



MMS KIT INSTALLATION MANUAL 480/480 V 500/750 kVA



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IMPORTANT NOTICE

Never attempt to install, operate, maintain or dispose of this equipment until you have first read and understood all of the relevant product warnings and user directions that are contained in this Installation manual.

The installation of this equipment must only be performed by qualified personnel.

The Instructions contained in this manual are not intended to cover all of the details or variations in equipment or to provide for every possible contingency to be met in connection with installation, operation, or maintenance. Should further information be required or should particular problems arise which are not covered sufficiently the matter should be referred to the local TOSHIBA sales office.

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UNINTERRUPTIBLE POWER SYSTEM

If additional information or technical assistance is required call TOSHIBA Customer Support Center at (877) 867-8773, or write to: Toshiba International Corporation, 13131 West Little York Road, Houston, TX 77041-9990 Attn: UPS Product Manager.

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Purpose and Scope of Manual

This manual provides information on how to safely install, operate, and maintain your TOSHIBA power electronics product. This manual includes a section on General Safety Instructions that describes the warning labels and symbols that are used throughout the manual. Read the manual completely before installing, operating, or performing maintenance on this equipment.

This manual and the accompanying drawings should be considered a permanent part of the equipment and should be readily available for reference and review. Dimensions shown in the manual are in metric and/or the English equivalent.

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Toshiba Customer Support Center 8 a.m. to 5 p.m. (CST) – Monday through Friday Tel (877) 867-8773 Fax (713) 896-5212 E-mail – <u>TIC-UPSservice @toshiba.com</u>

You may contact TOSHIBA by writing to:

TOSHIBA INTERNATIONAL CORPORATION. SOCIAL INFRASTRUCTURE SYSTEMS GROUP POWER ELECTRONICS DIVISION 13131 West Little York Rd. Houston, TX 77041-9990 Attn: UPS Product Manager

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1 How to use this Manual

This manual is designed for ease of use, giving the user easy and quick reference to information. This manual uses notice icons to draw attention to the user important information regarding the safe operation and installation of the UPS.

1.1 Notice Icons

The notice icons used in this manual are explained below, and should be taken into account and adhered to whenever they appear in the text of this manual.



Warning: A warning symbol shows potentially hazardous situation or condition which could result in personal injury or death, if not avoided.



Caution: A caution symbol shows potentially hazardous situation or condition which could result in personal injury or equipment damage, if not avoided.



Note: A Note symbol shows the information the user or the service personnel should observe during the UPS operation or service work.



Prohibit: A prohibit symbol shows the act the user or the service personnel should NEVER perform during the UPS installation, operation or service work.

Safety Recommendations: If any problems are encountered while following this manual, contact the Toshiba Customer Support Center.

1.2 Qualified Personnel

Only qualified persons are to install, operate or service this equipment according to all applicable codes and established safety practices.

A qualified person must:

1) Read this entire instruction manual carefully.

- 2) Be skilled in the installation, construction or operation of the equipment and aware of the hazards involved.
- 3) Be trained and authorized to safely energize, de-energize, clear, ground, lockout and tag circuits in accordance with established safety practices
- 4) Be trained and authorized to perform the service, maintenance or repair of this equipment
- 5) Be trained in the proper care and use of protective equipment such as rubber gloves, hard hat, safety glasses, face shield, flash clothing, etc. in accordance with established practices
- 6) Be trained in rendering first aid.

2 OVERVIEW

TOSHIBA G2020 Uninterruptible Power Supply Systems (UPS) need an MMS KIT whenever two or more UPSs are installed in parallel operation configuration.

Every UPS requires an MMS KIT installed to allow it to complete the communication circuit with other UPSs.



All UPSs must be de-energized when the MMS KITs are installed and the parallel interconnections are established between the UPSs.



