Brushless Motor Rollers

24VDC

DC BRUSHLESS

F-10 Control Card (Driver F-10)

Motor Roller

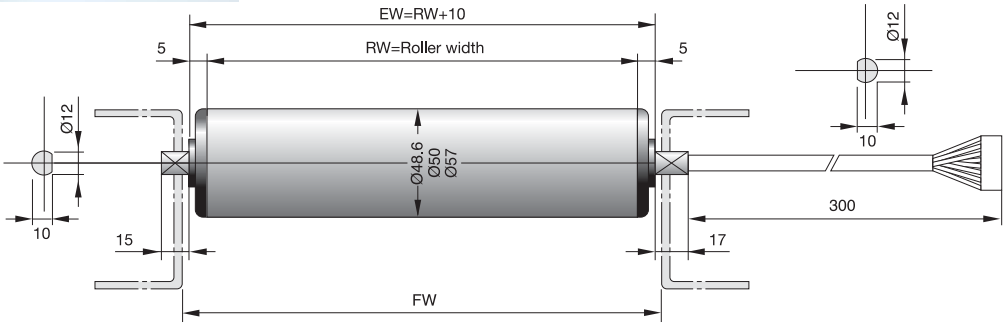
The card receives signals from the sequencer for various kinds of control.

Major features

- Low noise
- Compact design - light and small
- Since the lock current is less than 3 A, the DC power supply can be smaller.
- If an overload such as locking occurs, the system automatically switches from the normal mode to the low power mode.
- A function for protection against burning of the motor is incorporated.
- Constant speed rotation by closed-loop PWM voltage control.
- The desired speed can be set by rotary switch RSW and a variable resistor.
- Since 2-piece connectors which consist of a fixed piece and a detachable piece for connection are used as connectors for power supply and signal input, wire connection is easy.
- Either NPN or PNP output can be selected by a DIP switch.

Model	Set-up speed (m/min.)	Operation mode							
		Normal operation					Low power (accum) operation		
		Rated tangential force (N)	Tangential force (N)	No load current (A)	Rated current (A)	Lock current (A)	Tangential force (N)	No load current (A)	Lock current (A)
48BL3G-[speed]-[pipe length]-F10	1.5-16.5 m/min Adjustable by rotary SW & VR	113	225	0.4	1.7	3	51	0.4	0.9
50BL3G-[speed]-[pipe length]-F10	1.6-17 m/min Adjustable by rotary SW & VR	110	220	0.4	1.7	3	50	0.4	0.9
57BL3G-[speed]-[pipe length]-F10	1.8-19 m/min Adjustable by rotary SW & VR	95	190	0.4	1.7	3	43	0.4	0.9
48BL2G-[speed]-[pipe length]-F10	4.8-52 m/min Adjustable by rotary SW & VR	43	82	0.4	1.7	3	31	0.4	0.9
50BL2G-[speed]-[pipe length]-F10	4.9-54 m/min Adjustable by rotary SW & VR	42	80	0.4	1.7	3	31	0.4	0.9
57BL2G-[speed]-[pipe length]-F10	5.6-61 m/min Adjustable by rotary SW & VR	36	70	0.4	1.7	3	26	0.4	0.9
48BL1G-[speed]-[pipe length]-F10	14.8-155 m/min Adjustable by rotary SW & VR	16	30	0.4	1.7	3	12	0.4	0.9
50BL1G-[speed]-[pipe length]-F10	15.2-160 m/min Adjustable by rotary SW & VR	16	30	0.4	1.7	3	12	0.4	0.9
57BL1G-[speed]-[pipe length]-F10	17.3-183 m/min Adjustable by rotary SW & VR	14	25	0.4	1.7	3	10	0.4	0.9

Model											
3G				2G				1G			
Rotary SW Setting	Pipe Diameter			Rotary SW Setting	Pipe Diameter			Rotary SW Setting	Pipe Diameter		
	ø48.6	ø50	ø57		ø48.6	ø50	ø57		ø48.6	ø50	ø57
0	0	0	0	0	0	0	0	0	0	0	0
1	1.5	1.6	1.8	1	4.8	4.9	5.6	1	14.8	15.2	17.3
2	3.1	3.2	3.6	2	9.5	9.8	11.2	2	29.5	30.4	34.6
3	4.6	4.7	5.4	3	14.3	14.7	16.8	3	44.3	45.6	52
4	6.1	6.3	7.2	4	19.1	19.6	22.4	4	59.1	60.8	69.3
5	7.7	7.9	9	5	23.8	24.5	28	5	73.8	76	86.6
6	9.2	9.5	10.8	6	28.6	29.4	33.6	6	88.6	91.2	103.9
7	10.8	11.1	12.6	7	33.4	34.3	39.2	7	103.4	106.4	121.2
8	12.3	12.6	14.4	8	38.2	39.3	44.7	8	118.1	121.5	138.6
9	13.8	14.2	16.2	9	42.9	44.2	50.3	9	132.9	136.7	155.9



