

Classification	ISaGRAF English FAQ-066						
Author	Chun Tsai	Version	1.0.0	Date	Apr. 2007	Page	1 / 8

How to process the Integer or Real value coming from the RS-232/RS-485 device? Like the device of Bar-Code reader or RS-232 weight meter.

[Download FAQ-066 Demo.](#)

Some device will send its Integer or Real data to the PAC via RS-232 or RS-485 interface, for example, the "Bar-Code reader" or some RS-232 "weight meter".

Their data format may be similar as the following.

value<CR> or value<CR><LF> or value<LF><CR>

for example,

3456<CR> or 543<CR><LF> or -24<LF><CR>

Note that symbol "<CR>" means the Enter character, its ASCII No. is 13. "<LF>" is the New Line character, its ASCII No. is 10.

If you are using ISaGRAF PAC - 7188EG, 7188XG, I-8xx7, I-8437-80 or I-8837-80 to connect to this kind of RS-232/RS-485 device, you may apply the below similar program code to receive its data. Please visit <http://www.icpdas.com/en/faq/index.php?kind=280#751> FAQ-066 to download the demo program "Demo_73.pia".

This example suppose using I-8437-80's COM3 or COM4 RS-232 to connect to a RS232 "weight meter". This device will send a weight data to the PAC if it detect a weight input (grams).

1<CR> ~ 10000<CR>

Pin assignment of the communication cable:

(Using I-8437-80 **COM3**)

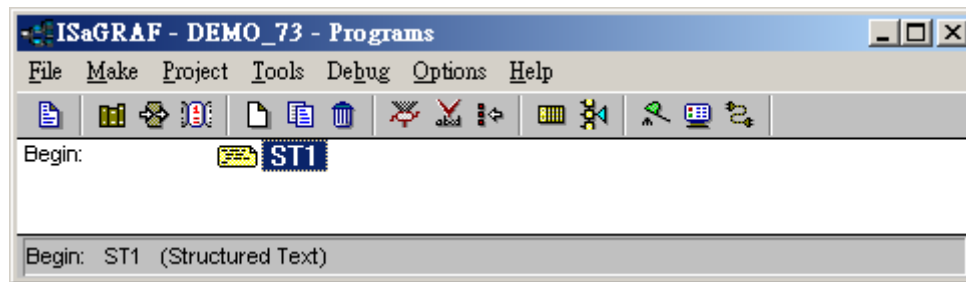
Device	I-8437-80 (COM3: RS-232)
RXD	2 TXD
TXD	3 RXD
GND	5 GND

(Using I-8437-80 **COM4**)

Device	I-8437-80 (COM4: RS-232)
TXD	2 RXD
RXD	3 TXD
GND	5 GND

Classification	ISaGRAF English FAQ-066						
Author	Chun Tsai	Version	1.0.0	Date	Apr. 2007	Page	2 / 8

Architecture of the ISaGRAF project:



Variable :

Name	Type	Attribute	Description
INIT	Boolean	Internal	Set its initial value to True
Port_OK	Boolean	Internal	True: Open Com port Ok
Get_One_Data	Boolean	Internal	Set as True when receiving a correct data to do more operation
Step	Integer	Internal	Internal use
NUM1	Integer	Internal	Returned value of "Comary_r()"
ii	Integer	Internal	Internal use
result_Gram	Integer	Internal	The weight data received, 1 to 10000 grams
Tmp_val	Integer	Internal	Internal use
Port_No	Integer	Internal	To use which COM port. Set its initial value to 3
CNT1	Integer	Internal	Value plus 1 if a correct data is received
T1	Timer	Internal	To tick time
Msg1	Message	Internal	Internal use, length is set as 255

Classification	ISaGRAF English FAQ-066					
Author	Chun Tsai	Version	1.0.0	Date	Apr. 2007	Page 3 / 8

ST program – ST1 :

 (* first PLC scan *)

IF INIT THEN

INIT := FALSE ;

Port_Ok := COMOPEN(Port_No , 9600 , 8 , 0 , 1) ; (* Open COM as 9600, 8, N, 1 *)

T1 := T#0s ; (* Init as 0 *)

STEP := 0 ; (* Init as 0 *)

END_IF ;

IF Port_Ok = False THEN (* If open COM fail, return *)

Return ;

END_IF ;

(* process the COM port *)

CASE STEP OF

0 : (* Step 0 : Test if any byte coming *)

