



LSPDM Safety Laser Scanner Configuration Software

Operation Manual

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Safenet  

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Introduction

LSPDM is short for LSPDM safety laser scanner.

LSPDM configuration software operation manual is used to guide the configuration and diagnosis of LSPDM.

This operation manual mainly introduces installation, uninstallation, user interface, application example, frequent questions and solutions of LSPDM configuration software.

Users should read the operation manual carefully before configuring the LSPDM and use the LSPDM configuration software correctly.

The LSPD configuration software is not applicable for products of other brand with similar function.

For damages or losses caused by improper use of the configuration software, the company assumes no responsibility.

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1.1 Installation environment and software installation

1.2 System environment

To use the LSPDM configuration software, the system should meet the following requirements as the Sheet 1 shows.

Sheet 1 System requirements

Item	description	
Communication interface	USB2.0/3.0	
Computer	CPU	Dual core or higher
	RAM	512M or larger
	Free space of hard disk	400M or larger
	Mouse/keyboard	Equipped
	CD drive	CD-ROM
Compatible system	Microsoft Windows XP 32 bit (SP3 or above)	
	Microsoft Windows 7 32/64 bit	
	Microsoft Windows 8 32/64 bit	
	Microsoft Windows 8.1 32/64 bit	
Monitor	16-bit color and above, resolution 800*600 and above	

The LSPDM configuration software cannot be properly installed and used in the following system environments:

- Operating systems other than those in Table 1 above
- Multi-monitoring environment
- Multiple operating system environment
- Personal assembly computer

Note:

- If NET Framework 4.0 is not installed on your computer, .NET Framework 4.0 will be installed automatically when the LSPDM software is installed.
- Even if all system requirements are met, there is no guarantee that the LSPDM configuration software can be installed and used on all computers.
- When the LSPDM safety laser scanner is working, cover the USB connector to prevent dust from entering the inside of the device.
- Use the USB cable that comes with the LSPDM safety laser scanner.
- Please read this manual carefully when configuring the LSPDM safety laser scanner.

1.3 Software installation and uninstallation

1.3.1 Installation of LSPDM configuration software

- a) Start windows and put the disk into CD-ROM.
- b) Find file LSPDM configuration software installation package in CD and double click the setup. exe.
- c) Complete installation of LSPDM configuration software according to prompt information.

note:

- If the installation is prevented by antivirus program, please click to allow the installation.
- If the installation fails, please close the antivirus program for a short time and try again.
- Default installation location of LSPDM configuration software is: "C:\Program Files\Shandong Keli\LSPDM\". Please select the installation position when the installation is processed if you want to software to be installed in other position.

1.3.2 Uninstallation of LSPDM configuration software

Method 1: Uninstall from start menu

- a) Click Windows **【start】** menu, then select **【all programs】** .

-
- b) Select **【uninstall LSPDM】** in LSPDM folder.
 - c) When dialogue window “Are you sure to uninstall this product” appears, click “Yes” and the LSPDM configuration software will be uninstalled from computer.

Method 2: Uninstall from control panel

- a) Click Windows **【start】** menu, then click **【control panel】**.
- b) Click **【program and function】**.
- c) Select “LSPDM” in list of uninstallation or change program and click **【Uninstall】**. Then select **【Yes】** at the pop-up uninstallation prompt window, LSPDM configuration software will be uninstalled from computer.

1.4 Start and exit of LSPDM configuration software

1.4.1 Start of LSPDM configuration software

LSPDM configuration software can be started by following methods:

- a) Connect USB cable of LSPDM safety laser scanner to USB interface of computer.
- b) click **【 start】** → **【all program】** → **【SDKELI】** → **【LSPDM】**.
- c) Or double click the shortcut icon  of LSPDM configuration software on the desktop.
- d) The LPSDM configuration software will start. After the software is first started, it will enter the interface as shown in Figure 1.3.1.



Fig 1.3.1 Device type selection window when the software is launched for the first time

Note:

- When the checkbox [Don't display the device selection dialog when starting] in the device selection interface is selected, the next time the software starts, it will directly open the device type selected at the last startup; if you want to display this dialog when starting, enter the main interface, select the menu item [Show The Device Selection Dialog] in the Device submenu.

- e) The customer selects the device type based on the purchased device.
- f) Click the **【OK】** button, the program will enter the main configuration interface of the selected device type, as shown in Figure 1.3.2.

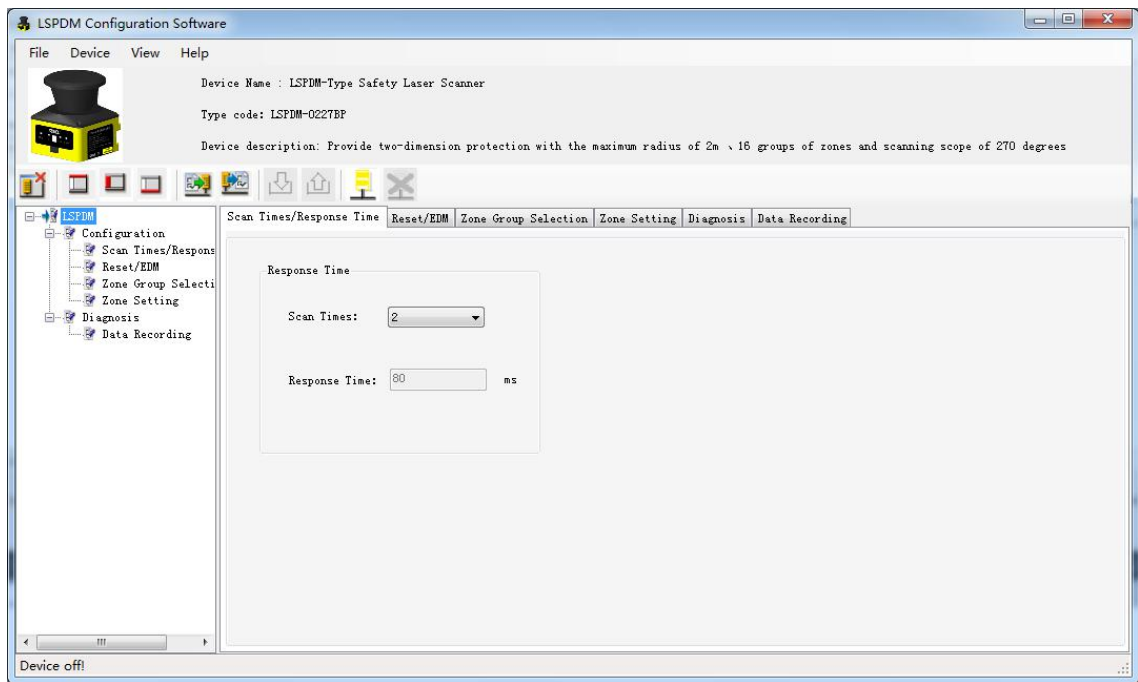


Fig 1.3.2 Configuration software main interface

1.4.1 Exit of LSPDM configuration software

To exit the LSPDM configuration software, please click the close button at top right corner of the interface. Or you can select **【Exit】** from **【File】** menu.

2 User interface

Design of the user interface has been compatible with Microsoft system as much as possible. The user interface consists of Menu, Device information bar, Tool bar, Tree view, Configuring zone and Satus bar as shown in Fig.2.

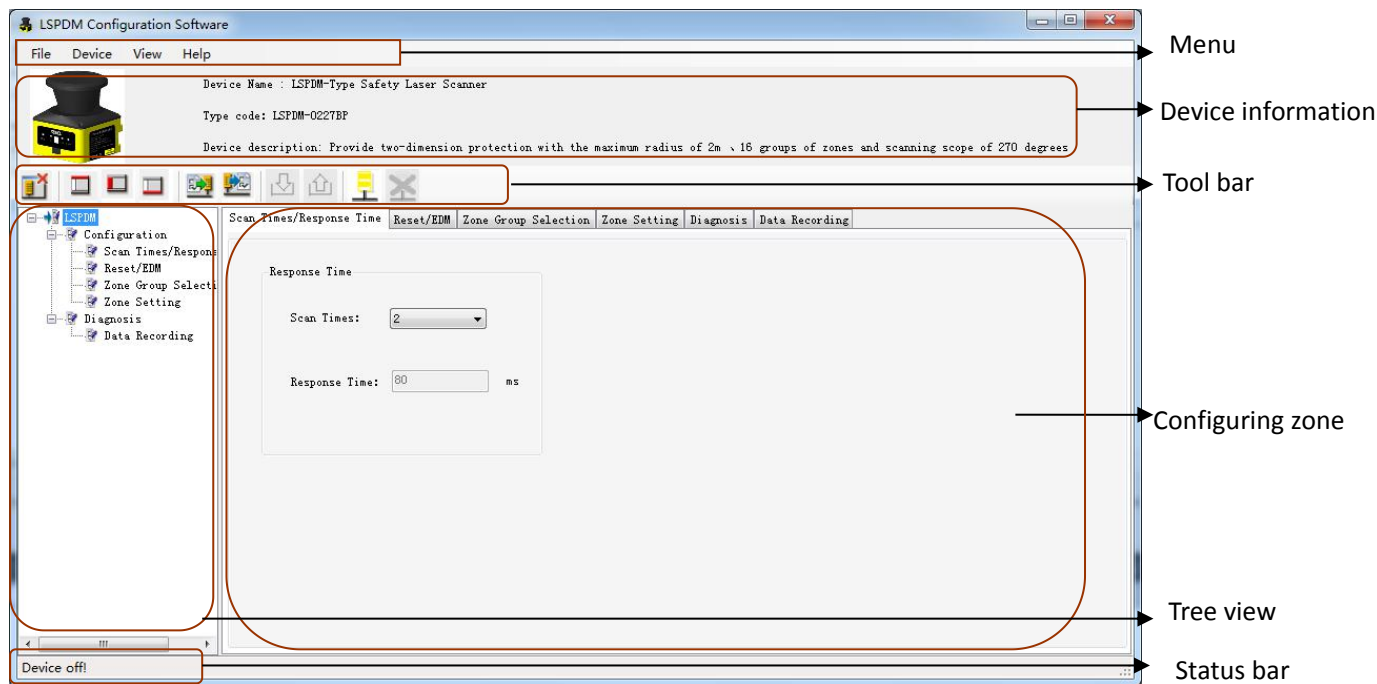


Fig.2 Program user interface

2.1 Menu

This part introduces function of all menu items in the main menu. Function of a menu item can be carried out by click the menu item directly or by the menu item shortcut key. Color of some menu items will be gray and unavailable when LSPDM is not connected with computer.

Menu structure of user interface consists of 4 sub-menus: 1- File, 2- Device, 3- View, 4- Help, as shown in Fig.2.1

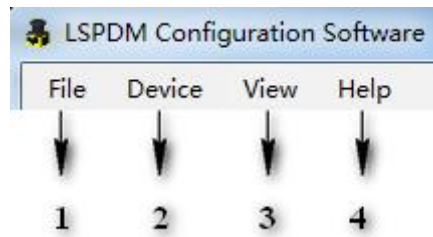


Fig 2.1 menu interface

2.1.1 File

File menu is used to create, open, save a configuration project, preview current configuration, and exist the configuration software. Click **【File】** menu, the **【File】** submenu is shown as Fig2.1.1. Function of each menuitem is shown in Sheet 2.

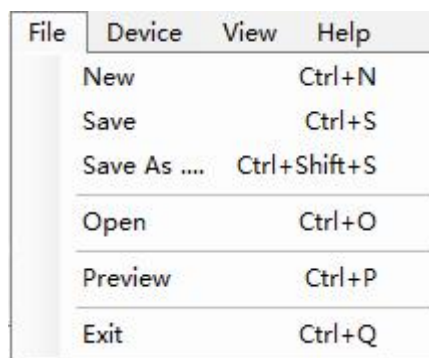


Fig 2.1.1 file menu list

Sheet 2 File sub menu item function

Menu item	Shortcut key	description
New	Ctrl+N	Create a new configuration project
Save	Ctrl+S	Save current configuration project
Open	Ctrl+O	Open a saved configuration project
Preview	Ctrl+P	Preview the current configuration project
Exit	Ctrl+Q	Exit the application

2.1.2 Device

The device menu is used to transmit the current configuration to the LSPDM type safety laser scanner, read the LSPDM configuration information, diagnose the protective cover, display the device selection dialog or not, change the device type and so on. Click the [Device] menu,

the device menuitem list is shown as Figure 2.1.2, and the function of each menu item is shown in Sheet 3. The gray menu item in the figure is not available and is available when the software is connected to LSPDM.

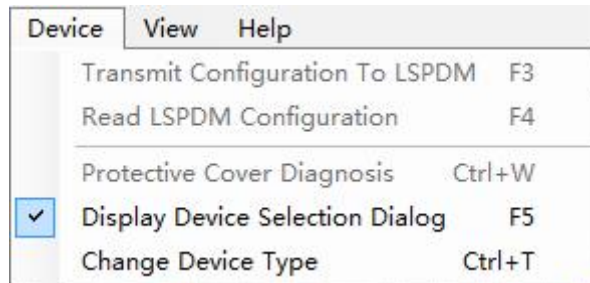


Fig 2.1.2 device menu

Sheet 3 device submenu function

Menu item	Shortcut key	Description
Transmit Configuration To LSPDM	F3	Transfer the current configuration to LSPDM
Read LSPDM Configuration	F4	Reading configuration information from the connected LSPDM
Protective Cover Diagnosis	Ctrl+W	Perform contamination diagnosis function to the protective cover, and calibration function after replacement
Display device selection dialogue	F5	Display or not display device selection dialogue window when program starts
Change device type	Ctrl+T	Change device type of current configuration project

Note

- User can select device type by “device selection dialogue window” which is displayed when software starts
- User can also choose device type by menu **【Device】 - 【Change device type】**
- Maximum protection zone radius for different device types are different.
- User can switch the device type arbitrarily. However, if the selected device type is different from the actual connected device when establish connection between scanner and software, the software will prompt the user whether to match the current device type. Connection will be successful only after it is confirmed.

2.1.3 View

The view menu is used to display and hide the device information bar,

tree view, and status bar in the user interface. Click the [View] menu, the list of view submenu items is shown as Figure 2.1.4. The function of each menu item is shown in Sheet 5.

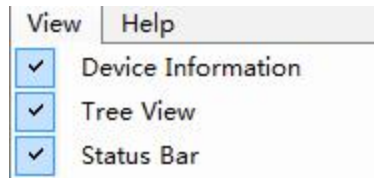


图 2.1.4View menu

Sheet 5 View sub menu item function

Menu Item	Function
Device Information	Show or hide the device information bar
Tree View	Show or hide the tree view
Status Bar	Show or hide the status bar

2.1.4 Help

Pop-up window shows relevant information such as developer, software version and website, as shown in Fig 2.1.5

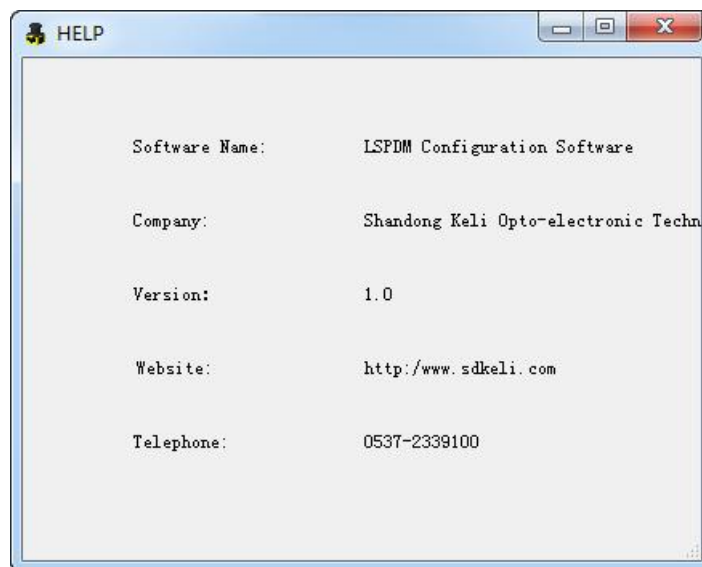


Fig 2.1.5 Help view

2.2 Device information bar

Display device picture, device name, device type and device description information, as shown in Fig.2.2



Device Name : LSPDM-Type Safety Laser Scanner

Type code: LSPDM-0227BP

Device description: Provide two-dimension protection with the maximum radius of 2m 、16 groups of zones and scanning scope of 270 degrees

Fig.2.2 Device information bar

Note

- Users can view the currently edited device type and device description through the Device Information Bar. When the device type is changed or a connection is established with the scanner, the device information bar is updated synchronously.

2.3 Tool bar

Structure of main tool bar is shown in Fig.2.3 and the function of each command is shown in Sheet 6.

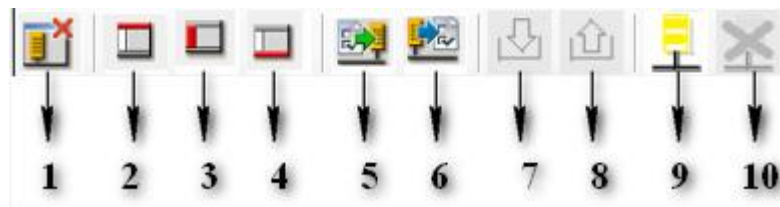


Fig.2.3 Tool bar

Sheet 6 Command description of tool bar

Mark	Icon	Notice	Description
1		Exit	Exit LSPDM configuration software
2		Show or hide device information bar	Show or hide device information bar
3		Show or hide tree view	Show or hide tree view
4		Show or hide status bar	Show or hide status bar
5		Import zone group boundary	Import the zone group boundary saved as .xml file in the computer to current configuration project.
6		Export zone group boundary	Save zone group boundary of current configuration project to a file with the .xml extension.
7		Transmit configuration to LSPDM	Transmit current configuration to LSPDM. Available after connection is built.

8		Read LSPDM Configuration	Read configuration information from LSPDM. Available after connection is built.
9		Connect	Connect with LSPDM
10		Disconnect	Disconnect with LSPDM

2.4 Tree View

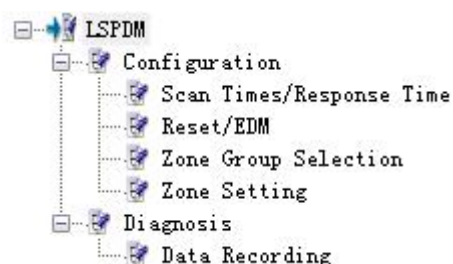


Fig.2.4.1 Tree view

The main function of tree view is to display and rapidly switch to corresponding tab of configuring zone. Its structure is shown in Fig.2.4.1.

For example, when click **【Zone Group Selection】** branch in the tree view, the corresponding **【Field activation】** tab will be highlighted displayed in configuring zone, as shown in Fig.2.4.2. This is convenient for user to check and change configuration parameters.

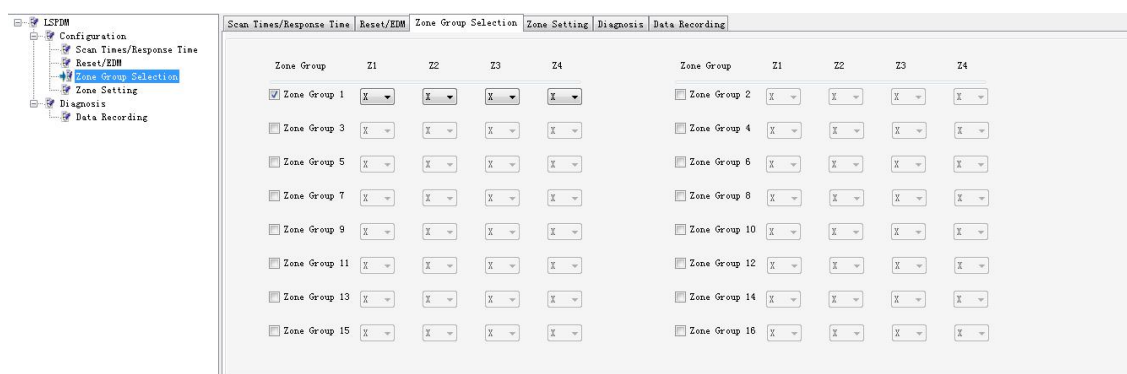


Fig.2.4.2 Tree view and Zone Group Selection tab

2.5 Configuring Zone

The configuring zone consists of six tabs: 1- Scan Times/Response Time, 2-Reset/EDM, 3- Zone Group Selection 4- Zone Setting,

5-Diagnosis, 6- Data recording, as shown in Fig.2.5. It is mainly used for configuration and diagnosis of LSPDM.

