

# ProCyte Dx™ Haematology Analyser

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**IDEXX**

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# About the ProCyte Dx Haematology Analyser

## Introduction

The ProCyte Dx™ Haematology Analyser is an automated Haematology Analyser for animal blood that evaluates and provides the results of 27 parameters for each blood sample in approximately two minutes. The ProCyte Dx Analyser is for veterinary use only.

## How it works

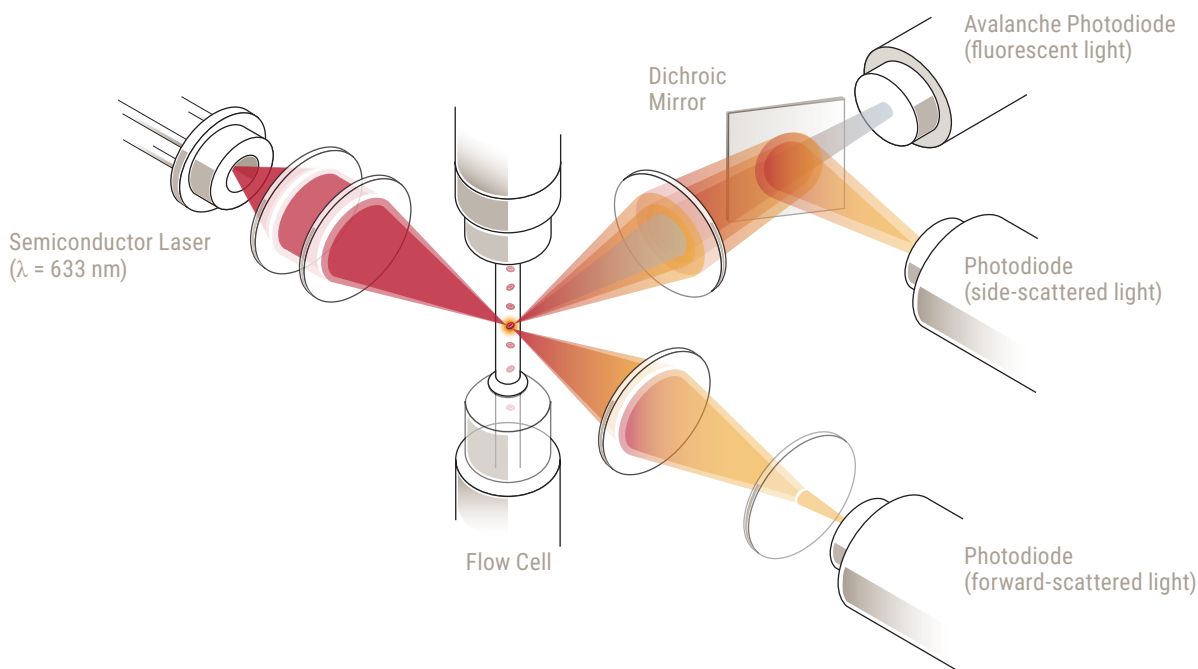
The ProCyte Dx Analyser employs three state-of-the-art technologies—laser flow cytometry, optical fluorescence, and Laminar Flow Impedance™—as well as the SLS-haemoglobin method.

### Laser flow cytometry

With laser flow cytometry, the system performs two separate analyses:

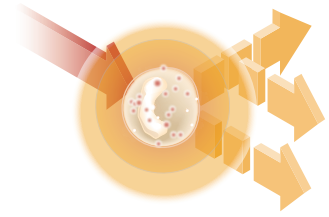
- + Red blood cell optical—analyses mature red blood cells, reticulocytes, and platelets
- + White blood cell differential—analyses and classifies the five-part differential

The cellular suspensions are hydrodynamically focused through a narrow orifice that is exposed to focused red laser light. Forward-scattered light and side-scattered light are then collected for each cell. These optical signatures provide information on the size, complexity, contents, and structure within each cell. This analysis mimics what a trained pathologist does when examining a blood film.



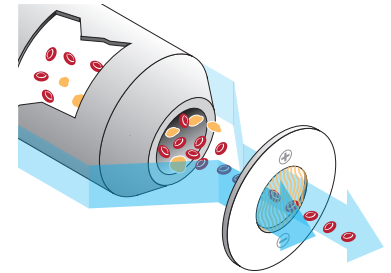
## Optical fluorescence

With optical fluorescence, the ProCyte Dx Leukocyte Stain and Reticulocyte Stain bind to nucleic acids in the cells and are excited by the red laser light. The fluorescence signatures are uniquely captured at a higher wavelength from the normal side-scattered light by utilising a dichroic mirror. This method is the gold standard for determining reticulocytes and provides additional sensitivity for identifying the five-part white blood cell differential.



## Laminar Flow Impedance

Laminar Flow Impedance is the fastest method for analysing the size and number of red blood cells and platelets. With this method, a diluted sample is focused through the center of a detection aperture, and an electrical signal is disrupted by each cell's presence. The resistance measured can determine the size and type of each cell. The ProCyte Dx Analyser sends the sample through the aperture in one coaxial core stream of sample and reagent. Simultaneously, the core stream is surrounded by a faster-moving sheath reagent, which ensures that only one cell is in the aperture at a time, preventing any count coincidence or recirculation.



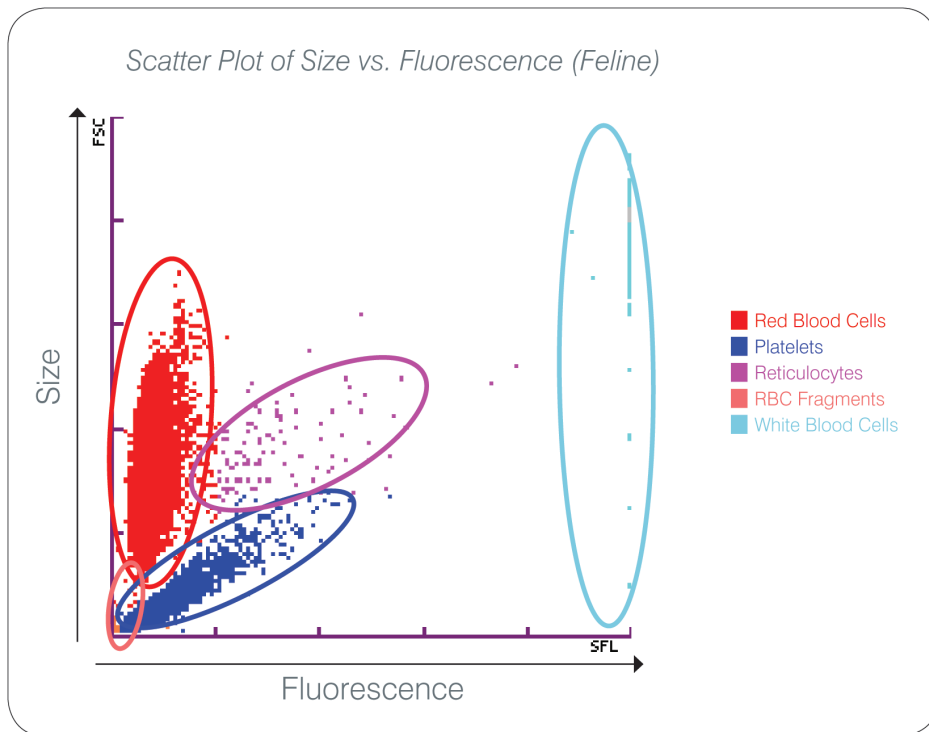
## SLS-haemoglobin method

Haemoglobin conversion with the SLS-haemoglobin method is fast and does not use poisonous substances like other methods (such as the cyanmethemoglobin method), making it a suitable method for automation. And since it can be used to measure methemoglobin, it can also accurately measure blood containing methemoglobin, as is the case with control samples.

## What is a dot plot?

Dot plots are a visual representation of the complete blood count (CBC) and are a valuable tool for quickly interpreting sample results on the ProCyte Dx Analyser. Each dot in the plot represents a single cell as it is analysed by the device. The different cellular elements of the blood appear as distinct clouds of dots, and when the definition of the cloud is diminished or intensified, this indicates variability within that particular cellular population, which could indicate an abnormality. The greater the abnormality, the greater the potential variation from normal. A blood film review will provide additional information. For example, if the clouds of dots are more dense than normal, an increased count for that particular cell will likely be evident in a blood film.

