

FnIO S-series



FieldBus Input/Output System

■ CC-Link Network Adapter

■ PROFIBUS Network Adapter

■ Digital Input / Output

■ Analog Input / Output

CVS-18-04A-007

Rev 2.03

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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화재, 감전사고 및 오동작의 원인이 됩니다



경고

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

- 제품의 정격전압 및 단자배열을 확인 후 배선하여 주십시오.
- 주변 온도가 55℃를 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-9131 제품 사양

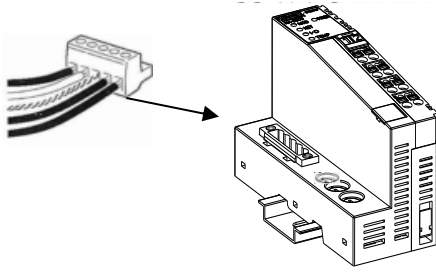
구분	일반사양	구분	일반사양				
사용/보존 온도	-20℃~55℃ / -40℃~85℃	Network 방식	CC-Link				
사용/보존습도	5% ~ 90% 단, 이슬이 맺히지 않을 것	Cable	CC-Link 전용 Cable				
내진동/내충격	IEC68-2-6(2G) / 10G	Cable 길이(m)	1200	900	400	160	100
EMC/ESD	EN50082 / EN50081	통신속도(Kbps)	156	625	2500	5000	10000
확장 모듈 위치	FnIO-S series의 가장 왼쪽에 장착	Operating Mode	Broadcast Polling Method				
사용환경	부식성가스가 없고, 먼지가 심하지않을것	확장모듈수	최대 32모듈				
필드 공급전압	Class2, 24VDC 24VDC (11VDC ~ 28.8VDC)	최대 Digital IO	Input(RX): 112point/ Output(RY): 112point (4국 설정)				
필드 공급전류	최대 10A	최대 Analog IO	Input(RWr) : 16Ch/ Output(RWw) : 16Ch (4국 설정)				
FnBus공급전류	최대 1.5A@5Vdc	점유국수	최대 4국				
내부소비전류	60mA (NA-9131 1개 Module)	Station Type	Remote Device				
외형치수	45mm × 99mm × 70mm	확장 가능 국수	최대 42국				
무게	155g	통신속도설정	Rotary Switch 1개				
인증	FCC / UL / cUL / CE / RoHS(EU,China) / CC-Link	Station 번호설정	Rotary 스위치 2개 (x10, x1)				

2. 케이블 배선 및 Switch 설정

▶ 2-1. CC-Link 통신선 배선

* CC-Link 커넥터 상세

청색	DA
흰색	DB
황색	DG
Shield	Shield
흑색	F.G.



▶ 2-2. System & Field 전원선 배선

*S : System Power

*F : Field Power

* System 전원과 Field 전원은 별도의 SMPS를 사용하여야 합니다.

▶ 2-3. 통신 속도 및 극 설정

Baud Rate	Dip Switch Value	
	Fixed addressing	Auto addressing
156Kbps	0	5
625Kbps	1	6
2.5Mbps	2	7
5Mbps	3	8
10Mbps	4	9
Station	Fix 4	1~4Station

Baudrate



Baudrate Select switch

X10

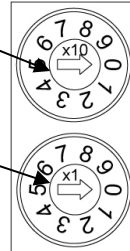
X1

Node Address(0~42)

