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?

Download FAQ-055 Demo.

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 XP-8x37-CE6, please set the “com_port” parameter of ”Bus7000b” in the IO connection window to COM3 and then re-compile the project.

“demo_72.pia” and VB 6.0 project - “Demo_4” reside at
https://www.icpdas.com/en/faq/index.php?kind=280#751 – 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 **XP-8x37-CE6** 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 to 1.2 second. To have better (shorter) remote I/O scan time, it is **recommended not to connect more than 24 pcs**. of I/O modules in the I-7188EG/XG and I-8xx7.

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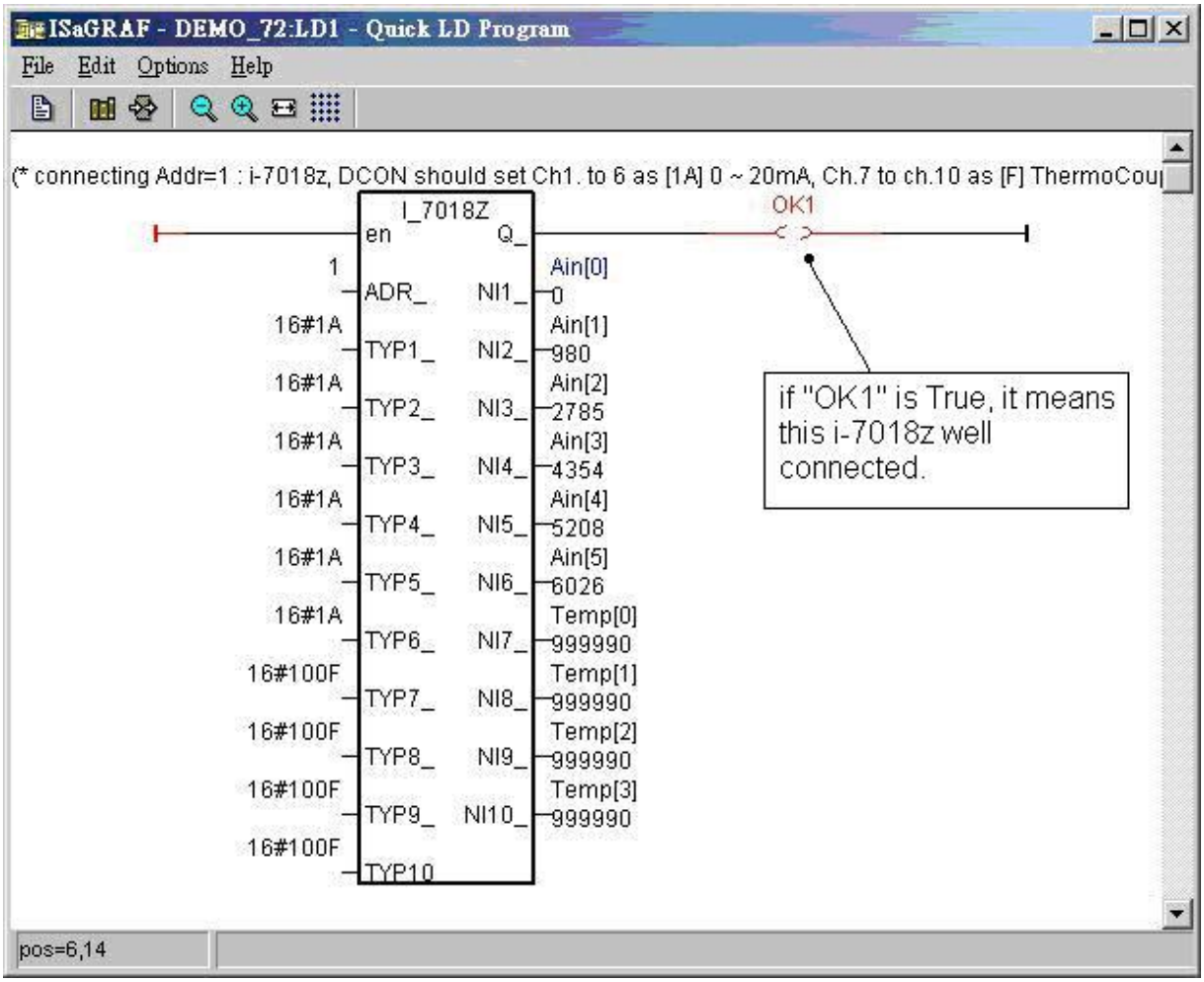
How to test this demo ?

