

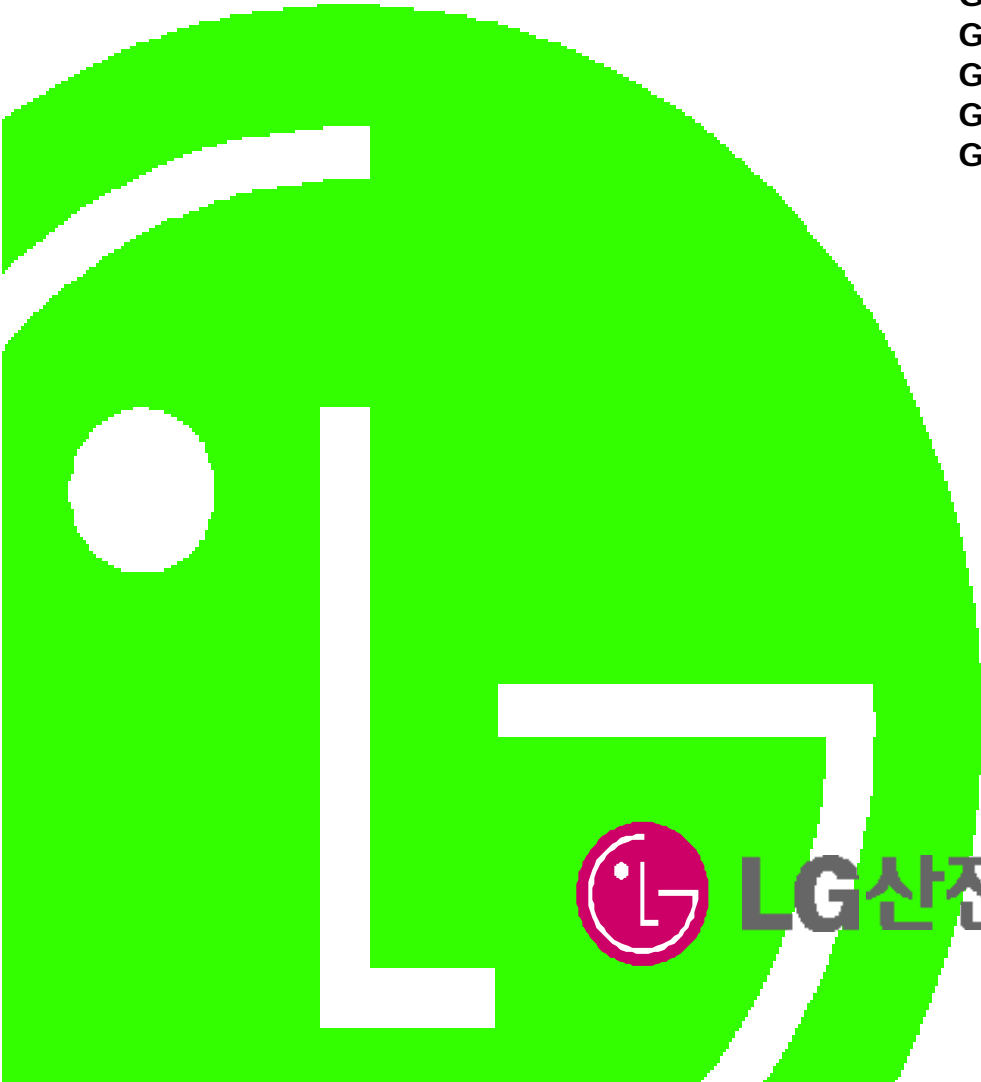


LG

Fnet I/F /

**GLOFA-GM**

- GOL-FREA
- GOL-FOEA
- GOL-AD3A
- GOL-DA3I
- GOL-FABA
- GOL-FACA
- GOL-FADA
- GOL-SMQA
- GOL-SMIA
- GOL-SMHA



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1

---

1

1.1

## GLOFA PLC Fieldbus

- GLOFA GMWIN
- GLOFA PLC
- GLOFA-GM Fnet(Fieldbus)/Mnet(Mini-MAP)

1.2

		<ul style="list-style-type: none"> <li>0 ~ 55°C 가</li> </ul>
		<ul style="list-style-type: none"> <li>가</li> </ul>
		<ul style="list-style-type: none"> <li>가</li> </ul>
		<ul style="list-style-type: none"> <li>ON/OFF</li> <li>ON</li> </ul>
		<ul style="list-style-type: none"> <li>가</li> </ul>
		<ul style="list-style-type: none"> <li></li> </ul>
가		<ul style="list-style-type: none"> <li>가 가</li> </ul>
		<ul style="list-style-type: none"> <li>가 가</li> </ul>
EMC		<ul style="list-style-type: none"> <li></li> </ul>
		<ul style="list-style-type: none"> <li>가</li> <li>Power</li> </ul>

1.3

1.3.1

- 1) 가 .
- 2) 1Mbps 750m( 3km) 가 , ( 6  
가 ) 5.25km( 21km) 가
- 3) ASIC 가 , .
- 4) (GOL-FREA, GOL-FAPA)
- 5) (GOL-FREA, GOL-FOEA, GOL-FACA)

[ 1] GLOFA Fnet  
CIM 가  
IEC/ISA Fieldbus (Open) .  
, ,  
가 ( )  
( )  
, / .

[ 2] GMWIN 3.0 .



1.3.2

GLOFA PLC Fnet( ) [ 1.1]

[ 1.1] GLOFA PLC

GLOFA Fnet	(FMM)	( )	GOL-FUEA	PC	ISA	
			G3L-FUEA	GM1/2/3		
			G4L-FUEA	GM4		
			G6L-FUEA	GM6		
				G3L-FUOA	GM1/2/3	
	(FSM)	( )	G3L-RBEA	GM3	CPU	
			G4L-RBEA	GM4	CPU	
			GOL-SMQA		16	
			GOL-SMIA		DC 16	
			GOL-SMHA		8 / 8	
			GOL-AD3A		8	
			GOL-DA3I		8	
			G3L-RBOA	GM3	CPU	
	(FOU)			GOL-FREA		
		/		GOL-FOEA		/
				GOL-FABA		
				GOL-FAPA		
				GOL-FACA		
				GOL-FADA		

[ 1]				
[ 2]	8	GOL-FACA	5	GOL-FACA
	3	GOL-FADA( )가		

2.1

GLOFA-GM

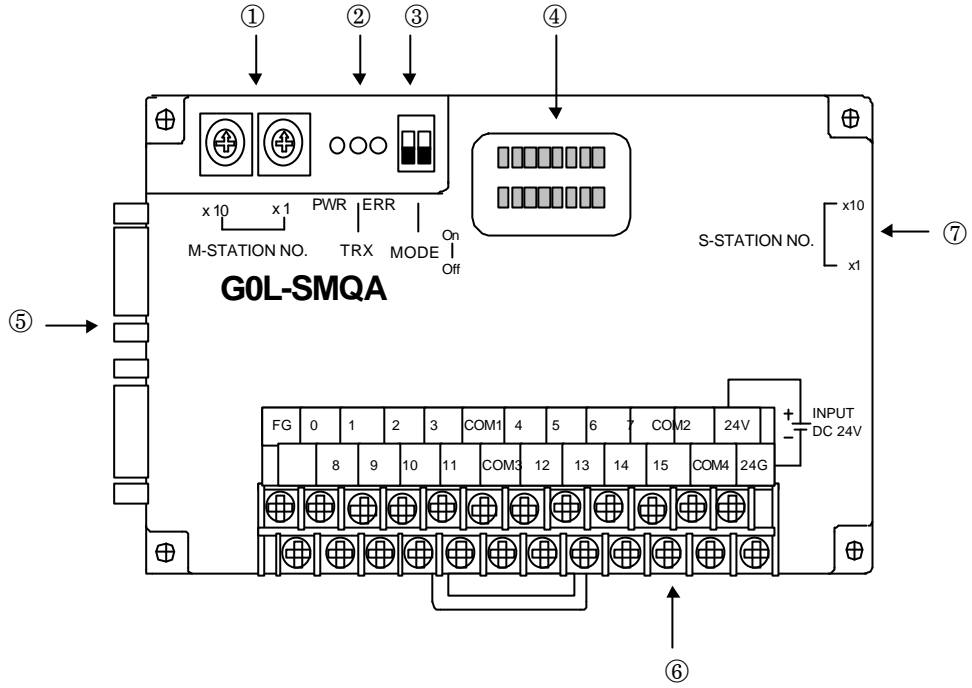
[ 2.1 ]

No.							
1		0	+55				
2		-25	+70				
3		5	95%RH,				
4		5	95%RH,				
5			가		X,Y,Z 10 IEC 1131-2		
		10	f < 57 Hz	-		0.075mm	
		57	f 150 Hz	9.8 m/s <sup>2</sup> (1G)		-	
				가			
		10	f < 57 Hz	-		0.035mm	
		57	f 150 Hz	4.9 m/s <sup>2</sup> (0.5G)		-	
6		*	가 : 147 m/s <sup>2</sup> (15G)		IEC 1131-2		
		*	가 : 11 ms				
		*	: (X,Y,Z 3 3 )				
7				± 1,500V	LG		
				: 4 kV( )	IEC 1131-2, IEC 801-2		
				27 ~ 500 MHz, 10 V/m	IEC 1131-2, IEC 801-3		
		/		(24V ) (24V )	IEC 1131-2, IEC 801-4		
			2 kV	1 kV	0.25 kV		
8			가 , 가				
9		2000m					
10		2					
11							

[ 1 ] IEC(International Electrotechnical Commission : )  
:  
[ 2 ] : , 2

2.2

2.2.1 GOL-SMQA



①	0 ~ 63 (10 )
x 10	
x 1	

② LED	
PWR	( : )
TRX	( : / )
ERR	/ ( : )

③		
1	Off	( )
	On	( )
2		

④ LED DISPLAY	/
GOL-SMQA	16

⑤	9-PIN
CON1/CON2	( )

⑥		
GOL- SMQA	0 ~ 15	
	COM1 ~ COM4	Common (4 COM)
	FG	FG (Frame ground)
	24V	(+ )24V DC
	24G	(- )24V DC

⑦	0 ~ 63 (10 )
× 10	
× 1	

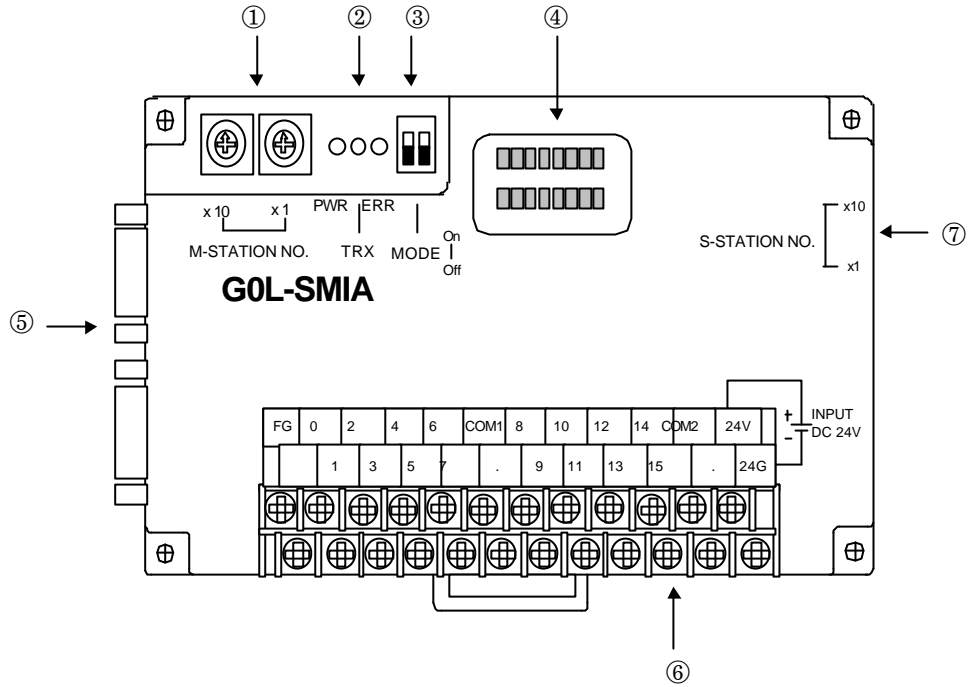
[ 1] LED 가

[ 2] GMWIN '0' 가

가 'Off' . GMWIN

GLOFA (GLOFA-GM Fnet(Fieldbus)/Mnet(Mini-MAP))

