KHYATEE

DIGITAL STARTER

SOFTWARE TECHNOLOGY,
SINCE 1995

THREE PHASE KHP SERIES MANUAL

KHYATEE

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INTRODUCTION:

Thank you very much for selecting **KHYATEE** Three Phase Digital Pump Control Panel. Please read this user manual carefully before using the panel.

The **KHYATEE** PLC for Hydro MPA is intelligent & flexible Hydro booster system for fully automatic operations comes as a complete unit ready for easy installation. You simply connect the Pump & Power supply. The model "KHP" series is the new generation of Software Based Hydro booster system, which has highly intelligent advanced microcontroller, which controls the complete logic of booster system.

Pump management including extensive electrical safety, perfect monitoring of the system & individual pump. It has very easy to use functions, settings & on site diagnostics makes it guaranteed long lasting technology that requires minimum maintenance as each system is designed, assembled and tested for optimum reliability. The advanced microcontroller logic also takes care of the required motor protection such as Overload, Dry Run, High Voltage, Low Voltage etc.

IMPORTANT FEATURES:

Sr. No.	Specifications	Default Value	Range
1.	Protection Design	µC Base	
2.	Supply Voltage	440V	250V-500VAC
3.	Pump Current Setting Scale	0.5A-15A	
4.	Pump Current Setting Scale(Optional)	0.5A-22A	
5.	Pump Current Setting Scale(Optional)	0.5A-30	
6.	Pump Current Setting Scale(Optional)	0.5A-48A	
7.	Digital Voltmeter (Calibrated)	200VAC-500VAC (±5%)	
8.	Digital Ammeter (Calibrated)	0.5A-50A (±5%)	
9.	Overload Setting	As Per HP	0.5A- 16A
10.	Overload Setting (Optional)	As Per HP	0.5-22A
11.	Overload Setting (Optional)	As Per HP	0.5-30A
12.	Overload Setting (Optional)	As Per HP	0.5-48A
13.	Dryrun Setting	As Per HP	0.5A- 16A
14.	Dryrun Setting (Optional)	As Per HP	0.5-22A
15.	Dryrun Setting (Optional)	As Per HP	0.5-30A
16.	Dryrun Setting (Optional)	As Per HP	0.5-48A
17.	Power On Timer	60Sec	03-60Sec

18.	Dryrun Auto Start Timer	OFF	OFF-10-720Min.
19.	Toggle Timer	OFF	OFF-10-720Min.
20.	Extreme High Current	Factory Set 18A or Above	
21.	Input Phase Failure/Phase Unbalance	50%	20% -50%
22. 0	Star-Delta Timer	10Sec.	03-30Sec
23.	Reverse Phase protection	-	
24.	Float Switch	-	
25.	Pressure Switch Connection	1/2/3/4	
26.	MCB Protection	C Series	
27.	Main Wiring is Colour Coded with ISI Grade	RED, YELLOW, BLUE, BLACK	
28.	Auto Changeover Contactors (Optional)	-	

INSTALLATION /TERMINAL CONNECTION

First connect output terminal then input terminal & Start supply to panel.

MODEL: KHP11

INPUT SUPPLY				OUTPUT PUMP			FLOAT		PS / FLOAT	
R	**Y**	**B**	**N**	**R**	**Y**	**B**	**C**	**NC**	**C**	**NC**

MODEL: KHP21

INPUT SUPPLY				OUTPUT PUMP			OUTPUT PUMP			FLOAT		PS	
R	**Y**	**B**	**N**	**R**	**Y**	**B**	**R**	**Y**	**B**	**C**	**NC**	**C**	**NC**

MODEL: KHP22

INPUT SUPPLY				OUTPUT PUMP1			OUTPUT PUMP2			FLOAT		PS1		PS2	
R	**Y**	**B**	**N**	**R**	**Y**	**B**	**R**	**Y**	**B**	**C**	**NC**	**C**	**NC**	**C**	**NC**

MODEL: KHP32

INPUT SUPPLY				OUTPUT PUMP1			OUTPUT PUMP2			OUTPUT PUMP3			FLOAT		PS1		PS2	
R	**Y**	**B**	**N**	**R**	**Y**	**B**	**R**	**Y**	**B**	**R**	**Y**	**B**	**C**	**NC**	**C**	**NC**	**C**	**NC**

