



Simple Manual

Small Sized Frequency Variable Controller High Function Type

K-ECG25 (Control capacity 2A)

K-ECJ45 (Control capacity 4.5A)

Introduction

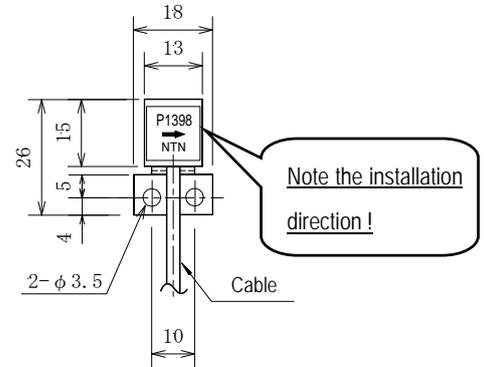
Thank you for your purchase of NTN small sized frequency variable controller (High function type). For correct and safe operation of the controller, please read without fail 'Precautions for safety' in the separate operation manual carefully before use.

1. Vibration sensor K-P1398 (Refer to P. 13 of operation manual)

< Installation direction of vibration sensor >

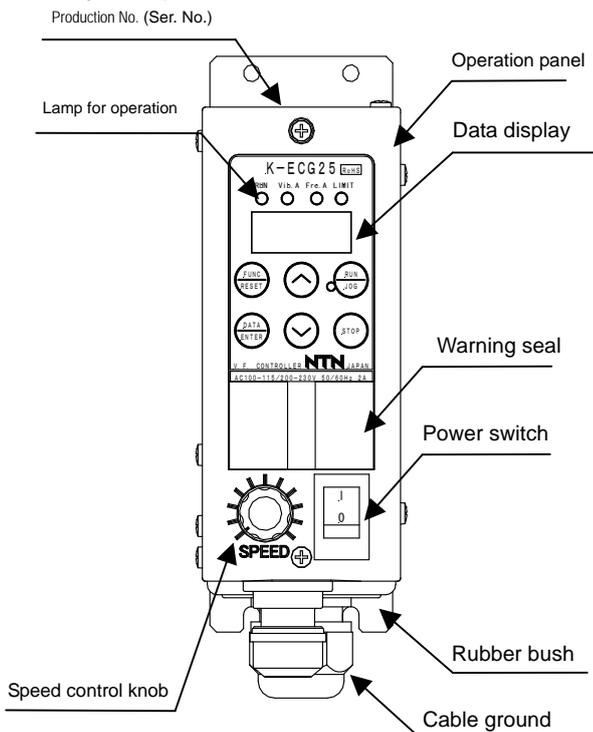
As the vibration direction of sensor is predetermined (Arrow mark printed on sensor is the travel direction of work), please note the installation direction. When it is not possible to match the direction of arrow mark to the forwarding direction of work, please install it in the reverse direction and reverse the polarity with the function J07.

Note) There is a case that it become to reverse direction depending on vibrator.

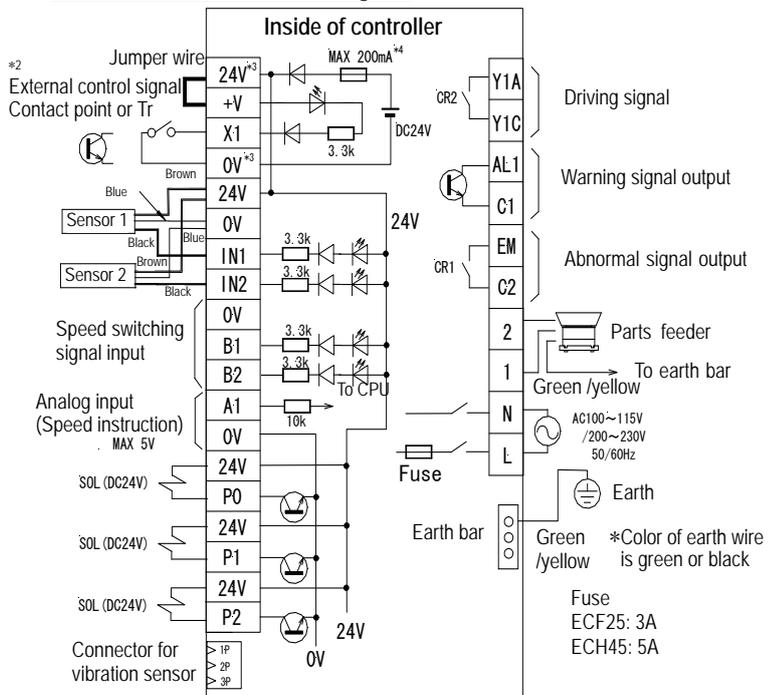


2. Outside view (Refer to P59 of operation manual for size)

The following diagram is explained about K-ECF25. But the layout of parts is same with K-ECH45.



