



INSTALLATION & OPERATING INSTRUCTIONS



HYDRO - SMPC

July 2024/ R0 | Jul./2024-25/L3/00000 | VC : 000000 | SAP No. : 2000021870



India : Toll Free No. 1800 103 5555

Other Countries : +91-7292 410500

SHAKTI PUMPS (INDIA) LIMITED

Plot No. 401, 402, & 413, Industrial Area, Sector - 3, Pithampur - 454774,
Dist. - Dhar, (M.P.) - INDIA, Fax: +91-7292 410645, E-mail: info@shaktipumps.com,
sales@shaktipumps.com, Visit us at : www.shaktipumps.com

INSTALLATION AND OPERATING INSTRUCTIONS

CONTENTS	PAGE NO.
1. GENERAL DESCRIPTION	1
2. SYMBOLS USED IN THIS DOCUMENT	1
2.1 Warnings against hazards involving risk of death or personal injury.....	1
2.2 Other important notes.....	1
3. RECEIVING THE PRODUCT	1
4. INSTALLING THE PRODUCT	1
4.1 Location.....	1
4.2 Mechanical installation.....	1
4.3 Electrical installation.....	3
5. STARTING UP THE PRODUCT	4
6. PRODUCT INTRODUCTION	4
6.1 Product description.....	4
6.2 Control Variant.....	5
6.3 Identification.....	5
6.4 Type key.....	6
7. OVERVIEW OF CONTROL VARIANTS	7
8. FUNCTIONS	8
9. CONTROLS	8
10. SERVICING THE PRODUCT	8
11. PROTECTING THE PRODUCT AGAINST FROST	8
12. TAKING THE PRODUCT OUT OF OPERATION	9
13. INSTRUCTION FOR PUMP/MOTOR AT THE TIME OF INSTALLATION (Do's & Don't)	9
14. FAULT FINDING	10
15. TECHNICAL DATA	11
15.1 Pressure.....	11
15.2 Temperatures.....	12
15.3 Relative humidity.....	12
15.4 Sound pressure level.....	12
15.5 Electrical Data.....	12
16. DISPOSING OF THE PRODUCT	12
WARRANTY CERTIFICATE	13
INSTALLATION REPORT	14

INSTALLATION AND OPERATING INSTRUCTIONS

1. GENERAL DESCRIPTION

1.1 Introduction

Read instruction manual carefully before installation, this manual is applicable to Shakti Hydro SMPC booster systems only, all information about the product to be able to install the product in a safe way as well as information on service and fault finding.

2. SYMBOLS USED IN THIS DOCUMENT

2.1 Warnings against hazards involving risk of death or personal injury

DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious personal injury.


WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious personal injury.


CAUTION


Indicates a hazardous situation which, if not avoided, could result in minor or moderate personal injury.


The text accompanying the three hazard symbols DANGER, WARNING and CAUTION is structured in the following way:


 **SIGNAL WORD** : Description of hazard
Consequence of ignoring the warning, -
Action to avoid the hazard.

2.2 Other important notes

 A blue or grey circle with a white graphical symbol indicates that an action must be taken.

 A red or grey circle with a diagonal bar, possibly with a black graphical symbol, indicates that an action must not be taken or must be stopped.

 If these instructions are not observed, it may result in malfunction or damage to the equipment.

 Tips and advice that make the work easier.

3. RECEIVING THE PRODUCT

3.1 Transporting the product

Depending on the size, the booster system is delivered in an open wooden box or wooden or cardboard box designed for transport by forklift truck or a similar vehicle.

The forks of the forklift truck must be at least 2 m long.


4. INSTALLING THE PRODUCT

Before installing the product, check the following:

- The booster system corresponds to the order.
- All visible parts are intact.

4.1 Location

Install the booster system in a well-ventilated room to ensure sufficient cooling of the control cabinet and pumps.

 Hydro SMPC is only designed for indoor installation. Do not expose the product to direct sunlight.

Place the booster system with a 1 m clearance in front and on the two sides for inspection and removal.

4.2 Mechanical installation

4.2.1 Pipes

Arrows on the pump base show the direction of flow of water through the pump.

