ISaGRAF Controller displays message to EKAN-Modview LED

Please visit http://www.icpdas.com/products/HMI/led/ekan.htm for more information.

Wincon-8xx7/8xx6 or I-7188EG/XG or I-8xx7 can support Modbus RTU Master protocol (RS-485)

EKAN LED (ordering information EKAN-ME122M / ME124M) supports Modbus RTU Slave protocol at its RS-485 port. User may connect Wincon-8xx7/8xx6 or I-7188EG/XG or I-8xx7 's Modbus RTU Master port to one or up to 32 EKAN LED's Modbus RTU Slave port.



Please refer to Appendix A & Appendix E for the pin assignment.

This paper shows an ISaGRAF demo program to link W-8337 to EKAN - "Modview".The IsaGRAF demo program can be download at <u>http://www.icpdas.com/faq/isagraf.htm</u> FAQ-045 or at <u>ftp://ftp.icpdas.com/pub/cd/Ekan/ModView/Sample/ISaGRAF/</u> "Wdemo_35" ftp://ftp.icpdas.com/pub/cd/wincon_isagraf/napdos/isagraf/wincon/demo/ "Wdemo_35"

This demo program can also be applied in the i-7188EG/Xg & i-8xx7 controllers. Please modify the IsaGRAF program 's "mbus" port setting & "mbus_n_w" & "mbus_b_w" 's "Slave" setting to a proper value related to the correct port been used.

You may refer to ISaGRAF User's Manual Chapter 9.5 to restore this demo program to your IsaGRAF Workbench, and refer to Chapter 2.1 to learn more about IsaGRAF if you are not familiar with IsaGRAF programming. The complete IsaGRAF manual can be download at http://www.icpdas.com/products/PAC/i-8000/isagraf.htm)

EKAN has two firmware, one is Modview, one is Dlite. Modview can be controlled by Modbus protocol. To update your EKAN's firmware to become Modview, please download the Modview firmware first, Ver. 1.06 or later, at <u>http://www.icpdas.com/products/HMI/led/Download.htm</u>. Then Please follow steps listed in the "**ReadMe.txt**" or **Appendix B** to update Modview firmware to your EKAN.

The EKAN's IP & Mask address can be modified by 7188xw.exe utility. Please refer to <u>Appendix B</u> or the above "ReadMe.txt" to set proper IP & Mask address.

After you update Ekan firmware to become Modview, you may running Internet Explorer, type the EKAN's IP address, for instance, "10.0.0.104", then click the "Modview TCP/RTU ..." to modify the related setting, for example, COM2:RS485's baud rate.



The following steps list how to program an ISaGRAF project to control Ekan – Modview.

Step 1: Connect "mbus" in the IsaGRAF I/O connection windows. Please modify "port_no" to the Port No of your Wincon. The default baud rate, parity & Stop_bit setting of EKAN is 9600, 8, 0, 1

ISaGRAF - T1 - I/O connection	
<u>File Edit T</u> ools <u>Options H</u> elp	
🙆 📼 🗟 🎾 🍿 🗘 🤑 🕞 🔏 🖴	
0 ► ► 107	
1	
2 baud = 9600	
3	
4 parity = 0	
5 stop_bit = 1	
6 timeout = 500	
<u>7</u> 1	
_ com_port л ф	
10	

Step 2: Declare IsaGRAF variables

Name	Туре	Attribute	Description
M1	Boolean	Internal	Triggered to pulse True every s0.5 econd
OK1	Boolean	Internal	
R1	Real	Internal	Real value1 to display to EKAN
R2	Real	Internal	Real value2 to display to EKAN
Show EMG	Boolean	Internal	If = True, show 1st Emergency Message, controlled by R2
_			in LD1 program

Step 3: Create a Ladder program - LD1 as below



Step 4: Create a Function block program - FBD1 as below



vVrite one Boolean value of "Show_EMG" to EKAN Modview's Emergency Message address of 300 every 0.5 second when M1 is trigerred , , Using modbus call = 5 , EKAN Modview's Net-ID = 1



M1 is triggered to a pulse True every 0.5 second in "LD1". So the "mbus_n_w" will write 4 word values (two Real value, one Real value contains two words) to EKAN every 0.5 second. EKAN – Modview's RegVar1 to RegVar64 's Modbus address is default at 100 to 227, each is format as REAL (32-bit float value, occupy 2 Modbus address)

And "mbus_b_w" will write one "Show_EMG" boolean value to EKAN Modview's Emergency message address 300 every 0.5 second. If "Show_EMG" = True, the 1st Emergency Message will be displayed, if value=False, desplay regular Message.

