

TOSVERT VF-AS3

Shock monitoring function Manual

TOSHIBA INDUSTRIAL PRODUCTS AND SYSTEMS CORPORATION

NOTICE

1. Read this manual carefully before using this function. After reading, keep it in a safe place for future maintenance and inspection.
2. All information contained in this manual will be changed without notice.

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1. Introduction

VF-AS3 is equipped with shock monitoring function.

When the output current or the 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 and protecting the equipments when the load abnormality including the detection of excessive loading of conveyors and breakage of conveyor belt.

2. Shock monitoring function

When the output current or the torque exceeds or lowers the set level for a certain amount of time, the inverter outputs alarm signal from the output terminals or the inverter trips.

Overtorque trip/ alarm and undercurrent trip/alarm have similarly functions as the shock monitoring functions. The difference is as described below;

| | Shock monitoring function | Overtorque trip/ alarm | Undercurrent trip/ alarm |
|---|---|-------------------------|---------------------------|
| Main parameters | <F590: Shock monitoring> | <F615: Overtorque trip> | <F610: Undercurrent trip> |
| Subject of detection: torque/ output current | Torque detection or output current detection are selectable | Torque detection | Output current detection |
| Detection method | Overcurrent/Overtorque or Undercurrent/Undertorque are selectable | Overtorque | Undercurrent |
| Action at detection | Trip or alarm are selectable | | |
| Detection level | 0-250(%) | 1-320 (%) | 0-150 (%) |
| Detection time | 0.0-10.0 (s) | 0.0-10.0 (s) | 0-255 (s) |
| Detecting conditions | <ul style="list-style-type: none"> - Detection wait time can be set at start. - Always detecting or during run except acceleration/ deceleration are selectable ^{*1} | Always detecting | Always detecting |

^{*1} Temporary change in output current or torque at start or acceleration/ deceleration can be eliminated from detecting conditions.

3. Setting and operation

■ Parameter setting

| Title | Parameter name | Adjustment range | Unit | Default setting |
|-------|---------------------------------------|--|------|-----------------|
| F590 | Shock monitoring | 0: Disabled 1: Current detection 2: Torque detection 3: - | - | 0 |
| F591 | Shock monitoring trip | 0: Disabled 1: Enabled | - | 0 |
| F592 | Shock monitoring detection | 0: Overcurrent/ Overtorque detection 1: Undercurrent/ Undertorque 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 wait time | 0.0-300.0 | s | 0.0 |
| F598 | Shock monitoring detection condition | 0: During run 1: During run (except Acc/Dec) | - | 0 |

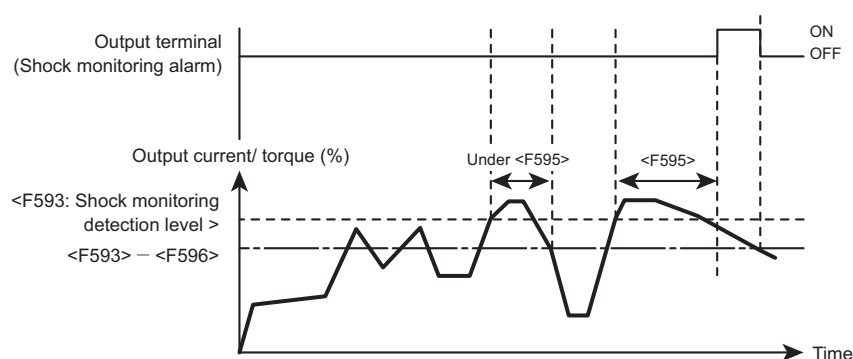
■ Example

1) Overcurrent, Overtorque detection

Select "1: Current detection" or "2: Torque detection" by <F590: Shock monitoring>.

Set <F592: Shock monitoring detection>="0: Overcurrent/ Overtorque detection".

Set trip or no trip by <F591: Shock monitoring trip>. The alarm can be output from the output terminal regardless of the <F591> setting. Assign "182: Shock monitoring alarm" to an unused output terminal.



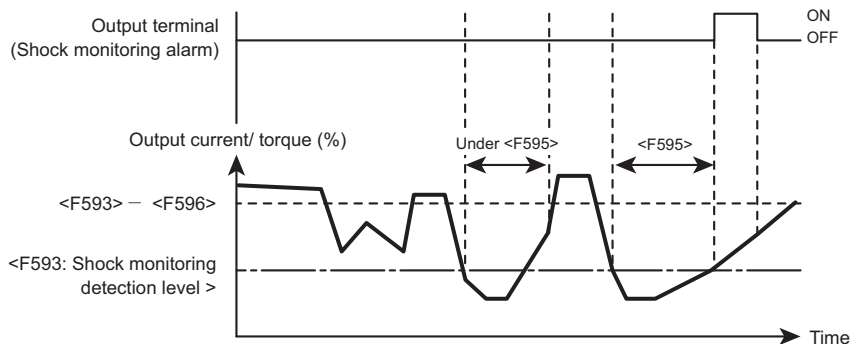
When setting <F591>="1", the inverter trips after overcurrent/ overtorque is detected for the period of time set with <F595: Shock monitoring detection time >. The alarm signal remains ON after trip "OtC3".

