## 4.4: Linking I-8xx7, I-7188EG/XG & W-8xx7 To Touch 500

Touch500 series HMI support below protocols to link to ICP DAS ISaGRAF controllers.

Item	Protocols
Touch-506L	Modbus RTU RS-232 , Modbus RTU RS-485
Touch-8000	Modbus RTU RS-232 , Modbus RTU RS-485 , Modbus TCP/IP
Touch-506T / 510T	Modbus RTU RS-232 , Modbus RTU RS-485

Touch 506T/506I /510T (PLC 232)

Please install "EasyBuilder 500" software (Ver. 2.7.1 or later version) first before you can program the Touch 506L, 506T, 510T HMI. You may download the new released software and manual from below web site

<u>http://www.icpdas.com/download/others/touch/touch.htm</u> "**setup.zip**" or run "setup.exe" at USB\_CD:\napdos\touch\500series\setup\

RS-232 Cable Pin assignment of PC to Touch 500 series (For PC to download HMI screen).

PC 9-Pin DSUB Female (RS232)	Touch 500 (PC-232) 9-Pin DSUB Female
RXD 2	8 RXD
TXD 3	7 TXD
GND 5	5 GND

RS-232 Cable Pin assignment between controllers and Touch 500 series.

L-8000 COM1 & L-7188 COM1 (BS232)

$1-0000 \text{ CONT} (\text{K})^2 (22)$	100CH 5001/500L/5101 (1 LC 252)
9-Pin Dsub Male 2 TXD 3 RXD 5 GND	9-Pin Dsub Male           2 TXD           3 RXD           5 GND           7 CTS           8 RTS
Wincon COM2 (RS232)	Touch 506T/506L/510T (PLC 232)
<b>9-Pin Dsub Female</b> 2 RXD 3 TXD 5 GND	9-Pin Dsub Male           2 TXD           3 RXD           5 GND           7 CTS           8 RTS
RS-485 Cable Pin assignment between contr	collers and Touch 500 series
I-8417/8817 COM2 (RS485)	Touch 506T/506L/510T (PLC 485)
+* DATA + DATA	2 R+ 1 R-
Wincon COM3 (RS485) D + D	Touch 506T/506L/510T (PLC 485)

## 4.4.1: Program the I-8xx7, I-7188EG/XG & W-8xx7

To make data of the I-8xx7, I-7188EG/XG & W-8xx7 controller to be accessible to the Touch 510T, variables in the controller should be assigned a network address. Please refer to section 4.1, 4.2. If you are not familiar with the ISaGRAF programming, recommended to review Chapter 2.

es used in t	b ubed in this example.							
Name	Туре	Attribute	Network address	Others				
OUT01	Boolean	Output	0001	-				
OUT02	Boolean	Output	0002	-				
VAL1	Integer	Internal	000A (10)	-				

Variables used in this example.

## IO connection:

📷 ISaGRAF - TEST - I/O connection	_ 🗆 ×
Eile Edit Tools Options Help	
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• ► m ref = 10	
2 OUT02	
3 3	
4	
5	
6	
7	
8 📼 show3led 🗛 🔸	
9	
10	
11	
12	

A simple LD program to show the "VAL1" to 7-segment LED:



After you finish this project, compile and download it to the I-8xx7 controller.

## 4.4.2: Program the Touch 510T

The "EasyBuilder 500" software can be used to designe many useful pictures for Touch 500 series. This section illustrates a simple example to program a Touch 510T. For more information about programming on the Touch series, please refer to the user manual which is provided with the "Touch" series hardware.

Click on the Windows "Start" button, then click on the "Program" button, then click on the "EasyBuilder" – "EasyBuilder 500" button. The following window will be displayed. Select the proper model for your application.



Click "File" - "New" to create a new project.

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EB	File	<u>E</u> dit	∐iew	Option	Draw	Parts	Library	Tools	Window	<u>H</u> elp				۶×
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	<u>S</u> a	ve			Ci	trl+S								<u></u>
97	Sa	ve <u>A</u> s											Line i	-
$\geq$	11	test.epj												
므	21	EBPrj1	.epj											
$\underline{O}$	<u>3</u> (	C:\EB5	00_T\Pr	oject\test 1	.epj									
	4 (	C:\EB5	00_T\Pr	oject\test2	2.epj									<u> </u>
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PLC												-		
EL		🕤 Wind 籠 Obi	aows iects	Create a 1	new docu	ment		X	- 37 V -	.A				

Click "Edit" – "System Parameters" to set the communication parameter between the Touch 510 and the ISaGRAF controller.

