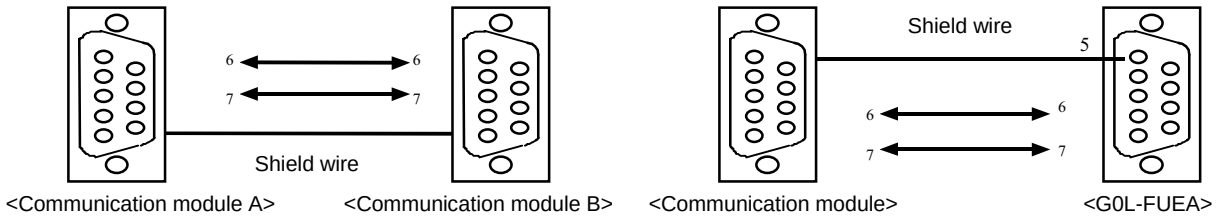
4.4 How to connect communication cable

4.4.1 Electric(twisted pair) cable connection

Cable for electric network connection uses only No.6 and No.7 of the connector pin, No.6 signal of communication module connector A is connected to No.6 of communication connector B, and No.7 of connector A is connected to No.7 of connector B. Body of connector(metal : electrically conductive) is connected with other module by shielding wire, and bypasses external noise, etc., so connector of both side should be connected with shielding wire, and contact with high voltage and high current should not be allowed. For treating shielding wire in connection of G0L-FUEA(PC attached Fnet module) connector, general communication module body must be connected with pin No.5 of G0L-FUEA like Figure 4.4.1.

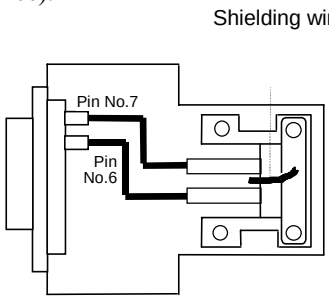


(Verify pin No. marked in connector to connect)

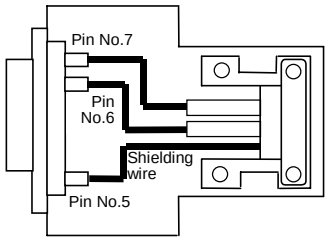
Fig. 4.4.1 Cable connection method of Fnet

4.4.2 Electric(twisted pair) cable connector connection

Connector is accessory parts which connects electric network of fieldbus module, and it should be connected as a method in Figure 4.4.2(A). It should be noted that shielding wire of cable should be connected to metal part of connector by soldering, and the other. Data transmission/receive is impossible if shielding wire is not connected(Shielding wire of G0L-FUEA should be connected to No.5 pin as shown in Fig.4.4.2(B) to prevent contact with computer body. Internally No.5 pin CON1 And CON2 are under short, so shielding wire is separated from computer body, and it is bypassed next connection station or terminal resistance).



9-pin socket type

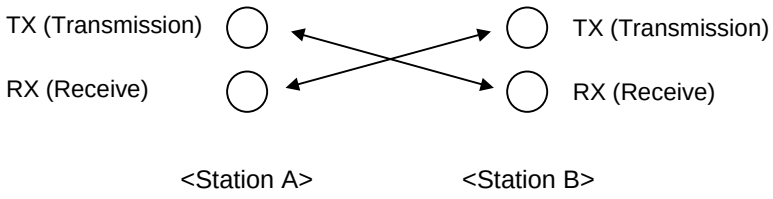


9-pin socket type

Fig. 4.4.2(A) Connection of Fnet connector Fig. 4.4.2(B) Connection of G0L-FUEA connector

4.4.3 Optical cable connection

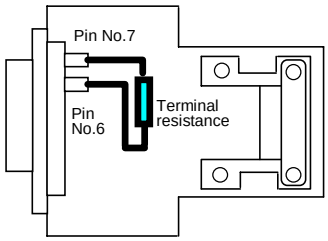
Optical cable is connected by crossing transmission and receive line, i.e., RX of optical communication module A is connected to TX of optical communication module B, and TX of optical communication module A is connected to RX of optical communication module B.



4.5 Terminal resistance

4.5.1 Electric network terminal resistance of Fnet

- **Resistance : 110Ω, 1/2 W**
- **Connector case : Metal conductor plating type**



9-pin socket type

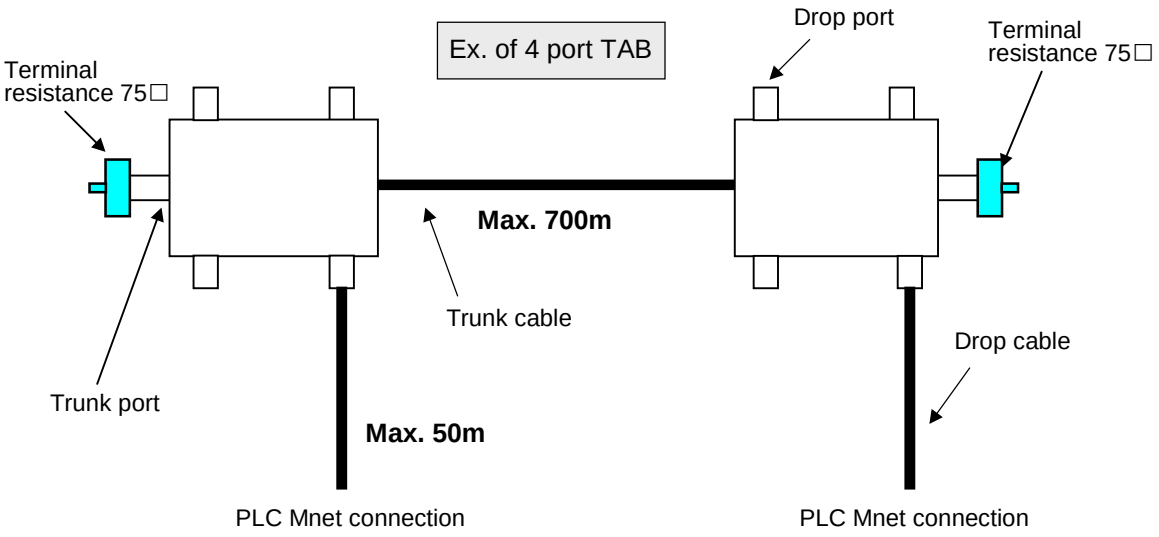
➔ Terminal resistance(110□, 1/2W) of accessory parts(electric module only) should be attached at the start and end of network.

➔ Terminal resistance is attached inside of electric/optical converter(G0L-FOEA) and repeater(G0L-FREA) which are installed at terminal of electric network. Therefore, do not connect terminal resistance separately from external.

➔ Connector case should not be connected with terminal resistance.

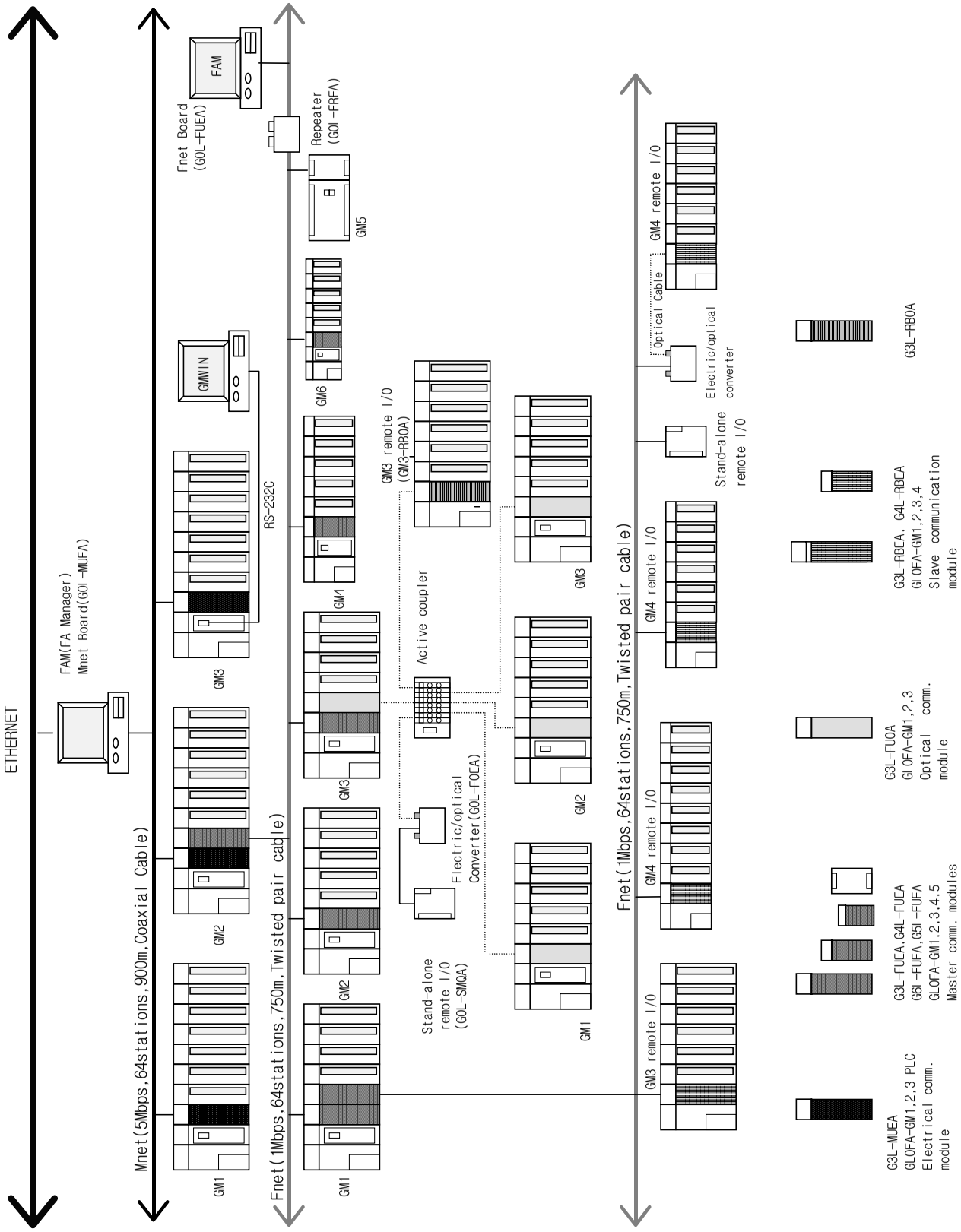
4.5.2 Terminal resistance of Mnet

- **Resistance : 75 Ω, 1/4 W**
- **Outside drawing of Mnet terminal resistance and TAB**



