Proof of Plant Delivery and Warranty

1. Various products manufactured by the company have gone through strict quality control and inspection before they can be allowed to leave the plant. We guarantee with assurance for your utility.
2. Please keep this certificate of warranty well, and we should require your understanding that if it won't be re-issued if lost.
3. From the date this product is purchased, we will guarantee that it can function well under normal utility conditions for one year, and we will render responsibility of warranty within the year.
4. During the period of warranty, the buyer can demand the company to honor the responsibility of warranty based on the standards of the company examination report.
5. For period in excess of the above-stipulated time, we will charge the buyer, if accessory has to be replaced or changed, with the cost expense of the accessory and service fee.
6. The company has always made improvement to our products. During the period of warranty, if the buyer has to replace accessory, the company can use the improved accessory for replacement. If the buyer demands for designated brand of accessory for replacement, the company will charge for the cost expense.
7. The company won't be responsible for break-down incurred as of natural disaster, earthquake, fault of user, self modification, relocation, or overload.
8. For installation of the product, it should be done by specialized personnel based on items of administration, or the company won't be liable for liability of warranty for problems generated as of improper administration or handling.

Product Name :	*Inverter control constant pressure pump*
MODEL :	
SPECIFICATION:	
MFG No :	
USER'S NAME :	

EVERGUSH®

EVERGUSH®

VS-Series Inverter Control Constant Pressure Pump Instruction Manual

- ◉*No expose the pump on snow conditions directly.*
- ◉*It's forbidden to pump clean water which temperature is below 0 °C.*
- ◉*Suitable ambient temperature is +2°C~+40°C.*

CE,ISO9001 CERTIFIED ***MADE IN TAIWAN***

XI. Troubleshooting:

Before taking any work on pump, make sure that electricity supply has been switched off and that it can't be accidentally switched on.

Problems	Cause	Remedy
1.Pump doesn't start	a. No electricity power	Check and connect the electricity supply
	b. Too low or high supply voltage	Check if supply voltage is within ±10%.
	c. The inlet pressure limit of pipeline is too high	a.Check the inlet pressure, the inlet pressure do not exceeds: VS-ECM2-30: 1.8kg/cm^2 VS-ECM4-40: 2.5kg/cm^2 VS-ECM4-60: 3.0kg/cm^2 b. Adjust higher pressure setting. (page 6)
	d. Insufficient water output	Check if suction line is clogged.
	e. Seized-up pump, shaft jammed.	Check if motor shaft spins freely, refer to instruction (Page 2- FIG.2)
	f. Failure pressure sensor	Disconnect with power supply, Notify professionals to replace new one.
	g. Forget to push "on" button of operation switch	Open control panel to push"on" button of operation switch (Page2- FIG.3)
2.Pump cuts out during operation	a. Dry running protection, pump will auto cut off while no water inflows occur in 30seconds.	a. Restart the pump(Page2-FIG.3) b. The pump will auto restart in 30 minutes. If normal water returns, it will start running. If still no water inflow, it will auto cut off in 30seconds.
	b. Overload motor	Cut off the power supply and restart or contact with your pump suppliers.
3.The pump still runs when no water is consumed	a. Defective check valve or the existing pipeline is leakage.	a. Clean the valve or replace with a new check valve. b. Fix the leakage.
4.The pump starts and stops too frequently	a. Leakage in suction pipe or air in the water.	Check the water supply/suction pipeline.

Before beginning installation procedures, these installation and operating instructions should be read carefully.

I.Applications:

The US series pumps are designed for water supply and pressure boosting in residential, commercial and light industrial applications. Where low or inadequate water pressure exists, it's suitable for auto boosting pressure from underground, top floors, or surface water suppliers.

II.Features:

1. The VS is a inverter control constant pressure pump unit, consist of multi-stage pump, motor, "DELTA"inverter, pressure tank,"Danfoss" pressure sensor, and electronic control panel. It provides constant water pressure which ensures that the pump starts automatically when water is consumed and operates continuously until water is not required.
2. The Inverter detects the instantaneous pressure in the system through the pressure sensor transmitted and adjusts motor speed to keep it at the required value. Depended on applications, the pumps offer energy saving and improved processing.
3. Compact design and silent operation make VS series suitable for many applications.
4. The VS series is constructed from top quality corrosion resistant materials for providing clean water.
5. The VS series has automatic dry run protection and restart function. Once no water inflow occurs, the inverter pump will auto shutdown in 30 seconds, and auto detect water status in 30 minutes until normal water returns.
6. The motor has built-in overload protector to protect against high operating temperature and over current.
7. The pump will lift water up to 4.0M with foot valve and pump suction piping filled with water.