IF COMREADY(Port_No) THEN

STEP := 1 ; (* Yes, one byte coming at least. Set "Step" as 1 *)

T1 := T#0s ; (* Reset "T1" as 0 *)

Tstart(T1) ; (* start ticking Timer "T1" *)

END_IF ;

1 : (* Wait some time to let all bytes completely coming from the device *)

IF T1 > T#250ms THEN (* This value depends on the device, some is longer *)

Tstop(T1) ; (* Stop ticking "T1" *)

T1 := T#0s ;

STEP := 0 ; (* go back to Step 0 *)

NUM1 := COMARY_R(Port_No , 1) ; (* receive all bytes to the No.1 byte array *)

(* Here suppose every data contains 2 byte at least. Like 2 grams, data will be 2<CR>,
 The character '2' and the character "<CR>" contain one byte respectively. Max. 15 bytes.
 If your device data format is 3 bytes at least, please modify code to become "NUM1 >= 3" *)

if (NUM1 < 15) and (NUM1 >= 2) then

(* supports "Ary_Str()" since driver version of I-7188EG: 2.18 , I-7188XG: 2.16, I-8xx7 : 3.20 *)

Msg1 := Ary_Str(1 , NUM1) ; (* Convert No.1 Byte array to become a String *)

Classification	ISaGRAF English FAQ-066						
Author	Chun Tsai	Version	1.0.0	Date	Apr. 2007	Page	4 / 8

(* Extract some integers from a string and then save them into No.1 Integer array *)

Tmp_val := Msg_N(Msg1, 1);

(* if it returns -1, it means format error. Like 'A123', '5.63', ... are not integer *)

if (Tmp_val > 0) then (* If at least one integer is extracted *)

Tmp_val := Ary_N_r(1, 1); (* Get the first integer of No.1 Integer Array *)

(* Test its value. Value between 1 to 10000 gram is correct *)

If (Tmp_val > 0) and (Tmp_val <= 10000) then

result_gram := Tmp_val; (* Correct, save value to "result_gram" *)

Get_One_Data := True; (* Set as True to do more operation at below *)

end_if ;

end_if ;

end_if ;

END_IF ;

END_CASE ;

if Get_One_Data then (* If value is True (correct data is received), do more operation *)

Get_One_Data := False;

CNT1 := CNT1+1;

(* Here you can add code of "more operation" *)

(* ... *)

end_if ;

How to test?

We can simulate this RS-232 weight meter in PC.

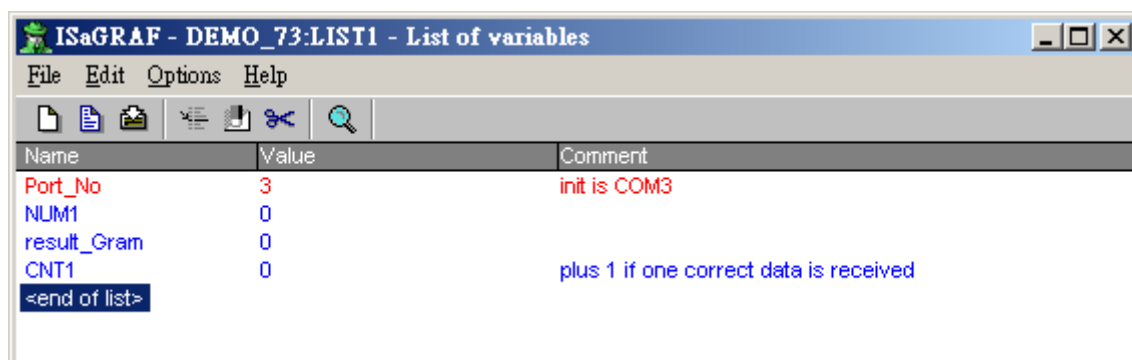
Please connect PC's COM1 to I-8437-80's COM3: RS232 by a RS-232 cable.

Pin assignment of the cable is as below.

PC		I-8437-80 (COM3: RS-232)
2 RXD	—————	2 TXD
3 TXD	—————	3 RXD
5 GND	—————	5 GND

Classification	ISaGRAF English FAQ-066						
Author	Chun Tsai	Version	1.0.0	Date	Apr. 2007	Page	5 / 8

Then please download the “Demo_73” program to the I-8437-80 PAC. If Ok, the “Spy list” window of this “Demo_73” program will show up. (Please refer to Chapter 9.12 of the [ISaGRAF user manual](#) for more information about ‘Spy Lists’).



