

Operation Manual

FlexMaster-Pro Series Flexible Feeder (vibration disk)

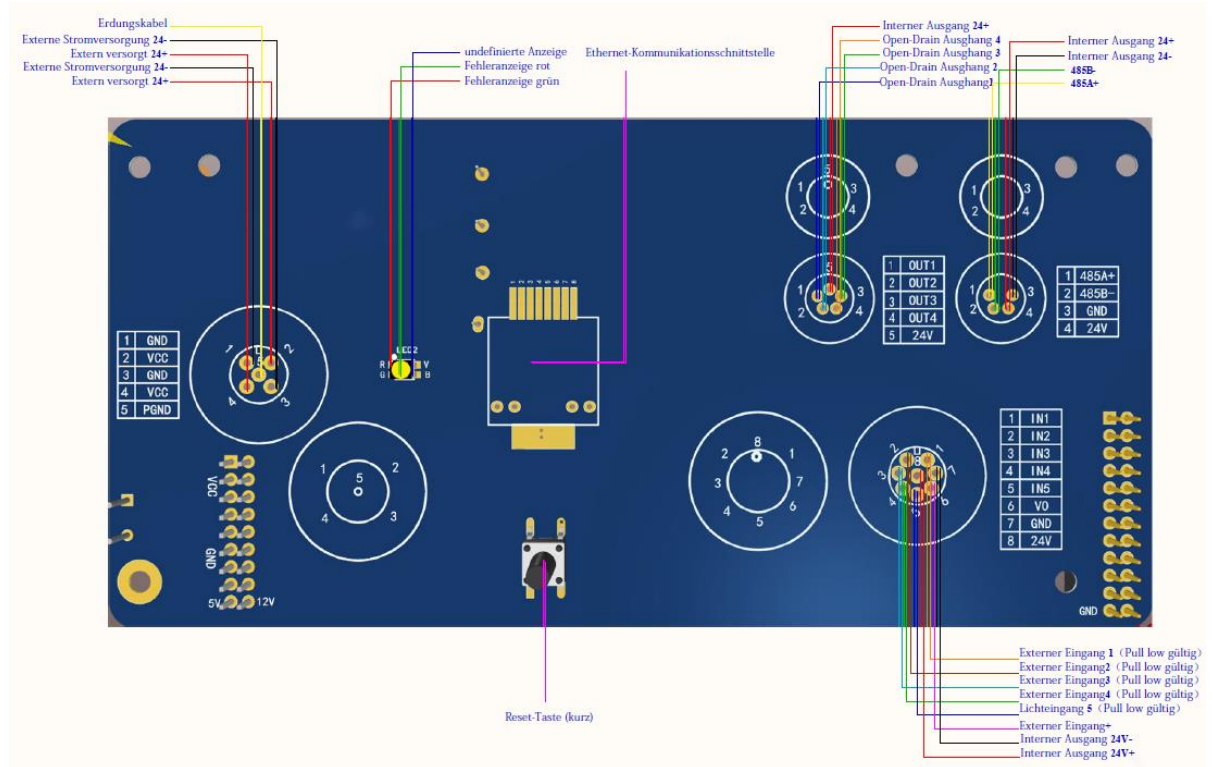
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1. Configuration