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긬	*10	Flip Vertical							123	<b>1</b>
믝	- 11	Flip Horizontal								
<u> </u>	- 12	Rotate 90 degree								<u> </u>
<u> </u>	13			_					-	
A	14	<u>G</u> roup								井
<u>80</u>	16	UnGroup								믱
<u> </u>	- 17	Redraw Window								
<u>××</u>	- 18	Select All Objects								
	- 19	/ Soloct								<u></u>
₿	- 20	Select Newt Object							I	
M		perect mext on ject						-		
PLC	📲 🖞 Wind	C <u>h</u> ange Attribute								
EL	🖀 Obje	System Parameters			X = 145	Y = 30			:	

PLC type should be set to "**MODBUS RTU**", Serial port set to "RS232", Data bits set to "8 Bits", Stop bits set to "1 Bit", Baud rate set to "19200", Parity set to "None", PLC station No. set to be equal to the Net-ID of the I-8xx7 (set to 1 in this example).

PLC type : MODBUS RTU	•
HMI model : MT510T (640 x 480)	
Serial port I/F : RS232	Baud rate: 19200
Data bits 🛛 💌 💌	Parity None
Stop bits : 1 Bit	
HMI station No. : 0	PLC station No. :
Multiple HMI : Disable	HMI-HMI link speed : 115200
PLC time out constant (sec) : 3.0	PLC block pack: 0

Note:

 If using Touch 8000 's Ethernet to link to controller, please set PLC type as "MODBUS RTU TCP/IP", PLC I/F port as "Ethernet", Local IP address as Touch 8000 's IP, Server IP address as controller 's IP, PLC station No. as the same Net-ID No. of the controller (default is 1)
 If the cable between the Touch 500 series and the controller is 2-wire RS-485, please set PLC type as "RS-485 2W". Other setting is the same as RS-232. Click on "Text" to add a text. Select the prefered "Color", "Font", "Align" for the text and then enter the "Content". And then place it to the proper position.



Click on "Function Key" to add a change-window button. Click on "General", then select "Change Window" and set "Window No." to 11.



Click on "Shape", then select "Use shape" and the click on "Shape library ..."

Create Function	Key Object				×
General Sh	ape_ Label	. ]			
-:	Shape				_
		Shape	library	Use shape	
	Bitman —		1	- \	
		Bitmap	library	🗖 Use bitmap	
			State : 0	×	
		確定	取消	套用(A)	說明

Select the prefered "Shape library" and then select one item and click on "OK".

hape Library							
Shape library:	button1	Sta	ate : 0 🔹				
0: Untitled	1: Untitled	2: Untitled 3:	Untitled				
A: Untitled	5: Uptitled	5: Uptitled 7					
Background :	J. Ondied		onducu				
Background:							
Select Lib	New Lib	Unattach Lib.	Delete shape				
Place		ОК 🔪	CANCEL				

Click on "Label", then select the prefered "Color", "Font", "Align" and set "Content" to "GOTO S11", and **make sure "Use label" is selected**.

Create Function Key Object	×
General Shape Label	
Attribute	
Color : Font : 16	
Align : Center State : 0	
Content :	
GOTO S11	<u> </u>
4	×
Use label 🗖 Tracking	
<b>確定 取消</b> 套用(A)	說明

Click on "Bit Lamp"



Click on "General", then select "Device type" to "**0x**" (**0x is for boolean variables**), then set "Device address" to 1 (this value is associated with the network address value of the variable in the I-8xx7). And then set "Function" to "Normal".

Create Bit Lamp Ob	ject	X
General Shape	Label	
Read address Device type :	Ox Device address : 1	
Attribute Function :	Normal	
	確定 取消 套用(A) 説明	

By the same way as former, select prefered "Shap library".

Create Bit L	amp Objec	t			×	
General	Shape	Label				
	Shape	Shape li	brary	☑ Use shape		
	Bitmap	Bitmap l	ibrary	🗖 Use bitmap		
		pe Library Shape library:	button1	-	State : 0	×
		16: Untitled	17: Untitled	18: Untitled	19: Untitled	
		20: Untitled	21: Untitled	22: Untitled	23: Untitled	
		Background :		-		
		Select Lib	New Lib	Unattach Li	b. Delete s	shape
		Place		ок	CAN	EL

And then select "Label", given a "OFF" to "Content" for "State : 0". Make sure "Use label" is choosed.

Create Bit Lamp Object				×
General Shape Labe	2			
Attribute		_		
Color :		r F	ont: 16	<b>•</b>
Align : Center	•	S	tate : 0	•
Content :				
OFF				<u> </u>
				7
-				Þ
▼Use label Γ	Tracking			
	確定	取消	套用( <u>A</u> )	

And then change "State" to 1, and given a "ON" to "Content". Make sure "Use label" is choosed.

