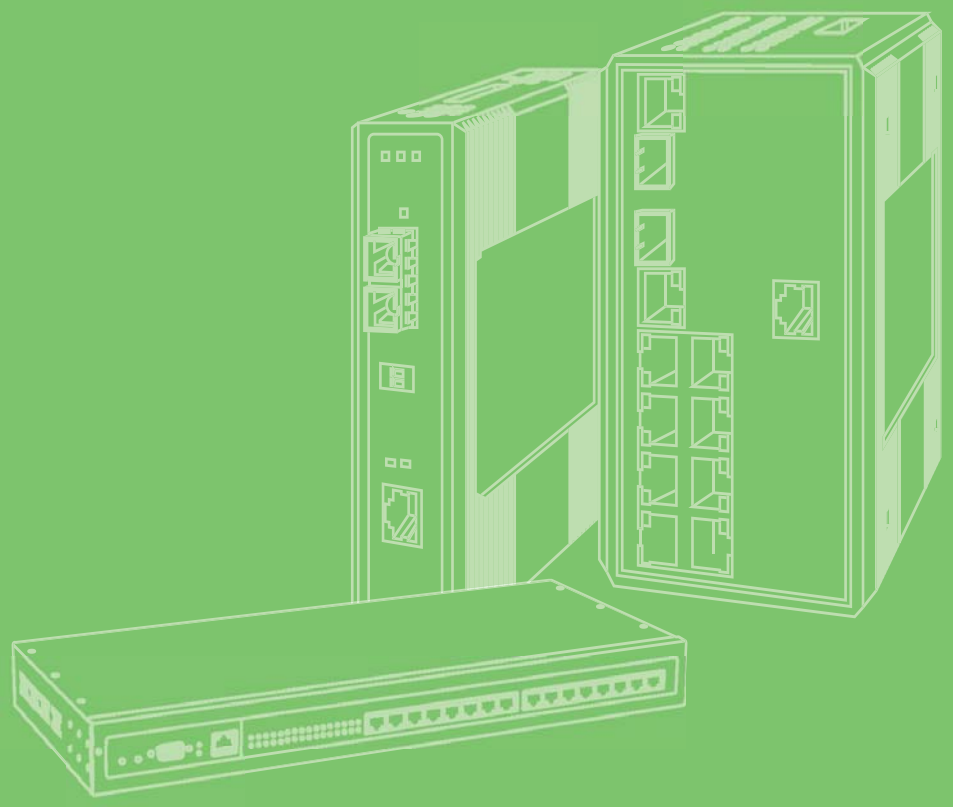
User Manual



Industrial Protocols

Modbus/TCP
EtherNet/IP
PROFINET

ADVANTECH

Enabling an Intelligent Planet

Federal Communication Commission Interference Statement

For further certification information, please go to www.advantech.com

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Part No. XXXXXXXXXX Edition 1
Printed in Taiwan July 2016

Safety Instructions

- Read these safety instructions carefully.
- Keep this user manual for later reference.
- Disconnect this equipment from any AC outlet before cleaning. Use damp cloth. Do not use liquid or spray detergents for cleaning.
- For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
- Keep this equipment away from humidity.
- Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
- The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- All cautions and warning on the equipment should be noted.
- If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over voltage.
- Never pour any liquid into an opening. This may cause fire or electrical shock.
- Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
- If one of the following situations arises, get the equipment checked by service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work well, or you cannot get it to work according to the user manual
  - The equipment has been dropped and damaged.
  - The equipment has obvious signs of breakage.
- Instructions for installation in a pollution Degree 2 environment or equivalent statement.
- PoE requirements:
  This product was in-door used and not connected to outside plant, so user manual shall have the description as below or equivalent: “The equipment is to be connected only to PoE networks without routing to the outside plant.”
- Do NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -40°C(-40°F) OR ABOVE 75°C(167°F) THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

Product Warranty (5 years)

Company Address:

ADVANTECH CO.,LTD.（研華股份有限公司）

1 ALY 20 LN 26 RUEIGUANG RD NEIHU DISTRICT TAIPEI 114 TAIWAN

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for five years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any on screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Conventions

Warning! *Warnings indicate conditions, which if not observed, can cause personal injury!*

Caution! *Cautions are included to help you avoid damaging hardware or losing data. e.g.*

There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Note! *Notes provide optional additional information.*

Copyright

Technical Support and Assistance

1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
2. Contract your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachment
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

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About This Manual

This user manual is intended to guide professional installers in installing and configuring the Serial Device Server. It includes technical specifications, software utility introduction, as we as procedures for the use of the software utility to self-manage the devices.

Contents

Chapter 1

Modbus/TCP

1.1 Introduction

Modbus is one of the most widely used serial communication protocol. It allows the transmission of information over serial lines between the switch and devices. The binding supports both TCP and serial slaves.

The binding acts as Modbus TCP client (Modbus master), queering data from Modbus TCP server (Modbus slaves).

Note! *In the given example, the address offset 0x1000 (hex) equals Modbus address 34097, while the address offset 0x1100 (hex) equals Modbus address 34353. The information given by the Advantech is shown in hex mode.*

1.2 Supported Modbus object types

The binding allows multiple Modbus slave connectivity. The following list includes the supported Modbus object types:

- coils, also known as digital out (DO) (read & write)
- discrete inputs, also known as digital in (DI) (read)
- input registers (read)
- holding registers (read & write)

The Modbus binding can be configured to interpret values stored in the 16bit registers, signed or unsigned integers.

1.2.1 Read and write functions

Modbus specification has different operations for reading and writing different object types. These types of operations are identified by function code. Some devices support only certain function codes.

For different reading and writing operations, different objects types are available through Modbus. The operations are designated by function codes.

- read coils: function code (FC) 1 (Read Coils)
- write coil: FC 5 (Write Single Coil)
- read discrete inputs: FC 2 (Read Discrete Inputs)
- read input registers: FC 4 (Read Input Registers)
- read holding registers: FC 3 (Read Multiple Holding Registers)
- write holding register: FC 6 (Write Single Holding Register), OR FC 16 (Write Multiple Holding Registers)

1.3 Masters or Slaves Designation

Modbus devices are classified as either a master or a slave. Initiating all communication with the slave devices is tasked to the master device. While slave devices only respond to a communication request.

1.4 Slaves Identification

Modbus slave devices are assigned a unique ID between 1 and 247. When a request from the master device is initiated, it must include the ID of the intended recipient. Master devices do no have IDs.

1.5 Modbus/TCP Mapping

The data map addresses of Advantech switches shown in the following table start from Modbus address 30001 for function code 4.

In the given example, the address offset 0x1000 (hex) equals Modbus address 34097, while the address offset 0x1100 (hex) equals Modbus address 34353.

The information given by the Advantech is shown in hex mode.

1.5.1 Modbus/TCP Mapping Table

The following listing displays parameters for referencing the different mapping functions.

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
System Info	Vendor ID = 0x‘13FE	1 word	16 bits	HEX	0x0000	30001	Vendor ID = 0x13FE
	Unit ID = 0xFF	1 word	16 bits	HEX	0x0001	30002	Unit ID = 0xFF
	Product Code	1 word	16 bits	HEX	0x0002	30003	Product Code
	Vendor Name = "Advantech"	16 words	32 chars	ASCII	0x0010	30017	Vendor Name = "Advantech" Word 0 Hi byte = 'A' Word 0 Lo byte = 'd' Word 1 Hi byte = 'v' Word 1 Lo byte = 'a' Word 2 Hi byte = 'n' Word 2 Lo byte = 't' Word 3 Hi byte = 'e' Word 3 Lo byte = 'c' Word 4 Hi byte = 'h' Word 4 Lo byte = '\0'
	Product Name = "EKI-xxxx"	16 words	32 chars	ASCII	0x0020	30033	Product Name = "EKI-xxxx" Word 0 Hi byte = 'E' Word 0 Lo byte = 'K' Word 1 Hi byte = 'I' Word 1 Lo byte = '-' Word 2 Hi byte = 'x' Word 2 Lo byte = 'x' Word 3 Hi byte = 'x' Word 3 Lo byte = 'x' Word 4 Hi byte = '\0'

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
System Info	Firmware Version	2 words	32 bits	HEX	0x020A	30523	Firmware Version Word 0 Hi byte = major Word 0 Lo byte = minor Word 1 Hi byte = release Word 1 Lo byte = build
	Ethernet MAC Address	3 words	48 bits	HEX	0x020E	30527	Ethernet MAC Address Ex: MAC = 00-19-CB-01-02-03 Word 0 Hi byte = 0x00 Word 0 Lo byte = 0x19 Word 1 Hi byte = 0xCB Word 1 Lo byte = 0x01 Word 2 Hi byte = 0x02 Word 2 Lo byte = 0x03
	Revision Number	16 words	32 chars	ASCII	0x0211	30530	Product Name = "YYY.xxxxx" Word 0 Hi byte = 'Y' Word 0 Lo byte = 'Y' Word 1 Hi byte = 'Y' Word 1 Lo byte = '.' Word 2 Hi byte = 'x' Word 2 Lo byte = 'x' Word 3 Hi byte = 'x' Word 3 Lo byte = 'x' Word 4 Hi byte = 'x' Word 4 Hi byte = '\0'
	IP Address	2 words	32 bits	HEX	0x0400	31025	IP Address Ex: IP = 192.168.1.1 Word 0 Hi byte = 0xC0 Word 0 Lo byte = 0xA8 Word 1 Hi byte = 0x01 Word 1 Lo byte = 0x01
Port Info	Port Status	1 word	16 bits	HEX	0x1000 ~ 0x101F	34097 ~ 34128	Port Status 0x0000: Link down 0x0001: Link up 0xFFFF: No port
	Port 1 Status	1 word	16 bits	HEX	0x1000	34097	
	Port 2 Status	1 word	16 bits	HEX	0x1001	34098	
	Port 3 Status	1 word	16 bits	HEX	0x1002	34099	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 4 Status	1 word	16 bits	HEX	0x1003	34100	
	Port 5 Status	1 word	16 bits	HEX	0x1004	34101	
	Port 6 Status	1 word	16 bits	HEX	0x1005	34102	
	Port 7 Status	1 word	16 bits	HEX	0x1006	34103	
	Port 8 Status	1 word	16 bits	HEX	0x1007	34104	
	Port 9 Status	1 word	16 bits	HEX	0x1008	34105	
	Port 10 Status	1 word	16 bits	HEX	0x1009	34106	
	Port 11 Status	1 word	16 bits	HEX	0x100A	34107	
	Port 12 Status	1 word	16 bits	HEX	0x100B	34108	
	Port 13 Status	1 word	16 bits	HEX	0x100C	34109	
	Port 14 Status	1 word	16 bits	HEX	0x100D	34110	
	Port 15 Status	1 word	16 bits	HEX	0x100E	34111	
	Port 16 Status	1 word	16 bits	HEX	0x100F	34112	
	Port 17 Status	1 word	16 bits	HEX	0x1010	34113	
	Port 18 Status	1 word	16 bits	HEX	0x1011	34114	
	Port 19 Status	1 word	16 bits	HEX	0x1012	34115	
	Port 20 Status	1 word	16 bits	HEX	0x1013	34116	
	Port 21 Status	1 word	16 bits	HEX	0x1014	34117	
	Port 22 Status	1 word	16 bits	HEX	0x1015	34118	
	Port 23 Status	1 word	16 bits	HEX	0x1016	34119	
	Port 24 Status	1 word	16 bits	HEX	0x1017	34120	
	Port 25 Status	1 word	16 bits	HEX	0x1018	34121	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 26 Status	1 word	16 bits	HEX	0x1019	34122	
	Port 27 Status	1 word	16 bits	HEX	0x101A	34123	
	Port 28 Status	1 word	16 bits	HEX	0x101B	34124	
	Port 29 Status	1 word	16 bits	HEX	0x101C	34125	
	Port 30 Status	1 word	16 bits	HEX	0x101D	34126	
	Port 31 Status	1 word	16 bits	HEX	0x101E	34127	
	Port 32 Status	1 word	16 bits	HEX	0x101F	34128	
	Port Speed	1 word	16 bits	HEX	0x1100 ~ 0x111F	34353 ~ 34384	Port Speed 0x0000: 10M-Half 0x0001: 10M-Full 0x0002: 100M-Half 0x0003: 100M-Full 0x0004: 1000M-Half 0x0005: 1000M-Full 0xFFFF: No port
	Port 1 Speed	1 word	16 bits	HEX	0x1100	34353	
	Port 2 Speed	1 word	16 bits	HEX	0x1101	34354	
	Port 3 Speed	1 word	16 bits	HEX	0x1102	34355	
	Port 4 Speed	1 word	16 bits	HEX	0x1103	34356	
	Port 5 Speed	1 word	16 bits	HEX	0x1104	34357	
	Port 6 Speed	1 word	16 bits	HEX	0x1105	34358	
	Port 7 Speed	1 word	16 bits	HEX	0x1106	34359	
	Port 8 Speed	1 word	16 bits	HEX	0x1107	34360	
	Port 9 Speed	1 word	16 bits	HEX	0x1108	34361	
	Port 10 Speed	1 word	16 bits	HEX	0x1109	34362	
	Port 11 Speed	1 word	16 bits	HEX	0x110A	34363	
	Port 12 Speed	1 word	16 bits	HEX	0x110B	34364	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 13 Speed	1 word	16 bits	HEX	0x110C	34365	
	Port 14 Speed	1 word	16 bits	HEX	0x110D	34366	
	Port 15 Speed	1 word	16 bits	HEX	0x110E	34367	
	Port 16 Speed	1 word	16 bits	HEX	0x110F	34368	
	Port 17 Speed	1 word	16 bits	HEX	0x1110	34369	
	Port 18 Speed	1 word	16 bits	HEX	0x1111	34370	
	Port 19 Speed	1 word	16 bits	HEX	0x1112	34371	
	Port 20 Speed	1 word	16 bits	HEX	0x1113	34372	
	Port 21 Speed	1 word	16 bits	HEX	0x1114	34373	
	Port 22 Speed	1 word	16 bits	HEX	0x1115	34374	
	Port 23 Speed	1 word	16 bits	HEX	0x1116	34375	
	Port 24 Speed	1 word	16 bits	HEX	0x1117	34376	
	Port 25 Speed	1 word	16 bits	HEX	0x1118	34377	
	Port 26 Speed	1 word	16 bits	HEX	0x1119	34378	
	Port 27 Speed	1 word	16 bits	HEX	0x111A	34379	
	Port 28 Speed	1 word	16 bits	HEX	0x111B	34380	
	Port 29 Speed	1 word	16 bits	HEX	0x111C	34381	
	Port 30 Speed	1 word	16 bits	HEX	0x111D	34382	
	Port 31 Speed	1 word	16 bits	HEX	0x111E	34383	
	Port 32 Speed	1 word	16 bits	HEX	0x111F	34384	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Flow Con-trol	1 word	16 bits	HEX	0x1200 ~ 0x121F	34609 ~ 34640	Flow Control 0x0000: Off 0x0001: On 0xFFFF: No port
	Port 1 Flow Control	1 word	16 bits	HEX	0x1200	34609	
	Port 2 Flow Control	1 word	16 bits	HEX	0x1201	34610	
	Port 3 Flow Control	1 word	16 bits	HEX	0x1202	34611	
	Port 4 Flow Control	1 word	16 bits	HEX	0x1203	34612	
	Port 5 Flow Control	1 word	16 bits	HEX	0x1204	34613	
	Port 6 Flow Control	1 word	16 bits	HEX	0x1205	34614	
	Port 7 Flow Control	1 word	16 bits	HEX	0x1206	34615	
	Port 8 Flow Control	1 word	16 bits	HEX	0x1207	34616	
	Port 9 Flow Control	1 word	16 bits	HEX	0x1208	34617	
	Port 10 Flow Control	1 word	16 bits	HEX	0x1209	34618	
	Port 11 Flow Control	1 word	16 bits	HEX	0x120A	34619	
	Port 12 Flow Control	1 word	16 bits	HEX	0x120B	34620	
	Port 13 Flow Control	1 word	16 bits	HEX	0x120C	34621	
	Port 14 Flow Control	1 word	16 bits	HEX	0x120D	34622	
	Port 15 Flow Control	1 word	16 bits	HEX	0x120E	34623	
	Port 16 Flow Control	1 word	16 bits	HEX	0x120F	34624	
	Port 17 Flow Control	1 word	16 bits	HEX	0x1210	34625	
	Port 18 Flow Control	1 word	16 bits	HEX	0x1211	34626	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 19 Flow Control	1 word	16 bits	HEX	0x1212	34627	
	Port 20 Flow Control	1 word	16 bits	HEX	0x1213	34628	
	Port 21 Flow Control	1 word	16 bits	HEX	0x1214	34629	
	Port 22 Flow Control	1 word	16 bits	HEX	0x1215	34630	
	Port 23 Flow Control	1 word	16 bits	HEX	0x1216	34631	
	Port 24 Flow Control	1 word	16 bits	HEX	0x1217	34632	
	Port 25 Flow Control	1 word	16 bits	HEX	0x1218	34633	
	Port 26 Flow Control	1 word	16 bits	HEX	0x1219	34634	
	Port 27 Flow Control	1 word	16 bits	HEX	0x121A	34635	
	Port 28 Flow Control	1 word	16 bits	HEX	0x121B	34636	
	Port 29 Flow Control	1 word	16 bits	HEX	0x121C	34637	
	Port 30 Flow Control	1 word	16 bits	HEX	0x121D	34638	
	Port 31 Flow Control	1 word	16 bits	HEX	0x121E	34639	
	Port 32 Flow Control	1 word	16 bits	HEX	0x121F	34640	

Catalog	Name	Data Type	Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port Description	20 words 40 chars	ASCII	0x1400 ~ 0x166C	35121 ~ 35741	Port Description Port Description = "100RX,RJ45." Word 0 Hi byte = '1' Word 0 Lo byte = '0' Word 1Hi byte = '0' Word 1 Lo byte = ‘R’ Word 2 Hi byte = 'X' Word 2 Lo byte = ‘,’ Word 3 Hi byte = 'R' Word 3 Lo byte = ‘J’ Word 4 Hi byte = ‘4’ Word 4 Lo byte = ‘5’ Word 5 Hi byte = ‘.’ Word 5 Lo byte = ‘\0’
	Port 1 Description	20 words 40 chars	ASCII	0x1400	35121	
	Port 2 Description	20 words 40 chars	ASCII	0x1414	35141	
	Port 3 Description	20 words 40 chars	ASCII	0x1428	35161	
	Port 4 Description	20 words 40 chars	ASCII	0x143C	35181	
	Port 5 Description	20 words 40 chars	ASCII	0x1450	35201	
	Port 6 Description	20 words 40 chars	ASCII	0x1464	35221	
	Port 7 Description	20 words 40 chars	ASCII	0x1478	35241	
	Port 8 Description	20 words 40 chars	ASCII	0x148C	35261	
	Port 9 Description	20 words 40 chars	ASCII	0x14A0	35281	
	Port 10 Description	20 words 40 chars	ASCII	0x14B4	35301	
	Port 11 Description	20 words 40 chars	ASCII	0x14C8	35321	
	Port 12 Description	20 words 40 chars	ASCII	0x14DC	35341	

