

FnIO M – Series :

***Common User Guide &
ATEX Certification***

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History

REV.	PAGES	REMARKS	DATE	Editor
1.00		Preliminary	2020/12/07	SJ LIM

1. FnIO M-Series Caution(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 tot 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.

Do not place Modules near by the inflammable material. Else it may cause a fire.

Do not permit any vibration approaching it directly.

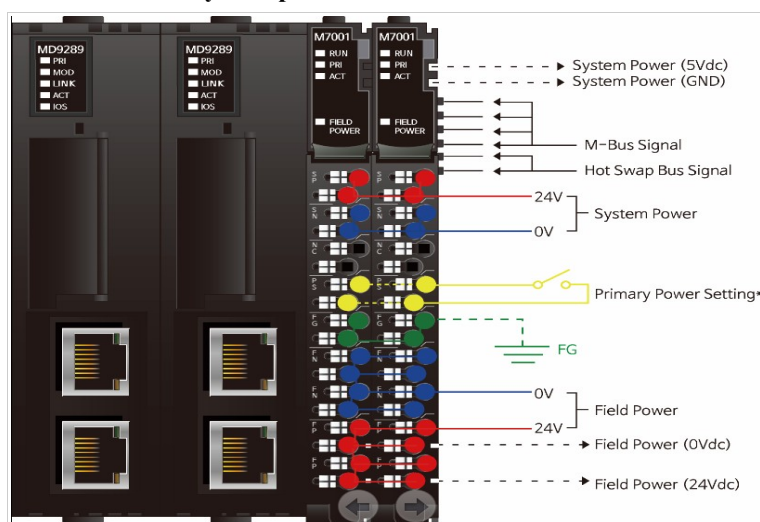
Go through module specification carefully, ensure inputs, output connections are made with the specifications. Use standard cables for wiring.

Use Product under pollution degree 2 environment.

These devices are open type devices which have to be installed in an enclosure with door or cover which is tool accessible only suitable for use in Class I, Zone 2 / Zone 22, Groups A,B,C and D hazardous locations, or non-hazardous location only.

1.1. How to wire communication & Power

1.1.1. Wiring of communication & System power line for Ethernet.



Notice for Wiring of communication and Field power

1. The communication power and Field power respectively are supplied to each network adapter.

1) Communication Power : Power for System and MODBUS TCP connection.

2) Field Power : Power for I/O Connection

2. Field power and separated by System power must be used.

3. To avoid a short circuit, tape the un-shield wire.

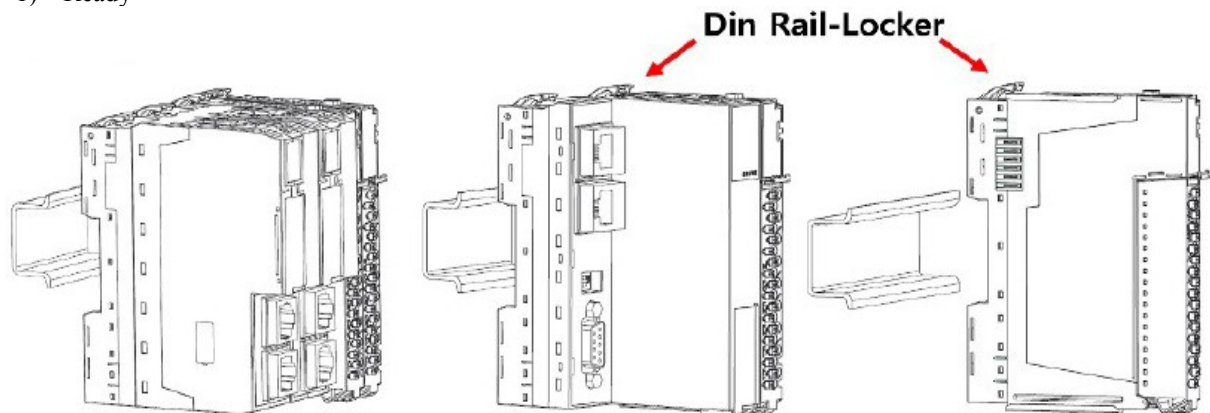
4. Do not insert any other devices such as converter in to the connector besides products.

