

FnIO S-series



FieldBus Input/Output System

Serial Network Adapter

PROFIBUS Network Adapter

Digital Input / Output

Analog Input / Output

CVS-18-04A-009

Rev 2.02

제품을 사용하기 전에

저희 (주)크래비스 제품을 구입해 주셔서 감사합니다. 제품의 효율적인 사용을 위하여 반드시 본 사용 설명서의 내용을 숙지 하신 후 사용해 주십시오.

안전상의 주의 사항

*경고와 주의로 구분되어 있으니, 필히 숙지 하여 주십시오.

지시사항을 위반하였을 때, 심각한 상황을 초래하여 사망 또는 중상을 입을 가능성이 있는 경우

- 전원이 인가된 상태에서 단자대를 만지지 마십시오.
- 전원이 인가된 상태에서 제품을 조립하지 마십시오.
- 제품내부에 금속성 이물질이 유입되지 않도록 하십시오.
- 전원이 인가된 상태에서 배선 작업을 하지 마십시오.
- 배선 작업은 전기공사 전문가가 해 주십시오.

감전사고 및 오동작의 원인이 됩니다.
화재, 감전사고 및 오동작의 원인이 됩니다.
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경고

지시사항을 위반하였을 때, 경미한 손해나 제품손상 및 대물손해가 발생할 가능성이 있는 경우

- 제품의 정격전압 및 단자배열을 확인 후 배선하여 주십시오.
- 주변 온도가 55°C를 넘는 장소는 피해 주십시오.
- 직사 광선이 직접 노출된 장소는 피해 주십시오.
- 주변 습도가 85%를 넘는 장소는 피해 주십시오.
- 가연성 물질이 있는 주변에 설치하지 마십시오.
- 제품에 직접 진동이 인가되지 않도록 하십시오.
- 전문 A/S요원 외에는 제품을 분해,수리,개조하지 마십시오.
- 사용설명서에 명기된 환경조건에서 사용해 주십시오.
- 확장 연결되는 모듈의 부하는 규정된 정격 이내로 사용해 주십시오.

화재,감전사고, 오동작의 원인이 됩니다.
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화재 및 감전의 원인이 됩니다.
화재 및 감전사고의 원인이 됩니다.
감전, 화재, 오동작 또는 제품 열화의 원인이 됩니다.
화재, 오동작 또는 고장의 원인이 됩니다.



주의

1. NA-9173 제품 사양

구분	일반사양	구분	상세사양
사용/보존 온도	-20°C~55°C / -40°C~85°C	Network 방식	ModBus-RS485
사용/보존습도	5% ~ 90% 단, 이슬이 맺히지 않을 것	Cable	Serial Twist cable
내진동/내충격	IEC68-2-6(2G) / 10G	Cable 길이(m)	1200m
EMC/ESD	EN50082 / EN50081	통신속도(Kbps)	1.2k ~ 115.2kbps
확장 모듈 위치	FnIO-S series의 가장 왼쪽에 장착	확장모듈수	Max. 32 module
사용환경	부식성 가스가 없고, 먼지가 심하지 않을것	Max. Nodes	64 nodes
필드 공급전압	Class 2, 24VDC 24VDC (11VDC ~ 28.8VDC)	Operating Mode	RTU and ASCII
필드 공급전류	최대 10A	최대 Digital I/O	Input : 2016점 / Output : 2016점
FnBus공급전류	최대 1.5A@5Vdc	최대 Analog I/O	Input : 126Ch / Output : 126Ch
Isolation	System power to internal logic : Non-isolation System power to I/O driver : Isolation	최대 Byte수	Input : 252Bytes / Output : 252Bytes
외형치수	45mm × 99mm × 70mm	Node 번호 설정	Rotary 스위치 2개(x10, x1)
무게	150g	내부 소비전류	70mA(NA-9173 1개 Module)
인증	UL/cUL/CE/FCC/DNV/LR/RoHS(EU,CN)		

Class 2, adjacent to voltage rating (30Vmax.)

* Specifications and designs could be changed without advance Notice

FnIO S-series



FieldBus Input/Output System

■ Serial Network Adapter

■ PROFIBUS Network Adapter

■ Digital Input / Output

■ Analog Input / Output

■ Special Module

Before using the unit

*We appreciate you for purchasing CREVIS Products. To use the units more effectively, please read this quick guide and refer to the respective user manual for further details.

Cautions for your Safety

If you don't follow the directions, it could cause a personal injury, damage to the equipment or explosion

Warning!

- Do not assemble the products and wire with power applied to the system. Else it may cause an electric arc, which can result into unexpected and potentially dangerous action by field devices. Arching is explosion risk in hazardous locations. Be sure that the area is non-hazardous or remove system power appropriately before assembling or wiring the modules.
- Do not touch any terminal blocks or IO modules when system is running. Else it may cause the unit to an electric shock or malfunction.
- Keep away from the strange metallic materials not related to the unit and wiring works should be controlled by the electric expert engineer. Else it may cause the unit to a fire, electric shock or malfunction.