Figure 2-1 Parallel-connection between UPSs

3 MMS KIT parts list

Part #	Part name	Qty	Remarks
1	Parallel Interface board: IFAU-09* (IF1)	1	
2	Parallel Control board: TLCR-E* (PC1)	1	
3	Ferrite Core: E2530MRC	4	
4	Flat Cable (TLCR-E* - UPHR-X*) 50p	1	CN91, 350mm
5	Multi-conductive cable (TLCR-E* - IFAU-09*) 34p	1	CN92, 1420mm
6	Multi-conductive cable (TLCR-E* - IFAU-09*) 20p	1	CN93, 1420mm
7	Wire (TLCR-E*_GNDC - FG)	1	Green, 750mm
8	Wire (TLCR-E*_GNDD - FG)	1	Green, 750mm
9	Wire (IFAU-09*_GNDC - FG)	1	Green, 330mm
10	Wire (IFAU-09*_GNDD - FG)	1	Green, 650mm
11	Wire (TLCR-E* - IFAU-09*) EGND, ZGND (2 twisted)	1	Yellow/Blue, 1540mm
12	Spacer: SQ-14	18	9 for IFAU-09* 9 for TLCR-E*
13	Screw (M3 x 8)	18	9 for IFAU-09* 9 for TLCR-E*
14	Screw (M4 x 8)	4	For connecting wire to FG
15	Screw (M5 x 10)	2	For mounting panel
16	Spring washer (M3)	18	9 for spacer of IFAU-09* 9 for spacer of TLCR-E*
17	Flat washer (M3)	18	9 for spacer of IFAU-09* 9 for spacer of TLCR-E*
18	Cable Tie (T30R)	10	Use as necessary
19	Label (NOTICE)	1	
20	Label (MARK)	1	
21	Panel (2AAA6458P003)	1	

Table 3-1 Parts list of MMS KIT

* - PCB revision suffix may be applied.



Figure 3-1 MMS KIT parts identification



4 MMS Parts Location







Figure 4-2 MMS parts location (Inside of landing cabinet)



Figure 4-3 Diagram of MMS kit installation



5 Installation procedure



Prior to the installation of the parts, confirm that the AC input breaker, AC output breaker, Bypass input breaker and DC breaker are turned off. (De-energize the interior of the UPS.) Then remove the metal cover plates from UPS.

5.1 Parallel Control Board (TLCR-E*)



Figure 5-1 Location of ground bus bar (Upper)



Figure 5-2 Location of parallel control board (TLCR-E*)

Step 1-1

 Screw spacers (#12) x 9pcs with spring washer (#16) and flat washer (#17) on the plate.



Step 1-2

 Install the parallel interface board TLCR-E*(PC1, #2) on the spacers with M3 screws (#13).



Step 1-3



[NOTE]

Other cables or wires connect to the board in Step 2-4.





5.2 Parallel Interface Board (IFAU-09*)



Step 2-1

 Screw spacers (#12) x 9pcs with spring washer (#16) and flat washer (#17) on the plate.

Step 2-2

 Install the parallel interface board IFAU-09*(IF1, #1) on the spacers with M3 screws (#13).







Step 2-5



Step 2-6

- Install communication cables between UPSs.
 Please refer to APPENDIX in this document.
- Mount the panel (#21) with M5 screws (#15) after completing installation of communication cables.



Figure 5-7 Parallel interface board (IFAU-09*) installation procedure (continued)

6 Dip switch setting on parallel interface board (IFAU-09*)

Setup Dip switches on Parallel Interface Board (IFAU-09*) according to Table 6-1.



Figure 6-1 Dip switch location on parallel interface board (IFAU-09*)

	No.1 UPS	No.2 UPS	No.3 UPS	No.4 UPS	No.5 UPS	No.6 UPS	No.7 UPS	No.8 UPS
2 by MMS	ON	ON						
3 by MMS	ON	OFF	ON					
4 by MMS	ON	OFF	OFF	ON				
5 by MMS	ON	OFF	OFF	OFF	ON			
6 by MMS	ON	OFF	OFF	OFF	OFF	ON		
7 by MMS	ON	OFF	OFF	OFF	OFF	OFF	ON	
8 by MMS	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON

Table 6-1 Dip switch setting



APPENDIX A Parallel operation system connection







Figure A-2 Diagram of power wire and control wire connection (for 2 - 4 units in MMS)



In order to avoid interference to the parallel control communication,

NOTE

- a. Keep the communication cables away from bus bars, cables and wires used for main circuit and grounding.
- b. Do not roll the communication cables into one even if they have extra length.



Figure A-3 Diagram of communication cable connection (for 2 - 4 units in MMS)



Figure A-4 Diagram of power wire and control wire connection (for 5 - 8 units in MMS)



In order to avoid interference to the parallel control communication,

NOTE

- c. Keep the communication cables away from bus bars, cables and wires used for main circuit and grounding.
- d. Do not roll the communication cables into one even if they have extra length.



Figure A-5 Diagram of communication cable connection (for 5 - 8 units in MMS)

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SOCIAL INFRASTRUCTURE SYSTEMS GROUP POWER ELECTRONICS DIVISION

13131 West Little York Rd., Houston, TX 77041 Tel: 855-803-7087 Fax 713-896-5212 US 800/231-1412 Canada 800/872-2192 Mexico 01/800/527-1204

www.toshibaups.com

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