



# Toshiba TOSVERT VF-S15 Quick Start Manual

Industrial inverter



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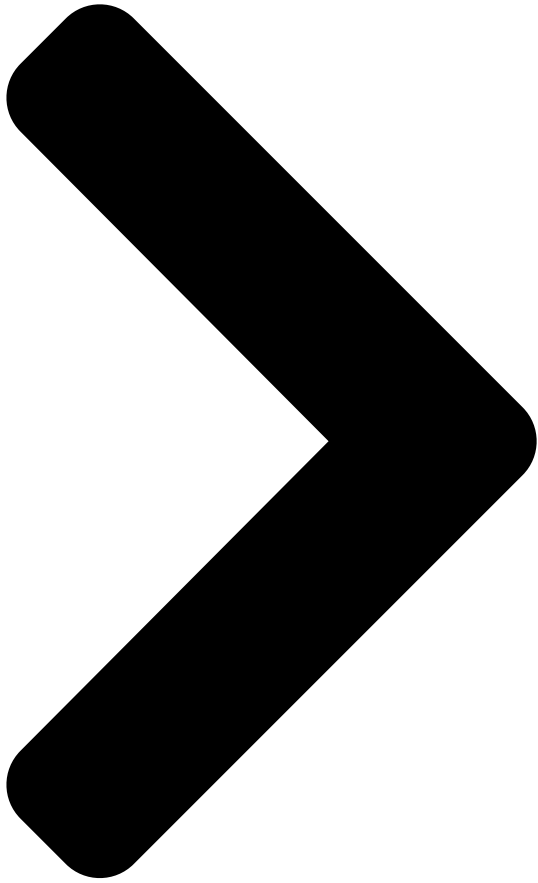
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Manual de inicio rápido

3-phase 240V class 0.4 to 15kW

3-phase 240V class 0.4 to 15kW

1-phase 240V class 0.2 to 2.2kW

1-phase 240V class 0.2 to 2.2kW

3-phase 500V class 0.4 to 15kW

3-phase 500V class 0.4 to 15kW

1. Make sure that this instruction manual is delivered to the

1. Make sure that this instruction manual is delivered to the end user of the inverter unit.

end user of the inverter unit.

2. Read this manual before installing or operating the inverter

2. Read this manual before installing or operating the inverter unit, and store it in a safe place for reference.

unit, and store it in a safe place for reference.

with Safety function

with Safety function

NOTICE

NOTICE

E6581928e

E6581928e

**TOSHIBA**

**TOSVERT™ VF-S1**

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Option adapter (2 pages)

### [Adapter Toshiba VF-S15 Instruction Manual](#)

Option adapter (2 pages)

## Summary of Contents for Toshiba TOSVERT VF-S15

[Page 1](#) E6581928e E6581928e English Deutsch Italiano Industrial Inverter Industrial Inverter Español (For 3-phase induction motors) (For 3-phase induction motors) with Safety function with Safety function Quick Start Manual Quick Start Manual Schnellstartanleitung Schnellstartanleitung Guida rapida all'avvio Guida rapida all'avvio Manual de inicio rápido Manual de inicio rápido 3-phase 240V class 0.4 to 15kW 3-phase 240V class 0.4 to 15kW...

## [Page 2: Safety Precautions](#)

It may be considerable whether to apply, under the special condition or an application where strict quality control may not be required. Please contact your Toshiba distributor. Please use our product in applications where do not cause serious accidents or damages even if product is failure, or please use in environment where safety equipment is applicable or a backup circuit device is provided outside the system.

[Page 3](#) • Do not install or operate the inverter if it is damaged or any component is missing. This can result in electric shock or fire. Call your Toshiba distributor for repairs. • Do not place any inflammable objects near the inverter.

[Page 4](#) E6581929 • When removing and installing the terminal cover with a screwdriver, be sure not to scratch your hand as these results in injury. • Pressing too hard on the screwdriver may scratch the inverter. • Always turn the power off when removing the wiring cover. •...

## [Page 5: Safety Function](#)

Warning • Do not replace parts. This could be a cause of electric shock, fire and bodily injury. To replace parts, call your Toshiba distributor. Prohibited • The equipment must be inspected daily. If the equipment is not inspected and maintained, errors and malfunctions may not be discovered and that could result in accidents.

## [Page 6: Install The Inverter](#)

E6581929 Please operate the inverter in the following procedure 1 to 6. 1. Check the purchase Check that the inverter type is the same as your order. Inverter main unit Name plate Inverter Type Inverter rated output capacity Power supply Rating label Danger label Name plate...