MODEL: KHP33

INPUT SUPPLY				OUTPUT PUMP1			OUTPUT PUMP2			OUTPUT PUMP3			FLOAT		PS1		PS2		PS3	
R	Y	B	N	R	Y	B	R	Y	B	R	Y	B	C	NC	C	NC	C	NC	C	NC

MODEL: KHP43

INPUT SUPPLY				OUTPUT PUMP1			OUTPUT PUMP2			OUTPUT PUMP3			OUTPUT PUMP4			FLOAT		PS1		PS2		PS3	
R	Y	B	N	R	Y	B	R	Y	B	R	Y	B	R	Y	B	C	NC	C	NC	C	NC	C	NC

MODEL: KHP44

INPUT SUPPLY				OUTPUT PUMP1			OUTPUT PUMP2			OUTPUT PUMP3			OUTPUT PUMP4			FLOAT		PS1		PS2		PS3		PS3	
R	Y	B	N	R	Y	B	R	Y	B	R	Y	B	R	Y	B	C	NC	C	NC	C	NC	C	NC	C	NC

Note:

INPUT SUPPLY				OUTPUT PUMP		
R	Y	B	N	R	Y	B

INPUT SUPPLY = THREE PHASE INPUT POWER SUPPLY FROM Electricity Board / Section

R = 'R' Phase, Y = 'R' Phase, B = 'R' Phase, N = Neutral

OUTPUT PUMP = THREE PHASE OUTPUT POWER SUPPLY TO PUMP / MOTOR

FLOAT		PS	
C	NC	C	NC

FLOAT: Float Switch

PS: Pressure Switch

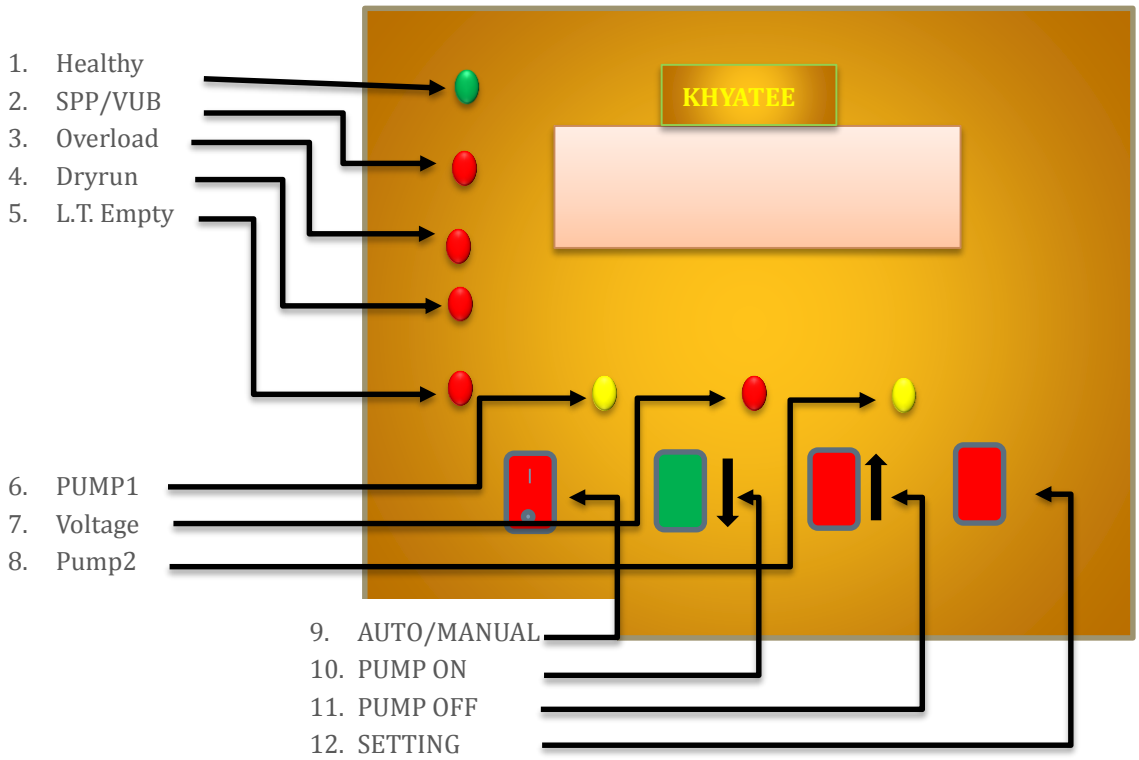
C: Common Wire of Pressure Switch / Float Switch

