

APPLICATION

This real-time reconstruction system performs image reconstruction and display during continuous scanning. This system is installed in a CT scanner to expand its diagnostic capabilities to include ^{SURE}Fluoro (Multislice CT fluoroscopy). The applicable CT systems are shown below.

TSXF-004A/1

For the 220 kg (485 lb)*¹ long patient couch

SYSTEM MODEL		COUCH MODEL
Aquilion ONE	TSX-306A/1-3	CBTB-031A
	TSX-305A/4 (S/N 2040 or later)* ²	
	TSX-305A/5 (S/N 2094 or later)* ²	
	TSX-305A/6 (S/N 2036 or later)* ²	
Aquilion Prime SP	TSX-303B/5, /6, /8	

TSXF-004A/2

For the 220 kg (485 lb)*¹ short patient couch

SYSTEM MODEL		COUCH MODEL
Aquilion ONE	TSX-306A/1-3	CBTB-031B
	TSX-305A/4 (S/N 2040 or later)* ²	
	TSX-305A/5 (S/N 2094 or later)* ²	
	TSX-305A/6 (S/N 2036 or later)* ²	
Aquilion Prime SP	TSX-303B/5, /6, /8	

TSXF-004A/3

For the 315 kg (694 lb)*³ long patient couch

SYSTEM MODEL		COUCH MODEL
Aquilion ONE	TSX-306A/1-3	CBTB-032A
	TSX-305A/4 (S/N 2040 or later)* ²	
	TSX-305A/5 (S/N 2094 or later)* ²	
	TSX-305A/6 (S/N 2036 or later)* ²	
Aquilion Prime SP	TSX-303B/5, /6, /8	

TSXF-004A/4

For the 315 kg (694 lb)*³ short patient couch

SYSTEM MODEL		COUCH MODEL
Aquilion ONE	TSX-306A/1-3	CBTB-032B
	TSX-305A/4 (S/N 2040 or later)* ²	
	TSX-305A/5 (S/N 2094 or later)* ²	
	TSX-305A/6 (S/N 2036 or later)* ²	
Aquilion Prime SP	TSX-303B/5, /6, /8	

TSXF-004A/5

For the 315 kg (694 lb)*³ long patient couch

SYSTEM MODEL		COUCH MODEL
Aquilion Lightning	TSX-036A/7* ⁴	CBTB-032A

TSXF-004A/6

For the 315 kg (694 lb)*³ short patient couch

SYSTEM MODEL		COUCH MODEL
Aquilion Lightning	TSX-036A/7* ⁴	CBTB-032B

Note: Some systems may not be available in your country or region.
Please check with your sales representative.

*1: Patient weight Max. 205 kg (452 lb) + Accessories 15 kg (33 lb)

*2: System software version must be V10.0 SP0008 or later.

*3: Patient weight Max. 300 kg (661 lb) + Accessories 15 kg (33 lb)

*4: System software version must be V10.4 or later.

FEATURES

• Mounting of extension operating panel to patient couch

To facilitate operation in the scanning room, an extension operating panel can be mounted to the patient couch. This operating panel can be mounted to / removed from the connector section easily, facilitating switching of the extension operating panel mounting location between the left and right sides of the couch as desired.*¹

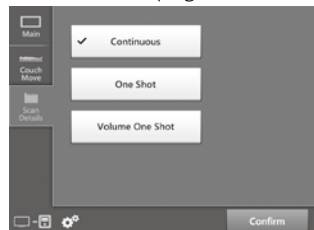
The following operations can be performed from the extension operating panel.

- Tilting and projector ON/OFF setting are possible during scanning.
- Couch vertical, horizontal and lateral movement*² are possible.
- The patient couch can be moved to the position specified on an image.
- The couch movement speed can be adjusted using the couch slide dial.
- The target planes to be assessed can be searched for quickly.
- Image feeding and window level adjustment can be performed.
- Scan mode can be selected.

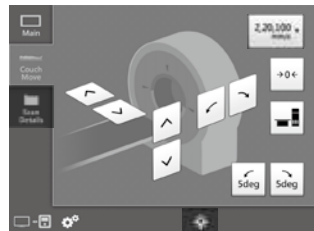
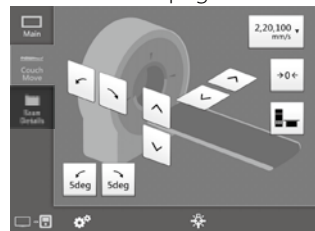
<Main page>



<Scan details page>



<Couch move pages>



• Real-time reconstruction

Reconstruction and display can be performed at a maximum 12 images per second during scanning. The maximum scan time is 100 s.

• Quick view

This system is provided with a Quick View function, permitting scanning to be started within 1 second after a single switch is pressed.

• Reduction of dose

The minimum mA setting is 10 mA.

• Volume scanning

Volume scanning can be performed for a maximum range of 160 mm*³ (40 mm*⁴) in the axial direction.

