



Thermo Scientific

TruNarc

User Guide

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Contents

Preface

The Thermo Scientific™ TruNarc™ analyzer is a 785-nm Raman spectrometer used for the rapid identification of suspected narcotics. Designed for law enforcement organizations, this handheld narcotics identification system analyzes most substances through sealed packaging and provides clear, definitive results. Using the companion TruNarc Admin software, results may be uploaded to a computer, and reports may be generated for every scan.

This guide describes how to scan substances with the TruNarc analyzer, interpret scan results, use the TruNarc Admin software to set up and manage a database of results, purchase scan credits, and maintain the instrument.

This guide includes a Safety section, [Chapter 6](#), that describes the safety features of the TruNarc. These safety features were designed to address the inherent danger associated with clandestine (Clan Labs). Be sure to review these features before using TruNarc in this environment.

Contacting Us

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Mail		2 Radcliff Road, Tewksbury, MA 01876

Safety Notices

The TruNarc analyzer is designed to be used in a typical field environment and is therefore considerably more rugged than a laboratory instrument. However, the user should recognize that this is a precision scientific instrument. Abuse and mistreatment of the TruNarc analyzer may lead to degraded performance or premature failure.



CAUTION

The TruNarc analyzer is not designed to be intrinsically safe, and the user should take the necessary precautions when using the analyzer.



CAUTION

Do not use the TruNarc analyzer unless you have been trained in its use.



CAUTION

The TruNarc analyzer incorporates a laser diode that emits a maximum 350-mW beam at 785 nm. A 9-mm focal length lens is used to concentrate the energy on a sample. The beam diameter at the plane of the focal lens is approximately 9.6 mm.



CAUTION

CAUTION: This instrument is certified as a Class IIIB laser product to the requirements of the U.S. Federal Product Performance Standard for Laser Products contained in the regulations of 21 CFR Sub-Chapter "J" except for deviations pursuant to Department of Health and Human Services issued Laser Notices. The TruNarc analyzer also complies with IEC 60825-1 Ed. 2(2007).



CAUTION

Exposure to Class IIIB levels of laser energy can be hazardous. Avoid exposure to the beam. Exposure to specular (mirror-like) reflections should also be avoided. Never point the TruNarc analyzer at anyone. In the absence of a workplace safety standard or requirements, refer to the American National Standard ANSI Z136.1 for the safe use of lasers or the International Standard IEC 60825-14 user's guide for guidance on identifying and controlling hazards associated with laser use. Calculations performed in accordance with the recommended practices of ANSI Z136.1 and IEC 60825-1 give a Nominal Ocular Hazard Distance (NOHD) of approximately 14 inches (35 cm) from the sample point of the lens and an estimated optical density (OD) greater than 3.



CAUTION

Exposure to levels of laser energy above the maximum permissible exposure (MPE) can be harmful to the eye. The MPE for this analyzer is 1.48 mW/cm². The emitted energy must travel a minimum distance of 14 inches (35 cm) before its concentration is below the MPE for normal viewing. This distance is defined as the hazard zone. With proper use, exposure to levels above the MPE can be avoided. Avoid exposure to the beam.

**CAUTION**

Use administrative controls, engineering controls, and/or laser safety glasses to avoid exposure to laser radiation within the 14-inch (35 cm) hazard zone. Use laser safety eyewear of an optical density (OD) greater than 3 at 785 nm.

**CAUTION**

Do not operate the TruNarc analyzer if the laser aperture is cracked. When the laser aperture is cracked, the instrument's laser beam is collimated rather than divergent, and the laser is no longer safe to operate under any circumstances. The laser aperture is most likely to crack when you drop the instrument. To check for cracks, turn the instrument off, remove the nose cone, and check the integrity of the laser aperture. If the laser aperture is cracked, take the instrument out of service and contact Thermo Fisher Scientific Customer Support.

**CAUTION**

There are no user-serviceable components inside the TruNarc analyzer. The connector compartment door may be opened, but do not open the protective enclosure or modify the electronics within. All service operations must be performed by Thermo Fisher Scientific or an authorized service agent of Thermo Fisher Scientific. Any attempt by the user to open the TruNarc analyzer will render the warranty null and void.

**CAUTION**

WARNING: Use of controls, adjustments, or performance of procedures other than those specified herein or those specified by the manufacturer's personnel may result in a hazardous condition.

**CAUTION**

Follow your organization's procedure and regulations for the handling of unknown substances. **WARNING:** Scanning a thermally sensitive material contained in a tightly sealed vessel (e.g., capped jar or vial) with the TruNarc analyzer may cause a pressure build up and subsequent explosion of the vessel.

P Preface



The Solution Kit (Type H) holds vials of ethanol. These vials are used in the testing procedure. Ethanol is categorized as a hazardous good and a flammable substance. Consult the Materials Safety Data Sheet (MSDS) on ethanol for detailed safety information. You will find a copy of the MSDS inside the box in which the Solution Kit (Type H) is packaged. Be sure to check shipping regulations and requirements before shipping the Solution Kit (Type H) or transporting it on an airplane. Do not ship broken or leaking ethanol vials.

Eye Safety



Do not point the instrument at the eyes of other people.

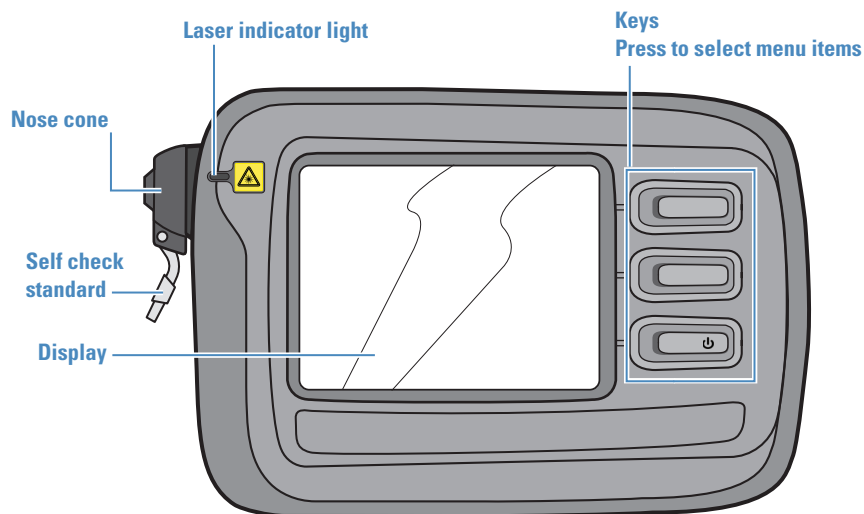


Do not look at the laser aperture when the laser is on. Keep your eyes outside the laser's Hazard Zone of approximately 14 inches (35 cm), measured from the laser's aperture.

Getting Started

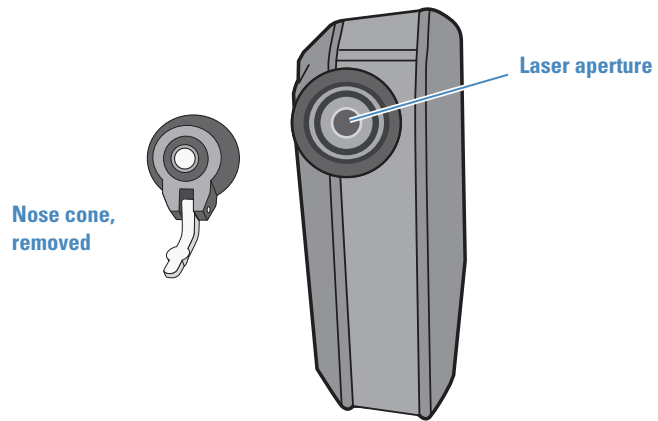
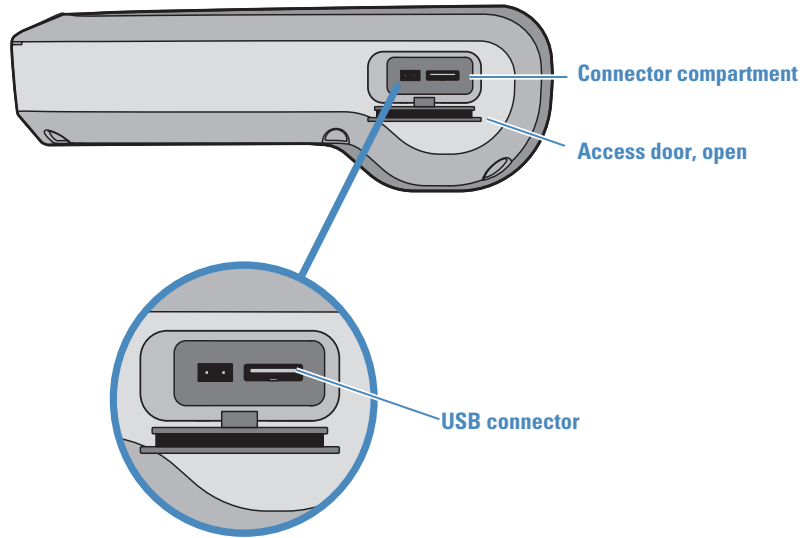
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TruNarc Analyzer Front Diagram



