

■ Additional sheet

Since 21 June 2023, EN61800-5-1 2007 / A1 (2017) / A11 (2021) has been harmonized standard listed on the Low Voltage Directive (2014/35/EU) and Electrical Equipment (Safety) Regulations (S.I.2016/1101).

VF-S15 that comply with Low Voltage Directive (2014/35/EU) have CE mark on the nameplate.
VF-S15 that comply with Electrical Equipment (Safety) Regulations (S.I.2016/1101) have UKCA mark on the nameplate.
Type-from may have additional suffix -W1, Y-Axx (xx is the specific code) or the any combination of several characters and numbers.

This additional sheet is very important to use VF-S15 inverter safely, prevent injury to yourself and other people around you as well as to prevent damage to property in the area. Thoroughly familiarize yourself with the symbols and indications shown in the VF-S15 instruction manual (E6582175 for -W1 model, E6581926 for Japan model) and then continue to read this additional manual.

Refer to web page

<https://www.toshiba-tips.co.jp/en/products/inverter/standard.html>

for Declaration of Conformity

WARNING






- Install proper short-circuit protective device between the power supply and the inverter (primary side).
If proper short-circuit protective device is not installed, short circuit current cannot be shut down by inverter alone and it will result in fire.
Integral solid state short circuit protection in the inverter does not provide branch circuit protection. Branch circuit protection must be provided in accordance with any local codes.
- Take into account the minimum required prospective short-circuit current of short-circuit protective device.
If short circuit protective device does not work properly due to lower level short-circuit current, it will result in electric shock or fire.
- Install the inverter on the wall or into enclosure based on this manual, and install short-circuit protective device or power distribution devices based on the manufacturer manual.
When they are installed with improper coordination, this will result in electric shock or fire.




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⚠ WARNING

	<ul style="list-style-type: none"> • Read this manual and VF-S15 instruction manual before installing or operating the inverter unit. Otherwise, it will result in electric shock, fire and other injuries.
 <p>Connect an earth to ground</p>	<ul style="list-style-type: none"> • The grounding wire must be connected securely. If the grounding wire is not securely connected, when the inverter has failure or earth leakage, this will result in electric shock or fire. <p>This product has an increased leakage current > 3.5 mA.</p> <ul style="list-style-type: none"> • Use a protective ground conductor with at least 10 mm² (AWG 6) or two protective ground conductors with the cross section of the conductors supplying the power terminals. Verify compliance with all local and national electrical code requirements as well as all other applicable regulations with respect to grounding of all equipment. Otherwise, it will result in electric shock.
 <p>Electric shock</p>	<ul style="list-style-type: none"> - RISK OF ELECTRIC SHOCK - • DANGEROUS VOLTAGE MAY EXIST FOR _15_MINUTES AFTER REMOVING POWER. It will result in electric shock.

⚠ CAUTION

 <p>Mandatory action</p>	<ul style="list-style-type: none"> • This product can cause a DC current in the PE conductor. Where a residual current operated protective device (RCD) is used for protection against electric shock, only an RCD of Type B is allowed on the supply side of this product. All upstream RCD, up to the supply transformer, shall be of Type B. If proper device above is not used, it can result in electric shock.
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Compliance with Low Voltage Directive 2014/35/EU

This additional manual includes the correction and additional information for section 9 of E6582175 or E6581926 to comply with Low Voltage Directive 2014/35/EU under the condition below.

- Applicable standard: EN61800-5-1:2007 / A1:2017 / A11:2021 (IEC61800-5-1 Ed2.1)
- Pollution degree: 2
- Overvoltage category: 3
- The electronic power output short-circuit protection circuitry meets the requirements of IEC 60364-4-41:2005/AMD1 - Clause 411.

Electrical Equipment (Safety) Regulations S.I.2016/1101 are also covered.

When incorporating the inverter into a power drive system, take the following measures to comply with IEC61800-5-1 Ed 2.1.