Catalog	Name	Data Type	Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 13 Description	20 words 40 chars	ASCII	0x14F0	35361	
	Port 14 Description	20 words 40 chars	ASCII	0x1504	35381	
	Port 15 Description	20 words 40 chars	ASCII	0x1518	35401	
	Port 16 Description	20 words 40 chars	ASCII	0x152C	35421	
	Port 17 Description	20 words 40 chars	ASCII	0x1540	35441	
	Port 18 Description	20 words 40 chars	ASCII	0x1554	35461	
	Port 19 Description	20 words 40 chars	ASCII	0x1568	35481	
	Port 20 Description	20 words 40 chars	ASCII	0x157C	35501	
	Port 21 Description	20 words 40 chars	ASCII	0x1590	35521	
	Port 22 Description	20 words 40 chars	ASCII	0x15A4	35541	
	Port 23 Description	20 words 40 chars	ASCII	0x15B8	35561	
	Port 24 Description	20 words 40 chars	ASCII	0x15CC	35581	
	Port 25 Description	20 words 40 chars	ASCII	0x15E0	35601	
	Port 26 Description	20 words 40 chars	ASCII	0x15F4	35621	
	Port 27 Description	20 words 40 chars	ASCII	0x1608	35641	
	Port 28 Description	20 words 40 chars	ASCII	0x161C	35661	
	Port 29 Description	20 words 40 chars	ASCII	0x1630	35681	
	Port 30 Description	20 words 40 chars	ASCII	0x1644	35701	
	Port 31 Description	20 words 40 chars	ASCII	0x1658	35721	
	Port 32 Description	20 words 40 chars	ASCII	0x166C	35741	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Link Up Counter	1 word	16 bits	HEX	0x1700 ~ 0x171F	35889 ~ 35920	Link Up Counter Ex: port link up counter = 13 Received MODBUS response: 0x000D
	Port 1 Link Up Counter	1 word	16 bits	HEX	0x1700	35889	
	Port 2 Link Up Counter	1 word	16 bits	HEX	0x1701	35890	
	Port 3 Link Up Counter	1 word	16 bits	HEX	0x1702	35891	
	Port 4 Link Up Counter	1 word	16 bits	HEX	0x1703	35892	
	Port 5 Link Up Counter	1 word	16 bits	HEX	0x1704	35893	
	Port 6 Link Up Counter	1 word	16 bits	HEX	0x1705	35894	
	Port 7 Link Up Counter	1 word	16 bits	HEX	0x1706	35895	
	Port 8 Link Up Counter	1 word	16 bits	HEX	0x1707	35896	
	Port 9 Link Up Counter	1 word	16 bits	HEX	0x1708	35897	
	Port 10 Link Up Counter	1 word	16 bits	HEX	0x1709	35898	
	Port 11 Link Up Counter	1 word	16 bits	HEX	0x170A	35899	
	Port 12 Link Up Counter	1 word	16 bits	HEX	0x170B	35900	
	Port 13 Link Up Counter	1 word	16 bits	HEX	0x170C	35901	
	Port 14 Link Up Counter	1 word	16 bits	HEX	0x170D	35902	
	Port 15 Link Up Counter	1 word	16 bits	HEX	0x170E	35903	
	Port 16 Link Up Counter	1 word	16 bits	HEX	0x170F	35904	
	Port 17 Link Up Counter	1 word	16 bits	HEX	0x1710	35905	
	Port 18 Link Up Counter	1 word	16 bits	HEX	0x1711	35906	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 19 Link Up Counter	1 word	16 bits	HEX	0x1712	35907	
	Port 20 Link Up Counter	1 word	16 bits	HEX	0x1713	35908	
	Port 21 Link Up Counter	1 word	16 bits	HEX	0x1714	35909	
	Port 22 Link Up Counter	1 word	16 bits	HEX	0x1715	35910	
	Port 23 Link Up Counter	1 word	16 bits	HEX	0x1716	35911	
	Port 24 Link Up Counter	1 word	16 bits	HEX	0x1717	35912	
	Port 25 Link Up Counter	1 word	16 bits	HEX	0x1718	35913	
	Port 26 Link Up Counter	1 word	16 bits	HEX	0x1719	35914	
	Port 27 Link Up Counter	1 word	16 bits	HEX	0x171A	35915	
	Port 28 Link Up Counter	1 word	16 bits	HEX	0x171B	35916	
	Port 29 Link Up Counter	1 word	16 bits	HEX	0x171C	35917	
	Port 30 Link Up Counter	1 word	16 bits	HEX	0x171D	35918	
	Port 31 Link Up Counter	1 word	16 bits	HEX	0x171E	35919	
	Port 32 Link Up Counter	1 word	16 bits	HEX	0x171F	35920	
	PoE Voltage	1 word	16 bits	HEX	0x1800 ~ 0x181F	36145 ~ 36176	PoE Voltage (V) Ex: PoE voltage = 5 Received MODBUS response: 0x0005
	Port 1 PoE Voltage	1 word	16 bits	HEX	0x1800	36145	
	Port 2 PoE Voltage	1 word	16 bits	HEX	0x1801	36146	
	Port 3 PoE Voltage	1 word	16 bits	HEX	0x1802	36147	
	Port 4 PoE Voltage	1 word	16 bits	HEX	0x1803	36148	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 5 PoE Voltage	1 word	16 bits	HEX	0x1804	36149	
	Port 6 PoE Voltage	1 word	16 bits	HEX	0x1805	36150	
	Port 7 PoE Voltage	1 word	16 bits	HEX	0x1806	36151	
	Port 8 PoE Voltage	1 word	16 bits	HEX	0x1807	36152	
	Port 9 PoE Voltage	1 word	16 bits	HEX	0x1808	36153	
	Port 10 PoE Voltage	1 word	16 bits	HEX	0x1809	36154	
	Port 11 PoE Voltage	1 word	16 bits	HEX	0x180A	36155	
	Port 12 PoE Voltage	1 word	16 bits	HEX	0x180B	36156	
	Port 13 PoE Voltage	1 word	16 bits	HEX	0x180C	36157	
	Port 14 PoE Voltage	1 word	16 bits	HEX	0x180D	36158	
	Port 15 PoE Voltage	1 word	16 bits	HEX	0x180E	36159	
	Port 16 PoE Voltage	1 word	16 bits	HEX	0x180F	36160	
	Port 17 PoE Voltage	1 word	16 bits	HEX	0x1810	36161	
	Port 18 PoE Voltage	1 word	16 bits	HEX	0x1811	36162	
	Port 19 PoE Voltage	1 word	16 bits	HEX	0x1812	36163	
	Port 20 PoE Voltage	1 word	16 bits	HEX	0x1813	36164	
	Port 21 PoE Voltage	1 word	16 bits	HEX	0x1814	36165	
	Port 22 PoE Voltage	1 word	16 bits	HEX	0x1815	36166	
	Port 23 PoE Voltage	1 word	16 bits	HEX	0x1816	36167	
	Port 24 PoE Voltage	1 word	16 bits	HEX	0x1817	36168	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 25 PoE Voltage	1 word	16 bits	HEX	0x1818	36169	
	Port 26 PoE Voltage	1 word	16 bits	HEX	0x1819	36170	
	Port 27 PoE Voltage	1 word	16 bits	HEX	0x181A	36171	
	Port 28 PoE Voltage	1 word	16 bits	HEX	0x181B	36172	
	Port 29 PoE Voltage	1 word	16 bits	HEX	0x181C	36173	
	Port 30 PoE Voltage	1 word	16 bits	HEX	0x181D	36174	
	Port 31 PoE Voltage	1 word	16 bits	HEX	0x181E	36175	
	Port 32 PoE Voltage	1 word	16 bits	HEX	0x181F	36176	
	PoE Current	1 word	16 bits	HEX	0x1820 ~ 0x183F	36177 ~ 36208	PoE Current (mA) Ex: PoE current = 13 Received MODBUS response: 0x000D
	Port 1 PoE Current	1 word	16 bits	HEX	0x1820	36177	
	Port 2 PoE Current	1 word	16 bits	HEX	0x1821	36178	
	Port 3 PoE Current	1 word	16 bits	HEX	0x1822	36179	
	Port 4 PoE Current	1 word	16 bits	HEX	0x1823	36180	
	Port 5 PoE Current	1 word	16 bits	HEX	0x1824	36181	
	Port 6 PoE Current	1 word	16 bits	HEX	0x1825	36182	
	Port 7 PoE Current	1 word	16 bits	HEX	0x1826	36183	
	Port 8 PoE Current	1 word	16 bits	HEX	0x1827	36184	
	Port 9 PoE Current	1 word	16 bits	HEX	0x1828	36185	
	Port 10 PoE Current	1 word	16 bits	HEX	0x1829	36186	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 11 PoE Current	1 word	16 bits	HEX	0x182A	36187	
	Port 12 PoE Current	1 word	16 bits	HEX	0x182B	36188	
	Port 13 PoE Current	1 word	16 bits	HEX	0x182C	36189	
	Port 14 PoE Current	1 word	16 bits	HEX	0x182D	36190	
	Port 15 PoE Current	1 word	16 bits	HEX	0x182E	36191	
	Port 16 PoE Current	1 word	16 bits	HEX	0x182F	36192	
	Port 17 PoE Current	1 word	16 bits	HEX	0x1830	36193	
	Port 18 PoE Current	1 word	16 bits	HEX	0x1831	36194	
	Port 19 PoE Current	1 word	16 bits	HEX	0x1832	36195	
	Port 20 PoE Current	1 word	16 bits	HEX	0x1833	36196	
	Port 21 PoE Current	1 word	16 bits	HEX	0x1834	36197	
	Port 22 PoE Current	1 word	16 bits	HEX	0x1835	36198	
	Port 23 PoE Current	1 word	16 bits	HEX	0x1836	36199	
	Port 24 PoE Current	1 word	16 bits	HEX	0x1837	36200	
	Port 25 PoE Current	1 word	16 bits	HEX	0x1838	36201	
	Port 26 PoE Current	1 word	16 bits	HEX	0x1839	36202	
	Port 27 PoE Current	1 word	16 bits	HEX	0x183A	36203	
	Port 28 PoE Current	1 word	16 bits	HEX	0x183B	36204	
	Port 29 PoE Current	1 word	16 bits	HEX	0x183C	36205	
	Port 30 PoE Current	1 word	16 bits	HEX	0x183D	36206	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 31 PoE Current	1 word	16 bits	HEX	0x183E	36207	
	Port 32 PoE Current	1 word	16 bits	HEX	0x183F	36208	
	PoE Power	1 word	16 bits	HEX	0x1840 ~ 0x185F	36209 ~ 36240	PoE Power (W) Ex: PoE power = 10 Received MODBUS response: 0x000A
	Port 1 PoE Power	1 word	16 bits	HEX	0x1840	36209	
	Port 2 PoE Power	1 word	16 bits	HEX	0x1841	36210	
	Port 3 PoE Power	1 word	16 bits	HEX	0x1842	36211	
	Port 4 PoE Power	1 word	16 bits	HEX	0x1843	36212	
	Port 5 PoE Power	1 word	16 bits	HEX	0x1844	36213	
	Port 6 PoE Power	1 word	16 bits	HEX	0x1845	36214	
	Port 7 PoE Power	1 word	16 bits	HEX	0x1846	36215	
	Port 8 PoE Power	1 word	16 bits	HEX	0x1847	36216	
	Port 9 PoE Power	1 word	16 bits	HEX	0x1848	36217	
	Port 10 PoE Power	1 word	16 bits	HEX	0x1849	36218	
	Port 11 PoE Power	1 word	16 bits	HEX	0x184A	36219	
	Port 12 PoE Power	1 word	16 bits	HEX	0x184B	36220	
	Port 13 PoE Power	1 word	16 bits	HEX	0x184C	36221	
	Port 14 PoE Power	1 word	16 bits	HEX	0x184D	36222	
	Port 15 PoE Power	1 word	16 bits	HEX	0x184E	36223	
	Port 16 PoE Power	1 word	16 bits	HEX	0x184F	36224	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 17 PoE Power	1 word	16 bits	HEX	0x1850	36225	
	Port 18 PoE Power	1 word	16 bits	HEX	0x1851	36226	
	Port 19 PoE Power	1 word	16 bits	HEX	0x1852	36227	
	Port 20 PoE Power	1 word	16 bits	HEX	0x1853	36228	
	Port 21 PoE Power	1 word	16 bits	HEX	0x1854	36229	
	Port 22 PoE Power	1 word	16 bits	HEX	0x1855	36230	
	Port 23 PoE Power	1 word	16 bits	HEX	0x1856	36231	
	Port 24 PoE Power	1 word	16 bits	HEX	0x1857	36232	
	Port 25 PoE Power	1 word	16 bits	HEX	0x1858	36233	
	Port 26 PoE Power	1 word	16 bits	HEX	0x1859	36234	
	Port 27 PoE Power	1 word	16 bits	HEX	0x185A	36235	
	Port 28 PoE Power	1 word	16 bits	HEX	0x185B	36236	
	Port 29 PoE Power	1 word	16 bits	HEX	0x185C	36237	
	Port 30 PoE Power	1 word	16 bits	HEX	0x185D	36238	
	Port 31 PoE Power	1 word	16 bits	HEX	0x185E	36239	
	Port 32 PoE Power	1 word	16 bits	HEX	0x185F	36240	
	PoE Temperature	1 word	16 bits	HEX	0x1860 ~ 0x187F	36241 ~ 36272	PoE Temperature (C) Ex: PoE temperature = 32 Received MODBUS response: 0x0020
	Port 1 PoE Temperature	1 word	16 bits	HEX	0x1860	36241	
	Port 2 PoE Temperature	1 word	16 bits	HEX	0x1861	36242	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 3 PoE Temperature	1 word	16 bits	HEX	0x1862	36243	
	Port 4 PoE Temperature	1 word	16 bits	HEX	0x1863	36244	
	Port 5 PoE Temperature	1 word	16 bits	HEX	0x1864	36245	
	Port 6 PoE Temperature	1 word	16 bits	HEX	0x1865	36246	
	Port 7 PoE Temperature	1 word	16 bits	HEX	0x1866	36247	
	Port 8 PoE Temperature	1 word	16 bits	HEX	0x1867	36248	
	Port 9 PoE Temperature	1 word	16 bits	HEX	0x1868	36249	
	Port 10 PoE Temperature	1 word	16 bits	HEX	0x1869	36250	
	Port 11 PoE Temperature	1 word	16 bits	HEX	0x186A	36251	
	Port 12 PoE Temperature	1 word	16 bits	HEX	0x186B	36252	
	Port 13 PoE Temperature	1 word	16 bits	HEX	0x186C	36253	
	Port 14 PoE Temperature	1 word	16 bits	HEX	0x186D	36254	
	Port 15 PoE Temperature	1 word	16 bits	HEX	0x186E	36255	
	Port 16 PoE Temperature	1 word	16 bits	HEX	0x186F	36256	
	Port 17 PoE Temperature	1 word	16 bits	HEX	0x1870	36257	
	Port 18 PoE Temperature	1 word	16 bits	HEX	0x1871	36258	
	Port 19 PoE Temperature	1 word	16 bits	HEX	0x1872	36259	
	Port 20 PoE Temperature	1 word	16 bits	HEX	0x1873	36260	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Port Info	Port 23 PoE Temperature	1 word	16 bits	HEX	0x1876	36263	
	Port 24 PoE Temperature	1 word	16 bits	HEX	0x1877	36264	
	Port 25 PoE Temperature	1 word	16 bits	HEX	0x1878	36265	
	Port 26 PoE Temperature	1 word	16 bits	HEX	0x1879	36266	
	Port 27 PoE Temperature	1 word	16 bits	HEX	0x187A	36267	
	Port 28 PoE Temperature	1 word	16 bits	HEX	0x187B	36268	
	Port 29 PoE Temperature	1 word	16 bits	HEX	0x187C	36269	
	Port 30 PoE Temperature	1 word	16 bits	HEX	0x187D	36270	
	Port 31 PoE Temperature	1 word	16 bits	HEX	0x187E	36271	
	Port 32 PoE Temperature	1 word	16 bits	HEX	0x187F	36272	
Packet Info	Tx Packets Counter	4 words	64 bits	HEX	0x2000 ~ 0x207C	38193 ~ 38317	Tx Packets Ex: port 1 Tx Packet Amount = 11223344 Received MODBUS response: 0xAB4130 Word 0 = 0x0000 Word 1 = 0x0000 Word 2 = 0x00AB Word 3 = 0x4130
	Port 1 Tx Packets	4 words	64 bits	HEX	0x2000	38193	
	Port 2 Tx Packets	4 words	64 bits	HEX	0x2004	38197	
	Port 3 Tx Packets	4 words	64 bits	HEX	0x2008	38201	
	Port 4 Tx Packets	4 words	64 bits	HEX	0x200C	38205	
	Port 5 Tx Packets	4 words	64 bits	HEX	0x2010	38209	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Packet Info	Port 6 Tx Packets	4 words	64 bits	HEX	0x2014	38213	
	Port 7 Tx Packets	4 words	64 bits	HEX	0x2018	38217	
	Port 8 Tx Packets	4 words	64 bits	HEX	0x201C	38221	
	Port 9 Tx Packets	4 words	64 bits	HEX	0x2020	38225	
	Port 10 Tx Packets	4 words	64 bits	HEX	0x2024	38229	
	Port 11 Tx Packets	4 words	64 bits	HEX	0x2028	38233	
	Port 12 Tx Packets	4 words	64 bits	HEX	0x202C	38237	
	Port 13 Tx Packets	4 words	64 bits	HEX	0x2030	38241	
	Port 14 Tx Packets	4 words	64 bits	HEX	0x2034	38245	
	Port 15 Tx Packets	4 words	64 bits	HEX	0x2038	38249	
	Port 16 Tx Packets	4 words	64 bits	HEX	0x203C	38253	
	Port 17 Tx Packets	4 words	64 bits	HEX	0x2040	38257	
	Port 18 Tx Packets	4 words	64 bits	HEX	0x2044	38261	
	Port 19 Tx Packets	4 words	64 bits	HEX	0x2048	38265	
	Port 20 Tx Packets	4 words	64 bits	HEX	0x204C	38269	
	Port 21 Tx Packets	4 words	64 bits	HEX	0x2050	38273	
	Port 22 Tx Packets	4 words	64 bits	HEX	0x2054	38277	
	Port 23 Tx Packets	4 words	64 bits	HEX	0x2058	38281	
	Port 24 Tx Packets	4 words	64 bits	HEX	0x205C	38285	
	Port 25 Tx Packets	4 words	64 bits	HEX	0x2060	38289	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Packet Info	Port 26 Tx Packets	4 words	64 bits	HEX	0x2064	38293	
	Port 27 Tx Packets	4 words	64 bits	HEX	0x2068	38297	
	Port 28 Tx Packets	4 words	64 bits	HEX	0x206C	38301	
	Port 29 Tx Packets	4 words	64 bits	HEX	0x2070	38305	
	Port 30 Tx Packets	4 words	64 bits	HEX	0x2074	38309	
	Port 31 Tx Packets	4 words	64 bits	HEX	0x2078	38313	
	Port 32 Tx Packets	4 words	64 bits	HEX	0x207C	38317	
	Rx Packets Counter	4 words	64 bits	HEX	0x2100 ~0x217C	38449 ~ 38573	Rx Packets Ex: port 1 Rx Packet Amount = 11223344 Received MODBUS response: 0xAB4130 Word 0 = 0x0000 Word 1 = 0x0000 Word 2 = 0x00AB Word 3 = 0x4130
	Port 1 Rx Packets	4 words	64 bits	HEX	0x2100	38449	
	Port 2 Rx Packets	4 words	64 bits	HEX	0x2104	38453	
	Port 3 Rx Packets	4 words	64 bits	HEX	0x2108	38457	
	Port 4 Rx Packets	4 words	64 bits	HEX	0x210C	38461	
	Port 5 Rx Packets	4 words	64 bits	HEX	0x2110	38465	
	Port 6 Rx Packets	4 words	64 bits	HEX	0x2114	38469	
	Port 7 Rx Packets	4 words	64 bits	HEX	0x2118	38473	
	Port 8 Rx Packets	4 words	64 bits	HEX	0x211C	38477	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Packet Info	Port 9 Rx Packets	4 words	64 bits	HEX	0x2120	38481	
	Port 10 Rx Packets	4 words	64 bits	HEX	0x2124	38485	
	Port 11 Rx Packets	4 words	64 bits	HEX	0x2128	38489	
	Port 12 Rx Packets	4 words	64 bits	HEX	0x212C	38493	
	Port 13 Rx Packets	4 words	64 bits	HEX	0x2130	38497	
	Port 14 Rx Packets	4 words	64 bits	HEX	0x2134	38501	
	Port 15 Rx Packets	4 words	64 bits	HEX	0x2138	38505	
	Port 16 Rx Packets	4 words	64 bits	HEX	0x213C	38509	
	Port 17 Rx Packets	4 words	64 bits	HEX	0x2140	38513	
	Port 18 Rx Packets	4 words	64 bits	HEX	0x2144	38517	
	Port 19 Rx Packets	4 words	64 bits	HEX	0x2148	38521	
	Port 20 Rx Packets	4 words	64 bits	HEX	0x214C	38525	
	Port 21 Rx Packets	4 words	64 bits	HEX	0x2150	38529	
	Port 22 Rx Packets	4 words	64 bits	HEX	0x2154	38533	
	Port 23 Rx Packets	4 words	64 bits	HEX	0x2158	38537	
	Port 24 Rx Packets	4 words	64 bits	HEX	0x215C	38541	
	Port 25 Rx Packets	4 words	64 bits	HEX	0x2160	38545	
	Port 26 Rx Packets	4 words	64 bits	HEX	0x2164	38549	
	Port 27 Rx Packets	4 words	64 bits	HEX	0x2168	38553	
	Port 28 Rx Packets	4 words	64 bits	HEX	0x216C	38557	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Packet Info	Port 29 Rx Packets	4 words	64 bits	HEX	0x2170	38561	
	Port 30 Rx Packets	4 words	64 bits	HEX	0x2174	38565	
	Port 31 Rx Packets	4 words	64 bits	HEX	0x2178	38569	
	Port 32 Rx Packets	4 words	64 bits	HEX	0x217C	38573	
	Tx Error Packets Counter	2 words	32 bits	HEX	0x2200 ~ 0x223E	38705 ~ 38767	Tx Error Packets Ex: port 1 Tx Packet Amount = 11223344 Received MODBUS response: 0xAB4130 Word 0 = 0x00AB Word 1 = 0x4130
	Port 1 Tx Error Packets	2 words	32 bits	HEX	0x2200	38705	
	Port 2 Tx Error Packets	2 words	32 bits	HEX	0x2202	38707	
	Port 3 Tx Error Packets	2 words	32 bits	HEX	0x2204	38709	
	Port 4 Tx Error Packets	2 words	32 bits	HEX	0x2206	38711	
	Port 5 Tx Error Packets	2 words	32 bits	HEX	0x2208	38713	
	Port 6 Tx Error Packets	2 words	32 bits	HEX	0x220A	38715	
	Port 7 Tx Error Packets	2 words	32 bits	HEX	0x220C	38717	
	Port 8 Tx Error Packets	2 words	32 bits	HEX	0x220E	38719	
	Port 9 Tx Error Packets	2 words	32 bits	HEX	0x2210	38721	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Packet Info	Port 10 Tx Error Packets	2 words	32 bits	HEX	0x2212	38723	
	Port 11 Tx Error Packets	2 words	32 bits	HEX	0x2214	38725	
	Port 12 Tx Error Packets	2 words	32 bits	HEX	0x2216	38727	
	Port 13 Tx Error Packets	2 words	32 bits	HEX	0x2218	38729	
	Port 14 Tx Error Packets	2 words	32 bits	HEX	0x221A	38731	
	Port 15 Tx Error Packets	2 words	32 bits	HEX	0x221C	38733	
	Port 16 Tx Error Packets	2 words	32 bits	HEX	0x221E	38735	
	Port 17 Tx Error Packets	2 words	32 bits	HEX	0x2220	38737	
	Port 18 Tx Error Packets	2 words	32 bits	HEX	0x2222	38739	
	Port 19 Tx Error Packets	2 words	32 bits	HEX	0x2224	38741	
	Port 20 Tx Error Packets	2 words	32 bits	HEX	0x2226	38743	
	Port 21 Tx Error Packets	2 words	32 bits	HEX	0x2228	38745	
	Port 22 Tx Error Packets	2 words	32 bits	HEX	0x222A	38747	
	Port 23 Tx Error Packets	2 words	32 bits	HEX	0x222C	38749	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Packet Info	Port 24 Tx Error Packets	2 words	32 bits	HEX	0x222E	38751	
	Port 25 Tx Error Packets	2 words	32 bits	HEX	0x2230	38753	
	Port 26 Tx Error Packets	2 words	32 bits	HEX	0x2232	38755	
	Port 27 Tx Error Packets	2 words	32 bits	HEX	0x2234	38757	
	Port 28 Tx Error Packets	2 words	32 bits	HEX	0x2236	38759	
	Port 29 Tx Error Packets	2 words	32 bits	HEX	0x2238	38761	
	Port 30 Tx Error Packets	2 words	32 bits	HEX	0x223A	38763	
	Port 31 Tx Error Packets	2 words	32 bits	HEX	0x223C	38765	
	Port 32 Tx Error Packets	2 words	32 bits	HEX	0x223E	38767	
	Rx Error Packets Counter	2 words	32 bits	HEX	0x2300 ~ 0x233E	38961 ~ 39023	Rx Error Packets Ex: port 1 Rx Packet Amount = 11223344 Received MODBUS response: 0xAB4130 Word 0 = 0x00AB Word 1 = 0x4130
	Port 1 Rx Error Packets	2 words	32 bits	HEX	0x2300	38961	
	Port 2 Rx Error Packets	2 words	32 bits	HEX	0x2302	38963	
	Port 3 Rx Error Packets	2 words	32 bits	HEX	0x2304	38965	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Packet Info	Port 4 Rx Error Packets	2 words	32 bits	HEX	0x2306	38967	
	Port 5 Rx Error Packets	2 words	32 bits	HEX	0x2308	38969	
	Port 6 Rx Error Packets	2 words	32 bits	HEX	0x230A	38971	
	Port 7 Rx Error Packets	2 words	32 bits	HEX	0x230C	38973	
	Port 8 Rx Error Packets	2 words	32 bits	HEX	0x230E	38975	
	Port 9 Rx Error Packets	2 words	32 bits	HEX	0x2310	38977	
	Port 10 Rx Error Packets	2 words	32 bits	HEX	0x2312	38979	
	Port 11 Rx Error Packets	2 words	32 bits	HEX	0x2314	38981	
	Port 12 Rx Error Packets	2 words	32 bits	HEX	0x2316	38983	
	Port 13 Rx Error Packets	2 words	32 bits	HEX	0x2318	38985	
	Port 14 Rx Error Packets	2 words	32 bits	HEX	0x231A	38987	
	Port 15 Rx Error Packets	2 words	32 bits	HEX	0x231C	38989	
	Port 16 Rx Error Packets	2 words	32 bits	HEX	0x231E	38991	
	Port 17 Rx Error Packets	2 words	32 bits	HEX	0x2320	38993	

Catalog	Name	Data Type		Interpretation	Address Offset (Hex)	Address 3X	Description
Packet Info	Port 18 Rx Error Packets	2 words	32 bits	HEX	0x2322	38995	
	Port 19 Rx Error Packets	2 words	32 bits	HEX	0x2324	38997	
	Port 20 Rx Error Packets	2 words	32 bits	HEX	0x2326	38999	
	Port 21 Rx Error Packets	2 words	32 bits	HEX	0x2328	39001	
	Port 22 Rx Error Packets	2 words	32 bits	HEX	0x232A	39003	
	Port 23 Rx Error Packets	2 words	32 bits	HEX	0x232C	39005	
	Port 24 Rx Error Packets	2 words	32 bits	HEX	0x232E	39007	
	Port 25 Rx Error Packets	2 words	32 bits	HEX	0x2330	39009	
	Port 26 Rx Error Packets	2 words	32 bits	HEX	0x2332	39011	
	Port 27 Rx Error Packets	2 words	32 bits	HEX	0x2334	39013	
	Port 28 Rx Error Packets	2 words	32 bits	HEX	0x2336	39015	
	Port 29 Rx Error Packets	2 words	32 bits	HEX	0x2338	39017	
	Port 30 Rx Error Packets	2 words	32 bits	HEX	0x233A	39019	
Packet Info	Port 31 Rx Error Packets	2 words	32 bits	HEX	0x233C	39021	
	Port 32 Rx Error Packets	2 words	32 bits	HEX	0x233E	39023	

Chapter 2

EtherNet/IP

2.1 Overview

EtherNet/IP was introduced in 2001, it is the leading proven industrial automation communications technology based on standard Ethernet and Internet technology. Developed and managed by ODVA, EtherNet/IP is open and supported by hundreds of supplier companies.

Advantech EtherNet/IP switches provide Faceplate, Add-on Instruction (AOI), Electronic Data Sheet (EDS), so users can easily integrate with Rockwell systems or other EtherNet/IP systems to monitor and configure switches.

ODVA certificated, Advantech EtherNet/IP switches are quite simply reliable and rugged.

2.2 Supported Hardware

The following is a list of devices supported by the AOI program.

Model	Version
1756-L61	V19 and higher
1756-L62	V19 and higher
1756-L63	V19 and higher
1756-L64	V19 and higher
1756-L65	V19 and higher
1756-L71	V20 and higher
1756-L72	V19 and higher
1756-L73	V19 and higher
1756-L74	V19 and higher
1756-L75	V19 and higher
1769-L32E	V19 and higher
1769-L35E	V19 and higher
1769-L30ER	V20 and higher
1769-L30ERM	V20 and higher
1769-L30ER-NSE	V20 and higher
1769-L33ER	V20 and higher
1769-L33ERM	V20 and higher
1769-L36ERM	V20 and higher
1769-L24ER-QB1B	V20 and higher
1769-L24ER-QBFC1B	V20 and higher
1769-L24ERM-QBFC1B	V20 and higher
1769-L16ER-BB1B	V20 and higher
1769-L18ER-BB1B	V20 and higher
1769-L18ERM-BB1B	V20 and higher

2.3 Requirements

2.3.1 SCADA Requirements

- AB FactoryTalk® View v8.0

2.3.2 Hardware

- Personal computer with an Intel Pentium 4 processor (2 GHz or faster processor recommended).
- Memory (RAM): 1 GB (or more) for 32-bit systems. A minimum of 2 GB required for 64-bit operating systems
- Hard disk space: Minimum 1.5 G
- Human Machine Interface (HMI) requirements:
  - Model: AB 2711P-XXXXXX
  - PanelView Plus 6 (700 or higher)
  - PanelView Plus 7 (700 or higher)
  - Version 8.0

2.3.3 Operating System

The host computer must be equipped with any of the following operating systems to support the AOI program operations.

- Windows XP 32/64bit Professional version or higher
- Window 7 32/64bit Professional version or higher
- Windows 8 64bit Professional version or higher
- Windows Server 2012 32/64bit Professional version or higher

2.4 Configuring the Controller Device

This section provides a path for configuring and programming the controller device. Once the device is configured, the settings are saved to an AOI file for exporting to PLC devices.

Note! *PLC device is required before you can fully configure the device. The included software and installation guide for the PLC device from the manufacturer are required to fully configure the controller device.*

Two possible methods for configuring and programming are available. The following outlines the use of the Logix application and FactoryTalk® View ME, the latter of the two options.

For further reference, FactoryTalk® View is the application to allow you to generate a user interface. Two possible UI types are available, Machine Edition and Site Edition. The ME UI is intended for HMI devices, while the SE UI is for a personal computer.

2.4.1 Configuring in Logix

The Logix application provides the functionality required to create an AOI file. The RSLogix5000 v19 or higher is required for this procedure.

1. Prior to getting started, locate the necessary example file(s) from the enclosed CD.
2. Locate the RSLogix5000 application and open it.
3. Once in the main menu, navigate to the File main menu and select **Open** to open an existing file or **New** to create a new file.
4. If you selected **New**, the **New Controller** window displays. Select the hardware architecture for your main board type. See the following image for further details.
   - Click the **Vendor** drop-down menu to select the hardware vendor.
   - Click the **Type** drop-down menu to select the type of hardware.

– Click the **Revision** drop-down menu to select the revisions variable.
– Tick the **Redundancy Enabled** field if required.
– In the **Name** field, enter the name to identify this controller.
– In the **Description** field, enter a brief description to better identify the new controller, include items such as location, settings type, etc.
– Click the **Chassis Type** drop-down menu to select the chassis type.
– Use the **Slot** numeric entry field to identify the slot number.
– In the **Create In** field, click Browse to select the directory to save the settings.
– Click the **Security Authority** drop-down menu to enable the security authority function.

If security authority is enabled, the **Use only the selected Security Authentication and Authorization** option is available. Tick the option to set authorization and authentication to the selected security authority as configured in the **Security Authority** field.

5. Click **OK** to continue.

Note! *If a matching file is already present, a prompt displays. Select Yes to replace the file or No to return to the previous menu.*

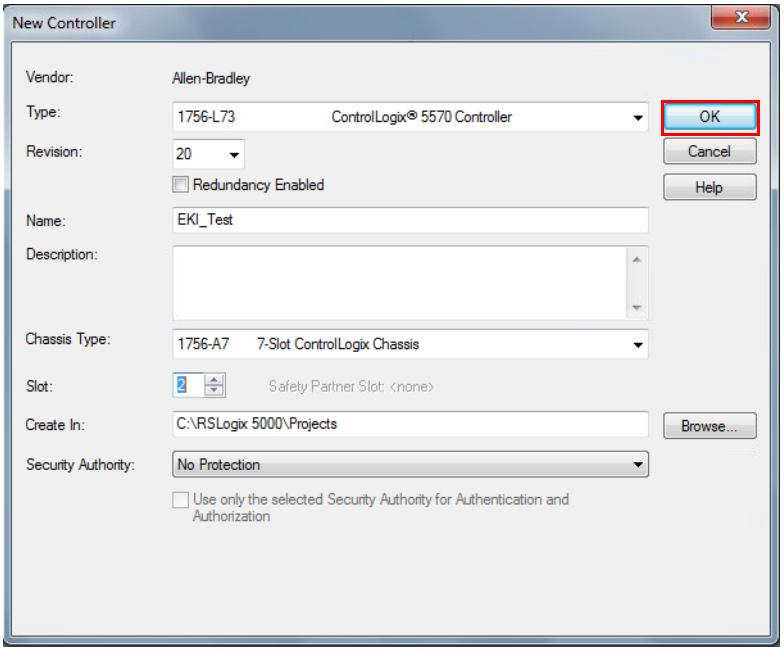


Figure 2.1 Creating a New Controller

For 1756 Series users see the following procedures, otherwise continue onto 6:

The following procedure creates an Ethernet module.

- Under the I/O Configuration root, right-click on the available configuration and select New Module to create an Ethernet controller. See the following figure.

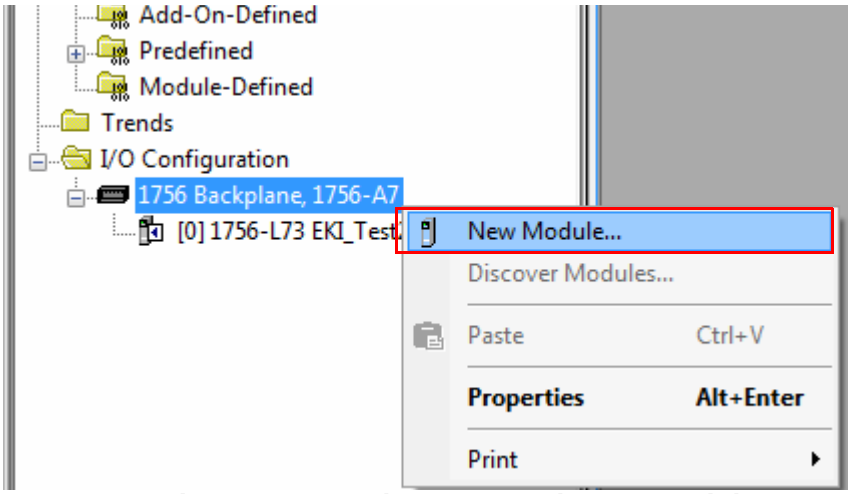


Figure 2.2 Creating a New Ethernet Module

- The Select Module Type screen displays. Scroll down to select the following:
  - 1756-ENBT (1756 10/100 Mbps Ethernet Bridge, Twisted-Pair Media
- Click **Create** to continue and create a new controller listing.

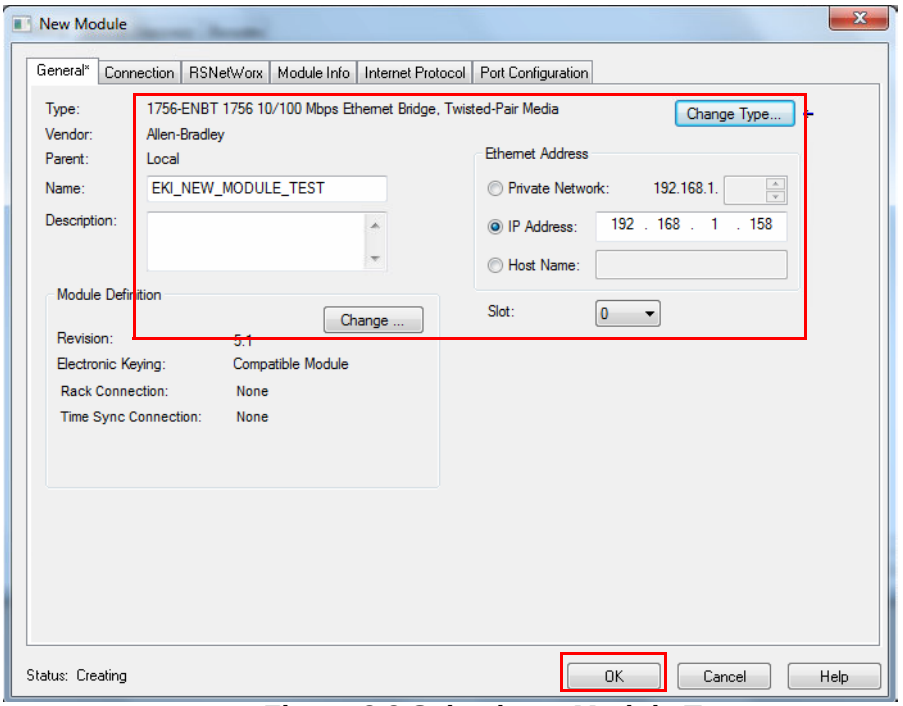


Figure 2.3 Selecting a Module Type

The newly created Module Properties listing displays, see the following figure.

