

# Ezi-IO-PN-I16O16 Quick Start Guide

2024.07

## Step1. RT(Realtime) startup example

### Things to prepare

- Desktop or laptop with Windows 10 or Windows 11 installed
- Siemens TIA Portal must be installed
- (FASTECH) Ezi-IO-PN-I16O16
  - ← For convenience, each of Ezi-IO's 16 inputs is directly connected to Ezi-IO's 16 outputs
- (FASTECH) 'GSDML-V2.35-Fastech-Ezi-IO-PN-20230831.zip' or later

### Device installation on TIA

- Create project
- [Only once] Install (FASTECH) GSD for Ezi-IO-PN Series
- Install your own PLC-CPU from Hardware catalog
- Install 'Ezi-IO-PN PROFINET I/O' from Hardware catalog
- Configure LAN connection in 'Network view'
- Add module to apply to Ezi-IO (Ezi-IO-PN PROFINET I/O) in 'Device view'
  - ➔ Here, select 'Ezi-IO-PNI16O16' from Catalog
  - ➔ 'I address = Q address = 0...1' is confirmed in Device view

### Edit project

- PLC tag: Enter 'Name + Data type + Address'
- Data block: Enter 'Name + Data type'
- Organization block: Select '**Cyclic interrupt**' and write the necessary (basic) program
- Communication @CPU: Check default PLC-CPU settings
- Communication @Device: Check default Device settings
- Communication @Device: In 'I/O address' section of Ezi-IO-PN-I16O16, select '**Cyclic interrupt**' for 'Organization block' and '**PIP 1**' for 'Process image'

### Compile & Download & Monitoring

- Compile the project
- Download the project
- Go online
- Go offline

Result: (ex-1a) Ezi-IO-PN-I16O16-RT, 20240607.zip

(Example) 369 games by Bit operation

- Basic rule: Out16\_P00 to Out16\_P15 blinks sequentially for 0.5 seconds (ON & OFF) → When Inn16\_P02/05/08/11/14 is input → Left/Right flashes
- Tag Table  
16 bit variable inputs: Inn16\_P00 ... Inn16\_P15  
16 bit variable outputs: Out16\_P00 ... Out16\_P15
- Main(OB1) variable  
Set 'Blink\_Index' to '0' at startup  
Set 'Pause\_Action\_and\_Show' to '0' on startup
- Input network: When Inn16\_P02/05/08/11 is entered, 'Pause\_Action\_and\_Show = 1' is unconditionally processed
- Output network - Unit function: If 'Pause\_Action\_and\_Show' is '0', 'Blink\_Index' is designated. Blinks (ON/OFF) for 0.5 seconds at 1 second intervals sequentially from Out16\_P00 to Out16\_P15.
- Output network - Exception handling: 'Unit function' completed → If 'Pause\_Action\_and\_Show' is '1', 'temporary ice' status is performed and 'left and right hurray' flashes.
- Output network - Left and right hurray: 'Blink\_Index' specified Out16\_P?? Turns on and turns off for 0.5 seconds on each side → Turns on and turns off for 0.5 seconds on the other two → Process 'Pause\_Action\_and\_Show = 0'
- Note: 'Blink\_Index' is processed by increasing after executing 'Exception handling + left and right hurray'
- Result: (ex-1b) 369game, Ezi-IO-PN-I16O16-RT, 20240625.zip

## Step2. IRT(Isochronous Realtime) startup example

### [ Information ]

Basic approach: Perform all of the following processes again

Real-world alternative: Perform only the additional tasks required in the RT example!

### Things to prepare

- Desktop or laptop with Windows 10 or Windows 11 installed
- Siemens TIA Portal must be installed
- (FASTECH) Ezi-IO-PN-I16O16
  - ← For convenience, each of Ezi-IO's 16 inputs is directly connected to Ezi-IO's 16 outputs
- (FASTECH) 'GSDML-V2.35-Fastech-Ezi-IO-PN-20230831.zip' or later

### Device installation on TIA

- Create project
- [Only once] Install (FASTECH) GSD for Ezi-IO-PN Series
- Install your own PLC-CPU from Hardware catalog
- Install 'Ezi-IO-PN PROFINET I/O' from Hardware catalog
- Configure LAN connection in 'Network view'
- **Configuring LAN connection in 'Topology view'**
- Add module to apply to Ezi-IO (Ezi-IO-PN PROFINET I/O) in 'Device view'
  - Here, select 'Ezi-IO-PN-I16O16' from Catalog
  - 'I address = Q address = 0...1' is confirmed in Device view

### Edit project

- PLC tag: Enter 'Name + Data type + Address'
- Data block: Enter 'Name + Data type'
- **Data Block: Edit IRT related items**
- ~~Organization block: Select 'Cyclic interrupt' and write the necessary (basic) program~~
- **Organization block: Select 'Synchronous Cycle' and write the necessary (basic) program**
- Communication @CPU: Check default PLC-CPU settings
- **Communication @CPU: Change 'Synchronization role' of PLC-CPU to 'Sync master'**
- Communication @Device: Check default Device settings
- **Communication @Device: Activate IRT communication**
  - 2EA of '**[√]Isochronous mode**' and RT class of '**IRT**'
- ~~Communication @Device: In 'I/O address' section of Ezi IO PN I16O16, select 'Cyclic interrupt' for 'Organization block' and 'PIP 1' for 'Process image'~~
- **Communication @Device: In 'I/O address' section of Ezi-IO-PN-I16O16, select 'Synchronous Cycle' for 'Organization block' and 'PIP 1' for 'Process image'**
- Communication @PN/IE: Edit 'Sync-Domain' & 'Port interconnection'

