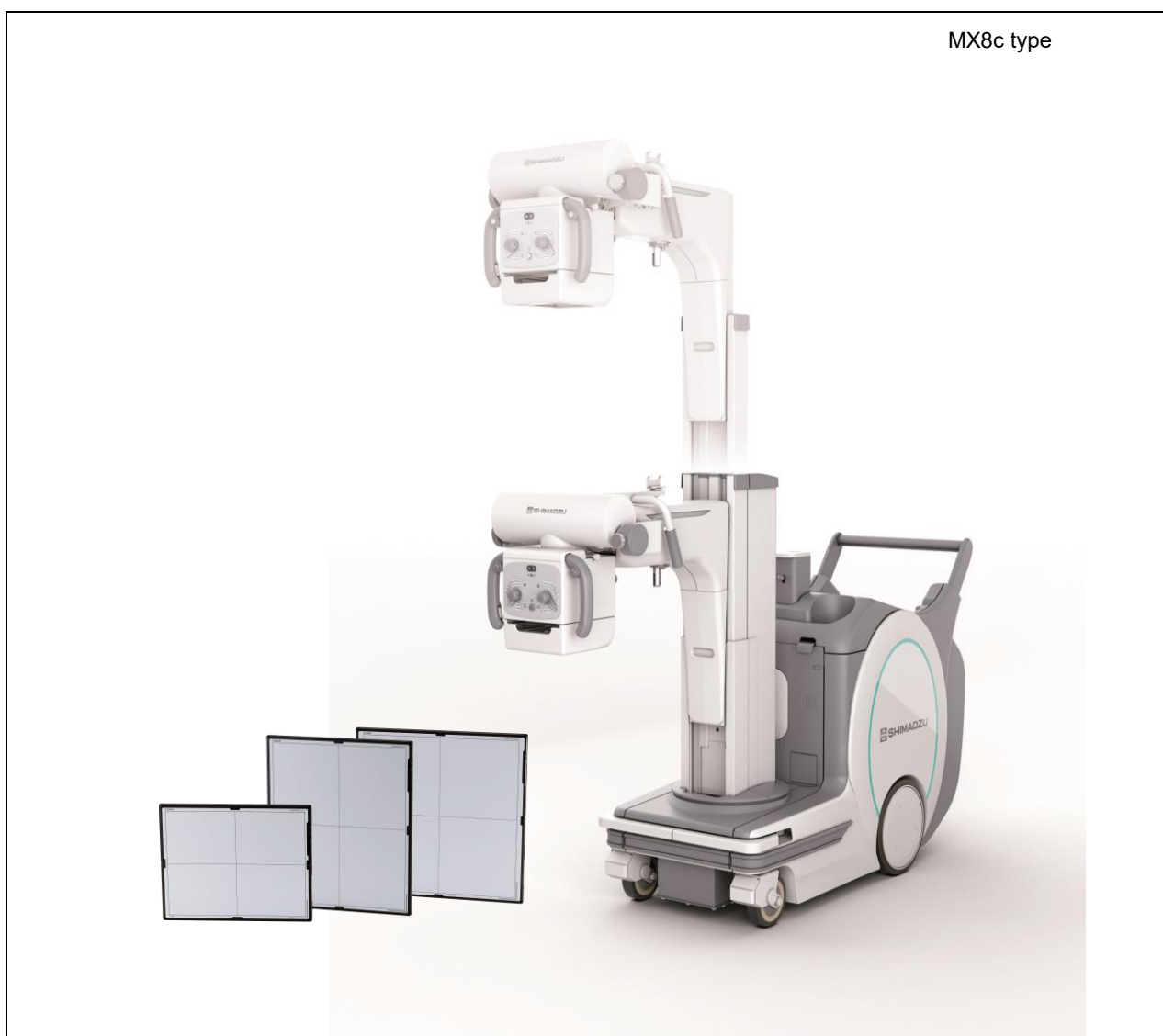


SHIMADZU

PRODUCT DATA

Mobile X-ray System **MobileDaRt Evolution** MX8 Version



GENERAL

The MobileDaRt Evolution is a general-purpose mobile digital X-ray system, which can be freely moved throughout a hospital to directly obtain X-ray images of various areas of the body.

