



Digital Remote Controlled System with dynamic flat panel detector

User Manual

REVISIONS HISTORY

Revision	Date	Reason for change
0	30 January 2015	First edition of reorganisation of the manuals
1	12 February 2016	New X-ray tubes Graphical modification of interface CSA labels Intervention Safety Guepel Support Acquisition console screen Collimator key Control footswitches
2	09 October 2017	New logo Compression Error Messages Vigilance Message
3	27 July 2018	Paediatric applications Error Messages Vigilance Messages
4	08 November 2019	New table console
4-1	30 March 2020	CE1639
5	31 July 2020	New design New detector Version with +/-90° tilting

Please read the whole documentation before using the medical device



TABLE OF CONTENTS

Note to the user	6
Guarantee conditions.....	7
Environmental protection	8
Safety and protection.....	9
 1. DESCRIPTION	 15
1.1. Generalities	15
1.2. Table control console.....	16
1.2.1. Table switching on	16
1.2.2. Table switching off	17
1.2.3. Collimator shutters controls with joystick	18
1.2.4. Automatic collimation mode	18
1.2.5. Light beam switching on	18
1.2.6. Tube movements controls with joystick	18
1.2.7. Column reset button.....	18
1.2.8. Compression controls (option)	19
1.2.9. Preprogrammed positions.....	19
1.2.10. Unique control for aut positioning	19
1.2.11. Tabletop height and tilting with joystick	19
1.2.12. Centring controls with joystick.....	20
1.2.13. Tabletop longitudinal movement.....	20
1.2.14. Tabletop reset button	20
1.2.15. Movements reversal.....	20
1.2.16. Exposure controls	21
1.2.17. Ambiance & Status LEDs.....	21
1.2.18. Touch screen display	22
1.3. Automatic collimator	23
1.4. Remote handswitch	24

2. OPERATION	25
2.1. Switching on.....	25
2.2. Detector positionning (for version with CXDI-50RF removable detector)	26
2.3. Patient positioning	27
2.3.1. Accessories Installation	27
2.3.2. Patient Installation.....	28
2.3.3. Patient positioning.....	28
2.4. Table autopositioning	29
2.5. Preparation for exposure	30
2.6. Generator interface use	32
<i>Refer to Generator interface User Manual</i>	
2.7. Digital system control console use	32
<i>Refer to Digital System User Manual</i>	
2.8. Detector use (for version with removable detector)	32
2.9. Tomography use	33
2.10. Stitching use (option).....	35
2.11. Motorised compression system use (option).....	36
3. TABLE MAINTENANCE	37
3.1. Cleaning and disinfecting.....	37
3.2. Preventive maintenance	39
4. ERROR MESSAGES	40
4.1. Information messages.....	40
4.2. Operation messages	42
4.3. Failure messages.....	44
4.4. Service messages.....	46

IMPORTANT ! ... X-ray Protection

**X-RAY EQUIPMENT IS DANGEROUS TO BOTH PATIENT AND OPERATOR
UNLESS MEASURES OF PROTECTION ARE STRICTLY OBSERVED**

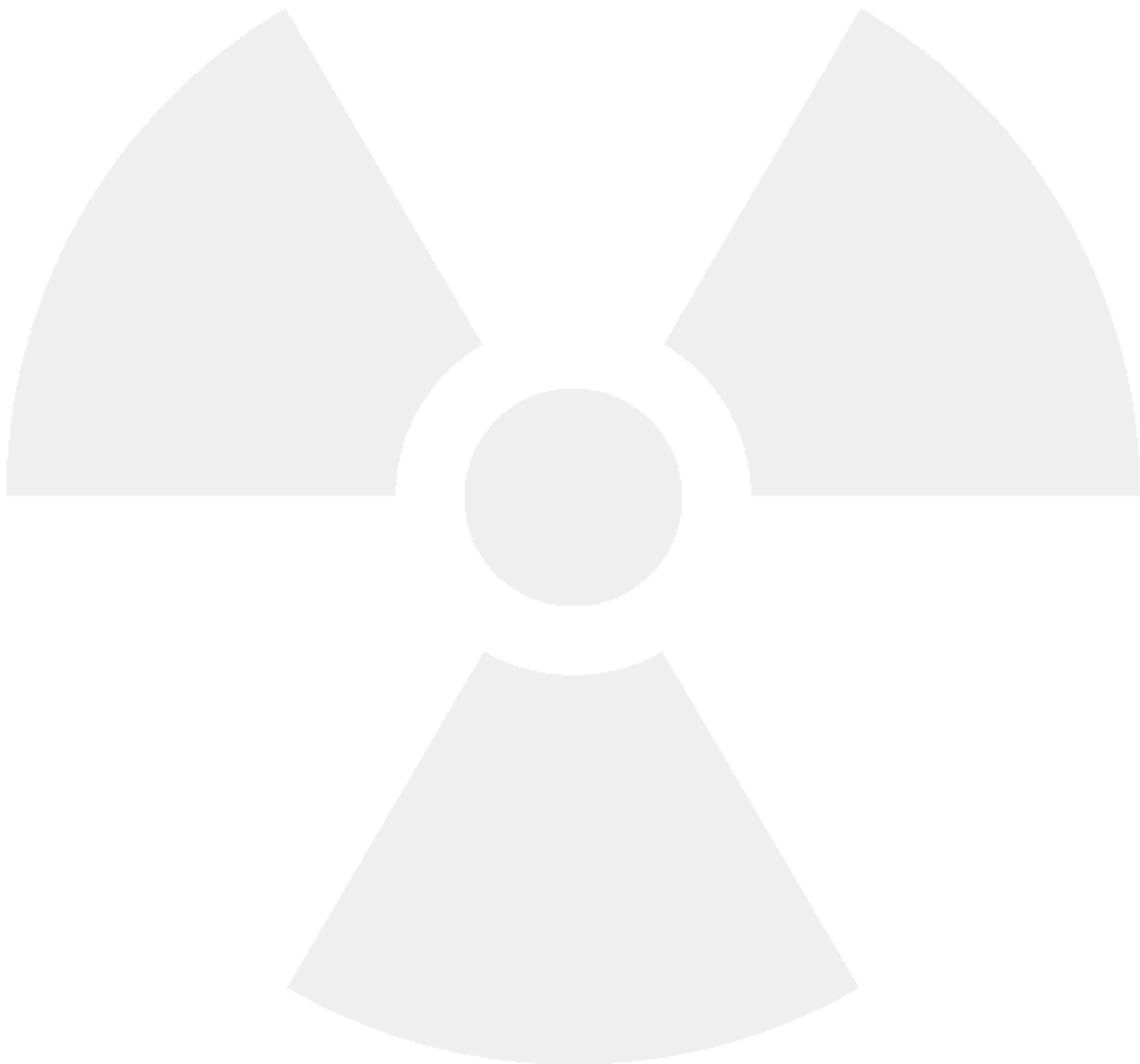
X-ray equipment if not properly used may cause injury. Accordingly, the instructions herein should be thoroughly read and understood before attempting to place this equipment in operation. We will be glad to assist and cooperate in placing this equipment in use.

Although this apparatus is built to the highest safety standards and incorporates a high degree of protection against X-radiation other than the useful beam, no practical design of equipment can provide complete protection. Nor can any practical design compel the operator to take adequate precautions to prevent the possibility of any persons carelessly, unwisely, or unknowingly exposing themselves or others to X-radiation.

It is important that everyone working with X-radiation be properly trained and take adequate steps to insure protection against injury.

The manufacturer assumes that all operator and service personnel authorized to use, install, calibrate and maintain this equipment is cognizant of the danger of excessive exposure to X-radiation, is sufficiently trained and has the required knowledges for it. The equipment herein described is sold with the understanding that the manufacturer, its agents, and representatives are not liable for injury or damage which may result from exposure to X-radiation.

Various protective material and devices are available. It is recommended that such materials and devices be used.



In normal use, (detector integrated into the table as image receptor) the reference axis of the X-ray beam must form an angle of 90° with the surface of the tabletop, so that the X-ray beam corresponds to the image area. There is an indexing system, activated by the buttons on the tube cover that automatically positions the X-ray tube assembly at 0° , $+/-90^\circ$ and 180° .

Be sure that in normal use (detector in the table) the X-ray tube assembly is well positioned at 0° with the indexing system.



NOTE TO THE USER

Your X-ray department has just purchased a Digital Dynamic Remote System with flat panel detector.

We congratulate you on this choice, and are sure you will be fully satisfied with its use and diagnostic capabilities.

These radiology units offer high quality and advanced technology.

To become familiar with its operation and make the most of its performance, the use of this equipment is conditioned by the initial training received during approximately 5 days, depending on the X-ray service requirements, provided during entry into service as well as the careful reading and understanding of the full user manual.

Read all documentation before using the medical device.

Keep this manual with the others in a safe place so that you can easily refer to it in the future.

Thank you for your confidence.



GUARANTEE CONDITIONS

It is the responsibility of the user to ensure that the government regulations respecting installation and operation of the equipment are observed.

Incorrect operation or failure of the user to maintain the equipment in accordance with the schedule of maintenance relieves the manufacturer or his agent from all responsibility for consequent non-compliance, damage, injury, defects and/or other malfunction.

In normal use, the table must be fixed to floor complying with the instructions described into the Service manual, in « Mounting » chapter in paragraph « Implementation to floor ». No specific foot exists for the control console: it must be layed on the shelf behind the shield but it is not necessary to fix it.

Refer to Service manual for any question related to the installation of the remote controlled table.

In any case of trouble, please contact the authorized company in charge with the equipment.

Refer to Service Manual to obtain pieces of information retated to:

- functioning, transport, and to storage of the equipment,
- the conditions necessary for installation of the equipment,
- the preparation for use of the equipment,
- the replacement of fuses, power supply cords and other parts,
- the circuits diagrams, and to the list of components,
- mains isolation.

The installation and equipment must not be used if any mechanical, electrical or radiation-emitting component is defective, or if the procedures described in the schedule of maintenance have not been carried out.

Changes and additions to the equipment may only be carried out by the manufacturer or by third parties expressly authorized by the manufacturer to do so. Such changes must comply with local regulations and accepted standards of good practice.

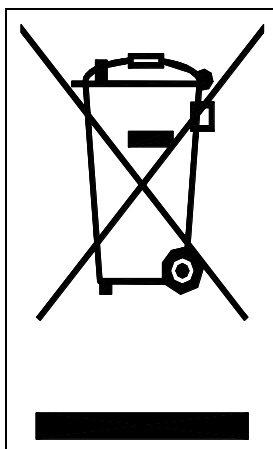
In case the power lines do not meet the specifications given in section A "Preinstallation" of the Service Manual, the table cannot reach its maximum performance and the standard use cannot be guaranteed.

Technical files (diagrams, parts list, measurement procedure and so on...) are available on request to the manufacturer.

ENVIRONMENTAL PROTECTION

This equipment or system contains environmentally dangerous components and materials (electronic boards, electronic components, lead, transformers, etc...) that, once the life-cycle of the equipment or system comes to end, becomes dangerous and need to be considered as harmful waste according to the international, domestic and local regulations.

Please, contact the manufacturer once the life-cycle of the equipment or system comes to end and before remove this equipment or system.



Label in compliance with 2002 / 96 / EC European Directive

SAFETY AND PROTECTION

X-rays are not innocuous and can be dangerous if used badly. You must, therefore, take precautions even when following the instructions in this manual.

Are entitled to use the remote controlled table physicians specialized in radiology and medical imaging as well as medical electroradiology operators, these users receive initial and ongoing training in radiation protection to implement these measures.

X-rays units manufactured by the manufacturer comply with the strictest safety standards in force throughout the world. They guarantee optimum protection against radiation risks.

Nonetheless, you are handling a unit specifically designed to generate X-rays to allow medical diagnosis on a film or using a digital imaging system. Consequently, despite the inherent safety of our equipment, we recommend using conventional commercially available equipment to protect yourself and your patient against scattered radiation risks.

The following instructions must be strictly observed:

1- Safety:

↳ Use only the following accessories supplied by the manufacturer:

- Remote control
- Compression band and compression winches
- Footrest
- Stool
- Handles
- Double pedal

OPTIONAL ACCESSORIES:

- Triple pedal
- Cup holder
- Pair of shoulder rests
- Pair of gynaecological stirrups
- Pair of leg supports of Guepel
- Retaining bar
- IV-Pole
- Multi FPD lateral support
- 1m ruler for stitching
- Ruler support for stitching
- 10cm ruler for measuring
- Ruler support for measuring
- Secondary console
- Compression device

Note: applied parts, as defined in the general requirements for basic safety and essential performance are tabletop, footrest, stool, handles, compression band, pair of shoulder rests, pair of gynaecological stirrups, pair of leg supports of Guepel, retaining bar, compression device.

Reminder: the applied part is defined as the part of the electromedical device (EM) which in normal use is necessarily in physical contact with the patient so that the EM device or EM system performs its function.

