REEFE

PUMPS AUSTRALIA

BETTER • FASTER • EASIER

VARIABLE
SPEED DRIVE

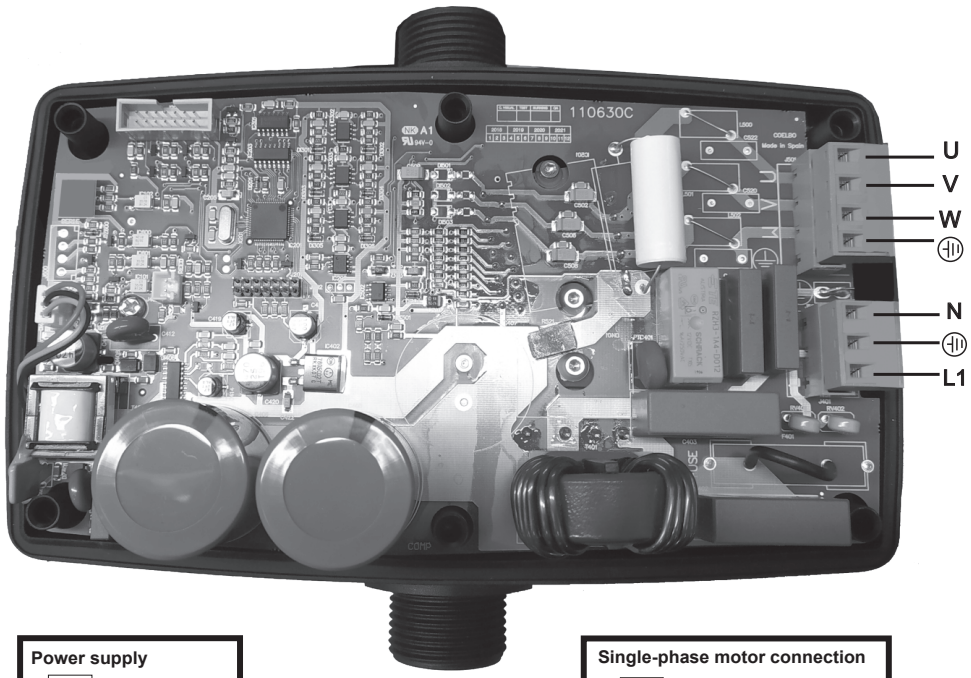
EXPLODED VIEW & INSTRUCTION MANUAL

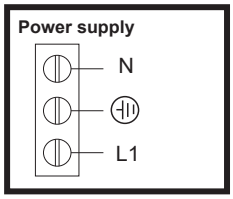
MODEL: VSC1-7.5

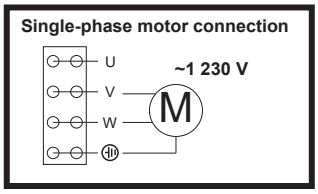
CODE: 21897

COMPONENTS & **MATERIALS**

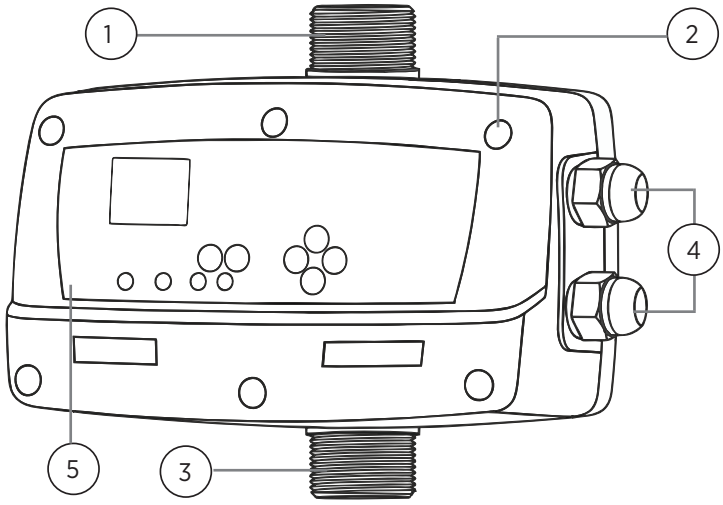
VARIABLE SPEED DRIVE







POSITION	COMPONENT	MATERIAL
1	Outlet - 1" Thread	Polymer
2	Casing -Reinforced	UV Restistant Polymer
3	Inlet, 1" Thread	Polymer
4	Power In-Out Connections	-
5	Display Board	-