■ M7001 is used with M9*** (Single Network), MD9*** (Dual type Network) and I/O as power module.

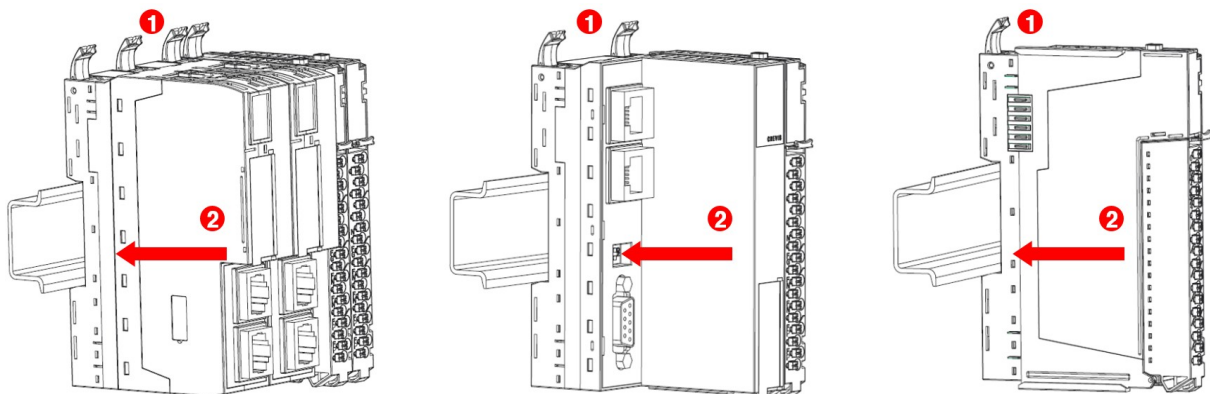
1.2. Module Mounting

1.2.1. How to mount & dismount M-Series Modules on Din-Rail

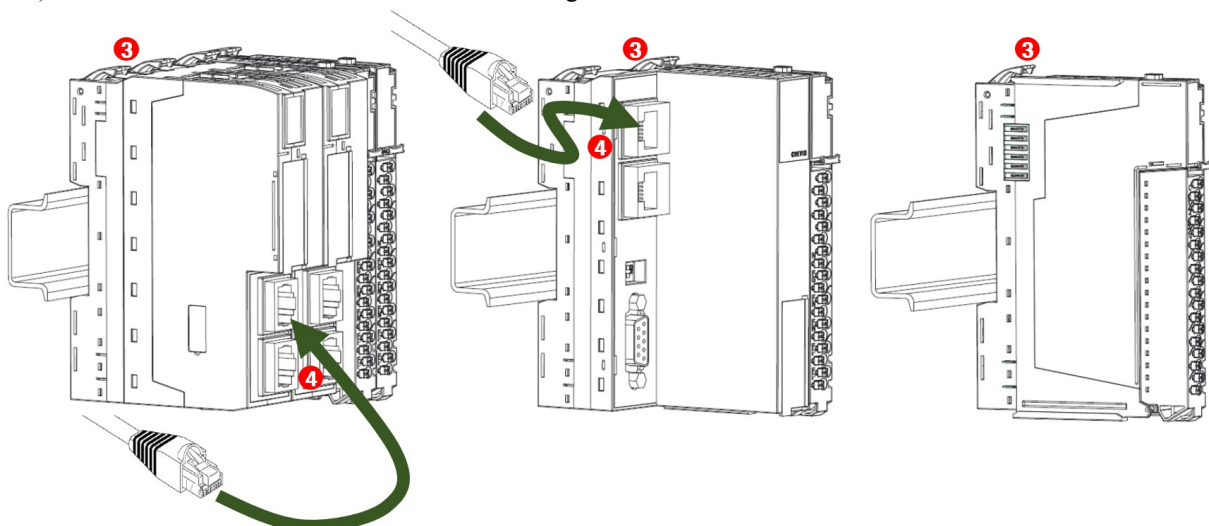
1) Ready



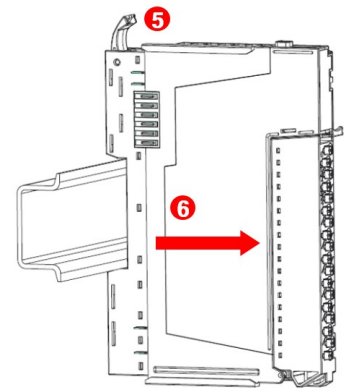
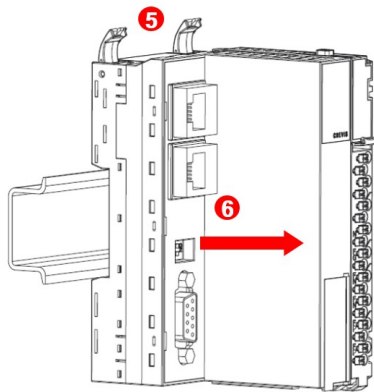
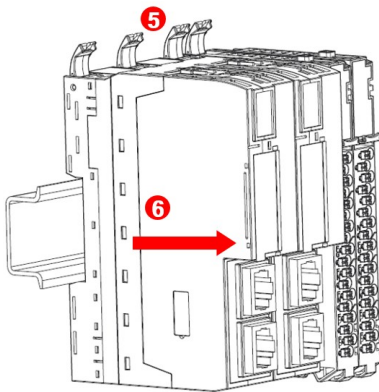
- 2) Unlock the 'Din Rail-Locker' like Number (1).
3) Push the module to the din-rail.



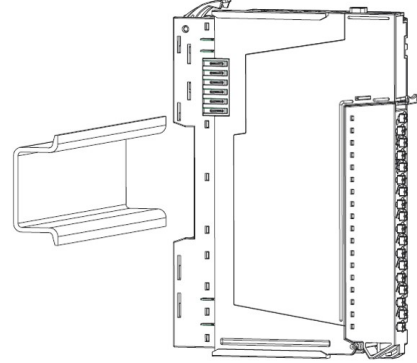
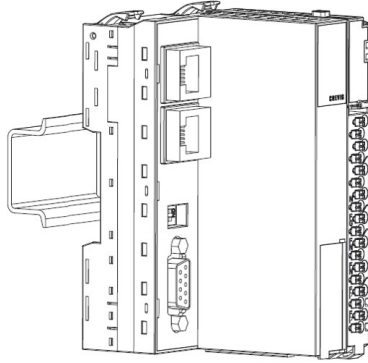
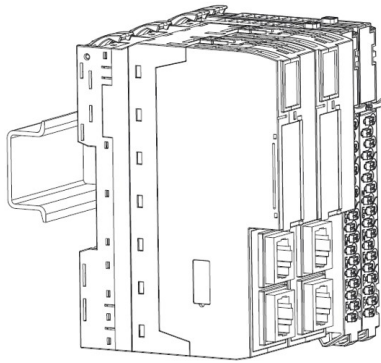
- 4) Lock the 'Din Rail-Locker' like Number (3) to fix the module on the din rail.
5) Connect the communication cable after locking the 'Din Rail-Locker'.



- 6) To remove the module on the din-rail, first unlock the 'Din-Rail Locker' like Number (5).
- 7) Pull the module against the din-rail.



- 8) End



1.3. Replacing Module and Hot-Swap Function

The M-Series has hot-swap capability to protect your system. Hot-swap is a technology developed to replace new module without powering off the main system. There are three method for hot-swap in M-Series.