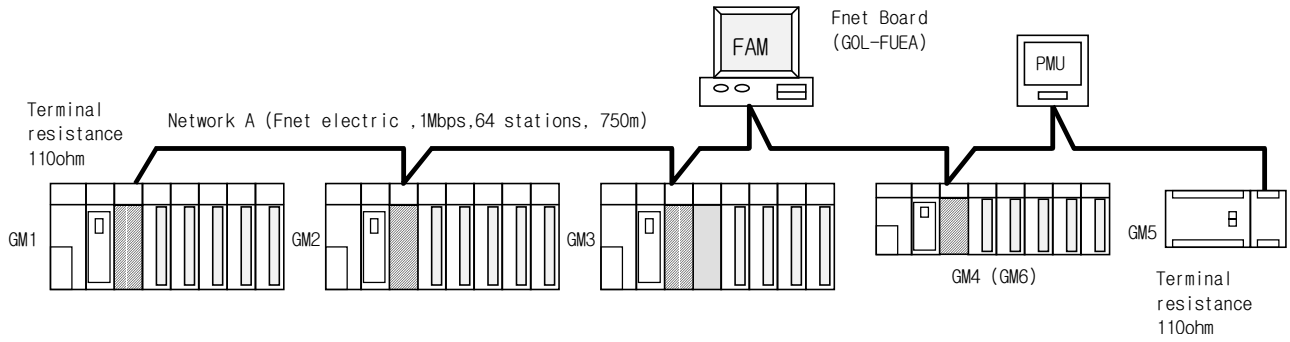
Chapter 5 Configuration

5.1 GLOFA PLC network system(entire system)



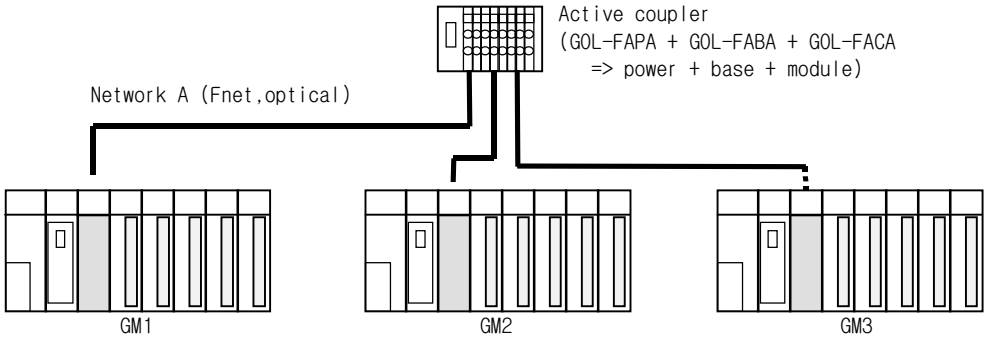
5.2 Fnet network system

5.2.1 Configuration of Fnet master system (electric network)



Devices for network A (Fnet electric)		
Type	**Module name**	**Ex. of station number setting**
FAM4.0	G0L-FUEA	0
GM1	G3L-FUEA	1
GM2	G3L-FUEA	2
GM3	G3L-FUEA	3
GM4 (GM6)	G4L-FUEA (G6L-FUEA)	4
GM5	G5L-FUEA	5
PMU-500	PM0-500F	6

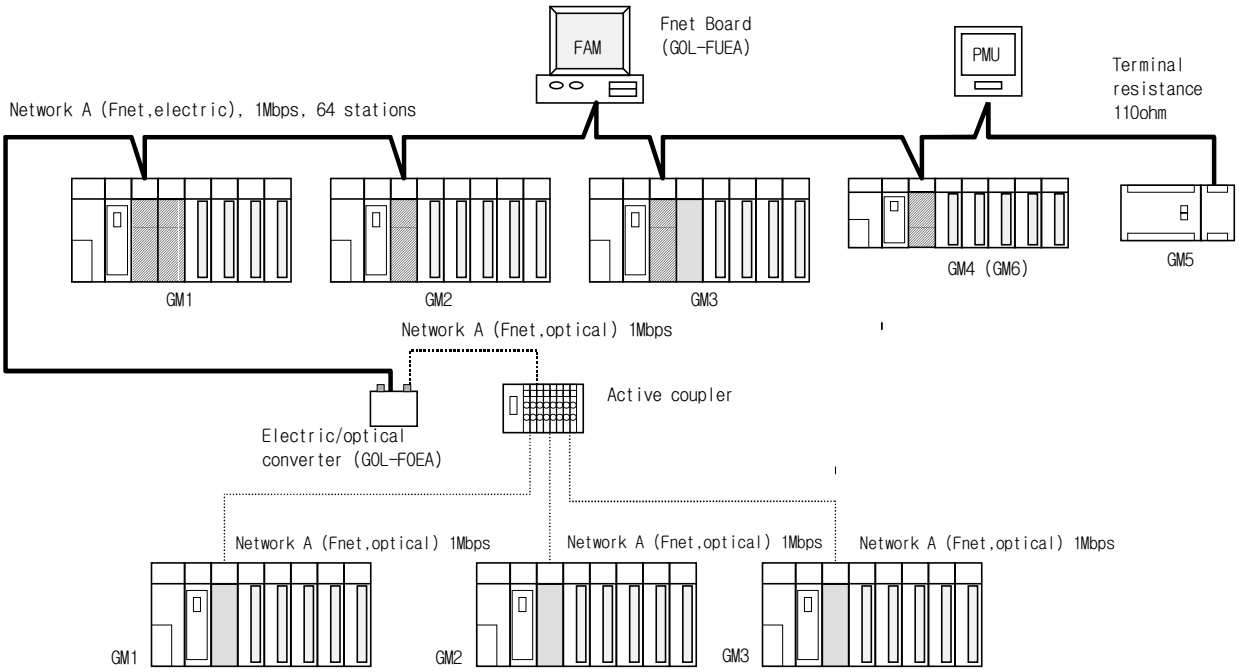
5.2.2 Configuration of Fnet master system (optical network)