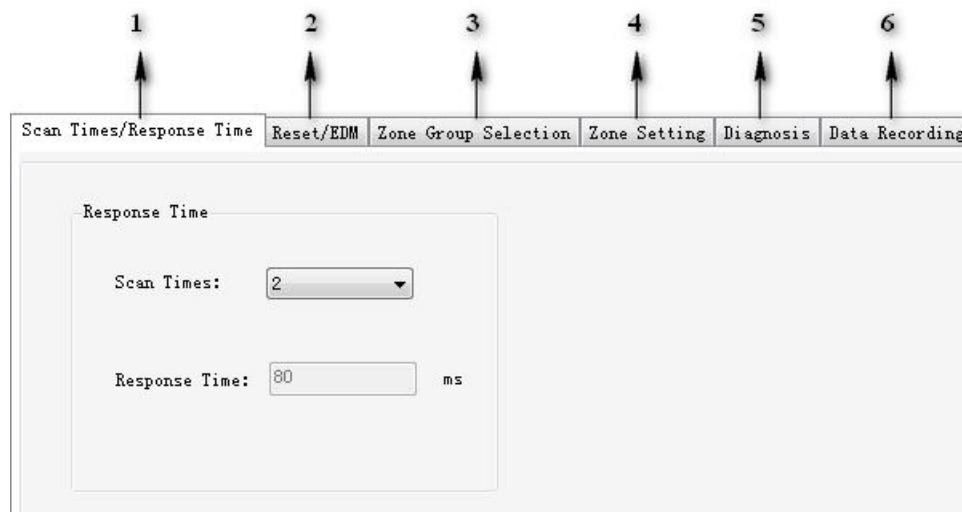


Fig.2.5 Configuring Zone

2.5.1 Scan Times/Response Time

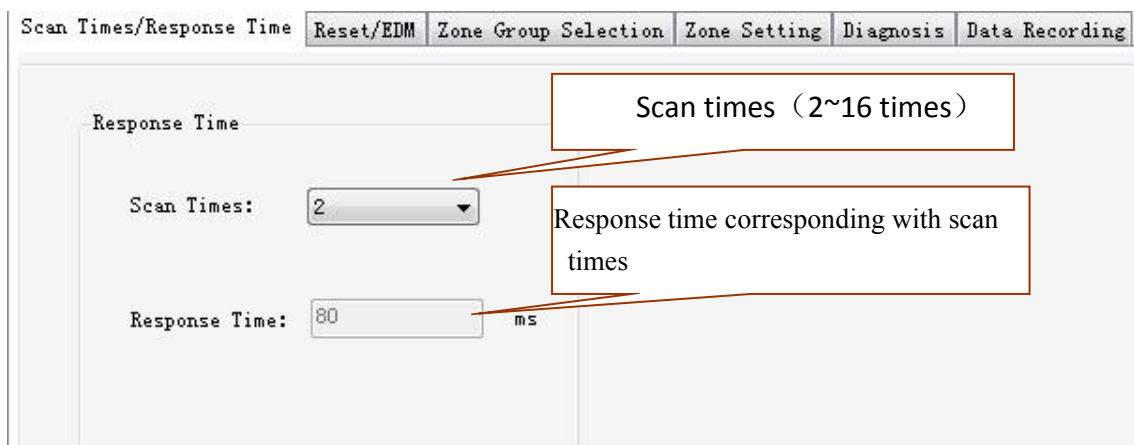


Fig.2.5.1 Scan times/Response time tab

【Scan Times/Response Time】 tap is used to set scan times of LSPDM. The setting range is 2 to 16 times and the corresponding response time range is 80 to 640ms, as shown in Fig.2.5.1.

2.5.2 Reset / EDM

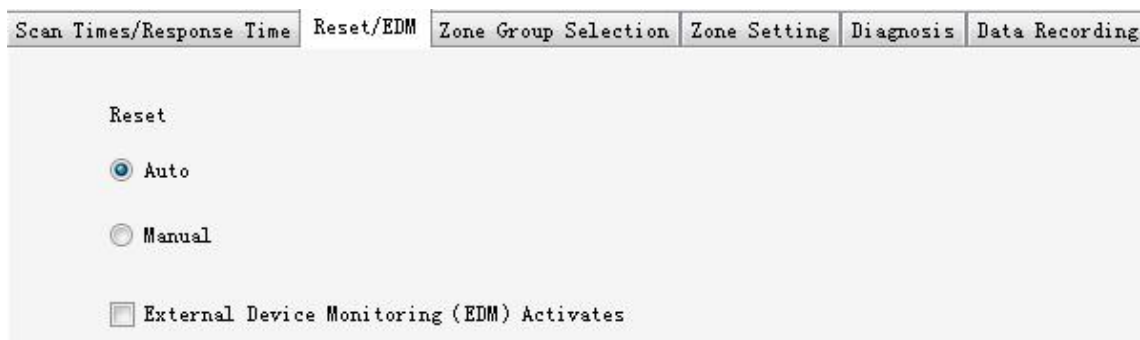


Fig.2.5.2 Reset / EDM

【Reset/EDM】 tab is used to set reset mode and external device monitoring (EDM) function, as shown in Fig.2.5.2.

The specific meaning of manual reset/auto reset and EDM function refers to relevant chapter of LSPDM Safety Laser Scanner Operation Manual.

2.5.3 Zone Selection

The Maximum radius will be different according to different device type that users choose. The corresponding number of zone groups, maximum protection radius of different device types are shown as sheet 7. See more details referring to naming rules in LSPDM safety laser scanner operation manual

Sheet 7 device type and corresponding number of zone groups, protection zone radius

device type	number of Zone Groups	maximum radius	Detection range
LSPDM-0227BP	16 个	2m	270 degree
LSPDM-0327BP	16 个	3m	

The selection of 16 zone groups and the corresponding external input signals (Z1, Z2, Z3, Z4) are defined as shown in Fig 2.5.3.

Scan Times/Response Time		Reset/EDM		Zone Group Selection		Zone Setting		Diagnosis		Data Recording	
Zone Group	Z1	Z2	Z3	Z4	Zone Group	Z1	Z2	Z3	Z4		
☒ Zone Group 1	X	X	X	X	☐ Zone Group 2	X	X	X	X		
☐ Zone Group 3	X	X	X	X	☐ Zone Group 4	X	X	X	X		
☐ Zone Group 5	X	X	X	X	☐ Zone Group 6	X	X	X	X		
☐ Zone Group 7	X	X	X	X	☐ Zone Group 8	X	X	X	X		
☐ Zone Group 9	X	X	X	X	☐ Zone Group 10	X	X	X	X		
☐ Zone Group 11	X	X	X	X	☐ Zone Group 12	X	X	X	X		
☐ Zone Group 13	X	X	X	X	☐ Zone Group 14	X	X	X	X		
☐ Zone Group 15	X	X	X	X	☐ Zone Group 16	X	X	X	X		

Fig 2.5.3 16 zone group selection

When a zone group is checked, it is activated and the protection zone boundary can be edited in the [Zone Setting] tab; otherwise, the zone group is disabled, and the corresponding [Zone Group Selection Small View] of [Zone Setting] tab is gray and the zone group is not editable.

The user determines the zone group activation condition by setting the state of the external input signals.

The external input signals have three states, as shown in Fig 2.5.4 below:

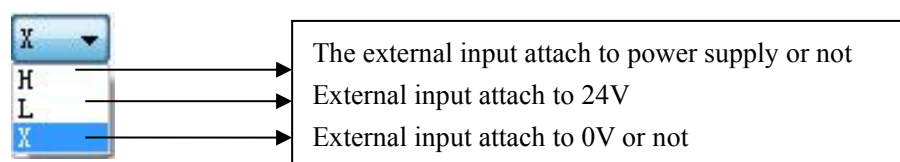


Fig 2.5.4 External input terminal corresponding to the high, low and X

If LSPDM-0327BP is selected at device selection window when program is started, zone group selection is set as following : User checks zone groups one and two, other zone groups are disabled. When the Z1 input is high, the Z2 input is low, the Z3 input is high, and the Z4 input is low, zone group 1 is activated; when the Z1 input is low, the Z2 input is

high, the Z3 input is high, and the Z4 input is low, zone group 2 is activated, as shown in Figure 2.5.5.

Zone Group Selection					Zone Setting				
Zone Group	Z1	Z2	Z3	Z4	Zone Group	Z1	Z2	Z3	Z4
☒ Zone Group 1	H	L	H	L	☒ Zone Group 2	L	H	H	L
☐ Zone Group 3	X	X	X	X	☐ Zone Group 4	X	X	X	X
☐ Zone Group 5	X	X	X	X	☐ Zone Group 6	X	X	X	X
☐ Zone Group 7	X	X	X	X	☐ Zone Group 8	X	X	X	X
☐ Zone Group 9	X	X	X	X	☐ Zone Group 10	X	X	X	X
☐ Zone Group 11	X	X	X	X	☐ Zone Group 12	X	X	X	X
☐ Zone Group 13	X	X	X	X	☐ Zone Group 14	X	X	X	X
☐ Zone Group 15	X	X	X	X	☐ Zone Group 16	X	X	X	X

Fig 2.5.5 Zone Selection Tab

2.5.4 Zone Setting

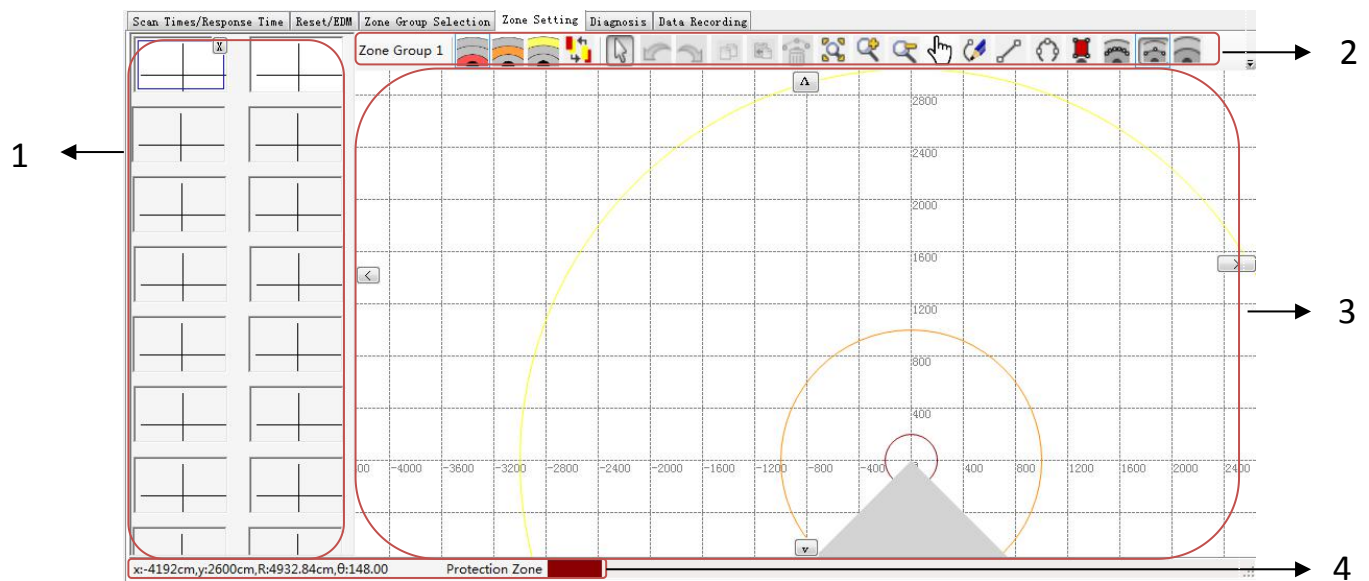


Fig 2.5.6 Zone Setting Tab

Take LSPDM-0327BP as an example,【 Zone Setting】tab includes: 1- Zone group selecting small view, 2-Zone editing toolbar, 3-Drawing zone, 4-Status bar, as shown in Fig.2.5.6.

2.5.4.1 Zone group selecting small view

Select zone group small view whose boundary will be edited. When a

zone group selecting small view is selected, it displays blue frame, as shown in Fig.2.5.7, Zone group 2 has been selected, its protective zone and warning zone can be edited.

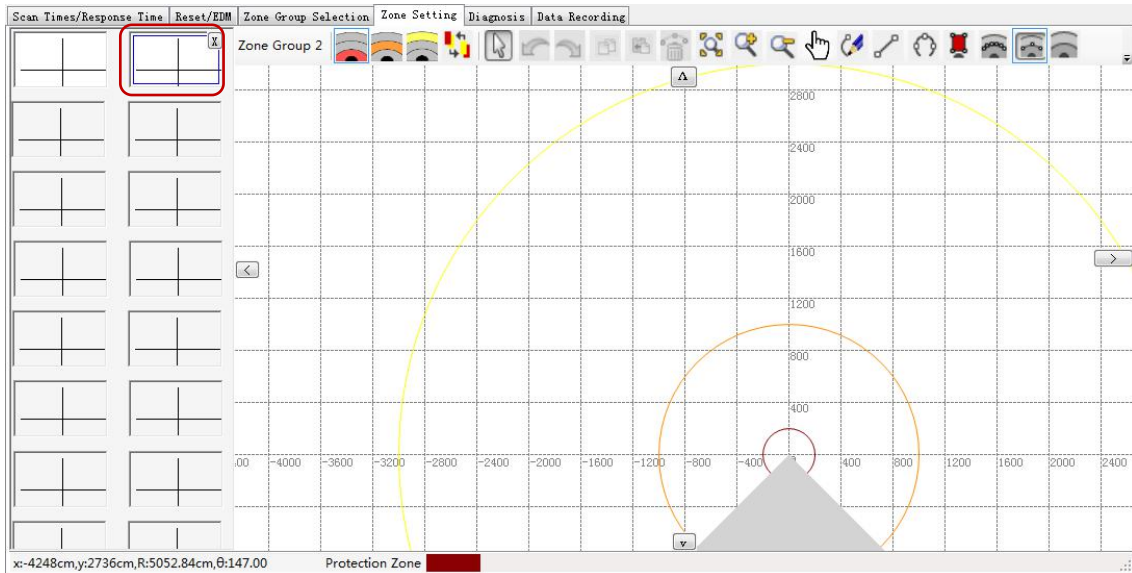


Fig 2.5.7 Zone group 2 small view and delete button

- Click the delete button in top right corner of the view, as shown in Fig.2.5.8, then the drawing zone can be cleared.

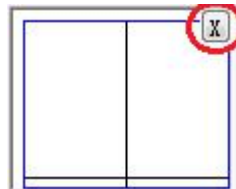


Fig 2.5.8 Zone group 2 small view and delete button

There are 16 zone group selecting small views for LSPDM-0227BP. Users must check in the **【Zone Group Selection】** tab and activate it (as shown in 2.5.4), then the zone group can be edited in the **【Zone Setting】** tab.

2.5.4.2 Zone editing toolbar

2.5.4.2.1 Toolbar commands introduction

Zone editing toolbar is as shown in Fig.2.5.9, toolbar commands are

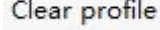
as shown in Sheet 8.



Fig 2.5.9 Area editing toolbar

Sheet 8Function description of area editing toolbar commands

Number	Icon	Operating tips	Description
1		Current zone group	Display the current editing zone group
2		Protective zone	Protective zone can be edited after it is selected
3		Warning Zone 1	Warning zone 1 can be edited after it is selected
4		Warning Zone 2	Warning zone 2 can be edited after it is selected
5		Zone Group Switch	Switch among protective zone, warning zone 1 and warning zone 2
6		Select	Select one or a range of boundary points in the current drawing zone
7		Undo	Undo the previous operation and continuously undo
8		Redo	Redo the previous operation and continuously redo
9		Copy	Copy the current selected boundary points
10		Paste	Paste the copied boundary points to other zone group
11		Delete	Delete the current selected boundary points
12		Show All	Click to fill the entire display zone with the current editing zone
13		Zoom in	Zoom in the boundary profile of the current zone group. Mouse wheel can be used to achieve this function
14		Zoom out	Zoom out the boundary profile of the current zone group. Mouse wheel can be used to achieve this function
15		Move	Drag the drawing zone (canvas) freely after it is clicked
16		Free drawing	Free drawing tool, see below for details

17		Straight line	Draw straight line tool, see details below
18		Arc	Arc tool, see details below
19		Rectangle	Rectangle wizard tool, see details below
20		All points	Display all boundary points of the current editing Zone after it is clicked
21		User-defined points	Display the user-defined point after it is clicked
22		No points	Display no boundary points after it is clicked
23		Editing Zone	Modify the boundary points of the current editing Zone after it is clicked, see details below
24		Canvas Setting	Users can rotate the canvas according to the actual scanning zone, see details below
25		Scan the minimum profile	Scan the minimum profile, it is available only after the software has been connected to LSPDM, see details in 3.2 of this manual.
26		Scan the profile	Real-time scan the environment profile, it is available only after the software has been connected to LSPDM, see details in 3.2 of this manual
27		Clear the profile	Clear the current environment profile after it is clicked

2.5.4.2.2 Free drawing tool

■ Introduction to free drawing tool

When  is selected, users can draw a single or a set of boundary points in the drawing area. For example, click mouse once at coordinates (X = 0, Y = 150) in the drawing area, it will generate a boundary point, as shown in Fig.2.5.10

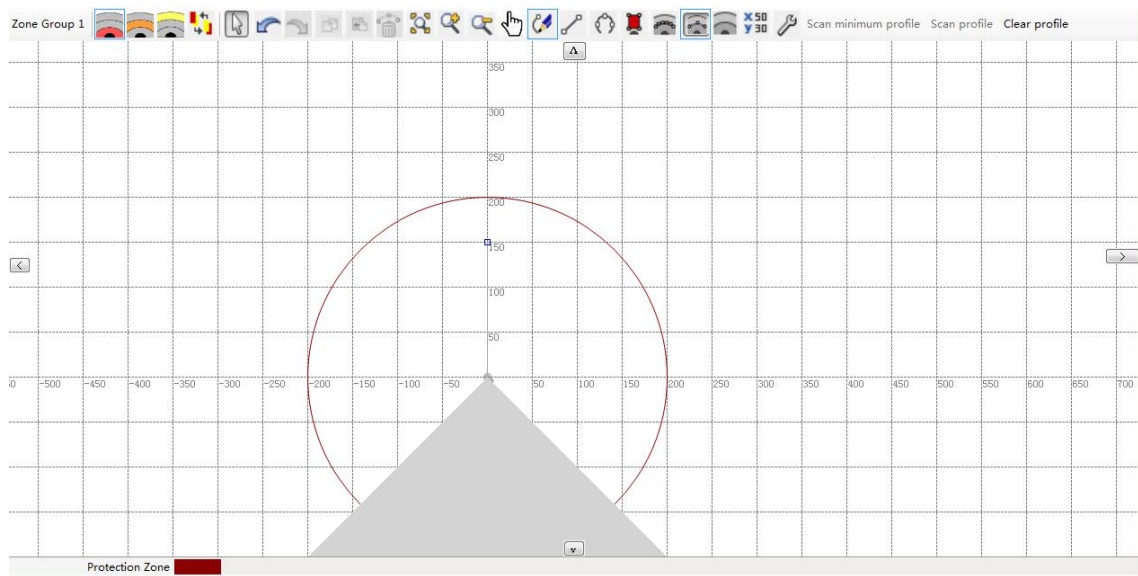


Fig 2.5.10 Draw a single boundary point

Press the left button of mouse and drag to generate a range of boundary points in the drawing area, as shown in Fig 2.5.11

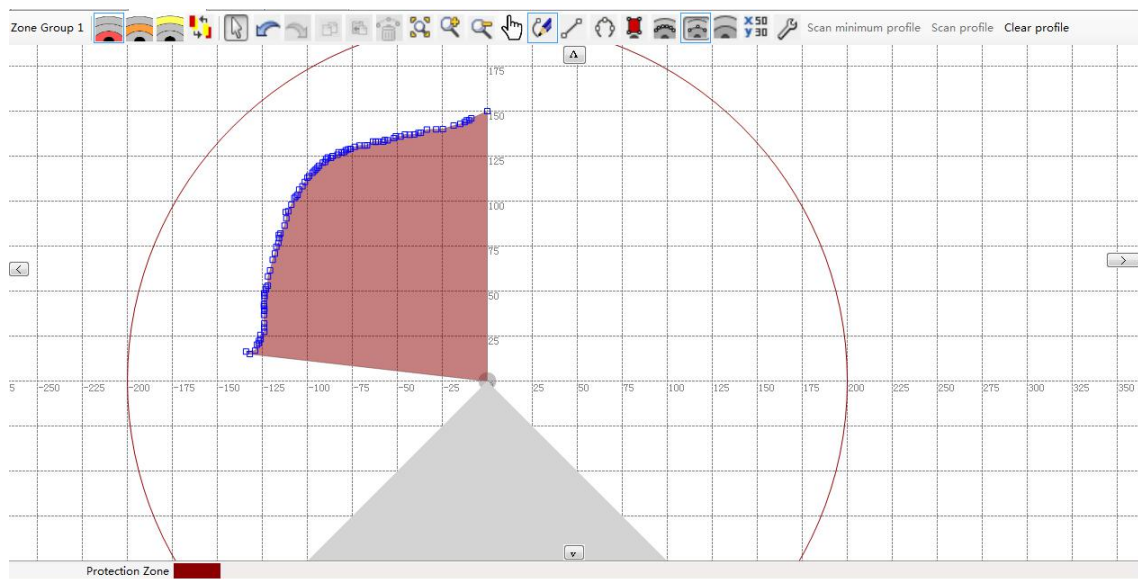


Fig 2.5.11 Draw a range of boundary points

2.5.4.2.3 Straight line tool

When straight line tool  is selected, users can draw straight line boundary in the drawing zone.