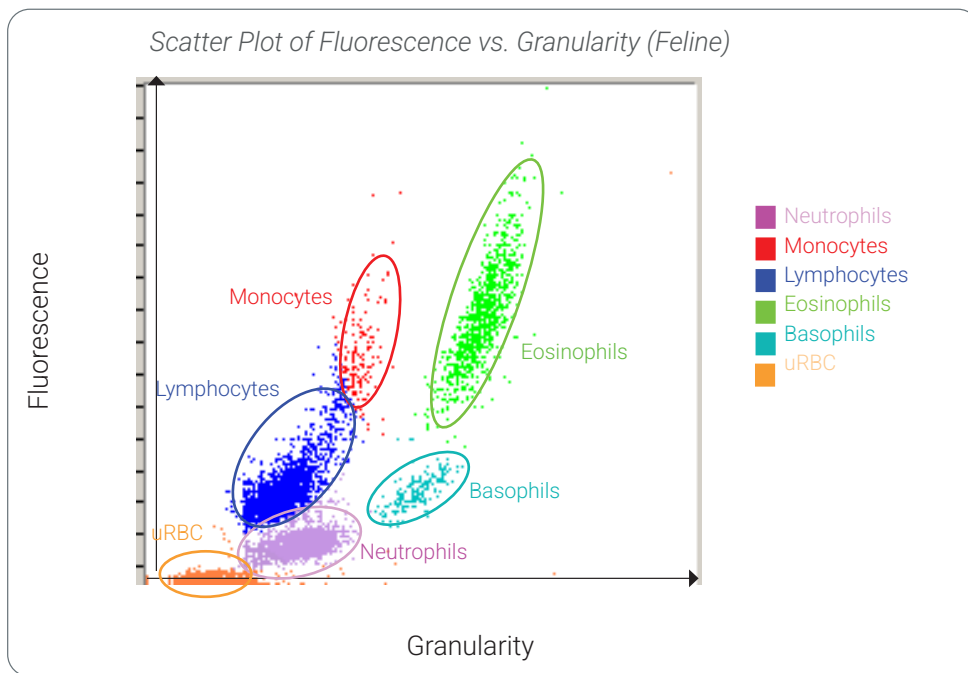
## Red blood cell classification



On the red blood cell run, the ProCyte Dx Analyser classifies the following populations:

- + **Red blood cells (RBCs)**—The red blood cells (erythrocytes) are primarily responsible for carrying oxygen to tissue cells and carrying carbon dioxide from those cells.
- + **Platelets**—Platelets (thrombocytes) play an integral role in the processes of primary and secondary haemostasis leading to the formation of clots. Due to their smaller size, they spend less time in front of the laser beam, absorb less light, and therefore fall closer to the bottom on the y axis.
- + **Reticulocytes**—Reticulocytes are immature red blood cells that contain ribosomal RNA. The reticulocytes are larger than many of the RBC population and more granular because of the RNA. These larger cells absorb more stain and fluoresce in the presence of the laser. They are located to the right of the RBC population.
- + **RBC fragments**—RBC fragments are fragile red blood cells that have fragmented during the red blood cell optical reagent chemistry. These are generally intact red blood cell membranes that have released their haemoglobin. The particles have a similar size to platelets but refract light differently and are therefore located to the left of the platelet population.
- + **White blood cells**—On occasion, a small amount of white blood cells can be seen on the red blood cell dot plot. These cells are larger than reticulocytes and therefore appear higher on the plot. The cells appear because they have absorbed the ProCyte Dx Reticulocyte Stain and, given their intercellular content, these cell signatures will have far more fluorescent light scatter than reticulocytes.

## White blood cell classification



The ProCyt Dx Analyser utilises side-scattered fluorescence and side scatter for the primary classification of white blood cells:

- + **Neutrophils**—Normally, the nucleic acid content of neutrophils is the lowest of the five-part differential. Conversely, they are more optically complex than the mononuclear cells; therefore, they have the least fluorescence but higher scatter than lymphocytes and monocytes.
- + **Lymphocytes**—Normally, lymphocytes are the smallest cells relative to the other cells in the five-part differential. They are also the least complex, but have a high concentration of nucleus to cytoplasm. Therefore, these cells have a higher fluorescence but less side scatter than neutrophils and less fluorescence than monocytes.
- + **Monocytes**—Monocytes have the largest nucleus of the normal differential. They are less complex than neutrophils but can be more complex than lymphocytes due to their lacy-appearing cytoplasm. Monocytes contain the highest amount of fluorescence and have slightly more side scatter than lymphocytes but less than neutrophils.
- + **Eosinophils**—There is a great deal of variation in the size and granularity of eosinophils from species to species. Normally, canine, equine, bovine, and ferret eosinophils appear as a cluster of cells uniquely higher in side scatter to the right of the neutrophils. There is also a degree of fluorescence increase as well. In feline samples, eosinophils are unique in that they have the nearly the highest fluorescence and the most scatter of all of the cells.
- + **Basophils**—Basophils also vary species to species. In general, they have a more fluorescence than neutrophils and also have more side scatter. In canine, equine, bovine, and ferret samples, they appear just above neutrophils in fluorescence, and to the right of the lymphocytes on side scatter. In feline samples, basophils appear below the eosinophils in fluorescence and to the right of lymphocytes in side scatter.
- + **uRBC**—This population consists of unlysed red blood cells. Because the red blood cells have no nuclear content, they have little fluorescent light scatter and fall lower on the plot than any white blood cells.

## IDEXX VetLab Station connectivity

The ProCyte Dx Analyser is part of the IDEXX VetLab™ suite of Analysers and will seamlessly integrate with your IDEXX VetLab™ Station. The IDEXX VetLab Station is the hub of the IDEXX in-house diagnostic laboratory that provides control for running tests on patient samples and serves as a connection point for IDEXX remote servicing. The main functions of the IDEXX VetLab Station include:

- ✦ Full instrument control through an easy-to-use interface, expediting your workflow so that you can get test results quickly.
- ✦ Unlimited data storage for records and results, providing you with more comprehensive information on each patient so you can make more informed and timely decisions.
- ✦ Consolidated, full-colour lab results, including all in-house IDEXX haematology, chemistry, endocrinology, electrolyte, urinalysis, and rapid assay results.
- ✦ IDEXX SmartService™ Solutions connectivity, enabling IDEXX to provide software upgrades and diagnostic services to ensure your lab is running at peak efficiency.
- ✦ Integration with VetConnect™ PLUS (not available in all regions), providing advanced trending (graphing) of lab results from both in-house instruments and IDEXX Reference Laboratories.
- ✦ Practice information management system (PIMS) connectivity, linking patients and test results together for complete medical records and accurate billing.

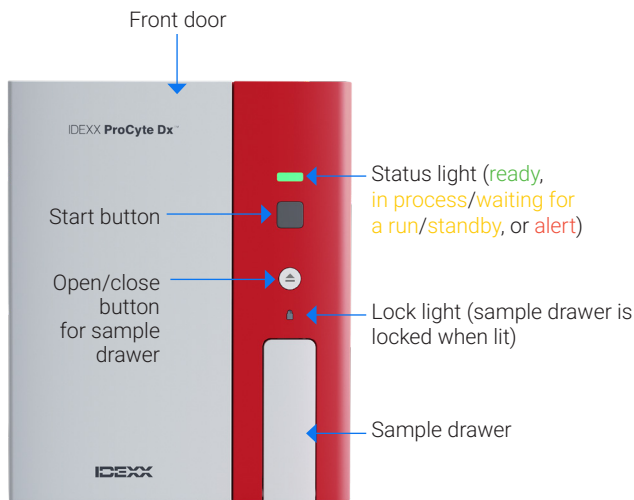
**Note:** For detailed information about the IDEXX VetLab Station, including how to use all of its features, refer to the *IDEXX VetLab Station Operator's Guide*.



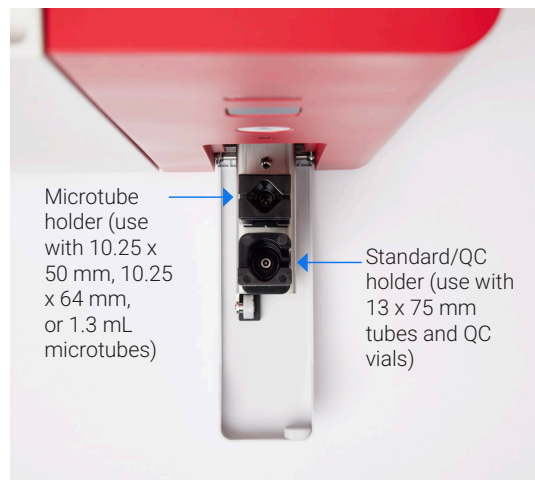
## Components

The ProCyte Dx Analyser is a self-contained system that Analyses animal blood and control samples. It is connected to and communicates with the IDEXX VetLab Station.