※ For unused slot, dummy module(G0L-FADA) is attached.

Devices for network A (Fnet optical)			
Type	**Module name**	**Ex. of station number setting**	**Cable connection**
GM1	G3L-FUOA	0	Transmission→Receive (Active coupler) Receive→Transmission (Active coupler)
GM2	G3L-FUOA	1	
GM3	G3L-FUOA	2	
Active coupler	G0L-FACA/FABA/FAPA	Not available	

5.2.3 Configuration of Fnet master system (network combined with electric/optical module)

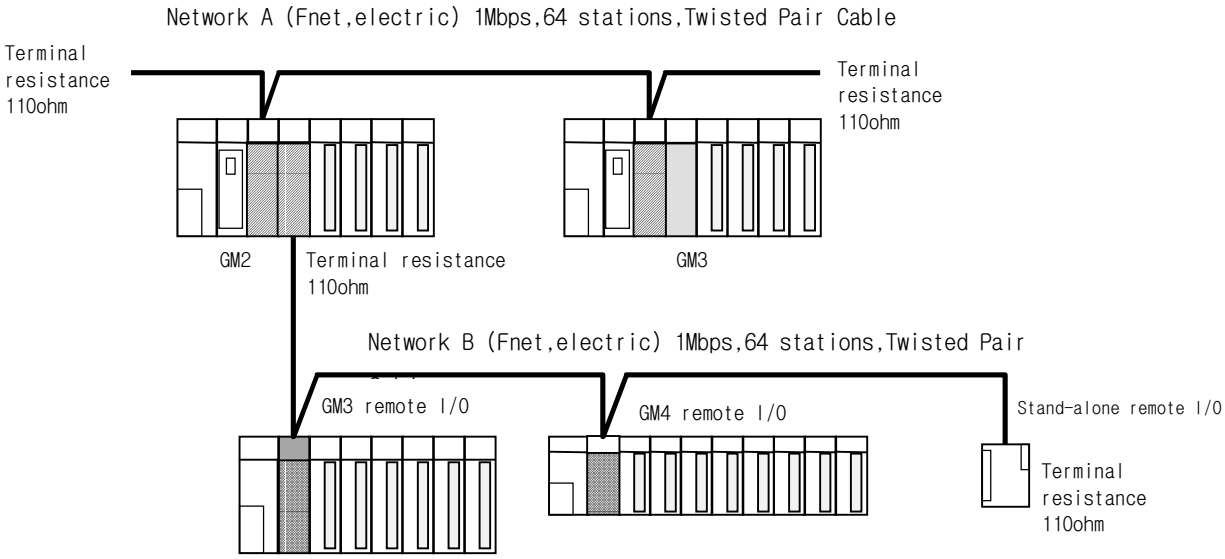


Devices for network A (Fnet)					
Electric			**Optical**		
Type	**Module name**	**Ex. of station number setting**	**Type**	**Module name**	**Ex. of station number setting**
FAM	G0L-FUEA	0	GM1	G3L-FUOA	7
GM1	G3L-FUEA	1(slot 0)	GM2	G3L-FUOA	8
GM2	G3L-FUEA	2	GM3	G3L-FUOA	9
GM3	G3L-FUEA	3	Optical/electric converter	G0L-FOEA	Not available
GM4 (GM6)	G4L-FUEA (G6L-FUEA)	4	Active coupler	G0L-FACA (Remark)	Not available
GM5	G5L-FUEA	5			
PMU-500	PM0-500F	6			

Remark

1. Separate terminal resistance is unnecessary due to terminal resistance built-in inside optical/electric converter.
2. Active coupler used in system configuration is consist of G0L-FAPA(Power), G0L-FABA(Base) and G0L-FACA(Module). Module can be mounted up to 8 in the base, and dummy module(G0L-FADA) should be attached for unused base to protect from foreign matter, dust, and the others.

