



# GL-LF096 餾分收集器 安裝及使用手冊

## GL-LF096 Fraction Collector Installation & User Manual



GL-LF096 餾分收集器圖 GL-LF096 Fraction Collector

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## 1、GL-LF096 餾分收集器介紹 Fraction Collector introduction

### 1.1 介紹 Introduction

GL-LF096 餾分收集器採用最新 32 位超高速運算 RISC 中央處理器+32 位 DSP 處理器為核心控制。它基於全數位的頻率發生系統、先進的電磁閥元件系統及友好的人機顯示介面使得該設備的操作及控制很方便。先進的閥組及無死角的流體設計思路，融會了當今世界上最先進的經驗，使得用戶在各種使用條件下都可以保證餾分的精度及重複性指標。GL-LF096 餾分收集器採用閥組獨立控制，可跟據峰形的高度設定控制方式，也可根據出峰時間設定收集通道，還可以通過前面板的控制鍵來控制各通道，多種通訊模式可選，標準 RS232、RS485、乙太網介面，對 GL-LF096 餾分收集器進行控制。

GL-LF096 Fraction Collector adopts the latest ultra-high speed 32-bit RISC central processor computing and 32-bit DSP processor for core control.

It is based on the all-digital frequency generation system, advanced electromagnetic valve components and friendly user interface, making the operation and control of the device very convenient.

GL-LF096 fraction collector using independent valve module control · collection method and collecting channel can be set according to peak height, peak time.

Also, can also be controlled via the front panel control keys for channel control 。A variety of communication modes selection, as standard RS232, RS485, Ethernet interface · are available for GL-LF096 fraction collector control.

### 1.2 技術特點 Technical Features

控制方式 Control Method	PLC, X 軸 Y 軸 PLC, X and Y axes
最大工作壓力 Maximum operating	GL-LF096, 150psi

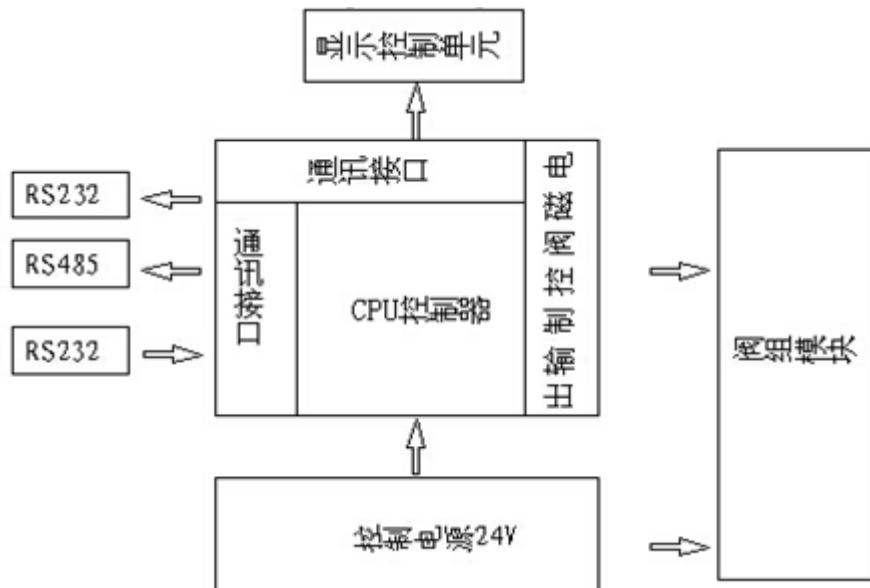


Pressure	
流量範圍 Flow rate range	GL-LF096, 1ml ~ 200ml/min
流量精度 Flow rate accuracy	±1% 在 1-99% 流量範圍內 ± 1%, within 1-99% flow rate range
流量重複性 Rate Repeatability	RSD < 0.1%
顯示 Display	7 英寸螢幕液晶顯示 7" LCD
系統保護 System Protection	快速切換, 工作狀態自檢功能 Fast switching, Status self-diagnostic
系統連接 System Connection	1/8 管路連接 1/8" tubing connection
控制 Control	1. 採用工作站軟體控制, 根據出峰的時間或峰 形的高度, 來指定收集器的收集動作. Workstation software control, according to the peak time or peak height to specify the collector action. 2. 必要時可用面板的螢幕設定工作參數及控制. If necessary, operating parameter setting and control is also available from the instrument panel.
通訊模式 Communication Mode	通過 RS232/RS485/USB 串口, 可對 GL-LF096 鑰分收集器進行控制 Via RS232, RS485, or USB serial port for GL-LF096 fraction collector control.
電源 Power supply	AC 110V-220V±10%, 50Hz-60Hz, 120W
外形尺寸 Dimensions	600×310×300 (長×寬×高) 600 × 310 × 300 (L × W × H)

