

VetiPad M1 Plus/VetiPad M1

Veterinary Digital Detector and Imaging System

Operation Manual

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The illustrators and interfaces in this manual may be different from the actual product. The functions described in this manual may vary depending upon the specific product you purchased.

Contents of this manual are subject to change without prior notice.

Intended Use

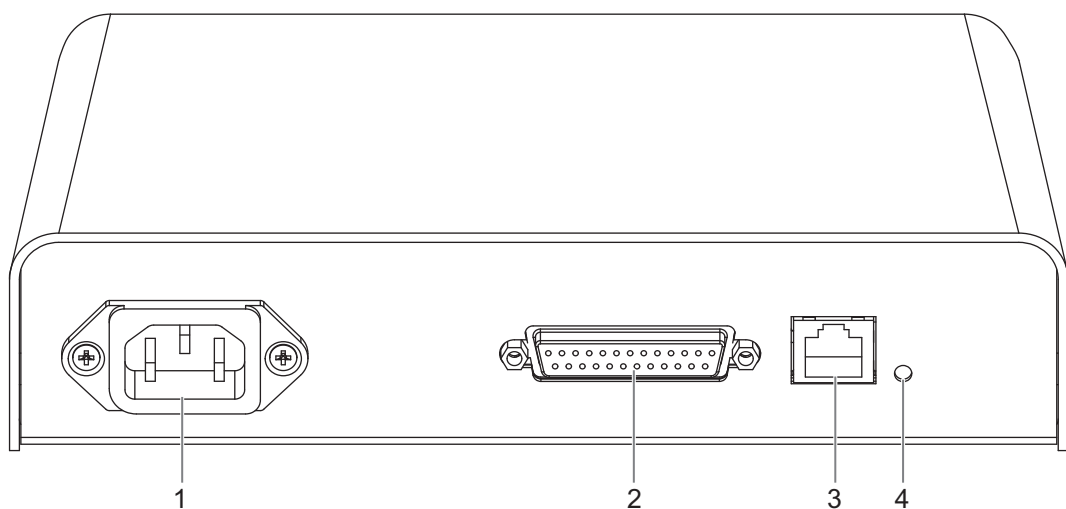
It is clinically indicated for digital radiography of the chest, abdomen, bone and soft tissue for animals.

System Configuration

- Power Supply Box
- Router
- Software
- Flat panel detector
- Accessories: refer to the packing list

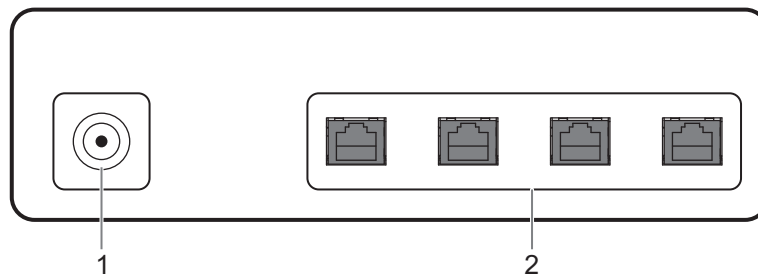
System Overview

Power Supply Box



No.	Name	Description
1.	Power inlet	AC power inlet
2.	DB25 port	Supplies power for the flat panel detector
3.	Network port	Reserved
4.	Power indicator	Lights at AC supply

Router Panel

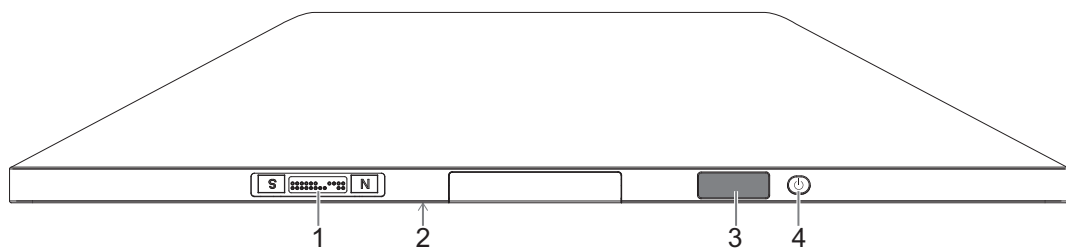


No.	Name	Description
1.	Power inlet	Used for connecting with the power cord of router
2.	LAN ports	Used for connecting image acquisition workstation

NOTE:

The router should be installed by authorized engineers. Do not plug or unplug the network cable.

