YASKAWA

安川变频器 T1000V

纺织设备专用变频器

使用注意事项

型　　号 CIMR-TB□V□□□□

容量范围 200 V级（三相电源用） 0.1～18.5 kW
200 V级（单相电源用） 0.1～3.0 kW
400 V级（三相电源用） 0.2～18.5 kW

为了安全使用本产品，请务必阅读该使用说明书。
另外，请妥善保管该使用说明书，并将其交至最终用户手中。
技术手册非附带品，需要时，请与代理店或本公司销售人员联系索取。

YASKAWA AC Drive T1000V

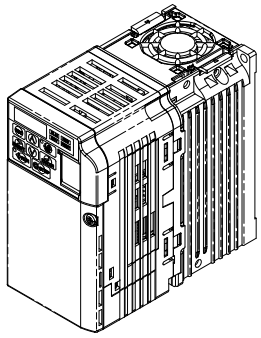
AC Drive for Textile Applications

Safety Precautions

Type CIMR-TB□V□□□□

Models 200 V Class, Three-Phase Input: 0.1 to 18.5 kW
200 V Class, Single-Phase Input: 0.1 to 3.0 kW
400 V Class, Three-Phase Input: 0.2 to 18.5 kW

To ensure safe and proper use, read both the safety precautions included in this book in addition to the Technical Manual. The Technical Manual should always be kept in an easily accessible location. Make sure that the end user also receives this manual. Because the Technical Manual has not been packaged with T1000V, separate arrangements need to be made with a Yaskawa representative or with the Yaskawa sales department directly to receive a copy of the Technical Manual.



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Table of Contents

1 PREFACE AND SAFETY 4
2 MODEL NUMBER AND NAMEPLATE CHECK. 11
3 STANDARDS COMPLIANCE. 14

1 Preface and Safety

Yaskawa manufactures products used as components in a wide variety of industrial systems and equipment. The selection and application of Yaskawa products remain the responsibility of the equipment manufacturer or end user. Yaskawa accepts no responsibility for the way its products are incorporated into the final system design. Under no circumstances should any Yaskawa product be incorporated into any product or design as the exclusive or sole safety control. Without exception, all controls should be designed to detect faults dynamically and fail safely under all circumstances. All systems or equipment designed to incorporate a product manufactured by Yaskawa must be supplied to the end user with appropriate warnings and instructions as to the safe use and operation of that part. Any warnings provided by Yaskawa must be promptly provided to the end user. Yaskawa offers an express warranty only as to the quality of its products in conforming to standards and specifications published in the Yaskawa manual. NO OTHER WARRANTY, EXPRESSED OR IMPLIED, IS OFFERED. Yaskawa assumes no liability for any personal injury, property damage, losses, or claims arising from misapplication of its products.

This book covers safety precautions, areas to check upon receiving your new T1000V, and standards compliance. For instructions on using T1000V, including installation, wiring, operation, maintenance, and inspection, refer to the Technical Manual.

◆ Applicable Documentation

The following manuals are available for the T1000V drive:

	**T1000V Series AC Drive Technical Manual**
	Detailed explanation of T1000V and usage instructions. Always refer to the Technical Manual whenever performing any installation, wiring, troubleshooting, and operation procedures. As the Technical Manual is not packaged with T1000V, please make separate arrangements with a Yaskawa representative or with the Yaskawa sales department directly to receive a copy of the Technical Manual.
	T1000V Series AC Drive Safety Precautions
	This guide is packaged together with the product. Covers safety precautions, areas to check upon receiving your new T1000V, and standards compliance.

◆ Terms

Note: Indicates supplementary information that Yaskawa highly recommends be followed, even though equipment may not be at risk.

Drive: Yaskawa AC Drive-T1000V Series

◆ Registered Trademarks

Company names and product names listed in this book are registered trademarks of those companies.

◆ Supplemental Safety Information

General Precautions

- Any illustrations, photographs, or examples used in this book are provided as examples only and may not apply to all products to which this book is applicable.
- The products and specifications described in this book or the content and presentation of the book may be changed without notice to improve the product and/or the book.
- When ordering a new copy of the book due to damage or loss, contact your Yaskawa representative or the nearest Yaskawa sales office and provide the book number shown on the front cover.
- If nameplate becomes worn or damaged, order a replacement from your Yaskawa representative or the nearest Yaskawa sales office.

⚠ WARNING

Read and understand this book and the Technical Manual before installing, operating or servicing this drive. The drive must be installed according to this book, the Technical Manual, and local codes.

The following conventions are used to indicate safety messages in this book. Failure to heed these messages could result in serious or possibly even fatal injury or damage to the products or to related equipment and systems.