## 2、工作原理及組成 Working principle and composition

### 2.1 GL-LF096 工作原理簡介

#### GL-LF096 principle Introduction



### 2.2 組成 : Composition

①電源部件、②CPU 控制器單元、③XY 模組、④顯示部分。

①Power supply unit, ②CPU controller unit, ③XY module, ④Display.

①電源部件由控制電源和驅動電源組成，它為 GL-LF096 鑽分收集器提供 24V 控制電源。

The Power supply unit is composed of control power supply and driving power supply sub-unit, which provides 24V control power for the GL-LF096 fraction collector.

②CPU 控制器單元 GL-LF 是鑽分收集器的核心部分，它使得使用者可以根據需要進行流體設置，選擇鑽分收集器的工作方式，編寫時間程式等。

CPU controller unit is a core part of the fraction collector, which allows the user to select the fraction collection working methods, to edit time and other programs.



③XY 模組為流體控制裝置，它確保所需餾分的液體能夠平穩的準確地到達每個試管口，使製備工作順利進行。

XY module is a fluid control device, it ensures that the liquid fraction can smoothly and accurately reach the entrance of each tube , enabling smoothly preparation works.

④顯示部分，採用工作站軟體控制，操作簡易直觀。7 英寸真彩顯示器，做為的編寫程式和操作的備用工具。

The PC monitor is used for Chromatogram Workstation software control, and the operation is simple and intuitive 。 Also, the 7" true color display is used as spare tool for program editing and control if necessary.

### 3、安裝 Install

#### 3.1、拆箱 Unpacking

將到貨的儀器拆箱，並檢查儀器有無損壞；如果儀器在運輸過程中發生任何損壞，請儘快向儀器承運部門聲明，並要求相關賠付。

根據隨機的裝箱單檢查儀器及配件是否齊全，如有短缺，請向經銷商聯繫或直接向廠家索取。

( 詳見裝箱單 )

Unpacking the shipped instrument and check if any damage; if there is any damage during transport, ask statement as soon as possible to the instrument carrier sector for the relevant payment. According to accompanying packing list for the shipping, check to see

if all corresponding equipment and accessories are included.

If the shortage, please contact your dealer or by directing a request to the manufacturers. (See packing list)

#### 3.2、安裝 Installation

##### ①、安裝條件 Installation conditions

將 GL-LF096 餾分收集器置放在操作間中，檢查工作環境，應滿足：

Check the working room for GL-LF096 fraction collector, and the environment should meet :



供電電壓 Supply voltage	115V-230VAC · 接地電阻 < 2Ω 115V-230VAC, ground resistance < 2Ω
環境溫度 Ambient temperature	常溫 Room temperature
環境濕度 Environment humidity	20%-80%
安裝場地 Installation site	安裝場所應遠離強震動源及強磁場干擾 Installation site should be away from strong vibration source and strong magnetic field

## ②、安裝相應管路 Install the tubes

根據使用者不同的製備需求，安裝足可以每分鐘通過 200ml 溶劑的 FEP 管道。

管路的安裝方法：取下蘋分口的緊固螺釘，取出卡套套在 FEP 管上連接好液路管。

According to the user's needs for different preparations，install FEP tubes that are enough by passing 200mL solvent per minute.

Tubes installation methods:

Remove the fastening screws on the fraction mouth, then insert tube head into a ferrule(tightening ring part) and connect the tube head firmly into position.

## 3.3、接通儀器電源 Connect power

在完成 3.1 及 3.2 的工作後，將電源線插入儀器後面板的電源插座中，接通電源。

After completing 3.1 and 3.2 of the steps, insert to connect the power cord into the instrument rear panel power input socket, and connect to power source.



GL-LF096 餾分收集器後面板示意圖

The rear panel diagram of GL-LF096 fraction collector.

