TOSHIBA

E6581875②

TOSVERT VF-S15

Shock monitoring function Instruction Manual

Toshiba Industrial Products and Systems Corporation

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1. Introduction

TOSVERT VF-S15 is equipped with shock monitoring function.
In case output current or torque exceeds or lowers the set level for a certain amount of time, the inverter outputs the alarm signal from output terminals or trips (inverter stops). Temporary change in current or torque can be eliminated from detecting conditions.
Shock monitoring function enables monitoring the load side and protecting the equipments in case of load abnormality including the detection of excessive loading of conveyors and breakage of conveyor belt.

2. Shock monitoring function

When output current or torque exceeds or lowers the set level for a certain amount of time, shock monitoring function outputs alarm signal from the output terminals or the inverter trips.
Over-torque trip/ alarm and small current trip/alarm have similarly functions as the shock monitoring functions. The difference is as described below;

	Shock monitoring function	Over-torque trip/ alarm	Small current trip/ alarm
Main parameters	F590 (Shock monitoring)	F615 (Over-torque trip/ alarm selection)	F610 (Small current trip/ alarm selection)
Subject of detection: torque/ output current	Torque detection or output current detection are selectable	Torque detection	Output current detection
Detection method	Over-current / torque or Low-current / torque are selectable	Over-torque	Low-current
Action at detection	Trip or alarm are selectable		
Detection level	0-250(%)	1-250 (%)	0-150 (%)
Detection time	0-10.0 (s)	0-10.0 (s)	0-255 (s)
Detecting conditions	-Detection waiting time can be set at start-up -Always detecting or during operation except acceleration/deceleration are selectable *	Always detecting	Always detecting

* Temporary change in output current or torque at start-up or acceleration/ deceleration can be eliminated from detecting conditions.

3. Setting and operation of shock monitoring function

3.1 Related parameters

Set items and conditions of detection using parameters.

Title	Function	Adjustment range	Default setting
F590	Shock monitoring	0: Disabled 1: Current detection 2: Torque detection	0
F591	Shock monitoring trip/alarm selection	0: Alarm only 1: Tripping	0
F592	Shock monitoring detection direction selection	0: Over-current / torque detection 1: Low-current / torque detection	0
F593	Shock monitoring detection level	0-250 (%)	150
F595	Shock monitoring detection time	0.0-10.0 (s)	0.5
F596	Shock monitoring detection hysteresis	0-100 (%)	10
F597	Shock monitoring detection start waiting time	0.0-300.0 (s)	0.0
F598	Shock monitoring detection action selection	0: During operation 1: During operation (except acceleration/ deceleration)	0

3.2 Operation

1) Over-current / torque detection

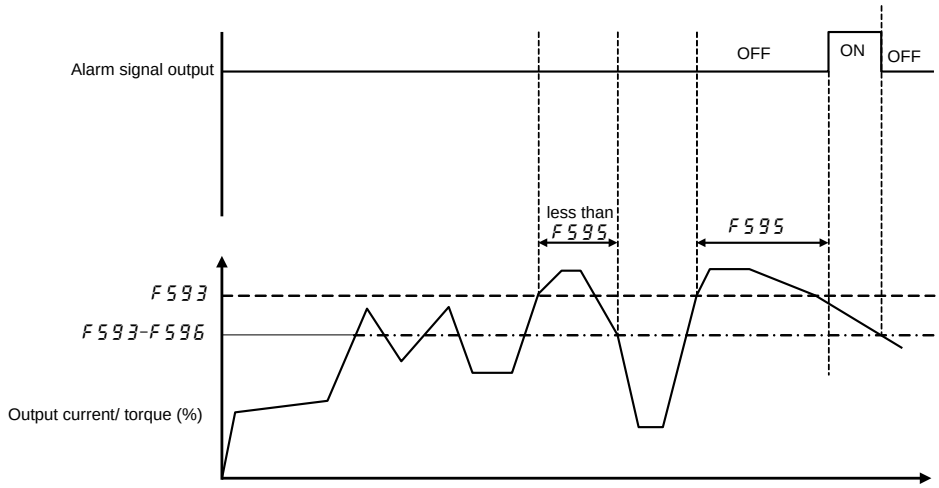
<Example>

Select object of detection with F590: F590= 1 (Current detection), 2 (Torque detection)

F591=0 (Alarm only)

F592=0 (Over-current / torque detection)

Output terminal function: 182 (SUPA) Shock monitoring pre-alarm signal



When setting F591= 1 (Tripping), inverter trips (0LC3) after over-current / torque is detected for the period of time set with F595. Then, alarm signal remains ON.