The pipes connected to the booster system must be of adequate size.

INSTALLATION AND OPERATING INSTRUCTIONS

Connect the pipes to the manifolds of the booster system. Either end can be used. Apply sealing compound to the unused end of the manifold, and fit the screw cap. For manifolds with flanges, fit a blanking flange with gasket.

To achieve optimum operation and minimise noise and vibration, it may be necessary to consider vibration dampening of the booster system.

Noise and vibration are generated by the rotations in the motor and pump and by the flow in pipes and fittings. The effect on the environment is subjective and depends on correct installation and the state of the other parts of the system.

If booster systems are installed in blocks of flats or the first consumer on the line is close to the booster system, we recommend that you fit expansion joints on the inlet and outlet pipes to prevent that vibrations are transmitted through the pipes.

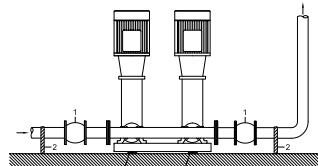



Fig. 1 - Example showing the position of expansion joints, pipe supports and machine shoes

Pos. Description

1. Expansion joint
2. Pipe support
3. Machine shoe

 Expansion joints, pipe supports and machine shoes shown in fig. 1 are not included in a standard booster system.


Tighten all nuts before startup.

Fasten the pipes to parts of the building to ensure that they cannot move or be twisted.

4.2.2 Foundation

We recommend that you install the booster system on a plane and rigid concrete foundation which is heavy enough to provide permanent support for the entire system. The foundation must be capable of absorbing any vibration, normal strain or shock.

Foundation must be 100 mm longer than the base frame on all four sides.

 The weight of a concrete foundation must be 1,5 times the weight of the booster system.

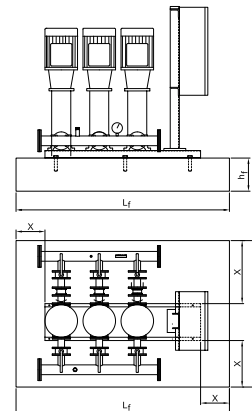


Fig. 2 Foundation, X is equal to minimum 100mm

The minimum height of the foundation, hf, is calculated as follows:

$$h_f = \frac{m_{\text{booster}} \times 1,5}{L_f \times B_f \times \delta_{\text{concrete}}}$$

The density δ of concrete is usually taken as 2200 kg/m³.

INSTALLATION AND OPERATING INSTRUCTIONS

4.2.3 Vibration dampers

To prevent the transmission of vibrations to buildings, we recommend that you isolate the booster system foundation from building parts by means of vibration dampers,

The right damper varies from installation to installation, and a wrong damper may increase the vibration level. Vibration dampers must therefore be sized by the supplier. If the booster system is installed on a base frame with vibration dampers, always fit expansion joints on the manifolds. This is important to prevent the booster system from "hanging" in the pipes.

4.2.4 Expansion joints

Fit expansion joints for these reasons:

- to absorb expansions or contractions in the pipes caused by changing liquid temperature
- to reduce mechanical strains in connection with pressure surges in the pipes
- to isolate mechanical structure-borne noise in the pipes (only rubber bellows expansion joints).

! Do not install expansion joints to compensate for inaccuracies in the pipes such as centre displacement of flanges.

Fit expansion joints at a distance of minimum 1 to 1.1/2 times the nominal flange diameter from the manifold on the inlet as well as on the outlet side. This prevents the development of turbulence in the expansion joints, resulting in better inlet conditions and a minimum pressure loss on the pressure side.

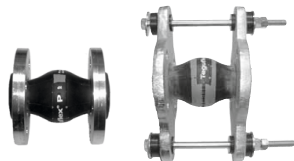


Fig. 3 Examples of rubber bellows expansion joints without and with limiting rods

Expansion joints with limiting rods can be used to minimise the forces caused by the expansion joints. We always recommend that you use expansion joints with limiting rods for flanges larger than DN 100.

Anchor the pipes so that they do not stress the expansion joints and the pump. Follow the supplier's instructions and pass them on to advisers or pipe installers.

