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Product Data
P7028-E

AMX-4 Plus

Application

The AMX-4 Plus X-Ray unit is a completely self-contained battery driven, mobile radiographic system which operates from a rechargeable battery pack. Mobility and ease of use make the AMX-4 Plus ideally suited for all routine radiographic procedures, within intensive care units, cardiac care units, emergency and operating rooms, pediatrics, neonatal units, orthopedics, and clinics.

Features

Maneuverability

- Independent rear wheel drive servo-controlled motors enable the system to turn within its own radius.
- Single drive handle control (with "deadman" brake and drive lock) functions ergonomically with drive motors to permit superior maneuverability. Drives respond to force applied handle in both forward and reverse.
- Top speed of 4.8 kph (3 mph) in forward and reverse.
- Speed totally variable in both reverse and forward.
- Top speed is limited to 2.4 kph (1 ½ mph) if tube is not in transport position.
- Large front casters (20.3 cm/8 in) for easier crossing of thresholds (e.g. elevator) expansion joints.
- Narrow base of unit measures 60.2 cm (23.7 in) wide at midpoint.
- Capable of climbing an incline of 5°.

Operator Ease of Use

- Unique column rotation in clockwise or counterclockwise direction from the park position significantly increases setup speed by eliminating the need to reposition the patient or the system. The column may be rotated up to ± 270° from the park position to handle the most demanding imaging cases in tight spaces. A positive centering detent is also provided to further simplify the tube parking process.
- Handle grips on both sides of collimator for single-hand of positioning tube. Lock release buttons which activate all lock releases simultaneously at the back of the handles
- Fully counterbalanced collimator/tube assembly, with the center of gravity at points of rotation, so tube stays positioned through light friction locks without the need for adjustable locks. Detents at ± 90° for both axes.
- Ergonomic handswitch controls prep/expose and the collimator light. The handswitch is molded from a lightweight, impact-resistant plastic.
- Compact manual collimator with built-in SID button-on collimator face. Skin spacer is provided to meet BRH requirements of 30 cm focal spot to skin minimum distance. Rotary knobs adjust field size with calibrations at 100 cm and 180 cm (40 in and 72 in).
- Electromechanical friction locks for column rotation, arm elevation and arm extension movements. Locks are released with a single switch on collimator.
- Integrated front bumper stops units and activates brakes when hit. Sides of bumper slide into unit to prevent catching on objects such as cords, poles, etc.
- Two positions ON/OFF key switch with removable key in the OFF position.
- Touch panel or handswitch activated technique selection; two point (kVp and mAs) control.
- Digital readout of kVp and mAs in two locations:
  - Angle of top cover – 1.9 cm ($^3/_4$ inch), always on when ready for exposure.
  - Message display – 0.95 cm ($^3/_8$ in), when making selection.
- Forty-eight segment bar graph indicates battery charge status (i.e. power remaining). Message center displays "RECHARGE RECOMMENDED" at 10 % power remaining.

At 0 % power remaining, exposure is inhibited, but unit will drive before all power is cut off. Message display will read “RECHARGE IMMEDIATELY X-RAY INHIBITED”

- All displays are blue vacuum fluorescent; readable in high ambient light such as surgical suites.
- Positive tube arm extension lock for transport position prevents tube from sliding out during transport.
- Large 30.5 cm (12 in) drive wheels within protective enclosures will not mark floors.
- Side molding extends the entire length of cabinet.
- Collimator field light can be activated from collimator or handswitch. Operates until toro is prepped. On time is programmable between 5 – 45 seconds.
- Audible tone and light on control panel indicates X-RAY ON.
- Apron hanger on column.
- Cassette storage of ten (10) 35 cm x 43 cm cassettes. Lightweight divider tab is provided to separate exposed from unexposed cassettes in storage bin.
- Storage tray on top cover holds pens, lead markers and tape.

Generator Performance/Tubes

- 0.75 mm focal spot (NEMA): 3 inch rotating anode: GE X-Ray tube model HRT09.
- 275,000 HU anode heat storage capacity.
- 15° target angle.
- Low speed (3,000 rpm) operation only (See Product Data Sheet D1046).
- 43 cm x 43 cm coverage at 100 cm SID (17” x 17” coverage at 40 inch SID).
- Generator is closed loop kVp design using microprocessor regulation to assure constant and accurate kVp at all battery conditions.
- MAs integrator measures actual mA to insure accuracy, reproducibility and station-to-station linearity for all exposures.
- Efficient medium frequency mobile generator operates at 1,000 Hz and provides exceptional battery power utilization.
- All units capable of 110 or 220V nominal, 50 or 60 Hz charger operation.

Console

Batteries

- Batteries are sealed lead-acid requiring no maintenance over normal expected lif or five years. Batteries are “minimal liquid”, film electrolyte technology that will not leak even if damaged.
- All units capable of 100 or 200 V nominal, 50 or 60 Hz charger operation, requiring no extra parts expect wall plug.
- 20,000 mAs usable battery power storage.
- Automatic battery voltage sensor protects batteries from deep-discharge and thereby prevents permanent battery damage.

