

JOCKEY CONTROLLER

INSTALLATION, OPERATION & MAINTENANCE MANUAL

MODEL : NFY-JD01-M1 & NFY-JSD1-M1



JOCKEY CONTROLLER

INSTALLATION OPERATION AND MAINTENANCE INSTRUCTIONS



1. General

Jockey pump controllers, are installed in the same system as Main fire pump Controllers. Their primary function is to maintain normal water pressure which may fluctuate slightly due to small leaks in the system and therefore prevent short cycling of the main fire pump. The jockey pump controller automatically starts the jockey pump motor when the water pressure drops below a set level.

2. HANDLING

Upon receiving, the controller should be carefully unpacked and inspected for any damage that may have occurred during shipment. If damage of any sort is evident, file a damage claim with the after sales team.

Controller must be stored in a clean and covered place. Avoid locations that may cause condensation which may result in damage to the insulation or corrosion of metal parts.



Fig. No. 01

3. INSPECTION AND INSTALLATION

- Consult the motor nameplate to determine voltage, current and horsepower rating and compare with Controller nameplate for matching data.
- Exercise all relays, switches and contactors without power to see whether they operate freely.
- Check panel wiring and component mountings for loose fasteners resulting from vibration during shipping.
- Mount the controller securely to a firm or solid, non-combustible surface so that the controller is not subject to much vibration. Excessive vibration may cause erratic operation of the pressure switch. The area must be free from dripping and spraying water.

WARNING: ISOLATE POWER SOURCE BEFORE CONNECTING POWER LEADS TO PREVENT SHOCK OR ACCIDENTAL HAZARD

- Connect the water pressure sensing line to the pressure transducer fitting on the bottom of the controller cabinet. Kindly refer to NFPA 20 for information on installation of the sensing line.
- Before any electrical work is to be carried out on the controller, make sure the disconnect switch is in the off position.
- All motor circuit conductors should be sized according to the National Electric Code article 430. Insulation for these conductors should be chosen, so it will not be affected by the surrounding environment and protect internal components from drilling chips and debris.

Some of the following precautions must be taken into consideration before startup after long storage:



- Carefully inspect and clean equipment
- Inspect and re-tighten all electrical connections
- Perform visual inspection of the power contacts of the main contractor, circuit breaker and disconnect switch.
- Perform a no load test and check all continuities

3. PANEL DISPLAY

The control panel display shall show the following status and readings on screen:

- » Pressure Reading
 - Start Pressure
 - Stop Pressure
 - Actual Pressure
- » Timers
 - Star - Delta timer (SDT)
 - Sequential start timer (SST)
 - Minimum RUN timer (MRT)
 - Minimum Restart timer (PRT)
- » ACTUAL LINE VOLTAGE ON EACH PHASE
- » MODE OF OPERATION (AUTO – OFF-HAND)
- » PUMP RUNNING STATUS
- » ALARMS STATUS
- » DETAILS OF STATUS

4. MODE OF OPERATION

User can select the mode of operation (AUTO/OFF/HAND) from screen by touching any one of them on screen .

4.1 AUTOMATIC OPERATION

User can select the AUTO MODE by pressing the AUTO selection location on screen .Green indicator on AUTO selector column will get ON and there will be a Beep sound on mode shifting .



The controller operates based on the pressure values set by user in auto mode .Controller start the motor automatically when the ACTUAL pressure reach START PRESSURE value (SST applicable on this mode) .

4.1.1 STOPPING OPERATION

Auto-STOP : Controller start the motor automatically when the ACTUAL pressure reach START PRESSURE value and stop the motor automatically when minimum run time (MRT) get over and pressure reach STOP pressure value .

Manual-STOP : User can press OFF button at any moment to stop the motor (MRT is not applicable on manual stop).

Restart : Controller restart the pump only after PRT delay finishes.

4.1.2 ALARMS

All alarms works on auto mode

4.2 HAND MODE

User can select the HAND MODE by pressing the HAND selection location/SWITCH on screen. Green indicator on HAND selector column will get ON and there will be a Beep sound on mode shifting.



4.2.1 STOPPING OPERATION

Auto-STOP : Not applicable on HAND mode.

Manual-STOP : User can press OFF button at any moment to stop the motor, MRT is not applicable on manual stop.

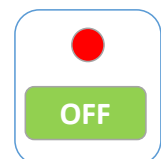
Restart : User can restart the pump in hand mode at any moment and PRT delay is not applicable here.

4.2.2 ALARMS

All applicable alarms works on manual mode

4.3 OFF MODE

User can select the OFF MODE by pressing the OFF selection location / SWITCH on screen. Green indicator on OFF selector column will turn ON and Beep sound emanates on mode shifting .

