

Compact67_Slim I/O Module

----Profinet System Manual





ELCO (Tianjin) Electronics Co., Ltd 09/2019 Version 1.3



Preface

1. Scope of this manual:

This manual applies to the ELCO Profinet Compact67_Slim distributed I/O device.

The information in this manual enables you to run the Compact67_Slim module on Profinet in a distributed I/O device.

2. Basic knowledge requirements

This manual presumes a general knowledge in the field of automation engineering and describes the components based on the data valid at the time of its release. ELCO reserves the right of including a product information for each new component, and for each component of a later version.

3. Guide

This manual describes the hardware of the Profinet Compact67_Slim distributed I/O device.

Covered topics are:

- Installation and wiring
- Commissioning and diagnostics
- Components
- Article numbers
- Technical specifications

4. Technical support:

This manual describes the characteristics and the usage of a Compact67_Slim distributed I/O device.

Please contact your local ELCO representative or dial 400-608-4005 if you have any questions about the products described in this manual. Additional information about ELCO products is available: http://www.elco-holding.com/

5. Disclaimer of liability:

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.



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1. Product overview

1.1 Introduction

The distributed I/O devices Compact67_Slim is a Pofinet IO devices with IP67 protection level.

1.2 Applications

Compact67_Slim distributed I/O device provides a reliable solution for the field bus I/O system which connects controllers and is applied in harsh field environment.

Compact 67_Slim module based on 32mm wide IP67 housing with standardized installation allows a safe and reliable operation in the harsh working environment where water, dust and vibration may occur. These characteristics make them suitable for many applications, such as material conveying system, automatic assembly system and so on.

Other functions include supporting input and output of multiple signals. Embedded high-brightness LED diagnosis helps maintainers to judge I/O, module and network status more easily.

1.3 Features

- Up to IP67 protection level
- Can be used in compact, narrow installation space
- M8 size power supply and network interface
- Independent bus slave station, which can be directly connected with PLC
- LED status display, channel level protection and diagnosis



1.4 Product type list

No.	Туре	Description
1		8 PNP Input or Passive Contact
L L	FEPIN-UOUUP-IVIO	Short Circuit Protection and Diagnosis
		4-Point PNP Input or Passive Contact
2	FEPN-0404P-M8	4-Point active output
		Short Circuit Protection and Diagnosis
3	FEPN-08UP-M8	8 PNP input or output, configurable
		Short Circuit Protection and Diagnosis



2. Technical characteristics

2.1 Hardware parameters

Item	FEPN-0800P-M8	FEPN-0404P-M8	FEPN-08UP-M8
Input points	8	4	Max. 8
Output points	0	4	Max. 8
Profinet Bus-in		2 x M8 4pin,Female	
Profinet Bus-out		2 x M8 4pin,Female	
I/O signal		8 x M8 3pin,Female	
Power in		2 x M8 4pin,Male	
Power out		2 x M8 4pin,Female	
Mod/Input Voltage		24VDC (18~30V)	
Output Voltage		24VDC (18~30V)	
Maximum output	N1/A	Den ekennel O	
current	IN/A	Per channel 0.5A, total 4A	
Output short			aal 20m A
circuit current	N/A	Per chan	
Max frequency	N/A	100)Hz
Output Voltage	N/A	Voltag	e-0.7V
Output type	N/A PNP		
Input signal "0"	Low level: 0~5V		
Input signal "1"	High level: 15~30V		
Input delay	0.5ms		
Input current	6.4mA		
Input supply		rant 100mA Action ou	rrant 150m
current	Holding current 100mA, Action current 150mA		
Normal input	241/06 /10~2014		
voltage	24VDC (10°30V)		
Input type	PNP		
Operation	-25℃70℃		
temperature			
Storage	-40℃80℃		



temperature	
Anti-vibration Class	IE068-2-6
Anti-interference	EN 61000-6-2
EMC	
Protection class	IP67
Operating life	100,000 Hour



2.2 LED Indication

The operating status of the module can be clearly displayed by the LED indicator.





