

xLogic Micro PLC



Applied to ELC series & EXM series CPU ____ Ver: 1.0



Easy Electronic Co., Ltd

1.1 Functions and features of easySCADA are as follows:	
1.2 Requirements of easySCADA for computer	5
1.2.1 Software requirements of easySCADA for computer	5
1.2.2 Hardware requirements of easySCADA for computer	5
1.3 Installation of easySCADA configuration software	
1.4 Operation of easyMonitor	
1.5 Editing windows and creating communication connections	21
1.6 Menu bar of easyMonitor	
1.6.1 File menu	
1.6.2 Edit menu	24
1.6.3 Variables menu	25
1.6.4 Drawlib(L) menu	26
1.6.5 Layout menu	27
1.6.6 Help menu	
1.7 easyMonitor Toolbar	
Chapter 2 System composition of easyMonitor	
2.1 Connection structure	
2.2 Basic operations of easyMonitor	
2.2.1 Use of mouse and shortcut key of easyMonitor	
2.2.2 Mouse shape	
2.2.3 Shortcut keys	37
Chapter 3 Basic steps of creating a project with easyMonitor	
3.1 Creating a new project with easyMonitor	
3.1.1 New project dialog with easyMonitor	
3.1.2 Create new device	
3.1.3 Create the datas/variables/ for the devices	
3.2 Graph editing commands of easyMonitor	
3.2.1 Combine and dispart of easyMonitor	
3.2.2 Layout of easyMonitor	
3.3 Drawing basic graphs with easyMonitor	52
3.3.1 Line of easyMonitor	53
3.3.2 Rectangle of easyMonitor	54
3.3.3 Rounded rectangle of easyMonitor	57
3.3.4 Ellipse/Circle of easyMonitor	59
3.3.5 Cylinder of easyMonitor	61
3.3.6 Pie chart of easyMonitor	63
3.3.7 Trapezia chart of easyMonitor	64
3.3.8 Arrow of easyMonitor	65
3.3.9 Multiple Text graphs of easyMonitor	
3.3.10 Data input of easyMonitor	
3.3.11 Table of easyMonitor	70
3.3.12 Bitmap of easyMonitor	71
3.3.13 Rotate Bitmap of easyMonitor	73
3.3.14 gif picture of easyMonitor	74

3.3.15 3D circle of easyMonitor	
3.3.16 Button object of easyMonitor	
3.3.17 Databox of easyMonitor	79
3.3.18 Date and time of easyMonitor	81
3.3.19 Report table of easyMonitor	82
3.2.20 Trend chart of easyMonitor	83
3.2.21 History trend chart of easyMonitor	
3.2.22 Bar of easyMonitor	
3.2.23 Single Bar of easyMonitor	
3.2.24 Meter of easyMonitor	89
3.3.25 Breaker of easyMonitor	90
3.3.26 Switch symbol of easyMonitor	91
3.3.27 Transfer symbol of easyMonitor	91
3.3.28 Fan of easyMonitor	92
3.3.29 Button switch of easyMonitor	93
3.3.30 Valve of easyMonitor	95
3.3.31 Slider shape of easyMonitor	95
3.3.32 Pipe of easyMonitor	96
Chapter 4 Example showing	97
4.1 Create new device	97
4.2 Create new data for the devices	
4.3 Add the data into the variable database	101
4.4 Create widows as your requirement	103
4.4 Monitoring with serial connection:	112
4.5 Monitoring with Ethernet/GPRS/WIFI connection	113
4.5.1 Device works as server	113
4.5.2 Device works as client	115

Chapter 1 Quick start of easySCADA

This chapter introduces installation of easySCADA configuration software, including installation of configuration program and DATABASE SOFTWAER, as well as basic functions and main characteristics of the software. It also introduces in detail the composition of the software system and the functions of each object, helping users to understand the overall structure framework of easySCADA configuration software. In addition, it introduces the hardware and software requirements of easySCADA, and the installation process and working environment of easySCADA, helping users to learn use of this software and create application projects.

1.1 Functions and features of easySCADA are as follows:

1. Complete functions. easySCADA has complete functions, including basic shape drawing, coloring, text preparation, system picture library, animated display, bitmap status change, trend picture display, alarm control powerful functions such as dynamic circle, dynamic rectangle, meter, historical data

collection. Designers can easily design schemes and configuration basing on their own requirements and characteristics of projects, and can

achieve satisfactory effects.

3. Communication. easyMonitor provides drives for communication with PLCs projects of all ELC and EXM series CPU via RS232, RS485,Ethernet/GPRS. Available protocol is MODBUS RTU/TCP.

4. Resources. easyMonitor provides abundant resources. The picture library of easymonitor includes 3D indicator light, 3D button, television, 3D tank, 3D pipe, electron, bars, and the like. In addition, many pictures are provided with animation properties and can be used to design vivid animation. It also allows for user-defined picture library and inserting pictures from Windows. SKWorkshop also provides controls that have abundant functions, such as trend diagram and alarming controls and the like, meeting the requirements of various configurations.

1.2 Requirements of easySCADA for computer

1.2.1 Software requirements of easySCADA for computer

easySCADA configuration software can be run in the following operating systems:

Microsoft Windows NT Server 4.0 or later release; Microsoft Windows NT Workstation 4.0 or later release; Microsoft Windows 98, Me, 2000, XP or later release.

easySCADA will refuse to be installed if the operating system does not meet the above requirements.

1.2.2 Hardware requirements of easySCADA for computer

The minimum hardware requirements of easySCADA are:

CPU: Pentium 3-800MHz as a minimum;

Memory: When Windows 9X operating system is used, the memory should be 128MB or above;

When Windows NT operating system is used, the memory should be 256MB or above; When Windows 2000 or XP operating system is used, the memory should be 256MB or above; Graphics card: Compatibility with Windows system, graphics memory of 1MB or above, allowing for running at 1024*768, 256 colors.

Hard disk: The minimum hard disk occupation of easySCADA configuration software is 200MB.

Two-key mouse and keyboard.

P: If the computer configuration is lower than the above requirements, easySCADA is likely unable to be installed and operated.

Recommended configuration:

CPU: Intel Pentium 800 or above, or equivalents;

Memory: When Windows 9X operating system is used, the memory should be 256MB or above;

When Windows NT operating system is used, the memory should be 512MB or above;

When Windows 2000 or XP operating system is used, the memory should be 512MB or above;

Graphics card: Compatibility with Windows system, graphics memory of 1MB or above, allowing for running at 1024*768, 65535 colors.

Hard disk: Over 200MB.

1.3 Installation of easySCADA configuration software

First part, you need install the "MySQL".



1.Double click to startup the installation. But if your OS is win7/win8, you

must start the installation as follows:



2. After starting up the installation program, the following language selection box will pop up, allowing user to select English installation. click "OK", then the startup dialog will pop up in several seconds.

Select	Setup Language	×
12	Select the language to use during the installa	tion:
	English	*
	OK Cancel	

3. In the startup dialog, click Next to continue installation, or click Cancel to quit installation.

j∯ Setup - MySQL6		
110	Welcome to the MySQL6 Setup Wizard	
	This will install MySQL6 on your computer.	
K A	It is recommended that you close all other applications before continuing.	
G.	Click Next to continue, or Cancel to exit Setup.	
	Next> Cancel	

4.In the license agreement dialog, please select whether to accept the software clauses, and click "next"

j∰ Setup - Xy SQL6	
License Agreement Please read the following important information before continuing.	
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.	
IMPORTANT NOTE: WHEN YOU INSTALL xLogic YOU WILL BE GIVEN THE OPPORTUNITY TO INSTALL ADDITIONAL SOFTWARE PRODUCTS FROM THIRD PARTY PROVIDERS. A LIST OF THE AVAILABLE THIRD PARTY SOFTWARE PRODUCTS WILL BE PROVIDED DURING INSTALLATION. USE OF EACH AVAILABLE THIRD PARTY SOFTWARE PRODUCT IS GOVERNED BY ITS OWN END USER LICENSE AGREEMENT. THOSE LICENSE AGREEMENTS WILL BE PRESENTED FOR YOUR REVIEW AND ACCEPTANCE DURING INSTALLATION OF EACH THIRD PARTY SOFTWARE PRODUCT.	
 I accept the agreement I do not accept the agreement 	
< Back Next >	Cancel

5.Users can fill in their own personal or company information, or choose the default setting "C:\MySQL6", and then click "next".

😼 Setup - MySQL6	
Select Destination Location Where should MySQL6 be installed?	
Setup will install MySQL6 into the following folder.	
To continue, click Next. If you would like to select a different folder, click Browse.	
C:\MySQL6 Browse	
At least 55.4 MB of free disk space is required.	
< <u>B</u> ack <u>N</u> ext > Canc	el

6. After clicking "Next" in the dialog as shown in below Figure, a dialog will appear to allow you to choose the installation folder. You may choose the default folder or other folders. Then, click Next, as shown in below Figure.

🕞 Setup - TySQL6	
Select Start Menu Folder Where should Setup place the program's sho	ortcuts?
Setup will create the program's sho	tcuts in the following Start Menu folder.
To continue, click Next. If you would like to a	select a different folder, click Browse.
MySQL6	Browse
	<pre></pre>

	18 Setup - TySQL6	
	Ready to Install Setup is now ready to begin installing MySQL6 on your computer.	
	Click Install to continue with the installation, or click Back if you want to review or change any settings.	
	Destination location: C:\MySQL6	
	Start Menu folder: MySQL6	
	<	
	< <u>B</u> ack Install	Cancel
1.		



🛱 Setup - HySQL6	
Information Please read the following important information before continuing.	
When you are ready to continue with Setup, click Next.	
END-USER LICENSE AGREEMENT FOR THIS SOFTWARE Important - read carefully: This End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and the mentioned author of this Software the software product identified above, which includes computer software and n include associated media, printed materials, and "online" or electronic documentation ("SOFTWARE PRODUCT"). By installing, copying, or otherwis using the SOFTWARE PRODUCT.	e
SOFTWARE PRODUCT. SOFTWARE PRODUCT LICENSE The SOFTWARE PRODUCT is protected by copyright laws and international	
Copyright treaties, as well as other intellectual property laws and treaties. The	<u>×</u>
. <u>N</u> ext >	



11. Then install MySQL connector/ODBC.

🛃 MySQL Connector/ODBC 5.2(w) - Setup Wizard 🛛 🔀		
	Welcome to the Setup Wizard for MySQL Connector/ODBC 5.2(w) The Setup Wizard will allow you to modify, repair, or remove MySQL Connector/ODBC 5.2(w). To continue, click Next.	
MySQL	< Back Next > Cancel	

🛃 TySQL Con	nector/ODBC 5.2(w) - Setup Wizard 🛛 🔀
Program Main Modify, repair	tenance , or remove the program.
O Modify	Change which program features are installed. This option displays the Custom Selection dialog in which you can change the way features are installed.
⊙ Repair	Repair installation errors in the program. This option fixes missing or corrupt files, shortcuts, and registry entries.
O Remove	Remove MySQL Connector/ODBC 5.2(w) from your computer.
	< Back Next > Cancel

🙀 MySQL Connector/ODBC 5.2(w) - Setup	🛛 Tizard 🛛 🔀
Custom Setup Select the program features you want installed.	
Click on an icon in the list below to change how a feature is ir	nstalled.
MySQL Connector/ODBC 5.2.4w 32-bit	Feature Description Installs the MySQL ODBC 5.2.4 Unicode 32-bit driver. This feature requires 0KB on your hard drive.
Help < Back	Next > Cancel

урыг с	
ady to R	epair the Program
'he wizaro	d is ready to begin installation.
f you war xit the wi	nt to review or change any of your installation settings, click Back. Click Cancel to izard.
urrent Se	ttings:
Setup Typ	e:
Destinatio	on Folder:
C:\Pro	ogram Files\MySQL\Connector ODBC 5.2\Unicode\
	< Back Install Cancel
102~1	<pre></pre>
ly SQL	< Back Install Cancel Connector/ODBC 5.2(♥) - Setup ♥izard
L <mark>ySQL</mark> Istalling	Connector/ODBC 5.2(v) - Setup Vizard MySQL Connector/ODBC 5.2(w)
l <mark>ySQL</mark> Istalling The prog	< Back Install Cancel Connector/ODBC 5.2(♥) - Setup ♥izard MySQL Connector/ODBC 5.2(₩) gram features you selected are being installed.
LySQL Istalling The prog	< Back Install Cancel Connector/ODBC 5.2(♥) - Setup ♥izard MySQL Connector/ODBC 5.2(₩) gram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(₩).
Ly SQL Installing The prog	Connector/ODBC 5.2(*) – Setup Vizard MySQL Connector/ODBC 5.2(*) gram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(w). This may take several minutes.
LySQL Installing The prog	< Back Install Cancel Connector/ODBC 5.2(♥) = Setup ♥izard MySQL Connector/ODBC 5.2(₩) gram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(₩). This may take several minutes. Status:
LySQL Installing The prog	< Connector/ODBC 5.2(v) – Setup Vizard MySQL Connector/ODBC 5.2(w) ram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(w). This may take several minutes. Status: Installing ODBC components The setup ODBC components Status: Installing ODBC components Installing ODBC components Installing ODBC components Status: Installing ODBC components The setup Status (Components) Installing ODBC components Installing ODBC components Install I
TySQL Installing The prog	< Connector/ODBC 5.2(v) - Setup Vizard MySQL Connector/ODBC 5.2(w) gram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(w). This may take several minutes. Status: Installing ODBC components
LySQL Installing The prog	< Connector/ODBC 5.2(w) - Setup Vizard MySQL Connector/ODBC 5.2(w) gram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(w). This may take several minutes. Status: Installing ODBC components
LySQL Installing The prog	< Connector/ODBC 5.2(*) - Setup Vizard MySQL Connector/ODBC 5.2(*) pram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(w). This may take several minutes. Status: Installing ODBC components
LySQL Installing The prog	< Connector/ODBC 5.2(*) - Setup Vizard MySQL Connector/ODBC 5.2(w) gram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(w). This may take several minutes. Status: Installing ODBC components
Ly SQL Installing The prog	< Connector/ODBC 5.2(*) - Setup Vizard MySQL Connector/ODBC 5.2(*) pram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(w). This may take several minutes. Status: Installing ODBC components
LySQL Installing The prog	< Connector/ODBC 5.2(*) - Setup Vizard MySQL Connector/ODBC 5.2(*) gram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(*). This may take several minutes. Status: Installing ODBC components
Ly SQL Installing The prog	< Connector/ODBC 5.2(*) - Setup Vizard MySQL Connector/ODBC 5.2(*) pram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(w). This may take several minutes. Status: Installing ODBC components
Sy SQL Installing The prog	< Back Install Cancel Connector/ODBC 5.2(*) - Setup Vizard MySQL Connector/ODBC 5.2(*) ram features you selected are being installed. Please wait while the Setup Wizard installs MySQL Connector/ODBC 5.2(w). This may take several minutes. Status: Installing ODBC components

14.