III. Operating Conditions:

1.Ambient temperature: +2^{0}C~+40^{0}C
2.Liquid temperature: +2^{0}C~+40^{0}C
3.Relative Humidity: Max.85%
4.Suitable liquids: Potable water or other clean or non-corrosive liquids without abrasives.
5.Original constant pressure setting:

Model	Power	Pressure setting
VS25-ECM2-30	0.5HP	1.8~2.0 kg/cm^2
VS25-ECM4-40	1HP	2.5~3.1 kg/cm^2
VS25-ECM4-60	1.5HP	3.0~3.5 kg/cm^2

IV. Installation:

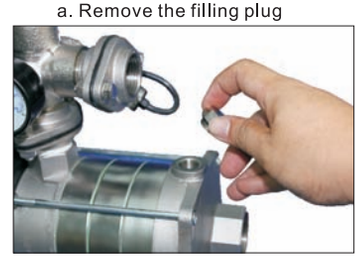
1. The pump is recommended to be installed indoors. When installed outdoors, a suitable cover must be provided according to local regulations to protect inverter pump from weather.
2. If the inverter pump draws water from shallow well, it's recommended to fit a foot valve to the end of suction pipe, and suction pipe can't exceed over 4M.
3. Please mount and bolt the pump on the solid foundation.
4. Don't start the pump until the system has been filled with water.
5. The electricity connections and additional protection should be carried out by qualified persons in accordance with local regulations.
6. Make sure voltage before running.
7. The grounding must be connected.

V. Operation:

Never run the pump before it is filled with water. Please follow the instructions in(Fig1).

1. Remove the filling plug and fill the chamber with water. Then replace plug and tighten it manually.

a. Remove the filling plug

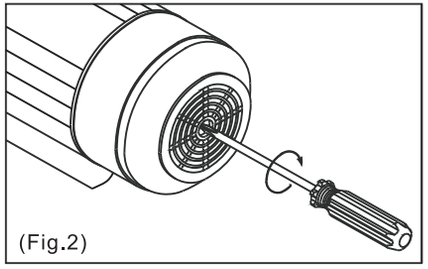


b. Filling water into chamber

c. Place filling plug and tighten it manually

(Fig.1)

2. Be sure the pump inlet is lower than water supply, if not, please remove the priming plug to let the water flow back into the chamber. This process can be repeated as many times as necessary until air is fully released from the system.
3. For running pump after long time inacctively or idle, please place a screwdriver against the motor shaft end to check if the rotor spins freely. If it's, you can start pump.(Fig.2)



(Fig.2)

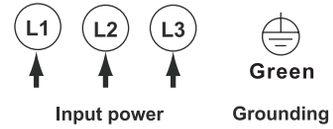
4. Connect the power supply, turn faucet on and pump will run immediately. If the pump doesn't start, proceed with trouble shooting guide.
5. If pump doesn't start, please disconnect the power supply immediately. Fill in water to the chamber until the pump will start.
6. After the pump is running normally, please turn faucet on and off several times to check if pump start and stop automatically. In case of trouble, please proceed with trouble shooting guide.
7. When connecting wiring with input power, please open cover of control panel, and press "on" button of switch.(Fig.3)

(Fig.3)

VI. Wiring diagram:

Single-phase power supply (220V~240V)

Three-phase power supply (380V~415V)