(EKAN Modview's Emergency message is contr by Modbus address 300 to 319, max 20 emergency message, set the related boolean to True will display the related message)

Note:

- 1. Please don't always write Modbus command to EKAN, EKAN's display will be hold.
- 2. Please write Modbus Command to EKAN periodic, for example, once every second, or once every 500 ms, or once ervery 2 seconds, like this example does.

Step 5: Download this IsaGRAF project to your Wincon-8xx7 or Wincon-8xx6. (Please refer to IsaGRAF User's Manual, chapter 9.5 & Chapter 2.1 to learn about IsaGRAF <u>http://www.icpdas.com/products/PAC/i-8000/isagraf.htm</u>) EKAN Modview demo program:

This demo program can be download at <u>http://www.icpdas.com/faq/isagraf.htm</u> FAQ-045 or at ftp://ftp.icpdas.com/pub/cd/Ekan/ModView/Sample/ISaGRAF/ "MV Demo 01.mvp"

Step1: Run "eSoftsystem" - "Modview" to create a new Modview project If you don't install it, please run EKAN CD-ROM: \Napdos\EKAN\Modview\Setup.exe

Μ	Create/Load ModView Project	×
	Create/Load Project	
	Create New ModView Project OK	
	C Load Existing ModView Project	

Step 2:Click "System" first, and then Enter the IP address of your EKAN

Mod∀iew Message Editor - [M∀_De	mo_01]				
<u>File Link Option H</u> elp					
New Open Save Upload	Download				
System information	Details				
ModView	System K	Modbus Setting	Variable List	Message List	TCP Tester
	Project Name	MV_Demo_01			
	commanication rypo		$\langle \rangle$		
		Use TCP/IP	10.0.0.104	フ	
		Port	502		
	Device Setting				
	Device Name	EKAN M	IE-100M		
ME-100M			TCP		2006/9/11 下午 12:31



Step 4: Click "Variable List", then click on "Register (Float) - "RegVar1" and click on "Edit Variable"

MMod¥iew Message Editor - [M¥_Demo_01]	
<u>File Link Option H</u> elp	
Image: New Image:	
System information Details Modbus Setting	Variable List Message List TCP Tester
Register (Float)	Variable Name: RegVar1
RegVar2 RegVar2	Variable address: 100
RegVar4 NegVar4 NegVar5	Variable Type: FLOAT
RegVar6 RegVar7	Default value: 0
RegVar8 — RegVar9	Width: 7
	Precision: 1
RegVar13	"OR" message:
RegVar15 RegVar16	
RegVar17 mmRegVar18	
RegVar19 	
Regvar21	Edit Variable Apply
ME-100M	TCP 2006/9/11 下午 12:35

Step 3: Click "Modbus Setting" to make sure your setting is 300, 320, 100, 100

Modify the "Width" to 7 , Precision to 1, then click on "Ok"

M Float Variable Editing		×
Variable Name:	RegVar1	ок 🚽
Variable address:	100	Cancel
Default value:	0	
Width:	7	
Precision:	1	

Remember to click on "Apply" to save this "RegVar1" setting.

Mod∀iew Message Editor - [M∀_De	:mo_01*]				
<u>F</u> ile <u>L</u> ink <u>Option H</u> elp					
Image: New Image: Open Image: Save Image: Open	Download				
System information	Details				
ModView	System	Modbus Setting	¥ariable List	Message List	TCP Tester
	Register (Float)		Variable Name:	RegVar1	
	RegVar2 RegVar3		Variable address:	100	
	RegVar4		Variable Type:	FLOAT	
	Regvar5		Default value:	0	
	RegVar8		Width:	7	
	RegVar10		Precision:	1	
	RegVar11 RegVar12 RegVar13		"ON" message:		
	RegVar14 RegVar15		"OFF" message		
	RegVar16				
	Regvar17				
	RegVar19				
	RegVar20				
	RegVar21				1
	Regvar22 RegVar23	•			
ME-100M			TCP		2006/9/11 下午 12:39

By the same way, please modify setting of "RegVar2" to become Width to 7, Precision to 2 and the click "Apply" to save it.