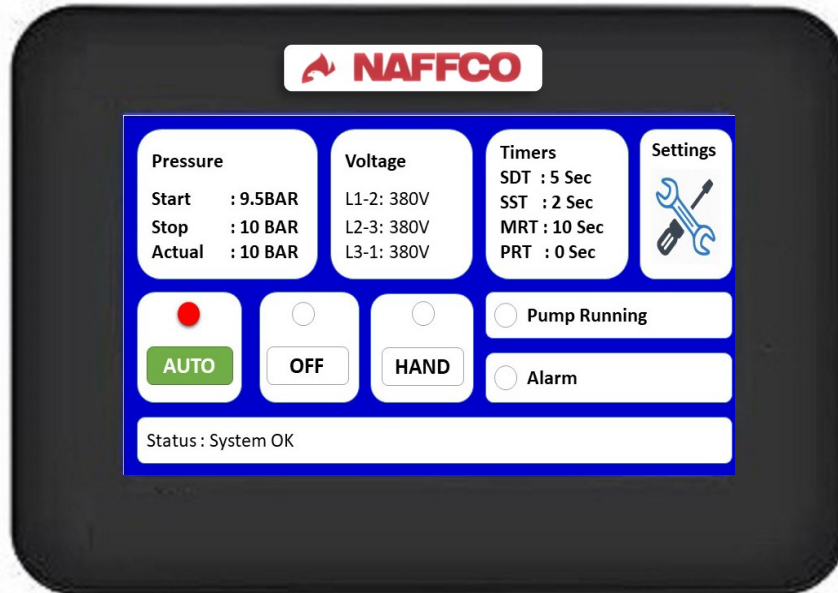


JOCKEY CONTROLLER

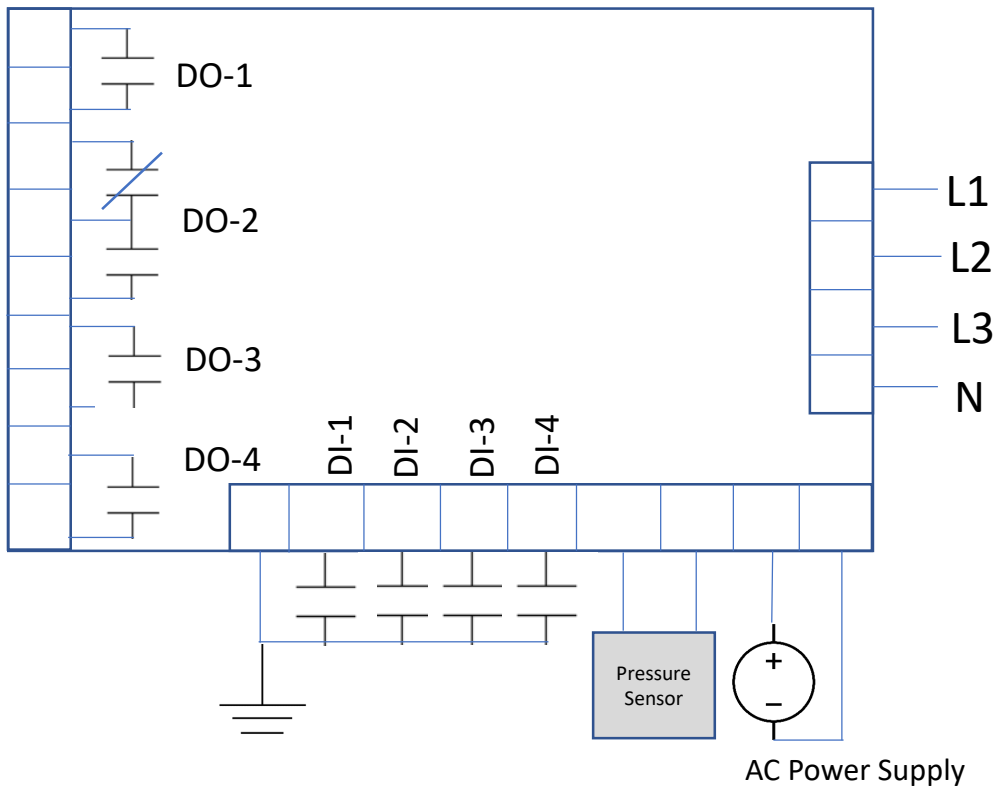
INSTALLATION OPERATION AND MAINTENANCE INSTRUCTIONS



5. TOUCH PANEL HARDWARE AND SOFTWARE STRUCTURE



CONNECTIONS



JOCKEY CONTROLLER

INSTALLATION OPERATION AND MAINTENANCE INSTRUCTIONS



User can enter settings page by Pressing **SETTINGS** button on front panel

Enter Password
BACK

1	2	3
4	5	6
7	8	9
←	0	Done

Settings	Summary
Display Backlight	
Voltage Settings	
Pressure Settings	
Timers	
Digital Inputs	
Digital Outputs	
Change Password	
Product Information	