2) Low-current / torque detection

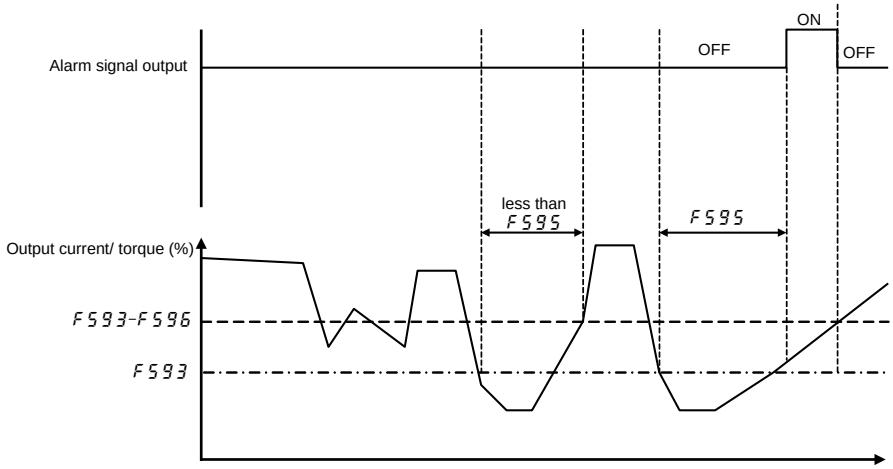
<Example>

Select object of detection with F590: F590= 1 (Current detection), 2 (Torque detection)

F591=0 (Alarm only)

F592= 1 (Low-current / torque detection)

Output terminal function: 182 (SUPA) Shock monitoring pre-alarm signal



When setting F591= 1 (Tripping), inverter trips (UtC3) after low-current / torque is detected for the period of time set with F595. Then, alarm signal remains ON.

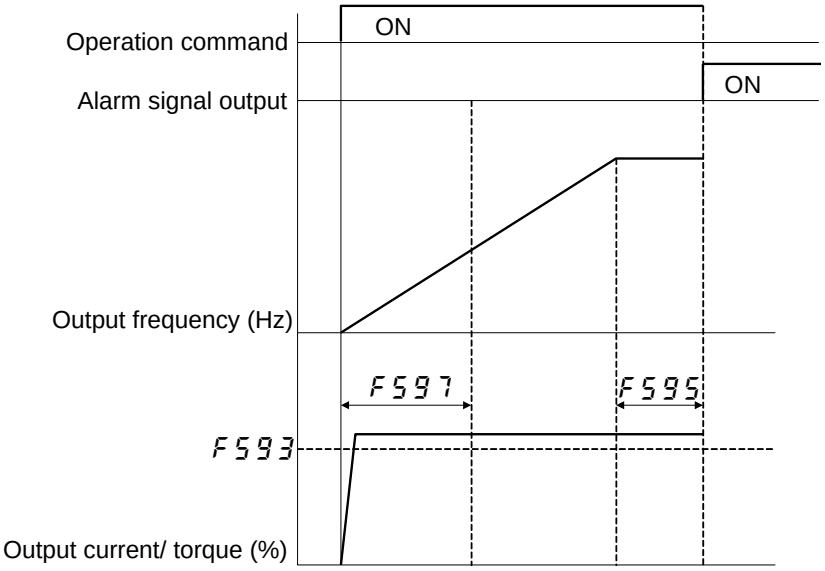
3) In case of setting F597 and F598

Waiting time until shock monitoring detection after start-up (after operation command is on) can be set by F597.

If eliminating the time during acceleration/ deceleration from detecting conditions, select F598 = 1.

<Example>

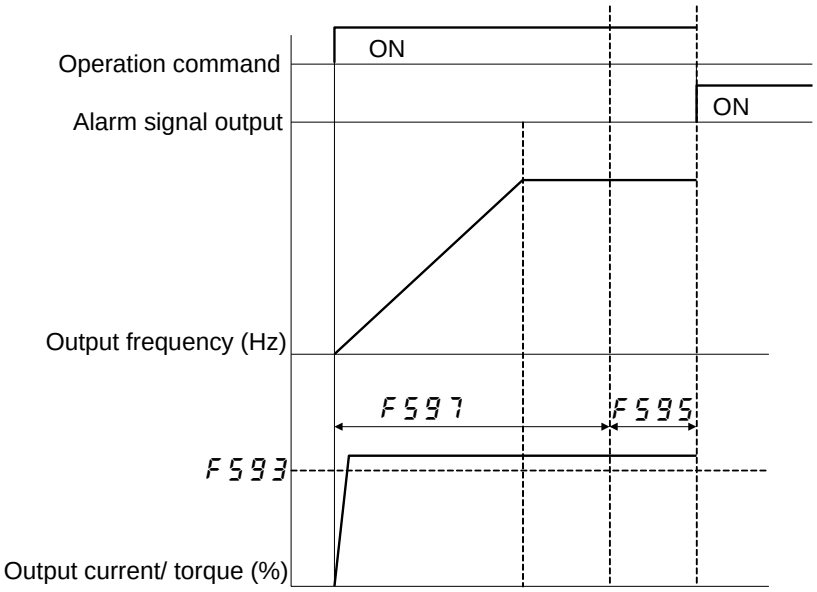
F598= 1, F597=5 (s), and acceleration exceeds 5 seconds.



* In case of less than F595, and the inverter is in acceleration/ deceleration status or over-current stall during detection activates, detection time will be reset.

<Example>

F598= 1, F597= 15 (s), and acceleration continues for less than 15 seconds.



* In case of less than F595, and the inverter is in acceleration/ deceleration status or over-current stall during detection activates, detection time will be reset.