Create Bit Lamp Object			×
General Shape Label			
Attribute Color :	<b>-</b>	Font: 16	
Align : Left	•	State : 1	
Content :		1	
ON			× V
Use label 🗖 Trackin	g		
	1 取	消 (A)	説明

By the same way as former, create one another Bit Lamp with a "Device address" = 2.

E

Bit Lamp Object'	s At	tribute						×		
General Shar	ре	Label Profile								
Description	n : [							-		
Read address										
Device typ	é:	0x	-	Device a	ddress :  2	)				
<u> </u>										
-Attribute-								_		
Function	n : [	Normal	¥							
					1.5.1.0	-				
· · · · · · · · · · · · · · · · · · ·	E Ea FR I	syBuilder - [EBF Sile - Edit - View	Til : Wi Option	ndow IU Draw P	<ul> <li>Initial Scree</li> <li>arte – Library</li> </ul>	n] Tools	Window	Holp	니고	I XI
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	<b>N</b>	🖃 Windows 🔺						_	┨	뭑
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-	헤	- 11	EK	0		•				**
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	A	- 14					<b>)</b>			
		- 15							┛╬╣	읙
<u>.</u>		- 17								RP
f	$\approx$	18								ED
		- 20								
1	M									
	PLC	•• Windows	•						1	
	EL	🔠 Objects 🛛	For Help, 1	press F1		X = 236	i Y = 142		7	

Click on "Toggle Switch", then set all "Device Type" to "**0x**", all "Device address" to 1 and select "Switch Type " to "Toggle".



By the same way as former to choose a prefered "shape" and "label".

Create Toggle Switch Object 💌	
General Shape Label	
Shape	
Shape library 🔽 Use shape	
- Ditmon	
Bitmap library	
State: 0	
Crosta Taggila Switch Object	×
Align : Center  State : 0	
Content:	
OFF	<u>–</u>
	-
Use label Tracking	
💴 EasyBuilder - [ EBPrj1 : Window 10 - Initial Screen]	
🌆 Eile Edit View Option Draw Parts Library Tools Window Help 💶 🗖 🗙	
	L
📲 🗧 🧧 Welcome To Touch 510 🛛 🚟 🚆	
🖸 🔤 👘 🔣 📕 🙀 👘	
$\begin{array}{c c} \hline \\ \hline $	
	-
Windows         Image: Comparison of the press F1         X = 293         Y = 190	

By the same way as former, create one another "Toggle Switch" however set all "Device address" to 2 and "Switch style" to "Momentary". Click on "save" to save the project.

Toggle Switch Object's Attribute	×	
General Shape Label I	Profile	
Description :		
Read address		
Device type : Ux	Device address : 2	
Write address		
Device type : Ox	Device address : 2	
Attribute		
Switch style : ON		
Ŭ.		
loggle Momentary		
🚥 EasyBuilder - [ EBPi	rj1 : Window 10 - Initial Screen]	X
Eile Edit View	Option Draw Parts Library Tools Window Help -	. 8 ×
	192 <b>8 ? 12</b> 💷 I 🗐 🛍 E 🖻 🗡 🖲	
Font: 16	<u>A X ≣ ≣ ≣ <b>5 6 6 0 0</b> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 </u>	-lo- ili
Windows 🔺		9 명
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- 11		
$\bigcirc$ $-12$		
A. 14		i 🖬
- 15		≞ _
	TS-AL TS 1	
<u>≭</u> - 18	OFF OFF	
EL Objects	For Help, press F1         X = 323         Y = 152	

We are going to design another window. Click on "Windows" – "11", then click and hold on the right button of the mouse and drag to "Create".



**Double click** on "Window\_011".

<b>EB</b> Ea	asyBu	ilder -	[ EBP	rjl : Wi	ndow 1	1 - W	/indow_011	]			_ 🗆 ×
<b>BB</b>	Eile	<u>E</u> dit	∐iew	<u>O</u> ption	Draw	Parts	<u>L</u> ibrary	Tools	<u>W</u> indow	<u>H</u> elp	<u>- 8 ×</u>
D	<b>2</b>	8	Ba f		3	▶?	<u>⊿</u> 本	ની માં	100 📃	E 🗡	0 💷 🖶
F	ont:	16	-	A A E						阜후	븳ㅠ아
		Windot 	WS Fa	>w_011							
EL	<u>1</u>	🗑 Obje	ects	For Help, j	press F1			X = 1	Y = 91		li

Create a change-window "Function Key" as former method to change to "Window No." = 10, and Labeled as "BACK".