⚠ DANGER

Indicates a hazardous situation, which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

WARNING! *will also be indicated by a bold key word embedded in the text followed by an italicized safety message.*

⚠ CAUTION

Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

CAUTION! *will also be indicated by a bold key word embedded in the text followed by an italicized safety message.*

NOTICE

Indicates a property damage message.

NOTICE: *will also be indicated by a bold key word embedded in the text followed by an italicized safety message.*

◆ Safety Messages

⚠ DANGER

Heed the safety messages in this book.

Failure to comply will result in death or serious injury.

The operating company is responsible for any injuries or equipment damage resulting from failure to heed the warnings in this book.

Electrical Shock Hazard

Do not connect or disconnect wiring while the power is on.

Failure to comply will result in death or serious injury.

Before servicing, disconnect all power to the equipment. The internal capacitor remains charged even after the power supply is turned off. The charge indicator LED will extinguish when the DC bus voltage is below 50 Vdc. To prevent electric shock, wait at least five minutes after all indicators are OFF and measure the DC bus voltage level to confirm safe level.

⚠ WARNING

Sudden Movement Hazard

System may start unexpectedly upon application of power, resulting in death or serious injury.

Clear all personnel from the drive, motor and machine area before applying power. Secure covers, couplings, shaft keys and machine loads before applying power to the drive.

⚠ WARNING

Electrical Shock Hazard

Do not attempt to modify or alter the drive in any way not explained in this book or the Technical Manual.

Failure to comply could result in death or serious injury.

Yaskawa is not responsible for any modification of the product made by the user. This product must not be modified.

Do not allow unqualified personnel to use equipment.

Failure to comply could result in death or serious injury.

Maintenance, inspection, and replacement of parts must be performed only by authorized personnel familiar with installation, adjustment and maintenance of AC drives.

Do not remove covers or touch circuit boards while the power is on.

Failure to comply could result in death or serious injury.

Fire Hazard

Do not use an improper voltage source.

Failure to comply could result in death or serious injury by fire.

Verify that the rated voltage of the drive matches the voltage of the incoming power supply before applying power.

Crush Hazard

Do not use this drive in lifting applications without installing external safety circuitry to prevent accidental dropping of the load.

The drive does not possess built-in load drop protection for lifting applications.

Failure to comply could result in death or serious injury from falling loads.

Install electrical and/or mechanical safety circuit mechanisms independent of drive circuitry.

Do not carry the drive by the front cover.

Failure to comply may result in minor or moderate injury from the main body of the drive falling.

NOTICE

Observe proper electrostatic discharge procedures (ESD) when handling the drive and circuit boards.

Failure to comply may result in ESD damage to the drive circuitry.

Never connect or disconnect the motor from the drive while the drive is outputting voltage.

Improper equipment sequencing could result in damage to the drive.

Do not perform a withstand voltage test on any part of the drive.

Failure to comply could result in damage to the sensitive devices within the drive.

Do not operate damaged equipment.

Failure to comply could result in further damage to the equipment.

Do not connect or operate any equipment with visible damage or missing parts.

Install adequate branch circuit short circuit protection per applicable codes.

Failure to comply could result in damage to the drive.

The drive is suitable for circuits capable of delivering not more than 30,000 RMS symmetrical Amperes, 240 Vac maximum (200 V Class) and 480 Vac maximum (400 V Class).

Do not expose the drive to halogen group disinfectants.

Failure to comply may cause damage to the electrical components in the drive.

Do not pack the drive in wooden materials that have been fumigated or sterilized.

Do not sterilize the entire package after the product is packed.

◆ Drive Label Warnings

Always heed the warning information listed in ***Figure 1*** in the position shown in ***Figure 2***.

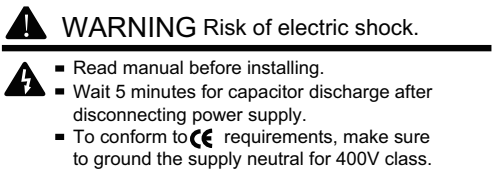


Figure 1 Warning Information



Figure 2 Warning Information Position

◆ Drive Faults and Troubleshooting

If a fault occurs and the drive stops, refer to the Technical Manual to find out what may have caused the problem before attempting to restart the drive.

2 Model Number and Nameplate Check

Please perform the following tasks after receiving the drive:

- Inspect the drive for damage.
- If the drive appears damaged upon receipt, contact the shipper immediately.
- Verify receipt of the correct model by checking the information on the nameplate.
- If you have received the wrong model or the drive does not function properly, contact your supplier.

◆ Nameplate

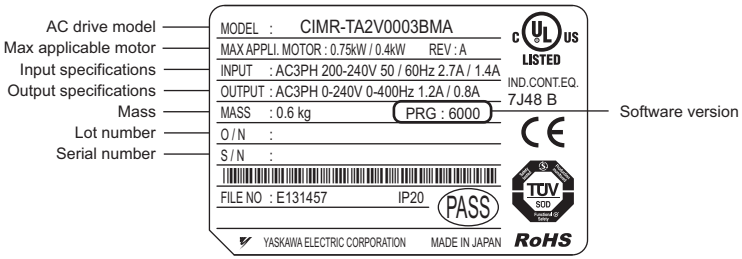


Figure 3 Nameplate Information (Standard Drive)

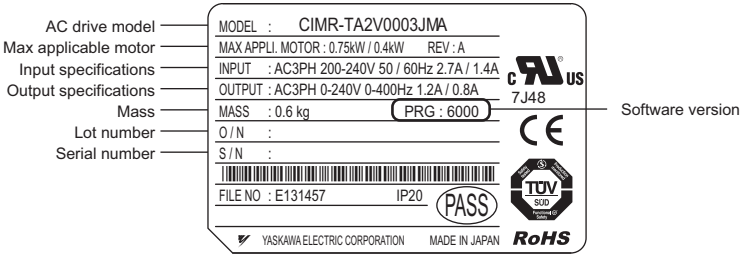
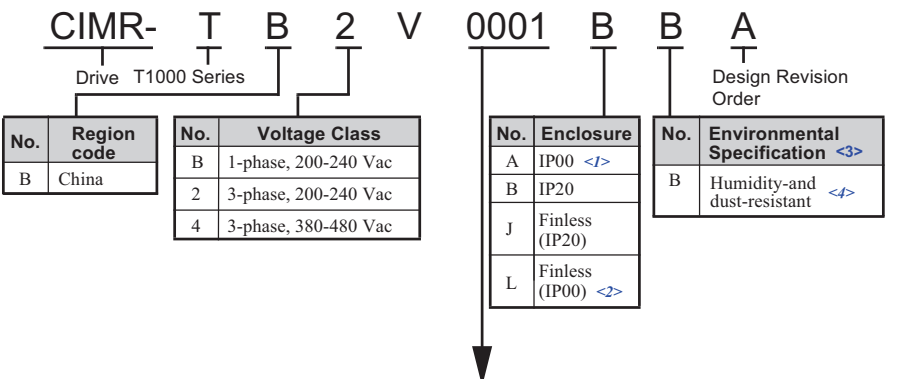


Figure 4 Nameplate Information (Finless Type)

◆ Drive Model Identification



No.	Region code
B	China

No.	Voltage Class
B	1-phase, 200-240 Vac
2	3-phase, 200-240 Vac
4	3-phase, 380-480 Vac

No.	Enclosure
A	IP00 <1>
B	IP20
J	Finless (IP20)
L	Finless (IP00) <2>

No.	Environmental Specification <3>
B	Humidity-and dust-resistant <4>

Single-Phase 200 V

Normal Duty		
No.	Max Motor Capacity kW	Rated Output Current A
0001	0.2	1.2
0002	0.4	1.9
0003	0.75	3.3
0006	1.1	6
0010	2.2	9.6
0012	3.0	12

Heavy Duty		
No.	Max Motor Capacity kW	Rated Output Current A
0001	0.1	0.8
0002	0.2	1.6
0003	0.4	3
0006	0.75	5
0010	1.5	8
0012	2.2	11

<1> IP00 is available for the following drive models: CIMR-T☐2V0030A through 0069A, CIMR-T☐4V0018A through 0038A.
<2> Finless (IP00) is available for CIMR-T☐2V0069L only.
<3> Drives with these specifications do not guarantee complete protection for the specified environmental condition.
<4> The specification is for China localized drive only: CIMR-TB☐V

Note: Current derating may be required depending on the environment where the drive is used. See the Technical Manual for instructions.

Three-Phase 200 V

Normal Duty		
No.	Max Motor Capacity kW	Rated Output Current A
0001	0.2	1.2
0002	0.4	1.9
0004	0.75	3.5
0006	1.1	6
0008	1.5	8.0
0010	2.2	9.6
0012	3.0	12
0018	3.7	17.5
0020	5.5	19.6
0030	7.5	30
0040	11	40
0056	15	56
0069	18.5	69

Heavy Duty		
No.	Max Motor Capacity kW	Rated Output Current A
0001	0.1	0.8
0002	0.2	1.6
0004	0.4	3
0006	0.75	5
0008	1.1	6.9
0010	1.5	8
0012	2.2	11
0018	3.0	14.0
0020	3.7	17.5
0030	5.5	25
0040	7.5	33
0056	11	47
0069	15	60

Three-Phase 400 V

Normal Duty		
No.	Max Motor Capacity kW	Rated Output Current A
0001	0.4	1.2
0002	0.75	2.1
0004	1.5	4.1
0005	2.2	5.4
0007	3.0	6.9
0009	3.7	8.8
0011	5.5	11.1
0018	7.5	17.5
0023	11	23
0031	15	31
0038	18.5	38

Heavy Duty		
No.	Max Motor Capacity kW	Rated Output Current A
0001	0.2	1.2
0002	0.4	1.8
0004	0.75	3.4
0005	1.5	4.8
0007	2.2	5.5
0009	3.0	7.2
0011	3.7	9.2
0018	5.5	14.8
0023	7.5	18
0031	11	24
0038	15	31

<1> IP00 is available for the following drive models: CIMR-T□2V0030A through 0069A, CIMR-T□4V0018A through 0038A.
<2> Finless (IP00) is available for CIMR-T□2V0069L only.
<3> Drives with these specifications do not guarantee complete protection for the specified environmental condition.

Note: Current derating may be required depending on the environment where the drive is used. See the Technical Manual for instructions.

3 Standards Compliance

◆ Precautions for CE Low Voltage Directive Compliance

This drive has been tested according to European standards EN 50178 and IEC/EN 61800-5-1:2007, and it fully complies with the Low Voltage Directive. The following conditions must be met to maintain compliance when combining this drive with other devices:

- Do not use drives in areas with pollution higher than severity 2 and overvoltage category 3 in accordance with IEC/EN 664.
- Ground the neutral point of the main power supply for 400 V Class drives.

For conformity with the EMC directive, refer to the Technical Manual.

◆ Precautions for UL/cUL Standards Compliance

This drive is tested in accordance with UL standard UL508C and complies with UL requirements. The following conditions must be met to maintain compliance when using this drive in combination with other equipment:

- Do not install the drive to an area greater than pollution severity 2 (UL standard).
- Yaskawa recommends using closed-loop crimp terminals on all drive models. UL/cUL approval requires the use of UL Listed closed-loop crimp terminals when wiring the drive main circuit terminals. Use only the tools recommended by the terminal manufacturer for crimping.

  For more information on UL Listed closed-loop crimp terminals, refer to the manuals that are delivered with the products.
- A UL-approved fuse should be installed to the input side of the drive.
- Wire low voltage wires with NEC Class 1 circuit conductors. Refer to national state or local codes for wiring. If external power supply used, it shall be UL Listed Class 2 power source only or equivalent.
- This drive has undergone the UL short-circuit test, which certifies that during a short circuit in the power supply the current flow will not rise above 30,000 amps maximum at 240 V for 200 V class drives and 480 V for 400 V class drives.
- The drive internal motor overload protection is UL listed and in accordance with the NEC and CEC. The setup can be done using the parameters L1-01/02.

For a detailed description of wiring and overload protection functions, refer to the Technical Manual.

◆ Precautions for Using the Safe Disable Function

The Safe Disable input provides a stop function in compliance with the “Safe Torque Off” function defined in IEC/EN 61800-5-2:2007. The Safe Disable input satisfies the requirements in EN ISO 13849-1 and IEC/EN 61508, SIL2. Refer to the Technical Manual for details about the application of this function.

Note: Safe Disable input wiring should not exceed 30 m.

◆ Wiring Specification

■ Main Circuit

Refer to the wiring specifications in *Table 1* to *Table 3* when wiring the main circuit. Make sure not to exceed the given tightening torque values in *Table 1* to *Table 3*.

Install a fuse to the input side of the drive for protection against problems that could result from a short circuit. Use the *Table 4* to select a UL-approved fuse capable of handling the maximum power input to the drive.

Wire Gauges and Tightening Torque

- Single-Phase 200 V Class

Table 1 Wire Gauge and Torque Specifications

Model CIMR-T□BV	Terminal	For Japan and Asia <1>		For China <2>		Screw Size	Tightening Torque N•m (lb.in.)
		Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)	Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)		
0001 0002 0003	R/L1, S/L2, U/T1, V/T2, W/T3, –, +1, +2, B1, B2, ⏚	0.75 to 2.0 (18 to 14)	2 (14)	0.75 to 2.5 (18 to 14)	2.5 (14)	M3.5	0.8 to 1.0 (7.1 to 8.9)
0006	R/L1, S/L2, U/T1, V/T2, W/T3, –, +1, +2, B1, B2, ⏚	2.0 to 5.5 (14 to 10)	2 (14)	2.5 to 6 (14 to 10)	2.5 (14)	M4	1.2 to 1.5 (10.6 to 13.3)
0010	R/L1, S/L2, U/T1, V/T2, W/T3, ⏚	2.0 to 5.5 (14 to 10)	3.5 (12)	2.5 to 6.0 (14 to 10)	4 (12)	M4	1.2 to 1.5 (10.6 to 13.3)
	–, +1, +2, B1, B2	2.0 to 5.5 (14 to 10)	5.5 (10)	2.5 to 6.0 (14 to 10)	6 (10)	M4	1.2 to 1.5 (10.6 to 13.3)

Model CIMR-T□BV	Terminal	For Japan and Asia <1>		For China <2>		Screw Size	Tightening Torque N•m (lb.in.)
		Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)	Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)		
0012	R/L1, S/L2, U/T1, V/T2, W/T3, –, +1, +2, B1, B2, ⏚	2.0 to 5.5 (14 to 10)	5.5 (10)	2.5 to 6 (14 to 10)	6 (10)	M4	1.2 to 1.5 (10.6 to 13.3)

<1> Gauges listed here are for use in Japan and Asia.
<2> Gauges listed here are for use in China.

- Three-Phase 200 V Class

Table 2 Wire Gauge and Torque Specifications

Model CIMR-T□2V	Terminal	For Japan and Asia <1>		For China <2>		Screw Size	Tightening Torque N•m (lb.in.)
		Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)	Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)		
0001 0002 0004 0006	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, –, +1, +2, B1, B2, ⏚	0.75 to 2.0 (18 to 14)	2 (14)	0.75 to 2.5 (18 to 14)	2.5 (14)	M3.5	0.8 to 1.0 (7.1 to 8.9)
0008 0010	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, –, +1, +2, B1, B2	2.0 to 5.5 (14 to 10)	2 (14)	2.5 to 6 (14 to 10)	2.5 (14)	M4	1.2 to 1.5 (10.6 to 13.3)
	⏚	2.0 to 5.5 (14 to 10)	3.5 (12)	2.5 to 6 (14 to 10)	4 (12)	M4	1.2 to 1.5 (10.6 to 13.3)
0012	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, –, +1, +2, B1, B2, ⏚	2.0 to 5.5 (14 to 10)	3.5 (12)	2.5 to 6 (14 to 10)	4 (12)	M4	1.2 to 1.5 (10.6 to 13.3)
0018 0020	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, –, +1, +2, B1, B2, ⏚	2.0 to 5.5 (14 to 10)	5.5 (10)	2.5 to 6 (14 to 10)	6 (10)	M4	1.2 to 1.5 (10.6 to 13.3)
0030	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, -, +1, +2	5.5 to 14 (10 to 6)	8 (8)	6 to 16 (10 to 6)	10 (8)	M4	1.2 to 1.5 (10.6 to 13.3)
	B1, B2	2.0 to 5.5 (14 to 10)	5.5 (10)	2.5 to 6 (14 to 10)	6 (10)	M4	1.2 to 1.5 (10.6 to 13.3)
	⏚	5.5 to 14 (10 to 6)	8 (8)	6 to 16 (10 to 6)	10 (8)	M5	2 to 2.5 (17.7 to 22.1)

Model CIMR-T□2V	Terminal	For Japan and Asia <1>		For China <2>		Screw Size	Tightening Torque N•m (lb.in.)
		Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)	Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)		
0040	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, -, +1, +2	5.5 to 14 (10 to 6)	14 (6)	6 to 16 (10 to 6)	16 (6)	M4	1.2 to 1.5 (10.6 to 13.3)
	B1, B2	2.0 to 5.5 (14 to 10)	5.5 (10)	2.5 to 6 (14 to 10)	6 (10)	M4	1.2 to 1.5 (10.6 to 13.3)
	⏚	5.5 to 14 (10 to 6)	8 (8)	6 to 16 (10 to 6)	10 (8)	M5	2 to 2.5 (17.7 to 22.1)
0056	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, -, +1, +2	14 to 22 (6 to 4)	22 (4)	16 to 25 (6 to 4)	25 (4)	M6	4 to 6 (35.4 to 53.1)
	B1, B2	5.5 to 8 (10 to 8)	8 (8)	6 to 10 (10 to 8)	10 (8)	M5	2 to 2.5 (17.7 to 22.1)
	⏚	14 to 22 (6 to 4)	22 (4)	16 to 25 (6 to 4)	25 (4)	M6	4 to 6 (35.4 to 53.1)
0069	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, -, +1, +2	8 to 38 (8 to 2)	38 (2)	10 to 35 (8 to 2)	35 (2)	M8	9 to 11 (79.7 to 11.0)
	B1, B2	8 to 14 (8 to 6)	14 (6)	10 to 16 (8 to 6)	16 (6)	M5	2 to 2.5 (17.7 to 22.1)
	⏚	8 to 22 (8 to 4)	22 (4)	10 to 25 (8 to 4)	25 (4)	M6	4 to 6 (35.4 to 53.1)