Flat Panel Detector



No.	Name	Description
1.	Connection socket	Connects to an external power supply and a communication device through cables.

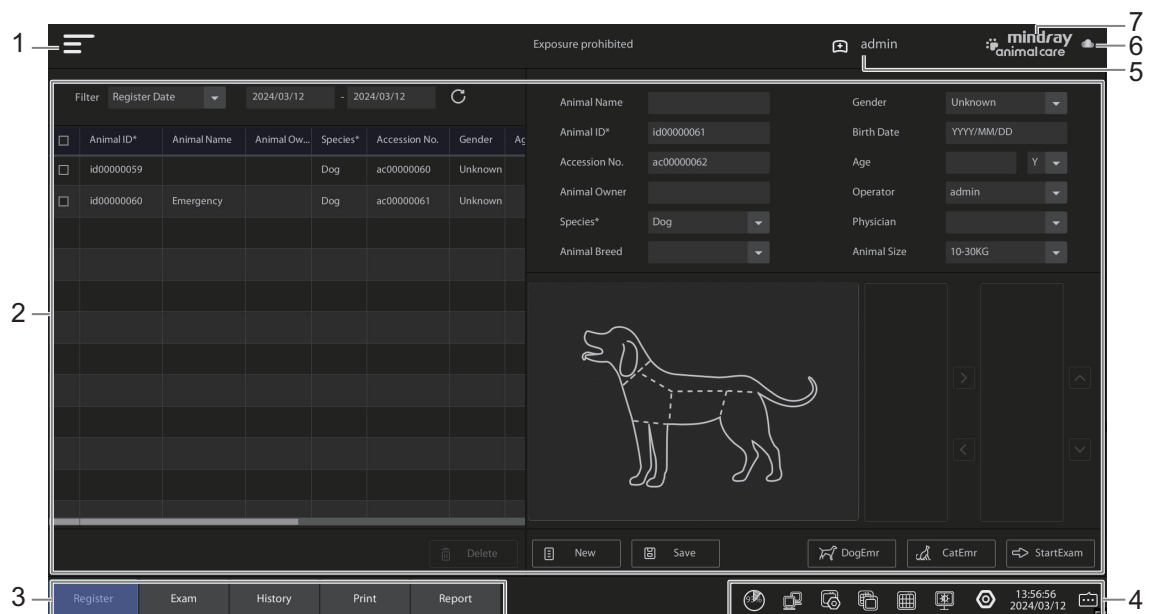
No.	Name	Description
2.	Battery pack	Powered the wireless FPD.
3.	OLED screen	Displays the real-time status of the FPD.
4.	Power ON/OFF button	Press and hold this button for 3 seconds in the power-off state to power on the device. Press and hold this button for 3 seconds in the power-on state to power off the device.

Operator Console Control Software Overview

By default, the system enters the registration management screen after software login.

Operate with the keyboard and mouse:

- Select to select tabs, parameters, and set the parameter values.
- Use the keyboard to input text information or parameter values.



No.	Name	Description
1.	Setup button	Enter/exit setup screen.
2.	Animal registration management area	View the Worklist registered animals and local registered animals.
3.	Exam process icons area	Select to enter the corresponding function screen.
4.	System status icons area	Displays the system status icons.
5.	Login account	Displays the current login account.
6.	u-Link	Enter the u-Link setup screen.
7.	System information button	View the system information.

Adjust the Exposure Parameters

NOTE:

- Adjust exposure parameters correctly based on the animal's body type.
- Do not perform exposure until proper exposure parameters are selected for the animal.

The system sets default parameters for each radiographed body part. You can set the high-voltage generator according to the recommended exposure parameters.



No.	Name	Description
1.	Exposure icon	Indicates the exposure status.
2.	Exposure parameters area	Adjust the following exposure parameters: kV (X-ray tube voltage), mA (X-ray tube current), ms (exposure time), mAs (exposure value). Select [+] / [-] to adjust the parameter value.
3.	Body thickness parameter	Indicates the maximum distance between the front and rear surface of the body. Select [+] / [-] or drag the slider to adjust the thickness. Select  to expand the body thickness panel.
4.	Parameter save button	Save the modified exposure parameters as recommended for the current body thickness.