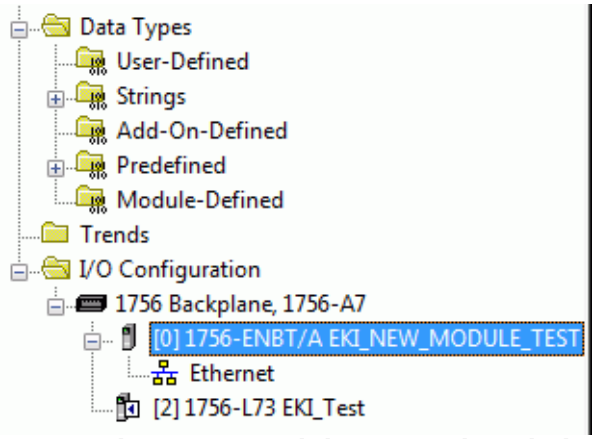


Figure 2.4 Module Properties Listing

This ends the procedures specific to the 1756 series.

Users other than the 1756 series can continue here with the configuration procedure.

6. Select the Ethernet entry and right click on it to open the menu bar.
7. Select **New Module** to define the module type, see the following figure.

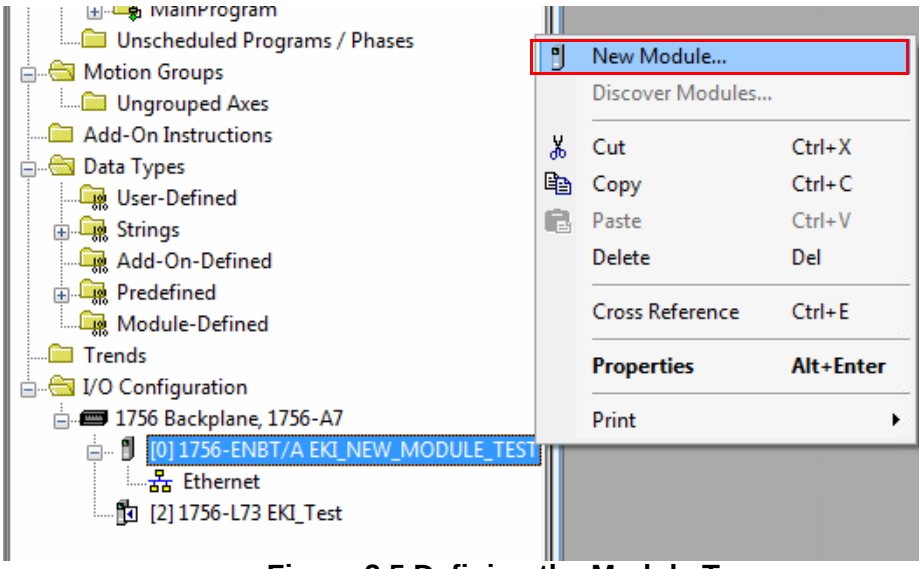


Figure 2.5 Defining the Module Type

The Select Module Type window displays.

8. Under the Catalog tab, scroll down to find ETHERNET-MODULE type and select it.
9. Click **Close on Create** to close the displayed window (optional).

10. Click **Create** to continue.

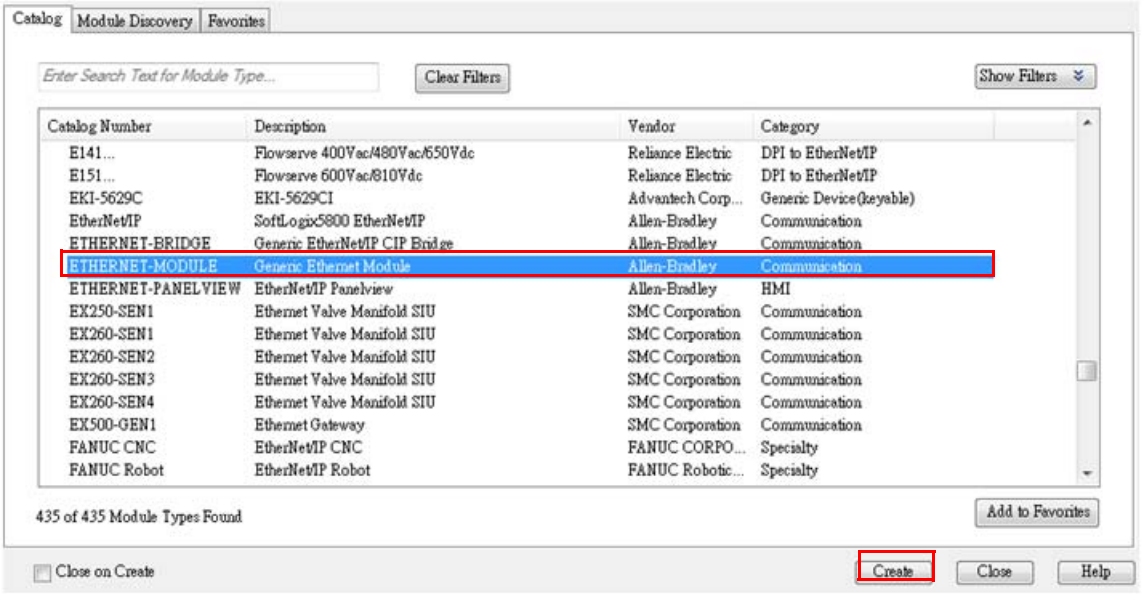


Figure 2.6 Creating an Ethernet Module Type

11. Select the General tab to modify the parameters. The Connection and Module Info parameters are fixed and aren't modifiable.

- In the **Name** field, enter the module name. In the following figure, EKI_Module1 is used.
- Under Connection Parameters, enter the values as shown in the following figure. The parameters must match the stated values or the parameters found in the EDS file.
- Under Address / Host Name, select IP Address and enter the designated IP address value.
  If a secondary I/O Configuration is available, make sure to use a different name for example EKI_Module2.

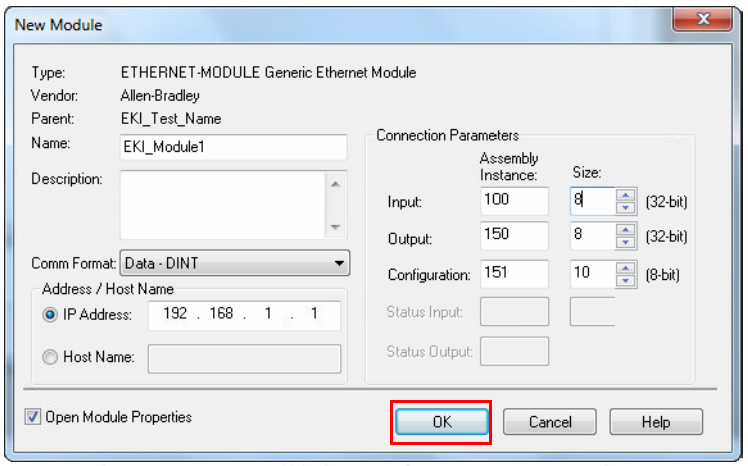


Figure 2.7 Modifying Ethernet General Parameters

12. Select the **Connection** tab and set the Requested Packet Interval (RPI) field (suggested: 1000.0 ms).

13. Click Ok to continue and return to the main screen.

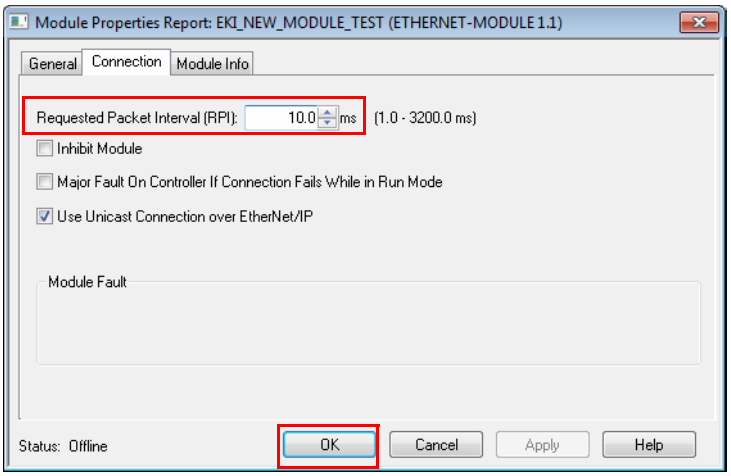


Figure 2.8 Modifying Ethernet Module Parameters

14. Click **Tasks** > **MainTask** > **MainProgram** to view **MainRoutine**.
15. Right click on **MainRoutine** submenu and elect Open to display the Rung Routine window.

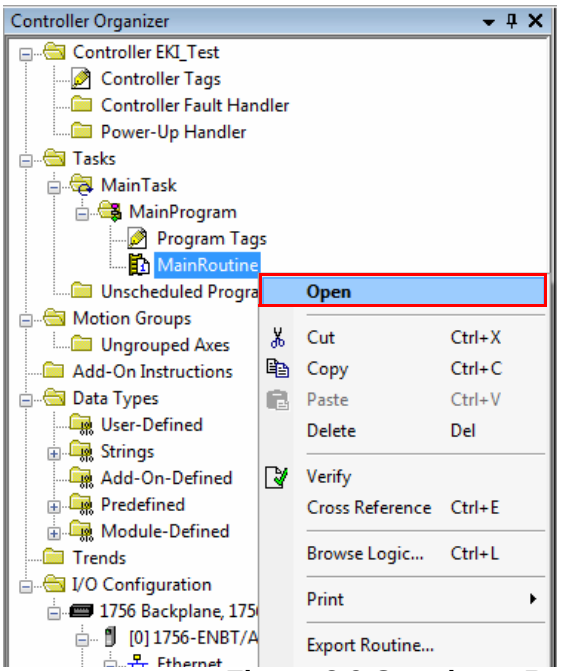


Figure 2.9 Creating a Routine

16. Select a Rung Ladder and right click on it to open the Properties menu.

17. Scroll down and select **Import Rungs**.

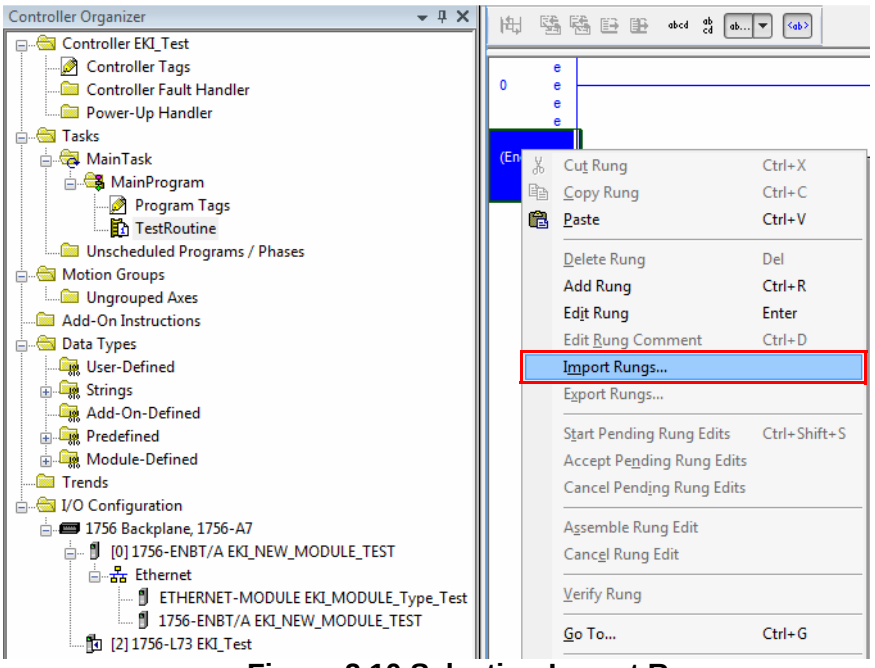


Figure 2.10 Selecting Import Rungs

The Import Rungs window displays.

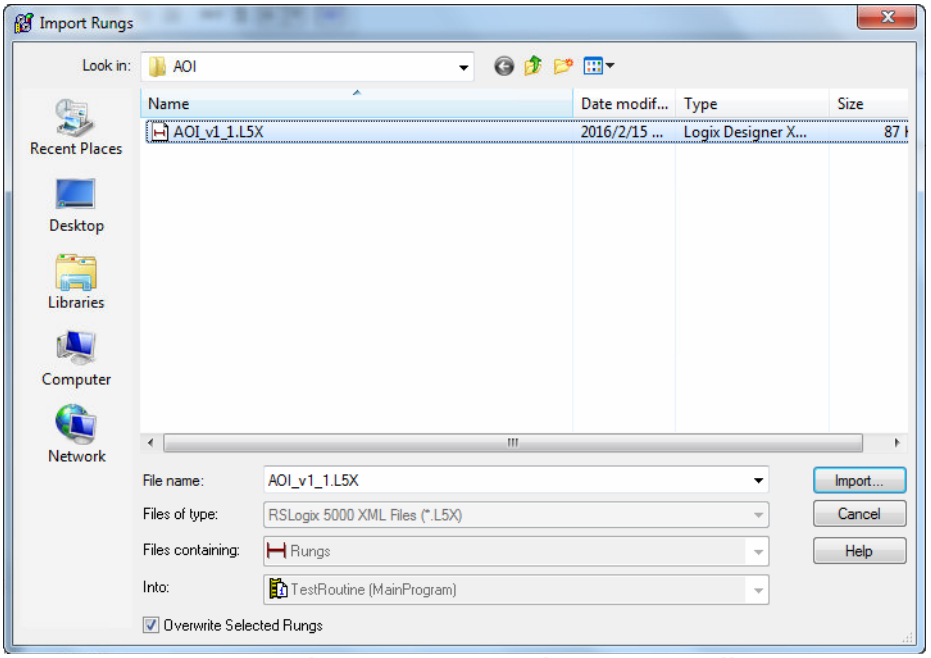


Figure 2.11 Importing a Rung File

Before you can overwrite any of the selected Rung files, select the **Overwrite Selected Rungs** option.

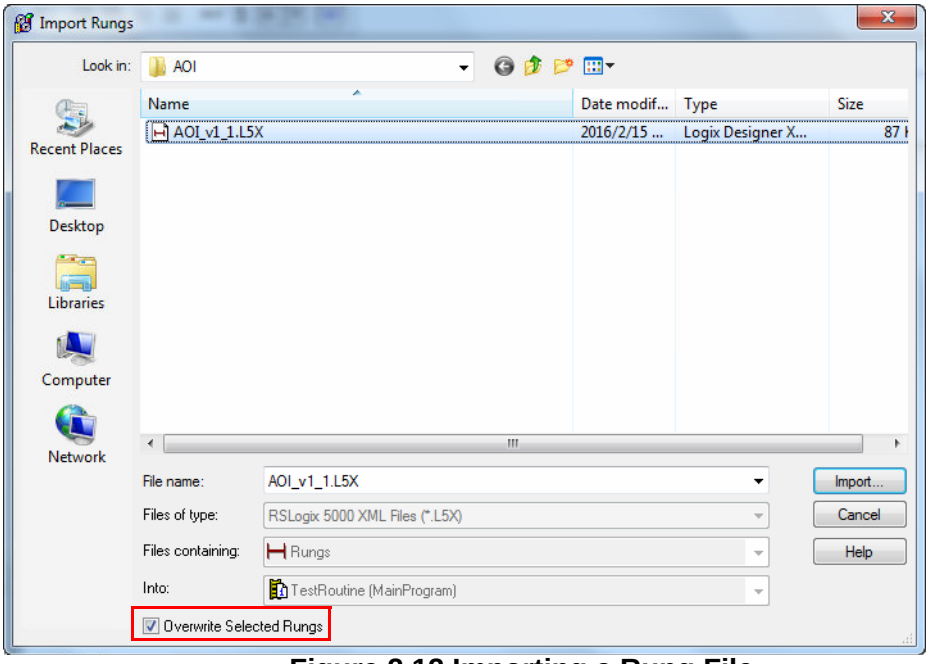


Figure 2.12 Importing a Rung File

18. Locate the target file and click **Import** to import the file and continue the process, see the following figure.

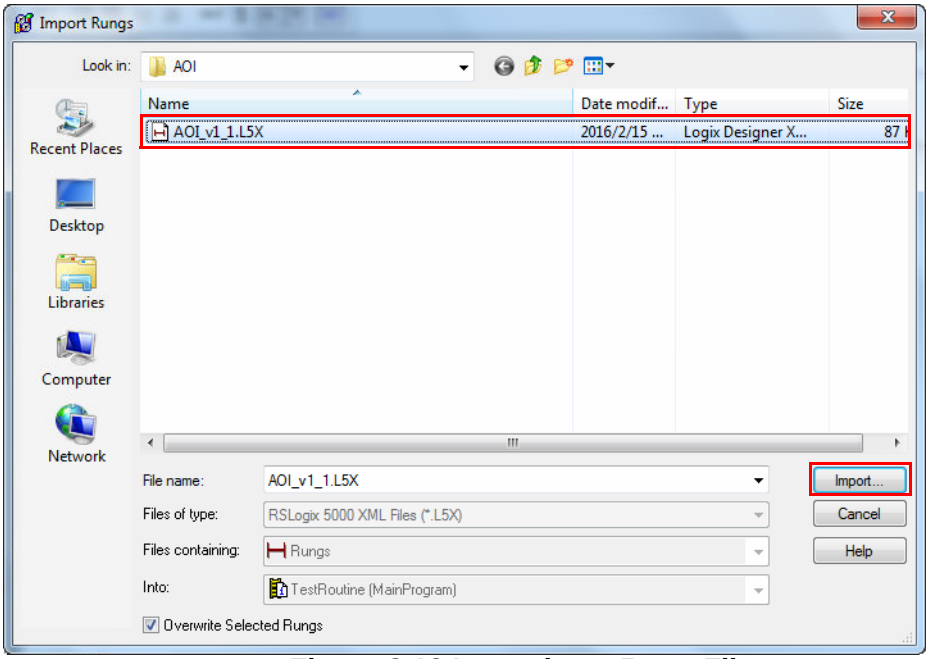
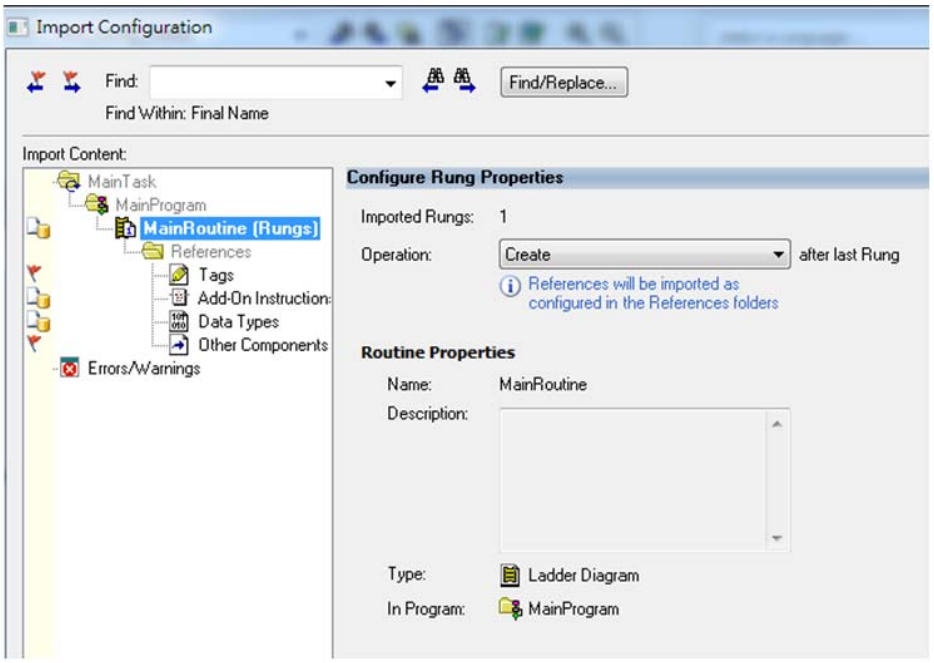


Figure 2.13 Importing a Rung File

The Configure Rung Properties window displays.



To configure a single EKI switch setup, go to “Setting Message Configuration Parameters” on page 40.

For a multiple EKI switch configuration, see the following:

- Import a second AOI file.
- Under **TestRoutine (Rungs)** > **References**, locate **Tags**.
- Locate and change all tags marked EKI_Switch1 to EKI_Switch2, see the following figure.
- Click OK to complete the process.

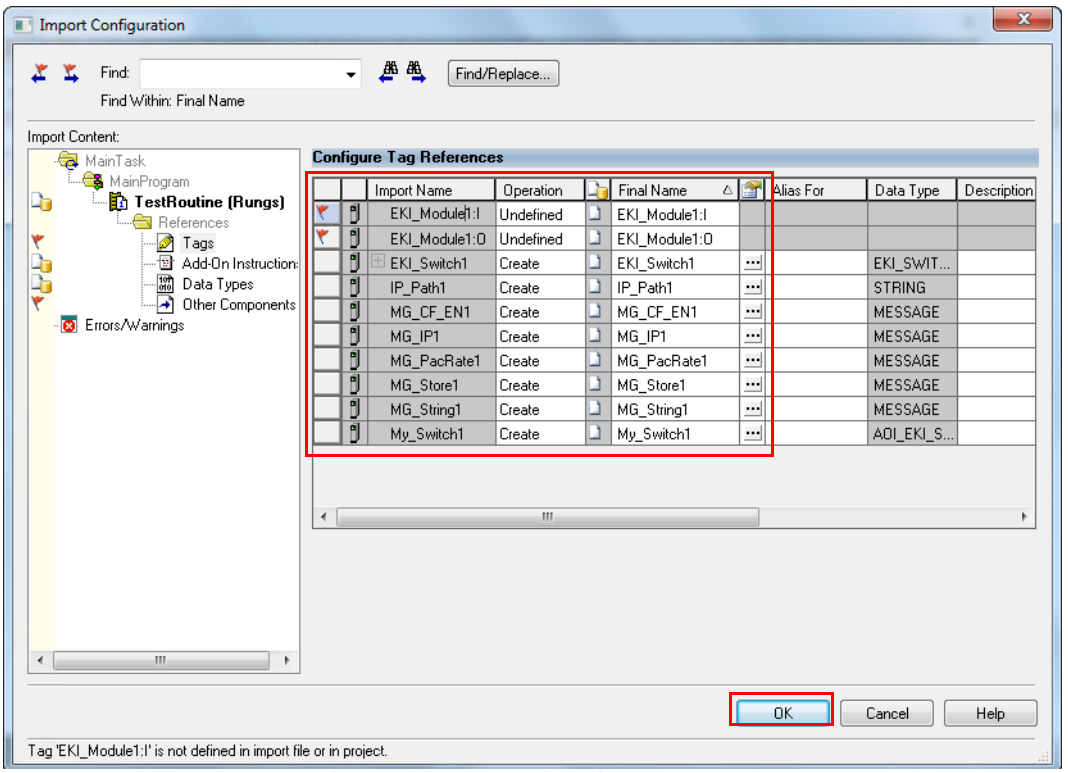


Figure 2.14 Configuring Tag References

Users with a single EKI switch, it is not necessary to alter the Tag references. The default values define the single EKI switch.

2.4.1.1 Setting Message Configuration Parameters

Once the AOI is created and displays as seen in the following figure.

19. Locate the property value MSG_IP_Address and click the message configuration option (**MG_IP1).**

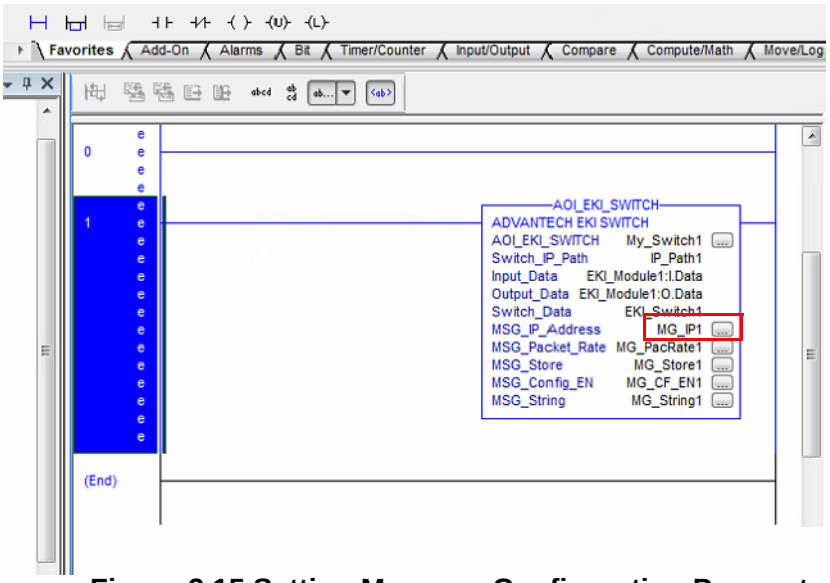


Figure 2.15 Setting Message Configuration Parameters

20. The Message Configuration window displays. Locate the **Communication** tab and click on it.

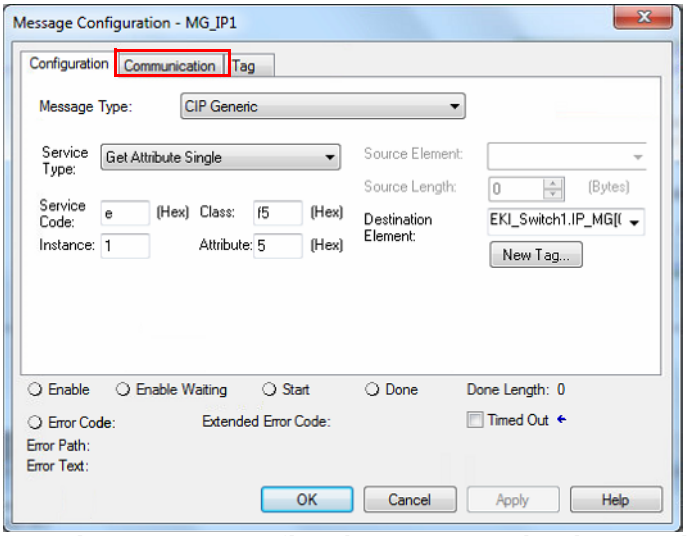


Figure 2.16 Configuring Communication Settings

The following step is required to set the communication path for the target switch.

21. Locate the Path field and click **Browse** to open the Message Path Browser.

22. The Message Path Browser window displays. Select the target switch and click **OK** to continue.

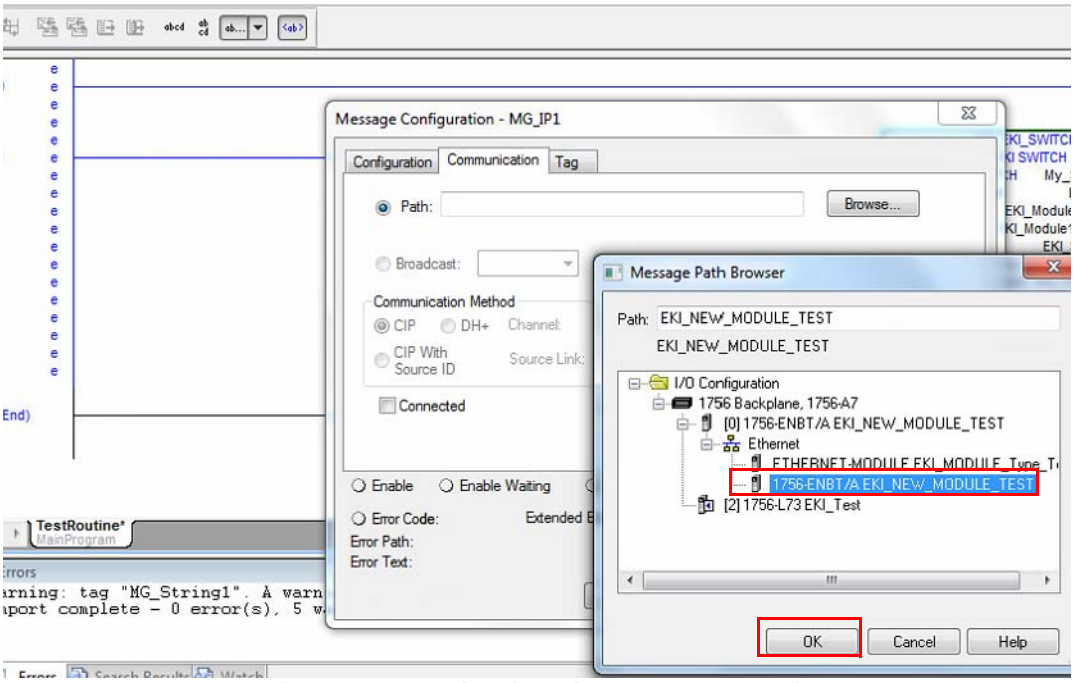


Figure 2.17 Selecting the Message Path

The Packet Rate Message windows displays. In this event if the MG_IP1 MSG setting is the only setting to change, other MSG settings do not require further configuration.

