



PRO-tech™ AUTO ME-1E-2E

EVOLUTION

EN

1 OVERVIEW:

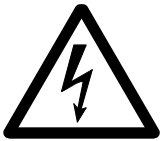

This booklet describes the instructions for use and maintenance of the PRO-TECT™ AUTO Series control panels.

This booklet must be carefully conserved for future references after reading.

Before installing and connecting the panel, read the following instructions carefully.

The Manufacturer declines all responsibility for accidents or damages caused by negligence or failure to observe the instructions provided in this booklet. Installation must be performed in compliance with the directives issued by the local authorities and the regulations in force, as well as with rules of good workmanship and in relation to the particular installation in question.

1.1 SYMBOLS USED IN THE MANUAL:

	
This symbol indicates a potential risk of electrical nature	This symbol indicates a subject of particular importance

2 GENERAL INFORMATION:

The PRO-TECT™ AUTO series control panels are available in the following sizes:

PRO-TECT™ AUTO ME: single phase rated loads up to a maximum of 18A nominal (230V).

PRO-TECT™ AUTO 1E: three phase rated loads up to a maximum of 9A nominal (400V or 230V).

PRO-TECT™ AUTO 2E: three phase rated loads up to a maximum of 20A nominal (400V or 230V).

3 DESCRIPTION:

PRO-TECT™ AUTO in the standard version is available with the following functions:

- Connection and disconnection directly in line (DOL).
- Overload protection.
- Overvoltage and undervoltage crowbar.
- Short-circuit protection.
- Protection against dry running (no water protection).
- Protection against 2 phases operation (three phases).

3.1 OPERATIONS:

PRO-TECT™ AUTO has been designed to operate connected to submerged and surface electric pumps, but it may be used with any asynchronous electric motor.

A wide range of electric pumps may be managed with just one version.

The rated current is calibrated by programming via the keys on the front of the panel.

In the event of phase failure, overload or overvoltage, the system disconnects the motor [OVERLOAD], after a time which simulates the tripping of a thermal overload cut-out.

The dry running protection does not require sensors (source of errors and extra costs), but functions by checking the $\cos\phi$ (power factor) value absorbed by the motor.

In the event of dry operation (no water), the system automatically carries out 4 tests with increasingly longer pauses in between (10, 22, 45, 90 min.), in order to allow the water level in the well to be restored, and signalling the stand-by state with the indication SB on the display. If the presence of water is detected during one of the tests, the alarm is reset and PRO-tech™ AUTO continues with normal operation.

If there is still no water after 4 tests, PRO-tech™ AUTO gives the alarm with the indication UL (under load) on the display and remains locked until a manual reset is carried out (see 3.2.13).



3.1.1 ATTENTION!: should this possibility not be used, leave the short circuit jumper (2) between the two SW terminals.

3.2 STATE:

PRO-tech™ AUTO indicates the operating state of the system by displaying, through display, the following situations:

Calibration and normal functioning.



3.2.1 Self-diagnosis upon start-up (indication of the frequency).

3.2.2 Display of automatic calibration (display of text AT).

3.2.3 Display of learning phase (display of text CL).

3.2.4 Display of manual calibration (display of text MA).

3.2.5 Display of current value setting (display of text AA).

3.2.6 Display of power factor setting (display of text CP).

3.2.7 Normal operation (indication of the absorbed current).

Error condition.



3.2.8 Situation of dry operation/low load (display of SB blinking).

3.2.9 Stand-by for restoring of level (display of SB, load disconnected).

3.2.10 Final lack of water, (display of UL, load disconnected).

3.2.11 Overload in progress (display of the absorbed current blinking).

3.2.12 Overload alarm (display of the OL blinking, load disconnected).

3.2.13 Before restarting PRO-tech™ AUTO, remove any error condition on the control panel by switching it off and then on again (1).

4 HANDLING AND STORAGE:

Make sure that the unit has not undergone any damage during shipment and that is still in its original packaging without penetration of water or humidity.

Store the unit in a dry and aerated place.