2.2.2 GOL-SMIA



①	0 ~ 63 (10 )
x 10	
x 1	

② LED	
PWR	( : )
TRX	( : / )
ERR	/ ( : )

③	
---	--

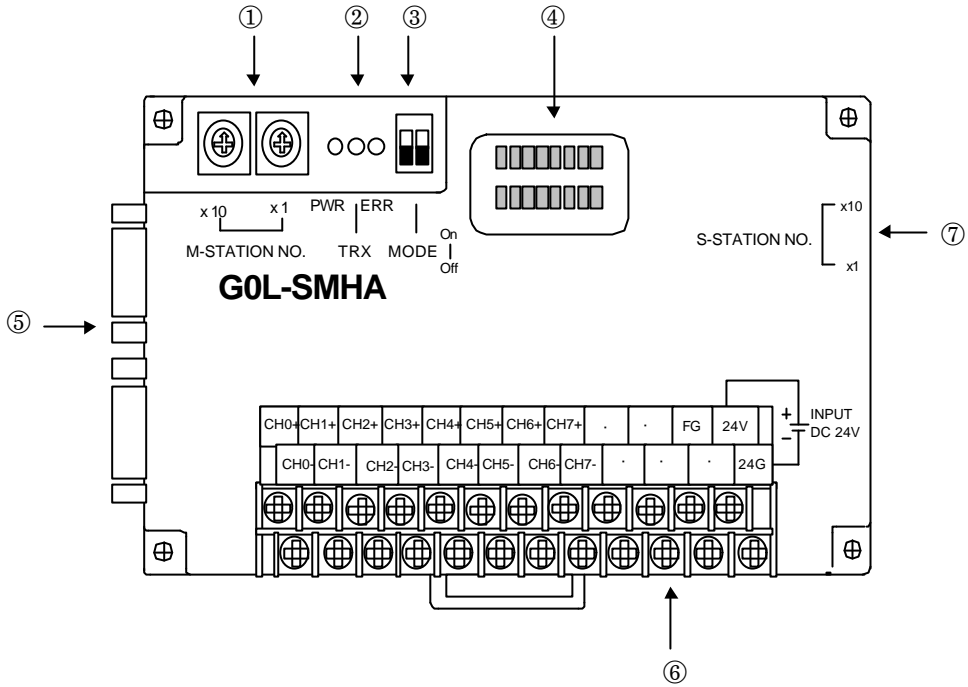
④ LED DISPLAY	/
GOL-SMIA	16

⑤	9-PIN
CON1/CON2	( )

⑥		
GOL- SMIA	0 ~ 15	
	COM1 ~ COM2	Common (8 COM)
	FG	FG (Frame ground)
	24V	(+)24V DC
	24G	(-)24V DC

⑦		0 ~ 63 (10 )
	× 10	
	× 1	

2.2.2.3 GOL-SMHA



①	0 ~ 63 (10 )
x 10	
x 1	

② LED	
PWR	( : )
TRX	( : / )
ERR	/ ( : )

③	( )
1	Off ( )
	On ( )
2	

④ LED DISPLAY	/
GOL-SMHA	8 /8

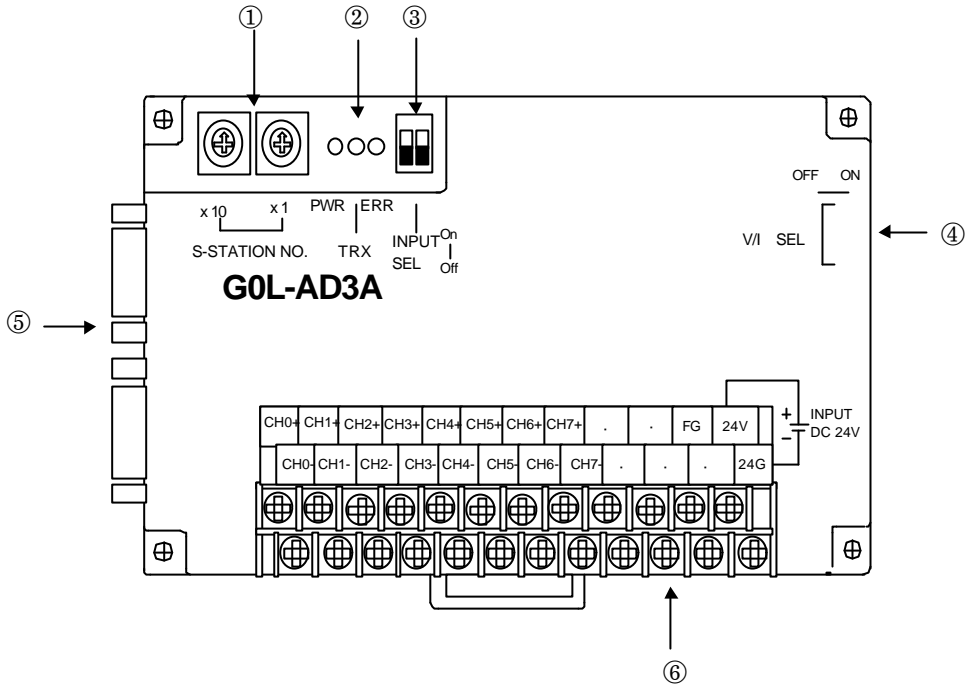
⑤	9-PIN
CON1/CON2	( )

⑥		
GOL- SMHA	0 ~ 7(DC IN) / 0 ~ 7(RYOUT)	( 8 ) / ( 8 )
	COM1 ~ COM3	Common (COM1: 8 ,COM2/COM3: 4 )
	FG	FG (Frame ground)
	24V	(+)24V DC
	24G	(-)24V DC

⑦	0 ~ 63 (10 )
× 10	
× 1	



2.2.4 GOL-AD3A



①	0 ~ 63 (10 )
x 10	
x 1	

② LED	
PWR	( : )
TRX	( : / )
ERR	/ ( : )

③		( / )
1	2	
OFF	OFF	1 ~ 5V
ON	OFF	-10 ~ 10V
OFF	ON	0 ~ 10V
ON	ON	4 ~ 20mA

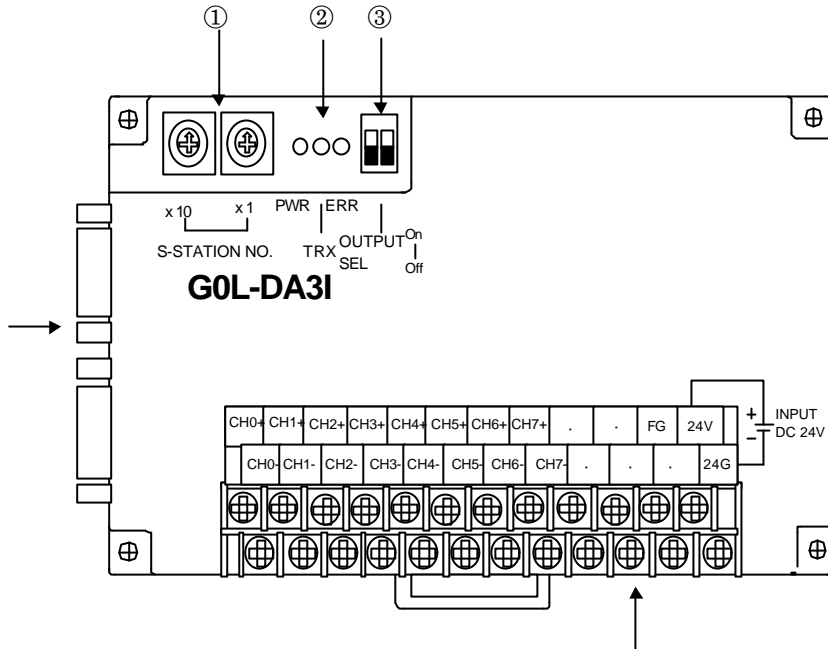
---

/	
ON	4 ~ 20mA ON, ON
OFF	

	9-PIN
CON1/CON2	

CH0-, CH0+ ~ CH7-, CH7+	
FG	FG (Frame ground)
24V	(+)24V DC
24G	(-)24V DC

2.2.5 GOL-DA3I



①	0 ~ 63 (10 )
x 10	
x 1	

② LED	
PWR	( : )
TRX	( : / )
ERR	/ ( : )

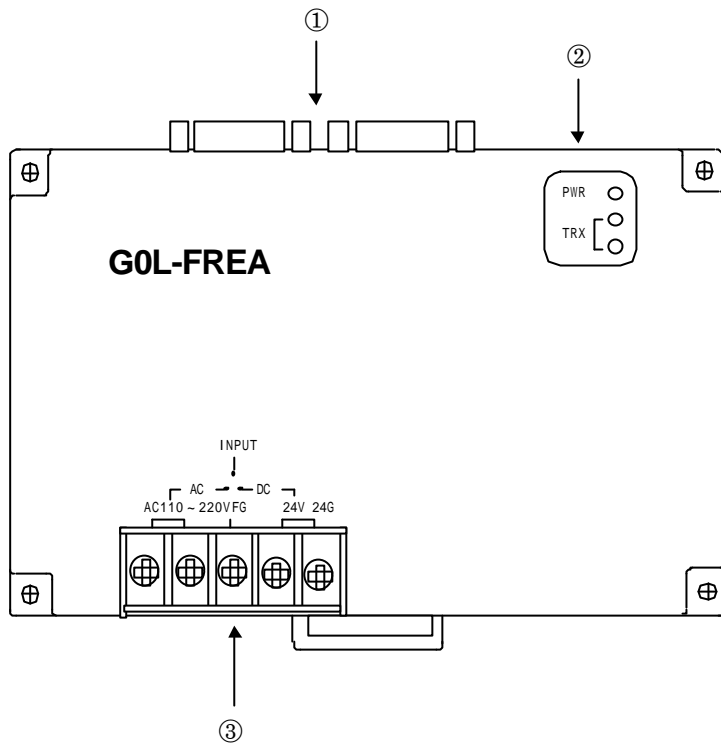
③	CPU STOP	
1	2	
OFF	OFF	
ON	OFF	
OFF	ON	
ON	ON	