This product data may contain references to products these are not available in your country. Please contact us to check the availability of these products in your country.

The TM and ® symbols are omitted in this manual.

FEATURES

- (1) Great Forward Visibility
During travel the collapsible column and compact X-ray tube design does not obstruct visibility.
- (2) Intuitive Maneuverability
The system provides natural, responsive light touch driving capabilities.
- (3) Large & Flat design Display
The built-in 19inch large LCD monitor enhances visibility and touch panel operability, and it can be cleaned up easily thanks to fully embedded design.
- (4) Easy Positioning (All free function)
“All Free” buttons enable one-step positioning by releasing electromagnetic locks of arm and column at the same time.
- (5) Wide Exposure Coverage
The system is useful for imaging in confined and limited spaces of numerous equipment with broad exposure range.
- (6) Inch-Mover
The main unit can be moved forward or backward by simply operating from the collimator without technologist’s moving around the patient bed.
- (7) Status Indicator
The color-coded indicator lamps illuminate or blink in response to X-ray exposures or system abnormalities.
- (8) High Frequency Inverter
Using a high-frequency inverter, with a maximum frequency of 60kHz, the system can obtain high and efficient X-ray generation with low-ripple.
- (9) Bright irradiation field
LEDs have been adopted as the light source to indicate the irradiation field, helping imaging in a bright room or in the daytime.
- (10) Vibration resistant DR unit
SSD is mounted to offer quick access to clinical sites. The mobile cart can be driven even in PC start up time.
- (11) Quick Response
A reference image is displayed 2 seconds after exposure, allowing on-site image verification.
- (12) High Throughput
The system assists workflow improvements by sending image data to an imager or PACS through hospital’s internal network.
- (13) Wireless Features
In addition to FPD and hand switch option, Bar code reader can provide wireless solution(option).
- (14) Dose Management
Area dose is calculated before exposure to display estimated dose value on the console. After exposure, it shows recalculated value based on actual conditions of exposure area and parameter.

- (15) Value-added FPD
The new wireless FPD is light weight and round shape design with 4 notches on the back for easy handling. Keeping the fine pixel size and high DQE enables excellent image quality with low dose.
- (16) High durability & Water Proof FPD
The FPD withstands a load of 310kg and has IPX7 water proof function.

CONFIGURATION

- (1) Inverter type high voltage generator
- (2) X-ray tube unit
- (3) Collimator
- (4) Cart
- (5) DR unit
- (6) Flat Panel Detector (FPD)

17 x 17inch	CXDI-410C Wireless
14 x 17inch	CXDI-710C Wireless
11 x 14inch	CXDI-810C Wireless

- (7) Docking Station or Battery Charger

OPTION

- (1) Wireless exposure switch
- (2) Protective screen (folding)
- (3) Dose area product (DAP) meter mount kit (*1)
- (4) Keyless entry
- (5) Wireless LAN
- (6) Luminous hand switch
- (7) Additional hand switch
- (8) Barcode reader (Wireless or wired)
- (9) FPD Wired connection kit
- (10) External monitor interface
- (11) Second FPD Unit
- (12) Scatter Correction

(*1) Physical DAP meter can substitute calculated dose function, when needed.

