



DFC-02 Ver2.0 User's manual

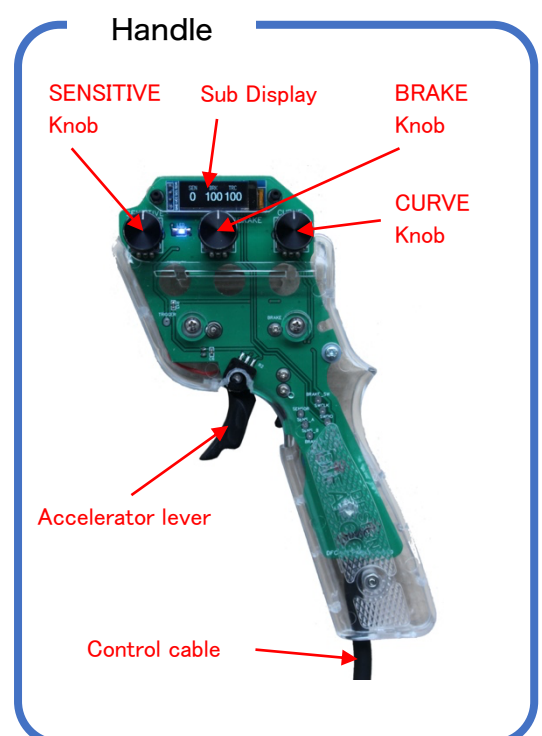
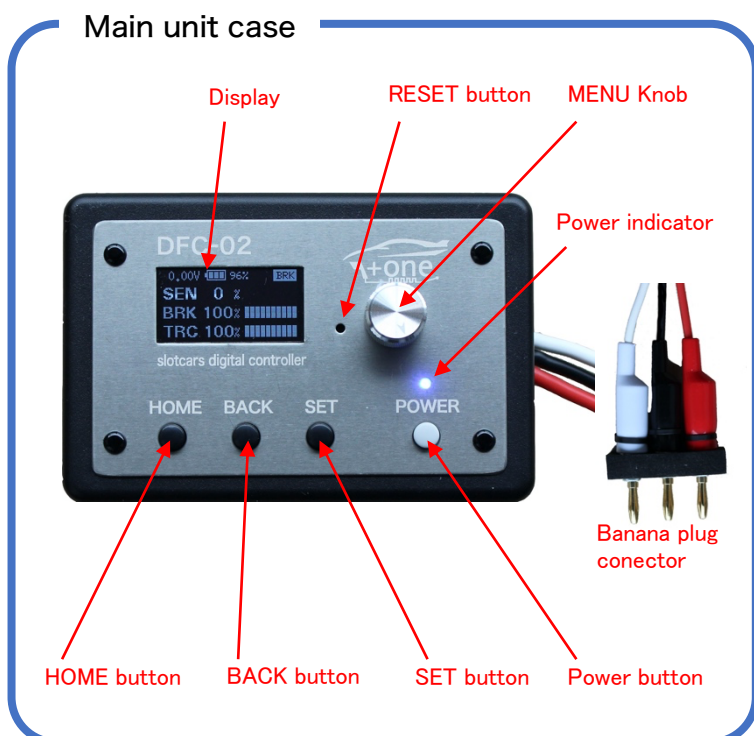
□ Features

- A high-performance 32-bit microcomputer is used, and the reaction speed of both accelerator and brake is 1/1000 second.
- Equipped with an OLED display to visualize setting data numerically.
- Equipped with memory function for setting data (24 data).
- By installing a rechargeable battery, you can check and change the settings in the pit.
- Equipped with predictive braking function Smart Brake.
- Accelerator PWM frequency can be set to 3 levels of variable frequency, and brake PWM frequency can also be changed.
- Wider range of traction control settings, more flexible response to course conditions.
- Wiper less lightweight handle inherited from DFC-01.
- Equipped with a reverse connection protection circuit that minimizes electrical resistance loss.
- Left-handed handle model available.

□ Specifications

- Wiring : Positive polarity
- Operating voltage : Min 9V , Max 16V

□ Part name



- **Display**

The status display during driving and various setting information are displayed.

- **Power button**

Power ON / OFF button.

If you press the button when the Power LED is off, the power will turn on and the LED will turn on.