Step 5: Click "Message List" and then click "Regular Message" - "Regular1". And then click on "Message Wizard"



Check "Bitmap", then click on "Browse" to point to a pre-defined BitMap file. (You may use Microsoft Paint to create a color=black-white, size=16 x 40 pixel bitmap image file, like this example's V1.bmp)

Message W	izard				×
O Text	🖸 Bitmap				
Bitmap					
Path :				Browse	OK
					Cancel
□ Text					
Content :					
Effects Sett	ing	Speed	Message Color Settin		
Entering Ef	fects GO-LEFT	Medium 💌	Forground Color	RED	
Leaving Ef	開啓		Deckerer and Color		? X
	查詢(I):	向 ModView			
Special Eff		PDF			
Delay (Sec		🛅 Sample			
_ Variable set	戎旼近的父件	V1.bmp			
t et venielel.					
Ist variable					
2nd variab					
3rd variabli	-9%¤У?≪1+				
4th variabl	我的要認				
					BB58 (0)
	1960 TE H 222 MA	檔名(N): #完#₩₩(m)	V1.bmp		開啓(0)
		· 備柔頬型(1):	Emp File(*.bmp) 以唯讀方式開啓(R)	•	<u></u>
					1.

User may Modify "Effects" to become "GO_DOWN" and then click on "OK"

Message Wizard		×
🔿 Text 💿 Bitmap		
Bitmap Path : C:\Program Files\eSoftsystem\ModView\V:	1.bmp Browse	ОК
Content :		
Effects Setting Entering Effects GO-DOWN V Medium V Leaving Effects GO-DOWN V Medium V Special Effects STILL V Delay (Sec.) 1	Message Color Setting Forground Color RED Background Color BLACK Font 8x15	
Variable setting 1st variable CoilVar1 RED 2nd variable CoilVar1 RED 3rd variable CoilVar1 RED 4th variable CoilVar1 RED	Background Color BLACK BLACK BLACK BLACK	

Then you will see below Modview Script created, Click on "Message wizard" again

ModView Message Ed	ditor - [M¥_Demo_01*]
<u>File L</u> ink Option <u>H</u> elp	
New Open Sav	Ve Upload Download
System information	
Mod∨iew	System Modbus Setting Variable List Message List TCP Tester
	Equilar Message Message Message Message Message Serial: Regular3 Regular4 Message Serial:
	Regular5 Regular6 CLEAR IMG 0 0 RED BLACK ∨1.bmp IN GO-DOWN 1 50 Regular9 ACT STILL 1000
	Regular10 Regular11 Regular12 Regular13
	Regular14 Regular15
	Regular18 Regular19 Regular20
	Regular21 Regular22 Regular23 Message Wizard Apply
ME-100M	TCP 2006/9/11 下午 12:53

Enter Text as "%v", assign 1st variable as "RegVar1" and proper color to it.

M Message Wizard	×
• Text • O Bitmap	
Bitmap Path : Browse	
Text Content : %v	
Effects Setting Entering Effects GO-LEFT Medium Leaving Effects GO-LEFT Medium Special Effects STILL Delay (Sec.) Message Color Setting Forground Color RED Font Background Color BLACK	
Variable setting Foreground Color Background Color 1st variable CoilVar1 GREEN BLACK 2nd variable CoilVar29 RED BLACK 3rd variable CoilVar31 RED BLACK 4th variable RegVar1 RED BLACK	
RegVar3 RegVar4	

Then please modify Moview script to become contents in the right hand side.

```
CLEAR
CLEAR
                                        IMG 0 0 RED BLACK V1.bmp
IMG 0 0 RED BLACK V1.bmp
                                        DISPVAR 40 0 GREEN BLACK RegVar1
IN GO-DOWN 1 50
                                        IN GO-DOWN 1 50
ACT STILL 1000
OUT GO-DOWN 1 50
                                    ┢
                                        DISPVAR 40 0 GREEN BLACK RegVar1
CLEAR
                                        ACT STILL 500
TEXT 0 0 RED BLACK " "
                                        DISPVAR 40 0 GREEN BLACK RegVar1
DISPVAR 0 0 GREEN BLACK ReglVar1
                                        ACT STILL 500
IN GO-LEFT 1 50
ACT STILL 1000
                                        DISPVAR 40 0 GREEN BLACK RegVar1
                                        ACT STILL 500
OUT GO-LEFT 1 50
                                        DISPVAR 40 0 GREEN BLACK RegVar1
                                        ACT STILL 500
                                        DISPVAR 40 0 GREEN BLACK RegVar1
                                        ACT STILL 500
                                        DISPVAR 40 0 GREEN BLACK RegVar1
                                        ACT STILL 500
                                        OUT GO-DOWN 1 50
```

All English charact's width is 8.