5 INSTALLATION:



Check to make sure that the rating plate data (power/size and voltage) are correct as ordered and that they are compatible with the load/motor that the PRO-tech™ AUTO must control.

An appropriate **knife switch that guarantees the visual opening/disconnection of the same from the power supply line**, thereby guaranteeing the intervention of the operator on the panel in maximum safety.



PRO-tech™ AUTO should be installed, if possible, in the shade, as near as possible to the motor, in an upright position and making sure that the cable clamps are in the bottom position.

The container is rated IP44, but protection is guaranteed only if installation is correct.

5.1 ELECTRICAL CONNECTIONS:

ATTENTION! the electrical connection must be made exclusively by specialised technical personnel.

ATTENTION! in the event of an existing system, make sure that the load connection is compatible with the PRO-tech™ AUTO connection.

Make sure that the cable is of a suitable cross section for the motor breakaway starting current.

A reduced cable section could cause dangerous overheating and, apart from dangerous voltage drops, damage to the actual system.



ATTENTION! with particular types of load, inverted motor rotation can cause elevated absorption that is capable of damaging the machine and the system connected even after a very short time.

ATTENTION! make sure to make the ground connection carefully using a yellow-green cable of the same section as the cable used for the connection of the phases.

The failure to perform a correct ground connection can create serious risk to the operator.

Perform the electrical power connections as shown in FIG. 4-5, making sure that the motor phases are connected in the correct sequence.

5.2 ADJUSTMENTS:

5.2.1: PRO-tech™ AUTO offers two methods for programming parameters for protection against overload and dry running operation; manual (MA) and automatic (AT).

5.2.2 Manual mode (MA):

after PRO-tech™ AUTO is powered up, the initial self-diagnostics phase is followed by display of the mains frequency, and the user can press ▲ to select manual mode MA followed by ■ to confirm and enable PRO-tech™ AUTO for operation (the display shows the current motor absorption value).

5.2.2.1: setting the rated current in manual mode (indicates the current value over which the overload protection trips):

after bringing the load to the maximum admissible absorption level in normal operating conditions, use key ▲ to select parameter AA and press ■ to confirm. Press ▼ until the current reading starts flashing on display, then press ▲ until the value on display is permanent and press ■ to confirm. The display shows the flashing number 88 to confirm memorisation of the value (if no operation is performed for more than 10sec the current value is memorised automatically). Ensure that the measured current value is the rated value stated on the motor dataplate.



5.2.2.2: setting Cosφ in manual mode: indicates the Cosφ threshold value, below which the dry running alarm trips.

To calibrate, start up the motor (or pump) and bring it to the minimum admissible load in normal operating conditions, then press ▲ to select the parameter CP and press ■ to confirm.

Press ▲ until the display starts flashing, then press ▼ until the current value on display is permanent, after which press ■ to confirm. The display shows the flashing number 88 to confirm memorisation of the value (if no operation is performed for more than 10sec the current value is memorised automatically).

5.2.3 Automatic mode (AT):

after PRO-tech™ AUTO is powered up, the initial self-diagnostics phase is followed by display of the mains frequency, and the user can press ▲ to select automatic mode AT followed by ■ to confirm and enable PRO-tech™ AUTO for operation (the display shows the current motor absorption value).

Ensure that the measured current value is the rated value stated on the motor dataplate.

Press ▲ to start the self-learning process for the current value and Cosφ. The display shows the flashing text CL, after which press ■ to confirm automatic calibration (if more than 10 seconds pass before pressing ■ to confirm calibration, PRO-tech™ AUTO automatically memorises the current and Cosφ values).



5.2.4: to restore PRO-tech™ AUTO factory settings, press the three status keys (▲+■+▼) at the same time until the display shows the flashing number 88. After that switch off the device and power up it again to start a new calibration phase.

ATTENTION! this operation doesn't reset any error condition on PRO-tech™ AUTO.