1.3.1. Replacing I/O and Power module

- Unlock the remote terminal block(RTB) frame and open it as far as possible(at least to an angle of 90°).



RTB Unlock

- Push the power module or I/O module frame and pulling it out in a straight.



Module frame push

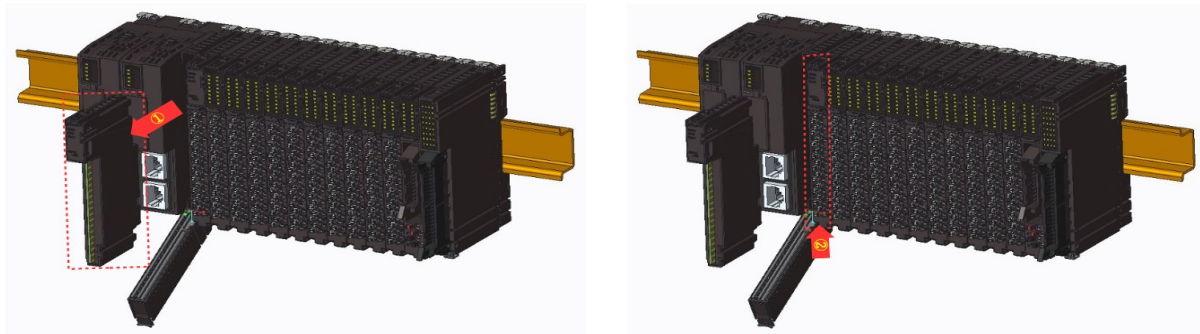
- Hold the new power module by the head, and carefully slide it into the backplane.



Slide into Backplane

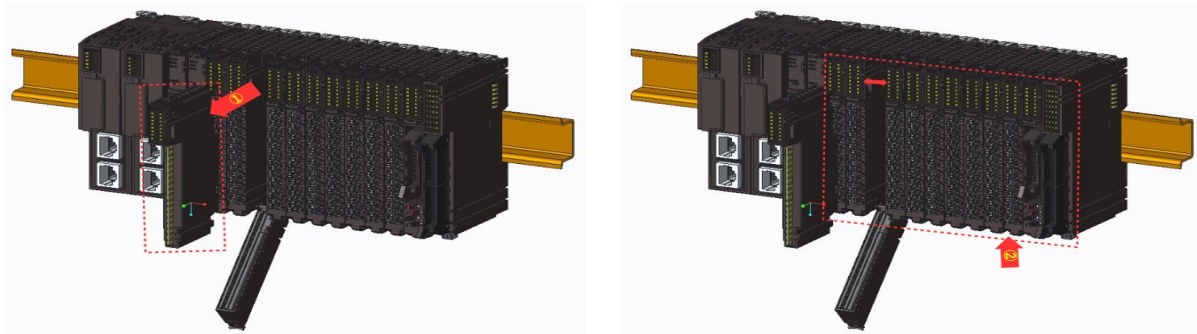
1.3.2. Hot-swap Power module

If one of the power modules fails(①), the remaining power modules perform normal operation(②). For the hot swap function of the power module, the main and auxiliary power must be set. Refer to Power Module Specifications for related contents.



1.3.3. Hot-swap I/O Module

Even if a problem occurs in the IO module(①), the remaining modules except for the problem module can communicate normally(②). If the problematic module is restored, normal communication can be performed again. And each module must be replaced one by one.



Warning !

- ▶ Pulling out the module may generate sparks. Make sure that there is not a potentially explosive atmosphere.
- ▶ Pulling or inserting of an module might bring the all other modules temporarily into an undefined condition!
- ▶ Dangerous contact voltage! The modules must be completely de-energized power before removing them.
- ▶ In the event of the machine/system being put into a dangerous state as a result of the removal of a RTB, a replacement can only be made once the machine/system is disconnected from the power.

Caution !