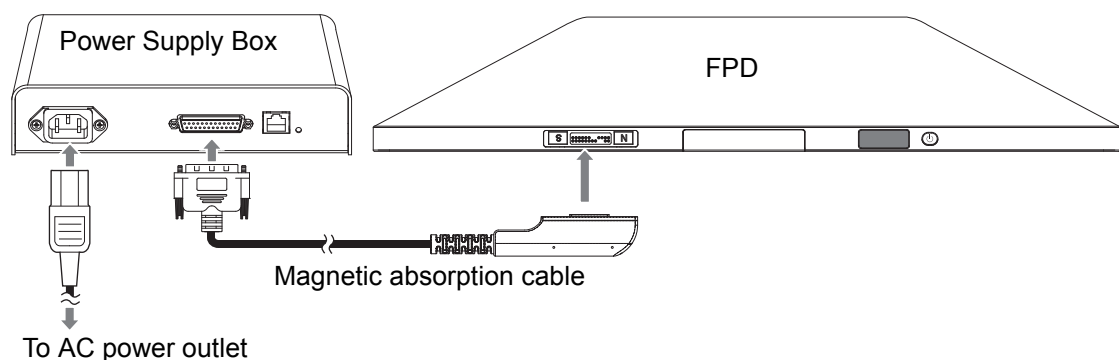
System Preparation

Charge the FPD Battery

NOTE:

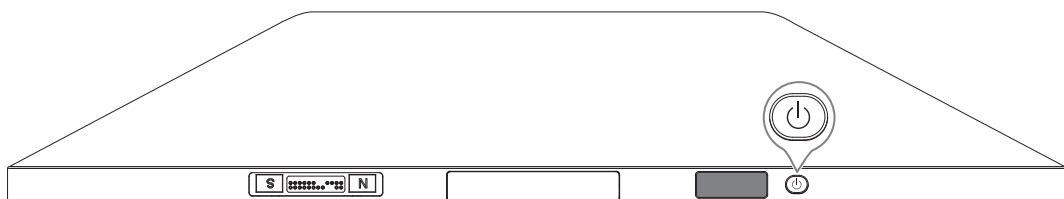
- Charge the battery of wireless FPD every day to ensure that it is fully charged.
 - The internal power supply of wireless FPD is a consumable part. The service life of the internal power supply gradually reduces with repeated charging/discharging and time. In this case, you are advised to use a new battery.
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Perform the following procedure:



1. Connect the FPD to the Power Supply Box using the magnetic absorption cable.
2. Plug the power cable in the socket of the Power Supply Box.
3. Plug the other end power plug into an appropriate outlet. The grounding terminal should be connected with a power grounding cable to ensure that protective grounding works normally.

Power the System On/Off



Press and hold the  button for 3 seconds in the power-off state to power on the device. Press and hold this button for 3 seconds in the power-on state to power off the device.

Log on the System

The login screen is displayed after system startup.

1. Enter the correct user name and password on the login screen.

2. Click  (Login) to enter the registration management screen.

Starting an Exam

Registration

After startup, the system automatically enters the registration management screen. When the system is in another interface, click [Register] to return to the registration management screen.

Perform the following procedure:

1. Enter the animal information in the animal information registration area.
2. Select the body parts of the current animal to be radiographed from the examined body part list.
3. Click [Save] to register a new animal.

The completed registration animal information is displayed in the animal information list.

Exposure

Perform the following procedure:

1. Register the animal information, and then click [Start Exam] to enter the exam screen.
2. Selecting a radiographed body part.

The radiographed body parts selected during registration are displayed in the thumbnail area.

Click the radiographed body part to be exposed in the thumbnail area, and the corresponding radiographed body part parameters are loaded to the exposure parameter area.

NOTE:

Click [ViewEdit] to reset the exposure body parts. Body parts that have been filmed cannot be deleted.

3. When  (exposure icon) is displayed in blue, it indicates that exposure is allowed.

In this case, the screen also prompts “Exposure Allowed”.