1 Getting Started

TruNarc Analyzer Side and Bottom Diagrams



Carrying Case Contents

The carrying case holds the following accessories:

- A spare nose cone
- The AC adapter cable
- The USB cable
- A copy of the *TruNarc Analyzer User Guide* (this document)
- The *TruNarc Analyzer Quick Start Guide*
- A CD or USB stick containing the TruNarc Admin software

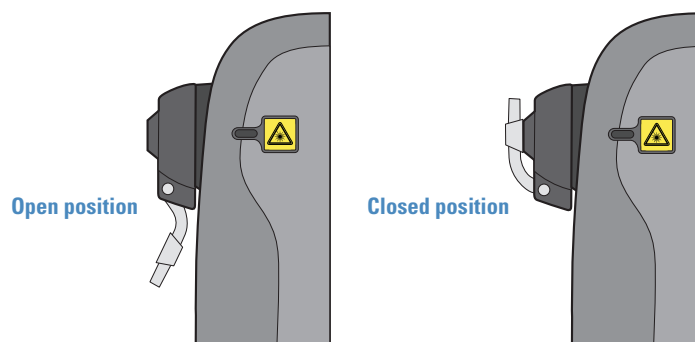
If you purchased the instrument configuration that includes Solution Kits (Type H), it contains:

- Sealed vials of ethanol that are used during the Type H testing procedure
- Individually packaged Type H test sticks

Inside of the box in which the Solution Kit (Type H) is packaged, you will find a copy of the Materials Safety Data Sheet for ethanol. This document provides detailed information about safety guidelines for handling ethanol.

Positioning the Self Check Standard

The self check standard is a plastic bar that is attached to a hinge on the bottom of the nose cone. The self check standard must be raised to its closed position whenever you perform a self check. The self check is a diagnostic procedure that you perform at regular intervals to verify that the analyzer is operating properly. See [page 19](#) for information on performing a self check.

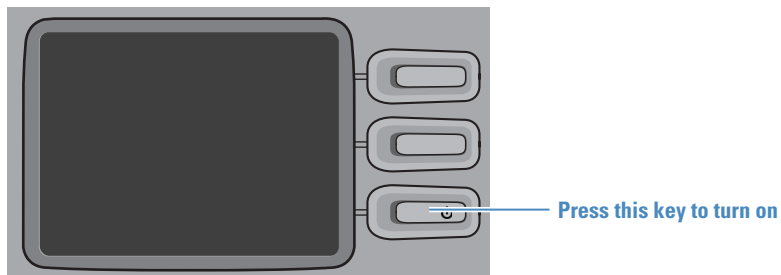


Turning the TruNarc Analyzer On and Off

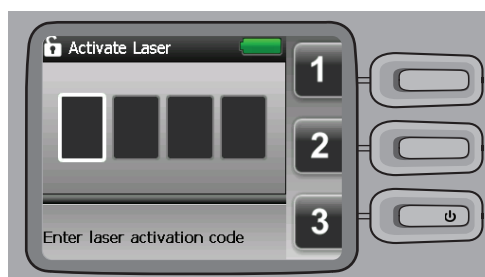
The TruNarc analyzer is powered by an internal, non-removable battery. For information on recharging the battery, see [page 14](#).

❖ To turn the TruNarc analyzer on

Press the bottom key to turn the analyzer on.



The Activate Laser screen appears. To operate the analyzer, you must enter the laser activation code into this screen (see [page 13](#)).



❖ To turn the TruNarc analyzer off

Press and hold the bottom key for 10 seconds.

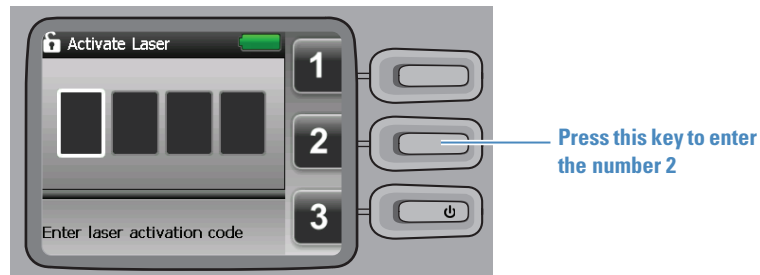
Five seconds after you begin pressing the key, the analyzer displays countdown screens for the remaining 5 seconds.

If you release the key before 10 seconds elapse, the shutdown process stops, and the analyzer remains turned on.

Activating the Laser

To activate the laser, you must enter a code into the analyzer. You will receive the laser activation code after you complete the required training. The TruNarc Admin software includes a hyperlink to the training course.

When you turn on the TruNarc analyzer, the Activate Laser screen shows three numbers next to the three analyzer keys. Press the keys that correspond to the numbers in the laser activation code.



When you finish, the Welcome screen appears. If you purchased a Pay-Per-Scan configuration of the TruNarc analyzer, the Welcome screen displays the number of available scan credits.



Welcome screen for the Pay-Per-Scan configuration



Opening and Closing the Access Door

The access door on the bottom of the analyzer (see [page 10](#)) is designed to securely seal the connector compartment.



When the access door to the connector compartment is open, the environmental seal is broken, and the system is no longer water- and dust-resistant.

❖ **To open the access door**

Pry the door loose with your thumb, and then gently pull it open.

❖ **To close the access door**

Press the door firmly into the opening to completely seat it into the connector compartment opening.

Recharging the Battery

The battery provides eight hours of power in normal use. To determine approximately how much battery power is left in the analyzer, check the battery power icon in the top right corner of the display.

You can recharge the battery by connecting the analyzer to an electrical outlet or to a USB port on a computer.

Connecting to an electrical outlet is the fastest method, with a recharge time of three hours for a completely discharged battery. Connecting to a computer is a much slower way to recharge. You may find it convenient to leave the analyzer connected to the computer overnight when you choose to recharge with that method.



When battery power is critically low, the battery power icon turns red, and the analyzer displays a warning that it is time to recharge the battery.

If you do not recharge the battery at this point, the battery will soon become depleted, and the analyzer will automatically shut down. If this happens, recharge the battery as described in this section.

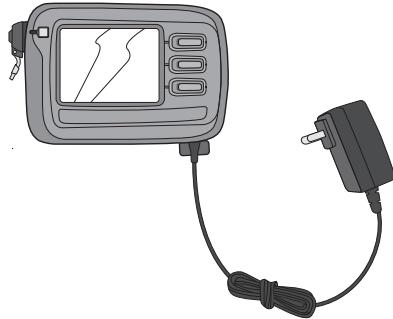
❖ **To recharge the battery by connecting the analyzer to an electrical outlet**

- 1 Connect the AC adapter cable to the USB connector inside the connector compartment.
- 2 Plug the cable into an electrical outlet.

❖ **To recharge the battery by connecting the analyzer to a computer**

- 1 Connect the USB cable to the USB connector inside the connector compartment.
- 2 Plug the cable into a USB port on a computer.

AC adapter cable connected



USB cable connected

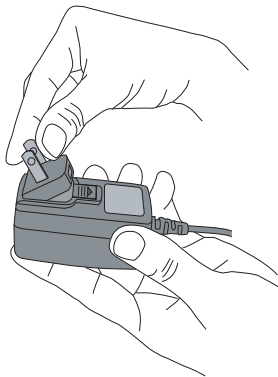


Setting the Date, Time, and Time Zone

You must use the Admin software to change the date, time, and time zone that the analyzer uses (see [page 43](#)).

Using the Wall Plug Adapters

Your TruNarc analyzer comes with a set of international wall plug adapters. To install an adapter, press it into the recess in the wall plug of the AC adapter cable, until the adapter clicks into place. To remove an adapter, slide the release latch down and pull the adapter out.



1 Getting Started

Performing a Scan

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Follow Safe Scanning Practices



CAUTION

Do not use the TruNarc analyzer if you have not successfully completed the training course for the product. The TruNarc analyzer uses a Class IIIB laser. Failure to follow recommended safety procedures can cause damage to the eyes, hazard of fire, and/or hazard of detonation or explosion.



CAUTION

Do not scan gunpowder, match tips, or any material that you suspect may be thermally sensitive.



CAUTION

Use extra caution in the following situations, which pose special ignition hazards for scans of potentially thermally sensitive materials:

- The material is lying on a dark-colored surface, such as a dark tabletop. Such a surface can absorb heat and laser energy, which can heat the material to its ignition point.
- The material is lying on filter paper. Papers made of dense cellulose fibers, such as coffee filter papers or paper towels, can trap laser heat and catch fire.