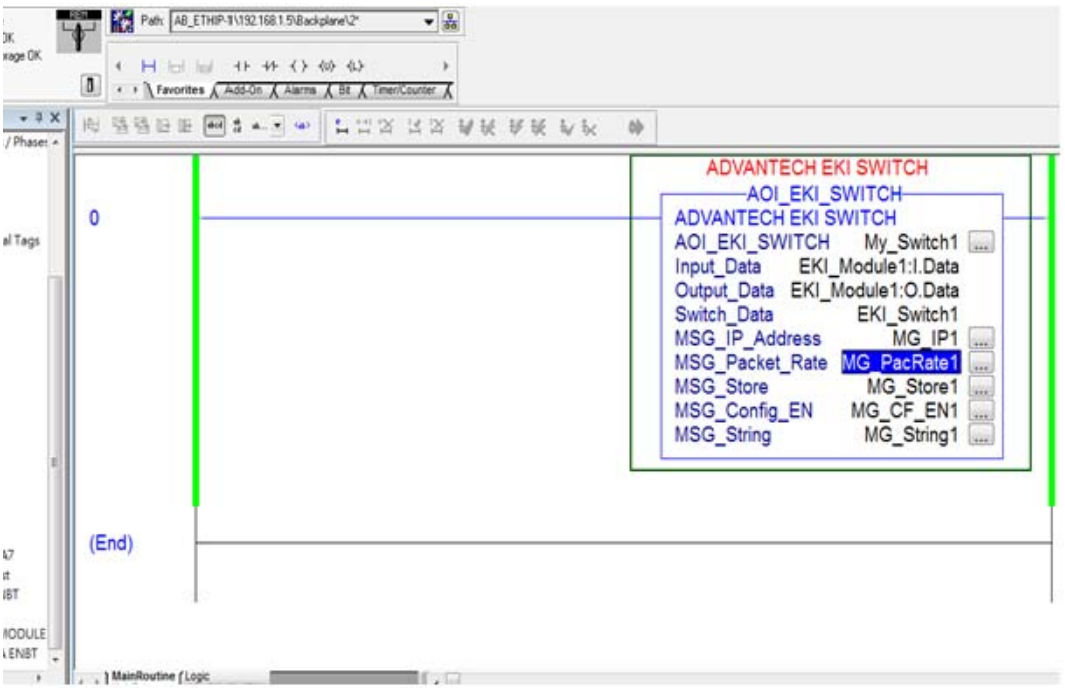


Figure 2.18 Configuring Packet Rate Message

23. Once the parameter is configured, download the program to the controller and set it to run mode.

2.4.2 Configuring in FactoryTalk® View Machine Edition

1. Open FactoryTalk® View Studio editor software (v7.0 or higher).
2. The Application Type Selection window displays. Select **View Machine Edition**, and click **Continue**.

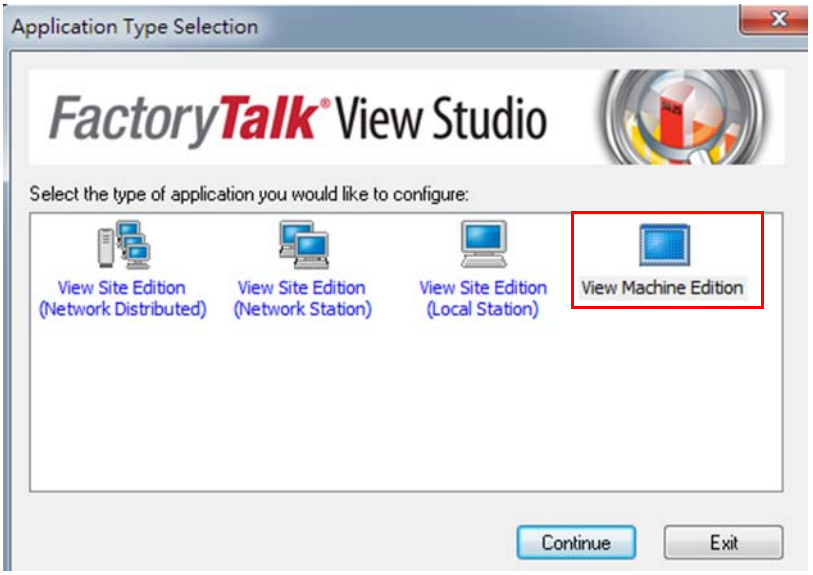


Figure 2.19 Opening FactoryTalk® View Studio Applications

The New/Open Machine Edition Application screen displays.

3. Select the New tab to create a new file; see the following:
   - In the **Application** name field, enter the name of the file.
   - In the **Description** field, type a brief description of the file (optional).
   - Click the **Language** drop-down menu and select en-US to designate the language tag for the file.
   - Enter an application name and click **Create** to create the new application file.

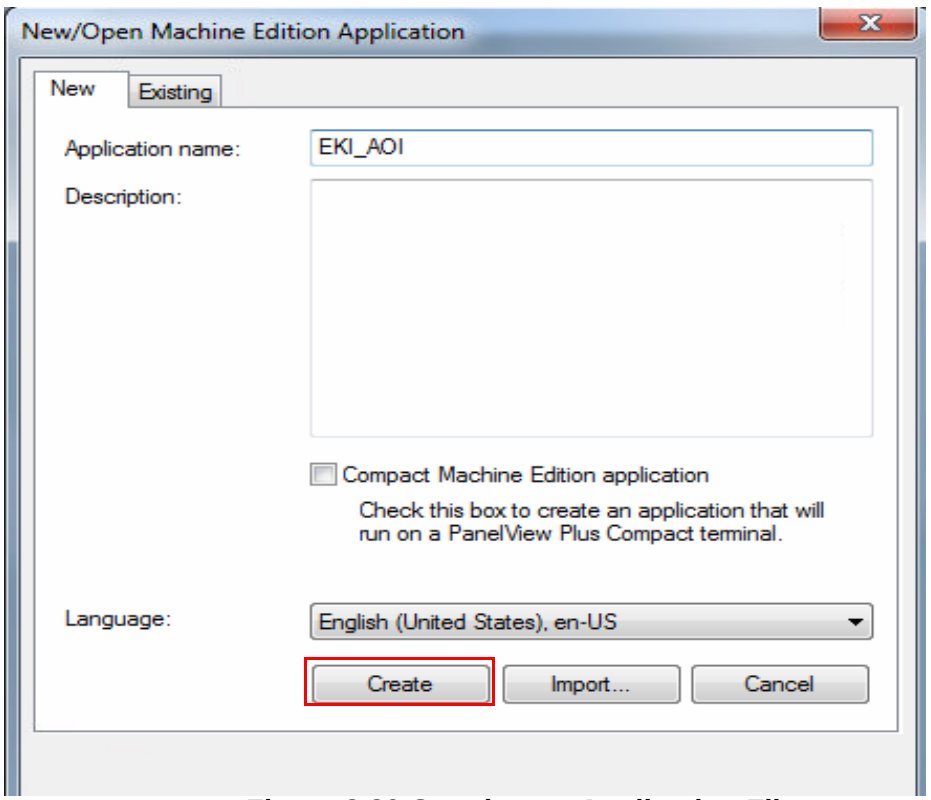


Figure 2.20 Creating an Application File

Or

4. You can open an existing application file, see the following:
   - Click on the **Existing** tab to view a list of available files.
   - Select an option from the list in the open panel.
   - Click **Open** to open the existing file.

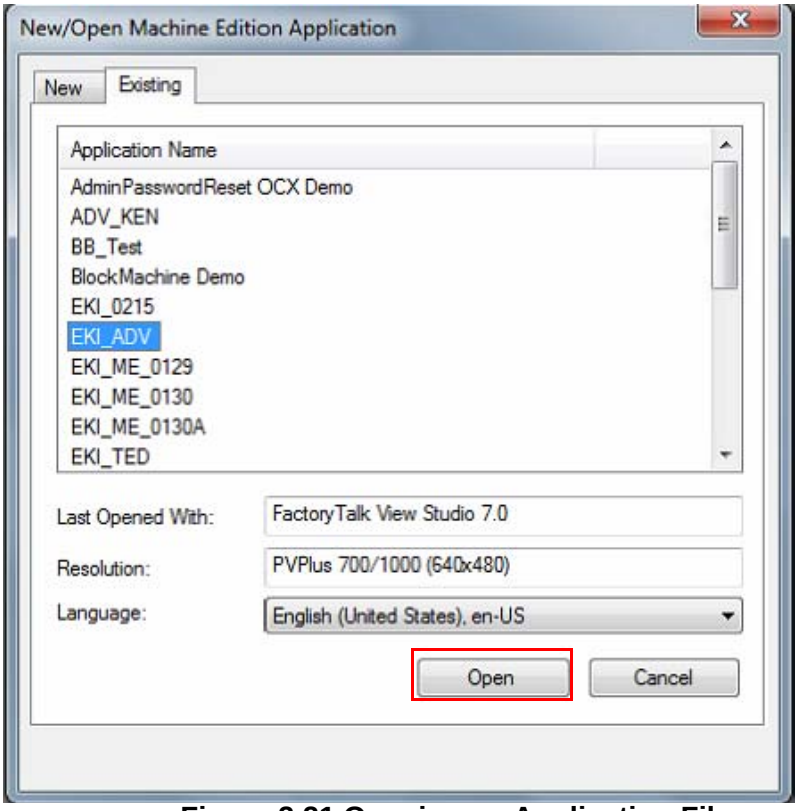


Figure 2.21 Opening an Application File

5. Once the application file is open, you can add components to the configuration. If the explorer window is not open, locate the main tool bar and click View > Explorer Window to open the menu tree for the application file.
6. Under the **Graphics** folder, locate **Images** and right-click to open an options menu.

7. Click **Add Components Into Applications**.

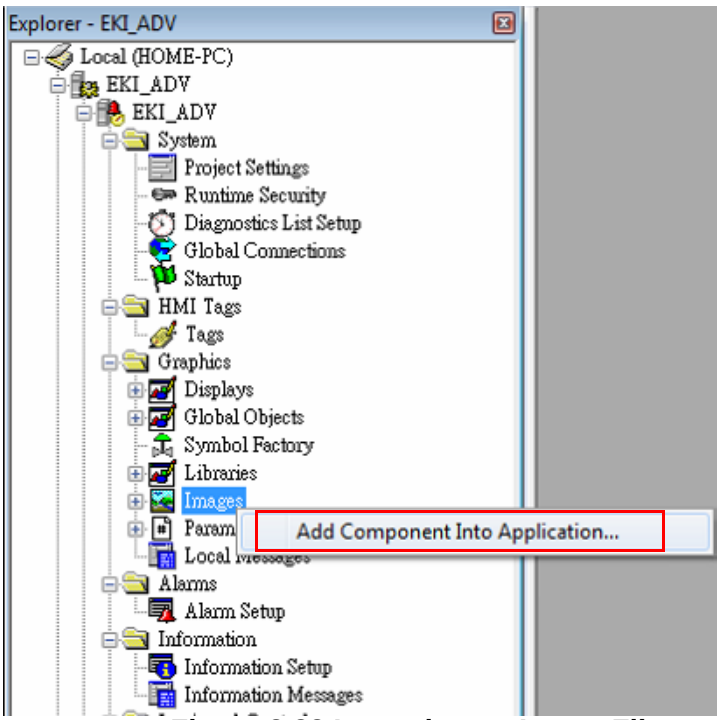


Figure 2.22 Importing an Image File

8. The **Add Components Into Project** window displays. Navigate to the location of the source folder located in the included CD or download the required files from the Advantech web site.
9. Select all images in the Images folder (.png and .bmp), and click **Open** to import them.
   To view specific supported formats, click the Format drop-down menu and select a specific format to display in the body pane.

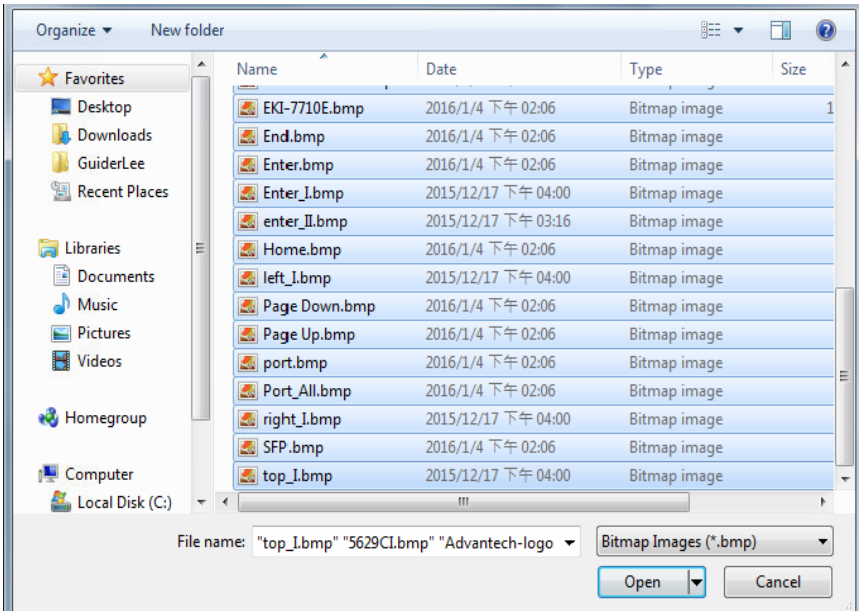


Figure 2.23 Importing Images

The images are imported and the main menu displays.

10. From the menu tree, navigate to **Graphics** > **Global Objects**.

11. Right-click to open the options menu and select **Add Component Into Application...**.

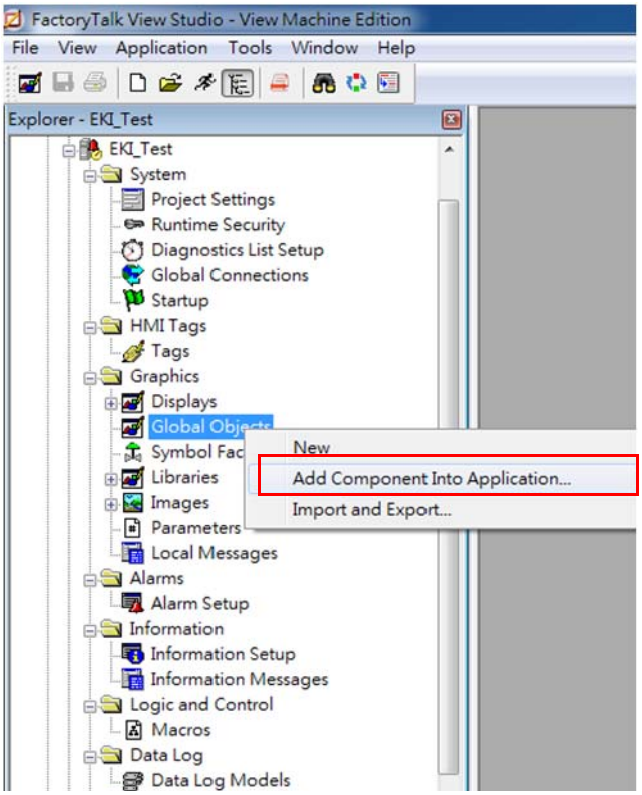
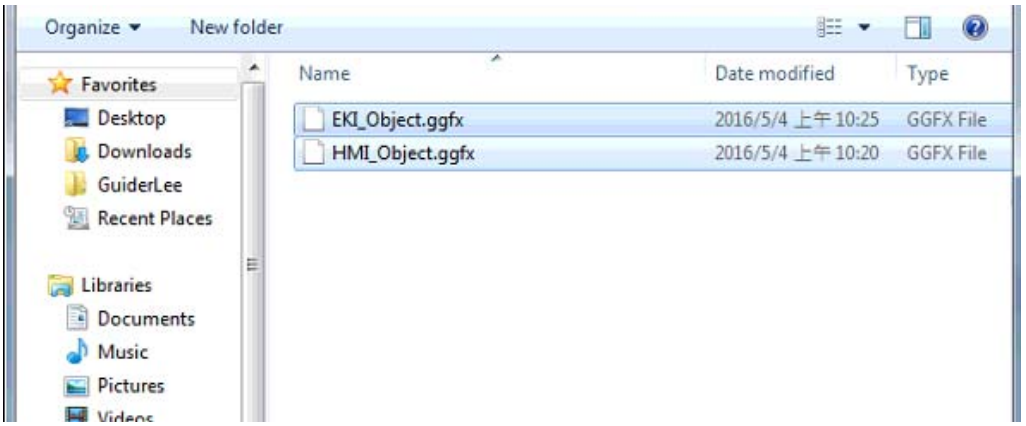


Figure 2.24 Importing EKI and HMI Objects

12. The **Add Components Into Project** window displays. Navigate to the location of the global objects source folder.



13. Select the EKI_Object and HMI_Object files and click **Open** to import them. To view specific supported formats, click the Format drop-down menu and select a specific format to display in the body pane.
14. From the menu tree, navigate to **Graphics** > **Displays**.

15. Right-click to open the options menu and select **Add Component Into Application...**.

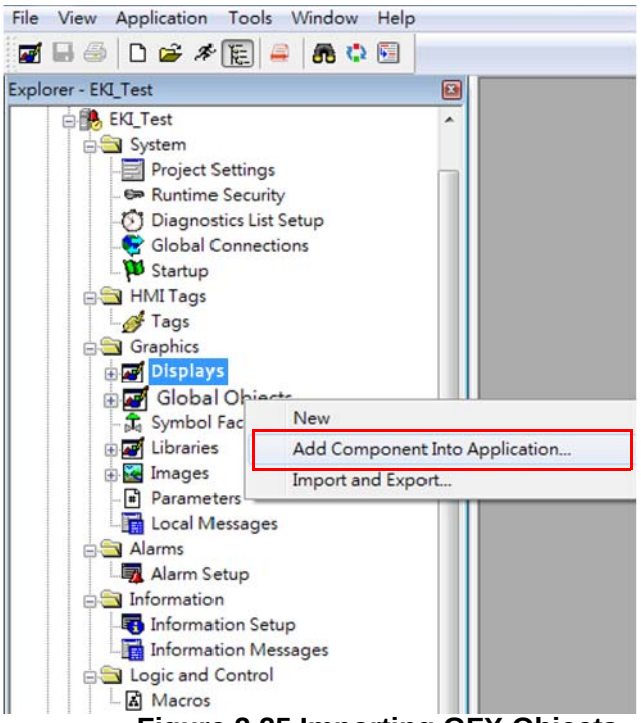


Figure 2.25 Importing GFX Objects

16. The **Add Components Into Project** window displays. Navigate to the location of the GFX Objects source folder.
17. Select the five files in the GFX folder and click **Open** to import them.

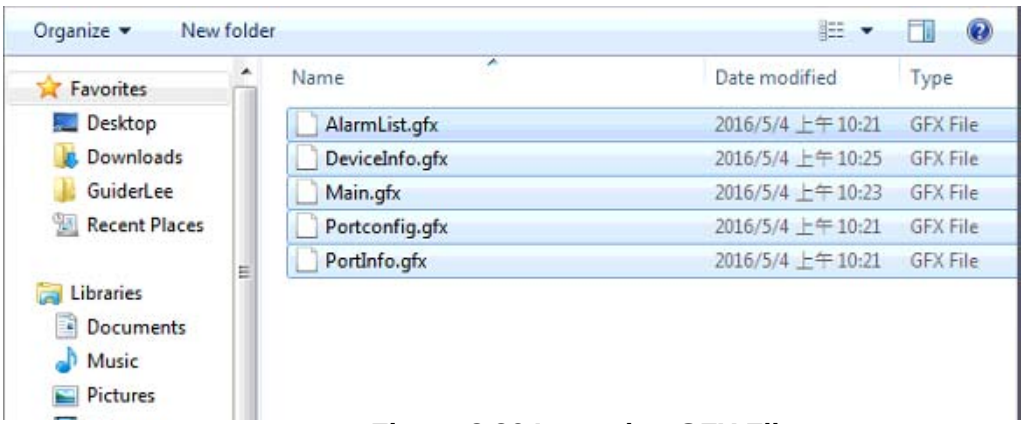


Figure 2.26 Importing GFX Files

The GFX files are imported and the main menu displays.

18. From the menu tree, navigate to **Graphics** > **Parameters**.
19. Right-click to open the options menu and select **Add Component Into Application...**.

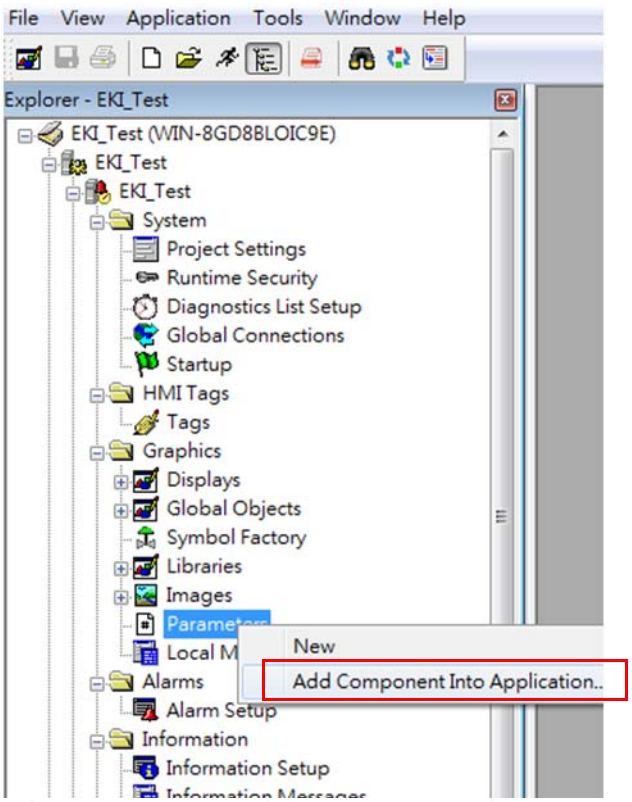


Figure 2.27 Importing EKI Param1 into Parameters

20. The **Add Components Into Project** window displays. Navigate to the location of the parameter source folder.
21. Select EKI_PARAM1 and click **Open** to import the files.
    To view specific supported formats, click the Format drop-down menu and select a specific format to display in the body pane.

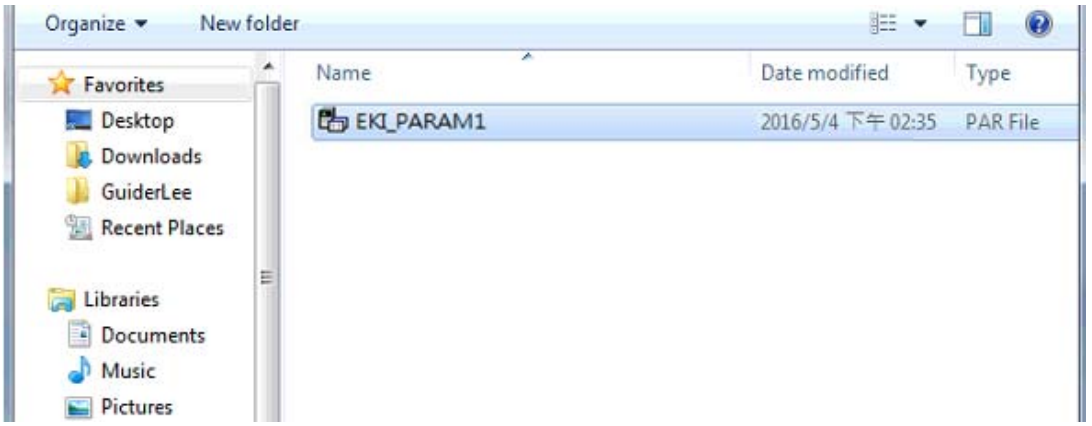


Figure 2.28 Importing EKI Param1 into Parameters

22. Click **Open** to import the files.
23. From the menu tree, locate the Communications tab at the bottom of the screen.

24. Navigate to **RSLinx Enterprise** > **Communication Setup** and double click to open the options menu.

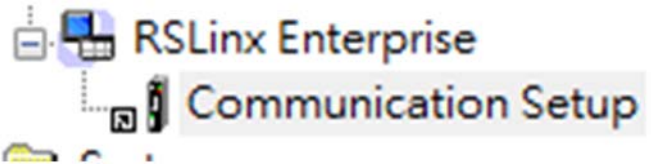


Figure 2.29 Locating RSLinx Enterprise List

25. Select **Create a new configuration** to create a new runtime configuration.
26. Click **OK** to continue.

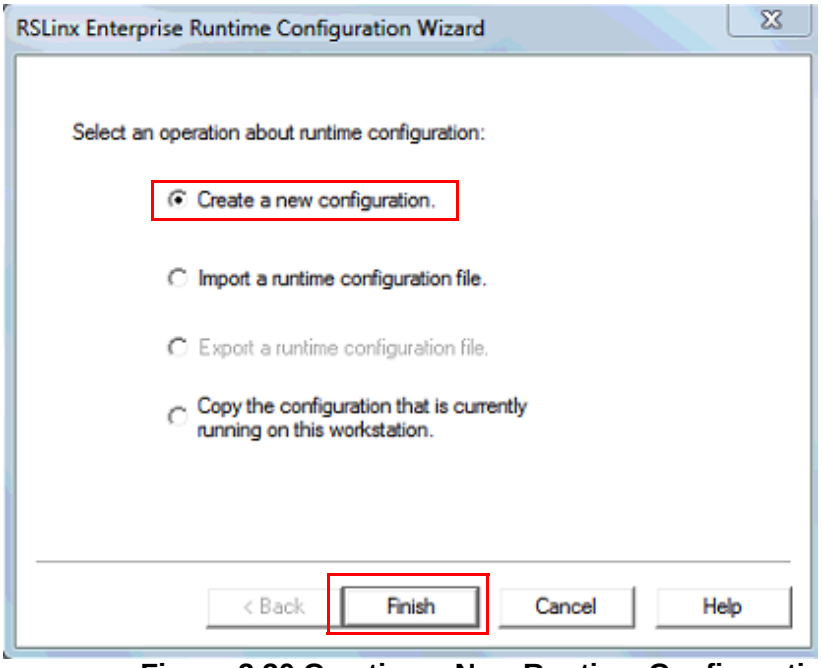


Figure 2.30 Creating a New Runtime Configuration

27. Open RSLinx Enterprise, add a new Device Shortcut. For this example, name the device shortcut CLX and select your PLC controller.
28. Click **Apply and Copy** from Design to Runtime.
29. Click **OK** to continue.

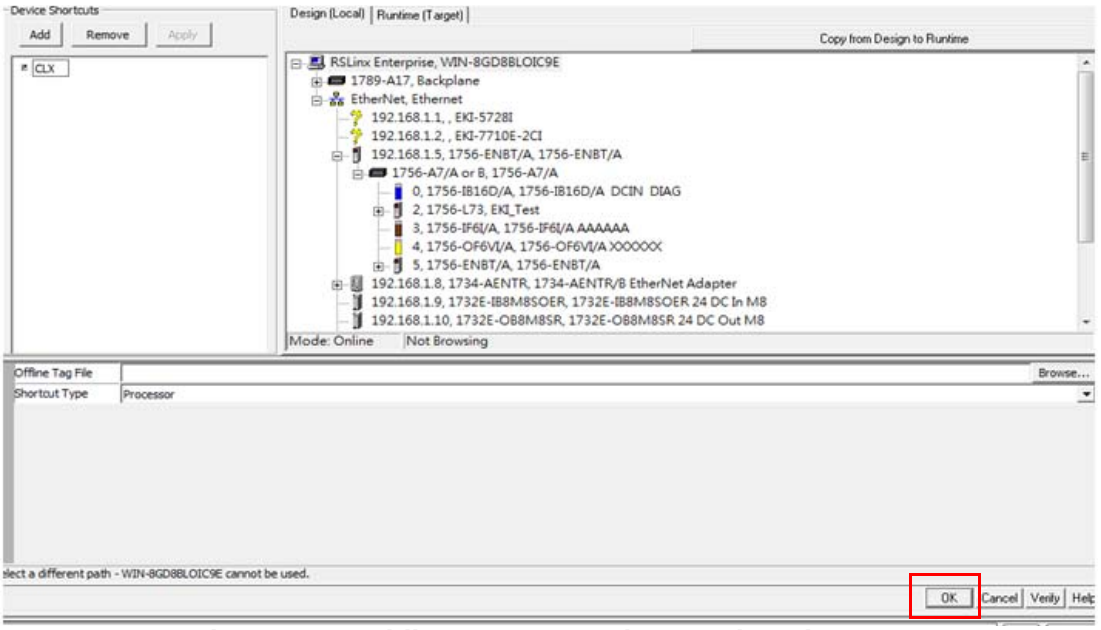


Figure 2.31 Adding a New Runtime Device Shortcut

30. In the event that the Device Shortcut is not named CLX in RSLinx Enterprise, then the imported parameters file (EKI_PARAM1), must be modified, see the example and figure as follows:
    EXAMPLE:
    - Open the EKI_PARAM1 file.
    - Change the non-remark line to read as follows:
      #1=[CLX]EKI_Switch1
    - Save and close the parameters file.