15.

Part Two: Install "easyScada"



1. Double click

to startup the installation

2. After starting up the installation program, the following language selection box will pop up, allowing user to select English installation. click "OK", then the startup dialog will pop up in several seconds.

Select	Setup Language	×
17	Select the language to use during the installat	ion:
	English	*
	OK Cancel	

3. In the startup dialog, click Next to continue installation, or click Cancel to quit installation.

🔂 Setup - easyScada	
	Welcome to the easyScada Setup Wizard
	This will install easyScada on your computer.
	It is recommended that you close all other applications before continuing.
	Click Next to continue, or Cancel to exit Setup.
	<u>N</u> ext > Cancel

•

4. In the license agreement dialog, please select whether to accept the software clauses, and click "next"

🔂 Setup – easyScada	
License Agreement Please read the following important information before continuing.	
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.	
IMPORTANT NOTE:	^
WHEN YOU INSTALL xLogic YOU WILL BE GIVEN THE OPPORTUNITY TO INSTALL ADDITIONAL SOFTWARE PRODUCTS FROM THIRD PARTY PROVIDERS. A LIST OF THE AVAILABLE THIRD PARTY SOFTWARE PRODUCTS WILL BE PROVIDED DURING INSTALLATION. USE OF EACH AVAILABLE THIRD PARTY SOFTWARE PRODUCT IS GOVERNED BY ITS OWN END USER LICENSE AGREEMENT. THOSE LICENSE AGREEMENTS WILL BE PRESENTED FOR YOUR REVIEW AND ACCEPTANCE DURING INSTALLATION OF EACH THIRD PARTY SOFTWARE PRODUCT.	
 I accept the agreement I do not accept the agreement 	
< <u>B</u> ack <u>N</u> ext >	Cancel

5.Users can fill in their own personal or company information, or choose the default setting "C:\Program Files\EASY\easyScada", and then click "next".

🕞 Setup - easyScada
Select Destination Location Where should easyScada be installed?
Setup will install easyScada into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\EASY\easyScada Browse
At least 29.5 MB of free disk space is required.
< <u>B</u> ack <u>N</u> ext > Cancel

6. After clicking "Next" in the dialog as shown in below figure, a dialog will appear to allow you to choose the installation folder. You may choose the default folder or other folders. Then, click Next, as shown in below Figure.

j🛱 Setup - easyScada	. 🗆 🛛
Select Start Menu Folder Where should Setup place the program's shortcuts?	
Setup will create the program's shortcuts in the following Start Menu folder.	
To continue, click Next. If you would like to select a different folder, click Browse.	
easyScada Browse.	
	_
Kext Next > (Cancel

🖥 Se	etup - easyScada		
Se	elect Additional Tasks Which additional tasks should be perforr	med?	
	Select the additional tasks you would lik then click Next. Additionall.cons: ☐ CreateDesktopI.con ☑ CreateQuickLaunchI.con	e Setup to perform while installing easy	Gcada,
			Canad
🖥 Se Bi	etup – easyScada eady to Install	< <u>B</u> ack <u>N</u> ext>	
<mark>- Se</mark> Re	e tup – easyScada eady to Install Setup is now ready to begin installing ea	< <u>B</u> ack <u>N</u> ext>	
<mark></mark>	etup – easyScada eady to Install Setup is now ready to begin installing ea Click Install to continue with the installal change any settings. Destination location: C:\Program Files\EASY\easyScad Start Menu folder: easyScada Additional tasks: Additional cons: CreateQuickLaunchIcon	K Next > asyScada on your computer. tion, or click Back if you want to review a	
Se R(etup – easyScada eady to Install Setup is now ready to begin installing ea Click Install to continue with the installar change any settings. Destination location: C:\Program Files\EASY\easyScad Start Menu folder: easyScada Additional tasks: Additional cons: CreateQuickLaunchIcon	asyScada on your computer. tion, or click Back if you want to review	v or





After that, an icon of "easyMonitor" will appear on the desktop

You can also click "easyMonitor" in "Start"---"All programs"--- "easyScada" to run easyMonitor configuration software.



1.4 Operation of easyMonitor

After installation of SKWorkshop, a shortcut will appear on the desktop, as shown in Figure 2-17:



Figure 2-17: Shortcut on the desktop

Meanwhile, easyMonitor program group is added in Start menu of Windows, as shown in Figure 2-18:



Figure 2-18: Program icon in Start menu

Double click the shortcut on the desktop, or click easyMonitor in the easyScada program group in the Start menu to run the software. See Figure 2-19 for the software running page:



Figure 2-19: Software running page

1.5 Editing windows and creating communication connections

easyMonitor configuration software is the configuration visual development system of easySCADA. As an integrated development environment software it has abundant and powerful development functions. easyMonitor adopts the advantages of Windows system, with high user interface consistency and simple interfaces. The layout of the menus is close to those of Windows system, making it easy to learn, so that project designers can easily develop suitable configurations for their projects using easyMonitor. The development interface and the functional areas are shown in Figure 2-26.

asyMonitor - [View		📰 🖻 🔀
_ Project Edit Variables	(1) Levent Fier Selp	- 8 ×
15 📽 🖬 📰 X 🗣 🖻		
+ Danie W Ritman BR	Comma D Rater (S. Pina)	
+ / 5 (0 0		
1/6/000		
121 ezol		^
Vinders		Contractor (
SystenStart		101010000000
Wiew1		100000000000000000000000000000000000000
B Device		101011-00110
a eth		Contraction of the local division of the loc
Co 1223		0.001111011
Script		
		Contraction of
		CONTRACTOR OF A
		Contraction of the
		1 1213 10211
		CONTRACTOR OF STREET, S
		- Constant
		000000000000000000000000000000000000000
		CONTRACTOR .
		1.121311.211
		10000000000
1		*

Figure 2-26: Interface and areas of the software

- Menu bar: Displaying command menus of easyMonitor. All these menus are drop-down menu.
- Tool buttons: Shortcut buttons of some commands. Displaying corresponding buttons of file, edit, drawing, and some other functions.
- Picture area window: A window for designers to configure and edit graphs.
- Project manager: Tree menu for window management, device selection, communication connection parameter setting, kinds of register(IO, Analog IO..) selection.
- Information output window: Displaying prompt messages such as input/output information and error prompt when the designer are editing and compiling configuration.
- Status bar: Displaying current configuration status, including coordinate of mouse, control type, coordinate of control, size of control, and the like.

1.6 Menu bar of easyMonitor

Menu bar of easyMonitor configuration editing software provides users with abundant menu options, and here you can find almost all tool commands and editing commands required during configuration. The menu bar consists of File menu, Edit menu, Variables menu, Drawlib(L)menu, Layout menu, View menu, Help menu.And also includes right click Menus. See Figure 2-27.

🛄 Project Edit Variables Drawlib(L) Layout View Help

Figure 2-27

1.6.1 File menu

File menu includes such options as New (Ctrl+N), Open (Ctrl+O), Close, Save(Ctrl+S), Save As, Print..(Ctrl+P), Print Preview, Print Setup..., User manage and Exit. See Figure 2-28.

A	easylor	nitor	- [Syst	enStart]	
L,	Project	Edit	Variables	Drawlib(L)	Layout
] 🖸	New			Ct	rl+N 🤇
11	Open			Ct	r1+0
-	Close				ł
	Save			Ct	rl+S
	Save A	.s			
1	Print.			Ct	rl+P
E	Print	Previe	?W		
	Print	Setup.			
	Vser m	anage			
	1 C:\P	rogram	Files\	111. ezpj	
	2 C:\P	rogran) Files\Y	123. ezpj	
	3 defa	ult.ez	ъj		
1	4 defa	ult.ez	ъj		
	Exit				

New : Used to create a new blank project. The shortcut key is Ctrl + N.

Open: Used to open an existing project file saved in Windows. Project configuration files with an extension name of ".ezpj" can be opened. The shortcut key is Ctrl + O.

Close: Used to close the current project screen configuration without quitting easyMonitor configuration software.

Save: Used to save the current screen configuration that has been changed, with the file name and directory being the same as the original. The shortcut key is Ctrl + S.

Save As: Used to save the current screen configuration, with the file name and directory being changeable.

Print: Print the widows

Print Preview: Print preview all the windows.

Print Setup: Print setup menu.

User manage: User manage option, user name and password can be set or modified here.

lser na	anage					×
Index	User	Name	Password	Us	er Privileg	e
1	Admin			Ad	min	
		User edit				
		Name	Admin		_	
		Privilege	Admin		-	
		Password			_	
		Confirm psw			_	
		0	K.	Cancel	L	
Ad	ia 🛛	Edit	Delete		ок	Cancel

Exit: Used to quit easyMonitor configuration software.

1.6.2 Edit menu

"Edit" menu consists of commands used to edit screen, text and drawing as well as some auxiliary commands, including Undo, Redo, Cut, Copy, Paste , Delete, Select All, Properties...

Undo: Used to cancel the last operation. The shortcut key is Ctrl + Z.

Redo: Used to recover the last operation. The shortcut key is Ctrl + Shift + Z.

Cut: used to delete the object chosen and copy it to the paste buffer area. The shortcut key is Ctrl + X.

Copy: Used to copy the object chosen to the paste buffer area. The shortcut key is CtrI + C. Paste: Used to copy the object in the paste buffer area to the current screen. The shortcut key is CtrI + V.

Delete: Used to delete a chosen object. The shortcut key is Ctrl + Del.

Edit	Variables	Drawlib(L)	Layout	View	Н
Und	lo		С	trl+Z	
Cut	1		C	trl+X	
Cop	y		C	trl+C	
Pas	ste		С	trl+V	
Del	.ete		D	el	
Sel	ect all		C	trl+A	
Pro	perties				
Set	. Background	d color for	window		
Set	grid color	for window	۲		

Select All: Used to select all the objects in the current screen of the current project. The shortcut key is Ctrl + A.

Set background color for window: to set the current window background color.

Set grid color for window: to set the grid color of current window.

1.6.3 Variables menu



All the variables can be managed int such menu.

gital	e Analog						18 - 18
Index	Variable Name Internal Name		ame GIOI	al/device	Default value		
ſ	Var41		Q001	123			0
2	Var42		Q002	123			0
3	Var43		Q003	123			0
4	Var44	1	Q004	123			0
5	Var45		Q001	RS23	2:COM[3]:Addr	[1]	0
6	Var46	1	Q002	RS23	2:COM[3]:Addr	[1]	0
7	Var47		0000	DCO2	0.000001.000	C+ 3	
7	Var48	Variab	Le ealt				
		Index 01	<i>Type</i> I	CPU/Ext	Address 0	Count 8	
		01	I	0	0	8	
		02	R	1.			
	Add	-					
							Help
		Q004		▼ Name	Var48		
				Default valu	0		
			OK			Course 1	

1.6.4 Drawlib(L) menu

temStart]							
s	Drawlib(L) Layou	t View Help					
2	Add drawlib	Ctrl+A					
3	Delete drawlib	Ctrl+D					
-	Add lib element	Ctrl+I					
	Delete lib elem	ent					

Add drawlib: To creat a window library.

Delete drawlib : To delete the existed window library.

Add lib element: Add the combined objects into the named draw library.

Delete lib element: To delete the existed objects from the draw library. Usage example.

- 1. Select some objects in the window and click right mouse, then combine.
- 2. Click the menu Add drawlib and to input a new name. Click ok.

\mathcal{C}			
	Input Drawlib name		
	Drawlib name: indicator	OK	
		· · · · · · · · · · · · · · · · · · ·	
17			
1			
$\left(\right)$			
$\left(\right)$			

and select the

Click the "show/hide drawlib" button library named with "indicators".



Then you can click "Add lib element" to add the combined objects into the library.



Now you can use the combined objects in the library to put into the screen by double clicking the left mouse. The menu "delete lib element" can be used to delete the objects in the library

1.6.5 Layout menu



Left align: used to align the left boundaries of the chosen objects on the left.