▶ 2-4. MAC ID(Station번호 또는 자국번호) 설정 스위치

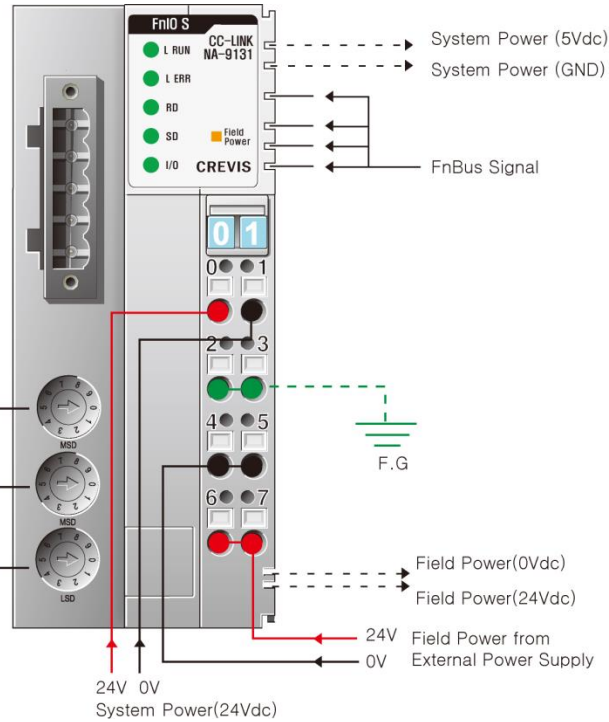
10의 자리

1의 자리



MAC ID(Station 번호) 설정 시 주의 사항

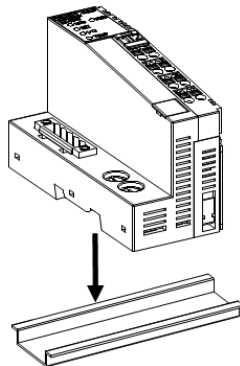
1. 접속가능 Station 수의 범위 내에서 설정합니다.(MAC ID 번호 01 ~ 64)
2. Station 번호를 중복 설정하면 통신 Error가 발생합니다.



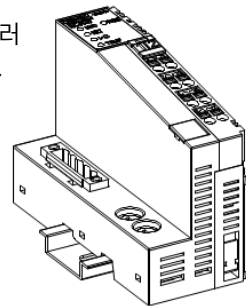
3. Module Mounting

▶ 3-1. Din-Rail에 모듈 장착 방법

- ① Din-Rail 위에서 아래 방향으로 살짝 눌러 주십시오.

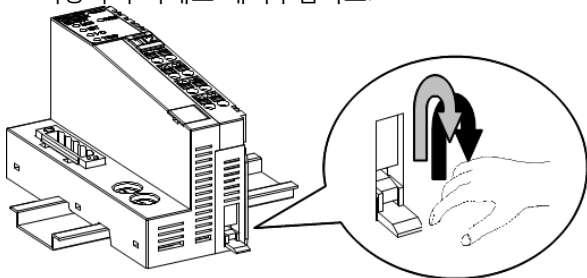


- ② 딸깍 소리가 날 때 까지 눌러 주시면 장착이 완료됩니다.

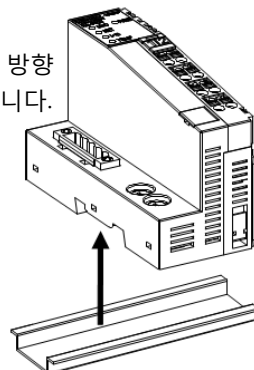


▶ 3-2. Din-Rail에서 모듈 탈착 방법

- ① Din rail 고정용 고리를 (-) 자 드라이버를 이용하여 아래로 내려주십시오.



- ② 모듈의 양쪽 끝을 잡고 위 방향으로 들어 주시면 탈착 됩니다.