4. (Optional) Use the parameter adjustment controls to adjust the exposure parameters if necessary.
5. Perform the exposure.

After image acquisition ends during the exposure process, the acquired image thumbnails are displayed in the thumbnail area and the exam will be displayed on the History screen.

Image Browsing and Processing

Common processing tools are provided for performing image display operations.

Icon	Name	Description
	Image roaming	Pan the image.
	Cropping	Crops images.
	Magnifier	Magnifies a portion of an image.
	Local window	Enables automatic window width and position in local areas.
	90° left rotation	Rotates left by 90°.
	90° right rotation	Rotates right by 90°.
	Up and down mirroring	Reverses image display up and down.
	Left and right mirroring	Reverses image display left and right.
	Rotation	Rotate the image at any angle.
	Positive/Negative image	Flips an image between positive and negative display.
	Animal Information Display	Displays animal details on an image, including the basic animal information and exposure parameters.
	Multi-cell Display Setup	Set the image layout.
/	Right mouse button	Adjusts the window width and position, and position identifier.
/	Save	Save the adjustment result to the image.
/	Re-Proc	Load the original image and reprocess the image with the default post-processing parameters of the current body position.

Annotation

Comments can be added to an image to bring attention, annotate or communicate information observed during the examination.

The following table lists the comment buttons and functions.

Icon	Name	Description
	Left Position Identification	/
	Right Position Identification	/
	More Position Identification	Click to select “DV”, “VD” and input the custom position identification.
	Text Annotation	Click to enter text annotation status.
	Clear	Click to clear the selected text annotation.
	Clear All	Click to clear all text annotations.
	Arrow	Click to enter arrow annotation status.

Position Identification

The position identifiers in the right part of the screen include L (left), R (right), DV (Dorsoventral), VD (Ventrodorsal), and custom tags.

Perform the following procedure:

- To add a position identifier: click a position identifier button to add the position identifier to the image.
Click  to add “DV”, “VD” or custom tags.
- To move the position identifier: select the position identifier on an image and drag and drop the identifier to change its position on the image. When an image is saved, the added position identifier is rasterized to the image.
- To cancel the position identifier: a position identifier button in selected state is in highlighted color. When the button is clicked again, the position identifier is not added.
Click [Re-Proc] to remove all position identifiers on the image.
- Click [Save] to save the position identifier to the image.

Adding Text Annotations

Perform the following procedure:

- Click  to enter the text annotation status.
Character cursor appears on the image.
- Move the cursor to the position to be added, and click to confirm the target position.
- Use the keyboard to enter a character comment.
Press <Enter> to move the cursor to the new line.

4. Click  again to exit the text annotation status.

Adding Arrow Annotations

Perform the following procedure:

1. Click  to enter the arrow annotation status.
2. Click and drag on the image to move the arrow to the target position.

Shape and angle adjustment marks  appear on both ends of the arrow and position adjustment mark  appear in the middle.

- To adjust the shape and angle: click and drag  to adjust to the desired orientation.
 - To adjust the position: click and drag  to move the arrow to the target position.
3. Click  again to exit the arrow annotation status.

Measurements

Perform the following procedure:

1. Select the measurement shortcut button; or select [...] button to enter the measurement menu and select an item.
2. Locate the target and perform the measurement.

During the measurement, press the left mouse button to confirm the current operation and proceed to the next operation.

- Click and drag  on the measurement caliper to adjust the position of the end point.
- Click and drag  on the measurement caliper to adjust its position.

Animal Data Management

The “History” screen provides the following functions:

- Query and display animal information
- Edit animal information
- Delete animal information
- Send and print animal images
- Back up and restore animal data

Searching an Animal

Perform the following procedure:

1. Select the data source.

Select [Data Source] to select the data source of animal data, the system animal database is default.

2. Set search conditions in the “Filter” drop-down list.
3. Enter the key word. The matching animal information is displayed in the animal list.

When you select an animal exam in the animal list, the images of this animal will be displayed at the bottom of the screen.

Animal Data View and Management

NOTE:

Only administrators or authorized operators are allowed to delete data.

Select the desired animal information in the list.