Follow these safety practices whenever you scan a substance:

- 1 Maintain at least 14 inches (35 cm) of distance between the analyzer and your eyes. (This distance is the Nominal Ocular Hazard Zone Distance, or NOHD.)
- 2 Never point the TruNarc analyzer at anyone's eyes.
- 3 Never operate the TruNarc analyzer when the laser aperture is cracked (to locate the laser aperture, see the illustration on [page 9](#)). To check for cracks, make sure that the analyzer is turned off (see [page 12](#)), remove the nose cone, and visually inspect the laser aperture. Always check the laser aperture for cracks if you drop the analyzer.
- 4 When scanning material that may be thermally sensitive:
 - Use the Scan Delay feature to conduct scans from a safe distance, as described in [Chapter 6](#).
 - Do not scan the material in place if it is lying on filter paper or similar cotton-fiber bases. Instead, place a sample of the material in a container such as a plastic bag or glass vial and then scan the container.
 - Use extra caution if the material is lying on a dark surface. Transfer the sample onto a piece of firm white paper for safe scanning. If possible, scrape the material into a small pile before you scan it, to ensure that the laser sample point is within the sample and is not striking the underlying dark surface. See below for an explanation of the sample point for the TruNarc analyzer.
 - Wear all necessary personal protective gear.
- 5 When scanning in vial mode, always uncap the vial to prevent a projectile hazard caused by the build up of pressure. Likewise, never stand directly over the vial when scanning in vial mode.
- 6 Minimize the size of the sample to reduce the impact if the sample ignites:
 - Liquids ~ 300 ul (< 5 drops)
 - Solids ~ 300 mg (size of a pea)
- 7 The heat sink may become warm to the touch when you perform many scans consecutively. The heat sink is a black area on the back of the analyzer, adjacent to the back label. Avoid touching your fingers to the heat sink when holding the analyzer during a scan.

How to Get a Good Scan

To get a good scan, the strongest spot in the laser beam should be positioned within the substance that you are scanning. This spot is called the **laser sample point**.

The sample point is permanently positioned at 2.2 mm from the nose cone. Removing the nose cone does not change the position of the sample point. The only purpose of the nose cone is to help you manually position the analyzer when you perform a scan.

The Best Practices table (see [page 22](#)) describes the most effective way to position the sample point for the most common scanning situations.

Performing a Self Check

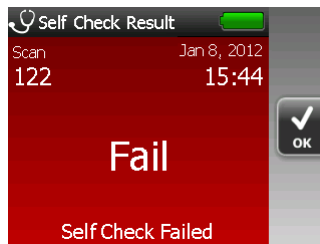
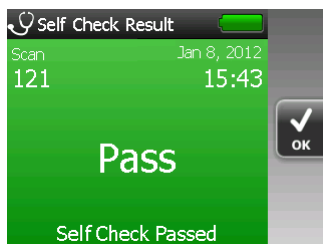
The self check is a diagnostic test that verifies that the analyzer is operating according to its factory settings. Performing self checks regularly helps to strengthen the validity of your scan results by documenting that the analyzer was operating properly at the time of the scan.



At a minimum, you should perform a self check at the start and end of every work shift. Depending on your department's standard operating procedure, you may elect to conduct the test more frequently than this.

During the self check, the TruNarc analyzer scans the self check standard that is attached to the nose cone (see illustration on [page 11](#)). There are two possible results:

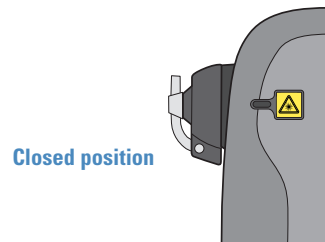
- A **Pass result** means that the analyzer is operating according to factory specifications.
- A **Fail result** indicates a problem.



2 Performing a Scan

Step 1

Move the self check standard to the closed position.



Step 2

In the Welcome screen, select **Check**.



Step 3

In the Self Check screen, select **Check**. The self check begins.



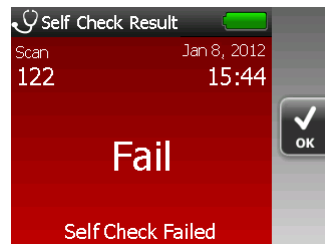
Step 4

When the laser light turns off, the results appear.

- If you get a Pass result, click **OK** to return to the Welcome screen.



- If you get a Fail result, clean the self check standard and the nose cone and repeat the self check.



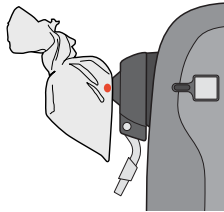
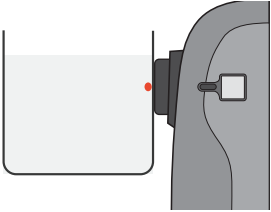
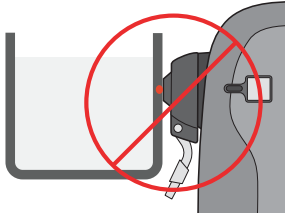
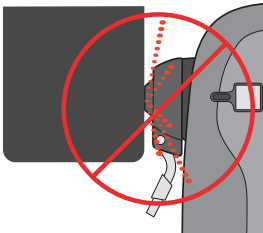
- If you obtain another Fail result, contact Thermo Fisher Scientific Customer Support (see [page 5](#) for contact information).

Open the self check standard when you are finished.



Don't forget to move the self check standard to the open position after you perform a self check! If you forget to do this, the next time that you scan evidence samples you will be scanning the standard instead of the sample.

Best Practices for Scanning

For this situation	Do this	
<p>Plastic bag holding a powder, a paste, pills, or crystals</p> <p>Made of clear or translucent plastic</p>	<p>Press the nose cone into the bag.</p> <p>Hold the bag in place with your index finger.</p> <p>Press bulky materials, such as pills or crystals, firmly on the nose cone, so that you are not scanning air.</p> <p>NOTE You cannot scan trace residues, such as a film of powder. The sample must be at least the size of a grain of rice.</p>	
<p>Thin-walled container</p> <p>Less than 2 mm thick, made of clear or translucent glass or plastic</p> <p>Examples: Plastic water bottle, plastic milk jug, syringe</p>	<p>Remove the nose cone and hold the laser aperture on the container surface.</p> <p>TIP When you scan a syringe, make sure that you are scanning liquid and not a bubble of air.</p>	
<p>Thick-walled container</p> <p>More than 2 mm thick, made of clear or translucent glass or plastic</p> <p>Examples: Wine bottle, solvent bottle, canning jar, carboy</p>	<p>You cannot scan through this type of container because the laser sample point will be positioned within the container wall.</p> <p>Remove a sample of the substance and place it in a plastic bag, vial or a thin-walled container for scanning.</p>	
<p>Opaque or frosted container</p> <p>Examples: Foam cup, soda can</p>	<p>You cannot scan through this type of container because the laser cannot penetrate it.</p> <p>Place a sample of the substance in a plastic bag for the scan.</p>	

For this situation	Do this	
<p>Powder or paste on a surface</p>	<ol style="list-style-type: none"> Scrape the powder or paste into a small pile high enough to hide the underlying surface. Hold the nose cone just above the pile. 	
<p>Tablet or pill</p>	<p>Hold the tablet or the pill on the nose cone during the scan.</p> <p>If the tablet or pill is coated, first try to scan through the coating. If you get an Inconclusive result, scrape off the coating and scan the underlying surface, or break the tablet or pill in half and scan the interior surface.</p>	
<p>Capsule</p>	<p>Hold the clear end of the capsule on the nose cone.</p> <p>NOTE If the capsule is completely opaque, empty it into a plastic bag for the scan.</p>	
<p>Crack pipe Made of clear or translucent glass or plastic</p>	<p>Hold the nose cone directly over a piece of material in the pipe.</p> <p>NOTE The pipe must contain large chunks of residue. You cannot scan trace residues.</p>	
<p>Large piece of solid material Example: Cocaine brick</p>	<ol style="list-style-type: none"> Remove any opaque wrappings, such as aluminum foil. You do not need to remove clear plastic wrap. Hold the nose cone on the surface. <p>TIP If possible, place a sample in a plastic bag for the scan.</p>	

Performing a Scan



NOTE

Some narcotics require a special scanning procedure. Consult the most recent library list to determine which narcotics require the special scanning procedure for identification. If you suspect that your sample could be one of these narcotics, follow the scanning instructions in [Chapter 3](#).

Before you start, make sure that you know the best way to scan the sample (see the Best Practices table on [page 22](#)).

Step 1

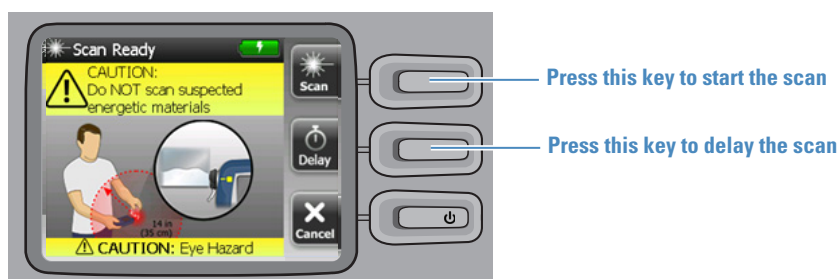
Turn on the TruNarc analyzer and activate the laser (see [pages 12 and 13](#)). Select **Scan** in the Welcome screen.



Step 2

Select **Scan** in the Scan Ready screen. The scan begins immediately. The laser indicator light glows when the laser is active.

If you need time to move to a safe location before the scan starts, select **Delay** and specify the delay time (15-120 sec) in the Delay screen. See [Chapter 6](#).



Step 3

When the scan finishes, the laser indicator light turns off, and the instrument begins analyzing the data. You can move the sample away from the analyzer now. When the analysis step finishes, the analyzer displays a result screen.