[Page 7](#) E6581929 Wire size (mm Screw size Tightening torque Power circuit Note 1)  
Applicable M3.5 screw 1.0 N·m 8.9 lb-in Voltage motor Input Grounding class M4 screw 1.4 N·m 12.4 lb-in (kW) cable Output without With M5 screw 2.4 N·m 20.8 lb-in 0.2-1.5 M6 screw 4.5 N·m...

[Page 8](#) E6581929 7. Operate the inverter with external signals Wire the control circuit, set the parameter and select SW1. 7.1 Wiring Initial position SOURCE SINK Screw for removable control terminal block RS485 connector Operation command Stripping length: 6 (mm) Recommended <Sink logic> <Source logic>...

## [Page 9: Main Parameters](#)

E6581929 8. Main parameters Default Contents Title Function Adjustment range setting Set acceleration/ deceleration Acceleration time 1 0.0-3600 (360.0) (s) 10.0 time to suit the machinery. Deceleration time 1 0.0-3600 (360.0) (s) 10.0 The acc/dec value is time that output frequency reach from 0Hz Maximum frequency 30.0-500.0 (Hz) 80.0...

[Page 10](#) Die Verwendung kann in Fällen besonderer Bedingungen oder in Anwendungen, in denen keine strenge Qualitätskontrolle erforderlich ist, in Erwägung gezogen werden. Bitte wenden Sie sich an Ihren Toshiba-Händler. Bitte verwenden Sie das Gerät ausschließlich in Anwendungen, in denen selbst eine Funktionsstörung des Gerätes nicht zu schweren Unfällen oder Schäden führen kann, bzw.

[Page 11](#) Wenn vom Umrichter Rauch oder ungewöhnlicher Geruch bzw. ungewöhnliche Geräusche ausgehen, muss die Stromversorgung sofort ausgeschaltet werden. Wenn der Umrichter in einem solchen Zustand weiter betrieben wird, kann dies zu einem Brand führen. Wenn Reparaturen nötig werden, setzen Sie sich mit Ihrem Toshiba-Händler in Verbindung. •...

[Page 12](#) E6581930 ■ Transport und Installation Vorsicht • Fassen Sie das Gerät beim Transport oder beim Tragen nicht an den Frontplatten-Abdeckungen an. Die Abdeckungen können sich lösen, und das Gerät kann herunterfallen, was zu Verletzungen führen kann. • Installieren Sie das Gerät nicht an einem Ort, an dem es starken Vibrationen ausgesetzt ist. Dies könnte zu einem Verboten Herunterfallen des Gerätes und dadurch zu Verletzungen führen.

[Page 13](#) Warnung • Ersetzen Sie keine Teile. Dies kann zu Bränden oder zu Stromschlag und anderen Verletzungen führen. Setzen Sie sich zum Auswechseln von Teilen mit Ihrem Toshiba-Händler in Verbindung. Verboten • Die Anlagen müssen jeden Tag inspiziert werden. Werden die Anlagen nicht inspiziert und instandgehalten, so werden Störungen und Fehlfunktionen

eventuell nicht festgestellt, was zu Unfällen führen kann.

[Page 14](#) E6581930 Führen Sie zur Inbetriebnahme des Umrichters die folgenden Schritte 1 bis 6 durch. 1. Lieferung überprüfen Vergewissern Sie sich, dass der gelieferte Umrichter Ihrer Bestellung entspricht. Umrichter-Hauptgerät Typenschild Umrichtertyp Nenn- Ausgangsleistung Versorgungsspannung Leistungsschild Gefahrenhinweis Typenschild 2. Umrichter installieren 3.

### [Page 15: Stromversorgung Einschalten](#)

E6581930 Aderquerschnitt (mm) Schraubengröße Anzugsdrehmoment Motor- Hauptschaltkreis Anmerkung 1) Spannungs- Schraube M3,5 1,0 N·m 8,9 lb·in Nennleistung Klasse Eingang Erdungskabel (kW) Ausgang Schraube M4 1,4 N·m 12,4 lb·in ohne DCL Mit DCL Schraube M5 2,4 N·m 20,8 lb·in 0,2-1,5 Schraube M6 4,5 N·m 40,0 lb·in 3-phasig,...

[Page 16](#) E6581930 7. Ansteuerung des Umrichters über externe Signale Schließen Sie den Steuerkreis an, stellen Sie die Parameter ein und wählen Sie SW1. 7.1 Kabelanschlüsse Grundeinstellung SOURCE SINK Schraube für abnehmbare Steuerkreis-Klemmleiste RS485-Anschluss Befehlssignale Abisolierlänge: 6 (mm) Empfohlenes Schrauben- <Negative Logik> <Positive Logik>...