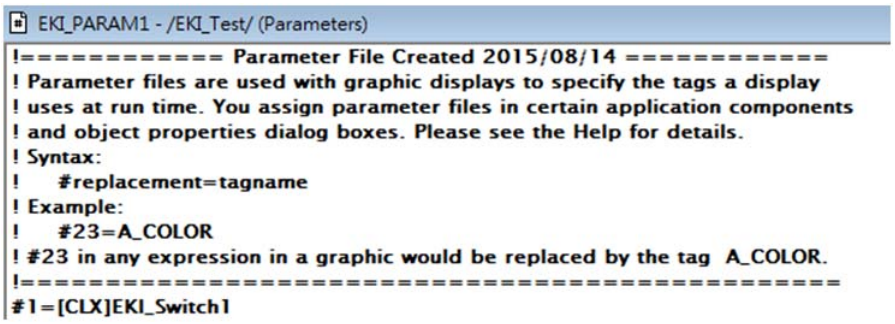


Figure 2.32 Altering Parameters File

31. In the Explorer window, navigate to **Application** > **Create Runtime Application** and click on it.
32. Download the previously created parameter file to the device.

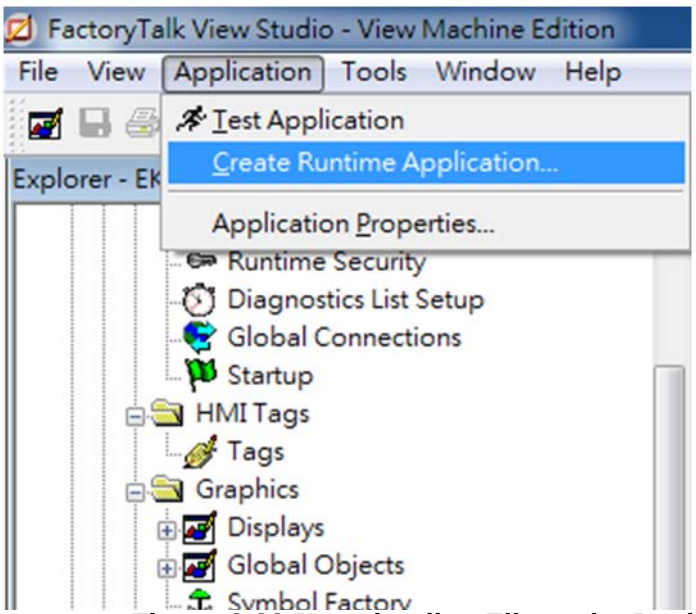


Figure 2.33 Downloading File to the Device

33. Start the Runtime application.

The runtime application is configured and uploaded to the device effectively programming the device through the FactoryTalk® View ME application.

2.4.3 Configuring in ME Image Control Panel

1. Open human machine interface PanelView Plus.The following screen displays.

Figure 2.34 Opening ME Image Control Panel

2. Click **Switch** and enter the **Device Information** screen.

Different device models are represented by their respective images.

On the top right of the screen is a function bar (tool bar), with icons representing specific tasks available in the PanelView Plus main menu.

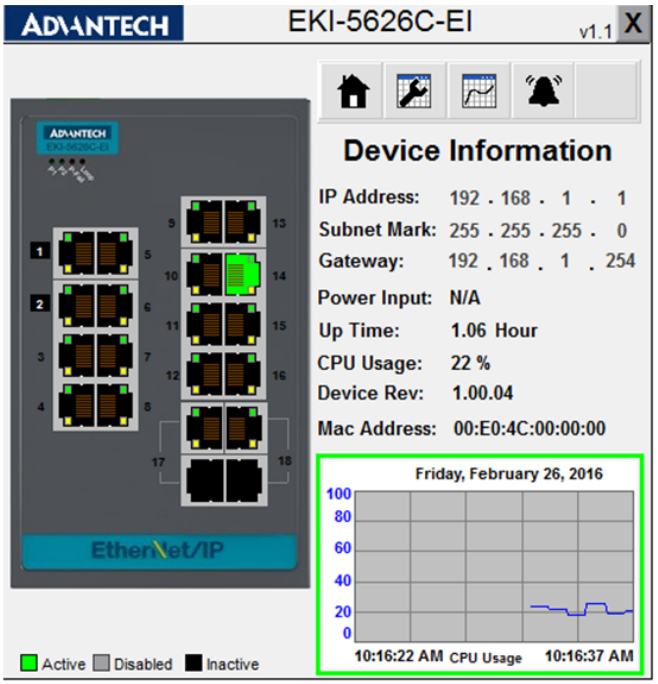


Figure 2.35 Identifying Control Panel Menu

Function	Description
	Home page
	Configures port status

Function	Description
	Displays port status
	Alarm info

3. Click the status  icon to see the status for a selected port.

To switch between port selections, use the arrow icons ( or ) to select a specific port.

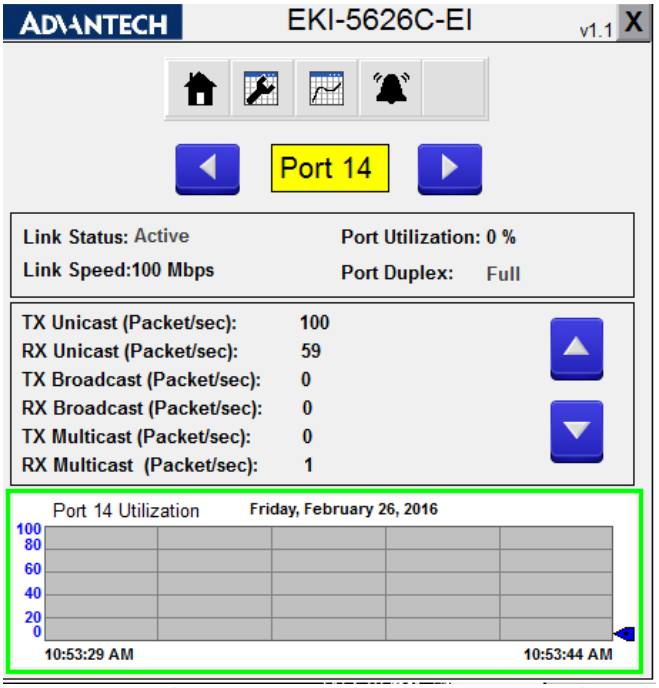


Figure 2.36 Selecting Port Entries

4. Click the tool  icon to enter the Port Settings menu.
5. Select the setting to change and use the arrow icons ( or ) to change the settings.
6. Click Enter  to apply the new setting changes. If the Enter button is not pressed the changes do not take effect.

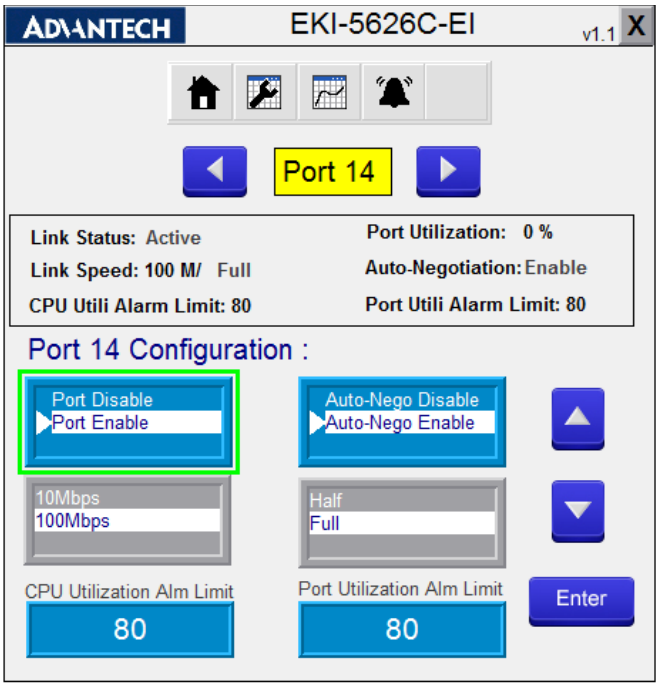


Figure 2.37 Configuring Port Settings

7. If a setting is grayed out, the setting is cannot be modified.

When ports are disabled, the following options are not available: Auto-Nego, Port Speed, and Port Duplex.

If Auto-Nego is Enabled, Port Speed and Port Duplex cannot be set.

CPU and Port utilization alarm limits are available at the bottom of the screen.

A numeric keypad displays to allow entry of limit values

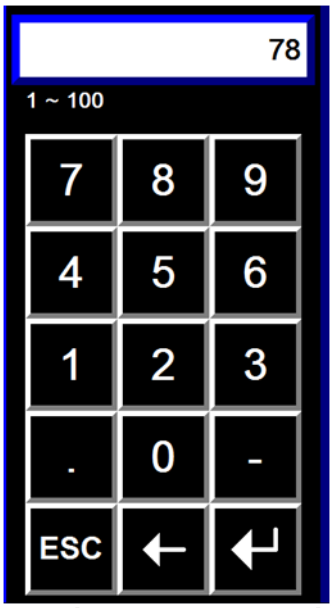


Figure 2.38 Setting CPU, Port and Alarm Value Limits

8. After entering a value, click the return button to return to the previous window.

9. Click Enter Enter to apply the new setting changes.

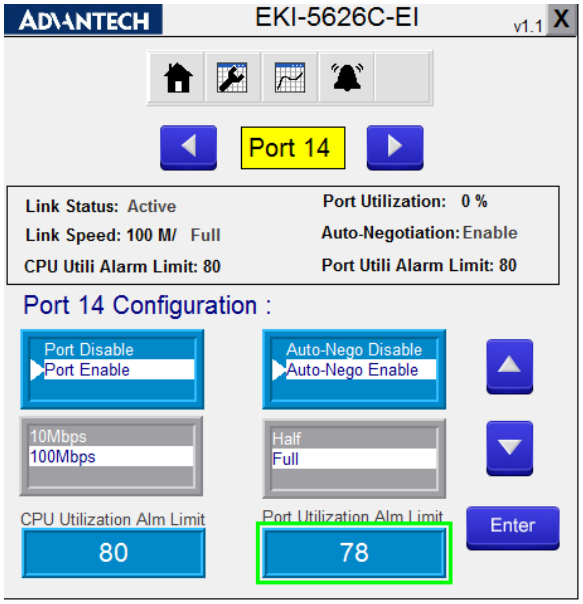


Figure 2.39 Setting CPU, Port and Alarm Value Limits

Enabling or disabling additional settings, such as the Alarm function, is also available through the control panel.

10. Click the alarm icon to enter the alarm list.

If an image is grayed out, there are no active alarms.

An alarm function is active if the listing is in Red.

11. Click Enable or Disable to change the status of the selected alarm.

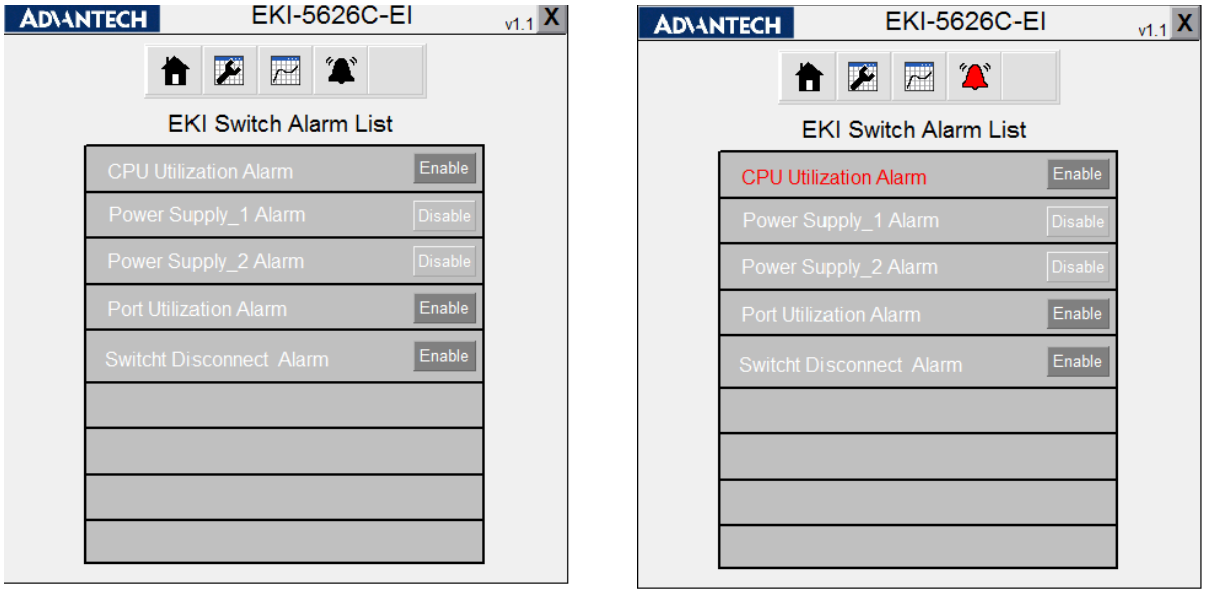


Figure 2.40 Enabling Alarm Options

2.4.4 Configuring in FactoryTalk® View Site Edition

1. Open FactoryTalk® View Studio editor software (v7.0 or higher).
2. The Application Type Selection window displays. Select **View Site Edition**, and click **Continue**.

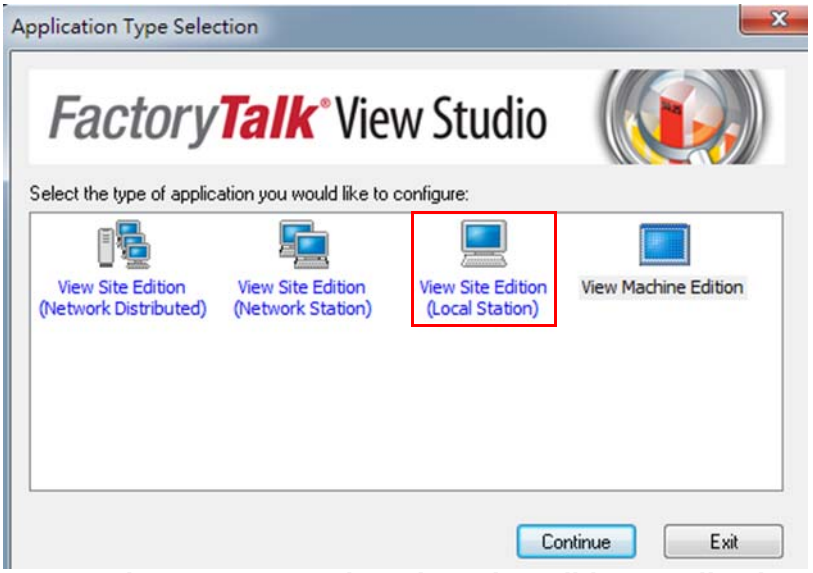


Figure 2.41 Opening View Site Edition Applications

The New/Open Machine Edition Application screen displays.

3. Select the New tab to create a new file, see the following:
   - In the **Application** name field, enter the name of the new application file.
   - In the **Description** field, type a brief description of the file (optional).
   - Click the **Language** drop-down menu and select en-US to designate the language tag for the file.
   - Enter an application name and click **Create** to create the new application file.

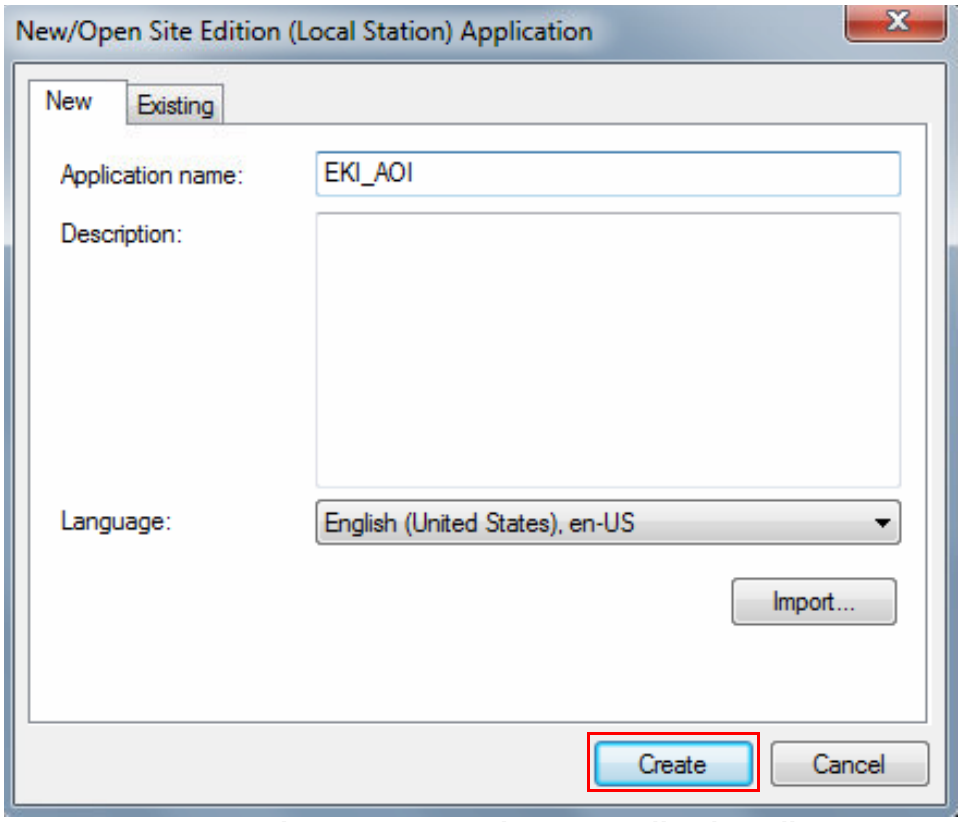


Figure 2.42 Creating an Application File

Or

4. You can open an existing application file, see the following:
   - Click on the **Existing** tab to view a list of available files.
   - Select an option from the list in the open panel.
   - Click **Open** to open the existing file.

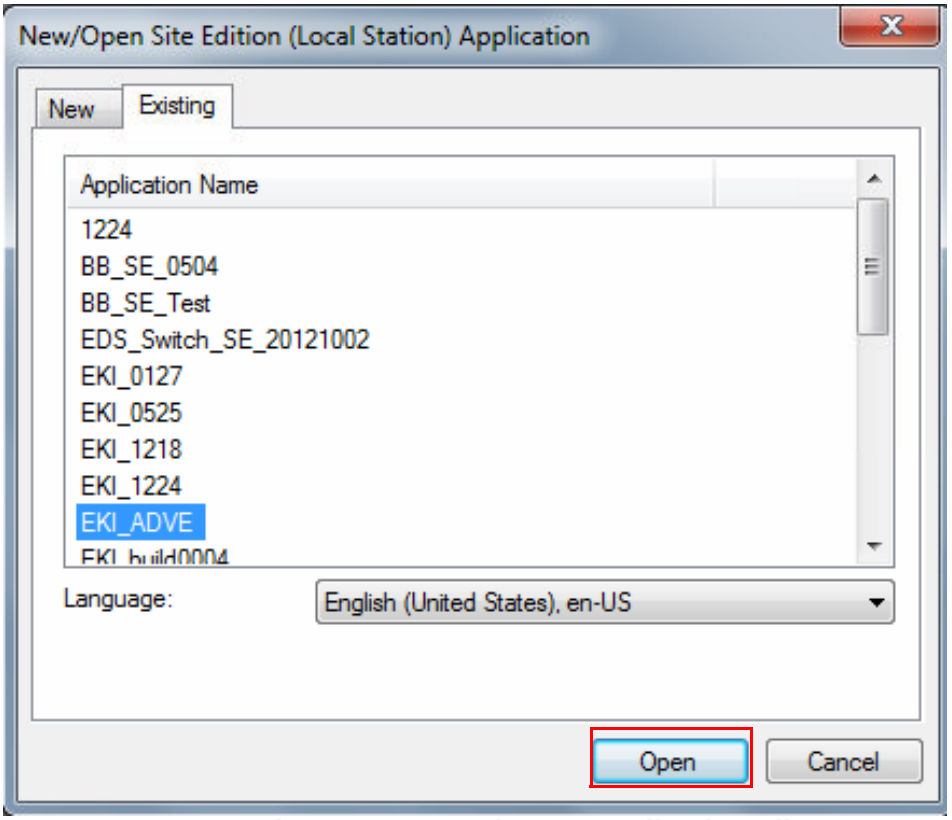


Figure 2.43 Opening an Application File

5. Once the application file is open, you can add components to the configuration. If the explorer window is not open, locate the main tool bar and click View > Explorer Window to open the menu tree for the application file.
6. Under the **Graphics** folder, locate **Images** and right-click to open an options menu.

7. Click **Add Components Into Applications** to select it.

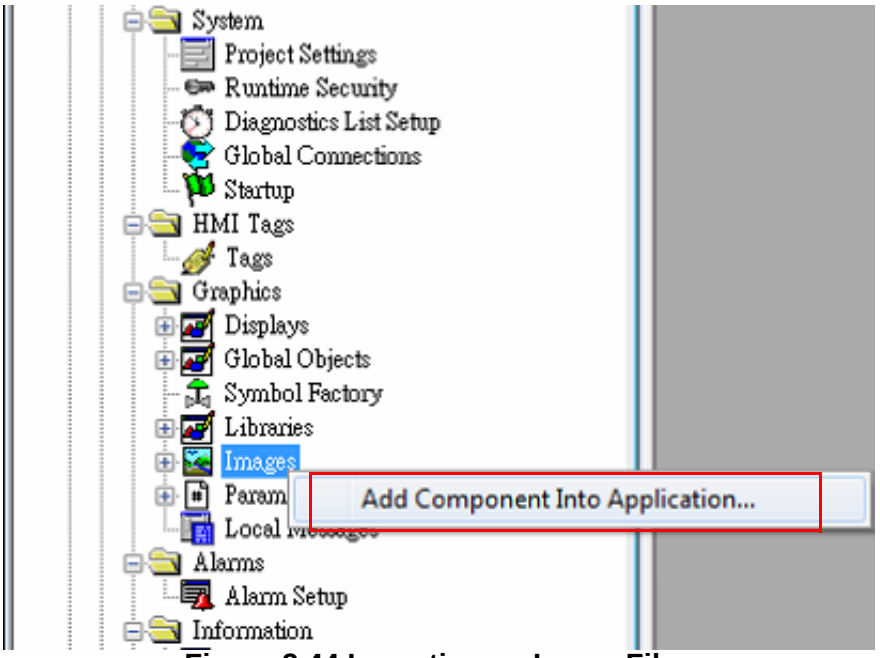


Figure 2.44 Importing an Image File

8. The **Add Components Into Project** window displays. Navigate to the location of the image source folder.
9. Select the images to import and click **Open** to import the images.
   To view specific supported formats, click the **Format** drop-down menu and select a specific format to display in the body pane.

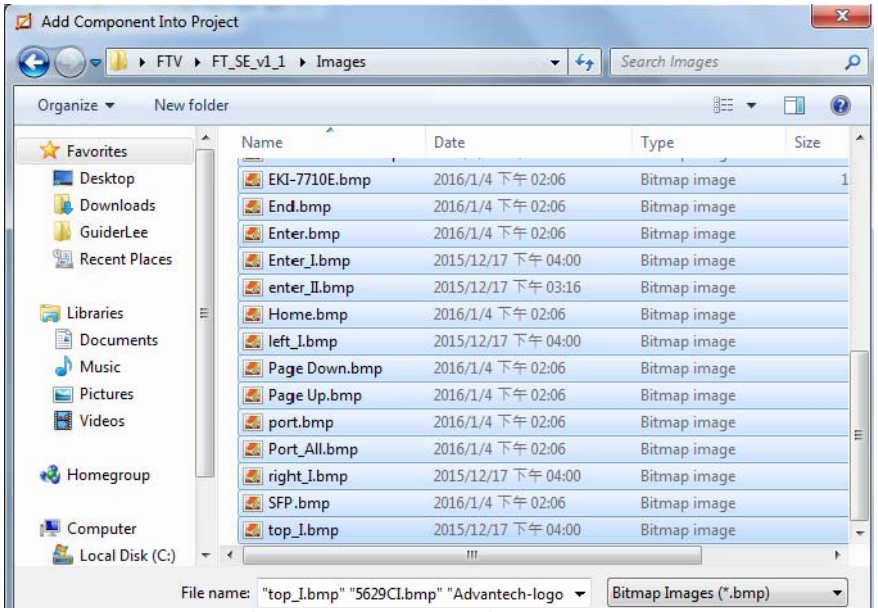


Figure 2.45 Importing Images

The images are imported and the main menu displays.

10. From the menu tree, navigate to **Graphics** > **Global Objects**.

11. Right-click to open the options menu and select **Add Component Into Application...**.

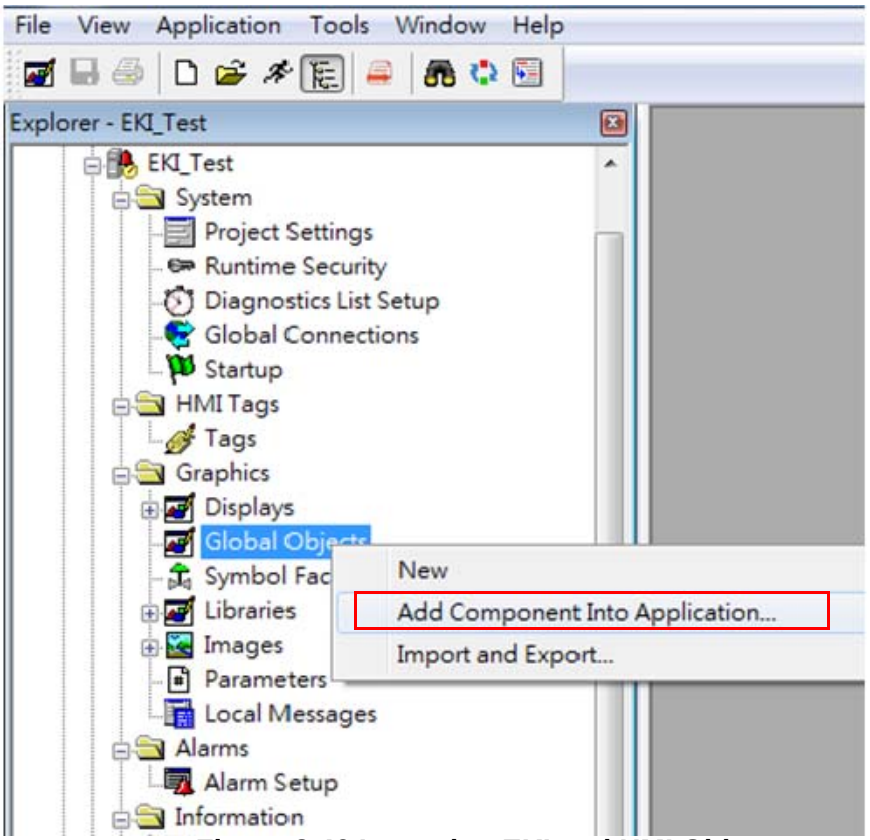


Figure 2.46 Importing EKI and HMI Objects

12. The **Add Components Into Project** window displays. Navigate to the location of the global objects source folder.

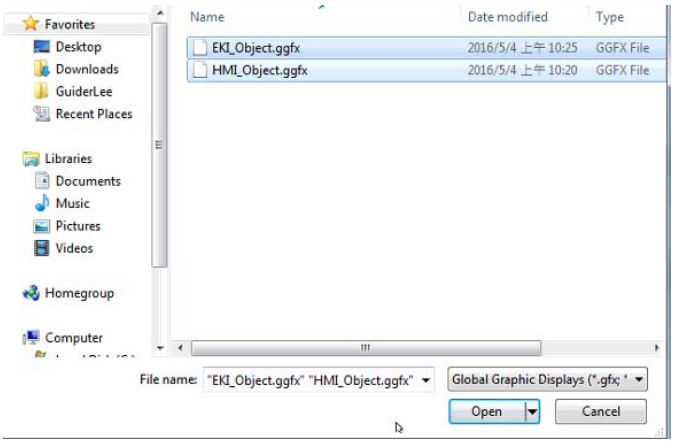


Figure 2.47 Importing EKI and HMI Objects

13. Select the objects to import and click **Open** to import them.

To view specific supported formats, click the **Format** drop-down menu and select a specific format to display in the body pane.

