

VSP

INVERTER ON BOARD FOR ELECTRIC PUMP CONTROL



MADE IN ITALY



EN Correct disposal of WEEE (DIRECTIVE 2012/19/EU)

TABLE OF CONTENTS

GENERAL INFORMATION 2

SAFETY RULES 2

 SYMBOLS..... 2

 WARNINGS 3

PRODUCT DESCRIPTION 4

 TECHNICAL DATA..... 4

 POWER AND ABSORPTION 4

 USE LIMITATIONS..... 5

 AUTO-LIMITATION FOR OVERLOAD 5

 PARTS LIST..... 5

 THE CONTROLS 5

 DISPLAY SYMBOLS..... 6

INSTALLATION 6

 PRESSURE SENSOR 7

 ELECTRICAL CONNECTION 8

 CONNECTIONS DIAGRAM..... 8

 POWER SUPPLY TERMINAL BOARD..... 9

 INPUTS/OUTPUTS TERMINAL BOARD..... 9

 PUMPS CONNECTION IN PARALLEL..... 11

START-UP 11

 PUMP PRIMING 11

 FUNCTIONING PARAMETERS 12

 ADVANCED PARAMETERS MENU 14

ALARMS 21

TROUBLESHOOTING..... 23

MAINTENANCE 26

DISPOSAL..... 26

DECLARATION OF CONFORMITY..... 26

GENERAL INFORMATION

- This manual must always accompany the equipment to which it refers and be kept in an accessible place to be consulted by those involved in system operation and maintenance.
- Installers/users must read the instructions and information in this manual carefully before using the equipment in order to avoid damaging or misusing it, or voiding the warranty.
- This product must not be used by children or people with reduced physical, sensory or mental capabilities, nor those with inadequate experience and knowledge, except under supervision and instruction. Children should be observed to make sure they do not play with the equipment.
- The manufacturer shall not be held liable in the event of an accident or damage due to negligence or failure to follow the instructions described in this booklet or in conditions other than those specified on the rating plate. The manufacturer shall not be held liable for damage due to improper use of the equipment.
- Inspect the goods immediately on receipt to make sure that the equipment has not been damaged during transport. If faults are found, you are advised to provide prompt communication, not over 5 days from receipt to our retailer or, in the event of direct purchase, to Pedrollo Customer Service.
- The indications and instructions in this manual refer to standard use of the product; for situations, functions or particular applications not described below, contact the retailer.
- If a request for technical support or spare parts are necessary, specify the code of the model and the serial number outlined in the specific plate.
- Our service department and technical support is available for any requirements you may have.
- Do not stack weights or other boxes on the package.
- **The information contained in the manual can vary without prior warning. Any damage caused in relation to these instructions will not be considered since they are approximate. Remember that non-compliance with the instructions outlined by us could cause harm to people or property.**
- **However, remember that compliance with local provisions and/or legislation in force should be met.**

SAFETY RULES

SYMBOLS

The symbols used in this manual are described below.



RISK OF ELECTRIC SHOCK

This symbol warns that failure to observe the instructions will create a risk of electric shock.



RISK OF DAMAGE TO PEOPLE OR PROPERTY

This symbol warns that failure to observe the instructions will create a risk of personal harm or property damage.

WARNINGS

- Please read all parts of this manual carefully before installing and using the product.
- Check that the rating plate data is as required and matches the facilities.
- Only qualified personnel capable of making electrical connections in accordance with national regulations may carry out installation and maintenance.
- The VSP must only be used for the purpose and operation for which it was designed. Any other application and use should be considered misuse and hazardous.
- In the event of a fire at or near the installation site, do not use water jets, but use suitable extinguishers (powder, foam, carbon dioxide).
- Install the equipment away from heat sources in a dry, covered place in accordance with the specified degree of protection (IP).
- Only qualified technicians who are aware of the safety regulations in force may carry out any installation and/or maintenance work.
- Use of non-original spare parts, tampering or improper use will void the product warranty.
- The manufacturer cannot be held liable for damage deriving from misuse of the product and is not responsible for damage caused by maintenance or repairs carried out by unqualified people and/or using non-original spare parts.



DURING THE FIRST INSTALLATION PHASE AND IN THE EVENT OF MAINTENANCE, ensure that:

- THERE IS NO LIVE VOLTAGE on the electricity mains.
- The system IS NOT PRESSURISED
- The electrical power mains is equipped with safety devices and, in particular, a high sensitivity differential switch (30 mA in class F and B) suitable to protect against fault currents, alternating type, unipolar button, continuous with high frequency. Also check that the earthing complies with the regulations.
- Before removing the cover of the inverter or starting interventions on it, disconnect the system from the electrical mains at least 5 minutes so that the capacitors have the time to discharge using the built-in discharge capacitors;
- Having carried out the electrical connection on the system, check the settings of the inverter.
- Do not remove the cover and/or disconnect the VSP power if the inverter is running.



ATTENTION: If out of services (display on in OFF with white background) VSP remains live; before any intervention, it is compulsory to disconnect power from the unit.



EMERGENCY STOP

While VSP is running, you can make an emergency stop by disconnecting the power supply to the unit. Ensure there is no VOLTAGE on the electricity mains. Make sure that the system is NOT PRESSURISED.

PRODUCT DESCRIPTION

- VSP is a speed regulator with the following characteristics.
- It receives mono-phase or three-phase alternating voltage.
 - It supplies alternating three-phase output voltage.
 - Check motor on 3 phases.
 - Variable speed adjustment (inverter)
 - Keeps system pressure constant (curves with variable rotations).
 - Checks hydraulic and electrical operating parameters and protects the electric pump from faults.
 - It is equipped with an expansion board, which allows working parallel with other inverters in the pumping unit and management of an input and an output signal.
 - It adapts to every type of pressurisation system, even existing.
 - It limits the peak and operating currents, with energy saving.
 - It allows selection of the supply and output voltage.
 - Maximum current electronic control for overload (adjustable)
 - Protection against over or under voltages
 - Electronic control for dry run (cos φ adjustable)
 - Automatic reset from dry run with cycle times separately programmable from 0÷120 minutes
 - Alarm output (NC-C-NO resistive load - 5A / 250V)

TECHNICAL DATA

Power supply voltage	230±10% V mono-phase or 400±10% V three-phase
Output voltage	230 V three-phase or 400 V three-phase
Frequency	50-60 Hz
IP protection rating	IP 55
Ambient temperature	-5 °C / +40 °C
Relative humidity	50% to 40 °C

ATTENTION: in the presence of low voltage (rated value -10%) overcurrents can occur in start-up and at maximum power.

