BLDC SPEED CONTROL UNIT

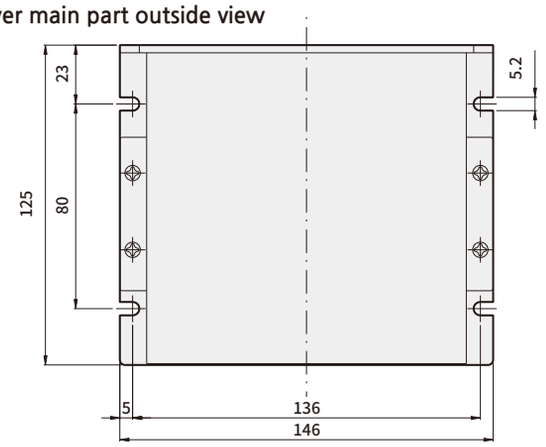
GUB

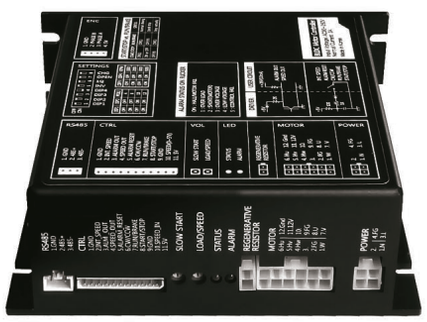
GUB-C-150
GUB-C-200

B Series Motor applied product

Produc appearance

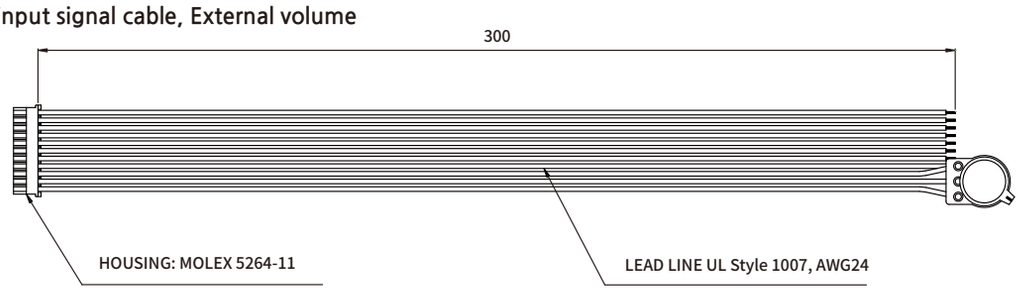
■ Driver main part outside view



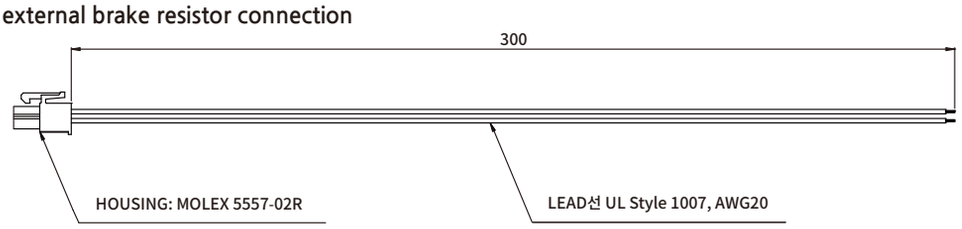


[Accessory]

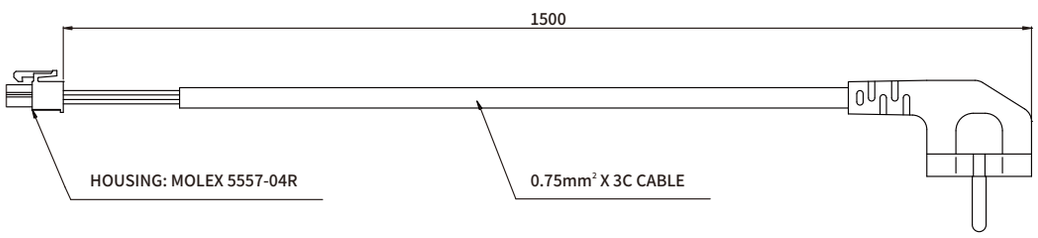
■ Driver input signal cable, External volume



