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# TOSHIBA TOSVERT Transistor Inverter User Guide

## TOSHIBA

**TOSVERT Transistor Inverter
User Guide**

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## Braking setting functions

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# Function

Setting functions to control braking timing.
**Parameter setting for braking setting function**

| Title | Function | Setting range | Default settin |
|-------|----------|---------------|----------------|
| $F342$ | Braking mode selection | 0: Disabled<br>1:Enabled (forward run)<br>2:Enabled (reverse run)<br>3:Enabled (operating direction) | 0 |
| $F343$ | Release frequency | $F240$ – 20.0 [Hz] | 3.0 |
| $F344$ | Release time | 0.00 – 2.50 [s] | 0.05 |
| $F345$ | Creeping frequency | $F240$ – 20.0 [Hz] | 3.0 |
| $F346$ | Creeping time | 0.00 – 2.50 [s] | 0.10 |

| Title | Function | Setting range | Setting value |
|-------|----------|---------------|---------------|
| $F130$ | Output terminal selection 1A (RY-RC) | 0 – 255 | 46:BR (Braking sequence output)<br>or<br>47:BRN (Inversion of braking sequence output) |

Note) In case of others output terminal, it is deferent from parameter title.

RY-RC: $F131$

FLA-FLB-FLC: $F.132$

**Explanation of braking setting function**

**At starting the motor:**

When the operation signal is 'ON', the brake release signal is 'ON' after getting the flux of magnetic induction before brake releasing.

The output torque of inverter is generated before the brake is released by outputting 'the frequency of the $F343$ setting' to 'the direction of the $F342$ setting'.

The motor is able to accelerate smoothly at the same time as releasing the brake because $F344$ function provides 'the delay of acceleration beginning '.

**At stop the motor:**

When the operation signal is 'OFF', the brake close signal is 'ON' after reaching the creeping frequency of $F345$ setting. After that, the VF-S11 outputs creeping frequency while setting time of $F346$, and stops after delayed time of mechanical brake.

## $F342$ Braking mode selection

0: Disabled

1: Enabled (forward run)

The rise operation is forward rotation of motor at RISE/DESCENT action.

The direction of inverter output frequency ($F343$) is forward direction regardless of FORWARD/REVERSE drive.

2: Enabled (reverse run)

The rise operation is reverse rotation of motor at RISE/DESCENT action.

The direction of inverter output frequency ($F343$) is reverse direction regardless of FORWARD/REVERSE drive.

3: Enabled (operating direction)

This value is for the horizontal operation.

The direction of inverter output frequency ($F343$) is same as direction of drive.

## $F343$ Release frequency

The inverter outputs $F343$'s frequency to $F342$'s direction. This function is for generating motor torque by slipping of the restrained motor. By this, the motor starts smoothly when the brake is released.

The $F343$ setting value depends on load condition. The standard setting is 'the slipping frequency' at rated output of applied motor.

## $F344$ Release time

The release time is time to maintain frequency of $F344$ setting at start.

The standard setting is delayed time of mechanical brake.

## $F345$ Creeping frequency

The 'close brake signal' outputs $F345$'s frequency while $F346$'s setting time at stop.