[Page 17](#) E6581930 8. Hauptparameter Bezeich- Grundein- Inhaltsverzeichnis Funktion Einstellbereich stellung Hochlauf-/Runterlaufzeit an die Hochlaufzeit 1 0.0-3600 (360.0) (s) 10,0 Maschinenanforderungen anpassen. Runterlaufzeit 1 0.0-3600 (360.0) (s) 10,0 Der Wert für acc/dec entspricht der Zeit, die die Ausgangsfrequenz für den Maximalfrequenz 30,0-500,0 (Hz) 80,0 Übergang zwischen 0 Hz und dem Wert...

### [Page 18: Precauzioni Per La Sicurezza](#)

Da considerare le modalità di uso, in condizioni speciali o in applicazioni in cui è richiesto un severo controllo di qualità. Contattare il rivenditore Toshiba. Utilizzare l'inverter in applicazioni in cui un eventuale malfunzionamento non possa essere causa di incidenti o danni gravi.

[Page 19](#) • Se l'inverter emette fumo, odori insoliti o strani rumori, scollegare immediatamente l'alimentazione. L'uso continuato dell'inverter in tali condizioni può provocare un incendio. Chiamare il distributore Toshiba per assistenza. Azioni •...

[Page 20](#) E6581931 ■ Trasporto e installazione Avvertimento • Non trasportare l'inverter sorreggendolo per i coperchi del pannello anteriore. I coperchi potrebbero distaccarsi e l'unità cadere, provocando lesioni. • Non installare l'inverter in aree soggette a forti vibrazioni. L'unità potrebbe infatti cadere e provocare lesioni Divieti personali.

### [Page 21: Funzione Di Sicurezza](#)

Pericolo • Non effettuare sostituzioni di parti. La mancata osservanza di questo divieto potrebbe causare scosse elettriche, incendi e lesioni. Per sostituire i pezzi, rivolgersi al distributore Toshiba. Divieti • L'apparecchiatura deve essere controllata ogni giorno. Se le operazioni d'ispezione e manutenzione non vengono eseguite ogni giorno, potrebbero verificarsi errori di funzionamento e guasti, con possibili conseguenze di incidenti.

[Page 22](#) E6581931 Utilizzare l'inverter applicando la seguente procedura riportata nei passaggi da 1 a 6. 1. Verifica del prodotto acquistato Controllare che il tipo di inverter sia lo stesso ordinato. Unità principale inverter Targhetta produttore Modello inverter Potenza nominale di uscita dell'inverter Targhetta dati Alimentazione...

[Page 23](#) E6581931 Sezione cavo (mm Dimensione Coppia di serraggio vite Circuito di alimentazione Nota 1) Motore Classe di Cavo di applicabile Ingresso Vite M3,5 1,0 N·m 8,9 lb·in tensione messa a (kW) Corrente senza terra Con DCL Vite M4 1,4 N·m 12,4 lb·in Vite M5 2,4 N·m...

[Page 24](#) E6581931 7. Utilizzare l'inverter con i segnali esterni Collegare il circuito di controllo, impostare il parametro e selezionare SW1. 7.1 Cablaggio Posizione iniziale SOURCE SINK Vite per morsettiera di controllo rimovibile Connettore RS485 Comando di funzionamento Lunghezza di strappaggio: Coppia di Dimensione <logica sink>...

[Page 25](#) E6581931 8. Parametri principali Impostazione Indice Titolo Funzione Campo





■ VF-S15 : UL standard and CSA standard ■ ■ VF-S15 : UL standard and CSA standard UL / CSA  
VF-S15 UL / CSA UL / CSA VF-S15 UL / CSA  
UL61800-5-1

[Page 38](#) E6582383 E6582383 E6582383 1. General 1. General WARNING / AVERTISSEMENT  
WARNING / AVERTISSEMENT - RISK OF ELECTRIC SHOCK - - RISK OF ELECTRIC SHOCK -  
DANGEROUS VOLTAGE MAY EXIST FOR \_15\_MINUTES AFTER REMOVING POWER - RISQUE DU CHOC  
ÉLECTRIQUE - - RISQUE DU CHOC ÉLECTRIQUE -...

[Page 39](#) E6582383 E6582383 E6582383 Current reduction Current reduction According to  
the carrier frequency f300 setting, you may need to reduce the inverter's continuous output  
current. According to the carrier frequency f300 setting, you may need to reduce the inverter's  
continuous output current. Reduction rates vary depending on the capacity of the inverter.

[Page 40](#) E6582383 E6582383 E6582383 [Three-phase 400/500V class] [Three-phase  
400/500V class] Input voltage 380V to 480V Input voltage 380V to 480V Input voltage Above  
480V to 500V Input voltage Above 480V to 500V Ambient Ambient Inverter model Inverter  
model PWM carrier frequency PWM carrier frequency PWM carrier frequency PWM carrier  
frequency...