POWER AND ABSORPTION

Model	V in	V out	I out	P2 max (kW)	P2 max (HP)
VSP mono-phase	1 ~ 230 V	3 ~ 230 V	7 A	1.1	1.5
VSP three-phase	3 ~ 400 V	3 ~ 400 V	6 A	2.2	3.0

USE LIMITATIONS

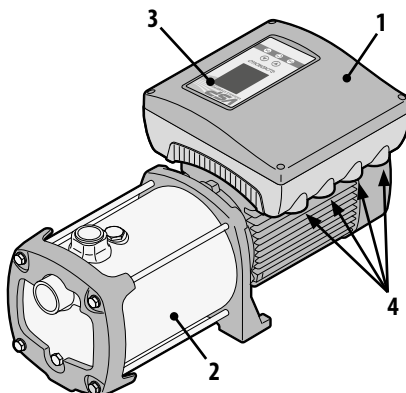
- Maximum working pressure: 9 bar (130 p.s.i). (check with other models)
- Fluids permitted: clean and chemically non-aggressive liquid water; if impurities are found in the liquid, install a filter upstream.
- Maximum ambient temperature: 40°C, with the possibility of changing the air.
- Minimum ambient temperature: -5°C
- Maximum temperature of the liquid: 55°C
- Minimum temperature of the liquid: 0°C
- Variation in voltage supply permitted $\pm 10\%$ compared to plate data.
- VSP is not suitable for pumping flammable liquids or working in environments with danger of explosion.

AUTO-LIMITATION FOR OVERLOAD

If the current detected by the inverter or the temperature of the inverter components exceeds the safety limits, VSP proceeds with a progressive reduction in operating frequency until the values exceeding the limits have returned within them.

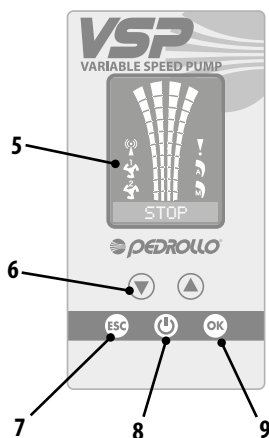
PARTS LIST

1. INVERTER
2. Electric pump
3. Control panel
4. Cable glands









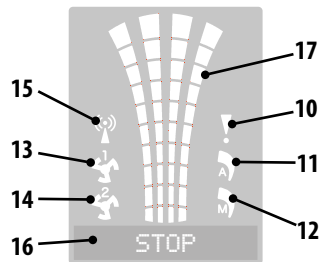
THE CONTROLS

5. Display with 4 backlighting modes
 - Green: inverter/electric pump running
 - White: inverter/electric pump in stop or in stand-by
 - Yellow: inverter/electric pump in programming (setup)
 - Red: inverter/electric pump in alarm mode
6. Scroll arrow keys (▼ ▲)
7. ESC menu output key (ESC)
8. ON/OFF key (⏻)
9. OK key (OK)



DISPLAY SYMBOLS

10. ALARM signalling indicator light 
11. AUTOMATIC operating indicator light 
12. MANUAL operating indicator light 
13. Electric pump no. 1 running indicator light 
14. Electric pump no. 2 running indicator light  (if present)
15. Active WI-FI signalling indicator light  (if present)
16. Two-line alphanumeric display showing voltage, frequency, current, cosφ, pressure, level, system operating state and system faults.
17. VSP operating status led indicator light



INSTALLATION

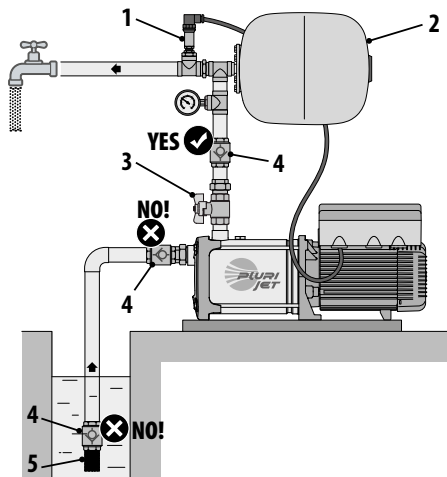


Incorrect installation can cause malfunctioning and breakage of the VSP.

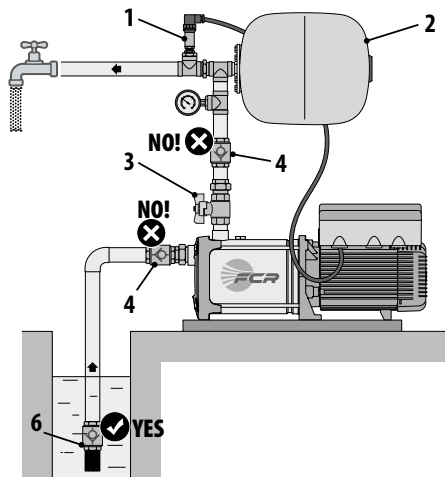
The VSP must be installed in compliance with the following conditions.

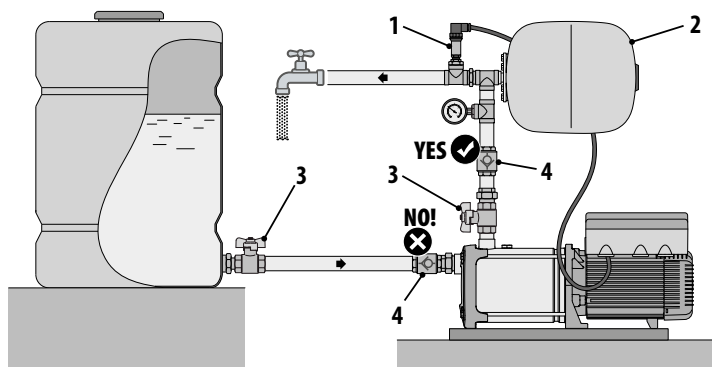
- In a ventilated room, protected from the weather and not exposed to sunlight.
- On a solid horizontal base with screws.
- Do not install the VSP in explosive environments or in the presence of dust, acid, gas that are corrosive and/or flammable.

TYPICAL INSTALLATIONS

VSP-PLURIJET

VSP-FCR **VSP-MK**





COMPONENTS LEGEND

1. Pressure Sensor
2. Expansion tank
3. Shut-off valve
4. Check valve
5. Filter grate
6. Bottom filter with grate

POSITIONING OF THE PRODUCT

- Fasten the unit to a horizontal surface with screws.
- If the pump must be installed outside where frost can occur, protect it to avoid freezing.



For correct operation of the VSP, installation is indispensable of an adequate expansion tank.

- The expansion tank:
 - Accumulates pressurised water to reduce pump start-up to a minimum.
 - It is indispensable in the presence of small system leaks.
 - It absorbs any excess pressure from the system.
 - The minimum volume necessary, in litres (for membrane models) is approximately equal to 10% of the maximum flow rate of the individual pump, expressed in l/min.
Example of standard application: $Q_{max} = 80 \text{ l/min} \rightarrow V = 80 \times 10\% = 8 \text{ litres}$ (rounded in excess to commercial size).
 - **Pre-load pressure (with system empty): 70% approx. of working pressure:**
Example: $P_{set} = 4 \text{ bar} \rightarrow \text{Preload pressure} = 4 \times 70\% = 2.8 \text{ bar}$.
- Correctly connect the pressure sensor supplied to the system (see next chapter).