Right align: used to align the right boundaries of the chosen objects on the right.

Top align: used to align the top boundaries of the chosen objects at the top.

Bottom align: used to align the bottom boundaries of the chosen objects at the bottom.

Make same size: used to set the same height and width for the graphs chosen. The minimum

left coordinate is taken as the baseline.

Up:used to move the chosen object one layer forward.

Down:used to move the chosen object one layer backward.

To front: used to align the top boundaries of the chosen objects at the top.

To bottom: used to align the bottom boundaries of the chosen objects at the bottom. **Show grid:** To show the grid...

Snap to grid: Make the objects to snap to grid.

Show margin: To show the margin.

Snap to margin: Make the objects to snap to margin.

View menu



Toolbar: Hide or show the Toolbar.Status Bar: Hide or show the status bar.Workspace: Hide or show the workspace.Info Window: Hide or show the Info Window.

1.6.6 Help menu



Help: Version number and copyright statement of easyMonitor are shown in Figure 2-37.



Figure 2-37

1.7 easyMonitor Toolbar

easyMonitor totally provides three lines of shortcut tool buttons, including tool commands and editing commands. After getting familiar with these buttons, designers can find the desired commands quickly without searching in the menu bar. Each button has a floating prompt, which appears when you move the mouse to the button. easyMonitor totally provides below tool buttons. When these buttons are grey, they are invalid under current operation status. See Figure 2-39.

	13	🖻 🔒		, e e	$\mathfrak{Q} \mathfrak{Q}$	3 ►	⊕		🗖 🛄 🔛 🚱	罪 些	5 K	<u>@</u>
1	+	- Basic	📲 Bit	map 88	Time 🛛 🔛	Curve 🛛 🖸	A Meter	\$	Pipe			
	+	/ 6	i 🔿 🔿		$\odot \odot \Box$		A 🗎	→				

Figure 2-39: Tool bar

As shown in the figure above, the commands in the tool bar are corresponding to the commands in the menus. The functions of the buttons are as follows:

Standard toolbar:

Corresponding to "New" command, with the shortcut key of Ctrl + N, used to create a

new blank project.

Corresponding to "Open" command, with the shortcut key of Ctrl + O, used to open an existing project file saved in Windows with an extension name of ".ezpj".

G: Corresponding to "Save" command, with the shortcut key of Ctrl + S, used to save the current screen configuration that has been changed, with the file name and directory being the same as the original.

: Used to delete the object chosen and copy it to the paste buffer area. The shortcut key is Ctrl + X.

Used to copy the object chosen to the paste buffer area. The shortcut key is Ctrl + C.

Paste, Used to copy the object in the paste buffer area to the current screen. The shortcut key is Ctrl + V.

: Undo

Redo

Print button



Corresponding to "Zoom in" command, used to zoom in the current screen by 1x. For further zoom in, click this button again.

P: Corresponding to "Zoom out" command, used to zoom out the current screen by 1x. For

further zoom out, click this button again.

. To make the selected objects to snap to the margin.

: To show or hide the margin.

To make the selected objects to snap to the grids.

To show or hide the grids.

To make multiple draw, that means if such button was clicked down, you can put the a lot of times of the same one object into the window with one clicking on a certain object. Otherwise you can only put one object with one clicking on a certain object.

Et: Corresponding to "Left align" command, used to align the left boundaries of the chosen objects on the left.

:Corresponding to "Right align" command, used to align the right boundaries of the chosen objects on the right.

ECorresponding to "Top align" command, used to align the top boundaries of the chosen objects at the top.

EXERCISE: Corresponding to "Bottom align" command, used to align the bottom boundaries of the chosen objects at the bottom.

E : Scroll arrow, used to change the palm shape under Translate command back to ordinary mouse shape.

🙆 : To show or hide the draw library.

Draw toolbar:

Basic:

🕂 Basic 📲 Bitmap 🔛 Time 🖾 Curve 🖾 Meter 🥰 Pipe	
$+ / G \land \Diamond \Box \Box \odot \odot \Box \Box \Box \Box A \blacksquare \rightarrow$	

+: Corresponding to "Line" command, used to draw a horizontal or vertical straight line.

Corresponding to "Line" command, used to draw a straight line of any direction in the current screen.

G: Broken line, used to draw any shapes.

Corresponding to "Curve/Arc" command, used to draw a curve or arc in the current screen.

• Polygon, used to draw a polygon in the current screen.

A: Corresponding to "Rectangle" command, used to draw a rectangle of any size in the current screen. Also can be used to display Static text, or used to display the register value.

. Round Rect, used to draw a round rectangle of any size in he current screen.

• Corresponding to "Rounded rectangle" command, used to draw a rounded rectangle in the current screen.

• Cylinder, used to draw a cylinder in the current screen.

D: Sector command, used to draw a sector in the current screen.

□ . Trapezia, used to draw a trapezia in the current screen.

▷: Arrow, used to draw an arrow in the current screen.

B. Multi text, used to display the static text, or display the register value in a fixed format.

: Data input, used to set register value(AF,AQ,REG), also can be used to display the datas.

Bitmap + Basic 👑 Bitmap 😣 Time 🏢 🍟 🎼 Gif 🥚 🗆 🗖 🛄

. Table, used to draw a table.



"". Bitmap, used to be inserted into the bitmap file for displaying.

. Rotate bitmap, used to be inserted in to the bitmap which can be controlled.

Gif : Gif file' used to create an animation control in the current screen to move the controls.

• 3D circle, used to display the digital IO, flag status

□ : Corresponding to "Bit button" command, used to set in the current screen a touch key for bit operation of the connected device, including bit setting, resetting, inching and alternation.

: Group box, used to draw group box.

Time



88 : Data display



E History data table, not available now.

Curve

+ Basic	💾 Bitmap	88 Time	🔀 Curve
🖾 M 🖾			

: Trend chart, used to create a trend chart control in the current screen to monitor the value change trend of continuous addresses of the connected equipment.

EX: History trend chart, not available now.

Data group display, used to create a data group display control in the current screen to display several groups of data in the trend chart.

Bar graph, used to insert a bar control in the current screen to show the change in the values of the monitored address with height change or left-right movement of bars.

Meter

+	Bas	i e	뽭	Bitm	nap	88	Time	l	🔀 Curve	🐼 Meter
28. N	\bigtriangledown		\$	8	8	1		Β	🔓 ሙ	📼 🖣 👘

E: Corresponding to "Meter" command, used to create in the current screen a meter to monitor the change in the value of single address of the connected device.

Beter2, to create in the current screen a meter to monitor the change in the value of signal address of the connected device.



: Switch shape

8: Transfer shape

🙁 : Fan shape



1: button switch, used to set the digital flag and the output status.



····: Slider shape

Progress shape, used to display the variable value.

: Flow shape

Pipe





- E: Connect pipe, used to draw connect pipe shape.
- **F**: Bend pipe, used to draw the bend pipe shape.
- 5: Free pipe, used to draw the free pipe shape.
- O: Tank, used to draw tank shape.
- S:Elbow, used to draw elbow shape.
- **I**: Rod, used to draw rod shape.
- : Rect pipe, used to draw Rect pipe shape.
- T: Free trapezoid, used to draw free trapezoid shape.
- Δ: standard trapezoid, used to draw standard trapezoid shape.
- Ellipse pipe, used to draw ellipse pipe shape.

Chapter 2 System composition of easyMonitor

2.1 Connection structure

easyMonitor is the configuration editing software of esay SCADA. easyMonitor allows designers to edit project configuration on PC and then directly start the monitor button. Then, communication with PLC can be constructed through the serial cable or Ethernet/GPRS connection. There are 3 ways can be applied to establish the connection between easyMonitor and the Devices. (ELC/EXM series CPU)

1.Communication by RS232/RS485 mode between PLC and easyMonitor, the sever software is not required.



2. Communication by Ethernet mode between PLC and easyMonitor and the PLC works as server, the server software also is not required.



3. Communication by Ethernet/GPRS mode between easyMonitor and the PLC works as client, the server software would be required.





EasyMonitor interface showing as above



EasyServer interface showing as above

2.2 Basic operations of easyMonitor

This chapter introduces operation of easyMonitor configuration software, including use of mouse, shortcut keys and some terms.

2.2.1 Use of mouse and shortcut key of easyMonitor

When preparing configuration screens using mouse, the mouse is as shown in Figure 2-41.

Now we introduce common mouse operations and the functions of such operations in the software:

© Left click

The process of pressing down the left key and then releasing is called "Left click" in this Manual. It can be used to select

menu items, select object, select tool button, edit configuration and confirm setting.

O Double click

The process of quickly and continuously clicking the left key twice is called "Double click" in this Manual. It can be used to set properties for placed objects, set properties of screen and window, After such clicking a dialog will appear for operation.

© Right click

The process of pressing down the right key of mouse and then releasing is called "Right click" in this Manual. You can open a right click drop-down menu by right clicking an object, or open a right click menu by right clicking a blank space.

O Drag

The process of moving the mouse while pressing the left key is called "Drag" in this Manual. It can be used to select several objects, move objects, or move pop-up editing windows.

2.2.2 Mouse shape

When using easyMonitor software, the shape of the mouse may change with the operation to distinguish different operation types and provide convenience for users. Table 2-1 below shows the allowable operations of different mouse shapes.

	Choosing object, and left clicking tool button.
+	1.Pasting.
1	2.Drawing a graph.



Figure 2-41

I	Inputting text.
Ì	Enlarging object vertically.
↔	Enlarging object horizontally.
5	Enlarging object both vertically and horizontally.
2	Enlarging object both vertically and horizontally.
	1.Move the object 2.Enlarging object both vertically and horizontally.

Table 2-1: Different mouse shapes and corresponding meanings

2.2.3 Shortcut keys

Table 2-2 below lists common shortcut keys. Designers can use these keys to quicken the configuration.

Ctrl + C	Сору
Ctrl + V	Paste
Ctrl + X	Cut
Ctrl + left click	Select several objects at the same time.
	Move the object chosen left, right, up and
$\leftarrow \rightarrow \downarrow$	down.
Esc	Cancel the command.
Del	Delete
Chapter 3 Basic steps of creating a project with easyMonitor

3.1 Creating a new project with easyMonitor

To create a new project, click the "Project->new" command in File menu or the "Project->new" button in the tool bar, and then a pop-up dialog for new project creation will appear. Select a directory for project saving, and choose a name for the project. Choose the model of the touch screen corresponding to the project, click OK to complete the creation and enter the communication port setting dialog. Click "Cancel" to quit the dialog.

3.1.1 New project dialog with easyMonitor

Project name: The name of the project to be created. Path: Directory to save the new project file, C:\ in default.



3.1.2 Create new device

When you create new project, there are 5 default devices can be used directly, You can add device, edit device or delete device by right click and select one operation.

You can click the "Device" and then right click.

🖃 📹 Device



You can select one existed device, and click right mouse.

🖃 🛄 Device	🖃 🛄 Device
🖓 RS232:COM[1]:Addr[1]	Edit device [1]
- 🔩 RS232:COM[2]:Addr[2]	Dalit device [2]
- 🏹 RS232:COM[3]:Addr[3]	Delete device [3]
🛶 🖓 RS232:COM[5]:Addr[5]	🔤 🖓 RS232:COM[5]:Addr[5]

Click Edit device, then the below dialog box will be appear.

		×
1 2 3 4 5	Comm Data Name. ES232:COM[1]:Addr[1] Address 1 Fratacol_ Modbus-RTU Model: ELC-12DC-DA-R Ext Ext Comm type (* RS232 Port 1	
6	C RS485 BPS: 9600 C Ethernet/GPRS/WIFI C IP addres C Domain name OK Cancel	

1.**Name:** The connection name edition, the default format is Com type:Port number: Address. You can named the connection as your requirement.

2. Address: PLC address of ELC/EXM CPUs. Different connections must be different device address.



You can change the CPU address by key pad Set..-> Set Adr -> Set M Adr

Also you can change the CPU address by the programming software(xlogicsoft for xlogic, eSmsConfig for x-Messenger). Menus in software is Tools-> Transfer -> set PLC's address/Set EXM address.

Protocol	Modbus-RTU	•
	Modbus-RTU	
λ−R	Modbus-TCP	

Modbus RTU and Modbus TCP are the optional

communication protocol.

3. Protocol:

4. Model: The CPU model will be monitored or controlled.

All the ELC series xLogic and EXM series CPU can be monitored. But some CPU have no Ethernet connectivity, so those CPU will cannot be monitored via Ethernet connection, but the serial connection is supported.

5. Ext: Extension selection

lxt.	•	Ext.2	•
-Comm tvi	•	Ext.1	
		Ext.2	
• RS232		Ext.3	
		Ext.4	
C 85485		Ext.5	

Select how many extensions will be used by tick up the option box

6.Comm type :

There are 3 com type available:

RS232 : serial connection between PC and CPU.

RS485 : RS232 to RS485 converter needed, PLC will connect to the RS485 network.

Note: RS232 and RS485 in fact are both serial connection, you can select any one if use serial port to communicate with PLCs.

You need set the serial port number and the BPS for serial connection.

Comm type		
• RS232	Port	2
C RS485	BPS:	19200 💌
C Ethernet/GPRS/WIF	I	
🖸 IP addres	0.	0.0.0
C Domain name		

Ethernet/GPRS/WIFI:

This option is only applied to the CPUs which supports the ethernet connectivity.

