Technical Publications

2239316
Revision 2

UPS Option  Installation Manual

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Operating Documentation
WARNING

- This service manual is available in English only.
- If a customer's service provider requires a language other than English, it is the customer's responsibility to provide translation services.
- Do not attempt to service the equipment unless this service manual has been consulted and is understood.
- Failure to heed this warning may result in injury to the service provider, operator or patient from electric shock, mechanical or other hazards.

Avertissement

- Ce manuel de maintenance n'est disponible qu'en anglais.
- Si le technicien du client a besoin de ce manuel dans une autre langue que l'anglais, c'est au client qu'il incombe de le faire traduire.
- Ne pas tenter d'intervention sur les équipements tant que le manuel service n'a pas été consulté et compris.
- Le non-respect de cet avertissement peut entraîner chez le technicien, l'opérateur ou le patient des blessures dues à des dangers électriques, mécaniques ou autres.

Warnung

- Dieses Kundendienst–Handbuch existiert nur in englischer Sprache.
- Falls ein fremder Kundendienst eine andere Sprache benötigt, ist es aufgabe des Kunden für eine entsprechenende Übersetzung zu sorgen.
- Versuchen sie nicht, das Gerät zu reparieren, bevor dieses Kundendienst–Handbuch nicht zu Rate gezogen und verstanden wurde.
- Wird diese Warnung nicht beachtet, so kann es zu Verletzungen des Kundendiensttechnikers, des bedieners oder des Patienten durch elektrische Schläge, mechanische oder sonstige Gefahren kommen.

Aviso

- Este manual de servicio sólo existe en inglés.
- Si algún proveedor de servicios ajeno a gems solicita un idioma que no sea el inglés, es responsabilidad del cliente ofrecer un servicio de traducción.
- No se deberá dar servicio técnico al equipo, sin haber consultado y comprendido este manual de servicio.
- La no observancia del presente aviso puede dar lugar a que el proveedor de servicios, el operador o el paciente sufran lesiones provocadas por causas eléctricas, mecánicas o de otra naturaleza.
• ESTE MANUAL DE ASSISTÊNCIA TÉCNICA SÓ SE ENCONTRA DISPONÍVEL EM INGLÊS.

• SE QUALQUER OUTRO SERVIÇO DE ASSISTÊNCIA TÉCNICA, QUE NÃO A GEMS, SOLICITAR ESTES MANUAIS OUTRO IDIOMA, É DA RESPONSABILIDADE DO CLIENTE FORNECER OS SERVIÇOS DE TRADUÇÃO.

• NÃO TENTE REPARAR O EQUIPAMENTO SEM TER CONSULTADO E COMPREENDIDO ESTE MANUAL DE ASSISTÊNCIA TÉCNICA.

• O NÃO CUMPRIMENTO DESTE AVISO PODE POR EM PERIGO A SEGURANÇA DO TÉCNICO, OPERADOR OU PACIENTE DEVIDO A' CHOQUES ELÉTRICOS, MECÂNICOS OU OUTROS.

• IL PRESENTE MANUALE DI MANUTENZIONE È DISPONIBILE SOLTANTO IN INGLESE.

• SE UN ADDETTO ALLA MANUTENZIONE ESTERNO ALLA GEMS RICHIÈDE IL MANUALE IN UNA LINGUA DIVERSA, IL CLIENTE È TENUTO A PROVVEDERE DIRETTAMENTE ALLA TRADUZIONE.

• SI PROCEDE ALLA MANUTENZIONE DELL'APPARECCHIATURA SOLO DOPO AVER CONSULTATO IL PRESENTE MANUALE ED AVERNE COMPRESO IL CONTENUTO.

• NON TENERE CONTO DELLA PRESENTE AVVERTENZA POTREBBE FAR COMPIERE OPERAZIONI DA CUI DERIVINO LESIONI ALL'ADDETTO ALLA MANUTENZIONE, ALL'UTILIZZATORE ED AL PAZIENTE PER FOLGORAZIONE ELETTRICA, PER URTI MECCANICI OD ALTRI RISCHI.