1.1 Diagram of Connection

Mapper Description				
Connector	No.	Color	Function	Remark
Power Line M12 5P	1	Brown	24V -	-
	2	White	24V +	+
	3	Blue	24V -	-
	4	Black	24V +	+
	5	Gray	PGND	PGND
Signal Input Line M12 8P	1	Brown	IN1	Connect to Negative of 24V effective
	2	White	IN2	Connect to Negative of 24V effective
	3	Blue	IN3	Connect to Negative of 24V effective
	4	Pink	IN4	Connect to Negative of 24V effective
	5	Grey	IN5	Connect to Negative of 24V effective
	6	Yellow	INPUT COM	Common port connect to Positive power 12-24V
	7	Green	GND	Power Negative (Onboard) Internal Test
	8	Red	24V +	Power Positive (Onboard) Internal Test
Signal Output Line M8 5P	1	Brown	OUT1	NPN OC output, Negative of 24V effective
	2	White	OUT2	NPN OC output, Negative of 24V effective
	3	Blue	OUT3	NPN OC output, Negative of 24V effective (Fault Output)
	4	Black	OUT4	NPN OC output, Negative of 24V effective (Fault Output)
	5	Grey	24V +	Power Positive Pole (Onboard)
485 Control Line M8 4P	1	Brown	485A+	485 Signal Positive
	2	White	485B-	485 Signal Negative
	3	Blue	GND	Power Negative Pole (Onboard)
	4	Black	24V +	Power Positive Pole (Onboard)

	IO Signal Input						Onboard Power Supply	
Vibration Model:	1Brown	2White	3Blue	4Pink	5Grey	6Yellow	7Green	8Red
Model1	L					H	GND On-board	24V On-board
Model2		L				H		
Model3	L	L				H		
Model4			L			H		
Model5	L		L			H		
Model6		L	L			H		
Model7	L	L	L			H		
Model8				L		H		
Model9	L			L		H		
Model10		L		L		H		
Model11	L	L		L		H		
Model12			L	L		H		
Model13	L		L	L		H		
Model14		L	L	L		H		
Model15	L	L	L	L		H		
LED Backlight					L	H		

Note:

H→ High Level (12V or 24V)

L→ Low Level (NPN pull down valid)

Net gateway:

Set up the vibration disk and communication through the net gape

IO Input:

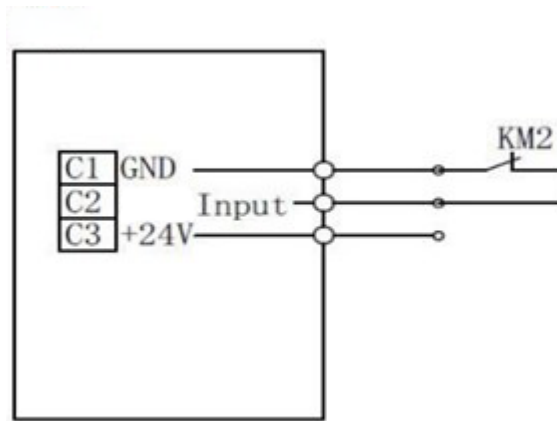
- Trigger vibration Model 1-15 through 1Brown / 2White / 3Blue / 4Pink and 6yellow
- Trigger LED backlight switch off and on through 5Grey and 6 yellow

IO Output:

- Output the trouble signal through Blue and Black line

- Two NPN OC output, Negative of 24V valid

1.2 CUH Controller Connection of direct vibration unit (hopper)



Please refer to detailed instruction “Manual - FlexMaster - Flexible Hopper-Bunker”!

The default setting of the controller is connected. The controller keeps operating while no signal received, the controller will stop after receiving the signal. The default setting can be changed to disconnected. The controller keeps operating while no signal received, the controller will stop after receiving the signal. After set up is completed, keep long press on “Function” button to exit the set-up.

Long push “function” button & “upper” simultaneously for 2 sec, enter advanced setting

Short push “function” button to “F2”, enter setting for parameter of interface logical direction

Then use “upper” and “down” buttons to change logical direction

2. Software

2.1 Function Introduction

The software applies to all flexible vibration disk of JAEGER-ENGINEERING, use in system parameter set up, writing system, input and output BOM model etc.

