Release Notes

LC TriPlus RSH Driver • July 2023

thermoscientific

Table of Contents

1   Introduction

The LC TriPlus RSH Driver supports Thermo Scientific™ TriPlus™ RSH autosamplers. This software release is intended for use in conjunction with Chromeleon 7.2.10 and later and localization is only provided for English.

2   Scope of this Document / Other Resources

The Release Notes describe the main features of this driver, including its installation procedure and a quick start guide. If you require further information, for example, about first steps, or troubleshooting, refer to one of the documents listed below.

Chromeleon 7	Describes the basic operation of Chromeleon 7.
LC TriPlus RSH Online Help	Includes reference information and instructions for using the LC TriPlus RSH autosampler.

> **Tip:** The Chromeleon 7 PDF documents are available from the Windows start menu via Start -> Thermo Chromeleon 7 -> Documents.

3   Driver Installation procedure

3.1   Requirements for installer

Local Administrator rights are required to execute the installer. The LC TriPlus RSH Driver requires the following components:

- **Windows 10 Pro**
- **Chromeleon 7**

A Class 1 Instrument license is necessary (class 2 or 3 instruments will also work).

No additional files are necessary.

3.2   Before installing the driver

The TriPlus RSH driver installer would add files into the installation folder of Chromeleon, thus no applications should be running as they might block the installation procedure.

- Chromeleon Console and Chromeleon Studio must be closed.
- Chromeleon Instrument Controller must be stopped.

3.3   Installation of the driver
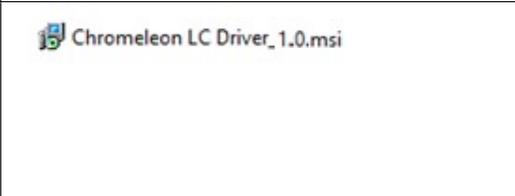
User Interface	Remark
Chromeleon LC Driver_1.0.msi	Double-click to start installer
Welcome to the Chromeleon LC Driver Setup Wizard. The Setup Wizard will install Chromeleon LC Driver on your computer. Click Next to continue or Cancel to exit the Setup Wizard.	Installing Chromeleon LC Driver. Please wait while the Setup Wizard installs Chromeleon LC Driver. Status: INSTALL
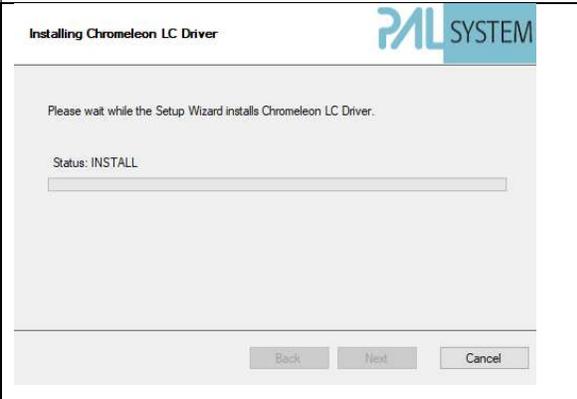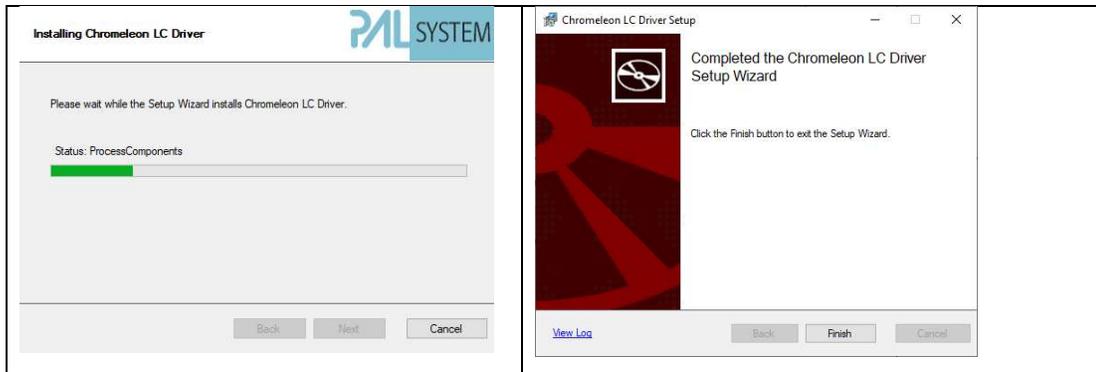
3.4 Installation Qualification (IQ)

The Installation Qualification (IQ) ensures that a product is properly installed.

The "**Chromeleon LC Driver.msi**" installer adds a file named **ctc_file_hash_dictionary.xml** to the V1-folder. Every installed file contains a **SHA256-Hash** which can be used to perform an installation quality verification.