- ↪ Equipment described herein is unsuitable for operation where and when flammable gasses or vapours are present.
- ↪ The manufacturer, assembler, installer or importer considers himself responsible for the effect on basic safety, reliability and performance of the ME equipment or ME system only if appropriately trained personnel carry out assembly operations, extensions, readjustments, modifications or repairs. Also, your radiology unit must be installed in premises that comply with IEC provisions and the standards in force.
- ↪ Any modification, not recommended or not approved by the manufacturer, is prohibited
- ↪ Due care must be taken to prevent injury to the patient. Ensure that patient's clothing cannot be trapped in the equipment. The user must ensure that the patient remains to the specified handgrips.
- ↪ The operator must inform the patient of the risk of falling if he moves without being authorized by the operator.
- ↪ For examinations without using the detector inside support, that is to say for direct exposure in the room, for example with one additional portable detector put on the tabletop (elbow, hand ...), the user must position the patient at the head of the table and not on lateral side.
- ↪ The normal load of patients should be done when the tabletop is in the central position
- ↪ The system « 120 cm tabletop movement » works only for patient loading in lying position, from stretcher to tabletop. In this case, the heights of the stretcher and the table must be identical. Never let the patient at the end of the tabletop. When the tabletop is out, do not sit or exert pressure on the tabletop.
- ↪ The patient must be correctly and securely positioned (using handgrips, footrest...), before moving or tilting the table.
- ↪ The user must always ensure that there are no obstacles that would interfere with the table. Ensure that accessories such as shoulder supports, leg supports or footrest are correctly fixed to the table.
- ↪ When the table is switched on, an operator must be in the exam room while a patient is on or close to the table.
- ↪ In the event of mains supply microcuts, control inverter fault may happen for the motor of carriage, column, tilting or longitudinal tabletop movement (120cm one). Then you have to switch off the table with the general ON /OFF and switch it on again two minutes later.
- ↪ Safety signs:



General warning sign



Warning: dangerous voltage



Follow operating instructions



CAUTION : X-RAYS

2- X-ray protection:

- ↪ Use the smallest possible X-ray field
- ↪ Use the shortest possible fluoroscopy time
- ↪ Use the highest possible Skin-Focus distance, in order that the patient dose is the lowest possible
- ↪ Check the good condition of working for the X-ray tube and detector
- ↪ Keep as far away from the beam as possible
- ↪ During exposure, personnel not directly involved with the patient must go behind lead or lead-glass shielding
- ↪ Should the collimator be damaged, it must be repaired or replaced before the equipment is returned to service
- ↪ It is important that all procedures dealing with X-ray radiation must be made by personnel that is qualified and fully acquainted with the radiation protection

3- Ionizing radiation



↪ Risks

Risks associated with ionizing radiation depend on the dose delivered during an examination but also the accumulation of dose during several successive examinations. The purpose of radiation protection is to prevent or reduce these risks.

↪ Nature of hazard

The user is faced with the risks associated with ionizing radiation. Therefore, if the user does not respect safety regulations put in place, he can be exposed to a radiation hazard

↪ Precautions

Two main rules regarding radiation protection are daily implemented: justification and optimization.

The justification lies in the fact that, as with any medical procedure, the benefit must be greater than the risk. Although the risk of low doses is not demonstrated, caution is to consider that they can be responsible. Therefore the achievement of examination with ionizing radiation is well thought out and weighed.

The optimization of doses is the role of the users who need the least radiation necessary to obtain an examination to answer questions.

↪ Contraindications



There are no contraindications to the achievement of a radiographic examination except for pregnant women. The case of examination requiring the injection of contrast product, for patients suffering from a particular disease or have allergies, should be studied and requires taking certain precautions before intervention.

↪ Refer to the chapter "Radiation protection and imaging performance".

Also note that the use of a second console in room should be done within the significant zone of occupancy, or a greater distance from the x-ray beam.

4- Electromagnetic risks:

↳ Emission:

This equipment can cause electromagnetic interferences to other apparatuses, medical or not. For adapted protection against interferences, the equipment is in compliance with the criteria of CEI 60601-1-2 medical standard and EN 55011 emission standard, class A

↳ Immunity:

In order to avoid disturbances risks for the table, it is recommended not to use apparatuses that generate Radio Frequency energy intentionally, in the vicinity.

Switch off these apparatuses when they are close to the remote controlled table.

Equipments or instruments operating in the vicinity of table must be in compliance with the ElectroMagnetic Compatibility standards.

IEC 60601-1-2: 2014 standard

Tests designation	Results	Comments
<u>EMISSION</u> Conducted emission Power supply 400Vac 50Hz Power supply 230Vac 50Hz Ethernet (under power supply 50Hz) Main power supply 400Vac 50Hz Power supply 120Vac 60Hz Ethernet (under power supply 60Hz)	PASS PASS PASS PASS PASS PASS	Limits: CISPR 11, Group 1, Class A
Discontinuous disturbances Power supply 400Vac 50Hz and 60Hz Power supply 230Vac 50Hz Power supply 120Vac 60Hz	N.A. N.A. N.A.	According to CISPR 14-1 E.U.T. does not generate clicks
Radiated electric field measurement Frequency range: 30Mhz – 1GHz (50Hz) Frequency range: 30Mhz – 1GHz (60Hz)	PASS PASS	Limits: CISPR 11, Group 1, Class A
Radiated magnetic field measurement Frequency range: 30Mhz – 1GHz Harmonics current emission <i>IEC 61000-3-2</i> Power supply 120Vac 50Hz Power supply 400Vac 50Hz Power supply 400Vac 60Hz Power supply 120Vac 60Hz Measurement of voltage fluctuation and flicker <i>IEC 61000-3-3</i> Power supply 230Vac 50Hz Power supply 400Vac 50Hz Measurement of human exposure to electromagnetic field Measurement of electromagnetic field in comparison of reference levels	N.A. PASS PASS PASS PASS PASS PASS PASS	Limits: CISPR 11, Group 1, Class A Class A Result is given for information under customer's request Result is given for information under customer's request Recommendation 99/519/EC of 12 July 1999 Directive 2013/35/CE of June 2013

Tests designation	Results	Comments
IMMUNITY Electrostatic discharge immunity IEC 61000-4-2 Indirect discharges VCP Direct discharges Air discharges	PASS PASS PASS	Power supply frequency at 50Hz Level: ± 8kV Level: ± 8kV Levels: ± 2kV, ± 4kV, ± 8kV, ± 15kV (note 1)
Radiated, radio-frequency, electromagnetic field immunity IEC 61000-4-3 Level: 3V/m from 80MHz to 2.7GHz Test specification for enclosure port immunity to RF wireless communications equipment Level: 27V/m in the band 380-390MHz Level: 28V/m in the band 430-470MHz Level: 09V/m in the band 704-787MHz Level: 28V/m in the band 800-960MHz Level: 28V/m in the band 1700-1990MHz Level: 28V/m in the band 2400-2570MHz Level: 09V/m in the band 5100-5800MHz	PASS N.A. PASS N.A. N.A. N.A. PASS PASS	Power supply under frequency 60Hz On authorized ISM frequencies 433.05 to 434.79MHz 2.4GHz to 2.5GHz <u>Service</u> TETRA 400 GMRS 460, FRS 460 (note 2) LTE band 13, 17 GSM 800/900, TETRA 800, LTE band 5... GSM 1800/1900, DECT, UMTS, LTE band 1, 3, 4, 25... Bluetooth, WLAN, RFID 2450, LTE band 7... WLAN 802.11 a/n
IMMUNITY Electrical fast transient/burst immunity IEC 61000-4-4 Power supply 400Vac 60Hz Power supply 120Vac 60Hz Console #1 link Console #2 link Computer link	PASS PASS PASS PASS PASS	Frequency of repetition: 100 kHz Power supply frequency 60Hz Level: ± 2kV Level: ± 2kV Level: ± 1kV Level: ± 1kV Level: ± 1kV
Surge immunity IEC 61000-4-5 Power supply 400Vac 50Hz Power supply 120Vac 50Hz Power supply 230Vac 50Hz	PASS PASS PASS	Level: ± 2kV in common mode and Level: ± 1kV in differential mode Level: ± 2kV in common mode and Level: ± 1kV in differential mode Level: ± 2kV in common mode and Level: ± 1kV in differential mode
Immunity to conducted disturbances, induced by radio-frequency fields IEC 61000-4-6 Level applied: 3V from 0.15 to 230MHz and 6V in ISM Bands 400Vac 60Hz power supply cable 120Vac 60Hz power supply cable Console #1 link Console #2 link Computer link	PASS PASS PASS PASS PASS	Power supply frequency at 60Hz
IMMUNITY Power frequency magnetic field immunity IEC 61000-4-8 Three axis exposed, power supply frequency 60Hz Table Console #1 Console #2 Computer	PASS PASS PASS PASS	Level applied: 30A/m than 3A/m Level applied: 30A/m than 3A/m Level applied: 30A/m than 3A/m Level applied: 30A/m than 3A/m
Voltage dips and short interruptions immunity IEC 61000-4-11 230Vac 50Hz power supply cable 0% x Un 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 235°, 315° ..0% x Un 1 cycle at 0° 70% x Un 25 cycles at 0° 0% x Un 250 cycles 400Vac 50Hz power supply cable 0% x Un 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 235°, 315° ..0% x Un 1 cycle at 0° 70% x Un 25 cycles at 0° 0% x Un 250 cycles	PASS PASS PASS PASS PASS PASS PASS PASS	
ISO 7637-2 DC power supply cable	N.A.	

5- Electrical Hazards

- ✎ The remote controlled table may cause electrical hazards in very rare cases.
In order to provide the most effective protection possible, it has been designed to meet the requirements of Article 8 of IEC 60601-1 "Protection against electrical hazards from electromedical equipments."
It is recommended to refer to the manuals before any maintenance on this device.
- ✎ No additional multiple portable socket outlet or extension cord shall be connected to the system.
- ✎ Do not connect items which are not specified as part of the system.
- ✎ When a non medical electrical equipment, which has been supplied as a part of the system, is directly connected to the wall outlet, the user does not benefit from the specific protections of the system power supply, notably concerning the leakage currents.
- ✎ When an electric equipment, which has not been supplied as a part of the system is connected to a socket outlet dedicated to the system, it can be prejudicial to the safety of the system.
WARNING: To avoid electric shock, this unit must be connected only to a mains supply with a protective ground.

6- Cleaning:

- ✎ Always disconnect the equipment from the general mains supply before cleaning or disinfecting.
- ✎ Avoid water or other liquid to enter the equipment, as such liquid may cause short circuits and/or some corrosion.
- ✎ It must be noted that some disinfectants vaporise, forming potentially explosive mixtures. Should such disinfectants be used, the vapours must first be allowed to disperse before the equipment is returned to use.

In the event of failure to comply with these instructions, the manufacturer shall not be held responsible for the safety, reliability and characteristics of the machine.

Your distributor will be pleased to help you with the initial use of your unit and to answer any subsequent questions you may have.

1. DESCRIPTION

1.1. GENERALITIES

This equipment is designed for general radiography and continuous or pulsed fluoroscopy in hospitals, clinics, radiology imaging centers and medical practices to perform processes and provide X-Ray images.

This remote control table is a universal X-ray examination table with variable height fully digitized & microprocessor controlled and developed for easy and fast examinations in fluoroscopy and radiography.

The table is suited for functional and for anatomical examinations with the patient of any size in any position.

This multipurpose table is designed for performing following examination on adults, children and babies.

The patients may be physically abled, disabled, immobilized or shocked.

➤ **Radiography exams:**

- General x-ray procedures: skull, chest, abdomen, pelvis, spine, extremities ...
- Tomography
- Extremities (skyline patella, weight bearing exams ...)
- Paediatrics (baby pelvis ...)
- Stitching (option)

➤ **Dynamic exams:**

- Full digestive tract
- Uro-genital system
- Endoscopy
- Arthrography
- Myelography
- Paediatrics
- DSA (option)

This list of procedures is not an exhaustive one, but gives an idea of the wide range of possibilities that the system offers.

This equipment is not intended for mammography applications.

This equipment is not specifically designed for paediatric purposes.

If children are to be examined, they should always be accompanied by an adult.

1.2 TABLE CONTROL CONSOLE

Note: a secondary console is optional. The way to use it is almost the same as for the main console, except that it does not display the generator interface and its On/Off commands. On the table consoles, a locking key activates the main console (and thus activates the infrared control handswitch and inactivates the secondary console) or activates the secondary console (and thus inactivates the infrared control handswitch and inactivates the main console).

The controls of axes as collimator shutters, detector rotation (for version with removable detector), or zoom change can be done on the two consoles whatever locking system position is.

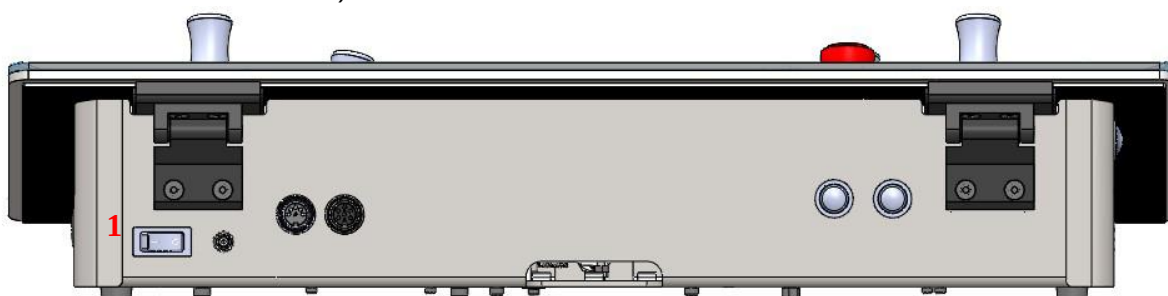
The secondary console allows triggering the emission of X-rays, but it is not possible to perform parameter settings, Generator interface is not available.