- (1) Installation and upstream protection devices
 - Install the inverter into the enclosure with proper short circuit protective device (SCPD) in accordance with the table of prospective short-circuit current (Isc) rating shown in following pages.
 - Semiconductor fuses (gR, gS or aR) are mandatory in case of using DC bus and/or braking ports. Refer to "Prospective short-circuit current rating (Isc) table with semiconductor fuse".
- (2) Grounding
 - Connect a dedicated wire to the grounding terminal on inverter, or install EMC plate (option) and connect to the earth terminal on the EMC plate. Refer to the section 9.1 of E6582175 or E6581926.
 - Ground each inverter directly when grounding multiple inverters.
 - Refer to the table in the section 10.1 of E6582175 or E6581926 to select wire size.
At least 10 mm² (AWG 6) or two protective ground conductors with the cross section of the conductors supplying the power terminals may be required to meet standards limiting leakage current.
- (3) Overload protection
 - For overload protection of inverter, refer to section 5.6 of E6582175 or E6581926.
- (4) Motor overload protection and overtemperature protection
 - For electronic motor thermal protection, refer to section 5.6 of E6582175 or E6581926.
 - For motor integrated PTC thermal protection, refer to section 6.29.16 of E6582175 or E6581926.
 - Set the parameter F607: Motor 150% overload detection time to "300: Default setting" or less.
- (5) Ground fault detection function
 - Set ground fault detection selection (F614) to 1 "Enabled".

Prospective short-circuit current (Isc) rating table

The rating of the short circuit protection devices (SCPD) in the table below are maximum values with Enclosure. Smaller sizes can be used. Use the wire with the size described in the section 10.1 of E6582175 or E6581926.

Reference *1	Maximum input Voltage (Vac)	Applicable motor (kW)	Maximum Isc (kA)	Short circuit protective device rating			Minimum line reactor (mH)	Minimum enclosure volume (L)
				Fuse gG *2 (A)	Circuit *3 Breaker (PowerPact)	Circuit *3 Breaker (Tesys GV)		
VFS15-2002PM	240	0.2	5	4	BDL36015	GV2L07	-	53
VFS15-2004PM		0.4	5	8	BDL36015	GV2L08	-	53
VFS15-2007PM		0.7	5	12	BDL36015	GV2L14	-	53
VFS15-2015PM		1.5	5	20	BDL36015	GV2L16	-	53
VFS15-2022PM		2.2	5	25	BDL36020	GV2L20	-	53
VFS15-2037PM		4.0	5	40	BDL36030	GV3L22	-	53
VFS15-2055PM		5.5	22	63	BDL36040	GV3L40	-	53
VFS15-2075PM		7.5	22	80	BDL36050	GV3L50	-	53
VFS15-2110PM		11	22	100	BDL36070	GV3L65	-	53
VFS15-2150PM		15	22	125	BDL36090	GV3L80	-	53
VFS15S-2002PL		240	0.2	5	8	BDL36015	GV2L08	-
VFS15S-2004PL	0.4		5	12	BDL36015	GV2L10	-	53
VFS15S-2007PL	0.7		5	20	BDL36020	GV2L16	-	53
VFS15S-2015PL	1.5		5	40	BDL36030	GV2L20	-	53
VFS15S-2022PL	2.2		5	40	BDL36035	GV2L22	-	53
VFS15-4004PL1	415	0.4	5	4	BDL36015	GV2L07	-	53
VFS15-4007PL1		0.7	5	8	BDL36015	GV2L08	-	53
VFS15-4015PL1		1.5	5	12	BDL36015	GV2L14	-	53
VFS15-4022PL1		2.2	5	16	BDL36015	GV2L14	-	53
VFS15-4037PL1		4.0	5	25	BDL36015	GV2L16	-	53
VFS15-4055PL		5.5	22	40	BGL36020	GV2L22	-	53
VFS15-4075PL		7.5	22	40	BGL36030	GV3L32	-	53
VFS15-4110PL		11	22	63	BGL36040	GV3L40	-	53
VFS15-4150PL		15	22	80	BGL36050	GV3L50	-	53

