How to use FRNET fast I/O?

Download FAQ-082 Demo

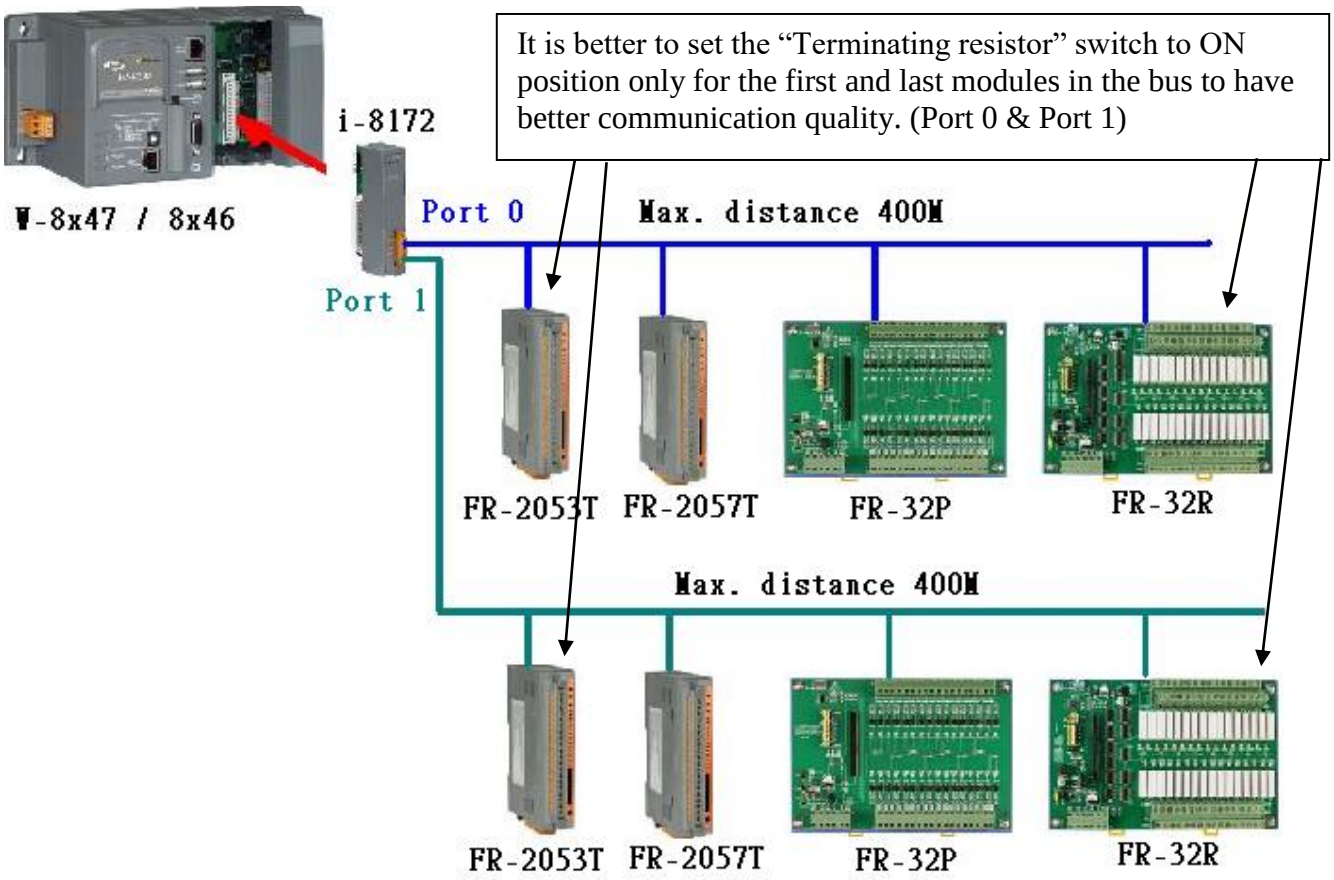
Wincon-8xx7/8xx6 (since its driver version of 3.42) and I-8477/ 8877 support FRNET I/O. Please visit below web site for more information.