---

	9-PIN
CON1/CON2	

CH0- ,CH0+ ~ CH7- ,CH7+	
FG	FG (Frame ground)
24V	(+)24V DC
24G	(-)24V DC

2.2.6 GOL-FREA

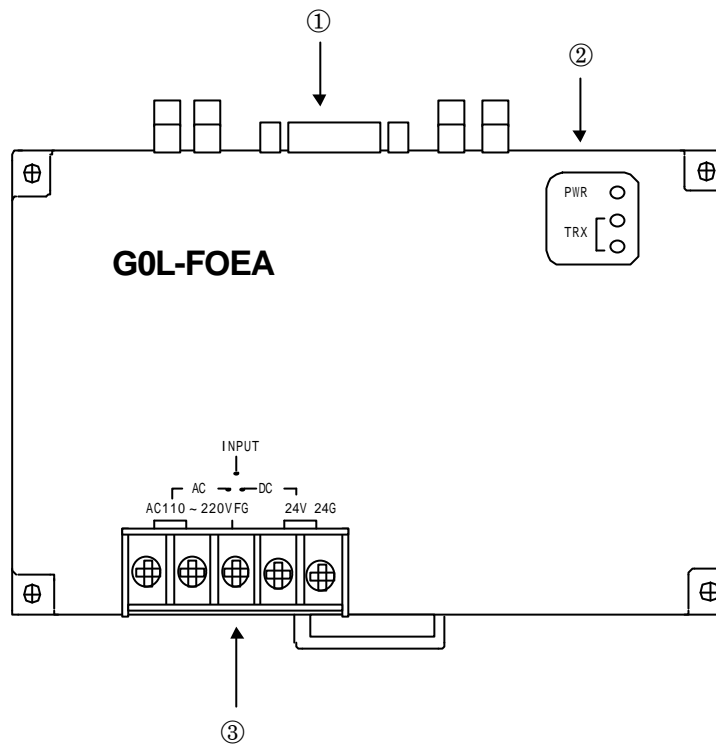


①	( )
---	-----

② LED	
PWR	On
TRX A, B	( : / )

③	
AC110 ~ 220V	AC110V/220V (Free Voltage)
FG	FG (Frame Ground)
24V	(+)24V DC
24G	(-)24V DC

## 2.2.7 GOL-FOEA



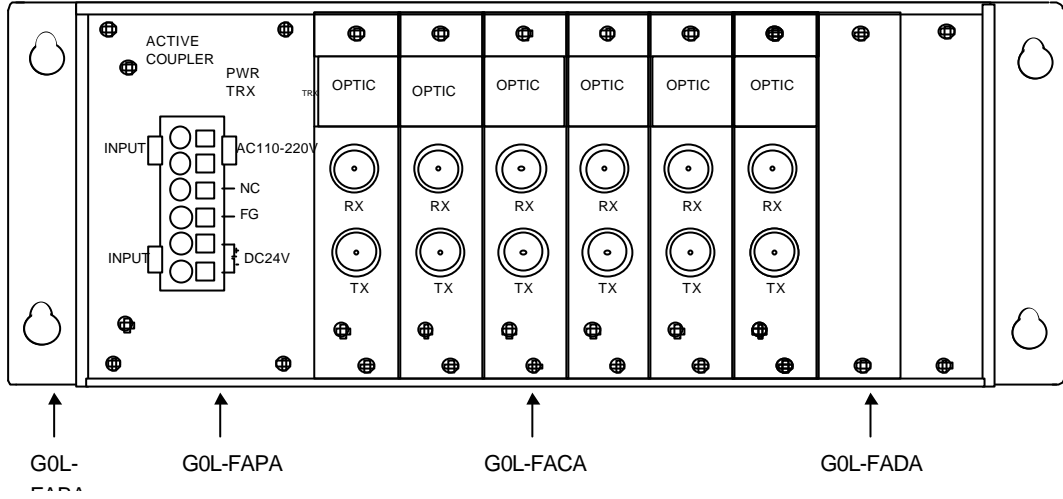
①	( , )
---	-------

② LED	
PWR	On
TRX A, B	( : )

③	
AC110 ~ 220V	AC110V/220V (Free Voltage)
FG	FG (Frame Ground)
24V	(+)24V DC
24G	(-)24V DC

2.2.8 GOL-FACA / GOL-FAPA / GOL-FADA

3가



TX	
RX	

LED	
PWR	On
TRX A, B	( : / )

AC110 ~ 220V	AC110 ~ 220V
NC	
FG	FG ((Frame Ground))
24V	(+)24V DC
24G	(-)24V DC

2.2.9 Fnet LED

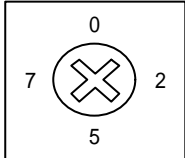
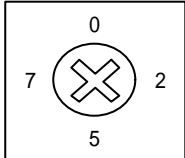
	LED	LED	LED On	LED Off
GOL-SMQA GOL-SMIA	PWR		On	Off
GOL-SMHA GOL-AD3A	TRX			
GOL-DA3I	ERR			

LED

A1. LED

2.2.10 Fnet

1)

GOL-SMQA GOL-SMIA GOL-SMHA GOL-AD3A GOL-DA3I	<p>× 10</p>  <p>× 1</p> 	<p>(1) 0 63 가 (10 )</p> <p>(2)</p> <p>( 0 )</p> <table border="1" data-bbox="909 1176 1308 1332"> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td>× 10</td> <td>10</td> </tr> <tr> <td>× 1</td> <td>1</td> </tr> </tbody> </table>			× 10	10	× 1	1
× 10	10							
× 1	1							

2)

Fnet

Fnet

--	--	--



GOL-SMQA	× 10		(1) 0 63 가 (10 )				
GOL-SMIA			(2)				
GOL-SMHA	× 1		( 0 )				
			<table border="1"> <tr> <td></td> <td></td> </tr> <tr> <td>× 10</td> <td>10</td> </tr> <tr> <td>× 1</td> <td>1</td> </tr> </table>			× 10	10
× 10	10						
× 1	1						

2.2.11 Fnet

1)

Fnet

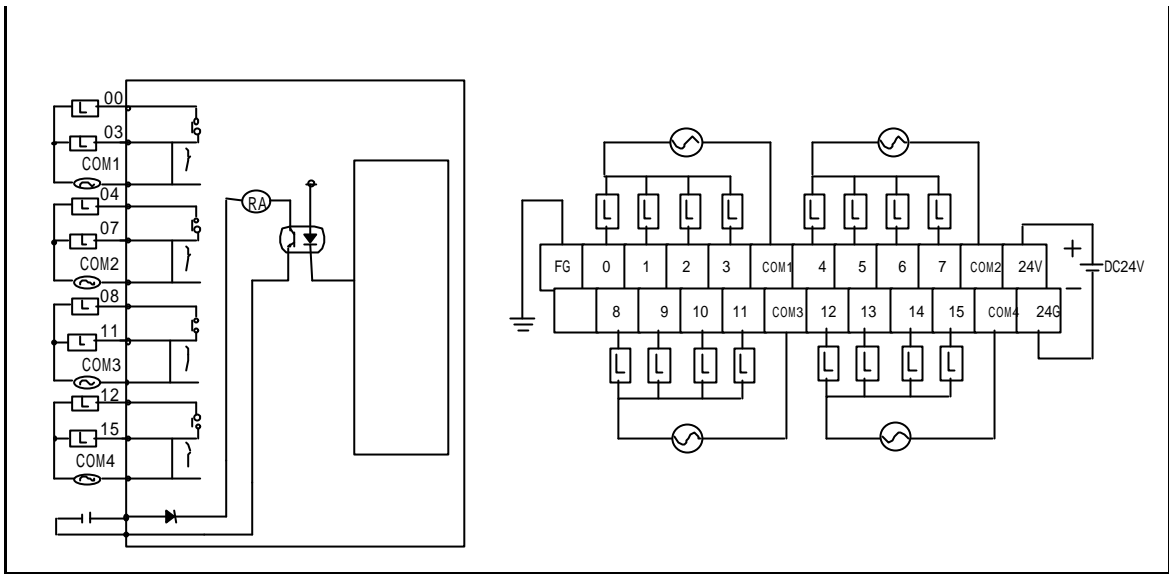
I/O

가

GOL-SMQA		<table border="1"> <tr> <td> </td> <td></td> </tr> <tr> <td>가</td> <td></td> </tr> <tr> <td>(Default Reset )</td> <td></td> </tr> </table>			가		(Default Reset )	
가								
(Default Reset )								
GOL-SMHA		<p>* GMWIN</p>						

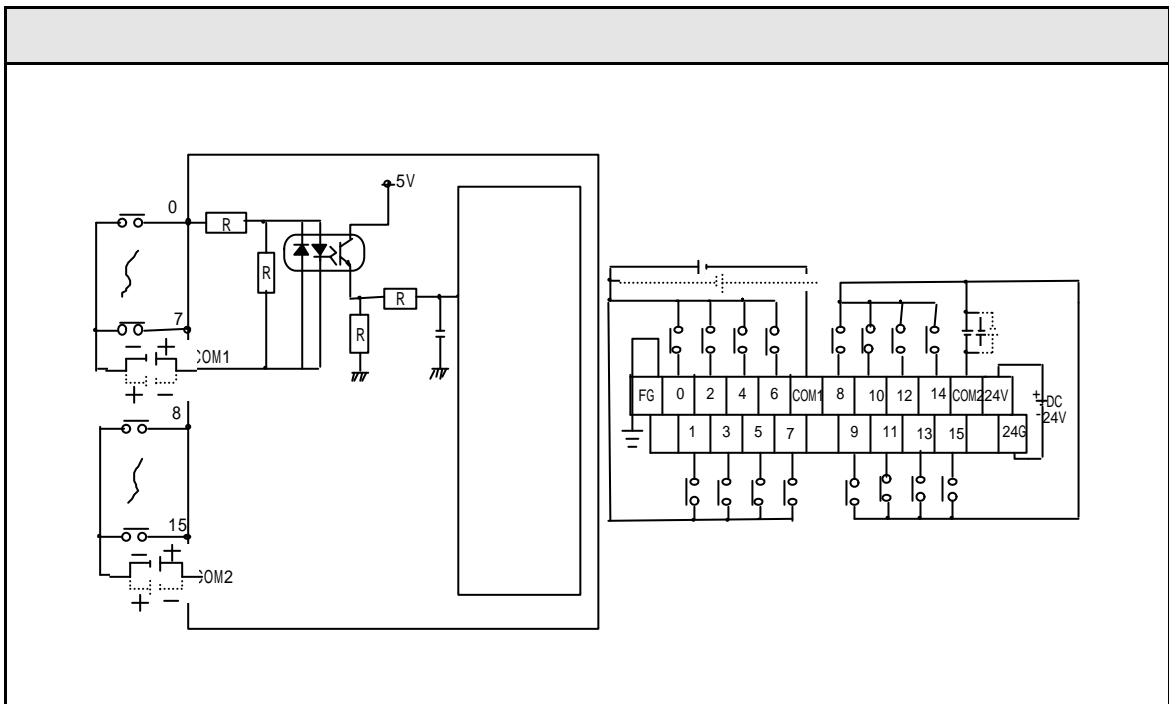
## 2.3 GOL-SMQA

		16
/		1A/ , 2A/4
		DC 5V/1mA
/		AC 250V DC 150V, 3,600 /
	Off On	10ms
	On Off	12ms
		2,000
		/ 10
		AC200V/1.5A, AC240/1A(COS =0.7)20
		AC200V/1A, AC240/0.5A(COS =0.35)20
		DC24V/1A, DC100/0.1A(L/R=7ms)20
		DC 24V ± 10%(Ripple 24V On) ( : 150mA )
		4 /COM
		On LED
		24 (M3 x 6 )
		Photo Coupler