If you disobey the instructions, there may be possibility of personal injury, damage to equipment or explosion. Please follow below Instructions.

Caution!

- Check the rated voltage and terminal array before wiring. Avoid the circumstances over 55 °C of temperature. Avoid placing it directly in the sunlight.
- Avoid the place under circumstances over 85% of humidity.
- Do not place Modules near by the inflammable material. Else it may cause a fire.
- Do not permit any vibration approaching it directly.
- Go through module specification carefully, ensure inputs, output connections are made with the specifications. Use standard cables for wiring.
- Use Product under pollution degree 2 environment.

1. NA-9173 Specification

ITEM	SPECIFICATION	ITEM	SPECIFICATION
Surrounding Air Temp./ Ambient Temp.	-20°C~55°C / -40°C~85°C	Network Type	ModBus-RS485
Relative Humidity	5% ~ 90% without condensation	Cable	Serial Twist cable
Durable-vib./impact	IEC68-2-6(2G) / 10G	Cable Length(m)	1200m
EMC/ESD	EN50082 / EN50081	Comm. Sp(Kbps)	1.2k ~ 115.2kbps
Mount Position	On the left of FnIO-S series	Expansion No.	Max. 32 module
Atmosphere	Not so dusty without corrosive gas	Max. node	64 nodes
Field Supp.Volt.	Class 2, 24VDC 24VDC (11VDC ~ 28.8VDC)	Max. Digital I/O	Input : 2016point / Output : 2016point
Field Supp. Cur.	Max. 10A	Max. Analog I/O	Input : 126Ch / Output : 126Ch
FnBus Sup. Cur	Max. 1.5A@5Vdc	Max. Byte size	Input : 252Bytes / Output : 252Bytes
Isolation	System power to internal logic : Non-isolation System power to I/O driver : Isolation	Operating Mode	RTU and ASCII
Size	45mm × 99mm × 70mm	Node No. Setting	Rotary Switch 2ea(x10, x1)
Weight	150g	Power Dissipation	70mA typical @24Vdc
Certification	UL/cUL/CE/FCC/DNV/LR/RoHS(EU,CN)	Class 2, adjacent to voltage rating (30Vmax.)	

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* Power Isolators must be used according to the usage of 5VDC/24VDC/48VDC or AC Voltage modules

2. Communication and Power Cable Wiring

2-1. Serial Cable Wiring

* Make sure System Power and Field Power must be supplied via SMPS separately.

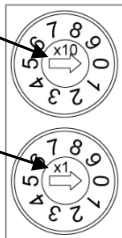
RS485 Connector

RS485+	Red
RS485-	White
GND	Grey
Shield	Blue
FG	Brown

2-2. Station No. Setting

x10

x1

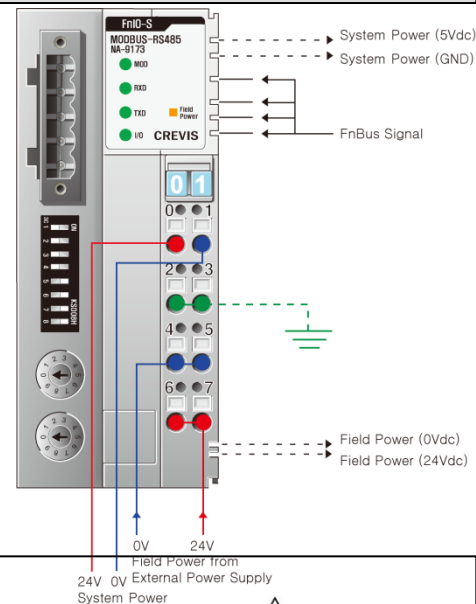


2-3. MODBUS DIP Switch Setting



- Baud rate
- Watchdog
- Byte Format
- RTU/ASCII

Dsub 5-Pin (Female)	SignalName	Description
1	RS485+	In/Out, Transceiver Data High
2	RS485-	In/Out, Transceiver Data Low
3	GND	Signal Common
4	Shield	Shield
5	FG	Frame Ground. Internally shorted with Shield



Notice for MAC ID(Station No.) Setting

- Set within the range of connectible Node number. (MAC ID No. 00 ~ 99)
- When double setting Node no., Communication Error occurred.