2.3 General system layout

The following figure shows an example of a conventional Profinet system module connection, which is powered by 24VDC power supply to three modules. Profinet network connects modules through switches or cascades. The further modules can also use more switches to expand the connection distance.





3. Installing

3.1 Mounting dimensions





3.2 Mounting position, mounting dimensions

Compact67_Slim can be mounted in any position because of IP67's high protection level and excellent anti-vibration and anti-interference capability. Compact67_Slim module adopts a uniform shape size. The following table shows the dimensions of the module:

	Dimensions
Mounting width	32 mm
Mounting height	155 mm
Mounting depth	32 mm (without connector)



3.3 Assigning names in PROFINET I/O devices

Each Profinet protocol Compact67_Slim distributed I/O device is assigned to a unique device ID (i.e. MAC address) at the factory, while addressing to each Compact67_Slim device based on device name during configuration and as per the user program. Therefore, it's necessary to assign names for each Compact67_Slim I/O device before the configuring and debugging.

3.3.1 Setting method—Siemens Step7

It's convenient to assign names and IP addresses in PROFINET IO devices through SIEMENS Step7 software, please carry out the following steps:
1) Provide power for the Compact67_Slim and connect it to engineering computer in the same network via a switch or cable connection.
2) In the Step7 software HW-Config, select PLC > Ethernet > Edit Ethernet Node

3) In the pop-up window, click Browse button, select the Compact67_Slim module via the MAC address to assign device name and confirm.

thernet node —		
		Nodes accessible online
AC <u>a</u> ddress:	D4-BE-D9-7B-EE-CD	Browse
et IP configurat	tion	
• Use I <u>P</u> parame	ters	
<u>I</u> P address:	192. 168. 0. 15	Gateway (* D <u>o</u> not use router
Subnet mas <u>k</u> :	255, 255, 255, 0	C <u>V</u> se router
		Addr <u>e</u> ss: 192.168.0.15
€ Client ID Client ID: Assign IP Config	C MAC address	C Degice name
ssign device nam	ne	
<u>D</u> evice name:	elco67	Assign Name
eset to factory	settings	Reset

4) Assign the device name for the Compact67_Slim module by clicking button Assign Name in the dialog "Edit Ethernet Node".



5) Assign the new IP address directly to Compact67_Slim module by clicking the button "Assign IP Configuration". (IP address assignment can also be carried out during configuration of the I/O Devices)
6) Now, with the new assigned device name as an identifier of the Compact67_Slim module, you can configure and debug in the program.

3.3.2 Setting method—Siemens Portal

It's convenient to assign names and IP addresses in PROFINET IO devices through SIEMENS Portal software, please carry out the following steps:
1) Provide power for the Compact67_Slim and connect it to engineering computer in the same network via a switch or cable connection.
2) In the Portal software "Project tree", "Online access". Select the corresponding network card of the computer and update the accessible device.

3) In the tree structure, you can see the Profinet device connected by the current computer, and select the Compact67_Slim device to assign the device name through the MAC address.





4) In the "Online Access" window on the right, you can assign the set device name to the Compact67_Slim device through the "Assign Name" option.
5) Assign the new IP address directly to Compact67_Slim module by clicking the button "Assign IP Configuration". (IP address assignment can also be carried out during configuration of the I/O Devices)

🛨 🥂 🗄 🗓 🕼 🖳 🗛 🚿 Goonline	🖉 Go offline 🛛 🛔 🖪 🗶	
: Connection I219-LM 🕨 Accessible d	evice [8C-19-2D-50-0B-10] 🕨	Accessible device [8C-19-2D-50-0B-10]
▼ Diagnostics		
General		
▼ Functions		
Assign IP address		
Assign name	Configured PROFINET de	vice
Reset to factory settings	PROFINET device name:	elco67
	Device type:	Compact IP67 IO

6) Now, with the new assigned device name as an identifier of the Compact67_Slim module, you can configure and debug in the program.