"DISPVAR 40 0 GREEN BLACK RegVar1" means displaying a Float value starting at LED pixel position (40, 0), foreground color is GREEN, background color is BLACK, the displayed variable is "RegVar1"

"ACT STILL 500" means hold on this display for 500 ms.

Remember to Click on "Apply" to set the setting.

_	Message Wizard	Apply		
	ТСР		2006/9/11	下午 01:19

Please also create the second Regular message to display the "RegVar2" in the similiar way.

Step 6: Edit the Emergency Message Please click on "Emergency1" and then click on "Message Wizard"

ModView Message Editor - [MV_Demo_0]	
File Link Option Help	
New Open Save Upload Down	beola
System information Details	ils
	System Modbus Setting Variable List Message List TCP Tester
	Regular Massage Emergency Emergency2 Emergency2 Emergency3 Emergency6 Emergency7 Emergency10 Emergency11 Emergency12 Emergency13 Emergency16 Emergency17 Emergency18 Emergency20
ME-100M	TCP 2006/10/20 下午 03:22

Then Enter Text Content as "Alm: %v", select proper Effects Setting. And then select 1st variable as "RegVar2", "GREEN", "BLACK"

M Message Wizard	×
Text O Bitmap	
Bitmap Path : Browse Text Content : Alm: %v	OK Cancel
Message Color Setting Fiffects Setting Forground Color RED Background Color BLACK Special Effects Delay (Sec.)	
Variable setting	
Foreground Color Background Color 1st variable RegVar2 GREEN BLACK 2nd variable CollVar1 RED BLACK 3rd variable CoilVar1 RED BLACK 4th variable CoilVar1 RED BLACK	

Then please modify Modview script to become contents in the below.

CLEAR

TEXT 0 0 **RED** BLACK "Alm: " DISPVAR **48** 0 GREEN BLACK RegVar2

IN GO-DOWN 1 20

ACT STILL **500** TEXT 0 0 **ORANGE** BLACK "Alm: " DISPVAR **48** 0 GREEN BLACK RegVar2

ACT STILL **500** TEXT 0 0 **RED** BLACK "Alm: " DISPVAR **48** 0 GREEN BLACK RegVar2

ACT STILL **500** TEXT 0 0 **ORANGE** BLACK "Alm: " DISPVAR **48** 0 GREEN BLACK RegVar2

ACT STILL **500** TEXT 0 0 **RED** BLACK "Alm: " DISPVAR **48** 0 GREEN BLACK RegVar2

ACT STILL **500** TEXT 0 0 **ORANGE** BLACK "Alm: " DISPVAR **48** 0 GREEN BLACK RegVar2

ACT STILL **500** TEXT 0 0 **RED** BLACK "Alm: " DISPVAR **48** 0 GREEN BLACK RegVar2

ACT STILL **500** TEXT 0 0 **ORANGE** BLACK "Alm: " DISPVAR **48** 0 GREEN BLACK RegVar2

ACT STILL **500** TEXT 0 0 **RED** BLACK "Alm: " DISPVAR **48** 0 GREEN BLACK RegVar2

OUT GO-DOWN 1 20

The "Alm:" text above in the emergency message will be displayed in blinking mode by changing the color from Red to Orange then over and over . **Remember to Click on "Apply" to save it.**



Step 7: Click on "Save" and the click "Upload" to upload program to EKAN.

Mod¥iew Message Editor - [M¥_Dem File Link Option Help	o_01*]	
New Open	Download .	
System information Save Current Mode	system Modbus Setting Variable List Message List TCP Tester	
	Regular Message Message Name: STDMSG1 Regular1 Regular2 Message Serial: 1 Regular3 Regular4 Message Serial: 1 Regular5 Regular6 ACT STILL 1000 ACT STILL 1000 DISPVAR 32 0 GREEN BLACK RegVar1 ACT STILL 1000 DISPVAR 32 0 GREEN BLACK RegVar1 Regular6 Regular9 DISPVAR 32 0 GREEN BLACK RegVar1 Regular10 DISPVAR 32 0 GREEN BLACK RegVar1 Regular11 OUT GO-DOWN 1 50 Regular12 Regular13 Regular13 Regular14 Regular16 Regular16 Regular20 Regular20 Regular21 Message Wizard Apply Message Wizard	
	M Upload/Download IP Address	
ME-100M	IP Address 10.0.0.104 Connect 2006/9/11 下午	01:20
	Port 7000 Cancel	

If the Modview program is upload succeed. Below message will appear.



