

Speed Control Motor and Controller Package DSC Series

<Additional Information>

- Technical reference → Page H-1
- Regulations & Standards → Page I-2

Standard Type
Parallel Shaft/
Round Shaft

Electromagnetic
Brake Type
Parallel Shaft



● For detailed information about regulations and standards, please see the Oriental Motor website.



- A high-reliability closed loop control speed control package.
- High performance, with easy installation and simple data setting. The display and digital setting features are built-in, making it even easier to use.
- An entry level speed control package that is both reasonably priced and compact.
- The electromagnetic brake type can be operated vertically.

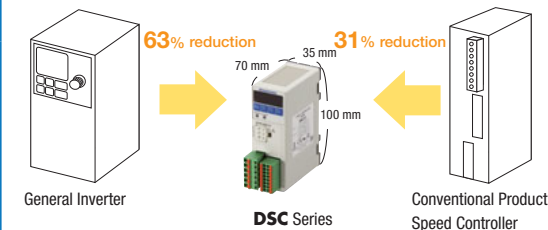
The **DSC** Series features are AC motors and speed controllers that utilize Oriental Motor's exclusive technology. They provide high reliability with closed loop control, and because the phase control circuit has been digitized, the size of the speed controller has been reduced.

Features

Easy Setting, More Control, Less Space

● Compact

The volume is 63% smaller than a general inverter.



● Side-by-Side Installation Saves Space

The body width is 35 mm, and even when using multiple speed controllers, the installation is compact because they can be installed side by side.



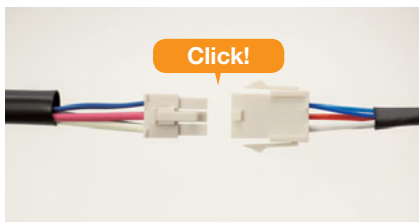
● Slim Body Control Box

Depth is 90 mm. Can be installed in slim body control cabinets.



● Connecting the Motor and Driver is Easy Using a Connector

Wiring the speed controller and motor together uses a connector, so installation and removal are easy.



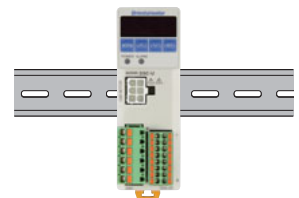
● Screwless I/O Wiring Requires No Crimping or Screwing

No need for soldering or crimping tools, and no torque management for screws necessary. Reduces wiring time and maintenance.



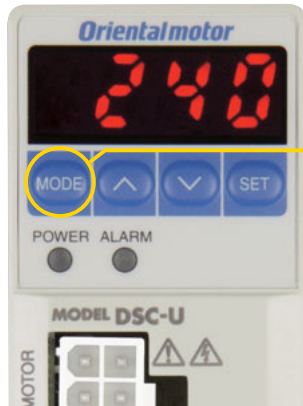
● Easy DIN Rail Installation

The speed controller can be installed directly on the DIN rail.



Simple User Interface

● Speed and Other Settings are Shown and can be Entered Directly



Monitoring Mode

Real-time monitor for speed (Motor, gear shaft, conveyor speed), alarms, warnings, I/O status monitor

Data Mode

Speed setting

Parameter Mode

Set I/O assignments and parameters

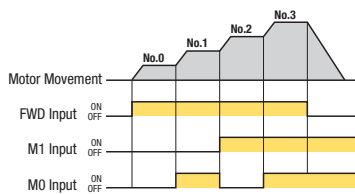
Test Mode

Test operation without data setting is possible.

● An operation lock can prevent accidental operation.

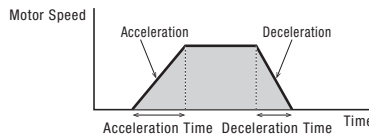
● Speed Control (4 speeds)

4 units of operating data can be set, and can be switched with I/O during operation.