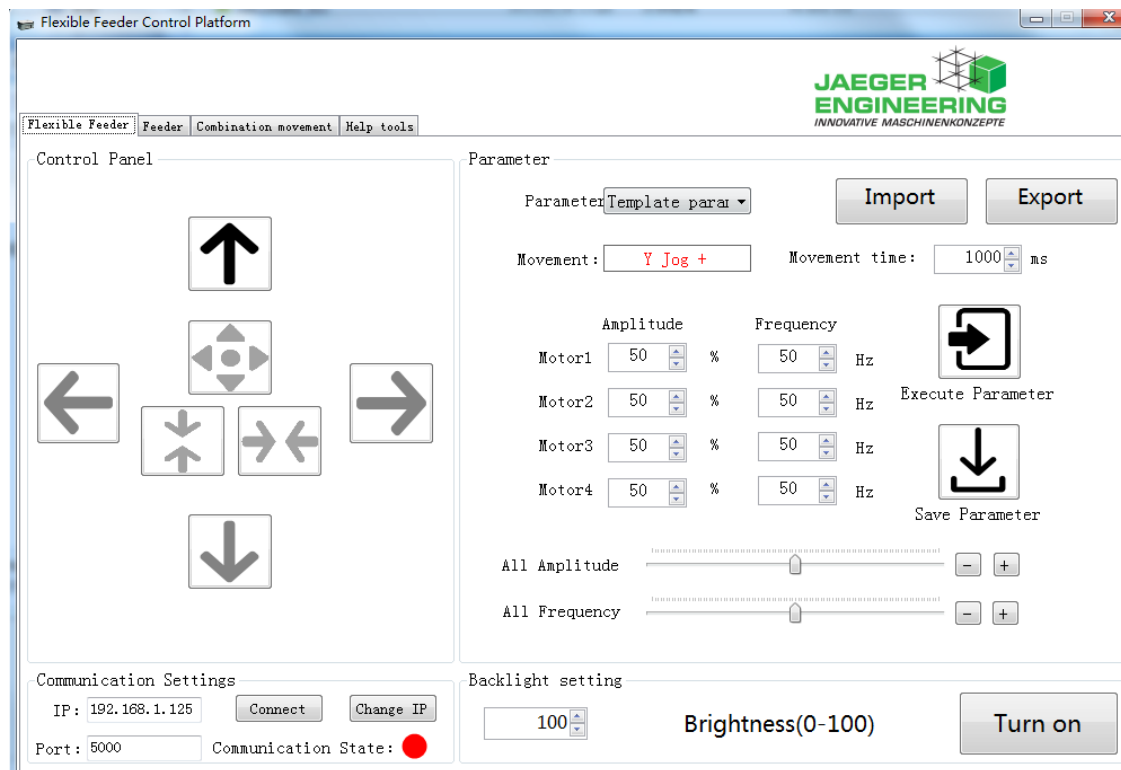
2.2 Operating Environment

The SDK of lower computer coded by C#, Visual Studio 2015 version.

2.3 Interface Composition

No need to install software of upper computer, just extract the compressed package, find out the application in the folder, double click to open, but it must be decoded by us. You should install NET3.5 if your computer's configuration does not match with the software (click right button to create the shortcut on desk)

The main operating interface configuration as below:



There are 5 working areas, divided in the software of upper (host) computer.

1) Communication setup

Function: Connect to vibration disk, set up the IP, port number and change the IP.

2) Light setup

Function: Set up the lighting time, switch on and off

3) Control Panel

Function: Select vibration model, 7 icons represent 7 types of vibration model

4) Parameter

Function: Select vibration direction, adjust the vibration frequency and amplitude, save the vibration model, writing model, input, output model.

5) Vibration Composition

The vibration composition interface is designed to validate the set-up result, test the aftershock time, age the tool of vibration disk, it is data reference of work logic how to operate and control the vibration in practical application.

3 Operation description

3.1 Operation procedure

3.1.1 Connect to vibration disk

Connect to vibration disk according to the connection diagram, then switch on; Connect the vibration disk to the computer by the network cable, and it presents the normal network communication while the indicator light of cable flickering and yellow light is on.