4.3 Electrical installation

! The electrical installation must be carried out by an authorised person in accordance with local regulations and the relevant wiring diagram.

- The electrical installation of the booster system must comply with enclosure class Ip54.
- Check that the power supply and frequency correspond to the values stated on the nameplate.
- Make sure that the conductor cross-section meets the specifications in the wiring diagram.

INSTALLATION AND OPERATING INSTRUCTIONS

5. STARTING UP THE PRODUCT

After having carried out the mechanical and electrical installation described in sections 4.2 Mechanical installation and 4.3 Electrical installation, proceed as follows:

1. Switch on the power supply.
2. Wait for the first display to appear.
3. When the booting of PLC is completed, check that all pumps are set to "Auto" in the menu "Status".
4. Check all setting of PLC according to PLC manual.
5. After completing PLC setting according to user and field requirement.
6. The system is now ready for operation.

5.1 Handling the product

During handling, the lifting point must always be above the centre of gravity of the booster system. Each lifting strap must be at least 3 m long.



CAUTION

Overhead load

Minor or moderate personal injury

- When lifting the booster system, do not use the eyebolts of the motors.
- Do not lift the booster system by the manifolds.
- Do not stand on the manifolds.



CAUTION

Crushing of feet

Minor or moderate personal injury

- When lifting the booster system, do not use the eyebolts of the motors.
- Do not lift the booster system by the manifolds.
- Do not stand on the manifolds.

When lifting the booster system, only use suitable lifting equipment that is in good condition and approved for the weight.

6. PRODUCT INTRODUCTION

6.1 Product description

As standard, the booster systems consist of two to six SCR or SCR pumps connected in parallel and mounted on a common base frame with a control cabinet and all necessary fittings.



A diaphragm tank must be included in some installations.

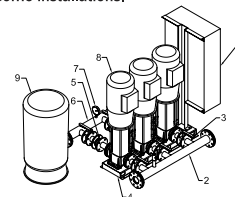


Fig. 4 Hydro SMPC booster system

Pos.	Description	Quantity
1.	Control cabinet	1
2.	Inlet manifold, m.s.(GI), stainless steel	1
3.	Isolating valve Pump	2 per
4.	Base frame m.s.(GI)	1
5.	Non-return valve pump	1 per
6.	Outlet manifold, m.s.(GI) stainless steel	1
7.	Pressure transmitter and pressure gauge	1
8.	Pump	2 - 6
9.	Diaphragm tank	1

INSTALLATION AND OPERATING INSTRUCTIONS

6.2 Control variant

The Hydro SMPC booster systems are divided into three groups based on the control variant:

Control variant	Description
-E	Two to six electronically speed-controlled pumps. From 0,37 to 50 kW, Hydro SMPC-E is equipped with CR(I)E pumps with integrated frequency converter.
-F	Two to six SCR(I) pumps connected to a shakti frequency converter. The speed-controlled operation alternates between the pumps.
-S	Two to six mains-operated SCR(I) pumps

Design code E-I only uses SCR pumps connected to shakti frequency converters (one per pump).

See also section 7. Overview of control variants.

Hydro SMPC always include application-optimised software for setting the booster system to the application in question.

6.3 Identification

6.3.1 Nameplate

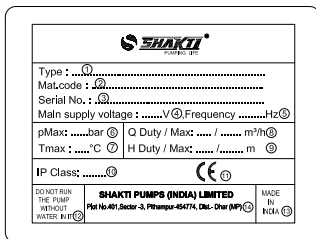


Fig. 5 Nameplate

Pos. Description

- Product type
- Material code for model
- Serial number
- Mains supply voltage
- Frequency
- Maximum operating pressure
- Maximum liquid temperature
- Duty & maximum flow rate [m³/h]
- Duty & Maximum head [m]
- Enclosure class
- Approval marks
- Instruction for pump operation
- Country of origin
- Company address

INSTALLATION AND OPERATING INSTRUCTIONS

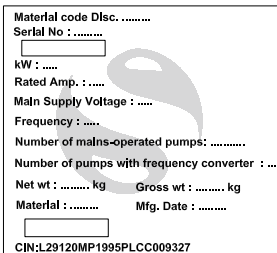


Fig. 6 Sticker for controller

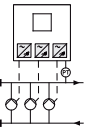
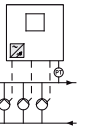
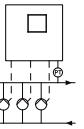
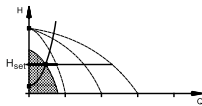
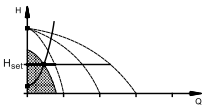
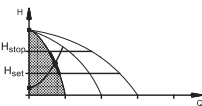
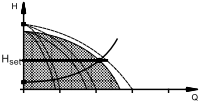
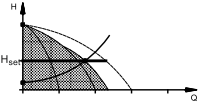
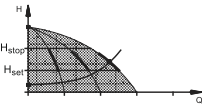
6.4 Type Key

Code	Example	Hydro SMPC	-E	G	6	SCR 15-04	U1
Type range							
System type							
E	Pumps with shakti frequency converter (one per pump)						
F	Pumps with one shared shakti frequency converter						
S	Mains-operated pumps (start/stop)						
X	Customised-system pumps						
Material combination							
G	Galvanised-steel manifold, base frame and standard valves						
S	Stainless-steel manifold, base frame and standard valves						
C	Cathode electro deposition steel manifold, base frame and standard valves						
Number of main pumps							
Pump type							
Voltage code							
U1	3 x 380-415 V, N, PE, 50/60 Hz						
U2	3 x 380-415 V, PE, 50/60 Hz						
U3	3 x 380-415 V, N, PE, 50 Hz						
U4	3 x 380-415 V, PE, 50 Hz						
U5	3 x 380-415 V, N, PE, 60 Hz						
U6	3 x 380-415 V, PE, 60 Hz						
U7	1 x 200-240 V, PE, 50/60 Hz						
U8	1 x 200-240 V, N, PE, 50/60 Hz						
U9	3 x 220-240 V, PE, 60 Hz						
UA	3 x 440-480 V, PE, 60 Hz						
UB	1 x 220-240 V, N, PE, 50/60 Hz						
UC	1 x 220-240 V, N, PE, 50 Hz						
UD	3 x 440-480 V, N, PE, 60 Hz						
UX	CSU variant (special voltage rating)						

INSTALLATION AND OPERATING INSTRUCTIONS

7. OVERVIEW OF CONTROL VARIANTS

The table shows examples of systems.

Systems with speed-controlled pumps	Systems with pumps connected to one CUE frequency converter	Systems with mains-operated pumps
Hydro SMPC-E	Hydro SMPC-F	Hydro SMPC-S
Hydro SMPC booster system with three SCR(I)E pumps.	System with three SCR pumps connected to one Shakti frequency converter in the control cabinet. The speed-controlled operation alternates between the pumps.	System with three mains-operated SCR(I) pumps.
		
One SCR(I)E pump in operation.	One SCR pump connected to one Shakti frequency converter in operation.	One mains-operated SCR(I) pump in operation.
		
Three SCR(I)E pumps in operation.	One SCR pump connected to one Shakti frequency converter and two mains-operated SCR pumps in operation.	Three mains-operated SCR(I) pumps in operation.
		
<ul style="list-style-type: none"> Hydro SMPC-E maintains a constant pressure through continuous adjustment of the speed of the pumps. The system performance is adjusted to the demand through cutting in/out the required number of pumps and through parallel control of the pumps in operation. Pump changeover is automatic and depends on load, operating hours and fault. All pumps in operation will run at equal speed. 	<ul style="list-style-type: none"> Hydro SMPC-F maintains a constant pressure through continuous adjustment of the speed of the SCR pump connected to the Shakti frequency converter. The speed-controlled operation alternates between the pumps. One SCR pump connected to the Shakti frequency converter always starts first. If the pressure cannot be maintained by the pump, one or two mains-operated SCR pumps will be cut in. Pump changeover is automatic and depends on load, operating hours and fault. 	<ul style="list-style-type: none"> Hydro SMPC-S maintains an almost constant pressure through cutting in/out the required number of pumps. The operating range of the pumps will lie between H_{set} and H_{stop} (cut-out pressure). Pump changeover is automatic and depends on load, operating hours and fault.