3. Reference diagram of wiring (Refer to p9 and after of operation manual) ECG25/ECJ45 connection diagram



- *1 Read the operation manual in doing wiring construction and other various adjustments. Error may cause failure and accident.
- *2 Space between X1-0V terminals are short-circuited at the time of shipment. When you do not use a remote terminal, connect a jumper wire instead of contact.
- *3 Terminals 24V and 0V are all connected in the inside.
- *4 Current limiter: When total figure including current in input circuit comes close to 200mA, voltage starts to drop.

4. List of functions (Refer to P 39 and after of operation manual)

There are two kinds of functions, J group that mainly sets functions and H group that mainly sets the data. Please set functions of J04 to J07 in the list according to the driving mode (Refer to P.4 of this manual) without fail.

Also, depending on functions, adjustable data may be restricted by other functions. Please refer to the operation manual for the details.

< List of J group functions >

J No	Name & Set range (Initial value is underlined)	Change during driving	Record of set value
J00	Operation lock <u>0: Operation lock OFF</u> 1: Operation lock ON	Can not	
J01	Setting of current rating For ECG25 0.10~2.50(A) Use range: 0.20~2.00(A) <u>Initial value: 2.00</u> For ECJ45 0.10~5.00(A) Use range:0.50~4.50(A) <u>Initial value: 4.00</u>	Can not	
J02	Selection of driving method 0: External control + Sensor <u>1:Reverse of external control + Sensor</u> 2: Panel control 3: Panel control + Sensor	Can	
J03	Selection of JOG driving method <u>0: Do not make JOG operation</u> 1: Accept JOG operation	Can	
J04	Setting of F-V curve F:N25 and others (Full wave system) <u>H:N40 and others (Half wave system)</u> C:HF10 and others (High frequency system) 0~17 (Others)	Can not	
J05	Selection of feedback mode <u>0: Constant voltage mode</u> 1: Constant amplitude mode 2: Resonance point tracking + Constant amplitude mode 3:Calibration for constant amplitude mode 4: Calibration for resonance point tracking	Can not	
J06	Setting of driving condition 0: Manual setting 1:Light weight high speed driving <u>2:Light weight medium speed driving</u> 3:Heavy weight medium speed driving 4:Light weight low speed driving 5:Heavy weight low speed driving (For S30) 6:For G50*	Can not	

J No.	Name & Set range (Initial value is underlined)	Change during driving	Record of set value
J07	Polarity of vibration sensor <u>0: Do not reverse polarity</u> 180: Reverse polarity	Can not	
J08	Selection of function of AL1 terminal <u>0:Outputting work shortage signal</u> 1:Outputting overload signal 2:Outputting of OR for work shortage signal and overload signal 3: Outputting when LIMIT lamp lights 4:Outputting of OR signal when LIMIT lamp lights and for overload warning 5:Outputting of OR signal when LIMIT lamp lights and for work shortage and overload warning 6:Outputting of driving signal on AL1 terminal	Can	
J09	Display of error history Displaying latest error data (Content of protection function behaviors) up to three	-	
J10	Setting of initial value (All clear of memory) <u>0:Normal operation mode</u> 1:Rewriting the memory into the initial value	Can not	
J11*	Change of carrier frequency* <u>0:20kHz</u> 1:14kHz 2:10kHz	Can not	
J12	Selection of functions of EM terminal <u>0:Contact point is "Close" at the time of problem</u> 1:Contact point is "Open" at the time of problem 2:Selection is not possible 3:Selection is not possible 4:Contact point is "Close" during driving 5:Contact point is "Close" when driving preparation is completed	Can not	

* Underlined figures are initial values for ECG25/ECJ45. But own initial value only for ECJ45 exists partly. The initial values are shown with broken line.

* 6 of J06 and J11 are installed only for ECJ45.