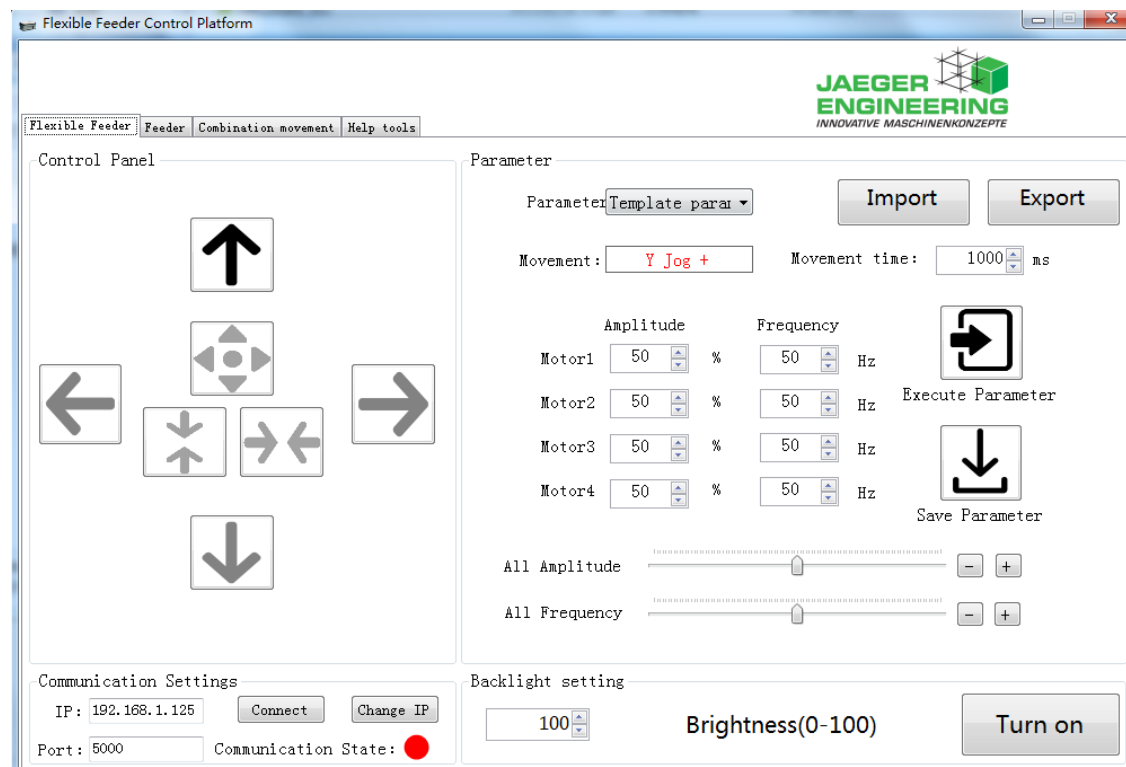
The ex-factory default IP is **192.168.1.125**, change the computer's IP to **192.168.1.***** (change frequency band to 1); click "connect" button, the red light, represents communication status, will be changed to green light.

3.1.2 Test backlight

Click "backlight" button, the white light is normal on; the light goes off while switch off; the default backlight time is 1000ms, and it will be automatically written in system after changing the time.

3.1.3 Set up parameter

3.1.3.1 Select vibration model in control panel, e.g., click the "vibrate loose" button in the center of left control panel, the vibration model synchronous displays "vibrate loose" on the right side (as below picture)



3.1.3.2 Change Frequency

Choose “vibrate loose” type, drag “ALL FREQUENCY” slider, and you will see the performance under current frequency when releasing the left button of mouse; find out the most efficient frequency (fine tuning by “+-“ button behind the slider).

3.1.3.3 Change amplitude

After fixing the most efficient frequency, keep the frequency no change, drag ALL FREQUENCY slider, (Or click +- to change), change the vibration amplitude to be in the best level which rolls over the part without flying out the vibration disk.

3.1.3.4 Change vibration time

The vibration time and amplitude is inversely proportional relationship under same vibration performance, that is, less vibration time corresponds to higher amplitude, and more vibration time corresponds to lower amplitude (Ideal condition is 200-500ms) .