WARRANTY | **INSTRUCTION MANUAL**

BEFORE INSTALLATION AND USE READ THE FOLLOWING INSTRUCTIONS CAREFULLY. THE MANUFACTURER DECLINES ALL RESPONSABILITY IN THE EVENT OF ACCIDENT OR DAMAGE DUE TO NEGLIGENCE OR FAILURE TO OBSERVE THE INSTRUCTIONS DESCRIBED IN THIS MANUAL OR IN CONDITIONS THAT DIFFER FROM THOSE INDICATED ON THE DEVICE. TECHNICAL MODIFICATIONS RESERVED

1. OPERATION

The REEFE Variable Speed Controller (VSC) is an automatic pump controller designed for the control of single-phase or three-phase pumps (depending on model). The VSC Controller includes an electronic system managed by software which responds to the rigorous requirements of efficiency and safety of pumps. It includes a frequency inverter that regulates the speed of the pump in order to keep the pressure constant independently of the flow provided from the pump.
The system incorporates a LCD screen where the parameters configuration is very easy to view. Once the configuration parameters are set and confirmed, the device manages the start-up of the pump and the frequency inverter. It ensures a constant pressure and an important cost reduction because at any time the control will feed the system with the right and necessary output, obtaining a maximum energy efficiency. In order to establish the ideal pressure in the installation is suitable to consider following criteria:
Hm: Max. water column height in m. It depends on the number of floors and it corresponds to the height from the pump to the last floor. Every 10 m of height corresponds approximately to 1 bar (0.98) bar.
Pw: Available minimum pressure in last floor (usually 1.5 bar).
Pc: Pressure drop. An average allowance is 0.033 bar/m (this can depend on the pipework installed).
Prmin: Minimum resultant pressure. It is the sum of the previous pressures and it will be the operating pressure of the pump. Example for a 5 floors building (15 m) with pump placed at level 0:
Hm =15 m @ 1.5 bar Pw = 1,5 bar Pc=15 x 0,033 bar @ 0,5 bar Prmin = 1,5 + 1,5 + 0,5 = 3,5 bar

MASTER AND SLAVE OPERATION

The group MASTER-SLAVE is constituted by a Controller – responsible for the group´s control - and a Controller configured as SLAVE controlled by the master device (VSC1-7.5 does not have MASTER-SLAVE compatibility).
Due to the alternating sequence of operation, the VSC Controller configured as MASTER begins the first cycle as the MAIN device - its pump is the first to start - but in the next cycle it becomes SECONDARY - its pump is the second to start - and so on. Therefore, the fact that a device is configured as MASTER involves control of the group but this fact does not avoid its work alternately as SECONDARY device.

2. CLASSIFICATION AND TYPE

According to EN-60730-1 this product is a device of independent assembly, type 1B with software of class A. Control circuit for alternating current motor with power factor cosφ≥ 0,6. Pollution Degree 2. Rated impulse voltage: 2500V/CATII. Class of disconnection 1Y (electronic disconnection).

3. MAIN CHARACTERISTICS.

DN inlet port 1" or 1 ¼" BSP male ISO 228.
DN outlet port 1" or 1 ¼" BSP male ISO 228.
Frequency inverter for the pump control.
Control and safety system against over-intensities.
Control and safety system against dry operation.
REEFE Automatic Restart (RAR). If the device has been stopped due to the action of the safety system against over-intensities, the RAR tries to connect the pump, with a programmed periodicity because the water supply could have been restored or still available.
Automatic restore system after an interruption of power supply. System is activated in AUTOMATIC mode keeping the configuration parameters (see "CONFIGURATION" chapter).
Internal pressure transducer.
Control panel (see chapter 7): 2 digits display, pushbuttons, led lights and digital gauge providing instantaneous and heads up display.
Register of operational controls: information about operating hours, counter of starts, counter of connections to the power supply.
Connections for detection of minimum water level in aspiration tank. This system is independent of the safety against dry operation. Is optional.
Register of alarms: information about type and number of alarms since the starting up of the device.