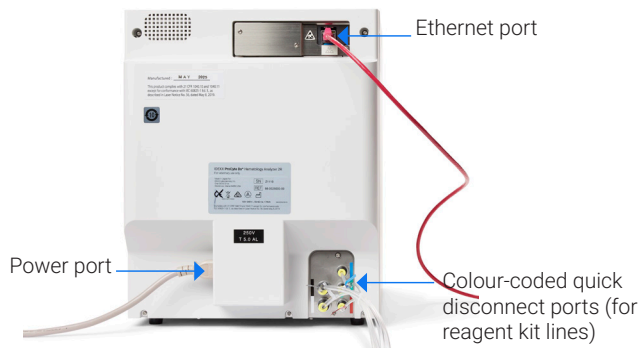
### Analyser front



### Sample drawer



## Analyser back



## Analyser right side



## Bar code reader

A bar code reader can be connected to the IDEXX VetLab Station, which provides a quick method for entering data when changing reagents, loading ProCyte Dx control targets, and loading acceptable ranges for quality control. A bar code reader is not required to complete these steps, but it does make the data entry process faster and easier.

**Note:** The bar code reader can also be used to enter patient information (from a bar code) on the Identify Patient screen.



## Analyser status

The light-emitting diode (LED) indicator on the front panel of the ProCyte Dx Analyser indicates the Analyser's status.

**Note:** You can also view the Analyser status by viewing its icon on the IDEXX VetLab Station Home screen.

LED colour	Description
Green (steady)	READY; Analyser is ready to process samples or perform maintenance tasks
Yellow (steady)	IN PROCESS; Analyser is processing a sample or performing another activity
Yellow (flashing)	Analyser is waiting for the user to begin processing a sample after receiving the patient information from the IDEXX VetLab Station
Yellow (pulse)	STANDBY MODE
Red (flashing)	ERROR; an error has occurred; review error or alert messages on the IDEXX VetLab Station


## Powering the Analyser on/off

The ProCyte Dx Analyser is automatically rebooted weekly. In the event that you need to power the Analyser (or the Analyser and the IDEXX VetLab Station) on/off at another time, use these instructions:

### To power on the Analyser

1. Ensure the IDEXX VetLab Station computer is powered on and that the touch-screen monitor displays the Home screen. If necessary, tap **Home** in the upper-left corner of the screen to access the Home screen. The IDEXX ProCyte Dx icon appears with an Offline (black) status.
2. Power on the Analyser by opening the Analyser door and pressing the power button. The status of the IDEXX ProCyte Dx icon on the Home screen changes from Offline (black) to In Process (yellow) while the Analyser performs a variety of self-check procedures (if a self-check procedure fails, an alert message will display on the IDEXX VetLab Station Home screen). This process takes approximately 8 minutes.
3. If the self-check procedure is successful, the status of the IDEXX ProCyte Dx icon on the Home screen changes to Ready (green), and the LED on the ProCyte Dx Analyser turns green (steady).

## To power off the Analyser and IDEXX VetLab Station

1. Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen.
2. Tap **Power Down**.
3. Tap **OK**. The Analyser begins the Standby procedure and then powers down automatically.
4. Tap , and then tap **Power Down**.
5. Tap **Power Down** to power the IDEXX VetLab Station off.

# Analysing samples

Whole blood, abdominal fluid, thoracic fluid, and synovial fluid samples can be run on the ProCyte Dx™ Haematology Analyser. The ProCyte Dx Analyser produces a complete blood count (CBC) analysis for each patient blood sample it processes.

## IMPORTANT:

- + Samples should be run within 4 hours of collection.
- + Do not analyse coagulated blood samples.
- + Results should always be evaluated in conjunction with clinical or other laboratory findings.

## Compatible species

The ProCyte Dx Analyser can Analyse blood from the following species:

+ Canine	+ Feline	+ Gerbil	+ Sheep	+ Llama
+ Equine	+ Bovine	+ Camel	+ Alpaca	+ Hamster
+ Ferret	+ Dolphin	+ Goat	+ Rabbit	+ Pig
+ Guinea pig	+ Mini pig	+ Other†		

†The “Other” species was incorporated for research purposes. The algorithms for “other” are based on the canine species and therefore not validated for other animal species. The canine algorithm incorporates known cellular size, scatter pattern, and unique distributions customized for that species. This mode can be used by experienced professionals who can use Haematology dot plots in conjunction with manual investigations (e.g., creating a blood film, running a PCV, etc.) to confirm findings.

## Analysing a sample

1. Initiate the sample run on the IDEXX VetLab™ Station (for more information, see the *IDEXX VetLab Station Operator's Guide*).
2. On the ProCyte Dx Analyser, ensure the sample drawer is open. If necessary, press the **Open/Close** button on the Analyser to open the sample drawer.
3. Collect and prepare the patient sample:
  - a. Fill a standard EDTA-treated tube or microtube with the proper volume per the manufacturer's specifications (the Analyser requires a minimum of 500 µL for standard tubes and 200 µL for microtubes to allow for adequate mixing of the sample prior to analysis).

**Note:** The ProCyte Dx Analyser is capable of running most EDTA blood collection tubes. There are numerous standard (13 x 75 mm) Haematology tube manufacturers. We recommend that you only use tubes from a reliable and trustworthy source. If you have any questions or concerns about EDTA tube selection, IDEXX recommends and supports the use of 2 mL draw BD standard EDTA tubes and IDEXX VetCollect™ tubes.
  - b. **Gently invert the sample 10 times** to ensure it is well mixed.
4. Immediately place the sample in the applicable tube holder in the sample drawer.

**IMPORTANT:** If you are using a microtube, remove the cap before placing the tube in the microtube holder.
5. Press the **Start** button on the Analyser. The sample drawer automatically closes, and the Analyser begins processing the sample.

## Canceling a run

Need to cancel a run after it's already in process? Find the applicable patient in the In Process list, tap the **IDEXX ProCyte Dx** icon, and select **Cancel Run**.

## Analysis parameters

The ProCyte Dx Analyser provides results for the following parameters\*:

	Parameter	Description
Red blood cell parameters	RBC	Total number of erythrocytes (red blood cell count)
	HCT	Haematocrit value: erythrocyte ratio of total blood volume
	HGB	Haemoglobin concentration
	MCV	Mean erythrocyte volume in total sample
	MCH	Mean haemoglobin volume per red blood cell (RBC) count
	MCHC	Mean haemoglobin concentration of erythrocytes
	RDW	The degree of variation in size of the erythrocyte population (red blood cell distribution width)
	RETIC (% and #)	Reticulocytes
	RETIC-HGB	Reticulocyte haemoglobin
	nRBC	Nucleated red blood cells (when presence is suspected)
White blood cell parameters	WBC	Total number of leukocytes (white blood cell count)
	NEU (% and #)	Neutrophils
	LYM (% and #)	Lymphocytes
	MONO (% and #)	Monocytes
	EOS (% and #)	Eosinophils
	BASO (% and #)	Basophils
	BAND	Band neutrophils (when presence is suspected)
Platelet parameters	PLT	Total number of platelets (platelet count)
	MPV	Mean platelet volume
	PDW	Platelet distribution width; the degree of variation in size of the platelet population
	PCT	Plateletcrit value
Fluid analysis parameters	TNCC	Total nucleated cell count
	AGRANS (% and #)	Agranulocytes
	GRANS (% and #)	Granulocytes
	RBC	Total number of erythrocytes (red blood cell count)

\*The number of reported parameters may vary according to species (e.g., reticulocytes are not reported for equine species).

## Viewing and printing test results

Analyser results are automatically returned to the IDEXX VetLab Station and recorded in the appropriate patient's record. The diagnostic results report is a comprehensive report of all the test results specified in a laboratory request for that patient on a specific day.

Patient test results can be printed automatically each time a set of results are returned, or you can manually print the results when needed.

For more information about how to view and print test results, see the *IDEXX VetLab Station Operator's Guide*.

# Managing reagents and stains

## About ProCyte Dx reagents and stains

The ProCyte Dx™ Haematology Analyser uses the ProCyte Dx™ Reagent Kit and the ProCyte Dx™ Stain Pack to process patient samples. Do not use other reagents or stains with the ProCyte Dx Analyser. All ProCyte Dx Analyser reagents and stains are for veterinary use only.

**IMPORTANT:** Reagent kits and stain packs must be kept at room temperature (15°C–30°C/59°F–86°F) when connected to the Analyser. Kits/packs that are not connected should be stored at 2°C–30°C (36°F–86°F).

### ProCyte Dx Reagent Kit

The ProCyte Dx Reagent Kit contains three reagent bottles (Lytic Reagent, Reticulocyte Diluent, and HGB Reagent), System Diluent, and a waste container (see [Reagent kit specifications](#) for the intended use, active ingredients, methodology, and warnings/precautions information for each reagent/diluent and/or contact IDEXX Customer and Technical Support to receive a copy of the reagent kit MSDS information). Inside of the reagent kit, the reagent shelf is both colour and number coded to indicate placement of each reagent, the System Diluent, and the waste container. Instructions for changing a reagent kit can be found later in this section.