SPECIFICATIONS

High-Voltage Generator

Item		Specification	
Max. Electric Power		32kW (100kV, 320mA, 20ms / 80kV, 400mA, 20ms)	
Ratings		Tube voltage: 40 - 133kV Tube current: 50 - 400mA Maximum power: 32kW (20msec)	
Nominal minimum exposure time		1 msec.	
Maximum Current-Time Product Settings at each mode			
Cassette Radiography *1		Common with large focus and small focus 40 - 90kV: 320mAs 91 - 100kV: 280mAs 101 - 110kV: 250mAs 111 - 120kV: 220mAs 121 - 133kV: 200mAs	
Digital Radiography *1	Long-term Radiography	Large focus 40 - 65kV: 320mAs 66 - 80kV: 280mAs 81 - 85kV: 250mAs 86 - 100kV: 220 mAs 101 - 105kV: 200mAs 106 - 125kV: 180mAs 126 - 133kV: 140mAs	Small focus 40 - 65kV: 320mAs 66 - 80kV: 280mAs 81 - 100kV: 220mAs 101 - 125kV: 180mAs 126 - 133kV: 140mAs
	Short-term Radiography	Large focus 40 - 50kV: 200mAs 51 - 60kV: 160mAs 61 - 80kV: 125mAs 81 - 100kV: 100mAs 101 - 125kV: 80mAs 126 - 130kV: 63mAs 131 - 133kV: 50mAs	Small focus 40 - 60kV: 160mAs 61 - 80kV: 125mAs 81 - 100kV: 100mAs 101 - 125kV: 80mAs 126 - 130kV: 63mAs 131 - 133kV: 50mAs
Tube Voltage Setting Range and Display		Setting Range: 40kV to 133kV, in 1kV increments Display: Digital	
Current-Time Product Setting Range and Display		Setting Range: 0.32 – 320mAs at 12.5% step 0.32, 0.36, 0.40, 0.45, 0.50, 0.56, 0.63, 0.71, 0.80, 0.90, 1.0, 1.1, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.5, 2.8, 3.2, 3.6, 4.0, 4.5, 5.0, 5.6, 6.3, 7.1, 8.0, 9.0, 10, 11, 12, 14, 16, 18, 20, 22, 25, 28, 32, 36, 40, 45, 50, 56, 63, 71, 80, 90, 100, 110, 125, 140, 160, 180, 200, 220, 250, 280, 320mAs Display: Digital	
Anatomical Programs		442 432 for FPD radiography 10 for general radiography	
Battery Life for wireless hand switch		Approx. 27,000 exposures) (150 exposures per day X 180 days)	

*1: The various conditions are as follows (conform to IEC-standards):

Tube voltage (within +/-10 %), Tube current (within +/- 20 %)

mAs within +/- (10 % + 0.2 mAs), Time within +/- (10 % + 1 ms)

X-ray Tube Unit

Item		Specification
Model		0.7/1.3U163C-36
Nominal Focal Spot Size		0.7/1.3mm
Target Angle		16 degrees
Nominal Max. Tube Voltage	Radiography	133kV
X-ray Tube Unit (tube and housing)	Max. Heat Content	750kJ (1060kHU)
	Max. Continuous Heat Dissipation Rate	120W (170HU/s)
X-ray Tube (tube only)	Max. Anode Heat Content	210kJ (300kHU)
	Max. Anode Heat Dissipation Rate	800W (1130HU/s)
	Max. Continuous Heat Dissipation Rate	210W (300HU/s)
Surface Temperature on Touchable Surface of X-ray Tube Unit		Maximum 60 degree C (Compliant to IEC60601-2-28)
Mass		12.8kg (28.2lbs)

Collimator

Item		Specification
Model		R-20C
Field	Shape	Rectangular
	Max. Field	430mm x 430mm at SID 1m
	Min. Field	0mm x 0mm (leaves closed)
Illumination Field	Average Illumination	160lx or more
	Illuminance Ratio	3 or more
	Precision	2% of SID
	Center Indicator	Cross hairs
	Type of Lamp	LED
	Illumination Period	30 seconds max., with automatic off timer
Minimum inherent filtration of entire system		2.5mm Al equivalent @70 kV or higher for both X-ray tube unit and collimator