4. HYDRAULIC CONNECTIONS (fig. 2 and 3)

Before proceeding with hydraulic connection it is essential to install a non-return valve in the pump´s inlet.
The VSC Controller must be connected in vertical position (diag.3), the inlet port directly to the main pump discharge and the outlet port at the main network.
It is compulsory to use an pressure tank 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.

5. ELECTRIC CONNECTION (fig. 1)

Before doing modifications inside the device, it should be disconnected from the electrical supply and after disabling, wait for 2 minutes in order to avoid electrical discharges (all electrical connections and directions below must be carried out by a licensed electrician).
Use cables type H07RN-F with section enough to the power installed:
Power supply: 1,5 mm2(max.2,5 mm2).
Motor supply: 1 mm2 (max.2,5 mm2) depending on the cable length (see fig.1).
Verify if the power supply is 220/240 V. Dismount the back cover and carry out the connections according to the indications of fig. 1.
Do the power supply connection (make sure there is a good earth connection): L1 L2 Do the connection by mean of a suitable 3 Pin Approved Power Plug in OFF mode.
The earth conductor must be longer than the others. It will be the first one to be mounted during the assembly and the last one to disconnect during disassembling.
Do the pump connection.
Min. level control (optional). There is an input for stopping the pump as soon as is disconnected the external switch of minimum level. Connection of 2 devices (optional): for the communication of 2 devices it will be used a cable of 4x0.25 mm2, it will be inserted throw the PG cable gland located in the bottom/lateral of the device. See Fig.9.

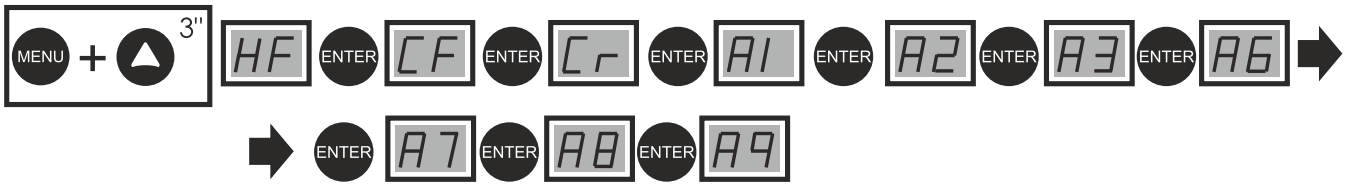
WARNING! Wrong connections could spoil the electronic circuit. The manufacturer declines all responsibility in damages caused by incorrect connection.

6.START UP (plug & play).

Be sure that the pump is correctly primed
Connect the VSC Controller to the electric supply with the 3 Pin Power Plug, all the led lights will flash instantaneously for a second. Screen will show SP (set pressure) and then its default value 2,0 bar, both displays are alternated in time periods of 1 and 5 seconds.
By pressing the▲▼buttons we can adjust the desired set pressure for the application. Be sure to not set the pressure higher than 85% of the maximum pump pressure, the pump will never turn off if the pressure is set too high. Warranty is VOID if pressure is set too high.
Press the push-button AUTO, the device will start to operate and led light AUTO ON/OFF will turn on. The screen will show the current system pressure. Being in automatic mode and using the push-buttons we can change the following displays:
P: Current system pressure (bar).
Fr: Current Speed speed (Hz).
A: Current amperage consumption (Amps).

SP	1. Press push-button MENU for 3 seconds to start the configuration sequence.	MENU
A	2. Input the nominal intensity value in Amps using pq enabling the thermal protection. For VSC1-7.5 must be within 0 and 7.5 A. This value is located over the characteristics plate of the motor. Press ENTER for validation.	ENTER
FL	3. Using ▲ this value can be changed to lower/increase the speed of rotation (speed of pump start up). This can be helpful if there are potential leaks in the line, or long/short runs of pipework. The value must be within 30 and 35 Hz. Default value is 30 Hz. Press push-button ENTER, for validation and quit this menu.	ENTER
SP	4. System is ready. By mean of AUTO ON/OFF quit the manual operating mode.	ON OFF