✓ 請確信儀器的電源線插接在 3 頭電源插座中，並具有良好的接地。

如果電源接錯，可能造成嚴重的人身傷害。

Make sure that the instrument power cord is plugged to a power source socket with 3 pins that is in correct voltage and loading capacity, and is well grounded.

Wrong power supply may cause serious personal injury.

①首次運行餾分收集器時，請以小流量運行，並觀察是否有出液，如果連續運幾分鐘都無液體流出，應立刻停機，檢查泵是否有故障，排除故障後才可能上電運行。

When first running the fraction collector, please run in small flow rate with careful monitoring. If there is no liquid carried within few minutes of continuous operation, shut down immediately to check whether the pump is faulty, and it must be resolved before to power-on again.

## 4、操作指南 Operations Guide

### 4.1 電源: Power ON

打開電源，餾分收集器啟動進入主頁。

Turn on the power, the fraction collector boots into Home Page.



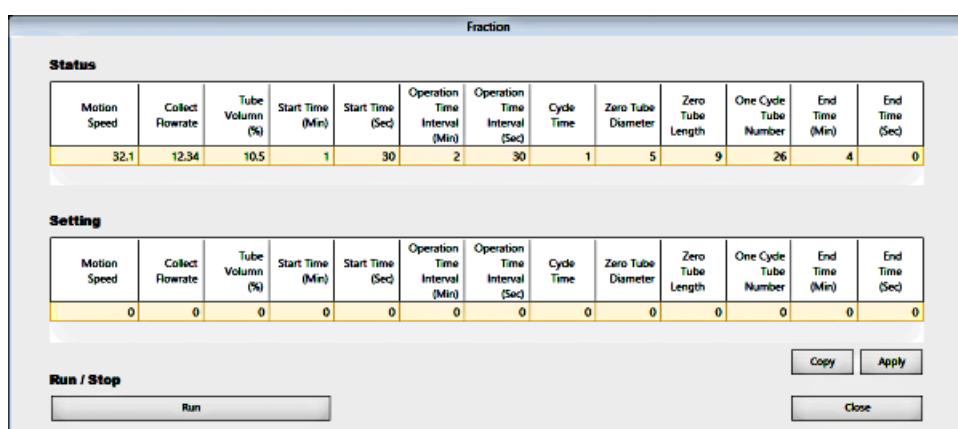
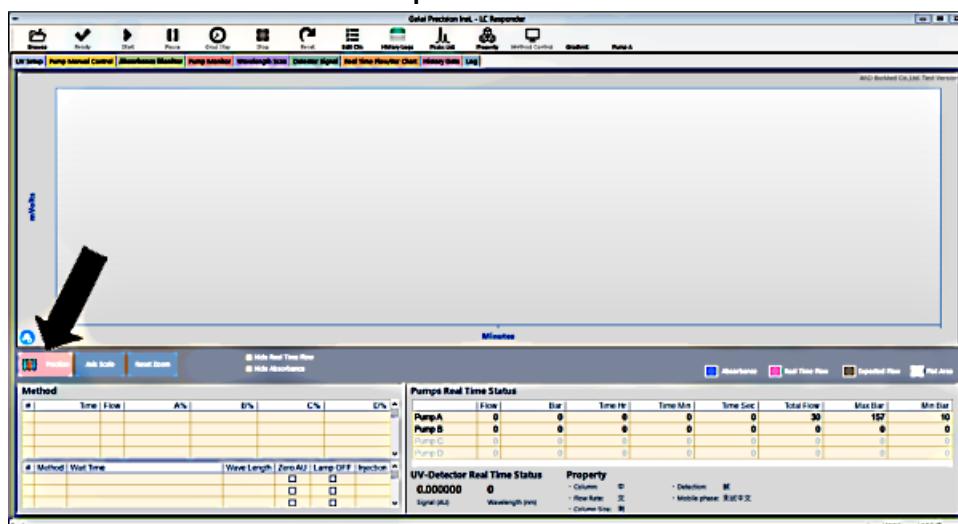
GL-LF096 餾分收集器開機副界面