X-ray Tube Support and Cart

Item	Specification
Driving method	Motorized
Maximum Driving speed	Approx. 5 km/h (depends on floor condition)
Height during transportation (from floor)	1270mm (50 inch)
Focal point height (from floor)	680 to 2025mm (26.8 to 79.8 inch)
Tube support arm	Collapsible arm
Arm length	638 to 1203mm (25.1 to 47.4 inch)
Column rotation range	+/- 270 degree
Tube rotation around support arm	+/- 180 degree
Tube rotation around tube axis	Forward 90 degree, Backward 30 degree
Rotation of collimator	+/- 90 degree
System width x length	560mm x 1285mm (22.0 to 50.6 inch)
Total weight	Approx. 440kg(970lbs) (with DR unit)

DR system (MX8c)

Item		Specification
Flat Panel Detector (FPD)	Application	General X-ray radiography
	Size of imaging unit	CXDI-410C Wireless: W460 x D460 x H15.7mm CXDI-710C Wireless: W384 x D460 x H15.7mm CXDI-810C Wireless: W307 x D384 x H15.7mm
	Scintillator	CsI
	Pixel Size	125 micron
	Effective number of pixels	CXDI-410C Wireless: 3,408 x 3,320 CXDI-710C Wireless: 2,800 x 3,408 CXDI-810C Wireless: 2,192 x 2,800
	Effective field of view	CXDI-410C Wireless: 426 x 415mm (16.8 x 16.3 inch) CXDI-710C Wireless: 350 x 426mm (13.8 x 16.8 inch) CXDI-810C Wireless: 274 x 350mm (10.8 x 13.8 inch)
	Dynamic Range	Approx. 4-digit
	Gradation	16bit (65,536 gradations)
	Weight (Including battery)	CXDI-410C Wireless: 2.8kg (6.2lbs) CXDI-710C Wireless: 2.3kg (5.1lbs) CXDI-810C Wireless: 1.8kg (4.0lbs)
	Max. Exposure Time	3,000msec
	Mechanical Strength	Partial load: 100kg(220lbs), given 40mm(1.6in) diameter Uniform load: 310kg(683lbs) over all surface
	Water Proof	IPX7
	Built in Memory	99 frame
	Battery Life	Max. 1,000 frame (7sec. interval) Typical 140 frame (100sec interval)
	Battery Charge Time	Approx. 2H by Docking Station Approx. 2.5H by Battery Charger Approx. 2H with wiring Unit
	Wireless Communications	Standard
Frequency band		2.4GHz / 5GHz
Security		WPA2-PSK(AES)
Display Unit	Size	48.3cm (19 inch): diagonal
	Brightness	420cd/mm2 (Typ.)
	Contrast Ratio	1 : 1,500 (Typ.)
	Resolution	1,280 x 1,024
Digital Radiography System	Hard disk	Solid-state drive (SSD) 128GB or equivalent
	Memory	4GB RAM or equivalent
	CPU	Intel Core i5
	OS	Windows 7 64bit
	Image Preview	Less than 2seconds
	Image Processing	Contrast Processing Dynamic Range Compression Noise Reduction Multi-frequency Processing Grid Pattern Remove Process Auto Exposure Field Recognition Scatter Correction(option)
	Image Storage	3,500 images
DICOM	Print, Storage, MWM, MPPS, STORAGE COMMITMENT	