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 at http://www.icpdas.com/en/product/guide+Software+Utility_Driver+DCON__Utility__Pro

2. Do initial configuration in I-7018Z, refer to step (1) to (4) in Section 6.1 of the ISaGRAF user manual. 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, switch the "Dip Switch" on the back of I-7018Z to "Normal" and recycle its power.

3. Set the I-7188EG's IP as 192.168.1.3 (refer to Appendix B of the ISaGRAF user manual), 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 as 192.168.1.2 , 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.



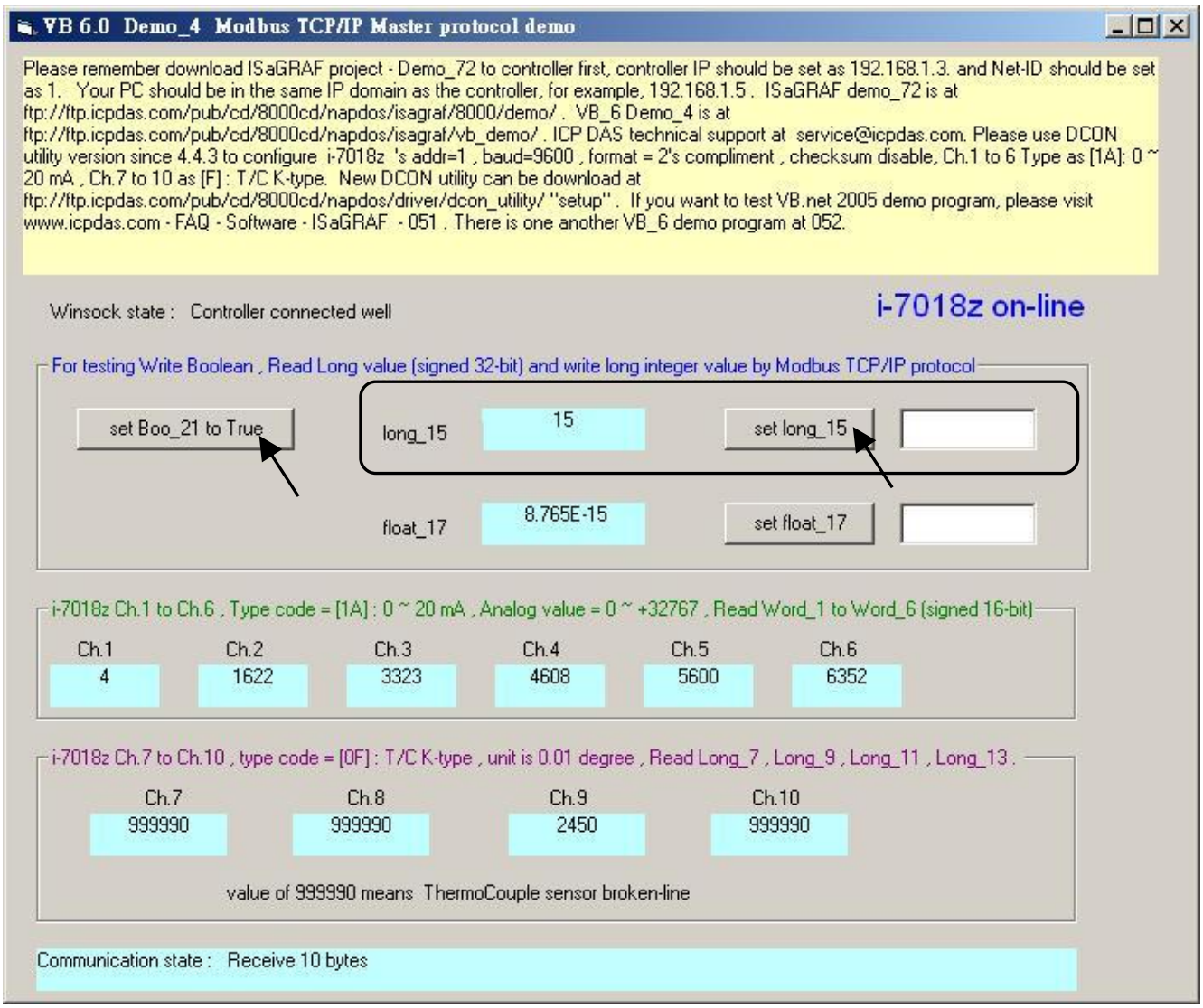
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5. Then please run VB 6.0 – "Demo_4.exe" in your PC. It resides at
   https://www.icpdas.com/en/faq/index.php?kind=280#751 – FAQ-055