<List of H group functions>

H№	Name & Set range (Initial value is underlined)	Change during driving	Record of set value
H00	Selection of functions of IN1 input <u>0:Driving with High input</u> 1:Driving with Low input (reverse) 2:Separate IN1 (reverse) from driving condition 3:Separate IN1 from driving condition 4:Control P1 with IN1 (reverse) 5:Control P1 with IN1 6:Use IN1 as ON delay timer 1 input and use IN2 as OFF delay timer 1 input 7: Use IN1 (reverse) as ON delay timer 1 input and use IN2 as OFF delay timer 1 input	Can	
H01	ON delay timer 1 <u>0.0</u> -60.0 (Sec.)	Can	
H02	OFF delay timer 1 <u>0.0</u> -30.0(Sec.)	Can	
H03	Selection of functions of IN2 input Selection of functions of IN1 input <u>0:Timer 2 operates with Low input</u> 1: Timer 2 operates with High input 2: Operate timer 2 with IN1 input, and output the result on P2 3: Operate timer 2 with reverse signal of IN1 input, and output the result on P2 4: Control timer 2 with IN1 input, and output the result on P2. Use timer 2 as one shot timer.	Can	
H04	ON delay timer 2 <u>0.0</u> -60.0(Sec.)	Can	
H05	OFF delay timer 2 <u>0.0</u> -30.0(sec.)	Can	
H06	Soft start time 0.0-5.0(Sec.) <u>Initial value 0.5</u>	Can	
H07	Soft stop time 0.0-5.0(Sec.) <u>Initial value 0.3</u>	Can	
H08	Use of work shortage timer <u>0: Not used</u> 1:Detected by IN1 signal 2:Detected by IN2 signal	Can	
H09	Work shortage detection time 1.0-120.0(Sec.) <u>Initial value 10.0</u>	Can	

H№	Name & Set range (Initial value is underlined)	Change during driving	Record of set value
H10	Work shortage reset time 0.1-30.0(Sec.) <u>Initial value 1.0</u>	Can	
H11	Multi speed input switching <u>0:Switching with signals of B1 and B2 terminals</u> 1:Control speed with A1 input	Can not	
H12	Frequency of speed 1 30.0-500.0(Hz) <u>Initial value 140.0(70.0) ;</u>	Can	
H13	Voltage of speed 1 0-200(V) <u>Initial value 100</u>	Can	
H14	Frequency of speed 2 30.0-500.0(Hz) <u>Initial value 140.0(70.0) ;</u>	Can	
H15	Voltage of speed 2 0-200(V) <u>Initial value 100</u>	Can	
H16	Frequency of speed 3 30.0-500.0(Hz) <u>Initial value 140.0(70.0) ;</u>	Can	
H17	Voltage of speed 3 0-200(V) <u>Initial value 100</u>	Can	
H18	% speed of speed 1 0-100(%) <u>Initial value 50</u>	Can	
H19	% speed of speed 2 0-100(%) <u>Initial value 50</u>	Can	
H20	% speed of speed 3 0-100(%) <u>Initial value 50</u>	Can	
H21	Resonance frequency data 30.0-500.0(Hz) <u>Initial value 140.0(70.0) ;</u>	Can not	
H22	Setting of gain 0-200 <u>Initial value 150</u>	Can	
H23	Setting of MAX. % speed 30-100(%) <u>Initial value 70</u>	Can not	
H24	Setting of stability -90-0~+90 <u>Initial value -27</u>	Can	
H25	Scaling 40- <u>100</u>	Can	

* Initial set value. Figure in () is the initial set value of ECJ45.

Note) Unchangeable functions during driving become changeable at the stopping state of controller (When external control terminal is at stopping side or panel control, press STOP key). Select panel control [2] with selection J02 of driving method when it is difficult to cut off the external control. Then controller stops.

5. Adjustment method (Refer to P. 23 and after of operation manual)

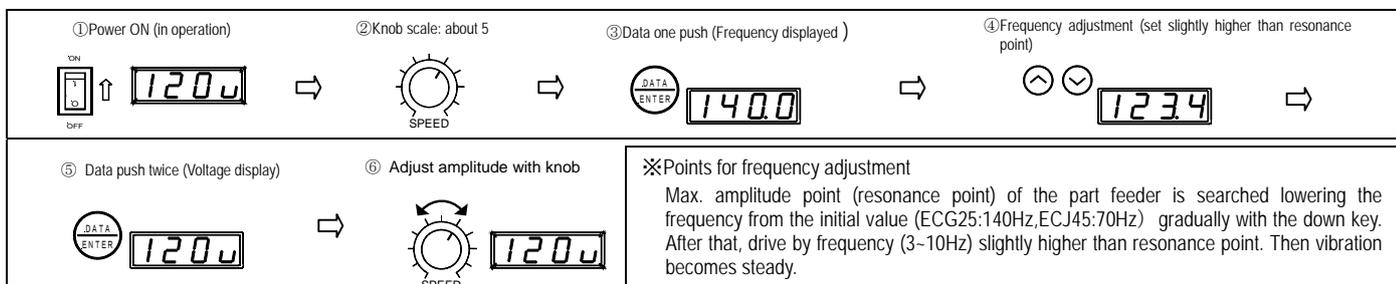
<Kind of feedback modes at time of driving>