The reagent kit connects to the Analyser via the Quick-Connect Top, which was designed to make changing reagents a simple and efficient process. The top has five probes that are designed to fit into the bottles and containers in the reagent kit. Attached to the probes are tubes that connect to the Quick Disconnects on the back of the Analyser. Each tube is labeled with a colour that corresponds to the coloured Quick Disconnects. Be sure to connect the correct tube to the appropriate Quick Disconnect. **The Quick-Connect Top is reused each time you change the reagent kit.**

**IMPORTANT:** To ensure both customer safety and optimal system performance, IDEXX recommends that all reagent kits are placed next to or below the Analyser. Reagent kits should not be placed above the Analyser.

### ProCyte Dx Stain Pack

The ProCyte Dx Stain Pack consists of one Leukocyte Stain pouch and one Reticulocyte Stain pouch that are fused together. Instructions for changing a stain pack can be found later in this section. See [Stain pack specifications](#) for the intended use, active ingredients, methodology, and warnings/precautions information for each reagent/diluent and/or contact IDEXX Customer and Technical Support to receive a copy of the stain pack MSDS information.

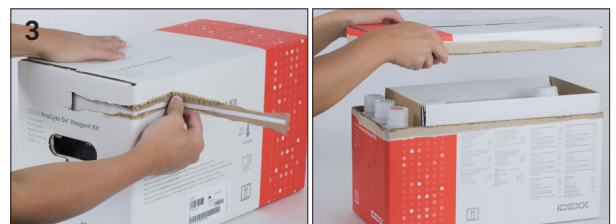
## Changing a reagent kit/stain pack

An alert displays when the reagent kit/stain pack is empty or expired. When the reagent kit/stain pack is low or close to expiration, you can choose to change it immediately or be reminded to change it later.

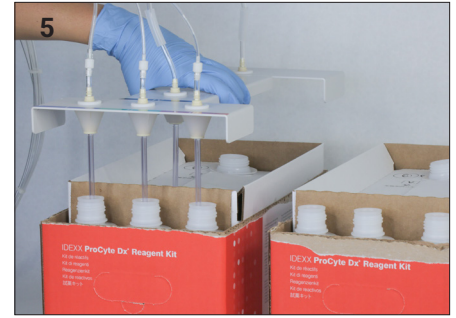
**IMPORTANT:** Disposal procedures should be compliant with local disposal laws.

### To change the reagent kit

1. Tap **Change Reagent** in the alert message.  
OR  
Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab™ Station Home screen and then tap **Change Reagent**.
2. Scan bar code #2 on the new reagent kit and tap **Continue**.
3. Open a new reagent kit by tearing away the easy-to-pull tabs, exposing the reagent shelf, and place it next to or below the Analyser.



- Remove the caps from the three bottles, System Diluent, and waste container (use the cap remover in the original accessory kit, if necessary) and set them aside. Verify the order of the bottles is correct by matching the colour on the bottle labels with the colours on the shelf.
- Place the quick-connect top onto the reagent kit, ensuring the probes are inserted into the three reagent bottles, the System Diluent, and the waste container.
- Tap **OK**.
- Carefully remove each reagent bottle from the old reagent kit and dispose of the contents of each bottle according to applicable local disposal laws. Then place the caps from the bottles in the new reagent kit onto the bottles in the old reagent kit.



### To change the stain pack

- Tap **Change Stain** in the alert message.  
OR  
Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen and then tap **Change Stain**.
- Scan or enter bar code #2 on the new stain pack box and tap **Continue**.
- Open the front door on the Analyser.
- Unscrew the caps on a new stain pack.
- Remove the old stain pack from the holder and place the new stain pack in its place.
- Unscrew the probes from the old stain pack and place them into the new stain pack (**the stain lines and caps are colour-coded to match the labels on the stain pouches**).
- Screw the caps from the new stain pack onto the old stain pack to ensure it doesn't leak.
- Screw the probe caps onto the new stain pack and close the front door.
- Tap **OK** to complete the update.



### Viewing reagent/stain fill status and expiration information

To view the fill status and expiration information for your reagent kit and stain pack, tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen. Two gauges display in the center of the screen, indicating the fill status for the reagent kit and stain pack (the gray bar indicates the fill level). The remaining days until each expires displays under the gauges. When the fill status is low or empty, the gauge and days until expiration turns red.

### Viewing the reagent log

A log is available to view current and historical reagent/stain information.

- Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen.
- Tap **View Log**. The current reagent kit and stain pack display as black. Historical reagent kits and stain packs display as gray.

# Quality control

## Overview

The purpose of quality control (QC) is to monitor the ProCyte Dx™ Haematology Analyser's performance over time. QC also ensures the reliability of the Analyser and reagent system. Quality control should be run on a monthly basis. It may be necessary to run quality control for troubleshooting purposes.

e-CHECK™ (XS) is the quality control material used to monitor the performance of the ProCyte Dx Analyser. e-CHECK (XS) control is a stabilized whole blood matrix designed for statistical process control of the ProCyte Dx Analyser and is for veterinary use only. Do not use any other quality control materials on the Analyser.

## Adding a quality control lot

If your QC lot is not already listed on the Quality Control screen (either from previous use or as uploaded from IDEXX SmartService™ Solutions), use this process to add a new QC lot.

1. Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab™ Station Home screen.
2. Tap **Quality Control**.
3. Tap **Add QC Lot**.
4. If you have a bar code reader, scan the bar code on the e-CHECK (XS) insert. If you do not have a reader, enter the bar code using the on-screen keypad and then tap **Next**.
5. Repeat step 4 for all six bar codes. After each bar code is entered, the bar codes display in the Quality Control Bar Codes group box. When a bar code is entered successfully, a green check mark displays to the left of the bar code. When a bar code is deemed invalid (because it does not exist or has expired), a red X displays to the left of the bar code and an error message may display.
6. Tap **Next**. The QC Lot now displays on the Quality Control screen.

## Running quality control

This procedure should be run monthly to ensure optimum performance of your Analyser.

1. Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen.
2. Tap **Quality Control**.
3. Select the ProCyte Dx Quality Control lot you want to use and then tap **Run QC**. The ProCyte Dx sample drawer opens.  
**Note:** If there are no valid QC lots available, add a new quality control lot (for detailed instructions, see [Adding a quality control lot](#)).
4. Allow an e-CHECK (XS) vial to reach room temperature (18°C–25°C [64°F–77°F]) for at least 15 minutes. Do not let the vial exceed room temperature.  
**Note:** Do not warm the vial in your hands or with any other warming apparatus.
5. Verify the cap is secure and gently invert the e-CHECK (XS) vial to mix until the cell button in the bottom of the vial is completely suspended.  
**Note:** Inverting the vial occasionally during the warm-up process will decrease the amount of time it takes to complete this step. Never use a mechanical mixer or rocker for this step.
6. Immediately place the e-CHECK (XS) vial into the standard/QC tube holder.
7. Tap **OK**.



8. Press the **Start** button on the Analyser.
9. Once the procedure has completed, the e-CHECK (XS) vial can be returned to the refrigerator as long as it was at room temperature for less than 1 hour.

**Note:** e-CHECK (XS) is stable for 14 days once the cap is pierced.

## Viewing quality control results

1. Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen.
2. Tap **Quality Control**.
3. Select the QC results you want to view and then tap **View QC Results**.

## Viewing quality control lot information

1. Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen.
2. Tap **Quality Control**.
3. Tap **View QC Lot Information**. The lot number, level, unopened expiration date, and parameter information for that QC lot display.
4. Tap **Back** to return to previous screen.