4. DIP S/W Setting Description

Item	Item setup	DIP Switch							
		#1	#2	#3	#4	#5	#6	#7	#8
Baud rate	1200 bps	OFF	OFF	OFF					
	2400 bps	ON	OFF	OFF					
	4800 bps	OFF	ON	OFF					
	9600 bps	ON	ON	OFF					
	19200 bps	OFF	OFF	ON					
	38400 bps	ON	OFF	ON					
	57600 bps	OFF	ON	ON					
Watchdog	115200 bps	ON	ON	ON					
Watchdog	Disable Watchdog				OFF				
	Enable Watchdog				ON				
Byte Format									
	8 bit, No Party, 1 Stop					OFF	OFF	OFF	
	8 bit, Even Party, 1 Stop					ON	OFF	OFF	
	8 bit, Odd Party, 1 Stop					OFF	ON	OFF	
	8 bit, No Party, 2 Stop					ON	ON	OFF	
	7 bit, No Party, 2 Stop*					OFF	OFF	ON	
	7 bit, Even Party, 1 Stop*					ON	OFF	ON	
	7 bit, Odd Party, 1 Stop*					OFF	ON	ON	
RTU/ASCII Mode	7 bit, No Party, 1 Stop*					ON	ON	ON	
RTU/ASCII Mode	RTU Mode								OFF
	ASCII Mode								ON

* ASCII mode is not available.

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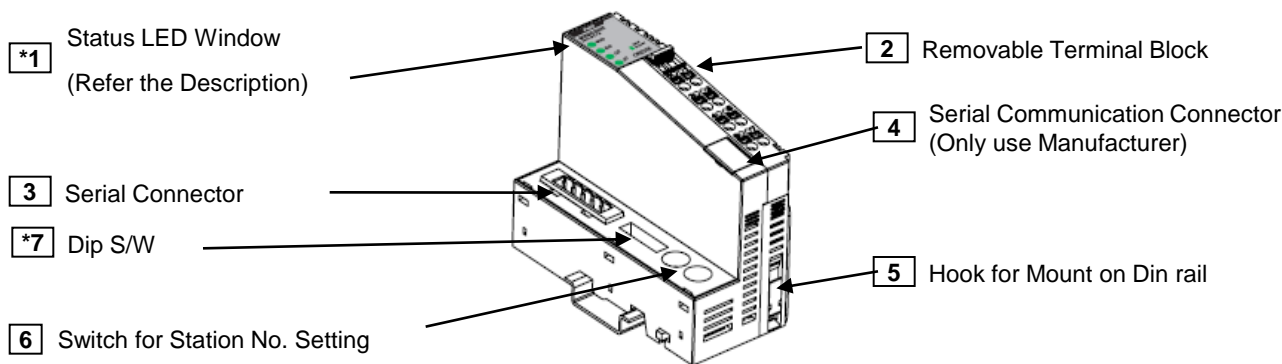
FAX : +82-31-899-4509

Homepage : www.crevis.co.kr

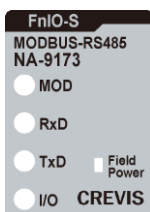


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4. Name of each part



Status LED Window Description



Item	LED is:	State	To indicate:
MOD : Module Status LED	Off	No Power	No power is supplied to the unit.
	Green	Device Operational	The unit is operating in normal condition.
	Flashing Green	Device in Standby	The device needs commissioning due to configuration missing, incomplete or incorrect.
	Flashing Red /Toggle	MODBUS Error	MODBUS error such as watchdog error, CRC/LRC error, Setup dip switch, error, etc.
	Flashing Red	Minor Fault	Recoverable Fault - EEPROM sum check error.
	Red	Unrecoverable Fault	The device has an unrecoverable fault. - Memory error or CPU watchdog error.
RXD : Received Data LED	Off	Not Powered	Device is not on-line or may not be powered
	Flashing Green	Adapter received correct message frame	Adapter(Slave) received correct frame which address to the slave or broadcast. About 20msec flashing.
TXD : Transmit Data LED	Off	Not Powered	Device is idle or may not be powered
	Flashing Green	Adapter transmit frame	Adapter(Slave) transmit frame. About 20msec flashing.
I/O : Expansion Module Status LED	Off	Not Powered No Expansion Module	Device has no expansion module or may not be powered
	Flashing Green	FnBus On-line, Do not Exchanging I/O	FnBus is normal but does not exchanging I/O data (Passed the expansion module configuration).
	Green	FnBus Connection, Run Exchanging I/O	Exchanging I/O data
	Flashing Red	FnBus connection fault during exchanging I/O	One or more expansion module occurred in fault state. - Changed expansion module configuration. - FnBus communication failure.
	Red	Expansion Configuration Failed	Failed to initialize expansion module - Detected invalid expansion module ID. - Overflowed Input/Output Size - Too many expansion module - Initial protocol failure - Mismatch vendor code between adapter and expansion module.
Field Power LED	Off	Not Supplied Field Power	Not supplied 24Vdc field powered
	Green	Supplied Field Power	Supplied 24Vdc field power