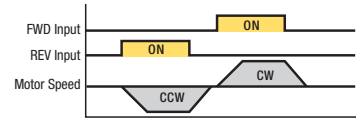
● Acceleration/Deceleration

Makes the motor movement at start/stop smoother. It is possible to set acceleration/ deceleration differently for each of the 4-speed data units.



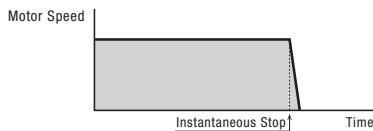
● Bi-Directional Operation

Performs the operation according to the command for rotation direction.



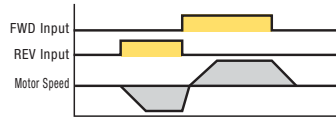
● Instantaneous Stop

Stops the operating motor instantaneously. (Short cycle run/stop conditions can be created)



● Instantaneous Bi-Directional Operation

Instantaneously switches the rotation direction of the motor while operating. (Short cycle change conditions can be created)

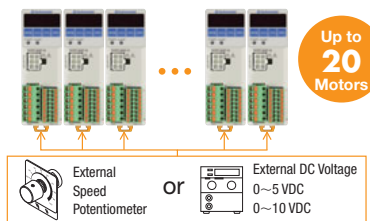


● External Speed Setting Input is Possible

- (1) Setting using operation key
- (2) External speed potentiometer
Included or accessory
- (3) External DC voltage
0~5 VDC or 0~10 VDC

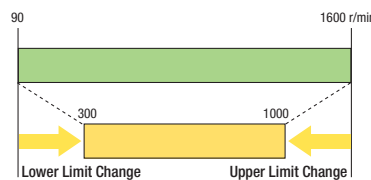
● Parallel-Motor Operation (20 Units Max.)

A single external speed potentiometer can operate a maximum of 20 units in parallel. Fine adjustment of each motor's speed can be performed by changing the controller's parameters.



● Speed Range Control

It is possible to limit the speed setting in advance with the speed range.



Overview, Product Series

Brushless Motors

AC Input BMU

AC Input BLE2

AC Input BXII

DC Input BLH

AC Speed Control Motors

DSC

US2

Accessories

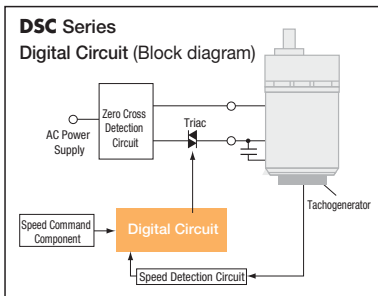
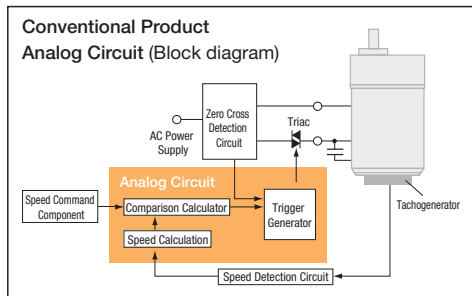
Installation

Speed Control Using Closed Loop Control

Speed is always monitored by the tachogenerator built into the AC motor. The actual speed is controlled to match the speed setting, even when the load fluctuates.

Standard Type
Parallel Shaft/
Round Shaft

Electromagnetic
Brake Type
Parallel Shaft



● Speed regulation $\pm 1\%$ (Reference value)

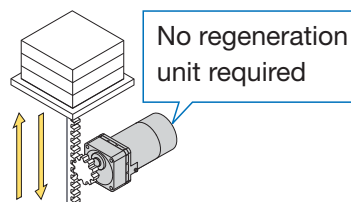
Digitalization of Circuits

Most of the analog circuits that were used in the past have been replaced with software, which is now run by the CPU, and circuit components have been vastly reduced. This has drastically reduced the size as well as the number of circuit components. In addition, due to this switch to digital processing, it is possible to make the deviation for the speed command and speed detection values almost 0, and speed regulation has been improved from -5% to $\pm 1\%*$.
*0~permissible torque when at 1000 r/min

Vertical Operation is Possible with Electromagnetic Brake Type

Speed control in vertical operation is possible through deceleration control. (For details on deceleration control and driving conditions while using deceleration control, refer to page D-126.)