2) Undercurrent, Undertorque detection

Select "1: Current detection" or "2: Torque detection" by <F590: Shock monitoring>.

Set <F592: Shock monitoring detection>="1: Undercurrent/ Undertorque detection".

Set trip or no trip by <F591: Shock monitoring trip>. The alarm can be output from the output terminal regardless of the <F591> setting. Assign "182: Shock monitoring alarm" to an unused output terminal.



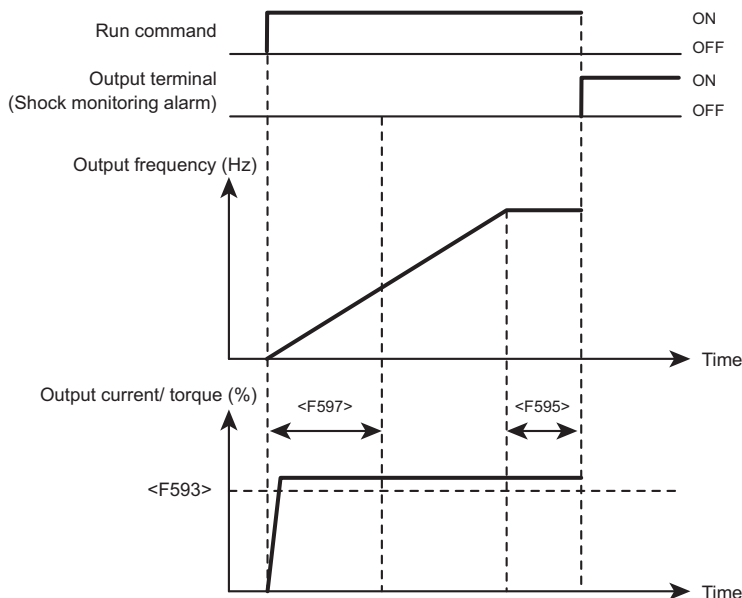
When setting <F591>="1", the inverter trips after undercurrent/ undertorque is detected for the period of time set with <F595: Shock monitoring detection time >. The alarm signal remains ON after trip "OtC3".

3) Setting of detection condition

Wait time until shock monitoring detection after run command ON can be set by <F597: Shock monitoring detection wait time >.

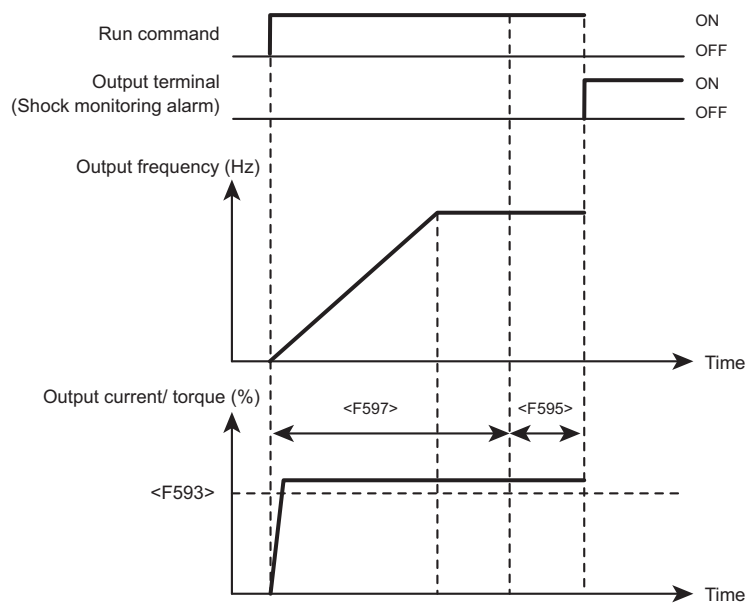
When eliminating the time during acceleration/ deceleration from detecting conditions, set <F598: Shock monitoring detection condition>="1: During run (except Acc/Dec)".

<F598>="1", <F597>="5(s)", and acceleration exceeds 5s.



* When under setting time of <F595>, and the inverter is in acceleration/ deceleration status or overcurrent stall during detection activates, detection time will be reset.

<F598>="1", <F597>="15(s)", and acceleration continues for under 15s.



* When under setting time of <F595>, and the inverter is in acceleration/ deceleration status or overcurrent stall during detection activates, detection time will be reset.