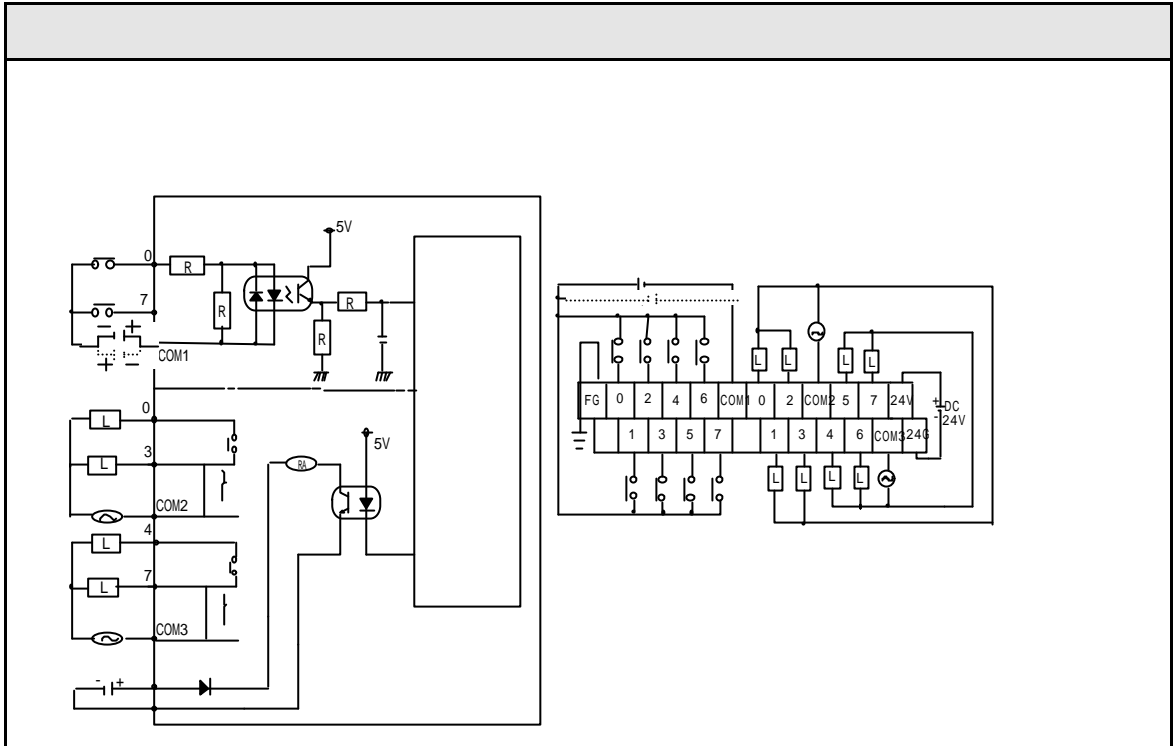
2.4 GOL-SMIA

		DC
		7 ± 2mA/
		DC24V(Ripple 5% )
		100% (8 / 1 COM.) On
On		DC 19V
Off		DC 6V
	Off On	10ms
	On Off	10ms
		8 /COM
		On LED
		24 (M3 x 6 )
		Photo Coupler



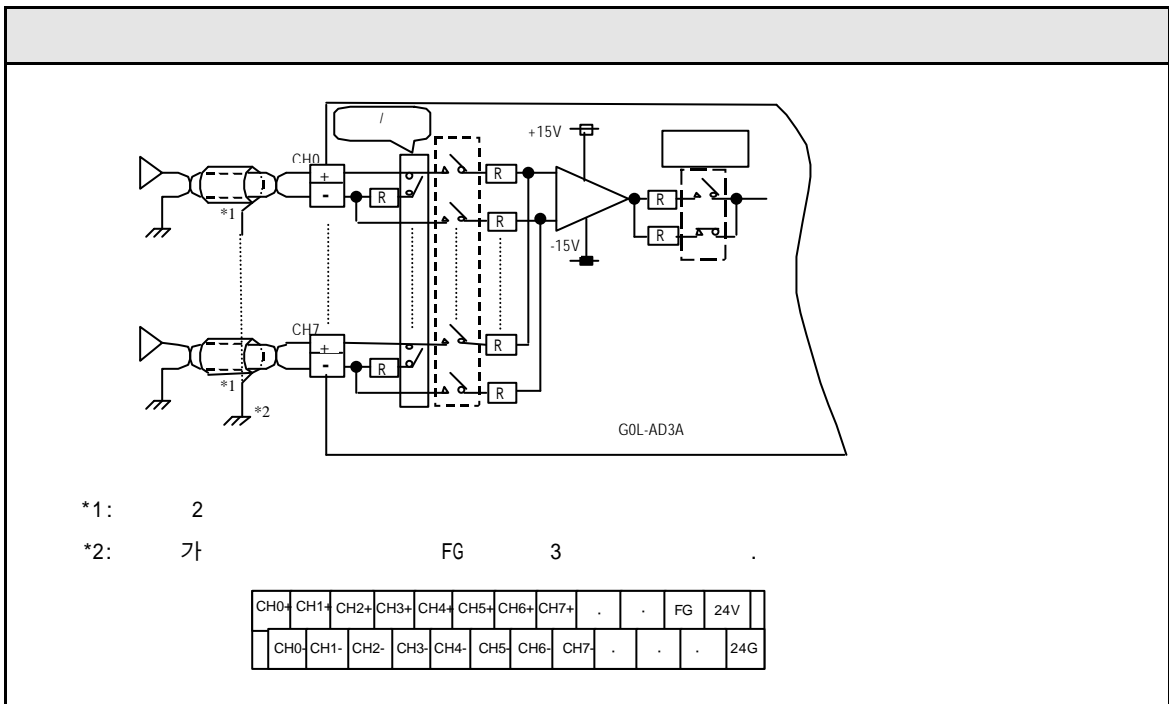
## 2.5 GOL-SMHA /

(DC 24V )		(RELAY )	
	8		8
/	DC24V/ 7 ± 2mA/	/	1A/ 2A/COM DC 5V/1mA
	100% (8 /1COM) On		AC250V, DC150V
			3,600 /
On	DC 19V		3,600 /
OFF	DC 6V		
Off On	10ms	Off On	10ms
		On Off	12ms
On Off	10ms		2,000
			AC200V/1.5A, AC240/1A(COS =0.7)20
			AC200V/1A, AC240/0.5A(COS =0.35)20
			DC24V/1A, DC100/0.1A(L/R=7ms) 20
	8 /COM		4 /COM
	DC24V ± 10%(Ripple 4Vp-p )		
	/ On LED		
	24 (M3 x 6 )		
	Photo Coupler		



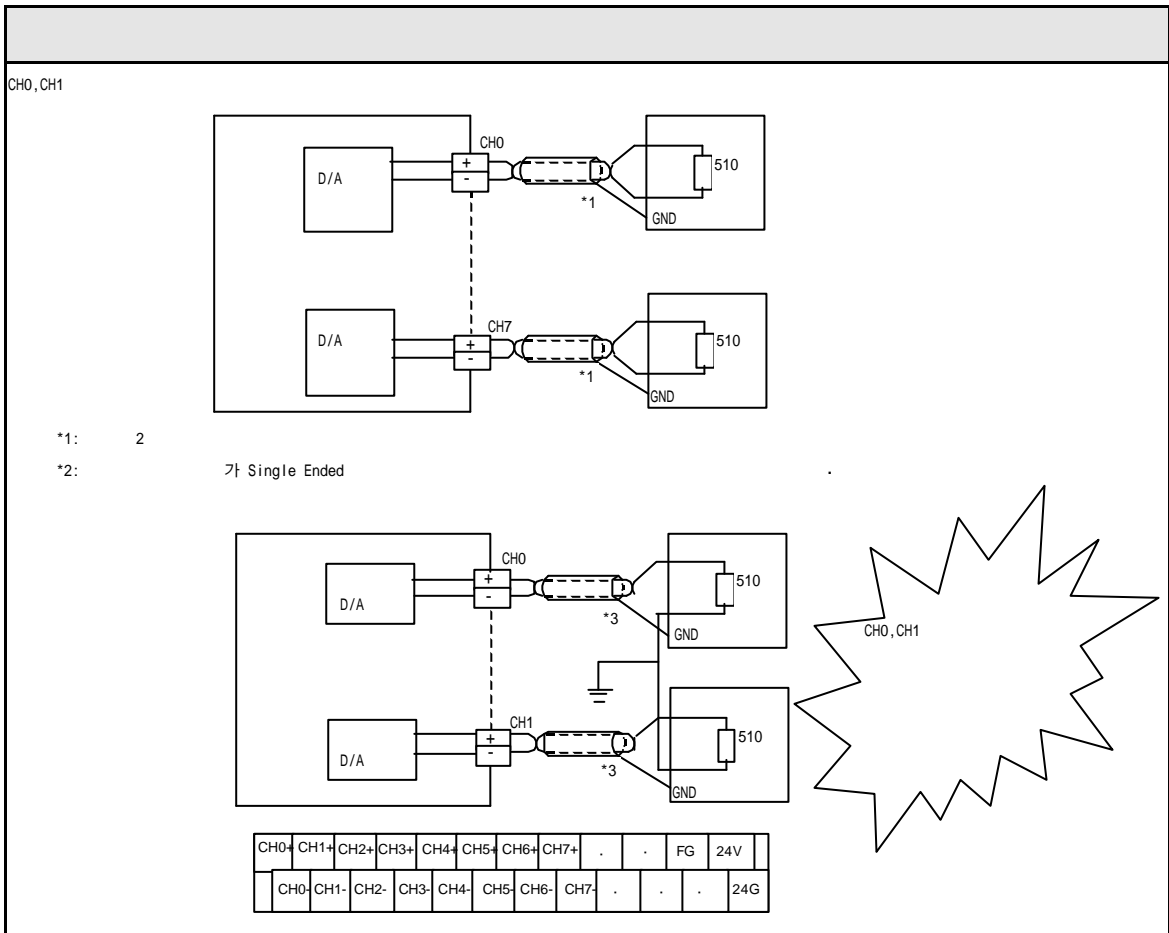
2.6 GOL-AD3A

		1 ~ 5V, 0 ~ 10V, -10 ~ 10V ( 1M $\Omega$ )
		4 ~ 20mA ( 250 )
/		DIP (ON: , OFF: )
		12Bit Binary (0 ~ 4000)
	1 ~ 5V	1mV(1/4000)
	0 ~ 10V	2.5mV(1/4000)
	-10 ~ 10V	5mV(1/4000)
	4 ~ 20mA	4 $\mu$ A(1/4000)
		0.5% [ (Full Scale) ]
		+20mS
		: $\pm$ 15V, : 25mA
		8 /
		24 (M3 x 6 )
		Photo Coupler



2.7 GOL-DA31

	12Bit Binary (0 ~ 4000)
	4 ~ 20mA ( :510 )
	4uA(1/4000)
	0.5%[(Full Scale)]
	+5mS
	: ± 15V, : 25mA
	8 /
	24 (M3 x 6 )
	Photo Coupler





## 3.1.1 Fnet

Fnet : GOL-SMQA, GOL-SMIA, GOL-SMHA, GOL-AD3A, GOL-DA3I

## [ 3.1] Fnet

		1Mbps
		2
		750 m
		750 m × 6 = 5.25 km
		Link Master Class + Remote Slave Class = 64
		Manchester Biphase-L
		CRC-CCITT    Time Over    Retry
		256
	RAS	/
		9
		DC 24V
	GOL-SMQA	290mA
	GOL-SMIA	120mA
	GOL-SMHA	280mA
	GOL-AD3A	150mA
	GOL-DA3I	300mA
	GOL-SMQA	470g
	GOL-SMIA	350g
	GOL-SMHA	380g
	GOL-AD3A	340g
	GOL-DA3I	350g