Speed Control Range
50 Hz:
300~1400 r/min
60 Hz:
300~1600 r/min

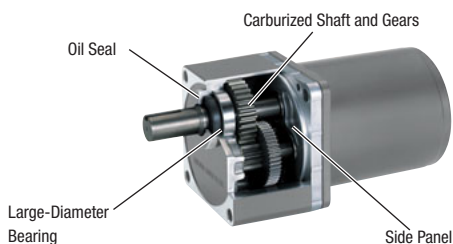


Use of a High Permissible Torque, High Strength Gearhead

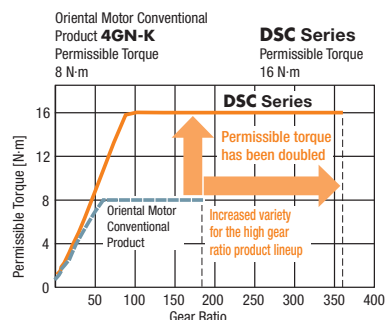
Utilizes a gearhead that excels in both permissible torque and strength. Special side panels in the gearhead have increased case rigidity, and heat processing (carburization) has increased the strength of the gears.

Parallel Shaft Combination Type

Internal Gearhead Structure

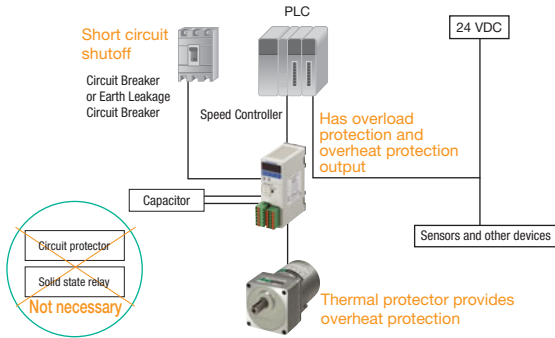


For Geared Type with 80 mm Frame Size



High Reliability

● Low Noise Gives Peace of Mind, and System Configuration is Simple



Inverter + Three-Phase Motor

PWM control

Lots of noise

Controls the voltage and frequency
1 cycle performs 300 switchings

Conditions ● Carrier frequency: 15 kHz
● Setting frequency: 50 Hz

DSC Series

Phase control

Little noise

Controls the voltage
1 cycle performs 2 switchings

Conditions ● Power supply frequency: 50 Hz

● Alarm Output Increases Reliability

Thanks to the closed loop control, feedback on the motor status is provided to the controller in real-time. An alarm signal is output when an abnormality, such as motor lock due to overload, occurs and the supply of power to the motor is stopped.

Alarm Details

- Motor Overheat
- Motor Lock
- Overspeed
- EEPROM (Saved data error)
- Operation Stop During Initialization
- External Stop

Saves a History of up to 9 Alarms

Product Line

The motor, gearhead, speed controller, connection cable (product without connection cable is also selectable) and external speed potentiometer are delivered as one package.

List price: From €151.00 (6 W, round shaft type, connection cable and external speed potentiometer not included)

Package						
Motor	Output Power	Max. Permissible Torque	Speed Controller	Power Supply Voltage	Included*	Package Price Range
Standard Type Parallel Shaft Combination Type → Page D-113	6 W 15 W 25 W 40 W 60 W 90 W	40 N-m		Single-Phase 220/230 VAC	Connection Cable 1 m, 2 m, 3 m or not included	€195.00 ~ €345.00
Standard Type Round Shaft Type → Page D-114		0.73 N-m			1 m, 2 m, 3 m or not included	€151.00 ~ €229.00
Electromagnetic Brake Type Parallel Shaft Combination Type → Page D-125		40 N-m			1 m, 2 m, 3 m or not included	€255.00 ~ €444.00

* Products including an external speed potentiometer are also available.