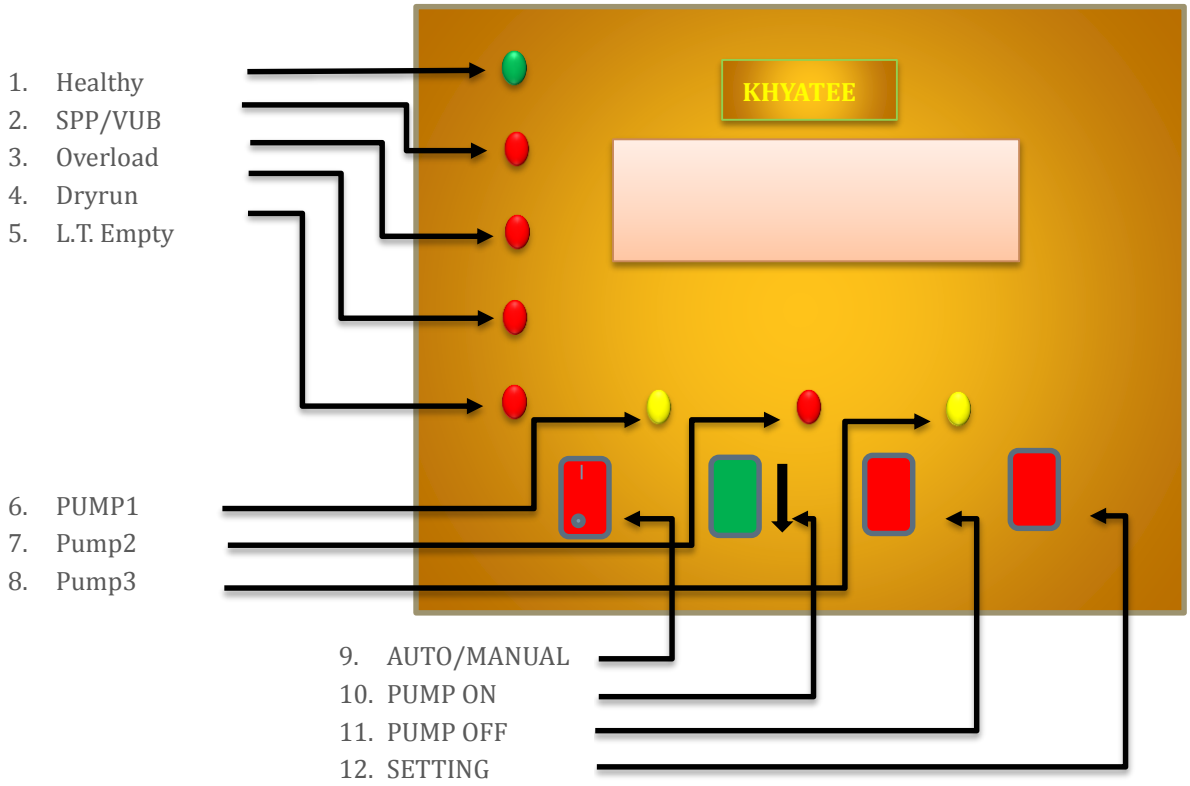
NC: Normally Connected Connection

DISPLAY:

IMAGE 1: KHP21/22

IMAGE 1: KHP33/32





MENU DESCRIPTION AND PARAMETER SETTING:

SETTING METHOD:

Pump current setting is must, which helps for accurate protection of your pump. That's why set overload and dryrun trip current. When you want to change pump current setting anytime. Afterwards…follow steps given below

1. Put on the Auto/Manual switch in manual mode, after completing system off process press Setting/Accept switch till display shows "SEt".

2. Hydro booster Control Panel has an industrial standard 4-key interface which makes the parameter setting very easy and user friendly.

4 Key Function:

1. **↓ ON / Set PC key:** This key is used to turn ON pump or To set Pump Current and to increase the settable parameter.
2. **↑ OFF / Reset key:** This key is used to turn OFF pump or To Reset Pump fault and to decrease the settable parameter.
3. **Setting / Accept Key:** by using this key you can enter in to the setting menu and store the settable parameter. To go in setting mode: press setting button till show "**Set**",
4. **Auto/Manual: This key used to run the KHYATEE** Hydro Pneumatic Panel in automatic mode or manual mode

Table: Setting Pump Parameters.