14. From the menu tree, navigate to **Graphics** > **Displays**.

15. Right-click to open the options menu and select **Add Component Into Application...**.

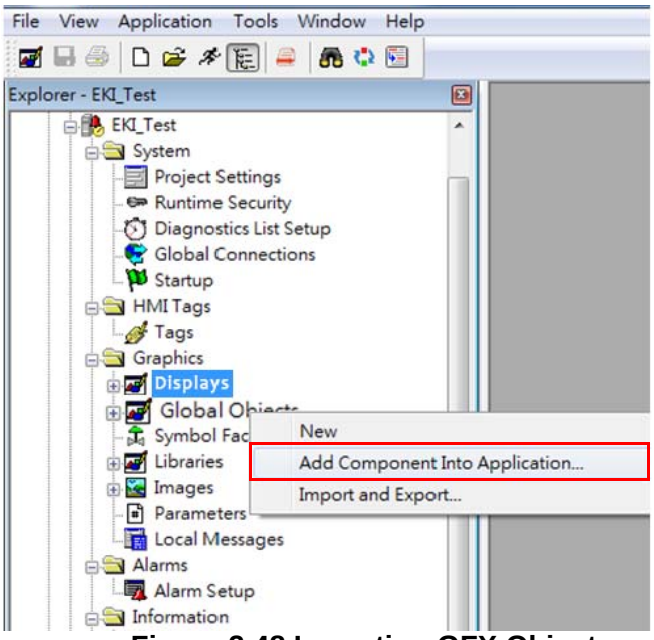


Figure 2.48 Importing GFX Objects

16. The **Add Components Into Project** window displays. Navigate to the location of the GFX Objects source folder.
17. Click **Open** to import the files in the GFX folder.

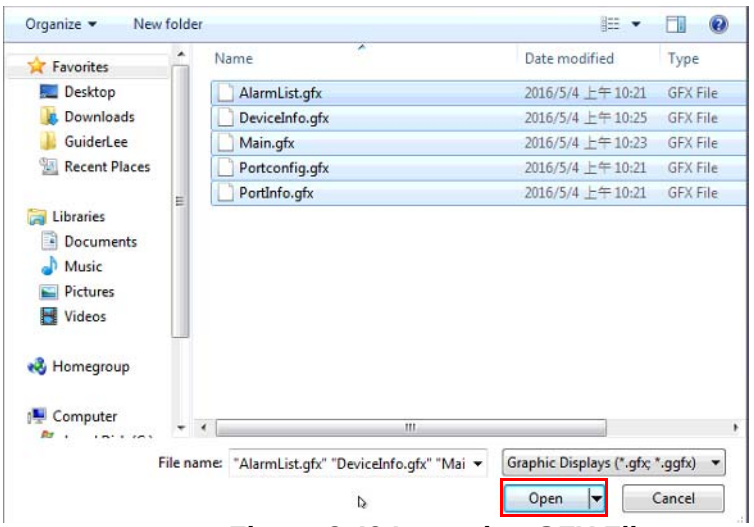


Figure 2.49 Importing GFX Files

The object files are imported and the main menu displays.

18. Import EKI Param1 from the PAR folder, into Parameters. From the menu tree, navigate to **Graphics** > **Parameters**.

19. Right-click to open the options menu and select **Add Component Into Application...**.

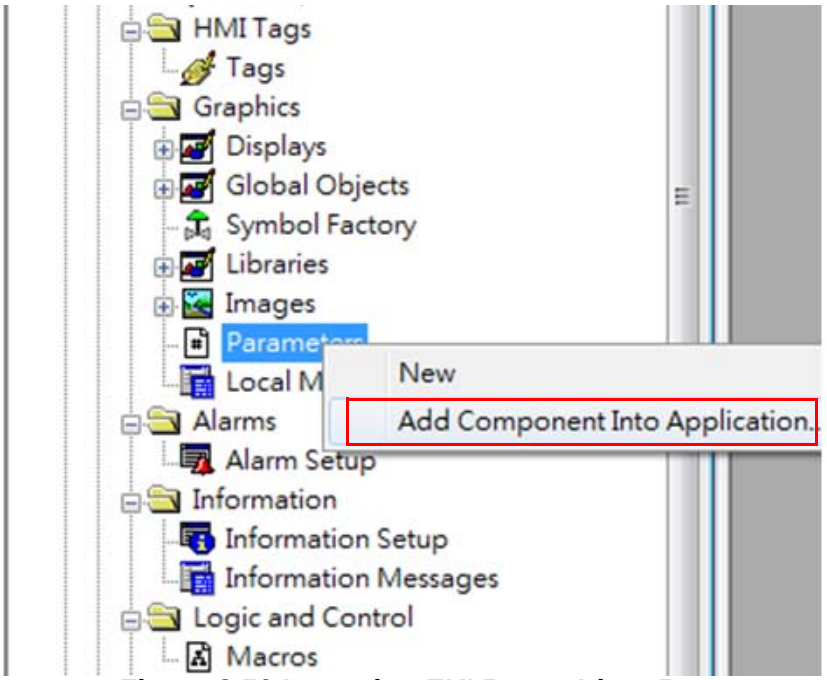


Figure 2.50 Importing EKI Param1 into Parameters

20. The **Add Components Into Project** window displays. Navigate to the location of the parameter source folder.
21. Select the parameter files to import and click **Open** to import the files.

To view specific supported formats, click the **Format** drop-down menu and select a specific format to display in the body pane.

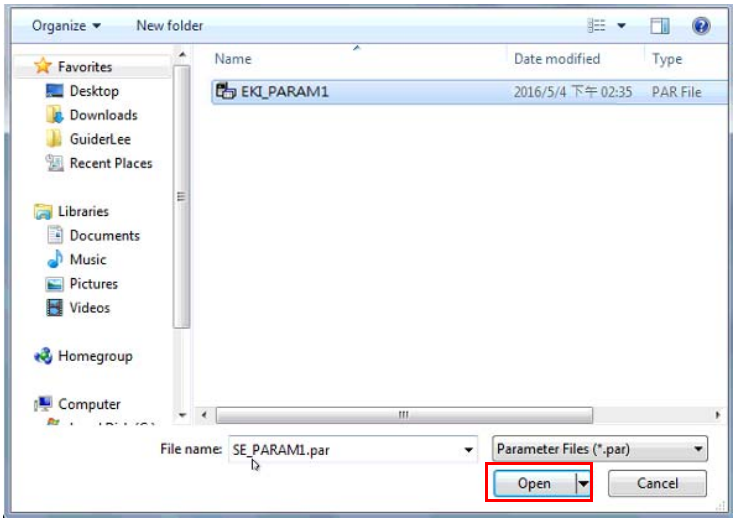


Figure 2.51 Importing EKI Param1 into Parameters

22. Click **Open** to import the files.

23. Create a Data Server: Select the project name (EKI_ADVE), and right click to display **Add New Server** > **Rockwell Automation Device Server (RSLinux Enterprise)**.

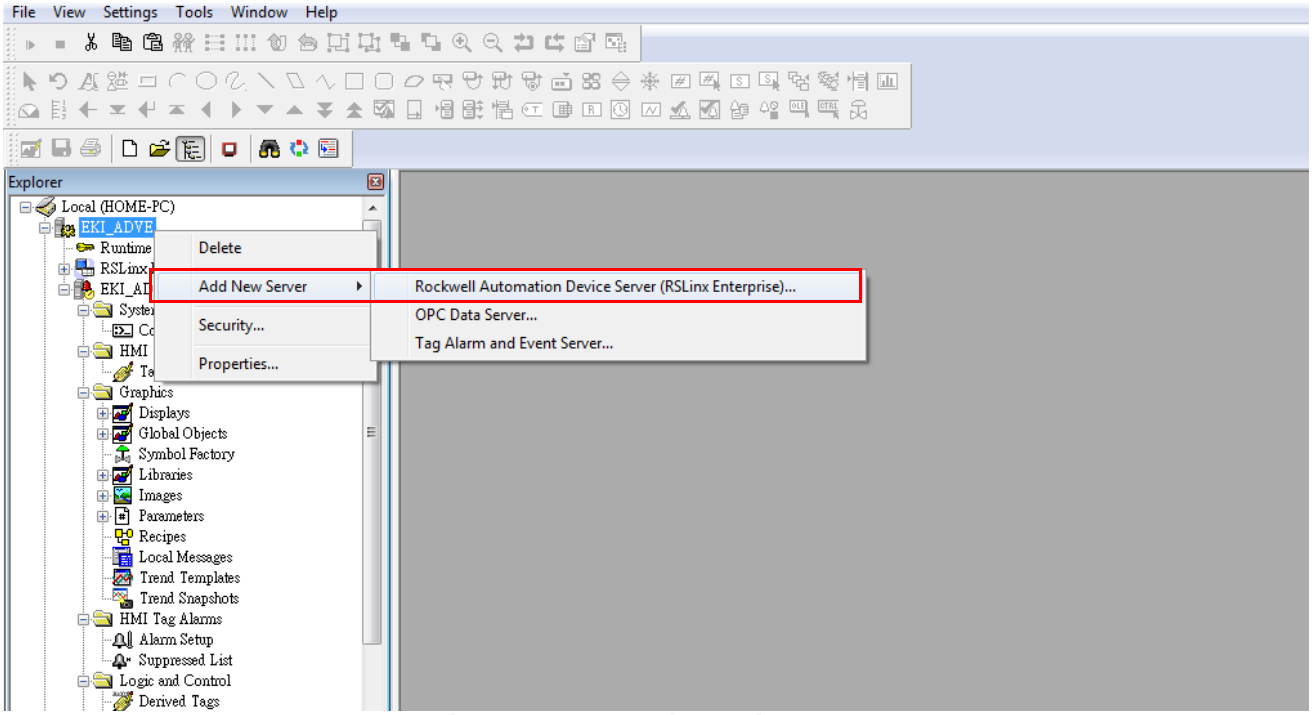


Figure 2.52 Creating a data server

24. Navigate to **RSLinx Enterprise** > **Communication Setup** and double click to open the options menu.

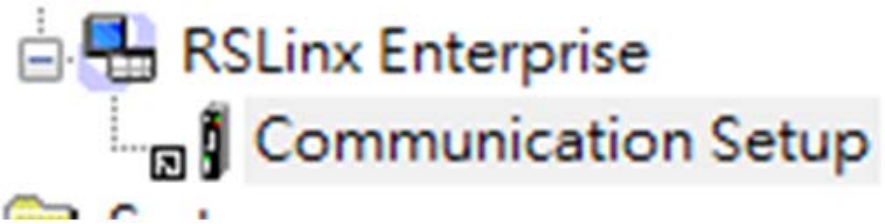


Figure 2.53 Locating RSLinx Enterprise List

25. Select **Create** to create a new runtime configuration.
26. Click **Finish** to continue.

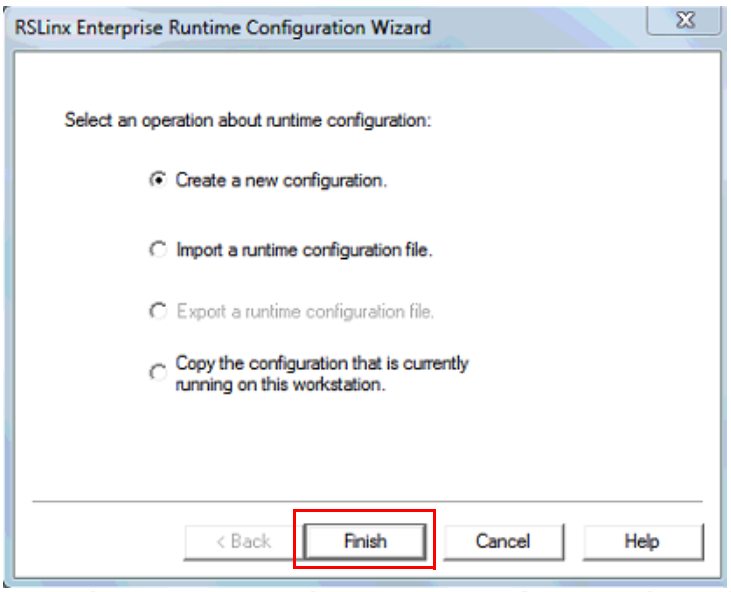


Figure 2.54 Creating a New Runtime Configuration

27. Open RSLinx Enterprise, add a new Device Shortcut. For this example, name the device shortcut CLX and select your PLC controller.
28. Click **Apply and Copy** from Design to Runtime.
29. Click **OK** to continue.

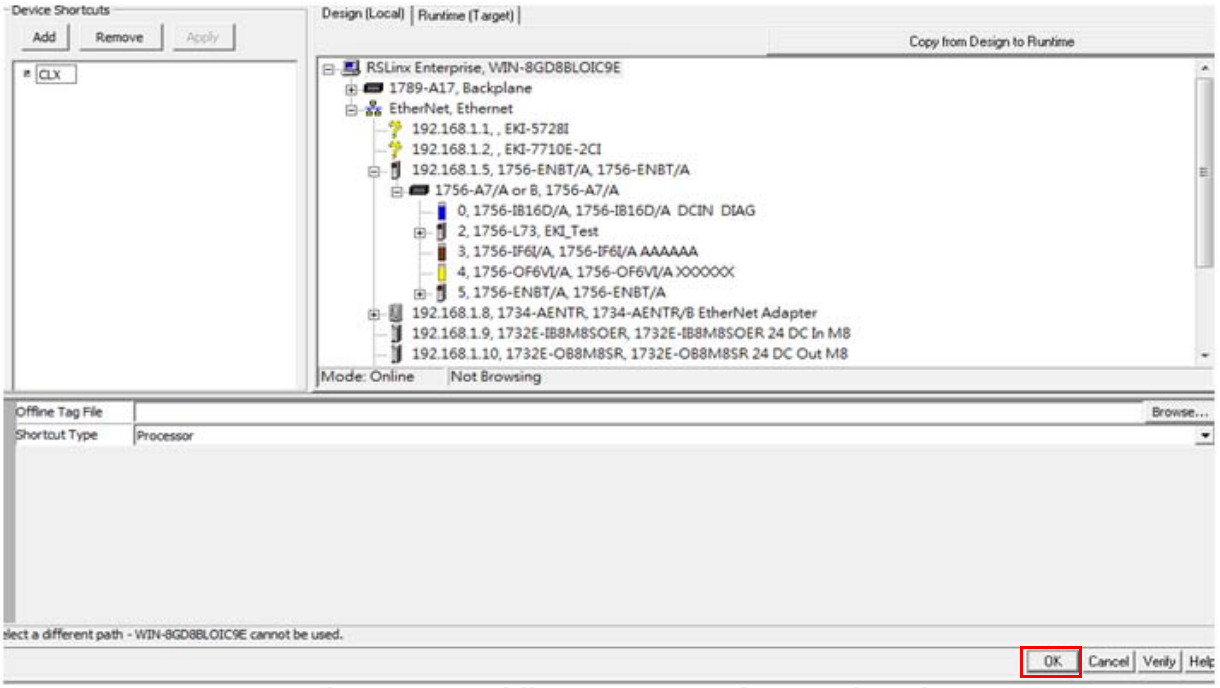


Figure 2.55 Adding a New Runtime Device Shortcut

30. In the event that the Device Shortcut is not named CLX in RSLinx Enterprise, then the imported parameters file (EKI_PARAM1) must be modified, see the example and figure as follows:

EXAMPLE:

- Open the EKI_PARAM1 file.
- Change the non-remark line to read as follows:

  #1=[CLX]EKI_Switch1

- Save and close the parameters file.

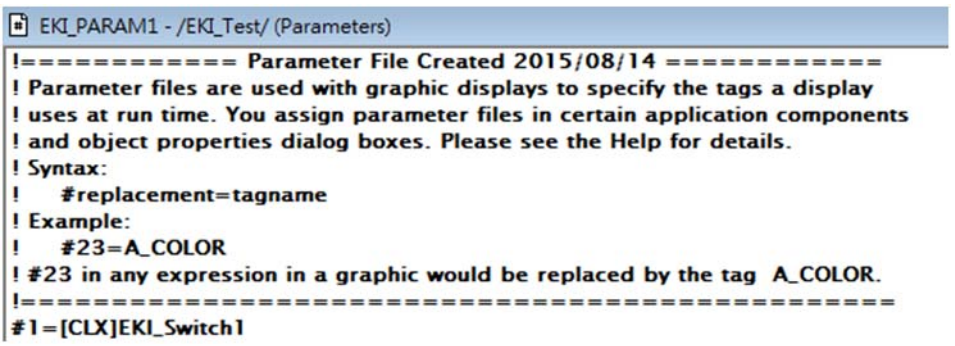


Figure 2.56 Altering Parameters File

31. To complete the procedure, create a Client link and turn it on.

2.4.5 Configuring in SE Image Control Panel

1. Open man-machine PanelView Plus.The following screen displays.

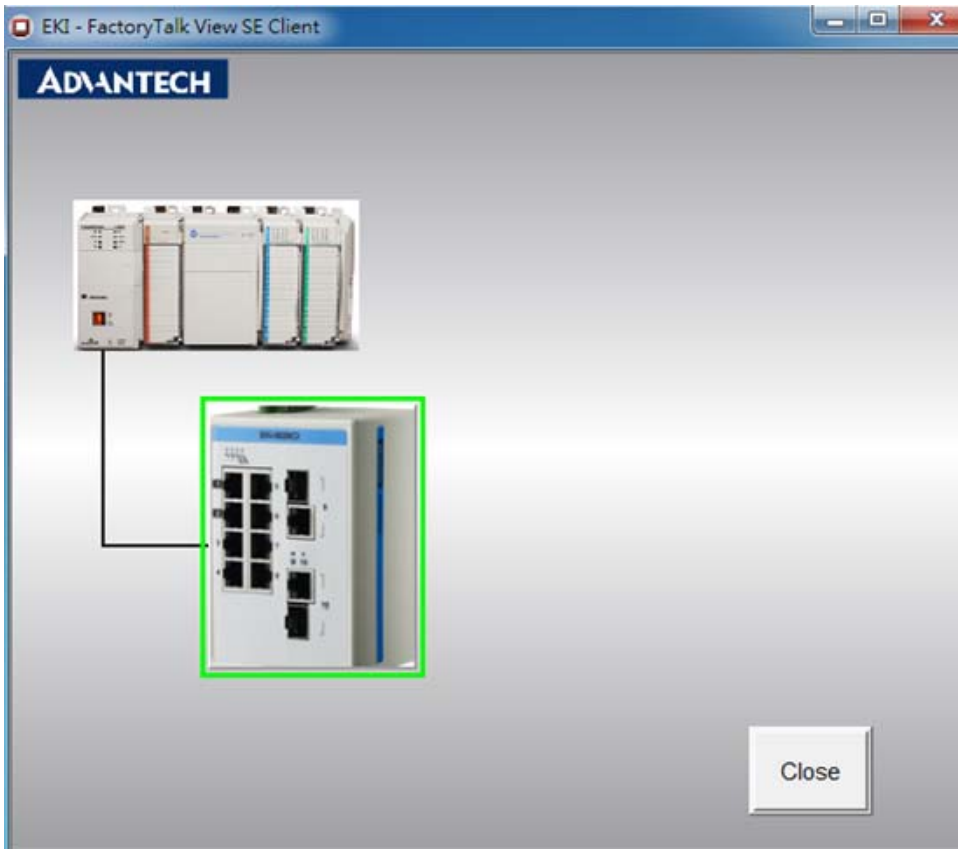


Figure 2.57 Opening SE Image Control Panel

2. Click the device image to enter the **Device Information** screen.

Different device models are represented by the respective image.

On the top right of the screen is a function bar (tool bar) with icons representing a specific task available in the PanelView Plus main menu.

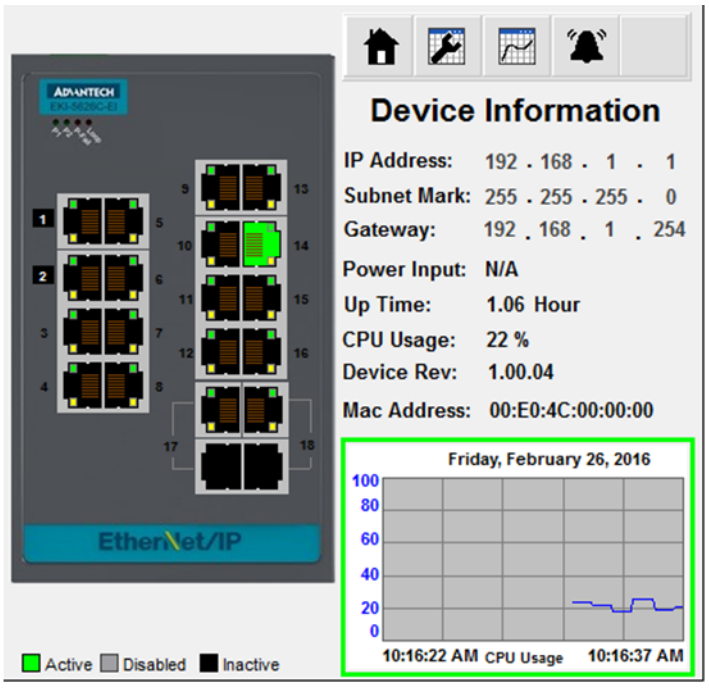


Figure 2.58 Identifying Control Panel Menu

Function	Description
	Home page
	Configures port status
	Displays port status
	Alarm info

3. Click the status  icon to see the status for a selected port.

To switch between port selections, use the arrow icons ( or ) to select a specific port.

4. Click the tool  icon to enter the Port Settings menu.

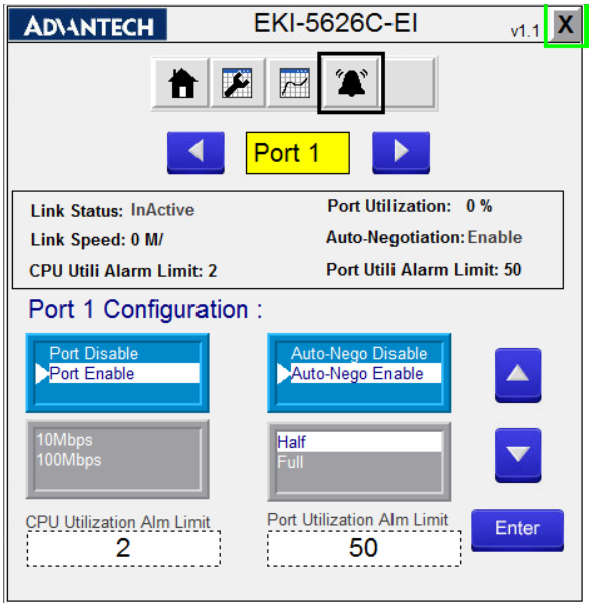


Figure 2.59 Port Settings Menu

5. Select the setting to change and use the arrow icons ( or ) to change the settings.
6. Click Enter  to apply the new setting changes. If the Enter button is not pressed the changes do not take effect.

If a setting is grayed out, the setting is cannot be modified.

Disabled ports the following options are not available: Auto-Nego, Port Speed, and Port Duplex.

If Auto-Nego is Enabled, Port Speed and Port Duplex cannot be set.

CPU and Port utilization alarm limits are available at the bottom of the screen. After entering a value, click the return  button to return to the previous window.

7. Click Enter Enter to apply the new setting changes.

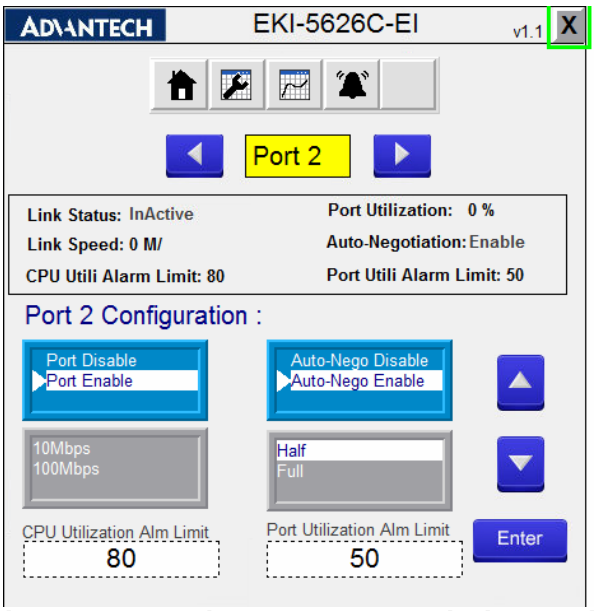


Figure 2.60 Setting CPU, Port and Alarm Value Limits

Enabling or disabling additional settings, such as the Alarm function, is also available through the control panel.

8. Click the alarm icon to enter the alarm list.

If an image is grayed out, there are no active alarms.

An alarm function is active if the listing is in Red.

9. Click Enable or Disable to change the status of the selected alarm.

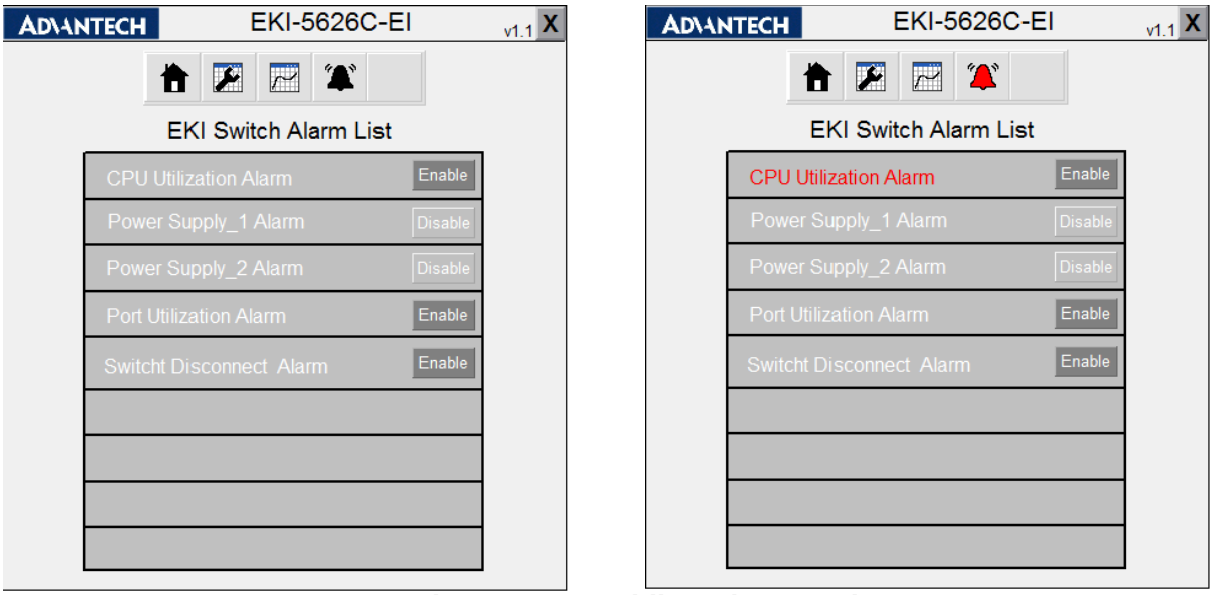


Figure 2.61 Enabling Alarm Options

2.5 EtherNet/IP CIP Objects

The following section identifies supported Common Industrial Protocol (CIP) objects. Advantech's EKI serial device server line supports the following monitoring objects for PLC and SCADA devices:

- Identity Objects
- TCP/IP Interface Objects

- Ethernet Link Objects
- Advantech Networking Objects
- Assembly Objects
- Message Router Objects
- Connection Manager Objects
- Base Switch Objects

2.5.1 Identity Objects

2.5.1.1 Class Attribute List

Attribute ID	Access Rule	Name	Data Type	Description
1	Get	Revision	UINT (16)	Object revision
2	Get	Max Instance	UINT (16)	Maximum instance number of the object
3	Get	Number of instances	UINT (16)	Number of object instances currently created in the class
6	Get	Max ID of class attributes	UINT (16)	The Maximum class attribute ID number which is implemented in the device
7	Get	Max ID of instance attributes	UINT (16)	The Maximum instance attribute ID number which is implemented in the device

2.5.1.2 Instance Attribute Lists

Attribute ID	Access Rule	Name	Data Type	Description
1	Get	VendorID	UINT (16)	ODVA Vendor ID. Advantech = 148
2	Get	DeviceType	UINT (16)	43, Generic device
3	Get	ProductCode	UINT (16)	Please reset to Product Code Table
4	Get	Revision	Struct	
		Major	SINT (8)	The structure member, major
		Minor	SINT (8)	The structure member, minor.
5	Get	Status	DINT (32)	Summary status of device
6	Get	SerialNumber	UDINT (32)	Serial number of device, the default is 1234567890
7	Get	ProductName	Short STRING	Human readable identification, Please reset to Product Name Table

2.5.1.3 Common Service

Service Code	Class	Instance	Service Name	Description
0x01	•	•	Get_Attributes_All	Returns multiple attributes in numerical order.