Comm type		
C RS232	Port	6365
C RS485	BPS:	19200 💌
Ethernet/GPRS/WIFI	I	
IP addres	0.	0.0.0
🔘 Domain name		

MODE 1: easyMonitor directly connect to the Ethernet module(The Ethernet module must work as server) without using the server software, here the IP address settings is the Ethernet module IP address, port is the local port in Ethernet module.



MODE 2: easyMonitor and devices(PLCs) are both connected to the server software. Now the IP address settings is the IP of PC which installed server software, the port number also is forward to the PC which installed the server software.



Domain name: This option is only for the EXM CPUs which supports the GPRS connection. easyMonitor and the EXM are both can be connected to such domain name.(This domain name need be forward to the PC which installed the server software).

3.1.3 Create the datas/variables/ for the devices

Index	Туре	CPU/Ext	Address	Count	Priority	666
01	I	0	0	8	0	
02	Q	0	0	4	0	Edit
03	F	0	0	4	0	
04	REG	0	0	16	0	Delete
05	REG	0	17	16	0	

Click Edit device, then the below dialog box will be appear and then swith to the "Data" page.

You can add new data, edit or delete the existed data by clicking the corresponding button.

omm I)ata		
Index	Гуре	CPV/Ex	data 🔀 Add
01	I	0	Data type
02	Q	0	CPU/Ext Edit
03	F	0	Сри
04	REG	0	Address Delete
05	REG	0	M0
			C Flag Count C Analog flag C M C AM C Register
			OK Cancel
			OK Cancel

There are 9 kinds of data types:

÷

Digital type includes : Input, Output, Flag, M;

Analog type includes: Analog input, Analog output, Analog flag, AM, Register

Address	
AI001	•

: You can select one as the start address.

Count	
16	

Enter into the count for the data, maximum 16 in one time.

If you want add one kind of data more than 16, you need add the data twice or more with modify the start address.

For example, if you had added the flag as below figure shows, then the available flag would be F1--F20.

Comm I)ata					
Index	Туре	CPU/Ext	Address	Count	Priority	644
01	I	0	0	8	0	
02	Q	0	0	4	0	Edit
03	REG	0	0	16	0	
04	REG	0	17	16	0	Delete
05	AI	0	0	16	0	
06	F	0	1	4	0	
07	F	0	5	16	0	
			1	Ţ		
		Star	t address	The count of	the data	
		- Dta				

After the data had been added for a certain devices then confirm with ok button, then you need add them in to the variable library, so, the data/ variable would be available for the display objects.

Digital Analog Index Fariable Hame Internal Hame Global/device Default value 1 Var1 1001 serial_com2 0 2 Var2 1002 serial_com2 0 3 Var3 1003 serial_com2 0 4 Var4 1004 serial_com2 0 5 Var5 1005 serial_com2 0 6 Var6 1006 serial_com2 0 7 Var7 1007 serial_com2 0 8 Var8 1008 serial_com2 0 9 Q1 Q001 serial_com2 0 100 Con status F1 serial_com2 0 11 con error F2 serial_com2 0 11 con error F2 serial_com2 0	ariable	iable			
Index Pariable Hame Internal Hame Global/device Default value 1 Var1 I001 serial_com2 0 2 Var2 I002 serial_com2 0 3 Var3 I003 serial_com2 0 4 Var4 I004 serial_com2 0 5 Var5 I005 serial_com2 0 6 Var6 I006 serial_com2 0 7 Var6 I006 serial_com2 0 8 Var6 I006 serial_com2 0 9 Q1 Q001 serial_com2 0 9 Q1 Q001 serial_com2 0 10 Con status F1 serial_com2 0	Digital	Analog			
1 Var1 IOO1 serial_com2 0 2 Var2 IOO2 serial_com2 0 3 Var3 IOO3 serial_com2 0 4 Var4 IOO4 serial_com2 0 5 Var5 IOO5 serial_com2 0 6 Var6 IOO6 serial_com2 0 7 Var7 IOO7 serial_com2 0 8 Var8 IOO8 serial_com2 0 9 Q1 Q001 serial_com2 0 10 Com status F1 serial_com2 0 11 com error F2 serial_com2 0	Index	Variable Name	Internal Name	Global/device	Default value
2 Var2 1002 serial_com2 0 3 Var3 1003 serial_com2 0 4 Var4 1004 serial_com2 0 5 Var5 1005 serial_com2 0 6 Var5 1005 serial_com2 0 7 Var6 1006 serial_com2 0 7 Var7 1007 serial_com2 0 8 Var8 1008 serial_com2 0 9 Q1 0010 serial_com2 0 10 Com status F1 serial_com2 0 11 com error F2 serial_com2 0	1	Var1	I001	serial_com2	0
J Var3 I003 serial_com2 0 4 Var4 I004 serial_com2 0 5 Var5 I005 serial_com2 0 6 Var6 I006 serial_com2 0 7 Var6 I007 serial_com2 0 7 Var7 I007 serial_com2 0 8 Var8 I008 serial_com2 0 9 Q1 Q001 serial_com2 0 10 Com status F1 serial_com2 0 11 com error F2 serial_com2 0	2	Var2	1002	serial_com2	0
4 Var4 IO04 serial_com2 0 5 Var5 IO05 serial_com2 0 6 Var6 IO06 serial_com2 0 7 Var7 IO07 serial_com2 0 8 Var8 IO08 serial_com2 0 9 Q1 Q001 serial_com2 0 10 Com status F1 serial_com2 0 11 com error F2 serial_com2 0	3	Var3	1003	serial_com2	0
5 Var5 I005 serial_com2 0 6 Var6 I006 serial_com2 0 7 Var7 I007 serial_com2 0 8 Var8 I008 serial_com2 0 9 Q1 Q001 serial_com2 0 10 Com status F1 serial_com2 0 11 com error F2 serial_com2 0	4	Var4	1004	serial_com2	0
6 Var6 IO06 serial_com2 0 7 Var7 IO07 serial_com2 0 8 Var8 IO08 serial_com2 0 9 Q1 Q001 serial_com2 0 100 Com status F1 serial_com2 0 11 com error F2 serial_com2 0	5	Var5	1005	serial_com2	0
7 Var7 I007 serial_com2 0 8 Var8 I008 serial_com2 0 9 Q1 Q001 serial_com2 0 100 Com status F1 serial_com2 0 11 com error F2 serial_com2 0	6	Var6	1006	serial_com2	0
8 Var8 IO08 serial_com2 0 9 Q1 Q001 serial_com2 0 100 Con status F1 serial_com2 0 11 con error F2 serial_com2 0	7	Var7	1007	serial_com2	0
9 Q1 Q001 serial_com2 0 10 Com status F1 serial_com2 0 11 com error F2 serial_com2 0	8	Var8	1008	serial_com2	0
10 Com status F1 serial_com2 0 11 com error F2 serial_com2 0	9	Q1	Q001	serial_com2	0
11 com error F2 serial_com2 0 Add Edit Delete	10	Com status	F1	serial_com2	0
Add Edit Delete	11	com error	F2	serial_com2	0
Add Edit Delete					
		Add	Edit	Delete	

Click the menu Variables -> Variable

Two kinds variable are available : digital/analog variable from device or Global. You can add new data, edit or delete the existed data by clicking the corresponding button. Click "Add" to add the variable, then the below window will be appear. Select "Global variable", you can enter into the Name for new global variable.

Ŋ	ariabl	e edit				Ľ
	 Globa Devic 	l variable e variable			Ţ	
	Index	Туре	CPV/Ext	Address	Count	
			👻 Name			
			Default value	0		
		OK		c	ancel	

Select the "Device variable" to add the variable from the device.

Ŋ	ariabl	e edit				×
	C Globa	l variable				
	 Device 	e variable	serial_com2		•	
	Index	Туре	CPV/Ext	Address	Count	
	01	I	0	0	8	
	02	Q	0	0	4	
	03	F	0	1	4	
	04	F	0	5	16	
	F7		Name	Var50		-
ľ				0		
			Default value			
		OK		C.	ancel	

Click and select one Index of the data, then the available items will be appear in the drop down box. You can put a new name for the variable as you requirement, then confirm with OK button.

RE00 C Global variable P RE01 P RE02 P RE04 Index Jype CPU/Ext Address Count 01 RE03 0 01 RE0 02 RE0 03 RE0 04 RE0 05 RE0 06 17 16 16 17 16 18 10 19 16 10002 Name Default value 0	ndex	Variable Nac	Variabl	le edit				fault value
2 REG1 • Device variable • sexial_com2 • Device variable • sexial_com2 • Index Isgo • Device variable • Device variable • Sexial_com2 • Index Isgo Index Isgo OI REG O Isgo OI REG O Isgo Isgo	r -	REGO	C Globa	al variable				
P REG2 4 REG4 5 REG3 01 REG 02 REG 02 REG 03 17 15 15 100 16 100 16 100 16	7	REG1	Devis Devis	e variable	serial com	i	-	
# REG4 Index Jype CPU/Ext Address Count 5 REG3 0/ REG 0 0 16 02 REG 0 17 16 00 AI 0 16	3	REG2			[rema_come			
7 REG3 01 REG 0 0 16 02 REG 0 17 16 07 AI 0 0 16	1	REG4	Index	Type	CPU/Ext	Address	Count	
02 REG 0 17 16 00 Name 0 16		REG3	01	REG	0	0	16	
AT 0 0 16			02	REG	0	17	16	
A1002 Name Sensor				The second second				
			B	AI	0	0	16	>

In the analog page, you can add the analog variable in the same way.

3.2 Graph editing commands of easyMonitor

3.2.1 Combine and dispart of easyMonitor

"Combine" command is a group command, used to combine two or more graph objects in the current screen to a whole graph object. The objects to be combined may be graphs drawn by designers or users, or graphs from picture library of the system, or other controls such as alarm control and trend chart. After combining the original properties of the graph elements will not be kept. An combined object, graph or control is a whole image and can be saved as library control for future use, helping to save much time of the users. "Dispart" command is used to dispart a graph combined using "Combine" command to the original elements. After disparting the original properties of the elements can be recovered.

"Dispart" command is a reverse command of "Combine" command.

The combining steps are as follows:

First, choose the graph objects to be combined, then press "Combine" command by calling the right click menu and choose combine command. Figure 4-6 shows the contrast before and after combined.





Figure 4-6 shows the contrast before and after combined.

The disparting steps are as follows:

Choose a graph object combined using combine command, and then choose dispart command by calling the right click menu and choose Dispart command. Figure 4-7 shows the contrast before and after disparting.





Figure 4-7 shows the contrast before and after disparting.

3.2.2 Layout of easyMonitor

"Layout" command is a group command, used to adjust the display sequence of intersected graph objects in the screen. Each graph in easyMonitor has a layer, and graph objects on upper layer are always displayed on top of the objects on lower layer.

Thus, we can use this command to adjust layer level of graph objects. By default, objects created later are on upper layer than those created earlier. There are four Layer commands that are "Up", "Down", "To front", and "To bottom". To execute these commands, first choose one or more graph objects in the current screen, and then choose corresponding Layer commands in layout menu or by calling right click menu.

To front

This command is used to move the chosen object to the top layer of all the graph objects in the current screen. Thus, the parts of other graphs intersected with this graph will be covered by this graph. Figure 4-8 shows a contrast before and after such moving.

First choose an object in several graphs, and then choose Move to Top command in Layer menu, or call the right click menu and choose To front command . See Figure 4-8 for a comparison before and after combination.







To bottom

This command is used to move the chosen object to the bottom layer of all the graph objects in the current screen. Thus, the part of this graph intersected with other graphs will be covered by other graphs. Figure 4-9 shows a contrast before and after such moving:

First choose an object in several graphs, and then choose to Bottom command in layout menu, or call the right click menu and choose to Bottom command . See Figure 4-9 for a comparison before and after combination.





Object before To bottom Object moved To bottom Figure 4-9: Contrast before and after moving object backward

Up

This command is used to move the chosen object to an upper layer over the graph object intersected with it. Thus, the parts of other graphs intersected with this graph will be covered by this graph. Figure 4-10 shows a contrast before and after such moving.

First choose an object in several graphs, and then choose Up command in layout menu, or call the right click menu and choose Up command in the Layer option. See

Figure 4-10 for a comparison before and after combination.







Object moved forward a Layer of former

Execution of a forward again

Execution a layer of two times the forward

Figure 4-10: Contrast before and after moving object one layer forward

Down

This command is used to move the chosen object to a lower layer than the graph object intersected with it. Thus, the part of this graph intersected with other graphs will be covered by other graphs. Figure 4-11 shows a contrast before and after such moving.

First choose an object in several graphs, and then choose Down command in Layout menu, or call the right click menu and choose Down command. See Figure 4-11 for a comparison before and after combination.



Object moved a layer of former

The object of a back again

The object of a back twice

Figure 4-11: Contrast before and after moving object one layer backward

Left align

"Left Align" command allows designers to align several graph objects chosen basing on the left boundaries of the graphs. To do this, first select several graph objects (2 or more), and

then click Left Align command in layout menu, or click Left Align button 📴 in the tool buttons. Then the graphs will move left to align basing on the left boundaries. See Figure 4-12 for a contrast before and after left align.



Left align before

Figure 4-12: Contrast before and after left align

Right align

"Right Align" command allows designers to align several graph objects chosen basing on the right boundaries of the graphs. To do this, first select several graph objects (2 or more), and then click Right Align command in layout menu, or click Right Align button 🖽 in the tool buttons. Then the graphs will move right to align basing on the right boundaries. See Figure 4-13 for a contrast before and after right align.