PS: The MAC address of Compact67_Slim device is marked on the side of the module in the form of laser engraving or label (the newly assigned device name may need to be re-energized to display correctly).



3.4 Wiring Compact67_Slim

Please connect according to the basic electrical specifications. For personal and equipment safety, we recommend disconnecting the power supply during wiring operation.

3.4.1 Connecting Compact67_Slim to protective earth (PE)

- Always connect the Compact67_Slim to protective earth.
- The module also requires this connection to protective earth in order to discharge any interference currents to ground, and for EMC compatibility.
- Always make sure you have a low-impedance connection to protective earth.

3.4.2 Compact67_Slim power supply

Compact67_Slim modules adopt 24VDC power supply, voltage range 18~30VDC, standard M8-4pin connector.

Two parts for power supply: module and input signal power supply Ui (1L+ $_1$ M), output signal power supply (2L+ $_2$ 2M). Electrical isolation between 1L+ and 2L+, internally connected between common point 1M and 2M. (FEPN-0404P-M8 complete isolation of common points)

1) Power in connector view (Male)





2) Power out connector view (Female)



3) Power definition

Terminal	Function	Power supply
1	Module and input signal 1L+	24V
2	Output signal 2L+	24V
3	Module and input signal 1M	0V
4	Output signal 2M	0V



3.4.3 Compact67_Slim BUS connect

Compact67_Slim module, supporting Profinet protocol, transmits signals by a shielded cable, M8-4pin connector.

1) BUS-In connector view (Female)



2) BUS-Out connector view (Female)



3) Bus definition

Terminal	Function	Cable color
1	Transmit Data(TD+)	Yellow
2	Receive Data(RD+)	White
3	Receive Data(RD-)	Blue
4	Transmit Data(TD-)	Orange



3.4.4 Compact67_Slim digital signal connect

I/O signals of Compact67_Slim module are connected by standard M8-3pin connectors, and each port can connect up to one signal (input or output).

1) Signal connector view (Female)



2) Digital signal interface definition

Terminal	M8 connector		
1	Power supply 24V+		
3	Power supply GND		
4	Signal in/out A	1 st signal	



3) Digital signal interface definition

a) Input signal – 1 connector connects 1 digital input, FEPN-0800P-M8, FEPN-0404P-M8, FEPN-08UP-M8 support this connection.



 b) Output signal – 1 connector connects 1 digital output, FEPN-0404P-M8, FEPN-08UP-M8 support this connection.





4. Configuration Commissioning

4.1 Installation of configuration files

Configuration of Compact67_Slim distributed I/O device via GSD file (XML format) and the standard Profinet IO GSD file for the Compact67_Slim will be integrated into user's system. You can visit the ELCO website to get the latest GSD file or call the hotline to contact technical personnel.

How to integrate the GSD file into the system depends on the user's configuration software, usually the Profinet GSD file enable integration with the SIEMENS Step7 in accordance with the following steps:

1) Running Step7, and then select menu command " Options>Install New GSD File..."



2) Browse to the file's directory in the next dialog, chose the GSD file and then click "Install".





3) The new additional Compact67_Slim module is shown in the directory of hardware "Additional Field Devices>I/O> Compact IP67 IO > IP67 module Category".



4) The user can configure the Compact67_Slim module with Step7 according to the actual situation.



4.2 Signal address assignment

Each signal module with M8 interface has 8 connectors (P0~P7) for signal transmission; each connector has 3 pins (Pin1, Pin3, Pin4). The following table indicates the matchup between signal status and bytes transmitted of Profinet.