• このサービスマニュアルには英語版しかありません。

• GEMS以外でサービスを担当される業者が英語以外の言語を要求される場合、翻訳作業はその業者の責任で行うものとさせていただきます。

• このサービスマニュアルを熟読し理解せずに、装置のサービスを行わないで下さい。

• この警告に従わない場合、サービスを担当される方、操作員あるいは患者さんが、感電や機械的又はその他の危険により負傷する可能性があります。

• 本维修手册仅存有英文本。

• 未详细阅读和完全了解本手册之前，不得进行维修。

• 忽略本注意事项会对维修员、操作员或病人造成触电、机械伤害或其他伤害。
IMPORTANT! . . . X-RAY PROTECTION

X-ray equipment if not properly used may cause injury. Accordingly, the instructions herein contained should be thoroughly read and understood by everyone who will use the equipment before you attempt to place this equipment in operation. The General Electric Company, Medical Systems Group, will be glad to assist and cooperate in placing this equipment in use.

Although this apparatus incorporates a high degree of protection against x-radiation other than the useful beam, no practical design of equipment can provide complete protection. Nor can any practical design compel the operator to take adequate precautions to prevent the possibility of any persons carelessly exposing themselves or others to radiation.

It is important that everyone having anything to do with x-radiation be properly trained and fully acquainted with the recommendations of the National Council on Radiation Protection and Measurements as published in NCRP Reports available from NCRP Publications, 7910 Woodmont Avenue, Room 1016, Bethesda, Maryland 20814, and of the International Commission on Radiation Protection, and take adequate steps to protect against injury.

The equipment is sold with the understanding that the General Electric Company, Medical Systems Group, its agents, and representatives have no responsibility for injury or damage which may result from improper use of the equipment. Various protective material and devices are available. It is urged that such materials or devices be used.

CERTIFIED ELECTRICAL CONTRACTOR STATEMENT

All electrical installations that are preliminary to positioning of the equipment at the site prepared for the equipment shall be performed by licensed electrical contractors. In addition, electrical feeds into the Power Distribution Unit shall be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations, and testing shall be performed by qualified GE Medical personnel. The products involved (and the accompanying electrical installations) are highly sophisticated, and special engineering competence is required.

In performing all electrical work on these products, GE will use its own specially trained field engineers. All of GE’s electrical work on these products will comply with the requirements of the applicable electrical codes.

The purchaser of GE equipment shall only utilize qualified personnel (i.e., GE’s field engineers, personnel of third-party service companies with equivalent training, or licensed electricians) to perform electrical servicing on the equipment.
DAMAGE IN TRANSPORTATION

All packages should be closely examined at time of delivery. If damage is apparent, have notation “damage in shipment” written on all copies of the freight or express bill before delivery is accepted or “signed for” by a General Electric representative or a hospital receiving agent. Whether noted or concealed, damage MUST be reported to the carrier immediately upon discovery, or in any event, within 14 days after receipt, and the contents and containers held for inspection by the carrier. A transportation company will not pay a claim for damage if an inspection is not requested within this 14 day period.

Call Traffic and Transportation, Milwaukee, WI (414) 827–3449 / 8*285–3449 immediately after damage is found. At this time be ready to supply name of carrier, delivery date, consignee name, freight or express bill number, item damaged and extent of damage.

Complete instructions regarding claim procedure are found in Section “S” of the Policy & Procedure Bulletins.

OMISSIONS & ERRORS

GE personnel, please use the GEMS CQA Process to report all omissions, errors, and defects in this documentation. Customers, please contact your GE Sales or Service representatives.

CAUTION

Do not use the following devices near this equipment. Use of these devices near this equipment could cause this equipment to malfunction.

Devices not to be used near this equipment:

Devices which intrinsically transmit radio waves such as; cellular phone, radio transceiver, mobile radio transmitter, radio-controlled toy, etc.

Keep power to these devices turned off when near this equipment.

Medical staff in charge of this equipment is required to instruct technicians, patients and other people who may be around this equipment to fully comply with the above regulation.
## REVISION HISTORY

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SECTION 1 – INTRODUCTION

The UPS (Uninterruptible Power Supply) option allows the OC to be supplied with power for few minutes even if the power goes off for any reason. So, a customer can shut down the system before power is removed from the OC.

FLOWCHART

The illustration below shows the main flow of the installation procedures of this option.

START

Preparation

UPS Assy Installation

Functional Check

END

WARNING!