Right align before

Figure 4-13: Contrast before and after right align

Top Align

Top Align" command allows designers to align several graph objects chosen basing on the top boundaries of the graphs. To this, first select several graph objects (2 or more), and then click

Top Align command in layout menu, or click Top Align button \overline{PP} in the tool buttons. Then the graphs will move upward to align basing on the top boundaries. See Figure 4-14 for a contrast before and after top align.











Bottom Align

"Bottom Align" command allows designers to align several graph objects chosen basing on the bottom boundaries of the graphs. To do this, first select several graph objects (2 or more), and then click Bottom Align command in layout menu, or click Bottom Align button in the tool buttons. Then the graphs will move downward to align basing on the bottom boundaries. See Figure 4-15 for a contrast before and after bottom align.





Bottom align before



Make same size

"Make same size" command allows designers to set the same height and width for several graph objects chosen basing on the height and width of the highest graph object (considering the top boundaries), with the top left coordinates of the graph objects being fixed. To do this, first select several graph objects (2 or more), and then click Make same size in layout menu. See Figure 4-16 for a contrast before and after such processing.



Make same size before



Make same size after

Figure 4-16: Contrast before and after "Make same size"

3.3 Drawing basic graphs with easyMonitor

This chapter introduces in detail the operations of drawing basic graphs with easyMonitor.

3.3.1 Line of easyMonitor

:can be used to draw the straight line on any direction in the window.

Click Line command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now

you can draw lines in the screen by clicking the mouse.

After completing the above steps, the line has default settings in line type, line width, line color. You can modify these settings basing on actual needs. To do this, move the mouse onto the line and double click, or click Properties button in the Edit menu after choosing the line. At this moment, a property dialog as shown in Figure 4-17 will appear.

Property[LINE]	×
Property [LINE] Color Dynamic Craph	Line Color Type: SSILI V Width: 15 Arrow
OK Cancel	Help

Figure 4-17: Line property dialog

The available settings include the Line color, line type, line width, other settings is not available for the line/Tline object.

You may adjust the properties of the line using the pull-down and fine tuning button. easyMonitor provides 5 line types,9 line widths.

Line	
Type:	PS_SOLID 👻
Width:	PS_SOLID PS_DASH PS_DOT
Size —	PS_DASHDOT PS_DASHDOTDOT PS_NVLL



3.3.2 Rectangle of easyMonitor

Click Rectangle command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can draw rectangle in the window.

- To change the size of the rectangle, first choose it and move the mouse to any of the 8 green square dots on the frame of the rectangle. When the mouse becomes down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the rectangle has been adjusted.
- After completing the above steps, the rectangle has default settings in transparency, background color, fill type, fill color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the rectangle and double click, or click Properties in the edit menu after choosing the rectangle. At this moment, a property dialog as shown in Figure 4-18 will appear.

Property[Rect]	<u> </u>
Title Color Dynamic	Color
	Foreground
	Background
	Fill type:
Connect	Fill color
	Frame line
	🔽 Enable
	Color
	Type: PS_DASH 💌
	Width: 1
	Font
	Select Font
OK	Cancel Help

Figure 4-18 Rectangle properties dialog



The available settings include the Foreground (is for the font color), background, Fill type, Fill color and the size, other settings are not available for the "Rectangle" object.



Variable status/values can be displayed in such object if you select a variable(digital or analog variable) in.

		::::
	Property[Rect]	X
	Title Color Dynamic	
	Color	
•	Foreground	
	Background	
Analog1_REGC_	Connec	
	Needle	1
	Fill type: Type: FS_SOLID V	
	Width: 1	
	Fill color	
	Frame Width 152	
	Meight 96	
	OK Cancel Help	

You can input a static text or to show the register value with such text object. A. As a static text display.

Property[Text]		
Title Color Dyn	namic	
Variable Analog as v	sensor 1	
AL arm	C Digital when variable = 0	
☐ Alarm	C Analog Lower	

1. Input the static text in the variable box, and do not tick up the "as value" option.



2. You can do not display the frame of the text without ticking up the "Display" option in Frame, and set the color with select the color in foreground, and set the font with click the "Select font" button.

3.3.3 Rounded rectangle of easyMonitor

Click Rounded Rectangle command button to the picture editing window. At this moment the mouse shape will become a cross, and now you can draw a rounded rectangle in the screen by clicking the mouse.

- To change the size of the rectangle, first choose it and move the mouse to any of the 8 green square dots on the frame of the rectangle. When the mouse becomes down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the rectangle has been adjusted.
- After completing the above steps, the rounded rectangle has default settings in transparency, background color, fill type, fill color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the rectangle and double click, or click Properties button in the tool bar after choosing the rectangle. At this ment, a property dialog similar to that in rectangle drawing will appear. See Figure 4-19:



Figure 4-19 Rounded rectangle properties dialog



The available settings include the Foreground (is for the font color), background, Fill type and the size , other settings are not available for the "Rounded Rectangle" object.



Variable status/values can be displayed in such object if you select a variable(digital or analog variable) in.

	Property[Slider]	×
Territori and	Title Color Dynamic	
Analog1 REG04	Color	1 I
	Foreground	
	Background Copped	
	Needle Line	
	Fill type:	
	Fill color	
	Frame Width 200	
	W Display	
	OK Cancel Help	

The Displaying font also can be changed in the color option with the button "Select Font".



After the communication is established between easyMonitor and PLC, the digital status will display 0/1(0 = off, 1 = on), the analog values of the selected register also will display the real time values in the PLC

3.3.4 Ellipse/Circle of easyMonitor

Click Ellipse/Circle command button \bigcirc in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can draw ellipse/circle in the window.

- To change the size of the ellipse/circle, first choose it and move the mouse to any of the 8 green square dots on the frame of the ellipse/circle. When the mouse becomes press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the ellipse/circle has been adjusted.
- After completing the above steps, the ellipse/circle has default settings in transparency, background color, fill type, fill color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the ellipse/circle and double click, or click Properties in the Edit menu after choosing the ellipse/circle. At this moment, a property dialog similar to that in rectangle drawing will appear.See Figure 4-20.

Property[ELLIPSE]	
Title Color Dynamic	
Graph	Color
	Foreground
	Background
	Fill type:
Connect	Fill color
	Frame line
	🔽 Enable
	Color
	Type: PS_SOLID 💌
	Width: 1
	Font
	Select Font
OK	Cancel Help

Figure 4-20 Ellipse/Circle properties dialog



The available settings include the Foreground (is for the font color), background,Fill type,Fill color and the size , other settings are not available for the "Ellipse/Circle" object.



Variable status/values can be displayed in such object if you select a variable(digital or analog variable) in.



The Displaying font also can be changed in the color option with the button "Select Font".



After the communication is established between easyMonitor and PLC, the digital status will display 0/1(0 = off, 1 = on), the analog values of the selected register also will display the real time values in the PLC

3.3.5 Cylinder of easyMonitor

Click Cylinder command button O in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can draw cylinder in the window.

- ➤ To change the size of the Cylinder, first choose it and move the mouse to any of the 8 green square dots on the frame of the Cylinder. When the mouse becomes ⊕, press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the Cylinder has been adjusted.
- After completing the above steps, the Cylinder has default settings in transparency, Internal ellipse share, background color, fill type, fill color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the Cylinder

and double click, or click Properties in the Edit menu after choosing the Cylinder . At this moment, a property dialog similar to that in rectangle drawing will appear. See Figure 4-21.



Figure 4-21 Cylinder properties dialog'



Variable status/values can be displayed in such object if you select a variable(digital or analog variable) in.

	Property[CYLINDER]
Artalog1_REG	Forgerry(Chlinder) Image: Color Dynamic Color Forgerround Background Select Font Line Image: Color Needle Line Fill type: Image: Color Fill color Size
	Frame Width 160 Height 144
	OK Cancel Help

The Displaying font also can be changed in the color option with the button "Select Font".



After the communication is established between easyMonitor and PLC, the digital status will display 0/1(0 = off, 1 = on), the analog values of the selected register also will display the real time values in the PLC

3.3.6 Pie chart of easyMonitor

Click Pie Chart command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can draw a pie chart in the screen by clicking the mouse. See Figure 4-22:



Figure 4-22: Draw a pie

- Move the mouse to any of the green dots in the rectangle, and at this moment the mouse shape will become Then, you can change the span of the sector by moving the mouse along an arc course.
- After completing the above steps, the Pie Chart has default settings in background color, fill type, fill color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the Fan Chart and double click, or click Properties in the Edit menu after choosing the pie chart. At this moment, a property dialog similar to that in rectangle drawing will appear.



3.3.7 Trapezia chart of easyMonitor

Click Trapezia Chart command button \bigtriangleup in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can draw a Trapezia chart in the screen by clicking the mouse. See Figure 4-23:



Move the mouse to any of the green dots in the rectangle, and at this moment the mouse shape will become . Then, you can change the span of the sector by moving the mouse to an appropriate position. After completing the above steps, the Trapezia Chart has default settings in background color, fill type, fill color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the Trapezia Chart and double click, or click Properties in the Edit menu after choosing the Trapezia chart. At this moment, a property dialog similar to that in rectangle drawing will appear.



3.3.8 Arrow of easyMonitor

Click Arrow Chart command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can draw a Arrow in the screen by clicking the mouse. See Figure 4-24:



Figure 4-24 Arrow direction can be set in the property dialog box

- Move the mouse to any of the green dots in the rectangle, and at this moment the mouse shape will become Then, you can change the arrow by moving the mouse to an appropriate position.
- After completing the above steps, the arrow has default settings in background color, fill type, fill color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the arrow and double click, or click Properties in the Edit menu after choosing the arrow. At this moment, a property dialog similar to that in rectangle drawing will appear.

Property[ARROV]		X
Color Dynamic		
Graph	Color	
	Background	
	Fill type:	
	-Frame line-	
	Color	
	Туре:	PS_SOLID -
	Width:	1
	Direct	
	🖲 Right	
	🔿 Left	
	C Up	
	🔿 Down	
OK	Cancel	Help

3.3.9 Multiple Text graphs of easyMonitor

Click Multiple Text command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can draw a text chart in the screen by clicking the mouse.

	2								
P	h	Dİ	te						
			1	э.					
-1	١.	(a	ľ	ŀ				
		-	r						
ų	2.	- (a	١G	2	2.	Ļ		
			Υ.						
-3	}.	6	a	Α	Ľ	3			
			÷						
			÷						

You can edit the static text or insert the register value with the format "@register name".

Property[TEXT]	
Property Color Dynamic	
Note: 1. FI= @flag1 2. REGO= @Analogi_REGO 3. FZ= @flag2	
Angle 0 🔽 🔽 Transparent	
OK Cancel	Help

Property[IEXI]	X
Property Color Dynamic	
Graph	Color
	Foreground
Note:	Background
1. @11 2. @Q2 3. @AI3	Fill type:
	Fill color
	Font
	Select Font Connect
	Angle 0 🔽 Transparent
	DK Cancel Help

The color can be changed with the foreground color, and "select font" to change the text font.

Note:																	
1.F1=	@f	ag	1														
-							1.4		1		1	1.	<u> </u>	١.,			
2.REG	50 =	@/	٩n	а	C	0	11			र	E	(Ģ	()		
2.REG 3.F2=	60= @f	@/ lag	An 2	a	lc)C]]	-		ł	E	(G	0)		

After the communication is established, then the register value will displayed followed the symbol "@".



3.3.10 Data input of easyMonitor

Click data input command button *##* in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can draw a data input object in the screen by clicking the mouse.

PropertyLD	lat aSet]	
Action Col	or Dynamic	
Action Cold	down Set Action define Caption Action type Variable source Handle variable Handle value Fixed State inversion	
	OK Cancel	

Click the "Set" button in the property dialog box, then select one variable from the database, then confirm with ok.

roperty[DataSet]	• 1		×
Action Color Dynam	i c	Color Text Font Selec	t Font Connec
	ок	Cancel	Help

The number color and Font can be set in the color option, then confirm with "ok". Under the monitoring mode, you only need to click the area of the data input object, then the below dialog box would be pop out. Input the data required, and confirm with ok button.

PIL		AF5:	100
nput frame			
Variable:	AF5		
Set value:	I		0

Then the value will be set to the device(CPU).

Only the AF, AQ, and REG value can be set with such object, and please note if you want to set the AF,AQ value, please do not connect the input leg of the AF,AQ block to other blocks in your PLC program.



As above figure showing, AF1--AF4 can not be set value, but the AF5--AF7 value can be set by such data input object.

3.3.11 Table of easyMonitor

Click Line arrow command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can draw a Line arrow in the screen by clicking the mouse.

- Move the mouse to any of the green dots in the rectangle, and at this moment the mouse shape will become . Then, you can change the table size by moving the mouse to an appropriate position.
- After completing the above steps, the table has default settings in the row count , columns count , line color, line width and the display size. You can modify these settings basing on actual needs. To do this, move the mouse onto the table and double click, or click Properties in the Edit menu after choosing the table. At this moment, a property dialog similar to that in rectangle drawing will appear.

Rows count and columns count can be set in the property dialog box.

Property Color	Dynamic
Row count	3
Col count	4

Property Color D	ynamic	
Color Foreground Background Line Needle Fill type Fill color Frame V Display		Font Select Font Connect Line Type: PS_DOT Vidth: 15 Size Width 608 Weight 256
OI	(Cancel	Help

The line of table can be set color width, and the table size also can be set with a fixed value.

3.3.12 Bitmap of easyMonitor

Click bitmap command button 2 in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a bitmap in the screen by clicking the mouse.



