AT2-R5xx

사용설명서

FnIO A-series

FieldBus Input/Output System

- All-In-One type DeviceNet
- **All-In-One type PROFIBUS**
- All-In-One type CC-Link

CVS-18-04-026 **Rev 2.02**

제품을 사용하시기 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

⚠ 경고

● **전원이 인가된 상태에서 단자대를 만지지 마십시오.**	감전사고 및 오동작의 원인이 됩니다.
● **전원이 인가된 상태에서 제품을 조립하지 마십시오.**	화재, 감전사고 및 오동작의 원인이 됩니다.
● **제품내부에 금속성 이물질이 유입되지 않도록 하십시오.**	화재, 감전사고 및 오동작의 원인이 됩니다.
● **전원이 인가된 상태에서 배선 작업을 하지 마십시오.**	감전사고 및 오동작의 원인이 됩니다.
● **배선 작업은 전기공사 전문가가 해 주십시오.**	화재, 감전사고 및 오동작의 원인이 됩니다.

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

⚠ 주의

● **제품의 정격전압 및 단자배열을 확인 후 배선하여 주십시오.**	화재,감전사고, 오동작의 원인이 됩니다.
● **주변 온도가 55℃를 넘는 장소는 피해 주십시오.**	화재,감전사고, 오동작의 원인이 됩니다.
● **직사 광선이 직접 노출된 장소는 피해 주십시오.**	화재,감전사고, 오동작의 원인이 됩니다.
● **주변 습도가 85%를 넘는 장소는 피해 주십시오.**	화재,감전사고, 오동작의 원인이 됩니다.
● **가연성 물질이 있는 주변에 설치하지 마십시오.**	화재의 원인이 됩니다.
● **제품에 직접 진동이 인가되지 않도록 하십시오.**	화재 및 감전의 원인이 됩니다.
● **전문 A/S요원 외에는 제품을 분해,수리,개조하지 마십시오.**	화재 및 감전사고의 원인이 됩니다.
● **사용설명서에 명기된 환경조건에서 사용해 주십시오.**	감전, 화재, 오동작 또는 제품 열화의 원인이 됩니다.
● **확장 연결되는 모듈의 부하는 규정된 정격 이내로 사용해 주십시오.**	화재, 오동작 또는 고장의 원인이 됩니다.

1. FnIO A-Series PROFIBUS-DP Type 제품 사양

구분	일반사양
사용/보존 온도	-20℃~55℃ / -40℃~85℃
사용/보존습도	5% ~ 90% 단, 이슬이 맺히지 않을 것
내진동/내충격	IEC68-2-6(2G) / 10G
EMC/ESD	EN50082 / EN50081
확장 모듈 위치	FnIO-A series의 오른쪽에 장착
사용환경	부식성 가스가 없고, 먼지가 심하지 않을 것
필드 공급전압	Class2, 24VDC 24VDC (11VDC ~ 28.8VDC)
필드 공급전류	최대 6A
FnBus공급전류	최대 0.4A@5Vdc
모듈장착방법	DIN Rail에 의한 장착
외형치수	83mm × 99mm × 70mm
무게	340g
인증	UL/CE/FCC/RoHS/PROFIBUS(PNO)

구분	일반사양
Network 방식	PROFIBUS-DP
Cable	PROFIBUS-DP 전용 Cable (Ver 1.10)
Cable 길이(m)	1.2Km ~ 100m
통신속도(Kbps)	9.6KBaud ~ 12MBaud
확장모듈수	최대 8모듈
최대 Digital IO	Input : 256point/Output : 256point
최대 Analog IO	Input : 16Ch/Output : 16Ch
최대확장 BYTE수	Input : 32Byte/Output : 32Byte
Station Type	Profibus-DP Slave
최대Station 수	101 Station(Master Scanner 포함)
통신속도설정	자동
Node 번호설정	Dip Switch

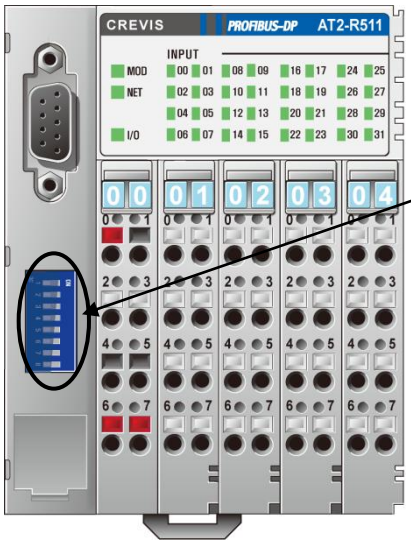
Class 2, adjacent to voltage rating (30Vmax.)