COMPOSITION

- Extension operating panel
(operating panel, arm, etc.).....1 set
- Covers
(couch covers, couch lower covers).....1 set
- Rails.....1 set
- Interface board.....1 set
- Cables.....1 set
- Storage case.....1 set
- Media.....1 set
- Manuals.....1 set

*1: If the Fixing kit for CT Fluoroscopy (^{SURE}Fluoro) is installed, it will be fixed on either the left or right side.

*2: Option

*3: For Aquilion ONE (TSX-305A, TSX-306A)

*4: For Aquilion Prime SP, Aquilion Lightning

PERFORMANCE SPECIFICATIONS

Scanning conditions

- Rotation time
Aquilion ONE
(TSX-305A, TSX-306A): 0.275*¹, 0.3*¹, 0.32*¹, 0.35, 0.375*², 0.4, 0.45*², 0.5, 0.6, 0.75, 1, 1.5 s/360°
- Aquilion Prime SP: 0.35, 0.375, 0.4, 0.45, 0.5, 0.6, 0.75, 1, 1.5 s/360°
- Aquilion Lightning: 0.5*¹, 0.6*¹, 0.75, 1, 1.5 s/360°
- Continuous scan time: Max. 100 s
(subject to X-ray conditions)
- Scanning condition setting: 360 types of eXam Plan can be preset. Selected using the display menu.

Scanner

- Tilt
Tilting can be performed from the extension operating panel. To ensure safety, operation by remote control from the console or from the gantry operating panels is disabled when the extension panel is used.
Tilting is possible during scanning. Moreover, reconstruction is performed and the image is displayed even during tilting.
- Positioning projector
Operation can be performed from the extension operating panel. Operation from the gantry operating panels is disabled (to avoid incorrect operation).
Operation is possible during scanning.

Patient couch

- Vertical movement
This movement can be performed from the extension operating panel. During operation from the extension operating panel, operation from the gantry operating panel is disabled.
- Horizontal movement (couch-top)
This movement can be performed using the couch slide dial provided on the extension operating panel. During operation from the extension operating panel, operation from the gantry operating panel is disabled. The couch moves inward or outward according to the dial rotation direction and the movement speed increases with the amount of rotation (3 speeds, which can be set from the extension operating panel). Horizontal movement is possible during scanning. Moreover, reconstruction is performed and the image is displayed even while performing horizontal movement.
- Lateral movement*¹
This movement can be performed from the extension operating panel. During operation from the extension operating panel, operation from the gantry operating panel is disabled.
- Minimum couch height

Couch model	Couch type	Minimum couch height (mm)	
		Without TSXF-004A	With TSXF-004A
CBTB-031A	220 kg (485 lb) Long patient couch version	346	433
CBTB-031B	220 kg (485 lb) Short patient couch version	346	433
CBTB-032A	315 kg (694 lb) Long patient couch version	332	419
CBTB-032B	315 kg (694 lb) Short patient couch version	332	419

*1: Option

*2: Not available when the Fast scan and X-ray power up kit (CGS-56A) is installed.

X-rays

- Tube current

Aquilion ONE

(TSX-305A, TSX-306A): 10 mA to 600 mA (900 mA^{*1})

Aquilion Prime SP: 10 mA to 500 mA (600 mA^{*1})

Aquilion Lightning: 10 mA to 300 mA (420 mA^{*1})

- Current setting

Aquilion ONE

(TSX-305A, TSX-306A): 5 mA steps

10 mA to 50 mA

10 mA steps

50 mA to 900 mA

Aquilion Prime SP: 5 mA steps

10 mA to 50 mA

10 mA steps

50 mA to 600 mA

Aquilion Lightning: 5 mA steps

10 mA to 50 mA

10 mA steps

50 mA to 420 mA

- X-ray generation control

Scanning is started within 1 second after the switch (dead-man type) on the extension operating panel is pressed. If the switch is released, scanning is stopped quickly. Moreover, the following restrictions apply concerning the time between when the switch is released and pressed again

- Restriction 1

X-ray exposure can be restarted up to about 3 seconds after the switch is released. (That is, if the switch is turned OFF accidentally and is turned ON again immediately, scanning can be resumed within 1 second.)

- Restriction 2

Scanning is inhibited for several tens of seconds after about 3 seconds has passed after the switch is released (to save raw data). Then, the system returns to the status in which scanning can be resumed.

Data acquisition

Number of displayed tomographic images	Data acquisition/Stack method	
3	6 slices are acquired and 3 images with uniform thicknesses are generated and displayed.	Yes
	4 slices are acquired and 3 images (one is the first slice, one is the image generated by stacking the second and third slices, and the other is a the fourth slice) are displayed.	Yes
1	4 slices are acquired and a single image generated by stacking all of the 4 slices is displayed.	Yes
	A single image generated by stacking the 2 slices is displayed.	No

Data processing

- Image reconstruction matrix: 512 × 512 (HiRes mode)