For example, click the left button at coordinates ($X = 0$, $Y = 160$) in the drawing zone to determine the starting point of the straight line, then

click the left button at coordinates ($X = 80$, $Y = 80$) to determine the ending point of the straight line, the corresponding protective zone generated is as shown in Fig.2.5.12

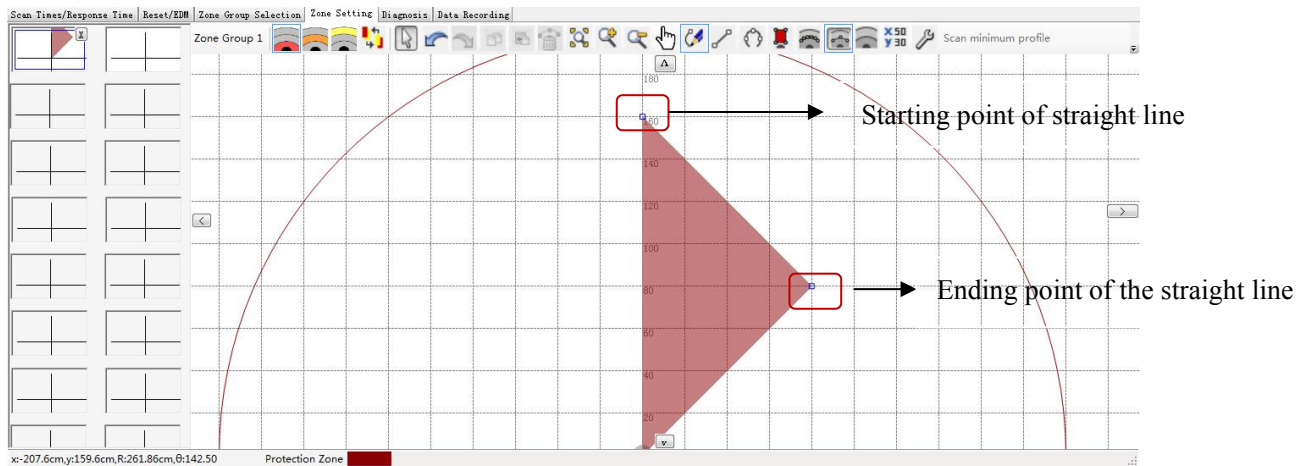


Fig 2.5.12 Draw a straight line

2.5.4.2.4 Arc tool

When Arc tool  selected, users can draw Arc boundary in the drawing zone.

For example, press the left button at coordinates ($X = 0$, $Y = 180$) in the drawing zone to determine the starting angle of the arc (90°), then drag the mouse to coordinates $(-180, 0)$ to determine the sector radius (180cm) and ending angle (180°). Release the left button, the corresponding protective area generated is as shown in Fig.2.5.13

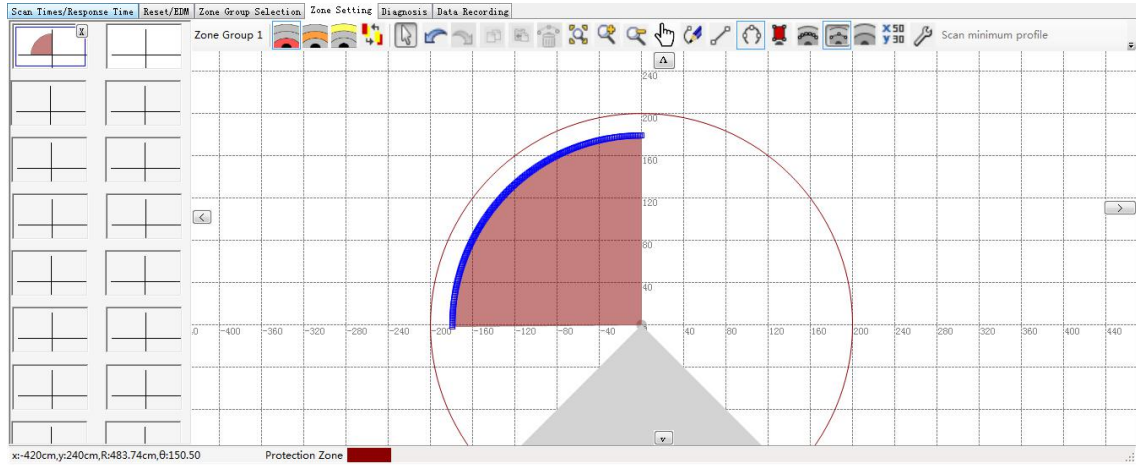


Fig 2.5.13 Draw an arc

2.5.4.2.5 Rectangle tool

Click the rectangle tool , rectangle settings dialog box is popped up, as shown in Fig.2.5.14

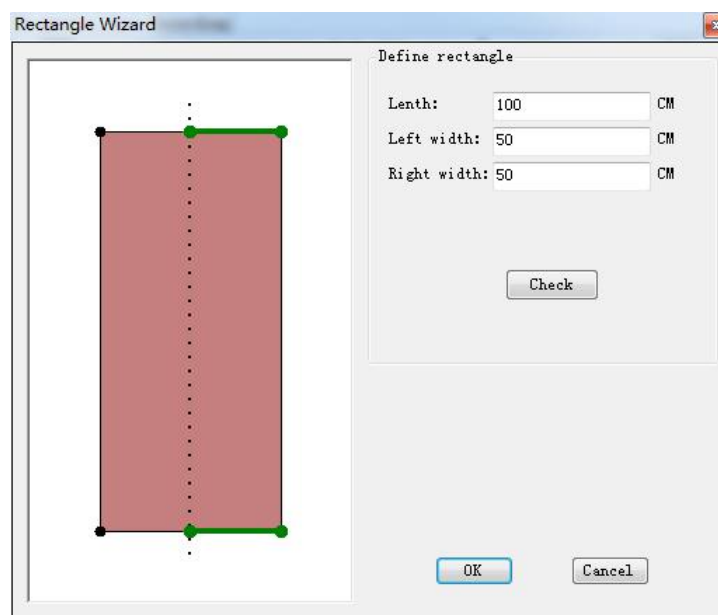


Fig 2.5.14 Rectangle settings

Input length and width of the rectangle according to the user's requirements, as shown in Fig.2.5.14. Length is set to 100, left width and right width is set to 50, and click **【OK】**, the protective zone is generated as shown in Fig.2.5.15

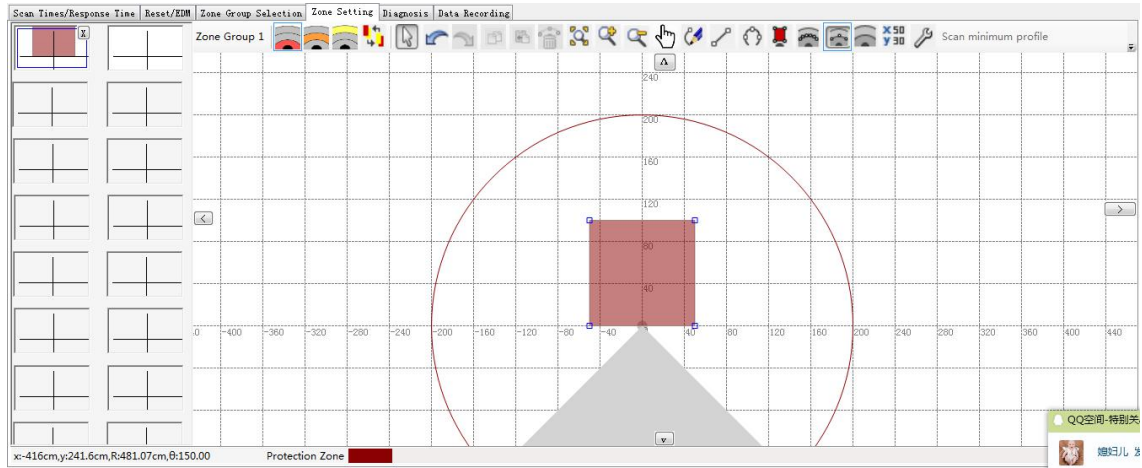


Fig 2.5.15 Draw a rectangle

2.5.4.2.6 Canvas settings

Click the canvas settings tool , canvas setting dialog box is popped up, as shown in Fig.2.5.16

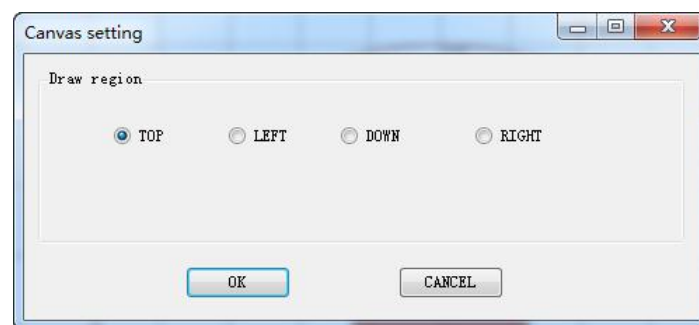


Fig 2.5.16 canvas settings

Users can rotate the canvas according to the actual scanning zone. For example, select **【DOWN】** and click **【OK】**, the canvas in drawing zone as shown in Fig. 2.5.15 will be rotated as shown in Fig. 2.5.17:

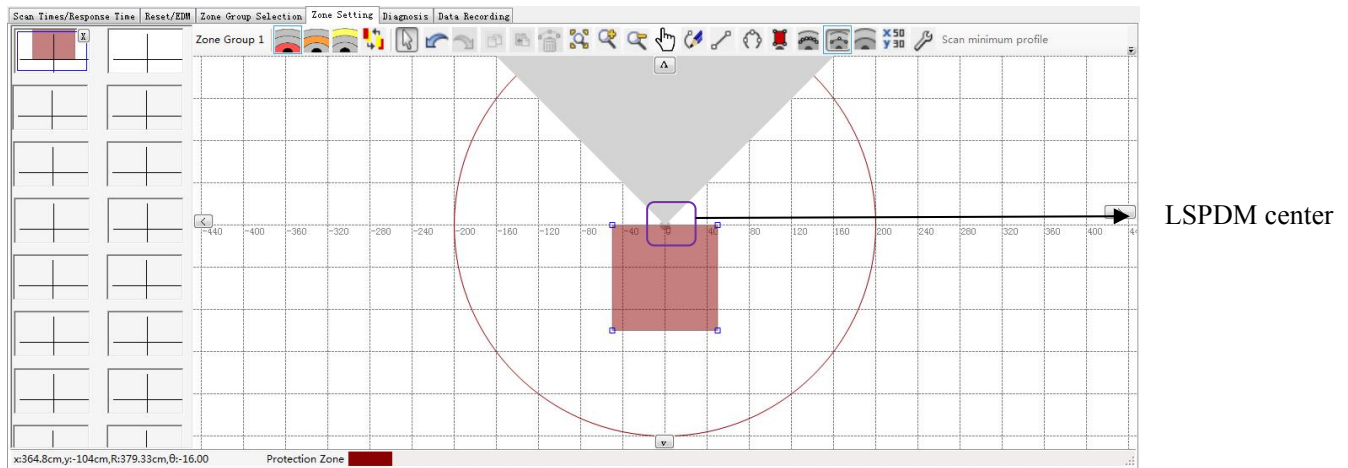


Fig 2.5.17 canvas after rotating

2.5.4.2.7 Editing Zone tool

Editing zone tool: modify the current editing zone accurately, for instance, to modify the rectangular zone shown in Fig.2.5.15, click editing zone tool and dialog windows is popped up, as shown in Fig.2.5.18

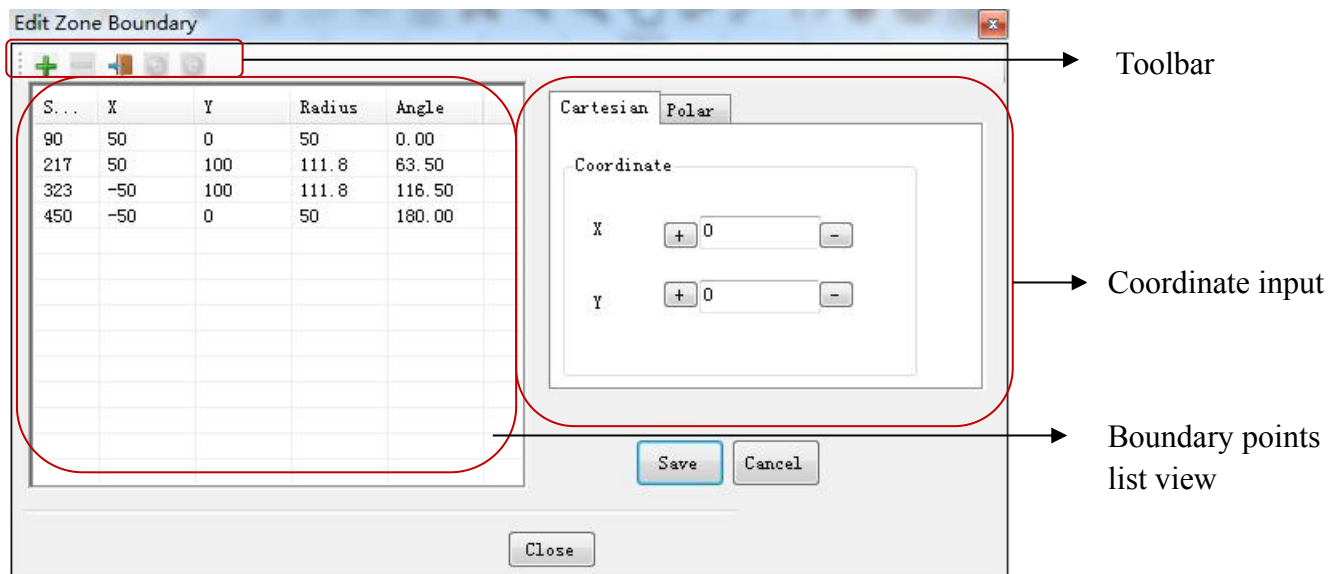


Fig 2.5.18 Coordinates editing window

- Toolbar: Including Add , Delete , Exit .
- Boundary point list view: Showing all the user-defined boundary points in the view.
- Coordinate input: Modifying user-defined coordinate data of boundary

points. Provide XY coordinate input and polar coordinate input.

Operation Example: Suppose the defined the protective zone as shown in Fig.2.5.17 (rectangle), the functions of Modify, Add  and Delete  will be introduced.

(1) Modify boundary points of the rectangular area as shown in

Fig.2.5.15. Click  and select a coordinate point (50,0) in boundary points list view in the editing window, then change the XY coordinate to (50,50) in the **【XY input】**, click **【Save】**, as shown in Fig. 2.5.19

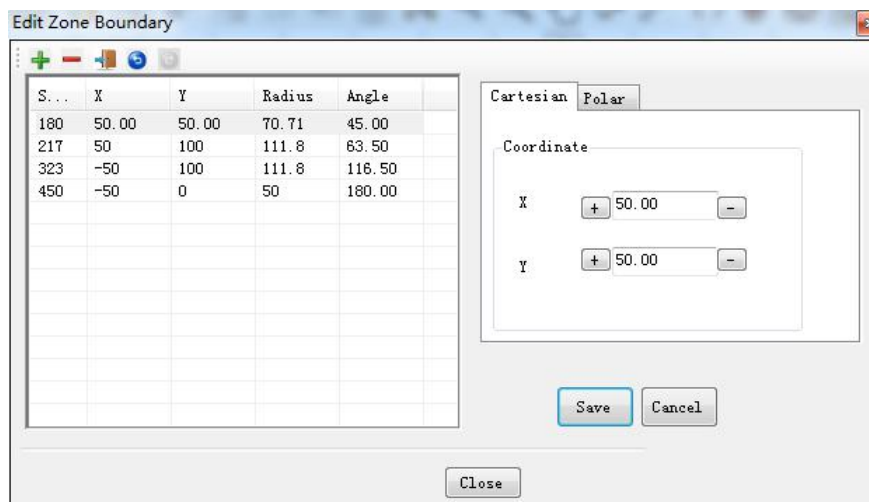


Fig 2.5.19 Modifying coordinate

Close the pop-up window, the modified protective zone will be as shown in Fig.2.5.20

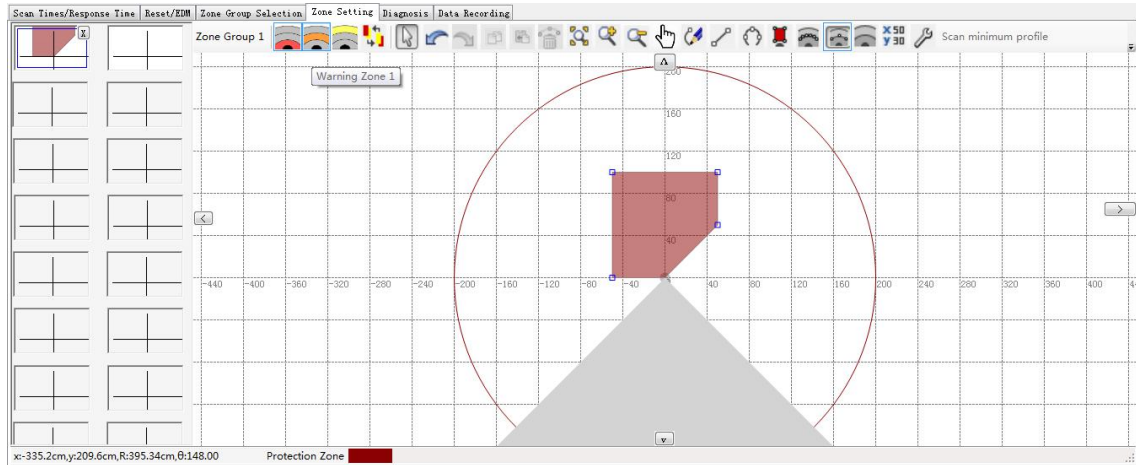


Fig 2.5.20 Coordinate modification

Add boundary points to protective zone shown in Fig.2.5.20,

Click  and click toolbar  in the editing window, then input XY coordinate (-70,70) in the **【XY input】** , as shown in Fig. 2.5.21.

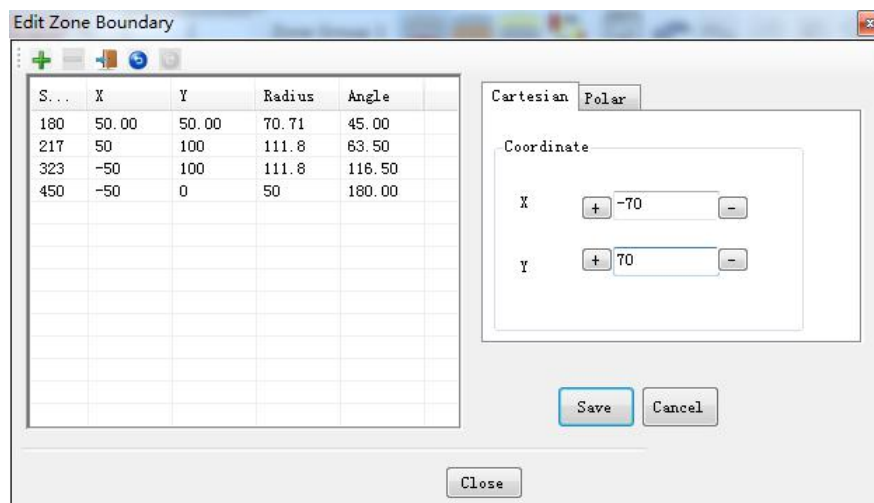


Fig 2.5.21 Input added coordinate data

Click **【Save】** , user-defined boundary point (-70,70) is added in the boundary points list view, as shown in Fig.2.5.22

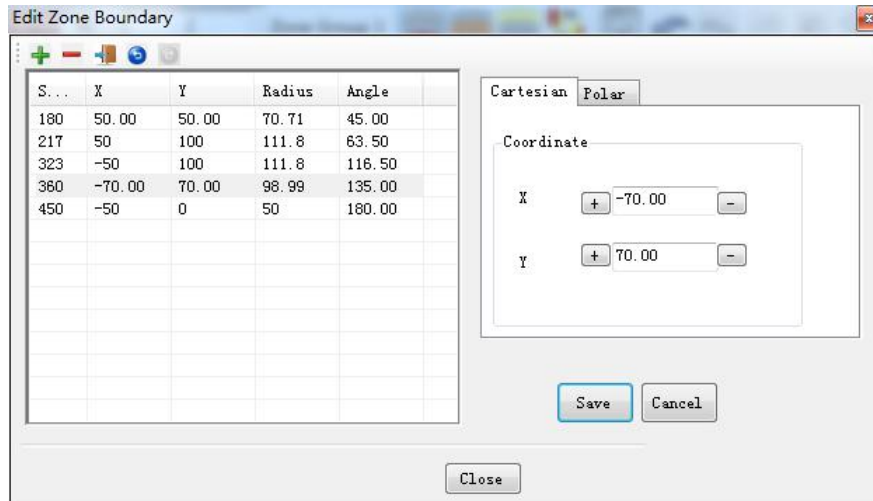


Fig 2.5.22 Add boundary points

Close the pop-up window, the modified protective zone is shown in

Fig.2.5.23

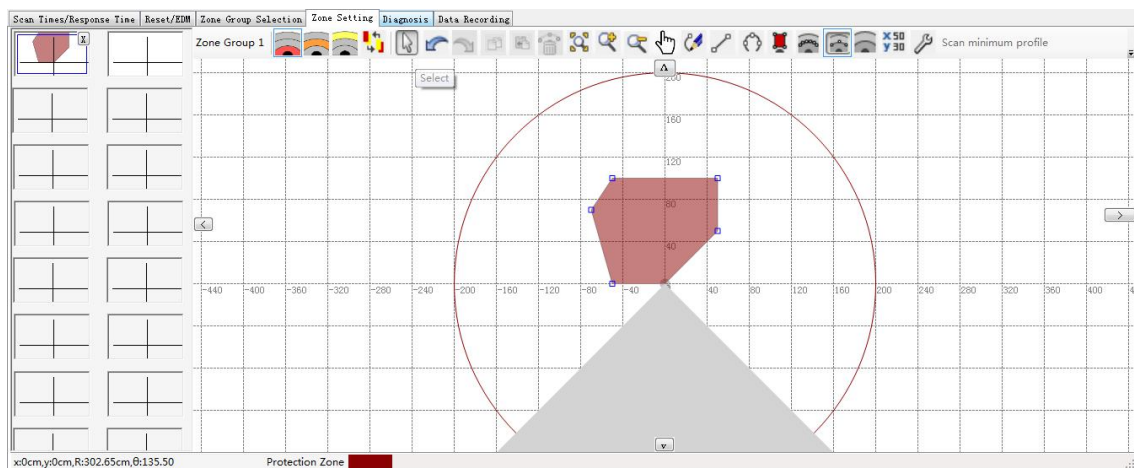


Fig 2.5.23 View after adding points

(2) Delete boundary points of protective zone shown in Fig.2.5.23. Click



and select coordinates (50, 50) which will be deleted in the boundary points list view in the pop-up window, as shown in Fig.