* Specifications and designs could be changed without advance Notice

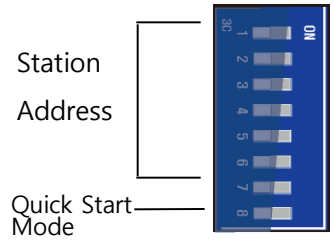
Update date : 2013.01.30

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

2. DIP Switch 설정방법

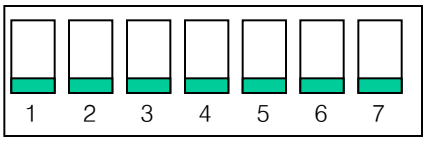


DIP 설정 스위치 설명



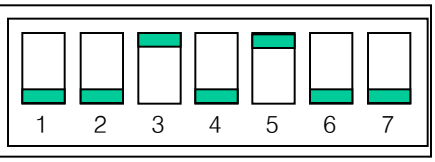
Station 번호(자국번호) 설정 스위치 설명

해당 값						
1	2	4	8	16	32	64



*** Station 번호(자국 번호) 설정 예**

Station 번호를 20번으로 설정 할 경우 3번과 5번 Dip S/W On



*** Station 번호(자국 번호) 설정 시 주의 사항**

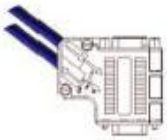
1. 접속가능 Station수의 범위내에서 설정합니다. (Station번호 00 ~ 99)
2. 범위밖의 Station번호를 설정하면 통신 Error가 발생합니다.
3. Station번호를 중복 설정하면 통신 Error가 발생합니다.

⚠ 주의

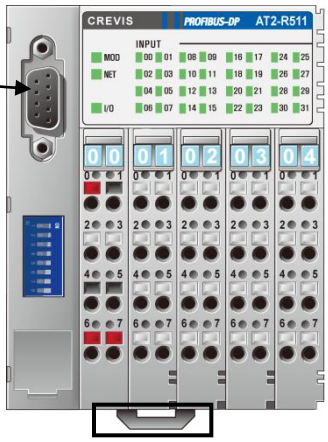
* Dip No.8 Mode Setting
- Off : Normal Booting
- On : Quick Booting

3. 통신선과 전원선 배선 방법 및 모듈장탈착 방법

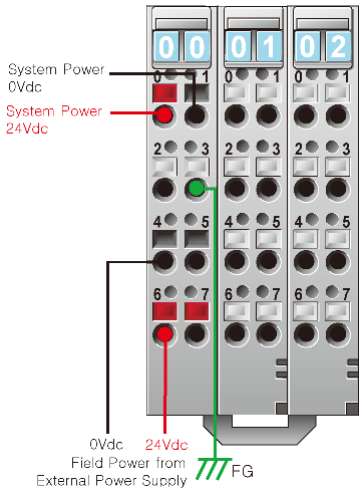
▶ 3-1 PROFIBUS 통신선 배선



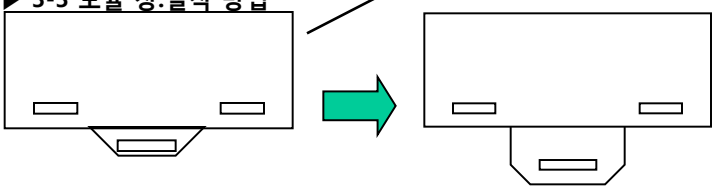
3	RxD / TxD - P
4	CNTR-P
5	DGND
6	VP
8	RxD / TxD - N
9	CNTR-N



▶ 3-2 System & Field 전원선 배선



▶ 3-3 모듈 장.탈착 방법



-자 드라이버를 이용하여 Locker의 위치를 이동시킨 후 DIN Rail에 장착하고, DIN Rail에 밀착시킨 후 Locker를 원위치 합니다. 탈착의 경우 위와 역순으로 하십시오.

*** 장착 시 주의사항**

장착 전 반드시 Locker를 그림과 같이 이동 시킨 후 DIN Rail에 장착바랍니다.

⚠ 주의

PROFIBUS 통신전원 및 Field 전원 배선 시 주의 사항

1. 안정적인 통신을 위하여 System전원과 Field용 전원으로 구분하여 사용합니다.
   1) System 전원 : System 및 PROFIBUS 통신용
   2) Field 전원 : I/O 연결 시 사용하기 위한 전원
2. System 전원용 Power Supply 와 Field용 Power Supply를 반드시 구분하여 사용하여 주십시오.
3. 반드시 PROFIBUS 전용케이블을 사용하여 주십시오.
4. 통신로에 PROFIBUS 상품이외의 기기 (예:변전기)를 삽입하지 말아 주십시오.