To turn off the power, remove the plug from the course and press the Power button.

In addition to turning the power on / off with the Power button, the power turns on automatically when the banana plug is connected to the course with the auto power ON / OFF function. Also, if there is no operation for 10 minutes after unplugging the course, the power will be turned off automatically.

- **HOME button**

It switches from various setting modes to driving mode.

By pressing and holding the button, you can lock the handle dial (SENSITIVE, BRAKE, CURVE) and prevent changes due to erroneous operation. To unlock, press and hold the button again.

- **BACK button**

Return to the previous screen on the setting mode.

- **SET button**

Press the Set button in driving mode to switch to setting mode and display the setting menu on the display.

In the setting mode, the menu item is decided and the set value is confirmed by pressing the button.

- **MENU knob**

In setting mode, turn the knob to select a menu item or change the set value.

- **RESET button**

The power is forcibly turned off when the device becomes unresponsive.

- **SENSITIVE knob**

For adjusting accelerator sensitivity.

- **BRAKE knob**

For adjusting brake intensity.

- **CURVE knob**

For traction control adjustment.

- **Sub Display**

The accelerator sensitivity setting value, brake intensity setting value, and traction control setting value are displayed.

☐ Precautions for use

• Plug connection sequence

For plug connection to the course, connect the red (-) plug, white (+) plug, and black (motor) plug in this order to the course adapter.

Please put the car on the course after connecting the plug.

After connecting the plug, if "the power lamp does not light", "an error message is displayed on the main unit display", or "the vehicle does not move", there is a possibility of incorrect wiring. Immediately unplug it, check it again, and connect it.

• Operating voltage

The operating voltage is 9 to 16V. Please be sure to use within the range.

If a course wiring short circuit or motor short circuit occurs, the protection circuit will work and an error message will be displayed on the main unit display. Stop using the product and check the cause of the short circuit.

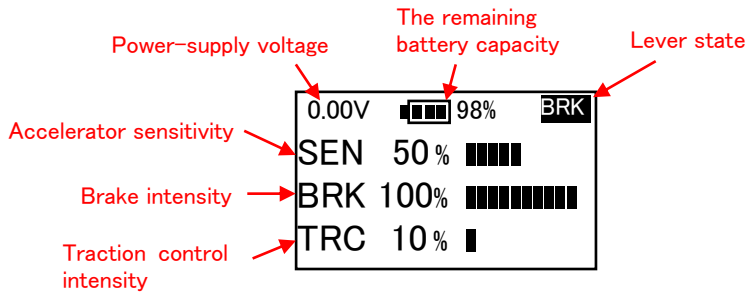
• Confirmation of accelerator position

The accelerator lever position is set at the time of shipment, but the accelerator may not be 100% output depending on the usage environment. If the output is not 100%, set the lever position. (For how to check the accelerator output, refer to the explanation of the throttle status on the driving mode screen.)

□ Operation explanation

1. Driving mode

When the power is turned on, the driving mode is set. It is possible to drive only in the driving mode.



Driving mode display

• Power-supply voltage

When you connect the plug to the course, the course power voltage is displayed.

• The remaining battery capacity


The remaining battery level is displayed when the battery is operating.

When the plug is connected to the course, the battery mark will be  and battery charging will start.

If the battery runs out and you cannot turn on the power, connect to the course and change the settings.


• Lever state

The state of the lever is displayed with the following mark.

: Brake

: Output ON

: Output MAX

※ If is not displayed  when the lever is fully open, set the lever position.

• Accelerator sensitivity (SEN)

The sensitivity setting (0 to 100%) when the accelerator is turned from OFF to ON is displayed.

You can change it with the SENSITIVE knob on the top of the handle.

• Brake intensity (BRK)

The brake intensity setting (0 to 100%) is displayed.

You can change it with the BRAKE knob on the top of the handle.

• Traction control intensity (TRC)

The traction control intensity setting (0 to 100%) is displayed.

You can change it with the CURVE knob on the top of the handle.

2. Setting mode

In the setting mode, you can change and check various settings.

Press the [Set] button on the driving mode screen to switch to the setting mode and display the menu list of setting items.

Press the [Back] button on the menu list screen or the [Home] button on each setting screen to return to the driving mode.