2.5.24

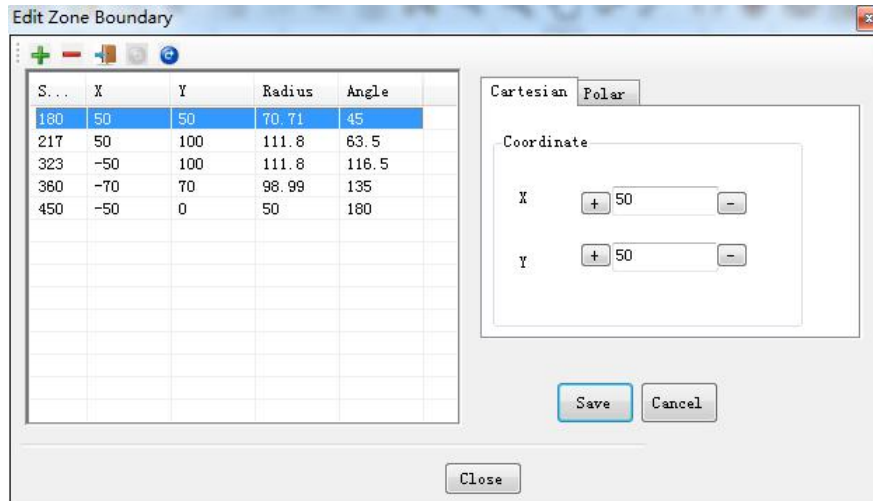


Fig 2.5.24 Deleting points

Click toolbar Delete , coordinates (50, 50) in the boundary points list view disappears, as shown in Fig. 2.5.25

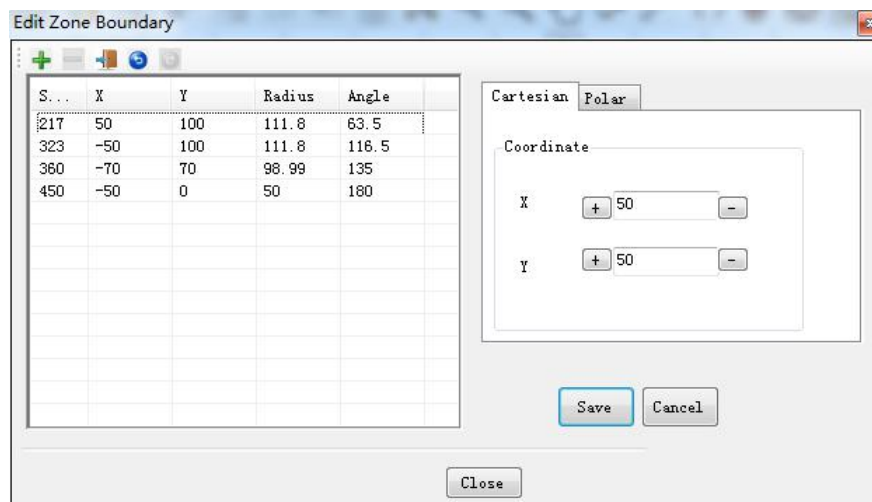


Fig 2.5.25 Delete the selected boundary points

Close the pop-up window, the modified protective zone will be as shown in Fig.2.5.26

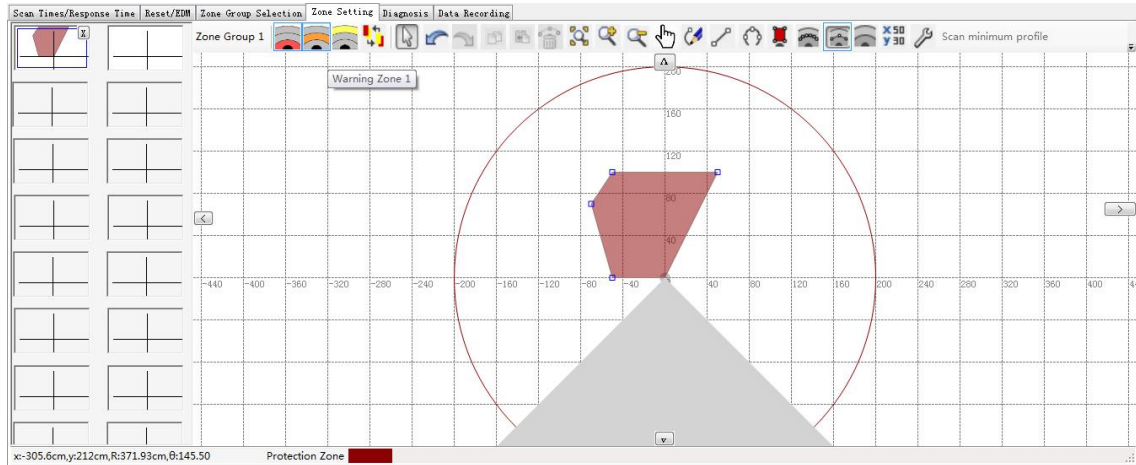


Fig 2.5.26 Protective area after coordinates have been deleted

2.5.4.3 Drawing zone

Drawing zone is used to configure the protective zone, including rectangular coordinate system and four moving buttons.

- Coordinate units: cm;
- The minimum scale of coordinate system is 5cm, and the maximum range is 100m, so you can adjust the currently displayed coordinate range and scale size through the toolbar “Zoom” command or mouse wheel;
- The origin of coordinates corresponds to the center of LS. The coordinate system can be moved by four direction buttons, or dragged by clicking the toolbar icon.
- Gray part of coordinate zone cannot be edited;
- Different zones correspond to different colors, as shown in Sheet 9 and

Fig. 2.5.27

Sheet 9 Color allocation of different zones

Zone	Color
Current editing protective zone	Red
Current editing warning zone1	orange
Current editing warning zone2	Yellow
Non-editable zone	Gray

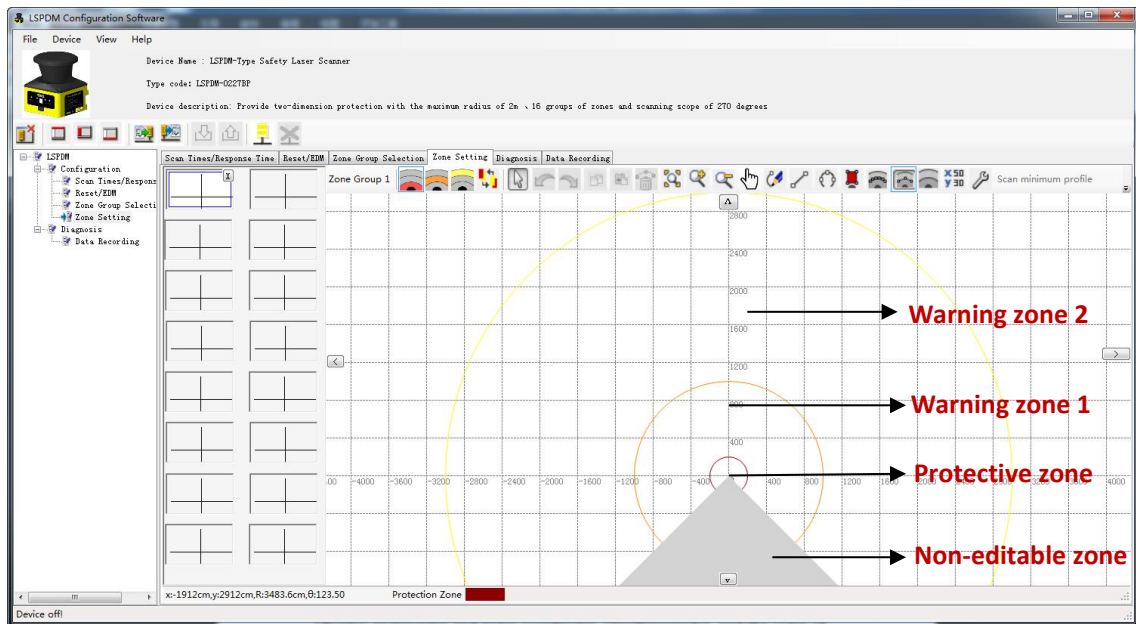


Fig 2.5.27 Zone outline and its corresponding color

2.5.4.4 Status bar

Status bar includes cursor coordinate information in the drawing zone (display rectangular and polar coordinates simultaneously), and the color of the current editing zone (protective area displayed in red, warning zone 1 displayed in orange, warning zone 2 displayed in yellow).

- When the cursor is moving in the drawing zone, the coordinate information of status bar updates in real time.
- Click the icon  to edit protective zone, the status bar is displayed as shown in Fig.2.5.28.

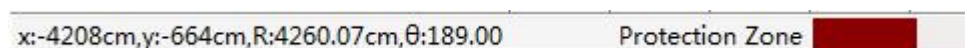


Fig 2.5.28 Status display of protective zone

- Click the icon  to edit warning area 1, the status bar is displayed

as shown in Fig.2.5.29

x:-4232cm,y:-760cm,R:4299.7cm,θ:190.00 Warning Zone 1

Fig 2.5.29 Status display of warning zone 1

- Click the icon  to edit warning area 2, the status bar is displayed as shown in Fig.2.5.30

x:-4216cm,y:-360cm,R:4231.34cm,θ:185.00 Warning Zone 2

Fig 2.5.30 Status display of warning zone 2

2.5.5 Diagnosis

Diagnostic tab monitors the scanner online, displays status of the indicator window on the scanner 、 the outline of current zone group and the outline of the surrounding, as shown in Fig.2.5.31

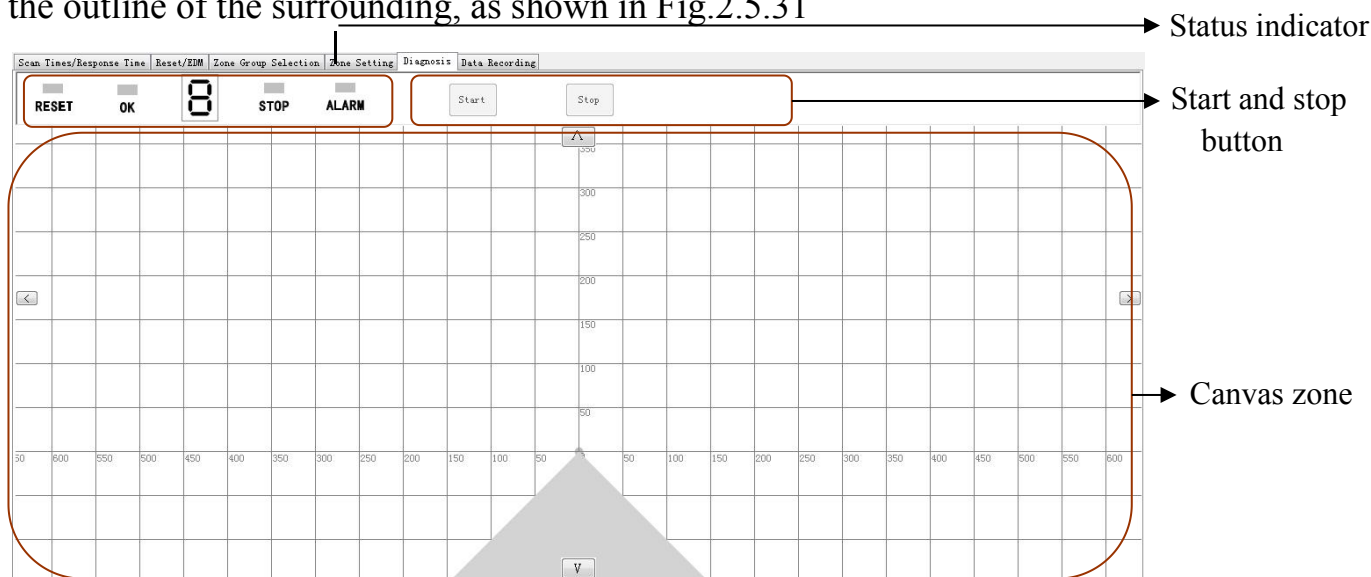


Fig 2.5.31 Diagnosis tab

- Indicator status bar: Details are shown in Sheet 10 below.
- Canvas zone: Showing the boundary outline of current zone group and surrounding outline.
- Start button: Activate diagnosis function after the connection has been established. Click **【Start】** , the software starts reading the configuration

information of the scanner which is connected to it and display them on the canvas and the indicator status bar.

- Stop button: **【Stop】** is available only after **【Start】** has been clicked.

Real time updating of surrounding outline will be paused after clicking

【Stop】 and the indicator status bar will turn to the initial state. To restarting the diagnosis function, **【Start】** button need to be clicked again.

Sheet 10 Introduction of indicator mark in diagnosis tab.

Indicator mark	Meaning	Description
	Reset	The indicator is on when an object has been detected in the protective area under the manual reset mode. Reset indicator will flicker one time when window calibration is being carried out
	Normal	The indicator is on when no object detected in protection zone. OSSD output is ON. The controlled machine is allowed to work under this condition.
	Stop	The indicator is on when object detected in protection zone. OSSD output is OFF. The controlled machine is not allowed to work understand this condition.
	Warning	The indicator is on when object detected in warning zone. ALARM output is ON.
	Digital Tube	 : No activated zone group or input signal fault
		 : Current activated zone group 1
		 : Current activated zone group 2
		 : Current activated zone group 3
		 : Current activated zone group 4
		 : Current activated zone group 5

		 : Current activated zone group 6
		 : Current activated zone group 7
		 : Current activated zone group 8
		 : Current activated zone group 9
		 : Current activated zone group 10
		 : Current activated zone group 11
		 : Current activated zone group 12
		 : Current activated zone group 13
		 : Current activated zone group 14
		 : Current activated zone group 15
		 : Current activated zone group 16
		 : OSSD output fault
		 : Communication connection has been established
		 : LSPDM is configured successfully
		 : EDM fault
		 : LSPDM system fault
		 : Indicating window smudginess, it will be activated when energy attenuates to 60% caused by window smudginess
		When different conditions coexist, different displays will circulate (interval 1s)

Note

- For zone group 5~16, the definition of the digital tube identification: the 7-segment digital tube consists of 4 vertical segments and 3 horizontal segments. Each vertical segment represent the number 4, and each horizontal segment represents the number 1, and the zone 7 is represented by one vertical segment and three transverse segments



(), and the zone 11 is represented by 2 vertical segments and 3

transverse segments (), zone 16 is represented by 4 vertical

segments ()

2.5.6 Data recording

Data recording tab is used to display current zone group boundary outline information and surrounding outline information when diagnosis function is being carried out, as shown in Fig. 2.5.32.

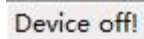
Scan Times/Response Time		Reset/EDM	Zone Group Selection		Zone Setting	Diagnosis	Data Recording
Serial...	Angle	Status	Protectio...	Warning Zo...	Warni...	Measuring...	
29	-31.00	Communic...	0.0	0.0	0.0	1.0	
30	-30.50	Communic...	0.0	0.0	0.0	1.0	
31	-30.00	Communic...	0.0	0.0	0.0	1.0	
32	-29.50	Communic...	0.0	0.0	0.0	1.0	
33	-29.00	Communic...	0.0	0.0	0.0	1.0	
34	-28.50	Communic...	0.0	0.0	0.0	1.0	
35	-28.00	Communic...	0.0	0.0	0.0	1.0	
36	-27.50	Communic...	0.0	0.0	0.0	1.0	
37	-27.00	Communic...	0.0	0.0	0.0	1.0	
38	-26.50	Communic...	0.0	0.0	0.0	1.0	
39	-26.00	Communic...	0.0	0.0	0.0	1.0	
40	-25.50	Communic...	0.0	0.0	0.0	1.0	
41	-25.00	Communic...	0.0	0.0	0.0	1.0	
42	-24.50	Communic...	0.0	0.0	0.0	1.0	
43	-24.00	Communic...	0.0	0.0	0.0	1.0	
44	-23.50	Communic...	0.0	0.0	0.0	1.0	
45	-23.00	Communic...	0.0	0.0	0.0	1.0	
46	-22.50	Communic...	0.0	0.0	0.0	1.0	
47	-22.00	Communic...	0.0	0.0	0.0	1.0	
48	-21.50	Communic...	0.0	0.0	0.0	1.0	
49	-21.00	Communic...	0.0	0.0	0.0	1.0	
50	-20.50	Communic...	0.0	0.0	0.0	1.0	
51	-20.00	Communic...	0.0	0.0	0.0	1.0	
52	-19.50	Communic...	0.0	0.0	0.0	1.0	
53	-19.00	Communic...	0.0	0.0	0.0	1.0	

Fig 2.5.32Data recorder tab

2.6 Status bar

Status bar is used to display the connecting status between the

software and the scanner, as shown in Fig.2.6.



Device off!

Fig 2.6 Status bar

Offline: Software and scanner are not connected.

3 LSPDM configuration software application examples

3.1 Configuration preparations

3.1.1 Hardware, software and cable preparation

Prepare a LSPDM safety laser scanner, a power cable, a configuration cable and a computer in which the software has been installed already before configuring, as shown in Fig.3.1.1.



Fig.3.1.1.Configuration preparations

3.1.2 USB driver installation

Only the first connection requires driver installation. Connect both ends of configuration cable to the computer and LSPDM safety laser scanner respectively. Windows 7 or above operating system will identify LSPDM and complete driver installation automatically. For Windows XP system, a dialog box will be popped up to prompt that new hardware wizard is found. Complete the driver installation according to the following steps:

(1) Select “Yes, this time only”, click Next, as shown in Fig. 3.1.2.



Fig.3.1.2 Found new hardware wizard

(2) Select “Install from the list or specific location [Advanced]”, and click Next, as shown in Fig.3.1.3.



Fig.3.1.3 Finding new hardware wizard

(3) Select “Don’t search. I will choose the driver to install”, and click Next, as shown in Fig.3.1.4.

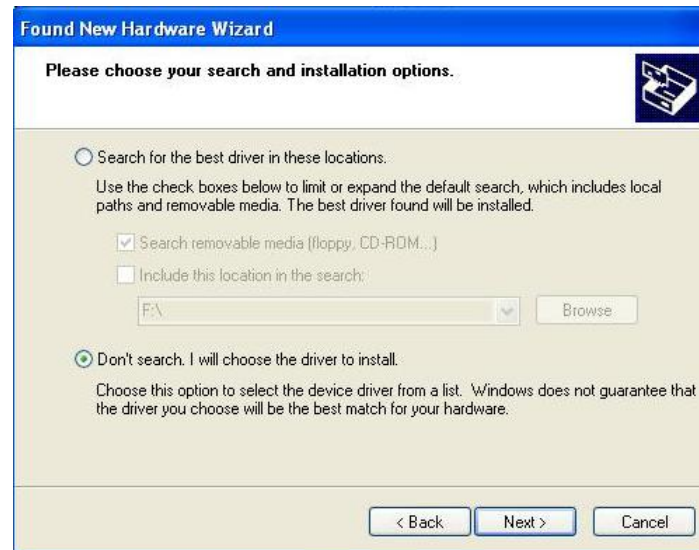


Fig.3.1.4 Driver installation wizard

(4) Select USB Serial Port in the device model list and click Next, as shown in Fig.3.1.5.