Power Supply

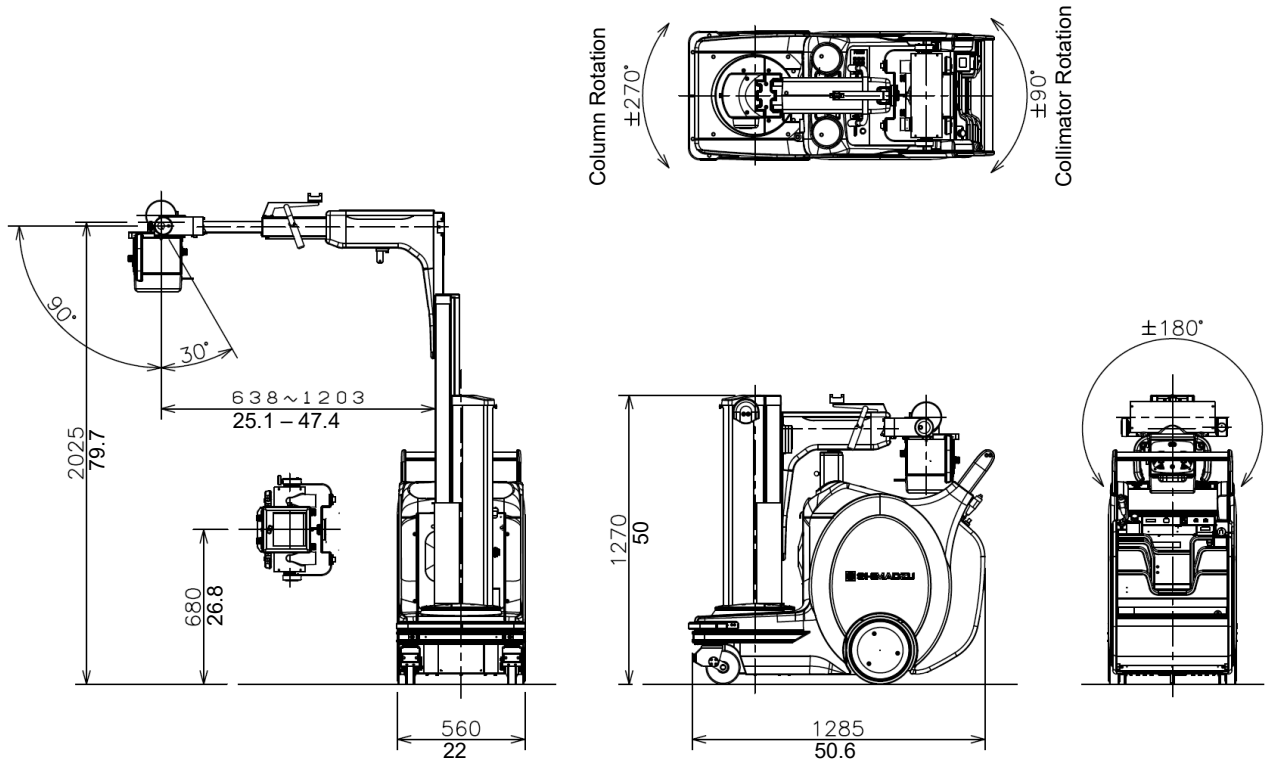
	Item	Specification
When Powered by Battery	Power Supply	Internal battery
	Battery Type	Sealed lead storage battery (12V x 20cells)
When Charging Battery	Supply Voltage	Single-phase 100, 110, 120, 200, 220, 230, 240VAC
	Supply Frequency	50/60Hz
	Power Supply Rating	1 kVA
	Supply Impedance	Single phase 100, 110, 120 VAC: 1.0Ωmax.
		Single phase 200, 220, 230, 240 VAC: 4.0Ωmax.
	Ground Resistance	Ground terminal: 100Ω max.
Additional ground terminal: 100Ω max.		
Power Cable Length	4m (13ft)	

Operating Environment

Item	Specification
Atmosphere	No explosive or corrosive gases
Ambient Temperature	10 to 30 degrees C
Relative Humidity	35 to 80% (with no condensation)
Atmospheric Pressure	800 to 1060hPa
Environment Luminosity	150 to 500lx

DIMENSIONS

unit: mm
←→
inch



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- The appearances and specifications are subject to change for reasons of improvement without notice
- Certain configurations may not be available pending regulatory clearance. Contact your Shimadzu representative for information on specific configurations.
- Before operating this system, you should first thoroughly review the Instruction Manual.