## 3.1.2 Fnet

Fnet : GOL-FREA, GOL-FOEA, GOL-FACA

## 1) (GOL-FREA)

[ 3.2]

		1Mbps
		Manchester Biphase-L
( )		
		750m
		6
		5.25km( 6 )
		$CRC\ 16 = X^{15} + X^{14} + X^{13} + \dots + X^2 + X + 1$
		DC 24V, AC 110/220V
	110V	24mA
	220V	102mA
		430g

## 2) / (GOL-FOEA)

[ 3.3] /

		1Mbps
		Manchester Biphase-L
( )		,
		3km( )/750m( )
		Regenerating, Reshaping
		$CRC\ 16 = X^{15} + X^{14} + X^{13} + \dots + X^2 + X + 1$
		DC 24V, AC 110/220V
	110V	26mA
	220V	128mA
		432g

3) (GOL-FACA)

[ 3.4]

	GOL-FACA	GOL-FAPA	GOL-FAPA
	1Mbps		
	Manchester Biphase-L		
( )			
	Regenerating, Reshaping		
	CRC 16 = $X^{15} + X^{14} + X^{13} + \dots + X^2 + X + 1$		
	3km	-	-
	66g	1,242g	252g

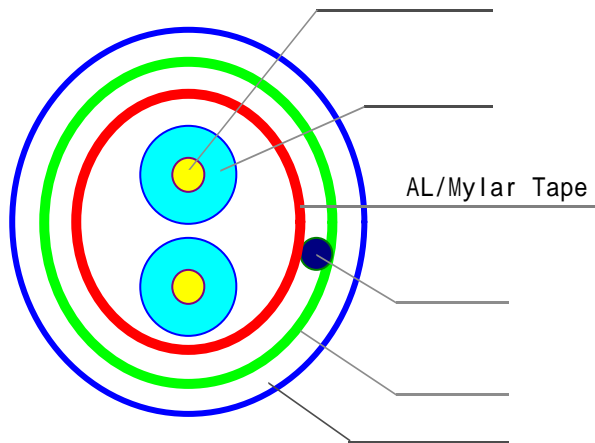
3.2

3.2.1 Fnet

: GOC-Txxx (xxx , :m)  
 ) 10m : GOC-T010

[ 3.5] Fnet

Low Capacitance Lan Interface Cable			
LIREV-AMESB/LG			
2*1.0 mm (GS 92-3032,18 AWG)			
	$\Omega$ /km	21.8	
(DC)	V/min	500V 1	
	MEGA $\Omega$ -km	1,000	
	pF/m	45	1 kHz
	$\Omega$	120 $\pm$ 12	10MHz
	CORE	2	
	AWG	18	
	NO. /mm	1/1.0	
	mm	1.0	
	mm	0.9	
	mm	2.8	

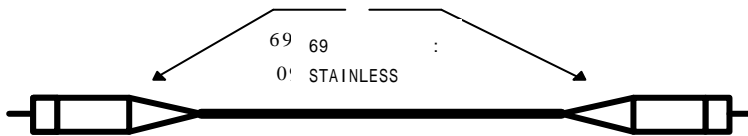


3.2.2 Fnet

: GOC-Fxxx (xxx , :m)  
 ) 10m : GOC-F010

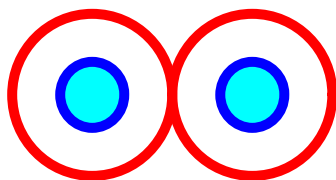
[ 3.6]

	Y22	: (for Bi-Directional Communication)
	D22	: (for Bi-Directional Communication)
ST - Type		
(HP)		
		( )
		( )
	Y22	D22
(mm)	2.9 * 5.8	4.8
Loaded(cm)	5.0	7.5
	Unloaded(cm)	3.0
(kg/m)	16	21
(Core)	62.5	$\mu\text{m}$
(Cladding)	125	$\mu\text{m}$
	5	dB/km
	4.5	dB/km

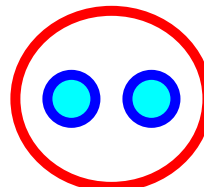


Y226969

ST, STAINLESS



(Y22 )



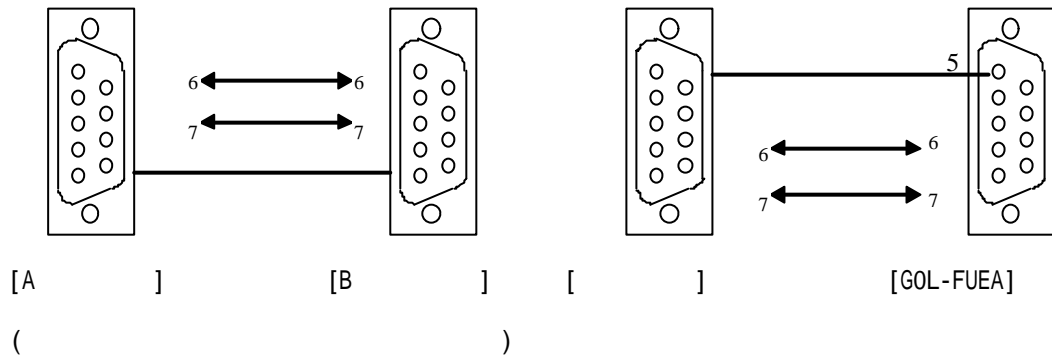
(D22 )

3.3

3.3.1

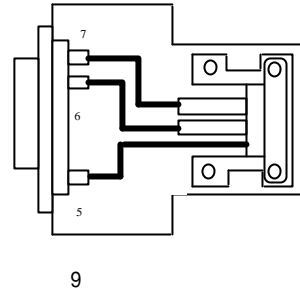
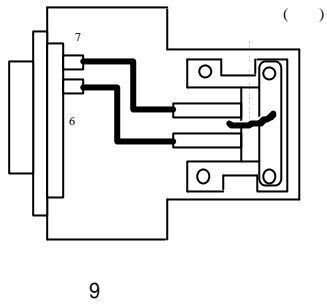
6, 7, A  
 6, B 6, 7, 7  
 ( : )  
 가 . GOL-FUEA(PC Fnet  
 ) [ 3.1] GOL-  
 FUEA 5 .

[ 3.1] Fnet ( )



3.3.2

( )  
 [ 3.2] .  
 (GOL-FUEA  
 [ 3.3] 5 . CON1 CON2 5  
 가 ) .

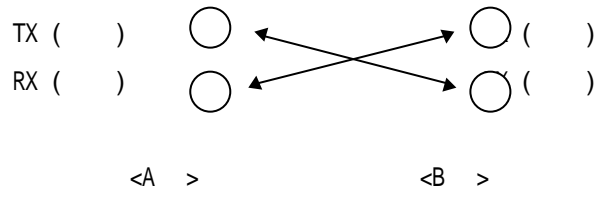


[ 3.2] Fnet

[ 3.3] GOL-FUEA

3.3.3

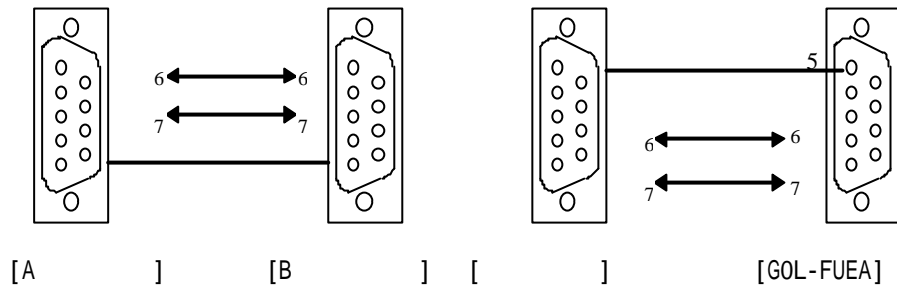
, TX( ), A TX( ) -> B A RX( ) -> B RX( )



3.4

3.4.1 Fnet

- : 110 W, 1/2 W
- :

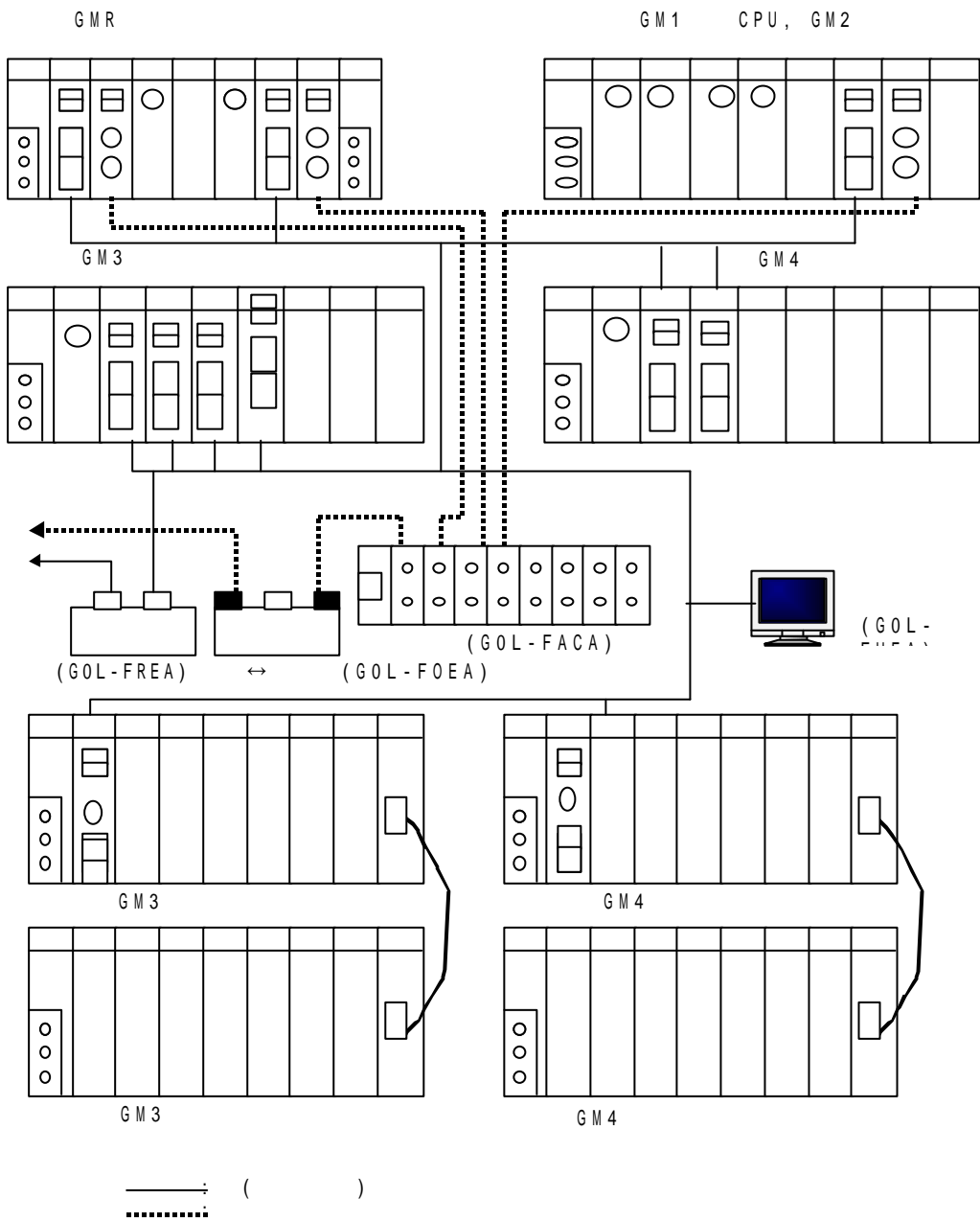


- ➔ (110 ,1/2W)  
( ) .
- ➔ / (GOL-FOEA)  
(GOL-FREA)
- ➔ .