Trouble	Meaning	Possible cause	Possible remedy
6.1 The motor does not start and the PRO-tech™ AUTO display the frequency.	Self-diagnosis 3.2.1.	Supply voltage is too low.	Check.
6.2 PRO-tech™ AUTO powers the motor for a fraction of a second.	Self-diagnosis 3.2.1.	High voltage drop at breakaway.	Increase the cross section of the supply cables.
6.3 Display of SB blinking.	Operating dry or at low load. Stand-by for restoring of level (10,22,45,90 min).	<ul style="list-style-type: none"> - No water in the well. - Pump unsuitable for the motor. - Reverse rotation of the motor. 	Check. ATTENTION: the load should always be considered as live.
6.4 Display of UL and the motor is off.	Final lack of water (after at least 4 tests and 167 minutes).	As above.	Solve the problem and reset GUARDIAN® AUTO by switching it off and then power up on again (see 3.2.13).
6.5 Display of OL .	Too high absorption of current detected.	Incorrect adjustment.	Check correct current absorption and current threshold setting (AM). (Arbitrarily increasing the adjustment setting is not a solution). See following points.
6.6 Display of OL and the motor is off.	Too high absorption of current detected. Overload alarm.	<ul style="list-style-type: none"> - The motor does not start. - Overload. - Pump silted up. - Supply voltage too high. - Unsuitable pump. - Problems with the motor. 	Solve the problem and reset GUARDIAN® AUTO by switching it off and then power up on again (see 3.2.13).
6.7 Display of OF.	Missing phase.	Missing phase. The motor is not connected.	Solve the problem and reset GUARDIAN® AUTO by switching it off and then power up on again (see 3.2.13).
6.8 The PRO-tech™ AUTO is not activated.		<ul style="list-style-type: none"> - PRO-tech™ AUTO not powered. - No jumper on SW contacts. - The external contact is open/disconnected. 	