CREVIS

AT2-R5xx

Quick Guide

FnIO A-series

PROFI® PROCESS FIELD BUS

FieldBus Input/Output System

- All-In-One type DeviceNet
- **All-In-One type PROFIBUS**
- All-In-One type CC-Link

Before using the unit

We appreciate your purchasing CREVIS products. To use the units more effectively, please read this manual first.

Cautions for your Safety *This consists of Warning and Notice. Read it first before use.

When you break the directions, it would be caused to occur a serious problem and injury or death. **Warning!**

- Do not touch any terminal block while power is on. It could cause electric shock and malfunction.
- Do not wire and assemble the product while power is on. It could cause a fire, electric shock and malfunction.
- Keep away from the strange metallic stuff not related to the unit and wiring works should be controlled by the electric expert engineer. It may cause the unit to a fire, electric shock and malfunction.

When you disobey the instructions, there may be possible to cause slight injury, product damage or object damage. Then please follow the directions as below ; **Caution!**

- Check the rated voltage and terminal array-out first before wiring. It could cause a fire, electric shock accident and malfunction.
- Do not place product under circumstances over 55℃. It could cause a fire, electric shock accident and malfunction.
- Do not place product directly in the sunlight. It could cause a fire, electric shock accident and malfunction.
- Do not place product under circumstances over 85% of humidity. It could cause a fire, electric shock accident and malfunction.
- Do not place product near by the inflammable material. It could cause a fire.
- Do not permit any vibration approaching it directly. It could cause a fire and electric shock
- Do not allow anybody to disassemble, repair and remodel it except the expert for A/S. It could cause a fire and electric shock.
- Use product under the circumstances described in the directions. Otherwise It could cause to a unit a fire, electric shock accident or any flame on it.
- Connect with the specified output within the descriptions. Otherwise It could cause a fire, malfunction or any troubles.

1. Specification of FnIO A-Series Profibus-DP Type

Item	Specification
Ambient Temp.	-20℃~55℃ / -40℃~85℃
Relative Humidity	5% ~ 90%, without condensation
Durable-vib. /impact	IEC68-2-6(2G) / 10G
EMC/ESD	EN50082 / EN50081
Mount Position	On the right of FnIO-A series
Atmosphere	Not so dusty without corrosive gas
Field Supp.Volt	Class2, 24VDC 24VDC (11VDC ~ 28.8VDC)
Field Supp. Cur.	Max. 6A
FnBus Sup. Cur.	Max. 0.4A@5Vdc
System Power Range	19.2~28.8Vdc
Mount	DIN Rail
Size	83mm × 99mm × 70mm
Weight	340g

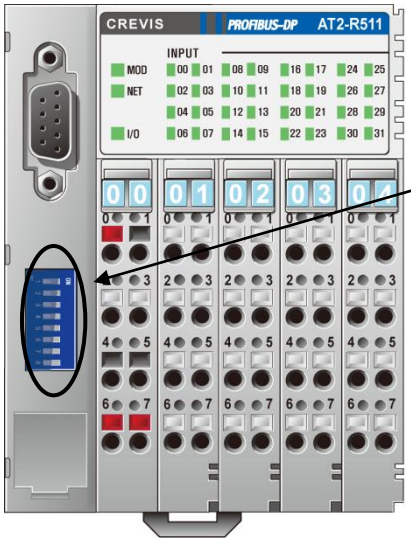
Item	Specification
Network Type	PROFIBUS-DP
Cable	Cable for PROFIBUS-DP only (Ver 1.10)
Cable Length(m)	1.2Km ~ 100m
Comm. Sp (kbps)	9.6KBaud ~ 12MBaud
Max. Station No.	101 Station(include Master Scanner)
Baud rate Setting	Support Auto-baudrate
Expansion No.	Max. 8 Module
Max. Digital IO	Input : 256point/Output : 256point
Max. Analog IO	Input : 16Ch/Output : 16Ch
I/O Data Size	Input : 32Bytes / Output : 32Bytes
Station Type	PROFIBUS-DP Slave
Station No. Sett.	Dip Switch

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

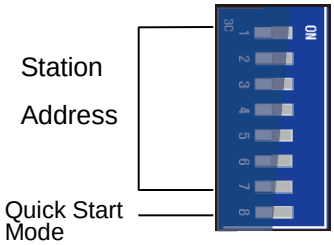
* Specifications and designs could be changed without advance Notice

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

2. DIP Switch Setting

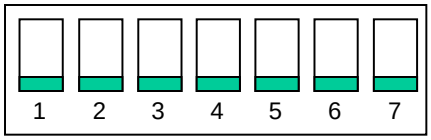


DIP Setting Switch



Station Number setting Switch

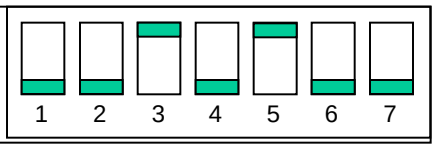
Relevant Value						
1	2	4	8	16	32	64



*** Station No. Setting example**

When setting Station No. to no.20,

No.3 & 5 Dip S/W On



* Dip No.8 Mode Setting

- Off : Normal Booting
- On : Quick Booting

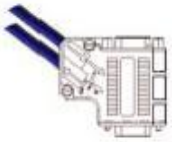
*** Directions for setting Node No(Station No)**

Caution!

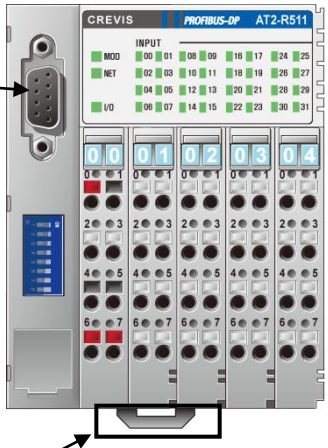
1. Please set it within the range of contactable Station number (Station no. 00~99)
2. Station number setting out of the range will cause Communication Error .
3. When double setting Station No., communication error occurred

3. Wiring of Communication & power cable and Install of the modules

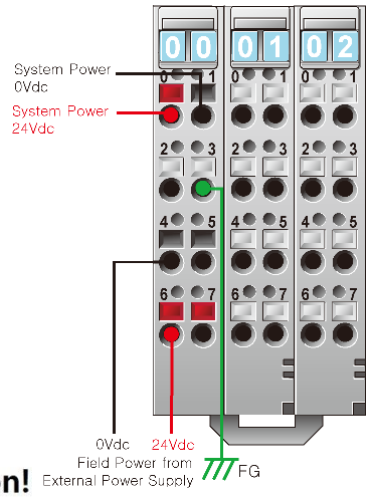
▶ 3-1 PROFIBUS Connection cable wiring



3	RxD / TxD - P
4	CNTR-P
5	DGND
6	VP
8	RxD / TxD - N
9	CNTR-N



▶ 3-2 System & Field Power cable wiring

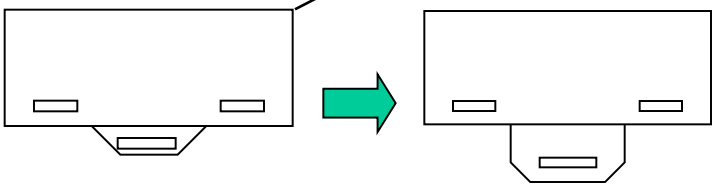


Caution!

Directions for PROFIBUS connection power & Field power wiring

1. For safety connection, supply system power and filed power separately.
   1) System Power : for System & PROFIBUS communication
   2) Field Power : for I/O Connection
2. Make sure <u>Power supply for System power and power for field should be divided and supplied separately .</u>
3. use cable only for PROFIBUS absolutely
4. Do not insert any other equipments (such as transistor) into communication line besides PROFIBUS products.

▶ 3-3 Install



Use a small-bladed screwdriver to lift up Locker.
Install the Module on Din rail firmly . Lift down locker to lock .
To remove the module please repeat it in opposite sequence

*** Notice**

Make sure pull up the locker first as the picture above and then pull down after install the module on DIN rail.