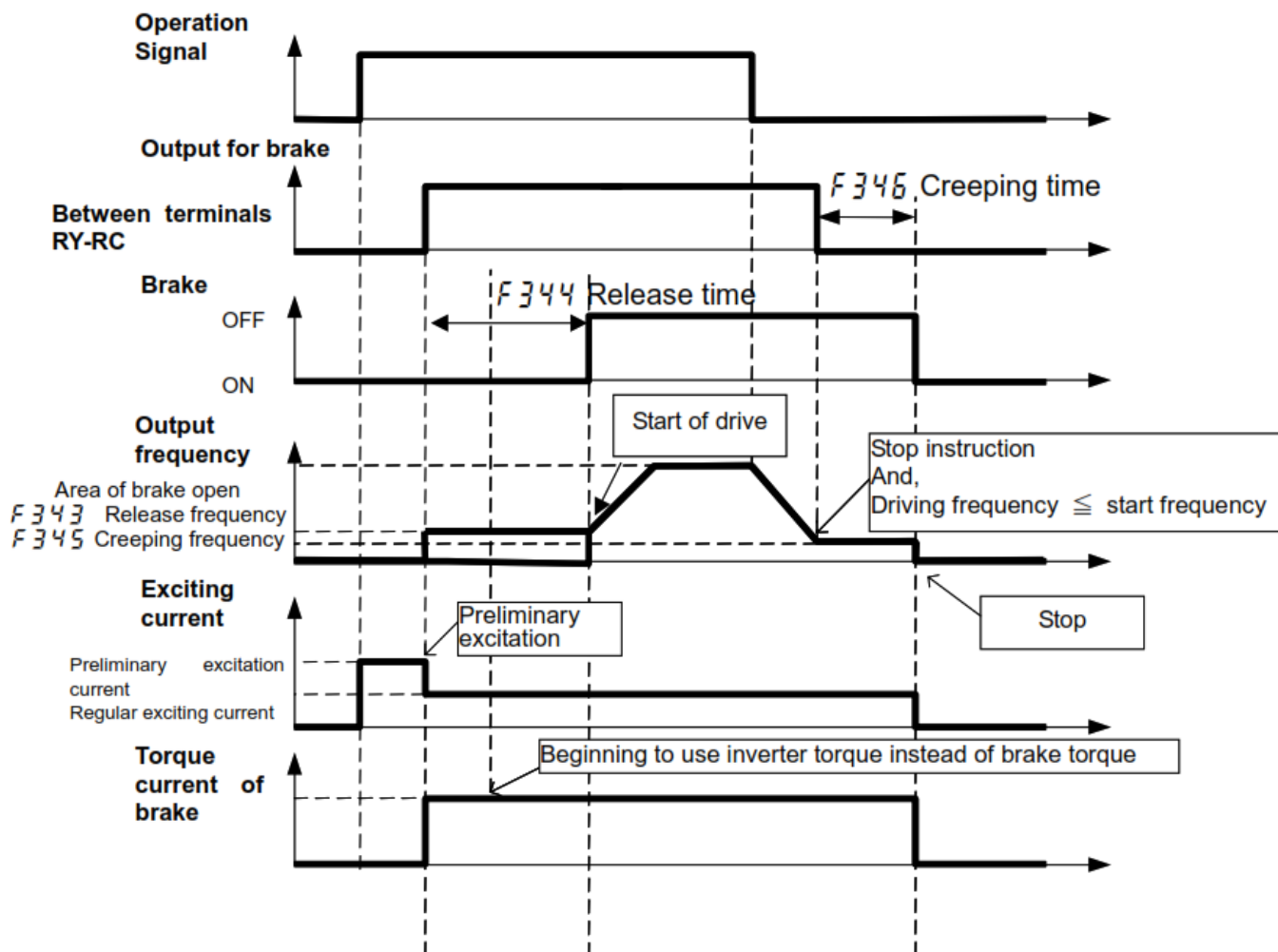The $F345$ setting value depends on load condition. The standard setting is

The $F345$ setting value depends on load condition. The standard setting is 'the slipping frequency' at rated output of applied motor

## $F346$ Creeping time

The creeping time is time to maintain frequency of $F345$.

The standard setting is a little more than delayed time of mechanical brake.

## Timing chart of brake setting function

**Operation Signal**

**Output for brake**

**Between terminals RY-RC**

$F\,346$ Creeping time

**Brake**
OFF
ON

$F\,344$ Release time

**Output frequency**

Area of brake open
$F\,343$ Release frequency
$F\,345$ Creeping frequency

Start of drive

Stop instruction
And,
Driving frequency $\leqq$ start frequency

Stop

**Exciting current**

Preliminary excitation current
Regular exciting current

Preliminary excitation

**Torque current of brake**

Beginning to use inverter torque instead of brake torque

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**Toshiba Schneider Inverter Corporation**

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## Documents / Resources

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|---|---|
| TOSHIBA<br><br>TOSVERT VF-S11<br>Braking setting functions<br><br>Toshiba Schneider Inverter Corporation | **TOSHIBA TOSVERT Transistor Inverter** [pdf] User Guide<br>TOSVERT Transistor Inverter, TOSVERT, Transistor Inverter, Inverter |

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