safety. You should pay attention to children so that they do not play with the equipment.

# SAFETY RULES

## Safety Rules

- Install on metal or other non-combustible materials. There is a risk of fire.
- Use away from combustible materials. There is a risk of fire
- Use away from explosives. There is a risk of explosion.
- Check that the grounding is correct and effective. Malfunctioning or improper grounding may result in electric shock
- Check that the electrical supply is in accordance with the instructions. Incorrect may result in electric shock or fire
- Before installation or maintenance, turn off the electricity supply. Otherwise, there is a risk of electric shock.
- Do not touch the inverter with wet hands. There is a risk of electric shock
- If the appliance is stored unused for more than 2 years during commissioning, be vigilant and attentive.
- If abnormal behavior of the device is detected, immediately disconnect it from the power supply. Otherwise, it may pose a risk of electric shock or fire
- Maintenance should start no earlier than 5 minutes after the power is turned off, when all control LEDs go out. There is a risk of electric shock
- Do not touch any parts of the electrical system with bare hands while the appliance is plugged in. There is a risk of electric shock
- Replacement of components or parts must only be carried out by an authorized service center.
- No metal objects must be left in the appliance. There is a risk of electric shock or fire.
- Exposed parts of the electronic system should be protected with electrical tape. There is a risk of electric shock
- When installing the inverter, pay attention to whether the place where it will be installed is strong enough to support its weight. It may fall and cause property damage or injury
- Install the inverter so that a possible leak in the installation does not cause the device to flood with water. The inverter must be protected from water, including atmospheric water. The inverter must not be installed in rooms exposed to high air humidity. There is a risk of property damage
- Install the inverter away from direct sunlight. UV radiation increases the risk of property damage
- The inverter should be installed and stored at room temperature, in a dry, cool place and with good ventilation
- In high temperatures or in summer, good ventilation is essential to avoid condensation and dew. There is a risk of property damage.
- The inverter should be maintained by a professional.
- Do not install or operate the inverter if it is damaged or missing components. There is a risk of fire or electric shock to the operator
- After installation, secure the inverter. Limit access to it so that it is out of the reach of children

## Environmental requirements

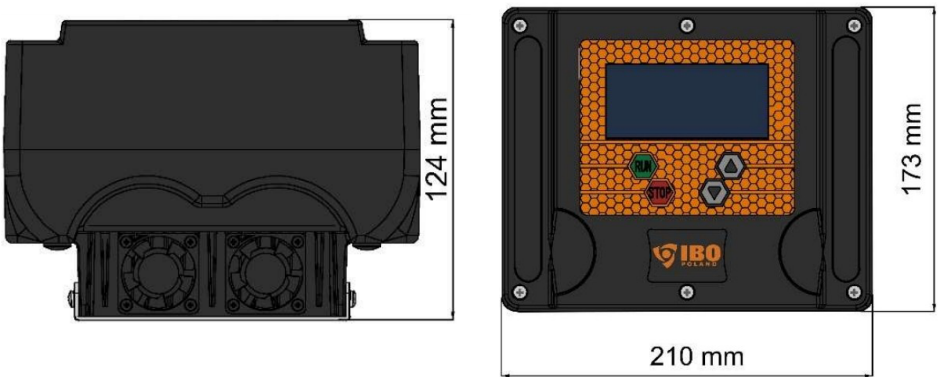
External conditions have a direct impact on the operation and reliability of the device. For this reason, the following conditions must be met:

- Permissible ambient temperature range: -10°C to +40°C
- Use only indoors
- Install away from corrosive substances and explosive gases
- Install away from flammable materials
- Install in dry and well-ventilated locations
- Install in locations out of reach of electromagnetic interference
- Avoid dusty areas or areas exposed to metal swarf that can get into the controller.