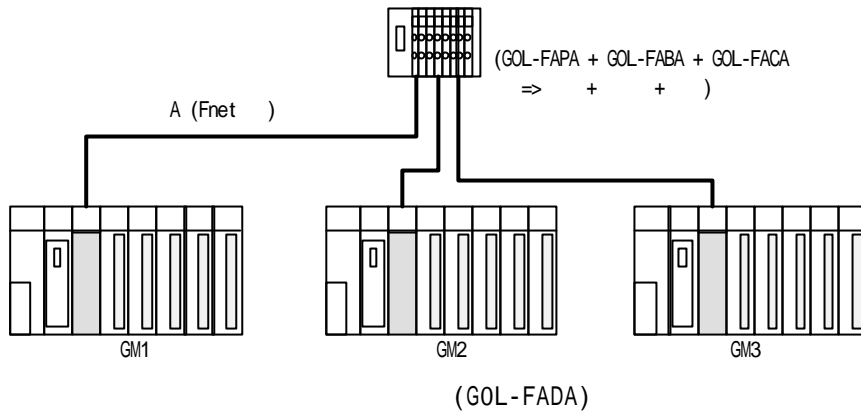
4.1

GLOFA Fnet ( )  
가



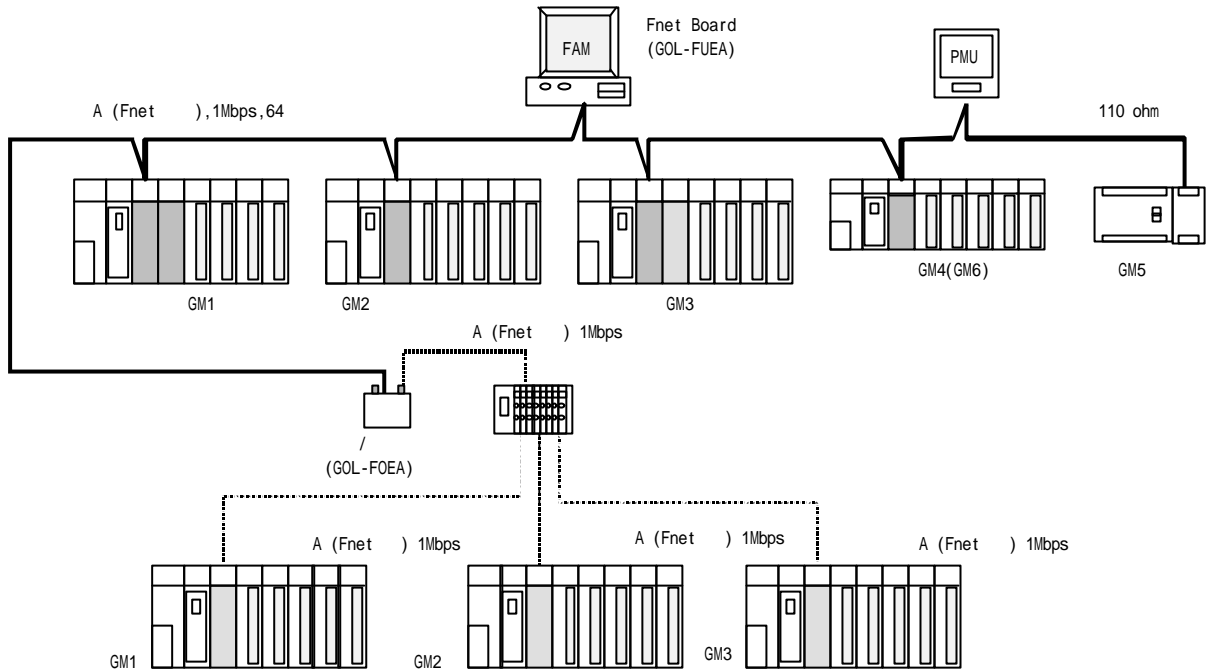
4.2

4.2.1 ( FMM )



A ( Fnet )			
GM1	G3L-FU0A	0	
GM2	G3L-FU0A	1	→ ( )
GM3	G3L-FU0A	2	→ ( )
	GOL-FACA/FABA/FAPA		

4.2.2 / ( FMM )



A ( Fnet )					
Fnet			Fnet		
FAM	GOL-FUEA	0	GM1	G3L-FUOA	7
GM1	G3L-FUEA	1 ( 0 )	GM2	G3L-FUOA	8
GM2	G3L-FUEA	2	GM3	G3L-FUOA	9
GM3	G3L-FUEA	3	/	GOL-FOEA <sup>[ 1 ]</sup>	
GM4 (GM6)	G4L-FUEA (G6L-FUEA)	4		GOL-FACA <sup>[ 2 ]</sup>	
GM5	G5L-FUEA	5			
PMU-500	PMO-500F	6			

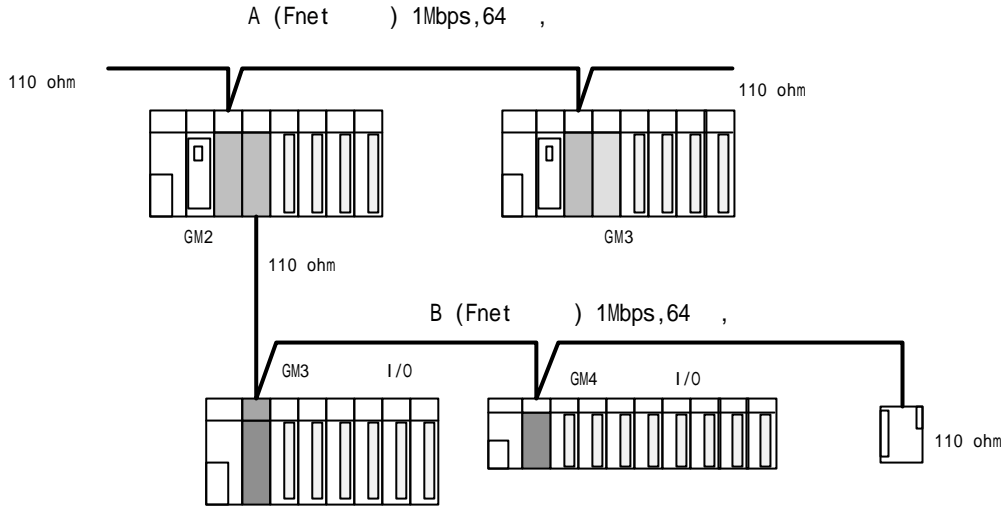
[ 1 ] /

[ 2 ] GOL-FAPA( )+GOL-FABA( )+GOL-FACA( )

8

(GOL-FADA)

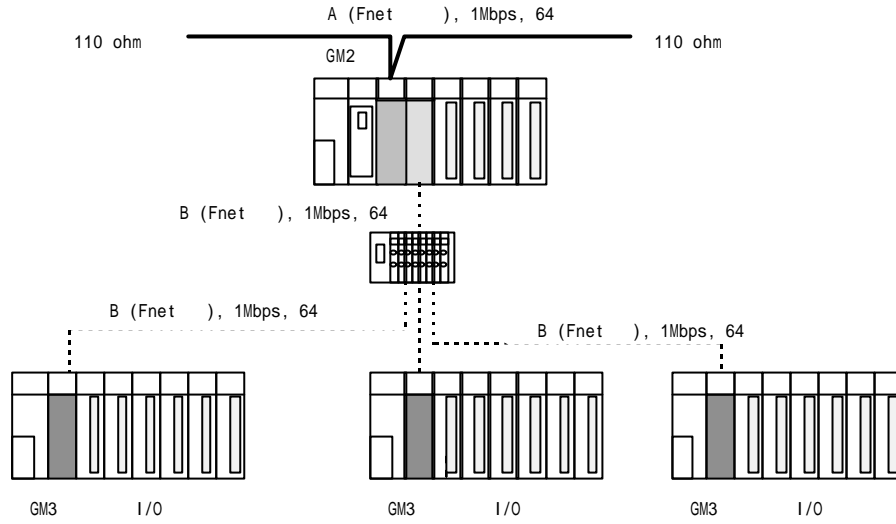
4.2.3 (FSM)



A ( Fnet )		
GM2	G3L-FUEA	0 ( 0 )
GM3	G3L-FUEA	2 ( 0 )

B ( Fnet )		
GM2	G3L-FUEA	1 ( 1 )
GM3 I/O	G3L-RBEA	3
GM4 I/O	G4L-RBEA	4
	GOL-SMQA	5

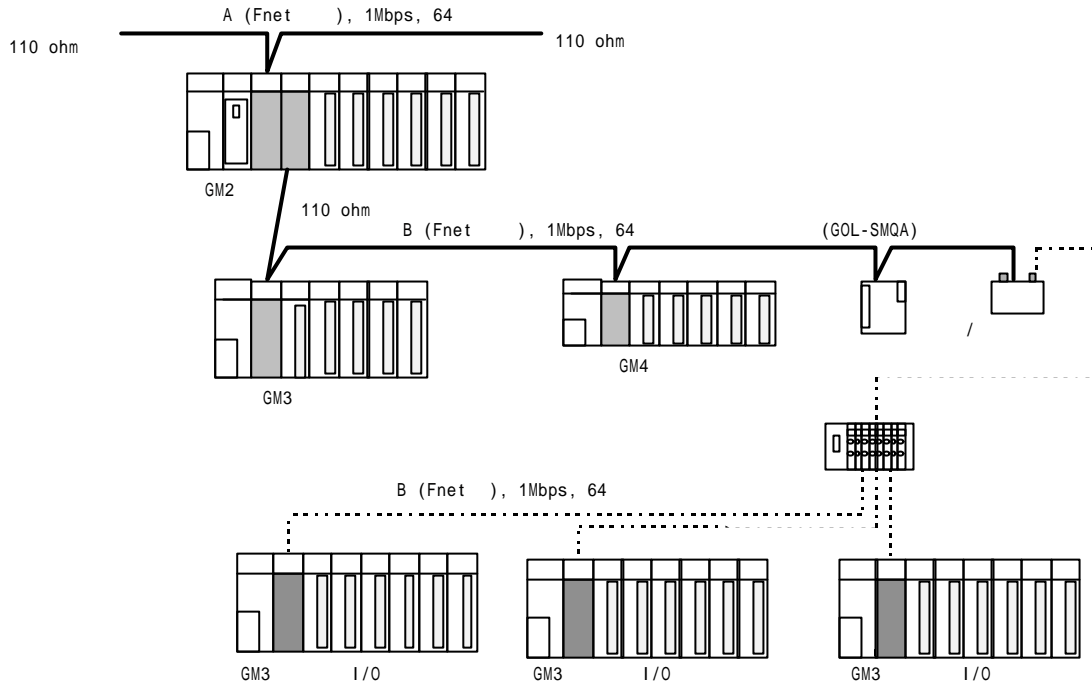
4.2.4 (FSM)



