Use of instructions

Pump control unit

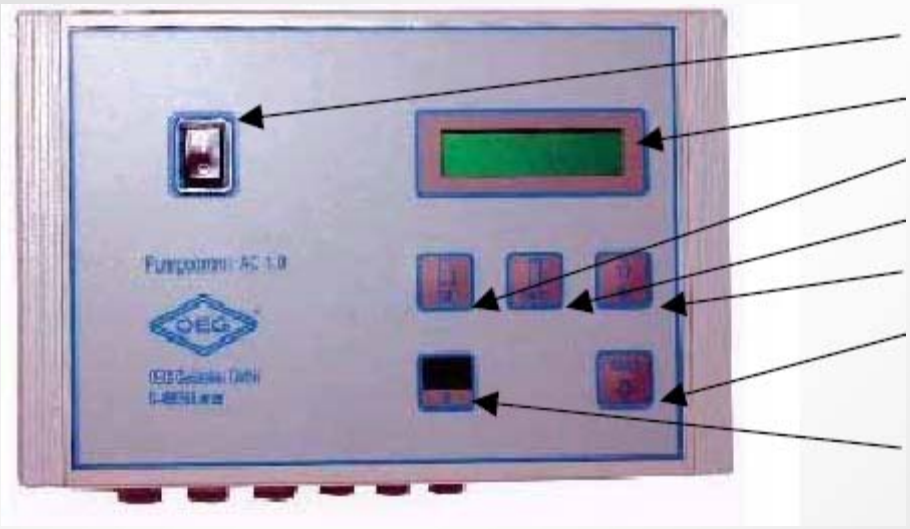
PST AC 1.0

10.2003

Instructions' manual Digital pump control PST AC 1.0

!Please carefully read the instructions' manual before first operation!

1.0 Control buttons



ON/OFF: Switches the device on and off. By switching on or off the control also is resetted and returns to its original condition (e.g. in order to reset error messages).

Display: Shows the current status of the control.
Exit: Stops the current program. If you are in a submenu of the control, you return to the above menu by pressing "Exit", as long as the normal operation mode has been reached.
Enter: In order to validate menus and to reset error messages.
Scroll up: Cursor scrolls up.
Scroll down: Cursor scrolls down.
IR Interface: For data transmission.

2.0 Principal menu:

After having connected the electricity supply as well as all accessories, the control can be switched on and is in the operational mode. By pressing "Enter" once the display is activated (illuminated). Pressing once again "Enter" you get to the principal menu. After a timeout of 1 minute (i.e. the user does not press any button for one minute) the control automatically changes to the normal operational mode (automatic operation). Effected modifications will not be considered. Should the Setup modifications and adjustments not have been finished, this information will not be taken over. Only in case of a full setup of the program, the adjusted parameters will be taken over.
The following principal menus can be chosen:

- **Setup**
- **Diagnosis**
- **Test mode**
- **F-entry**

- **Event**
- **Supervisor**
- **Par. Change**

2.1 Setup

On delivery the pump control is adjusted to the corresponding OEG pump unit. Should you have a pump control without any presetting, the setup mode will be automatically activated on switching on the control device. Should a new installation be necessary, e.g. if further accessories have been connected, it is possible to adjust the control by means of the “Setup” function. A successful setup is only possible if the accessories have been connected correctly.

For example: Suction units = float switches
Pressure units = pressure switches

The “Setup” has to be effected as follows: (All selections have to be confirmed by “Enter)

2.1.1 Application for suction units

You should fill in about 10 litres of fuel oil before starting the setup, in order to put the float switch into the correct position.

Attaching parts:
- Motor
- Float switch
- Current input
- Leakage floater
- Solenoid vale (optional)

Setup:

Type: **Saug (suction)** (Chose type of the unit)
Druck (pressure)
Ring (circular)

Sort: Single (Chose number of pumps)
Twin

Sensor: +Ab Min (Float switch with own switch point “Pump on”)
-Ab Min (Float switch with automatic switch point “Pump on”.
Standard)

-Measurement of the electricity value- (The below-mentioned electricity measurement records the current consumption of the motor, in order to switch them in case of over-current)

The motors are automatically switched on (one after the other in case of twin units) and should be run for about 10 seconds. As soon as the current value measurement has been finished, the control returns to the operating mode.
If the floater is not in the correct position during the measurement, the following error message will be indicated:

“Volumen Si Min” Oil level at the floater is too low: → Fill in oil until the pump starts working*
“Level ansenken” Oil level at the floater is too high:→Let out oil until the pump starts working

*By pressing “Enter” (for about 2 seconds) the unit keeps running as long as you continue pressing the button.
Attention: *Let go of the “Enter”-button and press it shortly, in order to test if the unit already runs independently.*

2.1.2 Application for pressurized tank units

A ball valve should be fitted to the pressure outlet of the unit, for a certain pressure can be obtained.

