Pioneering for You

Handling and Operating Manual

CPA-L Control Panel

CPA–L Control Panel Handling and Operating Manual

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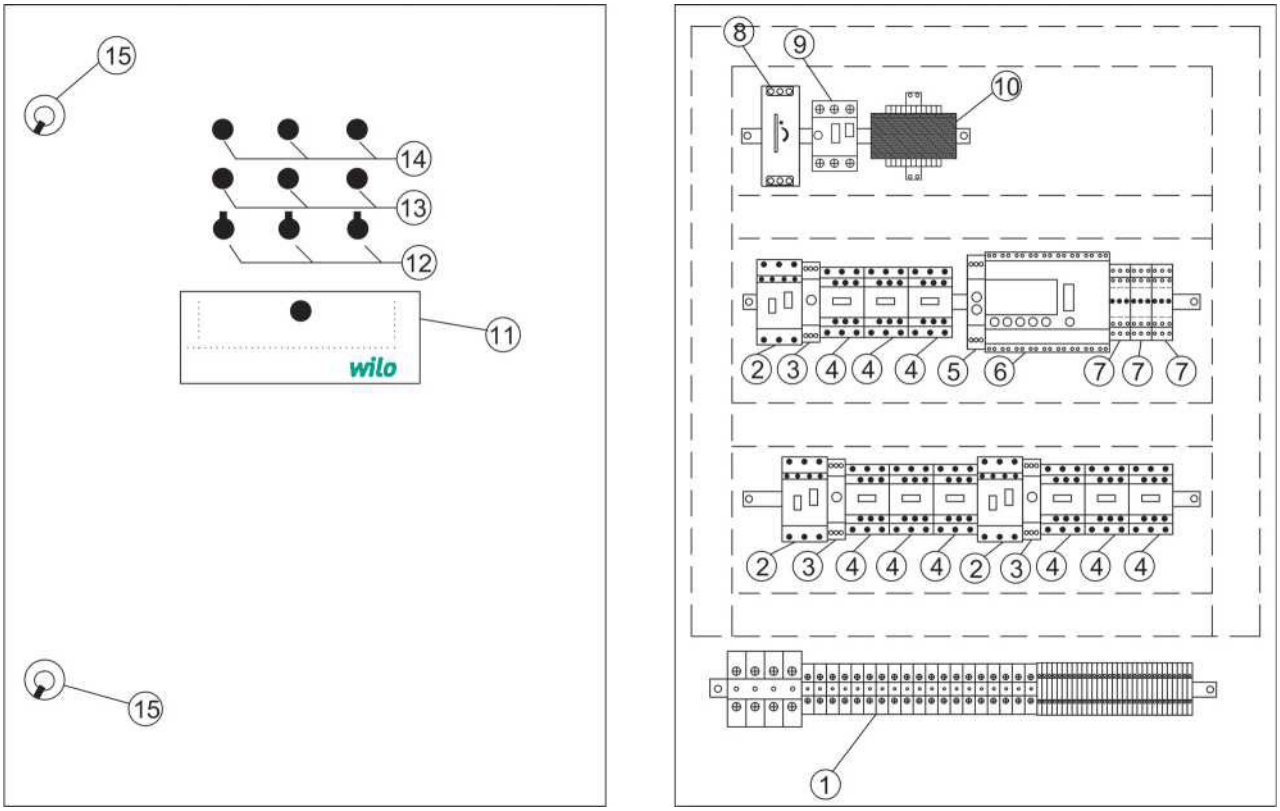

Figure: 1 (Wall Type)

1- Control and power terminals
2- Thermal switches
3- Star delta relays
4- contactors
5- Phase protection relays
6- Programmable control device (Zelio)
7- Thermistor water leaks relays
8- 24 VDC Power supply
9- Isolation transformer thermal switch
10- Insulation trafansformer
11- General fault lamp
12- Auto-manual selector switches
13- Pump malfunction lamps
14- Pump operation lamps
15- Door locking mechanism

'' Panel design; The number of pumps may vary according to the power and selected options "

1. General

Installation and operating should only be carried out by qualified personnel!
Installation and operating instructions are part of the device. It should be available at the side of the device as a source for reference at any time. Completely observing this manual is essential for proper use of the device and proper operation . The installation and operating manual conforms to the device model and the current safety technical norms at the time of printing.

2. Safety

This user manual contains basic explanations that should be taken into account during installation and operation. For this reason, this manual must be read by the installer and the relevant operator during installation and operation. Not only the general safety instructions under this basic safety title but also the special safety instructions added under the following points must be taken into consideration.

2.1 Symbols related to explanations in the user manual

In this operating guide, the safety rules if not followed that may cause injuries and handicaps are indicated by the following symbol.

The warnings against electric shock are specified by the following symbol.

For the purpose of specifying safety rules that may cause damage to machinery, equipment or systems when not in compliance

ATTENTION!

Symbol is used.

2.2 Staff education

The personnel performing the installation must have been properly trained for these operations.

2.3 Dangerous hazards if the safety rules are not observed

Failure to comply with the safety instructions may result in personal injury and damage to the equipment. Failure to comply with the safety rules will also invalidate compensation claims that may arise due to possible injuries.
Failure to comply with the rules in general can lead to the following negative facts:
• The important functions of the equipment are disabled,
• Personnel injuries resulting from electrical or mechanical reasons.

2.4 Safety rules for operating personnel

The current legislation on the prevention of accidents should be respected. Necessary precautions should be taken against the hazards that may be caused by electricity. Hazardous electrical hazards must be considered and the directives of the local electricity distribution companies must be respected.

2.5 Safety rules for control and installation works

The business manager should ensure that all control and installation work is carried out by authorized and qualified specialist personnel and that they have information at a sufficient level regarding to the details given in the user manual. In principle, the work on the system should only be carried out when the system is in a completely stopped position.

2.6 Unauthorized modification and spare parts use

Changes to the appliance are only possible with the manufacturer's approval. The use of spare parts recommended by the manufacturer ensures that the safety is complete. The use of other parts may invalidate claims for compensation.

2.7 Unacceptable operating types

The operating safety of the supplied equipment is only guaranteed in case of operation in working condition indicated in paragraph 4 of the operating instructions. The operating limit values given in the catalog or brochures should never be exceeded.

3. Shipping and interim storage

ATTENTION!

The panel is shipped from the factory in boxes or on a pallet, protected against dust and moisture.
Receiving the product:
• The transport should be checked for damage,
• If any transport damage is detected, the transport company must make necessary initiatives.
During transport:
• Always use suitable lifting devices and take the safety nets to prevent parts from falling,

• Secure the product on a flat pallet, use a suitable pallet truck for transportation.
• Never stop under suspended loads, use a cage during lifting and secure the product straight into the cage.
• Ensure that the panel is stable and stable in storage and transport, and before the installation work in a safe place.
The control unit must be protected against nausea and mechanical damage.

ATTENTION! The control unit must be protected against humidity and mechanical damage. Environment between –10 ° C and + 50 ° C Should not be used except this temperature range

4. Purpose of use

CPA-L control panel is for single and multiple pump applications in the infastructure waste water facilities

5. Product information

5.1 Application

Automatic control of submersible pump system with level float up to max. 4 pumps

5.2 Panel Coding

Sample : CPAL4/2.2 DOL

CPA-L	System operating with level float
4	Number of pumps controlled
2.2	Nominal power of each pump [kW]
DOL	Direct starter
SD	Star delta starter

5.3 Working Principle

There are 2 standard minimum and maximum floats in the system and a floater is added for each pump. In order for the system to work, the water must be above the minimum level. According to the need for pumps start to work from the first pump, if needed according to the rotation order and levels, the other pumps are activated , all the pumps stay on until the minimum level is seen when deactivated.

5.4 Product Features / Benefits

- Auto-manual switch
- Isolation transformer
- Phase protection relay
- External on-off
- General operation / General fault signals
- Individual operating signals
- Automatic pump change in case of failure
- Dry running protection
- Protection from over current and heat by motor protectionswitch
- Monitoring of fault information of all pumps as a lamp from the panel cover
- Delay times of pump on and off
- 2 different operating modes

When the mode is set to "1", all pumps start working at theset level one by one, and when the minimum level is seen, they are all deactivated (EMERGENCY OPERATION MODE).

Mode "2" All pumps start working at the set levels one by one, each pump is deactivated when it sees one lower level when deactivated and the last working pump is deactivated after seeing the minimum level.

- Separate motor shaft seals and water leaks for each motor and humidity sensor & thermistor relay for temperature

5.4.1 Control and Signal Functions

- System activation and shutdown with external dry contact
- SSM general fault signal
- SBM general operation signal
- Individual operation signal for each pump

5.5 Equipment used in the panel

The structure of the control panel depends on the power of the pumps to be connected.

- **Control and power terminals:** For motor and power connections (Figure 1 no: 1)
- **Thermal switches:** To protect the motor from overheating and short-circuiting (fig. 1: 2)
- **Star delta relays:** Adjusts the delta passing time from the star in star / delta motors (figure 1 no: 3)
- **Contactors:** Allows the motor to start and stop (figure 1 no: 4)
- **Phase protection relays:** The system does not start in the absence of one of the excessively low voltages and phases (figure 1: 5)
- **Programmable control device (Zelio):** Provides automatic and sequential operation of the system (figure 1: 6)
- **Thermistor water leakage relays:** The pump is deactivated when the motor is warmed up and the seals water leak, also water leaks and thermistor fault lamps are present on the relay (figure 1: 7)
- General Fault lamp: Illuminates in case of any fault (figure 1 no 11)
- Pump fault lamps: When any pump fails, its own lamp lights up (figure 1 no: 13)
- Pump operation lamps: When any pump operates, its own lamp lights up (figure 1 no: 14)

Technical Specifications	
Mains supply voltage (V)	3~400 V, 50/60 Hz
Nominal current (A)	See. Product label
Protection type	IP54
Maximum permissible ambient temperature	50 ° C
Mains fuse	According to the circuit plan

5.6 Delivery Scope

- Control panel - WILO CPA-L
- Electrical Circuit Diagram
- Installation and operating instructions

5.7 Options / Accessories

The CPA-L system is may be optionally equipped with the options listed below.

These must be ordered exclusively. The connection of the pumps must be carried out on the contact site in accordance with the circuit diagram

Option	Definition
Main switch	To cut the panel energy
Protection Class	The panel protection class may vary upon your claim.

6. Electrical connections

The electrical connection must be carried out by trained personnel in accordance with the regulations of the regional electricity distribution company.

Network connection:
Explanations regarding the installation and operating instructions of the whole equipment must be taken into account.

CAUTION!

Pump network connections

CAUTION!

Take into consideration account the installation and user manuals of the pump!

6.2 External on / off circuit:

In accordance with the circuit plan, A tele (remote) on / off circuit can be connected via a potential-free contact (opener) after the bridge has been removed with the relevant terminals (pre-assembled by the factory.)

External on / off circuit	
Switch off	Open Auto
Switch on	Auto OFF, reporting on the screen with a symbol.
Switch loaded	24 VDC / 10 mA

CAUTION!

Do not apply external voltage to the terminals!

7.Commissioning

We recommend that the device be operated by WILO Customer Service.The cables on the side of structure Before the first operating must be checked for correct connection and especially grounding.Individual precautions for operating must be taken from the installation and operating instructions for the complete assembly.

CAUTION!

All connection terminals must be tightened before commissioning.