Byte	Bit	Channel	e.g
	Bit O	Con0.Pin4	10.0
	Bit 1	Con1.Pin4	10.1
	Bit 2	Con2.Pin4	10.2
Input	Bit 3	Con3.Pin4	10.3
Byte 0	Bit 4	Con4.Pin4	10.4
	Bit 5	Con5.Pin4	10.5
	Bit 6	Con6.Pin4	I 0.6
	Bit 7	Con7.Pin4	I 0.7

1) 8 digital inputs module: FEPN-0800P-M8

2) 4 digital input & 4 digital output module: FEPN-0404P-M8

Byte	Bit	Channel	e.g
	Bit 0	Con0.Pin4	10.0
	Bit 1	Con1.Pin4	10.1
	Bit 2	Con2.Pin4	10.2
Input/Output	Bit 3	Con3.Pin4	10.3
Byte 0	Bit 4	Con4.Pin4	Q 0.4
_,	Bit 5	Con5.Pin4	Q 0.5
	Bit 6	Con6.Pin4	Q 0.6
	Bit 7	Con7.Pin4	Q 0.7



3)	8 digital	input/output	configurable	module:	FEPN-08UP-M8
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Byte	Bit	Channel	e.g
		Con Din (١ 0.0
	BILU	CONU.PIN4	Q 0.0
	Di+ 1	Con1 Din4	10.1
	BIL I	CONT.PIN4	Q 0.1
	Di+)	Con? Din4	10.2
	BIL Z	COIIZ.PIII4	Q 0.2
	D:+ 2	Con2 Din4	١0.3
Input/Output	BIL 5	COIIS.PIII4	Q 0.3
Byte 0	Di+ 1	Cond Dind	10.4
_,	Bit 4	C0114.P1114	Q 0.4
	Bit 5	ConE Din4	۱0.5
		COII5.PIII4	Q 0.5
	Dit 6	Conf Din/	I 0.6
	BILO	C0110.P1114	Q 0.6
	Dit 7	Con7 Pin4	I 0.7
	DIL /	C0117.F1114	Q 0.7



4.3 Module Startup Process

Check whether the following requirements for the startup of the Compact67_Slim distributed I/O module system are met:

- Compact67_Slim power, bus and signal wired.
- The module address is set by software.
- Compact67_Slim is configured and downloaded into the controller.
- Supply voltage for controller is switched on.

Startup of Compact67_Slim:





4.4 Module configuration example (Step7)

This section, through a case of connection configuration in actual operation process, makes the users fully understand how to use the Compact67_Slim distributed I/O system. In this case, using the ELCO Compact67_Slim as PROFINET slave station to connect the Siemens PROFINET controller CPU315-2PN/DP under the condition that all power and bus connection have been completed, the device name of Compact67_Slim is assigned as elco67. The following will show the specific process of software configuration and debugging.

1) Create a new Step7 project

SINATIC Nanager				
<u>File PLC View Options Window</u>	<u>H</u> elp			
D 🚅 🖁 🐖 🏹 🕮 📢				
New	Project			
Vs	ser projects Lil	braries Multiprojects	1	
N	lame	Storage path		
)aaa MChar Int	C:\Program Files\Si N·\丁作文件\参考程F	emens\Step7\S7Pro	
E E E E E E E E E E E E E E E E E E E	DCNT	C:\Program Files\Si	emens\Step7\s7pro	
	Diagnose_DP	D:\工作文件\参考程序	F\Diagnose_neu	
	moniliang	C:\Program Files\Si n.\工作立件\关考程回	emens\Step7\s7pro	
<				
F	Add to current m	ultiproject		
Nam	e:		<u>Т</u> уре:	
Spi	i der67		Project 💌	
Sto	rage location		🖵 E Library	
C: Y	Program Files\S	iemens\Step7\s7proj	Browse	
	OK	Ca	ncel Help	
Press F1 to get Help.			TCP/IP -> Broadcom NetXtreme Gig	



2) Insert a new SIMATIC 300 Station

iderf	57 C:\Prog	ram Files\Siem	ens\Step7\s7proj\Spic	ler67	
9 Spide	Cut	Ctrl+X	Symbolic name	Туре	Size Author
	Copy	Ctrl+C	and a state of the	MPI	2984
	Paste	Ctrl+V			
	Delete	Del			
	Insert New Obj	ject	SIMATIC 400 Station		
	PLC		SIMATIC 300 Station		
	Kename Object Propert	FZ ties Alt+Return	SIMATIC PC Station — Other Station SIMATIC S5 PG/PC SIMATIC 200 Station		
			MPI PROFIBUS Industrial Ethernet PTP		
		- 200 SP 20	S7 Program M7 Program		

3) Double click "Hardware" button to start the hardware configuration tool.

📲 HW Config - [SIMATIC 300(1) (Configuration) Spider67]		
🕅 Station Edit Insert PLC View Options Window Help		_ = ×
D 🖙 🐂 🖷 🐘 🎒 🗈 🛍 🏜 🎒 🗖 🔣 👷		
	~	. <u>.</u>
		Eind: Mt Mi
		Profil Standard 💌
SIMATIC 300 (1) S Designation	S	PROFIBUS DP PROFIBUS-PA PROFINET IO SIMATIC 300 SIMATIC 400 SIMATIC PC Based Control 300/400 SIMATIC PC Station
		PROFIBUS-DP slaves for SIMATIC S7, M7, and C7 (distributed rack)
Press F1 to get Help.	- 10	



4) Install the GSD file according to section4.1

	51		
We ray config - [Simaric Sub[1] (configuration) test1]	3		
		3 H	
	4	6	
Suchen: At at	Ī		
Install GSD Files	1	9	1×
S DP	2	t	mi
Install USD Hies: I from the directory SPA			•
C:\PROGRAM FILES\SI DIOWSE IOF FOLDER Browse 300			-
Select a directory containing GSD files 4UU File Release Vers PC Based Control 300/400			
PC Station PC Station			
B ← My Documents B ← My Computer			
i Ja 31/a Floppy (Ar.)			
SIMATIC 2001)			
Chail Decimation			
Bui Desgnauuri			
Install OK Cancel			
Close Help			
PROFIBUS-DP slaves for SIMATIC S7, M7, and t.	<u>د</u>		
L7 (distributed rack)	-		_
			₹
			_
Press F1 to get Help. TCP/IP(Auto) -> Broadcom 440x 10/100			-

5) Change the hardware configuration, select the appropriate slot, power supply and CPU in the Catalog window, and set the properties of the CPU, bus etc.