Understanding Scan Results



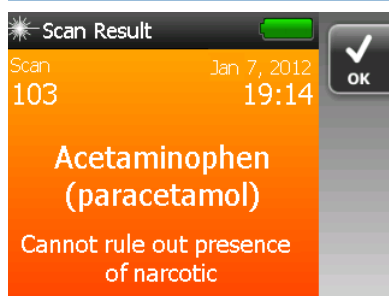
Alarm result

The analyzer identified one or more controlled substances. The names of all the identified controlled substances are listed in the result.



Clear result

The analyzer did not detect a controlled substance, but it did detect a cutting agent.



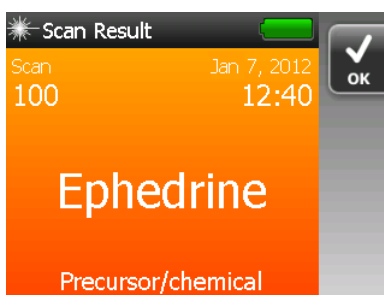
Acetaminophen (paracetamol) result

The analyzer detected acetaminophen (paracetamol).

Be careful when interpreting this result! This screen does not mean that no narcotics or other controlled substances are present, only that the analyzer identified acetaminophen (paracetamol). It is possible that the sample contains narcotics or other controlled drugs in amounts that are too small for the analyzer to detect.

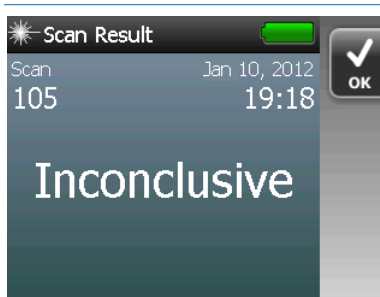
Note that other similar results occur for aspirin and ibuprofen.

2 Performing a Scan



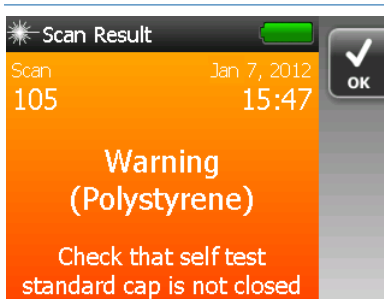
Precursor/chemical result

The analyzer identified a substance that is used in the manufacture of a controlled substance.



Inconclusive result

The analyzer did not identify either a controlled substance or a cutting agent.



Polystyrene Warning result

The self check standard was in the closed position during the scan, so that you scanned the standard instead of the sample.

Move the self check standard to the open position and repeat the scan.

Viewing Stored Scan and Self Check Results

The TruNarc analyzer stores all scan and self check results. You can review the stored results and upload them to the TruNarc Admin software (see [Chapter 4](#)).

Select **Review** in the Welcome screen.



The Review screen appears.



Press the buttons next to the up and down arrows to scroll up and down the list.

2 Performing a Scan

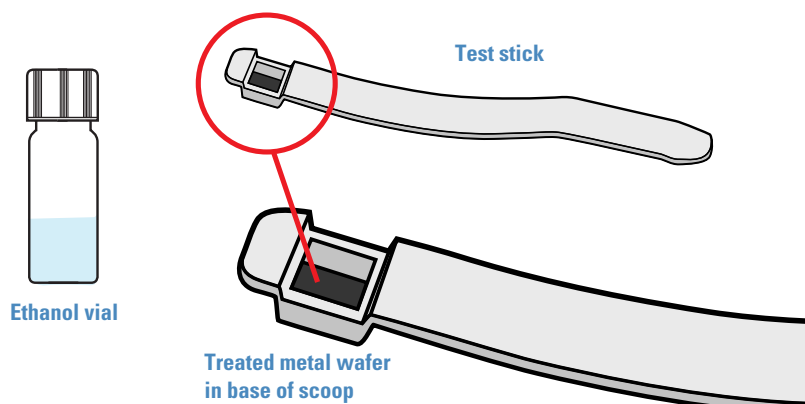
Using the Solution Kit (Type H)

- 29 How the Solution Kit (Type H) Works
- 30 Preparing for a Solution Kit (Type H) Scan
- 30 Performing a Solution Kit (Type H) Scan
- 33 Interpreting the Scan Result
- 34 Scanning Black Tar Heroin
- 34 Disposing of Used Test Sticks and Vials

How the Solution Kit (Type H) Works

Some narcotics pose an analysis challenge for the TruNarc analyzer: They may emit high levels of fluorescent light when stimulated by the TruNarc laser. Fluorescent light obscures the raman spectral data, in the same way that glaring light can obscure a photographic image. In this situation, although the analyzer collects enough data to identify the narcotic, it cannot process the data. To overcome this problem, the TruNarc analyzer comes with a test kit that uses a technology that dramatically reduces fluorescence.

The test kit consists of a small vial of ethanol and a plastic test stick with a scoop on one end. In the base of the scoop is a specially treated metal wafer. Using the procedures in this chapter, you apply a small amount of narcotic that has been dissolved in the ethanol solution to this wafer and scan it. Chemical events on the wafer surface reduce the amount of fluorescent light that the narcotic emits, so that the analyzer can identify the narcotic.



Preparing for a Solution Kit (Type H) Scan

Obtain an ethanol vial and a test stick package from the Solution Kit. Check the expiration date on the package and on the label that is on the vial, and do not use them if the date has passed.

When you are ready to do the scan, open a vial and a test stick package. Do not remove the test stick from the package until you are ready to use it, to protect it from contaminants. The test stick must be uncontaminated and dry for the scan.

Performing a Solution Kit (Type H) Scan

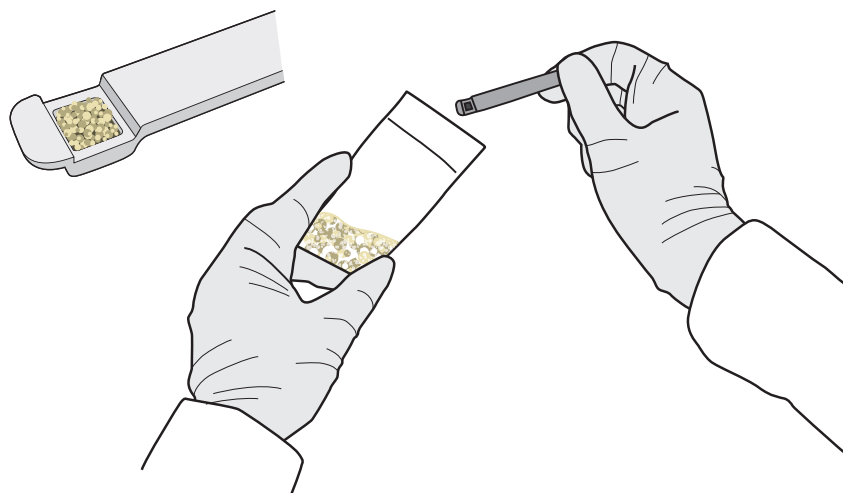
This section explains how to scan narcotics using the Solution Kit (Type H).

- For the list of narcotics that can be identified using the Solution Kit (Type H), reference the most recent library list.
- For information on scanning black tar heroin, see [page 34](#).

Step 1

Remove the test stick from its package and hold it by the end opposite from the scoop.

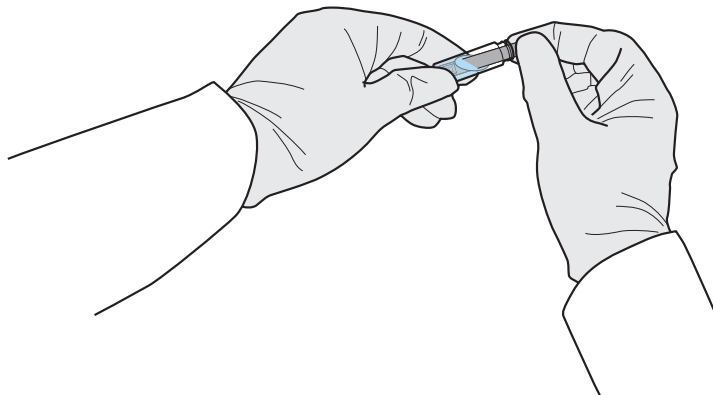
Fill up the scoop on the end of the test stick with the sample material. You do not need to pack the sample material into the scoop.



Step 2

Pick up the opened vial and place the filled scoop into the ethanol. Be sure to completely immerse the end of the stick in the solution, so that all of the sample material is emptied into the liquid.

Stir gently but thoroughly to rinse all of the sample material off of the scoop. The ethanol may change color or become cloudy if the sample includes a cutting agent. Such changes are harmless and will not affect the accuracy of the scan.



Step 3

Remove the test stick from the vial. Do not attempt to scoop any sample material from the vial onto the stick. Any narcotic that is in the sample material has now been adsorbed onto the metal wafer on the bottom of the scoop.

Let the test stick air-dry for 20-30 seconds. Do not shake the test stick.

While the test stick is air-drying, select **Scan** in the Welcome screen.



3 Using the Solution Kit (Type H)

Step 4

Use your index finger to firmly press the scoop end of the test stick to the center of the nose cone opening, as shown in the figure below.