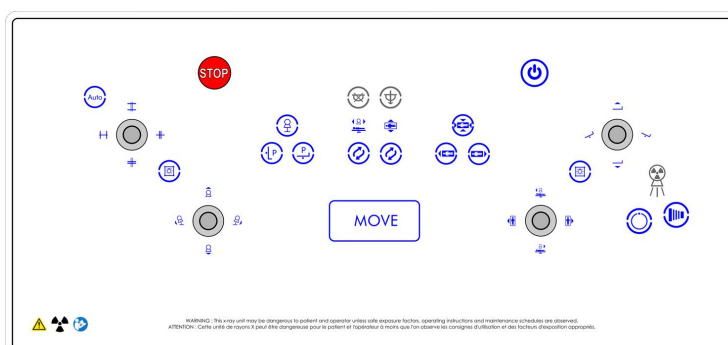
WARNING: The secondary console should only be connected to the power cable located in the table output

1.2.1. TABLE SWITCHING ON

Switch ON the table at the table console (button behind the table console, one pressure on the I side of the button)



- The button  on the front of the console turns green when the console is powered on, at 10% of the light intensity capacity.
 - Switch on the system by pressing the button  on the front of the console for one second: it flashes green while communication is establishing between the table console and the table.
 - The button  no longer flashes and remains green at 100% of the light intensity capacity when communication is established.
- All leds are lit at 10% of the light intensity capacity and confirm that the table console is ready for use.
If some leds are off, it may mean that the corresponding movement is off.
Contact Service department if necessary.
The LCD touch screen displays Table and Generator interfaces (refer to corresponding chapter)



1.2.2. TABLE SWITCHING OFF

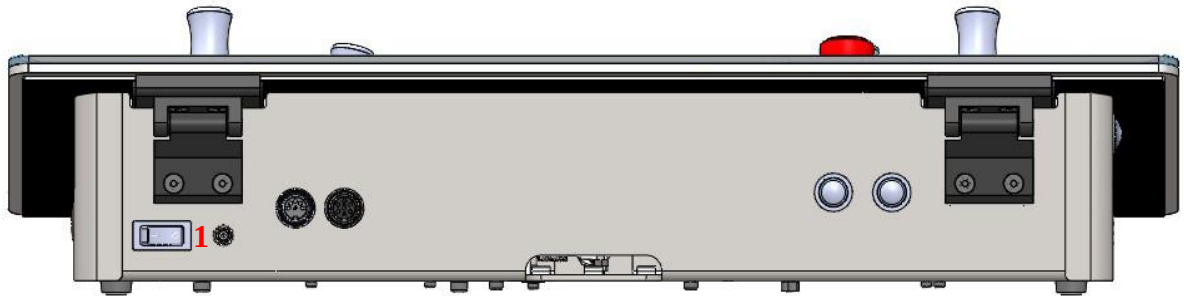
By a short pressure (one second) on the button  on the front of the console, this button remains green at 10% of the light intensity capacity, you turn off the table and the generator and you put in stand-by the table console (its internal PC). The light strip of the console turns off.

OR,

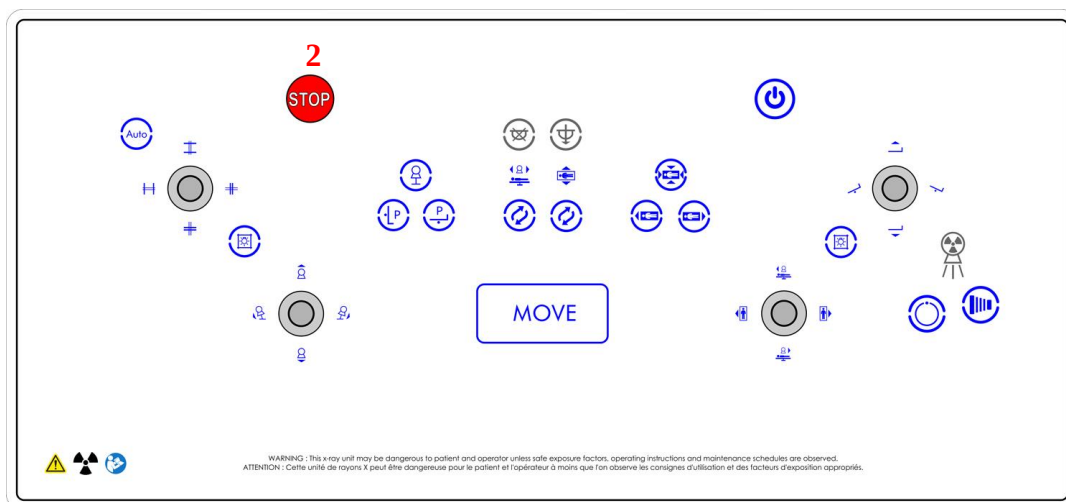
By a long pressure (three seconds) on the button  on the front of the console, this button remains green at 10% of the light intensity capacity, you turn off the table console (its internal PC), the table and the generator. The light strip of the console turns off.

All buttons and LCD screen turn off

Switch OFF the table console with the same button as the switching on (button behind the table console), but this time by making a pressure on the O side.



Note: by activating the emergency stop button on the main table console (n°2), the table switches off. As the communication is interrupted, the light strip switches off except the button  on the front of the console, that remains green at 10% of the light intensity capacity.

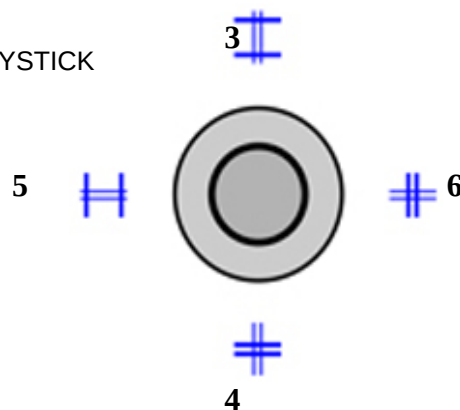


Two emergency stop buttons are located on the table, one on each side of detector support.

Note: these emergency stop buttons only stop the table movements.

1.2.3. COLLIMATOR SHUTTERS CONTROLS WITH JOYSTICK

- 3 shutter longitudinal opening
- 4 shutter longitudinal closing
- 5 shutter lateral opening
- 6 shutter lateral closing



Note: when you grab a capacitive joystick, the leds of all the axes light at 50% of the light intensity capacity.

When you start a movement with the capacitive joystick, the LED of the selected axis lights up at 100% of the light intensity capacity.

Note 2 : the capacitive joysticks detect the presence of a conductive element connected to the Ground (the user), which avoids the control of a movement inadvertently by the fall of an object on the console of the table for example.

1.2.4. AUTOMATIC COLLIMATION MODE

- 7 selection of automatic collimation mode



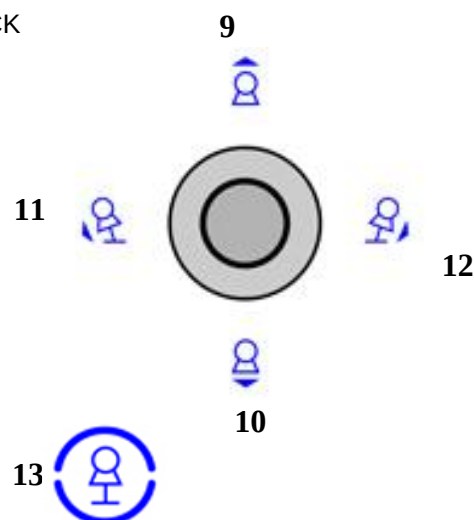
1.2.5. LIGHT BEAM SWITCHING ON

- 8 lighting of beam



1.2.6. TUBE MOVEMENTS CONTROLS WITH JOYSTICK

- 9 Increase SID
- 10 Decrease SID
- 11 Head side (to the left) column movement
- 12 Foot side (to the right) column movement



1.2.7. COLUMN RESET BUTTON

- 13 Column perpendicular stop



1.2.8. COMPRESSION CONTROLS (OPTION)

14 Raise compression device to parking position

15 Lower compression device



These buttons are not bright (inactive) if the compression option is not present on the table

1.2.9. PREPROGRAMMED POSITIONS

16 Table vertical autopositioning

regarding the autopositioning parameters of selected protocol

17 Table horizontal autopositioning

regarding the autopositioning parameters of selected protocol



1.2.10. UNIQUE CONTROL FOR AUTOPOSITIONING

18 "Move" button allows table autopositioning through anatomical programming
To activate the movement, the user must touch one joystick AND the MOVE button



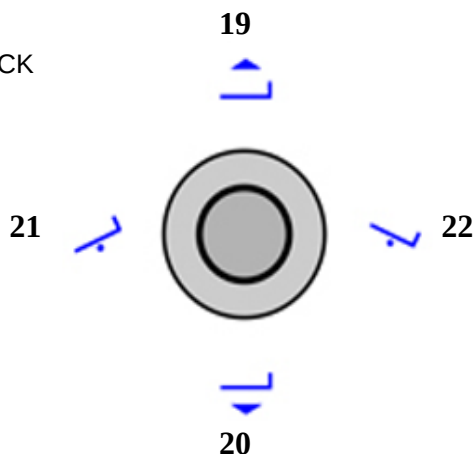
1.2.11. TABLETOP HEIGHT AND TILTING WITH JOYSTICK

19 Table height UP movement

20 Table height DOWN movement

21 Trendelenburg (negative) tilting

22 Positive (to vertical position) tilting



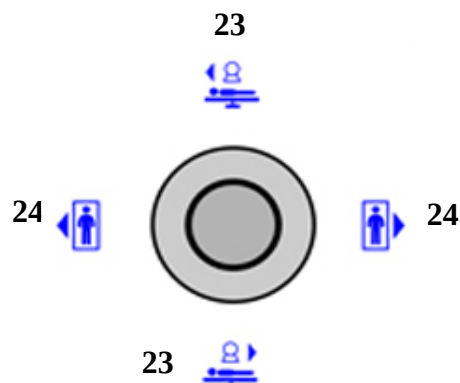
Note: on the +/- 90° version, the negative tilting can go until -90°; the table stops and a message appears when the table reaches a predefined negative tilting value (set in factory). To continue the negative movement, click on OK. Then, activate the joystick to continue the tilting.

The setting can be reverse regarding implementation, that means -90° is the main tilting for vertical exams. Then, when you tilt on the other side, the table stops and a message appears when the table reaches a predefined positive tilting value (set in factory). To continue the positive movement, click on OK. Then, activate the joystick to continue the tilting.

1.2.12. CENTRING CONTROLS WITH JOYSTICK

23 Carriage movement on foot side or head side

24 Tabletop lateral movement on column side or opposite



1.2.13. TABLETOP LONGITUDINAL MOVEMENT

25 Head side (to the left) movement

26 Foot side (to the right) movement



1.2.14. TABLETOP RESET BUTTON

27 Tabletop central stop
in longitudinal and lateral positions



1.2.15. MOVEMENTS REVERSAL

28 Reversal of carriage movement

29 Reversal of lateral tabletop movement



REMINDER :

IMPORTANT ! ... X-ray Protection

X-RAY EQUIPMENT IS DANGEROUS TO BOTH PATIENT AND OPERATOR UNLESS MEASURES OF PROTECTION ARE STRICTLY OBSERVED

X-ray equipment if not properly used may cause injury. Accordingly, the instructions herein should be thoroughly read and understood before attempting to place this equipment in operation. We will be glad to assist and cooperate in placing this equipment in use.

Although this apparatus is built to the highest safety standards and incorporates a high degree of protection against X-radiation other than the useful beam, no practical design of equipment can provide complete protection. Nor can any practical design compel the operator to take adequate precautions to prevent the possibility of any persons carelessly, unwisely, or unknowingly exposing themselves or others to X-radiation.

It is important that everyone working with X-radiation be properly trained and take adequate steps to insure protection against injury. The manufacturer assumes that all operator and service personnel authorized to use, install, calibrate and maintain this equipment is cognizant of the danger of excessive exposure to X-radiation, is sufficiently trained and has the required knowledges for it. The equipment herein described is sold with the understanding that the manufacturer, its agents, and representatives are not liable for injury or damage which may result from exposure to X-radiation. Various protective material and devices are available. It is recommended that such materials and devices be used

1.2.16. EXPOSURE CONTROLS

30 Radiography preparation (1st trigger) control

31 Radiography emission (2nd trigger) control

32 X-ray emission indicator

30



32



31

Radiography can be also performed by pressing the pedal indicated by the symbol  with preparation control (1st trigger) and X-ray emission control (2nd trigger) as for standard protocols with two buttons on the table console.

Fluoroscopy is performed by pressing the pedal indicated by the symbol  .

Cine mode is performed by pressing the pedal indicated by the symbol  (for versions with this functionality, please refer to the user manual of digital system).

1.2.17. AMBIANCE & STATUS LEDS



Status LEDs at the tubehead and column turn yellow during X-ray emission.

When the system is ready to emit X-rays, the LEDs light up green.

These LEDs indicate that the system is ready to operate, when all the elements are powered up and communicate with each other, displaying the standard colour chosen during the installation among white, purple, blue, turquoise or pink (or LED off). Blue is selected as Factory setting.