INSTALLATION AND OPERATING INSTRUCTIONS

8. FUNCTIONS

- Constant-pressure control
- Automatic cascade control
- Pump changeover/alternation
- Stop function
- Proportional-pressure control
- Bus communication (external)
- External frequency converter(in cabinet)
- Ethernet connection
- Alternative setpoints
- Redundant primary sensor (option)
- Standby pump
- Level sensor
- Dry run protection
- Under voltage
- Over voltage
- Single phase prevention
- Phase reversal

9. CONTROLS

9.1 Each hydro pneumatic system has been designed example for two pumps working and one pump as standby. One pump is to work with variable frequency drive while the other two pumps are with direct on line starters.

Control scheme shall be as follows :

- Pump with VFD drive to operate continuously and when the load increases to more than one pump capacity second pump capacity second pump to start with DOL starter.
- In order to achieve the same run time for all the three Pumps logic controller to alternate the pumps after every cycle. Facility in the logic controller, of operating each pump with different starter should be included

iii) logic controller to sense VFD failure and start the pump through DOL starter.

iv) Auto/Off/Manual and latch on contractor to be provided with all starter.

10. SERVICING THE PRODUCT

WARNING
Electric shock

- Death or serious personal injury
- Switch off the power supply before you start any work on the product.
- Lock the main switch with a padlock to ensure that the power supply cannot be accidentally switched on.

10.1 Maintaining the product

10.1.1 Pumps

Pump bearings and shaft seal are maintenance-free.

10.1.2 Motor bearings

Motors without lubricating nipples are maintenance-free. Lubricate motors with lubricating nipples with a high-temperature lithium-based grease.

In the case of seasonal operation where the motor is idle for more than six months of the year, we recommend that you grease the motor when you take the pump out of operation.

11. PROTECTING THE PRODUCT AGAINST FROST

If pumps are not used during periods of frost, they must be drained to avoid damage.

Follow these instructions:

1. Loosen the vent screw in the pump head.
2. Remove the drain plug from the base,

INSTALLATION AND OPERATING INSTRUCTIONS

WARNING Electric shock

Death or serious personal injury

Make sure that the escaping hot or cold liquid does not cause injury to persons or damage to the equipment.

12. TAKING THE PRODUCT OUT OF OPERATION

Switch off the main switch to take the booster system out of operation.

WARNING Electric shock

Death or serious personal injury

- Do not touch the conductors in front of the main switch as they are still energised.
- Lock the main switch with a padlock to ensure that the power supply cannot be accidentally switched on.

Take individual pumps out of operation by switching off the corresponding motor-protective circuit breaker, automatic circuit breaker or fuse.

13. INSTRUCTION FOR PUMP/MOTOR AT THE TIME OF INSTALLATION

Do's

Before pump installation, should be check following parameter.

- Pump check, remove float gauge from m-seal,
- Check freely rotation of pump by hand.
- Pump feel by water(median),
- Remove the air from pump by Air went screw.
- Put the coupling guard before running pump.
- Maintain D-10

Don't

After installation pump should be checked following parameter.

- Don't run pump without priming.(may cause pump seal damage)
- Don't run pump without coupling guard,
- Without y strainer in suction line pump not installed
- Don't run pump in wrong direction,
- Don't run pump in float down position

INSTALLATION AND OPERATING INSTRUCTIONS

14. FAULT FINDING

WARNING Electric shock

Death or serious personal injury

- Switch off the power supply for at least five minutes before you start any work on the product.
- Make sure that the power supply cannot be accidentally switched on.

