



**stratasys**

**Fortus® 250mc**

***SITE PREPARATION GUIDE***

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# REVISION LOG

Revision	Date	Description of Changes
400713-0001, Rev. A	January 2016	Initial release.

## SAFETY

The following basic safety tips are given to ensure safe installation, operation, and maintenance of Stratasys equipment and are not to be considered as comprehensive on matters of safety. Although the Fortus 250mc is designed to be a safe and reliable printer, access to areas of the printer are potentially dangerous.

## SAFE ENVIRONMENT

- Connect equipment to a grounded facility power source. Do not defeat or bypass the ground lead.
- Know the location of equipment branch circuit interrupters or circuit breakers and how to turn them on and off in case of emergency.
- Know the location of fire extinguishers and how to use them. Use only ABC type extinguishers on electrical fires.
- Know local procedures for first aid and emergency assistance at the customer facility.
- Use adequate lighting at the equipment.
- Maintain the recommended range of temperature and humidity in equipment area.
- Do not use this product in an environment containing volatile or flammable compounds.

# ABOUT THE FORTUS 250MC

The Fortus 250mc printer incorporates the latest in innovative technologies to provide you with precise prototypes from a CAD design. Three-dimensional parts are built by extruding a bead of ABS plastic through a computer-controlled extrusion head, producing high quality parts that are ready to use immediately after completion. With three layer resolution settings, you can choose to build a part quickly for design verification, or you can choose a finer setting for higher quality surface detail.

## COMPONENTS

- The 250mc Printer
- Insight Software Package

## HIGHLIGHTS

- Maximum build area of 10 x 10 x 12 inch (254 x 254 x 305 mm)
- Material Canister Bays: 1 model, 1 support
- User Interface with Display Panel and Keypad

## HOW TO USE THIS GUIDE

This guide provides information for selecting an appropriate location for the Fortus 250mc. Information of particular importance is presented in one of three formats:



**Warning:** A WARNING indicates a procedure that may cause injury to an operator if the procedure is not followed. A WARNING will precede the paragraph of instruction to which it relates.



**Caution:** A CAUTION indicates a procedure that may cause damage to equipment if the procedure is not followed. A CAUTION will precede the paragraph of instruction to which it relates.



**Note:** A NOTE is used to highlight a specific point or to provide an operational tip. While useful, a NOTE does not indicate a procedure that can cause injury or damage if it is not followed. A NOTE will follow the paragraph of instruction to which it relates.

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# SITE PREP TASKS

## SELECTING THE SITE

Decide where to install the printer based on the following:

1. Space Requirements
2. Workstation Requirements
3. Environmental Requirements
4. Electrical Requirements
5. LAN Requirements

## SPACE REQUIREMENTS

### UNCRATED DIMENSIONS AND WEIGHTS

Make sure that the installation location can accommodate the printer's weight and dimensions, plus required clearances. The installation location must be a flat surface capable of holding 350 pounds (159 kg).

<b>Height</b>	45 inches (114.3 cm)
<b>Width</b>	29 inches (73.7 cm)
<b>Depth</b>	33 inches (83.8 cm)
<b>Weight</b>	326 pounds (148 kg)

### MINIMUM CLEARANCES

Sufficient rear and side clearances allow for proper air circulation, while sufficient front clearance allows enough room for the oven door to be opened.

<b>Side Clearance</b>	Minimum 6 inches (15.2 cm) on each side
<b>Rear Clearance</b>	Minimum 4.5 inches (11.4 cm)
<b>Front Clearance</b>	Minimum 17 inches (43.2 cm)

## ENVIRONMENTAL REQUIREMENTS

- The 250mc is for indoor use only.
- Air quality conditions with excessive solid particulates (conductive or non-conductive) may result in system damage.
- Air quality conditions in which airborne oils are allowed to accumulate on or within the printer can damage the plastic components.
- Operating temperature shall be in the range of 59°F to 86°F (15°C to 30°C), with relative humidity range of 30% to 70% non-condensing.
- Storage temperature shall be in the range of -40°F to 129.2°F (-40°C to 54°C), with relative humidity range of 10% to 85% non-condensing.
- Altitude shall not exceed 6561.68 feet (2000 m).
- Typical heat emission shall be 1080 Watts = 3686 BTU/hour, and maximum heat emission shall be 1380 Watts = 4710 BTU/hour.