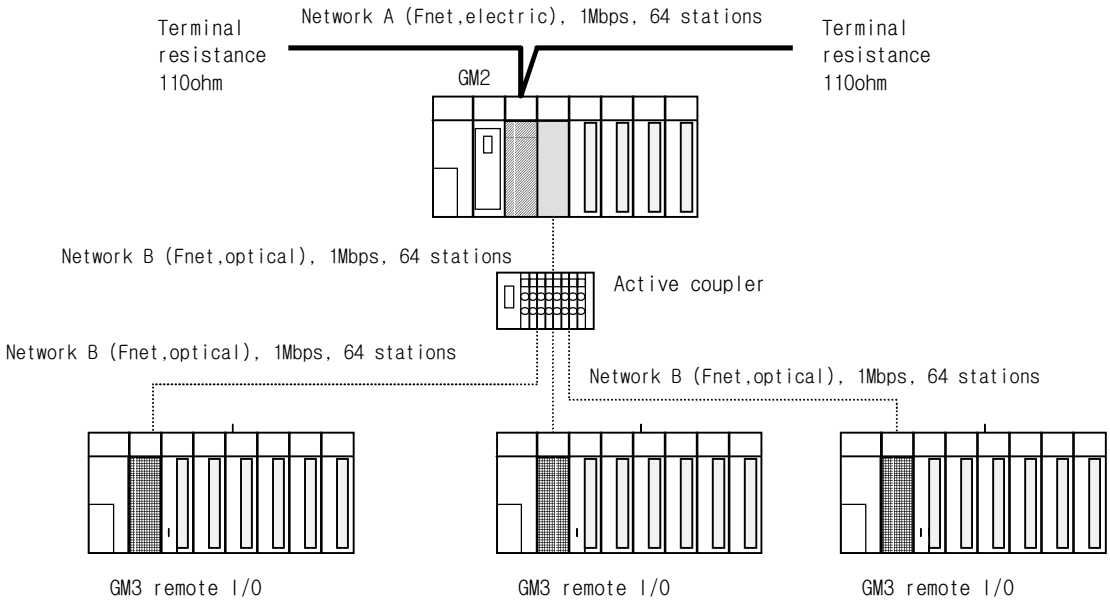
5.2.4 Configuration of Fnet slave system (electric network)



Devices for network A (Fnet electric)		
Type	**Module name**	**Ex. of station number setting**
GM2	G3L-FUEA	0(slot 0)
GM3	G3L-FUEA	2(slot 0)

Devices for network B (Fnet electric)		
Type	**Module name**	**Ex. of station number setting**
GM2	G3L-FUEA	1(slot 1)
GM3 remote I/O	G3L-RBEA	3
GM4 remote I/O	G4L-RBEA	4
Stand-alone remote output	G0L-SMQA	5

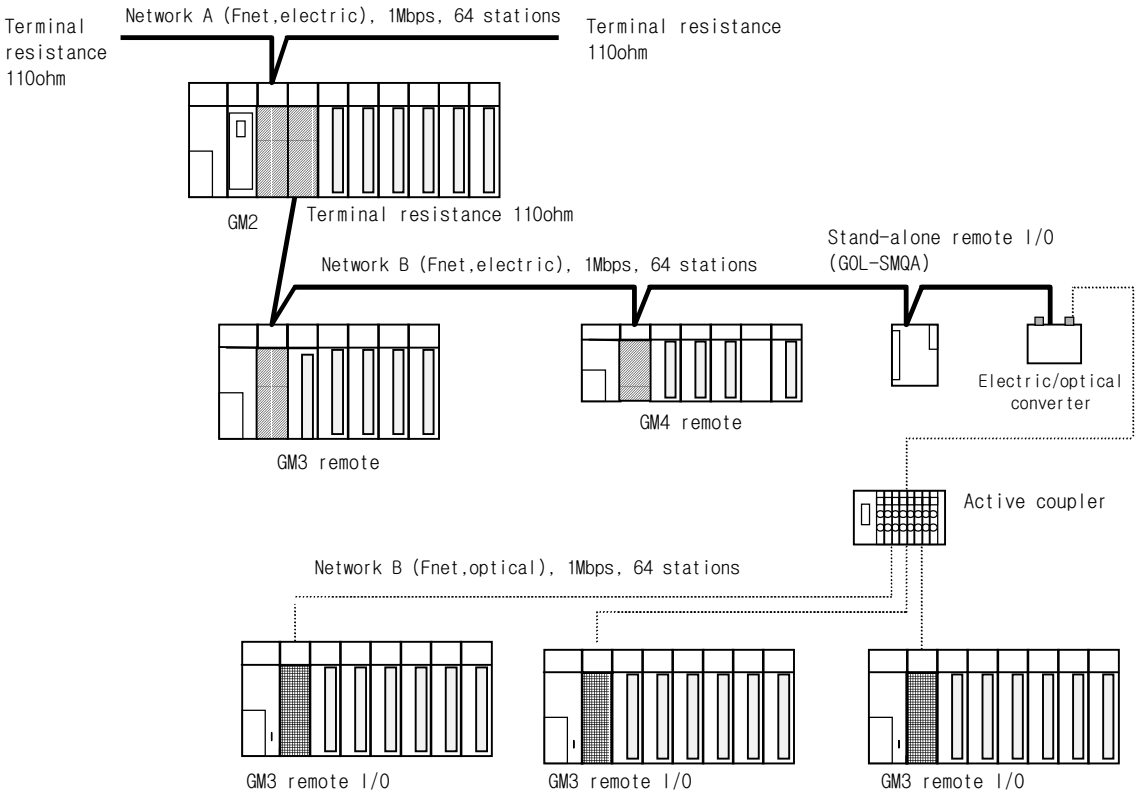
5.2.5 Configuration of Fnet slave system (optical network)