ELECTRICAL SHOCK HAZARD!
AFTER INSTALLING THE UPS OPTION, MAKE SURE YOU TURN OFF THE UPS POWER BEFORE YOU ACCESS THE OPERATOR CONSOLE.
## SECTION 2 – MATERIAL LIST

### UPS Option Kit

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<td>2239316</td>
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### FRU List

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SECTION 3 – INSTALLATION PROCEDURE

NOTICE

For systems powered from a power distribution box which has a lockout capability, perform the following steps at appropriate timings in each component replacement procedure:

.........

Turn off and lock out the system power at the main input (Power Distribution Box).

.........

Restore system power.

.........
3-1 PREPARATION

1. Verify that the contents of this option kit are correct according to the Material List (see Section 2). Especially, you should confirm that the power cable (2235091) and GND cable (2235092) are packed into the UPS Assy.

3-2 UPS ASSY INSTALLATION

Illustration 3–1 Wiring Diagram

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**means the system connection before installing the UPS option.
3-2 UPS ASSY INSTALLATION (continued)

1. Turn OFF the Operator Console main power.

2. Turn OFF the breaker in the Power Distribution Box (hospital supply).

3. For CT HiSpeed Series: Remove the rear cover from the OC.
For CT/e, ProSpeed AI/FI Series: Remove the rear nest cover and rear cover from the OC.

4. Remove the protect cover from the UPS Assy by unscrewing its 5 screws.

5. Remove the PDU front cover by unscrewing its 2 screws.
(For PDU2: remove the rear cover.)

Illustration 3–1 Cover Removal
3-2 UPS ASSY INSTALLATION (continued)

6. Remove the plastic guard from the TM1 terminal on the OC.

7. Remove the cable holder from the back of the OC.

8. Disconnect the GND cable (No.23 cable) from OC frame. (This cable will be connected to the UPS.)

9. Disconnect the power cable (No.5 cable) from the TM1 terminal. (This cable will be connected to the UPS.)

   **Note**
   Do not remove the Jumper wires installed in the TM1.

Illustration 3–2 OC GND and Power Cable Removal

10. Connect the No.5 power cable (removed from the OC TM1 in step 9) to the TM1 (IN) of the UPS.

11. Connect the No.23 GND cable (removed from the OC in step 8) to the ground of the UPS.

12. Connect the provided GND cable and power cable between the OC and the UPS Assy.

   - Power cable: UPS TM1 (OUT) – OC TM1
   - GND cable: UPS GND – OC GND
3-2 UPS ASSY INSTALLATION (continued)

Illustration 3–3  Cable Wiring (OC and UPS Assy)

OC for CT/e, ProSpeed Al/FI Series

CABLE HOLDER

GND Cable

Provided Cables

Power Cable

From UPS Assy

Existing Cables

To OC

From PDU

5

23

Provided Cables

Terminal (TM1)

From UPS Assy

Power Cable

GND Cable

Cable Holder

UPS
3-2 UPS ASSY INSTALLATION (continued)

13. Disconnect the No.5 cable from the No.7 and No.8 terminals of the TM2 in the PDU, then connect them to the No.11 and No.12 terminals of the TM2.
   (For PDU2: Rear access)

Illustration 3–4   Cable Wiring (PDU)

14. Install the PDU cover and UPS protect cover.

   Note
   The OC rear cover is not installed at this time. It will be installed after performing Section 4-1, Functional Check.
SECTION 4 – FINAL CHECK

4-1 FUNCTIONAL CHECK

1. Turn ON the breaker in the Power Distribution Box (hospital supply).

2. Turn ON the main switch of the Operator Console.
   The power is supplied to the UPS, but not supplied to the OC at this time.

3. Press and hold the ON button of the UPS until you hear the UPS beep (approximately one second).
   When the UPS is started, the following indicators are lit, indicating the power is supplied to the OC.
   The “Input” and “UPS” indicators are lit.
   The “Charge” indicators are lit according to the charged status.
   The “Load” indicators are lit according to the connected load capacity.
   The “Output1” and/or “Output2” is lit according to output status.

OFF Button
Used to stop the UPS operation.

ON Button
Used to start the UPS.
4-1 Functional check (Continued)

4. Measure the voltage between TM1 terminals of the OC. It should be $95 \sim 135 \text{ VAC}$.

5. Verify that the system starts up normally.

6. Shutdown the OC and turn OFF the main switch of the OC. The power is supplied from the UPS to the OC.

7. Press and hold the OFF button until the long beep ceases (approximately one seconds). All LED is OFF and the UPS is powered OFF.