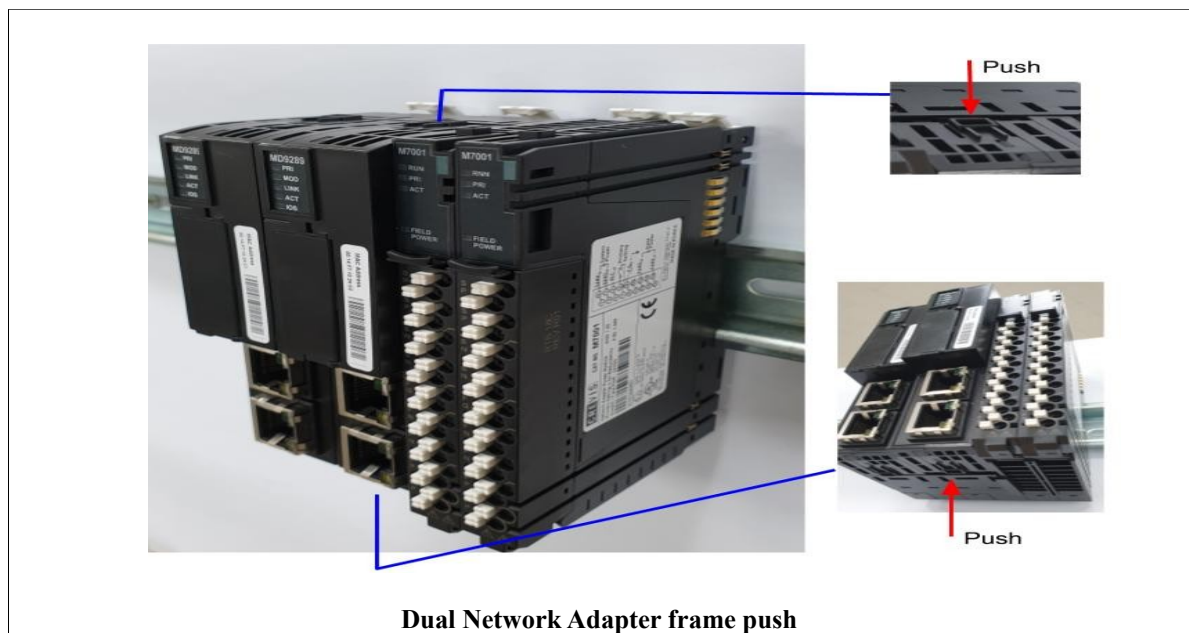
- ▶ If you remove multiple IO modules by mistake, you must connect IO modules one by one, starting with the lower slot number.

Attention !

- ▶ The module can be destroyed by electrostatic discharge. Please make sure that work equipment are earthed adequately.

1.3.4. Replacing Dual Network Adapter

- ▶ Push the MD9xxx network adapter module frame and pulling it out in a straight.



- Hold the new MD9xxx by the top and bottom, and carefully slide it into the base module.



Network Adapter Remove and Install

1.3.5. Hot-swap Dual Network Adapter

If one of the network adapters fails(①), the rest of the network adapters(②) function normally to protect the system.



Warning !

- Pulling out the module may generate sparks. Make sure that there is not a potentially explosive atmosphere.
- Pulling or inserting of an module might bring the all other modules temporarily into an undefined condition!
- Dangerous contact voltage! The modules must be completely de-energized power before removing them.

Attention !

- The module can be destroyed by electrostatic discharge. Please make sure that work equipment are earthed adequately.

2. Use in Hazardous Environments

ATEX Zone2 Information

1. Certification number : **DEMKO 19 ATEX 2223X**
2. Ambient range ($-20^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$)
3. Certification string :

**II 3 G****Ex ec IIC T4 Gc**

4. Standards covered (EN60079-0 and EN60079-7)
5. The conditions of safe usage :
 - a) The equipment shall be mounted in an enclosure with a minimum ingress protection rating of at least IP54 in accordance with IEC/EN 60079-7 and used in an environment of not more than Pollution Degree 2 (as defined in IEC/EN 60664-1).
 - b) Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 140%.
 - c) The equipment shall be installed in an enclosure with tool removable door or cover.
 - d) Earthing is accomplished through mounting of modules on rail.
 - e) Field wiring conductor temperature rating must be 85°C or higher