								~			
🗩 (0) VR									<u>F</u> ind:		
1	PS 307 5/	-2 PW/DP	Ether	net(1):	PROFIN	ET-IO)-System (100)	-	Profil	Standard	
Z 81	MPI/DP										
82	PN-10								「単競	PRUFIBUS DP PROFIBUS-PA	
12 PI R	Port 1								- #	PROFINET TO	
82 P2 R	Port 2									SIMATIC 300	
3										🛅 C7	
4									Đ	D CP-300	
6									Đ	CPV-300	
7									±	FM-300	
8									+	J Gateway	
9									1 2 A A A A A A A A A A A A A A A A A A	TH 000	
									+	M7-EXTENSION	
10									E-	M7-EXTENSION	
10										M7-EXTENSION PS-300 -] PS 305 2A Outdoor	
										M7-EXTENSION PS-300 PS 305 2A Outdoor PS 307 10A	
										M7-EXTENSION PS-300 PS 305 2A Outdoor PS 307 10A PS 307 10A PS 307 10A	
										M7-EXTENSION PS-300 PS 305 2A Outdoor PS 307 10A PS 307 10A PS 307 10A PS 307 10A	
								>		M7-EXTENSION PS 305 2A Outdoor PS 305 2A Outdoor PS 307 10A PS 307 10A PS 307 10A PS 307 2A	
								>		PS-300 PS 305 2A Outdoor PS 305 2A Outdoor PS 307 10A PS 307 2A PS 307 5A	
								>		MT-EXTENSION PS-300 PS 305 2A Outdoor PS 307 10A PS 307 10A PS 307 10A PS 307 10A PS 307 10A PS 307 2A PS 307 2A PS 307 5A	
(0) UR		Order number	Firmware	(MP	[I]	Q	Comment	>		M7-EXTENSION PS-300 PS 305 2A Outdoor PS 307 10A PS 307 10A PS 307 10A PS 307 10A PS 307 2A PS 307 5A PS 307 5A PS 307 5A Outdoor	
10 11 (0) VR Module PS 307 5A		Order number 6EST 307-1EA00-0AA0	Firmware	MP	I	Q	Commert	× ×		M7-EXTENSION PS-300 PS 305 2A Outdoor PS 307 10A PS 307 10A PS 307 10A PS 307 2A PS 307 2A PS 307 2A PS 307 5A PS 307 5A PS 307 5A PS 307 5A PS 307 5A Outdoor RACK-300	
10 11 (0) VR (0) VR Module PS 307 5A CPU 315-2	: P#/DP	Order number 6EST 307-1EA00-0AA0 6EST 315-2EH14-0AB0	Firmware V3.2	MP	I	Q	Comment	× ×		MT-EXTENSION PS-300 PS 305 2A Outdoor PS 307 10A PS 307 5A PS 307 5A PS 307 5A Outdoor RACK-300	
10 11 11 10 11 10 10 10 10 10	: P#/DP	Order number 6EST 307-1EA00-0AA0 6EST 315-2EH14-0AB0	Firmware V3.2	MP 2 2	I 2047*	Q	Comment			MF-EXTENSION PS-300 PS 305 2A Outdoor PS 307 10A PS 307 5A PS 307 5A PS 307 5A Outdoor RACK-300 SIMATIC 400	/400
10 11 11 10 11 10 10 10 10 10	 2 PW/DP	Order number EEST 307-1EA00-0AA0 GEST 315-2EH14-0AB0	Firmware ¥3.2	MP 2 2	I 2047a 2046a	Q	Comment			M7-EXTENSION PS-300 PS 305 2A Outdoor PS 307 10A PS 307 10A PS 307 10A PS 307 10A PS 307 2A PS 307 2A PS 307 5A PS 307 5A PS 307 5A SM370C PS 300 SIMATIC FC Based Control 300 SIMATIC FC Station	/400
10 11 11 11 10 11 10 10 10 10	 : P#/DP	Order number 6EST 307-1EA00-0AA0 6EST 315-2EH14-0AB0	Firmware V3.2	MP 2 2	I 2047* 2046* 2046*	Q	Commert			MT-EXTENSION PS-300 PS 305 2A Outdoor PS 307 10A PS 307 10A PS 307 10A PS 307 2A PS 307 2A PS 307 5A PS 307 5A PS 307 5A PS 307 5A Outdoor RACK-300 SIMATIC PC Based Control 300 SIMATIC PC Station	/400



6) According to Section 3.3 user guide, select "PLC Edit Ethernet > Ethernet > Node", assign the Compact67_Slim device the name of elco67 in the pop-up window.

		Nodes accessible online
AC <u>a</u> ddress:	D4-BE-D9-7B-EE-CD	Browse
et IP configurat	i on	
• Use I <u>P</u> paramet	ers	
<u>I</u> P address:	192 168 0 15	Gateway
		(• Do not use router
Subnet mas <u>k</u> :	J255, 255, 255, U	Addrgss: 192.168.0.15
Identified by-	C MAC address	🕻 Degice name
Assign If Config		
A <u>s</u> sign If Config .ssign device nam	ie	
A <u>s</u> sign IP Config ssign device nam Device name:	e [elco67]	Assign Name
A <u>s</u> sign IP Config ssign device nam <u>D</u> evice name: .eset to factory	e elco67 settings	Assign Name

7) In the Catalog window, the catalog of "Profinet IO>Additional Field Devices>I/O> Compact IP67 IO>IP67 module Category", select the "FEPN-08UP-M8" and add it to the PROFINET network.