PRESSURE SENSOR

A pressure sensor is a transducer that measures the pressure of a liquid or a gas, using an electric signal sent to a receiver in analogue format. The pressure sensors are then also called pressure transducers.

The working principle is based on the physical deformation of the strain gauge in the transducer membrane: the electrical resistance is proportional to the pressure applied, which is converted to an electric signal, the output is transmitted in current that varies from 4 to 20 milliampere.

The pressure sensor should be positioned on the system as indicated in the figures on the previous page.

ELECTRICAL CONNECTION



Make sure that there is no voltage at the terminals of the line conductors before making the connections. Also ensure the electrical power supply mains is equipped with safety devices and in particular a high sensitivity differential switch (30 mA, in class F or B) and a ground compliant with standards.

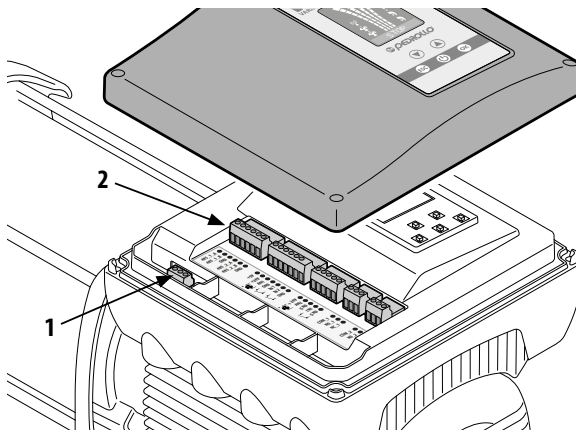
- Check the electricity mains power supply voltage corresponds to the voltage indicated in the VSP inverter plate and the motor, therefore connect the ground before every other connection.
- The voltage of the VSP power line can vary in a range between $\pm 10\%$ of the plate power voltage.
- Check the rated current absorbed by the VSP unit is compatible with the plate data.
- The power line must be protected by a differential circuit breaker switch, with the characteristics listed above.
- Secure the electrical cables in the corresponding terminals using a tool of suitable size to avoid damaging the clamping screws. Take extra care when using an electric screwdriver.
- Do not use multicore cables containing both conductors connected to inductive power loads and signal conductors such as sensors and digital inputs.
- Make connection cables as short as possible, and avoid forming them into a spiral shape as inductive effects could damage the electronics.
- All wiring conductors must be suitably dimensioned to withstand the loads they supply.
- The electrical wiring between the electric pump and the inverter is carried out in the factory and therefore for operation no operation is necessary.

CONNECTIONS DIAGRAM

To access the terminals of the connections board, remove the cover of the inverter.

Inside the inverter there is a POWER terminal board (1) and the INPUTS/OUTPUTS terminal board (2)

See the description below of each terminal.



POWER SUPPLY TERMINAL BOARD

The power terminals are different if the VSP is three-phase or mono-phase.

VSP mono-phase terminals
1 ~ 230 V

F

N

← F = MAINS SUPPLY PHASE

← N = MAINS SUPPLY NEUTRAL

VSP three-phase terminals
3 ~ 400 V

U

V

W

← U = MAINS SUPPLY PHASE

← V = MAINS SUPPLY PHASE

← W = MAINS SUPPLY PHASE

INPUTS/OUTPUTS TERMINAL BOARD

COMMUNICATION 1

[

485_1_A

485_1_B

GND

← FIRST SERIAL COMMUNICATION RS485 (D +)

← FIRST SERIAL COMMUNICATION RS485 (D -)

← FIRST SERIAL COMMUNICATION RS485 (0 V)

COMMUNICATION 2

[

485_2_A

485_2_B

GND

← SECOND SERIAL COMMUNICATION RS485 (D +)

← SECOND SERIAL COMMUNICATION RS485 (D -)

← SECOND SERIAL COMMUNICATION RS485 (0 V)

AN1

[

+5V

+24V

AN1

← ANALOGUE INPUT SUPPLY TYPE 0–5 V

← ANALOGUE INPUT SUPPLY TYPE 4–20 mA

← FIRST ANALOGUE INPUT

IN1

[

GND

IN1

← REFERENCE POWER (0 V)

← FIRST DIGITAL INPUT

IN2

[

IN2

GND

← SECOND DIGITAL INPUT

← REFERENCE POWER (0 V)

AN2

[

+24V

AN2

← ANALOGUE INPUT SUPPLY TYPE 4–20 mA

← SECOND ANALOGUE INPUT

← REFERENCE POWER (0 V)

IN3

[

IN3

GND

← THIRD DIGITAL INPUT

← REFERENCE POWER (0 V)

OUTPUT 1 RELAY

[

COM_1

NO_1

NC_1

← COMON RELAY FIRST OUTPUT

← CONTACT (Normally Open NO) FIRST OUTPUT RELAY

← CONTACT (Normally Closed NC) FIRST OUTPUT RELAY

OUTPUT 2 RELAY

[

COM_2

NO_2






NC_2

← COMMON RELAY SECOND OUTPUT

← CONTACT (Normally Open NO) SECOND OUTPUT RELAY

← CONTACT (Normally Closed NC) SECOND OUTPUT RELAY

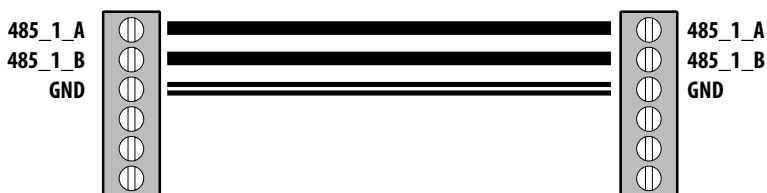
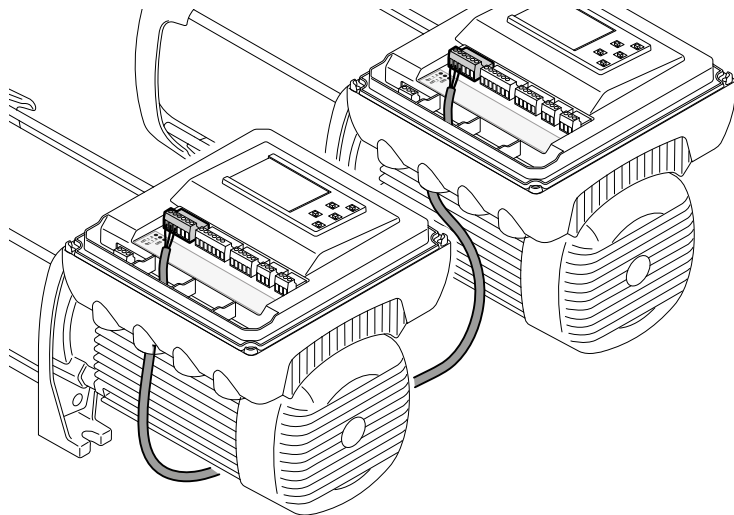
A more detailed description follows of the INPUTS/OUTPUTS TERMINAL BOARD.