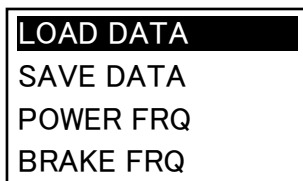
•Settings List

Setting items	Description
LOAD DATA	Loading saved setting data
SAVE DATA	Saving the current setting data
POWER FRQ	Accelerator PWM frequency setting
BRAKE FRQ	Brake PWM frequency setting
SMART BRAKE	Predictive brake settings
CHOKE	Accelerator output voltage setting (60–100% of input voltage)
TRACTION	Traction control settings
LEVER POSITION	Lever position setting
HANDLE	Handedness setting of the handle
INFORMATION	Confirmation of device information





•Setting menu screen

Turn the MENU knob to highlight the items to be set and press the [Set] button to display the setting screen.

The menu list scrolls when you turn the knob.



Basic operation in setting mode

-  MENU knob : Move selection items, change setting values
-  HOME button : Exit setting mode
-  BACK button : Return to the previous screen, move to the previous setting item
-  SET button : Select and confirm the set value

•LOAD DATA

Load the setting data saved by Save Data and set all at once.

To load the saved configuration data, select the saved Car ID.

See Save Data for how to select.

•SAVE DATA

Can save the current setting data.

•Setting items to save

Items	Description
SENSITIVE	Accelerator sensitivity
BRAKE	Brake intensity
TRACTION	Traction control intensity
POWER FRQ	Accelerator PWM frequency setting
BRAKE FRQ	Brake PWM frequency setting
SMART BRAKE	Predictive brake settings
CHOKE	Accelerator output voltage setting

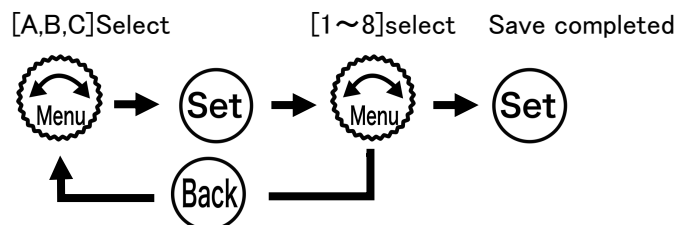
Save the above settings as one data. (Maximum 24)

To save, specify the Car ID to save.

There are 24 Car IDs that can be set: [A, B, C]-[1,2,3,4,5,6,7,8].

Car ID: A - 1
Save Data
SENSITIVE : 60%
BRAKE : 100%
TRACTION : 0%

SAVE DATA Screen



•POWER FRQ

Accelerator PWM frequency setting.

Three types of frequencies can be set according to the accelerator opening.

Low : PWM frequency in the low range of accelerator opening

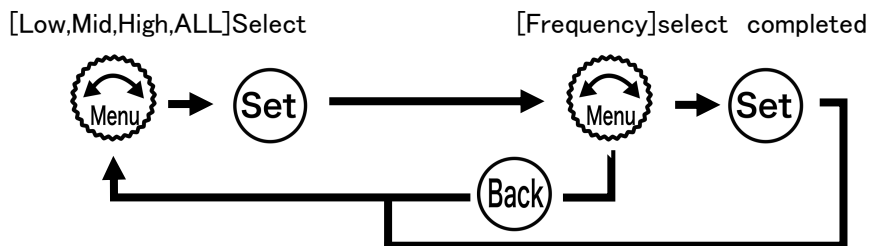
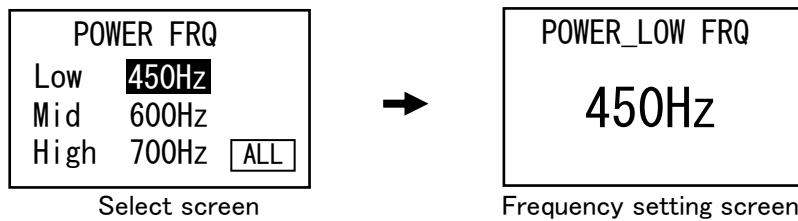
Mid : PWM frequency in the middle range of accelerator opening

High : PWM frequency in the high range of accelerator opening

First, select the accelerator opening [Low, Mid, High] you want to set, and set the frequency on the frequency setting screen.