SR NO	PARAMETER	DISPLAY SHOWING	PRESS BUTTON TO INCREASE VALUE	PRESS BUTTON TO DECREASE VALUE	PRESS SETTING BUTTON TO SAVE VALUE	LED INDICATION
1.	Setting	SEt			SETTING	PUMP 1 / PUMP2 / PUMP3
2.	Set Pump Current	SPC	**↓ ON / Set**	**↑OFF / Set**	SETTING	-
3.	Accepted	ACP	-	-	SETTING	-
4.	Bypass	byPS	**↓ ON / Set**	**↑OFF / Set**	SETTING	-
5.	Overload	OrLd	**↓ ON / Set**	**↑OFF / Set**	SETTING	Overload
6.	Dryrun	Drun	**↓ ON / Set**	**↑OFF / Set**	SETTING	Dryrun

7.	Star-Delta Timer(As per HP) (Optional)	Stdt	**↓ ON / Set**	**↑OFF / Set**	SETTING	Timer
8.	Phase Failure	SPP	-	-	SETTING	SPP/CUB
9.	High Voltage (Optional)	HIV	**↓ ON / Set**	**↑OFF / Set**	SETTING	HI/LV
10.	Low Voltage (Optional)	Lov	**↓ ON / Set**	**↑OFF / Set**	SETTING	HI/LV
11.	Pump On Timer	Pot	**↓ ON / Set**	**↑OFF / Set**	SETTING	Timer
12.	Overload trip Time	oLt	**↓ ON / Set**	**↑OFF / Set**	SETTING	Overload + Timer
13.	Dryrun Trip Time	Drt	**↓ ON / Set**	**↑OFF / Set**	SETTING	Dryrun + Timer
14.	Pressure Switch / Upper Tank Full	PS	**↓ ON / Set**	**↑OFF / Set**	SETTING	-
15.	Lower Tank Empty	LtE	**↓ ON / Set**	**↑OFF / Set**	SETTING	LTE
16.	Extreme High Current	EHC	**↓ ON / Set**	**↑OFF / Set**	SETTING	-
17.	Fault	FALt	**↓ ON / Set**	**↑OFF / Set**	SETTING	-
18.	Pump ON	On	**↓ ON / Set**	**↑OFF / Set**	SETTING	
19.	Pump OFF	OFF	**↓ ON / Set**	**↑OFF / Set**	SETTING	-
20.	Reset	rSt	**↓ ON / Set**	**↑OFF / Set**	SETTING	-
21.	Pump Current Out Of Range	Eror	**↓ ON / Set**	**↑OFF / Set**	SETTING	-
22.	Pump Current Setting Not Set	bLk	**↓ ON / Set**	**↑OFF / Set**	SETTING	-
23.	Auto Fault Testing Mode	tSt	**↓ ON / Set**	**↑OFF / Set**	SETTING	-
24.	Calibrate Voltage	CLU	**↓ ON / Set**	**↑OFF / Set**	SETTING	-
25.	Dryrun Auto Start Timer	drAt	**↓ ON / Set**	**↑OFF / Set**	SETTING	Timer
26.	Overload Pump 1	OLP1	**↓ ON / Set**	**↑OFF / Set**	SETTING	Overload
27.	Overload Pump 2	OLP2	**↓ ON / Set**	**↑OFF / Set**	SETTING	Overload
28.	Overload Pump 3	OLP3	**↓ ON / Set**	**↑OFF / Set**	SETTING	Overload
29.	Overload Pump 4	OLP4	**↓ ON / Set**	**↑OFF / Set**	SETTING	Overload
30.	Dryrun Pump 1	DRP1	**↓ ON / Set**	**↑OFF / Set**	SETTING	Dryrun
31.	Dryrun Pump 2	DRP2	**↓ ON / Set**	**↑OFF / Set**	SETTING	Dryrun
32.	Dryrun Pump 3	DRP3	**↓ ON / Set**	**↑OFF / Set**	SETTING	Dryrun
33.	Dryrun Pump 4	DRP4	**↓ ON / Set**	**↑OFF / Set**	SETTING	Dryrun
34.	Escape	ESC	-	-	SETTING	-

EXAMPLE OF CHANGING PARAMETER

PUMP CURRENT SETTING:

You can change protection settings if required due to site conditions as above chart range and following method.