Item	Description
Backup	Back up the selected animal data to the system-supported media. You can select whether to remove the exam record from the system.
Restore	Import the animal data from an external media.
Lock	Lock the selected animal exam. The locked animal examination cannot be deleted.
Edit	View the details of the animal and modify the animal information.
Delete	To delete an exam: select the desired exam and click [Delete] below the animal information list area.
Delete Image	To delete an image: 1. Select an animal exam. The image(s) acquired by the exam is displayed in the thumbnail area. 2. Click [DeleteImage] on the right of the thumbnail area, and select the image(s) to be deleted. 3. Click [OK].

Return Visit Registration

On the history screen, double-click an animal information in the animal list to enter the exam screen.

Click [Additional exam] or [New exam] to perform the return visit registration.

- Additional exam: Continue to use the previous animal registration information.
- New exam: Register a new animal based on the existing animal information.

Help Information

Click  in the upper-left corner of the screen to enter the system configuration screen, and then click [Help Manual] to obtain more operating instructions.

Contact Information

Shenzhen Mindray Animal Medical Technology Co., Ltd.

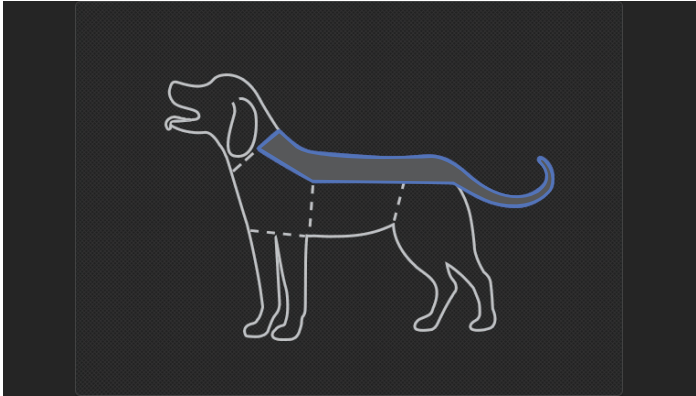
Address: Room 702, Tower 4, YESUN Intelligent Community III, No.1301-88 Guanguang Road,
Xinlan Community, Guanlan Street, Longhua District, Shenzhen 518110, P. R. China

Website: www.mindrayanimal.com

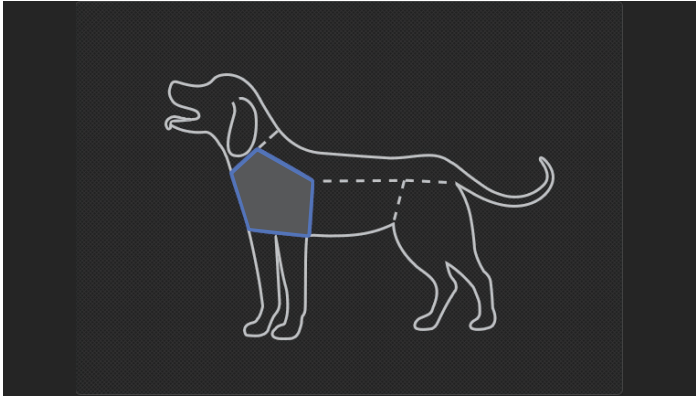
E-mail Address: service@mindrayanimal.com

Tel: +86 755 33997000

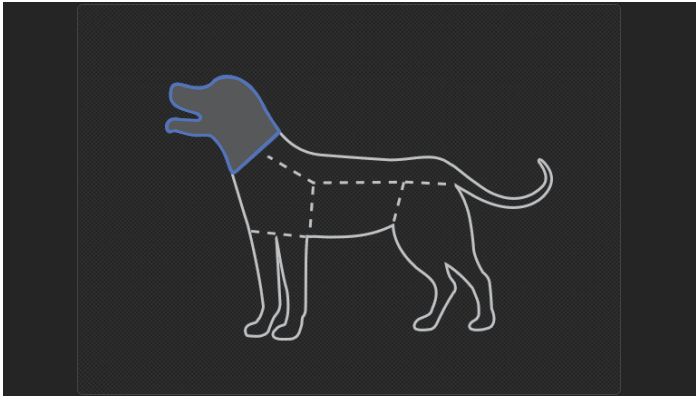
Radiography Positional Terminology



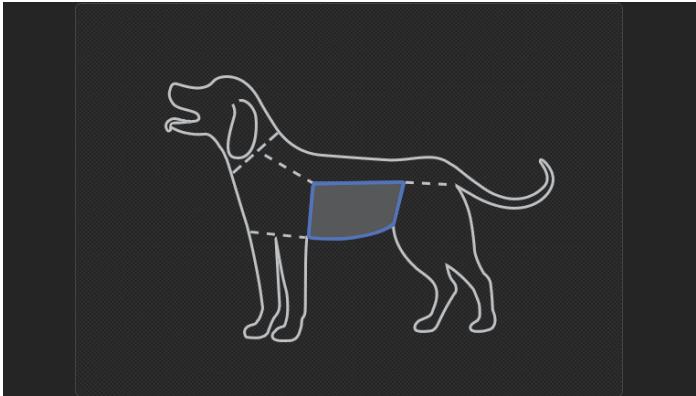
- C-LAT** Cervical vertebrae lateral view
- C-VD** Cervical vertebrae ventrodorsal view
- C-ex-LAT** Cervical vertebrae hyperextended lateral view
- C-fx-LAT** Cervical vertebrae flexed lateral view
- T-LAT** Thoracic vertebrae lateral view
- T-VD** Thoracic vertebrae ventrodorsal view
- L-LAT** Lumbar vertebrae lateral view
- L-VD** Lumbar vertebrae ventrodorsal view



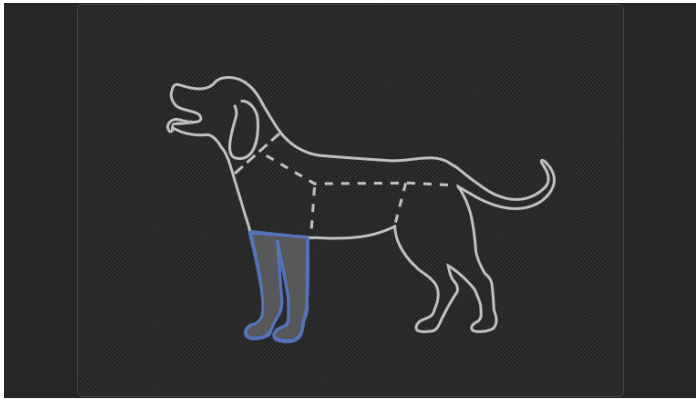
- Thorax R** Thorax right lateral view
- Thorax L** Thorax left lateral view
- Thorax VD** Thorax ventrodorsal view
- Thorax DV** Thorax dorsoventral view



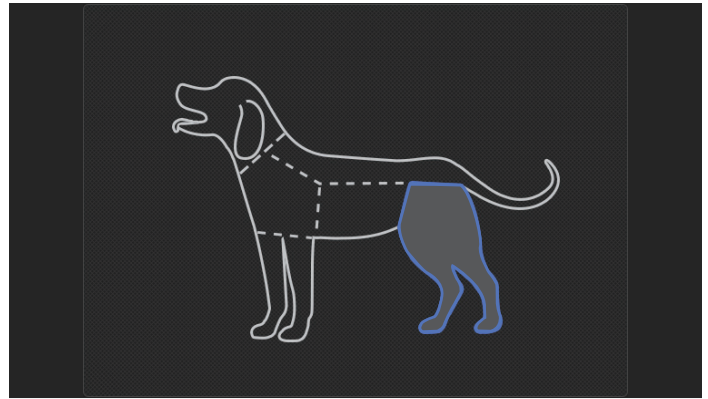
- Skull VD** Skull ventrodorsal view
- Skull DV** Skull dorsoventral view
- Skull LAT** Skull lateral view
- Skull RCd** Skull frontal 90° rostrocaudal closed mouth view
- Skull CdDO** Skull closed mouth, 30° dorsal-caudoventral oblique view
- Sk-RtD-LeVO** Skull right dosal - left ventral view
- Sk-RtV-LeDO** Skull right ventral - left dorsal view