PRO-tech™ AUTO ME

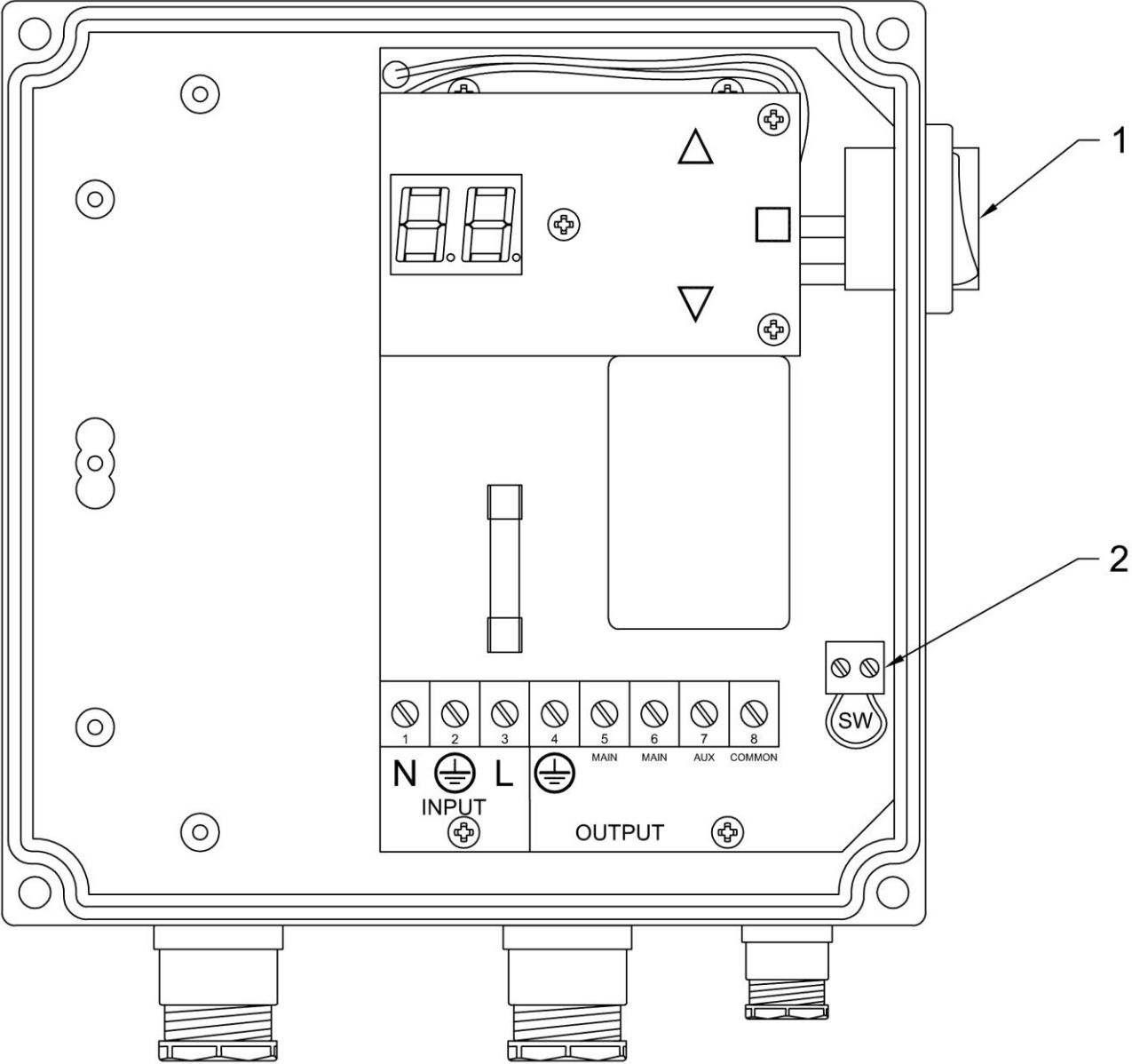


FIG.1

PRO-tech™ AUTO 1E

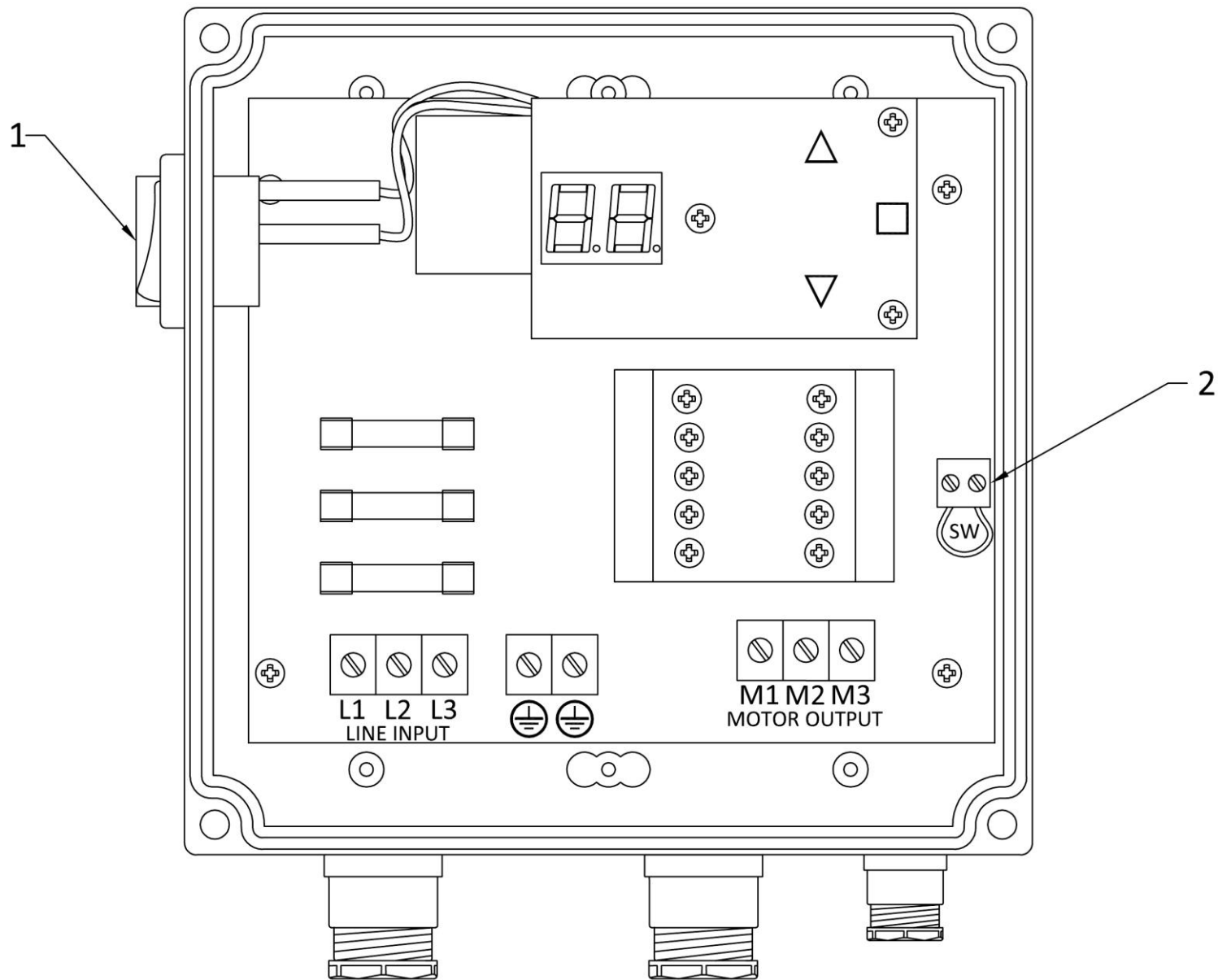