I-8172 & FRNET I/O module: http://www.icpdas.com/en/product/I-8172W

Wincon ISaGRAF driver: https://www.icpdas.com/en/download/show.php?num=368&nation=US&kind1=&model=&kw=ISaGRAF

Important:

1. Every FRNET Output module has a 'RESET' or called 'HOLD' dip on its Dip switch or a special Jumper. User may set it to 'ON' position (or enable it), this will reset the output channels to OFF state when the communication is broken between the I-8172 and the FRNET D/O module. For example, set 8th Dip to ON of FR-2057 means enable it.
2. The communication state of D/I modules can be detected in the 8-Ch. D/I of "I-8172" in the IO connection window. However FRNET Output module doesn't support communication detection.
3. W-8xx7 supports max. 7 I-8172 in its Slot 1 through 7, while I-8477/ 8877 supports only max. 4 I-8172 in its Slot 0 through 7.



Advantage of FRNET I/O:

Fast I/O scan, it is about 3 ms/ per FRNET I/O scan. (This depends on your program's PLC scan time, for

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

example, if the ISaGRAF PLC program scan time is about 9ms, then the scan time for all will be 9 ms, not 3 ms. **Below is the approximate PLC scan time of an ISaGRAF project which runs only the FRNET setup code (without other codes)**

	With 1 I-8172	With 2 I-8172	With 3 I-8172	With 4 I-8172	With 5 to 7 I-8172
W-8xx7/8xx6	3 ms	4 ms	4 ms	4 ms	5 ms
I-8477/8877	3 ms	6 ms	9 ms	12 ms	-

Wincon-8xx7/8xx6 or I-8477/ 8877 plus I-8172 boards (plugged in slot 1 thru. 7) can connect to FRNET I/O modules, which are listed in following website: http://www.icpdas.com/en/product/guide+Remote__I_O__Module__and__Unit+FRnet__I_O__Modules+FR-2000#920

One I-8172 board has two FRNET ports, ID is port 0 & port 1.
Each FRNET port can connect up to 8 FRNET D/O “Module Address” and up to 8 D/I “Module Address”. It is very important. The “Module Address” for D/O modules can only be set as 0 to 7, while D/I “Module Address” can only be set as 8 to 15.

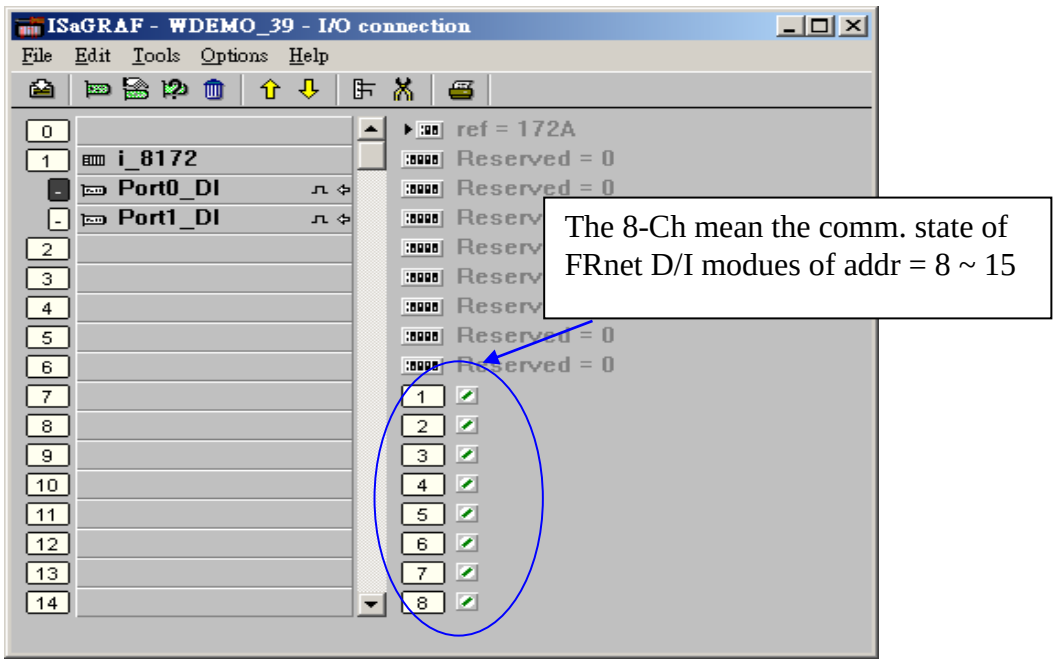
The max. I/O channel number for one FRNET “Module Address” is 16. That means one I-8172 can connect max. 2 (ports) x 8 x 16 = 256 ch. of digital output plus max. 2 x 8 x 16 = 256 ch. of digital input. You may plug up to 7 pcs of I-8172 in the W-8xx7/8xx6 depends on your application. (Max. 4 I-8172 can plug in the I-8477/ 8877)