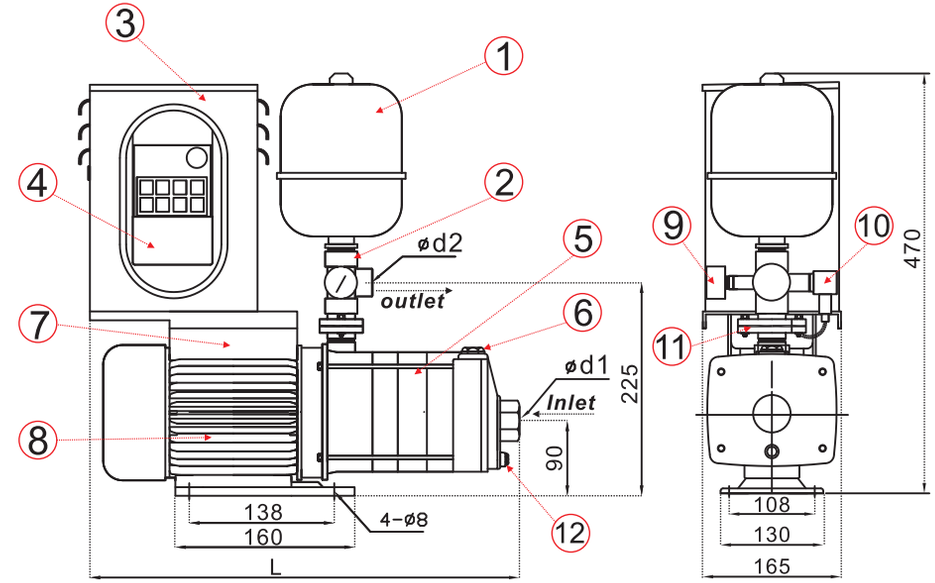


VIII. Model Code:

VS25 - ECM 4 - 40

- 40 — Stages of impeller: Number/10
- 4 — Rated water capacity(M^3/H)
- ECM — Stainless steel multi-stage pump
- 25 — Inlet/Outlet diameter(mm)
- VS — Model code-Inverter control constant pressure pump

IX. Construction & Dimension:



●Part Name

1. Pressure tank	7. Support
2. Check valve	8. Motor
3. Control panel	9. Pressure gauge
4. Inverter	10. Pressure sensor
5. Pump casing	11. Flanges
6. Priming plug	12. Drainage plug

●Dimension

unit:mm

Model	HP	L2	ød1	ød2
VS25-ECM2-30	0.5	370	25	25
VS25-ECM4-40	1	415	32	25
VS25-ECM4-60	1.5	469	32	25

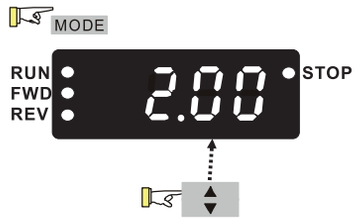
X. Specification:

Model	Output		Pole	St.Head	St.Cap.	Max.Head	Max.Cap.	Net Weight
	KW	HP		M	M^3/h	M	M^3/h	KG
VS-ECM2-30	0.37	0.5	2	21	2.0	28	3.5	19.5
VS-ECM4-40	0.75	1.0	2	30	4.0	38	7.0	20.0
VS-ECM4-60	1.10	1.5	2	45	4.0	55	7.0	21.0

I. How to operate digital keypad **(After setting all parameters by factory)**

Setted Pressure (kg/cm^2)

Real Operating Pressure (kg/cm^2)



You can adjust required pressure (bar) by push ▲ ▼

Operating Current

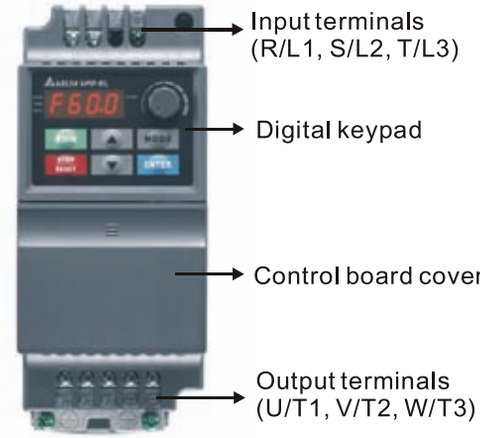
Real Operating Frequency(HZ)

- The digital shows zero when stopping.
- The digital shows 40~60HZ depending on operating conditions.

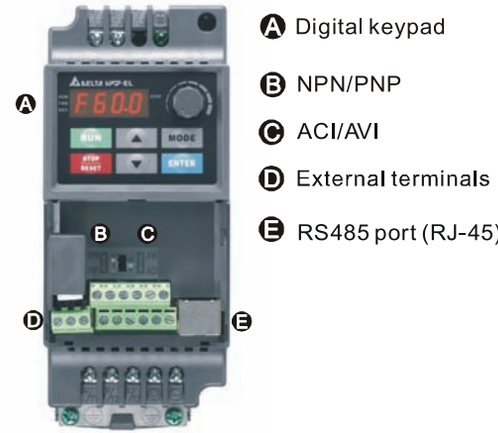
Froward operating

VII. Inverter:

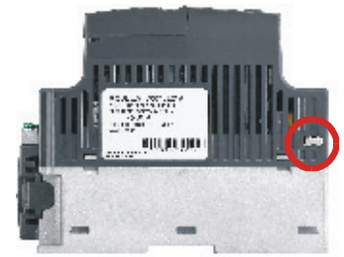
a. Drive frames and appearance



b. Internal structure



c. RFI Jumper Location



at the right side

RFI jumper is near the input terminals as shown in the above figure and can be removed by taking off screws.

Frame	Power range	Models
A	0.25-2hp (0.2-1.5kW)	VFD002EL11A/21A/23A, VFD004EL11A/21A/23A/43A, VFD007EL21A/23A/43A, VFD015EL23A/43A

RFI Jumper: The AC motor drive may emit the electrical noise. The RFI jumper is used to surpass the interference(Radio Frequency Interference)on the power line.