Devices for network A (Fnet ,electric)		
Type	**Module name**	**Ex. of station number setting**
GM2	G3L-FUEA	0(slot 0)

Devices for network B (Fnet ,optical)		
Type	**Module name**	**Ex. Of station number setting**
GM2	G3L-FUOA	1(slot 1)
GM3 remote I/O	G3L-RBOA	2
GM3 remote I/O	G3L-RBOA	3
GM3 remote I/O	G3L-RBOA	4
Active coupler	G0L-FACA/FABA/FAPA	Not available

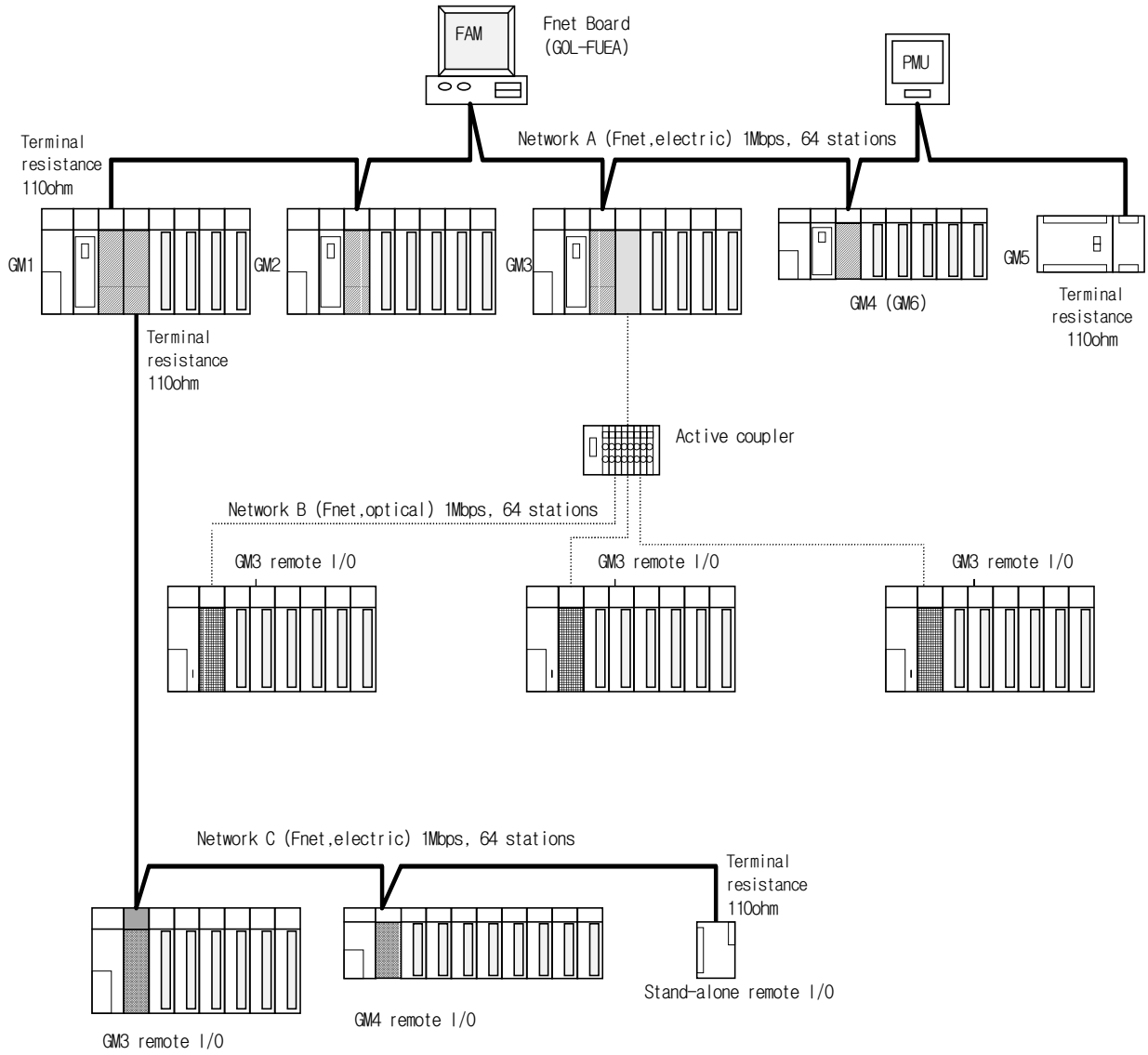
5.2.6 Configuration of Fnet slave system (electric/optical network)



Devices for network A (Fnet electric)		
Type	**Module name**	**Ex. of station number setting**
GM2	G3L-FUEA	0(slot 0)

Devices for network B (Fnet)					
Electric			**Optical**		
Type	**Module name**	**Ex. of station number setting**	**Type**	**Module name**	**Ex. of station number setting**
GM2	G3L-FUEA	1(slot 0)	GM3 remote I/O	G3L-RBOA	5
GK3 remote I/O	G3L-RBEA	2	GM3 remote I/O	G3L-RBOA	6
GK3 remote I/O	G4L-RBEA	3	GM3 remote I/O	G3L-RBOA	7
Stand-alone remote output	G0L-SMQA	4	Electric/optical converter	G0L-FOEA	Not available
			Active coupler	G0L-FACA/ FABA/FAPA	Not available