Note: ISaGRAF 3.x can program FRNET I/O by using “I-8172” I/O complex equipment & “fr_16di”, “fr_16do” & “fr_b_a” functions. If your ISaGRAF doesn't support them, please visit http://www.icpdas.com/en/download/show.php?num=368&nation=US&kind1=&model=&kw=isagraf to download “ICP DAS Utilities for ISaGRAF” to install it again to the ISaGRAF workbench. Or refer to Appendix A.2 of the ISaGRAF User Manual to restore - “i_8172”, “fr_16di”, “fr_16do” & “fr_b_a” into your ISaGRAF Workbench.

Below is a demo program show you how to program FRNET I/O. This ISaGRAF example program can be download at https://www.icpdas.com/en/faq/index.php?kind=280#751 > FAQ-082 or visit https://www.icpdas.com/en/download/show.php?num=1005&nation=US&kind1=&model=&kw=isagraf to download “Wdemo_070.pia” from file name “isagraf_winpac_demo.zip”.

Step 1: Connecting I-8172 in the related slot in the IO connection windows. W-8xx7/8xx6's slot No. is from 1 to 7 (Slot 0 to 7 for the I-8477/ 8877).

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



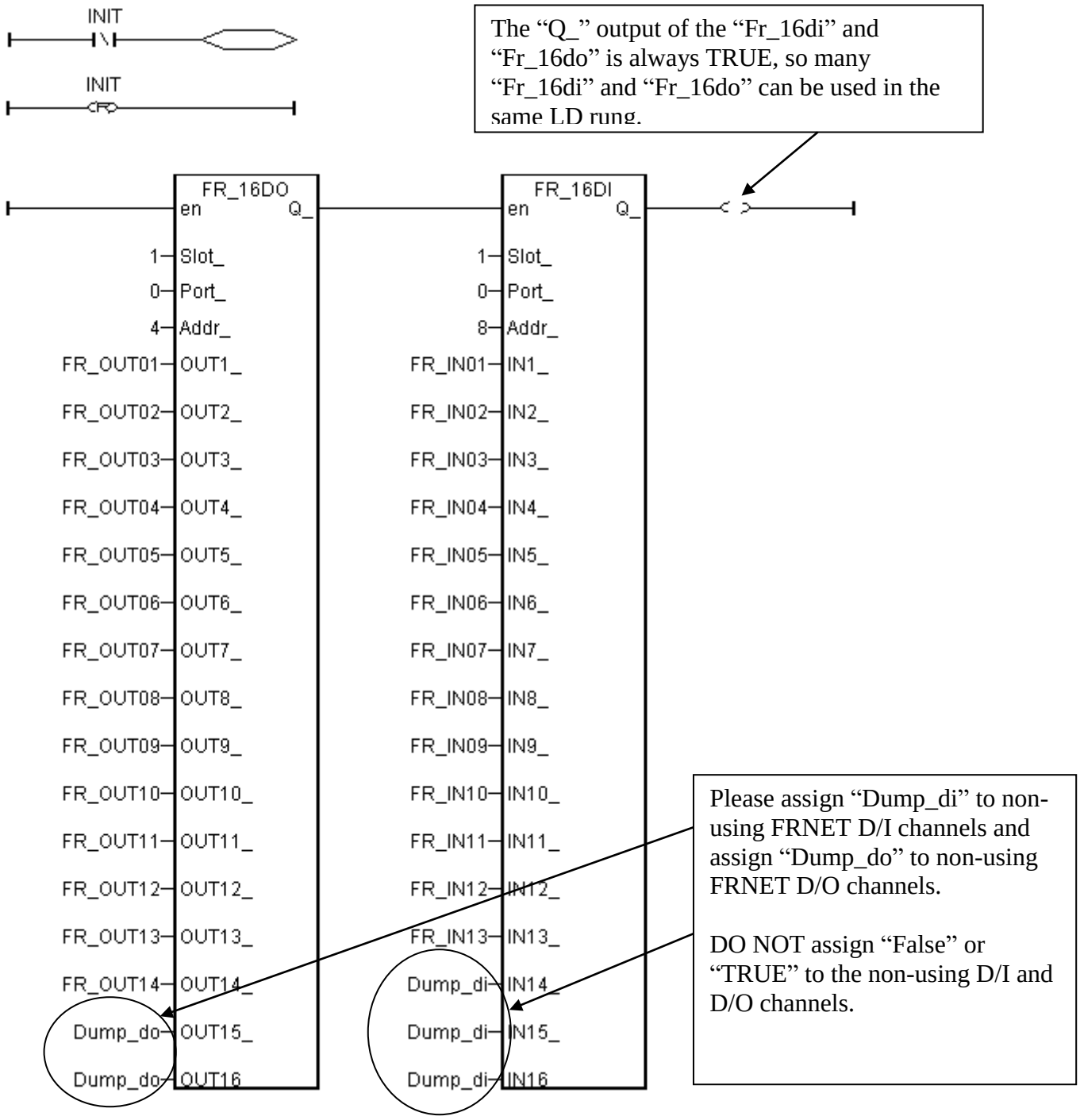
Step 2: Declaring ISaGRAF variable

Name	Type	Attribute	Description
INIT	Boolean	**Internal**	**Init as True**
Dump_di	Boolean	**Internal**	boolean variable for non-using FRNET D/I channel
Dump_do	Boolean	**Internal**	boolean variable for non-using FRNET D/O channel
FR_IN01 ~ FR_IN16	Boolean	**Internal**	Will map to 16-chanel FRNET DI channels
FR_OUT01 ~ FR_OUT16	Boolean	**Internal**	Will map to 16-chanel FRNET DO channels