DISPLAY SETTINGS

Display Setting	BACK
Backlight Brightness	
Backlight saver Mode	
Backlight OFF time	

DISPLAY BRIGHTNESS

Display Setting / Display Backlight		BACK												
Selection: [100] %	Range: (10 – 100)													
<table border="1"><tbody><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr><tr><td>←</td><td>0</td><td>Done</td></tr></tbody></table>			1	2	3	4	5	6	7	8	9	←	0	Done
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4	5	6												
7	8	9												
←	0	Done												



DISPLAY BACKLIGHT SAVER MODE

Display Setting / Backlight saver mode		BACK
Select :	[Enable]	
	Disable	
	Enable	

Display backlight ON time duration on save mode :

Display Setting / Backlight OFF Time		BACK												
Selection: [60] Sec	Range: (10 – 999)													
<table border="1"><tbody><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr><tr><td>←</td><td>0</td><td>Done</td></tr></tbody></table>			1	2	3	4	5	6	7	8	9	←	0	Done
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VOLTAGE SETTINGS

Voltage Settings		BACK
Voltage System		
Voltage Value		
Over Voltage		
Under Voltage		

Voltage Settings / Voltage System		BACK
Selection: [3 phase]		
Single Phase		
3 Phase		
3 Phase + N		

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RATED VOLTAGE

Voltage Settings / Voltage Value		BACK												
Selection: [380] VAC	Range: (90 - 600)													
<table border="1"><tbody><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr><tr><td>←</td><td>0</td><td>Done</td></tr></tbody></table>			1	2	3	4	5	6	7	8	9	←	0	Done
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4	5	6												
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←	0	Done												

OVER VOLTAGE ALARM VALUE

Voltage Settings / Over Voltage		BACK												
Selection: [420] VAC	Range: (90 - 700)													
<table border="1"><tbody><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr><tr><td>←</td><td>0</td><td>Done</td></tr></tbody></table>			1	2	3	4	5	6	7	8	9	←	0	Done
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UNDER VOLTAGE ALARM VALUE

Voltage Settings / Under Voltage		BACK												
Selection: [360] VAC	Range: (50 - 600)													
<table border="1"><tbody><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr><tr><td>←</td><td>0</td><td>Done</td></tr></tbody></table>			1	2	3	4	5	6	7	8	9	←	0	Done
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4	5	6												
7	8	9												
←	0	Done												



PRESSURE SETTING

Pressure Settings	BACK
Pressure Unit	
Rated Pressure	
Start Pressure	
Stop Pressure	
Pressure Sensor	
Low Pressure Alarm	
High Pressure Alarm	

PRESSURE UNIT SELECTION FOR DISPLAY VALUE

The unit change will come into effect in all areas of pressure value settings and display in controller

Pressure Settings/Pressure Unit	BACK
Selection: [BAR]	
PSI	
BAR	

RATED PRESSURE

Pressure Settings / Rated Pressure BACK

Selection: [9.5] BAR Range: (0.0 - 50)

1	2	3
4	5	6
7	8	9
←	0	Done

START PRESSURE

The controller start the motor when pressure reach the start pressure value and this value will display on front panel

Pressure Settings / Start Pressure BACK

Selection: [10.5] BAR Range: (0 - 50)

1	2	3
4	5	6
7	8	9
←	0	Done



STOP PRESSURE

The controller stop the motor when pressure reach the stop pressure value and this value will display on front panel `

Pressure Settings / Stop Pressure		BACK												
Selection: [10.5] BAR	Range: (0 - 50)													
<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>4</td> <td>5</td> <td>6</td> </tr> <tr> <td>7</td> <td>8</td> <td>9</td> </tr> <tr> <td>←</td> <td>0</td> <td>Done</td> </tr> </table>			1	2	3	4	5	6	7	8	9	←	0	Done
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4	5	6												
7	8	9												
←	0	Done												

SENSOR SELECTION

Pressure Settings/Pressure Sensor	BACK
Selection: [0-10 VDC]	
0-5 VDC	
0-10 VDC	
0-20 mA	
4-20 mA	



LOW PRESSURE ALARM VALUE SETTING

Pressure Settings / Low Pressure Alarm BACK

Selection: [7] BAR Range: (0 - 50)

1	2	3
4	5	6
7	8	9
←	0	Done

HIGH PRESSURE ALARM VALUE SETTING

Pressure Settings / High Pressure Alarm BACK

Selection: [13] BAR Range: (0 - 50)

1	2	3
4	5	6
7	8	9
←	0	Done



Timers	BACK
Sequential start timer (SST)	
Minimum Run Timer (MRT)	
Minimum Restart Timer (PRT)	
Star-Delta Timer (SDT)	
Fail to Start Timer	

SEQUENTIAL START TIMER (SST)

SST is the motor start delay time from when the system pressure value reaches the START pressure value. Minimum Restart time applicable in it . The SST starts counting only once the PRT count finishes.

