



MAC

X-ray mobile radiographic unit with high frequency generator

- Reduced weight and encumbrance
- 32 kW power
- Optional digital detector

CODE	EQUIPMENT
MAC-R32	RADIOGRAPHIC MOBILE UNIT
MAC-R32 D	DR RADIOGRAPHIC MOBILE UNIT

MAC identifies the GMM digital and analog mobile unit line.

Extremely compact, lightweight and reduced overall dimension it is **made** for the daily hospital routine.

Suitable for radiological and diagnostic examination can performs in intensive care, first aid, orthopaedic and operating room.

MAC is a mobile unit with the following characteristics:

- **Compact** with **limited weight** and **reduced overall** for extremely and easy movement
- **Antistatic wheels with tilting motion device that allow to overcome different floor levels up to 6 cm**
- **Parking brake with safety device**
- **Manual brake release for continuous and total monoblock movement in case of positioning next to the bedridden patient**
- **High thermal dissipation** a feature that ensures excellent operational continuity.
- **Collimator with LED**, for optimal centering, and **additional filtration.**
- **Operator interface** extremely simple and **intuitive**

MAC is composed of:

- High frequency generator, double focus and rotating anode to perform various types of examination; very low “Ripple” and low scattered radiation.
- X- ray tube articulated and fully balanced that meets a wide range of clinical applications.
- Manual or manual with filter collimator that allow with the proper removable tape the focal distance measurement
- Ergonomic interface extremely intuitive:
 - Standard keyboard or touch screen, with the analogical version
 - Digital touch screen panel with the digital version,

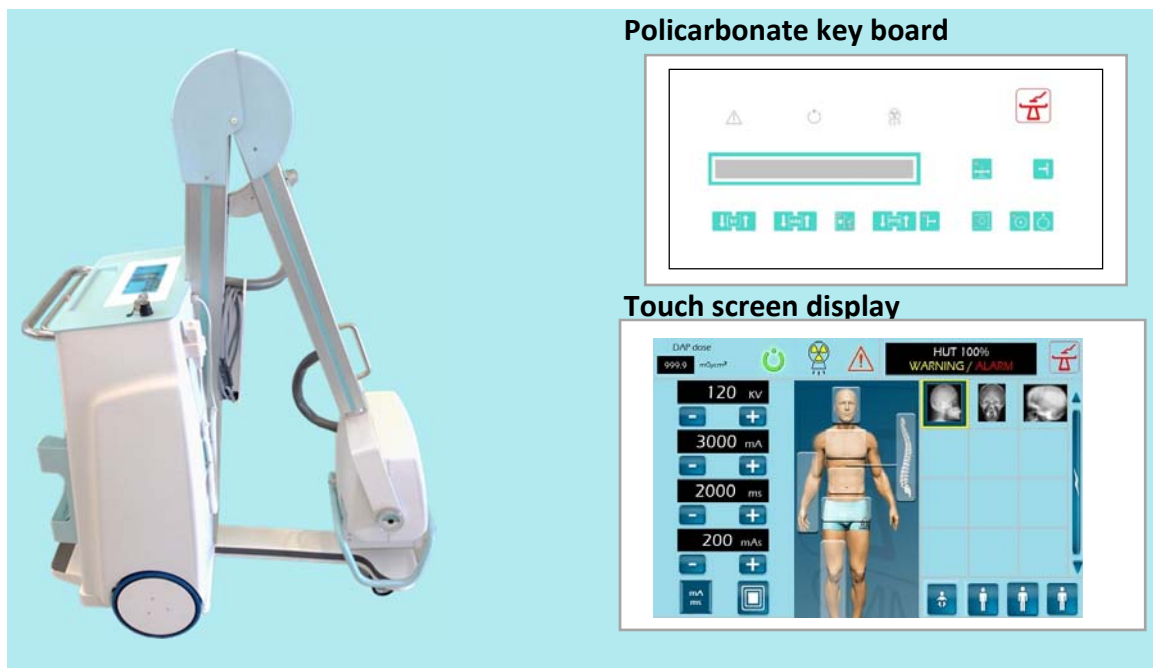
OPERATOR INTERFACE

Analogic mobile unit interface

The operator interface can be chosen in standard polycarbonate or with a touch, screen 8" inches display.

