Operating Instructions
Domestic Pump set

EN

Onematic

Warning symbols contained in this service manual

Risk by electric shock.

Risk for people and/or objects.

COELBO

BODY CONNECTIONS
CONNEXIONS SUR L´APPAREIL DE COMMANDE

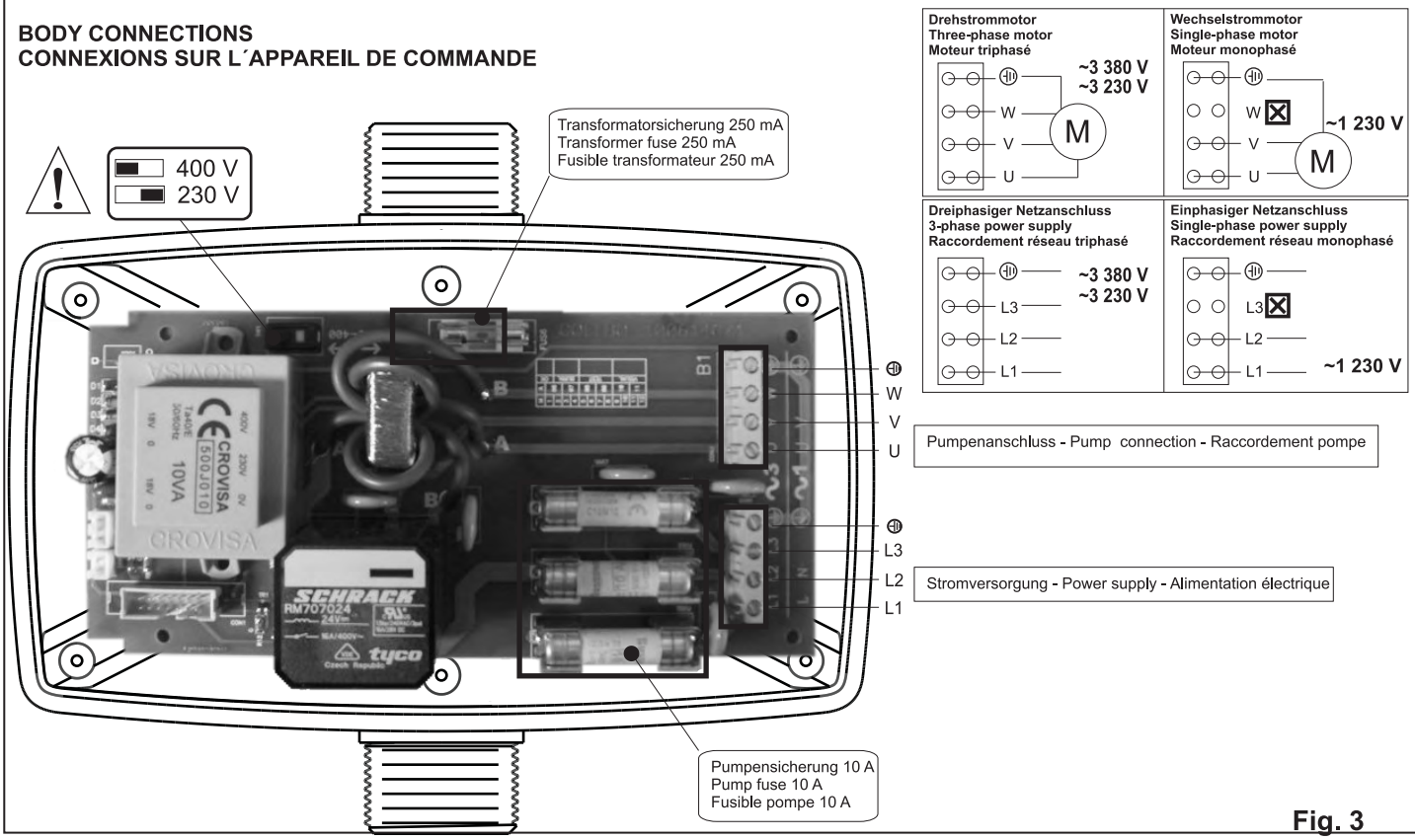

Fig. 3

GEHÄUSEANSCHLÜSSE - COVER CONNECTIONS - CONNEXIONS SUR LE BOÎTIER

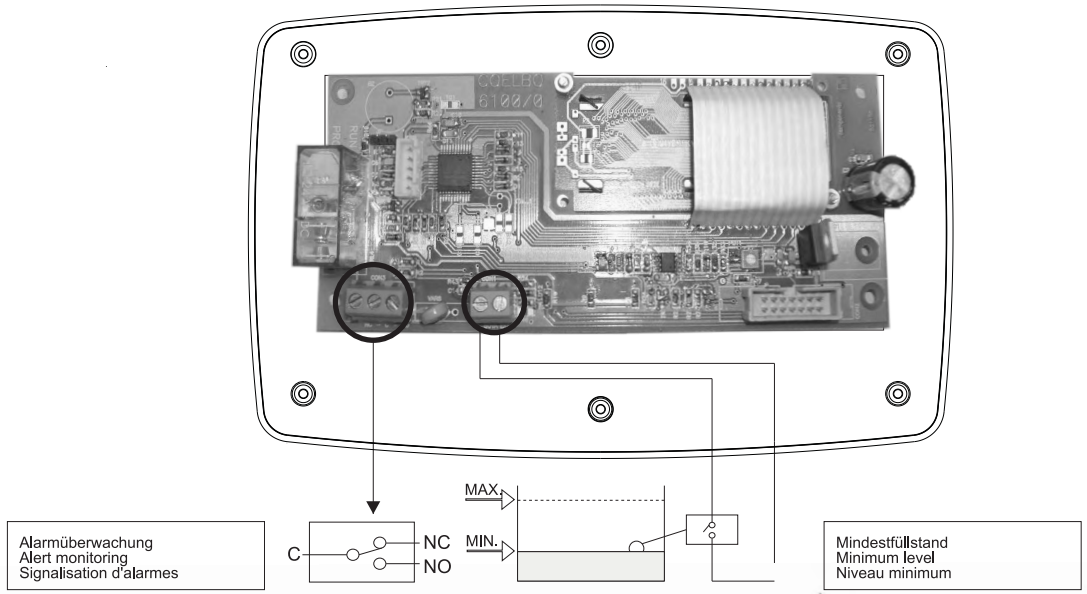

Fig. 4

HAUPTABMESSUNGEN - MAIN DIMENSIONS - DIMENSIONS PRINCIPALES

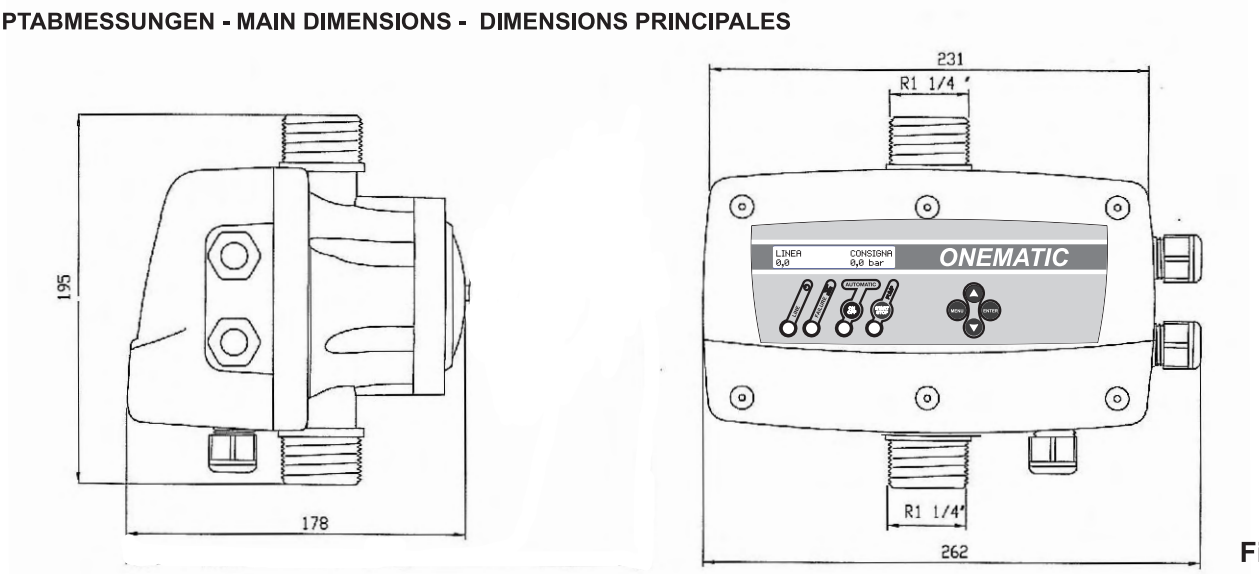

Fig. 5

ONEMATIC

EN

0. DESCRIPTION.

ONEMATIC is a compact automatic control unit for controlling pumps with single-phase and three-phase motors. The system manages the start and stop of the pump depending on the pressure detected by its internal transducer and the flow