A ( Fnet )		
GM2	G3L-FUEA	0 ( 0 )

B ( Fnet )		
GM2	G3L-FU0A	1 ( 1 )
GM3 I/O	G3L-RBOA	2
GM3 I/O	G3L-RBOA	3
GM3 I/O	G3L-RBOA	4
	GOL- FACA/FABA/FAPA	

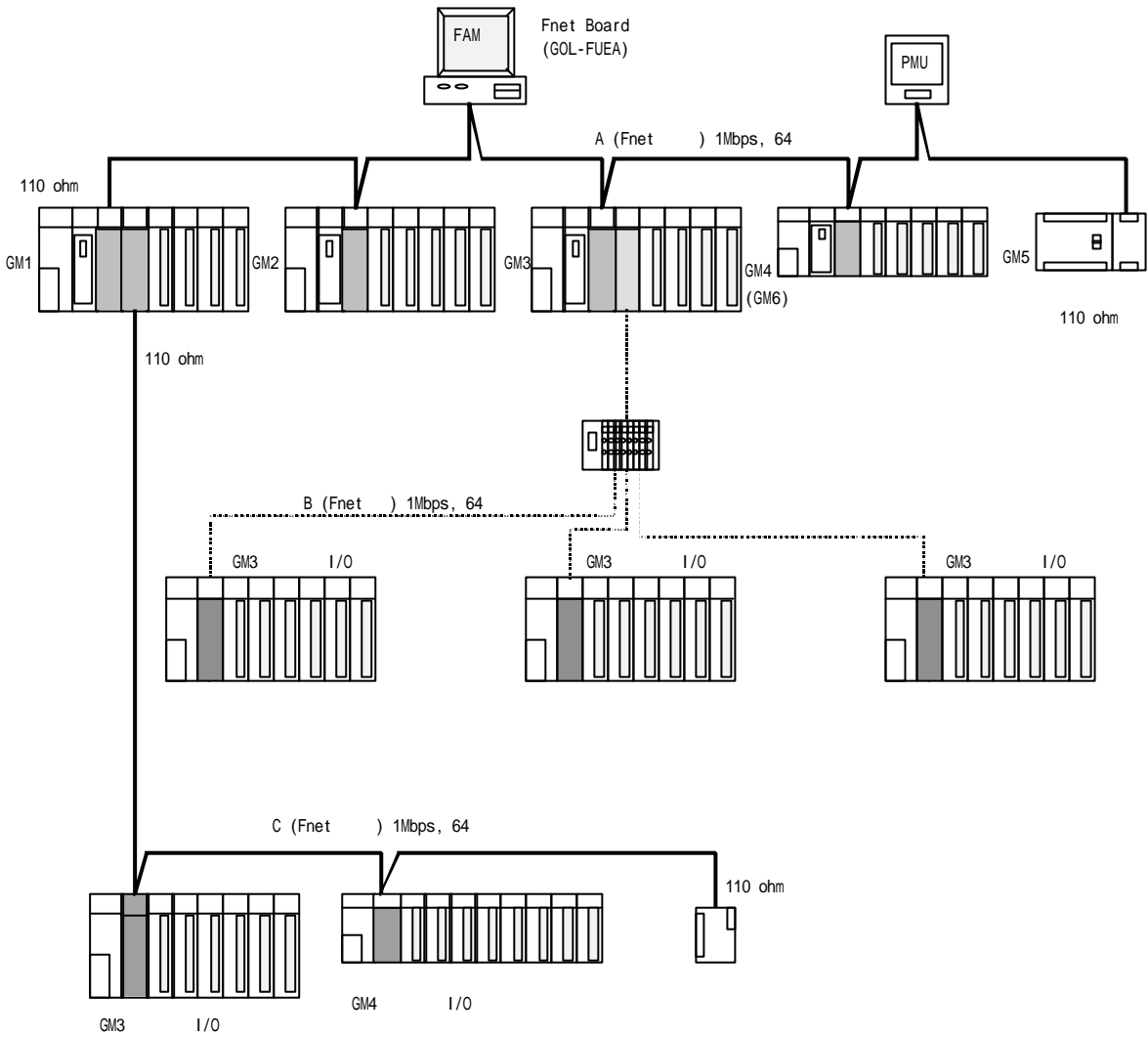
4.2.5 / (FSM)



A ( Fnet )		
GM2	G3L-FUEA	0 ( 0 )

B ( Fnet )							
Fnet			Fnet				
GM2	G3L-FUEA	1 ( 1 )	GM3	I/O	G3L-RBOA	5	
GM3	I/O	G3L-RBEA	2	GM3	I/O	G3L-RBOA	6
GM4	I/O	G4L-RBEA	3	GM3	I/O	G3L-RBOA	7
			/		GOL-FOEA		
	GOL-SMQA	4			GOL-FACA/FABA/FAP A		

4.2.6 / ( )



A ( Fnet )		
FAM	GOL - FUEA	0
GM1	G3L - FUEA	1 ( 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

B ( Fnet )		
GM3	GOL-FUOA	5 ( 1 )
GM3 I/O	G3L-RBOA	12
GM3 I/O	G3L-RBOA	13
GM3 I/O	G3L-RBOA	14
	GOL-FACA/FABA/FAPA	

C ( Fnet )		
GM1	G3L-FUEA	2 ( 1 )
GM3 I/O	G3L-RBEA	9
GM4 I/O	G4L-RBEA	10
	GOL-SMQA	11



5.1

Fnet

가

	<ul style="list-style-type: none"> <li>- (GMWIN , , )</li> <li>- ( )</li> <li>- : 1 (16 ) ~ 3,840</li> <li>- : 20ms 10</li> <li>- 가</li> </ul>
	<ul style="list-style-type: none"> <li>- 가</li> <li>- 가 ,</li> <li>- GMWIN (Enable) ,</li> <li>- (16 )</li> <li>- Bit, Byte, Word</li> </ul>
/	<ul style="list-style-type: none"> <li>- 가 ,</li> <li>- 가</li> </ul>

[ 5.1]

	1 (16 )	가 ) Bit,Byte,Word ...
	20 ms ~ 10	(Enable)
		Fnet
	PLC	PLC
CPU	CPU RUN, STOP, PAUSE	CPU

[ 1] / ,  
GLOFA-GM Fnet(Fieldbus)/Mnet(Mini\_MAP)

5.2

5.2.1

( ) .

) A %MWO , B A %MWO  
 B %MW100

가 32 ,

32 가 , 0 63

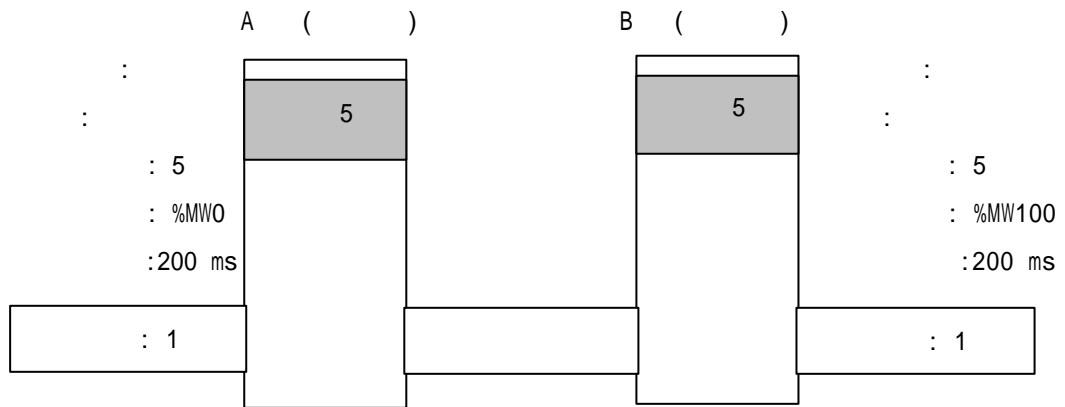
가 ( ) . A

%MWO , , 5  
 가 . 5 %MWO A

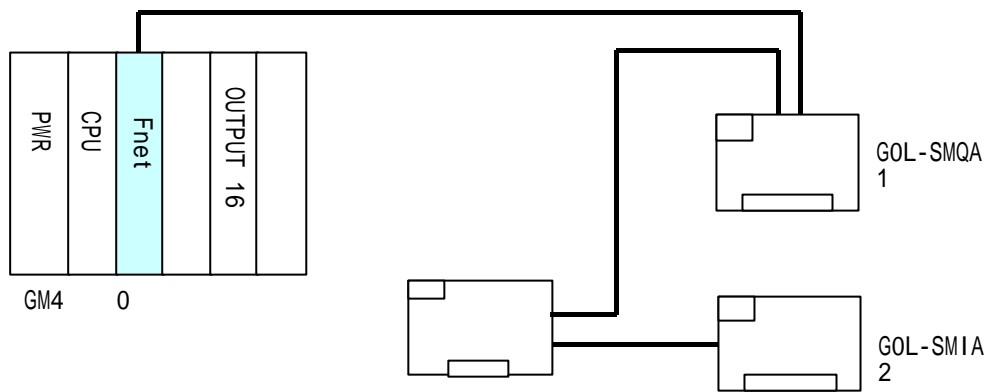
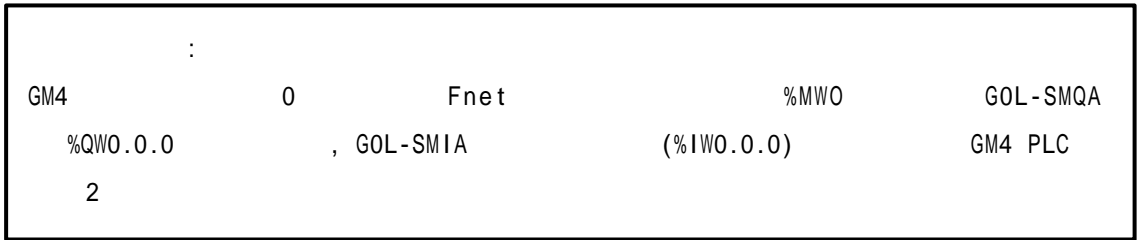
( B ) , B ,

A, 5 , %MW100 .