7.REGISTER OF OPERATION DATA AND ALARMS.
By simultaneously holding down buttons MENU + ▲ for 3 seconds the user can report on the REGISTER OF OPERATION DATA AND ALARMS, by pressing ENTER we can advance through the sequence, once finished the sequence we come back to the main display . This is all the sequence:



- REGISTER HOURS (HF). Count of total time that the pump has been operating.
- REGISTER STARTS (CF). Number of cycles of operation, a cycle is a start and a stop.
- REGISTER SWITCH (Cr). Number of connections to the electric supply.
- ALARM COUNT DRY RUN (A1). Number of dry-running alarms.
- ALARM COUNT I MAX (A2). Number of overcurrent alarms.
- ALARM COUNT. DISCONNECTED PUMP (A3). Number of disconnected pump alarms.
- ALARM COUNT. TEMP (A6). Number of alarms by excessive temperature.
- ALARM COUNT. SHORTCIRCUIT (A7). Number of short circuit alarms.
- ALARM COUNT. OVERVOLTAGE (A8). Number of overvoltage alarms.
- ALARM COUNT. UNDERVOLTAGE (A9). Number of undervoltage alarms.

All the records are saved even if the device has been disconnected from the electric supply.
Note: For quantities with more than 2 figures they will appear in consecutive screens after each ENTER. For example, to indicate 10234 overcurrent alarms:

12. ALARMS
In case of simultaneous alarms, quit the automatic mode and go to manual mode, pressing the pushbutton AUTOMATIC ON/OFF (led light PUMP will turn off). Using key ▲▼ will be displayed the successive alarms. Once visualized, for leaving the menu, press ENTER returning to MANUAL mode.

A1 DRY RUNNING (*Failure verification •Final failure)
DESCRIPTION: if the system detects dry running for more than 10 seconds, it will stop the pump and the RAR will be activated.
SYSTEM REACTION: after 5 minutes the RAR system will again start the pump after 30 seconds, trying to restore the system. In case of persistent lack of water, it will try it again every 30 minutes for 24 hours. If after all these cycles , the system still detects lack of water, pump will remain permanently out of order until the damage will be repaired. The user will need to turn off and restore the power for the pump to be active again.
SOLUTION: dry running, it has been activated the safety system: you should verify the feeding of the hydraulic network. The pumps can be primed using the push-button START/STOP (the led light AUTOMATIC should be off, if it is not, press the push-button to disable it).
NOTE: if the pump cannot provide the programmed pressure (configuration mistake) the VSC Controller reacts as it was dry-running.
NOTE 2: this device manages the dry running control through the nominal current consumption of the pump. Confirm the current consumption in the setup menu (see paragraph 9).

A2 OVER-INTENSITY(*Failure verification •Final failure)
DESCRIPTION: the pump is protected against over currents by mean of the intensity values established in the installation menu. These over currents are produced generally by dysfunctions in the pump or in the electric supply.
SYSTEM REACTION: when detecting the thermal failure, the pump will be automatically stopped. The system will try again to restart the pump when the demand of consumption is required. The control system will carry out 4 attempts in this circumstance. If the system remains locked after the 4th attempt, the pump will remain definitively out of order.
SOLUTION: Check the state of the pump, for example the impeller could be blocked. Check intensity values set in the configuration menu. Once the problem has been solved the operation will be restored going to the "SET UP" menu (see the Controller Parameter Settings) and configuring the input intensity values.

A3 DISCONNECTED P. (•Final failure)
DESCRIPTION: the VSC Controller has an electronic safety system in case of no load detection.
SYSTEM REACTION: the device is disconnected..
SOLUTION: the wound of the motor and the pump consumption should be verified. Once the problem has been solved the operation will be restored going to the "SET UP" menu (see the Controller Parameter Settings) and introducing the adequate intensity values. Verify the fuses (see fig.3), in case of possible failure. Contact with technical service.

A5 TRANSDUCER (•Final failure)
DESCRIPTION: the transducer damages are showed in the VSC Controller's LCD screen.
SYSTEM REACTION: the device operation is interrupted.
SOLUTION: Power off for 5 minutes and back on again. If problem persists, contact with technical service.