detected by the internal flow sensor. It can be run either in **pressure-dependent mode** (start pressure and stop pressure) or **on/off mode** (start pressure between 1÷5 bar, stopped by the flow sensor).

1. CLASSIFICATION AND TYPE.

According to EN-60730-1 **ONEMATIC** is a unit of independent assembly, type 1B with software of class A, for floodproof installation in clean or slightly contaminated environments.

2. MAIN CHARACTERISTICS.

- Pump controlled by power relay.
- 2 operating modes: **pressure-dependent** or **on/off** mode.
- Control and protection system against over-current.
- Control and protection system against dry running.
- **ART** function (Automatic Reset Test). When the unit is stopped due to a lack of water, the **ART** system attempts to re-start the unit in programmed intervals.
- Automatic restore of system after interruption of power supply. System restores the previous mode.
- Volt-free contact for monitoring the alerts displayed in screen, which were caused by irregularities or problems within the system.
- Input for monitoring the minimum water level in inlet tank. This function is independent of the protective system against dry running and optional.
- Internal pressure transducer.
- Internal flow sensor.
- Control panel:
  - LCD screen, for configuration menu and indication of alerts with permanent pressure indication.
  - START/STOP push-button to operate the pump manually.
  - AUTOMATIC push-button with mode LED .
  - Keyboard for accessing the configuration menu.
  - Digital gauge.