- Image reconstruction time: See below

Aquilion ONE, Aquilion Prime SP

Scan time	1 slice display mode		3 slice display mode	
	Displayed frames/rotation	Reconstruction time	Displayed frames/rotation	Reconstruction time
0.275 s [*]	3 frames	0.083 s (12 images/s)	2 frames × 3 slice images	0.125 s (24 images/s)
0.3 s [*]	3 frames	0.083 s (12 images/s)	2 frames × 3 slice images	0.125 s (24 images/s)
0.32 s [*]	3 frames	0.083 s (12 images/s)	2 frames × 3 slice images	0.125 s (24 images/s)
0.35 s	4 frames	0.083 s (12 images/s)	2 frames × 3 slice images	0.125 s (24 images/s)
0.375 s	4 frames	0.083 s (12 images/s)	3 frames × 3 slice images	0.125 s (24 images/s)
0.4 s	5 frames	0.083 s (12 images/s)	3 frames × 3 slice images	0.125 s (24 images/s)
0.45 s	5 frames	0.083 s (12 images/s)	3 frames × 3 slice images	0.125 s (24 images/s)
0.5 s	6 frames	0.083 s (12 images/s)	4 frames × 3 slice images	0.125 s (24 images/s)
0.6 s	7 frames	0.083 s (12 images/s)	4 frames × 3 slice images	0.125 s (24 images/s)
0.75 s	9 frames	0.083 s (12 images/s)	6 frames × 3 slice images	0.125 s (24 images/s)
1.0 s	12 frames	0.083 s (12 images/s)	8 frames × 3 slice images	0.125 s (24 images/s)
1.5 s	18 frames	0.083 s (12 images/s)	12 frames × 3 slice images	0.125 s (24 images/s)

*: Only for Aquilion ONE (TSX-305A, TSX-306A)

*1: Option

Aquilion Lightning

Scan time	1 slice display mode		3 slice display mode	
	Displayed frames/rotation	Reconstruction time	Displayed frames/rotation	Reconstruction time
0.5 s	6 frames	0.083 s (12 images/s)	4 frames × 3 slice images	0.125 s (24 images/s)
0.6 s	9 frames	0.083 s (12 images/s)	5 frames × 3 slice images	0.125 s (24 images/s)
0.75 s	9 frames	0.083 s (12 images/s)	6 frames × 3 slice images	0.125 s (24 images/s)
1.0 s	12 frames	0.083 s (12 images/s)	8 frames × 3 slice images	0.125 s (24 images/s)
1.5 s	18 frames	0.083 s (12 images/s)	12 frames × 3 slice images	0.125 s (24 images/s)

- Last image
When scanning is stopped, the image currently displayed is held.
- Raw data storage
When scanning is stopped, scanned raw data is saved in the same way as the raw data obtained normally. Scanning is disabled while raw data is being saved. Raw data that has already been saved can be handled in the same way as the raw data obtained normally.
- Reconstruction function and filter function during scanning
 - Functions using BHC: Cannot be used
 - Standard functions: Can be selected
 - High-definition functions from FC80 to FC99: Cannot be used
 - Filter after scan: Cannot be used
- Play/reverse function
During execution of an eXam Plan, ^{SURE}Fluoro data acquired by the eXam Plan is reconstructed in real time. Reconstructed images can be played back in the forward (Play)/reverse (Reverse Playback) direction, displayed one by one, paused, or saved.
Note: This function is available only in 1 slice display mode.
- Scan plan function
During execution of a ^{SURE}Fluoro element, the ^{SURE}Fluoro position can be planned at any time by starting up the scan plan function.

Image display

- Image matrix: 512 × 512
- Window type: Only linear window
The preset window settings can be selected and the WL/WW can be finely adjusted from the extension operating panel.
- Displayed image switching: Displayed images can be switched from the extension operating panel.

Image processing

- Reconstruction image
The reconstruction image saved in the magnetic disk can undergo the same image processing as images obtained by conventional scanning. However, some image processing functions are not available for images without set related information.

Raw data processing

- Normal mode
Raw data acquired using this system can be used for reconstruction retry, zooming, etc. in the same manner as in standard systems.
- Real-time mode (play/reverse functions)
Raw data acquired using this system can be played back in real time during image acquisition. In addition, raw data acquired using standard systems (helical data and dynamic data) can also be played back in real-time mode. The restrictions described in “Reconstruction function and filter function during scanning” of the Data Processing are applied when using this mode.

Note: This function is available only in 1 slice display mode.

DIMENSIONS AND MASS

Unit	Dimensions W × L × H	Mass
	mm (in)	kg (lb)
Operating panel and arm	220 × 305 × 437 (8.7 × 12 × 17.2)	3.7 (8.2)