Service Code	Class	Instance	Service Name	Description
0x0E	•	•	Get_Attribute_Single	Read instance attribute of the class
0x05		•	Reset	Rest the device

2.5.1.4 GetAttributeAll

0x1		
1	VendorID	UINT (16)
2	DeviceType	UINT (16)
3	ProductCode	UINT (16)
4	Revision	
	Major	SINT (8)
	Minor	SINT (8)
5	Status	DINT (32)
6	SerialNumber	UDINT (32)
7	ProductName	
	length	SINT (8)
	data	length SINT

2.5.2 TCP/IP Interface Objects

2.5.2.1 Attribute ID

Attribute ID	Access Rule	Name	Data Type	Description
1	Get	Revision	UINT (16)	Object revision
2	Get	Max Instance	UINT (16)	Maximum instance number of the object
3	Get	Number of instances	UINT (16)	Number of object instances currently created in the class
6	Get	Max ID of class attributes	UINT (16)	The Maximum class attribute ID number which is implemented in the device
7	Get	Max ID of instance attributes	UINT (16)	The Maximum instance attribute ID number which is implemented in the device

2.5.2.2 Instance Attribute List

Attribute ID	Access Rule	Name	Data Type	Description
1	Get	Status	UDINT (32)	Interface status
2	Get	Configuration_Capability	UDINT (32)	Interface capability flags
3	Get/Set	Configuration_Control	UDINT (32)	Interface control flags

Attribute ID	Access Rule	Name	Data Type	Description
4	Get	Physical Link Object	Struct	
		Path size	UINT (16)	Size of Path
		Path	Padded EPATH	Logical segments identifying the physical link object
5	Get	Interface Config-uration	Struct	
		IP Address	UDINT (32)	The device's IP address
		Network Mask	UDINT (32)	The device's network mask
		Gateway Address	UDINT (32)	Default gateway address
		Name Server	UDINT (32)	Primary name server
		Name Server2	UDINT (32)	Secondary name server
		Domain Name	STRING	Default domain name
6	Get	Hostname	STRING	Host name
8	Get	TTL value	USINT (8)	TTL value for EtherNet/IP multi-cast packets
9	Get	Mcast Config	Struct	Multicast address allocation control word
		Alloc Control	USINT (8)	allocation control
		Reserved	USINT (8)	Reserved for future use
		Num Mcast	UINT (16)	Number of IP multicast address to allocation for EIP
		Mcast Start Addr	UDINT (32)	Starting multicast address from which to begin allocation.
13	Set	Encapsulation Inactivity of inac-tivity before Timeout	UINT (16)	Number of seconds of inactivity before TCP connection is closed

2.5.2.3 Common Service

Service Code	Class	Instance	Service Name	Description
0x01	•	•	Get_Attributes_All	Returns multiple attributes in numerical order
0x0E	•	•	Get_Attribute_Single	Read instance attribute of the class
0x10		•	Set_Attribute_Single	Write instance attribute of the class

2.5.2.4 GetAttributeAll

0x1		
1	Status	UDINT (32)
2	Configuration_Capability	UDINT (32)
3	Configuration_Control	UDINT (32)
4	Physical Link Object	
	Path size	UINT (16)
	Path size	path size UINT

0x1		
5	Interface Configuration	
	IP Address	UDINT (32)
	Network Mask	UDINT (32)
	Gateway Address	UDINT (32)
	Name Server	UDINT (32)
	Name Server2	UDINT (32)
	Domain Name	
	Length	UINT (16)
	Data	length SINT
6	Hostname	
	Length	UINT (16)
	Data	length SINT
	Reserved	6SINT (48)
8	TTL value	USINT (8)
9	Mcast Config	
	Alloc Control	USINT (8)
	Reserved	USINT (8)
	Num Mcast	UINT (16)
	Mcast Start Addr	UDINT (32)
	Reserved	37SINT (37)
13	Encapsulation Inactivity of inactivity before Timeout	UINT (16)

2.5.3 Ethernet Link Objects

2.5.3.1 Class Attribute List

Attribute ID	Access Rule	Name	Data Type	Description
1	Get	Revision	UINT (16)	Object revision
2	Get	Max Instance	UINT (16)	Maximum instance number of the object
3	Get	Number of instances	UINT (16)	Number of object instances currently created in the class
6	Get	Max ID of class attributes	UINT (16)	The Maximum class attribute ID number which is implemented in the device
7	Get	Max ID of instance attributes	UINT (16)	The Maximum instance attribute ID number which is implemented in the device

2.5.3.2 Instance Attribute List

Attribute ID	Access Rule	Name	Data Type	Description
1	Get	Interface Speed	UDINT (32)	Interface speed currently in use. Speed in Mbps (e.g., 0, 10, 100, 1000, etc.)
2	Get	Interface Flags	UDINT (32)	Interface status flags
3	Get	Physical Address	ARRAY of 6 USINT (48)	MAC layer address

Attribute ID	Access Rule	Name	Data Type	Description
4	Get	Interface Counters	Struct	
		In Octets	UDINT (32)	Octets received on the interface
		In Ucast Packets	UDINT (32)	Unicast packets received on the interface
		In NUcast Packets	UDINT (32)	Non-unicast packets received on the interface
		In Discards	UDINT (32)	Inbound packets received on the interface but discarded
		In Errors	UDINT (32)	Inbound packets that contain errors (does not include In Discards)
		In Unknown Protos	UDINT (32)	Inbound packets with unknown protocol
		Out Octets	UDINT (32)	Octets sent on the interface
		Out Ucast Packets	UDINT (32)	Unicast packets sent on the interface
		Out NUcast Packets	UDINT (32)	Non-unicast packets sent on the interface
		Out Discards	UDINT (32)	Outbound packets received on the interface but discarded
		Out Errors	UDINT (32)	Outbound packets that contain errors (does not include In Discards)

Attribute ID	Access Rule	Name	Data Type	Description
5	Get	Media Counters	Struct	
		Alignment Errors	UDINT (32)	Frames received that are not an integral number of octets in length
		FCS Errors	UDINT (32)	Frames received that do not pass the FCS check
		Single Collisions	UDINT (32)	Successfully transmitted frames which experienced exactly one collision
		Multiple_Collisions	UDINT (32)	Successfully transmitted frames which experienced more than one collision
		SQE_Test_Errors	UDINT (32)	Number of times SQE test error message is generated
		Deferred_Transmissions	UDINT (32)	Frames for which first transmission attempt is delayed because the medium is busy
		Late Collisions	UDINT (32)	Number of times a collision is detected later than 512 bit-times into the transmission of a packet
		Excessive_Collisions	UDINT (32)	Frames for which transmission fails due to excessive collisions
		MAC_Transmit_Errors	UDINT (32)	Frames for which transmission fails due to an internal MAC sub layer transmit error
		Carrier_Sense_Errors	UDINT (32)	Times that the carrier sense condition was lost or never asserted when attempting to transmit a frame
		Frame_Too_Long	UDINT (32)	Frames received that exceed the maximum permitted frame size
		MAC_Receive_Errors	UDINT (32)	Frames for which reception on an interface fails due to an internal MAC sub layer receive error
6	Get/Set	Interface Control	Struct	
		Control Bits	UINT (16)	Interface Control Bits
		Forced_Interface_Speed	UINT (16)	Speed at which the interface shall be forced to operate. Speed in Mbps (10, 100, 1000, etc.)
10	Get	Interface Level	STRING	Human readable identification
100	Get	Interface Utilization	UINT (16)	Percentage of entire interface Rx/Tx bandwidth being used (0-100), rx - 8bits, tx-8bits
101	Get	Tx Unicast Packet Rate	UDINT (32)	Number of TX unicast packets per second
102	Get	Tx Multicast Packet Rate	UDINT (32)	Number of TX multicast packets per second

Attribute ID	Access Rule	Name	Data Type	Description
103	Get	Tx Broadcast Packet Rate	UDINT (32)	Number of TX broadcast packets per second
104	Get	Rx Unicast Packet Rate	UDINT (32)	Number of RX unicast packets per second
105	Get	Rx Multicast Packet Rate	UDINT (32)	Number of RX multicast packets per second
106	Get	Rx Broadcast Packet Rate	UDINT (32)	Number of RX broadcast packets per second
107	Get/Set	Broadcast Storm	USINT (8)	
108	Get	Authentication status	USINT (8)	

2.5.3.3 Common Service

Service Code	Class	Instance	Service Name	Description
0x01	●	●	Get_Attributes_All	Returns multiple attributes in numerical order.
0x0E	●	●	Get_Attribute_Single	Read instance attribute of the class
0x10		●	Set_Attribute_Single	Write instance attribute of the class
0x4C		●	Get_and_Clear	Get instance attribute of the class and then clear the value

2.5.3.4 GetAttributeAll

0x1		
1	Interface Speed	UDINT (32)
2	Interface Flags	UDINT (32)
3	Physical Address	6USINT (48)
4	Interface Counters	
	In Octets	UDINT (32)
	In Ucast Packets	UDINT (32)
	In NUcast Packets	UDINT (32)
	In Discards	UDINT (32)
	In Errors	UDINT (32)
	In Unknown Protos	UDINT (32)
	Out Octets	UDINT (32)
	Out Ucast Packets	UDINT (32)
	Out NUcast Packets	UDINT (32)
	Out Discards	UDINT (32)
	Out Errors	UDINT (32)

0x1		
5	Media Counters	
	Alignment Errors	UDINT (32)
	FCS Errors	UDINT (32)
	Single Collisions	UDINT (32)
	Multiple_Collisions	UDINT (32)
	SQE_Test_Errors	UDINT (32)
	Deferred_Transmissions	UDINT (32)
	Late Collisions	UDINT (32)
	Excessive_Collisions	UDINT (32)
	MAC_Transmit_Errors	UDINT (32)
	Carrier_Sense_Errors	UDINT (32)
	Frame_Too_Long	UDINT (32)
	MAC_Receive_Errors	UDINT (32)
6	Interface Control	
	Control Bits	UINT (16)
	Forced_Interface_Speed	UINT (16)
10	Interface Level	
	Length	UINT (16)
	Data	length SINT

2.5.3.5 GetAttributeAll-Vendor1

(0x32)		
100	Interface Utilization	USINT (8)
101	Tx Unicast Packet Rate	UDINT (32)
102	Tx Multicast Packet Rate	UDINT (32)
103	Tx Broadcast Packet Rate	UDINT (32)
104	Rx Unicast Packet Rate	UDINT (32)
105	Rx Multicast Packet Rate	UDINT (32)
106	Rx Broadcast Packet Rate	UDINT (32)
107	Broadcast Storm	USINT (8)
108	Authentication status	USINT (8)

2.5.4 Advantech Networking Objects

2.5.4.1 Class Attribute List

Attribute ID	Access Rule	Name	Data Type	Description
1	Get	Revision	UINT (16)	Object revision
2	Get	Max Instance	UINT (16)	Maximum instance number of the object
3	Get	Number of instances	UINT (16)	Number of object instances currently created in the class
6	Get	Max ID of class attributes	UINT (16)	The Maximum class attribute ID number which is implemented in the device

Attribute ID	Access Rule	Name	Data Type	Description
7	Get	Max ID of instance attributes	UINT (16)	The Maximum instance attribute ID number which is implemented in the device

2.5.4.2 Instance Attribute List

Attribute ID	Access Rule	Name	Data Type	Description
1	Get	System Uptime	UDINT (32)	Number of seconds since device was powered up
2	Get	FW version	Struct	
		Major1	USINT (8)	The structure member, major1
		Major2	USINT (8)	The structure member, major2
		Minor	USINT (8)	The structure member, minor
		Reserved	USINT (8)	
3	Get	System Fault	UDINT (32)	System fault status
				0 bit: CPU utilization alarm value 0: no alarm value 1: alarm
				1 bit: Power supply 1 value 0: error value 1: ok
				2 bit: Power supply 2 value 0: error value 1: ok
				[3-31] bit: Reserved
4	Get	Port Count	USINT (8)	Total switch port count
5	Get	Port Exist	UDINT (32)	Switch port exists on device
6	Get/Set	Port Enable	UDINT (32)	Switch port en|dis-able
7	Get	Port Link Status	UDINT (32)	Switch port link status
8	Get	CPU Usage	USINT (8)	Percent of CPU usage (0-100)
9	Get/Set	Temperature Upper Limit	UDINT (32)	Upper temperature (C) at which to declare an alarm
10	Get/Set	Temperature Lower Limit	UDINT (32)	Lower temperature (C) at which to declare an alarm
11	Get	Temperature in C	UDINT (32)	Temperature in degrees C. 0x9999 = Not Supported on device.
12	Get	Temperature in F	UDINT (32)	Temperature in degrees F. 0x9999 = Not Supported on device.
13	Set	MIB Reset	USINT (8)	Reset MIB counters
14	Get/Set	CPU Utilization Alarm Limit	USINT (8)	Percent of upper CPU usage at which to declare an alarm, default value is 80
15	Get/Set	Port Utilization Alarm Limit	USINT (8)	Percent of upper port utilization at which to declare an alarm, default value is 80
16	Get/Set	Config Enable	USINT (8)	Output config data en|dis-able
17	Get	MAC address	Short STRING	Human readable mac address

Attribute ID	Access Rule	Name	Data Type	Description
25	Set	Reboot	USINT (8)	Reboot the device

2.5.4.3 GetAttributeAll

0x1			"
1	System Uptime	UDINT (32)	
2	FW version		
	Major	UINT (16)	
	Minor	UINT (16)	
3	System Fault	UDINT (32)	
			0 bit: CPU utilization alarm value 0: no alarm value 1: alarm
			1 bit: Power supply 1 value 0: error value 1: ok
			2 bit: Power supply 2 value 0: error value 1: ok
			[3-31] bit: Reserved
4	Port Count	USINT (8)	
5	Port Exist	UDINT (32)	
6	Port Enable	UDINT (32)	
7	Port Link Status	UDINT (32)	
8	CPU Usage	USINT (8)	
9	Temperature Upper Limit	UDINT (32)	
10	Temperature Lower Limit	UDINT (32)	
11	Temperature in C	UDINT (32)	
12	Temperature in F	UDINT (32)	
14	CPU Utilization Alarm Limit	USINT (8)	
15	Port Utilization Alarm Limit	USINT (8)	
16	Config Enable	USINT (8)	
17	MAC address		
	length	USINT (8)	
	data	length USINT	

2.5.5 Assembly

	Instance number	size (bit)
Input	100	256
Output	150	256
Config	151	80

2.5.5.1 Class Attribute List

1	Get	Revision	UINT (16)	Object Revision
2	Get	Max Instance	UINT (16)	Maximum instance number of the object
3	Get	Number of instances	UINT (16)	Number of object instances currently created in the class
6	Get	Max ID of class attributes	UINT (16)	The Maximum class attribute ID number which is implemented in the device
7	Get	Max ID of instance attributes	UINT (16)	The Maximum instance attribute ID number which is implemented in the device

2.5.5.2 Instance Attribute List

3	Get/Set	Data	Array of BYTE	The messaging content

2.5.5.3 Common Service

Service Code	Class	Instance	Service Name	Description
0x0E	•	•	Get_Attribute_Single	Read instance attribute of the class
0x10		•	Set_Attribute_Single	Write instance attribute of the class

2.5.5.4 I/O Data

Input	BitMask	Name	Bits	Description
[0]	0-15	ProductCode	16 bits	EKI-5629 = 5629, EKI-5729 = 5729
	16-23	CPU usage	8 bits	Percent of CPU usage (0-100)
	24-31			Reserved
[1]	0-31	Port status	32 bits	Switch port link status
[2]	0-31	Port duplex	32 bits	Switch port duplex status
[3]	0-31	System uptime	32 bits	Number of seconds since device was powered up
[4]	0-31	System fault	32 bits	The same result with no.3 attribute of advantech class.
[5]	0-31	Port utilization alarm	32 bits	port will be set if port utilization exceed threshold.

Input	BitMask	Name	Bits	Description
[6]	0-31	Port Auth status	32 bits	port authentication status
[7]				Reserved
Output				
[0]	0-7	Port number	8 bits	Which port number want to set
	8	Port en | disable	1 bit	Port number en | disable, 0 = disable, 1 = enable
	9	Port auto-nego en|dis-able	1 bit	Port auto-negotiate en | dis-able, 0 = disable, 1 = enable
	10	Port duplex	1 bit	Port duplex, 0 = half, 1 = full
	11-15		5 bits	Reserved
	16-31	Port speed	16 bits	Port speed
[1]	0-7	CPU utilization limit	8 bits	Percent of upper CPU usage at which to declare an alarm
	8-15	Port utilization limit	8 bits	Percent of upper port utilization at which to declare an alarm
	16-23	Temperature upper limit	8 bits	Upper temperature (C) at which to declare an alarm
	24-31	Temperature lower limit	8 bits	Lower temperature (C) at which to declare an alarm
[2]				Reserved
[3]				Reserved
[4]				Reserved
[5]				Reserved
[6]				Reserved
[7]				Reserved

2.5.6 Message Router

2.5.6.1 Class Attribute List

Class Attribute List				
1	Get	Revision	UINT (16)	Object revision
2	Get	Max Instance	UINT (16)	Maximum instance number of the object
3	Get	Number of instances	UINT (16)	Number of object instances currently created in the class
6	Get	Max ID of class attributes	UINT (16)	The Maximum class attribute ID number which is implemented in the device
7	Get	Max ID of instance attributes	UINT (16)	The Maximum instance attribute ID number which is implemented in the device

2.5.6.2 Common Service

Service Code	Class	Instance	Service Name	Description
0x0E	•	•	Get_Attribute_Single	Read instance attribute of the class

2.5.7 Connection Manager

2.5.7.1 Class Attribute List

1	Get	Revision	UINT (16)	Object revision
2	Get	Max Instance	UINT (16)	Maximum instance number of the object
3	Get	Number of instances	UINT (16)	Number of object instances currently created in the class
6	Get	Max ID of class attributes	UINT (16)	The Maximum class attribute ID number which is implemented in the device
7	Get	Max ID of instance attributes	UINT (16)	The Maximum instance attribute ID number which is implemented in the device

2.5.7.2 Common Service

Service Code	Class	Instance	Service Name	Description
0x0E	•	•	Get_Attribute_Single	Read instance attribute of the class
0x10		•	Set_Attribute_Single	Write instance attribute of the class
0x4E	•	•	Forward_Close	close connection
0x54		•	Forward_Open	open connection

2.5.8 Base Switch

2.5.8.1 Class Attribute List

1	Get	Revision	UINT (16)	Object revision
2	Get	Max Instance	UINT (16)	Maximum instance number of the object
3	Get	Number of instances	UINT (16)	Number of object instances currently created in the class
6	Get	Max ID of class attributes	UINT (16)	The Maximum class attribute ID number which is implemented in the device
7	Get	Max ID of instance attributes	UINT (16)	The Maximum instance attribute ID number which is implemented in the device

2.5.8.2 Instance Attribute List

1	Get	Device Up Time	UDINT (32)	Time since device was powered up
2	Get	Total port count	UDINT (32)	Number of physical ports
3	Get	System Firmware Version	Short String	Human readable representation of System Firmware Version
4	Get	Power Source	INT (16)	Status of switch power source
5	Get	Port Mask Size	UINT (16)	Number of DWORDs in port array attributes
8	Get	Global Port Link Status	Array of DWORD	Ports Link Status

2.5.8.3 Common Service

Service Code	Class	Instance	Service Name	Description
0x01	•		Get_Attributes_All	Returns multiple attributes in numerical order.
0x0E	•	•	Get_Attribute_Single	Read instance attribute of the class

Chapter 3

PROFINET

3.1 PROFINET

3.1.1 Introduction

PROFINET is the standard for industrial networking in automation. It connects devices, systems, and cells, facilitating faster, safer, less costly and higher quality manufacturing. It easily integrates existing systems and equipment while bringing the richness of Ethernet down to the factory floor.

PROFINET IO recognizes three classes of devices:

- IO devices
  An I/O device is a distributed I/O field device that is connected to one or more I/O controllers via PROFINET I/O. The I/O device is the provider of input data and the consumer of output data.
- IO controllers
  This is typically the programmable logic controller (PLC) on which the automation program runs. The I/O controller provides output data to the configured I/O-devices in its role as provider and is the consumer of input data of I/O devices.
- IO supervisors.
  This can be a programming device, personal computer (PC), or human machine interface (HMI) device for commissioning or diagnostic purposes.

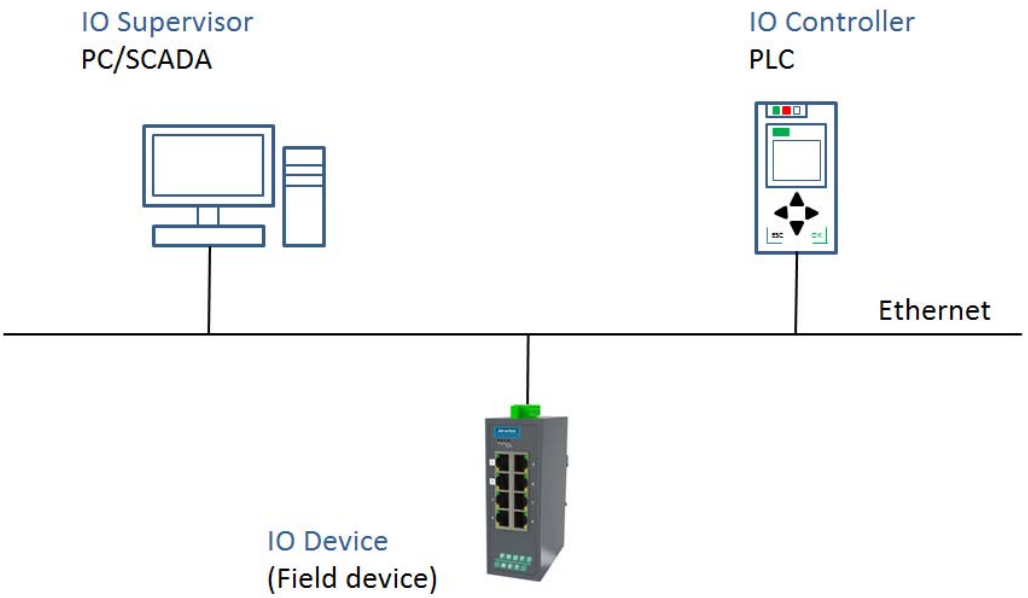


Figure 3.1 PROFINET IO

3.2 Configuring PROFINET

3.2.1 Enable PROFINET I/O

The PROFINET function default is enabled in the PROFINET project series. It can be configure manually in the Web page. To access this page, click **Management > PROFINET > PROFINET Settings**.

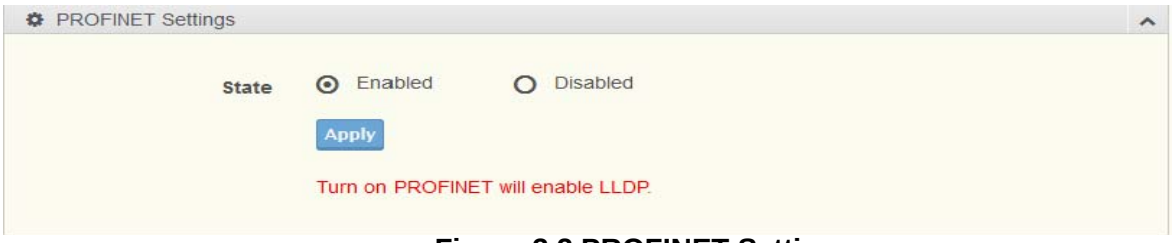


Figure 3.2 PROFINET Settings

Item	Description
State	Click **Disabled** or **Enabled** to set the PROFINET state.
Apply	Click **Apply** to save the values and update the screen.

3.2.2 PROFINET Cyclic I/O Data

The Advantech PROFINET switch provides PROFINET I/O cyclic data and includes the following items:

Category	Direction	Byte(s)	Bit	Name	Description
Port Status	Input	0	0	Port1 Connection	0 is not connected, 1 is connected
			1	Port2 Connection	0 is not connected, 1 is connected
			2	Port3 Connection	0 is not connected, 1 is connected
			3	Port4 Connection	0 is not connected, 1 is connected
			4	Port5 Connection	0 is not connected, 1 is connected
			5	Port6 Connection	0 is not connected, 1 is connected
			6	Port7 Connection	0 is not connected, 1 is connected
			7	Port8 Connection	0 is not connected, 1 is connected
		1	0	Port9 Connection	0 is not connected, 1 is connected
			1	Port10 Connection	0 is not connected, 1 is connected
			2	Port11 Connection	0 is not connected, 1 is connected
			3	Port12 Connection	0 is not connected, 1 is connected
			4	Port13 Connection	0 is not connected, 1 is connected
			5	Port14 Connection	0 is not connected, 1 is connected
			6	Port15 Connection	0 is not connected, 1 is connected
			7	Port16 Connection	0 is not connected, 1 is connected

Category	Direction	Byte(s)	Bit	Name	Description
		2	0	Port17 Connection	0 is not connected, 1 is connected
			1	Port18 Connection	0 is not connected, 1 is connected
			2	Reserved	
			3	Reserved	
			4	Reserved	
			5	Reserved	
			6	Reserved	
			7	Reserved	
		3	0	Reserved	
			1	Reserved	
			2	Reserved	
			3	Reserved	
			4	Reserved	
			5	Reserved	
			6	Reserved	
			7	Reserved	

3.3 TIA Portal V13 Integration

The following steps show how to integrate the switch into a PROFINET network:

1. Create a PROFINET I/O project in TIA Portal
   Create a PROFINET I/O Ethernet project for deploying environment
2. GSD file installation
   Import GSD file into the project
3. Add Devices and configuration
   Search and discover the switch in TIA Portal. Configure PROFINET attributes such as IP address, device name and I/O parameters.
4. Save and load the project into the PLC
   Load this project and into the PLC
5. Watch tables of the Switch
   Use TIA Portal to watch switch attributes

3.3.1 Create a PROFINET I/O project in TIA Portal

Create a new project.

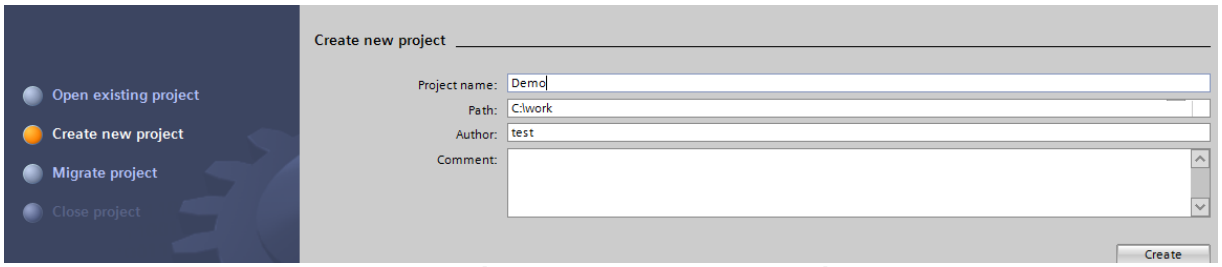


Figure 3.3 Create new project

3.3.2 GSD file installation

Install the GSD file via Options.