If there is correct weight data coming, the value of “CNT1” will plus 1, and the value of “result_Gram” represents the correct weight value (unit is grams).

Please run “Hyper Terminal” in the PC to simulate as a RS-232 weight meter as below.



(Enter a name to it and then click “Ok”)

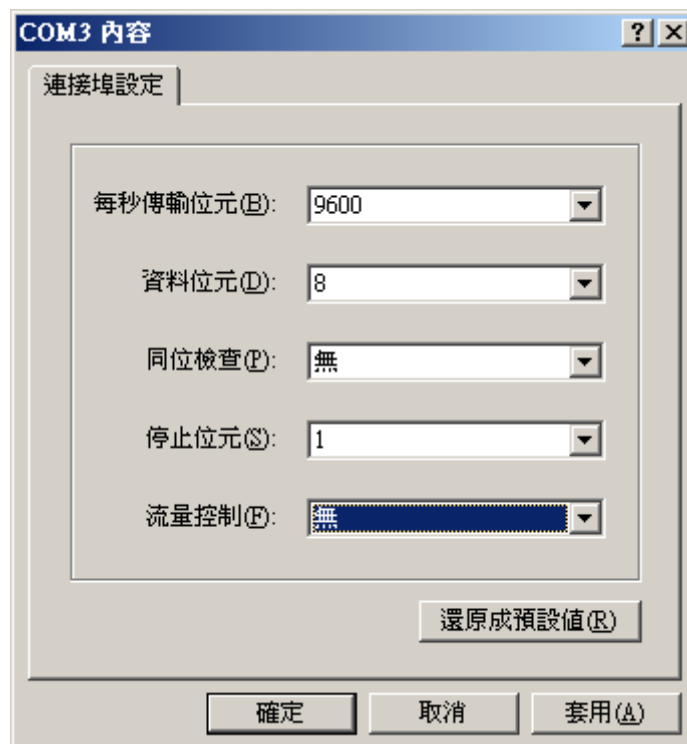


Classification	ISaGRAF English FAQ-066						
Author	Chun Tsai	Version	1.0.0	Date	Apr. 2007	Page	6 / 8

(Select the proper COM port in your PC, Normal value is “COM1”)

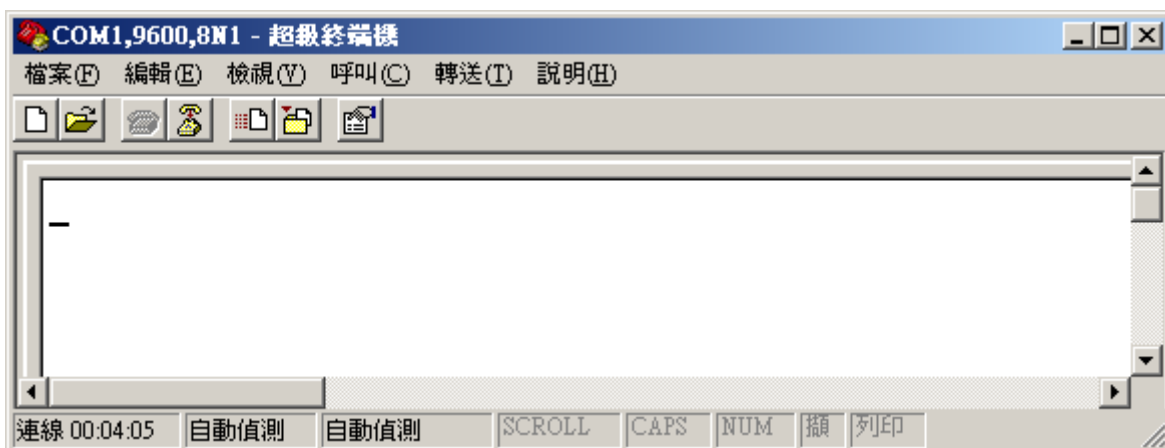


Enter the COM port parameter as “9600, 8, N, 1 , No flow control” for this “Demo_73” program.