<1> Gauges listed here are for use in Japan and Asia.
<2> Gauges listed here are for use in China.

- Three-Phase 400 V Class

Table 3 Wire Gauge and Torque Specifications

Model CIMR-T□4V	Terminal	For Japan and Asia <1>		For China <2>		Screw Size	Tightening Torque N•m (lb.in.)
		Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)	Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)		
0001 0002 0004 0005 0007	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, –, +1, +2, B1, B2, ⏚	2.0 to 5.5 (14 to 10)	2 (14)	2.5 to 6.0 (14 to 10)	2.5 (14)	M4	1.2 to 1.5 (10.6 to 13.3)

Model CIMR-T□4V	Terminal	For Japan and Asia <1>		For China <2>		Screw Size	Tightening Torque N•m (lb.in.)
		Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)	Applicable Gauge mm² (AWG)	Recommended Gauge mm² (AWG)		
0009	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, –, +1, +2, B1, B2	2.0 to 5.5 (14 to 10)	2 (14)	2.5 to 6 (14 to 10)	2.5 (14)	M4	1.2 to 1.5 (10.6 to 13.3)
	⏚	2.0 to 5.5 (14 to 10)	3.5 (12)	2.5 to 6 (14 to 10)	4 (12)	M4	1.2 to 1.5 (10.6 to 13.3)
0011	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, –, +1, +2, B1, B2	2.0 to 5.5 (14 to 10)	2 (14)	2.5 to 6 (14 to 10)	2.5 (14)	M4	1.2 to 1.5 (10.6 to 13.3)
	⏚	2.0 to 5.5 (14 to 10)	3.5 (12)	2.5 to 6 (14 to 10)	4 (12)	M4	1.2 to 1.5 (10.6 to 13.3)
0018	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, -, +1, +2, B1, B2	2.0 to 5.5 (14 to 10)	5.5 (10)	2.5 to 6 (14 to 10)	6 (10)	M4	1.2 to 1.5 (10.6 to 13.3)
	⏚	5.5 to 14 (10 to 6)	5.5 (10)	6 to 16 (10 to 6)	6 (10)	M5	2 to 2.5 (17.7 to 22.1)
0023	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, -, +1, +2	5.5 to 14 (10 to 6)	8 (8)	6 to 16 (10 to 6)	10 (8)	M4	1.2 to 1.5 (10.6 to 13.3)
	B1, B2	2.0 to 5.5 (14 to 10)	5.5 (10)	2.5 to 6 (14 to 10)	6 (10)	M4	1.2 to 1.5 (10.6 to 13.3)
	⏚	5.5 to 14 (10 to 6)	5.5 (10)	6 to 16 (10 to 6)	6 (10)	M5	2 to 2.5 (17.7 to 22.1)
0031	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, -, +1, +2	5.5 to 14 (10 to 6)	8 (8)	6 to 16 (10 to 6)	10 (8)	M5	3.6 to 4.0 (31.8 to 35.4)
	B1, B2	5.5 to 8 (10 to 8)	8 (8)	6 to 10 (10 to 8)	10 (8)	M5	2.7 to 3.0 (23.9 to 26.6)
	⏚	5.5 to 14 (10 to 6)	8 (8)	6 to 16 (10 to 6)	10 (8)	M6	5.4 to 6.0 (47.8 to 53.1)
0038	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3, -, +1, +2	5.5 to 14 (10 to 6)	14 (6)	6 to 16 (10 to 6)	10 (8)	M5	3.6 to 4.0 (31.8 to 35.4)
	B1, B2	5.5 to 8 (10 to 8)	8 (8)	6 to 10 (10 to 8)	10 (8)	M5	2.7 to 3.0 (23.9 to 26.6)
	⏚	5.5 to 14 (10 to 6)	8 (8)	6 to 16 (10 to 6)	10 (8)	M6	5.4 to 6.0 (47.8 to 53.1)

<1> Gauges listed here are for use in Japan and Asia.
<2> Gauges listed here are for use in China.