HW Config - [SIMATIC 300(1) (Configuration) tes	ttest]			
<u>uv Station Edit Insert PLC View Options Wi</u>	ndow <u>H</u> elp			_ 8 ×
D 📂 🐂 🦉 🖏 🚑 🖻 🛍 🏙 🏙 🖺 📼	📲 N?			
	PROFIBUS(1): DP mas	ster system (1)	* II	Eind: At Ai Profil Standard V
2 GPU 315-2 PM/DP Xi MPZ/DP X2 Pi R Port i X2 Pi R Port 2 3 4 5 6 7 ~ ~	Ethernet(1): PEO	FINET-IO-System (100)	•	POPTBUS DP PROFIBUS-PA Gateway Gospact IP67 I0 Gospact Slim ID Gospact Slim ID FEPH-0004-M8 Fixed 4 Pl FEPH-0004-M8 Fixed 4 Pl FEPH-0004-M8 Fixed 4 Pl FEPH-0004-M8 Fixed 8 I FEPH-0044-M8 Fixed
		,	_	🕀 🧰 Elco FS2 System
(1) ELCO-SLIM-IP67IOMODULE				HSpider 57 Gateway HGateway
S 🚺 M Order number I add Q address	Diagnostic address:	Comment		
0 1 ELCO FEPN-080P-M8	2042*		_	ET 200eco PN
II Inter	2041*		- 1	
II Port	2040*		-	
Z1 Port	2039*			
1 Slim	0*			< III + 1 + 2005
1.1 51im 02 0				TERN-0010-00 T.
				ELCO Slim IP67 Input Output module for 8 bit
Press F1 to get Help.				Chg //



8) Double click on the newly added Compact67_Slim fill in the previously setting device name elco67 in the pop-up "**properties**" window, and assign IP address to this module via the "Ethernet.." button: 192.168.0.15. Be sure to click the option "**assign IP via IO controller**".

Properties - elc	567	
General		
Short description:	ELCO-IP67IOMODULE	
	IP67 Input Output module for 16 bit	
Order No./ Family:	FCPN-16UF-M12 / Z1.0 Compact IP67 IO	<u>×</u>
<u>D</u> evice name:	elco67	
GSD file:	GSDML-V2.25-ELCO-IP67IO-20130520.xml	
<u>N</u> ode in PROFINET :	0 System	
D <u>e</u> vice number:	1 PROFINET-IO-System (100)	
IP	192.168.0.15	
🔽 Assign IP addr	ess via IO controller	
Comment:		
OK	Cancel	Help

9) Save the compilation and download configuration to the PLC, until now the configuration is completed.



4.5 Module configuration example (Portal)

This section, through a case of connection configuration in actual operation process, makes the users fully understand how to use the Compact67_Slim distributed I/O system. In this case, using the ELCO Compact67_Slim as PROFINET slave station to connect the Siemens PROFINET controller CPU1211C under the condition that all power and bus connection have been completed, the device name of Compact67_Slim is assigned as elco67. The following will show the specific process of software configuration and debugging.

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Portal view Dverview	

1) Create a new Portal project.



2) Install the GSD file of Compact67_Slim module.

ource path: C:\Users\Administrat	orlDesktop					
Content of imported path						
🖌 File	Version	Language	Status	Info		
GSDML-V2.3-ELCO-SLIMHP67IO-2	V2.3	English	Already installed	IP67 Profin		
		-				
<						

3) Double-click "Add New Device", select the PLC model in the window.





4) In the "Device View" tab of the "Device Configuration" window, set the relevant properties of PLC, click the "Add New Subnet" button to add Profinet network, and set the IP address of PLC.



5) On the Network View tab, select the FEPN-08UP-M8 module of ELCO from the Hardware Directory on the right to add to the network.

Slim67 → Devices & networks _ 🖬 🖬 🗙	Hardware catalog 🛛 🖬 🗊 🕨
🚝 Topology view 🛛 🛔 Network view 🚺 Device view	Options
💦 Network 🔢 Connections HMI connection 💌 💆 🤀 🖽 🔍 ± 📑 Network overview	
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	FEPN-08UP-M8 8
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6) According to the instructions in Section 3.3, double-click the Compact67_Slim module, enter the device view of FEPN-08UP-M8, set the device name elco67 of Compact67_Slim in the window, and set the IP address.

