How to connect i-7018z to get 6 channels of 4 to 20 mA input and 4 channles of Thermo-couple temperature input ? And also display the value on PC by VB 6.0 program ?

The ISaGRAF demo project name is "Demo_72". It can run in the i-7188EG / 7186EG. If user want to run in i-8xx7 or Wincon-8xx7, please set the "com_port" parameter of "Bus7000b" in the IO connection window to COM3 and then re-compile the project.

"demo_72.pia" resides at I-8000 CD-ROM:\napdos\isagraf\8000\demo\ or <u>ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/isagraf/8000/demo/</u> or <u>www.icpdas.com</u> – FAQ – Software – ISaGRAF – FAQ055

VB 6.0 project - "Demo_4" resides at i-8000 CD: \napdos\isagraf\vb_demo\demo_4\ or http://www.icpdas.com/faq/isagraf.htm FAQ-055

i-7188EG 's COM2:RS-485 can connect i-7000 or i-87K/4/5/8/9 expansion base plus i-87xxx I/O boards in it. One i-7188EG can connect max. 64 pcs. of i-7000 modules (or i-87xxx I/O boards, the total amount of "i-7000 + i-87xxx" is up to 64 pcs.). To use i-8xx7's COM3:RS-485 to connect i-7000 + i-87xxx is the same as I-7188EG, the total amount is also 64 pcs. While max. 255 pcs. for using W-8xx7 's COM3:RS-485 to connect i-7000 + i-87xxx .

The more RS-485 I/O modules connected, the more I/O scan time will be . For example, if setting baud-rate as 9600 bps (Bit Per Second), one RS-485 D/I & D/O module will consume about 20 to 40 milli-second to scan its I/O channels. If connecting RS-485 A/I & A/O module, one will consume about 40 to 60 ms (The I/O scan time of the remote RS-485 I/O module depends on the module's type and function. If there are more than one I/O type in the module, the time consumed will be longer than the above value. For example, the i-7050D is a 7-Ch digital Input plus 8-ch digital output module, it will consume more than 20 to 40 ms). If connecting 20 pcs. of D/I/O modules, the appromate I/O scan time of all channels in these I/O modules will be about 0.4 to 0.8 second. If connecting 20 pcs. of A/I/O modules, the I/O scan time is about 0.8 to1.2 second. To have better (shorter) remote I/O scan time, here recommend not to connect more than 24 pcs. of I/O modules in the i-7188EG/XG and i-8xx7, while 64 pcs. in the Wincon-8xx7.

How to test this demo?

1. To configure i-7018z and i-87018z, please install **DCON utility (Version should be 4.4.3 or later version)** in your PC. The new released DCON utility can be found in the i-8000 CD-ROM or at <u>ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/</u> "setup" folder .

2. Please do initial configuration in i-7018z, (please refer to step (1) to (4) in chapter 6.1). Set i-7018z 's Address as 1, baud rate as 9600, Format as "2's compliment", Checksum disable. And also set Ch.1 to Ch.6 type as "[1A] : 0 ~ 20 mA", while Ch.7 to Ch.10 type as "[0F] : T/C K-Type". If initial setting is finished, please switch the "Dip Switch" on the back of i-7018z to "Normal" and recycle its power.

3. Please set the i-7188EG 's IP as 192.168.1.3 (refer to Appendix B), NET-ID as 1. Then power OFF the i-7188EG, connecting its COM2 to the i-7018z. Then power up i-7188EG and i-7018z. (To connect this i-7188EG well in the local network, PC 's IP should be in the same domain as 192.168.1.x. For example, setting PC 's IP as192.168.1.2, Mask=255.255.255.0)

4. PC run ISaGRAF to download "demo_72" project to the i-7188EG via ethernet. Then open the Ladder program window in the ISaGRAF to check if i-7018z is well connected.



5. Then please run VB 6.0 – "Demo_4.exe" in your PC. It resides at i-8000 CD: \napdos\isagraf\vb_demo\demo_4\demo_4.exe or http://www.icpdas.com/faq/isagraf.htm FAQ-055

(As the figure in the nex page)

Ther is one another VB.net 2005 demo project can be study. Please visit <u>http://www.icpdas.com/faq/isagraf.htm FAQ-051</u> or <u>www.icpdas.com</u> – FAQ – Software – ISaGRAF – 051

If PC can not link the i-7188EG well, the "Communication state" at the bottom will display the related error message. If the i-7188EG can not connect i-7018z well, there will be a "i-7018z not on-line" message displayed in red color.