7.1 Factory settings

Preset of the control panel was made in the factory. The factory setting can be recreated by the WILO Service.

7.2 Control of motor rotation

The motor is manually started. If labelled current is equal or close to value, direction of motor rotation is considered correct. If current is less than labeled current, this means that the motor is in the opposite direction. If the motor is vibrating and making too much noise, there is a possibility that the motor is in the opposite direction. From the panel screen the water levels must be monitered and the decrease in water levels must be noted. If the water levels are dropping slowly the motor is in opposite direction, if the water leves are dropping rapidly then the motor rotation is right.

8.Maintenance

Before maintenance or repair work, the device must be switched off and secured against unauthorized restart. The control cabinet must be kept clean. The control cabinet and fan should be cleaned when soiled.
From 5,5 kW motor power, check the protection contacts from time to time for burns and replace in case of intense combustion. The charging status of the real time clock buffer battery is determined by the system and notified when necessary. However, it is recommended to change it at 12-month intervals. For this purpose, the battery should be changed according to the description of the following CPU structure set.

CAUTION!

The leakage current protection relay must be installed in the power line where the control panel is connected.

9. Spare parts

Spare parts Is ordered through the services authorized by WILO Pompa Sistemleri A.Ş..
The spare parts list is on the back page of the electricity project.

10. Authorized services

You can find a list of services authorized by WILO Pompa Sistemleri A.Ş. :
http://www.wilo.com.tr/anasayfa/servis-destek/yetkili-servisler/

11. Misuse

- The control panel cover must be kept closed and locked.
- Do not switch off the power supply switch of the control panel except for periodic maintenance (controlled conditions).
- Do not intervene in the panel without interrupting the power supply.
- Do not place any material on or in front of the control panel.
- By inserting an isolated carpet in front of the control panel and pressing on the carpet
Interfere with the board.
- Do not pull the power supply line out of the control cabinet.

12. Safety and Environmental Instructions

Waste disposal and Complying with WEEE Regulation on Control of Hazardous Wastes:
This product is in accordance with EU WEEE Instructions(2012/19/EU). This product includes a symbol that is used for management of waste from electric and electronical equipment. Within the European Union this symbol may be present on the product, packing or its relative manual. This symbol means that the relevant electric or electronic product must not be disposed alongside household waste products. The relevant products must be transported,recycled or disposed of according the following statements:
• These products must only be handed over to a certified disposal center.
• Comply with local law at all times! For the proper disposal procedure please contact local authorities, nearest disposal center or the dealer where you have made your purchase. For more information on recycling visit; http://www.wilo-recycling.com .

Packing Information Ambalaj Bilgileri : Packaging of this product is made from recycleable materials that comply with National Environmental Legislation. Do not dispose of packaging materials with household or other waste. Take these materials to recycling points designated by local authorities.

Technical differences may apply!

13. Failure causes and possible solutions

Definition of Problem	Possible reasons	Solution recommendation
Thermal fault information at first commissioning	Motor connections may be reversed.	Check the motor connections.
	The motor thermal magnetic switch may not have been properly adjusted.	Check the settings of the thermal magnetic switch.
	The contactor may be stuck or the phase loss of the motor due to cable loosening.	Measure the voltage applied to the motor.
The motor contactor trips into the circuit and switches off after a while.	The contactor may be stuck or loose cable connections.	Check the contactor and cable connections.
Phase failure	One of the phases feeding the panel may be broken, reversed or phase unbalanced.	Check for looseness of the terminals, measure the voltage between phases.
Thermistor failure	The motor overheat makes this default. For the reason, the motor is connected incorrectly or mechanical problem.	Check the motor connections and the motor.
Water leakage fault	When the pump seal is water contact; The humidity sensor gives a water leak error and does not start the pump.	Check the motor.
Automatic system on but the pump does not run	The auto-manual selector switch may be in the "0" position.	Check the auto-manual selector switch.

Notes :

Notes :

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