## POWER CONSUMPTION

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<b>Power Consumption (while building)</b>	~1080W
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## WORKSTATION REQUIREMENTS

For details, see the Insight Workstation Requirements document available from the Stratasys website.

## ELECTRICAL REQUIREMENTS

### AC POWER REQUIREMENTS

- 50/60 Hz
- 100-240 VAC
- 15-7A
- 1200W dedicated circuit
- The grounded electrical outlet must connect to either a Euro or a US power cord plug provided and must be located within 2 m (80 inches) of the printer.

Operation of the printer outside this range is not recommended; degradation of performance and shortened component life expectancy will be experienced.



**Caution:** Do not use an extension cord or power strip; doing so can result in intermittent power issues. Connect the power cord directly into the receptacle or UPS.

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## LAN REQUIREMENTS

A LAN connection is required for communication and file transfer functions.

The LAN connection is a 100 base T, Ethernet protocol, RJ45 connector. One CAT5, 10/100 base T cable is supplied with the printer, located in the Startup Kit.

The printer will function in either DHCP or Static IP configurations.



**Note:** Printers configured with a network option of UPnP=ON will occasionally broadcast a unique system identifier across the network for use by the Insight FDM Control Center software application.

Refer to Insight's user information for workstation requirements.

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# UNINTERRUPTIBLE POWER SUPPLY (UPS)

## USE AND INSTALLATION

The intent of the Uninterruptible Power Supply (UPS) shutdown feature on Fortus systems is to prevent required maintenance and/or system damage by safely shutting the system down in the event of an uncontrolled loss of power. Whether an in-process build of a part will complete successfully is dependent on the battery life of the selected UPS and the duration of the power outage.

The user should select a UPS with the following specifications:

- Runtime minimum of 15 minutes at 1000W or 2000VA output (run times >15 minutes may be appropriate based on the typical duration of power outages at the site).
- Runtime minimum 8 minutes after low battery warning tripped.
- Peak output (minimum) of 1500W.
- Dry contact (voltage free) interface for “On battery” and “Low battery” conditions.
- Dry contact interface capable of carrying at least 100mA at 12VDC.

## GENERAL INFORMATION

Refer to the UPS and I/O Module (if used) Installation and Operation Guides for instructions on installing the I/O module (if used) into the UPS unit as well as for connecting AC power to the UPS and Fortus system. While connecting the Fortus system power to the UPS will provide some protection against power outages, the Fortus system will shut down safely when “on battery” and “low battery” conditions are detected. Follow the Electrical Interface Connection information below.

1. Configure Normally Open dry contact relay I/Os of UPS as shown in [Figure 1](#) (Wired-And configuration).
2. Build an appropriate length of UPS to Fortus system cable. See [Figure 2](#) for pin out.
3. Connect the cable from the UPS unit’s connector to the UPS (9-pin DSub) connector on the rear of the Fortus system.



**Note:** Make certain to install the jackscrews that hold the cable connectors to their respective mates (do not over-tighten)

4. Follow the instructions in the UPS Installation and Operation Guide to set the “Low Battery Warning Level” to 8 minutes.

