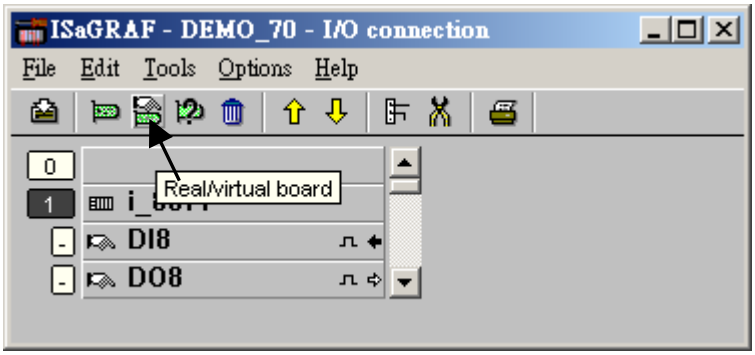
How to access to ISaGRAF variables as array ? (A demo program of sending a string to COM2 or COM3 when alarm 1 to 8 happens)?

Download FAQ-032 Demo.

This demo program can be running in Wincon-8xx7 / 8xx6 or in I-8xx7 or in I-7188EG/XG. Please init “PORT” as 2 if your target is Wincon, while **3 for I-8xx7**. Remember to re-compile.

If you are using 7188EG/XG, please init “PORT” as 2 and modify the “i-8077” in the I/O connection to become virtue board. And then re-compile the project.



To declare a ISaGRAF version 3.4 (or 3.5) "Variable Array", please add 2 more lines on the top of the "isa.ini" file in the ISaGRAF sub-directory "C:\ISAWIN\EXE\". And then when you open the ISaGRAF workbench, there will be a "DIM" area you can assign in the Dictionary declaration windows.

inside c:\isawin\exe\isa.ini, adds 2 lines for "Variable Array"

[DEBUG]
arrays=1

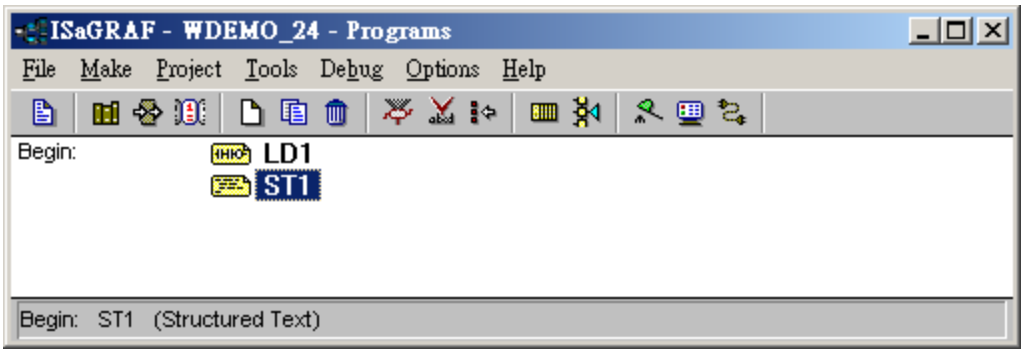
(* Please visit ISaGRAF FAQ-039 for more information *)

Variables :

Name	Type	Attribute	Description
INIT	Boolean	**Internal**	Init as TRUE, True indicates first PLC scan cycle
TMP	Boolean	**Internal**	Temporary using
Tick1	Boolean	**Internal**	pulse generated every 1 sec to counting time
IN[0..7]	Boolean	**Input**	IN[0..7] : input of ch1 to 8 at slot 1: 8077, **variable array**
OLD[0..7]	Boolean	**Internal**	Old value of IN[0..7], **variable array**
ii	Integer	**Internal**	Index of “For” loops
Port	Integer	**Internal**	COM PORT Number to open, init as 2 for Wincon
CNT[0..7]	Integer	**Internal**	Time-last of True state of IN[0..7],unit is sec, **variable array**
Msg1	Message	**Internal**	Message to send to COM2, init length as 128

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Project architecture:



Operations:

1. If IN[0..7] rising from False to True and hold in True for at least 3 seconds, send one message = 'Alarm N' + <LF> <CR> to COM2. N= 1,2, … 8 depends on which Input is triggered. For ex, if IN[2] is rising and hold in True longer than 3 seconds, send 'Alarm 3' + <LF> <CR> to COM2

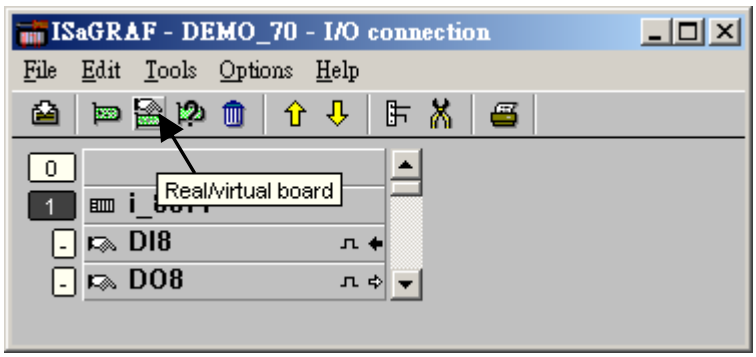
2. If after IN[0..7] 's first alarm is sent and then continuously hold in True for 30 seconds, then send one more message after every 30 second past to COM2 until the state of IN[0..7] is falling to FALSE. The string is for ex, 'Alarm 3 , 30 sec past !'

The project name used for W-8xx7's is "wdemo_24 ; "demo_70" is used for i-8xx7.

How to test ?

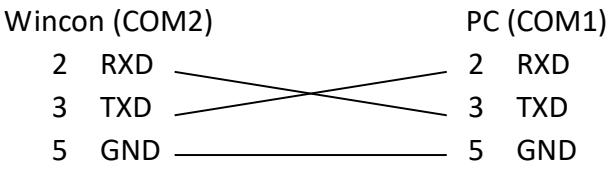
1. Please download wdemo_24 to W-8xx7+ slot 1: I-8077
   (or demo_70 for I-8xx7+slot 1: I-8077)

If you are using 7188EG/XG, please init "PORT" as 2 and make the "i-8077" in the I/O connection to become virtue board. And then re-compile the project.

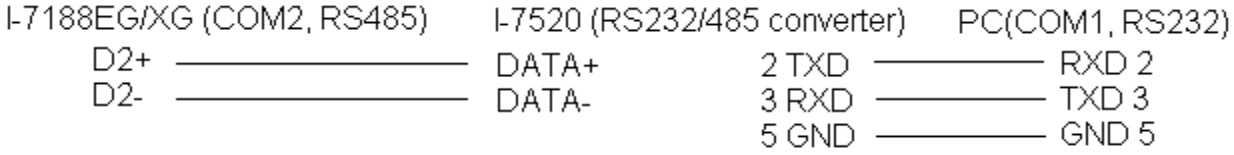


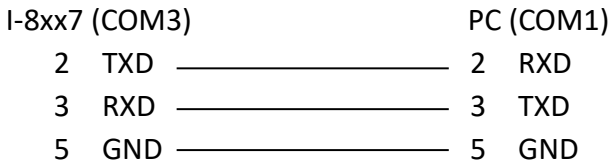
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2. Connect a RS232 cable between W-8xx7's COM2 to your PC's COM1



Or if you are using I-8xx7's COM3 to your PC's COM1
Or if your are using I-7188EG/XG's COM2





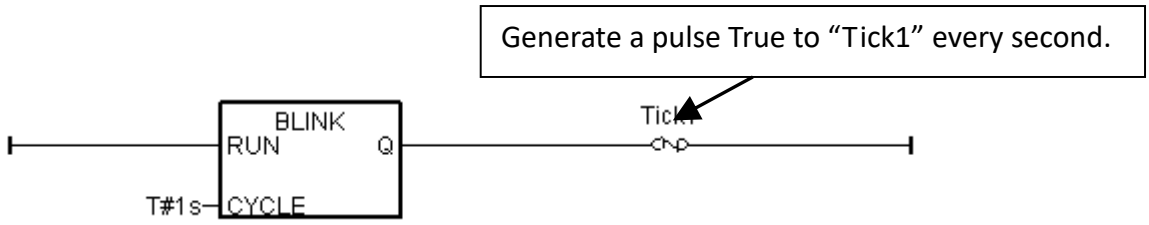
3. Open PC's Hyper terminal at COM1 with 9600, 8 char. size, no parity, 1 stop bit and No flow control. And then please switch I-8077's Input1 or 2 or … from FALSE to TRUE and wait about three seconds. If it works, there should be a message "Alarm …" displayed. And then please hold this input TRUE more than 30 seconds, there should be one another message "Alarm …, 30 sec past !" displayed.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Program description:

LD1 program:



ST1 program:

```
(* only do it in 1st PLC scan *)
if   INIT   then
   INIT   :=   FALSE ;   (* No more 1st PLC scan cycle *)
   TMP   :=   COMOPEN(PORT,9600,8,0,1) ;   (* open COM3, 9600,8,N,1 *)

   (* init value of CNT[0..7] to -7 *)
   for   ii   :=   0   to   7   do
      CNT[ii]   :=   -7 ;
   end_for ;

end_if ;

for   ii   :=   0   to   7   do          (* test all IN[0..7] if rising from False to True *)

   (* test if IN[0..7] signal rising *)
   if   ( IN[ii] = True )   and   ( OLD_IN[ii] = False )   then

      (* set related CNT[ ] value to -3 when Input event is trigered *)
      (* if CNT[ ] value is not -7, it means "INPUT been trigered" *)
      (* the CNT[ ] value will plus 1 every 1 sec past later, except the related INPUT become FALSE, *)
      CNT[ii]   :=   -3 ;

   end_if ;

   (* if INPUT is cleared or "if related INPUT become FALSE", the related CNT[ ] value
      will reset to -7: "No input event happens at that INPUT channel" *)

   if   IN[ii]   =   False   then      (* signal is becoming FALSE *)
```


LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

```
    (* set related CNT[ ] value to -7: "No input event happens at that INPUT channel" *)
    CNT[ii]   :=   -7 ;

  end_if ;

  if   Tick1   then     (* Tick1 is generated as pulse "True" every second in "LD1" program *)

    (* if CNT[ ] value is not -7, means the related input is trigered *)
    if   CNT[ii]   >   -7   then

      CNT[ii]   :=   CNT[ii]   + 1 ;     (* plus 1, Tick1 = True means 1 sec has passed *)

      (* ------------------------------------------------------------------------ *)
      (* INPUT event happens and 3 sec past, send 1st alarm message to COM3 *)
      if   ( CNT[ii] = 0 )   then       (* send 1st alarm when CNT[ ] is from -3, -2, -1 ---> 0 *)
        CNT[ii]   :=   0 ;   (* re-start from 0 and then count to 30 second to send alarm *)
        (* send one message to COM3 *)
        msg1   :=   'Alarm '   +   MSG(ii+1)   +   ' $0A$0D' ;
        TMP   :=   comstr_w(PORT , msg1) ;
      end_if ;
      (* ------------------------------------------------------------------------ *)

      (* ------------------------------------------------------------------------ *)
      (* INPUT event happens and every 30 second past, send one alarm message *)
      if   ( CNT[ii] = 30 )   then       (* send one alarm when CNT[ ] is from 0, 1, 2, ..., 30 *)
        CNT[ii]   :=   0 ;   (* re-start from 0 and then count to 30 second to send alarm *)
        (* send one message to COM3 *)
        msg1   :=   'Alarm '   +   MSG(ii+1)   +   ', 30 sec past ! $0A$0D'   ;
        TMP   := comstr_w(PORT , msg1) ;
      end_if ;
      (* ------------------------------------------------------------------------ *)

    end_if ;     (*   "if CNT[ ] > -7 then"   *)

  end_if ;     (*   "if Tick1 then"   *)

  (* Update OLD_IN[ ] *)
  OLD_IN[ii]   :=   IN[ii] ;
```

Click the link for more ISaGRAF FAQ:
http://www.icpdas.com/en/faq/index.php?kind=280#751

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000