   Ther is one another VB.net 2005 demo project can be study. Please visit
   https://www.icpdas.com/en/faq/index.php?kind=280#751 – FAQ-051

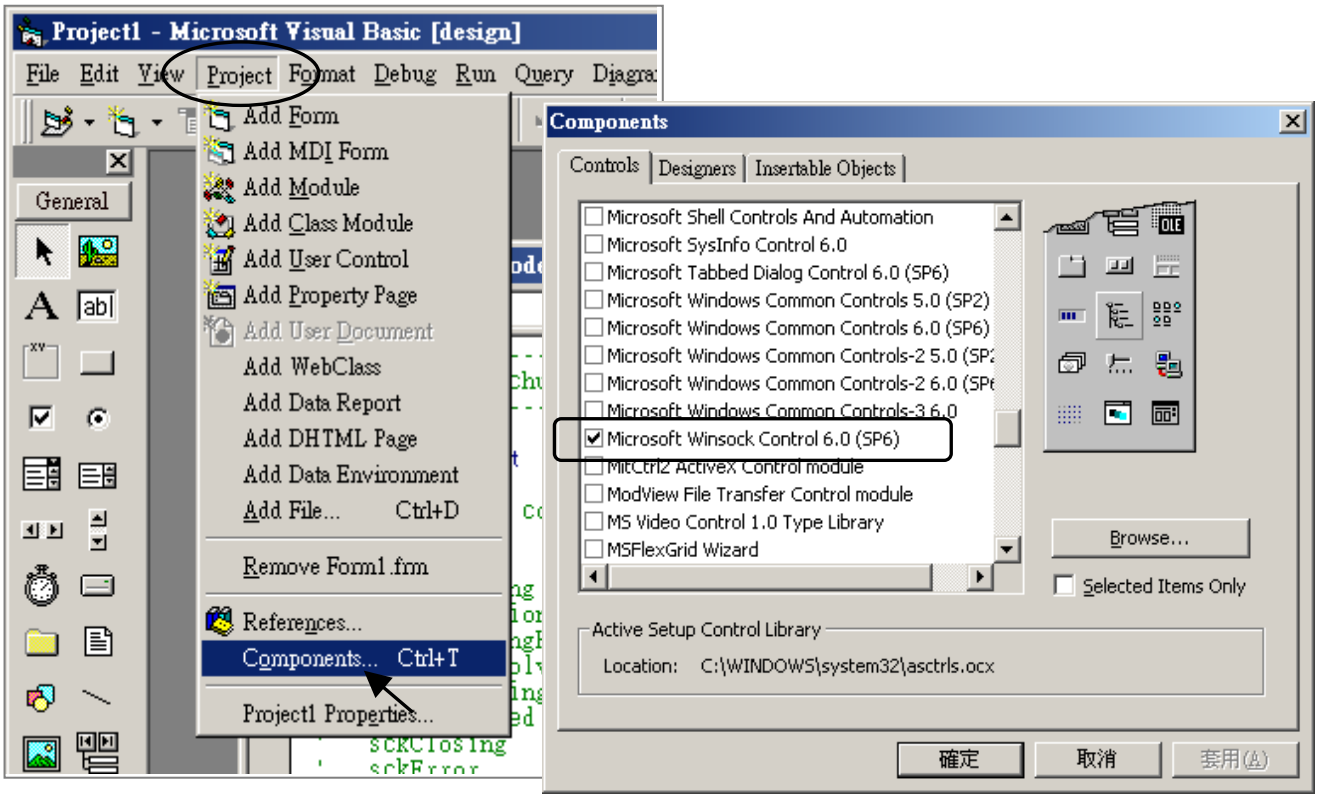
If PC can not link the I-7188EG well, the "Communication state" at the bottom will display the related error message. If the I-7188EG can not connect I-7018Z well, there will be a "I-7018Z not on-line" message displayed in red color.