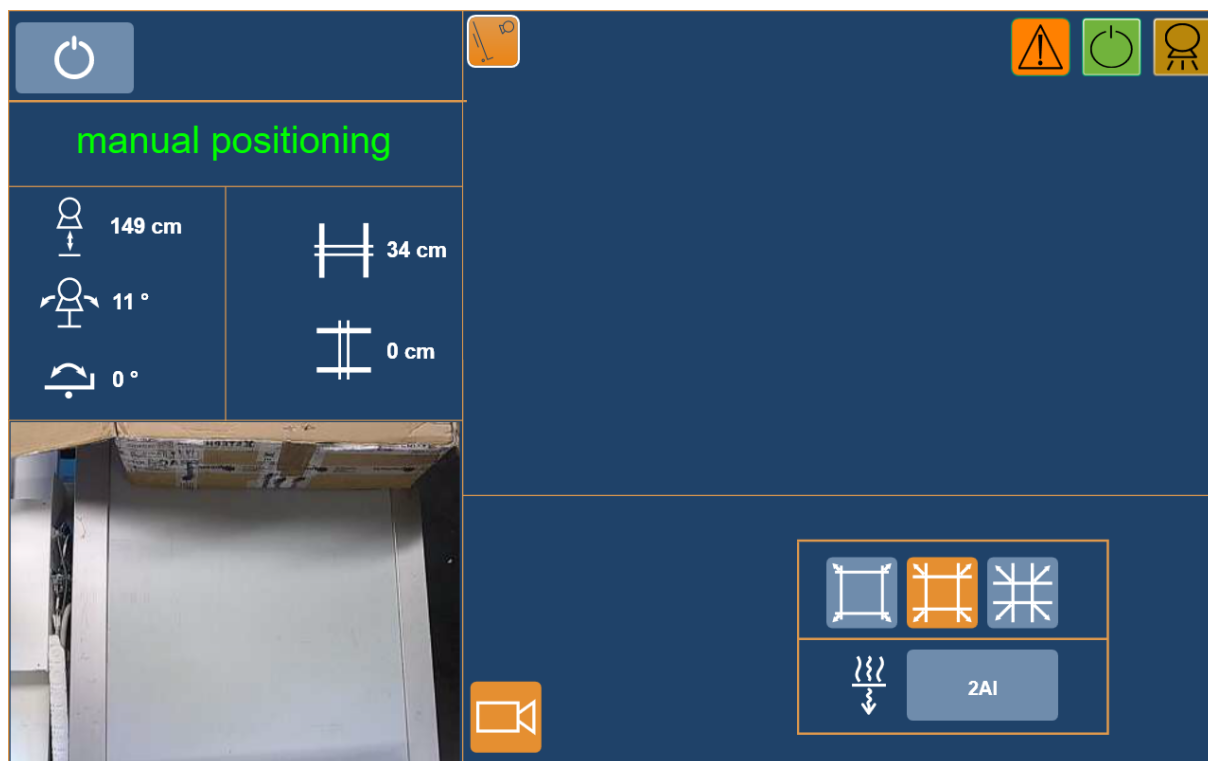
In the event of a system default, these LEDs will flash with the chosen standard colour, one flash every 0.5 seconds.

When the table is in motion, these LEDs flash with the status colour (green, yellow, or selected standard colour), one flash every 2 seconds. This feature can be disabled in the Service mode.

On the +/- 90 ° version, at the foot, an ambient LED is lit when the system is ready to operate (colour to be chosen during installation among white, purple, blue, turquoise, pink, or LED off). Blue is selected as Factory setting.

1.2.18. TOUCH SCREEN DISPLAY

33 LCD screen to display parameters (example below)



This screen shows the parameters according to the anatomical programming for table, generator and can display images from video camera for centring without fluoroscopy.

It displays:

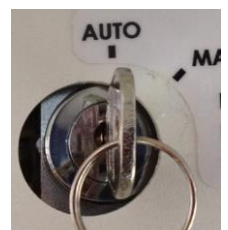
- the name of position in anatomical programming (if not, it indicates "manual positioning"),
 - the values of SID, the column and tilting angles, the shutters opening,
 - zoom if selected,
 - filter if selected.
 - the video camera images, the image is filmed by the camera in real time.
- Refer to the following chapter "2. OPERATION"
- For the generator, it displays the interface to modify exposure parameters as kV, mA, s, mAs, AEC selection ... Refer to the following chapter "2. OPERATION"
 - It also displays error or warning message, or messages asking the user to input information.

For more details and explanations, refer to the following chapter "2. OPERATION"

1.3 AUTOMATIC COLLIMATOR



- The LCD screen indicates SID value, lateral and longitudinal blades openings in cm.
- The knobs that disengage the motor driving of blades permit to collimate manually.
 - 3 shutter longitudinal opening
 - 4 shutter longitudinal closing
 - 5 shutter lateral opening
 - 6 shutter lateral closing
- These soft keys control the opening or closing of the collimator motorised blades in order to limit the X-ray beam. The final image field can be checked by switch on the collimator lamp. These controls can be used in both Automatic and Manual modes.
 - 8 This soft key is used to switch on the collimator lamp. It is on for approximately 20 seconds.
-  When green LED turns On, automatic collimation mode is ready.
-  The red LED turns momentarily On when the blades are moving and/or the system is NOT ready. X-rays are inhibited.
-  Not used.
-  Soft key to select the filters manually, choice between no filtration, 0.1mm Cu added to 1mm Al, 0.2mm Cu added to 1mm Al, 1mm Al added to 1mm Al. This selection is made automatically with anatomical programming from the main console. It is possible to set different filters between fluoro and graphy. The current used filter is displayed in front of the corresponding icon. You can select the filter using + and – keys.
- Change of principle for the collimator key : now, it is possible to remove the key from the additional keyhole added to the camera cover



1.4 REMOTE HANDSWITCH

The major functions are available in the room using the remote handswitch:



- Incidence movement: correspond with the controls **11, 12 & 13** of the main console.
- LIGHT beam switching on: corresponds with the control **8** of the main console and of the collimator
- Carriage movement: corresponds with the controls **23** of the main console. The one on top is to go on left, the one on bottom is to go on right (facing and looking at the table)
- Tabletop lateral movement: correspond with the controls **24** of the main console. The one on the left is to make the tabletop go outside (opposite side comparing with the column), The one on the right is to make the tabletop go inside (side closed to the column)
- MOVE control: corresponds with the control **18** of the main console
- Tabletop longitudinal movement: correspond with the controls **25** (to go on left, facing and looking at the table) & **26** (to go on right, facing and looking at the table) of the main console
- SID movement: correspond with the controls **9 & 10** of the main console
- Tilting movement: correspond with the controls **21** (to tilt on left, facing and looking at the table) & **22** (to tilt on right, facing and looking at the table) of the main console
- Table height movement: correspond with the controls **19 & 20** of the main console

WARNING

Controls: to ensure patient safety, it is essential that the operator keeps eye contact with the patient whereas he controls table motion.

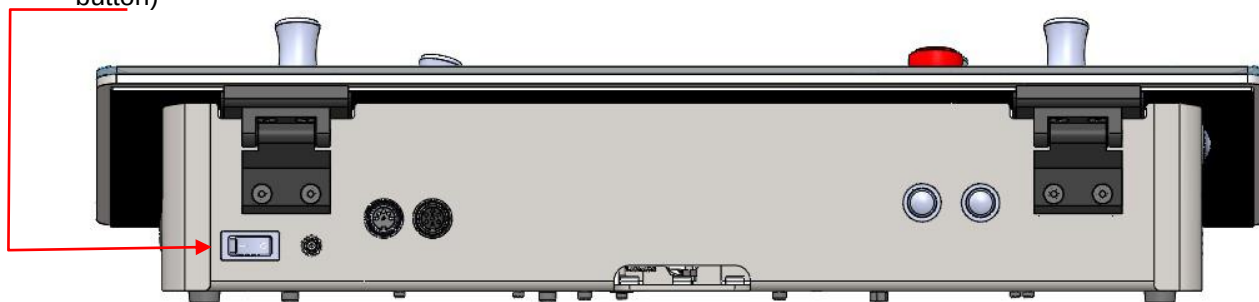
During the entire examination, the patient must not move unless the operator specifies otherwise.

2. OPERATION

2.1. SWITCHING ON

Switch on the X-ray room general contactor.

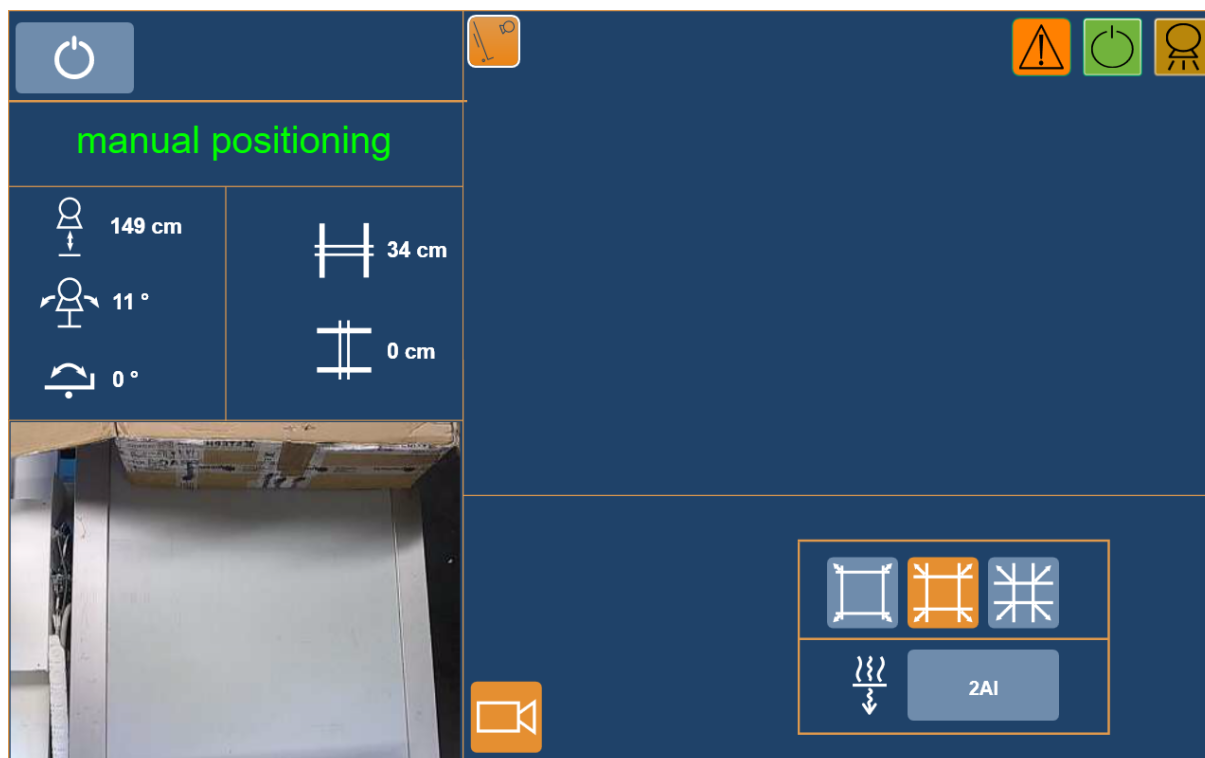
- Switch ON the table at the table console (button behind the table console, one pressure on the I side of the button)



- The button  on the front of the console turns green when the console is powered on.
- Switch on the table console by pressing this button on the front of the console: this activates the communication between the table console and the table.

All buttons are lit in colour when the communication is established.

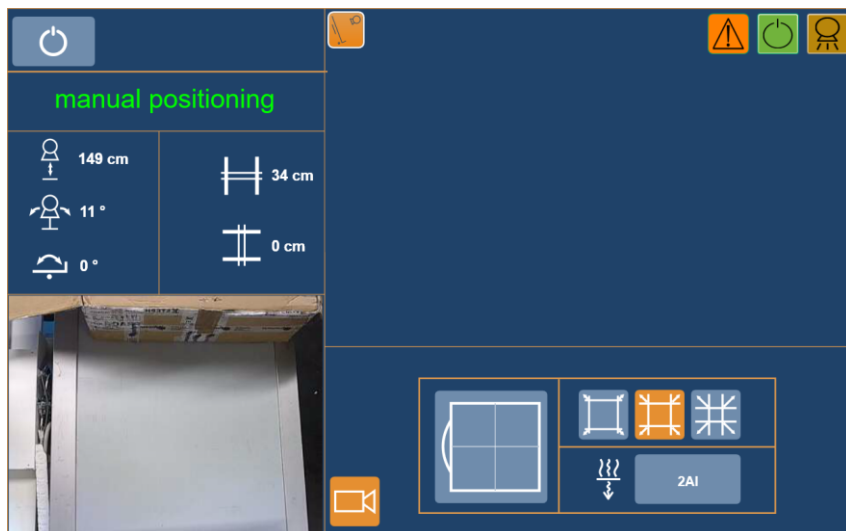
The LCD touch screen displays Table and Generator interfaces :



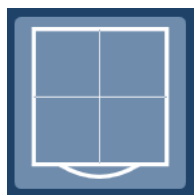
For digital system and generator (detector, control console and generator interface), please refer to corresponding user manuals.