3. CONTROL PANEL.

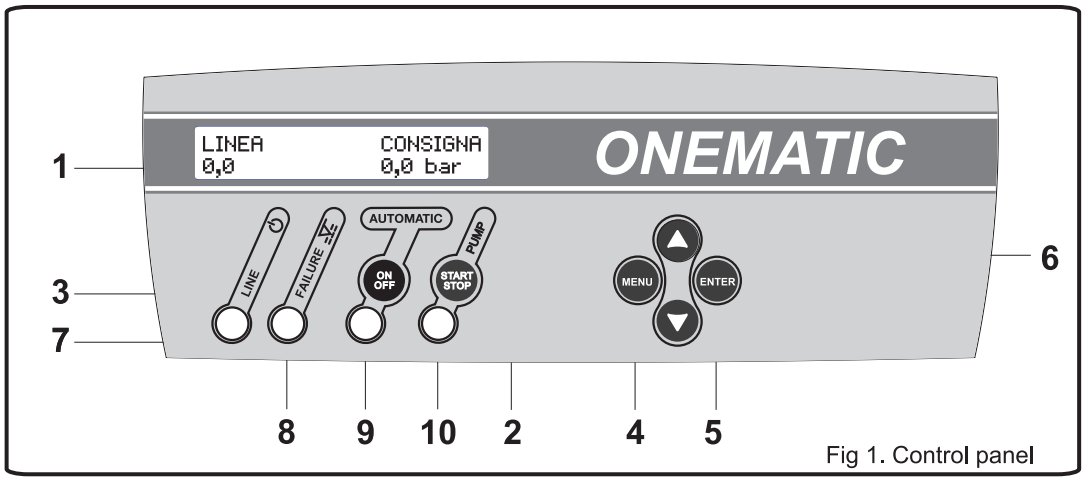

Fig 1. Control panel

1.- LCD screen: during the configuration process, it shows the different parameters. When **ONEMATIC** is running, it shows the current pressure, the configured target pressure and the alerts.
2.- Push-button **PUMP Start-Stop:** will only run with the automatic mode disabled (**AUTO** LED off).
3.- Push-button **AUTO On/Off:** for choosing between manual and automatic operating modes.
4.- Push-button **MENU:** for accesing or exiting the configuration menu.
5.- Push-button **ENTER:** used for saving configured values. Each time the button is pushed, a new field opens in the configuration menu. Press MENU if you wish to exit the configuration sequence.
6.- Push-buttons ▲ and ▼: to increase or decrease the configuration parameters.
7.- LINE LED (green): lit when the unit is connected to the electric supply.
8.- FAILURE LED (red): lit or flashing depending on type of failure.
9.- AUTO LED (green): lit in automatic mode and off in manual operating mode.
10.- PUMP LED (yellow): lit when the pump is running.

4. TECHNICAL CHARACTERISTICS.

■ Power supply voltage	~1x230 / ~3x230 / ~3x400 VAC
■ Frequency	50/60 Hz
■ Max. rated pump current	16 (10) A
■ Max.operating pressure	10 bars
■ Range of start pressure (on/off mode)	1 ÷ 5 bar
■ Max. stop pressure (pressure dependent mode)	7 bar
■ Max. start pressure (pressure dependent mode)	6,5 bar
■ Enclousure	IP55
■ Max. water temperature	40ºC
■ Max. ambient temperature	50ºC
■ Max. flow	15.000 l/h
■ DN inlet port	G1 ¼" male ISO 228
■ DN outlet port	G1 ¼" male ISO 228
■ Net weight	3,3 kg

5. HYDRAULIC CONNECTION.

Check automatic control unit for transportation damage upon receipt.
Before hydraulically connecting the pump, it is essential to install a non-return valve at the pump´s suction side.
ONEMATIC must be connected in vertical position with the inlet port (1 ¼" male) directly connected to the main pump discharge, and the outlet port (1 ¼" male) to the main network.
ONEMATIC has an integrated accumulator so that it is not necessary to install an external one. However, if frequent flow consumptions are planned, it is recommended to operate in pressure-dependent mode, and to install an external accumulator.

6. ELECTRIC CONNECTION.

The unit should be disconnected from the electric supply before performing any work inside the unit.
Wrong connections may destroy the control electronics.

Table 1. Required cable dimensions

	~1x230 VAC	~3x230 VAC	~3x400 VAC
Power supply voltage	H07RN-F 3G1,5	H07RN-F 4G1,5	H07RN-F 4G1,5
Motor supply	H07RN-F 3G1,5	H07RN-F 4G1,5	H07RN-F 4G1,5

Use H07RN-F type cables of sections sufficient for the applicable power supply as given in Table 1.

- Check power supply. Remove the cover of the control electronics and establish the connections according to the indications located on the connection strip base.
  - Pumps with three-phase motors:
    - *Power supply of control unit*: connect **L1**, **L2**, **L3** via a three pole motor protection switch (recommended) in OFF mode and ensure proper connecting PE.
    - *Motor*: connect motor to **U, V, W** and **PE (earth).**
  - Pumps with single-phase motor:
- *Power supply of control unit*: connect **L1** and **L2** via a motor protection switch (recommended) in OFF mode and ensure proper earthing by connecting PE.
- *Motor*: connect motor to **U, V** and PE (**earth**).
- The earth conductor must be longer than the others. It is the first one to to be connected during installation, and the last one to be disconnected during dismantling.
- Connect all auxiliary devices:
- Alert monitoring: **ONEMATIC** has a volt-free contact with 1 A maximum intensity for the transmission of signals to diferent types of alarm equipment (optical, acoustic, etc) when a failure, which was previously displayed in the LCD screen, is detected. For connection, see Fig. 4.
- Min. level control: there is an input for stopping all the pumps as soon as the external switch for minimum level detection trips. For connection see Fig. 4.
- For the voltage selection set the selector:
- to A for 220-240 V.
- to B for 380-415 V.