5.2.7 Configuration of Fnet combined system (electric/optical network)



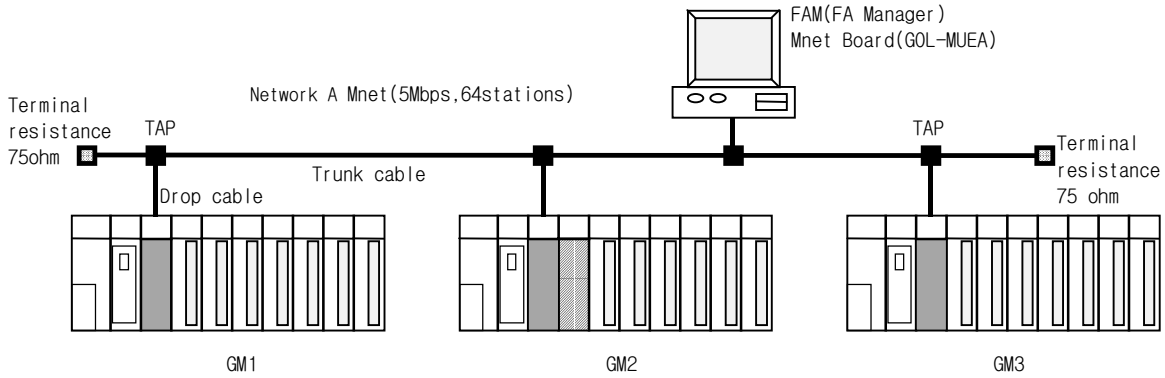
Devices for network A (Fnet, electric)		
Type	**Module name**	**Ex. of station number setting**
FAM	G0L-FUEA	0
GM1	G3L-FUEA	1(slot 0)
GM2	G3L-FUEA	3
GM3	G3L-FUEA	4
GM4 (GM6)	G4L-FUEA (G6L-FUEA)	6
GM5	G5L-FUEA	7
PMU-500	PM0-500F	8

Devices for network B (Fnet ,optical)		
Type	**Module name**	**Ex. of station number setting**
GM3	G0L-FUOA	5(slot 1)
GM3 remote I/O	G3L-RBOA	12
GM3 remote I/O	G3L-RBOA	13
GM3 remote I/O	G3L-RBOA	14
Active coupler	G0L-FACA/FABA/FAPA	Not available

Devices for network C (Fnet ,electric)		
Type	**Module name**	**Ex. of station number setting**
GM1	G3L-FUEA	2(slot 1)
GM3 remote I/O	G3L-RBEA	9
GM4 remote I/O	G4L-RBEA	10
Stand-alone remote output	G0L-SMQA	11