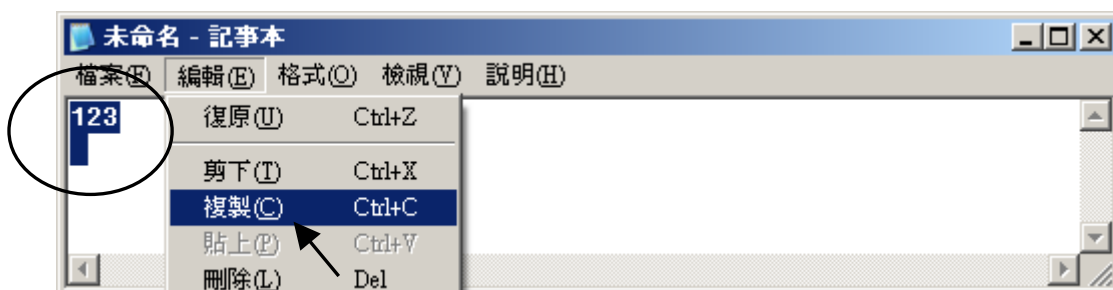


Classification	ISaGRAF English FAQ-066						
Author	Chun Tsai	Version	1.0.0	Date	Apr. 2007	Page	7 / 8

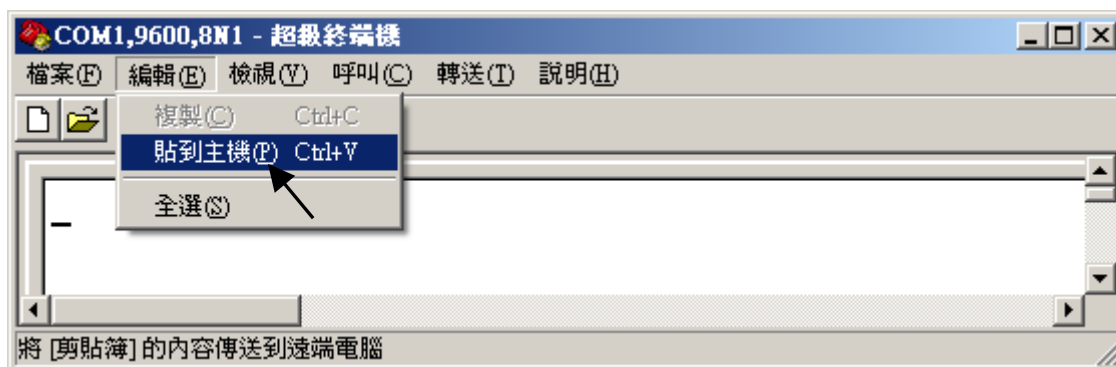
Then the new created “Hyper Terminal” window will show up.



Please run Windows “Notepad”, enter value for example, 123 , then press at “Enter” key. Then Please copy this 123 with the “Enter Key” character as below.

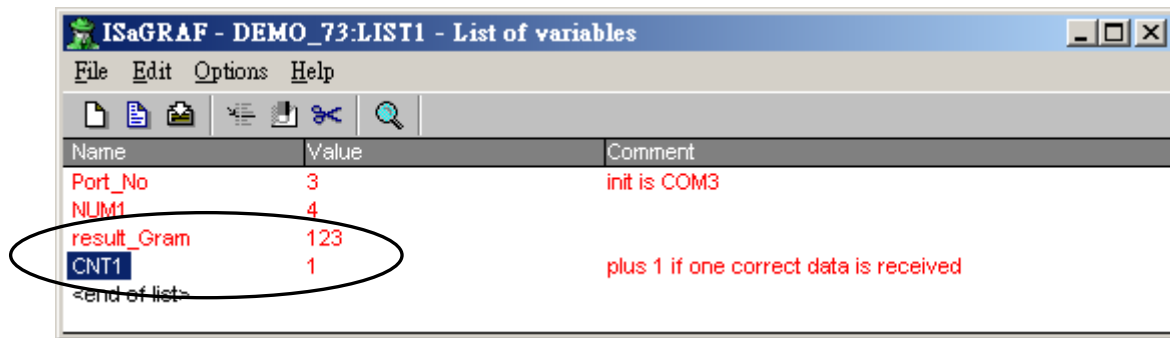


Then please paste these copied characters to the “Hyper Terminal” as below.



Classification	ISaGRAF English FAQ-066						
Author	Chun Tsai	Version	1.0.0	Date	Apr. 2007	Page	8 / 8

If it succeed, you will see value of “CNT1” and “result_Gram” changed in the Spy List window.



Click the link for more ISaGRAF FAQ:

<http://www.icpdas.com/en/faq/index.php?kind=280#751>

Visit to the ISaGRAF website for more information about new products:

https://www.icpdas.com/en/product/guide+Software+Development__Tools+ISaGRAF