NOTE

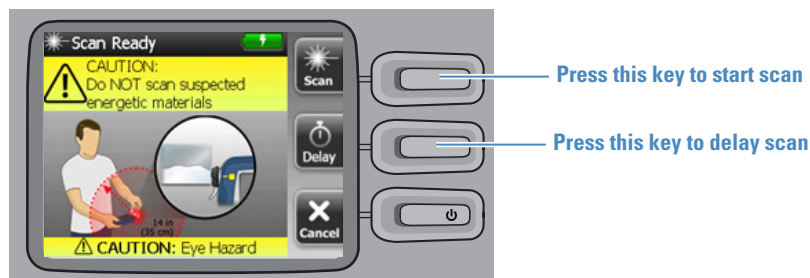
Be sure to center the scoop over the center of the nose cone. This will ensure that the testing surface is in the path of the laser beam. If you position the scoop incorrectly, you will scan the test stick plastic instead of the metal wafer.



Step 5

Select **Scan** again. The scan begins immediately. The laser indicator light glows when the laser is active. If you need to delay the scan, select **Delay**.

Hold the test stick and the analyzer still during the scan, to make sure that you scan the metal wafer.



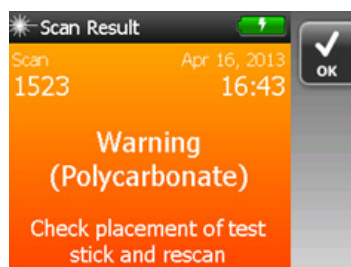
When the scan analysis step finishes, a scan result will appear.

Interpreting the Scan Result

An Alarm result for heroin looks like this.

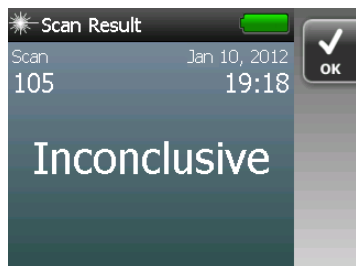


If you accidentally scan the plastic of the test stick instead of the metal wafer, a warning result appears.



If you get this warning, reposition the test stick to center the stick on the nose cone opening and repeat the scan.

You may obtain an Inconclusive result for a variety of reasons. For example, the concentration of the narcotic may be below the limits of detection.



If you get an Inconclusive result, repeat the scan using a new test stick but add more sample material to the existing vial instead of using a new one, to increase the concentration of the material in the solution.

Scanning Black Tar Heroin

Black tar heroin is as easy to scan as other sample materials, but it must be prepared for the scan differently.

- 1 Prepare an ethanol vial and a test stick package according to the instructions on [page 30](#).
- 2 Cut off a piece of heroin approximately the size of the heroin scoop.
- 3 Crush the heroin with a clean tool, such as the side of a knife.
- 4 Put the crushed heroin into the ethanol vial, replace the cap on the vial, and shake it a few times. When the ethanol solution is no longer clear, follow the instructions in steps 2 to 5 of the general procedure for scanning heroin (see [page 30](#)).

Disposing of Used Test Sticks and Vials

Dispose of used test sticks and ethanol vials according to your organization's policies and procedures for the disposal of used equipment and supplies.



NOTE

Do not try to re-use a test stick or an ethanol vial, even if you got an inconclusive result. A used test stick will not give accurate results. Used test sticks and ethanol vials may also be contaminated with drugs or substances that may reduce their effectiveness.

Using the TruNarc Admin Software

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Key Parts of the Main Window

The first time that you connect your TruNarc analyzer to the computer on which you installed the TruNarc Admin software, the display area in the main window will be empty.

When you upload scan results from the analyzer into the software, the results appear in rows in the display area. The process of copying scans into the software is termed “sync-ing data” (short for “synchronizing data”). See page 38 for an explanation of the sync-ing process.

Tools for searching for scan results by words or by date

These buttons appear when you connect a TruNarc analyzer to the computer

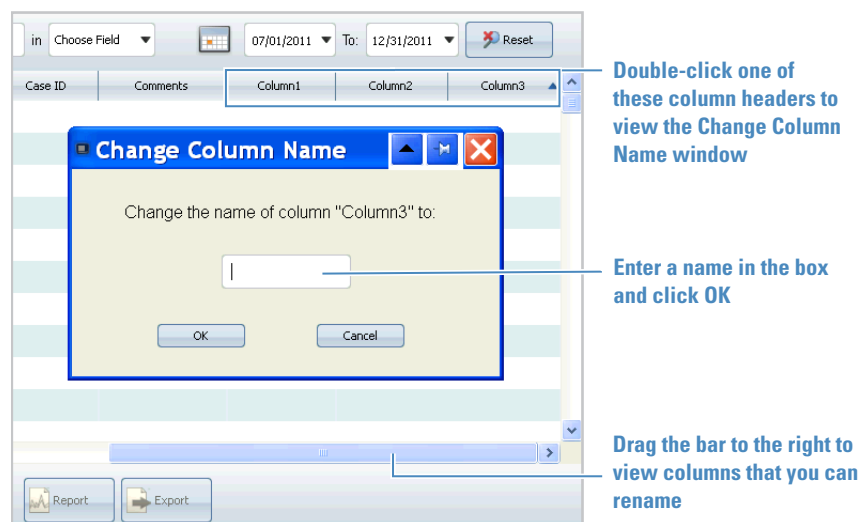
The screenshot shows the TruNarc Admin Software interface. At the top, there is a search bar with a magnifying glass icon and a 'Filter scans' label. Below the search bar is a table with columns: Time, Result Type, Scan ID, Name, and Analyzer SN. The table contains 22 rows of scan data. A blue callout box points to the table with the text 'Display area where scan results appear after sync-ing'. Below the table, there are 'Report' and 'Export' buttons. A blue callout box points to these buttons with the text 'Buttons that generate printable scan reports and export scan data in different formats'. On the right side of the interface, there is a sidebar with several buttons: 'Sync Scan Data', 'Analyzer Settings', 'Sync Scan Credits', 'Remove Scans from Analyzer', 'Register/Edit Account Info', 'Purchase Scan Credits', 'TruNarc Operator Training', 'View TruNarc Library', 'About TruNarc Admin Software', and 'Email Support'. At the bottom of the sidebar, there are phone numbers for domestic and international support. The Thermo Scientific logo is at the bottom right of the interface.

	Time	Result Type	Scan ID	Name	Analyzer SN	
8	12/02/2011	14:18:25	Alarm	230	Heroin	TN0026
9	12/02/2011	14:16:08	Alarm	229	Heroin	TN0026
10	12/02/2011	14:13:12	Alarm	228	MDMA	TN0026
11	12/02/2011	14:06:56	Alarm	227	Cocaine HCl	TN0026
12	12/02/2011				TN0026	
13	12/02/2011				TN0026	
14	12/01/2011				TN0026	
15	12/01/2011				TN0026	
16	12/01/2011	15:28:56	Alarm	122	Pseudoephedrine	TN0026
17	12/01/2011	15:28:21	Inconclusive	121	Inconclusive	TN0026
18	12/01/2011	15:26:54	Inconclusive	120	Inconclusive	TN0026
19	12/01/2011	15:24:38	Inconclusive	119	Inconclusive	TN0026
20	12/01/2011	15:23:53	Inconclusive	118	Inconclusive	TN0026
21	12/01/2011	15:23:25	Warning	117	Methyl ethyl ketone	TN0026
22	12/01/2011	15:22:43	Clear	116	Confectioner's sugar	TN0026

Total scans: 38
0 Selected

Renaming Columns

You can rename the last three columns in the software. To view these columns, scroll the main window to the right.



Changing the Order of Columns

To move a column to a different position, click the column header and drag it. You can reposition any column except for the Time column.

Entering Text into Columns

You can manually enter text into these columns:

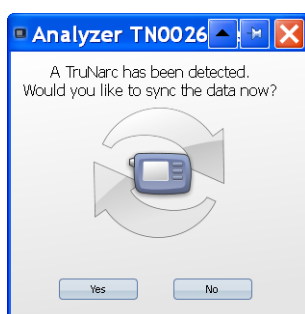
- Case ID
- Defendant
- Comment
- Any of the three columns that may be renamed

To enter text, double-click a table cell in one of these columns, then enter the text.

Synchronizing Data with the TruNarc Admin Software

When you synchronize (sync) data, all scan results that are stored in the TruNarc analyzer are copied into the Admin software, where they are displayed as rows of data.

- 1 Open the TruNarc Admin software.
- 2 Turn on the analyzer (see [page 12](#)) and enter the laser activation code (see [page 13](#)).
- 3 Connect the analyzer to the computer with the USB cable (see [page 10](#)).
- 4 The Analyzer Detected screen appears. Click **Yes** to sync the data.



NOTE

The Admin software only asks about syncing data when it detects that the analyzer contains scans that have not yet been sync-ed.