4. Specification of Input / Output Module

Model	AT2-R 511	AT2-R 512	AT2-R 521	AT2-R 522	AT2-R 533	AT2-R 534	AT2-R 538	AT2-R 539	AT2-R 525	AT2-R 555	AT2-R 536	AT2-R 537	AT2-R 556	AT2-R 557
Input Specification														
Number of Input	32 Points				16 Points						16 Points			
Type	Sink	Source			Sink	Source	Sink	Source			Sink	Source	Sink	Source
Input Voltage	24Vdc	0Vdc			24Vdc	0Vdc	24Vdc	0Vdc			24Vdc	0Vdc	24Vdc	0Vdc
Max. Off-State Voltage	5Vdc				5Vdc						5Vdc			
Min. On-State Voltage	9Vdc				9Vdc						9Vdc			
Input Signal Delay	< 0.5msec				< 0.5msec						< 0.5msec			
Input Impedance	About 5.4KΩ				About 5.4KΩ						About 5.4KΩ			
Output Specification														
Number of Output			32 Points		16 Points									
Type			Sink	Source		Sink		Source						
Output Load Current			Max. 0.5A/1pt, 8A/All											
Output Voltage			0Vdc	24Vdc		0Vdc		24Vdc						
Drop Voltage (ON-state)			Max. 0.3Vdc											
Leakage Current (OFF-state)			Max. 50uA											
Output Signal Delay			< 0.3msec											
Protection			Short protection											
Relay Output Specification														
Number of Output									16 Points		8 Points			
Relay Type									Normally Open, Single Pole Single Throw					
Output Rating									2A@5~28.8Vdc, 0.8A@48Vdc, 0.5A@110Vdc, 2A@250Vac					
Min. Load									100uA, 100mVdc/Point					
Max. On-State Voltage Drop									0.5V@2.0A, Resistive Load, 24Vdc					
Output Delay Time									Max. 10ms					
Initial Contact Resistance									30mΩ					
Expected Contact Life									300K Cycle Resistive, 100K Cycle Inductive					
Common Type									4Point/ 1COM	1Point/ 1COM	4 Point /1COM		1 Point /1COM	
Isolation									Relay Coil/Contact Isolation					
IO Common Specification														
Power Dissipation	Max. 50mA@24Vdc													
Isolation	Non-isolation													
Field Power Current	Max. 6A@24Vdc													

Crevis Co.,Ltd.

29-4, Gigok-ro, Giheung-gu, Yongin-si,
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Homepage : www.crevis.co.kr E-Mail : crevis@crevis.co.kr

c UL us LISTED
IND. CONT. EQ.
4KA9 E235505

* Specifications and designs could be changed without advance Notice

MEMO

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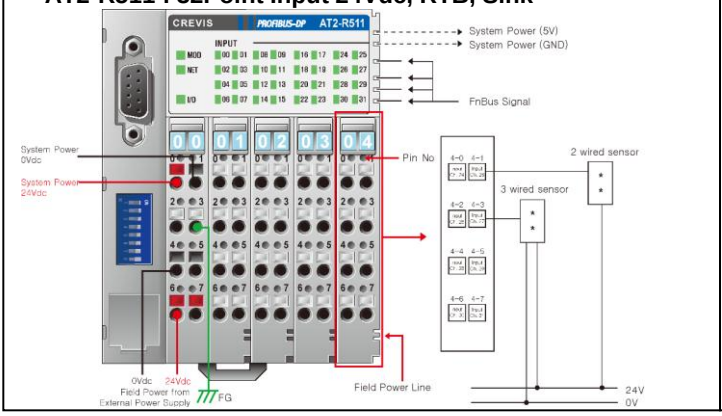
TEL : +82-31-899-4599 FAX : +82-31-899-4509
Homepage : www.crevis.co.kr E-Mail : crevis@crevis.co.kr

c UL us LISTED
IND. CONT. EQ.
4KA9 E235505

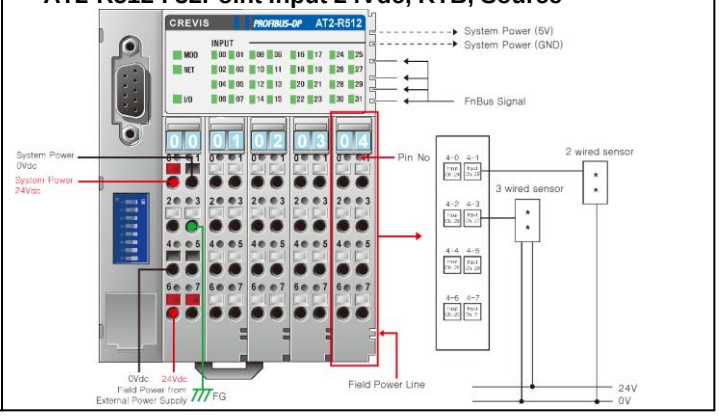
* Specifications and designs could be changed without advance Notice