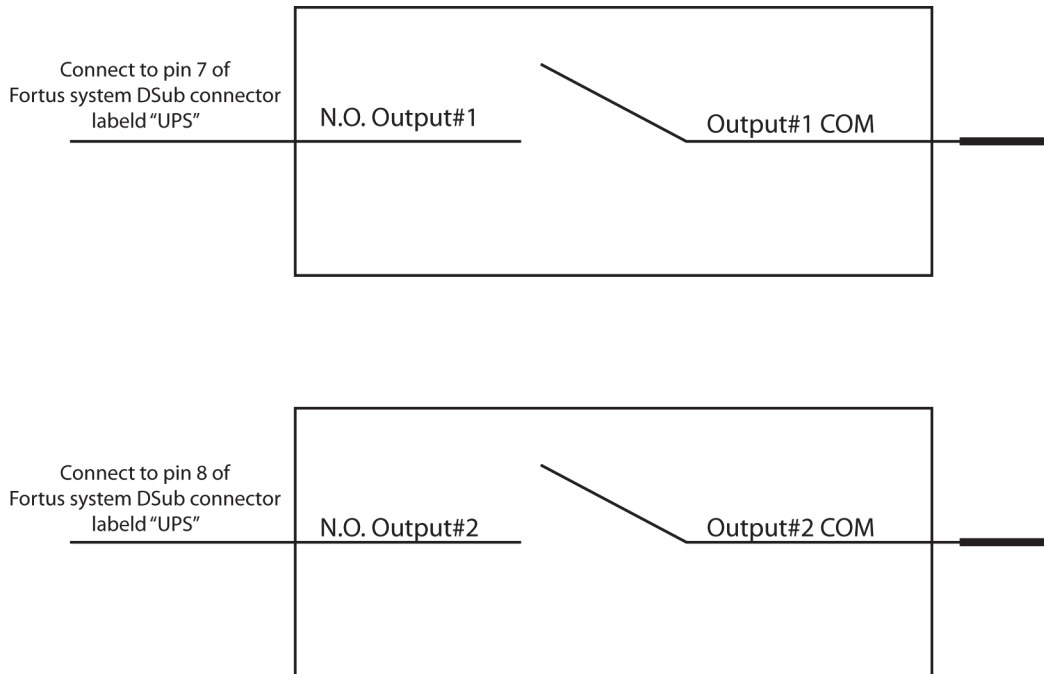


**Note:** The default low battery warning level value may not provide adequate time to ensure the Fortus system can shut down safely.

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**Figure 1: Wired-And configuration**



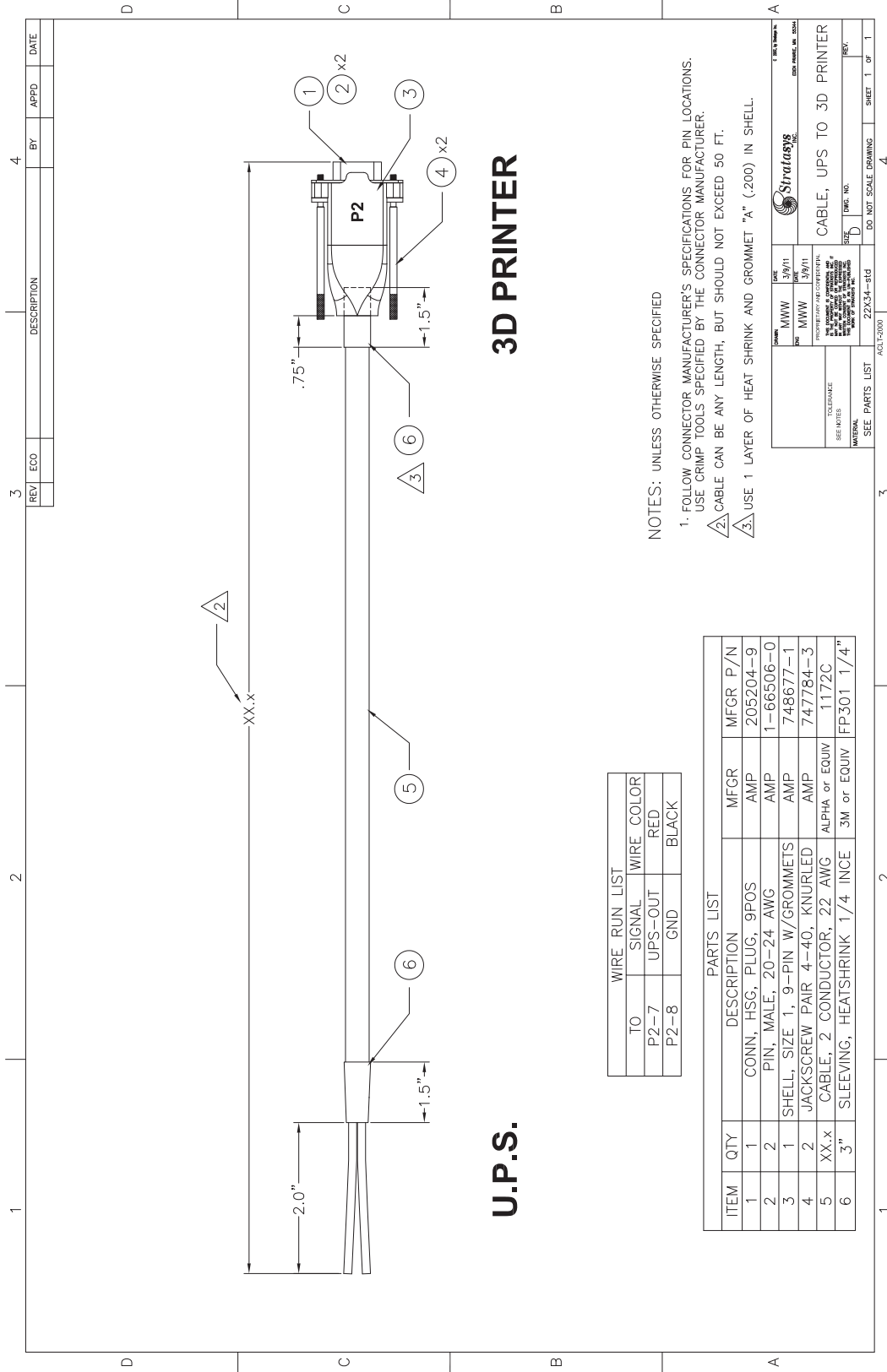
## PARTS LIST – CABLE, UPS TO FORTUS SYSTEM