4. STATUS LED and Terminator Resistors

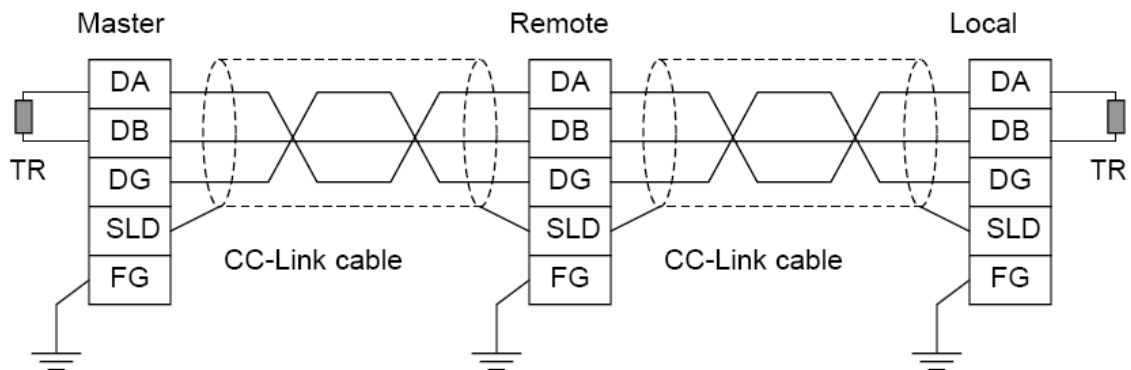
▶ 4-1. Status LED Window Description

Item	LED is	State	To indicate :
L RUN LED	OFF	Not Powered Not On-line Connection-Timeout	Device is not on-line or may not be powered. Resetting Hardware. Device is Timeout.
	Green	On-Line, Connection	Device is on-line and allocated to a master
L ERR LED	Red	Fail Switch Setting error Communication error	CRC error Invalid MAC ID Baudrate switch setting error
	Flashing Red	Setting change	Switch setting has been changed from the setting at the reset cancelation
	Off	Device Operational	The unit is operating in normal condition
RD LED	Off	Unable detect	Unable to detect carriers neither for channel 1 or 2
	Green	Connection	Detecting the carrier for channel 1 or 2
SD LED	Off	Not transmission	Other than listed in the left
	Green	Connection	During transmission
Field Power LED	Off	Not Supplied Field Power	Not supplied 24V dc field power
	Green	Supplied Field Power	Supplied 24V dc field power
I/O LED	Off	Not Powered No IO Module	Device has no IO module or may not be powered
	Flashing Green	Fn-Bus On-line, Do not Exchanging I/O	Fn-Bus is on-line but does not exchanging I/O data - Passed the IO module configuration.
	Green	Fn-Bus Connection, Run Exchanging IO	Expansion Slot is connected and run exchanging I/O data
	Red	FnBus connection fault during exchanging IO	One or more IO module occurred in fault state. - Changed IO module configuration. - FnBus communication failure.
	Flashing Red	Expansion Configuration Failed	Failed to initialize IO module - Detected invalid IO module ID. - Overflowed Input / Output Size - Too many IO module - Initial protocol failure

▶ 4-2. Terminator Resistors

Specification of terminator Resistors are as follows Resistance Spec.:

- CC-Link dedicated cable $110\Omega \pm 5\%$ 1/2W
- CC-Link dedicate high performance cable $130\Omega \pm 5\%$ 1/2W



(주)크래비스

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TEL : 031-899-4599 FAX : 031-899-4509

Homepage : www.crevis.co.kr E-Mail : crevis@crevis.co.kr



* Specifications and designs could be changed without advance Notice

5. Input / Output area 설정

▶ 5-1. Remote input area

Address	Configuration	Size	신호 종류
RXm0~RXmF	1 국	2 Bytes	Discrete Input
RX(m+1)0~RX(m+1)F	2 국	6 Bytes	
RX(m+2)0~RX(m+2)F	2 국		
RX(m+3)0~RX(m+3)F	3 국	10 Bytes	
RX(m+4)0~RX(m+4)F	3 국		
RX(m+5)0~RX(m+5)F	4 국	14 Bytes	
RX(m+6)0~RX(m+6)F	4 국		
RX(m+n)0~RX(m+n)F	n=1,3,5,7 (1 국, 2 국, 3 국, 4 국)	2 Bytes	System Area

m : Register number that was introduced by head station number

n : Final register number for occupied number

1 station : 16 point (n=1) / 2 station : 48 point (n=3) / 3 station : 80 point (n=5) / 4 station : 112 point (n=7)

▶ 5-2. Remote Output area

Address	Configuration	Size	신호 종류
RYm0~RYmF	1 국	2 Bytes	Discrete Output
RY(m+1)0~RY(m+1)F	2 국	6 Bytes	
RY(m+2)0~RY(m+2)F	2 국		
RY(m+3)0~RY(m+3)F	3 국	10 Bytes	
RY(m+4)0~RY(m+4)F	3 국		
RY(m+5)0~RY(m+5)F	4 국	14 Bytes	
RY(m+6)0~RY(m+6)F	4 국		
RY(m+n)0~RY(m+n)F	n=1,3,5,7 (1 국, 2 국, 3 국, 4 국)	2 Bytes	System Area

▶ 5-3. Rwr / Rww area

Address	Configuration	Size	신호 종류	Address	Configuration	Size	신호 종류
RWrm0 ... RWrm3	1 국	4 Words	Analog Input and Special module (ST-5xxx)	RWwm0 ... RWwm3	1 국	4 Words	Analog Output and Special module (ST-5xxx)
RWrm4 ... RWrm7	2 국	8 Words		RWwm4 ... RWwm7	2 국	8 Words	
RWrm8 ... RWrm11	3 국	12 Words		RWwm8 ... RWwm11	3 국	12 Words	
RWrm12 ... RWrm15 ... RWrm127	4 국	16 Words		RWwm12 ... RWwm15 ... RWwm127	4 국	16 Words	