4   Product Features

Features of LC TriPlus RSH driver are as follows:

- Automated Sample Processing for LC/LCMS.

- Built-in TriPlus RSH method-scripts.

    o   LCMS Fast Injection

    o   LCMS Fast Sandwich Injection

    o   LCMS Standard Injection

    o   LC Standard Injection

    o   Online-SPE Injection - EQuan

- Prepare Ahead (PrepAhead) functionality. Starts sample preparation while LC/LCMS is still running.

- LC TriPlus RSH ePanel configuration utilities and commands:

    o   Show Virtual Terminal. Launches the virtual terminal, which is a graphical user interface for the handheld controller.

    o   Show Tray Configuration. Launches the tray configuration utility.

    o   Commands:

        ▪   Peltier Stack Temperature. Initiates the command to set the Peltier Stack standby temperature.

        ▪   Prime Fast Wash. Initiates the command to prime a Fast Wash Station.

        ▪   Prime LCMS-P tool. Initiates the command to prime the LCMS-P tool.

        ▪   Clean LC injector. Initiates the command to clean the LC injector.

        ▪   Clean Syringe. Initiates the command to clean the syringe using a solvent solution.

        ▪   Read Barcode. Initiates the command to read a specific vial with a barcode.

        ▪   Stop Sampler Operation. Stops the autosampler operation after the current process is completed.

- Online TriPlus RSH help file.

5   TriPlus Configuration

5.1   Additional *PrepAhead* Input Signal for TriPlus RSH Autosampler

To enable **PrepAhead** functionality, an additional **InputSignal** must be configured using virtual terminal.
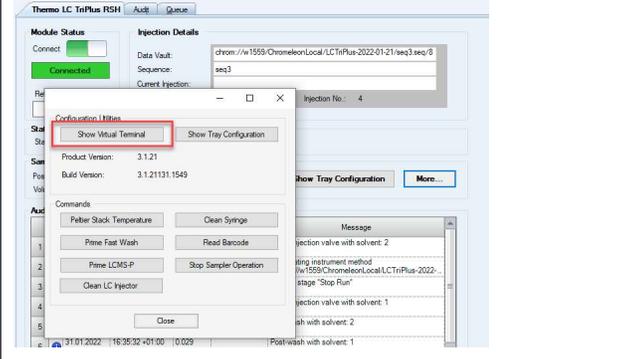
User Interface	Remark
	Open virtual terminal in ePanel.
	Enable **Extended User Level** and select Setup>Modules.
	Create **InputSignal** and name **PrepAhead**.
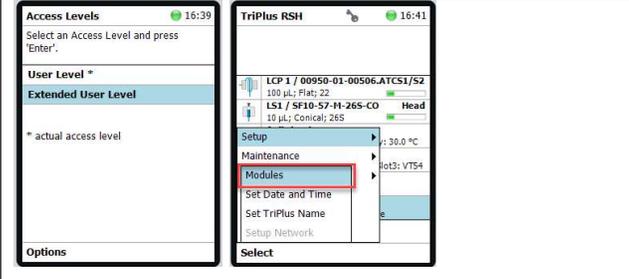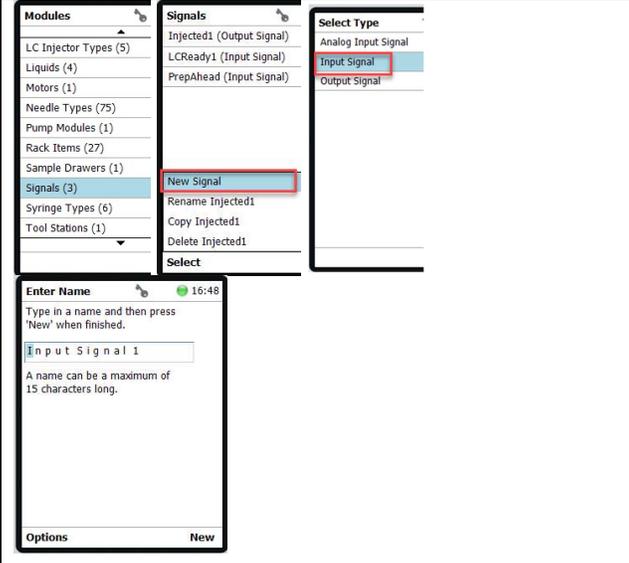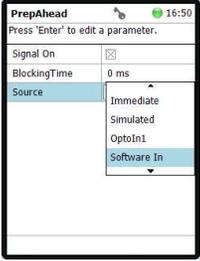
User Interface	Remark
	Change source of PrepAhead InputSignal to **Software In**.