You can modify the basing on actual needs. To do this, move the mouse onto the bitmap and double click, or click Properties in the Edit menu after choosing the bitmap. At this moment, a property dialog similar to that in rectangle drawing will appear.

Property[BITEAP]	
Property Variable C	Color Dynamic
🦳 Transparent	Mask Colour:
	Angle 0
✓ Stretch image	\bigcirc
Image file:	start.bmp ()
🕅 Dynamic image	\smile
Condition:	
Image file:	
OK	Cancel Help

Click the button(marked with red circle in above figure) to insert a new bitmap.

📄 Bitmap

Note: The bitmap must be imported from the "Bitmap" file in the boot folder of easyMonitor., so you need copy your own bitmap into such file first.

After the new bitmap imported in, you can move the mouse to any of the green dots in the rectangle, and at this moment the mouse shape will become the new bitmap size by moving the mouse to an appropriate position.

Property[BIIIAP]				
Property	Variable	Color Dynamic		
🔲 Transparent		Mask Colour:		
		Angle	0	
✓ Stretch image				
Image fil	Le:	start.bmp		
Upramic image				
Condition	n:	flag1==1		
Image fil	Le:	farrow.bmp		
	0	K Cancel	L	Help

You can also select the dynamic image, when the condition (for example flag1 = = 1), then the "farrow.bmp" will display.

Note: 1.. flag1 is a digital register in the variable database.

2. You do not need select any register in the variable option.

3.3.13 Rotate Bitmap of easyMonitor

Click rotate bitmap command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a rotate bitmap in the screen by clicking the mouse.



You can modify the basing on actual needs. To do this, move the mouse onto the rotate bitmap and double click, or click Properties in the Edit menu after choosing the rotate bitmap. At this moment, a property dialog similar to that in rectangle drawing will appear.
Property[Bitmap]					
Property Vari	able Color	Dynamic			1
🔽 Transparen	t Mas	ik Colour:			
	Ang	;le	0		
🗖 Stretch im	age				
Image file:	pl	c_1.bmp		([])
🔲 Dynamic im	age				
Condition:	Γ				
Image file:	Γ			-	
	OK	Cancel			Help

Click the button(marked with red circle in above figure) to insert a new bitmap.

📄 Bitmap

Note: The bitmap must be imported from the "Bitmap" file in the boot folder of easyMonitor., so you need copy your own bitmap into such file first.

Property[Bitmap]		
Property Variable	Color Dynamic	
🔽 Transparent	Mask Colour:	
	Angle 0	
🗖 Stretch image		
Image file:	plc_1.bmp	
🗖 Dynamic image		
Condition:		
Image file:		

You can rotate the bitmap with set the angle in the red circled region in the property dialog box.

3.3.14 gif picture of easyMonitor

Click gif picture command button ^{Gif} in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a gif picture in the screen by clicking the mouse.



You can modify the basing on actual needs. To do this, move the mouse onto the gif picture and double click, or click Properties in the Edit menu after choosing the gif picture. At this moment, a property dialog similar to that in rectangle drawing will appear.

Property[GIF]				
Property Variable D	ynamic			
🔽 Transparent	Mask Colour:			
	Angle			
厂 Stretch image	\sim			
Image file:	liul.gif			
🗖 Dynamic image	\smile			
Condition:				
Image file:				
OK	Cancel Hel	lp		

Click the button(marked with red circle in above figure) to insert a new gif picture.

📄 Bitmap

Note: The gif picture must be imported from the "Bitmap" file in the boot folder of easyMonitor, so you need copy your own gif picture into such file first.

After the new gif picture imported in, you can move the mouse to any of the green dots in the rectangle, and at this moment the mouse shape will become the gif picture size by moving the mouse to an appropriate position.

Click the "Variable" option to select a digital variable for controlling this gif picture

Property[GIF]	Variable select 🔀
Property Variable Dynamic	• Digital C Analog
Variable flagi 🚽	Variable Description flag1 flag2 flag2
Alarm C Digital when Alarm C Analog	
Alarm sound	
OK Cancel	
	Cancel

If the variable is not equal to 0(both digital and analog variable), then the gif will be played with an animation

3.3.15 3D circle of easyMonitor

Click 3D circle command button () in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a 3D circle in the screen by clicking the mouse.



- You can modify the basing on actual needs. To do this, move the mouse onto the 3D circle and double click, or click Properties in the Edit menu after choosing the 3D circle picture. At this moment, a property dialog similar to that in rectangle drawing will appear.
- After the 3D circle put in, you can move the mouse to any of the green dots in the rectangle, and at this moment the mouse shape will become Then, you can change the 3D circle size by moving the mouse to an appropriate position.

Property[3DCircle]				
Variable Color Dynamic				
Variable flag	ç1			
√ a	s value			
Alarm	Variable s	elect		
□ Alarm	• Digital	C Analog		
	Variable	Description		
	flag2			
Alerm son	flag3			
JEALW 300				
				H
_				

Select a digital variable for this 3D circle. Then set the ON color and OFF color for it in the Color option.

roperty[3DCircle]	E
Variable Color Dynamic	
Color	Font
ON Color	Select Font
OFF Color	Connect
Line	
Needle	Line
Fill type:	Type: PS_SOLLD ▼ Width: 20 ▼
Fill color	Size
Frame	Width 80
Display	Height 72
	Helm

ON color and OFF color can be set by click the color area.



After the communication is established successfully, the corresponding color will be displayed based on the digital register status.

3.3.16 Button object of easyMonitor

Click button command button \Box in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a button object in the screen by clicking the mouse.



You can modify the basing on actual needs. To do this, move the mouse onto the button object and double click, or click Properties in the Edit menu after choosing the button object. At this moment, a property dialog similar to that in rectangle drawing will appear.

Property[Button]	Property[Button]				
Title Action Color Dynamic					
Variable ✓ as value ✓ Click down when value=1					
Alarm C Digital when variable = 0]				

You can input a static text on the center of the button object. (Do not tick up the "as value" option). Or you also can select a variable with ticking up the "as value" option, then the digital status will be display on the button.

	Property[Button]
	Title Action Color Dynamic
01	Variable 🛄
	Alarm

The button color can be changed in the Background; the text color can be changed in the Foreground, and the text font also can be changed with clicking the "Select Font".

	Property[Button]
	Title Action Color Dynamic
] 0	Color Font
	Foreground Select Font
QT	Rackgrount Connect
) 0	Line Line
	Needle Line
	Fill type: Type: PS_SOLID V
	Fill color
	Frame Width 136
	Meight 80
	OK Cancel Help

After the button put in the window, you can move the mouse to any of the green dots in the rectangle, and at this moment the mouse shape will become the number of the state of the mouse to an appropriate position.

3.3.17 Databox of easyMonitor

Click Databox command button BB in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a databox object in the screen by clicking the mouse.



- To change the size of the databox, first choose it and move the mouse to any of the 8 green square dots on the frame of the Cylinder. When the mouse becomes 4, press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the Cylinder has been adjusted.
- After completing the above steps, the databox has default settings foreground color(text color), background color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the Databox and double click, or click Properties in the Edit menu after choosing the database. At this moment, a property dialog similar to that in rectangle drawing will appear.

1	Property[Databox]				
	Direct Variable Color Dynamic				
	C #####				
	C ####. #				
	• ### . # #				
	C ##. ###				

Display decimal numbers can be set in the property dialog box.

		Veriable colort	
	Property[Databox]	Variable Select	
	Direct Variable Color Dynam	C Digital 💿 Analog	
0.00	Variable Analog1_REGO	Variable Description Analog1_REGO	
	Alarm C Digital		
	Malarm 🕫 Analog		
	Alarm sound		
	OK		
		OK Cancel	

The variable can be selected from the variable library in variable option

Property[Databox]				
Color Variable Dynamic				
Graph	Color Text Background Format C ##### C ####.#			
OK	Cancel Help			

The Size, background color, text color(foreground) and the text font can be changed in the color option of the property box.

3.3.18 Date and time of easyMonitor

Click Date and time command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a Date and time object in the screen by clicking the mouse.



- To change the size of the Date and time object, first choose it and move the mouse to any of the 8 green square dots on the frame of the Date and time object. When the mouse becomes ⁺, press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the Date and time object has been adjusted.
- After completing the above steps, the Date and time object has default settings foreground color(text color), background color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the Date and time object and double click, or click Properties in the Edit menu after choosing the data and

time object . At this moment, a property dialog similar to that in rectangle drawing will appear.



There are 4 types date and time display format.

Property[Time]	
Property Dynamic	
Graph	Color
	Foreground
	Background
	Fill type:
2014-03-21	Fill color
	Font
	Select Font
C Type 1 2013-11	Transparent
⊙ Type 2 2013-11-29	
C Type 3 2013-11-29 16:45:00	
C Type 4 2013-11-29 16:45:00	
OK	Cancel Help

The background color, foreground color(text color) and the text font can be changed in the dialog box as above figure showing.

3.3.19 Report table of easyMonitor

Click report command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a report object in the screen by clicking the mouse.

	Column Name							
0Hour								
1Hour		****	****	****	****	****	****	****
2Hour			****		****	****		
3Hour	****	****	****	****	****	****	****	****
4Hour	****	****	****		****		****	****
5Hour		****	****	****	****	****		****
óHour	####	####	####	####	####	####	####	####
7Hour		****			****	****	****	****
8Hour	****	****	****	****	****	****		
9Hour	****	****	****	****	****	****	****	****
10Hour	****	****	****	****	****			****
11Hour			****		****			
12Hour	****	****	****		****	****	****	****
13Hour	****	****	****	****	****			****
14Hour			****		****			****
15Hour	****	****	####	****	****	****	****	****
16Hour								****
17Hour	****	****	****	****	****	****	****	****
18Hour	****	****	****	****	****			****
19Hour			****		****			****
20Hour	****	****	****	****	****	****	****	****
21Hour	****							
22Hour				8888				
23Hour	####	####	####	####	####	####	####	####

- To change the size of the Date and time object, first choose it and move the mouse to any of the 8 green square dots on the frame of the report object. When the mouse becomes ⁽¹⁾, press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the report object has been adjusted.
- After completing the above steps, the report object has default settings foreground color(text color), background color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the report object and double click, or click Properties in the Edit menu after choosing the report object. At this moment, a property dialog similar to that in rectangle drawing will appear.

This function is not available now!

3.2.20 Trend chart of easyMonitor

Click trend chart command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a Trend chart in the screen by clicking the mouse.



Overview of trend chart:

Displaying continuous values of variables on a dynamic and continuous basis.

Reference curves for multiple data can be drawn. Time will be used as the horizontal axis and value will be used as the vertical axis to visualize the change trend of the value in a period. 3 polygonal lines can be displayed at most (line chart).



Property[Real	time_Cur	ve]		X
Property Color Related varial	Dynamic ble			
Curve 1	Analogi	REGO	Select	
Curve 2	Analog1_	REGO	Select	
Curve 3	Analog1_	REGO	Select	
-Curve colour-				
Curve 1 colour		Curve 2 colour		
Curve 3 colour		Back colour		
Scale Vpper limit	200	Lower limit 0		
-Width time	8	Interval 5	minute	
▼ Show flag				
	OK	Cancel		Help

Related variable: you can select the variable for the Curve1, Curve2, Curve3. Curve colour: you can set the colors for the curve1, curve2, curve3 separately. Scale: You can set the Upper limit and the lower limit of the Y axis. Show flag: Show or Hide the name of the Curves.

Property[Realtime_Curve]	
Property Color Dynamic	
Property Color Dynamic Color Foreground Background Line Needle Fill type:	Font Select Font Connect Line Type: PS_SOLID V
Fill color	
Frame Display	Width 512 Height 248

Foreground : Used to set the text color.

Background: To set the background color of the trend chart.

Select Font: To set the text Font.

Size: To set the size of the trend chart.

3.2.21 History trend chart of easyMonitor

Click History trend chart command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a history Trend chart in the screen by clicking the mouse.



This function is not available

3.2.22 Bar of easyMonitor

Click bar chart command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a bar chart in the screen by clicking the mouse.



- To change the size of the bar object, first choose it and move the mouse to any of the 8 green square dots on the frame of the bar object. When the mouse becomes ⁽¹⁾, press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the bar object has been adjusted.
- After completing the above steps, the bar object has default settings foreground color(text color), background color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the bar object and double click, or click Properties in the Edit menu after choosing the bar object. At this moment, a property dialog similar to that in rectangle drawing will appear.

Property[BAR]				×
Property Direct Related varia	Color Dyn	namic		1
Bar 1	Analog1_REGO Select			
Bar 2	Analog1_RE	GO	Select	
Bar 3	Analog1_RE	GO	Select	
Bar colour				
Bar 1 colour	I	Bar 2 colour		
bar 3 colour	Back colour			
-Scale Upper limit	200	Lower limit		
Width time Hours	8 I	Interval 5	minute	
▼ Show flag				
	OK	Cancel		Help

Related variable: you can select the variable for the Bar1, Bar2, Bar3. Bar colour: you can set the colors for the bar1, bar2,bar3 separately. Scale: You can set the Upper limit and the lower limit of the Y axis. Show flag: Show or Hide the name of the Bars.

3.2.23 Single Bar of easyMonitor

Click single bar chart command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a single bar chart in the screen by clicking the mouse.