FnIO S-series



FieldBus Input/Output System

■ CC-Link 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. STXCCL001 Specification

ITEM	SPECIFICATION	ITEM	SPECIFICATION				
Surrounding Air Temp./ Ambient Temp.	-20 °C ~ 55 °C / -40 °C ~ 85 °C	Network Type	CC-Link				
Relative Humidity	5% ~ 90% without condensation	Cable	Cable for CC-Link only				
Durable-vib. /impact	IEC68-2-6(2G) / 10G	Cable Length(m)	1200	900	400	160	100
EMC/ESD	EN50082 / EN50081	Comm. Sp(Kbps)	156	625	2500	5000	10000
Mount Position	On the left of FnIO-S series	Operating Mode	Broadcast Polling Method				
Atmosphere	Not so dusty without corrosive gas	Expansion No.	Max. 32 Module				
Field Supp.Volt.	Class 2, 24VDC 24VDC (11VDC ~ 28.8VDC)	Max. Digital I/O	Input(RX) : 112point Output(RY) : 112point (4station)				
Field Supp. Cur.	Max. 10A	Max. Analog I/O	Input(RWr) : 16Ch/ Output(RWw) : 16Ch (4station)				
FnBus Sup. Cur	Max. 1.5A@5Vdc	Available Station	Max. 4 Station				
Pwr Dissipation	60mA	Station Type	Remote Device				
Size	45mm × 99mm × 70mm	No. of Station	Max. 42 Station				
Weight	155g	Baudrate Setting	Rotary Switch 1ea				
Certification	FCC / UL / cUL / CE / RoHS(EU,China) / CC-Link	Station No. Sett.	Rotary Switch #2, #3 (x10, x1)				

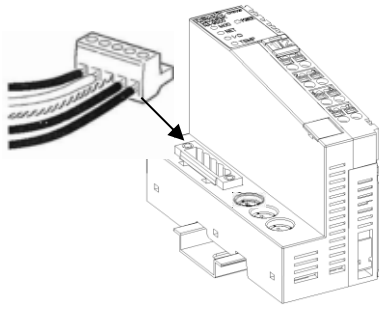
Class 2, adjacent to voltage rating (30Vmax.)

* Specifications and designs could be changed without advance Notice

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

2. Cable wiring and Switch Setting

► 2-1. CC-Link Wiring



CC-Link Connector

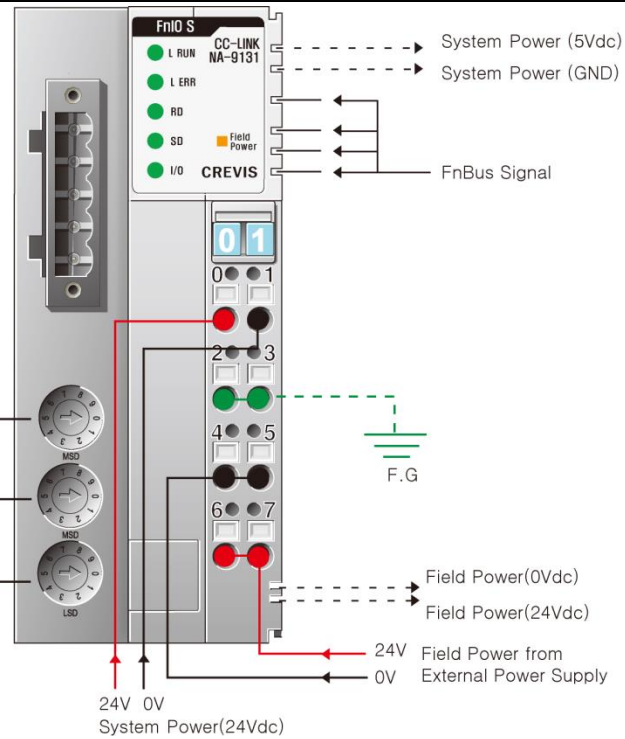
Blue	DA
White	DB
Yellow	DG
Shield	Shield
Black	F.G.