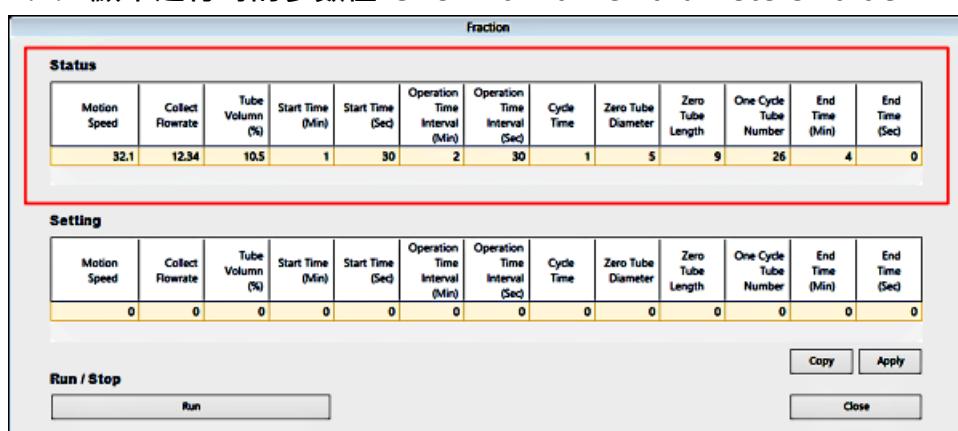
## Second Boot interface of the GL-LF096 fraction collector

## 4.2 工作站軟體操作 Workstation software operations

## 4.2.1 開起餾分收集器視窗: Open Fraction Window



## 4.2.2 顯示運行時的參數值 Show run-time Parameters Value





### 4.2.3 設置參數值: Set Parameters Value

#### 4.2.3.1.點擊 複製 按鈕來獲得餾份的數據

Click Copy button to get fraction data.

Fraction

Status												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
32.1	12.34	10.5	1	30	2	30	1	5	9	26	4	0

Setting												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
0	0	0	0	0	0	0	0	0	0	0	0	0

Run / Stop												
<input type="button" value="Run"/>												<input type="button" value="Copy"/> <input type="button" value="Apply"/>
												<input type="button" value="Close"/>

Fraction

Status												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
32.1	12.34	10.5	1	30	2	30	1	5	9	26	4	0

Setting												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
32.1	12.34	10.5	1	30	2	30	1	5	9	26	4	0

Run / Stop												
<input type="button" value="Run"/>												<input type="button" value="Copy"/> <input type="button" value="Apply"/>
												<input type="button" value="Close"/>

#### 4.2.3.2.設置參數值，然後單擊 套用 按鈕

Set parameters value and click Apply button.

Fraction

Status												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
32.1	12.34	10.5	1	30	2	30	1	5	9	26	4	0

Setting												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0

Run / Stop												
<input type="button" value="Run"/>												<input type="button" value="Copy"/> <input type="button" value="Apply"/>
												<input type="button" value="Close"/>

#### 4.2.3.3.完成編輯 Done editing



Fraction													
Status													
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)	
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0	

Setting													
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)	
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0	

Run / Stop													
<input type="button" value="Run"/>													<input type="button" value="Close"/>
<input type="button" value="Copy"/> <input type="button" value="Apply"/>													

#### 4.2.4 運行餾分: Run Fraction

Click Run button

Fraction													
Status													
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)	
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0	

Setting													
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)	
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0	

Run / Stop													
<input type="button" value="Run"/>													<input type="button" value="Close"/>
<input type="button" value="Copy"/> <input type="button" value="Apply"/>													

Fraction													
Status													
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)	
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0	

Setting													
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)	
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0	

Run / Stop													
<input type="button" value="Stop"/>													<input type="button" value="Close"/>
<input type="button" value="Copy"/> <input type="button" value="Apply"/>													

#### 4.2.5 停止餾分: Stop Fraction: Run

Click Stop button



Fraction

Status												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0

Setting												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0

Run / Stop												
<input type="button" value="Stop"/> <input type="button" value="Copy"/> <input type="button" value="Apply"/>												
<input type="button" value="Close"/>												

Fraction

Status												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0

Setting												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0

Run / Stop												
<input type="button" value="Run"/> <input type="button" value="Copy"/> <input type="button" value="Apply"/>												
<input type="button" value="Close"/>												

#### 4.2.6 關閉餾分: Ctop Fraction:

Click Close button.