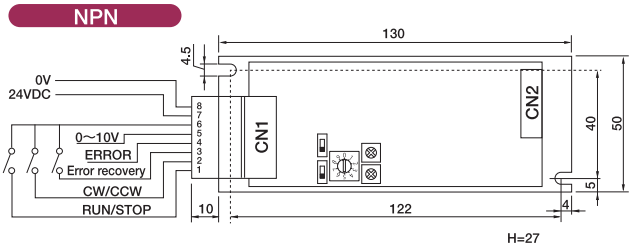
48.6mm dia./ 50mm dia./ 57mm dia. Roller dimensions and weight

RW (Pipe length) mm	2G・1G 260 3G 285	300	400	500	600	700	800	900	1000
EW (Full length) mm	270	310	410	510	610	710	810	910	1010
Weight (kg)	1.6	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7
Snap-on shaft	○	○	○	○	○	○	○	○	○

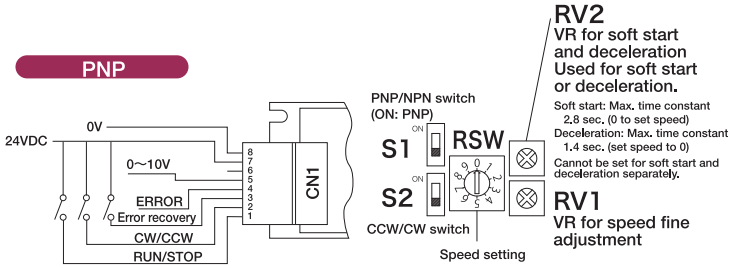
Min. pipe length is 260mm. The pipe length can be increased in 1mm increments. EW=FW (width inside the frame) - 2mm to 5mm

Control Card *F-10*

NPN



PNP



Specification

	Pin no	Item	Description	
Connector CN1	①	start/brake	Power ON: start Power OFF: electric brake (no holding function)	Refer to the S1 PNP/NPN wiring diagram.
	②	Change over of direction of rotation	Power ON: CCW Power OFF: CW Change of direction of rotation via switch S2	
	③	Error recovery	Any error can be cancelled by ON/OFF operation.	
	④	Error signal output	If an error occurs NPN transistor turns ON. Max. output current: 20 mA (Short circuit protection is included.)	
	⑤	Input of ouside signal for speed control	0 to 10 V (Max. input voltage 12 V, input impedance more than 10 kΩ.) (When outside signal for speed control is used, set RSW to 0 and turn RV1 fully counterclockwise.)	
	⑥	GND	Signal for GND	
	⑦	24V (+)	Power input: 24 VDC±10%	
	⑧	0V (-)		
Remarks	· Be very careful not to make wrong polarity connections. · Don't disconnect any connector while the power is on. · Before connecting or disconnecting the cord to CN1, be sure to remove the connector from the board. · Don't turn on or off the main power supply to start or stop.			
Protective functions	Overcurrent protection		Upon detection of 4A or more, the circuit is turned off for one PWM cycle (recovered in the next cycle)	
	Overload protection (temperature protection)		If either of the conditions given below occurs, it is considered an overload and the system enters the LOW POWER mode in which the operating current limit is approx. 0.9 A. 1. Motor current remains above the rating for 10 sec. or more. (recovers after the motor rotates 128 times in the LOW POWER mode) 2. The overheat sensor in the motor is activated. (recovers after the sensor is reset and the motor rotates 128 times)	
	Fuse		5A fuse is built in the board to protect the board.	

Brushless Motor Rollers
24VDC H
High Torque

Control Card H-8 (Motor Roller Driver H-8)

Can provide 1.5 times higher torque than the standard model F-9.