2.2. DETECTOR POSITIONING (for version with CXDI-50RF removable detector)

The version of remote controlled table with removable detector has a slightly different interface, because the main screen display icons that concern this detector.



CAUTION: Before any table movement, check that the detector is in right place for the exam, physically inserted in the table or free in room, and by software that will indicate the following on the first screen

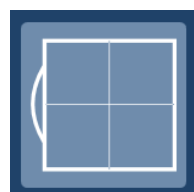


The detector is in place, inserted, in landscape format.

HEAD table side

FOOT table side

You can change the orientation by pressing the icon



The detector is in place, inserted, in portrait format.

You can change the orientation by pressing the icon

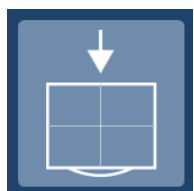


The detector is inserted, but its orientation is not detected.

Please, check if there is any detector positioning trouble firstly by pressing again the icon, and if nothing happens, remove the detector, insert it again. If the same icon appears, press again the icon. If nothing happens, call After-Sales Service



The detector is connected but not detected in place, correctly inserted. Please, correct this situation verifying that the detector is there and correctly inserted.



The detector is disconnected and is not detected in place, inserted. Please, correct this situation verifying that the detector is there, correctly inserted and correctly connected.

2.3. PATIENT POSITIONING

⚠ **CAUTION:** *Before any table movement, overall tilting or tabletop movements, make sure there are no obstacles that can collide during movement.*

WARNING

Controls: *to ensure patient safety, it is essential that the operator keeps eye contact with the patient whereas he controls table motion.*

The operator must inform the patient of the risk of falling if he moves without being authorized by the operator.

During the entire examination, the patient must not move unless the operator specifies otherwise.

Preferably, position the table before "placing" the patient for the examination. Once the patient is installed, position the machine more precisely to fit the patient's morphology and the desired examination.

As a precautionary measure and before your usual maintenance team intervention, the user should look at the equipment during all of its movement.

He has to immediately release the command if an abnormal movement is detected.

If necessary, he should use the emergency switch to stop the movements of the system.

2.3.1. ACCESSORIES INSTALLATION

- In order to ensure equipment reliability, use only accessories supplied with the table (1 footrest, 1 stool, 2 handles, 2 winches and compression band). The user is held solely responsible if use of accessories not supplied by the manufacturer.
- The handles can be placed anywhere in the rails of the tabletop. Flip the lever on the side opposite to the handle, insert the handle into rail to the desired location and then flip the lever on the other side to lock the handle
- The compression winches can be placed anywhere in the rails of the tabletop: put the table in horizontal position, loosen the small knob, insert the winch support by one or the other end of the rail, place the winch to the desired location and tighten this knob. For the second winch, repeat the operation and place it symmetrically to the first one. Then, put each metal end of band inside winch slot and make compression by rotating assymmetrically axes of winches thanks to large knobs.
- The footrest can be placed anywhere in the rails of the tabletop: put the table in horizontal position, grasp the footrest with two handles, tighten the left one and insert the white wheels precisely aligned in the rails of the tabletop. Slide the footrest to the desired position and release the left handle that blocks the brake. To remove the footrest, grasp the two handles, tighten the left one and press the tab on the right. Slide the footrest to get completely out of rails.

Note: *The handles must always be in place and used when the patient is a child, in order to reduce a possible finger pinch risk due to moving parts*

2.3.2. PATIENT INSTALLATION

- Set the table in horizontal ( or  & ) or vertical  position according to the examination (tilting control).
- In the case of recumbent patients, it is advised to move the tabletop fully towards the head end  and opposite to the column , and to lower the table to allow maximum access when transferring a patient from a trolley.

2.3.3. PATIENT POSITIONING

- Using tilting ( & ) , carriage  &  , tabletop lateral  &  , tabletop longitudinal   and incidences ( & ) movements, position the patient according to the examination.
- Set the SID ( & ) according to the examination.
- Switch on the collimator light beam 

It is possible to reduce the X-ray field using the joystick that controls collimator shutters (, , , )

Adjust the patient position using the previous movements.

- Check the position using video camera (and finalizing with fluoroscopy if really necessary, refer to Digital System User manual for fluoro mode).
- The variable height of the table ( & ) can be used during examination to fit the optimum height for the doctor.

Note: for hygienic reasons, it is recommended to disinfect (see chapter 3.1: Cleaning and disinfection) or / and to use protections on accessories and other parts of the equipment in contact with the patient, before installing each patient. In case of naked patient, it is mandatory to place a protection on the stool.

Note: the table positions (vertical and horizontal) usually used can be registered during installation for rapid positioning of table before installing the patient. Afterwards, patient positioning can be adjusted as explained above.

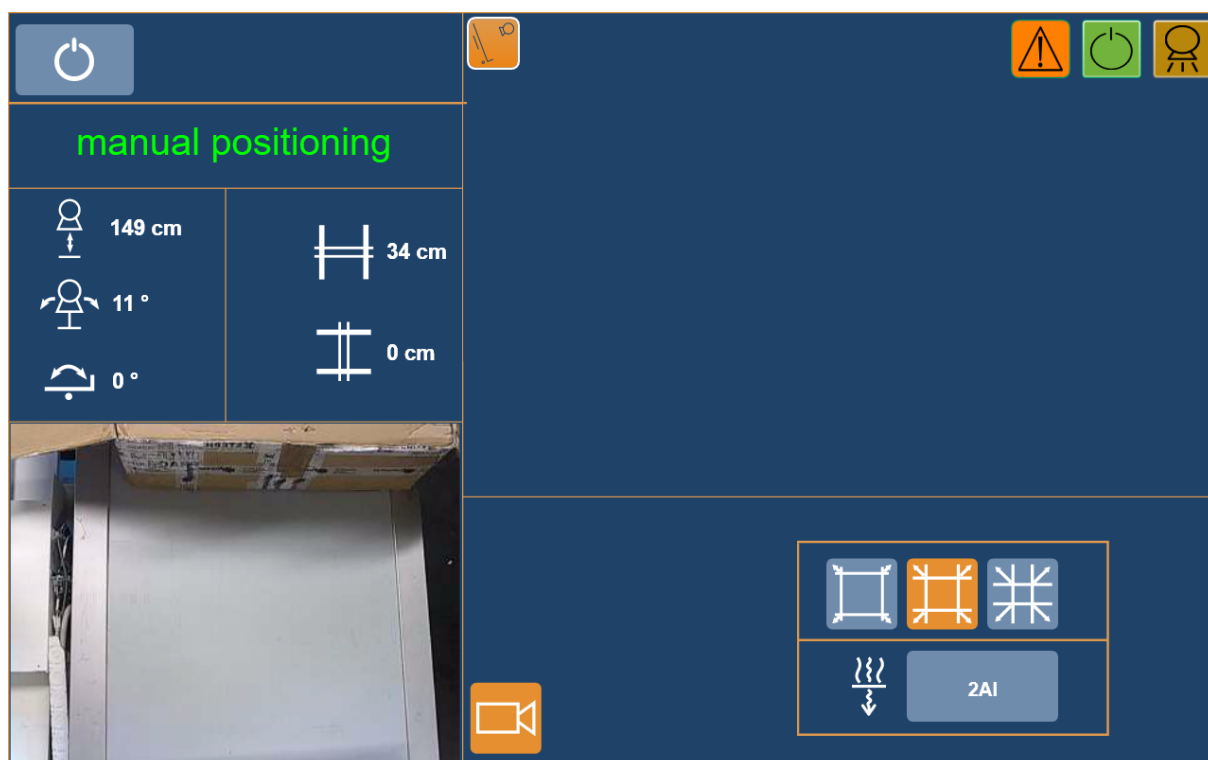
Note: the maximum patient load on the tabletop and on the removable footrest is 230 kg without any movement limitation. A patient having a maximum weight of 310 kg is also authorized with tabletop in horizontal centred position provided the user does not do the following movements: elevation, tilting, longitudinal tabletop movements and lateral tabletop movements.

2.4. TABLE AUTOPOSITIONING

- Select an anatomical programme on Digital system control console

Refer to User manuals of Digital System and Generator Interface.

- The following screen appears on the table control console and displays the table parameters in relation with the selected anatomical programme



- Install and position the patient as explained in previous chapter. This can be done before or after table positioning regarding the exam to do and user working habits.

CAUTION: Before any table movement, overall tilting or tabletop movements, make sure there are no obstacles that can collide during movement.

To prevent injury to the patient, ensure that patient's clothing cannot be trapped in the equipment. Ensure that the patient remains to the specified handgrips.

The patient must be correctly and securely positioned (using handgrips, footrest...), before moving or tilting the table (see previous chapter).

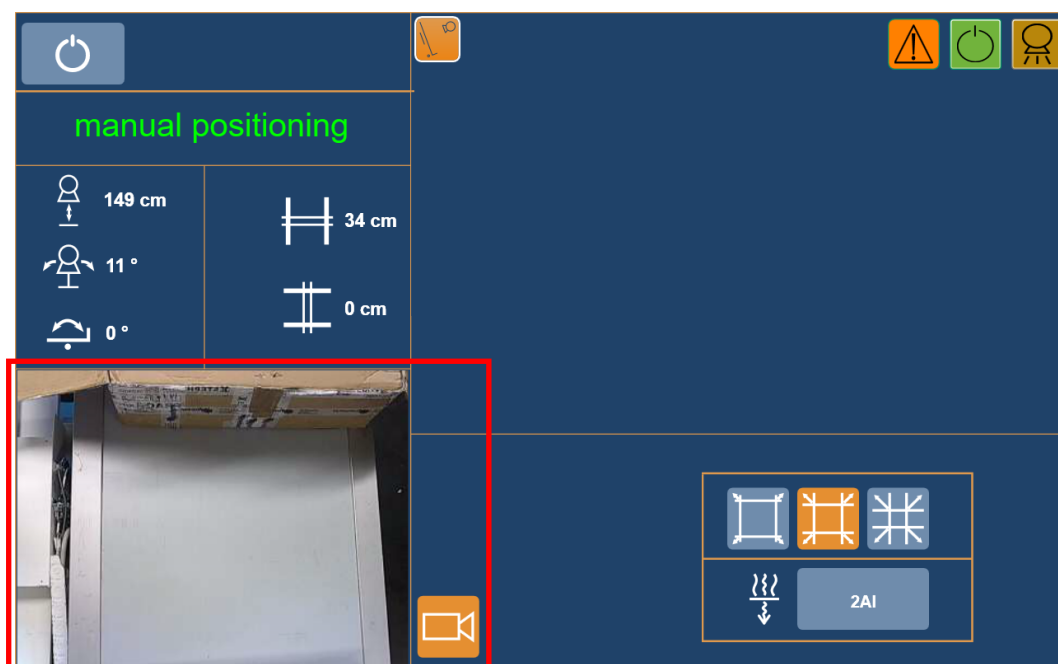
- Then, press the "MOVE" button and hold it down until the table raises its final position, the message "position reached" is displayed

2.5. PREPARATION FOR EXPOSURE

- Table autopositioned and patient installed, switch on the collimator light beam 
- Check the position using video camera (and finalizing with fluoroscopy if really necessary, refer to Digital System and Generator interface User manuals for fluoro mode).

On touch screen, press on  to visualize the images of the video camera on the bottom left:

This part of the screen displays the video images that correspond to the zone where you are collimating.



- Adjust the patient position using the movements described in previous chapter.
- It is possible to reduce the X-ray field using the collimator shutters manual control joystick (H, #, =, ⊥)
- After modifying acquisition parameters if needed (refer to corresponding manuals), make the exposure using exclusively the controls on the main table console: press the first trigger (preparation) button and holding down this button, press the second trigger (emission) button. Preparation and emission buttons must be held down until the buzzer sounds off indicating the exposure end.
- The acquired image appears few seconds later on Digital system control console.
Refer to Digital System User manual for image post-processing, page-setting, sending, archiving ...

➤ Pediatric applications

Children are more radiosensitive than adults. Adopting the Image Gently campaign guidelines and reducing dose for radiographic procedures while maintaining acceptable clinical image quality will benefit patients.

Please review the following link and reduce pediatric technique factors accordingly:
<http://www.pedrad.org/associations/5364/ig/>

As a general rule, the following points shall be observed in pediatrics:

- X-Ray Generator must have short exposures times.
- AEC must be used carefully, preferably use manual technique setting, applying lower doses.
- If possible, use high kVp techniques.
- As the use of Grids require higher doses, never use Grids in pediatric exams. Remove the grid from the receptor assembly and select the lower possible doses. If the Grid can not be detached, pediatric exams can not be performed using this device.

Positioning the pediatric patient: Pediatric patients are not as likely as adults to understand the need to remain still during the procedure.

Therefore it makes sense to provide aids to maintaining stable positioning.

It is strongly recommended the use of immobilizing devices such as bean bags and restraint systems (foam wedges, adhesive tapes, etc.) to avoid the need of repeating exposures due to the movement of the pediatric patients. Whenever possible use techniques based on the lowest exposure times.

Shielding: We recommend you provide extra shielding of radiosensitive organs or tissues such as eyes, gonads and thyroid glands. Applying a correct collimation will help to protect the patient against excessive radiation as well. Please review the following scientific literature regarding pediatric radiosensitivity: *GROSSMAN, Herman. "Radiation Protection in Diagnostic Radiography of Children".*

Pediatric Radiology, Vol. 51, (No. 1): 141--144, January, 1973:
<http://pediatrics.aappublications.org/cgi/reprint/51/1/141>.