Reference *1	Maximum Input Voltage (Vac)	Applicable motor (kW)	Maximum Isc (kA)	Short circuit protective device rating			Minimum line reactor (mH)	Minimum enclosure volume (L)
				Fuse J *4 (A)	Circuit *3 Breaker (PowerPact)	Circuit *3 Breaker (Tesys GV)		
VFS15-6015P	600	1.5	5	6	HJL36015	GV3P13	10	53
VFS15-6022P		2.2	5	10	HJL36015	GV3P13	5	53
VFS15-6037P		4.0	5	15	HJL36015	GV3P13	5	53
VFS15-6055P		5.5	5	20	HJL36025	GV3P13	2.5	53
VFS15-6075P		7.5	5	25	HJL36030	GV3P13	2.5	53
VFS15-6110P		11	5	35	HJL36045	GV3P18	1.2	53
VFS15-6150P		15	5	45	HJL36060	GV3P25	1.2	53

The Ampere rating of the short circuit protection devices in the table are maximum values. Smaller amp sizes may be used. Branch circuit protection must be provided in accordance with any additional local codes.

*1: Reference may be followed by any characters.

*2: Mersen is recommended supplier

*3: PowerPact and Tesys GV series from Schneider Electric are recommended.

*4: Use Class J fast acting or time delay.

Prospective short-circuit current (Isc) rating table (semiconductor fuse IEC60269-4)

The rating of the short circuit protection devices in the table are maximum values. Smaller sizes can be used. Use the wire with the size described in the table in the section 10.1 of E6582175 or E6581926.

Reference *1	Input Voltage (V)	Applicable motor (kW)	Maximum Isc (kA)	Short circuit protective device rating (fuse type)						Minimum line reactor (mH)	Minimum enclosure volume (L)	
				gR *2		gS *2		aR *2*3				
				Rating (A)	Min. Size	Rating (A)	Min. Size	Rating (A)	Min. Size			
VFS15-2002PM	240	0.2	5	4	10x38	-	-	-	-	-	53	
VFS15-2004PM		0.4	5	8	10x38	-	-	-	-	-	53	
VFS15-2007PM		0.7	5	12.5	10x38	-	-	-	-	-	53	
VFS15-2015PM		1.5	5	20	10x38	-	-	20	000	-	53	
VFS15-2022PM		2.2	5	25	10x38	-	-	25	000	-	53	
VFS15-2037PM		4.0	5	40	14x51	-	-	40	000	-	53	
VFS15-2055PM		5.5	22	63	22x58	-	-	63	000	-	53	
VFS15-2075PM		7.5	22	-	-	80	000	80	000	-	53	
VFS15-2110PM		11	22	-	-	100	000	100	000	-	53	
VFS15-2150PM		15	22	-	-	125	00	125	00	-	53	
VFS15S-2002PL		240	0.2	5	8	10x38	-	-	-	-	-	53
VFS15S-2004PL			0.4	5	12.5	10x38	-	-	-	-	-	53
VFS15S-2007PL	0.7		5	20	10x38	-	-	20	000	-	53	
VFS15S-2015PL	1.5		5	-	-	40	000	40	000	-	53	
VFS15S-2022PL	2.2		5	-	-	40	000	40	000	-	53	
VFS15-4004PL1	415		0.4	5	4	10x38	-	-	-	-	-	53
VFS15-4007PL1		0.7	5	8	10x38	-	-	-	-	-	53	
VFS15-4015PL1		1.5	5	12.5	10x38	-	-	-	-	-	53	
VFS15-4022PL1		2.2	5	16	10x38	-	-	16	000	-	53	
VFS15-4037PL1		4.0	5	25	10x38	-	-	25	000	-	53	
VFS15-4055PL		5.5	22	40	14x51	-	-	40	000	-	53	
VFS15-4075PL		7.5	22	40	14x51	-	-	40	000	-	53	
VFS15-4110PL		11	22	-	-	63	000	63	000	-	53	
VFS15-4150PL		15	22	-	-	80	000	80	000	-	53	

*1: Reference may be followed by any characters.

*2: Mersen is recommended supplier.

*3: Use aR type fuse with a proper overload protection.