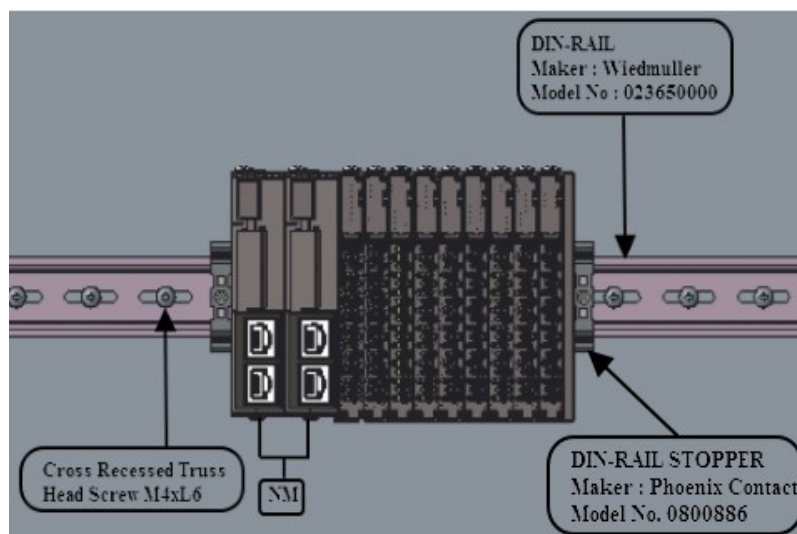
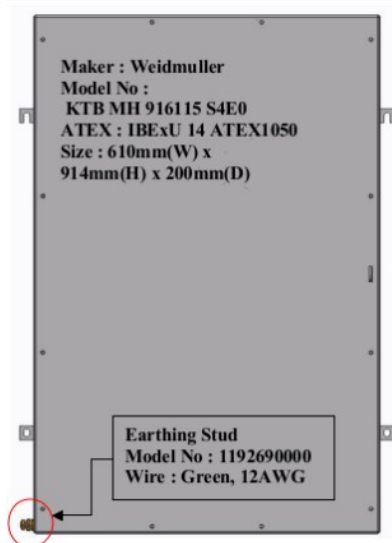
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MODBUS TCP/IP
EtherNet IP
MODBUS RTU

*Specifications and designs may be changed without advance Notice.

ATEX Zone22 Information



1. Certification number : DEMKO 20 ATEX 2373
2. Ambient range ($-25^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$)
3. Certification string :



* Note :

- a) This device can be installed with maximum one network module (MD9 or M9) and six IO modules (M1 to M7). The total output current rating shall not exceed 2A. For suitable use, refer to the electrical rating part in each manual of the modules.
- b) Field wiring conductor temperature rating must be 85°C or higher.
- c) enclosure entry for the field wiring, refer to attached weidmuller's instruction.

Nomenclature :

Programmable controllers FnIO-M Series, model FnIO-M followed by NM, followed by PM, followed by iOM consists of maximum 6 extension modules;

FnIO-M NM – PM – iOM
I II III

I. NM : MD9 or M9

- A. MD9 – Model MD9***
- B. M9 – Model M9***

II. PM : M7

- A. M7 – Model M7&**

III. IOM : M1, M2, M3, M4, M5 or M7

(Consists of maximum 6 extension modules)

- A. M1 – Model M1#**
- B. M2 – Model M2@**
- C. M3 – Model M3***
- D. M4 – Model M4***
- E. M5 – Model M5***
- F. M7 – Model M7&**

Note :

- “***” may be any alphanumeric code
- “**” may be any alphanumeric code
- “#” may be any numerical number except for 8 and 9
- “@” may be any numerical number except for 7 and 8
- “&” may be any numerical number except for 2