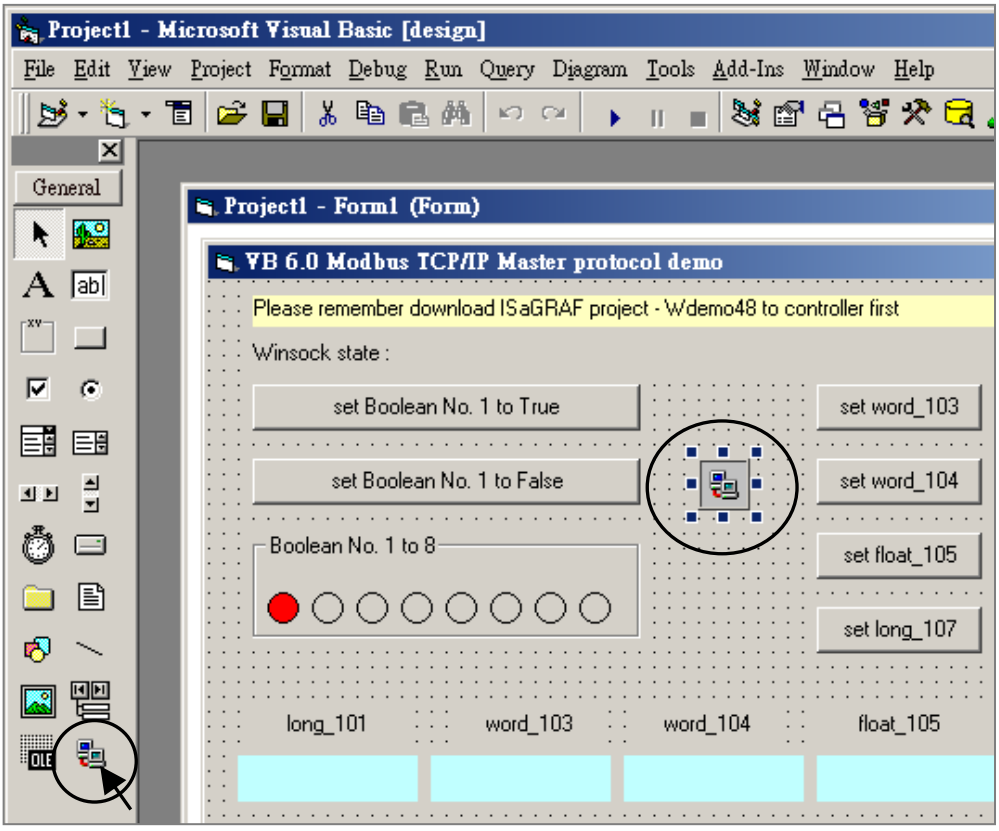
You may click on "set Boo_21 to True" button. One click will increase the "long_15" value by 1. You may also enter a value to "set long_15" column, then click on "set long_15".



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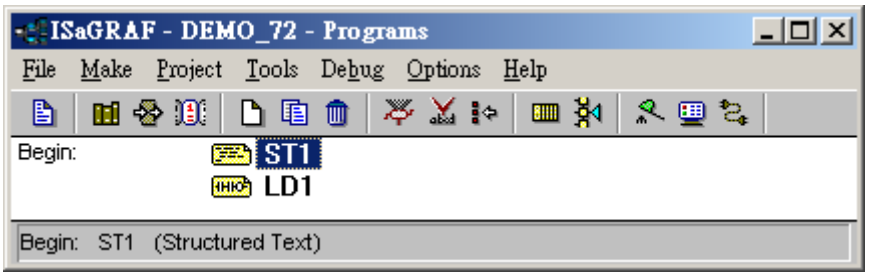
At designing time of the VB 6.0 program, please add ”Winsock control” to your VB 6.0 project as below. Then ethernet operation will be possible in the project.





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ISaGRAF Project architecture:



We use “Variable array” in this demo project. Please refer to section 2.6 of the ISaGRAF user manual or FAQ-039 for more information about “Variable array” .