Fault	Possible cause	Remedy
1. The pumps are not running.	a) The actual pressure is higher than or equal to the setpoint,	Wait until the pressure has dropped, or lower the pressure on the outlet side of the booster system. Check that the pumps start.
	b) The power supply has been switched off.	Connect the power supply.
	c) The main switch has cut out.	Cut in the main switch.
	d) The main switch is defective.	Replace the main switch.
	e) The motor protection has been activated.	Contact Shakti.
	f) The motor is defective.	Repair or replace the motor.
	g) The pressure transmitter is defective.	Replace the pressure transmitter. Transmitters with 0-10VDC or 4-20 mA output signals are monitored by the booster system.
	h) The cable is broken or short-circuited.	Repair or replace the cable.
2. The pumps start, but stop immediately. The operating pressure is not reached.	a) Water shortage or no inlet pressure.	Re-establish the supply of water to the booster system. When the inlet pressure has been re-established, the pumps will restart.
3. The booster system has stopped and cannot restart.	a) The pressure transmitter is defective.	Replace the pressure transmitter. Transmitters with 0-10VDC or 4-20 mA output signals are monitored by the booster system.
	b) The cable is broken or short-circuited.	Repair or replace the cable.
	c) The power supply to PLC has been switched off.	Connect the power supply.
	d) PLC is defective.	Contact Shakti.
4. Unstable water supply from the booster system.	a) The inlet pressure is too low.	Check the inlet pipe and the inlet strainer, if any.
	b) The inlet pipe, strainer or pumps are partly blocked by impurities.	Clean the inlet pipe, strainer or pumps.
	c) The pumps suck air.	Check the inlet pipe for leakages.
	d) The pressure transmitter is defective.	Replace the pressure transmitter.
5. The pumps are running, but deliver no water.	a) The valves are closed.	Open the valves.
	b) The inlet pipe or pumps are blocked by impurities.	Clean the inlet pipe or pumps.
	c) The non-return valve is blocked in the closed position.	Clean the non-return valve. Check that the non-return valve moves freely.
	d) The inlet pipe is leaky.	Check the inlet pipe for leakages.
	e) There is air in the inlet pipe or pumps.	Vent and prime the pumps. Check the inlet pipe for leakages.

INSTALLATION AND OPERATING INSTRUCTIONS

Fault	Possible cause	Remedy
6. The booster system is unable to reach the setpoint.	a) The consumption is too high.	<ul style="list-style-type: none"> Reduce the consumption, if possible. Install a bigger booster system.
	b) Too many standby pumps have been selected.	Reduce the number of standby pumps.
	c) There is a pipe fracture or a leakage in the system.	Check the system, and repair the damaged parts, if necessary.
7. Leakage from the shaft seal.	a) The shaft seal is defective.	Replace the shaft seal.
	b) The height adjustment of the pump shaft is inaccurate.	Readjust the shaft height.
8. Noise.	a) The pumps are cavitating.	Clean the inlet pipe or pumps and possibly the inlet strainer.
	b) The pumps do not rotate freely (frictional resistance) due to inaccurate height adjustment of the pump shaft.	Readjust the shaft height.
9. Very frequent starts and stops.	a) The diaphragm tank precharge pressure is not correct.	Set the correct precharge pressure.

15. TECHNICAL DATA


15.1 Pressure

Inlet pressure

The Hydro SMPC booster systems can operate with a positive inlet pressure (precharged pressure system) or with a negative inlet pressure (vacuum at the inlet manifold).

We recommend that you calculate the inlet pressure in these cases:

- Water is drawn through long pipes.
- Water is drawn from depths.
- Inlet conditions are poor.

 In this document, the term "inlet pressure" is defined as the pressure or vacuum which can be measured immediately before the booster system.

To avoid cavitation, make sure that there is a minimum inlet pressure on the inlet side of the booster system. The minimum inlet pressure in bar can be calculated as follows:

$$p_s > H_v + \rho \times g \times 10^{-5} \times NPSH + H_s - p_b$$

p_s = The required minimum inlet pressure in bar read from a pressure gauge on the inlet

side of the booster system.

H_v = Vapour pressure of the pumped liquid in bar

ρ = Density of the pumped liquid in kg/m^3 .

g = Gravitational acceleration in m/s^2 .

NPSH = Net Positive Suction Head in metres head, NPSH can be read from the NPSH curve at the maximum performance at which the pump will run. See the installation and operating instructions for SRN pumps.

H_s = Safety margin is equal to minimum 0,1 bar.

p_b = Barometric pressure in bar. Normal barometric pressure is 1,013 bar.

Maximum inlet pressure

See the SCR, SCRI, SCRN installation and operating instructions delivered together with this booster system.