5.2   Check configuration of Chromatography Object LC1
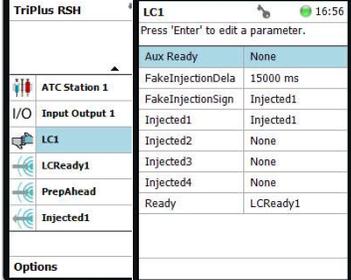
User Interface	Remark
	The configuration for the chromatography object **LC1** must match this figure.

6   Compatibility

This release of the LC TriPlus RSH driver will work on Chromeleon 7.2.10 and later.

The LC TriPlus RSH driver is also supported in SII for Xcalibur 1.7 or later.

The LC TriPlus RSH driver requires a TriPlus RSH firmware version 2.4.21111.1220 or higher.

The driver was tested and validated at **CTC Analytics AG, Switzerland**.

7 Known Limitations

This release has the following issues and limitations:

- Samples of type blank are not supported. If such a sample is found in the sequence, the execution of the sample list will not start, and an error message will be written in the audit log.

- Simulation mode is not supported.

- Overlapping of the samples is not supported.

- The TriPlus RSH method is saved as a blob. That means the method parameters are not part of the symbol table which will also slightly limit the reporting possibilities for the method.

- In a client server environment where the user uses a dedicated instrument LAN (by having two Ethernet cards in the IPC) the user might not be able to display the status control for the TriPlus RSH or any other control that requires direct communication with the sampler.

- The driver is supposed to display and log a meaningful message if it cannot connect to the instrument due to an incompatible FW version. This is not implemented yet but planned for future versions. Currently there is only a generic error message saying that the driver cannot connect to the instrument.

- Following installation, the Chromeleon Station IQ will show 85 warnings as follows:

⚠ Warnings

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\3DTools.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\3DViewerDesktop.exe: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\CheckFileHashes.ps1: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ctc_file_hash_dictionary.xml: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\DriverCert.xml: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\DriverCert1.xml: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\GoldParserDesktop.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\NLog.config: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\NLog.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\Noemax.WCFX.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusApiDesktop.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusApiDesktop.XmlSerializers.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusBaseDesktop.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusBaseDesktop.XmlSerializers.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusControls.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusDriver.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusDriverBase.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusDriverObjects.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusObjectsDesktop.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusResourcesDesktop.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusSampleDesktop.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusSchedulerDesktop.dll: The file was not installed by any of the known packages.

🔗 C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusSchedulerDesktop.XmlSerializers.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\PalPlusThermoResources.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\Startup.config: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\TerminalDesktop.exe: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\TerminalDesktop.exe.config: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\Thermo LCExtensionDesktop.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSH.chm: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHCmDDKCommon.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHCmDDKCommon.pdb: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHCommon.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHCommon.pdb: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHCommon.XmlSerializers.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHConfiguration.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHConfiguration.pdb: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHControls.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHControls.pdb: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHDriver.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHDriver.pdb: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHInst.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHInst.pdb: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHInst.XmlSerializers.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHInstServices.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHInstServices.pdb: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHViews.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHViews.pdb: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\TriPlusII.bmp: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\ja\PalPlusResourcesDesktop.resources.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\Thermo\LCTriPlusRSH\zh-Hans\PalPlusResourcesDesktop.resources.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\Dionex.DDK.V2.Thermo.LCTriPlusRSH.EditorPlugin.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\Dionex.DDK.V2.Thermo.LCTriPlusRSH.EditorPlugin.pdb: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\DriverCert.xml: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\GoldParserDesktop.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\NLog.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\PalPlusApiDesktop.dll: The file was not installed by any of the known packages.

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☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\PalPlusBaseDesktop.XmlSerializers.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\PalPlusControls.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\PalPlusDriver.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\PalPlusDriverBase.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\PalPlusDriverObjects.dll: The file was not installed by any of the known packages.

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☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\PalPlusResourcesDesktop.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\PalPlusSampleDesktop.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\PalPlusSchedulerDesktop.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\PalPlusSchedulerDesktop.XmlSerializers.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\PalPlusThermoResources.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHCmDDKCommon.dll: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHCmDDKCommon.pdb: The file was not installed by any of the known packages.

☌ C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHCommon.dll: The file was not installed by any of the known packages.

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C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHControls.dll: The file was not installed by any of the known packages.

C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHControls.pdb: The file was not installed by any of the known packages.

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C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHInst.XmlSerializers.dll: The file was not installed by any of the known packages.

C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHPanelControls.dll: The file was not installed by any of the known packages.

C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHPanelControls.pdb: The file was not installed by any of the known packages.

C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\ThermoLCTriPlusRSHViews.dll: The file was not installed by any of the known packages.

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C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\Thermo\LCTriPlusRSH\zh-Hans\PalPlusResourcesDesktop.resources.dll: The file was not installed by any of the known packages.

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