Recommended Input Fuse Selection

Table 4 Input Fuse Selection

Model CIMR-T☐	Non-Time Delay Class-T Fuse Type (Manufacturer: Ferraz) 600 Vac, 200 kAIR	Fuse Ampere Rating (A)	Fuse Type (Manufacturer: Bussmann) 500 Vac, 200 kAIR	Fuse Ampere Rating (A)
BV0001	A6T6	6	FWH-25A14F	25
BV0002	A6T10	10	FWH-25A14F	25
BV0003	A6T20	20	FWH-60B	60
BV0006	A6T40	40	FWH-80B	80
BV0010	A6T40	40	FWH-100B	100
BV0012	A6T50	50	FWH-125B	125
2V0001	A6T3	3	FWH-25A14F	25
2V0002	A6T6	6	FWH-25A14F	25
2V0004	A6T15	15	FWH-25A14F	25
2V0006	A6T20	20	FWH-25A14F	25
2V0010	A6T25	25	FWH-70B	70
2V0012	A6T30	30	FWH-70B	70
2V0020	A6T40	40	FWH-90B	90
2V0030	Not Available		FWH-100B	100
2V0040			FWH-200B	200
2V0056			FWH-200B	200
2V0069			FWH-200B	200
4V0001	A6T3	3	FWH-40B	40
4V0002	A6T6	6	FWH-40B	40
4V0004	A6T15	15	FWH-50B	50
4V0005	A6T20	20	FWH-70B	70
4V0007	A6T25	25	FWH-70B	70
4V0009	A6T25	25	FWH-90B	90
4V0011	A6T30	30	FWH-90B	90
4V0018	Not Available		FWH-80B	80
4V0023			FWH-100B	100
4V0031			FWH-125B	125
4V0038			FWH-200B	200

■ Control Circuit

Select appropriate wire type and size from *Table 5* for control circuit wiring. For simpler and more reliable wiring, crimp ferrules to the wire ends. Refer to the Technical Manual for details.

Table 5 Wire Size and Torque Specifications (Same for All Models)

Terminal	Screw Size	Tightening Torque (N·m)	Bare Wire Terminal		Ferrule-Type Terminal		
			Applicable wire size mm² (AWG)	Recomm. mm² (AWG)	Applicable wire size mm² (AWG)	Recomm. mm² (AWG)	Wire Type
MA, MB, MC	M3	0.5 to 0.6	Stranded: 0.25 to 1.5 (24 to 16) Single: 0.25 to 1.5 (24 to 16)	0.75 (18)	0.25 to 1.0 (24 to 17)	0.5 (20)	Shielded line, etc
S1 - S7, SC, RP, +V, A1, A2, AC, HC, H1, P1, P2, PC, MP, AM, AC, S+, S-, R+, R-, IG	M2	0.22 to 0.25	Stranded: 0.25 to 1.0 (24 to 17) Single: 0.25 to 1.5 (24 to 16)	0.75 (18)	0.25 to 0.5 (24 to 20)	0.5 (20)	

◆ Drive Motor Overload Protection

Set parameter E2-01 (motor rated current) to the appropriate value to enable motor overload protection. The internal motor overload protection is UL listed and in accordance with the NEC and CEC.

Enable the motor overload protection (L1-01 = “1”, “2”, or “3”) when connecting the drive to a single motor unless there is another means of preventing motor thermal overload. The electronic thermal overload function causes an oL1 fault, which shuts off the output of the drive and prevents additional overheating of the motor. The motor temperature is continually calculated as long as the drive is powered up.

Disable the electronic overload protection (L1-01 = 0: Disabled) and wire each motor with its own motor thermal overload when connecting the drive to more than one motor for simultaneous operation.

■ E2-01 Motor Rated Current

Setting Range: Model Dependent

Default Setting: Model Dependent

If Auto-Tuning has been performed successfully, the motor data that was entered in T1-04 is automatically written into parameter E2-01. If Auto-Tuning has not been performed, manually enter the correct motor rated current in parameter E2-01.

■ L1-01 Motor Overload Protection Selection

This parameter selects the motor overload curve used according to the type of motor applied.

Table 6 Overload Protection Settings

Setting	Description
0	Disabled
1	Standard fan cooled motor (default)
2	Drive duty motor with a speed range of 1:10
3	Vector motor with a speed range of 1:100
4	Permanent Magnet motor with variable torque

■ L1-02 Motor Overload Protection Time

Setting Range: 0.1 to 5.0 Minutes

Factory Default: 1.0 Minutes

The L1-02 parameter sets the allowed operation time before the oL1 fault occurs when the drive is running at 60 Hz and 150% of the full load amp rating (E2-01) of the motor.