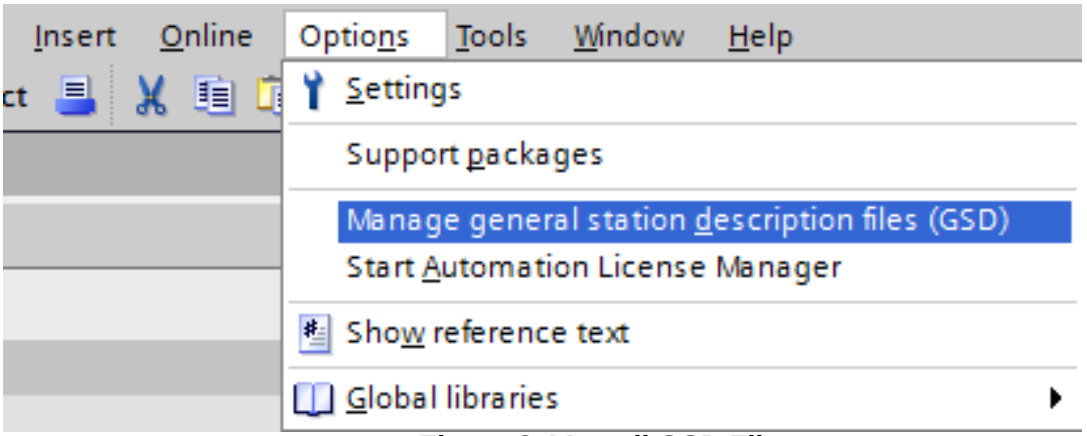


Figure 3.4 Install GSD File

Now the Ethernet Switch can be found in the Hardware catalog tree under **Other field devices > PROFINET IO > Network Components > Advantech PROFINET Switch**.

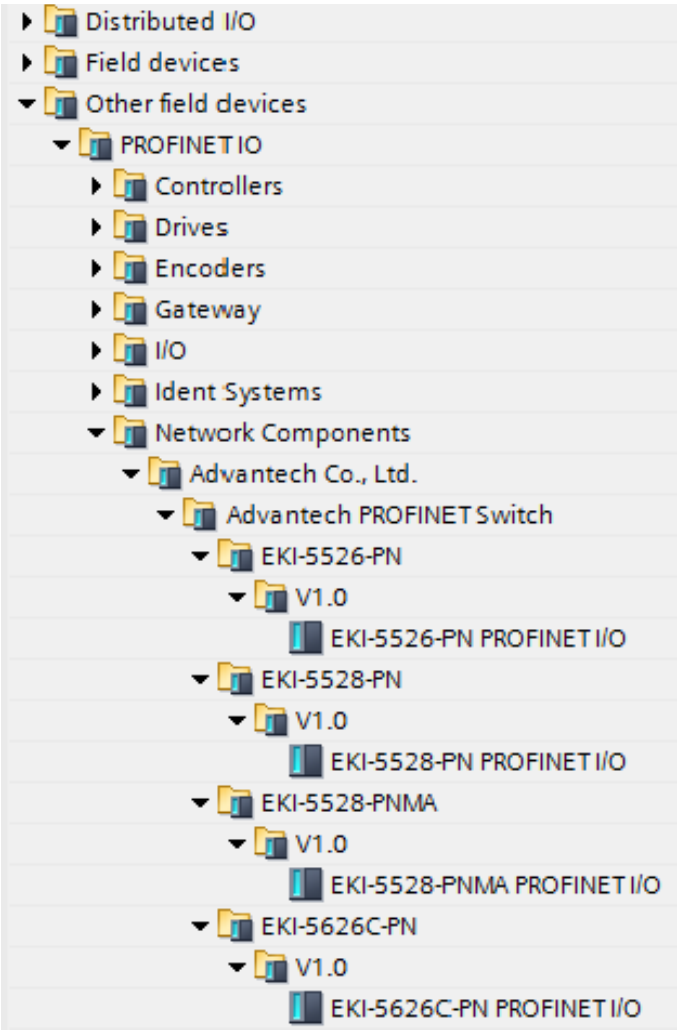


Figure 3.5 Install GSD File

3.3.3 Add Devices and configuration

1. Install the GSD file via Options.

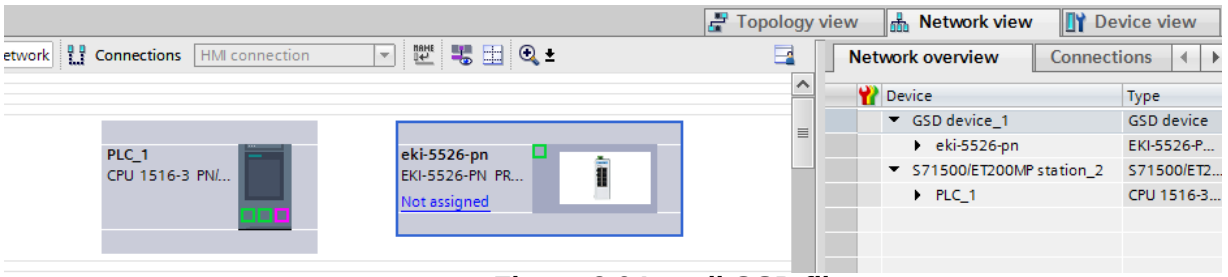


Figure 3.6 Install GSD file

2. Draw the PROFINET IO-system between the PLC and the Switch.

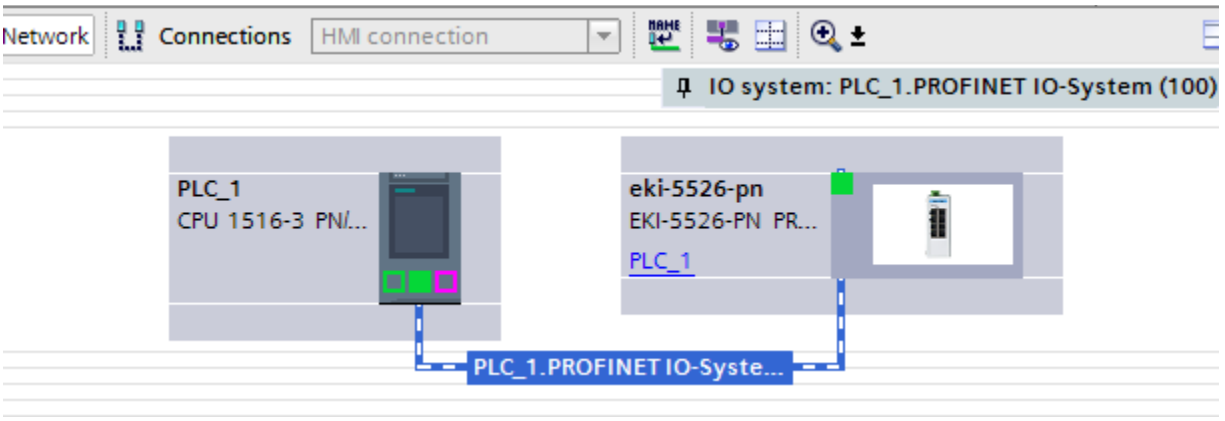


Figure 3.7 Draw PROFINET-IO System

3. Assign a device name under the **Device view**.

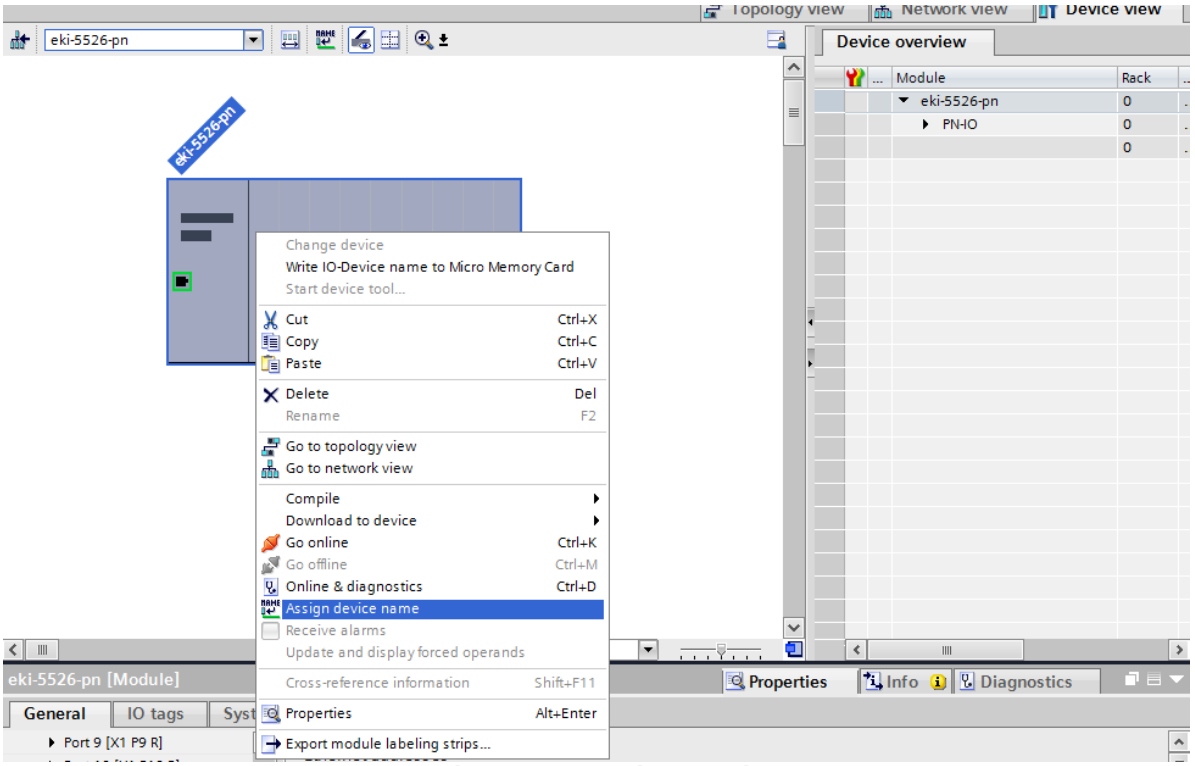


Figure 3.8 Assign Device Name

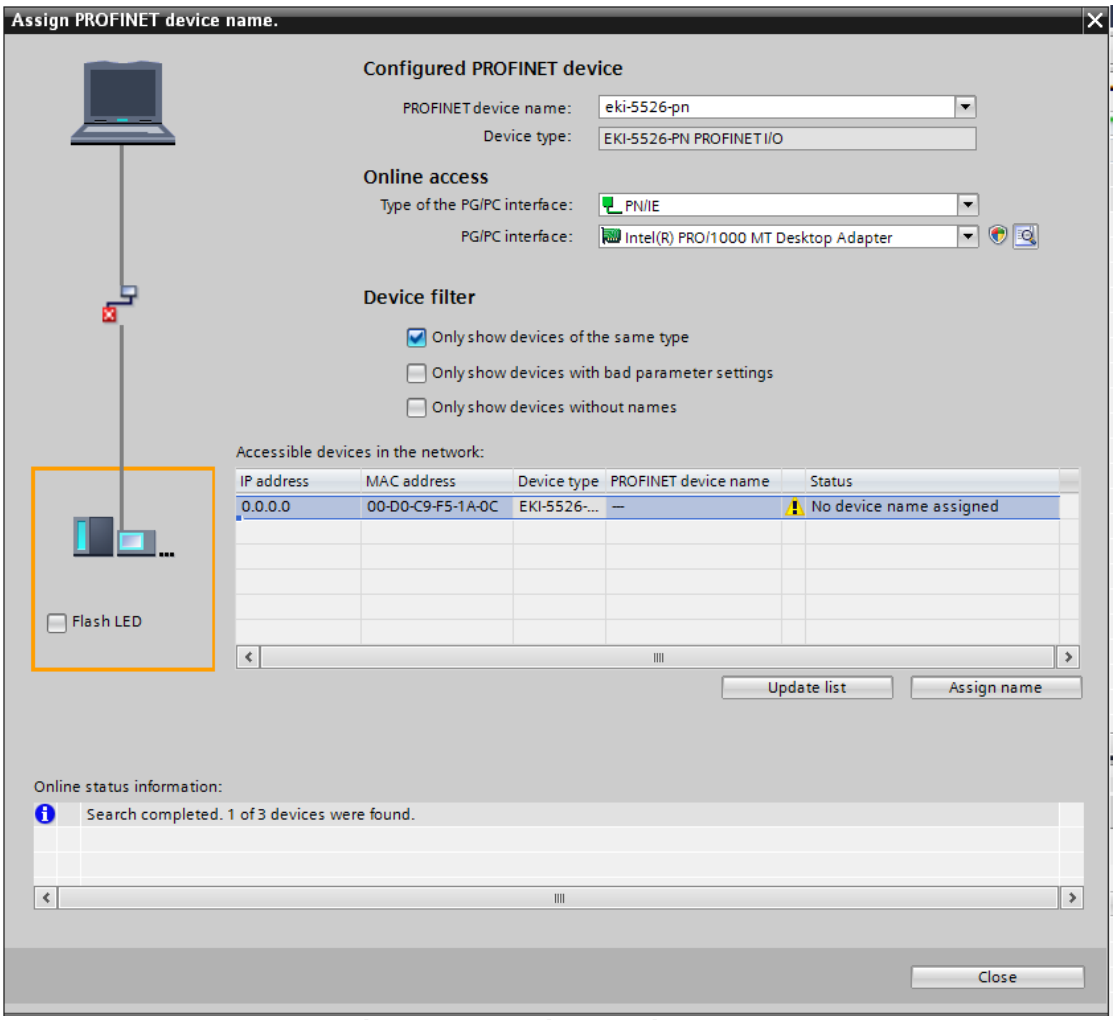


Figure 3.9 Assign Device Name

4. Add Port Link Status to the Module.

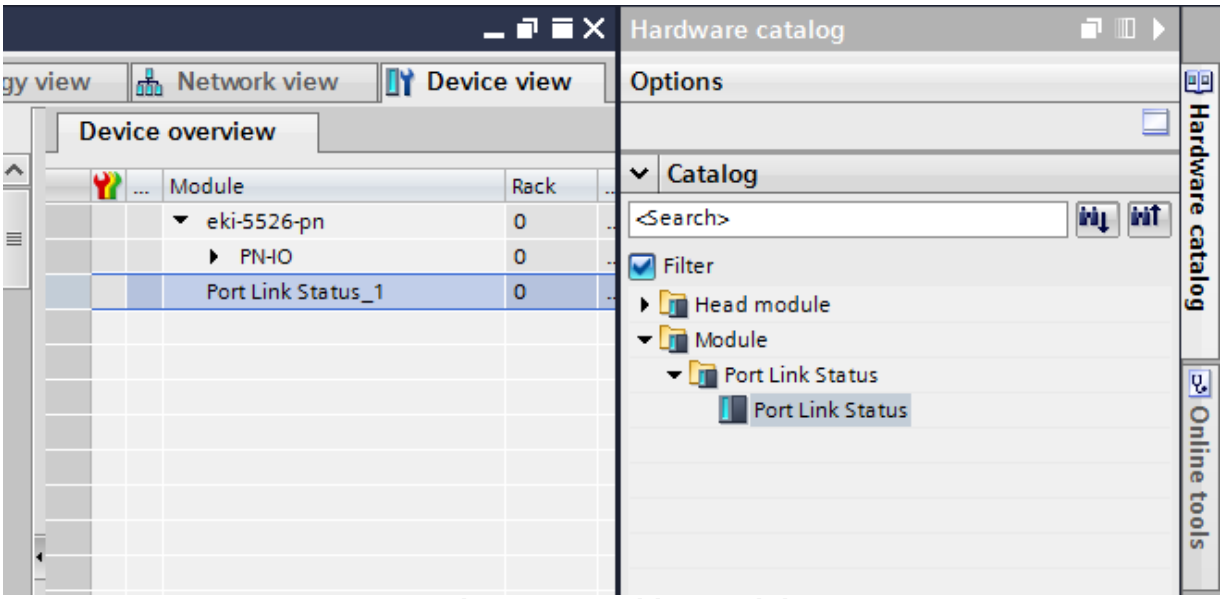


Figure 3.10 Add Port Link Status

3.3.4 Save and load the project into the PLC

Compile and Download to device.

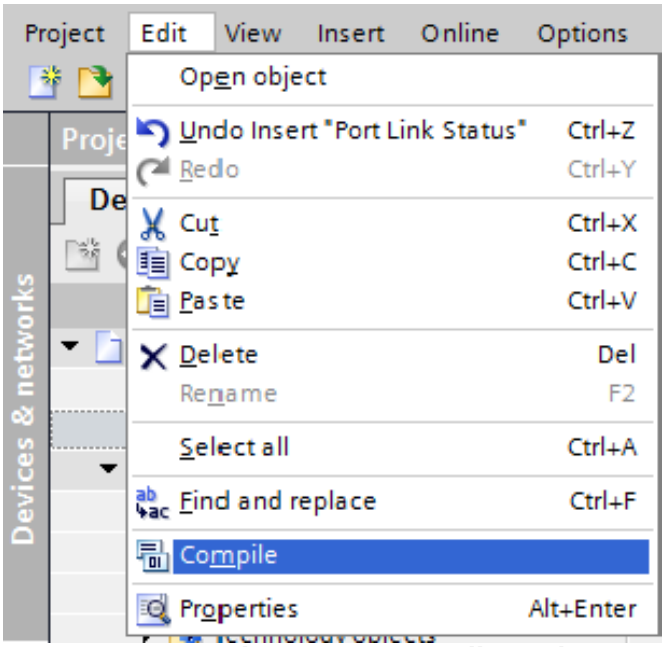


Figure 3.11 Compile Project

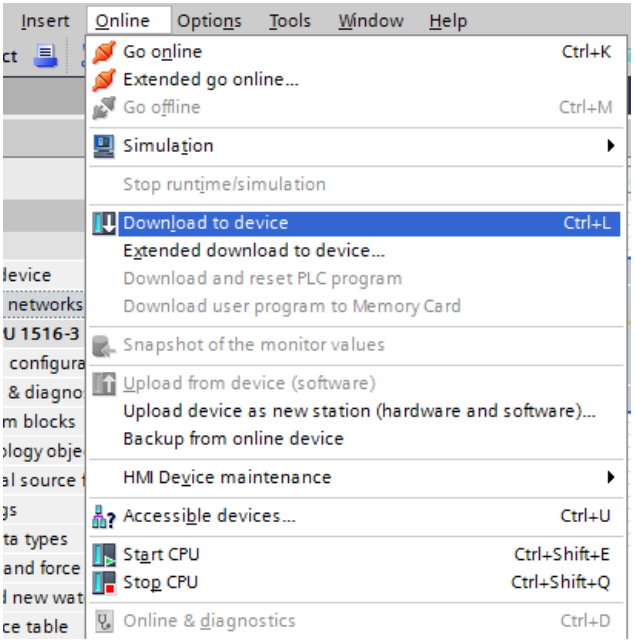


Figure 3.12 Download to Device

3.3.5 Switch Watch tables

1. Add a new watch table to **Project tree > Devices**.

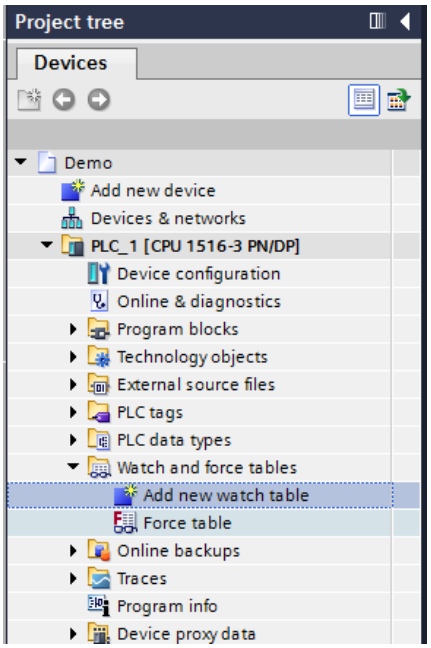


Figure 3.13 Download to Device

2. Drag I/O(**Port_Link_Status_1 > Details View**) into **Watch_table_1**.

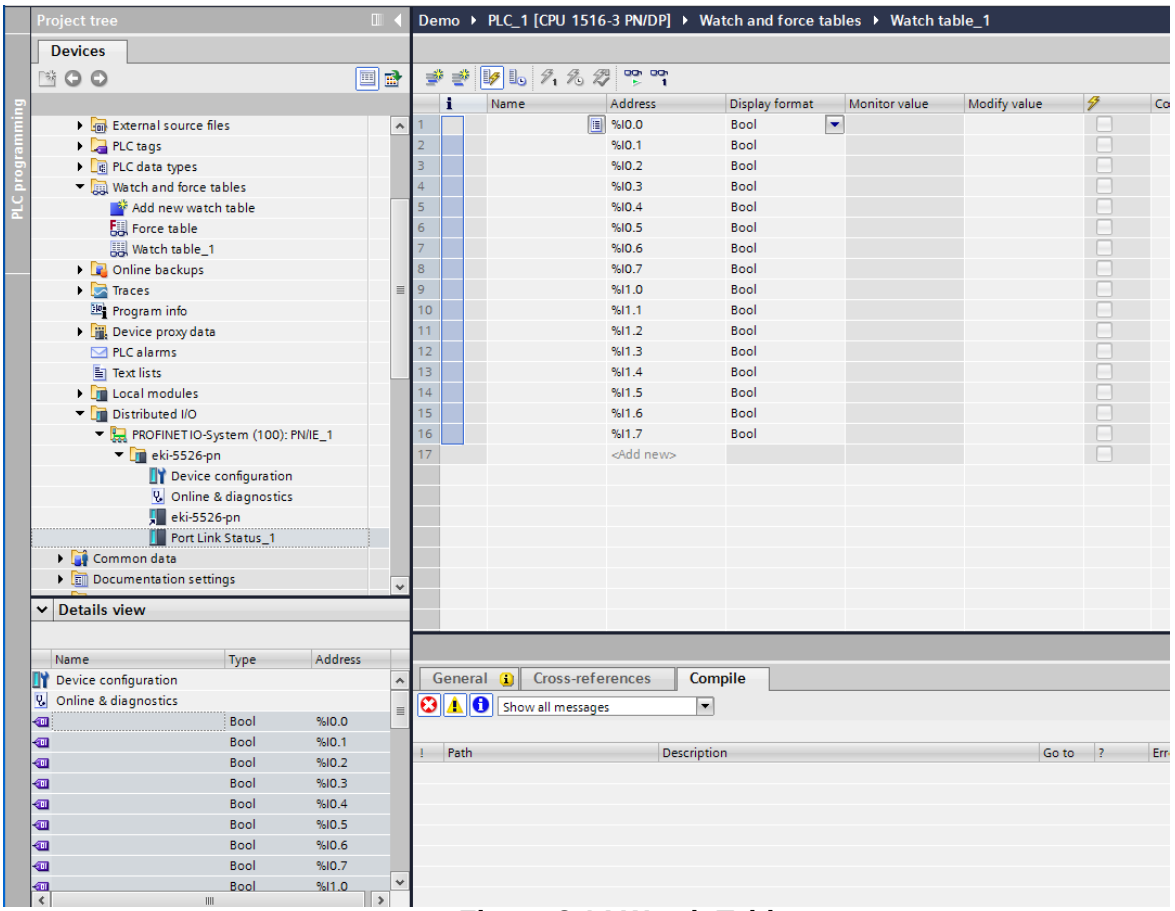


Figure 3.14 Watch Table

3. Monitor via the **Online** menu.

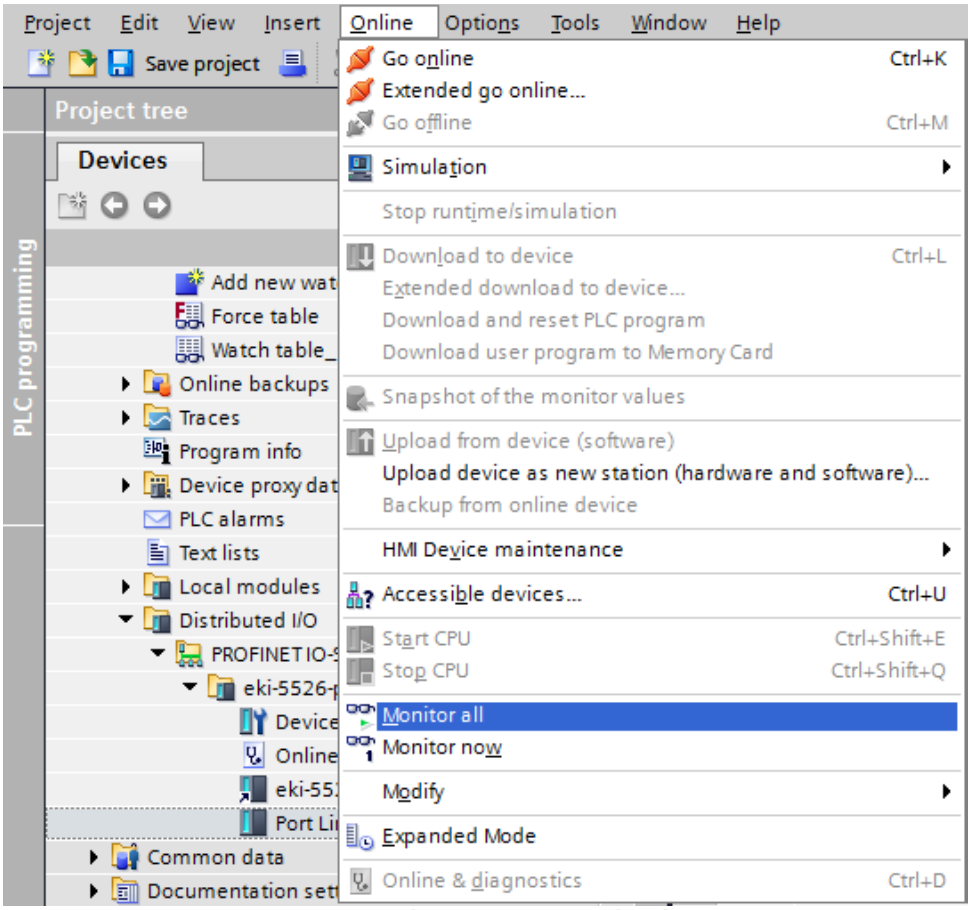
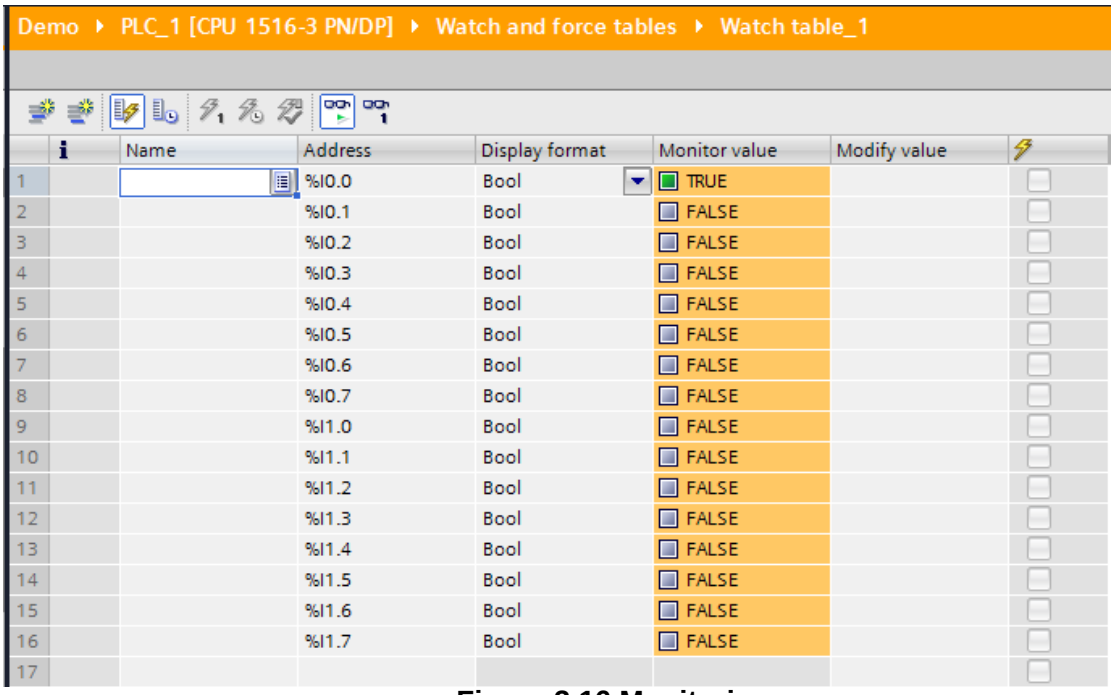


Figure 3.15 Monitoring



	Name	Address	Display format	Monitor value	Modify value
1		%I0.0	Bool	TRUE	
2		%I0.1	Bool	FALSE	
3		%I0.2	Bool	FALSE	
4		%I0.3	Bool	FALSE	
5		%I0.4	Bool	FALSE	
6		%I0.5	Bool	FALSE	
7		%I0.6	Bool	FALSE	
8		%I0.7	Bool	FALSE	
9		%I1.0	Bool	FALSE	
10		%I1.1	Bool	FALSE	
11		%I1.2	Bool	FALSE	
12		%I1.3	Bool	FALSE	
13		%I1.4	Bool	FALSE	
14		%I1.5	Bool	FALSE	
15		%I1.6	Bool	FALSE	
16		%I1.7	Bool	FALSE	
17					

Figure 3.16 Monitoring

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