Timers / Sequential start Timer (SST)		BACK												
Selection: [10] Seconds	Range: (0 - 30)													
<table border="1"><tbody><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr><tr><td>←</td><td>0</td><td>Done</td></tr></tbody></table>			1	2	3	4	5	6	7	8	9	←	0	Done
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7	8	9												
←	0	Done												

MINIMUM RUN TIMER (MRT)

MRT is the minimum run time of motor since the RUN signal is active. Motor turns OFF once the MRT count finishes if the actual pressure value reaches STOP pressure within the counting time. But Motor would switch OFF immediately at the moment pressure value reaches the STOP pressure if system achieve the STOP pressure after MRT count finishes.

Timers/ Minimum Run Timer		BACK												
Selection: [5] Seconds	Range: (0 - 300)													
<table border="1"><tbody><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr><tr><td>←</td><td>0</td><td>Done</td></tr></tbody></table>			1	2	3	4	5	6	7	8	9	←	0	Done
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4	5	6												
7	8	9												
←	0	Done												

MINIMUM RESTART TIMER (PRT)

PRT is the minimum holding time between last stopping and next starting even if the demand persist. Motor stays OFF in the counting period in automode. Motor switches OFF immediately at the moment pressure value reaches the STOP pressure if it happens after MRT count finishes .

Timers/ Minimum Restart Timer		BACK												
Selection: [5] Seconds	Range: (0 - 300)													
<table border="1"><tbody><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr><tr><td>←</td><td>0</td><td>Done</td></tr></tbody></table>			1	2	3	4	5	6	7	8	9	←	0	Done
1	2	3												
4	5	6												
7	8	9												
←	0	Done												



STAR-DELTA TIMER (SDT)

Time delay of star to delta transfer

Timers / Star-Delta Timer		BACK												
Selection: [5] Seconds	Range: (0 - 30)													
<table border="1"><tbody><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr><tr><td>←</td><td>0</td><td>Done</td></tr></tbody></table>			1	2	3	4	5	6	7	8	9	←	0	Done
1	2	3												
4	5	6												
7	8	9												
←	0	Done												

FAILED TO START TIMER

Time delay for activating failed to start alarm after controller sense the failed to start signal .

Timers/ Fail to Start Timer		BACK												
Selection: [5] Seconds	Range: (0 - 20)													
<table border="1"><tbody><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr><tr><td>←</td><td>0</td><td>Done</td></tr></tbody></table>			1	2	3	4	5	6	7	8	9	←	0	Done
1	2	3												
4	5	6												
7	8	9												
←	0	Done												



DIGITAL INPUT PROGRAMING

User can assign each DI terminal for available options. Also user can map the same terminal on DO terminals .

Digital Inputs		BACK
DI-1		
DI-2		
DI-3		
DI-4		

Digital Inputs / DI-1		BACK
Selection: [Motor Overload]		
Interlock		
Motor Overload		
Fail to Start		
Remote Start		
Disabled		



DIGITAL OUTPUT PROGRAMING

User can assign each DO terminal for available options.

Digital Inputs	BACK
DO-1	
DO-2	
DO-3	
DO-4	

Digital Outputs / DO-1	BACK
Selection: [Main Contactor]	
Main Contactor	
Star / Delta Contactor	
Power ON	
Pump Run	
AUTO Mode	
OFF Mode	

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Digital Outputs / DO-1	BACK
Selection: [Main Contactor]	
Manual Mode	
Low Pressure Alarm	
High Pressure Alarm	
3 Ph - Phase Reversal	
3 Ph - Phase Failure	
Under Voltage	
Over Voltage	
Motor Overload	
Fail to Start	
Remote Start	
Pressure Sensor Failure	
Interlock ON	
DI-1	
DI-2	
DI-3	
DI-4	
Common Alarm	
Disabled	



PASSWORD CHANGE

User can change the password through below method.

Change Password

BACK

1	2	3
4	5	6
7	8	9
←	0	Done

Confirm Password

BACK

1	2	3
4	5	6
7	8	9
←	0	Done

Project Name :

Location :

Commissioned By :

Date of Commissioning :

Signature of Commissioning Engineer :



NAFFCO
Email: info@naffco.com
www.naffco.com

In line with NAFFCO policy for continuous product development, NAFFCO has the right to change specifications without prior notice.

Ref. No. NF-JP-M1-IOM/2022/V.01

FOR ANY ASSISTANCE, PLEASE CONTACT
800-NAFFCO
8 0 0 6 2 3 3 2 6
customerservice@naffco.com