The simple and intuitive interface allows different applications:

- 1) The polycarbonate key board allows two points technique (kV-mAs), with 40 programmable anatomical technique
- 2) The touch screen key board allows two points technique (kV-mAs) and three points technique (kV – mA – time) with >5000 anatomical programmable technique



Digital mobile unit interface

The digital mobile unit interface is a touch screen type and allow to the operator to improve the image and obtain more diagnostic information.

Innovative, simple and user friendly accompany the operator in the image “post processing” diagnostic.



Images processing

Single image display

Multi image pan

LUT dedicated to each exam type

Zoom function with magnifying lens factors from x1 to x3

Window adjustment (contrast)

Level adjustment (brightness)

Grey scale inversion

H&V image reverse

90° image rotation

SHARP (edges) and SMOOTH (faded edges) spatial filters with kernel size selectable from 3x3 to 11x11

Electronic shutters (square and circular)

Text and marker overlay

Graphic calculation of angles and distances

Orthopaedic measures (optional)

DICOM – standard

STORE

PRINT

WORKLIST

MPPS

STORAGE COMMITMENT

CD/DVD

DICOM - optional

QUERY/RETRIEVE

ANALOGIC AND DIGITAL VERSIONS

Electrical characteristics		
Single Phase Voltage		Standard: 230 Vac \pm 10% Option: 110Vac
Frequency		50/60 Hz
Max Absorbed Current	Stand-by working	1 A (115Vac: 2,5A)
	Radiography working	12 A (115Vac: 23A)
Line Compensation		Automatic
Line Resistance		< 2.5 Ω
Radiological characteristics		
Power	32 kW	
	LP (Low Power)	HP (High Power)
Max Power	7.5 kW	32 kW
Max Current	150 mA	450 mA
Exposure Time	1ms \div 2,5 s max 1ms \div 6,4 s max (320mAs optional)	
Working Frequency	100 kHz	
kV range/steps	40 \div 125 (in 1 kV increments)	
mAs range	0,5 \div 125 0,5 \div 320 (320mAs optional)	
A.T. Pilotage	Inverter driven by IGBT	
Ripple	\leq 3% at Max Power	
Total Filtration	> 2.7 mmAl	
Rising Time	\leq 1 ms	
X-ray tube head		
Power	32 kW	
Monobloc Thermal capacity	1000 kJ (1300KHU)	
Monobloc max thermal dissipation	100 W	
Anode Type	Rotating with speed 3000 RPM	
Focal Spot	0.6/1.3 mm	
Nominal anode input power	7.5/32 kW	
Anode angle	15°	
Maximum anode thermal capacity	80 kJ (107 KHU)	
Tube Thermal dissipation	300 W	
All the other information relevant to the X-Ray Tube Head and to the X-Ray Tube can be found in the X-Ray Tube Head Technical Data Sheet		
Collimator	Manual collimator	Manual collimator with filters
Shutters to multiple plans	Parallels and perpendicular with manual movement	
Film coverage	From 0x0 cm to 43x43 cm at 100 cm FFD	
Timer limiting projection lamp	30 s	
Retractile meter	Device to measure the focal distance	
Selectable filters	---	0 (none) 2mmAl 1mmAl+0,1mmCu 1mmAl+0,2mmCu
Type of light	Halogen	LED

ANALOGIC AND DIGITAL VERSION		
OPERATING MODES AND FUNCTIONALITY		
	Analog version	Digital version
User interface	Polycarbonate flat keyboard with alphanumeric display or Touch screen 8 inches for all operative parameters and messages – microprocessor controlled	Panel PC 19" SXGA LCD. Acquisition system with image post-processing and generator management
Operating modes	Keyboard: Two-points techniques (kV-mAs) Approx. 40 programmable anatomic technique.	Two (kV-mAs) and Three-points techniques (kV – mA – Time) Library of 99x99 exam folders, (99 anatomical parts with 99 projections for anatomical parts) predefined and customizable
	Touch-screen: Two (kV-mAs) and Three points technique (kV – mA – time) with >5000 programmable, anatomical technique	
X-Ray Control	Hand-switch with double – click and extensible cable (≥8m)	Hand-switch with double – click and extensible cable (≥8m) In option, hand switch control with double click button wireless.
Safety	Filament current mA_{min} and mA_{max} Maximum exposure time Temperature maximum X-ray tube head Count thermal units X-ray tube head Max kV, min kV, max ΔkV , max I Anode rotation Microprocessor self – test	
Dose monitoring (DAP)	optional	
DAP printer	optional	-
External potter (220V o 24V)	optional	



LANGUAGES AVAILABLE		
	Analogic	Digital
Keyboard :	Italian English French Spanish	
Touch Screen:	Italian English French Spanish German Polish Russian Portuguese	Italian English French Spanish Russian

DIGITAL VERSION

MAC is a mobile radiographic unit that can be configured with different types of detectors.