Fig.3.1.5 Selecting *USB Serial Port*

(5) The following window will be popped up to display that driver is being installed, as shown in Fig. 3.1.6:



Fig.3.1.6 USB driver installation

(6) The following window will be popped up after correct operation.

Click Finish to finish the installation, as shown in Fig.3.1.7.



Fig.3.1.7Finishingnew hardware wizard

(7) Note: The following window will be popped up again when installation is being finished under most XP operating system.



Repeat the operation once according to the previous steps and the USB driver installation will be finished.

(8) After the USB driver has been properly installed, users can view the COM port used to communicate between the scanner and the computer, the specific steps are as follows:

- Right click My Computer and click Manage menu item in the pop-up menu, as shown in Fig.3.1.8:



Fig.3.1.8 Right click *My Computer*

- Click Device Manager in the pop-up window, as shown in Fig.3.1.9.

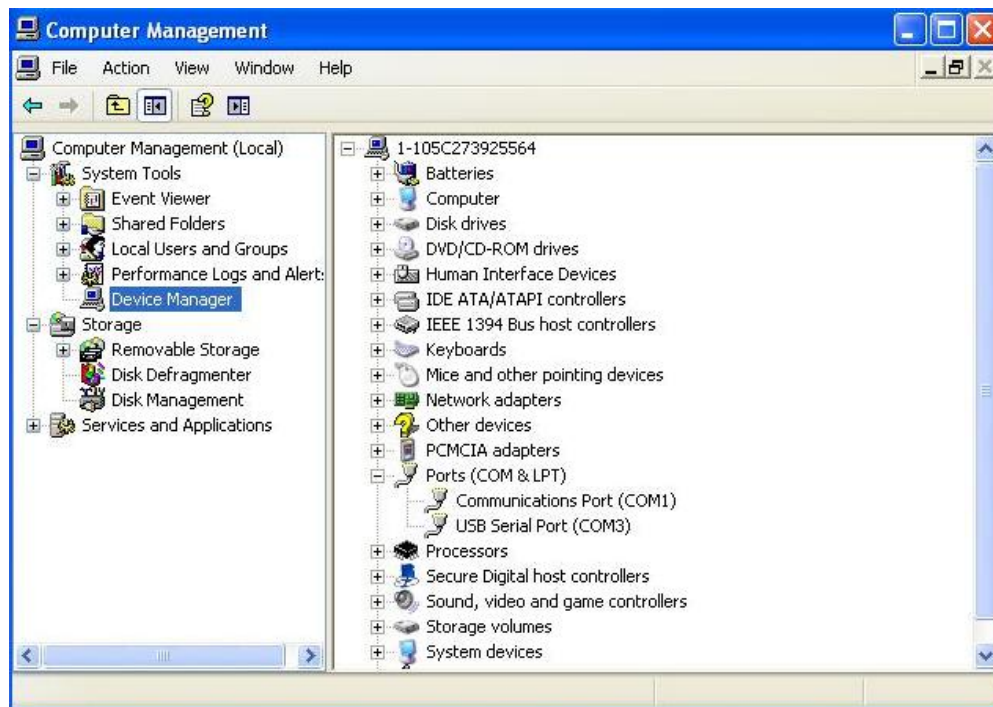


Fig.3.1.9 Device manager

- Expand Ports branch of Fig.3.1.9, of which the USB Serial Port (Com 3) is the COM port connected to LPSDM, as shown in Fig.3.1.10.

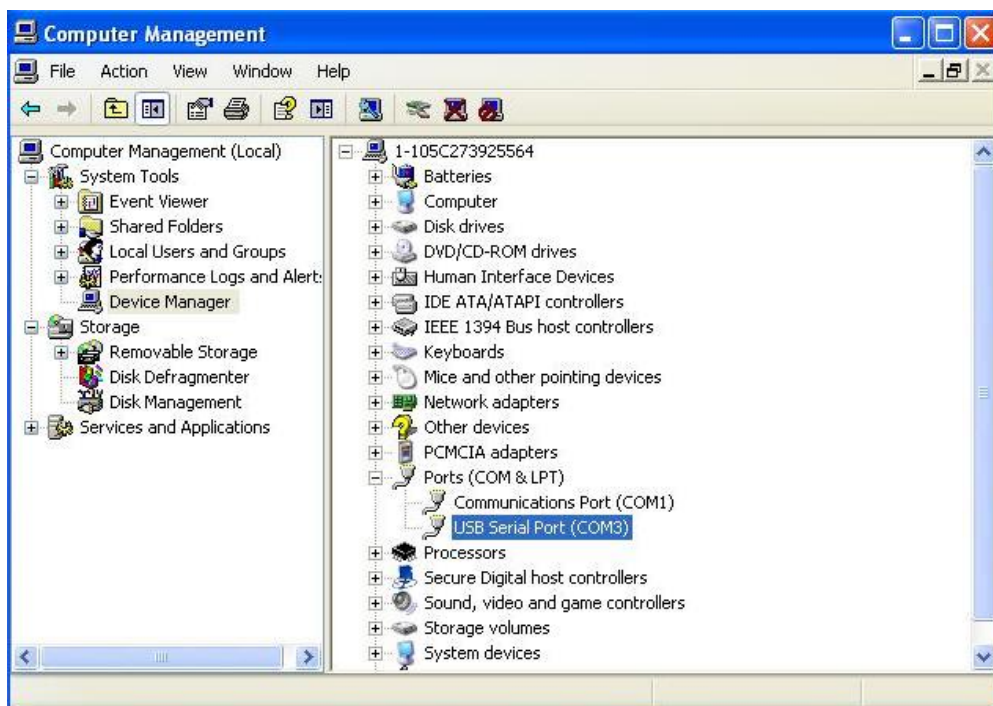


Fig.3.1.10 USB serial port

3.1.3 Scanner startup

Connect power cable of the scanner to 24V and 0V of DC power

supply respectively, the scanner begins to be powered on, digital tube starts flickering (1s intervals) and stops flickering after 10s, the start-up is finished.

3.1.4 Configuration software startup

(1) Double click the shortcut icon  of the configuration software on the desktop to start the software.

(2) Select LSPDM type at device selection window and click **【OK】** , taking LSPD-0227BP as an example, as shown in Fig 3.1.11.



Fig 3.1.11 device type selection window

(3) Program will enter into user interface window as shown in Fig 3.1.12.

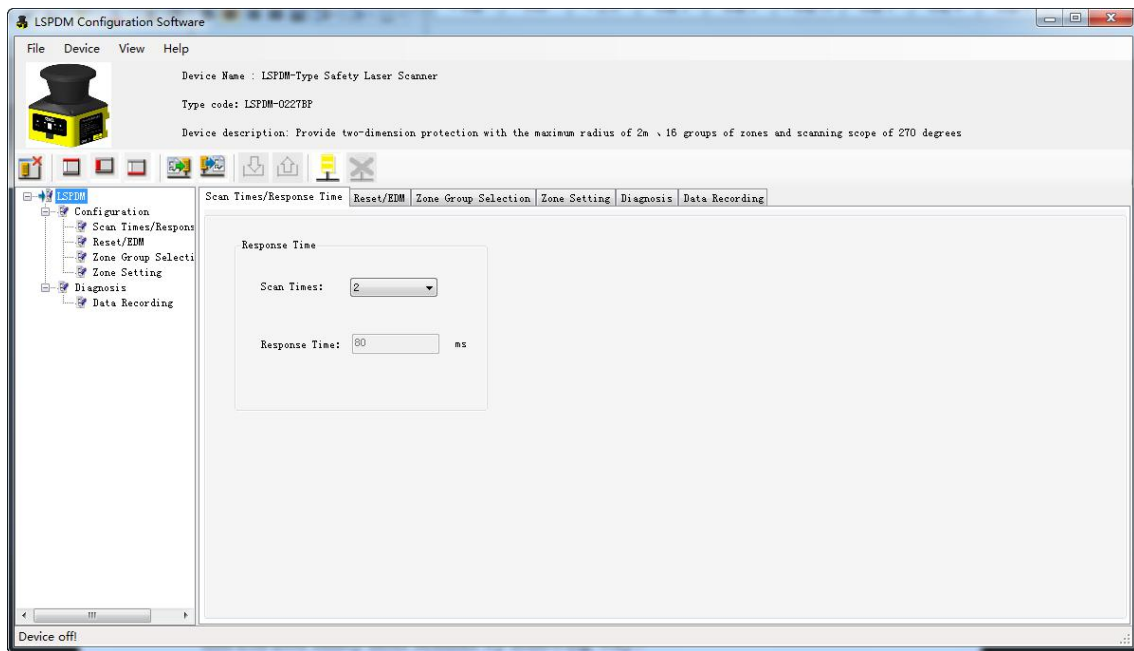


Fig 3.1.12 Main user interface

3.1.5 Establish the connection

User can establish communication connection between LSPDM configuration software and LSPDM safety laser scanner by following steps:

(1) Click **【Connect】** button  to establish connection on the software user interface. Serial port selection window will be popped up as shown in Fig.3.1.5.1. If the serial port number is less than 2, it means the scanner is not recognized. Refer to Chapter 4 to solve this problem.

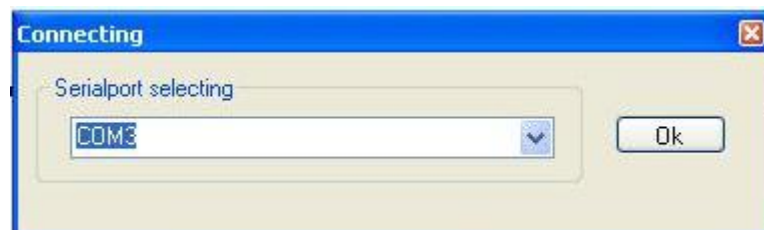


Fig.3.1.13 Serial port selection window

(2) Click **【OK】**, if the device type of software and device type of LSPDM which will be connected are matching, the pop-up box prompts

the connection is successful, as shown in Fig.3.14. And the scanner has been connected to the computer successfully and the digital tube of the indicator window displays 6.

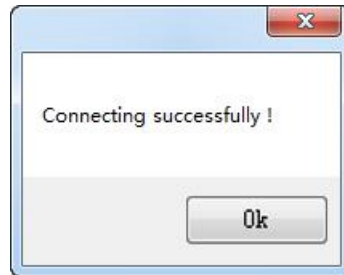


Fig 3.1.14 Connection succeeds

(4) If the device type of software doesn't match with LSPDM type, one pop-up window will prompt whether to change software device type. Click **【OK】** , the software will match with the device type and prompt connecting successfully. Otherwise, connection fails as shown in Fig 3.1.16

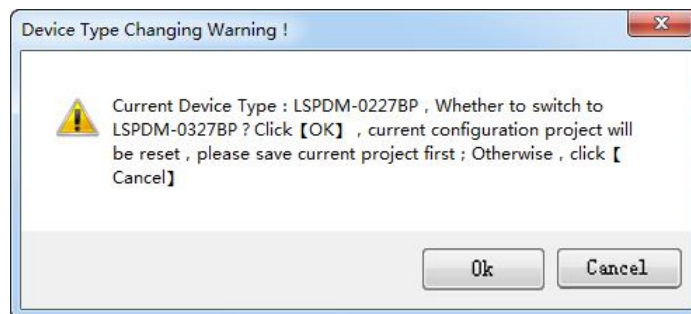


Fig 3.1.15 Device type match prompt



Fig 3.1.16 connection failure prompt

(4) Click **【OK】** or close the pop-up window to finish the configuration preparations.

After the connection between the software and the scanner has been established, click , the connecting between the scanner and the software will be interrupted and a pop-up window prompts this information, as shown in Fig. 3.1.17. Once disconnected, clicking  can re-establish the connection.

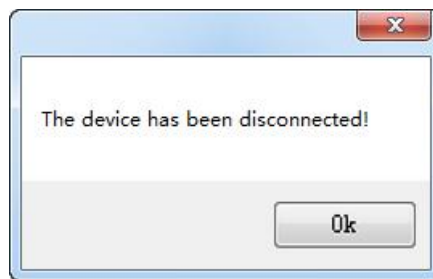


Fig 3.1.17 Disconnection

3.2 Configuration example 1 of LSPDM-0227BP safety laser scanner

User requirements: 1 zone group (1 protective zone and 2 warning zone), response time 80ms, automatic reset, external device monitoring (EDM) is disabled.

- Open software and select LSPDM-0227BP at device selection window, click **【OK】** .
- A new project is established automatically after the software opened. Its default configuration is: 1 zone group (1 protective zone and 2 warning zone), response time 80ms, automatic reset, external device monitoring (EDM) is disabled.
- User only needs to finish the zone group boundary (ie, protective area) configuration according to the needs in this example.

The detailed configuration steps are described below.

3.2.1 Establish connection between scanner and software

Finish the configuration preparations according to 3.1 and establish connection between scanner and software. USB driver only needs to be installed for the first use, the scanner can be identified automatically after.

3.2.2 Protective zone configuration

3.2.2.1 Switch to 【zone setting】

Switch to the corresponding drawing zone through the tree view or zone setting tab, as shown in Fig.3.2.1.

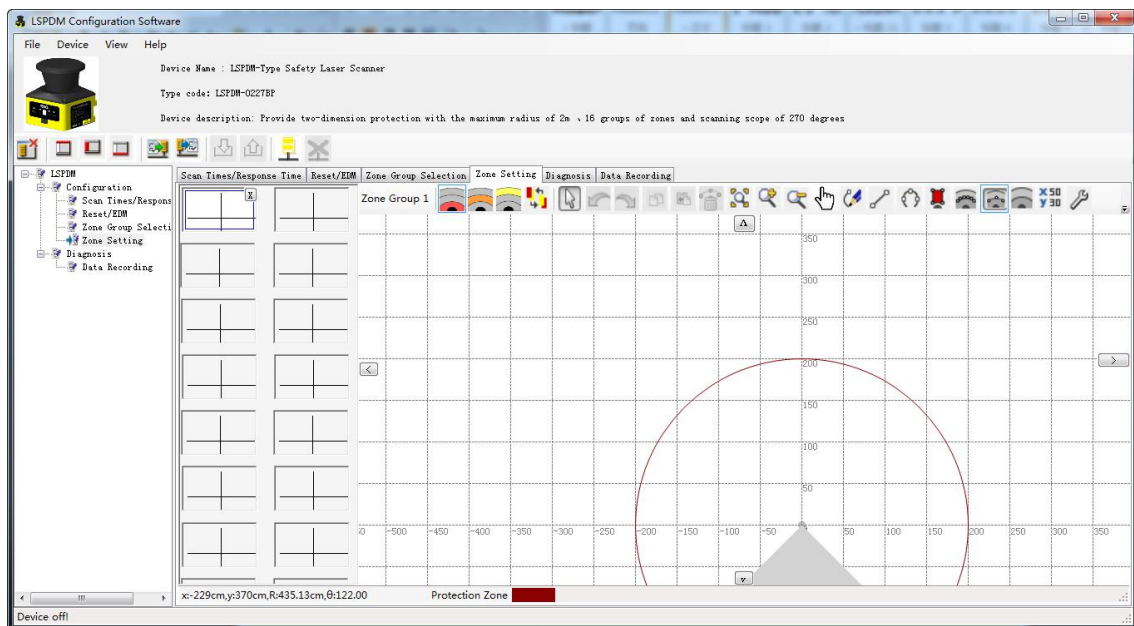


Fig.3.2.1 Drawing zone

3.2.2.2 Protective zone setting

3.2.2.2.1 Method 1 for drawing protective zone

Measure the protective zone boundary data on site by using a ruler and an angle ruler, then draw the protective zone boundary in the configuration software according to the actual measurement data.

Available drawing tools include Free Drawing , Straight line , Arc , Rectangle Wizard  and Editing Zone . Their functions can be referred to the detailed description of drawing commands in 2.5.4.2.

Operation steps:

Step①: Protective zone configuration. For example, Fig.3.2.2 shows the user-defined irregular protective zone boundary.

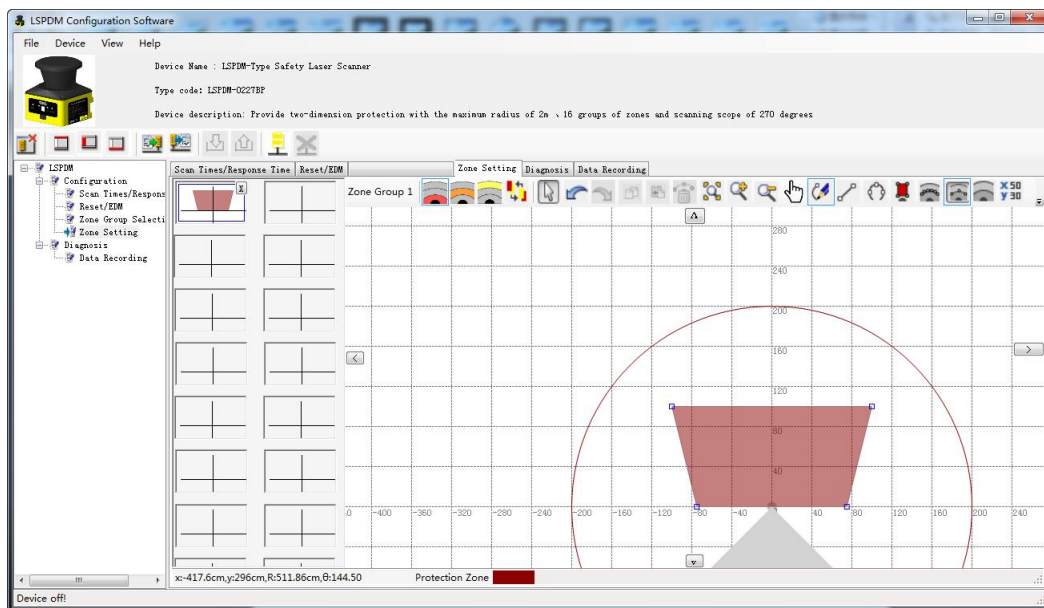


Fig.3.2.2 Draw protective area

Step②: Warning zone 1 configuration. Click the icon  or  to switch to warning zone 1 configuration and complete the boundary configuration. Fig.3.2.3 shows the user-defined irregular warning zone 1 boundary.

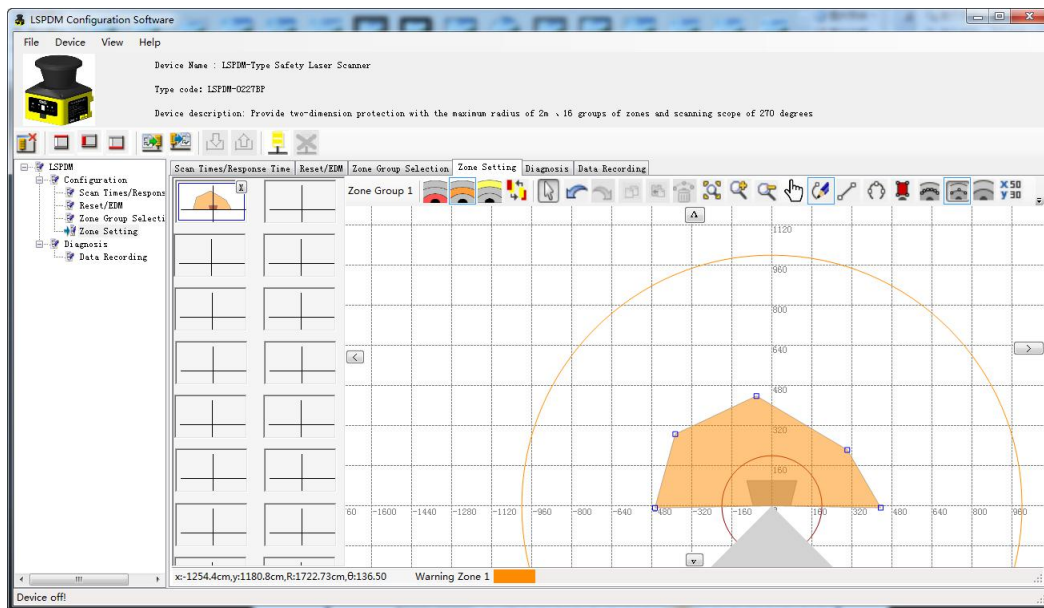


Fig.3.2.3 Draw warning area 1

Step③: Warning zone 2 configuration. Click the icon  or  to switch to warning zone 2 configuration and complete boundary configuration. Fig.3.2.4 shows the user-defined irregular warning zone 2 boundary.