Baudrate Select switch

X10

Node Address(0~42)

X1



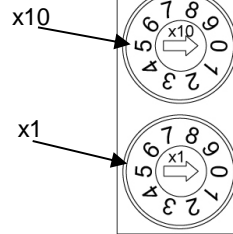
► 2-2. Baudrate Setting

Baud Rate	Dip Switch Value	
	Fixed addressing	Auto addressing
156Kbps	0	5
625Kbps	1	6
2.5Mbps	2	7
5Mbps	3	8
10Mbps	4	9
Station	Fix 4	1~4Station

Baudrate



► 2-3. MAC ID Setting S/W



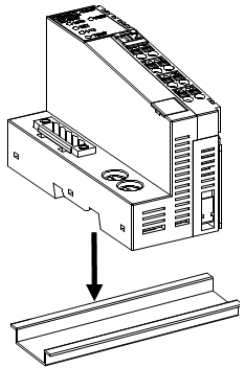
Notice for MAC ID(Station No.) Setting

1. Set within the range of connectible Station number. (MAC ID No. 01 ~ 64)
2. When double setting Station no., Communication Error occurred.

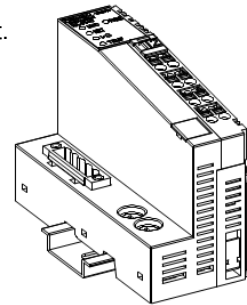
3. Module Mounting

► 3-1. How to mount on Din-Rail

- ① Press down the module lightly on the Din-Rail until it clicks .

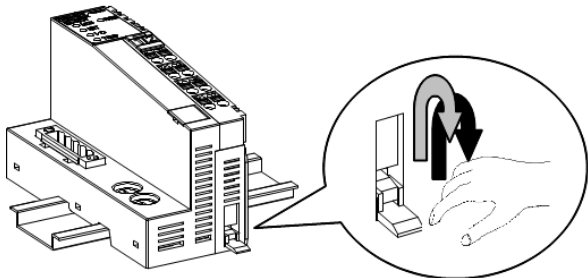


- ② Press down till you can hear "click" for complicated mount.

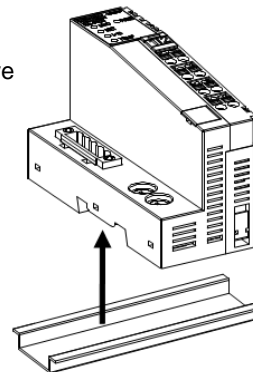


► 3-2. How to dismount from Din-Rail

- ① Pull down the locking mechanism by using (-) screw driver as the following pictures ;



- ② Pull up the module to remove from the din rail .