The configuration available are the following:

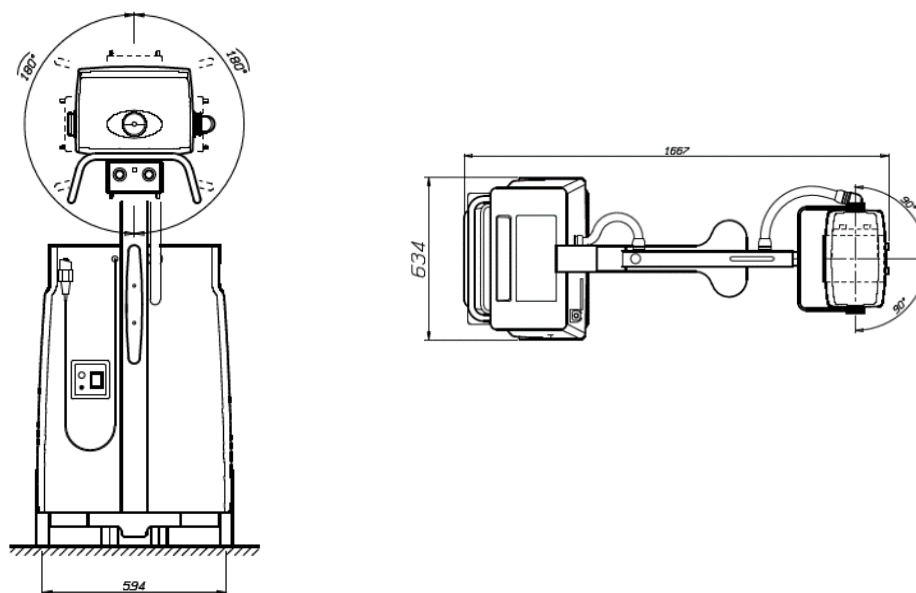
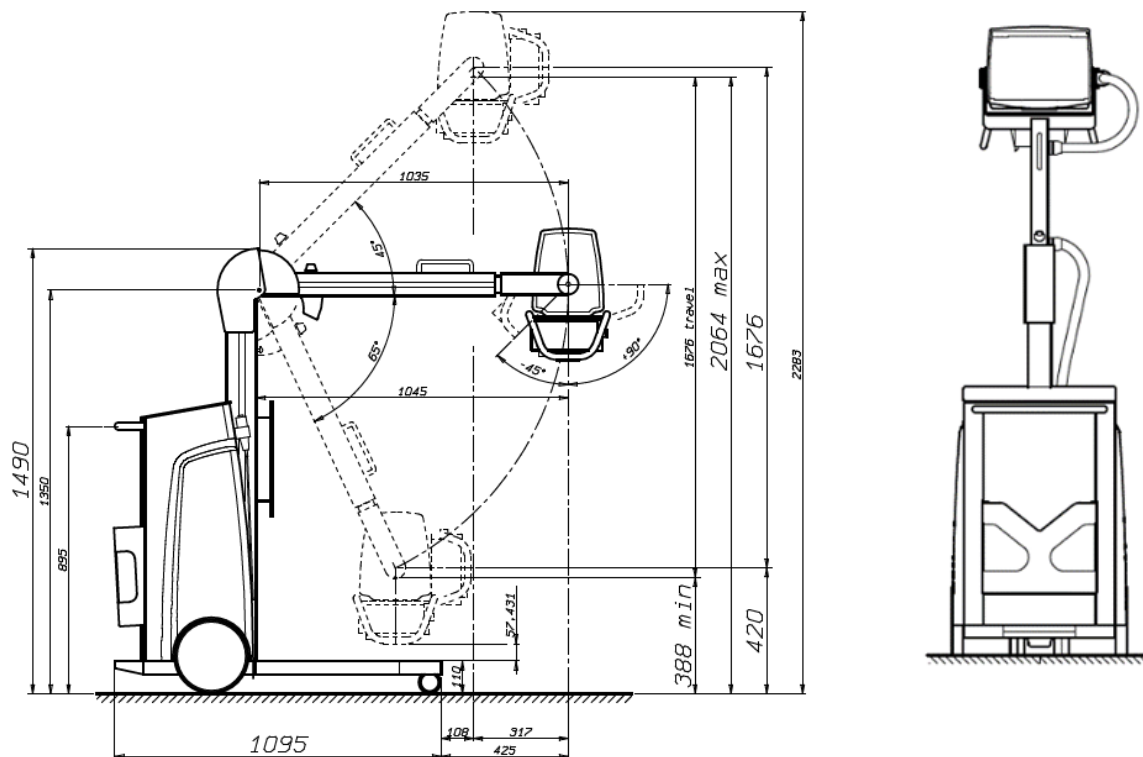
- Configuration with one detector with cable or a **Wi-Fi detector**
- Configuration with double **Wi-Fi detector**

