
TOSVERT VF-S15

Traverse control Instruction Manual

~For textile machines~

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1. Introduction

The VF-S15 has a traverse function useful especially for textile machines.

The manual explains about the traverse function.

Please read this instruction manual carefully along with the VF-S15 instruction manual.

2. Parameters for setting the traverse function

The parameters in Table 1 are used for traverse operation shown in Figure 1.

Table 1: Traverse function setting parameters

Title	Function	Adjustment range	Default setting
<i>F980</i>	Traverse selection	0:Disabled 1:Enabled (Note)	0
<i>F981</i>	Traverse acceleration time	0.1~120.0 (s)	25.0
<i>F982</i>	Traverse deceleration time	0.1~120.0 (s)	25.0
<i>F983</i>	Traverse step	0.0~25.0%	10.0
<i>F984</i>	Traverse jump step	0.0~50.0%	10.0

Note: To perform traverse operation, you need to assign the traverse permission signal 134 (135 [inverse]) to an input terminal.

The settings of the above parameters (*F981* to *F984*) take effect once in every half cycle of traverse operation.

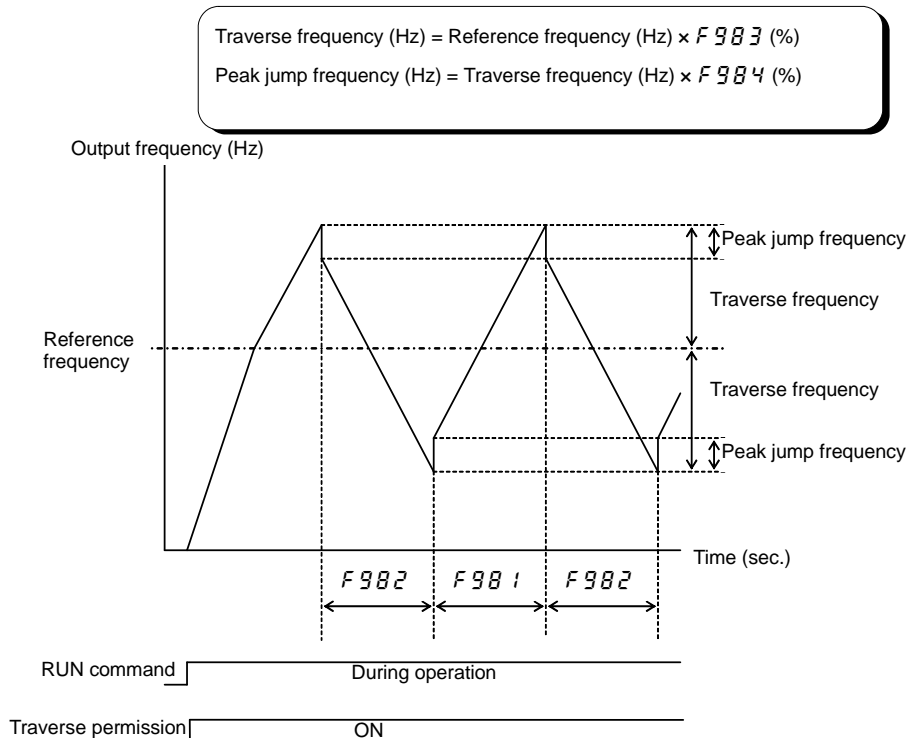


Fig. 1: Traverse operation

3. Caution about the use of the traverse control

Note the following information when you use the traverse function.

■ Caution about the use of a potentiometer

If an external potentiometer (analog input) is used to set the reference frequency, an error of analog input may occur. If such an error becomes a problem, the operation panel or the preset speed operation function should be used instead.

You can check the reference frequency by the status monitor function (Frequency command value).

■ Suspension of traverse operation

Traverse operation does not work in the acceleration/deceleration period which doesn't satisfy the starting condition of traverse.

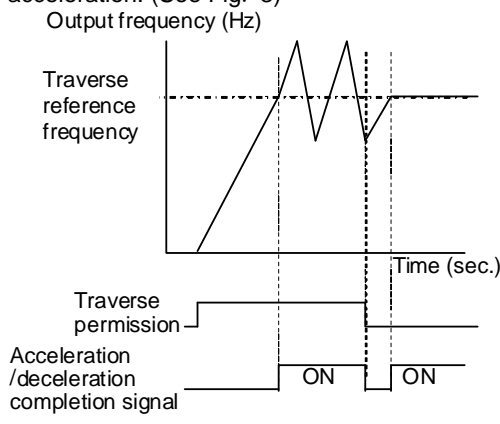
■ Speed reach detection band (F 102)

(Output terminal function No. 6 and 7 (acceleration/deceleration completed))

On completion of acceleration, an acceleration/deceleration completed signal is issued in relation to the traverse reference frequency.