Variables :

Name	Type	Attribute	Description
INIT	Boolean	**Internl**	Set initial value as True
OK1	Boolean	**Internl**	Communication state of I-7018Z, **addr as 31** (Hex. is 1F)
M1	Boolean	**Internal**	For testing by VB 6.0 , **addr as 21** (Hex. is 15)
TMP	Boolean	**Internal**	Internal using
Ain[0..5]	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[0..3]	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

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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   ;

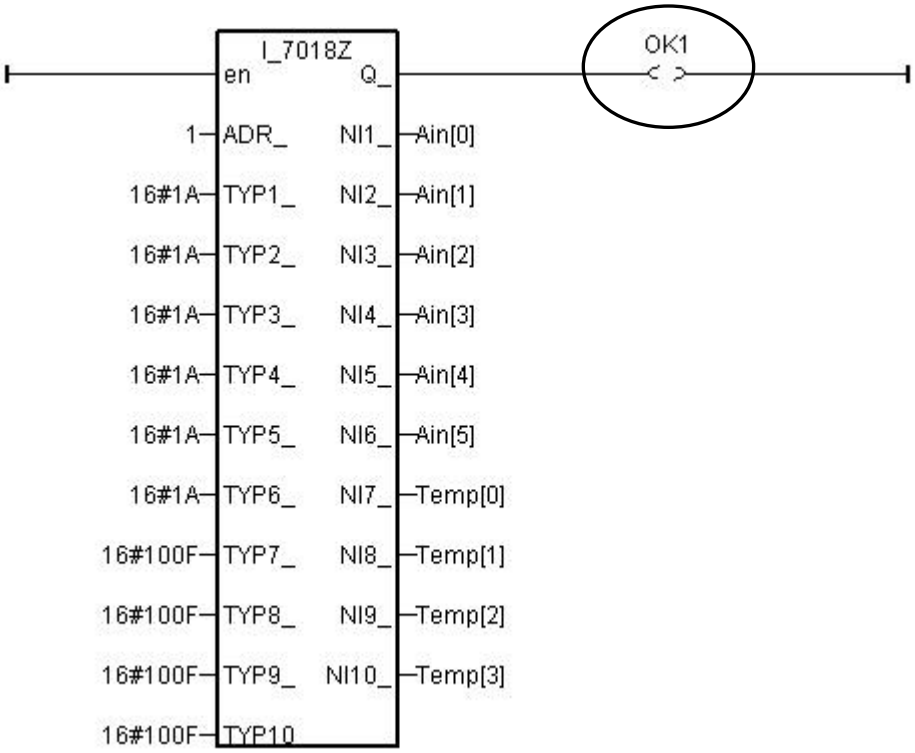
if     M1     then
       M1   :=   False   ;
       CNT1   :=   CNT1   +   1   ;   (* if M1 is set as TRUE by VB 6.0 program, increase CNT1 by 1 *)
end_if   ;
```


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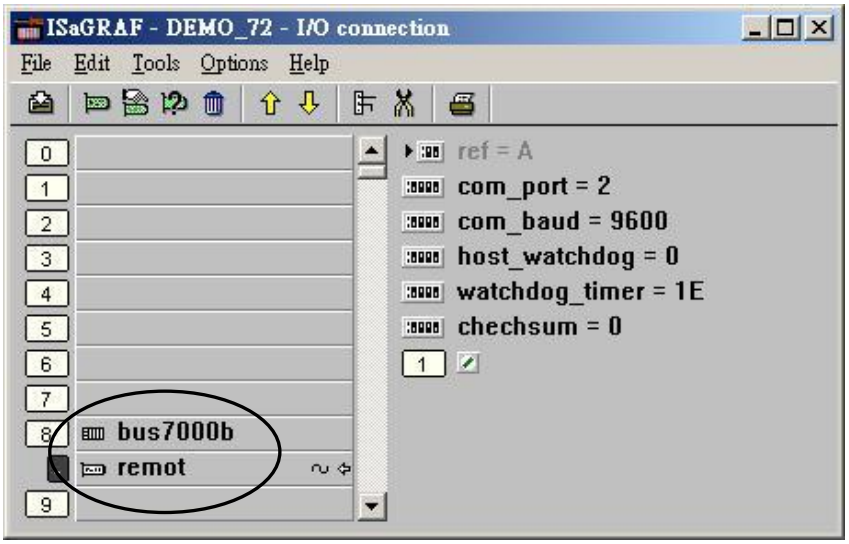
LD program – LD1

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.

If the I-7018Z is connected well, **OK1** will be True.



IO connection:



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