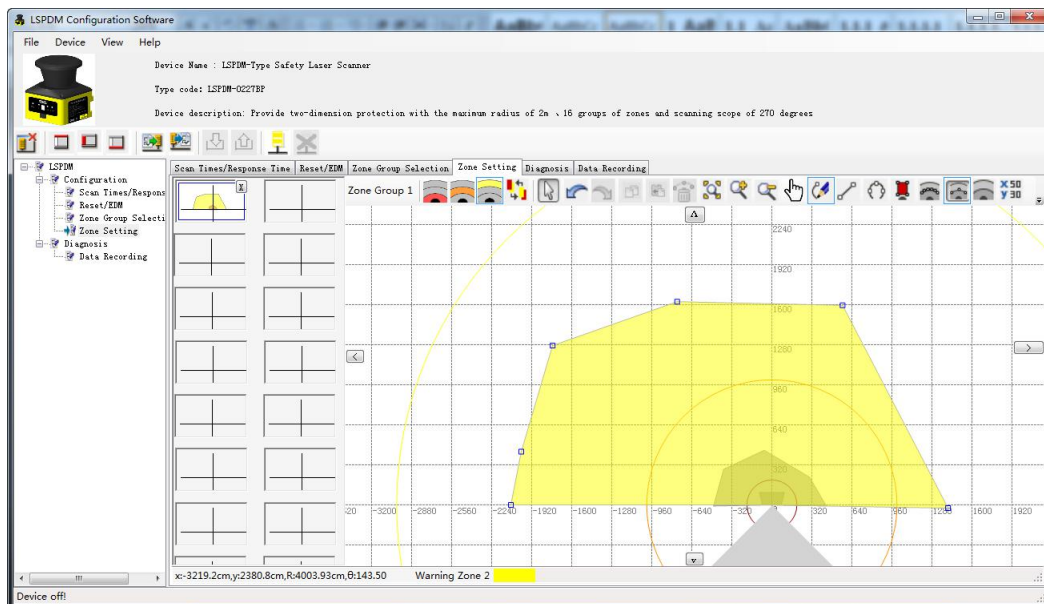


Fig.3.2.4 Draw warning area 2

3.2.2.2.2 Method 2 for drawing protective zone: Scanning outline

Step①: Place the test specimen at the key location of the on-site

protective zone on site, click **【Scan Profile】** on the toolbar to obtain the test piece location and surroundings outline, as shown in Fig.3.2.4

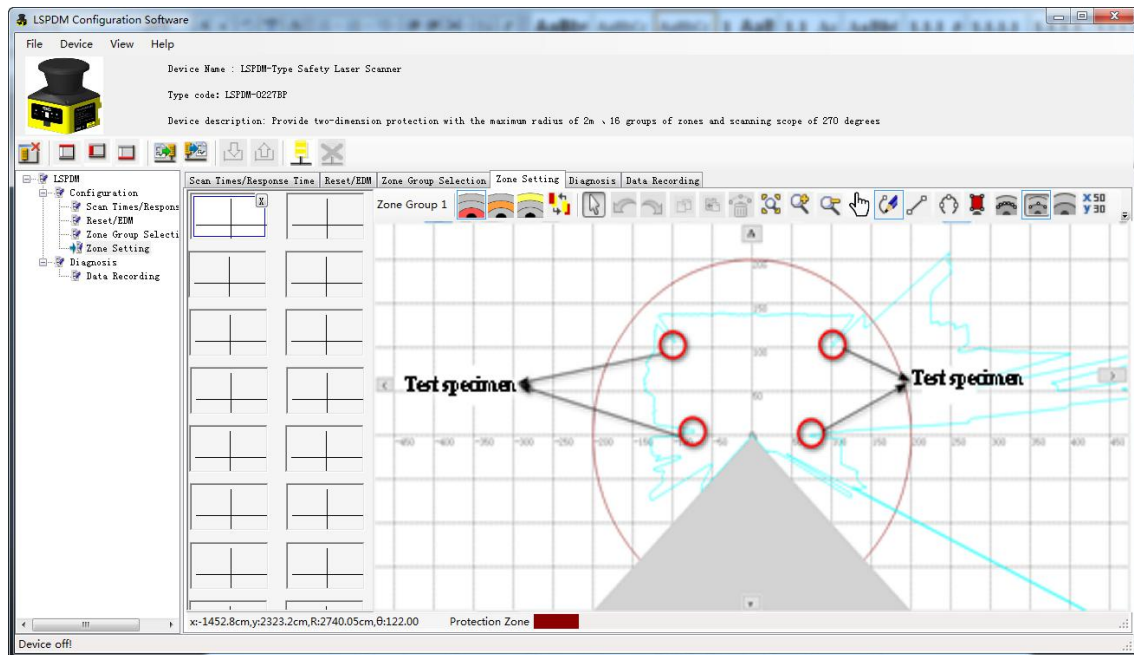


Fig 3.2.4 Test piece location

Step②: Click **【Stop scanning】** on the toolbar, refer to the specimen locations and surroundings outline, and finish drawing boundary outline by using the drawing tools, as shown in Fig.3.2.5:

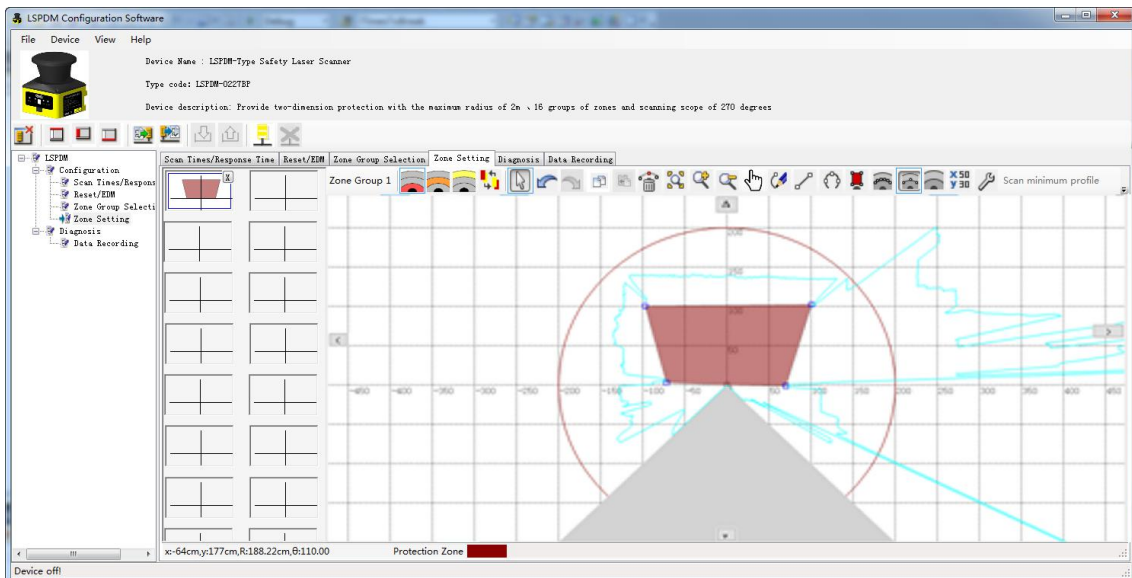


Fig 3.2.5 Drawing protective zone according to test piece location

Step③: Click **【Clear profile】** on the toolbar to clear the outline, the

protective zone is as shown in Fig.3.2.6.

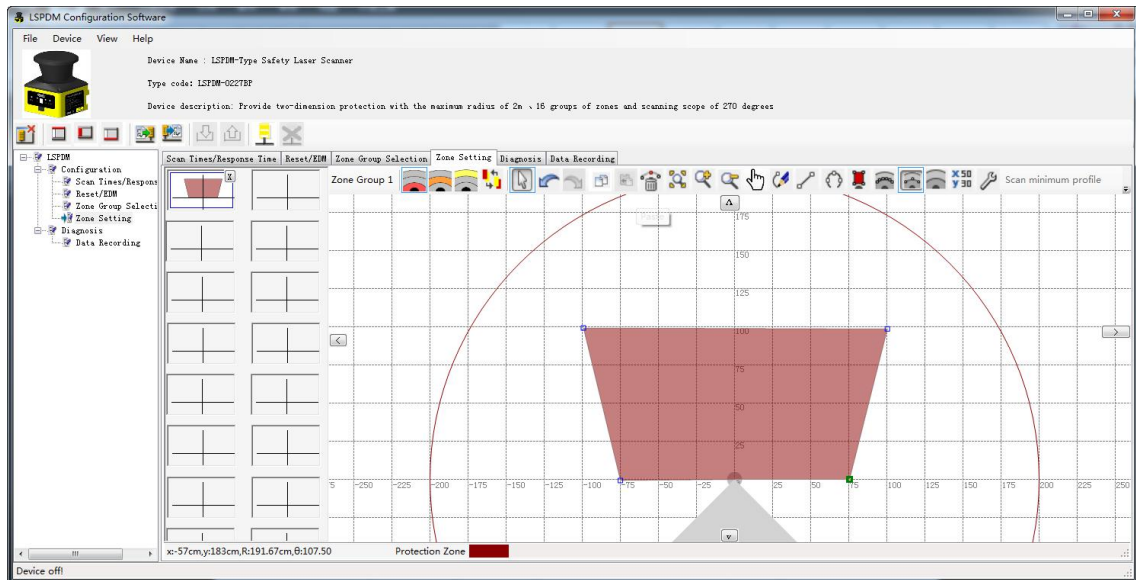


Fig 3.2.6 Drawing protective area referring to outline

Step④: Warning zone configuration. Click the icon  (warning zone 1),  (warning zone 2) or  to switch to corresponding warning zone configuration. Repeat the above steps to finish the warning zone boundary configuration.

3.2.2.2.3 Method 3 for drawing protective zone: Scan minimum profile

Step①: Click **【Scan minimum profile】** on the toolbar and make the test specimen to move around the protective zone boundary. The scanner will generate the smallest surroundings profile and make it protective zone boundary and update it constantly, as shown in Fig.3.2.7.

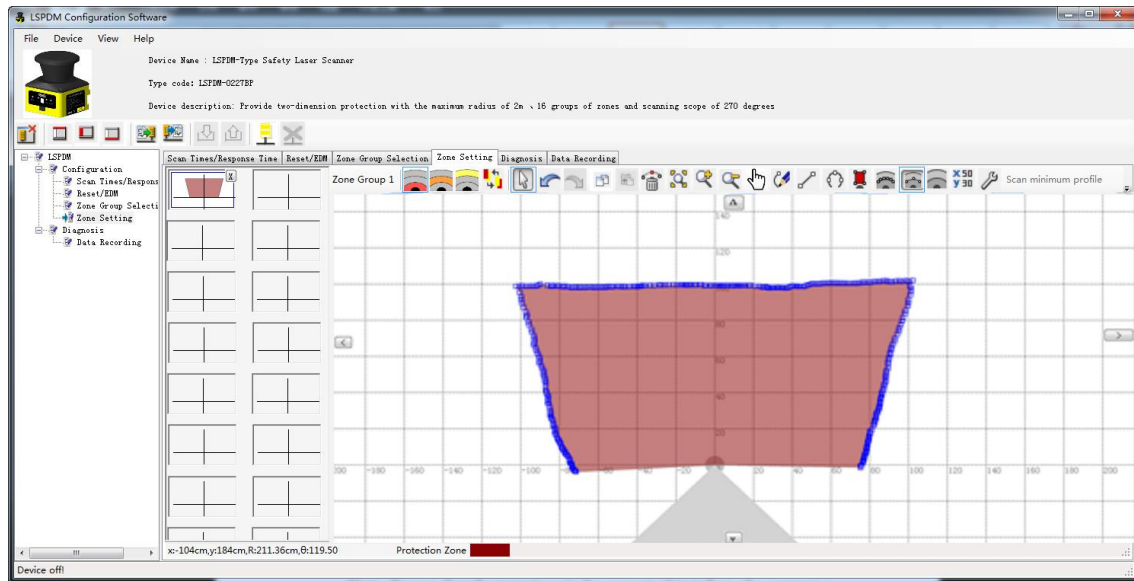


Fig.3.2.7 Scan minimum profile

Note: Ensure that the test specimen is the nearest object to the scanner when it is moving around the boundary.

Step②: Click【Stop scanning】 and the protective zone boundary is no longer updated in real time. User can modify the boundary according to the actual needs.

For example, suppose user needs the protective zone from 45° to 180° , then use the drawing tools to remove excess boundary points, the final protective zone is shown in Fig.3.2.8.

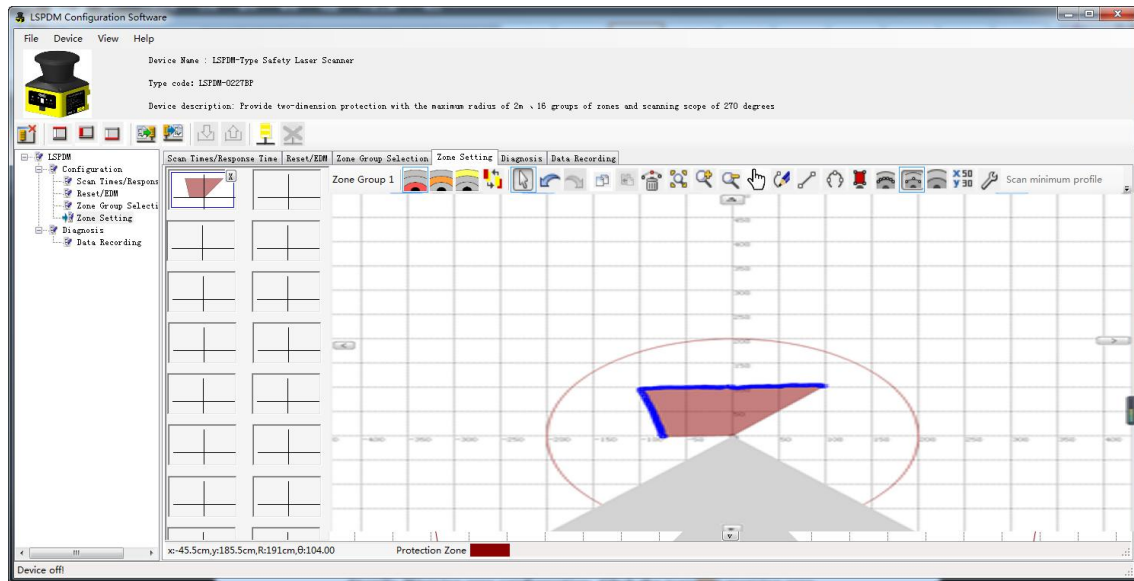


Fig 3.2.8 Final boundary profile

Step③: Warning zone configuration. Click the icon  (warning zone 1),  (warning zone 2) or  to switch to corresponding warning zone configuration. Repeat the above steps to finish the warning zone configuration.

3.2.2.2.4 Save zone setting file

To facilitate to use the protection zone configuration next time, it is suggested that the user click button  on the toolbar to export zone group boundary configuration to a file with a name suffix of .xml on the computer. Or click the menu bar [File] - [Save As] to save the existing configuration information as a file with a name suffix of “.bin”.

3.2.2.2.5 Method 4 for drawing protective zone: Import zone configuration file

Import zone configuration file can be done following the steps below:

Step①: Click  on the toolbar and select a saved zone configuration file “fd0.xml” with a name suffix of .xml, as shown in Fig3.2.9

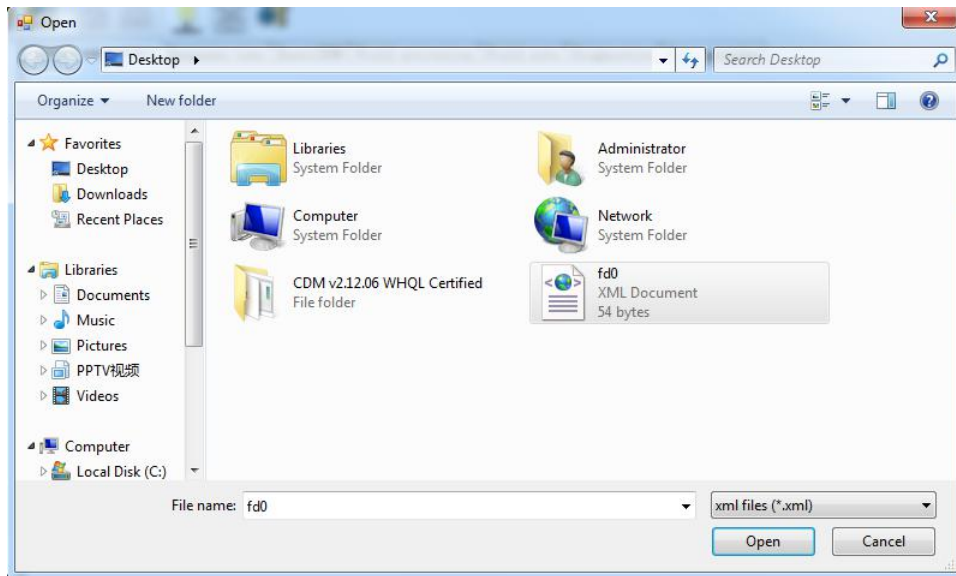


Fig 3.2.9 Import area configuration file

Step②: Click [Open] button to import the zone configuration file, as shown in Fig.3.2.9.

Step③: If device type of imported configuration file and the device type of software are matched, zone boundary profile is displayed as Fig.3.2.10

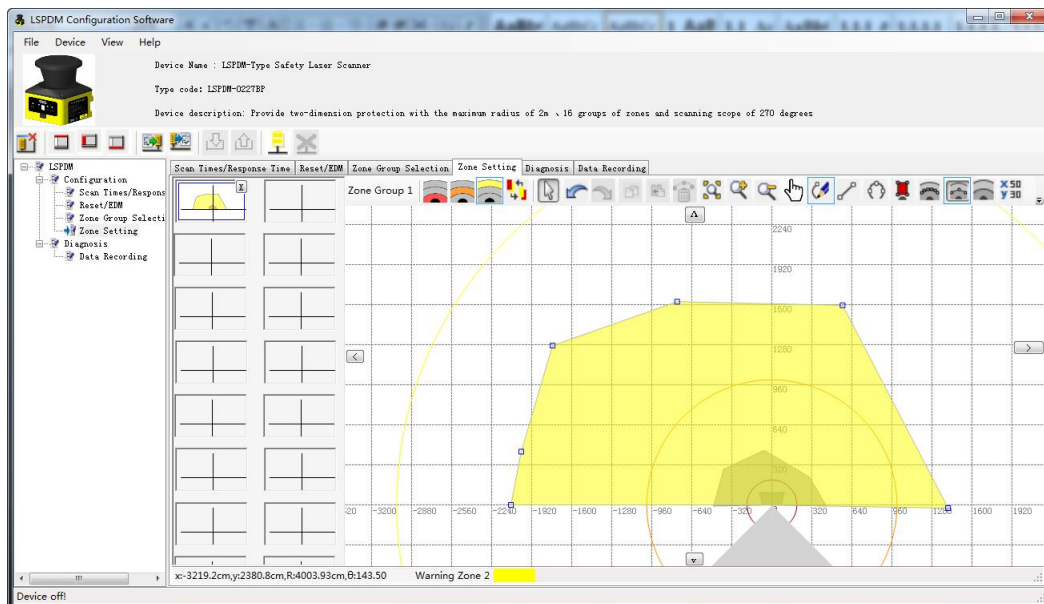


Fig 3.2.10 Import zone boundary

(5) If the device type of imported configuration file is not matched with device type of software, the pop-up window will prompt whether to change

device type of software and import zone configuration file as shown in Fig 3.2.11. Click【OK】, then change device type and import zone configuration file; Click 【Cancel】 to give up importing configuration file.

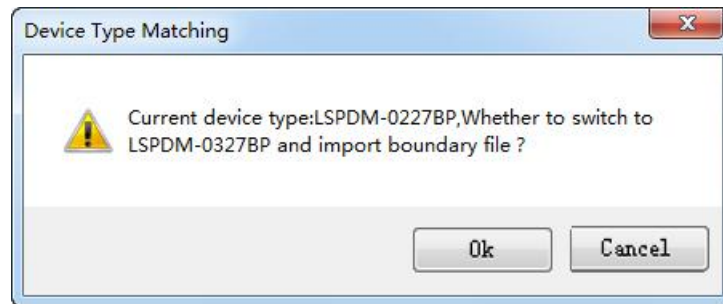


Fig 3.2.11 Import configuration file type match

Note: If connection between software and LSPDM safety laser scanner software has been established and the type of imported configuration file and device type of current software does not match, communication will be disconnected after matching the software type and file device type.

3.2.3 Transmit configuration to LSPDM

(1) Click tool bar  (Transmit configuration to LSPDM) to transmit configuration information to LSPDM. The transmitting window is shown as Fig 3.2.12. The digital tube of scanner indicator window displays

 during the transmission process.

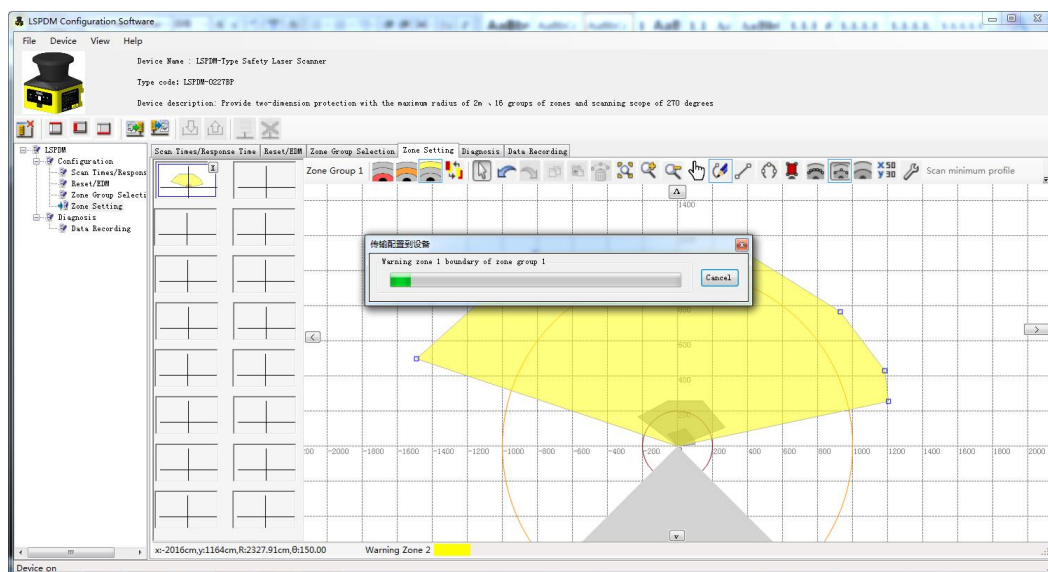


Fig 3.2.12 Transmit configuration to LSPDM

- (3) After the transmission is completed, the pop-up window will be automatically closed, and then a popup windows prompts that the configuration is successful. The digital tube of laser radar shows 9, indicating that the configuration is successful, showed as Fig.3.2.13

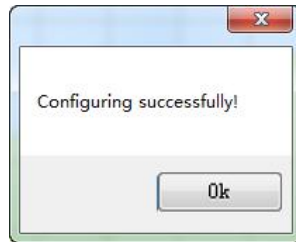


Fig 3.2.13 configuration success prompt

- (3) After the configuration is successful, you can click  to disconnect, the pop-up window prompts that the disconnection is successful, and the digital tube of scanner shows current activated zone group.

After this configuration is completed, you can exit from the LSPDM configuration software, and unplug the configuration line

Reminder: After the configuration is successful, suggest users to click the menu bar [File] - [Save As] to save the configuration information as a file with the name suffix of .bin on the computer, so that you can open it directly next time.

3.3 Configuration example 2 of LSPDM-0227BP safety laser scanner

User requirements: two zone groups (one protective zone and 2 warning zone for each zone group), the response time of 160ms, manual reset, external device monitoring (EDM) is enabled.

- Open software and select LSPDM-0227BP on device selection window, click **【OK】** .

-
- A new project is established automatically after the software opening.

Its default configuration is: 1 zone group (1 protective zone and 2 warning zones), response time 80ms, automatic reset, external device monitoring (EDM) is disabled.

- User needs to set the Scan Times/Response Time tab, Reset/EDM, Zone Group Selection tab, Zone Setting tab according to the user requirements.

The detailed configuration steps are described below.

3.3.1 Establish connection between scanner and software

Finish the configuration preparations according to 3.1 to establish connection between scanner and software. USB driver only needs to be installed for the first use. The scanner can be identified automatically thereafter.

3.3.2 Set 【Scan Times/Response Time】

Switch to the corresponding tab, set scan times to 4 and response time to 160ms as shown in Fig. 3.3.1.

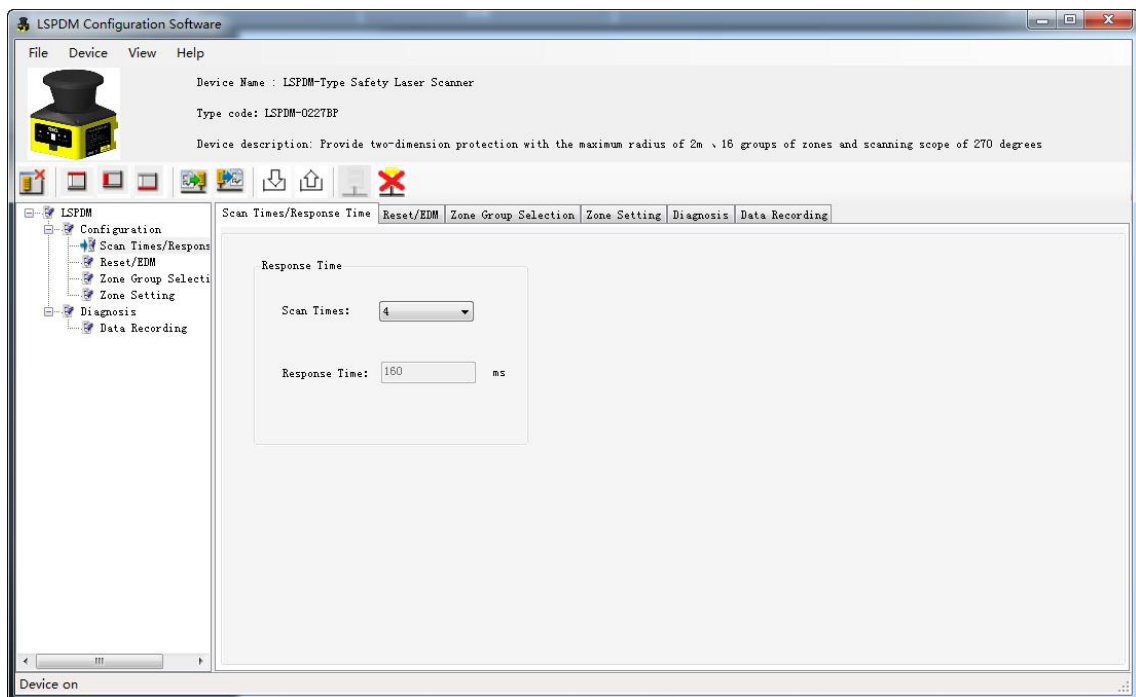


Fig.3.3.1 Scan Times/Response time setting

3.3.3 Set 【Reset/EDM】

Switch to the corresponding【Reset/EDM】tab. Select 【Manual】reset mode and check 【External Device Monitoring Activates】 , as shown in Fig.3.3.2.

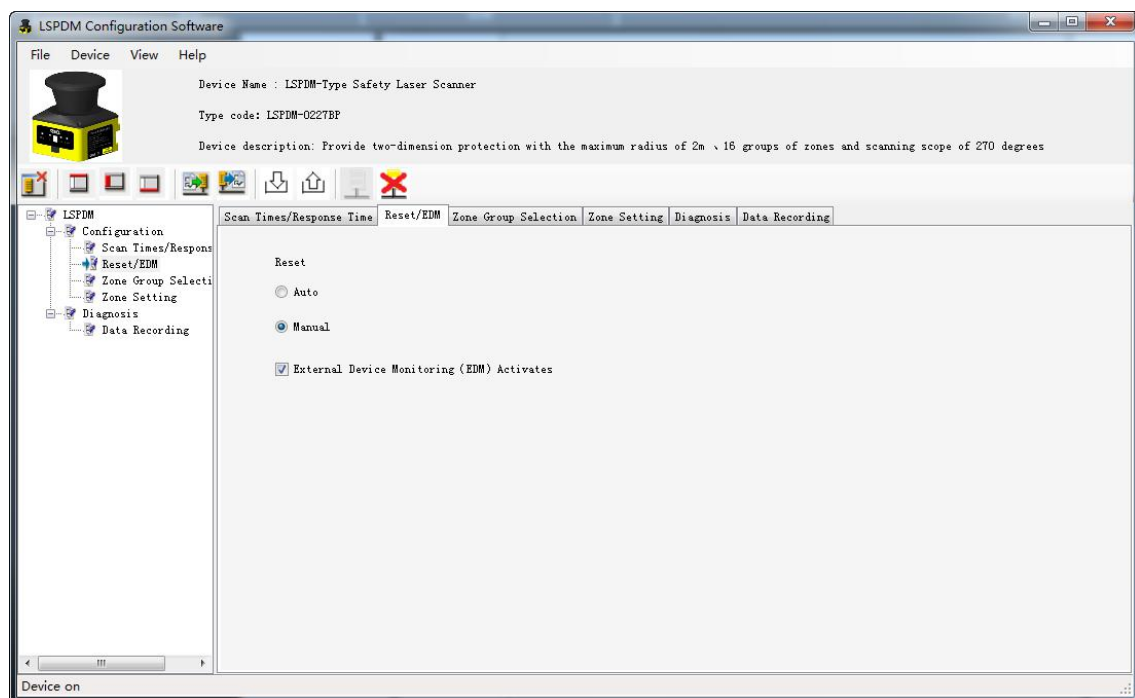


Fig.3.3.2 Reset/EDM setting

3.3.4 Set 【Zone Group Selection】

Step①: Switch to the 【Zone Group Selection】 tab, as shown in Fig.3.3.3.

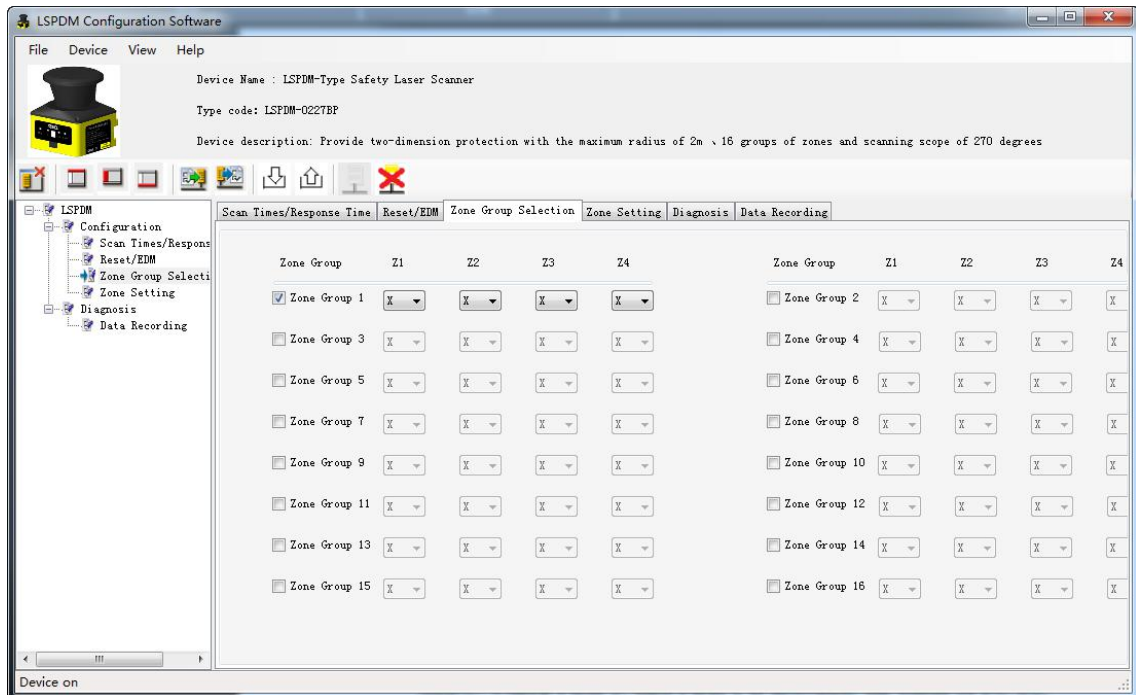


Fig.3.3.3 Initial zone group selection setting

Step②: Check zone group 2, then zone group 2 is activated, the status of Z1, Z2, Z3 and Z4 become selectable, as shown in Fig.3.3.4.

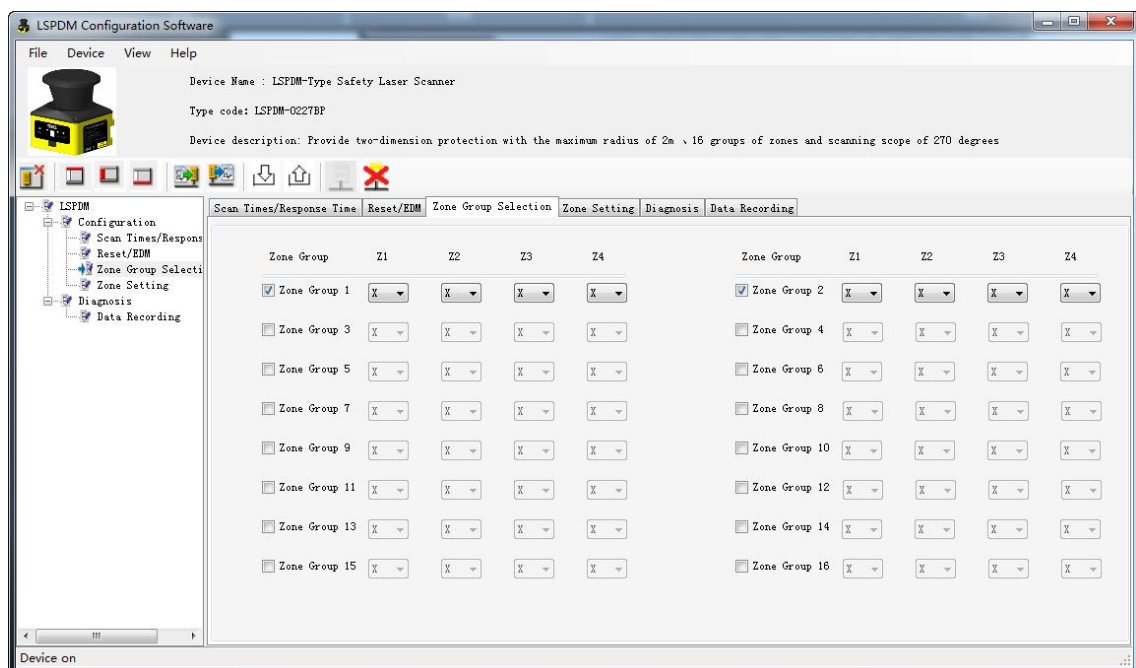


Fig.3.3.4 Activation of zone group 2

Step③: The user sets different external input signal combinations for zone group 1 and zone group 2. As shown in Fig. 3.3.4, when Z1 input is high, Z2 input is low, Z3 input is high and Z4 input is low, zone group 1 is activated; when Z1 input is low, Z2 input is high, Z3 input is high and Z4 input is low, zone group 2 is activated.

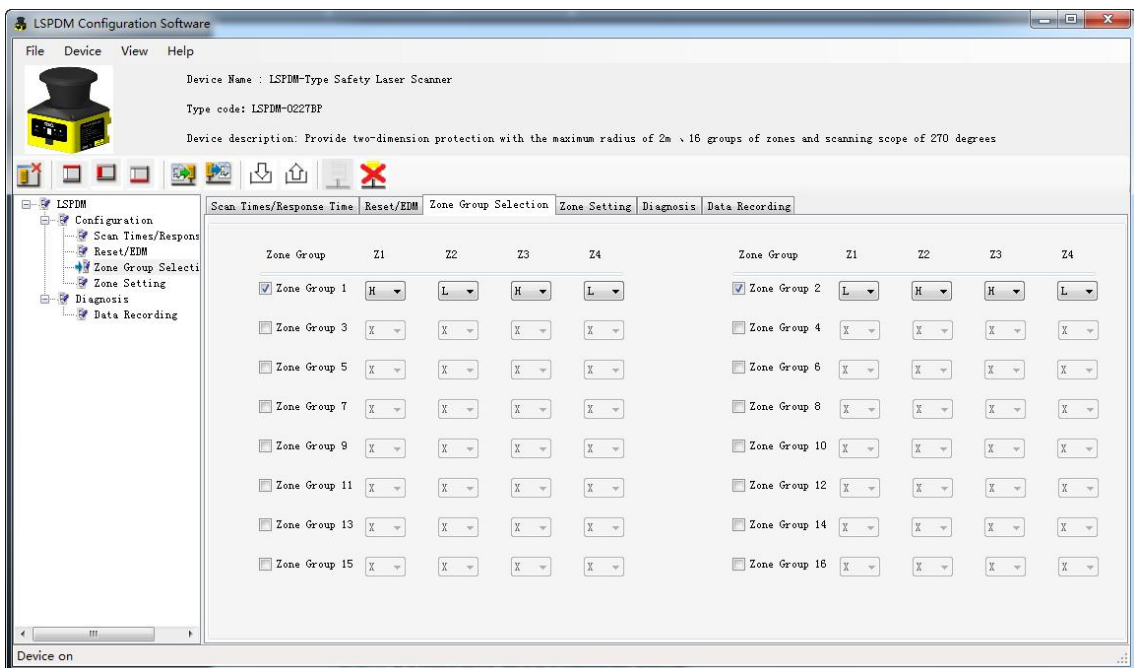


Fig.3.3.5 Zone group activation setting

3.3.5 Configuring protection zone

3.3.5.1 Switch to 【Zone Setting】

Switch to the corresponding 【Zone Setting】 tab, as shown in Fig.3.3.6.

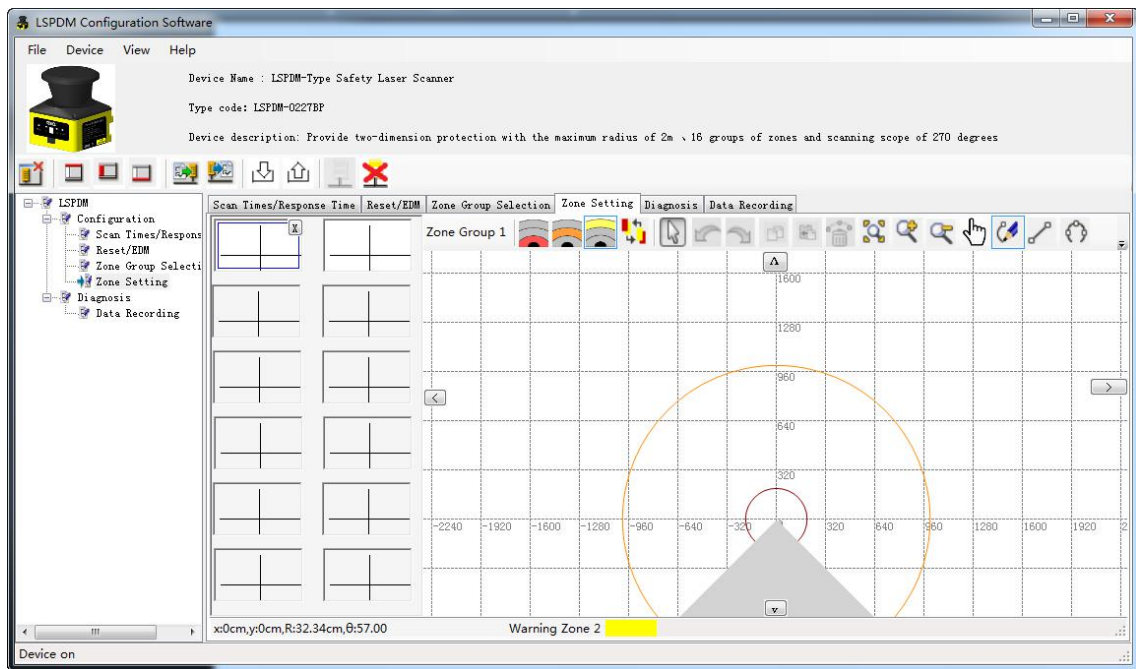


Fig.3.3.6. Field sets interface

3.3.5.2 Configure zone group 1

Refer to Chapter 3.2.2.2 for the setting method of protection zones (protective zone 1 and warning zones) of zone group 1.

3.3.5.3 Field 2 configuration

Step ①: Click the corresponding Small View of Zone Group 2(the second from left to right in the upmost line), and the small view of zone group 2 will show a blue border after being selected, as shown in Fig. 3.3.7.