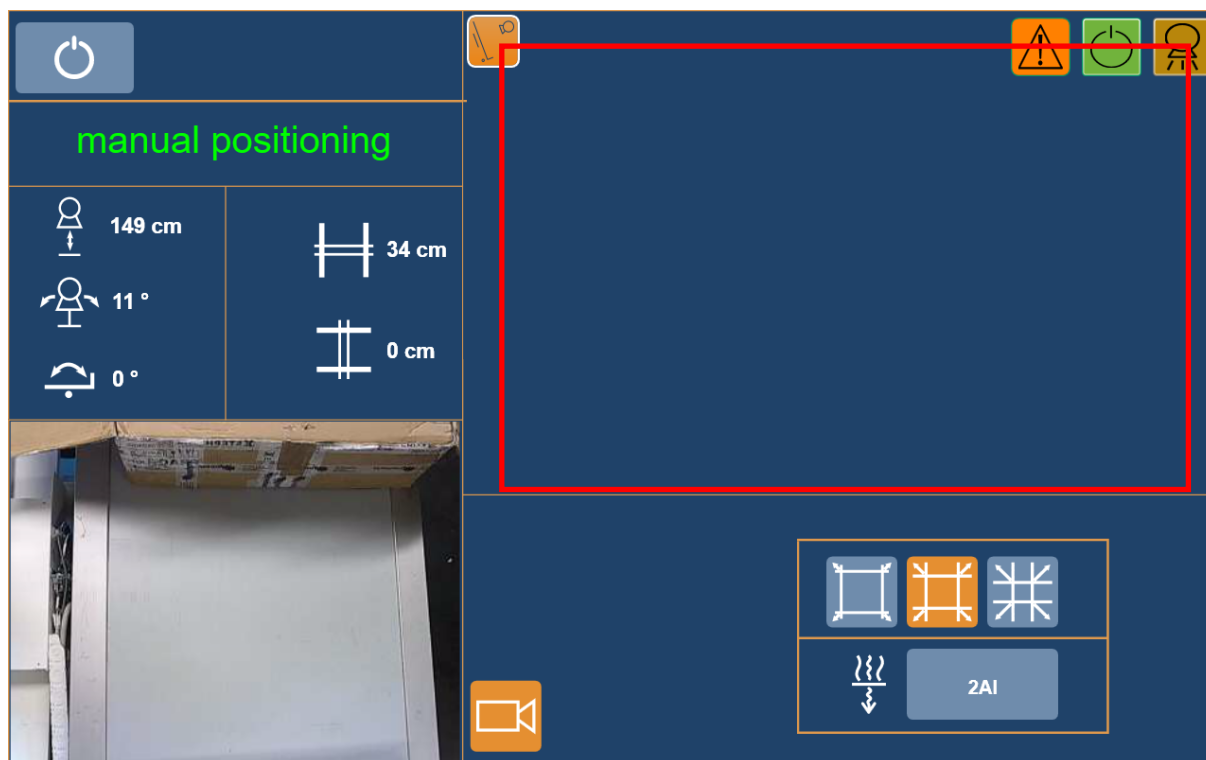
Technique factors: You should take steps to reduce technique factors to the lowest possible levels consistent with good image acquisition.

For example if your adult abdomen settings are: 70-85 kVp, 200-400 mA, 15-80 mAs, consider starting at 65-75 kVp, 100--160mA, 2.5--10 mAs for a pediatric patient. Whenever possible use high kVp techniques and large SID (Source Image Distance).

Summary:

- Image only when there is a clear medical benefit.
- Image only the indicated area.
- Use the lowest amount of radiation for adequate imaging based on size of the child (reducing tube output -- kVp and mAs).
- Try to use always short exposure times, large SID values and immobilizing devices.
- Avoid multiple scans and use alternative diagnostic studies (such as ultrasound or MRI) when possible.

2.6. GENERATOR INTERFACE USE



- The Generator interface is displayed on the top right of the table control console LCD screen.
- Refer to generator interface User Manual for more details

Note: make sure that the selected generator parameters are adapted to the patient's morphology, to the anatomical region and to the chosen anatomical protocol before the exposure

2.7. DIGITAL SYSTEM CONTROL CONSOLE USE

- Refer to Digital System User Manual

2.8. DÉTECTOR USE (for version with removable detector)

For CXDI-50F detector, make the support move to Portrait format and the tabletop laterally to maximum on column side; when movements are finished, the detector is accessible, then release the key. Press the latch, unplug the detector from the connector on left side and then remove it.

To insert the detector in its rotating support, proceed in the same way. When movements are finished, release the key, insert the detector in its support and connect it.

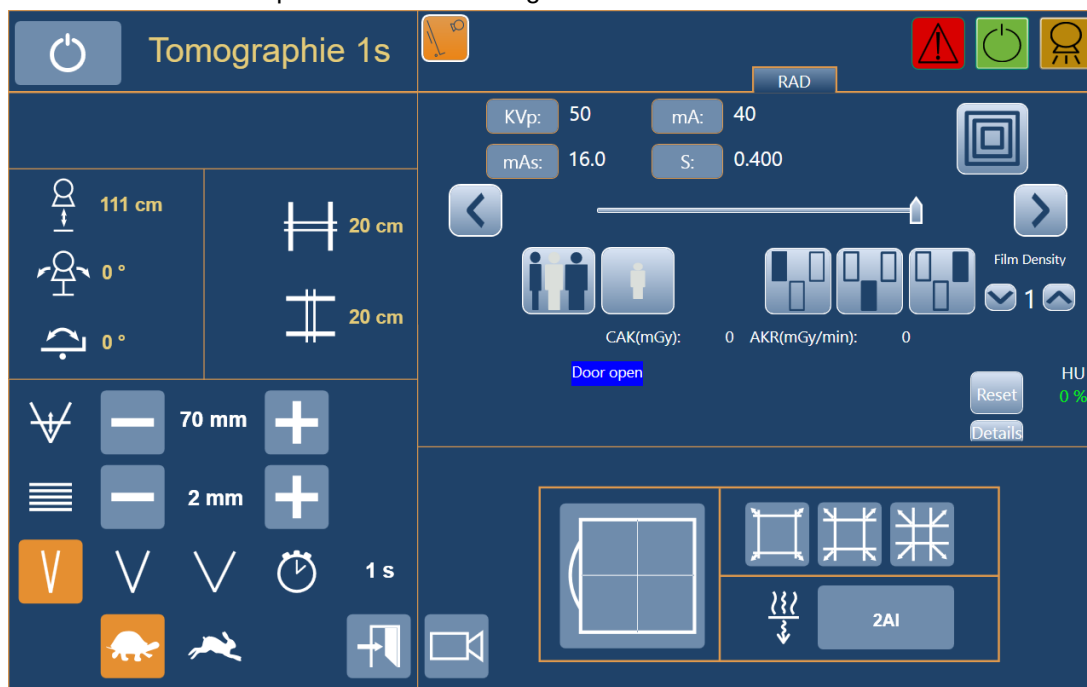
For B1 detector, make the tabletop laterally to maximum on column side; when movements are finished, the detector is accessible, then release the key. By pressing the latch, the detector is unplugged from the connector on rear side and then you can remove it.

To insert the detector in its support, proceed in the same way. When movements are finished, release the key, insert the detector in its support to connect it.

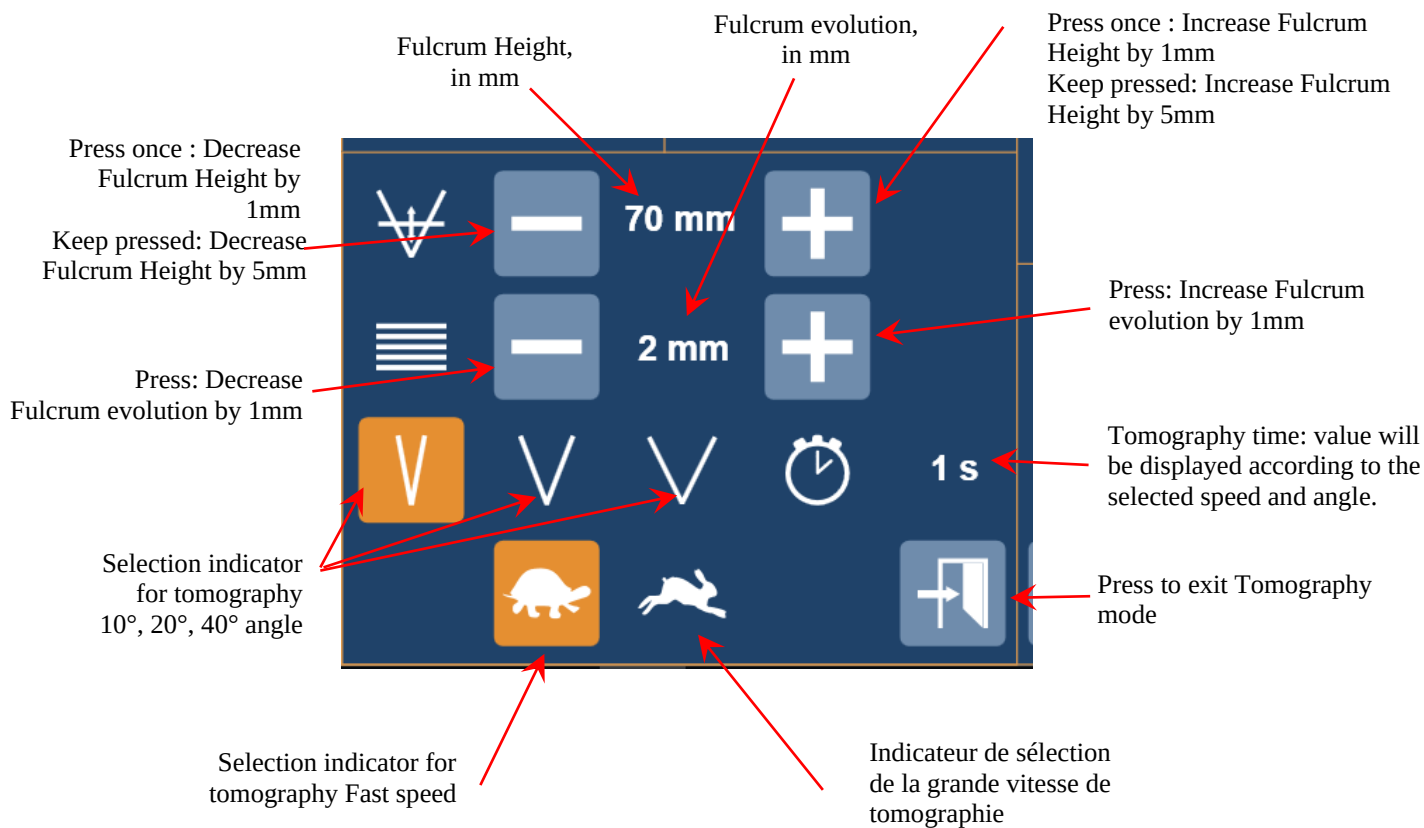
- Refer to Digital System User Manual

2.9. TOMOGRAPHY USE

- After selecting the tomography protocol on Acquisition console LCD screen, press MOVE until the table reaches its position. The following screen shows on the table console:



The buttons and labels have the following meaning:



- You can adjust the Fulcrum and incrementation if needed.
- Choose a tomography speed and angle. Once selected, the tomography time is displayed. Make sure that it is the same as the one mentioned in the tomography protocol that you selected on the Acquisition console LCD screen. If not, you can change the combination by pressing another speed or angle. The slow speed / 40° angle (4seconds exposure) is not possible.
- Press the Exposure Preparation (1st trigger) button, the column angulation will move to the starting position of the tomography.

If needed, you can release the Preparation button and use the carriage movement to center the Xrays on the region of interest, using the light of the collimator
- To start the exposure, make sure that the sensor is READY, then press the Exposure Preparation (1st trigger) button, then the Xray Emission (2nd trigger) button.

The column will rotate and Xrays will be made.

You MUST keep both buttons pressed during the whole movement. If you release one of them, the table will exit the tomography mode.

Once the column rotation is finished, you can release the Preparation and Emission buttons.

If the message "Tomography not possible, move carriage" appears, it means that the carriage/sensor holder is too close to the head side of the table to allow the tomography movement. In this case, release the Preparation button, press "OK", move the carriage to the feet side of the table, and try again by pressing the Preparation button.
- If there are additional tomography protocols in the list and you want to make other tomography exposures, you can press the Preparation button to make the column rotate to its initial position. You MUST keep that button pressed during the whole movement.

You can release the Preparation button after the movement is finished.

Once the column is back to its original position, if there was an increment other than 0 displayed on the table console screen, the new fulcrum height is indicated. You can still modify it directly. You can not modify the speed and angle of the tomography.
- Make sure the digital system is in ready state. Press the Exposure Preparation (1st trigger) button, then the Xray Emission (2nd trigger) button. A new tomography exposure will be made.
- You can repeat this until you have made the necessary tomography exposures, or there are no longer tomography protocols in the list, or the fulcrum height has reached 0mm or 300mm.