- To change the size of the single bar object, first choose it and move the mouse to any of the 8 green square dots on the frame of the single bar object. When the mouse becomes ⁽¹⁾, press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the single bar object has been adjusted.
- After completing the above steps, the single bar object has default settings foreground color(text color), background color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the bar object and double click, or click Properties in the Edit menu after choosing the bar object. At this moment, a property dialog similar to that in rectangle drawing will appear.

Property[SingleB	ar] 🛛 🔀
Property Direct V	ariable Color Dynamic
Range	
Min 0	Max 200
Scale Decimals (Scale Num. 6
Value Decimals (
Caption Unit	

Range : You can set the Upper limit and the lower limit of the Y axis.

Property[Sir	gleBar]	X
Property Dire	ct Variable Color Dynamic	
Variable Ar	alog1_REGO	
پ ا	as value Variable select	
ALarm	C Digital 💿 Analog	
🗌 Alar	Variable Description	
	Analog1_REGO	

Variable: Select a variable for the signal bar from the variable library.



You can change the foreground, background color and size for the signal bar.

3.2.24 Meter of easyMonitor

Click Meter command button \square or \square in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put a meter chart in the screen by clicking the mouse.



- To change the size of the Meter object, first choose it and move the mouse to any of the 8 green square dots on the frame of the Meter object. When the mouse becomes \$\Phi\$, press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the meter object has been adjusted.
- After completing the above steps, the meter object has default settings foreground color (text color), background color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the meter object and double click, or click Properties in the Edit menu after choosing the meter object. At this moment, a property dialog similar to that in rectangle drawing will appear.

Property Variabl	e Color Dyn	amic		1
Range				
Min 0		Max	500	
Scale Decimals	1 •	Scale Num.	6	-
Value Decimals	3 💌			
Caption	Volts			
Uni t	[V]			
	OK	Cancel		Help

Range: Range set, you can set the Min and Max value.

Scale Decimals: Decimals set for scale value.

Value Decimals: Decimals set for the real time value.

Scale Number: You can set the numbers of scales here.

Caption&Unit: You can set the caption and the unit for the actual signals.



Variable selection for the meter displaying.



You can change the background, Foreground(text color), Text font and the size in the color option.

3.3.25 Breaker of easyMonitor

Click breaker command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put break chart in the screen by clicking the mouse.



The background can be changed in the color option of the property dialog box.

	Property[Breaker]	
· · · · · · · ·	Direct Variable Color Dynamic	
	Color	Font
	Foreground	Select Font
	Background	
	Line	connect
	Needle	Line
	Fill type:	Type: PS_SOLID -

3.3.26 Switch symbol of easyMonitor

Click switch symbol command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put switch symbol in the screen by clicking the mouse.



The line width can be changed in the property dialog box.

3.3.27 Transfer symbol of easyMonitor

Click transfer symbol command button 8 in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put transfer symbol in the screen by clicking the mouse.

3.3.28 Fan of easyMonitor

Click fan command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put fan in the screen by clicking the mouse.



- To change the size of the Fan object, first choose it and move the mouse to any of the 8 green square dots on the frame of the Fan object. When the mouse becomes ⁽¹⁾, press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the fan object has been adjusted.
- After completing the above steps, the fan object has default settings foreground color(text color), background color and the size. You can modify these settings basing on actual needs. To do this, move the mouse onto the fan object and double click, or click Properties in the Edit menu after choosing the fan object. At this moment, a property dialog similar to that in rectangle drawing will appear.

Property[FAN]	
Variable Color Dynamic	
Color	Font
Foreground	Select Font
Background	Connect
Line	
Needle	
Fill type:	Type: PS_DASH
Fill color	

3.3.29 Button switch of easyMonitor

Click button switch command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put button switch in the screen by clicking the mouse.



- To change the size of the button switch object, first choose it and move the mouse to any of the 8 green square dots on the frame of the button switch object. When the mouse becomes 4, press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the button switch object has been adjusted.
- > To change the property of the button switch, move the mouse onto the button switch object and double click, or click Properties in the Edit menu after choosing the button

switch object . At this moment, a property dialog similar to that in rectangle drawing will appear.

Property[Butto	nSwitch]	×
Property Action	Variable Color Dynamic	
 Button switch Knife switch Gear switch 		
○ User defined	OFF OF	

You can select the default type swith, or Insert your picture with the "User define" option.

Property[ButtonSwitch]	Property[ButtonSwitch]	×
Property Action Variable Color Dynamic	Property Action Variable Color Dynamic	
C Button switch C <u>Knife switch</u> C Geer switch	C Button switch	
○ Vser defined	© Vser defined	

Set the action, then select a variable which need be controlled.

Property[Buttor	Switch]	
Property Action	Variable Color Dynamic	
Action	Set	
Г Рорир	Set	
Mouse move	Action define	
	Caption Action type Variable source Handle variable Handle value C Fixed C State inversion	• •
	OK	1

Select a variable for the status monitoring, it does not must be the same as the variable in the action option.

Property[ButtonSwitch]	×
Property Action Variable Color Dynamic	
Variable flag2	
j♥ as value _Alarm	
C Digital when variable = 0	

3.3.30 Valve of easyMonitor

Click valve command button in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put valve in the screen by clicking the mouse.

			1	-	_	_	-						
			-	1	1		Г	1					
							L.						
	Π						L.			١Ē		Ŀ	
	Ш						1					Ł	
	Ш											Ł	
	Ш											Ł	
	Ш											Ł	
	Ш									÷		Ł	
	2	-								17	-	۰.	

To change the size of the valve object, first choose it and move the mouse to any of the 8 green square dots on the frame of the valve object. When the mouse becomes press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the valve object has been adjusted.

3.3.31 Slider shape of easyMonitor

Click slider command button r in the tool buttons, and then move the mouse to the picture editing window. At this moment the mouse shape will become a cross, and now you can put slider in the screen by clicking the mouse.





To change the size of the slider object, first choose it and move the mouse to any of the 8 green square dots on the frame of the slider object. When the mouse becomes press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the slider object has been adjusted.

This function is not whole available now.

3.3.32 Pipe of easyMonitor



Rod:		
Rect pipe:		
Free trapezoid:		
O Ellipse pipe:		

To change the size of the pipe object, first choose it and move the mouse to any of the 8 green square dots on the frame of the pipe object. When the mouse becomes \$\overline\$, press down the left key of the mouse and drag the mouse to an appropriate position. Then release the left key of the mouse. So far the size of the pipe object has been adjusted.

Chapter 4 Example showing

4.1 Create new device

Create a new project by click project -> new, then:

📷 easylonitor - IN22221CO
📃 Project Edit Variables Drawl
] 🖪 📽 🔚 📰 👗 🛍 💼 🗅 🤅
📙 🕂 Basic 🍟 Bitmap 🔀 Time
+/6/00000
* ×
Tindows
🖓 SystemStart
₩ View1
👘 View2
📰 CurveView
E Device
RS232:COM[2]:Addr[2]
<u> RS232:COM[3]:Addr[3]</u>
RS232:COM[5]:Addr[5]
Script

There are 5 devices in default, here we delete 4 of 5, we only use one Device for

communication.



omm Da	ta
	✓ use device
Name:	RS232:COM[1]:Addr[1]
Address	1 Protocol Modbus-RTU
Model:	ELC-12 Series 💌 ELC-12DC-DA-R-N 💌
Ext.	🔽 Ext. 1
-Comm ty	/pe
• RS23	2 Port 3
C RS48	5 BPS: 9600 -
C Ethe	rnet/GPRS/WIFI
6	IP addres
0	Domain name

Here, we use a ELC-12DC-DA-R-N CPU and one extension(ELC12-E-8DC-DA-R), the communication port is port 3, baud rates 9600.

4.2 Create new data for the devices



Establish data in the data option:

Now we can add the variable in the variable value based on requirement, the example program as below:



We will create objects to monitor the below objects.

1. Digital inputs/outputs status, digital flag, M.



Note: the input leg of the output/digital flag block if did not be linking with other block, then its status can be changed with a button in SCADA, In the example program the Q013, Q014 can be controlled with SCADA.

2. Analog inputs , analog outputs, analog flags, and AM



Note: we can also set the AQ and AF value, in the SCADA if the input leg of the block(analog output and analog flag) is not connecting with other blocks. In the example program, the AF5,AF6,AF7 can be set value between "-32767" and "32767"

3.REG

•	∪tt=0 -	•	•	•	Ð	80	0	3[М	3	l
	Start=0.			1	I.		_	ľ			1
	. <u></u>			-	ľ	r,		Н			
4		1		-	ł.	+,	۴-	н			
E	REG2	2		-	ł.			Н			
	the second s	٠.				•	•				
	Hem ⊨ l	JłI	+								
	81.181.1					٠					
•	Un=U+					•					
	DW1011										
	un=u -										
	DRAW 100										
	statt≑u										

Note: The REG value can be read and also can be set, but it is the current value of the blocks, for example, if you set a value to REG2, then the current count value of B003 will be changed, but the on/off threshold and the start value cannot be directly changed via SCADA, but you can use the "reference" function is the block.

As below:
B009[I9][Up/Down counter]
Parameter Comment
Block name: 🔽 🔽 Show Parameters
On Threshold
Off Threshold F-B003[M3][Vp/Down counter] - Reference
Start Value 0 Reference
🦵 Retentivity 🦵 Protection Active
OK Cancel Help

If you want to change the ON/OFF threshold value via SCADA, then you need to change the B002 value(REG1) for the On threshold, and change the B003 value(REG2) for the Off Threshold.

4.3 Add the data into the variable database

We need add all the variables into the variable database via the menu "variable". Note: Only the data in the variable database will be read from the devices.

Digital variables

Variable

Digital Analog

Index	Variable Name	Internal Name	Global/device	Default value	
1	CPVI1	I001	NET: PORT [6365]: Addr [1]	0	
2	CPVI2	1002	NET: PORT [6365]: Addr [1]	0	
3	CPVI3	1003	NET: PORT [6365]: Addr [1]	0	
4	CPVI4	I004	NET: PORT [6365]: Addr [1]	0	
5	CPVI5	1005	NET: PORT [6365]: Addr [1]	0	
6	CPVI6	1006	NET: PORT [6365]: Addr [1]	0	
7	CPVI7	1007	NET: PORT [6365]: Addr [1]	0	
8	CPVI8	1008	NET: PORT [6365]: Addr [1]	0	
9	ExtIO11	I011	NET: PORT [6365]: Addr [1]	0	
10	ExtIO12	I012	NET: PORT [6365]: Addr [1]	0	
11	ExtIO13	I013	NET: PORT [6365]: Addr [1]	0	
12	ExtIO14	I014	NET: PORT [6365]: Addr [1]	0	
13	CPVQ1	Q001	NET: PORT [6365]: Addr [1]	0	
14	CPVQ2	Q002	NET: PORT [6365]: Addr [1]	0	
15	CPVQ3	Q003	NET: PORT [6365]: Addr [1]	0	
16	CPVQ4	Q004	NET: PORT [6365]: Addr [1]	0	
17	Ext011	A011	NET : PORT [6365] : Addy [1]	n	
	Add	Edit	Delete		

×

Digital	Analog
---------	--------

Index	Variable Name	Internal Name	Global/device	Default value	
16	CPUQ4	Q004	NET: PORT [6365]: Addr [1]	0	
17	ExtQ11	Q011	NET: PORT [6365]: Addr [1]	0	
18	ExtQ12	Q012	NET: PORT [6365]: Addr [1]	0	
19	ExtQ13	Q013	NET: PORT [6365]: Addr [1]	0	
20	ExtQ14	Q014	NET: PORT [6365]: Addr [1]	0	
21	F1	F1	NET: PORT [6365]: Addr [1]	0	
22	F 2	F2	NET: PORT [6365]: Addr [1]	0	
23	F3	F3	NET: PORT [6365]: Addr [1]	0	L.
24	F4	F4	NET: PORT [6365]: Addr [1]	0	
25	F5	F 5	NET: PORT [6365]: Addr [1]	0	
26	F6	F6	NET: PORT [6365]: Addr [1]	0	
27	M9	M9	NET: PORT [6365]: Addr [1]	0	
28	M10	M10	NET: PORT [6365]: Addr [1]	0	
29	M11	M11	NET: PORT [6365]: Addr [1]	0	
30	M12	M12	NET: PORT [6365]: Addr [1]	0	
31	M13	M13	NET: PORT [6365]: Addr [1]	0	
					~

Analog variable

ariable	9				
Digital	Analog				
Index	Variable Name	Internal Name	Global/device	Default value	^
1	CPUAI1	AI001	RS232:COM[3]:Addr[1]	0	
2	CPUAI2	AI002	RS232:COM[3]:Addr[1]	0	
3	CPUAIS	AI003	RS232:COM[3]:Addr[1]	0	
4	CPUAI4	AI004	RS232:COM[3]:Addr[1]	0	
5	AF1	AF1	RS232:COM[3]:Addr[1]	0	
6	AF2	AF2	RS232:COM[3]:Addr[1]	0	
7	AF3	AF3	RS232:COM[3]:Addr[1]	0	
8	AF4	AF4	RS232:COM[3]:Addr[1]	0	
9	AF5	AF5	RS232:COM[3]:Addr[1]	0	
10	AF6	AF6	RS232:COM[3]:Addr[1]	0	
11	AF7	AF7	RS232:COM[3]:Addr[1]	0	
12	AMS	AMS	RS232:COM[3]:Addr[1]	0	
13	AM6	AM6	RS232:COM[3]:Addr[1]	0	
14	AM7	AM7	RS232:COM[3]:Addr[1]	0	
15	AM8	AM8	RS232:COM[3]:Addr[1]	0	
16	B002 (REG1)	REG1	RS232:COM[3]:Addr[1]	0	
17	B003 (REG2)	REG2	RS232:COM[3]:Addr[1]	0	
18	B009 (REG8)	REG8	RS232:COM[3]:Addr[1]	0	
19	B011 (REG10)	REG10	RS232:COM[3]:Addr[1]	0	
20	B001 (REGO)	REGO	RS232:COM[3]:Addr[1]	0	
21	AQ001	AQ001	RS232:COM[3]:Addr[1]	0	
22	AQ002	AQ002	RS232:COM[3]:Addr[1]	0	

4.4 Create widows as your requirement

Here we create serval windows for how to read and set the register value.