Searching for Scan Results by Key Words

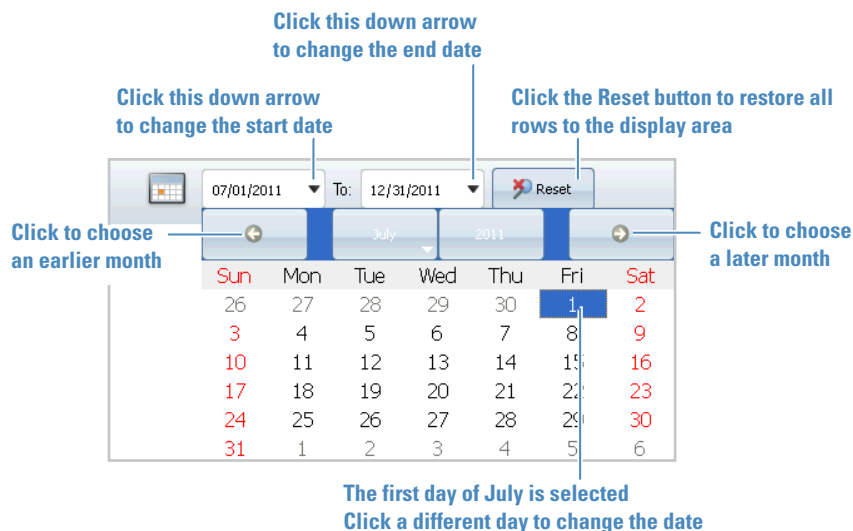
You can search for scan results by any word that appears in the display. The display will change to show only rows that contain the search terms.

(2) Enter a word or a phrase in the Search box (1) Click the down arrow and select a category Click the Reset button to restore all rows to the display area

	Time		Name	Scan ID	Analyzer SN
1	12/01/2011 15:29:47		Ephedrine	124	TN0026
2	12/01/2011 15:28:56		Pseudoephedrine	122	TN0026
3	12/01/2011 15:20:25		Pseudoephedrine	112	TN0026
4	12/01/2011 15:19:56	Alarm	Pseudoephedrine	111	TN0026
5	12/01/2011 14:54:44	Warning	Ephedrine	104	TN0026
6	12/01/2011 14:53:23	Warning	Ephedrine	103	TN0026

Searching for Scan Results by Date

To search by date, you must specify a start and an end date for the search.



Deleting Scan Results from the TruNarc Analyzer

Your organization's procedures may include periodically deleting scan results from the analyzer.

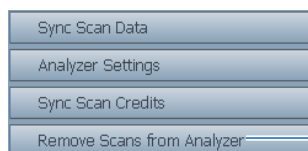
If the analyzer holds scan results that have not been sync-ed, the Admin software will require you to sync them before it will perform the deletion (see [page 38](#)).



NOTE

Deleting scans only removes them from the TruNarc analyzer. It does not delete any scans from the Admin software.

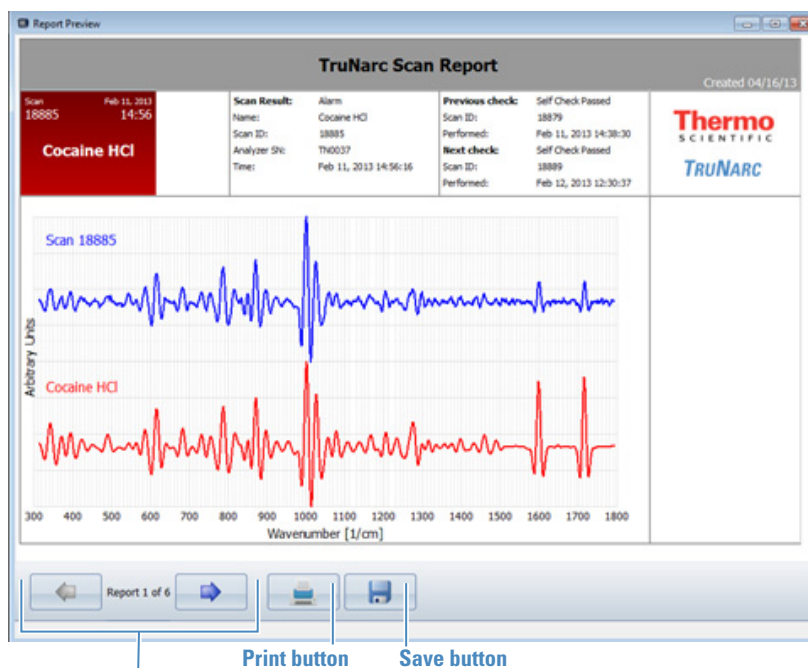
- 1 Connect the analyzer to the computer with the USB cable (see [page 10](#)).
- 2 Select **Remove Scans from Analyzer**.



- 3 Select **Yes** to delete all scans.

Viewing and Printing Reports

Reports are one-page summaries of scan results that you can print or save as PDF files. Reports appear in a preview window. You can create multiple reports at a time and page through them by clicking the arrows at the bottom of the window.



Click arrows to view other reports

❖ To view reports

- 1 Select the check box for one or more rows in the main window. The selected rows will turn yellow.
- 2 Click the Report button at the bottom of the main window.



❖ To print reports

- 1 Click the Print button at the bottom of the Report Preview window.



- 2 Select a printer, a page range, and the number of copies, then select **Print**.

❖ **To save reports to a PDF file**

- 1 Click the Save button at the bottom of the Report Preview window.



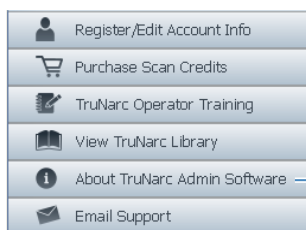
- 2 Enter a filename for the PDF, select the folder to which you want to save the PDF, then select **Save**.

Customizing the Report Logo

You can replace the Thermo Scientific logo located at the top right of reports with an image of your choosing, such as your department logo. Image dimensions must be 200 x 120 pixels.

❖ **To place a custom image on all reports**

- 1 Select **About TruNarc Admin Software** in the main window.



Select this option

- 2 Select **Customize Report Logo**.
- 3 Select **Import Image**, browse to the replacement image, and select **Open**. The next time you create a report, your image will appear in it.

❖ **To restore the default Thermo Scientific logo to reports**

- 1 Select **About TruNarc Admin** in the main window.
- 2 Select **Restore Default**.

Exporting Scan Results

You can export scan results to files of the following formats:

- **Comma-separated values file (.csv):** A text file.
- **SPC file (.spc):** A specially formatted file that can be read by spectral data analysis programs.
- **Reachback file (.arb):** A file that encodes data about the internal state of the analyzer at the time that a scan result was obtained. Customer Support uses Reachback files to diagnose problems with scans (see [page 45](#)).

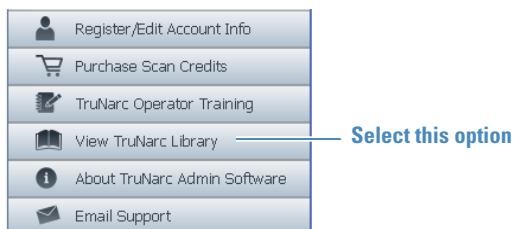
- 1 Select the check box for the scan results that you want to export.
- 2 Click the Export button at the bottom of the main window.



- 3 In the Save File Name window, name the exported file, browse to the folder where you want to save the result, and select **Save**.

Viewing the TruNarc Analyzer Library

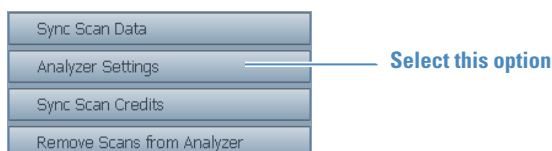
To view a list of all substances that produce Alarm, Warning and Clear results in the library of the analyzer that is connected to your computer, select **View TruNarc Library** in the main window.



Changing the TruNarc Analyzer Time

You may need to change the analyzer time to make it conform to your local time.

- 1 Connect the analyzer to the computer with the USB cable (see [page 10](#)).
- 2 Select **Analyzer Settings** in the main window.



- 3 To change the date and time:
 - **To change individual date or time components:**
In the System Time field, select each part of the date or the time that you want to change. You can select the month, the day, the year, the hour, the day, the seconds, or the AM/PM field.
After making a selection, enter the new value.
 - **To make the date and time match the computer date and time:**
Select **Same time as this computer**.
- 4 To change the time zone:
 - In the Analyzer Time Zone field, select the down arrow, then select a zone.
- 5 Select **Set** when done. The analyzer date and time immediately update.

Changing the TruNarc Analyzer Language

You can change the analyzer language at any time.

- 1 Connect the analyzer to the computer with the USB cable (see [page 10](#)).
- 2 Select **Analyzer Settings** in the main window.
- 3 In the Language field, click the down arrow and select a language.
- 4 Select **Set** when done. The analyzer language immediately changes.

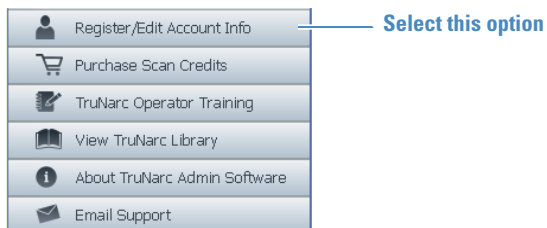
Viewing the Admin Software Version Number

Select **About TruNarc Admin Software** in the main window. The version number is listed in the About window.