When closing the cover after electrical connection, ensure correct position of the cover seal. Make sure that internal wires are not clamped between the cover parts.
Check rotational direction of the pump before commissioning.

LATERAL CONNECTION.

1. Pump.
2. Power supply.
3. Minimum level (optional).

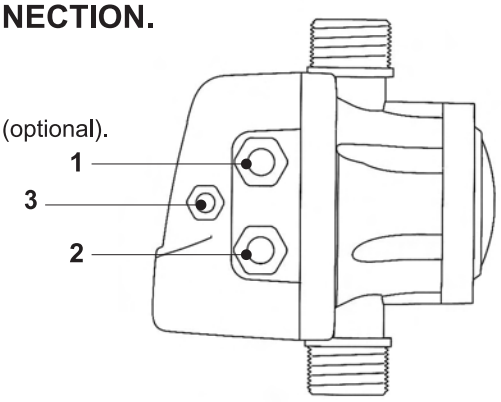

Fig 2. Lateral connection.

7. STARTUP.

- It is recommended to connect **ONEMATIC** to the electric supply via the motor protection switch. Wait for 5 seconds while the **ONEMATIC** is running autotest.
- If the unit is started for the first time, it will directly open the configuration menu. The LCD screen will display a message for language selection. Choose your language and start the configuration procedure - see **7. CONFIGURATION**.
- Once the unit is configured, switch to manual mode by pressing the **AUTO On/Off** push-button (green LED off). Verify the rotational direction of the pump, and whether it is correctly primed using the **Start/Stop** push-button.
- Press **AUTO On/off**. The unit is ready to operate.

8. CONFIGURATION.

Values may be changed by using ▲▼, changes can be saved by pressing **ENTER**. If you wish to quit the configuration sequence, press **MENU**. Each time **ENTER** is pressed, the different screens, which display the sequence of configuration, will open automatically.

0	PLINE PON 03,0 bar 02,0 bar	Push **MENU** for 3 seconds to start configuration sequence.	MENU 3"
1	ONEMATIC V 0,0	This temporary message gives information about the software version	3"
2	LANGUAGE ENGLISH	Choose language using the ▲▼ keys: PRACHE DEUTSCHE", "LANGUAGE ENGLISH", "LANGUE FRANÇAISE", "LINGUA ITALIANA" and "IDIOMA ESPAÑOL".	ENTER
3	INT. MAX. OFF	The rated current intensity - from 0 to 10 A - is entered by means of the ▲▼ keys to enable thermal protection of the motor. This value is given on the name plate of the motor. Press **ENTER** to confirm.	ENTER
4	LEVEL PROBE NOT	If there is no external device for detecting the minimum water level, press **ENTER** to confirm. Otherwise, change NO for YES using the ▲▼ keys.	ENTER
5 (1)	OPERATING MODE ON-OFF OPERATING MODE PRESSOSTATIC	In this step, the mode of operation can be selected using ▲▼. There are 2 options: ■ On-off mode: only the start pressure is configured. The pump will start at this pressure - with the delay configured in the next step - and it will stop when there is no flow demand. ■ Pressure-dependent mode: the start and stop pressures of the pump can be configured.	ENTER
6 (2)	P ON 05,0 bar	This is the start pressure for the pump. The desired pressure values within the respective range can be chosen using the ▲▼ keys: ■ On-off mode: from 1 to 5 bars. ■ Pressure-dependent mode: from 0 to 6,5 bar.	ENTER
7	P OFF 06,0 bar	This is the stop pressure for the pump in pressure-dependent mode. It must be within a range of 1 to 7 bar and 1 bar above the start pressure. Use ▲▼ to modify the values.	ENTER
8	START DELAY 00 sec	This is the delay to start the pump once it has reached the start pressure. Choose the desired timing using the ▲▼keys.	ENTER
9	STOP DELAY 00 sec	This is the delay to stop the pump once it has reached the stop pressure. Choose the desired timing using the ▲▼keys.	ENTER
10	PLINE PON POFF 05,0 02,0 06,0 PLINE INT F 05,0 9,0 1 PLINE PON 05,0 03,0	System is ready to operate. Press **AUTOMATIC On/Off**, green LED is lit. From this moment the LCD screen will show: ■ On-off mode: current pressure (PLINE) and start pressure (PON). ■ Pressure-dependent mode: current pressure (PLINE), start pressure (PON) and stop pressure (POFF). Using ▲ in **AUTOMATIC** mode, it is possible to access a detailed expert screen with the following parameters: ■ P line: current pressure. ■ INT: present current consumption. ■ F: position of the flow sensor (0: no flow, 1: with flow)	On Off

