

SMEDEGÅRD

OF DENMARK

❖ Installation Guide

OmegaDrive HV 1.1, 1.15 and 1.2

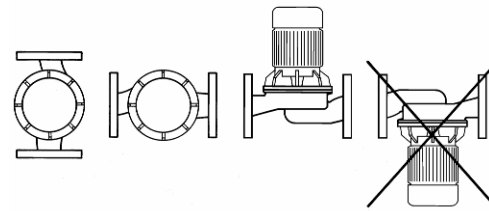


Fig. 1 Pump installation

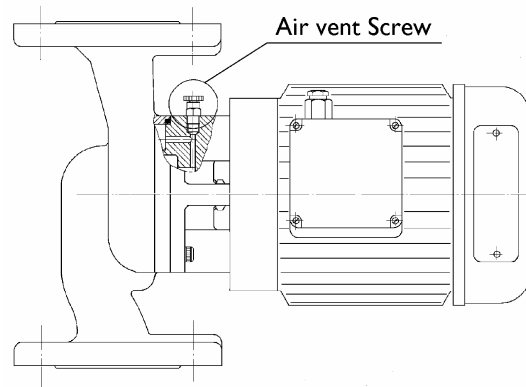


Fig. 2 Air venting

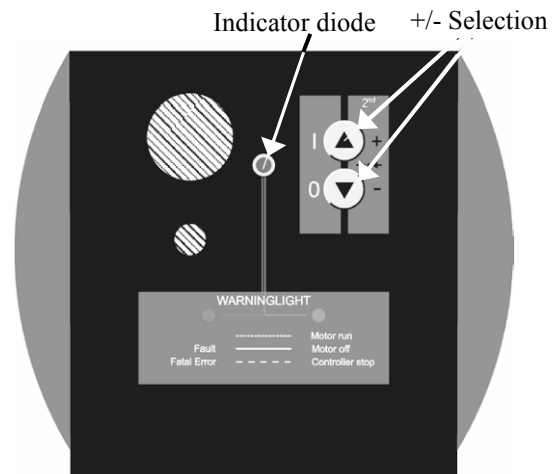


Fig. 3 Operating panel +/- Selection

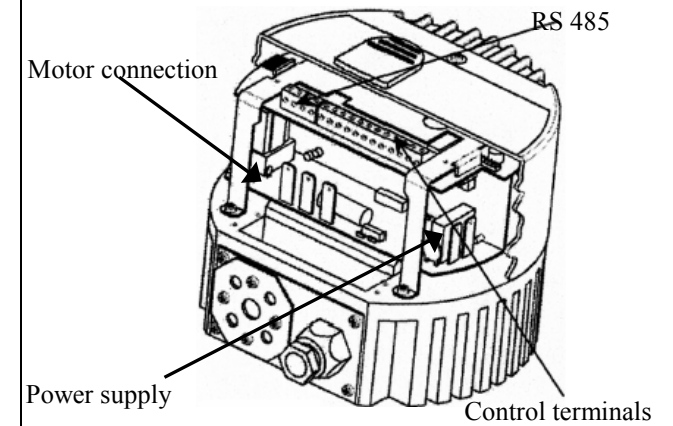


Fig. 4 Installation overview for HV 1.1

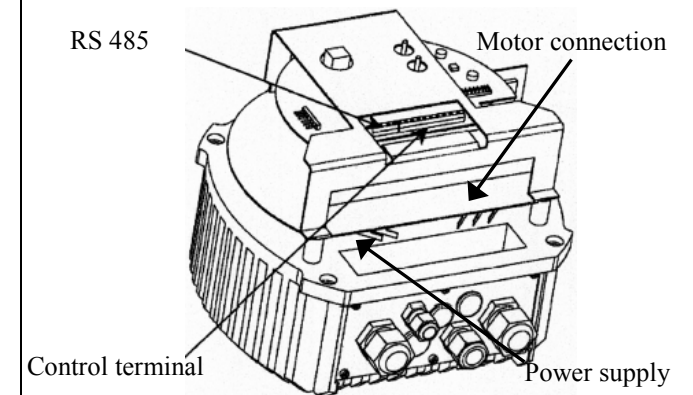


Fig. 5 Installation overview for HV 1.15 - 1.2

Installation Guide OmegaDrive

This installation guide gives basic instructions which are to be observed during installation, operation and maintenance of the pump. It is therefore imperative that this manual be read by the responsible person/operator prior to the installation and should always be kept available at the site. It is not only the general safety instructions under this main heading "Safety" that are to be observed but also the specific information provided under the other main headings.