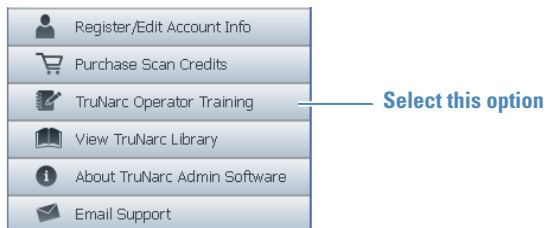
Editing Your TruNarc Admin Account Information

Select **Register/Edit Account Info** in the main window. Your browser opens the TruNarc analyzer Customer Support page, with the account information tab open. Edit the information, then click **Submit**.



Reviewing the TruNarc Admin Operator Training

To review training, select **TruNarc Operator Training** in the main window.



Maintenance and Getting Help

- 45 Getting Reachback Support
- 46 Cleaning the Nose Cone and Self Check Standard
- 46 Cleaning and Decontaminating the TruNarc Analyzer
- 46 Ordering Solution Kit (Type H) Test Sticks and Ethanol Vials
- 46 Locating the TruNarc Analyzer Serial Number
- 47 Purchasing Scan Credits
- 49 Transferring Scan Credits to One or More TruNarc Analyzers
- 50 Checking Whether Scan Credits Were Transferred
- 50 Returning the TruNarc Analyzer for Service

Getting Reachback Support

Reachback support is available for scan results that are suspicious, such as an Inconclusive result, or that have been obtained from a new type of drug that is not yet in the TruNarc analyzer library.

Follow the procedure below to send a Reachback file to Customer Support. Thermo Fisher Scientific chemists begin analyzing the scan data as soon as they receive the Reachback file. Within 24 hours, Customer Support will email you a final written report. Note that any Reachbacks that are received outside normal business hours in the U.S. East Coast are held and delivered to the chemists the next business day.

❖ **To send a scan result to Reachback**

- 1 Open the TruNarc Admin software.
- 2 Select the check box for the scans that you want to send.
- 3 Click the Export button. The Save File As window appears.
- 4 At the bottom of this window, click the down arrow for the Save as Type field and select **Reachback File (*.arb)**.
- 5 Name the file and browse to a folder, then select **Save As**. A window appears, asking you for information about the scan.
- 6 Fill out all fields in the scan information window, then select **Send**.

❖ **To send an email to Customer Support**

Select **Email Customer Support** in the Admin software main window.

Cleaning the Nose Cone and Self Check Standard

If the nose cone becomes contaminated with dirt or drug residues, remove it, open the self check standard, rinse the nose cone under clean running water, dry it, and replace it on the analyzer.

To clean the self check standard, wipe it with a clean, soft cloth moistened with water.

Cleaning and Decontaminating the TruNarc Analyzer

To remove nonhazardous contaminants from the outside of the analyzer, wipe it with a soft cloth moistened with water.

To remove potentially hazardous contaminants, you may wipe down the analyzer with a clean cloth moistened with a solution of 1 part household bleach (5% sodium hypochlorite) and 10 parts water.

Before decontaminating the analyzer, turn it off and make sure that the access door to the connector compartment is closed (see [page 13](#)).



NOTE

Be sure to follow your organization's decontamination guidelines.

Ordering Solution Kit (Type H) Test Sticks and Ethanol Vials

Order Solution Kit (Type H) test sticks and ethanol vials from the Thermo Fisher Scientific sales department. Your local distributor can help you place the order.



TIP

At regular intervals, check the expiration date on the ethanol vials and test stick packages, and order new supplies when the date nears, to ensure that usable supplies will always be available when needed.

Locating the TruNarc Analyzer Serial Number

The serial number is printed on a label on the back of the analyzer.

Serial numbers begin with the letters TN, followed by four digits (example: TN0026).

Purchasing Scan Credits

If you have a Pay-Per-Scan configuration of the TruNarc analyzer, you will periodically need to purchase scan credits online via the TruNarc Admin software. You may pay for credits with a credit card or a PayPal account. If you own more than one TruNarc analyzer, you may purchase scan credits for multiple analyzers at one time.

It is not necessary to connect an analyzer to the computer when you purchase scan credits.

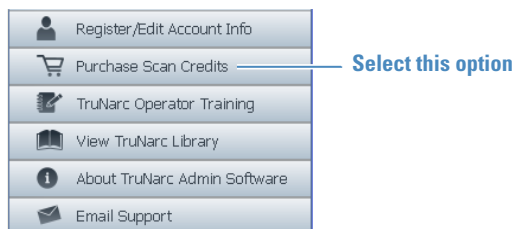


NOTE

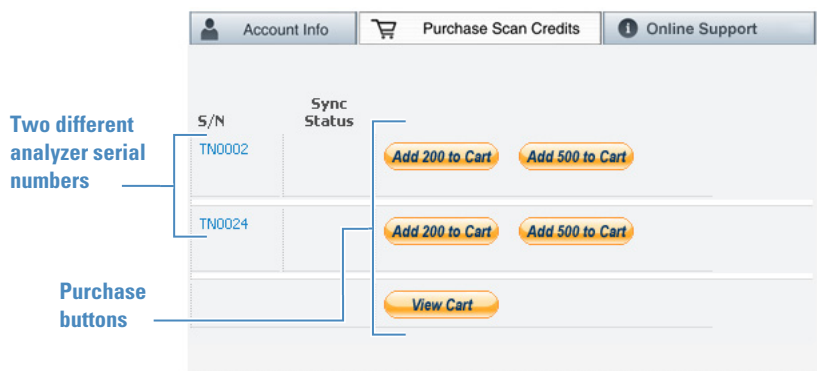
After you purchase scan credits for an analyzer, you must transfer the credits to the analyzer. See [page 49](#) for information on how to transfer scan credits.

❖ To purchase scan credits for one analyzer

- 1 Note the serial number of the analyzer (see [page 46](#) for information on locating the number).
- 2 Open the TruNarc Admin software.
- 3 Select **Purchase Scan Credits** in the Admin software.



Your internet browser opens and displays the Purchase Scan Credits tab of the TruNarc analyzer Customer Support site. Each analyzer that you have activated is listed by serial number in separate rows. In each row are also yellow buttons that allow you to purchase a set number of scans.



5 Maintenance and Getting Help

- 4 Find the row that shows the serial number of the analyzer for which you are purchasing scan credits.
- 5 Click the purchase buttons in that row as many times as needed to purchase the desired number of credits. For example, to purchase 1000 scans, click the Add 500 to Cart button twice.

To see how many credits you have added, click the View Cart button. If you want to add more credits, click the Back button in your browser to return to the Purchase Scan Credits tab.

- 6 To pay for the scan credits, select **View Cart**.

- 7 Select a payment option:

- To pay with a credit card: Select **Check Out**.
- To pay with your PayPal account: Select **Check Out with PayPal**.

The browser opens a payment page. Follow the instructions that you are given on the page to complete your purchase.

- 8 Transfer the scan credits to the analyzer (see [page 49](#)).

❖ To purchase scan credits for more than one analyzer

The procedure is the same as for a single analyzer, except that in step 4 you will add scan credits for each analyzer. You will need to know the serial number for each analyzer. See [page 46](#) for information on locating serial numbers.

Transferring Scan Credits to One or More TruNarc Analyzers

The actions required to transfer scan credits vary depending on two factors:

- The number of analyzers for which you have purchased credits
- Whether one of these analyzers is connected to the Admin software at the time of purchase

❖ To transfer credits that were purchased for one analyzer

If the analyzer is connected to the computer at the time of purchase

- 1 Select **Sync Scan Credits** in the Admin software.
- 2 The software transfers the credits to the attached analyzer.

If the analyzer is not connected to the computer at the time of purchase

- 1 Open the Admin software on the computer, if it is not already open.
- 2 Turn on the analyzer.
- 3 Connect it to the computer with the USB cable.
- 4 The Admin software automatically transfers the credits. You do not need to click **Sync Scan Credits**.

❖ To transfer credits that were purchased for more than one analyzer

If one of the analyzers is connected to the computer at the time of purchase

- 1 Select **Sync Scan Credits** in the Admin software.
- 2 The software will transfer the credits to the attached analyzer.
- 3 When the software tells you the transfer is completed, disconnect the analyzer.
- 4 For each of the other analyzers:
 - Turn on the analyzer.
 - Connect it to the computer with the USB cable.
 - The Admin software automatically transfers the credits. You do not need to click **Sync Scan Credits**.

If no analyzer is connected to the computer at the time of purchase

- 1 Open the Admin software on the computer, if it is not already open.
- 2 For each of the analyzers:
 - Turn on the analyzer.
 - Connect it to the computer with the USB cable.
 - The Admin software automatically transfers the credits. You do not need to click **Sync Scan Credits**.

Checking Whether Scan Credits Were Transferred



You may sometimes need to confirm that scan credits that were purchased in advance of need were transferred to an analyzer.

The Customer Support system tracks which scan credits have been transferred to analyzers. You can see the status of scan credit transfers in the Customer Support website.

❖ To check whether scan credits have been transferred to an analyzer

The Customer Support system tracks which scan credits have been transferred to analyzers. You can see the status of scan credit transfers in the Customer Support website.

- 1 Select **Purchase Scan Credits** in the Admin software. The Customer Support site opens.
- 2 Check the icon that appears in the Sync Status column to determine the status of the transfer (see the graphic below).