2.10. STITCHING USE (OPTION)

- With Digital system control console (refer to Digital System User Manual), select programmed stitching protocol needed for spine or legs examination.
- On the main table console LCD screen, is displayed the name of protocol.

Note : it is possible to exit from stitching mode anytime by pressing this key



- Then, press the “MOVE” button and hold it down until the table reaches its final position, the message “position reached” is displayed.
- Prepare the exposure using exclusively the controls on the main table console pressing the first trigger (preparation) button and holding down this button until the tube-detector assembly reaches its initial position

Note: the programme is always done from head to toe

- Adjust the patient position (see corresponding chapter) using the movements of carriage, of tabletop (lateral) and the video camera (and finalizing with fluoroscopy if really necessary).
- It is possible to reduce the X-ray field laterally using the collimator shutters manual control joystick
- After modifying parameters if needed, make the exposure using exclusively the controls on the main table console: press the first trigger (preparation) button and holding down this button, press the second trigger (emission) button
- After the first exposure, hold down preparation & emission buttons: following table positioning and exposure(s) are done automatically.
- After the last exposure, hold down preparation & emission buttons until the message “End of Stitching” is displayed.
- The acquired image appears few seconds later on Digital system control console.
Refer to corresponding User manuals for automatic stitching software and for image post-processing, page-setting, sending, archiving ...

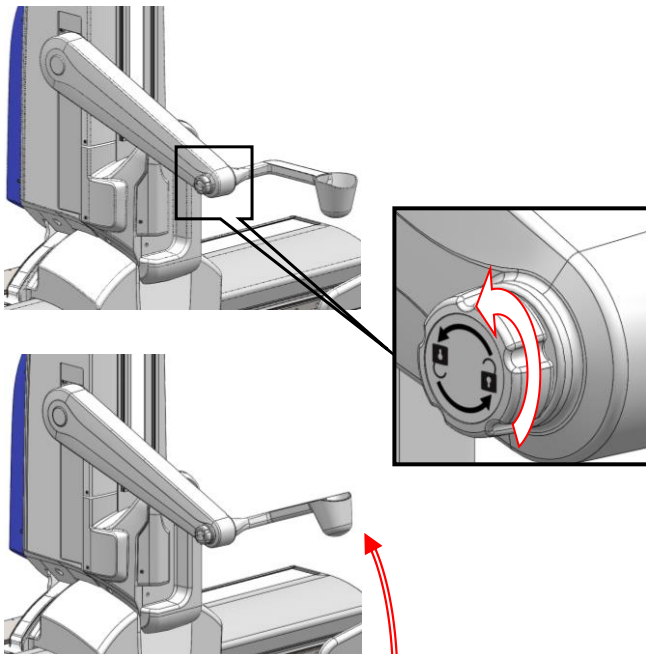
2.11. MOTORISED COMPRESSION SYSTEM USE (OPTION)

The motorised compression device is motor-driven removable.

- Button  makes the compression device move down and press against the patient.
Check in fluoroscopy if really necessary
- After the exposure, lift up the compression device up to parking position using button  until the message "compressor upper limit" is displayed.

Note: From a certain compression value applied to the patient (factory setting), tabletop, carriage and incidence movements are inhibited.

- If the table is switched off from mains supply while the patient is under compression, you can disengage the compression device manually



Turn the handle anticlockwise **several times** (unscrewed) as shown below.

To re-engage compression paddle, first do check that it is returned to its original position (see first image), especially when the table is in the vertical position. Once verified, turn the handle clockwise (screwing) until it is completely tight.

Note: the compression device movement is impossible if column is out of $-10^{\circ}/+10^{\circ}$ incidences range.

Note: when patient is under compression, movements for incidence / carriage / tabletop longitudinal & lateral are prohibited; Movements for elevating / tilting / SID / detector rotation are authorised.

3. TABLE MAINTENANCE

3.1. CLEANING AND DISINFECTING

 **Warning: Turn off the equipment and disconnect the electrical supply before starting any cleaning or disinfection operations.**

GENERAL CLEANING INSTRUCTIONS:

For any equipment, always clean painted or enameled parts by means of a soft and clean cotton cloth. Dampen the cloth with tepid water and/or mild detergent. Then, you should wipe the equipment with a dry cotton cloth.

Do not use any abrasive powder, nor organic solvents, neither liquid detergent containing solvents (petrol, alcohol, stain removers) which could damage the materials.

Do not immerse equipment parts that enclose electrical components. You should rather use a soft dampened cloth, taking care not to allow liquids to enter the equipment.

GENERAL DISINFECTION INSTRUCTIONS:

In order to prevent any patient contamination, before each procedure, always clean parts of the equipment which are in contact with the patient with a bacterial, germicidal and antiviral solution.

If the room containing the equipment needs to be disinfected with an atomizer, it is recommended to follow these specific instructions:

- Switch all the equipment parts OFF.
- Allow them to cool down.
- Cover them with a plastic sheet

When the disinfectant mist has subsided, the plastic sheet may be removed and the equipment be disinfected by wiping.

Methods of disinfection used must conform to legal regulations and guidelines regarding disinfection and explosion protection.

CAUTION:

Use the least possible amount of cleaning fluids. The fluids must not flow or run in or on the elements that compose the system.

If more than soap and water is required, it is recommended any one of the following:

- 10% chlorine bleach solution and water with one part commercially available chlorine bleach solution and nine parts water
- Commercially available isopropyl alcohol solution (70% isopropyl alcohol by volume, not diluted)
- 3% maximum concentration of hydrogen peroxide solution.

After you apply any of the above solutions, use a pad and apply a soapy solution to clean any parts that touch the patient.

Caution :

To prevent damage to the electronic components, do not use disinfectant sprays on the system.

TO PREVENT POSSIBLE INJURY OR EQUIPMENT DAMAGE

Do not use a corrosive solvent, abrasive detergent, or polish.

Select a cleaning/disinfecting agent that does not damage the elements of the apparatus such as plastics, aluminum, and carbon fiber parts.

Do not use strong detergents, abrasive cleaners, high alcohol concentration, or methanol at any concentration.

Do not expose equipment parts to steam or high temperature sterilization.

Do not let liquids enter the internal parts of the equipment.

Do not apply cleaning sprays

or liquids to the equipment. Always use a clean cloth and apply the spray or liquid to the cloth. If liquid enters the system, disconnect the electrical supply and examine the system before returning it to use.

CAUTION

Wrong cleaning methods can damage the equipment, decrease imaging performance, or increase the risk of electric shock.

Always follow instructions from the manufacturer of the product you use for cleaning.

The instructions include the directions and precautions for the application and contact time, storage, wash requirements, protective clothing, shelf life, and disposal. Follow the instructions and use the product in the most safe and effective method.

SPECIFIC INSTRUCTIONS:

REMOTE CONTROL TABLE

In order to clean chromium-plated parts, wipe them with a soft dry cotton cloth.

Do not use any corrosive or abrasive polishes.

The equipment, accessories and cables can be disinfected by wiping them with rag dampened with a disinfecting solution

In any case, the remote controlled system is never to be exposed to any disinfecting gas.

Disinfection by spraying should be banned since the disinfectant may enter the equipment.

If disinfectants which form explosive mixtures of gases are used, these gases must have evaporated before switching on the equipment again.

RX GENERATOR

CONSOLES, SCREENS AND PC CABINET

FLAT PANEL DETECTOR

- *Refer to the Preface of this User Manual chapter "Cleaning and disinfection", and to the corresponding user manuals of each item for more details*

3.2. PREVENTIVE MAINTENANCE

Any maintenance operation must be carried out by the manufacturer or thirds parties expressly authorized by the manufacturer.

Before starting the maintenance operations, read carefully the procedure to follow.

All operations to do on the unit must be carried out when it does not work.

The person who is responsible of the maintenance must completely disconnect the unit, before the adjustment or replacement of an equipment part.

Keep hands, feet, dresses, jewels and hair at safety distance from any moving parts in order to avoid any danger of getting caught.

Do not change any part of the unit; changes which are not authorized can compromise the equipment functioning and safety.

After the maintenance, it is necessary to check the correct mounting and functioning of all electrical and mechanical devices before making the unit operative again. The operator's absolute attention is an essential safety element.

It is recommended that the user initiates a periodic maintenance schedule as shown in the table below.

These checks will take place in the morning before the first patient.

In case of problem, call immediately the authorized service engineer in charge with the equipment.

FUNCTION	CHECKS TO DO	FREQUENCY
All controls	Check for correct functioning	Weekly
All indicators & leds		
Cabling	Inspect for kinks, cracks and signs of crushing	Weekly
Emergency stops (3)	Check for correct functioning of the three emergency stops	Monthly
Cone mounted on the collimator	Check it is well fixed, without any clearance within the fixing rails	Monthly
Automatic stops	Check the automatic stops of each element (tube, tabletop) regarding the floor, the walls and the roof	Monthly
Checking of x-ray beam limitations	An automatic system limits the opening of x-ray beam regarding the detector format and the focus /film distance. To check the correct functioning of this system, proceed as follow: Press the button « Preparation (1st trigger) control », the collimator shutters are opened to the detector format Keep the button held down Check that the light field corresponds with the detector format (± 0.5 cm) by switching on the light beam and that must correspond whatever the focus /film distance is, from 110 cm to 180 cm This automatic system limits the opening of x-ray beam to the maximum of detector format. Therefore, it is recommanded to use the smaller possible x-ray field, closing the collimator shutters with the proper control joysticks.	Monthly

Preventive maintenance visits (refer to chapter « preventive maintenance » of service manual) must be done at least once a year by the manufacturer or company expressly authorized by the manufacturer. In the contrary case, the manufacturer releases all responsibilities in the event of incidents and/or dysfonctionning of the material.

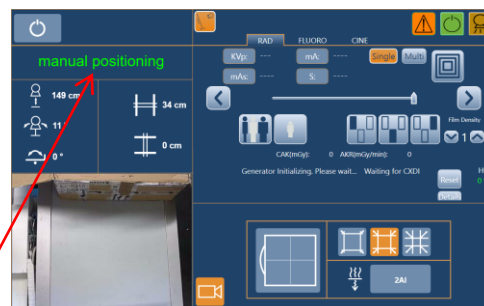
4. ERROR MESSAGES

During the routine use of the equipment, the display shows various messages about the status of the table. This includes movement restrictions due to either room configuration or clearance space parameters or present table status. Please, refer to the tables below.

The button  lights up in red when a table default is detected, at the same time as displaying an error message. Refer to the tables below

4.1. INFORMATION MESSAGES

These messages appear on the top of touch screen of the main table control console



Messages displayed on top of screen	description	What to do
Manual positioning	This indicates that you are working in manual positioning mode instead of automatic one	These messages are informative and do not require pressing any key. These indications stay displayed until any change (other control ...). If the message persists when you order another movement, turn the system OFF and ON. If the equipment remains inoperative, turn it OFF and call Field Service
Positioning in progress	This indicates that the system is moving to reach the selected position	
Table top min	This indicates that the tabletop reaches its end longitudinal position on foot side	
Table top max	This indicates that the tabletop reaches its end longitudinal position on head side	
Tilting left limit	This indicates that the table reaches its end tilting position in trendelenburg	
Tilting right limit	This indicates that the table reaches its end tilting position at +90°	
SID lower limit	This indicates that the tube reaches its lower position for minimum SID	
SID upper limit	This indicates that the tube reaches its higher position for maximum SID	
Cross collimator min limit	This indicates that the lateral shutters of collimator are closed completely	
Cross collimator max limit	This indicates that the lateral shutters of collimator are opened completely	
Long collimator min. Limit	This indicates that the longitudinal shutters of collimator are closed completely	
Long collimator max limit y	This indicates that the longitudinal shutters of collimator are opened completely	
Carriage min limit	This indicates that the carriage reaches its end position on foot side	
Carriage max limit	This indicates that the carriage reaches its end position on head side	
Column angulation min limit	This indicates that the column reaches its end angulation position at -40°	
Column angulation max limit	This indicates that the column reaches its end angulation position at +40°	

INFORMATION MESSAGES (TO BE CONTINUED)