Operating pressure

As standard, the maximum operating pressure is 16 bar. On request, Shakti offers Hydro SMPC booster systems with a maximum operating pressure higher than 16 bar.

INSTALLATION AND OPERATING INSTRUCTIONS

15.2 Temperatures

Liquid temperature : 0 to 60 °C.

Ambient temperature : 0 to 40 °C.

15.3 Relative humidity

Maximum 95 %

15.4 Sound pressure level

See the installation and operating instructions for the SCR pumps.

The sound pressure level for a number of pumps can be calculated as follows:

$$L_{max} = L_{pump} + (n - 1) \times 3$$

L_{max} = Maximum sound pressure level

L_{pump} = Sound pressure level for one pump

n = Number of pumps

15.5 Electrical data

Supply voltage

See the nameplate.

Digital inputs

Open-circuit voltage 24 VDC

Analog inputs

Input current and voltage	0-20 mA 4-20 mA 0-10 VDC
Analog outputs	0-10 VDC
Input current and voltage	0-10 VDC

Digital outputs (relay outputs)


Maximum contact load :

240 VAC, 2-5 A & 24VDC

Minimum contact load :

5 VDC, 10 mA

All digital outputs are potential-free relay contacts.

 Some outputs have a common C terminal. For further information, see the wiring diagram supplied with the booster system.

16. DISPOSING OF THE PRODUCT

This product or parts of it must be disposed of in an environmentally sound way:

- Use the public or private waste collection service.
- If this is not possible, contact the nearest Shakti company or service workshop.

INSTALLATION AND OPERATING INSTRUCTIONS

WARRANTY CERTIFICATE

Dear Customer,

Congratulation, for purchasing our product

Shakti Pump and Motor are warranted against defects in workmanship and material under normal use, service and specific duty conditions. We provide one time warranty service for twelve months from the date of purchase by the first user.

Shakti pumps (India) Ltd warrants this product to be free from damage / defects in material and workmanship under normal use and service for twelve month from the date of purchase by the first user.

The user shall produce valid and original copy of invoice for availing warranty. In this warranty period, the product and its parts must be brought and taken at the nearest service center by the customer on to his own expenses.

The warranty does not cover any loss or damage / defect of any nature resulting from wrong product selection / improper installation or install by unauthorized / untrained person / sandy condition / dry running and improper use of the pump set.

The warranty also does not cover consequential losses / transportation damage / damage arising due to failure of pump / motor.

No warranty will be provided on Mechanical seal rubber parts, fasteners, cables in Pump, Motor/ pump set Our obligation is limited to recycling or repairing or replacing product / ex-factory, Equipment for repairs should be returned free of cost to us.

The forgoing is subject to the provision that the user does not open the unit and make any change or repair without prior approval of authorized service center during the warranty period. This warranty excludes every condition whether statutory or otherwise, whatsoever not herein expressly set out

For any dispute Indore (M.P.) jurisdiction will be applicable.

Customer name:Customer's phone:

Customer Address.....

Invoice No.....Invoice DateModel Name:

No. of Stage:Model Serial No.Motor H.P.....

Dealer Name:Dealer Ph. :

Dealer Address.....



INSTALLATION AND OPERATING INSTRUCTIONS

INSTALLATION REPORT

Customer's Name: - _____

Customer's Address: - _____

Customer's Ph. No.: _____

Dealer's Name: - _____

Dealer's Address: _____

Dealer's Ph. No. _____

Pump Model:- _____ S.L.No: _____

Project/Application: _____

Pressure In Kg:- _____ Flow in m³/hr: _____

Liquid:- _____ Temp.: _____

Voltage:- _____ Current: _____

Packing Condition:- _____

Remarks: _____

Date:- _____

Customer's Signature



BOOK-POST

SHAKTI PUMPS (INDIA) LIMITED

Plot No. 401, 402, & 413, Industrial Area,
Sector - 3, Pithampur - 454774, Dist. - Dhar,
(M.P.) - INDIA, Fax: +91-7292 410645,
E-mail: info@shaktipumps.com, sales@shaktipumps.com,
Visit us at : www.shaktipumps.com

Stamp