4. STATUS LED and Terminator Resistors

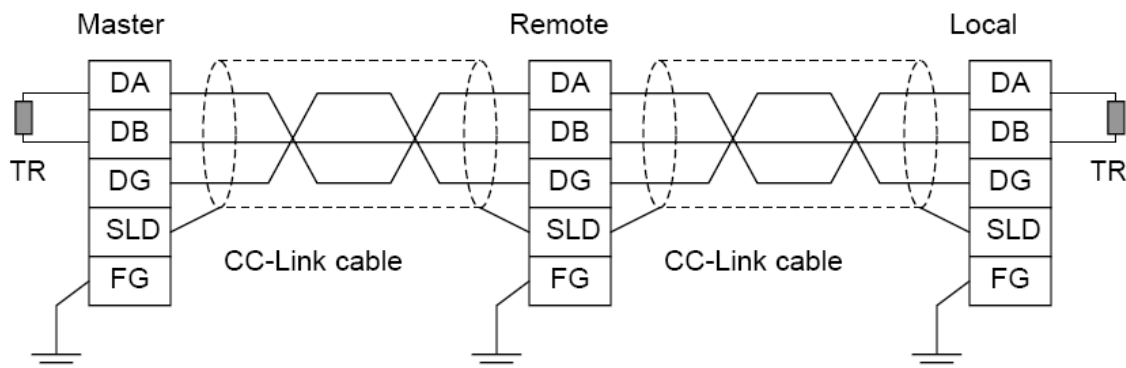
► 4-1. Status LED Window Description

Item	LED is	State	To indicate :
L RUN LED	OFF	Not Powered Not On-line Connection-Timeout	Device is not on-line or may not be powered. Resetting Hardware. Device is Timeout.
	Green	On-Line, Connection	Device is on-line and allocated to a master
L ERR LED	Red	Fail Switch Setting error Communication error	CRC error Invalid MAC ID Baudrate switch setting error
	Flashing Red	Setting change	Switch setting has been changed from the setting at the reset cancelation
	Off	Device Operational	The unit is operating in normal condition
RD LED	Off	Unable detect	Unable to detect carriers neither for channel 1 or 2
	Green	Connection	Detecting the carrier for channel 1 or 2
SD LED	Off	Not transmission	Other than listed in the left
	Green	Connection	During transmission
Field Power LED	Off	Not Supplied Field Power	Not supplied 24V dc field power
	Green	Supplied Field Power	Supplied 24V dc field power
I/O LED	Off	Not Powered No IO Module	Device has no IO module or may not be powered
	Flashing Green	Fn-Bus On-line, Do not Exchanging I/O	Fn-Bus is on-line but does not exchanging I/O data - Passed the IO module configuration.
	Green	Fn-Bus Connection, Run Exchanging IO	Expansion Slot is connected and run exchanging I/O data
	Red	FnBus connection fault during exchanging IO	One or more IO module occurred in fault state. - Changed IO module configuration. - FnBus communication failure.
	Flashing Red	Expansion Configuration Failed	Failed to initialize IO module - Detected invalid IO module ID. - Overflowed Input / Output Size - Too many IO module - Initial protocol failure

► 4-2. Terminator Resistors

Specification of terminator Resistors are as follows Resistance Spec.:

- CC-Link dedicated cable $110\Omega \pm 5\%$ 1/2W
- CC-Link dedicate high performance cable $130\Omega \pm 5\%$ 1/2W



Crevis Co.,Ltd.

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TEL : +82-31-899-4599 FAX : +82-31-899-4509
Homepage : www.crevis.co.kr E-Mail : crevis@crevis.co.kr



* Specifications and designs could be changed without advance Notice

5. Remote input/Output area

► 5-1. Remote input area

Address	Configuration	Size	Signal name
RXm0~RXmF	1 Station	2 Bytes	Discrete Input
RX(m+1)0~RX(m+1)F	2 Station	6 Bytes	
RX(m+2)0~RX(m+2)F	2 Station		
RX(m+3)0~RX(m+3)F	3 Station	10 Bytes	
RX(m+4)0~RX(m+4)F	3 Station		
RX(m+5)0~RX(m+5)F	4 Station	14 Bytes	
RX(m+6)0~RX(m+6)F	4 Station		
RX(m+n)0~RX(m+n)F	n=1,3,5,7 (1 Station, 2 Station, 3 Station, 4 Station)	2 Bytes	System Area

m : Register number that was introduced by head station number

n : Final register number for occupied number

1 station : 16 point (n=1) / 2 station : 48 point (n=3) / 3 station : 80 point (n=5) / 4 station : 112 point (n=7)

► 5-2. Remote Output area

Address	Configuration	Size	Signal name
RYm0~RYmF	1 Station	2 Bytes	Discrete Output
RY(m+1)0~RY(m+1)F	2 Station	6 Bytes	
RY(m+2)0~RY(m+2)F	2 Station		
RY(m+3)0~RY(m+3)F	3 Station	10 Bytes	
RY(m+4)0~RY(m+4)F	3 Station		
RY(m+5)0~RY(m+5)F	4 Station	14 Bytes	
RY(m+6)0~RY(m+6)F	4 Station		
RY(m+n)0~RY(m+n)F	n=1,3,5,7 (1 Station, 2 Station, 3 Station, 4 Station)	2 Bytes	System Area

► 5-3. Rwr / Rww area

Address	Configuration	Size	Signal name	Address	Configuration	Size	Signal name
RWrm0 ... RWrm3	1 Station	4 Words	Analog Input and Special module (ST-5xxx)	RWwm0 ... RWwm3	1 Station	4 Words	Analog Output and Special module (ST-5xxx)
RWrm4 ... RWrm7	2 Station	8 Words		RWwm4 ... RWwm7	2 Station	8 Words	
RWrm8 ... RWrm11	3 Station	12 Words		RWwm8 ... RWwm11	3 Station	12 Words	
RWrm12 ... RWrm15 ... RWrm127	4 Station	16 Words		RWwm12 ... RWwm15 ... RWwm127	4 Station	16 Words	