# Settings

The IDEXX ProCyte Dx Settings screen includes multiple options which can be modified based on your preferences:

## Modifying the settings

1. Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen.
2. Tap **Settings**.
3. Adjust the settings, as needed:

Setting	Description
Aspiration Sensor	<p><b>When enabled:</b> Confirms the Analyser was able to properly aspirate the sample in all phases of analysis. When this setting is enabled, a message appears whenever the Analyser was unsuccessful in aspirating sample for analysis.</p> <p><b>When disabled:</b> The Analyser will continue with processing the run, regardless of if enough sample was aspirated in all phases of analysis. If inadequate sample was used, results may be compromised.</p>
Sample Invert Reminder	<p><b>When enabled:</b> Displays a message on the IDEXX VetLab Station after an ProCyte Dx Analyser run has been initiated which reminds you to invert the sample prior to loading it in the sample drawer.</p> <p><b>When disabled:</b> No sample inversion reminder message displays.</p>
Reagent Low Reminder	<p><b>When enabled:</b> Displays a message on the IDEXX VetLab Station when your reagent kit or stain pack fluids are low. This is a helpful reminder to order a new reagent kit/stain pack if you don't already have one in your inventory.</p> <p><b>When disabled:</b> You'll only be notified when the reagent kit or stain pack is empty.</p>
Synovial Fluid Reminder	<p><b>When enabled:</b> When synovial fluid is chosen as the sample type, a message displays on the IDEXX VetLab Station with special sample preparation instructions (to perform a 1:2 dilution with hyaluronidase and to multiply the results by 2) as synovial fluid samples can clog the Analyser.</p> <p><b>When disabled:</b> No synovial fluid message displays.</p>
Standby time	<p>Automatically set for 7:00 p.m. local time, but can be customized for any time of day. IDEXX recommends setting the time for when the practice is closed for the day.</p> <p>For more information, see <a href="#">Entering Standby mode</a>.</p>
Automatically exit Standby mode	<p><b>When enabled:</b> Exits Standby mode automatically. IDEXX recommends this setting for emergency/24-hour practices that have an immediate need for use of the Analyser once it completes the Standby procedure.</p> <p><b>When disabled:</b> Stays in Standby mode until you exit it manually at the IDEXX VetLab Station. IDEXX recommends this setting for practices who want to conserve reagent and will not have an immediate need for use of the Analyser once it completes the Standby procedure.</p> <p>For more information, see <a href="#">Entering Standby mode</a>.</p>
Weekly reboot	<p>Automatically set for Saturday, but can be customized for any day of the week. IDEXX recommends setting the weekly reboot when the practice is closed for the day.</p>

# Maintenance

## Daily maintenance

### Check reagent levels, tubing, and cables

- + Check the reagent levels on the IDEXX ProCyte Dx Instruments screen to ensure there is a sufficient amount of reagent for the number of samples to be Analysed that day (for more information, see [Viewing reagent/stain fill status and expiration information](#)).
- + Check the tubing and cables attached to the Analyser. Ensure the tubing is not bent and that the power cord is securely plugged into the outlet.

### Entering Standby mode

Standby mode is a daily automated maintenance procedure to determine if the Analyser is ready to run, needs to be cleaned, or if it requires maintenance. It is automatically initiated daily at a user-defined time or when the Analyser is not in use for more than 12 hours.

When Standby mode is initiated, the Analyser performs a cleaning cycle and then sits idle with a Standby status until Standby mode is exited (this can be instantly [if using the Automatically exit Standby mode feature—only recommended for practices open daily for 12+ hours] or within minutes/hours/days, depending on the frequency of Analyser use). **The Analyser should stay in Standby mode until sample analysis is required.** Once exited, the Analyser performs an auto rinse procedure and background checks and will return to a Ready status when the Analyser is ready to begin processing samples (exiting Standby mode takes approximately 8 minutes).

### To exit Standby mode

#### IMPORTANT:

- + It takes approximately 8 minutes to exit Standby mode.
- + If you do not plan to use the Analyser on a particular day, do not exit Standby mode (to avoid unnecessary reagent usage).
- + This procedure is not necessary for 24-hour/emergency practices utilizing the **Automatically exit Standby mode** feature on the IDEXX ProCyte Dx Settings screen.

1. Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab™ Station Home screen (the icon should have a Standby status).
2. Tap **Exit Standby** on the IDEXX ProCyte Dx Instruments screen.
3. When prompted, tap **OK** to confirm that you want to exit Standby mode. The auto rinse procedure automatically begins on the ProCyte Dx Analyser, and a background check is initiated. When these procedures are finished (after approximately 8 minutes), the ProCyte Dx Analyser is ready to begin processing samples.

### To change the default time that the Analyser will go into Standby mode

By default, the ProCyte Dx Analyser will set itself to Standby mode at 7:00 p.m. each day. IDEXX recommends that you allow the Analyser to go into Standby mode at the end of each day's analyses.

1. Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen.
2. Tap **Settings**.
3. Under Standby, tap the available drop-down lists to modify the time as needed.
4. If your practice is open daily for 12+ hours per day and you would prefer that your Analyser automatically exit Standby mode so that the Analyser is always ready for use (outside of Standby mode), enable **Automatically exit Standby mode**. **IMPORTANT:** Using this option could force the Analyser to go into Standby mode up to twice per day, incurring unnecessary reagent usage. This setting is only recommended for practices that are open daily for 12+ hours.

## Monthly maintenance

### Running the monthly rinse procedure

The IDEXX VetLab Station will prompt you to complete the monthly rinse procedure every 30 days—**IDEXX recommends that you perform this procedure each month** to ensure optimum Analyser performance. This procedure:

- + Washes contaminants from the optical detector block flow cell.
- + Automatically initiates the auto rinse procedure.
- + Generates a background check.
- + Takes approximately 25 minutes to complete.

For this procedure, you will use IDEXX Hydro-Clean or a prepared 5% bleach solution using a combination of filtered, unscented bleach and distilled/deionized water (the ratio of bleach to distilled/deionized water varies depending on the concentration of the bleach [for example, Clorox™ Regular Bleach has a 6% concentration, so the solution should be 5 parts Clorox Regular Bleach and 1 part distilled/deionized water]).

**IMPORTANT:** Only use filtered and unscented bleach without surfactants. DO NOT USE scented bleaches or generic versions of regular bleach. DO NOT USE tap water. The solution can be used up to one week after it is made.

### To run the monthly rinse procedure

1. If you don't have IDEXX Hydro-Clean, prepare a 5% bleach solution using one of these steps:

- + Mix 2.5 mL plain, filtered, 6% sodium hypochlorite bleach with 0.5 mL deionized/distilled water.
- + Mix 2.0 mL plain, filtered, 7.5% sodium hypochlorite bleach with 1.0 mL deionized/distilled water.

**IMPORTANT:** Only use filtered, unscented bleach without surfactants. Do not use gel, high-efficiency, outdoor, scented, or splashless bleach in the Analyser.

2. Either tap **Run Monthly Rinse** in the alert message or tap the **IDEXX ProCyte Dx** icon on the Home screen, tap **Diagnostics**, and then tap **Monthly Rinse**.
3. Follow the on-screen instructions.
4. When prompted, dispense 2 mL of IDEXX Hydro-Clean (or the 5% bleach solution) into a 13 x 75 mm untreated or rinsed EDTA tube (e.g., a VetCollect™ tube) and insert the tube into the standard/qc holder in the sample drawer on the Analyser.
5. Press the **Start** button on the Analyser.
6. When the monthly rinse procedure is complete, [run quality control on your Analyser](#).

### Cleaning the case

Always disconnect the power cable before cleaning the Analyser.

Clean the outside of the Analyser with a damp (not wet) lint-free cloth. A mild disinfectant or liquid soap will remove grease. Do not use any of the following near the Analyser: organic solvents, ammonia-based cleaners, ink markers, sprays containing volatile liquids, insecticides, polish, or room freshener.

Care should be taken not to spill any samples, chemicals, cleaning agents, water, or other fluids on/in the Analyser.

**Note:** Dust and animal hair can lead to Analyser failures. Routinely dust off the Analyser and surrounding surfaces with a damp cloth.

## Cleaning the fan filter

The Analyser's fan filter should be cleaned monthly.

### To clean the fan filter

1. Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen.
2. Tap **Power Down**.
3. Tap **OK**. The Analyser begins the Standby procedure and then powers down automatically.
4. Open the Analyser's right side door.
5. Remove the fan filter.
6. Vacuum the filter to remove the debris.
7. Replace the fan filter and close the right side door.



## As-needed maintenance

### Upgrading the software

As new features and functionality are added to the Analyser, you will receive software upgrades from IDEXX. These upgrades will be sent automatically to your Analyser via your IDEXX SmartService™ Solutions connection. You will receive a confirmation message once the upgrade process is completed.

# Troubleshooting

## Differences in results

### With a commercial laboratory or other instrument

Comparing results from different laboratories that may be using different equipment or methods is imprecise at best. Any comparisons should be performed on the same sample that has been “split,” stored under like conditions, and tested at approximately the same time. If too much time elapses between running sample, the sample can age. For example, after 8 hours, MCV values change as cells tend to swell. Compare each result to the reference interval stated by IDEXX or the commercial laboratory (as appropriate). Each result should have the same relationship to its method’s reference interval. For instance, a sample giving a ProCyte Dx Analyser result that is slightly below the reference interval should produce a laboratory result slightly below the laboratory’s reference interval.

### With your own expectations

If you receive results that are not what you expected for a particular patient, consider the following:

- + Were there any abnormalities noted in the sample taken (e.g., haemolysis, lipemia, and stress) that could cause the changes seen?
- + How far outside the reference interval is the result? The more narrow the reference interval, the more important minor changes become.
- + Would any treatments or drugs the patient may be taking alter the results?
- + Do clinical findings support the results? Unexpected abnormal results are usually accompanied by other evidence.
- + Is the result biologically significant or possibly so?
- + What other tests or procedures might be used to confirm or reject this result?