*(1) "**P ON**" must be at least 0.2 bar higher than manometric pressure.*
*Eg: with 20 meters of water column ⇨ **P ON** > 2.2 bar.*
*The pump must be able to supply at least 0.5 bar more than "**P ON**".*
*(2) Being in pressure dependent mode "**P OFF**" must be at least 0.5 bar lower than the pressure supplied by the pump.*

10. ALERTS .

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A1: LACK OF WATER ALERT.

- **Warning:**

Failure verification: LED LIGHT FAILURE FLASHING.
Final failure: LED LIGHT FAILURE ON.

- **Description:** if **ONEMATIC** detects lack of water in the inlet of the automatic control unit for more than 10 seconds, it will stop the pump and the ART will be triggered.
- **System reaction:** after 5 minutes ART system will restart the pump for 30 seconds, trying to restore the system. In case of persisting lack of water, it will attempt another restart every 30 minutes for 24 hours. If, after repeat attempts, the system still detects a lack of water, the pump will be permanently stopped until the damage is repaired.
- **Solution:** there is a lack of water in the inlet, which resulted in the safety system to be triggered: verify the supply from the hydraulic network. The pump can be primed using the push-button **START/STOP** (the **AUTO On/off** LED light should be off; if not, press the push-button to disable it).

A2: LEVEL SENSOR ALERT.

- **Warning:**

Final failure: LED LIGHT FAILURE ON.

- **Description:** if a float switch is installed in the inlet tank, it will inmediately stop the pump when it detects a lack of water.The system will show the message for lack of water.
- **System reaction:** the pump will remain stopped until level sensor detects water in the tank.
- **Solution:** check tank.

A3: TRANSDUCER DAMAGED ALERT.

- **Warning:**

Final failure: LED LIGHT FAILURE ON.

- **Description:** transducer damage is displayed on the **ONEMATIC**´s LCD screen. Contact the technical service when this alert was triggered.
- **System reaction:** unit operation is interrupted.
- **Solution:** contact with technical service.

A4: OVER-CURRENT ALERT.

- **Warning:**

Failure verification: LED LIGHT FAILURE FLASHING.
Final failure: LED LIGHT FAILURE ON.

- **Description:** the pump is protected against over-current depending on the current value defined in the configuration menu. These over-currents are generally caused by malfunctions of the pump or in the electric supply.
- **System reaction:** when a failure is detected, the system will attempt to restart the pump four times. If the pump is still tripped after the 4th attempt, it will be switched off until the damage is repaired.
- **Solution:** check the state of the pump; for example, the impeller could be blocked. Verify the current value entered in the configuration menu (it is always recommended to define current values as 15% above the rated pump current). Check for damaged fuses. Once the possible problems have been solved, the pump is put back into operation; then, the "INSTALLATION" menu (see chapter configuration) is displayed for entering the adequate current values.