Attaching parts:
- Motor
- Float switch
- Current input
- Leakage floater
- Solenoid vale

Setup:

Type: Saug (suction) (Chose type of the unit)
Druck (pressure)
Ring (circular)

Sort: Single (Chose number of pumps)
Twin

-Measurement of the electricity value- (The below-mentioned electricity measurement records the current consumption of the motor, in order to switch them in case of over-current)

The motors are automatically switched on (one after the other in case of twin units) and should be run until the switch point “Pump off” has been reached. As soon as the current value measurement has been finished, the control returns to the operating mode.
If the pressure at the transmitter does not reach the correct value during the current measurement, the following error message will be indicated:

“Druck Min” Pressure at the transmitter is too low. Keep pushing “Enter”. The pump starts working after 2 seconds until the pressure is superior to the adjusted pump shut-off value. Afterwards the pump works automatically

“Druck abbauen” Pressure at the transmitter is too high. Slightly open the ball vall on the pressure side and let out oil until the pump starts working.

Safety shut-off:

The safety shut-off function will be activated after the unit pressure has passed the adjusted shut-off point of about 2.0 bar. Should the pressure fall below 2.0 bar, the safety shut-off function will be activated. There only is an automatic surveillance of the installation from 2.0 bar onwards.
If the pressure of the unit is inferior to 2.0 bar after been switched on, oil is pumped until this point has been reached, without an error message being indicated. This is necessary to pass through the first pressure increase of the unit without any problems. That’s why the pressure increase must be observed after having switched on the unit, in order to make out a possible leakage in the pressure line.
If the safety shut-off valve is triggered in a twin unit, the control device immediately changes to the other pump. If the pressure of this pump passes 2.0 bar during a certain period of time, the alarm signal is, however, maintained until the control device has been switched off and switched on again. This is also necessary to examine the cause of the error afterwards.

2.1.3 Application for closed circular pipeline units

It is either possible to control the unit intermittently (control via burner) or it runs permanently for continuous operation.

Attaching parts:
- Motor
- Float switch
- Current input
- Leakage floater
- Solenoid vale

Setup:

Type:	Saug (suction)	(Chose type of the unit)
	Druck (pressure)	
	Ring (circular)	
Sort:	Single	(Chose number of pumps)
	Twin	

Dauerlauf (Permanent operation)	nein (no)	(for control via burner)
	Ja (yes)	(for continuous operation)

Kein Druckgeber	(to chose if a pressure transducer is not connected)
Drucksensor	(to chose if a pressure transducer is connected)
Druckschalter	(to chose if a pressure switch is connected)

-Measurement of the electricity value- (The below-mentioned electricity measurement records the current consumption of the motor, in order to switch them in case of over-current)

The motors are automatically switched on (one after the other in case of twin units) and should be run during 5 minutes. As soon as the current value measurement has been finished, the control returns to the operating mode.

2.2 Diagnosis

The diagnosis function displays the current control data. The measured values and the initial condition of the parameters are presented in a list. Access to this data by means of the buttons “Up” and “Down”. The indicated data always correspond to the current status of the unit and are continuously updated. The “Enter” button is not used.
The following values are indicated:

Temp.= °C	(Fuel oil temperature	only for suction pumps)
Level =	(Position of the float switch	only for suction pumps)
Druck = bar	(current pressure	only for pressurized tank and closed circular pipeline units)
I (L1) = A	(Electricity value of the running motor, phase 1	all units)
I (L2) = A	(Electricity value of the running motor, phase 2	all units)
Leckage =	(Status of the leakage detector	all units)
Ext. Sig. =	(Status of an external signal	only for closed circular pipeline units)

2.3 Test mode

The test mode offers a selection, in order to test certain parts of the unit. After having chosen a function, this one will be activated and effected. By pressing “Enter” the present function will be terminated and the control changes into the test mode menu.
The following functions can be chosen:

Pumpe 1	(Pump 1 starts working)
Pumpe 2	(Pump 2 starts working)
Betrieb	(External operating conditions’ contact is activated)
Störung	(External error message contact is activated)
Ventil	(Solenoid valve is activated)
Summer	(Alarm for error messages is activated)

2.4 F-entry

This function permits to simulate a default, in order to control the safety functions. Chose a possible default from the selection menu. This default will be recorded by the event memory and has the same effect as a “real” error recognised by the control. The working process of the control is not affected. The entry in the event memory is distinguished by “ME” from a real default “E”.
The following defaults are possible:

Pumpe 1	(simulates a defect pump/motor 1	all units)
Pumpe 2	(simulates a defect pump/motor 2	all units)
Vol. SiMin	(simulates a too low oil level in the reservoir	only suction units)
Vol. SiMax	(simulates a too high oil level in the reservoir	only suction units)
Druck Min.	(simulates a too low pressure – safety shut-off	only pressurized tank and closed circular pipeline units)
Druck Max.	(simulates a too high pressure	only pressurized tank units)
Öl-Temp.	(simulates a too high oil temp. in the reservoir	only suction units)
Leckage	(simulates an oil leakage in the oil sump	all units)
Drucksp.	(simulates a defective expansion vessel	only pressurized tank units)
Drucksensor	(simulates a defective pressure transducer	only pressurized tank and closed circular pipeline units)
Vol.-Sensor	(simulates a defective float switch	only suction units)

2.5 Supervisor

This menu is reserved for the service technician, in order to change certain parameters. The access is protected by a password to prevent inadvertent manipulation.

2.6 Par. Change

Due to this option you can accede to certain parameters of the control, in order to modify them individually.
The following parameters can be chosen:

AGTYP	(Modifies the type of the unit:: single suction/pressure unit; Twin suction/pressure unit)
TZP1	(Run time in minutes of pump 1 in case of twin units)
TZP2	(Run time in minutes of pump 2 in case of twin units)
EXTAKT	(Selection of an external signal: active, inactive)
DRSAKT	(Selection pressure transducer between: analogue, digital, w/o transducer)
LVSAKT	(Selection float switch: with switch point “pump on” (+ABMin) or automatic pump start (-ABMin)

DRMINR (Modification of the pressure value of the safety shut-off function for closed circular pipeline units)

3.0 Technical specifications of the pump control

Feed:	Alimentation of the control (N, L1)	AC 230 V ± 10
	Frequency	50 Hz
	Power consumption	8 VA
	Alimentation of the pumps (N, L1, L2, L3)	230 V / 400 V max. 10 A
Outputs:	Mains output (NAL, N)	230 V / 100 VA
	External valve (VL, N)	230 V / 100 VA
	Pump 1 (N, P1U, P1V, P1W)	230 / 400 V, (3 kW)
	Pump 2 (N, P2U, P2V, P2W)	230 / 400 V, (3 kW)
	Operational output (BG, BR, BA)	potential-free contacts, breaking capacity 230 V / 120 VA
	Default display (SG, SR, SA)	potential-free contacts, breaking capacity 230 V / 120 VA
Inputs:	External signal, potential-free (EXT, EXTN)	AC 230 V / CC 24 V
Protection class:		IP 54

4.0 Parameters (adjusted by fabricant)

Access rights:
User (A)
Manufacturer (H)

Unit type:
Suction units (S)
Pressurised tank units (D)
Closed circular pipeline units (R)

Function	*Initialising*	*Unit type*	*Access rights*
Pump running time for twin units pump 1	72 minutes	S/D/R	(A)
Pump running time for twin units pump 2	48 minutes	S/D/R	(A)
Minimal pump cycle for twin units	5 seconds	D	(H)
Ext. Signal (0=inactive, 1=active)	1	R	(A)
Selection pressure transducer = (off, digital, analogue)	1	R	(A)
Minimal pressure (safety shut-off function) “Pressure”	2 bar	D	(H)
Minimal pressure (safety shut-off function) “Circular”	0.5 bar	R	(A)
Minimal pressure (working pressure)	2.5 bar	D	(H)
Maximal pressure (working pressure)	4.0 bar	D	(H)
Maximal pressure (safety shut-off)	5.8 bar	D/R	(H)
Retardation –minimal pressure (safety shut-off function)	60 seconds	D/R	(H)
Retardation- float switch: min. shut-off	5 seconds	S	(H)
Retardation- float switch: max. shut-off	5 seconds	S	(H)

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