Reliability, Durability ad Serviceability

- Modular elecrrical chassis desing for ease of service. Most major components accessible unter top or side covers for servicing.
- Digital microprocessor control with service diagnostic software includes self-check program, initiated at start-up.
- Calibration software reduces installation time and time to repair.
- Message readout displays self-diagnosed errors on top panel.
- High reliability dome switches for technique selection (mAs, KVp).
- Heavy duty welded steel mechanical chassis for extended life.
- Tube column support includes integrated wear strips and high strength column base casting with oversized bearing for improved durability.
- Tube arm latch supports arm in all three dimensions for safety and stress relief of column while transporting units over floor imperfections such as elevator thresholds or hall expansion joints.
- Motor drives are belt driven using advanced high technology belts for long-life operations. Belt mounting facilitates easy removal/installation.

Specifications

AMX-4 Plus unit consists of:
Control, Microprocessor High-Tension
Transformer High-Voltage Cables
Rotating Anode X-Ray Tube
Collimator
Base and Cabinet
Tube Stand
Motor Drive
Batteries
Battery Charging System
Operational and Diagnostic Software

Technical control:

kVp: 50 to 76 in 2 kVp steps
80 to 125 in 5 KVp steps

mAs:	**kVp range**	**mAs**
	50-90	4 to 320
	95-105	4 to 250
	110-125	4 to 200

All in 25 % increments,
20 % decrements

mA: 100 mA nominal

Digital readouts, blue vacuum fluorescent.

Top: 1.9 cm (3/4 in) kVp and mAs
Message: 0.95 cm (3/8 in) all message
Battery Status: 0.95 cm (3/8 in) bar graph

Switches are dome-type push buttons under mylar cover.
On/Off Two position switch:
Off/Remove Key
Off
On

The drive system and X-Ray work only in ON position. Charger works in either position.

Handswitch controls the rotor prep, exposure, and remote field light.

Audible tone: X-Ray On.

Generator:

Frequency: 1,000 Hz
Voltage: 50 to 125 kVp
Power: 12.5 kW nominal
Cables: Vinyl covered, rated to 75 kVp each or 150 kVp for pair.
Federal type connectors.

Batteries:

Type: Sealed lead acid. "Minimal liquid" or film electrolyte technology classifies batteries as dry. Cannot leak if punctured.

Pack: Nine 12-volt packs connected in series (108 V nominal). Runs both motor drive and X-Ray from same pack.

Unit is shipped with batteries fully charged.

Battery Charging System:

Automatic battery status sensing with programmed overcharging protocol for maximizing battery life.

Charger cord provided with retraction into base. Hospital grade line plug fits standard wall receptacle.

Maximum line draw 5A, 110V: 2.5A, 220V

Unit designed to be charged in any corridor or room space with normal ventilation. Unit should not be charged in closets, etc., or in areas using isolated power, e.g., surgery.

Charger operates in any keyswitch position as charger mode has precedence over all other modes (transport exposure). The system can neither be moved, nor used for X-ray if it is recharging. Charger status displayed on message readout.

110 and 220V, 50/60 Hz operation built in; conversion requires no parts except for wall plug.

Mechanical Dimensions:

Overall Width (Includes front bumper)	63.9 cm /25 in
Width at Midpoint	60.2/23.8
Overall Height	193/76
Tube Height in (Transport lock over)	131.8/51.9
Overall Length (includes handle)	114.8/45.2
Length, Base	103.5/40.8
Length, Full Horizontal Arm Extension	212.9/83.8

Tube Positioning:

Maximum Focal Spot Height (standard)	201.2/79.2
Maximum Focal Spot Height (short)	186.2/73.3
Minimum Focal Spot Height	62.4/24.6
Vertical Travel	138.4/54.5
Maximum Horizontal Extension	107.6/42.4
Minimum Horizontal Extension	67.0/26.4
Horizontal Travel	40.6/16.4

Performance:

Maximum Speed: Forward or reverse	4.8 kph/ 3.0 mph
Speed, arm Out of Transport Position	2.4 kph/ 1.5 mph
Maximum Incline	5° degrees
Weight:	499 kg/ 1,100 lbs

Power Requirements

110V nominal 5A maximum for recharging.

220V nominal 2.5A maximum for recharging.

Weight: Shipping (w/battery) 590 kg (1,300 lbs). Unit Weight 499 kg (1,100 lbs).

Standard Listing

Catalog Number(s): A0659F
(A0659A, A0659D, A0659C)

Available Options

Mobil-AID™ Automatic Exposure Control (AED):

A fully integrated automatic exposure control option is available with the AMX-4 Plus.

Mobil-AID™ further simplifies use by automatically controlling radiographic exposures.

This option includes the following features:

- Power ON/OFF switch to activate or deactivate the Mobil-AID circuitry.
- Film-Screen to select compensation for up to two film-screen combinations.
- Active Detectors control select one or two detector fields.
- Grid compensation control to select proper compensation level for use of a grid with either film-screen choice.
- Density control to increase or decrease normal film optical density.

Remote Control Handswitch:

AMX-4 Plus is available with TechSwitch™ - a cordless Handswitch option that enables even greater procedural flexibility and radiation protection to the Technologist.

TechSwitch™ employs infrared technology to enable a 360° operating radius up to a distance of 10.9 m (36 ft.) from the base of the system. The remote Handswitch option provides the following:

- Integrated rotor prepare and exposure control actuator.
- Collimator light ON.
- Loss/misplacement softtone that sound if the Handswitch is out of the holder for more than 3 minutes.

UL/CSA Listings

UL Listed

CSA Listed

GE Certified

Specifications are subject to change without notice.

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Data subject to change.
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