We can edit the viewer caption by right click.

103

viev	X
Caption: IO status monitoring	
Type © Graph © Curver © Database © Report	OK Cancel

IO status monitoring window



We can use "3D circle" object to display the status of the digital status, here we set as default for the digital IOs. HI/ON = RED, LOW/OFF = GREEN.



Select the relative variable and tick up the "as value" option

roperty[3DCircle]		
Variable Color Dynamic		
Color ON Color	Font Select Font	
Line Needle	Line	
Fill type:	Type: PS_SOLID Width: 1	•
Frame F lisplay	Size Width 48 Height 48	
OK Cancel	1	Help

You can change the ON/OFF color as you need.

		$\mathbf{IT} \mathbf{V}$		1.1	1.	$\mathbf{h} \in \mathcal{L}$	
ANAL	JGINP	J I V	A	- N - C	2 E	10.1	
• A'T 4 •	CDUA	T 41 1 4					
AII =	WUPUP						
	. 🔫						
ATO:	CDITA	TO:					
$AIZ \equiv$	(OCPUA	1123					
· · · · · · · · · · · ·							
A +	CODIE	1 m m 1 -					
A13 =	(OCPUA	1113					
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 -					
	CPU2	1 2					
		· · · · · · · · · · · · · · · · · · ·					

We can use a multiple text to directly the analog input values based on the fixed format with @variable.

	Property[BAR]	×
	Property Direct Color Dynamic Related variable	
	Bar 1 CPVAL1 Select	
	Bar 2 CPUAI2 Select	
	Bar 3 CPUAI3 Select	
1000		
800	Bar colour	
600	Bar 1 colour Bar 2 colour	
400	bar 3 colour Back colour	
200		
	Scale	
CPUAL1 CPUAL2 CPUAL3	Vpper limit 1000 Lower limit 0	

We can use a bar object to showing AI1--AI3 of CPU simultaneity

Pa	roperty[Button]	×
(1	Title Action Colo	r Dynamic
	Variable ExtQ13	
	🔽 as vai	lue
	🔽 Click	down when value=1
	Alarm	
		🕼 Digital when variable = 🛛
	🗌 Alarm	Voper 1000
		C Analog
EXTQ13 EXTQ14		DUNCE
	Alarm sound	v v
	Caption	
	Action type	Single control
	Variable course	RS232:COM[3]:Addr[1]
	variable source	Ext013(0013)
	Handle variable	
	Handle value	C Fixed 0.000000
		G Shak immunian
		• State inversion
	OK	Cancel

We can use the button object to change the digital status.

Note: The input leg of digital flag or output block must be not connected with other blocks, then the digital flag and output can be changed with the button object.





Parameter setting window



Digital status settings

We can use the "button" object and the "button switch" object to change the digital status. We can insert a gif object into the screen, then if the digital F4 is switched on, then the gif picture will be played, so we can get a animation.

	AF value set	
Input frame Variable: Set value:	AFS O	
-0	REG value set O	B009(RE) B011(RE) B002(REG1)

Set AF value, you can click the area of the AF data input object under monitoring mode, then one data input box will be pop up. After input the data, confirm with click "OK" button.

	AF value	set	
AF5:	100	>	
AF6:	0		
AF7:	0		
	REG valu	e set	

Note: The input leg of analog flag or output block must be not connected with other blocks, then the digital flag and output can be changed with the button object.



Set REG value

you can click the area of the REG data input object under monitoring mode, then one data input box will be pop up. After input the data, confirm with click "OK" button.


The easyMonitor can read the variable value includes AM,AF,AI,AQ,REG. The "data reading" window is using the "Rect" to read all the analog variable value.

AM5	AM6	AM7	AM8
AM5	AM6	AM7	AM8
AF1	AF2	AF3	AF4
AF1	AF2	AF3	AF4
REG11	REG12	REG13	REG14
B0012(REG11)	B0013(REG12)	B0013(REG12)	B0015(REG14)
AII	AI2	AQ1	AQ2
			
	CPUAI2	AQ001	<u>AQ002</u>
CPUAI1 Property[Rect] Title Color Dynamic Variable Variable Alarm Alarm Alarm Alarm Alarm Alarm	. when value=1 igital when variable = 0 nalog Upper 1000 Lower 0	AQ001	<u>AQ002</u>

You only need to select the variable from the variable database, and tick up the "as value" option. Then the value will be read under the monitoring mode.



There are a default "Cureviewer" window to show some analog values.

Click the "Property" button, then you can select a variable and set the Max AND Min value.

Now you can startup monitoring the device.

4.4 Monitoring with serial connection:

Hardware connection:



ELC/EXM series CPU

Device settings

Comm Data
🔽 use device
Name: RS232:COM[3]:Addr[1]
Addres: 1 Protocol Modbus-RTU 💌
Model: ELC-12 Series V ELC-12DC-DA-R-N V
Ext. 🔽 Ext. 1
Comm type
© RS232 Port 3
C RS485 BPS: 9600 -
C Ethernet/GPRS/WIFI
© IP addres 192 . 168 . 0 . 133

After all the connection and the settings are ok, we only need to start the monitoring with click the "start/stop" button.

CPU		Ext1
ANALOG INPUT VALUE: AI1 = 0; AI2 = 0; AI3 = 0; AI4 = 0;	1000 800 500 400 200 CPVAI1 CPVAI2 CPVAI3	COM STATUS:
		1
	ON/1 = 🧿	

You can add a digital flag(example is F1) in your program, then in the window, you will see the status is turning on/off, otherwise the communication is failed.

Note: If there are multiple devices need be monitored, we must set them with separately address, If there are 2 or more same address in the devices, the communication would be work incorrect.

4.5 Monitoring with Ethernet/GPRS/WIFI connection

4.5.1 Device works as server

Hardware connection(this connection is only applied to Ethernet and WIFI, GPRS is not available):



In this case, the easyserver does not need, easyMonitor can directly connect with the device with Modbus TCP.

This connection are both applied to LAN and Internet, but we need a static IP address for the device end if Internet connection is required. Here we take an example for the Internet connection.

Example, now we have a static IP address here "221.226.289.74" connected to router, Then we set the Ethernet CPU works as server, the IP address is 192.168.0.133 in the LAN, the local port is 5001. So we need forward the 5001 port to the IP "192.168.0.133".

Then our easyMonitor works in the Internet will be connected to the IP 221.226.189.74.

Comm Da	ta
	🔽 use device
Name:	NET: PORT [5001]: Addr [1]
Address	1 Protocol Modbus-TCP
Model:	ELC-12 Series V ELC-12DC-DA-R-N V
Ext.	v Ext. 1
Comm ty	pe
C RS23	2 Port 5001
C RS48	5 BPS: 9600 🔽
🖲 Ethe	rnet/GPRS/WIFI
	IP addres 221 . 226 . 189 . 74
c	Domain name
	,
	OK Cancel

CPU address is 1 Protocol :MODBUS TCP PORT: 5001 IP address: 221.226.189.74(static IP address for the router which connected with Ethernet CPU)

After all the connection and the settings are ok, we only need start the monitoring with click

the "start/stop" 🕨 button.

CPU	Ext1
ANALOG INPUT VALUE: AI1 = 0; AI2 = 0; AI3 = 0; AI4 = 0; CPUAL1 CPUAL2 CPUAL3	COM STATUS:
	1
ON/1 = O	

You can add a digital flag(example is F1) in your program, then in the window, you will see the status is turning on/off, otherwise the communication is failed.

Note: If there are multiple devices need be monitored, we must set them with separately address, If there are 2 or more same address in the devices, the communication would be work incorrect.

4.5.2 Device works as client

Hardware connection(this connection is applied to Ethernet ,WIFI and GPRS.GPRS function of EXM only can be applied with such connection):



In this case, we need use the easyserver for transmitting the datas between easyMonitor and devices.

This connection are both applied to LAN and Internet, but we need a static IP address for the easyServer end if Internet connection is required. Here we take an example for the Internet connection.

Example, now we have a static IP address here "221.226.289.74" connected to router, Then we set the my PC(installed the easyServer) IP address 192.168.0.133 in the LAN, then we forward the 5001 port to the IP "192.168.0.133" in the router.

We also need forward another port number for the easyMonitor, here we have installed the easyMonitor and easyServer on a same PC, so they are in local, we do not need forward the port number for the easyMonitor anymore.



The default port number is 6365 for easyMonitor, 6364 for the device, so here, we need to change the device port to 5001. Then the device would connect to the server 221.226.189.74 5001.

Server port		Server port	
Scada port Device port	6365 6364	Scada port Device port	63\$5 5001
OK	Cancel	OK	Cancel

After the easyServer started, we can set the start way by right click

	Settings 🛛 🔀
About	Server run type C Run with system Run with easyMonitor C Manual run
Settings	
Show	OK Cancel
Exit	

There are 3 run types for the easyServer.

- a. Run with system
- b. Run with easyMonitor
- c. Manual run

The device settings need be changed as below:

Comm	Data
	🔽 use device
Name:	NET : PDRT [5002] : Addr [1]
Addre	s: 1 Protocol Modbus-TCP
Model	ELC-12 Series 💌 ELC-12DC-DA-R-N 💌
Ext.	🔽 Ext. 1
⊢Com r	type
CB	S232 Port 6365
CB	S485 BPS: 9600
ΘE	thernet/GPRS/WIFI
	• IP addres 192 . 168 . 0 . 133
	C Domain name

Start the server





The device will be connected with this server, and you can view which one in the easyServer. Now you can start the easyMonitor by click the "start" button.



😰 easyServer - ComDatal	
File Edit View Window Help Server	
easyServer: ELC03, @Add	ess: 192.168.0.133 is running on port app/plc: 6365,5001 Connected:1, 1
🖀 ComDatal	
Server	CosDatal
1 device1 2 unknow 2 unknow 7 unknow	<pre>00000523 AddData App(2)16:01:06 0115 00000524 ===>hc.length:0012 data: 00 02 00 00 00 06 01 01 00 00 00 42 2014-03-18 00000525 AddData Dev(2)16:01:06 0162 00000526 data Dev(2)16:01:06 0162 00000527 ===>app.length:0010 data: 00 02 00 00 04 01 01 01 09 2014-03-18 16:01: 00000529 ===>jcl.length:0012 data: 00 02 00 00 06 01 03 04 00 00 04 2014-03-18 16:01: 00000529 ===>jcl.length:0012 data: 00 04 00 00 00 06 01 03 04 00 00 04 2014-03-18 00000531 dev index = 0, socketID = 0,received16:01:06 0287 00000534 addData_Dev(2)16:01:06 0240 00000534 edata_App(2)16:01:06 0240 00000534 dev index = 0, socketID = 0,received16:01:06 0287 00000534 dev index = 0, socketID = 0,received16:01:06 0287 00000534 dev index = 0, socketID = 0,received16:01:06 0381 00000534 dev index = 0, socketID = 0,received16:01:06 0381 00000537 ===>app.length:0012 data: 00 04 00 00 00 06 01 03 05 00 00 02 2014-03-18 00000534 data_Dev(2)16:01:06 0369 00 00 00 07 01 03 04 00 00 00 02 104-03-18 00000537 ===pp.length:0013 data: 00 060 00 00 07 01 03 04 00 00 00 02 104-03-18 00000537 ===pp.length:0013 data: 00 060 00 00 07 01 03 04 00 00 00 2014-03-18 00000537 ===pp.length:0013 data: 00 060 00 00 00 01 02 00 00 2014-03-18 00000537 ===pp.length:0013 data: 00 060 00 00 07 01 03 04 00 00 00 2014-03-18 00000537 ===pp.length:0013 data: 00 060 00 00 07 01 03 04 00 00 00 2014-03-18 00000537 ===pp.length:0013 data: 00 060 00 00 07 01 03 04 00 00 00 2014-03-18 00000537 ===pp.length:0013 data: 00 060 00 00 00 00 01 02 00 00 2014-03-18 00000537 ===pp.length:0013 data: 00 060 00 00 00 00 00 00 00 00 00 00 00</pre>

You can click the button E to see the communication data between easyMonitor and the devices.

When you communicate the EXM with easyMonitor, you also need set the easyServer as above, then to set the IP address of the easyServer(Static IP address/domain name) and the port number in the GPRS parameters

System	
Timeout	10 Minute V Device name: TDC
APN:	cmnet
	Connect to ethernet when power on
	Target Network
	Port 5001
EXM as Client	IP Address 221 . 226 . 189 . 74
	O Domain Name
EXM as Client	Target Network 5001 Port 5001 IP Address 221 . 226 . 189 . 74 Domain Name

Notes: 1.The GPRS connection is wireless and the communication speed is also not too fast, so it is not suitable for the communication speed requirement.

2. GPRS communication data will also take some cost for the SIM card provider.