FIG.2

PRO-tech™ AUTO 2E

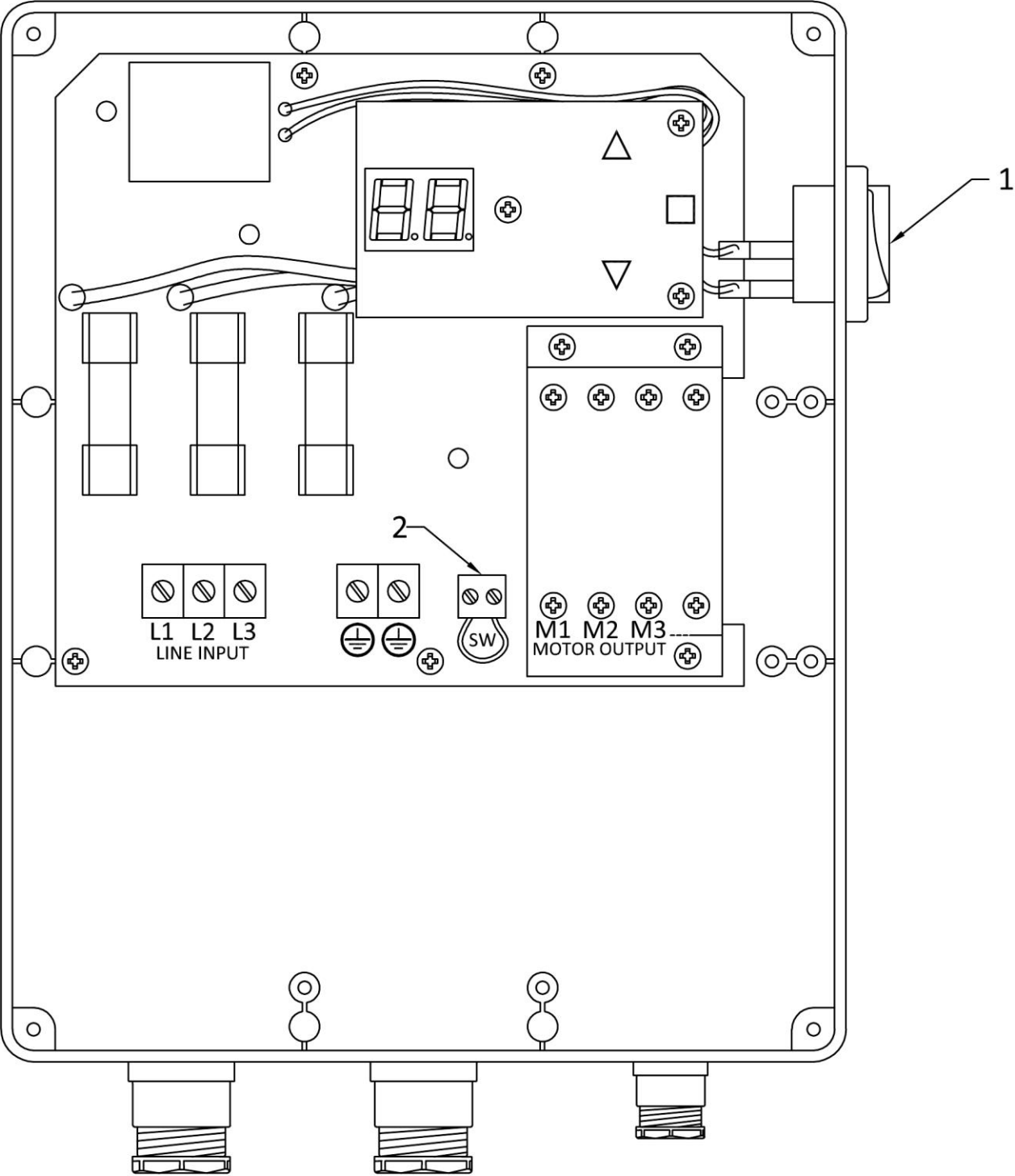


FIG.3