When [ALL] is selected, Low, Mid, and High are set at the same frequency.

For each frequency, we recommend [Low frequency] ≤ [Mid frequency] ≤ [High frequency].

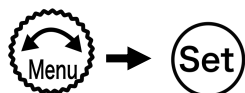


•BRAKE FRQ

Brake PWM frequency setting.



[Frequency] select completed



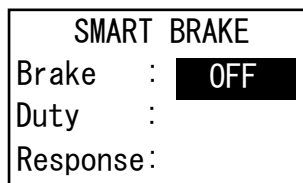
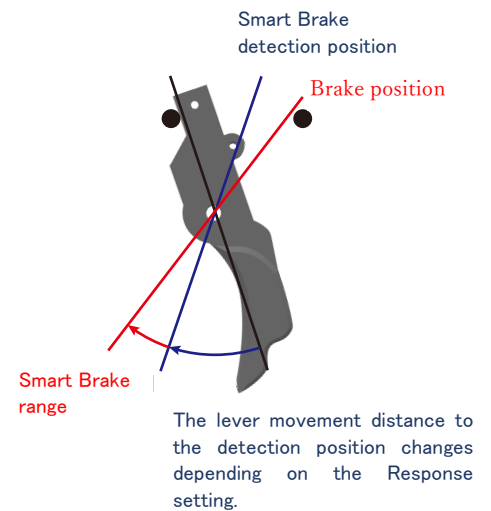
SMART BRAKE

It is a function that predicts whether the driver is in the braking operation from the accelerator lever operation and applies the brake before the accelerator lever returns to the braking position.

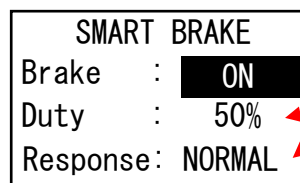
※ The smart brake is applied only while the lever is released.

If the lever operation is stopped or the accelerator is operated to the accelerator increase side, the brake will be turned off and the motor output will be restarted.

Items	Description
Brake	ON / OFF setting of Smart Brake
Duty	Set the brake intensity from 0 to 100%. ※When the accelerator lever returns to the braking position, the Intensity set by "Brake intensity" takes precedence.
Response	This is the sensitivity setting of Smart Brake. The timing of braking ON changes depending on the amount of lever movement. [SLOW] When Lever movement is large, Smart Brake is ON. [NORMAL] When Lever movement is medium, Smart Brake is ON. [FAST] When Lever movement is small, Smart Brake is ON.

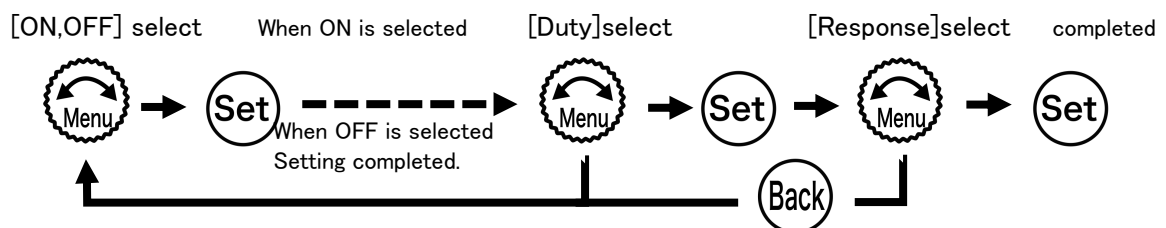


ON/OFF select screen



ON select screen

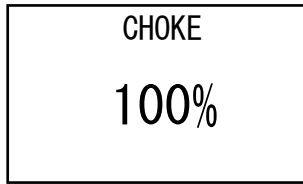
When ON is selected, the Duty (brake intensity) and Response (sensitivity) settings are displayed.



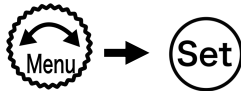
•CHOKE

You can adjust the output voltage of the accelerator (60 to 100%).

※Normally, use 100%.