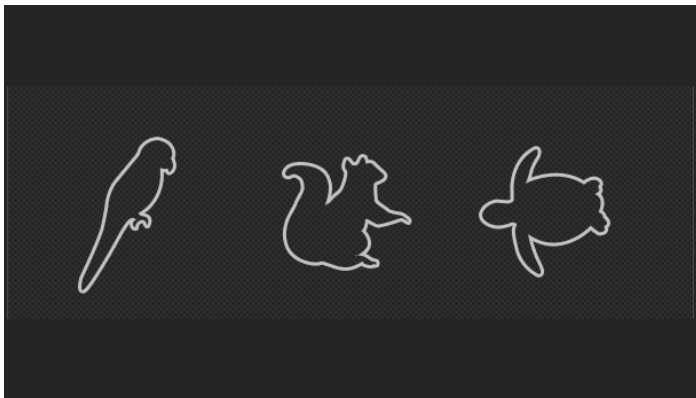
- Abdomen L** Abdomen left lateral view
- Abdomen R** Abdomen right lateral view
- Abdomen VD** Abdomen ventrodorsal view



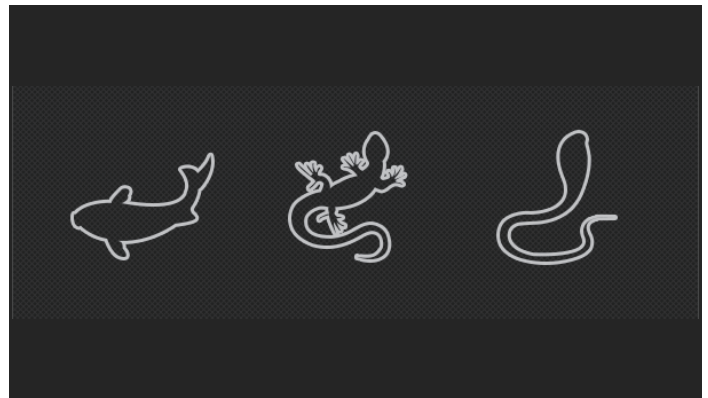
Scapular-LAT	Scapular mediolateral view
Scapular-CdCr	Scapular caudocranial view
Shoud-jt-LAT	Shoulder joint lateral view
Shoud-jt-CdCr	Shoulder joint caudocranial view
Humerus LAT	Humerus lateral view
Humerus CdCr	Humerus caudocranial view
Elbow-ex-LAT	Elbow extended lateral view
Elbow-fx-LAT	Elbow flexed lateral view
Elbow CrCd	Elbow craniocaudal view
Rad&ulna LAT	Radius/ulna lateral view
Rad&ulna CrCd	Radius/ulna craniocaudal view
Carpus LAT	Carpus mediolateral view
Carpus CrCd	Carpus dorsopalmar view
Meta&dig LAT	Metacarpus/digits mediolateral view
Oblique	Oblique view of foot



Hip-jt-frg	Hip joint ventrodorsal frog-leg view
Hip-jt-ex	Hip joint ventrodorsal hip-extended view
Hip-jt-LAT	Hip joint lateral view
Femur LAT	Femur lateral view
Femur CrCd	Femur craniocaudal view
Stifle LAT	Stifle lateral view
Stifle CdCr	Stifle caudocranial view
Tib&fib LAT	Tibia/fibula lateral view
Tib&fib CdCr	Tibia/fibula caudocranial view
Tarsus LAT	Tarsus lateral view
Tarsus CdCr	Tarsus plantarodorsal view
Meta&dig LAT	Metatarsus/digits lateral view
Meta&dig CdCr	Metatarsus/digits plantarodorsal view
Oblique	Oblique view of foot



Avian VD	Avian ventrodorsal view
Avian LAT	Avian lateral view
Saurians VD	Saurians ventrodorsal view
Saurians LAT	Saurians lateral view
Chelonians VD	Chelonians ventrodorsal view
Chelonians LAT	Chelonians lateral view
Chelonians CrCd	Chelonians craniocaudal view



Fishes VD	Fishes ventrodorsal view
Fishes LAT	Fishes lateral view
Rodents VD	Rodents ventrodorsal view
Rodents LAT	Rodents lateral view
Snakes VD	Snakes ventrodorsal view
Snakes LAT	Snakes lateral view

*The terminology for canine can also be used for feline.