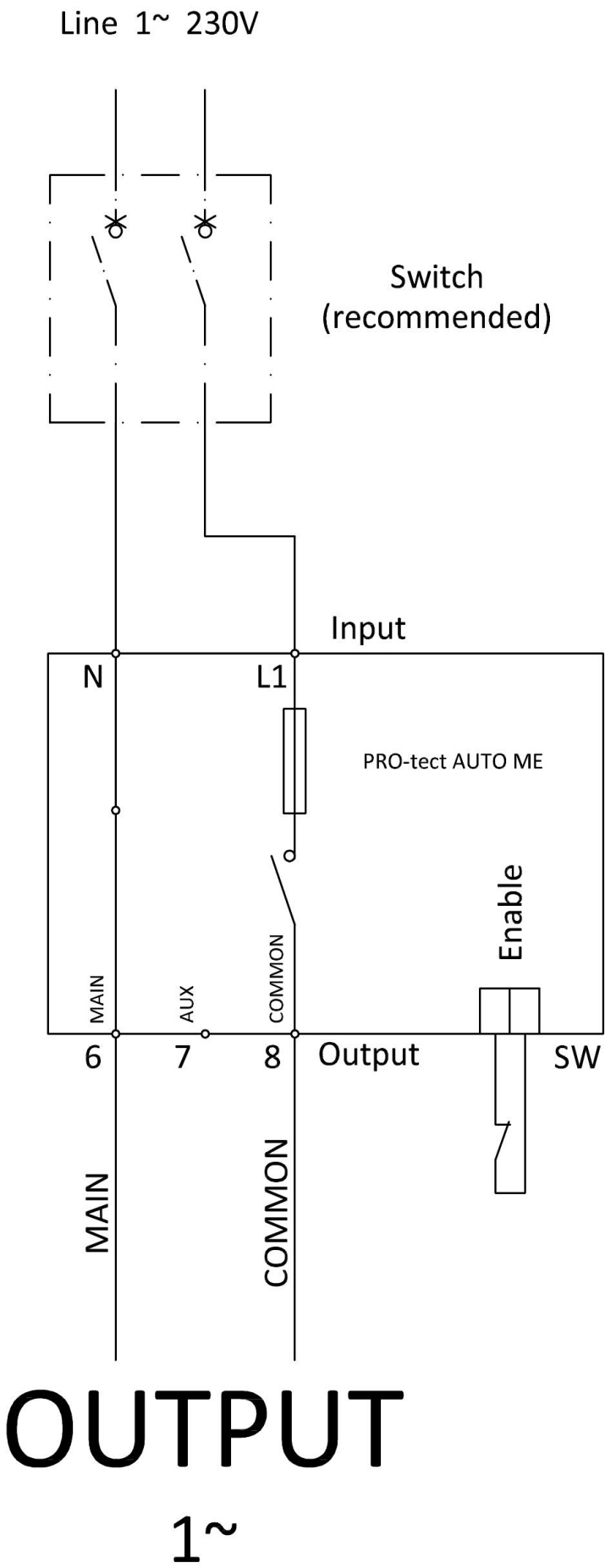


FIG.4

Line 3~ 400(230)V

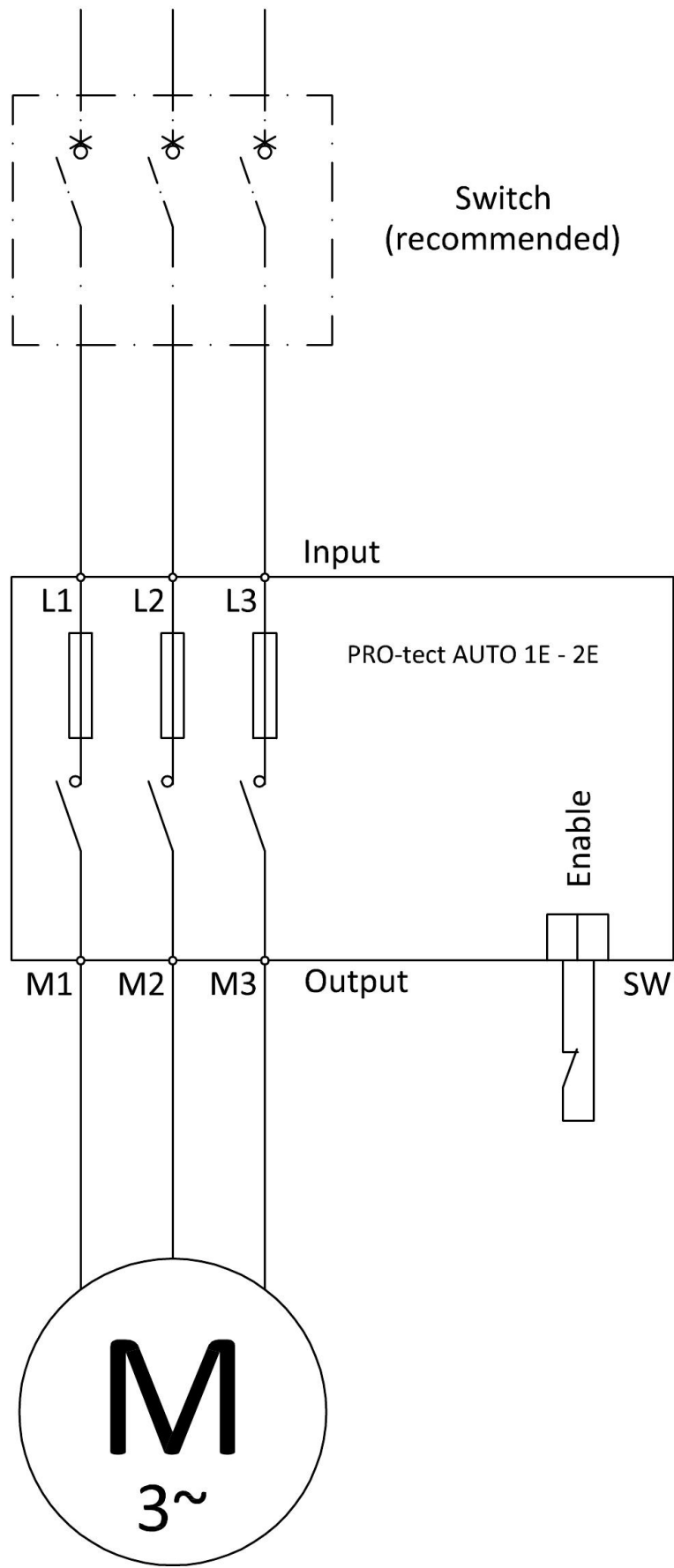


FIG.5

WATER BORE PUMP

WAREHOUSE

Telephone: 1300 727 042

Email: info@waterborepump.com.au

www.waterborepump.com.au