Step 8: Connect Wincon's COM3:RS485 to EKAN – Modview's RS-485 port (refer to Appendix A) and then you may modify the "R2" value in the IsaGRAF program to see what happens with the EKAN's second regular Message.

Appendix A: Wincon connect to EKAN

RS-485 connection:

Wincon --- EKAN:

(COM3 or "COM5 ~9 in	n i-8142/8144")	
Wincon RS-485 D+		EKAN RS-485 D+
Wincon RS-485 D-		EKAN RS-485 D-

i-7188EG/XG --- EKAN:

(COM2 or "COM3 in X51]	1")	
7188EG/XG RS-485 D+		EKAN RS-485 D+
7188EG/XG RS-485 D-		EKAN RS-485 D-

i-8xx7 --- EKAN:

(COM3 or "COM5 in i-8	8142/8144")	
i-8xx7 RS-485 D+		EKAN RS-485 D+
i-8xx7 RS-485 D-		EKAN RS-485 D-





If your Wincon's Modbus RTU Master port is at expansion i-8142 or i-8144, please refer to below "Appendix E" for its pin assignment.

Appendix B: Update EKAN 's Firmware And Set New IP and Mask Address

- 1. Create a file folder named "Modview" in your hard drive. For example, "c:\EKAN\Modview".
- 2. Copy the firmware & utility of the correct version into your "Modview" folder.
- For example, version 1.06,

Copy CD-ROM:\Napdos\EKAN\Modview\BIN\1.06*.* to c:\EKAN\Modview\1.06*.* Or you may visit <u>http://www.icpdas.com/products/HMI/led/Download.htm</u> to download it.

- 3. Run c:\EKAN\Modview\1.06\7188xw.exe
- 4. Link COM1 of your PC to "RS232" port of the EKAN Led dispaly through a RS232 cable.

If you PC is using another COM port (for example, COM5), please exit "7188xw.exe" first, then modify the first line in the "7188xw.ini" file as below C1 B115200 P0 D8 S1 ===> C5 B115200 P0 D8 S1 Then run "7188xw.exe" again, it will use COM5 in the above example.

- 5. Power off the EKAN Led dispaly, switch the DIP switch to "INIT" position. , then power it up again.
- 6. If the connection is Ok, message will appear on the 7188xw screen.

Press "Enter" to see if there is response on the 7188xw screen. If there is response it means 7188xw.exe connecting EKAN well. If no response, it means communication fail.

7. If communication is well, press **F4** key to download firmware. This takes about 60 seconds.

- 8. type "ip" to see current IP setting.
- 9. type "ip xxx.xxx.xxx.xxx" to set a new IP (for example. ip 10.0.0.103)
- 10. type "mask" to see current mask setting.
- 11. type "mask xxx.xxx.xxx.xxx" to set a new MASK (for example. mask 255.255.255.0)
- 12. Power off the EKAN Led dispaly, switch the DIP switch to "**RUN**" position. ,then power it up again.
- 13. Press ALT_X to exit "7188xw.exe".

Please contact "service@icpdas.com" for technical support

Appendix E: Using Expansion RS-232 or 485 or 422

Wincon can expand 10 more COM ports in its slot 1 to 5 by using below modules:

i-8112 : 2-channel RS232 i-8114 : 4-channel RS232 i-8142 : 2-channel RS422/485 i-8144 : 4-channel RS422/485 i-8142i : 2-channel isolated RS422/485

Before user can use them, please configure them By "Wincon utility" first.

Please plug them in slot 1 to 5 and then run "Wincon utility" – "Com", then click on "New Card Wizard" and then "Slot Scan" and then click on "Save new Module" and Reset the Wincon.



After the configuration succeed. The COM port No. for the expansion board is COM5 to COM14 in the ISaGRAF definition.

The relation between WinCE and ISaGRAF definition for COM10 to COM14 is

WinCE	ISaGRAF
MSP1:	COM10
MSP2:	COM11
MSP3:	COM12
MSP4:	COM13
MSP5:	COM14



Note:

1. Please refer to section 8.4 of ISaGRAF User's Manual for multi-ports Modbus Master.

2. Please refer to Appendix A.4 of ISaGRAF User's Manual for COM_OPEN, COM_READ, ... functions to read write COM ports.