S/N	Sync Status		
TN0053		Add 200 to Cart	Add 500 to Cart
TN1084		Add 200 to Cart	Add 500 to Cart

Credits have been transferred

Credits not yet transferred

Returning the TruNarc Analyzer for Service

Before returning the analyzer, contact your local distributor or Customer Support and request a return material authorization (RMA) number.



NOTE

Packages that are not identified with an RMA number will be returned to the shipper unopened.

- 1 Clean the analyzer and decontaminate it if necessary. Both safety and common carrier requirements require all returned analyzers to be clean and decontaminated.
- 2 Package the analyzer securely and write your RMA number on the outside of the package.
- 3 Mail the package to your local distributor or to Customer Support (see [page 5](#) for address).

TruNarc Safety Features

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- 52 Scan Delay Option
- 53 Timeout Feature
- 53 Vial Holder

Qualifications for Operators

Due to the inherent danger associated with Clan Labs (clandestine labs), TruNarc should only be used in these environments by operators who are:

- Trained and qualified to enter Clan Labs
- Trained in the safe, proper use of the TruNarc in a Clan Lab



NOTE

This guide does NOT provide operators with the above qualifications. Consult your organization's training staff for further information.

Overview

This chapter describes the special safety features of the TruNarc product. Operators should understand how to use these features to ensure their safety.

TruNarc provides the following warnings and options to help operators manage scans.

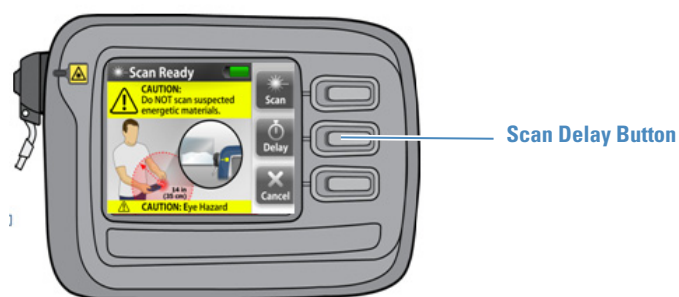
- The Scan Ready screen provides warnings to the user.
- The Scan Delay option allows users to leave the scanning area before the scan begins.
- The fixed Timeout setting of 90 seconds ensures that users can safely return to the scanning area after 90 seconds.
- The vial holder ensures that small amounts of liquids or solids are held in place during the scan.

Scan Ready Screen

When you press the Scan button, the Scan Ready screen is displayed. This screen allows you to begin the scan, specify a delay time for the scan, or cancel the operation.

The Scan Ready screen displays the following precautions:

- Do NOT scan suspected energetic materials.
- Eye Hazard. This warning indicates that you should keep the laser aperture at least 14 inches (35 cm) from your eyes.



Scan Delay Option

The Scan Delay option allows you to specify the amount of time before the laser turns on to start a scan. Use the delay timer to select the amount of time you need to move to a safe area.

To specify the delay time:

- In the Scan Ready screen, select the Delay button.
- Toggle up/down to select the delay time (15, 30, 60 or 120 sec).
- Press Select to start the delay count-down. A Delay in Progress screen appears displaying the time remaining.



Timeout Feature

The scan timeout feature limits the amount of time that a scan can take until the laser is turned off. This fixed timeout feature ensures that the operator can return safely to the instrument after the timeout period (90 secs) has expired. The Scan Completed Box, in the Scan Result screen, indicates that the scan is complete or that the timeout period has expired.

Operators cannot configure this feature. The TruNarc timeout is fixed at 90 seconds.



Vial Holder

The TruNarc vial holder enables the operator to safely scan small amounts of material in an uncapped vial.

To scan in vial mode:


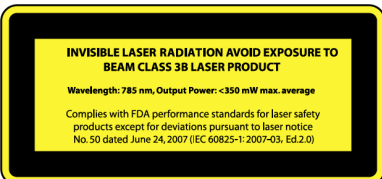
- Remove the nose cone, then attach the vial holder.
- Place the analyzer on a flat surface.
- Put a small amount of material in the vial:
 - Liquids ~ 300 ul (< 5 drops)
 - Solids ~ 300 mg (size of a pea)
- Leave the vial uncapped to prevent a projectile hazard should over-pressurization occur.
- Perform the scan.





6 TruNarc Safety Features

Regulatory Statements and Warranty

Laser and Electrical Safety Labels

Labels	Description
	<p>Laser aperture label. Notifies the user that energy from the laser exits the laser aperture. This radiation can harm the eyes. Therefore, take care that the eyes are suitably protected. The label is located on the top of the analyzer, above the display.</p>
	<p>Laser information label. Provides information on the class, wavelength, and output power of the laser contained within the product. The label is located on the back of the analyzer.</p>

Chemical Safety Labels

Labels	Description
	<p>Ethanol safety label. Notifies the user that ethanol is flammable and that vial contents are not to be consumed. The label is located on each ethanol vial.</p>
	<p>Ethanol safety label. Notifies the user that ethanol is flammable and that vial contents are not to be consumed. The label is located on the outside of the ethanol vial box.</p>

WEEE Compliance

This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the following symbol:



Thermo Fisher Scientific has contracted with one or more recycling or disposal companies in each European Union (EU) Member State, and these companies should dispose of or recycle this product. For further information, contact Thermo Fisher Scientific or your local representative.

WEEE Konformität

Dieses Produkt muss die EU Waste Electrical & Electronic Equipment (WEEE) Richtlinie 2002/96/EC erfüllen. Das Produkt ist durch folgendes Symbol gekennzeichnet:



Thermo Fisher Scientific hat Vereinbarungen mit Verwertungs-/ Entsorgungsfirmen in allen EU-Mitgliedsstaaten getroffen, damit dieses Produkt durch diese Firmen wiederverwertet oder entsorgt werden kann. Weitere Informationen erhalten Sie bei Thermo Fisher Scientific oder Ihrer örtlichen Vertretung.

Conformité DEEE

Ce produit doit être conforme à la directive européenne (2002/96/EC) des Déchets d'Equipements Electriques et Electroniques (DEEE). Il est marqué par le symbole suivant:



Thermo Fisher Scientific s'est associé avec une ou plusieurs compagnies de recyclage dans chaque état membre de l'union européenne et ce produit devrait être collecté ou recyclé par celles-ci. Pour de plus amples renseignements, veuillez contacter Thermo Fisher Scientific ou bien ses représentants locaux.

Limited Warranty

Seller warrants that the Products will operate or perform substantially in conformance with Seller's published specifications and be free from defects in material and workmanship, when subjected to normal, proper and intended usage by properly trained personnel, for the period of time set forth in the product documentation, published specifications or package inserts. If a period of time is not specified in Seller's product documentation, published specifications or package inserts, the warranty period shall be one (1) year from the date of shipment to Buyer for equipment and ninety (90) days for all other products (the "Warranty Period"). Seller agrees during the Warranty Period, to repair or replace, at Seller's option, defective Products so as to cause the same to operate in substantial conformance with said published specifications; provided that Buyer shall (a) promptly notify Seller in writing upon the discovery of any defect, which notice shall include the product model and serial number (if applicable) and details of the warranty claim; and (b) after Seller's review, Seller will provide Buyer with service data and/or a Return Material Authorization ("RMA"), which may include biohazard decontamination procedures and other product-specific handling instructions, then, if applicable, Buyer may return the defective Products to Seller with all costs prepaid by Buyer. Replacement parts may be new or refurbished, at the election of Seller. All replaced parts shall become the property of Seller. Shipment to Buyer of repaired or replacement Products shall be made in accordance with the Delivery provisions of the Seller's Terms and Conditions of Sale. Consumables are expressly excluded from this warranty.

Notwithstanding the foregoing, Products supplied by Seller that are obtained by Seller from an original manufacturer or third party supplier are not warranted by Seller, but Seller agrees to assign to Buyer any warranty rights in such Product that Seller may have from the original manufacturer or third party supplier, to the extent such assignment is allowed by such original manufacturer or third party supplier.

In no event shall Seller have any obligation to make repairs, replacements or corrections required, in whole or in part, as the result of (i) normal wear and tear, (ii) accident, disaster or event of force majeure, (iii) misuse, fault or negligence of or by Buyer, (iv) use of the Products in a manner for which they were not designed, (v) causes external to the Products such as, but not limited to, power failure or electrical power surges, (vi) improper storage and handling of the Products or (vii) use of the Products in combination with equipment or software not supplied by Seller. If Seller determines that Products for which Buyer has requested warranty services are not covered by the warranty hereunder, Buyer shall pay or reimburse Seller for all costs of investigating and responding to such request at Seller's then prevailing time and materials rates. If Seller provides repair services or replacement parts that are not covered by this warranty, Buyer shall pay Seller therefor at Seller's then prevailing time and materials rates. ANY INSTALLATION, MAINTENANCE, REPAIR, SERVICE, RELOCATION OR ALTERATION TO OR OF, OR OTHER TAMPERING WITH, THE PRODUCTS PERFORMED BY ANY PERSON OR ENTITY OTHER THAN SELLER WITHOUT SELLER'S PRIOR WRITTEN APPROVAL, OR ANY USE OF REPLACEMENT PARTS NOT SUPPLIED BY SELLER, SHALL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THE AFFECTED PRODUCTS.

(Limited Warranty, continued)

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