1. Stop the pump
2. Press setting switch till display shows ‘Set’, now release the switch.
3. Pressing ON (↓) and OFF (↑) switch scroll the settable parameter i.e. Overload (OrLd), Dryrun (Drun) etc.
4. Now Press the setting switch to select the parameter shown on display.
5. Once you select parameter, LED for that parameter will start blinking and display shows the last setting done.
6. Now using ON and OFF switch, scroll and set the value from the range as above. The either press accept switch or wait 10sec. Now setting is completed.

Note: If pump current is above or below the settable current range of panel (1A-16A) then display flashes “Err”

LED FUNCTIONS:

Unit has following LED’s for easy identification at site:

Sr. No.	LED	Function
1.	7-Seg Display	Showing All Current Information On Display Step by Step
2.	Healthy	Glows when Power Supply is Healthy
3.	Dryrun	Glows when After Dryrun Pump
4.	Overload	Glows when After Overload Pump
5.	LTE	When Lower Tank is Empty
6.	Pump1	Blinking When Pump1 is ON or Glows When Pump is Standby
7.	Pump2 (Optional)	Blinking When Pump2 is ON or Glows When Pump is Standby
8.	Pump3 (Optional)	Blinking When Pump3 is ON or Glows When Pump is Standby
9.	Pump4 (Optional)	Blinking When Pump4 is ON or Glows When Pump is Standby
10.	Timer	This Led becomes ON when Panel is running in Timer Mode

STOPPING SEQUENCE:

Under the following conditions Hydro booster system will stop its operation:

1. If the Lower tank is Empty.
2. If Auto / Manual Switch is in Manual Mode
3. If Upper tank is full then panel will STOP pumps and shows upper tank full Indication/PS OFF on Display.
4. If Pressure switch is ON
5. Phase failure from Input phase fails or No Load to Output.

TROUBLESHOOTING CHART:

Sr. No.	LED Blinking	Message On Display	Cause And Action
1.	SPP/CUB	Fault SPP	When Input Fails: 1. Check Input Connection for presence of RYB 2. Check RYB phase Sequence
2.	Overload	Pump1 Overload / Pump2 Overload / Pump3 Overload / Pump4 Overload /	When Current Crosses the set trip Current 1.Check causes of increase current 2. check overload trip current setting
3.	Dryrun	Pump1 Dryrun / Pump2 Dryrun / Pump3 Dryrun / Pump4 Dryrun /	When current goes below the Dryrun trip current 1. If lower tank is empty/water is not present at suction side 2. Check for any air in the input line at suction side. 3. If current transformer is faulty 4. Check pump current compared to set current & dry run setting percentage. If it is very high then reduce it at optimum level. eg. To Reduce 95%
4.	Display Dead	Panel Display Off	Check Presence of Power Input Check MCB is On Position Check Any wire is Loose at Input
5.	-	PS OFF	When Pressure Switch Operates: 1. Check Pressure Switch is Operated 2. Check Upper Tank is Full? 3. Check PS Wires are Short
6.	LTE	Lower tank is Empty	When Lower tank is Empty 1. Check Lower Tank Water level 2. Check Float Switch is Short

			3. Check Float Wire are short
7.	-	EHC	When Motor current 2 times more than rating 1. Please check the motor 2. Check the Motor Wire
8.	-	Fault	Pump Controller not resetting fault 1. After repeated fault reset, if Pump set is not becoming ON or changing its status, this means fault is continuously available. 2. Please check the condition physically.

NECESSARY AND SAFETY INFORMATION

1) Do not open the panel door while running the pump.

2) Do not touch open wires.

3) Do not keep open wires to avoid short circuit.

4) Do not use or store the device in dusty, dirty areas.

5) Do not use harsh chemicals to clean the device.

KHP MODELS CHART:

SINGLE PHASE MODELS					
Sr. No.	**Model**	**Total Pump's Qty.**	**Working Pump Qty.**	**Standby Pump's Qty.**	**Pressure Switch Connections**
1.	KHP 111	1	1	0	1
2.	KHP 121	2	1	1	1
3.	KHP 122	2	2	0	2

THREE PHASE MODELS					
Sr. No.	**Model**	**Total Pump's Qty.**	**Working Pump Qty.**	**Standby Pump's Qty.**	**Pressure Switch Connections**
4.	KHP 11	1	1	0	1
5.	KHP 21	2	1	1	1
6.	KHP 22	2	2	0	2
7.	KHP32	3	2	1	2
8.	KHP33	3	3	0	3
9.	KHP43	4	3	1	3
10.	KHP44	4	4	0	4

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