DIGITAL PANEL PC INTERFACE	
CPU	Intel® Core™ i3 - 1.6 GHz
System memory	4 GB
Storage Disk Drive	2.5" SATA Hard Disk Drive 300GB Slim DVD-RW Drive
Degree of Protection	IP65, IPx1
Power Requirement	DC 12~24V

AVAILABLE CONFIGURATIONS			
Single detector	FDX3543RP (with cable)		
	FDX3543RPW (Wi-Fi)		
	PIXIUM 3543 EZ (Wi-Fi)		
	PIXIUM 2430 EZ (Wi-Fi)		
	PAXSCAN 4336W V4(Wi-Fi)		
Double detector	PIXIUM 3543 EZ (Wi-Fi)	PIXIUM 2430 EZ (Wi-Fi)	
Available detector	FDX3543RP– with cable	FDX3543RPW- Wi Fi	
Technology	Amorphous silicon		
Scintillator	CsI		
Pixel area	35X43 cm		
Active matrix (pixel)	2448 x 2984	2466 x 3040	
Matrix size (pixel)	143 µm	140 µm	
A/D conversion	16 bit	14 bit	
DQE	> 70 %		
Weight	3 kg (about)	3,1 Kg	
Autonomy	/	1200 images for about 4 hours (@12 sec/cycle)	
Wi Fi detector	Pixium 3543EZ-C	Pixium 3543EZ-G	Pixium 2430 EZ
Technology	Amorphous silicon		
Scintillator	CsI	Gadox	CsI
Nominal pixel area	35 x 43 cm		24X30
Transmitted matrix	2400x2880		1920X1560
Pixel pitch	148 µm		
A/D conversion	16 bit		
DQE @ 0 lp/mm	66%	37%	66%
Weight	2,8 kg		1,58
Autonomy	1000 images for about 5,5 hours (@20 sec/cycle)		950 images for about 5 hours (@20 sec/cycle)
Wi Fi detector	PAXSCAN 4336W V4(G)	PAXSCAN 4336W V4(C)	
Technology	Amorphous silicon		
Scintillator	Gadox	CsI	
Nominal pixel area	35 x 43 cm		
Matrix size (pixel)	3052 x 2456	3032 x 2436	
Pixel pitch	139 µm		
A/D conversion	16 bit		
DQE	39 %	70 %	
Weight	3,6 Kg	3,8 Kg	
Autonomy	1000 images for more than 6 hours		