# PARAMETER

## DIMENSIONS

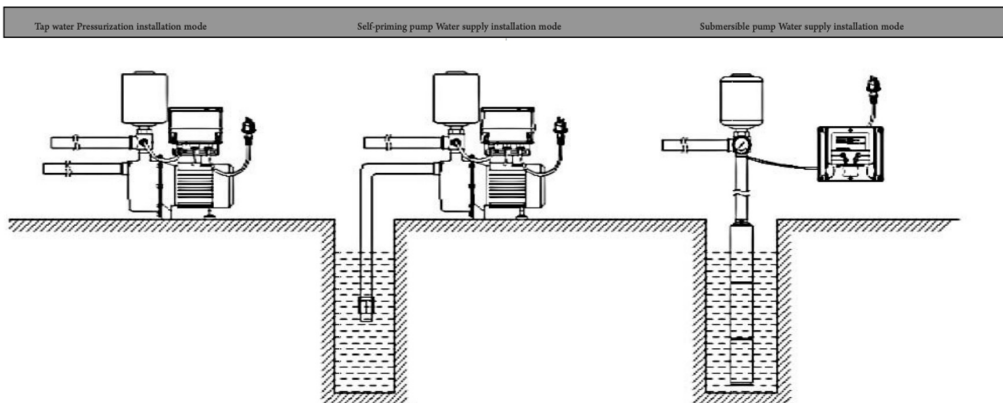


TYPE	0.75KW	1.1KW	1.5KW	2.2KW
Input Power	Single-phase or three-phase power supply			
Input voltage	230V or 400V			
Permitted supply voltage range	160V–260V (230V) or 300V–450V (400V)			
Supply Current Frequency	50/60Hz			
Output voltage	1~AC 230V or 3~AC 400V			
Controllable device	Pump			
Output frequency range	20~50/60Hz			
A pressure sensor	24V, 4÷20mA			
Pressure range	0.5 ÷ 9.0bar			
Pressure tank installation required	Tank with a volume of not less than 2L			
Ambient temperature range	0~+40oC			
Medium	Pure water from 0 to +100 °C			
Pressure required for automatic start	Lower by 0.3 bar than the set operating pressure, but not lower than 0.5 bar.			
Electrical installation	Absolutely effectively grounded			

# INSTALLATION

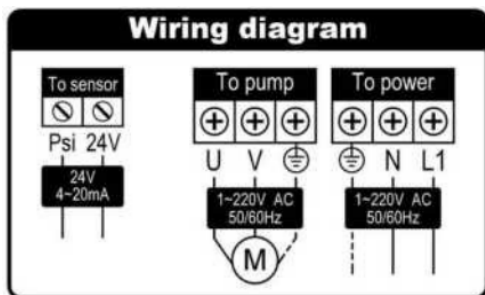
## Inverter installation and check for a single pump

Single Pump Installation Diagram

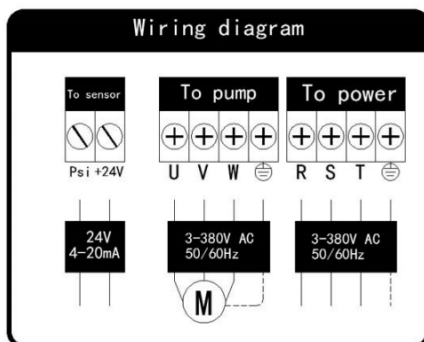


For proper operation, the inverter must work with a diaphragm tank with a minimum capacity of 2L. The membrane tank should be inflated to 60% of the water pressure set on the controller. Example: for a pressure set on the controller of 4 bar, the air pressure in the membrane tank (without water) should be 2.4 bar. The air pressure in the tank must be determined before the controller is started, before water appears in the system.

## WIRING OPERATIONS



Single-phase inverter - input  
~230V / output ~230V



Three-phase inverter - input  
~3 x 400V / output ~3 x 400V

- Cable connection must be done by a professional
- Work with cables must be carried out with the power supply switched off
- Make sure the cables are connected properly and check the mains voltage before you connect the power supply
- Please do not perform inverter breakdown tests
- Make sure the ground terminal is connected
- The front panel with the display must be installed before powering on










# INSTALLATION

## Operating instructions and operation


Check before turning on the power

1. Check that the input power supply and conditions match the data on the rating plate
2. Check that the inverter is securely installed (permanently attached to the support, support of sufficient strength, ambient temperature and humidity within acceptable limits)
3. Ensure that the pressure sensor is properly connected to the hydraulic system and that the cables are properly connected
4. Before connecting the power, make sure the cabling is properly connected. If the pump is three-phase, make sure the engine running direction is correct. If not - change UV to WV / WU



1. When the power is on, the "Power" indicator is on. Press  „current pressure” and actual pressure shows "•,•"bar, setting pressure display area shows the setting pressure.
2. Open water outlet valve, press , start the water pump.
3. The button  can be pressed at any working condition to stop the pump.
4. Press  or  to check the set pressure Press  or  to increase or reduce the working pressure.
5. Turn on the tap after setting the pressure. The AC drive inverter will adjust the speed according to water consumption situation. Check whether the pump is working properly, and the real-time pressure is constant. If so, Installation is done. If not, debug it according to instructions and test again.