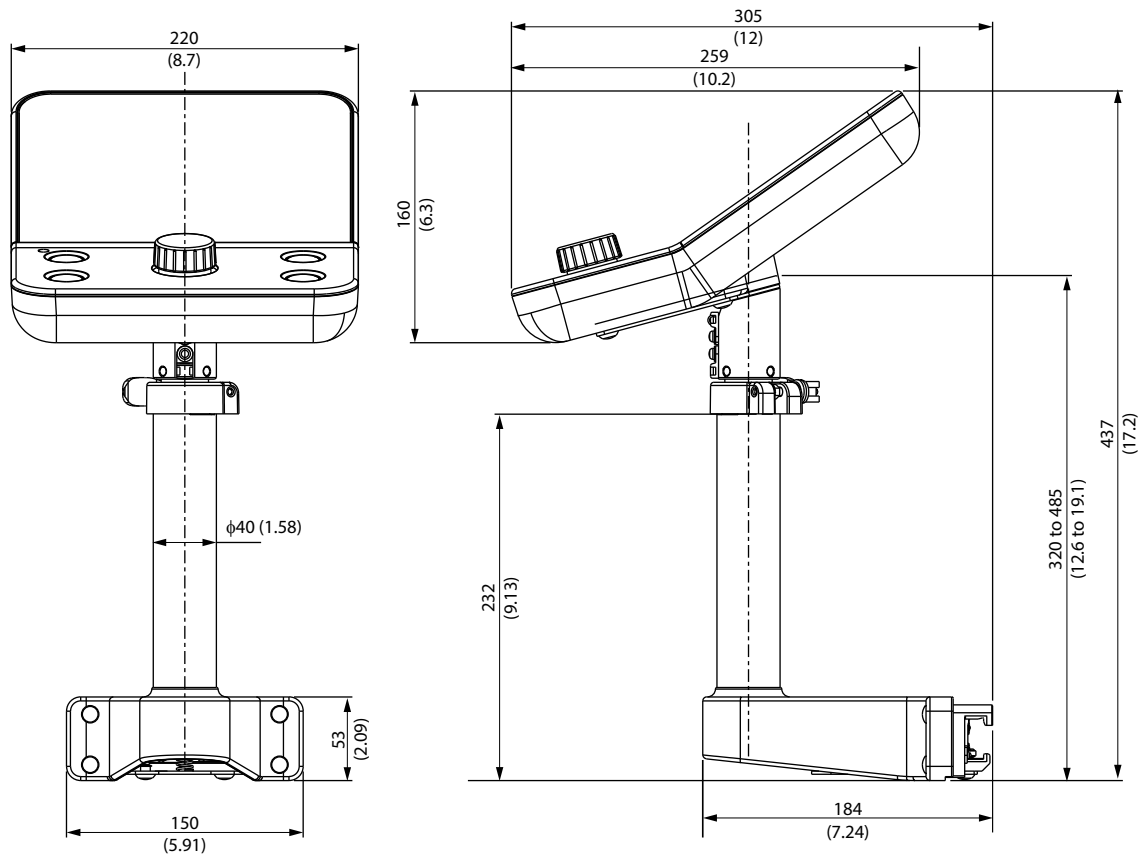
POWER REQUIREMENTS

Power is supplied from the CT system.

AMBIENT CONDITIONS

Same as those specified for the CT system.