If a traverse permission signal is OFF during traverse operation, the acceleration/deceleration completion signal is effective to the output frequency. The signal is OFF in the condition that the output frequency is the outside of the frequency range set by F 102 (speed reach detection band).. (See Fig. 2)

Furthermore, the setting of F 102 determines also the traverse operation start point. High frequency setting of F 102 enables to accelerate the machine while continuing traverse operation. Note that the traverse frequency and the peak jump frequency before the output frequency reaches to the reference frequency are different from those during normal operation, and they vary with the output frequency during acceleration. (See Fig. 3)



* F 102=0

Fig. 2: Acceleration/deceleration completed (F 102=0)

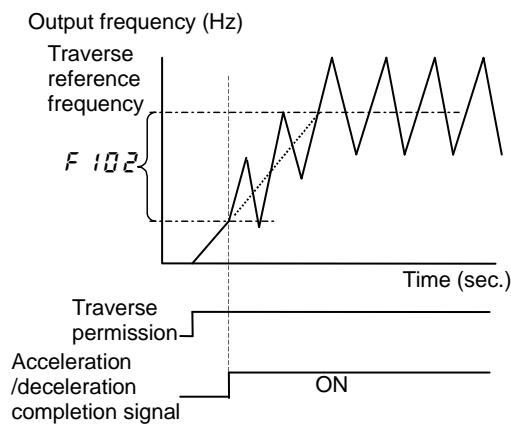


Fig. 3: Acceleration/deceleration completed with F 102 setting.

■ Set frequency attainment signal, F 101 and F 102

(Output terminal function No. 8 and 9 (Set frequency attainment signal))

The set frequency attainment signal set with F 101 (Speed reach setting frequency) and F 102 (Speed reach detection band) operates on output frequency including traverse operation frequency.

■ Relationship between traverse reference frequency and output frequency limit

The relationship between the traverse reference frequency and the output frequency limit is described below. The output signals of lower limit frequency, the upper limit frequency, and the low-speed detection during traverse operation are effective to the traverse reference frequency.

Traverse reference frequency : Between $L L$ (lower limit frequency) and $U L$ (upper limit frequency) or $F H$ (maximum frequency), whichever is lower.
 Output frequency : Frequency between $F 240$ (Starting frequency) and $U L$ (upper limit frequency) or $F H$ (maximum frequency), whichever is lower.

■ Setting parameters of the control terminal

Set the following parameter to carry out traverse operation.

1. Set $F 980 = 1$ (traverse operation: Enabled).
2. Assign the function No. **134 / 135 [inverse]** (traverse permission signal) to an input terminal.
 When the terminal is turned on, traverse operation starts.

If you don't use external input signal, set $F 104$ (always active function selection 1) to **134**.

Input terminal selection parameter: $F 111$ to $F 116$, $F 151$ to $F 156$

Example: Assign the traverse permission signal to the terminal S3

Title	Function	Adjustment range	Example of setting
$F 116$	Input terminal selection 6 (S3)	$0-203$	134 (Traverse permission signal)

Note: If the traverse function is turned off during traverse operation using a parameter or by the signal from the control terminal, the operation mode changes from traverse operation to constant speed operation according to the acceleration/deceleration time setting (see Fig. 4).