Click on "Set Word", then set "Device Type" as "4x" (4x is for short integer, 4L is for long integer), set "Device address" to 10, "BIN", and "Set style" to "Set Constant", and "Set value" = 100. And then select the prefered "shape", and set "label" to "Set to 100".



Click on "Numerical Data", set "Device Type" to "4x" (**4x is for short integer, 4L is for long integer**), "Device address" to 10, "BIN", "Number of words" to 1, "No. above Dec" to 7, "No. below Decimal" to 0, "Input low" to -32768, "Input high" to +32767. And then select the prefered shape.

趙 EasyBuilder - [ EBPrj1	: Window 11 - Window_011]
Eile Edit View Q	otion Draw Parts Library Tools Window Help 💶 🗗 🔀
	<u> </u>
Font: 16 🛛 🖌	
→       →       Windows         →       -       -         →       -       6         →       10: Ir         →       12          -       12          -       12          -       14         →       15       -         →       16       -         →       17       -         ↓       -       18         →       -       19         ✓       Create Num         M       -       -         ✓       Win       Descr         Read ad       Device	FK.0   BACK   Set to   100      eric Data Object   Numeric Font   iption :   iterss   e type :   4x   Device address :   10   No. of words :
	Create Numeric Data Object 🔀
	General Numeric Font
	Display
	• Decimal • Hex • Binary • Mask
	O Single Hoat O Double Hoat
	Raw data display     O Do conversion
	Numeric
	No. below Dec. : 0
	□ 確定 取消 套用(∆) <b>説明</b>

Now we are going to add one another "Numerical Data" with conversion.

Click on "Numerical Data", set "Device Type" to "4x", "Device address" to 10, "BIN", "Number of words" to 1, "No. above Dec" to 5, "No. below Decimal" to 0, "Input low" to -32768, "Input high" to +32767, check "Do conversion", set "engineering low" to -10, "engineering high" to +10 (**Convert** [-32768,+32767] to [-10,+10]). And then select the prefered font.

📨 EasyBuilder - [ EBPrj1 : Window 11 - Window_011]	_ 🗆 🗵
छ Eile Edit View Option Draw Parts Library Tools Window Help	- ª ×
_ <b>≈∎ * ®®</b> ⊆ <i>≈ <b>⊜ ? №</b> ∠∭≭ ∌∲∅∅ ≣≣ &gt;</i>	
Font:16 V A E E E BBB E E E E	희 때 아
Windows	
General Numeric Font	
Description :	
Device type: 4x   Device address : 10	
BIN No. of words : 1	
Create Numeric Data Object	

Click on "Numerical Input", set "Device Type" to "4x", "Device address" to 10, "BIN", "Number of words" to 1, **"Trigger Device Type" to "LB", "Trigger Device address" to "9000",** "No. above Dec" to 7, "No. below Decimal" to 0, "Input low" to –32768, "Input high" to +32767. And then select the prefered shape.

EasyBuilder - [ EBPrj1 : Window 11 - Window_011]	
Windows       4: Fa         -       6         -       10: In         -       *10: In         -       *11: W         -       12         -       13         Id       FK_0	
General Numeric Shape Font	
Description :	
Device type 4x   Device address : 10	
BIN No. of words: 1	
Trigger address	
Device type : LB	
Create Numeric Input Object	×
General Numeric Shape Font	
Display	-
• Decimal O Hex O Binary O Mask	
© Single float © Double float	
<ul> <li>Raw data display</li> <li>Do conversion</li> </ul>	
Numeric	- /
No. above Dec. : 7 📑 No. below Dec. : 0 📑	
Input low : -32768 Input high : +32767	
確定 取消 ≦用(∆) 説明	

EasyBuild	• [ EBPrj1 : Window 11 • Window_011] • View Option Draw Parts Library Tools Window Help • • • • • • • • • • • • • • • • • • •	
	ompiling Project name : C:\EB500\Project\test1.epj Compile file name : C:\EB500\Project\test1.eob	
	Compile Close	

Click "Tools" – "Compile ..." to compile this project.

To download the project to the Touch 510, click on the Windows "Start" button, then click on the "Program" button, then click on the "EasyBuilder" – "EasyManager" button. The following window will be displayed. Choose the correct COM No. on your PC (Normally is COM1), "115200 bps".

Connect the RS232 download cable (refer to section 4.4) between PC and Touch 500.



Click on "Jump To RDS" first, if OK., you can see the screen of the Touch 500 will change and wait for project download. Click on "Download" to start to download the MMI picture to the Touch 500.



If downloading is OK, You may choose to click on "Jump To Application" or reset the Touch 510T, and then connect another RS232 cable between Touch 510 and the I-8xx7 (refer to section 4.4).

Now, you may touch each icon on the Touch 510 to test. Have a good luck !