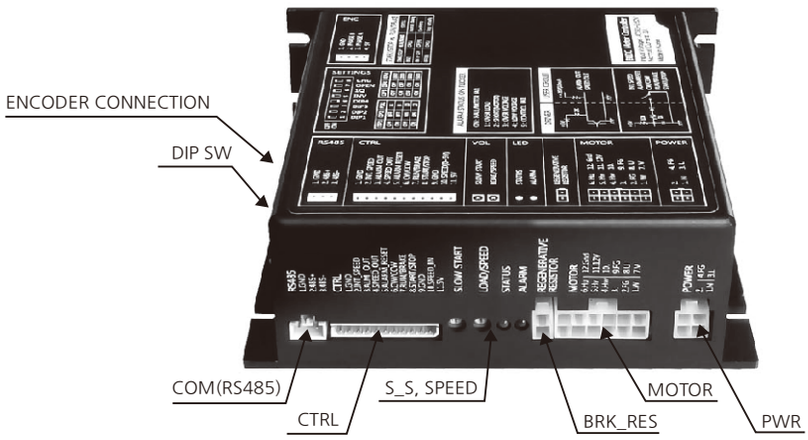
■ Cable for external brake resistor connection



■ Driver power cable



Name and functions of each part



1. Input/output specification

Items	Details	Note
External size(mm)	146 × 125 × 55	
Power input, Controller output	AC200~230V, Normal 2.5A	
Signal	Input : Pull-Off, Output : Open-Collector Type	PLC available
Communication(option)	RS485 1ch, 9600bps, Refer to additional communication spec sheet.	PLC available
Speed range	100~3,000rpm	
Speed variation ratio	Less than ±1%	

2. LED Specifications

Pin No.	Signal name	COLOR	Explanation
1	ALARM	RED	- Light on : motor hall sensor signal malfunction - Over load : It flickers every 1 second - Motor disconnection : twice continuous flickering repeat - Over voltage : three times continuous flickering repeat - Low voltage : four times continuous flickering repeat - Control failure : five times continuous flickering repeat
2	STATUS	GREEN	- It flickers every 1 second under normal condition

3. Input/output signals (MOLEX 5267-117)

Signal line is at pull-up internally. If it is L(GND), in other words, if the signal line is connected with GND or if electric potential is at GND, level, NC(disconnected with GND), then it gets turned off.

Pin No.	Signal name	Direction Color	Details
1	GND	BLACK	Ground
2	INT_SPEED	IN GREEN	ON : Set the speed by internal volume(LOAD/SPEED) OFF : Set the current by internal volume and speed by external volume(SPEED_IN)
3	ALARM	OUT PURPLE	When alarm occurs, the signal is OFF(HIGH), and at normal condition, the output is ON(L). If there is any alarm, the alarm LED is blink according to the alarm status.
4	SPEED_OUT	OUT ORANGE	Output pulse according to motor's phase variation by outputting pulse according to BLDC motor's speed. Output 30pulse signals per motor one rotation.
5	ALM_RESET	IN GREY	If controller stops by any alarm, then user must remove the cause of alarm, and restart controller using ALM_RESET Restart condition : alarm signal change ON to OFF
6	DIR	IN BROWN	Used to set the motor direction. CW : Connected to the GND(ON) CCW : Disconnected to the GND(OFF) If DIP_SW, CHG is ON and DIR is ON, the motor turns to CW. If controlled by communication, this signal is used as a limit-switch(to run motor, must to connected to GND)
7	RUN/BRAKE	IN WHITE	ON(L) : Run the motor. OFF : Quick stop of motor(BRAKE ON), and hold stop.
8	START/STOP	IN MAGENTA	ON : Ready to motor run. OFF : Stop motor naturally If DIP_SW, CHG is ON and SART/STOP is ON, the motor turns to CCW direction. If controlled by communication, this signal is used as a limit-switch(to run motor, must to connected to GND)
9	GND	BLUE	Ground
10	SPEED_IN	IN YELLOW	Set the motor speed. The range is from 0 to 5V DC.
11	5V	OUT RED	Used to supply 5V DC to the external volume. Do not use other usage but speed input.

4. Motor connector specification (Power cable 5557-04 to motor side)

Name	Pin	Pin name	Function	Remark(external harness)
MOTOR MOLEX 5566-12	1, 7, 8	W, V, U	Motor windings	MOLEX, 5557-12
	4, 5, 6	Hw, Hv, Hu	Hall sensor	
	9	FG	Frame ground	
	10	NC		
	11, 12	12V, GND	Hall sensor input voltage, Ground	
AC_INPUT MOLEX 5566-04	1, 3	AC	AC 110~220 (±10%)	MOLEX, 5557-04
	4	FG	Frame ground(FG)	
RS485 Yeonho Electronics SMAW250-03	1	GND	RS485 connector(Option)	SMH250-03
	2	485+		
	3	485-		
ENC SMAW250-04	1~4	GND, B, A, 5V	Encoder connector(PHASE_A, PHASE_B) (Option)	SMH250-04
BRK_RES MOLEX, 5566-02		Regenerative resistor connector Use resistor range of 50~100Ω and more than 50watts power recommanded.		MOLEX, 5557-02
CTRL MOLEX, 5267-11		Control in/out signals. Refer to the below table.		MOLEX, 5264-11