Main power isolated from earth:
If the AC motor drive is supplied from an isolated power(IT power), the RFI jumper must be cut off. Then the RFI capacities(filter capacitors) will be disconnected from ground to prevent circuit damage (according to IEC 61800-3) and reduce earth leakage current.

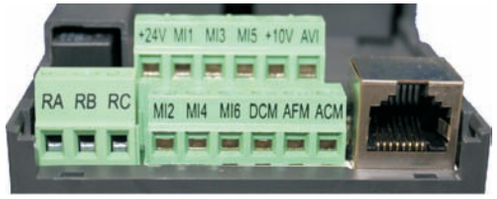
d. Remove Instructions

Remove Front Cover

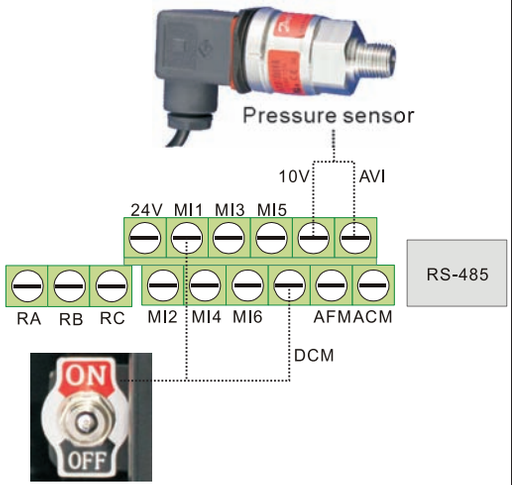
Step 1 Step 2

Remove Fan

e. External Terminals



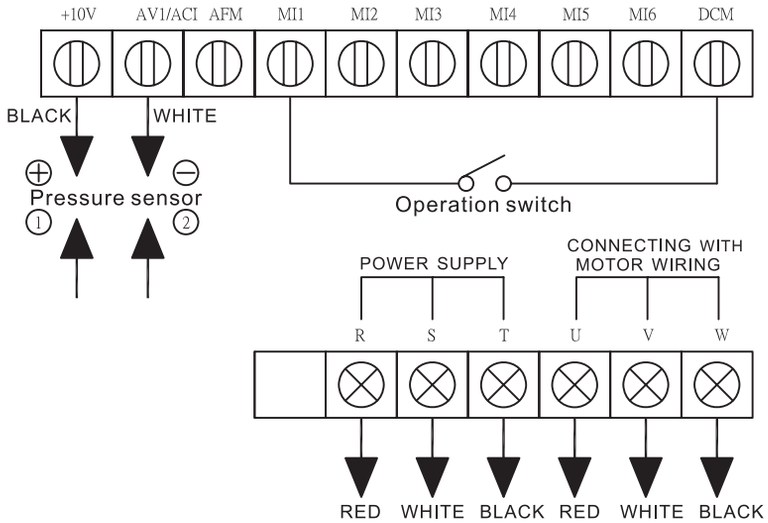
Accessaries connection



Operation switch

f. Input /output Terminals

g. Standard Connection Diagram



h. Description of the digital keypad

❶ **Status Display**
Display the driver's current status.

❷ **LED Display**
Indicates frequency, voltage, current, user defined units and etc.

❸ **Potentiometer**
For master Frequency setting.

❹ **RUN Key**
Start AC drive operation.

❺ **UP and DOWN Key**
Set the parameter number and changes the numerical data, such as Master Frequency.

❻ **MODE**
Change between different display mode.

❼ **STOP/RESET**
Stops AC drive operation and reset the drive after fault occurred.

There are four LEDs on the keypad:

LED STOP: It will light up when the motor is stop.

LED RUN: It will light up when the motor is running.

LED FWD: It will light up when the motor is forward running.

LED REV: It will light up when the motor is reverse running.

Display Message	Descriptions
F60.0	Displays the AC drive Master Frequency.
H50.0	Displays the actual output frequency at terminals U/T1, V/T2, and W/T3.
U 180	User defined unit (where U = F x Pr.00.05)
A 5.0	Displays the output current at terminals U/T1, V/T2, and W/T3.
Frd	Displays the AC motor drive forward run status.
rEv	Displays the AC motor drive reverse run status.
c 20	The counter value (C).
06.00	Displays the selected parameter.
10	Displays the actual stored value of the selected parameter.
EF	External Fault.
End	Display "End"for approximately 1 second if input has been accepted. After a parameter value has been set, the new value is automatically stored in memory. To modify an entry, use the ▲ and ▼ keys.
Err	Display "Err" if the input is invalid.