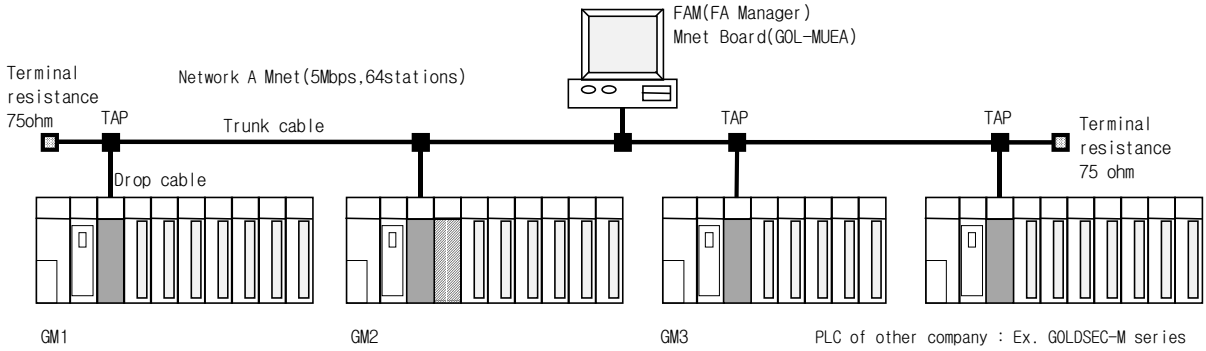
5.3 Mnet network system

5.3.1 System configuration of Mnet



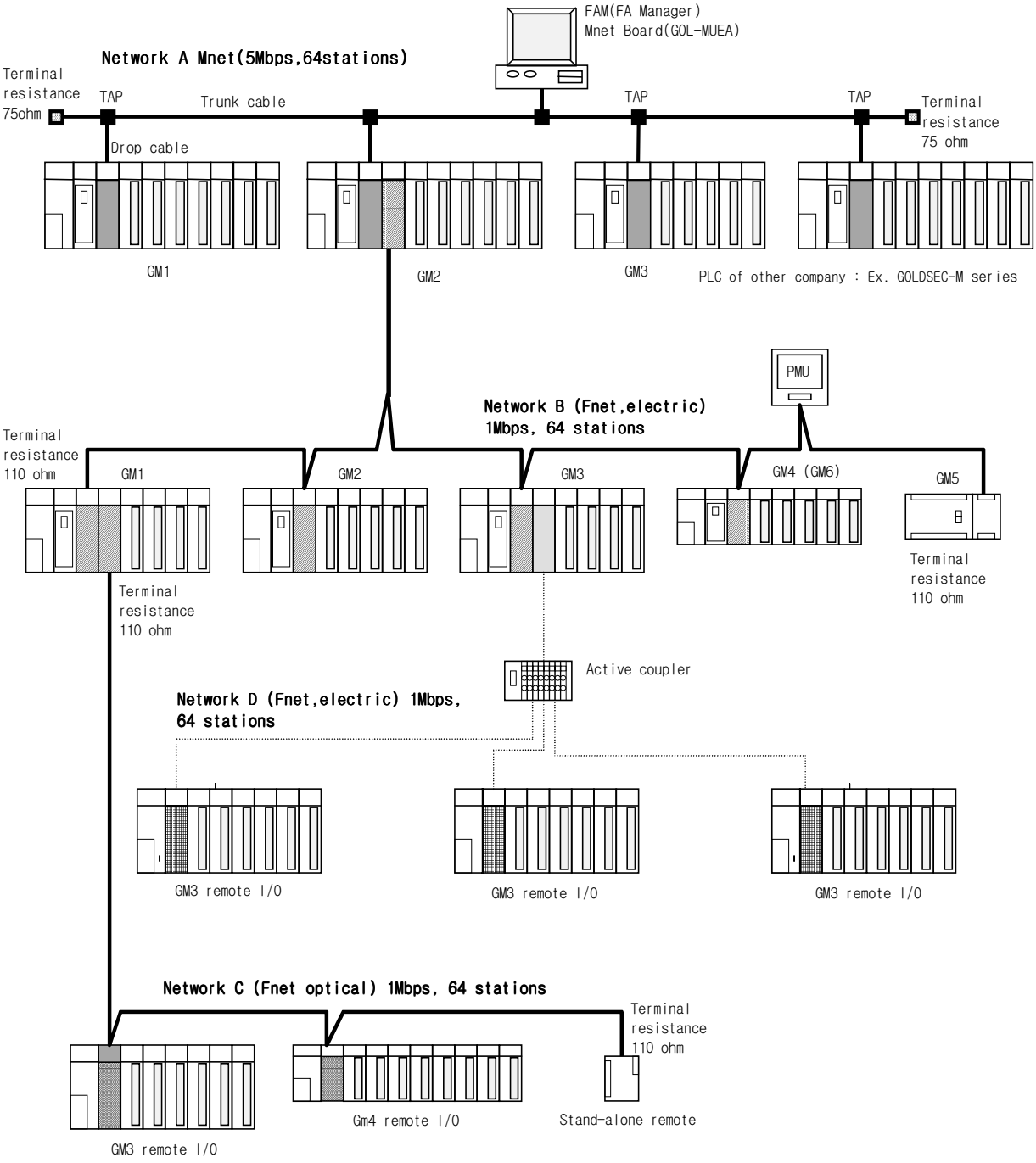
Devices for network A (Mnet)			
Type	**Module name**	**Ex. of HS station number setting**	**Ex. of MAC station number**
FAM	G0L-MUEA	0	16# 00E091000000
GM1	G3L-MUEA	1	16# 00E091000001
GM2	G3L-MUEA	2	16# 00E091000002
GM3	G3L-MUEA	3	16# 00E091000003

5.3.2 System configuration of Mnet (including other company's product - Ex. GOLDSEC-M series)



Devices for network A (Mnet)			
Type	**Module name**	**Ex. of station number setting for *high speed link* communication**	**Ex. of MAC station number for *function block* communication**
FAM	G0L-MUEA	0	16# 00E091000000
GM1	G3L-MUEA	1	16# 00E091000001
GM2	G3L-MUEA	2	16# 00E091000002
GM3	G3L-MUEA	3	16# 00E091000003
Other Company	MJ71M51CM1	Not available	16# 1200F2243202

5.4 Combined system of Fnet and Mnet



Devices for network A (Mnet)			
Type	**Module name**	**Ex. of HS station number setting**	**Ex. of MAC station number**
FAM4.0	G0L-MUEA	0	16# 00E091000000
GM1	G3L-MUEA	1	16# 00E091000001
GM2	G3L-MUEA	3(slot 0)	16# 00E091000002
GM3	G3L-MUEA	4	16# 00E091000003
Other company	MJ71M51CM1	5	16# 1200F2249A04

Devices for network B (Fnet, electric)		
Type	**Module name**	**Ex. of station number setting**
GM2 of network A	G3L-FUEA	2(slot 1)
GM1	G3L-FUEA	6(slot 0)
GM2	G3L-FUEA	9
GM3	G3L-FUEA	11(slot 0)
GM4 (GM6)	G4L-FUEA (G6L-FUEA)	12
GM5	G5L-FUEA	13
PMU-500	PM0-500F	14

Devices for network C (Fnet, electric)		
Type	**Module name**	**Ex. of station number setting**
GM1 of network B	G3L-FUEA	7(slot 1)
GM3 remote I/O	G3L-RBEA	15
GM4 remote I/O	G4L-RBEA	16
Stand-alone remote output	G0L-SMQA	17

Devices for network D (Fnet, optical)		
Type	**Module name**	**Ex. of station number setting**
GM3 of network B	G3L-FUOA	10(slot 1)
GM3 remote I/O	G3L-RBOA	18
GM3 remote I/O	G3L-RBOA	19
GM3 remote I/O	G3L-RBOA	20
Active coupler	G0L-FACA	Not available