A5: DISCONNECTED PUMP ALERT.

- **Warning:**

Final failure: LED LIGHT FAILURE ON.

- **Description: ONEMATIC** cannot detect current from the pump and has disconnected the same to avoid severe damaging. There are three 10 A fuses. In case of pumps with different consumption values, suitable fuses must be chosen.
- **System reaction:** the system will remain off until the problem is solved externally.
- **Solution:** check the state of the fuses and replace as necessary. The winding of the motor and the pump consumption should also be checked. Once the possible problems have been solved, the pump is put back into operation; then, the “INSTALLATION” menu (see chapter Configuration) is displayed for entering the adequate current values.

A6: ACCUMULATOR ALERT.

- **Warning:**

Final failure: LED LIGHT FAILURE ON.

- **Description:** the system periodically analyses the state of the accumulator of the hydraulic installation, however only in pressure -dependent mode.
- **System reaction:** the system will continue running even if accumulator pressure is insuficient, however, it is highly recommended to repair it immediatly .
- **Solution:** the system has detected that the accumulator is damaged. The load of air, the condition of the membrane and the state of the spherical housing should be checked and replaced if necessary.

BLANK SCREEN.

- **Warning:** blank screen.
  - **Solution:** check electric supply as well as the position of the voltage selector. In case that no faulty conditions can be detected, contactthe technical service.

Simultaneous alerts are displayed on the LCD screen successively every 3 seconds. All alerts can be acknowledged by pressing the **On/off** push-button in manual mode.

WARNING: ONEMATIC has a volt-free contact with 1 A maximum intensity for the transmission of signals to different types of alarm equipment (optical, acoustics, etc). See connection diagram.

WARRANTY
The product warranty for **ONEMATIC** is valid for the first 2 years after the manufacturing date.
This warranty does not cover damage due to inadequate installation or manipulation.

RECOMMENDATIONS

Please read this manual carefully before installation.

Do not dispose of this manual afer installation. It might be useful for future reference in case of modificationsor for troubleshooting regarding the different types of alerts.

Hydraulic and electrical installations must be set up by qualified personnel according to the safety provisions as well as the standards and legislation of each country.
It is recommended to use a 10 A motor protection switch (3-pole interlocked for three-phase units).

The unit must be operated with clean water. In case gravel or small particles (facilities with submersible pumps) might occur, it is recommended to use a filter to avoid possible blocking of the flow sensor.
ONEMATIC should be used only for the transport of clean water. It cannot be used for transport of other kinds of liquid.
It is recommended to use an accumulator in order to avoid continuous start-stops due to the deterioration of taps, valves, and also to prevent "water hammer" in installations with valves of wide diameter.

WARNING, before performing any maintenance work inside the unit, it must be disconnected from the electric supply.

"CE" STAMENT OF COMPLIANCE.

We state, on our's own responsibility, thal all materials herewith related comply with the following European standards:

2006/95/EC Low Voltage Directive.
2004/108/EC Electromagnetic Compatibility.
2002/95/EC RoHS Directive

Product's name: **U470306**
Type: **ONEMATIC**
As per the European Standards:
IEC 60730-1:1993+A1:1994
EN 60730-1:1995+CORRIG:1997+A11:1996+A12:1996+A1:1997+A2:1998+A14:1998+A15:1998+A16:1999+A17:2000+A18:2003
UNE EN 60730-1:1998+A11:1998+A12:1998+A1:1998+A2:1998+A14:1998+A15:1998+A16:1999+A17:2001+A18:2003+CORRIG:2007
IEC 60730-1-6:1991+A1:1994
UNE EN 60730-2-6:1997+A1:1998+A2:1999+A2+CORRIG.2001
EN 60730-2-6:1995+A1:1997+A2:1998
EN 61000-6-2 (2005)
EN 61000-6-3 (2007)

Tehnical director

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