[Output value]select completed

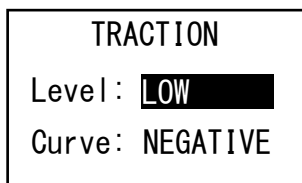


•TRACTION

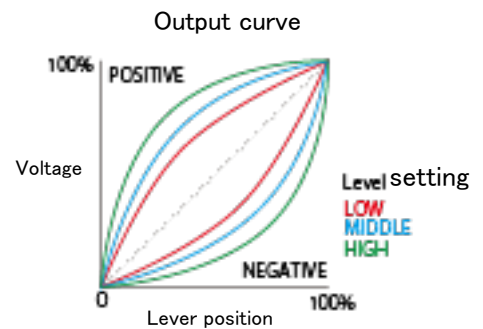
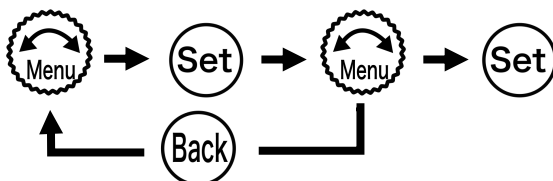
Traction control settings.

You can change the output characteristics of the accelerator lever operation.

設定	内容
Level	Three levels of LOW, MIDDLE, and HIGH can be selected, which affects the Traction intensity. Even if the Traction intensity value is the same, the traction control level increases in the order of LOW → MIDDLE → HIGH.
Curve	Selection of output curve for traction control. Negative has mild output characteristics and is effective on slippery road surfaces. Positive has a peaky output characteristic.



[Level]select [Curve]select completed



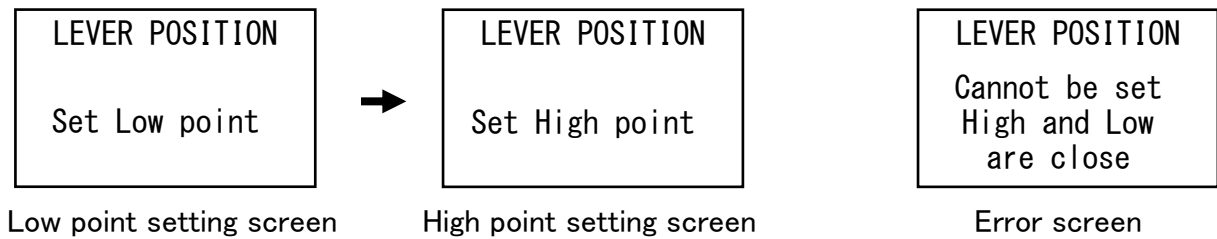
• LEVER POSITION

Set the high point (maximum accelerator output position) and low point (accelerator output 0 position) of the lever.

If the position is not set properly, the maximum output may not be achieved even when the lever is at the High point, so set it properly.

- ① When the Low point setting screen is displayed, set the accelerator lever to the brake position and press the Set button.
- ② The High point setting screen will be displayed. Set the accelerator lever to the High point position and press the Set button. If it is set normally, it will return to the menu list screen.

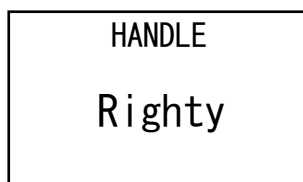
※ If the Low point and High point are too close, a setting error will be displayed, so press the Set button to set again.



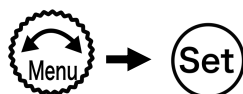
• HANDLE

Right-handed (Righty) and left-handed (Lefty) settings.

※ No need to change. Please use it in the state at the time of shipment.



[Righty,Lefty]select completed



•INFORMATION

Displays device information such as software version and data version.

INFORMATION
Soft Ver: 1.00
Data Ver: 1.00

Trouble Shooting

Content	Confirm
The power does not turn on even if the cables (white, black, red) is connected to the course.	Make sure the cables (white, black, red) are connected correctly.
When I connect a cable (white, black, red) to the course, the error message "ERROR: 00000001" is displayed and the car does not move.	Make sure the cables (white, black, red) are connected correctly.
The error message "ERROR: 00000001" is displayed while driving and the car stops.	The car and the course shielded wire are in contact and short-circuited. Raise the ground height or install insulation measures on the chassis before driving.
When I apply the brakes, the car remains stationary and does not move.	Due to compatibility problems with the course power supply, the protection circuit of the course power supply may work and the power supply may stop. Set the brake strength to 100% or set the brake PWM frequency (BRAKE FRQ) to 200Hz or less.

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