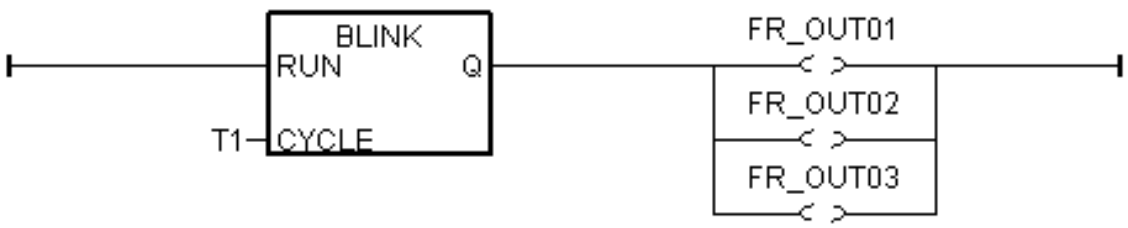
Step 3: writing LD program to map ISaGRAF boolean variable as FRNET I/O

(* INIT should be declared with an initial value of TRUE. The below code can only run once in the first PLC scan cycle, please don't use them in other PLC scan cycles *)

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



Step 4: Write a Ladder program to blink output of FR_OUT01 to 03



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

Step 5: How to test?

Please plug I-8172 into slot 1 of the W-8xx7/8xx6 (make sure the Wincon ISaGRAF driver version is 3.31 or later) or in the I-8477/ 8877.

Please connect the I-8172's Port 0 in this demo to one FR-2053 (16-Ch. DI) and one FR-2057 (16-Ch. DO).

The FR-2053's ADDR = 8 (dip switch 4 = ON, other dips 1,2,3,,5,6,7,8 is OFF)

The FR-2057's ADDR = 4 (dip switch 3 = ON, other dips 1,2,,4,5,6,7,8 is OFF)

Note:

FRNET DO module, for example FR-2057 can only set module ADDR as 0 to 7
FRNET DI module, for example FR-2053 can only set module ADDR as 8 to 15

Then after you download this ISaGRAF project into W-8xx7/8xx6, you will see the DO1 to 3 is blinking in the period of 0.5 second.

This ISaGRAF example program can be download at
https://www.icpdas.com/en/faq/index.php?kind=280#751 > FAQ-082 or visit
https://www.icpdas.com/en/download/show.php?num=1005&nation=US&kind1=&model=&kw=isagraf
to download "Wdemo_070.pia" from file name "isagraf_winpac_demo.zip".

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