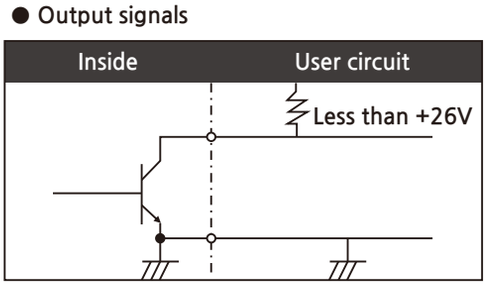
5. Control conditions by the signals, START/STOP and RUN/BRAKE

To run the motor, connect RUN/BRAKE and START/STOP to GND
To stop the motor(free state), disconnect the signal START/STOP from the ground(GND).
When motor running, and wants to stop quickly. Disconnect RUN/BRAKE from GND

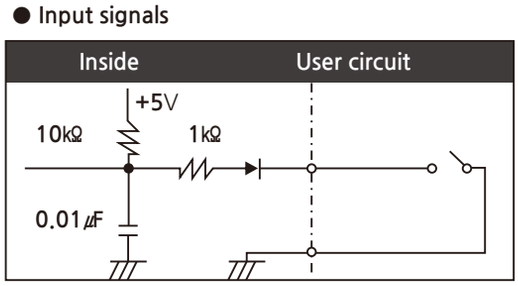
START/STOP	RUN/BRAKE	Operation status
ON(L)	ON(L)	Normal operation
ON(L)	OFF(H)	Instant stop
OFF(H)	ON(L)	Automatic stop due to inertia of motor and load

Input/output signals in the form(User Control connection-related)

● Output signals



● Input signals



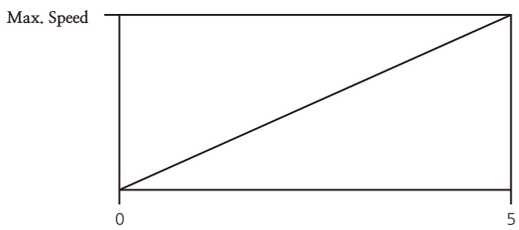
For output circuit : the pull-up resistance must be set not to over 10mA.

Ex) At 24V input, the max. value of pull-up resistor is 24V/0.01A = 2.4kΩ.

6. Internal variable resistance

■ Maximum allowed load setting and internal speed setting

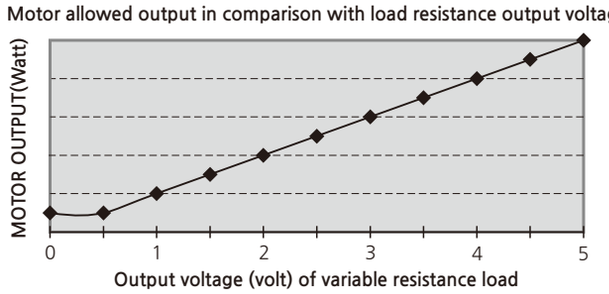
When the signal, INT_SPEED of CTRL is ON, the motor speed is controlled by internal volume(LOAD/SPEED).



Motor speed vs. external voltage : SPEED_IN

or the INT_SPEED is OFF, it is used to limit max. Current of motor.
Motor's current limits is in proportion to the rotating amount of variable resistor in clockwise direction. And it is changed to max allowable current.

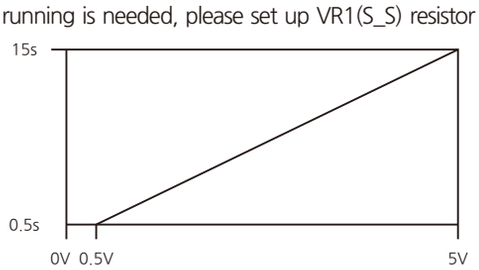
Motor allowed output in comparison with load resistance output voltage



Output voltage (volt) of variable resistance load

■ Deceleration and acceleration(VR1) : S_S(Slow Start)

Decide motor's acceleration and deceleration slope.
As variable resistor is max value, motor's reaching time from stop status to max speed is 15 seconds as min value (below 1 scale) is setup, motor's reaching time is within 0.5 seconds.
As rapid acceleration, deceleration running is needed, please set up VR1(S_S) resistor to below 1 scale (minimum value)



-Under 1 scale set : less than 0.2s to the max. speed.
-1~9 scale set => 0.5s~15s

7. Speed output (SPEED_OUT)

30pulses per one revolution.