5. Input / Output wiring Diagram

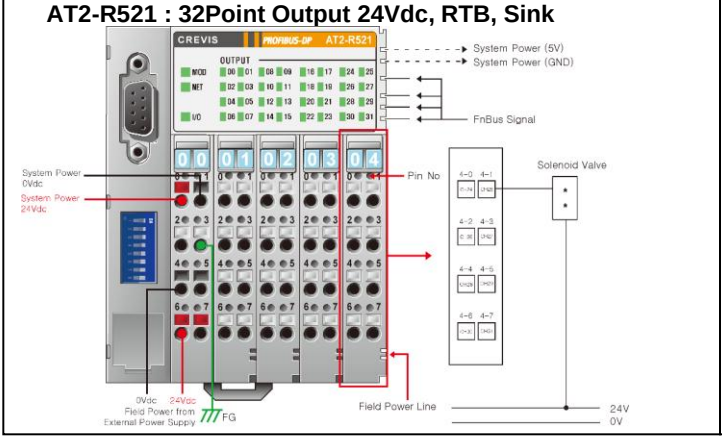
AT2-R511 : 32Point Input 24Vdc, RTB, Sink



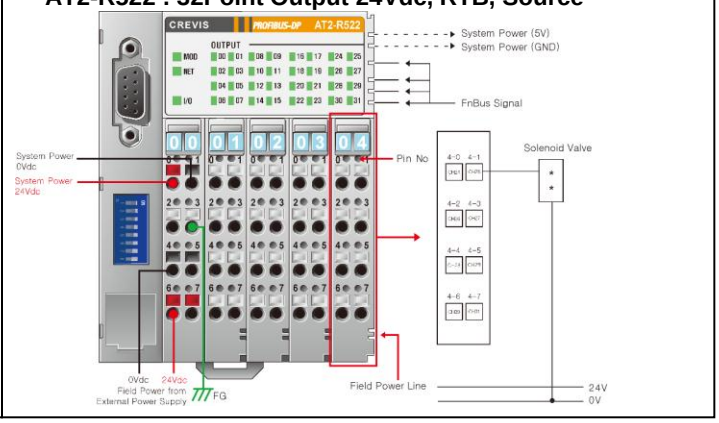
AT2-R512 : 32Point Input 24Vdc, RTB, Source



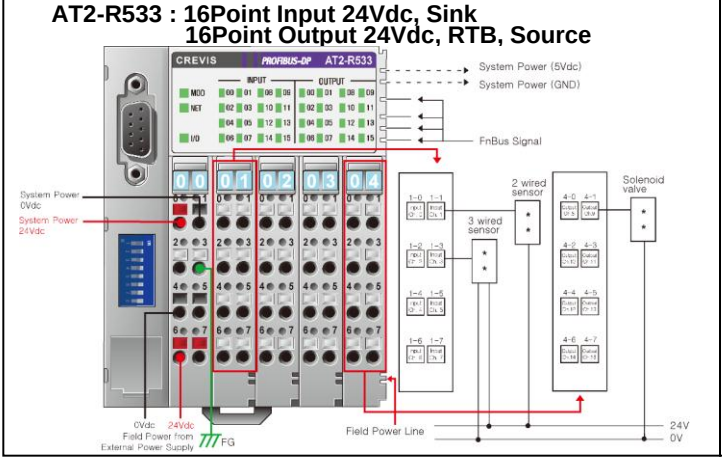
AT2-R521 : 32Point Output 24Vdc, RTB, Sink



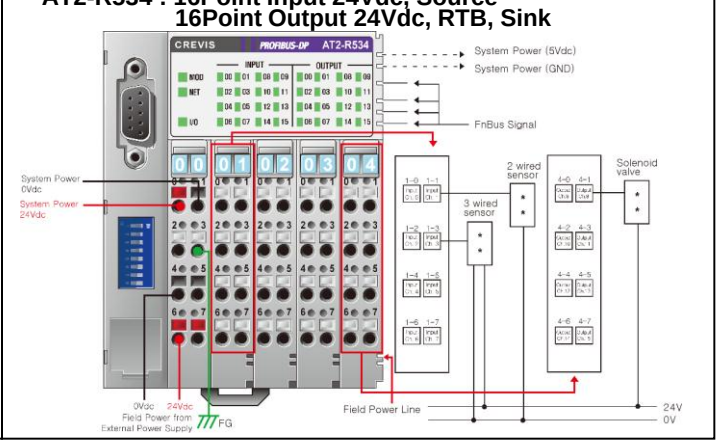
AT2-R522 : 32Point Output 24Vdc, RTB, Source