Serial No.: See nameplate

Construction and application

Smedegaard Omega-Range pumps are of the in-line construction with the motor mounted directly to the pump body. The pumps are suitable for commercial and industrial heating systems, district heating schemes, water treatment plants, general water transfer duties and refrigeration plants

Pump medium



Clean, thin non-aggressive and non-explosive fluids without any solids or fibres. Antifreeze without any mineral oil (special model upon request).
Kinematics viscosities: Max. 10 mm²/s.

Please note: If any liquid other than water is being pumped, we recommend that you contact **T. Smedegaard A/S** or their representatives as pump characteristics may change.

Technical Data

Electrical data: See nameplate
Max. working pressure: 10bar
NPSH requirements: 82°C: 4-5 mVs
NPSH requirements: 95°C: 5-7 mVs
Water temperature range: -15°C to +120°C

Safety

	<ul style="list-style-type: none"> - The surface temperature of the pump including inverter might be hot! - When venting the pump (Fig. 2) or when a mechanical seal is defective, it could result in an escape of hot water or steam! - Beware of rotating parts!
	<ul style="list-style-type: none"> - Pump should be wired in line with the existing regulations - The main electrical supply must be isolated before any work is carried out on the pump. - The pump must be properly earthed or relay protected (HPFI).

Personnel qualification and training.

Personnel responsible for operation, maintenance, inspection and installation of the pump must be in possession of the necessary qualifications for this kind of work
Furthermore the owner should assure that the contents of the operation manual is understood by the personnel.

Airborne Sound pressure level

4-pole motors (1450 rpm):
0,75 kW to 1,5 kW, max. 50 dB(A).

2-pole motors (2900 rpm):
0,55 kW to 1,5 kW, max. 61 dB(A).

Complying to EN 12639.

Installation

1. The pump must be installed as shown in Fig. 1. direction of flow through the pump casing is indicated by an arrow.
2. If it is required to turn the motor, take care that the "O" ring between pump casing and motor is correctly positioned before tightening the bolts.
3. The cooling profile should never be covered. Also take care that the room is vented sufficiently for maximum cooling effect..
4. Ensure pipework alignment is correct and the pump and pipework are adequately supported. Sharp bends should be avoided adjacent to the pump.
5. If pump is mounted in vertical pipework, flow should be upwards. If flow is downwards, an air-vent must be fitted at the highest point before pump suction. .
6. To avoid accumulation of impurities in the pump, ensure that it is not mounted at the lowest point in a system..
7. System should be thoroughly flushed out to clear any solder, steel wool, plaster or any other foreign matter that may be lodged in the pump.

Electrical connection

The Omega pumps must be installed with overload protection. The OmegaDrive pumps have incorporated overload protection. The pumps must be connected according to local electrical regulations. See installation guide and wiring diagram in motor terminal box.

Air venting

Open valves on suction and discharge side, allowing water to enter the pump casing. Open the air vent on the pump seal chamber (see fig. 2) and allow all the air to escape. Close the air vent screw.

Starting

WARNING: The pump must not run without water.

Open the suction valve and close discharge valve. Start the pump and slowly open the discharge valve until fully open.

The pump should never be allowed to operate for a long period in a closed valve condition.

Connection overview

Transmitter, operating – fault indication connection is shown in the drawing below.
The drawing illustrates the control terminals in the inverter head. (see also Fig. 4 and Fig. 5)

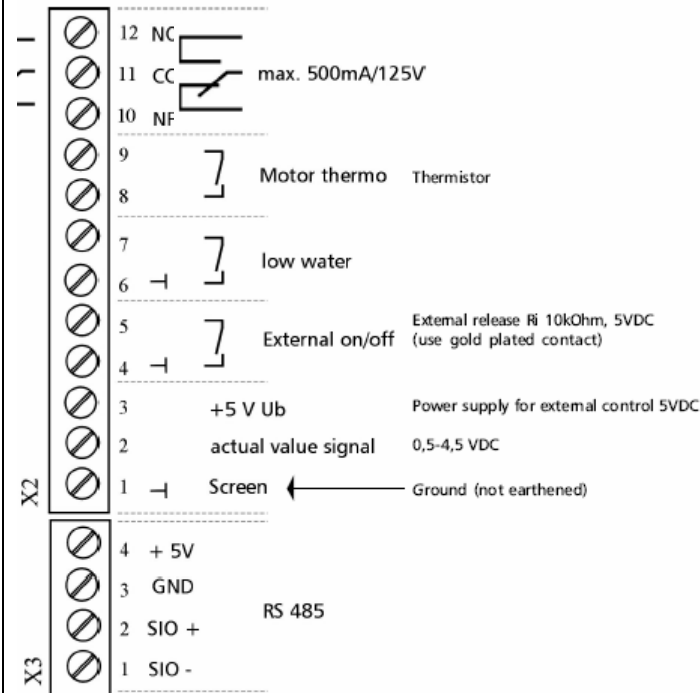


Fig. 6 Connection overview

Functional overview

As shown in Fig. 3 the control unit has two push buttons (+ and -) and a diode for status indication.