3.1.3.5 Save parameter

After fixing the frequency, amplitude and vibration time, click “execute parameter” button, confirm the vibration performance. Click “save data” button, you’ll see the vibration parameter corresponds to the vibration model when you click vibration model on the left side after then.

3.1.3.6 Write Model

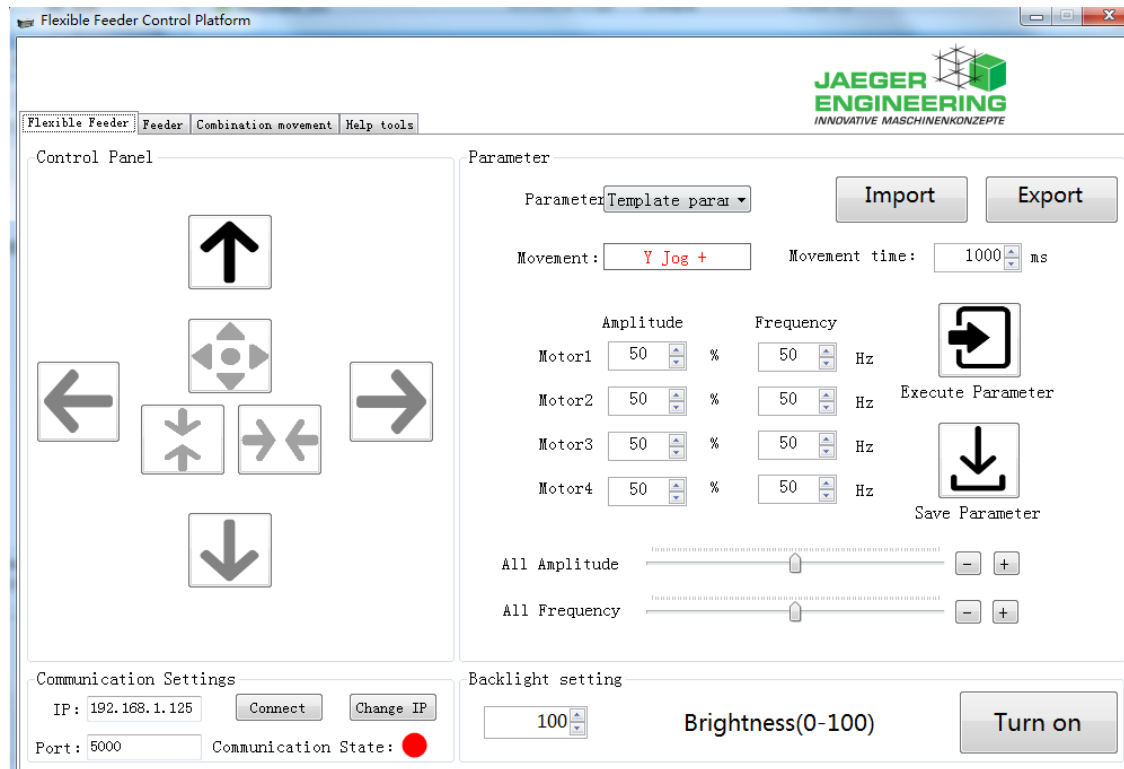
Click “Write Model”, write the current vibration parameter into the model of vibration disk (only one operating model under one Model), click “execute model” after writing in the Model, system will implement the model. You’ll see the action corresponds to Model if it is saved to Model 1, You’ll see the action corresponds to the Model if it is saved to the Model 2.

3.1.3.7 Output parameter

Output the current model’s parameter to local computer by csv or text format.