A6 EXCESSIVE TEMP. (•Final failure)
DESCRIPTION: the system has a cooling device to keep the INVERTER in optimum working conditions.
SYSTEM REACTION: if an excessive temperature is reached the own system leaves the inverter out of service and as consequence the pump too.
SOLUTION: verify the temperature of the water, it should be under 40 ºC and the temperature environment should be under 50 ºC. Contact with technical service.

A7 SHORTCIRCUIT (•Final failure)
DESCRIPTION: the VSC Controller has an electronic system for protection against short circuits as well as peaks of current.
SYSTEM REACTION: the pump remains stopped for 10 seconds. Then it starts again - 4 attempts. If the problem is not solved, the pump will remain definitively out of order.
SOLUTION: check the pump for potential issues and blockages, if the problem persists, contact the technical service.

A8 OVERVOLTAGE - A9 UNDERVOLTAGE (*Failure verification)
DESCRIPTION: the VSC Controller has an electronic safety system to protect against overvoltages and too low supply voltages.
SYSTEM REACTION: in case of overvoltage or undervoltage the system remains stopped until an adequate value of voltage is reached. In this case, the system is automatically restored.
SOLUTION: Get an electrician to check the power supply for voltage fluctuations. This alarm may be something seen regularly when using with a Generator or known inconsistent power supply.

DESCRIPTION: blank screen.
SOLUTION: check the electric supply 240V. In case of being in right conditions, the general fuse, located in the main plate (fig 1) should be verified.

INSTALLATION CHECKLIST: MUST BE FILLED IN FOR WARRANTY TO APPLY

PURCHASER NAME & ADDRESS..... PHONE NO.....
DATE OF PURCHASE ...../...../..... DEALER/STORE NAME.....
DEALER SUBURB/TOWN..... PHONE NO.....
BRAND & MODEL NUMBER OF PUMP..... BATCH or SERIAL NUMBER.....
Do NOT send this form to us, retain it for your record.

INSTALLATION CHECKLIST: MUST BE FILLED IN FOR WARRANTY TO APPLY

Installer Name_____Qualification:_____(write Owner if applicable)
Phone Number: _____If installed by a Plumber or Electrician, Licence No:_____
Installation Address:_____
Tick the boxes as the item is completed/correct, put n/a if not applicable;
[ ] The Pump that the Pump Controller is fitted to is no larger than 1.5kW / 8Amp and has a 240V motor.
[ ] The Pump & Pump Controller are being used for an appropriate purpose for which it is intended, according to the instructions
[ ] The Power Circuit the Pump & Pump Controller is connected to is RCD (Safety Switch) Protected
[ ] The Pump Controller is installed upright, as per Figure 1, page 1
[ ] A Y-Strainer or Pre-filter is installed in the suction pipe to prevent particles entering the Pump & Pump Controller, or for submersible pumps, between the pump and the controller.
[ ] Barrel Unions are fitted on the pipe connections for easy removal & replacement
[ ] A Ball Valve or Gate Valve is fitted to the suction pipe (the pipe from tank to pump)
[ ] Pipe is sized appropriately for the application (diameter and length)
[ ] The installation is constructed so the Pump & Pump Controller can be easily removed or replaced.
[ ]] If applicable: The Pump & Pump Controller is installed in accordance with National & Local Plumbing Regulations
[ ] The Electrical Supply cable is plugged into a Power Outlet that is in accordance with the current standard of Electrical Safety Regulations AS/NZS 3000 – or the Pump & Pump Controller has been wired directly to the power circuit by a Licenced Electrician.
[ ]The Pump has been primed (filled with water) started, tested, and operates correctly.
[ ] The suction & discharge pipes, connections, barrel-unions, and toilet cisterns (if connected) have all been checked for leaks.
[ ] The Pump & Pump Controller is protected from sunlight & rain, with a suitable vented pump-cover or enclosure.
[ ] If applicable: The Owner has been shown how to re-prime and re-set the pump (re-fill the pump with water if it runs dry)