The Control modules in the HV 1.1 – 1.2 supply a wide range of functions and informations.

- Friction compensation
- Constant pressure regulation
- Differential pressure read out (bar, psi, %)
- Total operating time
- Frequency display
- Fault indication
- Multiple pump operation (Regulation of several pumps/cascade operation)
- Alternating
- Ramp regulation
- Low water protection
- Relay for pump running
- Relay for pump fault
- External On/Off
- Password protection of settings
- Test programme

Factory setting

The OmegaDrive is programmed to cover a wide range of typical working situations. The pump is set for single operation maintaining the set differential pressure. The minimum frequency is set to 20Hz. The pump is set for automatic start/restart when the power supply is re-established.

The indicating Diode will show the condition of the pump. For the set point as well as the start /stop function just press the +/- buttons (Fig. 3)

A programmer is required if the initial factory settings have to be changed and is available from:

SMEDEGAARD
OF DENMARK

Sydvestvej 57-59
2600 Glostrup

Tlf.: (0045) 4396 1028
Url.: www.smedegaard.dk

OmegaDrive adjustment

Adjustment of the OmegaDrive is made by the +/- buttons on the control unit. Possible alterations are the adjustment of the differential pressure set point and the start and stop function.

The diode on the control unit has 2 colours and several frequencies of operation indicating the condition of the pump.

Indicator diode displays:

Green - constant:

Pump has stopped (via external stop or with the +/- buttons)

Green - slow flashing:

Pump is active but not running (during standby, alternative or multiple pump operation)

Green - quick flashing:

Pump is working

Orange - constant:

1. The set point can be changed with +/- buttons
2. The external programmer is connected and the pump is stopped.

Orange – slow flashing:

The external programmer is connected. The pump is activated, but not running.

Orange - quick flashing:

The external programmer is connected and the pump is activated and running.

Red - constant:

The unit has detected a fault. To read the type of fault, the programmer is required.

Red - flashing:

A fatal error is detected.
The power supply must be disconnected in order to re-start the pump.

Pump start/stop

During operation the pump can be stopped by pressing the – button. The pump will stop and the diode will indicate with a constant green light. The pump can be started again by pressing the + button. The pump will start and the diode will be quick green flashing.

Set point adjustment

The set point can be altered when pressing the +/- buttons simultaneously for three seconds. The diode light will then change to orange

When the indicator diode has changed to orange the set point can be altered with the +/- buttons. If the adjustment buttons have not been pressed the unit will after 5 seconds go back to normal operation and the setpoint can only be changed by starting the process all over again.

Please note

It is only possible to read the exact set point using the programmer or as an alternative to read the differential pressure from a manometer or transmitter.

It is possible to adjust the set point out of the performance range of the pump. The control unit will try to hold a much greater differential pressure value than a small pump can produce.

You can also set the differential pressure too low, which larger pumps, even at the lowest frequency cannot reach.

If the set point is adjusted far out of the actual pump range minor adjustments to the set point will have no influence on the pump operation as such a minor adjustment will not bring the set point back into the actual pump range.

Multiple Pump Operation and Control

Up to four OmegaDrive controlled pumps can operate together to form a system, without any other controls being necessary. In a multi-pump system all pumps are connected via the RS-485 interface. The Microprocessors monitor the activity in each OmegaDrive to adjust overall system performance.

Note: All OmegaDrive controllers must be of the same size and type.

NB: The pumps must use the same sensor range.

Communication

In a multi-pump system all pumps are connected via the RS-485 interface placed on X3 Fig. 7. The Microprocessors monitor the activity in each OmegaDrive to adjust overall system performance.

Sensor connection

A differential pressure switch is not required for each pump, when operating in a multi-pump system. Together with the communication cable can the three leads from the pressure switch can be connected to each pump. The set up will also operate with pumps with individual sensors.

Declaration of Conformity:

We SMEDEGAARD A/S, Sydvestvej 57-59, DK-2600 Glostrup hereby declare that our product OmegaDrive H.V.1.1 – 1.2 is in conformity with:

- Council Directive 72/23 CEE as modified by Directive 93/44 CEE on the approximation of the laws of the Member States relating to Electrical equipment designed for use within certain voltage limits.
- Council Directive 89/336 CEE on the approximation of the laws of the Member States relating to Electromagnetic Compatibility
- Council Directive 82/392 on the approximation of the laws of the Member States relating to construction and making of Machines.

EN standards used:

EN 292 part 1+2, PrEN 809, EN 50081-1 og EN 50082-2, EN 55011 Class B, EN 60146, En 50178 og EN 60204-1.

Glostrup, 2005