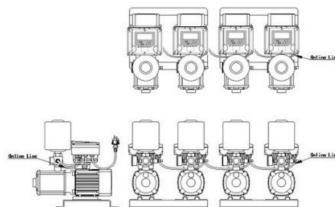
### Control Panel

Diagram	Number	Name	Instructions
	1	Display area	Display the current setting pressure value, actual pressure value of the pipeline working frequency, working status, system parameters, fault codes, etc.
	2	RUN	Manually start the pump, press this button to exit the water shortage state
	3	STOP	Stop the pump manually, press this button to exit the water shortage state
	4	UP	Increase the pressure value by 0.1bar each time
	5	DOWN	Decrease the pressure value by 0.1bar each time, and decrease quickly if pressed for long time

# INSTALLATION / CONNECTION

## Installation and connection of a group of several pumps and inverters

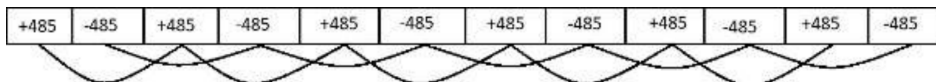
The design and installation of a group of pumps should be carried out by professionals. The IVR10 inverter allows you to connect to 6 pcs. pump + inverter units. In the group, one of the controllers will act as the main controller with which the user will program the group, and the others will only perform a service function in relation to the main inverter. The pressure sensor is connected only to the main inverter. Other inverters do not need to have connected sensors. For the proper operation of the pump group, it is required to connect membrane tanks with a minimum capacity of 2L.



Before starting to connect the kits with wiring, turn off the voltage and wait a minimum of 15 minutes.



REMARK



- Unscrew the top covers of the inverters and unplug the contacts connecting the display to the inverter.
- On the reverse side of the display panel, you will find a socket to plug in the communication cable with the targets marked +485 and -485
- Connect all the cells together with a two-wire cable so that all +485 plugs are connected only in series with each other and -485 plugs only with each other
- Assemble the inverters with the connected covers, not forgetting to plug the plugs of the display panels into the appropriate socket on the inverter.
- When all cables are well connected and all the variable frequency water pumps are turned on, set all inverters to stop by pressing the "stop" button, and then start each inverter according to the following steps to set the machine number.
- Press the "UP" and "DOWN" buttons of the first inverter at the same time for 3 seconds to enter the programming panel. When the programming codes are displayed, press the "UP" button and go to the P022 code, then press the "RUN" button to confirm the selection, press "UP" again to set the parameter to 1 and confirm with the "RUN" button. In this way, a given inverter is assigned no.1 and is the main inverter, and the remaining 5 are slave devices.
- Set the other 5 inverters according to the above steps, set the second inverter to 2, the third to 3, the fourth to 4, the fifth to 5, and the sixth to 6.
- Re-enter the subdirectory of the first, main inverter and set it to P024, set the parameter to 6 (indicating 6 inverters to connect), set to 2 if you only want to connect 2 inverters, etc. (P024 is the number of machines to connect).
- Once you have done the above settings, disconnect all inverters from the power source. Then connect all inverters to the power supply after 2 minutes.
- When one of the inverters is commissioned, the "GROUP" inscription will be displayed continuously on the panel, this inverter is the main one, the other 5 are slave devices, on the panels on which the inscription "GROUP" will flash. If "GROUP" is displayed on all panels (solid on the main panel and flashing on the other panels), the connection signal is normal.
- Please note that only the main inverter panel buttons work when operating the panel, you cannot operate the panel of other slave devices. Press the "RUN" button of the main inverter and the pumps will start working, after which debugging will be completed.

# MAINTENANCE / STORAGE

## Instructions for Maintenance



- Maintenance can only be performed by a licensed electrician.
- Maintenance work does not have to look identical for the same device but is decided by the maintenance person.
- In summer, good ventilation is required. At the same time, the device should not be exposed to direct sunlight or rain. In winter, store in a warm place, away from flammable substances.
- Cut off the power supply if the appliance is not running for a long period of time

## Storage and Safekeeping

Stick to the following guidelines for short/long shelf life

- Store in a dry, dust-free, well-ventilated area, at the required temperature
- If storing for more than a year before restarting operation, unplug the powered pump and perform a charge test to activate the capacitor
- Tests, tests for insulation resistance to puncture are not allowed, shorten the life of the device.
- Any work after opening the controller should be carried out no earlier than 15 minutes after it is disconnected from the power supply

## Disposal of the appliance



The used product is subject to the obligation to dispose of it as waste only in the selective collection of waste organized by the Network of Municipal Electrical and Electronic Waste Collection Points. The consumer has the right to return the used equipment in the network of the distributor of electrical equipment, at least free of charge and directly, as long as the returned device is of the right type and performs the same function as the newly purchased device.