<ul style="list-style-type: none">● 485_1_A● 485_1_B● GND	COMMUNICATION 1 Inputs and outputs dedicated to serial communication between multiple inverters (for a maximum of two) so they work parallel. For further details, see the dedicated section in the part "STRUCTURE OF THE ADVANCED PARAMETERS MENU".
<ul style="list-style-type: none">● 485_1_A● 485_1_B● GND	COMMUNICATION 2 Inputs and outputs dedicated to serial communication between multiple inverters (for a maximum of two) so they work parallel. For further details, see the dedicated section in the part "STRUCTURE OF THE ADVANCED PARAMETERS MENU".
 <ul style="list-style-type: none">● +5 V● +24 V● AN1	AN1 Specific first analogue input for pressure transducer. For further details, see SELECT CONF. SENS. PRE in the part "STRUCTURE OF THE ADVANCED PARAMETERS MENU".
 <ul style="list-style-type: none">● GND● IN1	IN1 Specific first digital input to enable the VSP for operation via "FLUX=external minimum flow sensor" or "EXT START=start for external command". For further details, see SELECT INOUT CONFIG. in the part "STRUCTURE OF THE ADVANCED PARAMETERS MENU".
 <ul style="list-style-type: none">● IN2● GND	IN2 Specific second digital input to enable the VSP for operation via the "SET POINT2=system second SET pressure". For further details, see SELECT INOUT CONFIG. in the part "STRUCTURE OF THE ADVANCED PARAMETERS MENU".
 <ul style="list-style-type: none">● +24 V● AN2	AN2 Specific second analogue input for pressure transducer. For further details, see SELECT CONF. SENS. PRE in the part "STRUCTURE OF THE ADVANCED PARAMETERS MENU".
 <ul style="list-style-type: none">● IN3● GND	IN3 Specific third digital input to enable the VSP for operation via "EXT ALARM =external alarm" or "EXT START=start for external command". For further details, see SELECT INOUT CONFIG. in the part "STRUCTURE OF THE ADVANCED PARAMETERS MENU".
<ul style="list-style-type: none">● COM_1● NO_1● NC_1	OUTPUT 1 RELAY Specific relay first digital output for signalling "RUN=VSP unit running" or "ERROR=VSP unit error". For further details, see SELECT INOUT CONFIG. in the part "STRUCTURE OF THE ADVANCED PARAMETERS MENU".
<ul style="list-style-type: none">● COM_2● NO_2● NC_2	OUTPUT 2 RELAY Specific relay second digital output for signalling "RUN=VSP unit running" or "ERROR=VSP unit error". For further details, see SELECT INOUT CONFIG. in the part "STRUCTURE OF THE ADVANCED PARAMETERS MENU".

PUMPS CONNECTION IN PARALLEL

For connection in parallel, follow the connections as in the following diagram.



To access the terminals of the connections board, remove the covers of the two inverters.



START-UP

PUMP PRIMING

- Before start-up, fully read this manual and follow the instructions, to avoid wrong settings and manoeuvres that could cause operating faults.
 - Do not start the electric pump dry, unless for a few seconds.
 - Before starting the VSP, fill the pump (priming).
 - Insert the power plug in the socket.
 - Wait the STARTING time (approx. 10 seconds).
 - Once 10 seconds are up and the STARTING phase has terminated, the VSP returns to the same operating conditions it was in on last plug insertion.
 - IN SERVICE if at time of last switch off it was IN SERVICE.
 - OUT OF SERVICE if at time of last switch off it was OUT OF SERVICE.
- In the event of accidental contact of the voltage, if VSP was IN SERVICE (ON), on resetting the mains, it returns IN SERVICE (ON).




- To put the VSP in service, press the ON/OFF key  on the control panel.
- Having pressed the ON/OFF key  ensure the pressure of the system is under the SETPOINT value less the RESTART DIFFERENTIAL set. Only in this condition can the inverter start the electric pump.
- If the electric pump is not correctly primed, bring VSP to TEST mode (manual operation) and gradually open the supply valve (for operation in TEST mode, see the corresponding chapter described later in the following manual).

ATTENTION: the inverter is perfectly configured by default settings, to work correctly with the associated electric pump.

If the VSP default values should be edited, set the inverter using the parameters in the ADVANCED MENU (see the ADVANCED MENU PARAMETERS chapter)

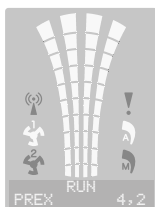
After making all the electrical and plumbing connections correctly, enter the configuration menu to set the correct parameter values for the kind of operation to be performed by the system.

FUNCTIONING PARAMETERS

- The display on the control panel assumes three different types of colours based on the status in which the VSP is found.
 - WHITE display if the VSP is found in STAND BY
 - GREEN display if the VSP is working regularly (START)
 - RED display if the VSP is in alarm mode due to some fault (ERROR)
 - YELLOW display if the VSP is found in the PROGRAMMING MENU
- When VSP is regularly working, the display on the control panel turns GREEN and on the display:
 - the automatic operating indicators lights turn on  and electric pump running  ;
 - the alphanumerical display will show the system pressure.
 - the fountain logo indicator lights start to run;
- If VSP sets to alarm mode, the display on the control panel will turn RED and the display switches on the indicator  and the alphanumerical display will show an ERROR and the alarm type.



WHITE display
(STAND-BY)



GREEN display:
(RUNNING)



RED display
(ERROR)



YELLOW display:
(PROGRAMMING MENU)

HOW TO DISPLAY THE OPERATING PARAMETERS

- With VSP running (GREEN Display) press the keys or to display the various operating parameters on the alphanumeric display.
- Press the key to return to the initial system pressure display..
- The VSP basic operating parameters are set by default at certain values.
- In this section, only the SYSTEM PRESSURE parameter can be edited. The other parameters are display.

1	<div><div>RUN</div><div>PREX4,2</div></div>	SYSTEM PRESSURE Pressure measured on the system
2	<div><div>RUN</div><div>FREQ43,4</div></div>	WORKING FREQUENCY Instantaneous working pressure of the motor
3	<div><div>RUN</div><div>CURRENT3,2</div></div>	ABSORBED CURRENT Motor absorbed instantaneous current ATTENTION: reading the input and output currents of the inverter, carried out with common measurement tools (e.g. clamp meter without TRUE EFFICIENT VALUE), may result as being incorrect.
4	<div><div>RUN</div><div>COSFI0,59</div></div>	POWER FACTOR (cos φ)
5	<div><div>RUN</div><div>TEMP. MOD24</div></div>	POWER MODULE TEMPERATURE Temperature of power electronic module of the inverter
6	<div><div>RUN</div><div>VOLTAGE224</div></div>	MAINS VOLTAGE Mains voltage with which inverter is powered

SYSTEM PRESSURE CHANGE (SETPOINT)

- With keys and move on the display

RUN

PREX4,2
- To increase by 0.1 bar, firstly press the key and keeping it pressed, then press the key
For example

SETPOINT

4,2

 → + →

SETPOINT

4,3
- To decrease by 0.1 bar, firstly press the key and keeping it pressed, then press the key
For example

SETPOINT

4,3

 → + →

SETPOINT

4,2

ADVANCED PARAMETERS MENU

If the default values have to be edited, the ADVANCED MENU contains all the advanced parameters of the VSP. The control panel display will turn YELLOW.