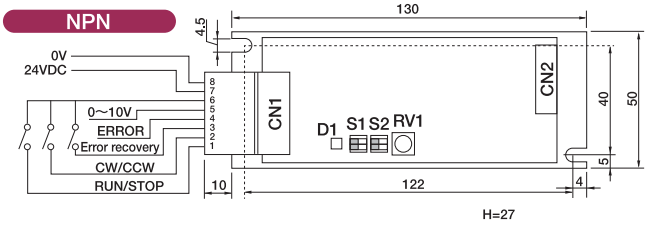
Motor Roller

Model		Set-up speed (m/min.)	Operation mode							
			Normal operation					Low power (accum) operation		
			Rated tangential force (N)	Tangential force (N)	No load current (A)	Rated current (A)	Lock current (A)	Tangential force (N)	No load current (A)	Lock current (A)
48BL2G-[ ]-[ ]-H8 Allowable set up speed range: 5m to 52m/min.	48BL2G- 6 -[ ]-H8	6.5	43	123	0.4	1.7	6	36	0.4	0.9
	48BL2G-10-[ ]-H8	10.0								
	48BL2G-13-[ ]-H8	13.0								
	48BL2G-16-[ ]-H8	16.5								
	48BL2G-20-[ ]-H8	20.5								
	48BL2G-30-[ ]-H8	31.0								
	48BL2G-40-[ ]-H8	40.5								
	48BL2G-55-[ ]-H8	52.0								
50BL2G-[ ]-[ ]-H8 Allowable set up speed range: 5m to 54m/min.	50BL2G- 6 -[ ]-H8	6.5	42	120	0.4	1.7	6	35	0.4	0.9
	50BL2G-10-[ ]-H8	10.0								
	50BL2G-13-[ ]-H8	13.0								
	50BL2G-16-[ ]-H8	16.5								
	50BL2G-20-[ ]-H8	21.0								
	50BL2G-30-[ ]-H8	32.0								
	50BL2G-40-[ ]-H8	42.0								
	50BL2G-55-[ ]-H8	54.0								
57BL2G-[ ]-[ ]-H8 Allowable set up speed range: 6m to 61m/min.	57BL2G- 6 -[ ]-H8	7.5	36	105	0.4	1.7	6	30	0.4	0.9
	57BL2G-10-[ ]-H8	12.0								
	57BL2G-13-[ ]-H8	15.0								
	57BL2G-16-[ ]-H8	19.5								
	57BL2G-20-[ ]-H8	24.0								
	57BL2G-30-[ ]-H8	36.5								
	57BL2G-40-[ ]-H8	48.0								
	57BL2G-55-[ ]-H8	61.0								

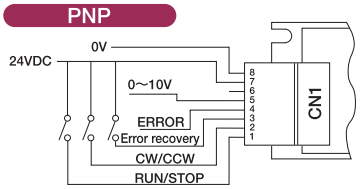
1N=0.102kgf

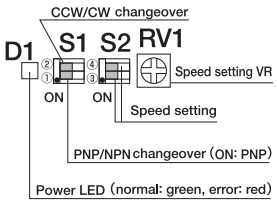
Control Card *H-8*

NPN



PNP





Specification

	Pin no	Item	Description	
Connector CN1	①	start/brake	Power ON: start Power OFF: electric brake (no holding function)	Refer to the S1-① PNP/NPN wiring diagram.
	②	Change over of direction of rotation	Power ON: CCW Power OFF: CW Change of rotation via DIP switch S1-② OFF	
	③	Error recovery	Any error can be cancelled by ON/OFF operation.	
	④	Error signal output	When an error occurs NPN transistor turns ON. Max. output current: 25mA (Short circuit protection is included.)	
	⑤	Input of ouside signal for speed control	0 to 10V (Max.input voltage 12V, input impedance more than 10 kΩ.) (When an external speed command is used, turn RV1 to zero or fully counterclockwise.)	
	⑥	GND	Signal for GND	
	⑦	24V (+)	Power input: 24VDC±10%	
	⑧	0V (-)		
Remarks	· Be very careful not to make wrong polarity connections. · Don't disconnect any connector while the power is on. · Before connecting or disconnecting the cord to CN1, be sure to remove the connector from the board. · Don't turn on or off the main power supply to start or stop.			
Protective functions	Overcurrent protection		Upon detection of 4A or more, the circuit is turned off for one PWM cycle (recovered in the next cycle)	
	Overload protection (temperature protection)		If either of the conditions given below occurs, it is considered an overload and the system enters the LOW POWER mode in which the operating current limit is approx. 0.9 A. 1. Motor current remains above the rating for 10 sec. or more. (recovers after the motor rotates 128 times in the LOW POWER mode) 2. The overheat sensor in the motor is activated. (recovers after the sensor is reset and the motor rotates 128 times)	
	Fuse		5A fuse is built in the board to protect the board.	

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