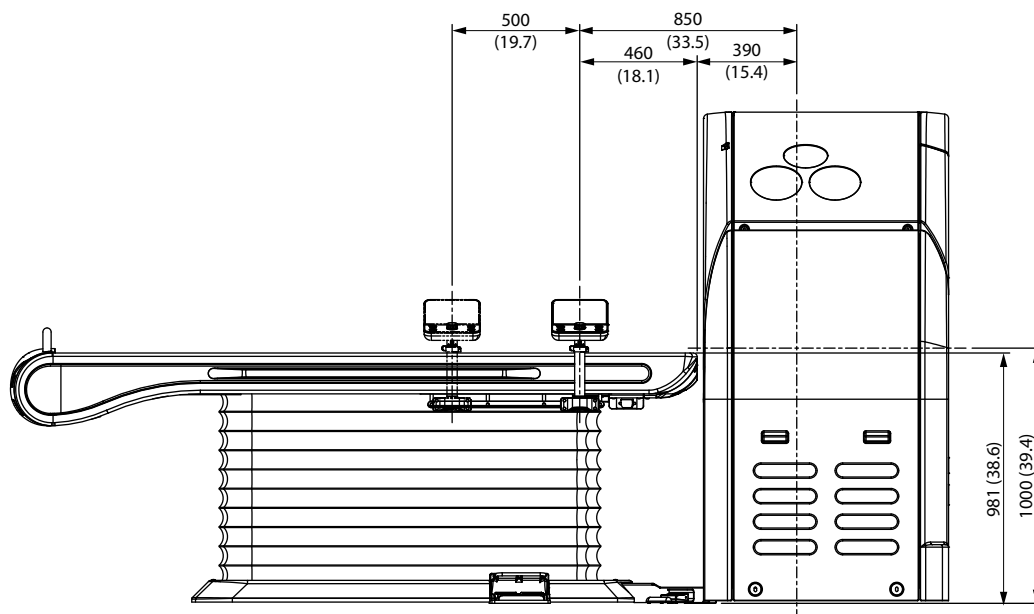
OUTLINE DRAWINGS



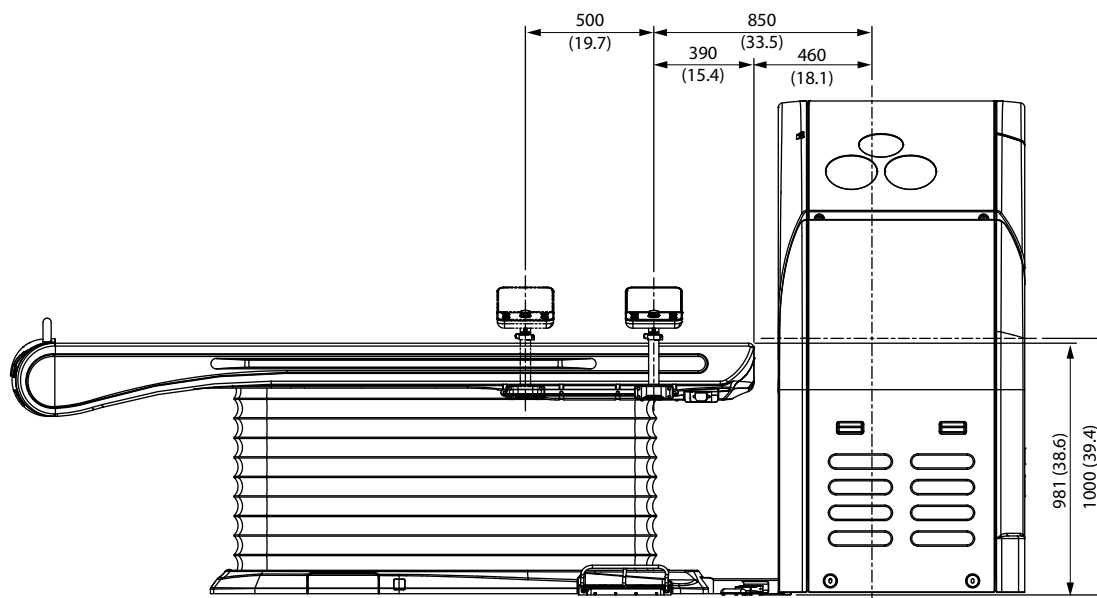
Operating panel and arm

Unit: mm (in)

OUTLINE DRAWINGS



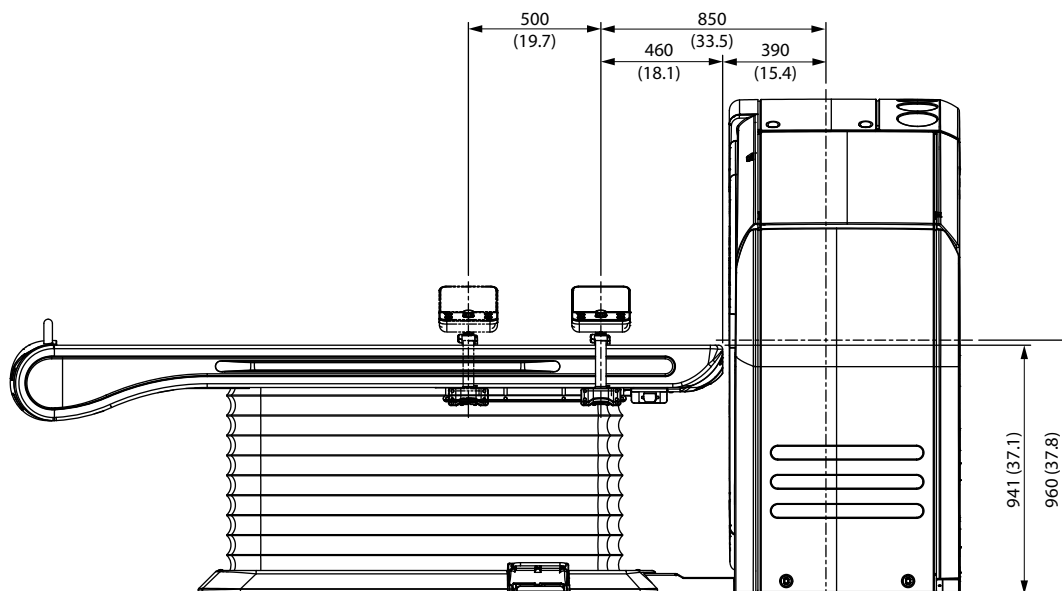
**Operating panel used in combination with the patient couch
(for Aquilion ONE (TSX-305A, TSX-306A) with the 220 kg (485 lb) patient couch version)**