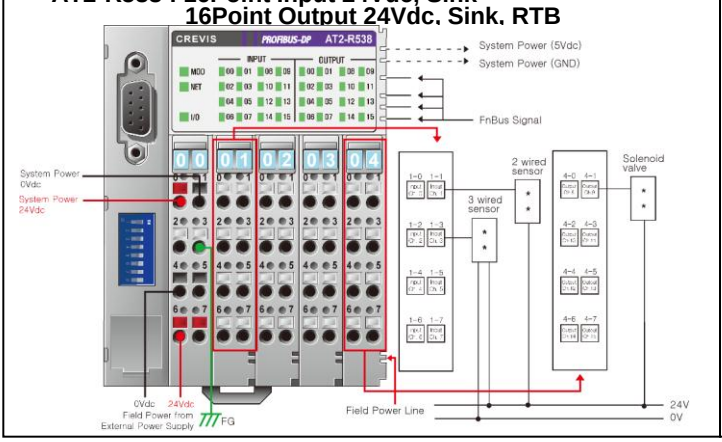
AT2-R533 : 16Point Input 24Vdc, Sink 16Point Output 24Vdc, RTB, Source



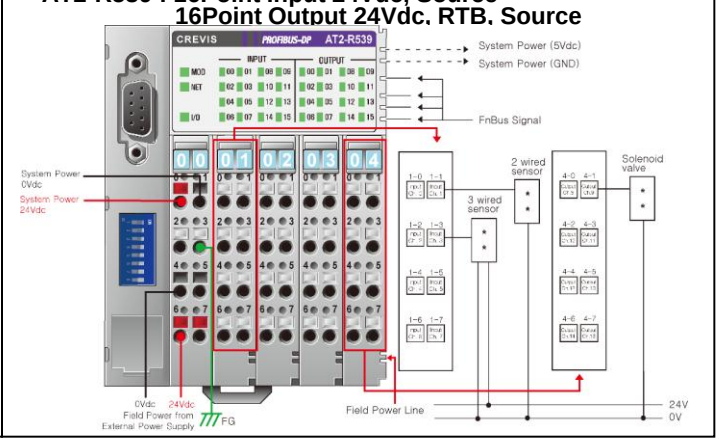
AT2-R534 : 16Point Input 24Vdc, Source 16Point Output 24Vdc, RTB, Sink