List of parameters

CONFIG. LINGUA	CONF. BASE	CONF. MOTORE	CONF. SENS.PRE	CONF. INGR.USC.	CONF. GRUPPO	TEST	PAR. FABBRICA
↳LINGUA	↳SETPOINT SETPOINT2 DELTAP T.DRY PAUSE TIME F.MIN.FLW STOP TIME REACTIONF	↳CURRENT ROTATION F NOM F LOW F MAX COSFI MIN COSFI TIME FS	↳1 TYPE RANGE 2 TYPE RANGE MODE	↳IN1 TYPE IN1 IN2 TYPE IN2 IN3 TYPE IN3 OUT1 TYPE OUT1 OUT2 TYPE OUT2	↳MODE TYPE NO COM	↳FREQ CURRENT COSFI TEMP. MOD VOLTAGE	↳CONFERMI?

How to display the advanced menu parameters:

- Place the VSP out of service (STOP) pressing the ON/OFF key (☺) (White Display)
- Simultaneously press the keys (▼) + (▲) + (OK) for more than 5 seconds (YELLOW Display)
- Press the keys (▼) or (▲) to display the various MENUS on the alphanumerical display
- Press the key (OK) to display the various parameters present.

How to edit the advanced menu parameters:

- Select the parameter to edit scrolling with the keys (▼) or (▲)
- Press the key (OK) to enable the parameter selected.
- Press the (▼) or (▲) key to edit the parameter value.
- Press the (OK) key to confirm the choice.
- Press the (▼) key to display the next parameter or the (ESC) key to exit from the menu.

If the key (ESC) is pressed during editing the values without firstly pressing the key (OK), the parameter is not saved.

STRUCTURE OF THE ADVANCED PARAMETERS MENU

①	SELECT LANG.CONFIG	• Sets the language of the VSP.
	└─> LANG.CONFIG LANGUAGE: ENG	• Select the desired language (ITA-ENG-DEU-ESP-FRA)
②	SELECT BASIC CONFIG	• Basic parameters setting
	└─> BASIC CONFIG SETPOINT 4,2	SET PRESSURE • Sets the system pressure value (constant) Default 4.0 bar Range 1–10 bar Step 0,1 bar
	BASIC CONFIG SETPOINT2 4,0	SECOND SET PRESSURE • Sets a second system pressure value (constant) To enable it, configure the parameter IN2 in the menu CONF.INGR. USC.. Default 4.0 bar Range 1–10 bar Step 0,1 bar
	BASIC CONFIG DELTAP 0,50	RESTART DIFFERENTIAL PRESSURE • Sets the SET PRESSURE differential and the actual start pressure. Default 0.50 bar Range 0.1-1.00 bar Step 0,01 bar
	BASIC CONFIG T DRY 10	STOP DELAY FOR DRY RUNNING (External input) • Sets the pump stop delay in dry run conditions for operation with IN1 input enabled to work with "FLUX= external minimum flow sensor". To enable it, configure the parameter IN1 as FLUX in the menu CONF. INGR.USC.. Default 10 sec Range 0–100 sec Step 1 sec
	BASIC CONFIG PAUSE TIME 10	DRY RUN RESTART INTERVAL • Sets the interval between two subsequent automatic attempts to re- start after stoppage due to a dry run. • Setting the value to "0" bypasses the automatic attempts to restart. Default 10 min Range 0–100 min Step 1 min
	BASIC CONFIG F.MIN.FLW	STOPPAGE FREQUENCY FOR MINIMUM FLOW • Sets the frequency under which the flow is considered under the min- imum operating flow. Default (*) Hz Range 25–60 Hz Step 0,1 Hz
	BASIC CONFIG STOP TIME 3	STOP DELAY FOR NULL FLOW • Sets the pump stoppage delay in the null flow condition. Default 3 sec Range 1–15 sec Step 1 sec
	BASIC CONFIG REACTIONF 3	INVERTER REACTION RAPIDNESS • Sets the rapidness of inverter response to pressure variations. Default 3 Range 1–5 Step 1

(*) The DEFAULT value depends on the electric pump model associated with the VSP inverter

Continued ►

3	SELECT MOTOR CONFIG	• Motor parameters setting			
	↳ MOTOR CONFIG CURRENT 7.0	<p>MOTOR CURRENT</p> <ul style="list-style-type: none"> Sets the rated current of the motor outbound of the inverter (plate current of the motor). IMPORTANT: to enable the change of parameter, simultaneously press the ON/OFF ☺ key and key (OK). <table> <tr> <td>Default (*) A</td><td>1~ Range 1–7 A 3~ Range 1–6 A</td><td>Step 0,1 A</td></tr> </table>	Default (*) A	1~ Range 1–7 A 3~ Range 1–6 A	Step 0,1 A
Default (*) A	1~ Range 1–7 A 3~ Range 1–6 A	Step 0,1 A			
	MOTOR CONFIG ROTATION 0	<p>MOTOR ROTATION DIRECTION</p> <ul style="list-style-type: none"> Sets the rotation direction of the THREE-PHASE motor (clockwise/anti-clockwise) <table> <tr> <td>Default 0</td><td>Range 0–1</td><td></td></tr> </table>	Default 0	Range 0–1	
Default 0	Range 0–1				
	MOTOR CONFIG F NON 50	<p>RATED FREQUENCY</p> <ul style="list-style-type: none"> Sets the operating rated frequency. IMPORTANT: to enable the change of parameter, simultaneously press the ON/OFF ☺ key and key (OK). <table> <tr> <td>Default (*) Hz</td><td>Range 30–70 Hz</td><td>Step 1 Hz</td></tr> </table>	Default (*) Hz	Range 30–70 Hz	Step 1 Hz
Default (*) Hz	Range 30–70 Hz	Step 1 Hz			
	MOTOR CONFIG F LOW 30	<p>MINIMUM FREQUENCY</p> <ul style="list-style-type: none"> Sets the minimum operating frequency. <table> <tr> <td>Default 30 Hz</td><td>Range 25–70 Hz</td><td>Step 1 Hz</td></tr> </table>	Default 30 Hz	Range 25–70 Hz	Step 1 Hz
Default 30 Hz	Range 25–70 Hz	Step 1 Hz			
	MOTOR CONFIG F MAX 50	<p>MAXIMUM FREQUENCY</p> <ul style="list-style-type: none"> Sets the maximum operating frequency. ATTENTION: increase in maximum frequency compared to the rated frequency can cause strong motor overloads. IMPORTANT: to enable the change of parameter, simultaneously press the ON/OFF ☺ key and key (OK). <table> <tr> <td>Default (*) Hz</td><td>Range 30–70 Hz</td><td>Step 1 Hz</td></tr> </table>	Default (*) Hz	Range 30–70 Hz	Step 1 Hz
Default (*) Hz	Range 30–70 Hz	Step 1 Hz			
	MOTOR CONFIG COSFI MIN 0.50	<p>MINIMUM COSFI FOR DRY RUN</p> <ul style="list-style-type: none"> Sets the minimum value of the cosfi under which the dry run is detected <table> <tr> <td>Default 0.50</td><td>Range 0.1–1</td><td>Step 0.01</td></tr> </table>	Default 0.50	Range 0.1–1	Step 0.01
Default 0.50	Range 0.1–1	Step 0.01			
	MOTOR CONFIG COSFI TIME 10	<p>STOP DELAY FOR DRY</p> <ul style="list-style-type: none"> Sets the pump stoppage delay in the dry run condition. (0=Dry0=dry run disabled) <table> <tr> <td>Default 0 sec</td><td>Range 0–100 sec</td><td>Step 1 sec</td></tr> </table>	Default 0 sec	Range 0–100 sec	Step 1 sec
Default 0 sec	Range 0–100 sec	Step 1 sec			
	MOTOR CONFIG FS 16	<p>MODULE SWITCHING FREQUENCY</p> <ul style="list-style-type: none"> Sets the switching frequency of the power module. <table> <tr> <td>Default 16 kHz</td><td>Range 4–16 kHz</td><td>Step 1 kHz</td></tr> </table>	Default 16 kHz	Range 4–16 kHz	Step 1 kHz
Default 16 kHz	Range 4–16 kHz	Step 1 kHz			