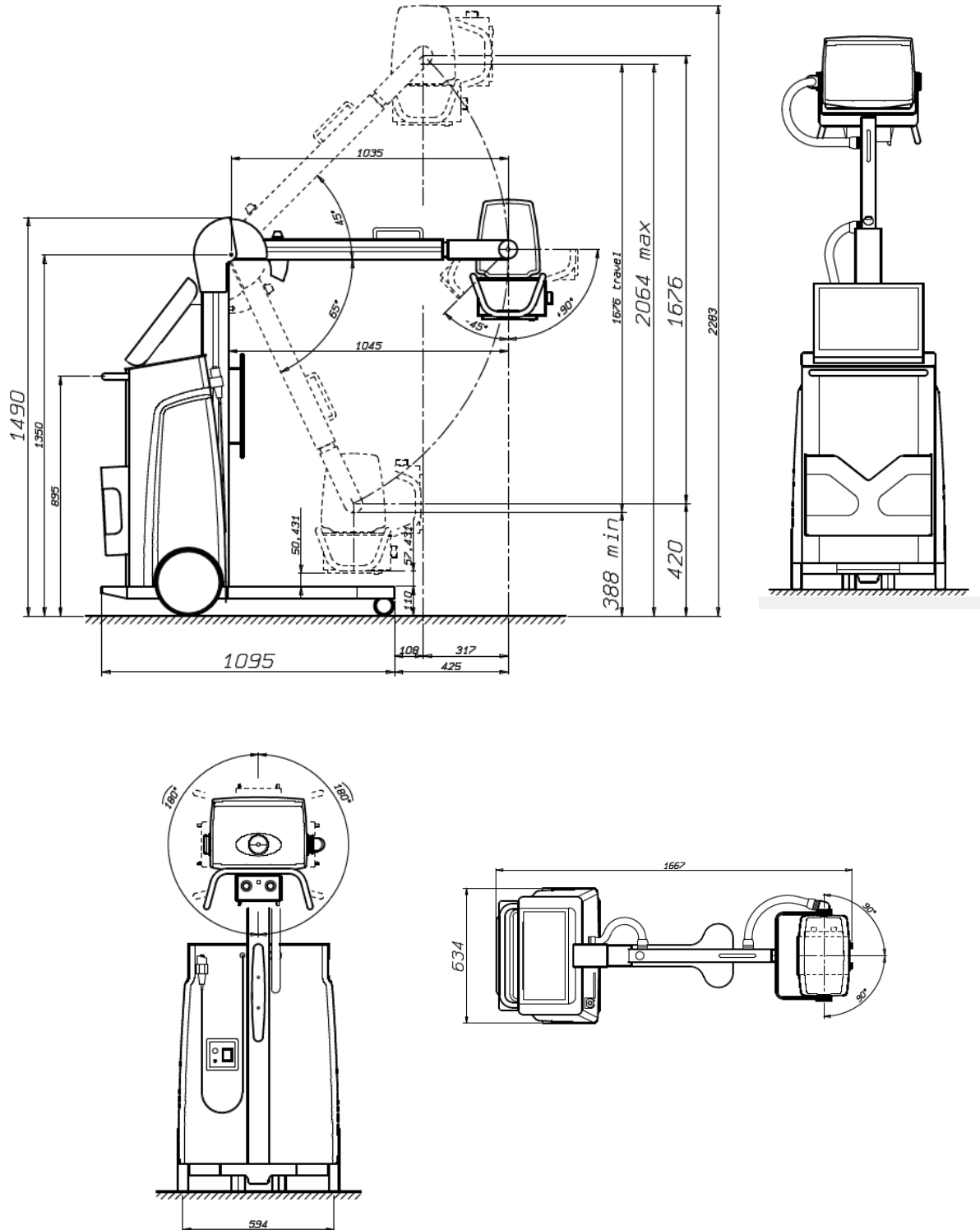
ANALOGIC AND DIGITAL VERSIONS		
Transport and storage conditions		
Maximal Temperature	-10°C ÷ 55°C	
Recommended Temperature	0°C ÷ 40°C	
Relative Humidity	20% ÷ 90%	
Atmospheric Pressure	500 hPa ÷ 1060 hPa	
Operating conditions		
Temperature	10°C ÷ 40°C	
Relative Humidity	30% ÷ 75%	
Atmospheric Pressure	700 hPa ÷ 1060 hPa	
Mechanical Characteristics		
Width	63.4 cm	
Length in transport position	109.5 cm	
Height in transport position	149.0 cm	
Min source-floor distance	38.8 cm	
Max source-floor distance	206.4 cm	
Max range	167.6 cm	
Arm length	103.5 cm	
Monoblock rotation	-45°/+90° around its axis ±180° around the axis arm	
Collimator rotation	± 90°	
Pivoting front wheels	Ø 7.5 360°	
Back wheels diameter	Ø 25 cm	
Antistatic wheels to overcome floor levels	up to 6 cm	
Weights	Analogic version 125 mAs	Digital version 125 mAs
	161,5 kg	174 kg
	Analogic version 320 mAs	Digital version 320 mAs
	175,5 kg	188 kg
Movement	Manual	
Cassette / Detector holder	Analogic version	Digital version
	Four 35x43 cassettes (optional)	One detector and detector cover with grid (optional)
CLASSIFICATION – EN 60601-1		
Type of protection against short circuit	Class I	
Degree of protection against direct and indirect contact	Type B	
Use conditions	Continuous working with Intermittent load	
Unit not to be used in the presence of an inflammable anaesthetic mixture with air or nitrous oxide.		
CLASSIFICATION – DIRECTIVE 93/42/EEC		
In according with Annex IX	Class II b	

ANALOGIC VERSION



INFOTEC

DIGITAL VERSION







GMM
GROUP

Global Diagnostic Solutions