Feedback control operations at time of driving of K-ECG25 are following three kinds:

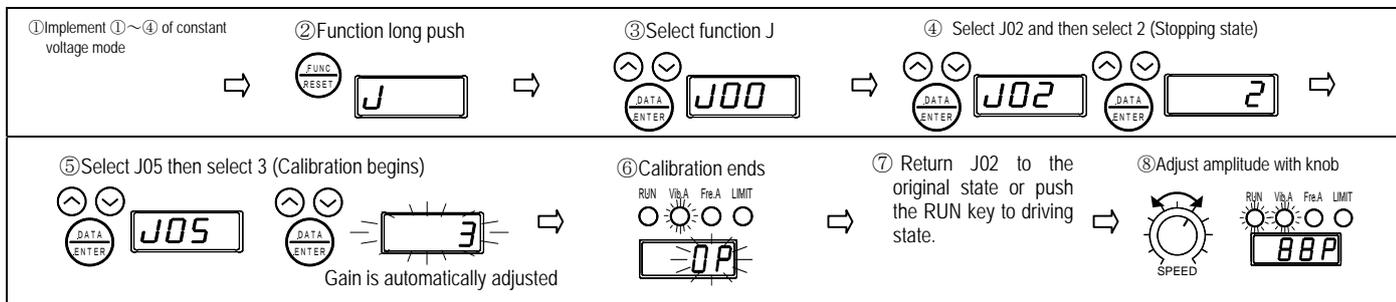
- (A) Constant voltage mode: This is a mode generally used (Initial setting at the time of shipment). It controls the constant voltage so that the load (output) voltage becomes the value set by the speed adjustment knob.
- (B) Constant amplitude mode: Select this mode when the weight variation of work is large or more stable feeding operation is required.
- (C) Resonance point tracking mode: To drive more efficiently, this controls so that the amplitude becomes steady at the resonance point of parts feeder. In the resonance point tracking mode, the constant amplitude control also becomes ON at the same time.

Note) Before adjusting each mode, please confirm that all wirings ended and there is no work in the bowl or on the chute, and then set functions of J01 and J04. Moreover, before adjusting the constant amplitude mode and resonance point tracking mode, please install vibration sensor and set function J06 and J07 with the resonance point tracking mode.

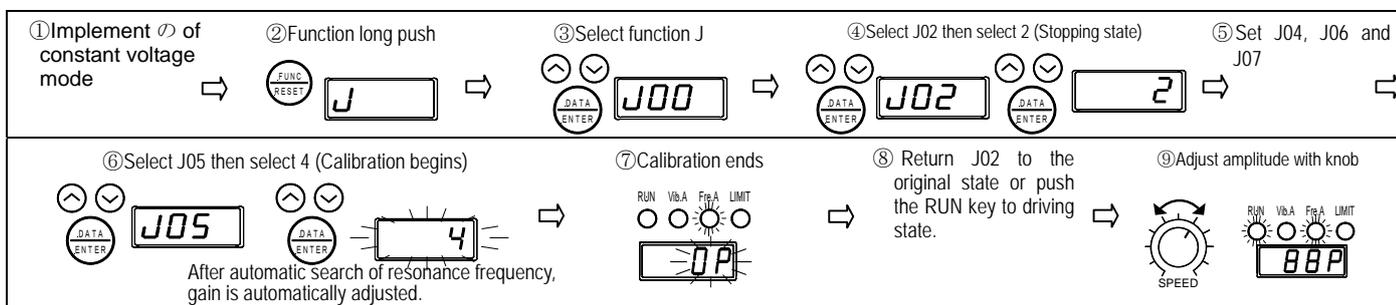
(A) Adjustment method of constant voltage mode (Refer to P. 26 of operation manual)



(B) Adjustment method of constant amplitude mode (Refer to P. 28 of operation manual)



(C) Adjustment method of resonance point tracking mode (Refer to P. 31 of operation manual)



Refer to operation manual for details of driving and adjustment.

6. Trouble shooting

In the event that any trouble occurs, please refer to P. 54 to 56 of operation manual.

Revised July 1, 2013 4th edition

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