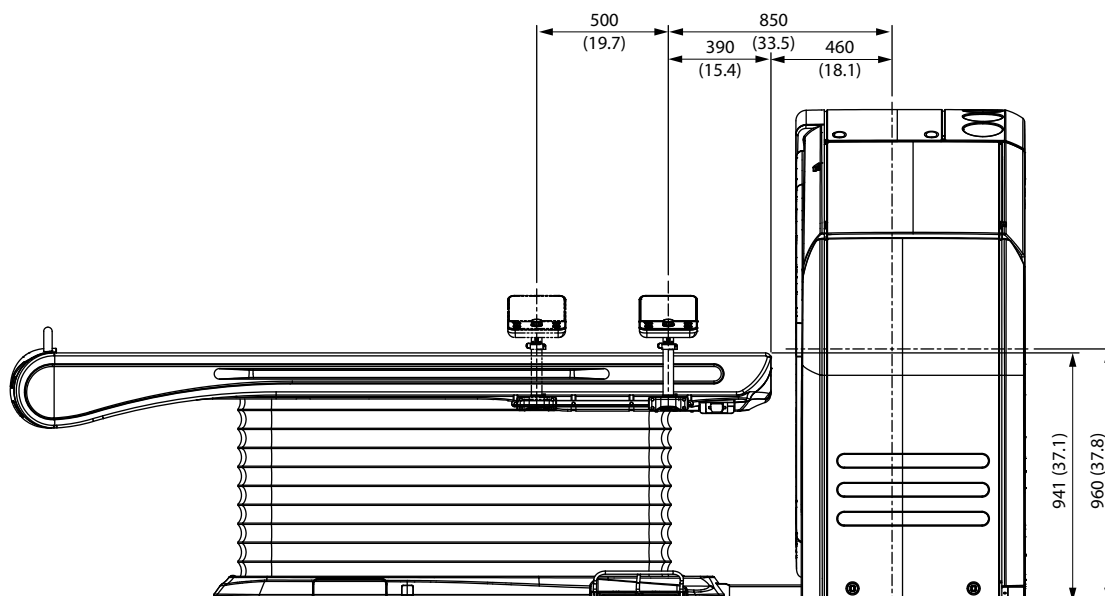
**Operating panel used in combination with the patient couch
(for Aquilion ONE (TSX-305A, TSX-306A) with the 315 kg (694 lb) patient couch version)**

Unit: mm (in)

OUTLINE DRAWINGS

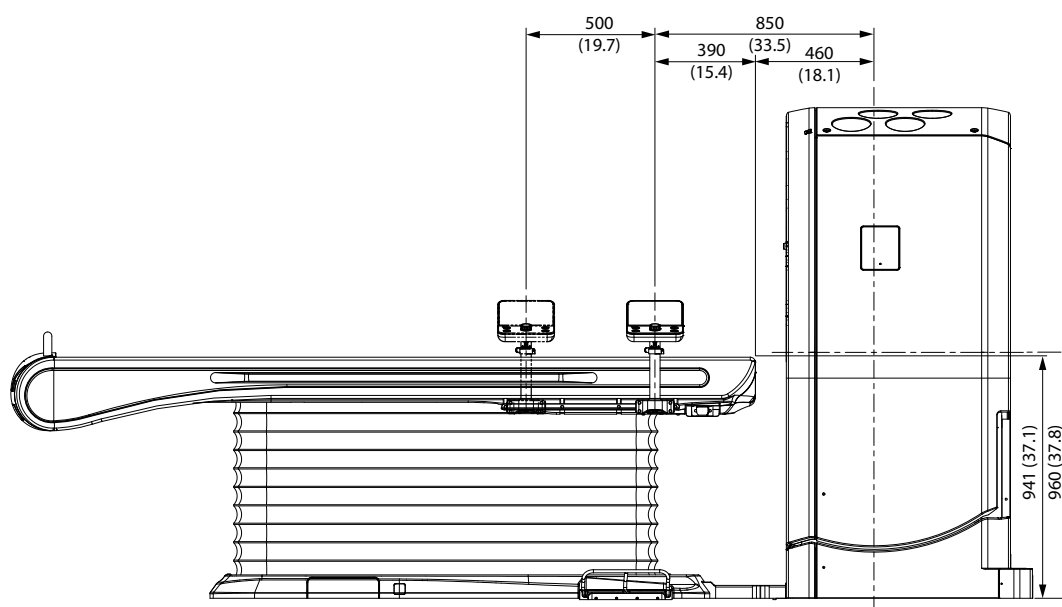


**Operating panel used in combination with the patient couch
(for Aquilion Prime SP with the 220 kg (485 lb) patient couch version)**



**Operating panel used in combination with the patient couch
(for Aquilion Prime SP with the 315 kg (694 lb) patient couch version)**

Unit: mm (in)

OUTLINE DRAWINGS

**Operating panel used in combination with the patient couch
(for Aquilion Lightning with the 315 kg (694 lb) patient couch version)**

Unit: mm (in)

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Model number: TSXF-004A MPDCT0784EAE 2021-10 CMSC/Produced in Japan

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APPLICATION

The diagnostic image display unit CMM-004B is designed for use with whole-body CT scanners.

The applicable CT systems are shown below.