◆ China RoHS Compliance



Figure 5 China RoHS Mark

The China RoHS mark is displayed on products containing six specified hazardous substances that are in excess of regulatory limits, based on the “Administrative Measures for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products” and “Marking for the Restricted Use of Hazardous Substances in Electronic and Electrical Products” (SJ/T 11364-2014), which were promulgated on January 26, 2016. The number displayed in the center of the mark indicates the environment-friendly use period (number of years) in which electrical and electronic products that are being produced, sold, or imported to China can be used. The date of manufacture of the electrical and electronic product is the starting date of the environment-friendly use period for the product. The six specified hazardous substances contained in the product will not leak outside of the product during normal use within this period and will have no serious impact on the environment, the human body, or property.

The environment-friendly use period for this product is 15 years. This period is not the product warranty period.

Note: This mark will be added to factory shipments from late June 2016. There may be a mix of products that reflect or do not reflect this change during the distribution stage. Thank you for your understanding.

■ Information on Hazardous Substances in This Product

Table 7 shows the details on hazardous substances contained in this product.

Table 7 Contents of Hazardous Substances in This Product

Parts Name	Hazardous Substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Circuit Board	×	○	○	○	○	○
Electronic Parts	×	○	○	○	○	○
Brass Screw	×	○	○	○	○	○
Aluminum Die Casting	×	○	○	○	○	○

This table has been prepared in accordance with the provisions outlined in SJ/T 11364.
○: Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below or equal to the limit requirement of GB/T 26572.
×: Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.
Note: This product complies with EU RoHS directives. In this table, "×" indicates that hazardous substances that are exempt from EU RoHS directives are contained.

◆ 对应中国 RoHS 指令



Figure 6 中国 RoHS 标志

中国 RoHS 标志依据 2016 年 1 月 26 日公布的《电器电子产品有害物质限制使用管理办法》，以及《电子电气产品有害物质限制使用标识要求》（SJ/T 11364-2014）作成。电子电气产品中特定 6 种有害物质的含量超过规定值时，应标识此标志。中间的数字为在中国生产销售以及进口的电子电气产品的环保使用期限（年限）。电子电气产品的环保使用期限从生产日期算起。在期限内，正常使用产品的过程中，不会有特定的 6 种有害物质外泄进而对环境，人和财产造成深刻影响。

本产品的环保使用期限为 15 年。但需要注意的是环保使用期限并非产品的质量保证期限。

Note: 2016 年 6 月下旬以后出厂的产品会依次进行标识。此外，标识和未标识的产品可能会在物流阶段混在一起，敬请注意。

◆ 本产品中含有有害物质的信息

本产品中所含有害物质的详细信息如 *Table 8* 所示。

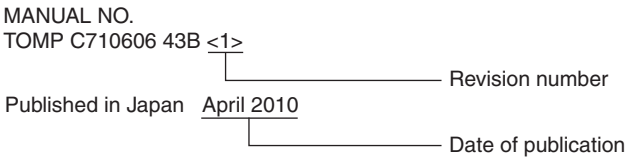
Table 8 本产品中有害物质的名称及含量

部件名称	有害物质					
	铅 （Pb）	汞 （Hg）	镉 (Cd)	六价铬 (Cr（ Ⅵ）)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
实装基板	×	○	○	○	○	○
电子元件	×	○	○	○	○	○
黄铜螺钉	×	○	○	○	○	○
铝压铸	×	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。
○：表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。
×：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。
（注）本产品符合欧盟 RoHS 指令。上表中的 “×” 表示含有欧盟 RoHS 指令豁免的有害物质。

◆ Revision History

The revision dates and numbers of the revised manuals are given on the bottom of the back cover.



Date of Publication	Rev. No.	Section	Revised Content
December 2016	<2>	Front cover	Revision: Format
		All	Revision: Reviewed and corrected entire documentation.
		Chapter 3	Addition: China RoHS Compliance
		Back cover	Revision: Address, format
April 2010	<1>	Chapter 3	Revision: Fuse selection
December 2008	–	–	First edition

YASKAWA AC Drive T1000V

AC Drive for Textile Applications

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In the event that the end user of this product is to be the military and said product is to be employed in any weapons systems or the manufacture thereof, the export will fall under the relevant regulations as stipulated in the Foreign Exchange and Foreign Trade Regulations. Therefore, be sure to follow all procedures and submit all relevant documentation according to any and all rules, regulations and laws that may apply.

Specifications are subject to change without notice for ongoing product modifications and improvements.

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