3.1.3.8 Input parameter

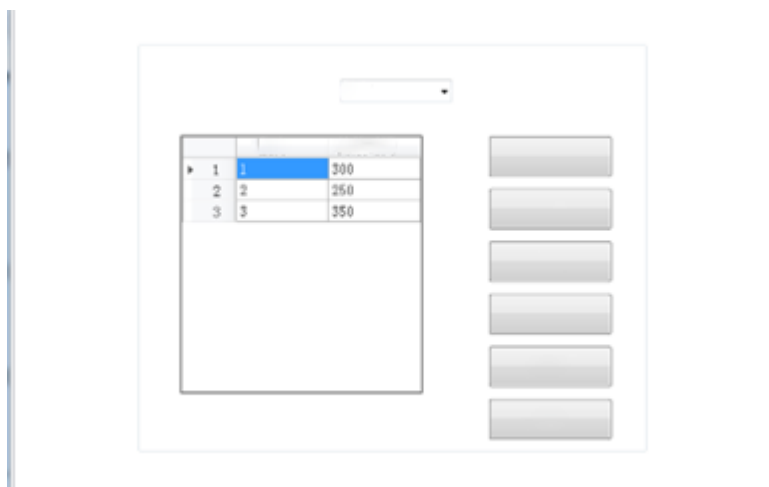
Input the model’s parameter saved in local computer to the model of current product.



The same way to control move left and right, up and down (move left and right is to narrow width, move up and down is to narrow length).

3.2 Vibration composition

The vibration composition interface is to validate the set-up performance, test the aftershock time, age the vibration disk tool. It is the data reference of the operation logic how to control vibration disk in actual operation.



After fixing the model's sequence and time of duration, click save; then click again "once run" button to validate vibration performance, and adjust the model sequence and time of duration to find out the best vibration logic for the product.

3.3 Backlight

The standard configuration of backlight is pure white light. Click “turn on backlight”, and the backlight will always be on; the light will be off if click on “turn off backlight” button.

If the backlight will be triggered by IO signal, time of duration of backlight is no more related to the time set in the interface. The backlight will always be on once receiving the IO signal, and it will be turned off once IO signal disconnected.

4. Other Setting

4.1 Change IP address of vibration disk

Connect to vibration disk first, type in the IP and port number to be changed, click the “change IP” button, it will be successfully changed.

4.2 Reset default IP

If forgetting the IP and port number of current equipment, you need to set “1” for all previous 5 lines, then power off / on the equipment. During that, keep setting of “1” in the 4 lines. The IP and port number will then be restored back to the ex-factory default of [192.168.1.125:5000], after that, disconnect the input 5 lines.

5. FAQ

5.1 Network connection is failed

The control under normal operating conditions (the power green light always on), Network port light (Blue and Yellow indicator light). The blue light flashes and yellow light on means the network is up and available, if not, please check the network cable status (if normal cable connection between vibration disk and computer or the cable is broken). Check the if IP frequency band of computer and vibration disk is same, only normal connection under same IP frequency band.

5.2 Electric motor does not work

Check the power line connection, confirm the input voltage is DC24V, whether enough input power or not. The maxim power is 300W, maxim peak current is 15A, the vibration disk does not work without enough power.

5.3 Abnormal sound during vibration

If the abnormal sound is generated by electric motor bumping, then change the amplitude of current vibration model until the noise is eliminated but still fulfilling vibration requirement.

If the noise generated by the mechanical component of vibration disk, first of all check if the screw fixed to the vibration panel are loose or not, if loose, screw down again by the specific tool. If the noise still existing, we should consider the screw fixes electric motor is loose, unscrew and remove vibration panel, check if the screw fixed to electric motor is loose or not (4 voice coil motor, 16 screws fixed to the upward side, 16 screws fixed to the base). If they are loose, screw down again.

5.4 Vibration not powerful enough

Check the fixation between vibration disk and rack; if there is a shock pad between the disk and rack, the anti-shock pad changes resonate frequency of vibration disk and weakens vibration performance.

Weight of rack impacts vibration performance as well; more weight would mean good vibration performance and less noise, and we recommend the rack's weight should be higher than 500Kg.

5.5 Product Declination

Check if the four motors are loose or not; check vibration disk is loose or not; then check if the vibration disk is horizontal installed; then check if the fixation between plate and rack is tight or not.

Right reserved for change / revision!