You may click on "set Boo_21 to True" button. One click will increase the "long_15" value by 1. You may also enter a value to "set long_15" column, then click on "set long_15"

NB 6.0 Demo_4 Modbus TCP/IP Master protocol demo							
Please remember download ISaGRAF project - Demo_72 to controller first, controller IP should be set as 192.168.1.3. and Net-ID should be set as 1. Your PC should be in the same IP domain as the controller, for example, 192.168.1.5. ISaGRAF demo_72 is at ttp://ttp.icpdas.com/pub/cd/8000cd/napdos/isagraf/8000/demo/. VB_6 Demo_4 is at ttp://ttp.icpdas.com/pub/cd/8000cd/napdos/isagraf/vb_demo/. ICP DAS technical support at service@icpdas.com. Please use DCON utility version since 4.4.3 to configure i-7018z 's addr=1, baud=9600, format = 2's compliment, checksum disable, Ch.1 to 6 Type as [1A]: 0 ~ 20 mA, Ch.7 to 10 as [F]: T/C K-type. New DCON utility can be download at ttp://ttp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/ "setup". If you want to test VB.net 2005 demo program, please visit www.icpdas.com - FAQ - Software - ISaGRAF - 051. There is one another VB_6 demo program at 052.							
Winsock state : Controller con			3	i-7018z on-line	•		
For testing Write Boolean , Read Long value (signed 32-bit) and write long integer value by Modbus TCP/IP protocol							
set Boo_21 to True long_15		15	set	long_15			
	float_17	8.765E-15	set	float_17			
-i-7018z Ch.1 to Ch.6 , Type co	de = [1A] : 0 ~ 20 mA , .	Analog value = 0 ~ +	32767 , Read W	/ord_1 to Wo	rd_6 (signed 16-bit)	-	
Ch.1 Ch.2	Ch.3	Ch.4	Ch.5	Ch.6			
4 1622	3323	4608	5600	6352			
-i-70192 Ch 7 to Ch 10, tupe co	de = IOE1 : T/C K June	unit is 0.01 degree	Readlong 7 1	ong 9 Lon	a 11 Jona 12		
	de - [or]. The Roype ,	anicis otor degree ,	nedu cong_r , t	ue	g_ rr, cong_ ro.		
Ch.7	Ch.8	Ch.9	Ch.	10			
33330	33330	2400	999	330			
value of 999990 means. ThermoCouple sensor broken-line							
Communication state : Receive 10 bytes							

At designing time of the VB 6.0 program, please add "Winsock control" to your VB 6.0 project as below. Then ethernet operation will be possible in the project.





ISaGRAF Project architecture:

ISaGRAF - DEMO_72 - Programs					
<u>File Make Project Tools Debug Options H</u> elp					
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Begin: ST1 HIM LD1					
Begin: ST1 (Structured Text)					

We use "Variable array" in this demo project. Please refer to Chapter 2.6 or FAQ-039 for more information about "Variable array".

Variables :

Name	Туре	Attribute	Description	
INIT	Boolean	Internl	I Set initial value as True	
OK1	Boolean	InternI Communication state of i-7018z, addr as 31 (Hex. is 1F		
M1	Boolean	Internal	ternal For testing by VB 6.0, addr as 21 (Hex. is 15)	
TMP	Boolean	Internal	Internal using	
Ain[05]	Integer	Internal	Variable array, Dim as 6, addr as 1	
			To get the input value of i-7018z 's Ch.1 to Ch.6	
Temp[03]	Integer	Internal	Variable array, Dim as 4, addr as 7	
			To get the temperature input of i-7018z 's Ch.7 to Ch.10	
CNT1	Integer	Internal	For testing by VB 6.0, addr as 15 (Hex. is F)	
Float_17	Integer	REAL	For testing by VB 6.0, addr as 17 (Hex. is 11)	
			Set initial value as 1.02345	

STprogram – ST1

if INIT then

INIT := False ;

(* Configure Ain[0..5] 's network addr as 1, 2, 3, 4, 5, 6, the initial addr. 1 should be assigned when doing variable declaration in the ISaGRAF dictionary window *)

TMP := S_MB_ADR(1,6,0); (* the 3rd parameter 0 means setting as continuous addr. *)

(*Configure Temp[0..3] 's network addr as 7, 9, 11, 13, the initial addr. 7 should be assigned when doing variable declaration in the ISaGRAF dictionary window *)

TMP := S_MB_ADR(7,4,1); (*the 3rd parameter 1 means setting as jummping addr. *)

end_if;

LD program – LD1

The "TYP1_" to "TYP6_" parameter of the i-7018z block should be set as the same type code value in the DCON utility (Here we use [1A] 0 ~ 20 mA in this demo). And "TYP7_" to "TYP10_" set as 16#100F (This demo set [0F] T/C K-Type in the DCON utility). Because we want to convert the temperature value to Celsius degree, so we use 16#100F here (unit is 0.01 degree). (If applying as Degree Fahrenheit, please set as 16#200F). If any converted value of the Temp[0] to Temp[3] returns 999990, it means the related channel's temperature input sensor is break.

OK1 I_7018Z Q_ < > en NI1_Ain[0] 1-ADR_ 16#1A- TYP1_ NI2_Ain[1] 16#1A- TYP2_ NI3_Ain[2] 16#1A- TYP3_ NI4_Ain[3] 16#1A- TYP4_ NI5_Ain[4] 16#1A- TYP5_ NI6_Ain[5] 16#1A- TYP6 NI7 Temp[0] 16#100F- TYP7_ NI8_Temp[1] 16#100F-TYP8_ NI9_Temp[2] 16#100F-TYP9_ NI10_Temp[3] 16#100F-TYP10

If the i-7018z is connected well, OK1 will be True.

IO connection:

