



Toshiba TOSVERT VF-AS3 Option Instruction Manual

1

2

3

4

5

6

7

Table Of Contents

8

9

10

11

12

13

14

15

16

17

18
19
20
21
22

--

•

Table of Contents

•

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E6582171□

TOSHIBA Resolver option Instruction Manual

NOTICE

1. Make sure that this instruction manual is delivered to the end user of Resolver option.
2. Read this manual before installing or operating the option. Keep it in a safe place for reference.
3. All information contained in this manual will be changed without notice.

Table of Contents

[Next Page](#)

1
2
3
4
5

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Summary of Contents for Toshiba TOSVERT VF-AS3

Page 1 E6582171 Resolver option Instruction Manual NOTICE 1. Make sure that this instruction manual is delivered to the end user of Resolver option. 2. Read this manual before installing or operating the option. Keep it in a safe place for reference. 3.

Page 3 E6582171 Safety precautions The items described on the inverter, the resolver option and their instruction manuals are very important so that you can use safely the inverter and resolver option, prevent injury to yourself and other people around you as well as to

prevent damage to properly in the area.

[Page 4](#) Continuous use of the inverter and the option in such state will cause fire. If the inverter and the option Mandatory are left to be turned on in that state, it can cause fire. Please call your Toshiba distributor for repairs. action CAUTION •...

[Page 5](#) WARNING • Do not install and operate the option if it is damaged or any of its component is missing. This will result in fire or accident. Please call your Toshiba distributor for repairs. Prohibited • The following steps must be performed before wiring and installation.

[Page 6](#) E6582171□ ■ Disposal CAUTION • If you dispose of this option, have it done by a specialist in industry waste disposal If you dispose of this option by yourself, this can result in production of noxious gases, resulting in injury. Mandatory action *1 Persons who specialize in the processing of waste and known as “industrial waste product collectors and transporters”...

[Page 7](#) E6582171□ Introduction Thank you for purchasing the Resolver option for TOSVERT VF-AS3 series inverter. This option is applicable as an interface for resolver. This manual contains instructions of this option. CAUTION • Use the resolver with the specification described in this manual.

[Page 8: Table Of Contents](#)

E6582171□ - Table of contents - Names of the Parts.....	7
Installation and wiring	8
Installation to the Inverter	8
Wiring	8
2.2.1 Connector.....	9
2.2.2 Pin assignment.....	9
2.2.3 Signaling	10
2.2.4 Wiring with resolver.....	10
11 Functional Description	11
12 Performance of vector control with resolver	12

[Page 9: Names Of The Parts](#)

E6582171□ 1. Names of the Parts Appearance of the Resolver option are described in this section together with the names of parts. ■ Appearance and names of parts on the option Connector (to inverter) Female screw (4-40 UNC) Tab for release option Terminal connector (D subminiature connector: DE-9)

[Page 10: Installation And Wiring](#)

E6582171□ 2. Installation and wiring Install the Resolver option to the inverter according to the procedures below. 2.1 Installation to the Inverter ■ Mounting The option should be inserted until the body is totally covered by the slot. (Refer to the picture above) Insert the option straightly and slowly so that it fixes with the guide inside option slot.

[Page 11: Wiring](#)

E6582171□ 2.2 Wiring • This option is applicable with the feedback signal dedicated to resolver. • Do not connect/disconnect the cable when the power on. it can damage the option. Important 2.2.1 Connector 9pin D subminiature connector (DE-9) is prepared in this option. Pin numbers of connector are shown the figure in below.

[Page 12: Signaling](#)

E6582171□ Table 2-2. Internal circuit Circuit diagram Reference oscillator Controller Gain controller 2.2.3 Signaling Following type resolver is applicable for this option. - Excitation frequency: 3 to 12 kHz - Transformation ratio: 0.5 - Pole number: 2 Recommended resolver is RTD4A4Y2 P1 7 10 0.5 D2SR12 12 (Baumer). As for the resolver signals, connect S1-S4 and R1, R2 with the same terminal on your resolver.

[Page 13: Wiring With Resolver](#)

E6582171□ 2.2.4 Wiring with resolver When wiring, follow the instructions below. - Use multi-layer shielded cable - Use twisted pair for S1/S3, S2/S4 and R1/R2 each - For R1/R2 pins, parameter set-up according to your resolver is also needed (See 3.1.1) - Do not connect any wire to unused pins - Recommended wire size is 0.25 mm (AWG23) for signal line (S1,S2,S3,S4), 0.5 mm...

[Page 14: Functional Description](#)

E6582171□ 3. Functional Description 3.1 Performance of vector control with resolver Using the sinusoidal wave feedback signal from the resolver installed on the motor shaft or load rotation shaft, vector control with sensor can be conducted. Speed control operation: 0 speed to 150% torque, speed control range: 1:1000 speed accuracy: ±0.02% (50Hz base digital input) Torque control operation: Torque control accuracy: ±10%...

[Page 15](#) E6582171□ ■ Set parameters of resolver Table 3-2. Parameters of resolver Title Function Name Parameter Setting Default Setting 0: PTI (Command) - PTI (FB) 1: PTI (Command) - Digital option (FB) 2: - 3: PTI (Command) - Resolver option (FB) 4 - 5: - 6: Digital option (Command) - Non FB F376...

[Page 16](#) E6582171□ ■ Set motor parameters Table 3-3. Motor parameters Title Function Name Parameter Setting Default Setting 0: - 1: Reset motor parameters (0 after execution) 2: Auto-tuning at run command (0 after execution) 3: Auto-tuning at TB ON F400 Offline auto-tuning 4: Motor parameters auto calculation (0 after execution) 5: 4+2 (0 after execution) 6: Auto-tuning at run command during TB is ON...

[Page 17: Monitoring Method For Feedback Amount](#)

E6582171□ 3.1.2 Monitoring method for feedback amount Motor rotation speed can be monitored. The motor is equipped with status monitor which is displayed on the panel and analog monitor which used analog output terminals ([FM], [AM] terminals) Set items (1) or (2) for motor speed monitoring. (1) Speed feedback (real-time value) with sign(+/-) (Unit: Hz/free unit) The real-time display of motor speed can be made (Monitor display setting: "153").

[Page 18: Accuracy Of Speed Control](#)

E6582171□ ■ Functions If speed feedback (Estimated speed) > (Output frequency + <F623>) or speed feedback (Estimated speed) < (Output frequency - <F624>), and a certain period of time set with <F622: Abnormal speed detection time>, a trip occurs. You can provide range for a detection level of a trip with a setting of <F623: Abnormal speed increase band> and <F624: Abnormal speed decrease band>.

[Page 19: Specification](#)

E6582171□ 4. Specification Item Specification Type form VEC010Z Product name Resolver option Function Resolver interface Pole number: 2 Applicable Resolver Transformation ratio: 0.5 Excitation carrier frequency: 3 to 12 kHz Multi-layer shielded cable Size: 0.25 mm (AWG23) for signal line Recommended Cable 0.5 mm (AWG20) for excitation voltage...

[Page 20: Warranty](#)

The warranty period of repaired products will not exceed the warranty period before the repair takes place. ■ Scope of warranty If a product failure is found during the warranty period due to our negligence, please return the product to Toshiba distributor of purchase, for a replacement or repair of the defective component.

[Page 21: Disposal](#)

E6582171□ 6. Disposal CAUTION • If you dispose of Resolver option, have it done by a specialist in industry waste disposal If you dispose of Resolver option by yourself, this can result in production of noxious gases, resulting in Mandatory injury.

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