Item	Qty	Nomenclature / Description	Material Specification
1	1	Conn, Hsg, Plug, 9Pos	AMP - 205204-9
2	2*	Pin, Male, 24-20 AWG	AMP - 1-66506-0
3	1	Shell, Size 1, 9-Pin w/Grommets	AMP - 748677-1
4	2	Jackscrew Pair 4-40, Knurled	AMP - 747784-3
5	XX.x	Cable, 2 Conductor, 22 AWG	ALPHA - 1172C or Equivalent
6	3.0 inch	Sleeving, Heatshrink 1/4 Inch	3M - FP301 or Equivalent



**Note:** \* May need additional pins depending on the UPS configuration.

Figure 2: UPS Cable Diagram



**3D PRINTER**

**U.P.S.**

NOTES: UNLESS OTHERWISE SPECIFIED

- 1. FOLLOW CONNECTOR MANUFACTURER'S SPECIFICATIONS FOR PIN LOCATIONS. USE CRIMP TOOLS SPECIFIED BY THE CONNECTOR MANUFACTURER.
- 2. CABLE CAN BE ANY LENGTH, BUT SHOULD NOT EXCEED 50 FT.
- 3. USE 1 LAYER OF HEAT SHRINK AND GROMMET "A" (.200) IN SHELL.

WIRE RUN LIST		
TO	SIGNAL	WIRE COLOR
P2-7	UPS-OUT	RED
P2-8	GND	BLACK

PARTS LIST			
ITEM	QTY	DESCRIPTION	MFR P/N
1	1	CONN, HSC, PLUG, 9POS	AMP 205204-9
2	2	PIN, MALE, 20-24 AWG	AMP 1-66506-0
3	1	SHELL, SIZE 1, 9-PIN W/GROMMETS	AMP 748677-1
4	2	JACKSCREW PAIR 4-40, KNURLED	AMP 747784-3
5	XX.X	CABLE, 2 CONDUCTOR, 22 AWG	ALPHA or EQUIV 1172C
6	3"	SLEEVING, HEATSHRINK 1/4 INCE	3M or EQUIV FP301 1/4"

DATE	3/9/11	DATE	3/9/11
BY	MMW	BY	MMW
CABLE, UPS TO 3D PRINTER			
SEE PARTS LIST		DO NOT SCALE DRAWING	
MATERIAL		SHEET 1 OF 1	

# RECEIVING THE PRINTER

## INSPECT CRATE FOR DAMAGE

Before opening the shipping crate, inspect the crate for signs of exterior damage.

Report evidence of excessive damage to Stratasys and the shipping company.

# PREPARING FOR INSTALLATION

## REQUIRED TOOLS AND EQUIPMENT

- Basic hand tools (powered screwdriver or drill with Phillips bit).
- A pallet jack or forklift will be needed to move the system.

## UNPACKING THE PRINTER

The work area for unpacking the system should be 2.8 m (104 in.) high, 2.2 m (86 in.) wide and 1.9 m (76 in.) deep.

For detailed unpacking and setup instructions, refer to Chapter 3 of the Fortus 250mc User Guide.

# SITE PREPARATION CHECKLIST

## ELECTRICAL INSTALLATION REQUIREMENTS

- A dedicated outlet of 100-240V ~15-7A 50/60 Hz 1200W has been installed.
- The grounded electrical outlet is within 2 meters (80 inches) of the printer.
- The grounded electrical outlet is able to accept either a Euro or US power cord plug.

## ENVIRONMENTAL REQUIREMENTS

- The site's environmental temperature is between 59°F to 86°F (15°C to 30°C).
- The site's environmental humidity is between 30% to 70%, non-condensing.



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