All laboratory results should be interpreted in light of the case history, the clinical signs, and the results of ancillary tests.

## Responding to an alert

When the Analyser experiences a problem, an alert message appears on the upper right side of the IDEXX VetLab Station title bar, the LED on the front panel of the Analyser flashes red, and the IDEXX ProCyte Dx icon on the IDEXX VetLab Station Home screen appears with an Alert status. Alerts should be addressed using the instructions provided in the on-screen message and/or via the instructions provided in this operator’s guide.

### To view an alert

Do one of the following:

- + Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen.
- + Tap the alert message in the title bar to display the alert message. Follow the instructions displayed in the alert message.

## Analyser icon displays with an unexpected status

When communication between the Analyser and the router is lost, the IDEXX ProCyte Dx icon on the IDEXX VetLab Station Home screen may display with an Offline or Busy status. To resolve, ensure the Ethernet cable that connects the Analyser to the router is properly connected. If the situation persists, follow these instructions:

1. Power off the Analyser by opening the Analyser door and pressing the power button.
2. Wait 5 seconds and then power the Analyser back on using the same power button used in step 1. The IDEXX ProCyte Dx icon on the IDEXX VetLab Station Home screen should change to a Ready status (green) within 15 seconds.

## Running diagnostics on your Analyser

The IDEXX ProCyte Dx Diagnostics feature on the IDEXX ProCyte Dx Instruments screen provides multiple buttons to complete diagnostic procedures on the Analyser. These procedures should not be initiated without prompt and assistance from IDEXX Customer and Technical Support.

### SmartFlags™

Automated cell counters have two main objectives. First, they must examine the various components of a blood sample and return the appropriate red blood cell count, white blood cell count, platelet count, and various cellular indices. Second, they must prompt the user with a message in the event that the accuracy of these cellular evaluations may be compromised. For example, if the blood sample being analysed contains white blood cells with markedly abnormal morphology, the analyser may not be able to provide full characterization, and the device will return a message suggesting a blood film should be reviewed for confirmation.

The flagging for the ProCyte Dx Analyser signals the user that an abnormal cell or group of cells is present and it cannot be characterized in the normal haemogram. An asterisk (\*) indicates the analyser is questioning the presence of the cellular population. A hash mark (-- --) indicates the analyser was unable to return a result for a particular parameter. In either case, a blood film should be consulted. These message flags act as internal controls to remind the doctor that a sample must be examined under a microscope. In the vast majority of cases, this microscopic review process will take less than 1–3 minutes. A manual leukocyte differential will be needed only rarely.

On-screen message	Displays when any of the following parameters is flagged with an asterisk (*) or hash marks (-- --)			Description
Evaluate the blood film to confirm the values.	WBC	EOS	%MONO	The patient's white blood cell morphology made it difficult to separate individual populations.
	NEU	BASO	%EOS	
	LYM	%NEU	%BASO	
	MONO	%LYM		
	RBC	MCH	RETIC	Abnormal distribution of the size, shape, or numbers of the patient's red blood cells.
	HCT	MCHC	%RETIC	
	MCV	RDW		
	RETIC		%RETIC	Abnormal distribution of the size, shape, or numbers of the patient's reticulocytes.
	PLT	PDW		Abnormal distribution of the size, shape, or numbers of the patient's platelets or too few platelets available for accurate assessment.
	MPV	PCT		
PLT Aggregates Detected	PLT	PCT	%EOS	The patient's platelets may be clumped and interfere with accurate platelet parameters as well as basophil and eosinophil distribution. Platelet aggregate detected
	MPV	EOS	%BASO <sup>†</sup>	
	PDW	BASO <sup>†</sup>		

<sup>†</sup>For feline species, BASO and %BASO cannot be determined and a result of "-- --" will be reported.

# Appendix

## Installing the IDEXX VetLab router

**Note:** If you already have a router connected directly to the IDEXX VetLab Station computer, you can skip this section and move to the *Installing the ProCyte Dx Analyser* section (below).

1. Connect the AC power adapter to the power port on the back of the router supplied by IDEXX Laboratories.
2. Plug the AC power adapter into an electrical outlet.
3. Connect one end of the Ethernet cable (provided with the router) into any available numbered port on the router.

**IMPORTANT:** Do not connect the IDEXX VetLab Station directly to the Internet/WAN port on the router.

4. Connect the other end of the Ethernet cable (from step 3) into the IDEXX VetLab Station computer's Ethernet port, which is located near the center panel on the back of the computer.

## Installing the ProCyte Dx Analyser

- + Only properly trained personnel should use this analyser. Please read this document carefully before operating the analyser.
- + The ProCyte Dx™ Haematology Analyser weighs approximately 50 pounds (22.6 kg). It may require multiple people to lift the instrument. Be sure to use a table or desk that can support the weight of the analyser.
- + Position the analyser so that the power cord is easily accessible.
- + The analyser should be installed in a well-ventilated location, away from water, dust, and direct sunlight. Do not place the analyser in a location where it can be splashed by water. It should be located in a space large enough to be used safely, including when the sample drawer is open. If additional equipment is to be attached/connected to it, additional desk space will be required.
- + The analyser should be placed on a level surface with a minimum of 2 inches (5 cm) between the right and left sides of the analyser and any wall/object (the rear of the analyser can be flush with the back wall as long as it does not obstruct the power cord or reagent tubing connection).
- + Do not install in an area of elevated temperature and vibration.
- + Do not install this instrument in places where chemicals are stored or gas can develop.
- + Do not use this instrument in any operating environment that has electroconductive or flammable gases, including oxygen, hydrogen, and anesthesia.
- + The power cable for this instrument is approximately 6 feet (1.8 m) long. Use a nearby outlet that is designed for it.
- + Install the analyser indoors—the instrument is intended for indoor use only.

### To install the Analyser

1. Unpack the analyser:
  - a. Open the box.
  - b. Remove the tape on the outside of the analyser.
  - c. Place the analyser on its designated surface with the back facing forward.

- d. Use a flat blade screwdriver to unlock and open the right side door.



- e. Remove the two binder clips and cut the zip tie (circled in blue below) and then close the right side door.



- f. Open the analyser front door, remove the stain probes from the plastic bag (**do not remove the plastic tubing at the ends of the stain probes**), and then close the front door.



- g. On the back of the analyser, remove the short tubes from the Quick Disconnect ports by pushing the yellow washer in while pulling the tube out.



- h. Connect the power cord to the analyser and a surge-protected outlet. **DO NOT POWER ON THE ANALYSER.**

2. Connect a new reagent kit to the analyser:

- a. Insert the reagent/waste lines from the quick-connect top into the corresponding **colour-coded** quick-disconnect ports on the back of the analyser, ensuring each line is pushed in as far as it will go.



- b. Turn the analyser around so that the front is facing forward and position it on the counter, ensuring the reagent/waste lines on the quick disconnect ports are not kinked in the process.
- c. Open a new reagent kit by tearing away the easy-to-pull tabs, exposing the reagent shelf, and place it next to or below the analyser.



- d. Remove the caps from the three bottles, System Diluent, and waste container (use the cap remover in the original accessory kit, if necessary) and set them aside. Verify the order of the bottles is correct by matching the colour on the bottle labels with the colours on the shelf.



- e. Place the quick-connect top onto the reagent kit, ensuring the probes are inserted into the three reagent bottles, the System Diluent, and the waste container.



3. Connect a new stain pack to the analyser:

- a. Open the analyser front door.
- b. Place a new stain pack into the holder and then screw the probe caps onto the pack, ensuring each probe is inserted into the correct pouch (**the stain lines and caps are colour-coded to match the labels on the stain pouches—see photo at right**).
- c. Close the analyser front door.



4. Connect one end of the Ethernet cable into the Ethernet port on the back of the analyser and the other end to one of the numbered ports on the IDEXX-supplied router.

**Note:** Your router may look different from the one pictured.



5. Power on the components:
  - a. Ensure the IDEXX VetLab Station is powered on.
  - b. Open the analyser front door and press the power button to turn on the ProCyte Dx Analyser.
  - c. Once the IDEXX ProCyte Dx icon displays on the Home screen with a red “alert” status (approximately 5 minutes), tap the icon to open the alert.
  - d. Tap **Begin Startup**.
  - e. Scan/enter barcode 2 on the new reagent kit box when prompted and tap **Next**.
  - f. Scan/enter barcode 2 on the new stain pack box when prompted and tap **Next**.
  - g. Tap **Initiate Startup**. When the status light on the analyser appears green, the startup process is complete.