CMM-004B/1, /2

SYSTEM MODEL	
Aquilion ONE	TSX-301C/1-5
	TSX-301A/4
Aquilion PRIME	TSX-302A
	TSX-303A/1, /2, /5, /A, /B, /F
Aquilion	TSX-101A/Q, /T
	TSX-201A/2, /3*
	TSX-101A/R
Aquilion Lightning	TSX-035A/2, /4, /5, /7, /8
Alexion	TSX-034A
	TSX-032A
	TSX-033A

*: System software V6.3 or before

CMM-004B/3, /4

SYSTEM MODEL	
Aquilion ONE	TSX-301C/6-8
Aquilion PRIME	TSX-303A/L, /M, /T

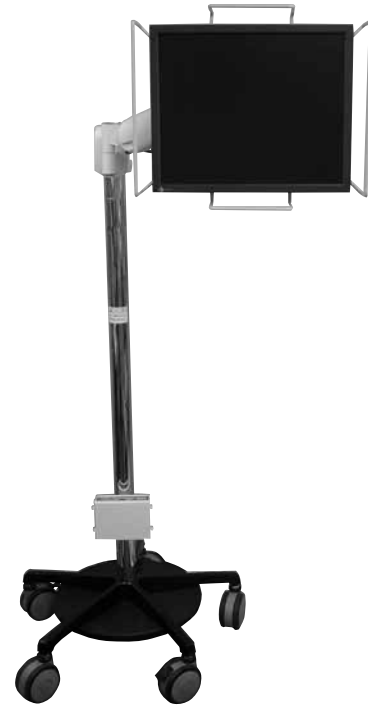
CMM-004B/5, /6

SYSTEM MODEL	
Aquilion ONE	TSX-306A/1-3*
	TSX-305A/1-6
Aquilion Precision	TSX-304A/1-3*
Aquilion Prime SP	TSX-303B/1, /4, /5, /6, /8, /9
Aquilion Exceed LB	TSX-202A/1-3*
Aquilion	TSX-201A/3**
Aquilion Lightning	TSX-036A/1, /4, /7

*: CMM-004B/5 only

** : System software V6.6 or later

Note: Some systems may not be available in your country or region.
Please check with your sales representative.



FEATURES

- This unit simultaneously displays the same images as those displayed on the console of the CT scanner.
- Several people can observe the images at the same time.
- Images can be observed in a room other than the scan control room.
- Clearer CT images can be displayed on a high-contrast LCD monitor.

COMPOSITION

Standard Components

	CMM-004B/1, /3, /5	CMM-004B/2, /4, /6
LCD monitor unit	1	1
Resolution converter	1	1
Stand	1 set	1 set
Cables	1 set	1 set
Weight		1 set
Manuals	1 set	1 set

Note: CMM-004B/1, /3, /5 conform with IEC 3rd.
CMM-004B/2, /4, /6 conform with IEC 2nd.

PERFORMANCE SPECIFICATIONS

- LCD
 - Size: 19 inch
(19 inch/48 cm viewable area)
 - Type: Color TFT
 - Pixel pitch: 0.294 mm
- Video signal: RGB analog
- Scanning frequency
 - Horizontal: 30 to 80 kHz
 - Vertical: 55 to 90 Hz
- Resolution: 1280 dots (H) × 1024 lines (V)
- Display size: 376 mm (H) × 301 mm (V)
- Display area: Can display a full-screen
(1280 × 1024 matrix)
- Maximum number of display units connected: 1 unit

DIMENSIONS AND MASS

Unit	Dimensions W × L × H mm (in)	Mass kg (lb)
CMM-004B/1, /3, /5	642 × 1011 × 1671 (25.3 × 39.8 × 65.8)	74.0 kg (163.1 lb)
CMM-004B/2, /4, /6	642 × 1011 × 1510 (25.3 × 39.8 × 59.4)	188.5 kg (415.6 lb)

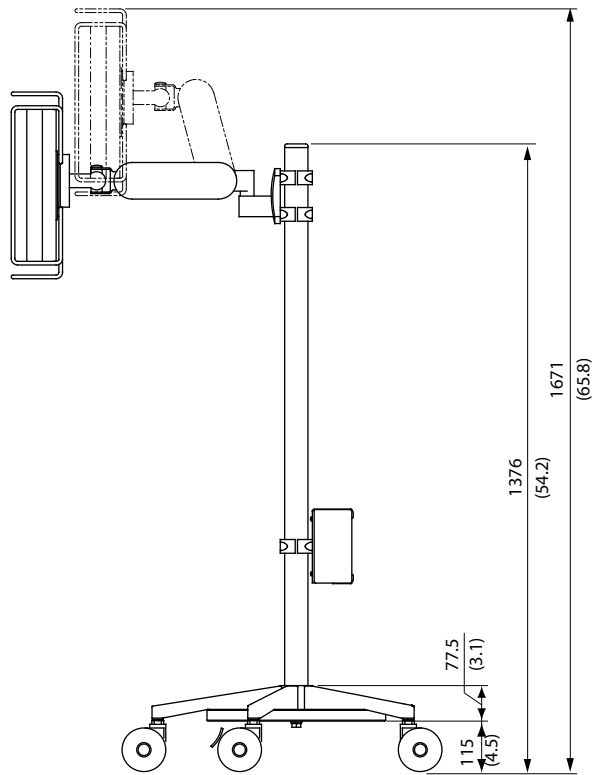
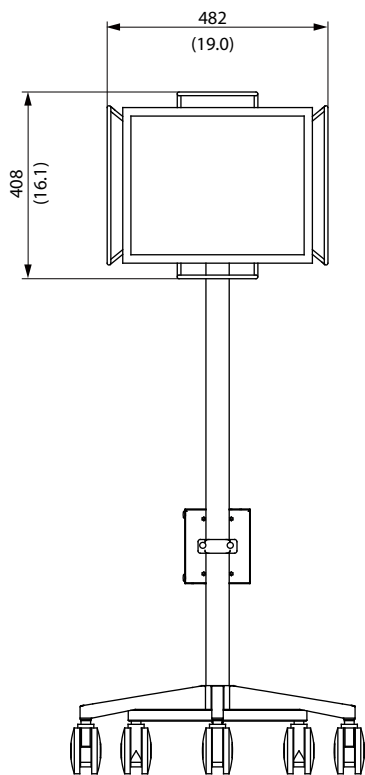
POWER REQUIREMENTS