(*) The DEFAULT value depends on the electric pump model associated with the VSP inverter

4

SELECT
CONF.SENS.PRECONF.SENS.PRE
1 TYPE 4_20mA

- Pressure transducer parameters setting

FIRST PRESSURE TRANSDUCER

- Select the pressure transducer type:
 - 4–20 mA amperometric
 - 0–10 V ratiometric

Default **4_20mA**Range **4_20mA–0_10V**

Step –

CONF.SENS.PRE
RANGE 16bar

FIRST PRESSURE TRANSDUCER RANGE

- Select the maximum operating pressure of the pressure transducer.

Default **10 bar**Range **10-16–20–40 bar**

Step –

CONF.SENS.PRE
2 TYPE 4_20mA

SECOND PRESSURE TRANSDUCER

- Select the pressure transducer type:
 - 4–20 mA amperometric
 - 0–10 V ratiometric

Default **4_20mA**Range **4_20mA–0_10V**

Step –

CONF.SENS.PRE
RANGE 16bar

SECOND PRESSURE TRANSDUCER RANGE

- Select the maximum operating pressure of the pressure transducer.

Default **10 bar**Range **10-16–20–40 bar**

Step –

CONF.SENS.PRE
MODE

ANALOGUE INPUTS MODE

- Select the analogue input type you want to use for the pressure transducer.

NO_PREX (No selected analogue, the pump will always go the maximum frequency)

AN1 (First analogue input selected, see terminal board diagram)

AN2 (Second analogue input selected see terminal board diagram)

AN1+AN2 (Selected the total of the two analogue inputs see terminal board diagram).

Default **NO_PREX**Range **NO_PREX–AN1–AN2–AN1+AN2**

Continued ►

<div>5</div> <div>SELECT INOUT CONFIG.</div>	<ul style="list-style-type: none"> Inputs and outputs type setting
<div>↳ INOUT CONFIG. IN1 OFF</div>	<div>FIRST EXTERNAL INPUT (IN1)</div> <ul style="list-style-type: none"> Configuration and choice of use mode first external input. OFF = Disabled input FLUX = External minimum flow sensor. If this function is enabled, the VSP will be capable of determining dry running after the time set in "T DRY" (see BASIC CONFIG T DRY 10) EXT START = Start for external command <div>Default OFF Range OFF–FLUX–EXT START</div>
<div>INOUT CONFIG. TYPE IN1</div>	<div>FIRST INPUT CONTACT TYPE</div> <ul style="list-style-type: none"> Choice of clean contact type to use in first input (N.O. or N.C.) <div>Default N.O. Range N.O.–N.C.</div>
<div>INOUT CONFIG. IN2 OFF</div>	<div>EXTERNAL SECOND INPUT (IN2)</div> <ul style="list-style-type: none"> Configuration and choice of use mode second external input. OFF = Disabled input SET POINT 2 = Second SET pressure of the system <div>Default OFF Range OFF–SET POINT 2</div>
<div>INOUT CONFIG. TYPE IN2</div>	<div>SECOND INPUT CONTACT TYPE</div> <ul style="list-style-type: none"> Choice of clean contact type to use in second input (N.O. or N.C.) <div>Default N.O. Range N.O.–N.C.</div>
<div>INOUT CONFIG. IN3 OFF</div>	<div>THIRD EXTERNAL INPUT (IN3)</div> <ul style="list-style-type: none"> Configuration and choice of use mode third external input. OFF = Disabled input EXT ALARM = External alarm EXT START = Start for external command <div>Default OFF Range OFF–EXT ALARM–EXT START</div>
<div>INOUT CONFIG. TYPE IN3</div>	<div>THIRD INPUT CONTACT TYPE</div> <ul style="list-style-type: none"> Choice of clean contact type to use in third input (N.O. or N.C.) <div>Default N.O. Range N.O.–N.C.</div>
<div>INOUT CONFIG. OUT1 OFF</div>	<div>FIRST EXTERNAL OUTPUT</div> <ul style="list-style-type: none"> Enable or disable the output from relay (NO/NC) OFF = Output disabled RUN = VSP unit running ERROR = VSP unit error <div>Default OFF Range OFF–RUN–ERROR</div>

INOUT CONFIG. TYPE OUT1	FIRST OUTPUT CONTACT TYPE <ul style="list-style-type: none"> Choice of clean contact type to use in first output (N.O. or N.C.) <div> Default N.O. Range N.O.–N.C. </div>
INOUT CONFIG. OUT2 OFF	SECOND EXTERNAL OUTPUT <ul style="list-style-type: none"> Enable or disable the output from relay (NO/NC) OFF = Output disabled RUN = VSP unit running ERROR = VSP unit error <div> Default OFF Range OFF–RUN–ERROR </div>
INOUT CONFIG. TYPE OUT2	SECOND OUTPUT CONTACT TYPE <ul style="list-style-type: none"> Choice of clean contact type to use in first output (N.O. or N.C.) <div> Default N.O. Range N.O.–N.C. </div>
6 SELECT CONF. GROUP	<ul style="list-style-type: none"> PUMPS PARALLEL UNIT configuration mode
↳ CONF. VEHICLE MODE: SINGOLO	VSP OPERATING MODES <ul style="list-style-type: none"> Configuration and choice of VSP use mode single or parallel. If you choose parallel operation, set the VSP in MASTER or SLAVE mode. SINGLE= use single VSP MASTER= use of VSP in MASTER mode that controls the second VSP in SLAVE mode SLAVE = use of VSP in SLAVE mode which is controlled by the second VSP in MASTER mode <div> Default SINGOLO Range SINGOLO–MASTER–SLAVE </div>
CONF. GROUP TYPE: V+F	TYPE OF PARALLEL VSP OPERATION <ul style="list-style-type: none"> Configuration and choice of VSP parallel operating mode V+F= alternating between VSP. If the first VSP cannot meet the request, the second VSP starts which is modulated while the first always stays at maximum frequency. V+V= alternating between VSP. If the first VSP cannot meet the request, the second VSP starts and both are modulated in frequency. <div> Default V+F Range V+F – V+V </div>