Messages displayed on top of screen	description	What to do
Table top rear limit	This indicates that the tabletop reaches its end lateral position on rear side (column)	These messages are informative and do not require pressing any key. These indications stay displayed until any change (other control ...). If the message persists when you order another movement, turn the system OFF and ON. If the equipment remains inoperative, turn it OFF and call Field Service
Table top front limit	This indicates that the tabletop reaches its end lateral position on front side	
Elevation lower limit	This indicates that the tabletop reaches its lower position	
Elevation upper limit	This indicates that the tabletop reaches its higher position	
Collimator Not Ready	This indicates that the collimator is opening or closing to the desired format	
Compressor Upper limit	This indicates that the compression device reaches its higher position	
Compressor Lower limit	This indicates that the compression device reaches its lower position	
Tomography In Progress	This indicates that the tomography device is moving	
Patient Compression Detected	This indicates that the system detects compression	
Max. Compression Level Reached	This indicates that the maximum compression level is reached	
Lift the compressor	This indicates that the system detects that the compressor is not in the parking position	In order to allow the desired movement, lift UP the compression device
Patient Compression Detected, Tube Angulation Disabled	This indicates that the system detects compression and then forbids any movement of angulation	
Patient Compression Detected, Carriage Disabled	This indicates that the system detects compression and then forbids any movement of carriage	
Patient Compression Detected, Lat. Table Top Disabled	This indicates that the system detects compression and then forbids any lateral movement of tabletop	
Patient Compression Detected, Long. Table Top Disabled	This indicates that the system detects compression and then forbids any longitudinal movement of tabletop	
Tube rotated, fluoro disabled	This indicates that the X-ray tube is rotated and then not centred on the detector	Place X-ray tube faced to detector, at 0 ° with the indexing system.
Tube rotated, exam is not possible	This indicates that the X-ray tube is rotated and then not centred on the detector for any exam	
No auto positioning selected	This indicates that you did not select any anatomical programme so then no autopositioning before pressing the MOVE button	Select an anatomical programme before wanting to position the system by MOVE button
Elevation lower limit	This indicates that the system cannot go lower the tabletop	To reach elevation lower limit, untilt the table before lowering
Column angulation is not enabled for SID > 150 cm	This indicates that you are not allowed to make a column incidence if the SID is over 150 cm	Decrease the SID under 150 cm to be able to make an incidence
Position reached	This indicates that the system reaches the selected position	Now, you can follow your exam procedure
End of Stitching	This indicates that the system has just finished the last exposure of the stitching programme	Now, you can end your exam procedure
End of Tomography	This indicates that the system has just finished the last exposure of the tomography programme	Now, you can end your exam procedure
Impossible rotation, Press Move (for version with removable detector)	This indicates that the system cannot rotate the detector due to its support position and selected programme	For version with removable detector. Press MOVE to cancel carriage

4.2. OPERATION MESSAGES

These messages appear at the top of touch screen of the main table control console

They indicate unusual operation and ask for corrections to continue the procedure

After corrections, if the message persists, turn the system OFF and ON. If the message remains displayed and equipment inoperative, turn it OFF and call Field Service



Messages displayed on top of screen	description	What to do
Movement is disabled	The movement you ask for is disabled	Make another movement
Position can not be reached	The parameters you set for the desired position are wrong , then position cannot be reached due to physical reasons	Check that parameters set a reachable position
The tube is touching the left wall	This indicates that the tube is reaching a end position on the left regarding layout, this limit stops the movement immediately	Move the system differently in order to avoid this limit, without column incidence or high SID
The tube is touching the right wall	This indicates that the tube is reaching a end position on the right regarding layout, this limit stops the movement immediately	
The tube is touching the ceiling	This indicates that the tube is reaching a end position at the top regarding layout, this limit stops the movement immediately	
The tube is touching the floor	This indicates that the tube is reaching a end position at the bottom regarding layout, this limit stops the movement immediately	
The table top is touching the left wall	This indicates that the tabletop is reaching a end position on the left regarding layout, this limit stops the movement immediately	Move the system differently in order to avoid this limit, by entering or centring the tabletop
The table top is touching the right wall	This indicates that the tabletop is reaching a end position on the right regarding layout, this limit stops the movement immediately	
The table top is touching the ceiling	This indicates that the tabletop is reaching a end position at the top regarding layout, this limit stops the movement immediately	
The table top is touching the floor	This indicates that the tabletop is reaching a end position at the bottom regarding layout, this limit stops the movement immediately	
The table is touching the floor	This indicates that the table is reaching a end position at the bottom regarding layout, this limit stops the movement immediately	Move the system differently in order to avoid this limit, by horizontalizing the table
Indicate fulcrum	This indicates that the fulcrum value has not been entered to continue the exam	Enter the fulcrum value
Footswitch in room is forbidden	This indicates that the control of fluoroscopy is forbidden from the footswitch in the X-ray room when tomography, tomosynthesis or stitching exam is in progress	To make fluoroscopy, exit from mentioned exam
Fluoro is forbidden	This indicates that the fluoroscopy is forbidden because tomography or direct exam is in progress	
Generator is not ready, wait and try again	This indicates that the elements linked to the generator are not ready to make the exam	Wait a few minutes and try again the control
Stitching with 2 exposures	This indicates throughout the exam that the stitching is realised with 2 exposures	Continue the exam
Stitching with 3 exposures	This indicates throughout the exam that the stitching is realised with 3 exposures	
Stitching with 4 exposures	This indicates throughout the exam that the stitching is realised with 4 exposures	
Non active console, turn the key to activate	This indicates that the secondary console in the X-ray room is not activated	Turn the key to activate the secondary console
Position is not reached or incomplete selection	This indicates that the Move button has been released too early and the system has not reached its final position OR indicates that the Move command can not be used until all system parameters have been completed	Press again the Move button to reach the final position OR complete the system parameters necessary for its movement

OPERATION MESSAGES (TO BE CONTINUED)

Messages displayed on top of screen	description	What to do
For version with removable detector	Additional messages	
Sensor is missing	Additionally to the corresponding icon (refer to chapter 2.2), this message indicates that the detector is not in place and not connected	Insert and connect the detector
Sensor is disconnected	Additionally to the corresponding icon (refer to chapter 2.2), this message indicates that the detector is not connected	Connect the detector
Unknown Sensor Position	Additionally to the corresponding icon (refer to chapter 2.2), this message indicates that the detector is inserted but not positioned correctly	Press on corresponding icon, and if nothing happens, remove the detector and insert it again. If same icon appears, press it again.
No Sensor, change APR	Additionally to the corresponding icon (refer to chapter 2.2), this message indicates that the detector is not in place and not connected regarding the	Select another anatomical programme or install correctly the detector
Sensor disconnected, change APR	Additionally to the corresponding icon (refer to chapter 2.2), this message indicates that the detector is not connected regarding the selected programme	
Unknown Sensor Position, change APR	Additionally to the corresponding icon (refer to chapter 2.2), this message indicates that the detector is inserted but not positioned correctly regarding the	
Center Table Top Before Rotating The Sensor	This indicates that the detector rotation will be possible only with centred tabletop	Centre the tabletop by pressing "sensor input"
Sensor badly inserted	This indicates that the detector is not inserted correctly into its support	Remove it and verify the way of insertion

4.3. FAILURE MESSAGES

These messages appear in the middle of touch screen of the main table control console

They indicate the potential cause of a system failure. In general, to remove the indication on the console, press OK.

After corrections, if the message persists, turn the system OFF and ON. Try again movements, if the message remains displayed or appears often later, turn it OFF and call Field Service



Messages displayed on bottom of screen	Description	What to do
Carriage time out	This indicates a system failure with the carriage but allows other movements	Press OK, move the system slightly in the other way and try again the movement. If the message appears again, turn the system OFF and ON. If the message appears whereas switching ON, then switch OFF and call Field Service. If not, try again the movement, and if the message appears, turn the system OFF and call Field Service
Column time out	This indicates a system failure with the column incidences but allows other movements	
Tilting time out	This indicates a system failure with the table tilting but allows other movements	
Table height time out	This indicates a system failure with the table variable height but allows other movements	
Long table top time out	This indicates a system failure with the tabletop longitudinal movement but allows other movements	
SID time out	This indicates a system failure with the tube movement (SID) but allows other movements	
Lat table top time out	This indicates a system failure with the tabletop lateral movement but allows other movements	
Time out compressor up/down	This indicates a system failure with the compression device movement but allows other movements	
Collimator fault	This indicates a system failure with the collimator shutters movements but allows other movements	
Collimator Direct Mode (Key is turned)	This indicates that the collimator key is turned and selected workstation is different from direct mode during exposure attempt	
Sensor rot. time out (for version with removable detector)	This indicates a system failure with the detector rotation but allows other movements	
Dap meter missing	This indicates a system failure with the Dose Area Product meter system	Press OK. If the message appears again, turn the system OFF and ON. and if the message appears again, call Field Service.
The grid does not fit the SID requirement	This indicates an error of use with the grid.	Insert the other grid or continue the procedure
Grid insertion fault	This indicates an error of use with the grid, it is inserted upside down	Insert the grid in the right way
Confirm the tilting movement	This indicates that the table reaches a predefined tilting value (set in factory) for patient safety.	Press OK to allow the movement. Then, activate the joystick to continue the tilting.
Autopositionning is forbidden, go to the usual tilting range	This indicates that the table cannot be autopositionned because its position is out of tilting range (surpassing predefined tilting value set in factory for patient safety)	Position the table in the usual range of tilting. Then, you can press MOVE for autopositioning

FAILURE MESSAGES (TO BE CONTINUED)

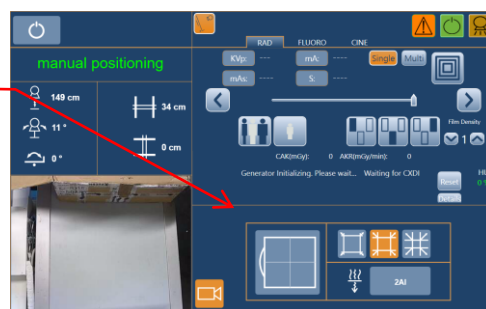
Carriage end of travel +	This indicates a system failure with the carriage end position on foot side and forbids all the movements	Press OK. - If the message does not appear again, move the system slightly in the other way and try again the movement. Then, if the message appears, turn the system OFF and call Field Service. - If the message appears again, turn the system OFF and call Field Service
Carriage end of travel -	This indicates a system failure with the carriage end position on head side and forbids all the movements	
Column end of travel +	This indicates a system failure with the column incidence end position on foot side (+40°)and forbids all the movements	
Column end of travel -	This indicates a system failure with the column incidence end position on head side (-40°)and forbids all the movements	
Tilting end of travel +	This indicates a system failure with the table tilting end position on foot side (+90°)and forbids all the movements	
Tilting end of travel -	This indicates a system failure with the table tilting end position on head side (-25°) and forbids all the movements	
Table height end of travel +	This indicates a system failure with the table variable height in higher position and forbids all the movements	
Table height end of travel -	This indicates a system failure with the table variable height in lower position and forbids all the movements	
Long tabletop end of travel +	This indicates a system failure with the tabletop longitudinal end position on foot side and forbids all the movements	
Long tabletop end of travel -	This indicates a system failure with the tabletop longitudinal end position on head side and forbids all the movements	
SID end of travel +	This indicates a system failure with the tube movement (SID) in higher position and forbids all the movements	
SID end of travel -	This indicates a system failure with the tube movement (SID) in lower position and forbids all the movements	
Lateral tabletop end of travel +	This indicates a system failure with the tabletop lateral end position on front side and forbids all the movements	
Lateral tabletop end of travel -	This indicates a system failure with the tabletop lateral end position on rear side and forbids all the movements	
Back to autopositioning	This indicates a system failure with the autopositioning and forbids all the movements	
Manual collimator	This indicates a system failure with the automatic collimator and forbids all the movements	
Stitching not Possible, Move Carriage	Regarding the number of exposures selected for stitching, the carriage position is too close to end of table.	Move the carriage up and try again the acquisition
Tomography not Possible, Move Carriage	Regarding incidence and number of exposures selected for tomography, the carriage position is too close to end of table.	
Tomosynthesis not Possible, Move Carriage	Regarding incidence and number of exposures selected for tomosynthesis, the carriage position is too close to end of table.	
Kerma rate Error	This indicates a system failure with the Kerma Rate measure	Press OK. If the message appears again, turn the system OFF and ON. and if the message appears again, call Field Service.

4.4. SERVICE MESSAGES

These messages appear in the middle of touch screen of the main table control console

They indicate the potential cause of a system failure. In general, the system forbids all the movements and messages are dedicated to Field Service.

Then, if any of the messages below appears, turn the system OFF and ON; if the message remains, call Field Service



Messages displayed on bottom of screen	
No communication with the table, restart the table	Elevation tracking fault
Potentiometer 10v supply default	Longitudinal tabletop tracking fault
Control board default	SID tracking fault
Err. File param.cfg	Lateral tabletop tracking fault
Err. File prg.cfg	Tilting potentiometer out of range
Error control carriage	Table height potentiometer out of range
Error control column	Longitudinal tabletop potentiometer out of range
Error control tilting	SID Potentiometer out of range
Error control table height	Lateral tabletop potentiometer out of range
Error control longitudinal tabletop	Carriage slipping fault
Error control SID	Column slipping fault
Error control lateral tabletop	Tilting slipping fault
Error control compression	Elevation slipping fault
Error control compression h/l	Longitudinal tabletop slipping fault
Carriage inverter default	SID slipping fault
Column inverter default	Lateral tabletop slipping fault
Tilting inverter default	Compression slipping fault
Table height inverter default	H/l compression slipping fault
Longitudinal tabletop inverter default	Carriage encoder out of range software
Carriage encoder default	Incidence encoder out of range software
Column encoder default	Tilting potentiometer out of range software
Tilting potentiometer fault	Table height potentiometer out of range software
Table height potentiometer fault	Long table top potentiometer out of range software
Longitudinal tabletop potentiometer fault	SID potentiometer out of range software
SID potentiometer fault	Lateral tabletop potentiometer out of range software
Lateral tabletop potentiometer fault	Compression potentiometer out of range software
Carriage tracking fault	Compressor strain gauge fault
Column tracking fault	
Tilting tracking fault	
For version with removable detector	Additional messages
Error control sensor rotation	Sensor rotation potentiometer out of range
Sensor rotation potentiometer fault	Sensor rotation slipping fault
Sensor rotation tracking fault	Sensor rotation potentiometer out of range software

In all cases, follow the instructions given in the display.

For any other messages, make a note of them and call the After-Sales Service of your reseller or the manufacturer.