**Note:** It is normal for the analyser to make a clicking noise at the beginning of the startup process.

**IMPORTANT:** Do not tap or process any alerts that may display during the 35-minute priming process.
  - h. If you’re returning an old ProCyte Dx Analyser to IDEXX, on the IDEXX VetLab Station Home screen, tap the IDEXX ProCyte Dx icon with an offline status. Then, tap **Remove Instrument**.
6. Perform quality control on the analyser:
  - a. Remove the e-CHECK™ (XS) L2 vial from refrigeration and packaging and allow it to reach room temperature for 15 minutes before use.
  - b. Tap the **IDEXX ProCyte Dx** icon on the IDEXX VetLab Station Home screen.
  - c. Tap **Quality Control**.
  - d. Regardless of whether the QC lot has already been added to the system, tap **Add QC Lot**, scan or enter each of the bar codes on the e-CHECK (XS) insert, and then tap **Next**.
  - e. Select the L2 QC lot that you want to use and then tap **Run QC**.
  - f. Follow the on-screen instructions and tap **Next**.
  - g. Verify the cap is secure and gently invert the vial a minimum of 10 times to mix until the cell button in the bottom of the vial is completely suspended.
  - h. Immediately place it into the sample/QC holder in the sample drawer and then tap the **Start** button on the front of the analyser.
  - i. Once the results are complete, ensure that all parameters are reported and within the assay ranges. If there are any results withheld or outside the normal range, contact IDEXX Technical Support immediately.
  - j. If the e-CHECK (XS) L2 vial has not been at room temperature for more than an hour, return it to the refrigerator for up to 14 days or until it is expired (whichever comes first). Otherwise, dispose of the vial.



## Warning:

- + Be sure to ground this analyser. Improper grounding may cause electrical shock.
- + The analyser's power supply cord uses a 3-prong plug. When the power supply socket is provided with grounding, simply plug it to the socket.
- + Be sure not to exceed socket capacity. Failure to do so may cause a fire.

## Safety precautions

The ProCyte Dx™ Haematology Analyser weighs approximately 50 pounds (22.6 kg). It may require multiple people to lift the instrument. Be sure to use a table or desk that can support the weight of the Analyser.

Position the analyser so that the power cord is easily accessible.

DO NOT stack other equipment or containers on top of the analyser.

Keep analyser away from sources of heat or flames.

DO NOT place or operate the analyser near x-ray equipment, photocopiers, or other devices that generate static or magnetic fields.

PROTECT your equipment from damp conditions or wet weather.

Take care not to spill water or other fluids on the unit.

DO NOT use any of the following liquids, abrasives, or aerosol sprays on or near the analyser, as they may damage the outer case and may adversely affect results:

- + Organic solvents
- + Ammonia-based cleaners
- + Ink markers
- + Sprays containing volatile liquids
- + Insecticides
- + Polish
- + Room freshener

The ProCyte Dx Analyser uses a semiconductor laser unit. This laser unit is shielded with a sealed box cover. DO NOT remove the cover. If the cover is removed, the unit is equipped with an interlock system that prevents laser operations. DO NOT look directly into the laser beam.

Line voltage for the ProCyte Dx Analyser is 100–240 V AC, 50/60 Hz. Be sure to plug all equipment into properly grounded electrical outlets.

Use only the power cable supplied.

Disconnect the power cable:

- + If the cable becomes frayed or otherwise damaged.
- + If anything is spilled onto the analyser.
- + If your analyser is exposed to excessive moisture.
- + If your analyser is dropped or the case has been damaged.

The ProCyte Dx Analyser should only be used as described in this guide. Failure to follow these instructions may adversely affect results as well as the safety features of the analyser.

## Technical specifications

### Dimensions and weight

<b>Analyser dimensions</b>	Width: 12.6" (320 mm)
	Height: 15.8" (403 mm)
	Depth: 18.3" (463 mm)
<b>Analyser weight</b>	Approximately 50 lb (22.7 kg)

### Performance specifications and throughput

<b>Throughput</b>	CBC+DIFF+RETIC: approximately 30 samples/hour
<b>Ambient temperature</b>	15°C–30°C (59°F–86°F) Optimum: 23°C (73.4°F)
<b>Relative humidity</b>	20%–85%
<b>Atmospheric pressure</b>	70 kPa–106 kPa
<b>Pollution degree</b>	2
<b>Power supply</b>	100–240 ±10% V AC, 50/60 Hz
<b>Power consumption (varies depending on <a href="#">Analyser status</a>)</b>	When the Analyser is IN PROCESS (steady yellow LED): ≤170 VA When the Analyser is in STANDBY MODE (pulsing yellow LED): 50.1 W When the Analyser is READY (steady green LED): 57.1 W

<b>Display range</b>	WBC	0.00–999.99 K/μL
	RBC	0.00–99.99 M/μL
	HGB	0.0–35.0 g/dL
	HCT	0.0%–100.0%
	PLT	0–9999 K/μL
	%RETIC	0.00%–99.99%
	RETIC	0–9999 K/μL

<b>Background limits</b>	WBC	0.1 K/μL
	RBC	0.02 M/μL
	HGB	0.1 g/dL
	PLT	10 K/μL
	PLT-O	10 K/μL

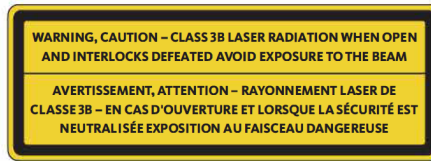
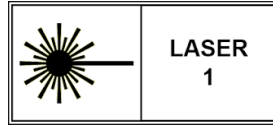
<b>Precision</b> Precision data generated by a trained professional running five instruments across two days. Ten replicates of normal level control were gathered each day for a total of 100 precision runs.	WBC	3.0%
	RBC	1.5%
	HGB	1.5%
	HCT	1.5%
	PLT	4.0% (100 K/μL or more)
	%NEU	8.0%
	%LYM	8.0%
	%MONO	11.0%
	RETIC	15% (RBC 3.00 M/μL or more, %RETIC 1%–4%)
	%RETIC	15% (RBC 3.00 M/μL or more, %RETIC 1%–4%)

<b>Analysis Parameters</b>	See <a href="#">Analysis parameters</a>	
<b>Accuracy</b> Analysis was generated from 150 total clinical samples and compared to the original ProCyte Dx Analyser.	WBC	R ≥ 0.95
	RBC	R ≥ 0.95
	HGB	R ≥ 0.95
	HCT	R ≥ 0.95
	PLT	R ≥ 0.90
	RETIC	R ≥ 0.90
	%RETIC	R ≥ 0.90
	%NEU	R ≥ 0.90
	%LYM	R ≥ 0.60
	%MONO	R ≥ 0.60
	%EOS	R ≥ 0.70
%BASO	R ≥ 0.45	
<b>Linearity</b> Data generated using both whole blood panels and commercially available linearity controls.	WBC	0–310 K/μL R ≥ 0.95
	RBC	0.00–16.00 M/μL R ≥ 0.95
	HGB	0.0–25.0 g/dL R ≥ 0.95
	HCT	0.0%–60.0% HCT R ≥ 0.95
	PLT	0–2000 K/μL R ≥ 0.95
	%RETIC	0.0%–23% R ≥ 0.90
	RETIC	0.00–3.0 M/μL R ≥ 0.90
	<b>Carryover</b>	WBC
RBC		1.0% or less
HGB		1.0% or less
HCT		1.0% or less
PLT		1.0% or less
<b>Aspiration Volume</b>	30 μL	
<b>Sample Volume Required for Proper Aspiration</b>	VetCollect™ sample tube: Minimum of 500 μL Micro sample tube: Minimum of 90 μL (dependent on the tube manufacturer's recommendations)	
<b>Data Storage Capacity</b>	Data is stored on the IDEXX VetLab™ Station. The IDEXX VetLab Station memory is upgradeable, and therefore, data capacity is virtually unlimited.	
<b>Storage Condition (Transportation)</b>	Ambient temperature: -10°C–60°C (14°F–140°F)	
	Relative humidity: 10%–90% or less (no condensation/keep dry)	

## Laser

Class 1 Laser Product containing a Class 3B Embedded Laser:

- Beam divergence (with cover off): 3 degrees
- Maximum output power: 40 milliwatts
- Wavelength: 640 nanometers
- Output: Continuous (CW)
- Laser hazard classification: Class 3B, "Warning"



This equipment complies with:

- FDA Standard 21 CFR 1040.10
- IEC 60825-1:2014

## Reagent kit and stain pack operating and storage temperatures

Operating temperature: 15°C–30°C (59°F–86°F)

Storage temperature: 2°C–30°C (36°F–86°F)

## Reagent kit specifications

The reagent kit has an unopened stability of 12 months from date of manufacture. Once opened, the product stability is 45 days or until the date of expiration (whichever comes first). Reagent kits must be kept at room temperature (15°C–30°C/59°F–86°F) when connected to the Analyser. Kits that are not connected should be stored at 2°C–30°C (36°F–86°F).