Fraction

Status												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0

Setting												
Motion Speed	Collect Flowrate	Tube Volume (%)	Start Time (Min)	Start Time (Sec)	Operation Time Interval (Min)	Operation Time Interval (Sec)	Cycle Time	Zero Tube Diameter	Zero Tube Length	One Cycle Tube Number	End Time (Min)	End Time (Sec)
32.1	12.34	10.5	2	30	3	30	1	5	9	26	6	0

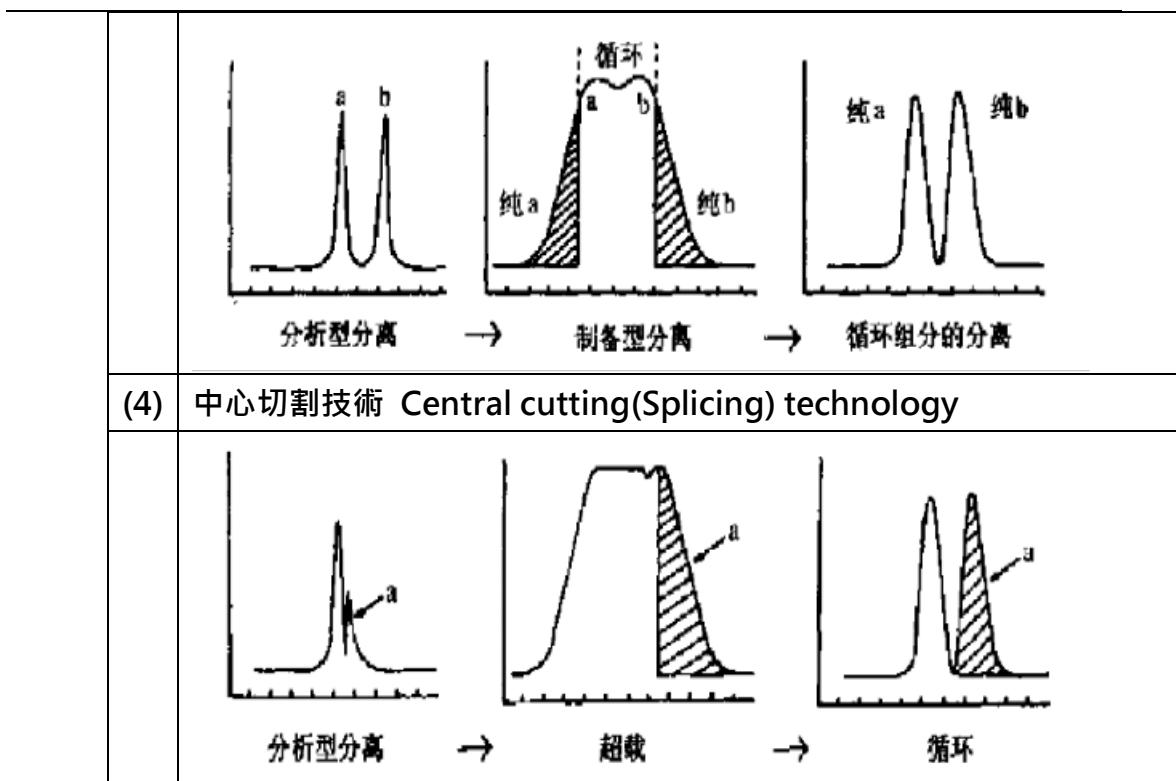
  

Run / Stop												
<input type="button" value="Run"/> <input type="button" value="Copy"/> <input type="button" value="Apply"/>												
<input type="button" value="Close"/> <span style="border: 2px solid red; border-radius: 50%; padding: 2px;">Close</span>												