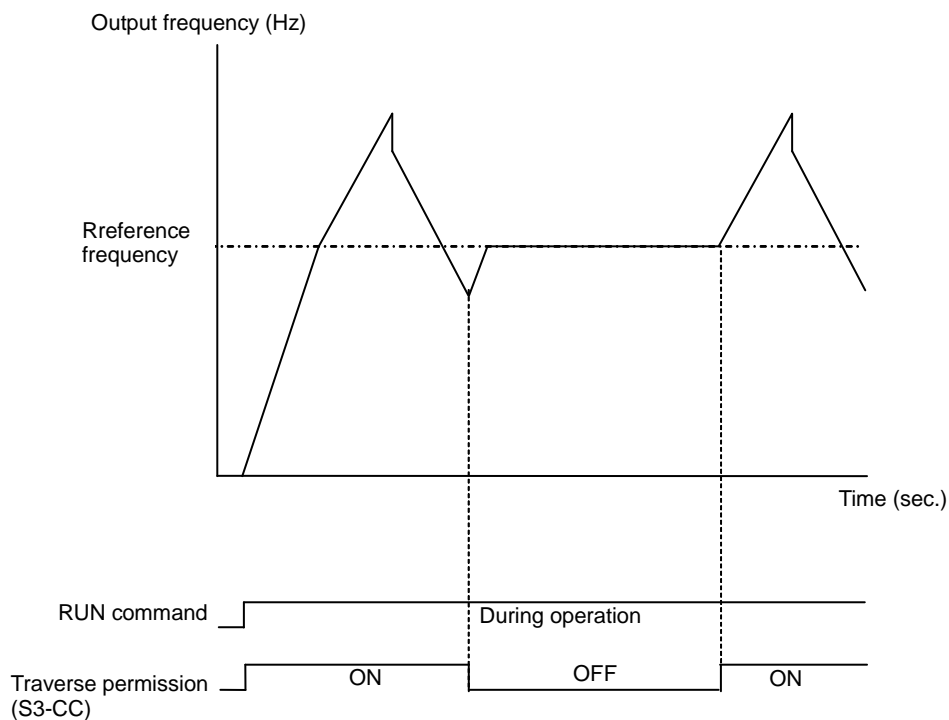


Fig. 4 Timing when the traverse function is off

3. The traverse operation signal can be sent from inverter to external devices.

Assign the function No. **124 / 125 [inverse]** (traverse in progress) and **126 / 127 [inverse]** (traverse deceleration in progress) to the output terminals.

Output terminal selection parameter: *F 130* to *F 132*, *F 137*, *F 138*

Example: Output the traverse in progress signal from the terminal RY-RC.

Output the traverse deceleration in progress signal from the terminal OUT.

Title	Function	Adjustment range	Example of setting
<i>F 130</i>	Output terminal selection 1A (RY-RC)	0~255	124 (Traverse in progress)
<i>F 131</i>	Output terminal selection 2A (OUT)	0~255	126 (Traverse deceleration in progress)

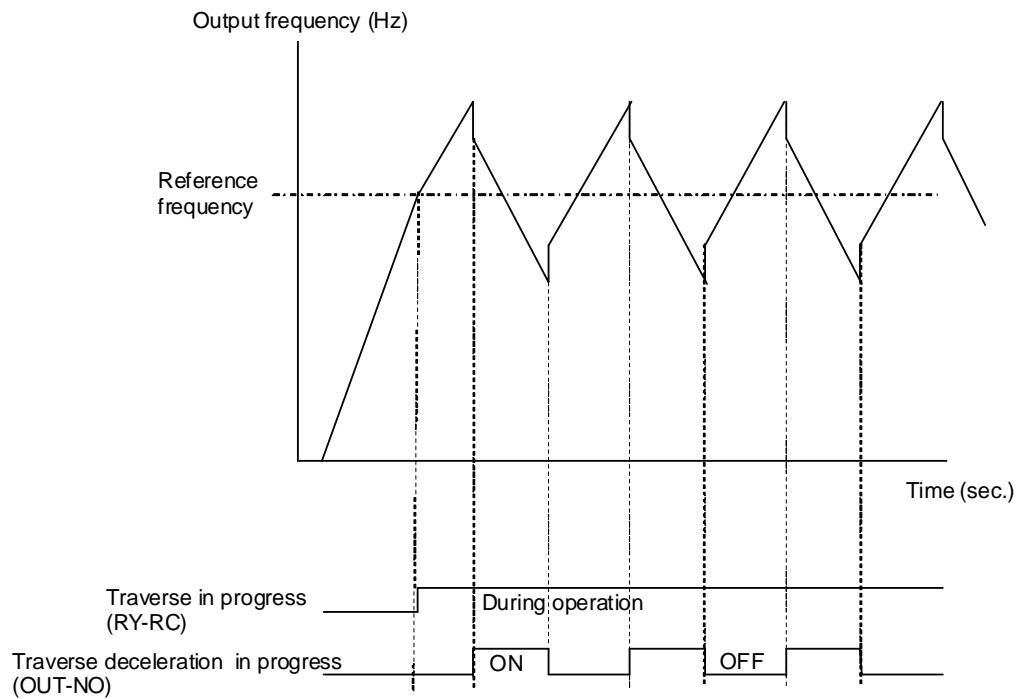


Fig. 5 Traverse output signals