	Intended use	Active ingredients	Methodology	Warnings and precautions
<b>System Diluent</b>	Diluent for use in the ProCyte Dx Haematology Analyser.	Sodium chloride: 6.38 g/L Boric acid: 1.0 g/L Sodium tetraborate: 0.2 g/L EDTA-2K: 0.2 g/L	System Diluent is a ready-to-use diluent for photoelectrical analysis of whole blood.	Do not ingest and avoid skin and eyes. In case of contact, flush with plenty of water immediately. Consult with physician in case of ingestion and/or contact with eyes.
<b>Lytic Reagent</b>	Reagent used to selectively lyse red blood cells from a sample, leaving white blood cells for analysis.	Nonionic surfactant: 0.18% Organic quaternary ammonium salts: 0.08%	Lytic Reagent is a ready-to-use reagent for Analysing white blood cell by photometric measurement.	Do not ingest and avoid skin and eyes. In case of contact, flush with plenty of water immediately. Consult with physician in case of ingestion and/or contact with eyes.

<b>Reticulocyte Diluent</b>	Diluent used to determine the reticulocyte count and reticulocyte percent in blood.	Tricine buffer: 0.18%	Reticulocyte Diluent is a ready-to-use diluent used for Analysing reticulocytes in blood.	Wear gloves and a lab coat for protection. Avoid contact with skin and eyes. In case of skin contact, rinse immediately with plenty of water. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If swallowed, induce vomiting and seek medical advice.
<b>HGB Reagent</b>	The HGB Reagent is used to determine the hemoglobin concentration of blood.	Sodium lauryl sulfate: 1.7 g/L	The HGB Reagent is a clear, azide-free and cyanide-free, low toxicity reagent. Hemoglobin measurement using the HGB Reagent is based on the sodium lauryl sulfate method developed by Iwao Oshiro et al (SLS-hemoglobin method). In the SLS-hemoglobin method, an anionic surfactant, sodium lauryl sulfate (SLS) lyses the red blood cell membrane, releasing hemoglobin. The same SLS reagent subsequently combines with the released hemoglobin to form a stable hemichrome. The concentration of hemoglobin is then quantified by colourimetry using a filter photometer. The HGB Reagent has advantage over other cyanide-free methods in that it is able to measure the hemoglobin derivatives deoxyhemoglobin, oxyhemoglobin, carboxyhemoglobin, and methemoglobin.	Do not ingest. Avoid contact with skin and eyes. For skin contact, flush the area with water. If eyes are affected, flush with copious amounts of water and contact a physician. If ingestion occurs, give ematic (warm normal saline) until vomit fluid is clear and contact a physician.

**Literature references**

Oshiro I, Takenata T, Maeda J. New method for hemoglobin determination by using sodium lauryl sulfate (SLS). *Clin Biochem.* 1982;15:83–88.

## Stain pack specifications

The stain pack has an unopened stability of 12 months from date of manufacture. Once opened and installed in the instrument, it is stable for 180 days or until expiration, whichever comes first. Stain packs must be kept at room temperature (15°C–30°C/59°F–86°F) when connected to the Analyser. Packs that are not connected should be stored at 2°C–30°C (36°F–86°F).

	<b>Intended use</b>	<b>Active ingredients</b>	<b>Methodology</b>	<b>Warnings and precautions</b>
<b>Leukocyte Stain</b>	The Leukocyte Stain is used to stain the leukocytes in diluted and lysed blood samples for determination of the five-part differential count with the ProCyte Dx Haematology Analyser.	Polymethine dye: 0.002% Methanol: 3.0% Ethylene glycol: 96.9%	A sample volume of a whole blood specimen is introduced into the Analyser where a portion of it is automatically diluted with and lysed by the Lytic Reagent. The Leukocyte Stain is then added, and the entire dilution is maintained at a constant temperature for a defined time period in order to stain the nucleated cells in the sample. The stained sample is then introduced into the laser flow cytometer, where side scatter light and side fluorescent emission are measured allowing the neutrophil (NEU) count and percentage, the lymphocyte (LYM) count and percentage, the monocyte (MONO) count and percentage, the eosinophil (EOS) count and percentage, and the basophil (BASO) count and percentage to be computed.	Wear gloves and a lab coat for protection. Avoid contact with skin and eyes. In case of skin contact, rinse immediately with plenty of soap and water. In case of contact with eyes, rinse immediately with water or normal saline, occasionally lifting upper and lower lids until no evidence of dye remains. Obtain medical attention. If swallowed, induce vomiting and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately.

<b>Reticulocyte Stain</b>	Reticulocyte Stain is used to stain the reticulocyte population of cells for the assay of reticulocyte count and reticulocyte percent in blood with the ProCyte Dx Haematology Analyser.	Polymethine dye: 0.03% Methanol: 7.1% Ethylene glycol: 92.8%	A sample volume of a whole blood specimen is introduced into the Analyser where a portion of it is automatically diluted with Reticulocyte Diluent (from the ProCyte Dx Reagent Kit). Reticulocyte Stain is then added, and the entire dilution is maintained at a constant temperature for a defined time period in order to stain the reticulocytes present in the sample. The stained sample is then introduced into the laser flow cytometer, where forward light scatter and side fluorescent emission are measured allowing for the reticulocyte count (RETIC) and the reticulocyte percent (%RETIC) to be computed.	Wear gloves and a lab coat for protection. Avoid contact with skin and eyes. May produce irritation and discolouration of skin. In case of skin contact, wash affected area with soap and water. Polymethine dyes may result in irritation or injury to the eye. In case of contact with eyes, rinse immediately with water or normal saline, occasionally lifting upper and lower lids, until no evidence of dye remains. Obtain medical attention. If swallowed, induce vomiting and seek medical advice. Do not breathe vapor. In case of accident or if you feel unwell, seek medical advice immediately.
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## International symbol descriptions

International symbols are often used on packaging to provide a pictorial representation of particular information related to the product (such as expiration date, temperature limitations, batch code, etc.). IDEXX Laboratories has adopted the use of international symbols on our Analysers, product boxes, labels, inserts, and manuals in an effort to provide our users with easy-to-read information.



Use by



Temperature limitation



Caution, hot surface



Electrostatic-sensitive device



Batch code (Lot)



Upper limit of temperature



Keep dry



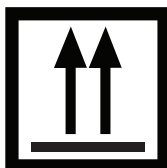
Fragile



Serial number



Consult instructions for use

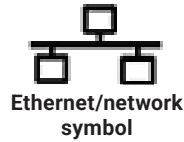
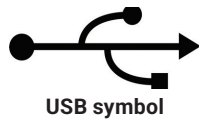


This side up



Date of manufacture

REF  
Catalog number



EC REP  
Authorized Representative in the European Community



WEEE Directive 2002/96/EC

**GHS P 304/312**  
IF INHALED:

**GHS P 312**  
Call a POISON CENTER or doctor/physician if you feel unwell



**GHS H 303/313/333**  
May be harmful if swallowed, on contact with skin, and if inhaled

## Caution symbols on the Analyser

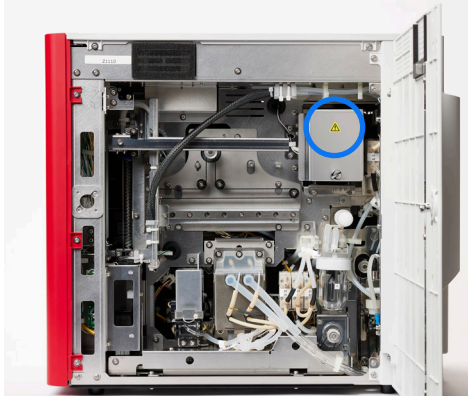
### Right side of the Analyser (exterior)

Do not put your fingers inside the analyser when the analyser is powered on. Doing so may result in injury. (Caution symbol circled below.)



## Right side of the Analyser (interior)

To avoid electrical shock, unplug the analyser before servicing.



## Rear of the Analyser

To avoid electrical shock, unplug the analyser before servicing.

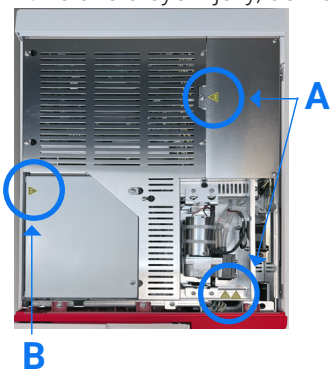
Replace only with fuses of the specified type and current rating. The fuse rating is 5.0 A L 250 V (time lag low breaking capacity).



## Top of the Analyser (interior)

A. To avoid electrical shock, unplug the analyser before servicing.

B. To avoid eye injury, do not tamper with the protective cover on the analyser's built-in semiconductor laser unit.



## IDEXX Customer and Technical Support contact information

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**IDEXX**