Signed by the Installer:_____ Date Installed: / /

12 MONTH WARRANTY CONDITIONS

1. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. If you are a consumer as defined by the Australian Consumer Law, you are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. The following conditions form part of the instructions and do not over-ride your statutory rights.
2.This warranty against defects covers failure due to manufacturing defects within a 12 month period from the date of original purchase, for Pump Controllers purchased from Ascento and used in mainland Australia. In the case of a failure covered by warranty within a 12 month period from the date of original purchase, the Pump Controller will be repaired or replaced - or you can return it to the place of purchase for a refund.
3. Faults or losses or failure caused due to: Accidents, misuse, lack of maintenance, not following these instructions, damage caused by lightning strike/ power surges/spikes/brownouts/operating the Pump Controller on power other than 240volts 50Hz mains power/operating the pump on power supplied by a domestic generator - are not covered by warranty.
4. The warranty only covers the Pump Controller, it does not include the Pump that it is connected to, refer to the supplier of that pump.
5. Warranty will be void if any tampering or removal of identification labels or electrical cables has occurred, or any non-genuine parts have been fitted, or repairs have been carried out by unqualified persons. No warranty applies for goods sold or used for HIRE or RENT or LEASE. No warranty applies, and no liability is accepted, if the pump controller is used in circumstances that we define as: HAZARDOUS SITUATIONS, MINE SITE, REMOTE AREA, INDUSTRIAL APPLICATION, or any other UNSUITABLE APPLICATION, all of these circumstances are defined by us at our sole discretion.
6. If an exact replacement is not available, the closest equivalent product will be supplied at our discretion.
7. This product is guaranteed as fit for the purpose of starting & stopping suitable sized pumps that are used for CLEAN FRESH WATER and for NO OTHER USE. Performance data quoted is generally from test data and does not take into account factors in the installation such as loss of pressure and flow due to pipework & pipe-fittings & valves.
8. IMPORTANT: No electrical appliances last forever. Therefore ALL installations must be constructed to allow the owner to easily remove the Pump Controller for servicing, and to easily remove for replacement, warranty replacement or upgrading. The installation must NOT be constructed in such a manner that specialized tools, or paid tradespersons, or external paid contractors, are required to be engaged in order to remove and/or replace and/or refit the Pump Controller. Warranty replacement does not normally include costs of removal and re-installation as we have no control over the method of installation.
9. Before installing or servicing disconnect from the power supply. All pumps & Pump Controller must be installed using barrel-union connections to facilitate easy servicing or replacement. A ball-valve or gate-valve must be fitted on the suction, and the Town-water backup supply where fitted. Additionally a Y-Strainer or Pre-filter must be installed on the suction to prevent particles entering the pump. This instruction is a condition of warranty; all warranty is void if this instruction is not followed.
10. This Pump Controller is not to be used as your sole water supply. For critical applications where loss of water supply could cause serious consequences, use a DUAL PUMP System so you have a backup water supply or use a TOWN-WATER BACK-UP System.
11. This Pump Controller MUST NOT be installed in any manner that if it were to leak that it would cause damage or loss to property or persons. It MUST be installed in a well-ventilated and drained area. All warranty is void if this condition is not heeded and no liability can be accepted in the case of damage or loss caused by failing to comply with this condition.
12. The Pump & Pump Controller must be connected to a suitable circuit with an integral RCD (safety switch) in the circuit breaker. All warranty is void if this instruction is not followed.
13. In the case of a fault, refer to the Trouble Shooting Guide first. If these steps do not rectify the problem, then return the faulty appliance to the original place of purchase with proof of purchase, and the installation checklist above, for replacement or refund. Alternatively you can mail us at PO BOX 650 MORNINGSIDE QLD 4170 or send an email to sales@ascento.com.au with copy of your purchase receipt, and the installation checklist above, a description of the problem, and your name and address and phone number - we will review your request and send you a replacement directly if we accept your warranty claim. Or call us on 1800807604 with the above information; however we will always require a copy of your purchase receipt and the installation checklist above. Do not send the product to us unless we ask you to do so.
14. This warranty does not exclude any non-excludable rights according to Australian Law. However any condition that is made void by Australian Law does not void the remaining conditions, which shall stand unaltered.

PRIVACY STATEMENT

We will not use your name, address, phone, or email address for marketing without your express permission. We will not sell or provide it to any other third party for the purpose of marketing.

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