AT2-R538 : 16Point Input 24Vdc, Sink 16Point Output 24Vdc, Sink, RTB

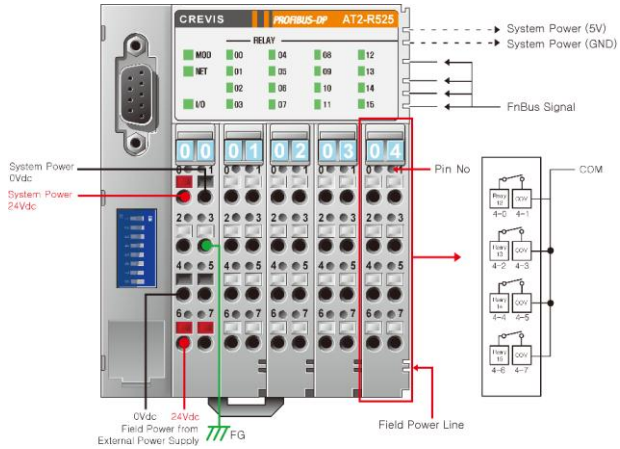


AT2-R539 : 16Point Input 24Vdc, Source 16Point Output 24Vdc, RTB, Source

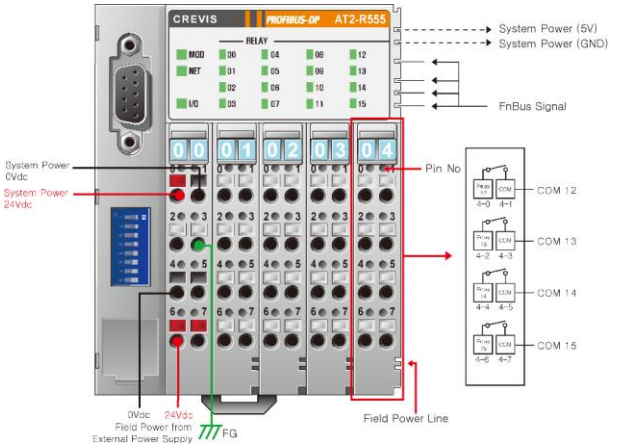


5. Input / Output wiring Diagram

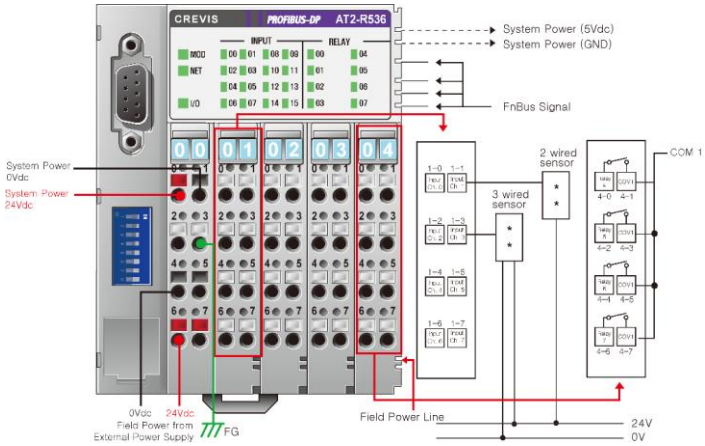
AT2-R525 : 16Point Output 24Vdc/250Vac, RTB, Relay



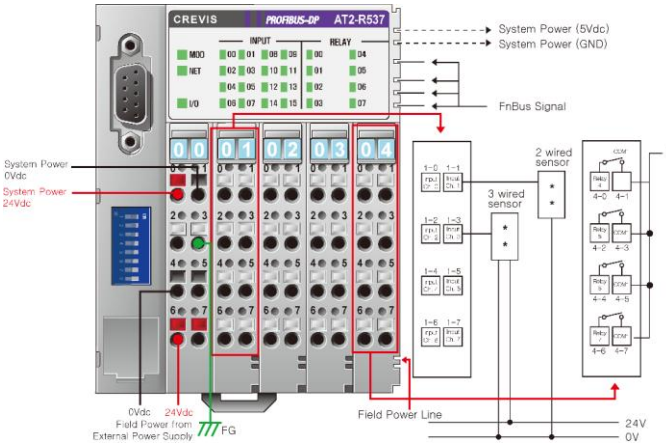
AT2-R555 : 16Point Output 24Vdc/250Vac, RTB, Relay



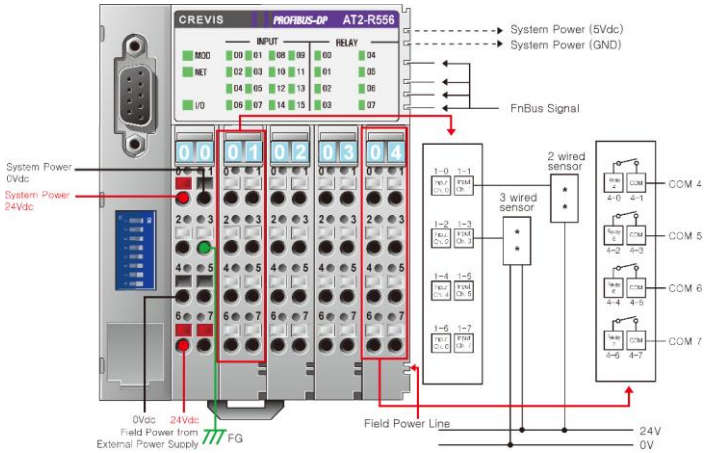
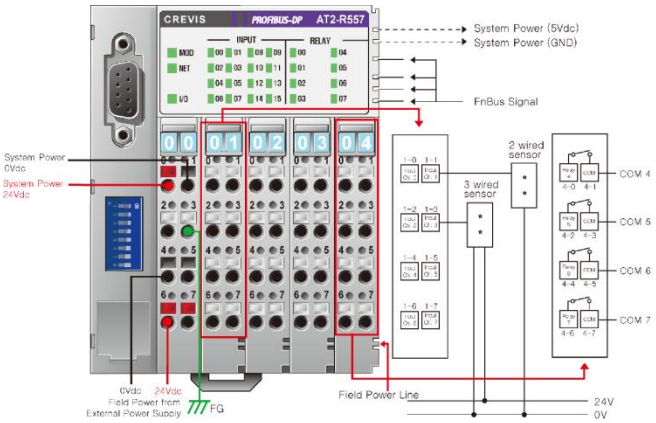
AT2-R536: 16Point Input 24Vdc, Sink 8Point Output 24Vdc/250Vac, RTB, Relay



AT2-R537: 16Point Input 24Vdc, Source 8Point Output 24Vdc/250Vac, RTB, Relay



AT2-R556: 16Point Input 24Vdc, Sink 8Point Output 24Vdc/250Vac, RTB, Relay



AT2-R557: 16Point Input 24Vdc, Source 8Point Output 24Vdc/250Vac, RTB, Relay