Rok oznaczenia urządzenia znakiem CE .....  
(wpisuje sprzedawca na podstawie tabliczki znamionowej)



# DECLARATION OF CONFORMITY

EU/EC DECLARATION OF CONFORMITY (Module A):

1. Inverter - IVR-10 pump controller
2. PHU Dambat, Gawartowa Wola 38, 05-085 KAMPINOS, POLAND, e-mail: [biuro@dambat.pl](mailto:biuro@dambat.pl)
3. This declaration of conformity is issued under the sole responsibility of the manufacturer.
4. Pump controller described in point 1.
5. On the basis of the Act of 30 August 2002 on the system of conformity (Journal of Laws of 2004, No. 204, item 2087), we declare with full responsibility that the submersible pumps to which this declaration refers are made in accordance with the following Directives and their references to harmonized standards:

LVD Directive No. 2014/35/EU

Standards used: EN 60335-1:2012+AC:2014, EN 60335-2-41:2003+A1:2004+A2:2010

EMC Directive No. 2014/30/EU

Standards applied: EN 55014-1:2006+A1 2009+A2:2011, EN 61000-3-2:2014

Adam Jastrzębski  
23.10.2019

# WARRANTY

## WARRANTY CARD:

The following warranty card is valid only together with the original purchase document, i.e. invoice or receipt. In addition, it must be confirmed by the seller with a signature and stamp. The warranty card without the original purchase document attached is invalid

1. The guarantor of the device is PHU DAMBAT, service address 05-870 Blonie, Pass 21, Hall B, Park Hillwood
2. For customers who have the original proof of purchase in the form of a fiscal receipt or the original invoice, the warranty period is **24 months**.
3. The warranty does not include, limit or suspend the buyer's rights under the provisions on warranty for defects of the sold item .
4. The warranty covers free removal of defects in the device caused by an error in production. 5. The condition for the warranty to be valid is compliance with the recommendations contained in the user manual. 6. The warranty does not cover:
  - Damage resulting from improper handling or operation contrary to the intended use and the operating instructions
  - Damage caused by external forces that is caused outside the device to which the warranty relates (e.g. frost damage, transport damage, fire, flood, etc.)
  - Damage caused by interference in the structure of the device by persons not authorized by the guarantor
7. The warranty expires in the event of:
  - Finding in an authorized service center structural changes made by a person not authorized by the guarantor
  - Finding attempts to disassemble the device by a person not authorized by the guarantor outside the activities permitted by the user manual in an authorized service center
  - Finding in an authorized service any corrections in the warranty card made by persons not authorized by the guarantor
  - Finding any discrepancies between the entries in the warranty card and the purchase document in the authorized service center.
8. The warranty covers only devices used in the territory of the Republic of Poland.
9. If the user sends the device for repair:

In the case of shipments of devices weighing more than 20 kg, the guarantor covers the costs of transport to the service. Before shipping, please contact the guarantor to find out which courier company to send the device to (tel.22-6328609).

The guarantor accepts only shipments sent in the standard service. Shipments sent at the guarantor's expense using a service other than the standard will not be collected. The guarantor does not collect cash on delivery shipments.

The user should prepare (secure) the device for transport so that it is not damaged. Any damage caused by the customer's fault is not subject to warranty repair.
10. Apart from the terms of the warranty, the buyer is not entitled to any compensation.
11. In the case of sending a functional device for service that is not subject to warranty repair, the user may be asked to reimburse the cost of checking the device, and reimbursement of the costs of returning the device from the service to the user.
12. If the guarantor does not consider the damage to be the fault of the manufacturer, the user may be asked to return the costs of transport to the service center and reimburse the cost of returning the device to the user. 13. The warranty repair will be performed within 14 working days from the date of delivery of the device to the service, except for special cases when the defect is not permanent and longer diagnostics of the device is necessary. 14. The guarantor does not provide information about the status of the repair or the course of the repair of the device sent to the service. 15. If you have an email address, please provide it below

User Email Address: ..... Providing your address will facilitate communication with the site and can speed up the repair

16. Contact to the nationwide service tel/fax 22-6328609, e-mail: [serwis@dambat.pl](mailto:serwis@dambat.pl) Working hours: Monday-Friday 8.00-16.00

DEVICE TYPE:..... NO. PRODUCTION:.....

DATE OF SALE (month in words).....

STAMP AND SIGNATURE OF THE SELLER.....



DAMBAT.PL  
IBOITALY.PL

BIURO@DAMBAT.PL  
SERWIS@DAMBAT.PL

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BIURO +48 22 721 11 92  
BIURO +48 22 721 02 17