[Page 41](#) E6582383 E6582383 E6582383 3. Compliance with Connection 3. Compliance with  
Connection DANGER DANGER The opening of the branch circuit protective device may be an  
The opening of the branch circuit protective device may be an indication that a fault current has  
been interrupted. To reduce the risk indication that a fault current has been interrupted.

[Page 42](#) E6582383 E6582383 E6582383 SCCR, Fuse and Wire sizes SCCR, Fuse and Wire  
sizes Use the UL listed protective devices at connecting to power supply. Use the UL listed  
protective devices at connecting to power supply. The VF-S15 short circuit current ratings have  
been obtained by shorting internal components. These ratings allow The VF-S15 short circuit  
current ratings have been obtained by shorting internal components.

[Page 43](#) E6582383 E6582383 E6582383 In case of using with a higher Short Circuit Current  
Ratings (SCCR) up to 100kA (up to 22kA for 600V class), In case of using with a higher Short  
Circuit Current Ratings (SCCR) up to 100kA (up to 22kA for 600V class), it is available by  
installing with the circuit breakers, GV it is available by installing with the circuit breakers, GV P  
or the fuses in the condition listed in Table 4.

[Page 44](#) E6582383 E6582383 E6582383 UL61800-5-1 require publishing the standard Type E  
combination motor controller power rating since this is a basic UL61800-5-1 require publishing  
the standard Type E combination motor controller power rating since this is a basic  
identification marking of type E devices. identification marking of type E devices.

### [Page 45: Main Circuit Terminals](#)

E6582383 E6582383 E6582383 Main circuit terminals Main circuit terminals Terminal symbol  
Terminal symbol Terminal function Terminal function Grounding terminal for connecting  
inverter. There are 3 terminals in cooling fin or mounting part of Grounding terminal for  
connecting inverter. There are 3 terminals in cooling fin or mounting part of EMC plate.

[Page 46](#) E6582383 E6582383 E6582383 Terminal Terminal Input / Input / Electrical Electrical  
Function Function symbol symbol output output specifications specifications Shorting across F-  
CC or P24-F causes forward rotation; open Shorting across F-CC or P24-F causes forward  
rotation; open No voltage No voltage causes deceleration stop.

### [Page 47: Overload Protection](#)

E6582383 E6582383 E6582383 Terminal Terminal Input / Input / Electrical Electrical Function  
Function symbol symbol output output specifications specifications Output Output 24Vdc power  
output, by changing SW1 to SINK or SOURCE side. 24Vdc power output, by changing SW1 to  
SINK or SOURCE side. 24Vdc-100mA 24Vdc-100mA This terminal can be used as a common  
terminal when an external...

### [Page 48: Motor Thermal Protection](#)

E6582383 E6582383 E6582383 5. Motor thermal protection 5. Motor thermal protection  
CAUTION CAUTION - Risk to damage the motor - - Risk to damage the motor - Motor thermal

protection will not be provided by the drive if the motor's Motor thermal protection will not be provided by the drive if the motor's nominal current is 20% lower than that output of the drive.

[Page 49](#) E6582383 E6582383 E6582383 [Parameter setting] [Parameter setting] Default Default Title Title Function Function Adjustment range Adjustment range setting setting Motor electronic-thermal Motor electronic-thermal 10 - 100 (%) 10 - 100 (%) □□□ □□□ protection level 1 protection level 1 Setting Setting Overload Overload...

[Page 50](#) E6582383 E6582383 E6582383 88 Setting of motor electronic thermal protection level 1 thr (Same as f173) 88 Setting of motor electronic thermal protection level 1 thr (Same as f173) When the capacity of the motor in use is smaller than the capacity of the inverter, or the rated current of the motor When the capacity of the motor in use is smaller than the capacity of the inverter, or the rated current of the motor is smaller than the rated current of the inverter, adjust thermal protection level 1 thr for the motor in is smaller than the rated current of the inverter, adjust thermal protection level 1 thr for the motor in...

### [Page 51: Motor Ptc Thermal Protection](#)

E6582383 E6582383 E6582383 5) Overload alarm level f f 6 6 5 5 7 7 5) Overload alarm level f f 6 6 5 5 7 7 When the motor overload level reaches to f657 setting value (%) of overload trip (ol2) level, "l" will be displayed When the motor overload level reaches to f657 setting value (%) of overload trip (ol2) level, "l" ...

[Page 52](#) This information should be retained with this device at all times. This information should be retained with this device at all times. Please contact where you purchase the inverter, your Toshiba sales representative, if Please contact where you purchase the inverter, your Toshiba sales representative, if you need the hard copy (paper) of CD-ROM.

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