Continued ►

CONF. GROUP
NO COM

WORKING MODE FOR LACK OF COMMUNICATION BETWEEN PARALLEL VSP

- Configuration and choice of VSP parallel operating mode if no communication and/or one of the two VSP has a fault.

STOP=the VSP stops in the event of no communication.

SOLO=the VSP continues to work as if a single, independent VSP.

Default **STOP**

Range **STOP – SOLO**

7 SELECT TEST



TEST
PREX 0,0

- Electric pump TEST mode

SYSTEM PRESSURE

- Read only parameter of system pressure

TEST
FREQ 0,0

SYSTEM FREQUENCY

- Motor power supply frequency change

Default **30 Hz**

Range **30-50 Hz**

Step **1 Hz**

TEST
CURRENT 0,0

MOTOR CURRENT

- Read only parameter of motor current

TEST
COSFI 0,0

MOTOR COSFI

- Read only parameter of cosfi motor

TEST
TEMP. MOD 20

POWER MODULE TEMPERATURE

- Read only parameter of inverter module temperature

TEST
VOLTAGE 225

POWER SUPPLY VOLTAGE

- Read only parameter of inverter power supply voltage

8 SELECT RESTORE DEF



RESTORE DEF
CONFIRM?


LOAD DEFAULT PARAMETERS

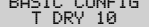
- This menu allows you to reset the VSP parameters if the client wants to restore the values by returning to the initial default configuration.

Default **No**

Range **Yes–No**

ALARMS

If the VSP goes to alarm mode, the fountain leds turn flashing red. The ALARM signalling indicator light  switches on and on the alphanumerical part the name and type of alarm appears, according to the following:

ALARM	DESCRIPTION
ERROR EXT ALARM	If the VSP is ON, that is, the operation of the electric pump is enabled and "EXT ALARM" closes with a clean contact NO, the panel goes to external alarm "EXT ALARM". In this condition the VSP is blocked, at the same time the EXT ALARM relay is activated, which can generate an external acoustic and visual signal. Typical example of use can be signalled by alarm float to signal the lack of water.
SENSOR PRES SHORTCIRCUIT	If the VSP is ON, that is, the operation of the electric pump is enabled in any work mode and a short circuit occurs or there is excess absorption on the pressure transducer, the VSP goes to a "SHORT CIRCUIT" alarm. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
SENSOR PRES OPENCIRCUIT	If the VSP is ON, that is, the operation of the electric pump is enabled in any work mode and the connection is lost towards the pressure transducer or the transducer itself, the VSP goes to a "CIRCUIT OPEN" alarm. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR DRY RUN	If the VSP is ON, that is, the operation of the electric pump is enabled in any work mode and the $\cos\phi$ (read) < $\cos\phi$ (min set) or IN1 is enabled to work with an external minimum flow sensor (see ) without water intake, the VSP goes to DRY RUN alarm. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR MAX CURRENT	If the VSP is ON, that is, the operation of the electric pump is enabled in any work mode and the Current (read) > Max current (set), the VSP goes to "MAX CURRENT" alarm. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR MAX VOLTAGE	If the VSP is ON, that is, the operation of the electric pump is enabled in any work mode and the voltage (read) > voltage (maximum default setting), the VSP goes to alarm due to "MAX VOLTAGE". In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR MIN VOLTAGE	If the VSP is ON, that is, the operation of the electric pump is enabled in any work mode and the voltage (read) < voltage (minimum default setting), the VSP goes to "MIN VOLTAGE" alarm. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.




Continued ►

ALARM	DESCRIPTION
ERROR PHASE ERROR	The three-phase VSP on switch-on runs a control on the correct cyclic sequence of all the phases, if by chance an incorrect cyclic sequence was carried out, the VSP goes to alarm mode, indicating "PHASE ERROR" and inhibiting each function of the VSP. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR INV ERROR	If the VSP is ON, that is, the operation of the electric pump is enabled in any work mode and an error occurs from the hardware part of the inverter power module, the VSP goes to alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR LCD ERROR	If the VSP is found in any work mode and an error occurs on the display board or it does not respond, the VSP goes to alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR NO_COM	If the VSP is found in any work mode and there is no communication between the interface board or and the power board, the VSP goes to alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR NO.POW>OFF	If the VSP is found in any work mode and there is no voltage inbound during the shut-down phase, the VSP goes to alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR PFC.COM.ERR	If the VSP is found in any work mode and there is no communication between the power logic and the PFC logic, the VSP goes to alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR PFC.INV.ERR	If the VSP is found in any work mode and an error occurs on the hardware part of the PFC module, the VSP goes to alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR PFC.VDC.HIGH	If the VSP is found in any work mode and the voltage of the "Bus DC Link" is too high, the VSP goes in alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR PFC.VDC.DIF	If the VSP is found in any work mode and the voltage of the "Bus DC Link" is "too" different from the voltage of the "Bus DC PFC", the VSP goes in alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.

ALARM	DESCRIPTION
ERROR PFC.VDC.LOW	If the VSP is found in any work mode and the voltage of the “Bus DC Link” is too low, the VSP goes in alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR PFC.IN.HIGH	If the VSP is found in any work mode and the voltage of the input mains supply is too high, the VSP goes in alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR PFC.IN.LOW	If the VSP is found in any work mode and the voltage of the input mains supply is too low, the VSP goes in alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.
ERROR PFC.HI.TEMP	If the VSP is found in any work mode and the temperature of the PFC power module is too high, the VSP goes in alarm mode. In this condition the pump is blocked, at the same time the ALARM OUTPUT relay activates, which can generate an external acoustic and visual signal.


TROUBLESHOOTING

To supplement the troubleshooting guide in the alarm list, below there is also a guide to identify other possible problems. It is assumed that the VSP was correctly connected to the power line and that the electric pumps were correctly connected to the VSP, as described in the manual, and all the cables and connections are working.