Topology view Network view Device view Image: Solution of the solut	Slin	n67 → PLC_1 [CPU 1211(C DC/DC/DC] → Dis	tributed I/O 🔸 F	PROFINET IC	D-System (100): PN/IE_1 → e	lco67	4		_ 3	∎×
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7) After saving and compiling, the configuration is downloaded to the PLC to complete the configuration work.



5. Alarm diagnosis

5.1 LED fault indicator

With the built-in LED on Compact67_Slim distributed I/O module, users can quickly and easily diagnose the working status of module.

LED indicator							
Ui	Uo	Link	Link	Meaning	Solution		
		(In)	(Out)				
Off	-	-	-	Module power Ui connection error	Check power supply		
-	Off	-	-	Output power Uo connection error	Check power supply		
Red	-	-	-	Module power Ui <18V	Replace power supply		
-	Red	-	-	Output power Uo <18V	Replace power supply		
-	-	Red	-	Bus-in Connection Failure	Check PN cable		
Green	Green	R/G Flash	_	Power supply is OK.	Check PN device name		
				Network is connected, but	and IP assignment.		
				connection has not established.	Check module config.		
-	-	-	Red	Bus-out Connection Failure	Check PN cable		
	Green	1 -		Power supply is OK.	Check PN device name		
Green			Flash	Network is connected, but	and IP assignment.		
				connection has not established.	Check module config.		
Green	Green	een Green	-	Module ready, data transmit			
				through bus-in.	-		
Croor	Green		- Green	Module ready, data transmit			
Green		-		through bus-out.	-		



5.2 Diagnostic information

Profinet supports an integrated diagnosis concept, each individual error occurred at the same time or some errors are transferred from the I/O devices to the I/O controller. The following steps can be carried out for the diagnosis: response to the error (for interrupt event-driven diagnosis and evaluation), check the current status of automation system (status-driven diagnosis). Users can access to SFB/SFC in Step7to evaluate the diagnostic information: 1) Diagnosis with the SFB52 in the OB1

The diagnostic data record in the system offer a diagnostic capability with additional detailed information, and the system function block SFB52

("RDREC") is used for reading these data records.

When called, the system function block addresses the station to be diagnosed and indicated the data record to be read as the INDEX parameters. If there is no diagnostic information, the system function block is executed without output.

Since SFB 52 "RDREC" is an SFB that works asynchronously, i.e., the execution spans several SFB calls, the block can only be used in cyclic operation. A use of the block in an interrupt OB or a timed interrupt OB is not advisable. Aside from the exact position of the error, the diagnostic data records of SFB 52 also include information on the occurred error type. This information can be evaluated for further analysis purposes.

You define the maximum number of bytes to read by setting the MLEN variable, so you should select a RECORD target range of at least the same length as defined in MLEN. Output parameter VALID = TRUE indicates the successful transfer of the record to the target area RECORD. Output parameter LEN contains the length in [bytes] of the read data. Output parameter ERROR reports any errors detected during record transfer. ERROR =TRUE and the error information is written to output parameter STATUS when an error is detected.

2) Diagnosis with the SFB54 in the OB82

SFB54 "RALARM" evaluates received interrupt data and all corresponding information from peripheral modules or Profinet devices, and then the information is provided to the output parameters.

The information with additional detailed information includes both the



information of the starting interrupt OB and the information of the interrupt source. Call "RALRM" only within the interrupt OB started by the CPU operating system as a result of the peripheral device interrupt that is to be examined. The call of SFB 54 "RALARM" outside an interrupt OB is not advisable since important information on the interrupt status are not included here.

In the TINFO and AINFO cache data, you can quickly get the information such as station number, slot number, channel and occurred error type and other information.