#### 4.3 組分分離情況 Fractionation conditioning

	收集組分時，通常有以下情況：
(1)	(A) 主峰可獲得良好分離：使用製備柱，超載提高效率。
	(B) 兩主成分之間的小組分：

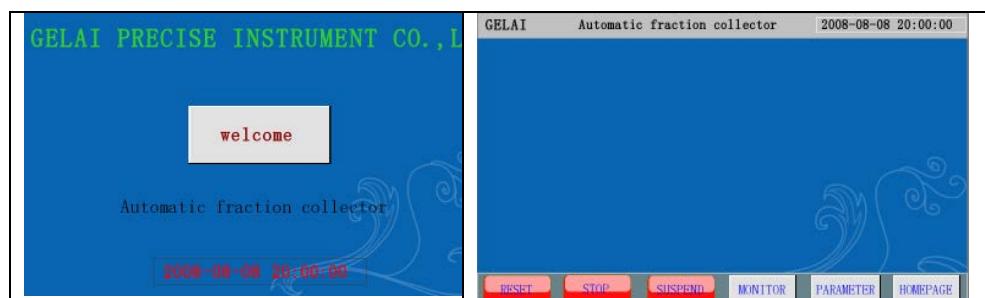
	<p>超載, 分離切分使得分離組分成為主成分(富集)後, 再次分離製備.</p> <p>When the fractions were collected, it generally have the following situations:</p> <p>(A) Get a good peak separation: preparative column could be overload to improve efficiency.</p> <p>(B) Being a small component between the two main components:</p> <p>Overload and try to be separated the small component slice · and to enrich it to become a main component, then the enriched preparation is again separated.</p>
(2)	<p>中心切割技術 Central cutting(Splicing) technology</p> <p>分析型分离 → 完全分离组分a的载样极限 → 超载</p>
(3)	<p>邊緣切割技術 Edge cutting (Splicing) technology</p>



#### 4.4 面板操作 Panel Operation

進入主頁按一下歡迎使用進入鑄分收集監控介面。如下：

On the Home Page, click Welcome to enter into monitoring interface of the fraction collector. as follows:



GL-LF096 鑄分收集器狀態監控介面

GL-LF096 fraction collector status monitoring interface

#### 4.5 簡易維修 Easy Maintenance

①、開機無顯示，請檢查電源輸入口的保險絲是否熔斷。(更換 10A 保險絲)

Boot with no display: Check the power input fuse is blown,  
(replacement 10A fuse)



②、鑰分口漏液，請用異丙醇溶液沖洗流體閥組（閥組有結晶或污垢現象）

Ractions connector leakage: Flush fluid valve set with Isopropyl Alcohol solution (valve set may have crystal or dirt accumulated)

③、按鍵操作失靈，不能正常鑰分請聯繫生產廠家，非專業人士不要隨意打開主機殼（防止觸電帶來的人身傷害）

Keypad failure : Contact the manufacturer, non-professionals should not to open the main case (to prevent bodily injury caused

by electric shock)

④、鑰分時按下鍵時不能正常開啟電磁閥，（按下開啟鍵無噪音）請聯繫生產廠家，非專業人士不要隨意打開主機殼（防止觸電帶來的人身傷害）

Solenoid valve problem:

Solenoid valve do not function in fraction when the ON key is pressed, (press the ON button with no action sound) : Contact the manufacturer, non-professionals should not to open the main case (to prevent bodily injury caused by electric shock)

## 5、生產廠家保證 Manufacturer guarantee

5.1、在遵守操作規程的前提下，我們承諾 GL-LF096 鑰分收集器在安裝日期後的 24 個月內得到保修（密封件、易損件的損壞除外）。

For users complying with the conditions of storage and use rules, the warranty time is within 24 months from the date of shipment from the manufacturing units. (the seals and vulnerable parts are excluded)

5.2、如果因為人為因素，如操作不當造成的儀器損壞，在保修期內收取相關的材料費用。

It is not warrantied for damage from improper operation of equipment, and will have corresponding charges.

5.3、GL-LF096 鑰分收集器，出廠時已經進行妥善包裝。如果 GL-LF096 鑰分收集器送抵用戶處發生因運輸過程造成的損壞，應儘快向相關部門聲



明，索取賠付，並通知生產廠家進行修理或更換。

GL-LF096 fraction collector, has been properly packaged at the factory. If any damage of the GL-LF096 fraction collector occurs during transportations, ask statement as soon as possible to the instrument carrier sector for the relevant payment · and notification to the manufacturer for repair or replacement.

### Ordering & Service Information: 訂購和服務信息.

Welcome to our web site to see our currently updated product information and catalog.

歡迎光臨我們的網站，看看我們目前最新的產品信息和產品目錄。

ChengDu GeLai Technology Co.,Ltd.

成都格萊精密儀器有限公司

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<http://www.chromnet.net/> , [http://chromnet.net/PreparativeDACHPLC\\_English.aspx](http://chromnet.net/PreparativeDACHPLC_English.aspx)

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