PROBLEM AND/OR ALARM	TEST TO CARRY OUT AND/OR SOLUTION
If an alarm occurs and it is not a latching alarm, a reset must be carried out using the following procedure	<ul style="list-style-type: none"> Press the button  At this point on the alphanumerical part of the display, the writing appears asking if you want to reset the alarm to zero. Written on the display:  Press the  key to definitively reset the alarm.
The VSP is in automatic mode but the pump is not enabled.	<ul style="list-style-type: none"> Check the correct configuration of the inputs IN1, IN2 and the PRESSURE TRANSDUCER carried out in the configuration menu in the ADVANCED PARAMETERS MENU. Check the inputs are working correctly (e.g. pressure switch connected to IN1, IN2 or PRESSURE TRANSDUCER).
The VSP on start-up of the pump goes to alarm mode for “MAX CURRENT” protection.	<ul style="list-style-type: none"> Check the CONF.MOTOR menu setting of the maximum current. Check that the motor used is working correctly. Latching alarm.

(*) This field displays the type of alarm of the VSP unit

Continued ►

PROBLEM AND/OR ALARM	TEST TO CARRY OUT AND/OR SOLUTION
The VSP on start-up of the pump goes to alarm mode for "DRY RUN".	<ul style="list-style-type: none"> • Check the CONF.MOTOR menu setting of COSFI MIN. • In the 400V~ three-phase model, check that the pump rotates correctly. • Self-resetting alarm (repeated attempts for REC TIME). • Check the connection and/or operation of the flow sensor connected to IN1 (see )
The VSP on start-up of the pump goes to protection due to "CIRCU.OPEN" alarm on pressure transducer.	<ul style="list-style-type: none"> • Check that the transducer is connected correctly and that the cables are not damaged. • Check the transducer state. • Self-resetting alarm.
The VSP on start-up of the pump goes to protection due to "SHORT CIRCUIT" alarm on pressure transducer.	<ul style="list-style-type: none"> • Check that the transducer is not shorted and that the cables are not damaged. • Check the transducer state. • Latching alarm.
On start-up, the VSP goes to PHASE ERROR alarm. Only for VSP TRI (three-phase)	<ul style="list-style-type: none"> • Check the phases are correctly connected or that the power cables are not damaged.
The VSP on start-up of the pump goes to protection due to input overvoltage alarm "MAX.VOLTAGE".	<ul style="list-style-type: none"> • Check the input voltage for some reason has not increased in value, or the VSP is not connected to an inadequate power system (400V instead of 230V). • Check the condition on the power cables. • Latching alarm.
The VSP on start-up of the pump goes to protection due to input overvoltage alarm "PFC.IN.HIGH".	<ul style="list-style-type: none"> • Check the input voltage for some reason has not increased in value, or the VSP is not connected to an inadequate power system (400V instead of 230V). • Check the condition on the power cables. • Latching alarm.
The VSP on start-up of the pump goes to protection due to input undervoltage alarm "MIN.VOLTAGE".	<ul style="list-style-type: none"> • Check the input voltage for some reason has not decreased in value, or the VSP is not connected to an inadequate power system (230V instead of 400V). • Check the condition on the power cables. • Latching alarm.
The VSP on start-up of the pump goes to protection due to input undervoltage alarm "PFC.IN.LOW".	<ul style="list-style-type: none"> • Check the input voltage for some reason has not decreased in value, or the VSP is not connected to an inadequate power system (230V instead of 400V). • Check the condition on the power cables. • Latching alarm.
The display does not switch on or goes to "LCD ERROR" alarm.	<ul style="list-style-type: none"> • Check that the FLAT cable is connected correctly. • Check that the FLAT cable is not damaged.
The VSP on start-up of the pump goes to protection due to "NO_COM" alarm	<ul style="list-style-type: none"> • Check correct power supply on the interface board. • Latching alarm • If the alarm persists, contact your nearest technical support centre for power board replacement.
The VSP on start-up of the pump goes to protection due to "PFC.COM.ERR" alarm	<ul style="list-style-type: none"> • Check correct power supply on the interface board. • Latching alarm • If the alarm persists, contact your nearest technical support centre for power board replacement.

PROBLEM AND/OR ALARM	TEST TO CARRY OUT AND/OR SOLUTION
The VSP on start-up of the pump goes to protection due to "PFC.INV.ERR" alarm	<ul style="list-style-type: none"> • Check correct power supply on the interface board. • Latching alarm • If the alarm persists, contact your nearest technical support centre for power board replacement.
The VSP on start-up of the pump goes to protection due to "PFC.VDC.HIGH" alarm	<ul style="list-style-type: none"> • Check correct power supply on the interface board. • Latching alarm • If the alarm persists, contact your nearest technical support centre for power board replacement.
The VSP on start-up of the pump goes to protection due to "PFC.VDC.DIF" alarm	<ul style="list-style-type: none"> • Check correct power supply on the interface board. • Latching alarm • If the alarm persists, contact your nearest technical support centre for power board replacement.
The VSP on start-up of the pump goes to protection due to "PFC.VDC.LOW" alarm	<ul style="list-style-type: none"> • Check correct power supply on the interface board. • Latching alarm • If the alarm persists, contact your nearest technical support centre for power board replacement.
The VSP on start-up of the pump goes to protection due to "PFC.HI.TEMP" alarm	<ul style="list-style-type: none"> • Check correct power supply on the interface board. • Latching alarm • If the alarm persists, contact your nearest technical support centre for power board replacement.
The VSP on start-up of the pump goes to protection due to input overvoltage alarm "NO.POW.>OFF".	<ul style="list-style-type: none"> • Check the input voltage for some reason is no longer present. • Check the condition on the power cables. • Latching alarm.

MAINTENANCE

The VSP does not require any type of routine maintenance if used within the use limitations and in compliance with the instructions outlined in this manual.

Only authorised service centres may carry out reactive maintenance or repairs.

Use only original spare parts for repairs. The manufacturer cannot be held in any way liable for damage to people, animals or property due to maintenance interventions carried out by unauthorised staff or using non-original materials.

DISPOSAL

For disposal of parts composing the VSP, comply with the standards and legislation in force in the country in which the unit is used. Do not dispose of polluting parts in the environment.



Correct disposal of WEEE (DIRECTIVE 2012/19/EU)

DECLARATION OF CONFORMITY

We hereby declare, under our sole responsibility, that this product complies with the provisions of the following EU Directives, including the latest amendments, and with the relevant national transposing legislation:

2006/42/EU, 2014/35/EU, 2014/30/EU, 2009/125/EU, 547/2012/EU, 2011/65/EU, 2015/863/EU

UK legislation: 2008 No. 1597, 2016 No. 1101, 2016 No. 1091, 2019 No. 539, 2012 No. 3032

Electromagnetic compatibility **2014/30 EU** and subsequent amendments in compliance with the following technical standards:

EN 61000-6-2:2021, EN 61000-6-3:2021

San Bonifacio, 12/04/2022

Pedrollo S.p.A.

The Chairman

Silvano Pedrollo





PEDROLLO S.p.A.

Via E. Fermi, 7 37047 – San Bonifacio (VR) - Italy

Tel. +39 045 6136311 – Fax +39 045 7614663

e-mail: sales@pedrollo.com – www.pedrollo.com