Power is supplied from the CT system.

AMBIENT CONDITIONS

Same as those for the CT system.

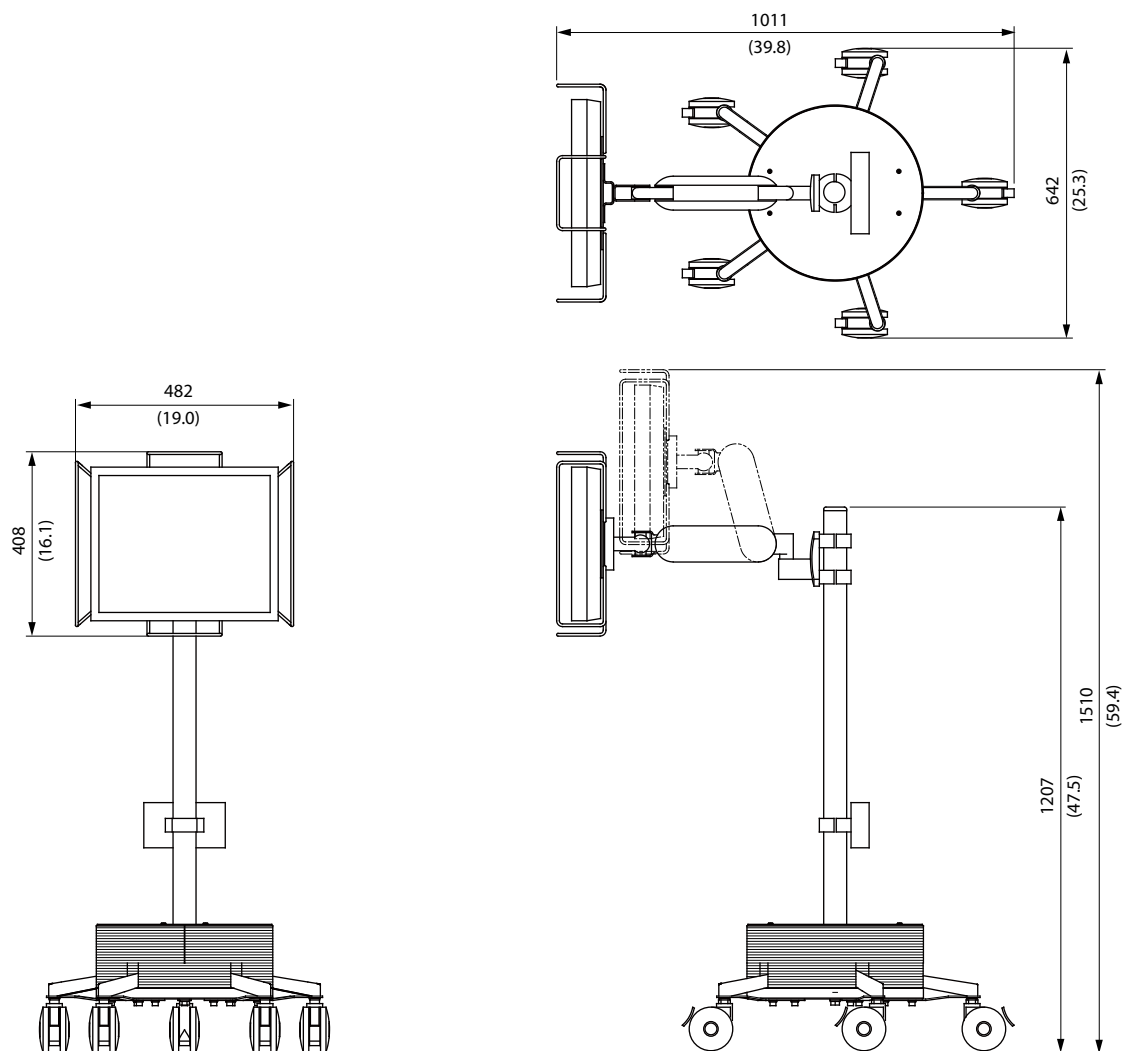
OUTLINE DRAWINGS



CMM-004B/1, /3, /5

Unit: mm (in)

OUTLINE DRAWINGS



CMM-004B/2, /4, /6

Unit: mm (in)

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