8. Restore the OC to original configuration.
4-2 ATTACHING THE WARNING LABEL AND RATING PLATE

1. Attach the provided “Warning Label” to the Power Distribution Box (hospital supply). (Select the label written in a proper language.)

2. Attach the provided rating plate to the following location (see illustration below).

   ![Rating Plate Illustration]

   **Note**
   If other options have been installed in the system, several rating plates should have been attached. In this case, attach this rating plate above the others.

3. Store the UPS Operator’s manual, shipped with the UPS Assy, and use it when troubleshooting the UPS.

4-3 SENDING THE PRODUCT LOCATOR CARD

1. Fill in the blanks on the Product Locator Card provided in this kit.

2. Send the Product Locator Card to the appropriate address provided below.

   **Address for GEMS–AM sites:**
   Send to the address printed on the Product Locator Card.

   **Address for GEMS–E sites:**
   Send to the address printed on the Product Locator Card.

   **Address for GEMS–A sites:**
   Send to the local PLS or Service Administrator.
SECTION 5 – MAINTENANCE

**WARNING**
ELECTRICAL SHOCK HAZARD!
MAKE SURE YOU TURN OFF THE UPS POWER BEFORE YOU ACCESS THE OPERATOR CONSOLE.

**NOTICE**
For systems powered from a power distribution box which has a lockout capability, perform the following steps at appropriate timings in each component replacement procedure:

---------
Turn off and lock out the system power at the main input (Power Distribution Box).
---------
Restore system power.
---------
5-1 UPS ASSY REPLACEMENT

Note
If the UPS Option kit (2231576 or 2231567–xx) is installed in site, order 22404265 UPS Assy. Replacement procedure of the 22404265 UPS Assy is in Sec.5-1-2 in this manual.

5-1-1 5112408 UPS Assy Replacement

Special Equipment
- 5112408 UPS Assy (w/o outer case)
- Tie Wraps
- Functional Check/Adjustment Manual (CD–ROM)


1. Shutdown the OC and turn OFF the main switch of the OC.
2. Press and hold the OFF button until the long beep ceases (approximately one seconds)
   All LED is OFF and the UPS is powered OFF.
3. Turn OFF the breaker in the Power Distribution Box (hospital supply).
4. Remove UPS Assy:
   a. Remove a TER Cover by unscrewing its 5 screws.

TER Cover

: Screw
5-1-1  5112408 UPS Assy Replacement (continued)

b. Remove a Upper Cover by unscrewing its 4 screws.

c. Remove a Shield Plate by unscrewing its 10 screws.

d. Remove a Side Cover by unscrewing its 8 screws.
5-1-1 5112408 UPS Assy Replacement (continued)

e. Cut tie–wraps holding the power cable to the UPS Assy.

f. Disconnect the input power cable from the plug at the back of the rear panel.

g. Disconnect the output power cable from the rear plug of the UPS.
5-1-1 5112408 UPS Assy Replacement (continued)

h. Loosen two nut at the upper side, and unscrew 4 screws, then remove the Side Bracket.

i. Loosen two screws that fasten the Back Bracket to the base, and remove the UPS Assy.
5-1-1 5112408 UPS Assy Replacement (continued)

5. Check the dip-switch configuration of the new UPS Assy:

   a. Push release button, and open the front panel.

   b. Set the SW1(8) dip-switch at the back of the front panel to OFF position.

   c. Close the front panel.

6. Install the new UPS Assy by referring to steps 4h. through 4a.

7. Check that the UPS Assy is operating normally according to ‘Section 4 – Final Check’ in this manual.
5-1-2 2404265 UPS Assy Replacement

Special Equipment
- 2404265 UPS Assy (w/ outer case)
- Tie Wraps
- Functional Check/Adjustment Manual (CD–ROM)


1. Shutdown the OC and turn OFF the main switch of the OC.
2. Press and hold the OFF button until the long beep ceases (approximately one seconds)
   All LED is OFF and the UPS is powered OFF.
3. Turn OFF the breaker in the Power Distribution Box (hospital supply).
4. Remove the existing UPS Assy:
   a. Remove a TER Cover by unscrewing its 5 screws.
   b. Disconnect two power cables and two GND cables from the UPS Assy.
   c. Remove the UPS Assy.
5. Install the new UPS Assy according to ‘Section 3 – Installation Procedure’ in this manual.
6. Check that the UPS Assy is operating normally according to ‘Section 4 – Final Check’ in this manual.