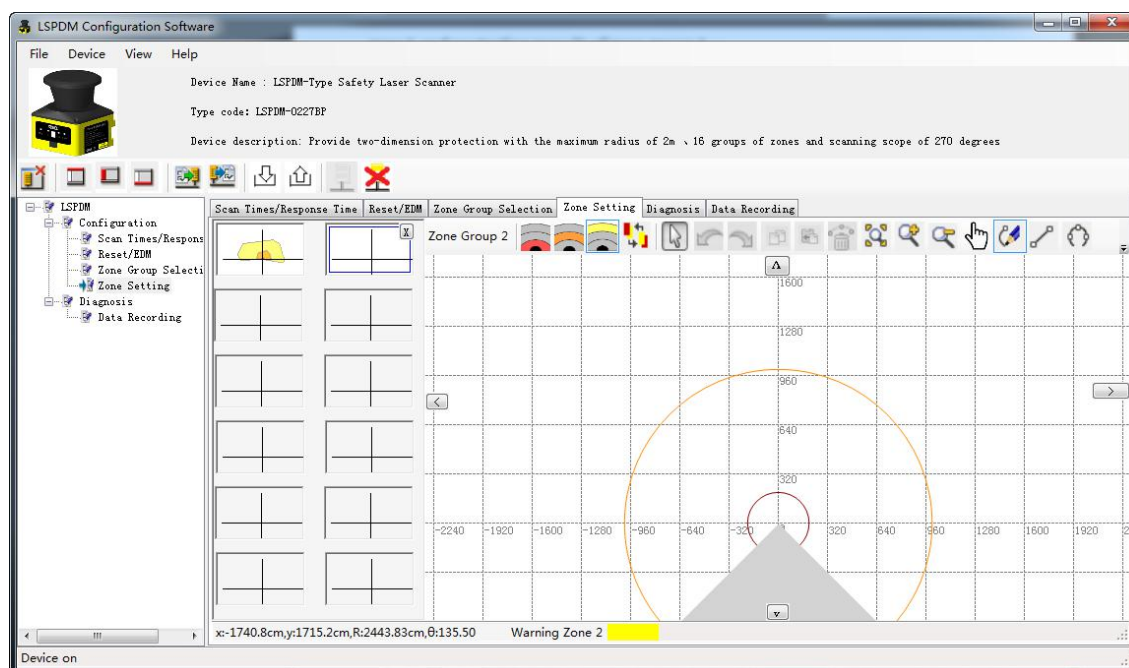


Fig.3.3.7 Activate zone group 2

Step②: The method to set protection zones boundary (protective zone and warning zones) of zone group 2 refers to Chapter 3.2.2.2.

3.3.6 Transmit configuration to LSPDM

Perform according to Chapter 3.2.3 in example 1.

Reminder: After successful configuration, we recommend that user click the menu **【File】 - 【Save as】** to save the configuration information to a **.bin** project file, in order to import it next time.

3.4 Diagnosis example

When it is difficult to accurately locate the obstacle that intrudes into the protection zone, diagnostic functions can be used to solve the problem.

Specific operation methods are as follows:

- 1) Complete the configuration preparation described in Chapter 3.1.
- 2) Switch to the corresponding [Diagnosis] tab, As shown in Fig. 3.4.1:

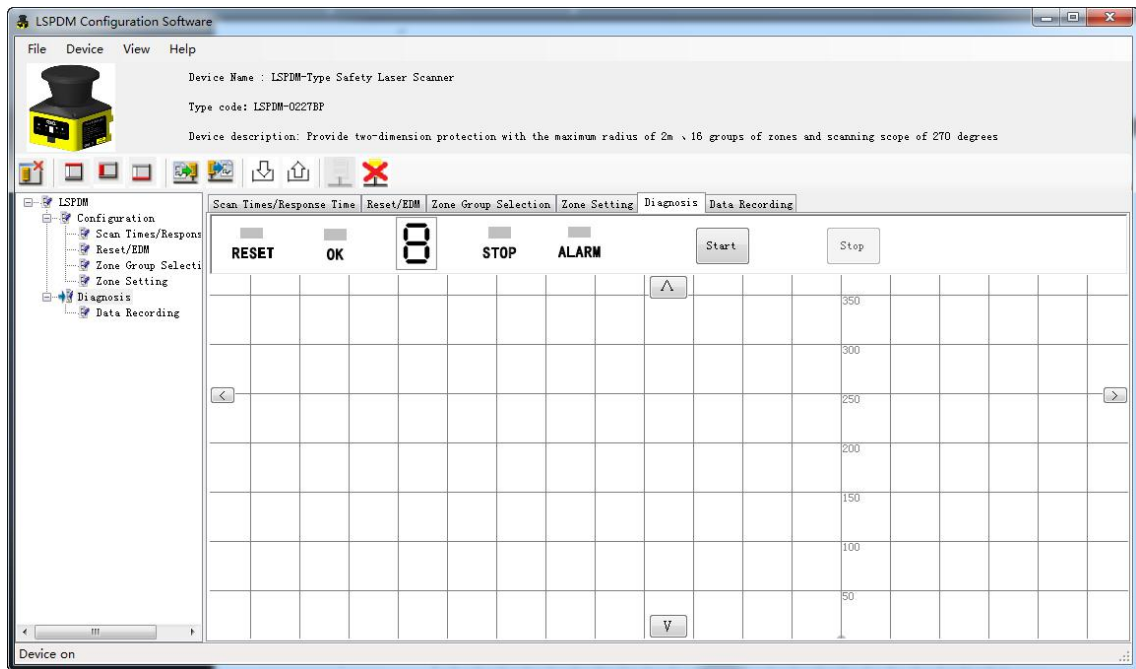


Fig.3.4.1 Diagnosis tab

3) Click the [Start] button to start reading the internal configuration information of connecting LSPDM, and the pop-up window is as shown in Fig. 3.4.2.

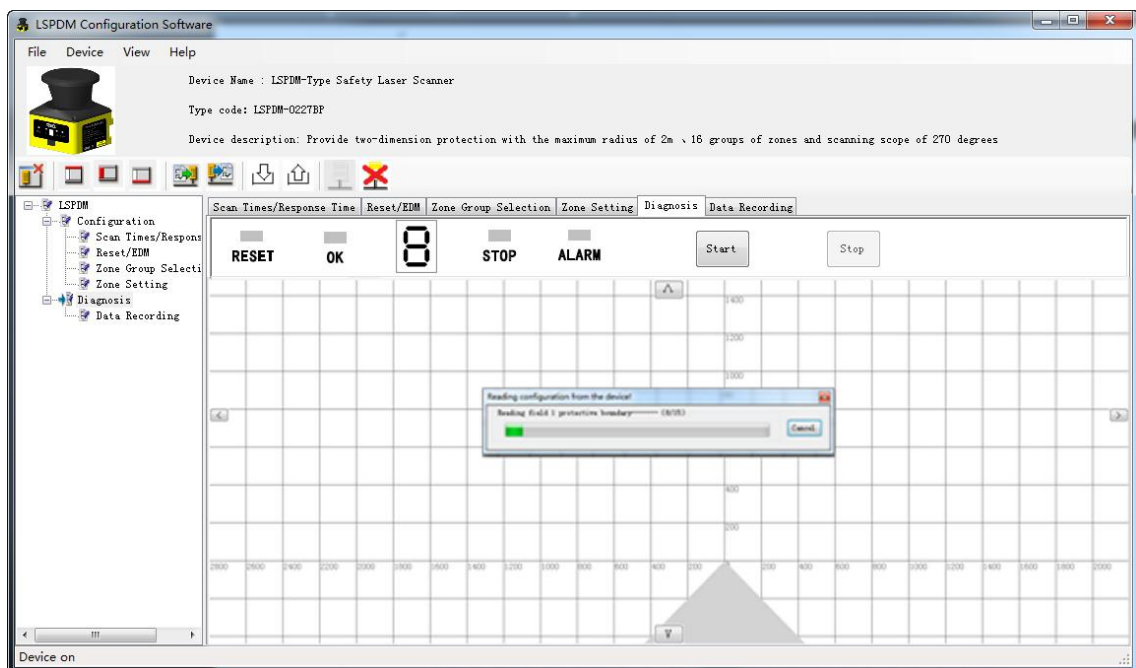


Fig.3.4.2 Reading configuration information

After reading the internal configuration information of LSPDM, the

boundary profile of the current activated zone group and status information of LSPDM are displayed in the diagnosis tab, and the surrounding environment profile will be updated in real time, as shown in Fig. 3.4.3.

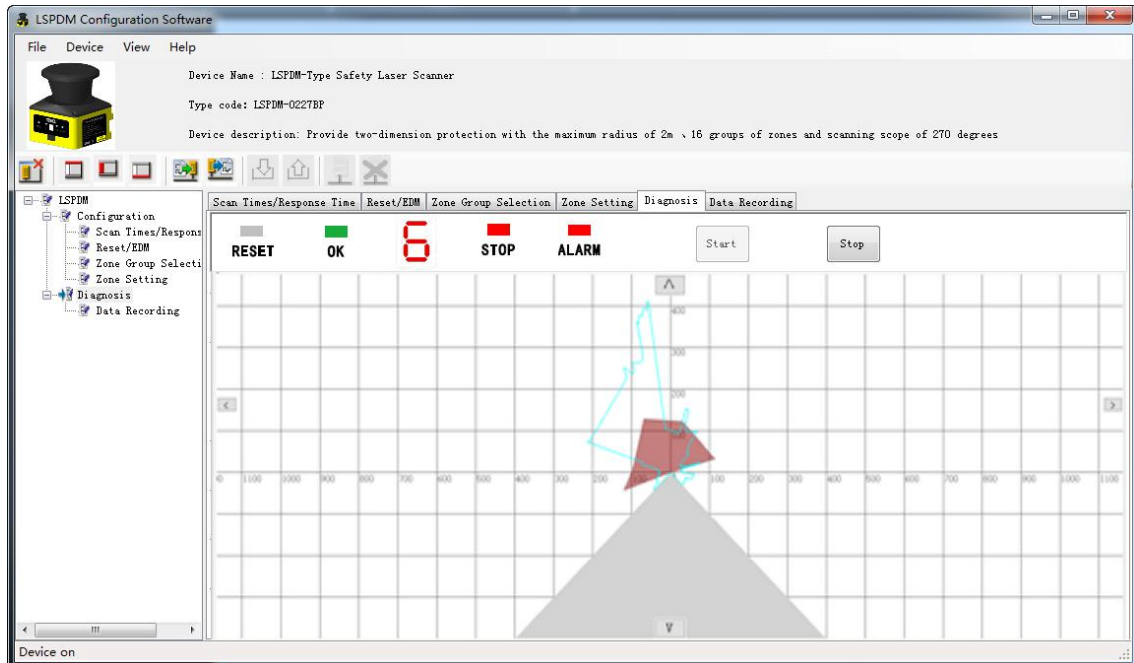


Fig.3.4.3 Boundary data and environment profile data

4) The user can determine the exact position of the obstacle by comparing the boundary profile of the protection zone and the surrounding environment profile.

Tip: The boundary profile of protection zones and surrounding environment profile can be displayed by reading the LSPDM configuration (the method is shown in Chapter 3.6) and clicking [Scan Profile] in [Zone Setting] tab (see Chapter 3.2.2.2.2 for the method), so as to facilitate locating the obstacles.

5) Click **【Stop】** button to stop the diagnosis function, the surrounding profile information is no longer updated. Restart the diagnosis needs to

click **【Start】** again.

3.5 Protective cover diagnosis example

Digital tube of the indicator window on the LSPDM displays **C** when energy decay to below 60% caused by the protective cover dirty and the safety output OSSD is cut off.

After replacement of the protective cover of LSPDM, it needs to be calibrated again.

3.5.1 Protective cover dirty diagnosis

User can judge the dirty level of the protective cover or calibrate it through the protective cover diagnosis function.

Specific operation methods are as follows:

- 1) Finish configuration preparations according to Chapter 3.1.
- 2) Click the menu **【Device】-【Protective Cover Diagnosis】**. Pop-up window is shown in Fig. 3.5.1.



Fig.3.5.1 The diagnosis and calibration of protective cover

In Fig.3.5.1, the blue column diagram represents the reference signal amplitude of the protective cover and the orange column diagram represents the current sampling signal amplitude of the protective cover.

(1) User can judge the dirty level of the protective cover according to the attenuation percentage in Fig.3.5.1.

(2) Click **【Reading】** button to read the current sampling signal amplitude and update the window display.

3.5.2 Protective cover calibration

After the replacement of the protective cover of LSPDM, it needs to be calibrated again. Specific steps are as follows:

1) Finish step (1) and step (2) according to Chapter 3.5.1.

2) Click **【Calibrate】** to calibrate the protective cover. Dialog box will be popped up to prompt that calibration has been finished successfully, as shown in Fig.3.5.2.

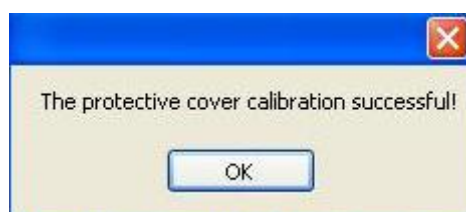


Fig.3.5.2 Prompt of calibration

3) When calibration is successful, the reference signal amplitude (blue) should be consistent with the sampling signal amplitude.

3.6 Example for replication of configuration information among different LSPDMs of same type

User can read configuration information from one LSPDM, save it and transmit it to another the device type of which is the same as the first one.

Suppose user wants to transmit configuration information of LSPDM

A to LSPDM B(both A and B have the same device type), specific steps are as follows:

- 1) Finish configuration preparations according to Chapter 3.1 and establish connection between a computer and LSPDM A .
- 2) Click the menu **【Device】** - **【Read configuration from LSPDM】** or click  on the toolbar to read the configuration of LSPDM A, the pop-up window is shown in Fig.3.6.1

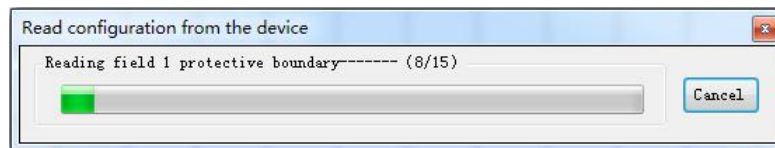


Fig 3.6.1 read device configuration

- 3) The configuration information of LSPDM A will be displayed.
- 4) Click the menu **【File】** - **【Save as】** to save the configuration information to “a .bin” file. Then disconnect, close the configuration software and unplug the configuration cable.
- 5) Finish configuration preparations according to Chapter 3.1 and establish connection between the computer and LSPDM B.
- 6) Click [File] - [Open] in the menu bar to open the file with the name suffix ".bin" stored in step 4. Configuration information is displayed in the Scan Times/Response Time tab, Reset/EDM tab, Zone Group Selection tab, and zone setting tab.
- 7) According to Chapter 3.2.3, transmit current configuration information to LSPDM B.

8) When the above steps are completed, the configuration of the LSPDM A is imported into the LSPDM B. You can disconnect, close the configuration software, and unplug the configuration line.

3.7 Device type switch

User can choose and change device type at will after the LSPDM configuration software is open, the current device type can be seen from device information bar.

Current configuration project will be cleared after switching device type. It is suggested to save the project file before device type switches.

Methods for changing device type:

1) Click **【Device】** → **【Change Device Type】** , pop-up window as shown in Fig 3.7.1.



Fig 3.7.1 change device type

2) The Change Device Type window displays the current device type. Users can select other device types by clicking the drop-down box.

3) Click [OK] and the pop-up window will prompt whether to switch

the device type, as shown in Figure 3.7.2. The device type switch will re-initialize the current configuration project. Please note to save current configuration project before it is cleared.

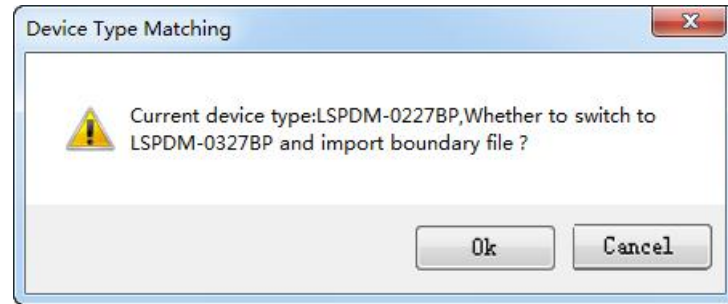


Fig 3.7.2 Device type change prompt

4) Select [OK] to clear the current project data and re-initialize the user interface; click [Cancel] to cancel the device type switch.

Note

- The user can also select the device type in the device selection dialog box when the software is opened by activating the menu [Device] - [Display Device Selection Dialog].

4 Common problems and solutions

4.1 LSPDM is not recognized or connection fails

If the COM port number displayed in the pop-up window is less than 2 when connection is establishing, it means LSPDM is not recognized.

Solutions:

1) Close the configuration software, power off the scanner, re-plug configuration cable and power on the LSPDM.

2) Please click **【Connect】** after the LSPDM has been powered on already (typically after 10s).

3) Select the correct COM port. For the method to search the COM port for the scanner, see Step (8) in Chapter 3.1.2.

4) If the scanner's USB Serial Port (Com ×) is found, but there is no response to connecting, it is recommended to uninstall and re-install the USB driver.

5) Close the configuration software, power off the scanner, unplug configuration cable and then uninstall USB drive: uninstall [Windows Driver Package -FTDI CDM Driver Package -Bus / D2XX (07/10/2015 2.12.06)] and [Windows Driver Package-FTDI CDM Driver Package -VCP Driver (07/10/2015 2.12.06)] from [Add / Remove Programs] of windows control panel respectively, as shown in Fig. 4.1.

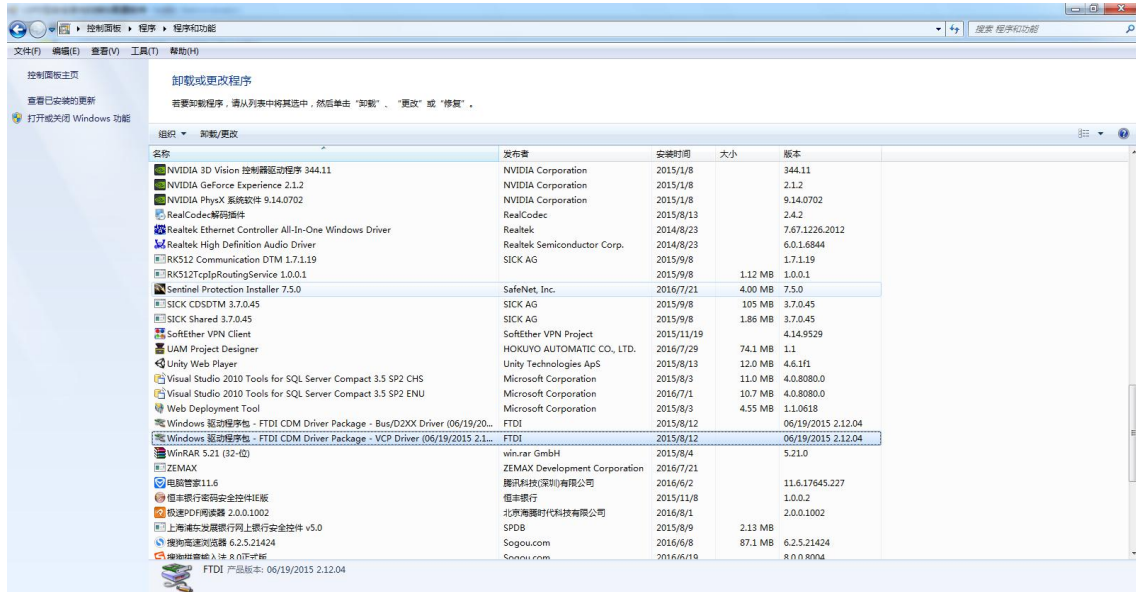


Fig4.1 USB driver uninstall

Note: These two uninstallation items cannot be found in some computers, and it is required to uninstall them in accordance with the method described in Chapter 4.1.1.

6) Re-install USB drive: find **【LSPDM software installation package】** - **【USB drive】** - **【CDM v2.12.06 WHQL Certified】** and double click “Run” and finish the installation according to the prompts.

7) Perform the configuration preparations again according to Chapter 3.1 and establish connection to the scanner.

4.1.1 Uninstall USB drive

- 1) Connect the computer to laser scanner using the configuration line.
- 2) Open the device manager (see Step (8) in Chapter 3.1.2). Right-click on the “USB Serial Port” and select “Uninstall”, as shown in Fig. 4.1.1 below.

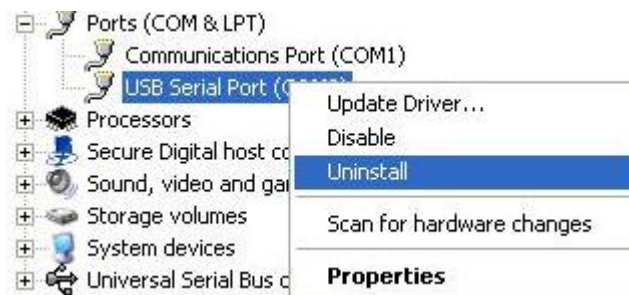


Fig.4.1.1 Uninstall USB Serial Port

3) Click **【OK】** on the pop window, as shown in Fig.4.1.2.



Fig.4.1.2 USB Serial Port uninstalling confirms

4) Right-click “USB Serial Converter” in “Universal Serial Bus Controller” of “Device Manager” and then select “Uninstall”, as shown in Fig.4.1.3.



Fig.4.1.3 USB Serial Converter uninstall

5) Click **【OK】** on the pop window, as shown in Fig.4.1.4.



Fig.4.1.4 USB Serial Converter uninstalling confirms

6) Unplug configuration cable when uninstallation has been finished.

4.2 Other problems

If any exception occurs in the use of software, it can be generally resolved by closing the configuration software, re-plugging the configuration line, powering on the scanner, and restarting the configuration software.

If any other abnormal operation occurs in the use of software by the client, please contact our technical staff. Our technical staff will provide a full range of technical support services to meet client needs.