### Compile & Download & Monitoring

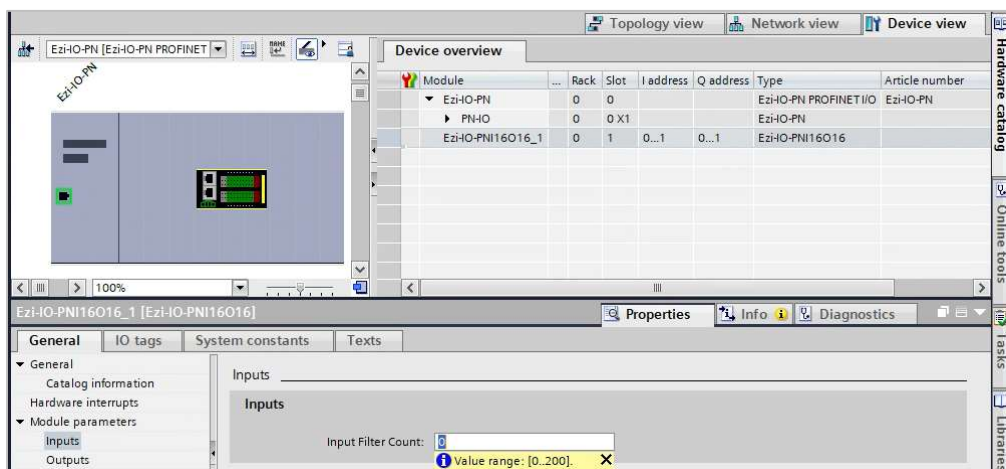
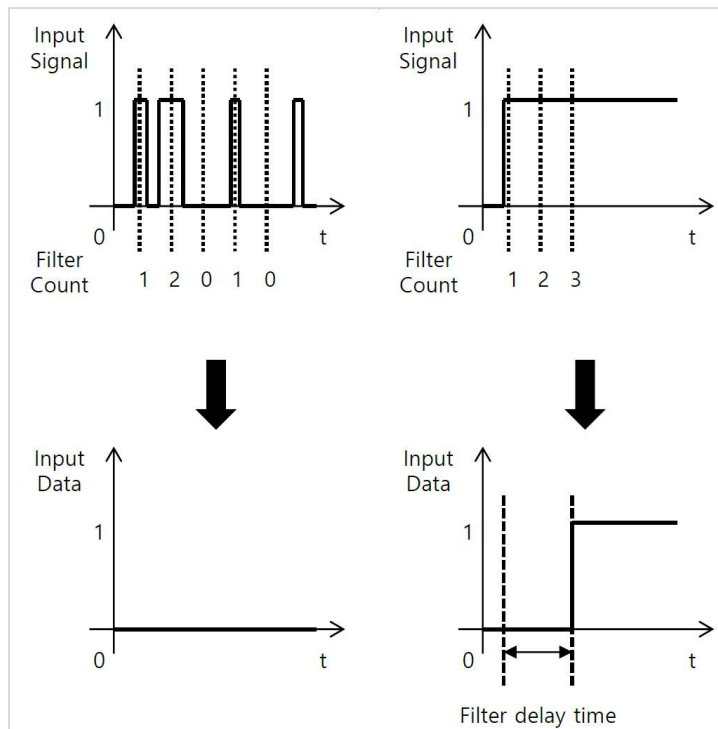
- Compile the project
- Download the project
- Go online
- Go offline

Result: (ex-2) Ezi-IO-PN-I16O16-IRT, 20240706.zip

## Step3. Module parameters

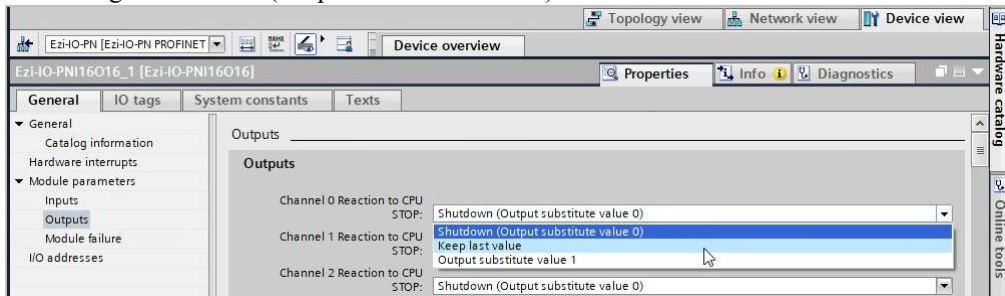
### [Inputs] Input Filter Count

- This function prevents changes in input data due to noise when the signal coming into the input terminal contains high-frequency noise such as chattering
- DIO samples the input signal every 200us
- If the same input signal is continuously sampled as much as the input filter setting value, it is accepted as valid input data
- The input filter count value that can be set is 0 to 200, which can result in a filter delay time of up to 40ms depending on the setting value
- Default value is 0



#### [Outputs] Reaction to CPU STOP

- Shutdown (Output substitute value 0): When the output parameter is set to this and the PLC switches from RUN to STOP, Logic value '0' is output to the output terminal
- Keep last value: When the output parameter is set to this and the PLC switches from RUN to STOP, the final output logic value is maintained at the output terminal
- Output substitute value 1: When the output parameter is set to this and the PLC switches from RUN to STOP, Logic value '1' is output to the output terminal
- Default setting is Shutdown (Output substitute value 0)



#### [Module failure] Input values with module failure

- Not yet supported by Ezi-IO!

Result: Nothing is provided! Please try it!