가



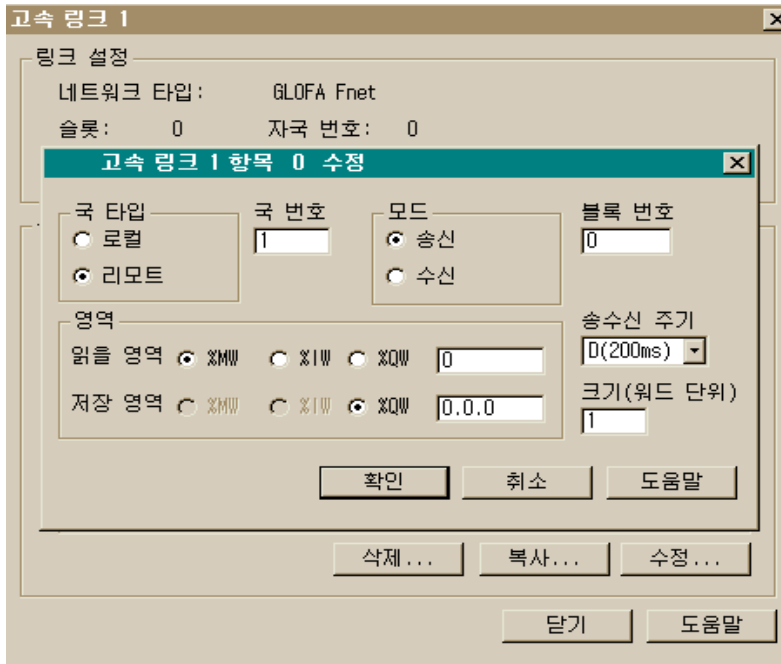
5.2.2 GM4 PLC



					( )	
GM4	G4L-FUEA	%MWO	%QWO.2.0	-	1	0 (0 )
	GOL-SMQA	-	%QWO.0.0	0	1	1
	GOL-SMIA	%IWO.0.0	-	1	1	2
	GOL-FREA	-	-	-	-	-

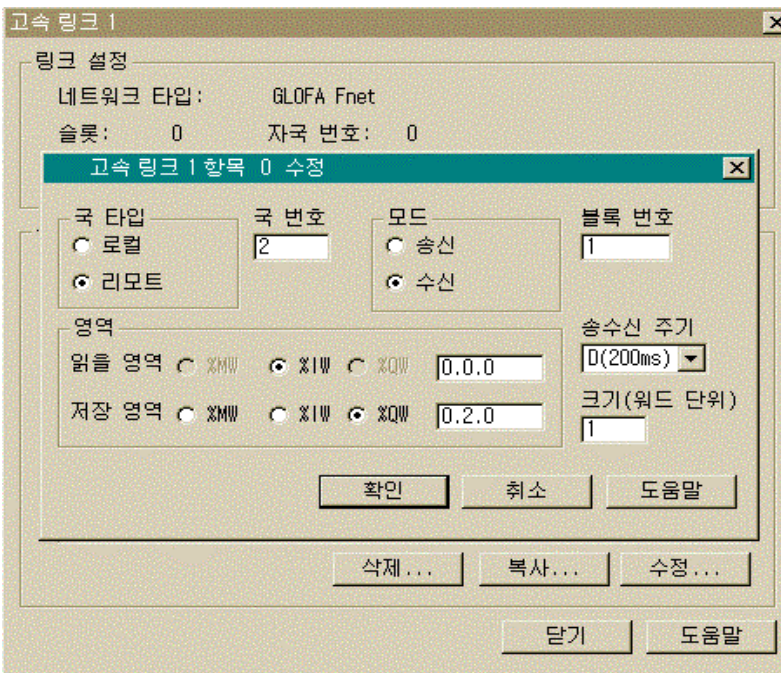
1) GM4 0

%MWO 1 GOL-SMQA  
 ; GM4 %MWO, GOL-SMQA %QWO.0.0  
 (GOL-SMQA 16 %QWO.0.0 가 .)

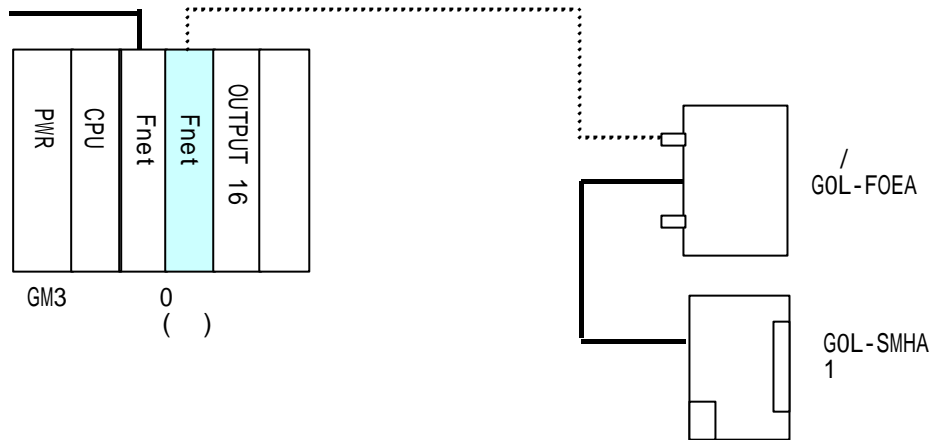
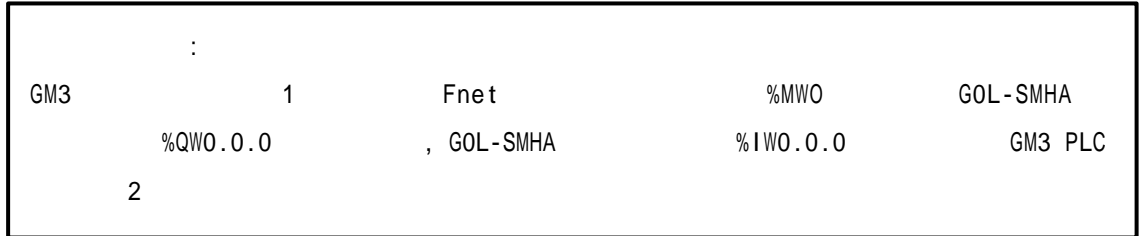


2) GM4 0

2 GOL-SMIA %IW0.0.0 GM4 2(%QWO.2.0)



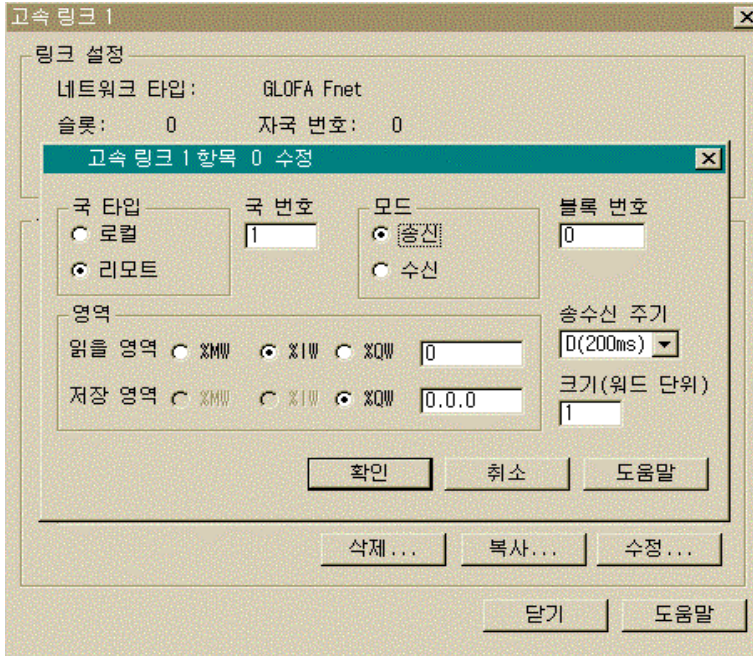
5.2.3 GM3( ) PLC



					( )	
GM3	G3L-FUOA	%MWO	%QWO.2.0	-	1	0 (1 )
	GOL-SMHA	-	%QWO.0.0	0	1	1
		%IWO.0.0	-	1	1	
/	GOL-FOEA	-	-	-	-	-

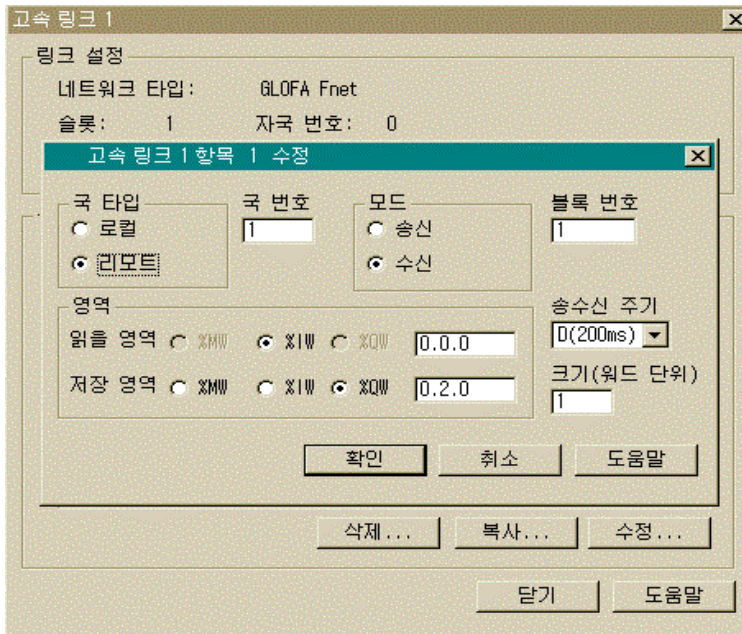
1) GM3 0

1 GOL-SMHA %QW0.0.0 GM3 %MW0



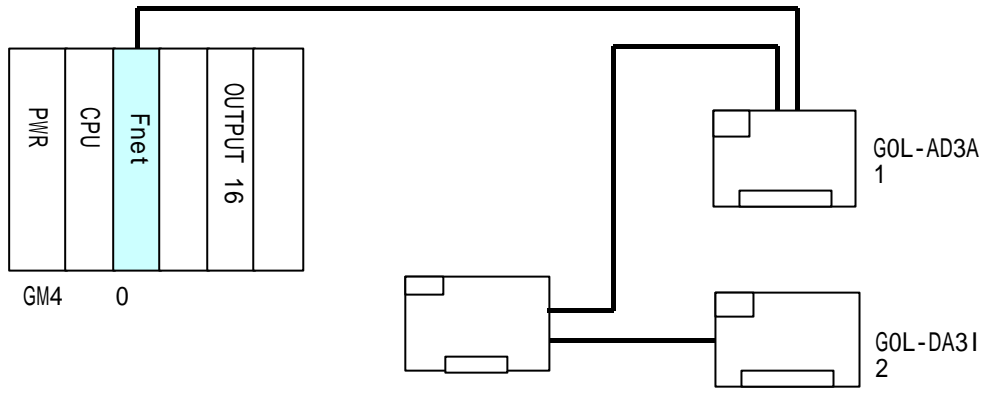
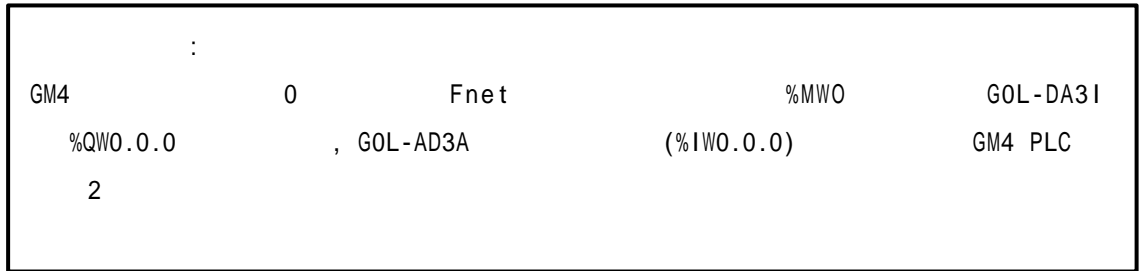
2) GM3 0

1 GOL-SMHA %IW0.0.0 GM3 2



\* GOL-SMHA 8 %IW0.0.0, 8 %QW0.0.0  
.( 1 )

5.2.4 GM4 PLC



					( )	
GM4	G4L-FUEA	%MWO	%QWO.2.0	-	1	0 (0 )
	GOL-DA3I	-	%QWO.0.0	0	1	2
	GOL-AD3A	%IWO.0.0	-	1	1	1
	GOL-FREA	-	-	-	-	-

: REMOTE 0.0.0  
 . 0 1 %IWO.1.0  
 %IWO.0.0 2 WORD

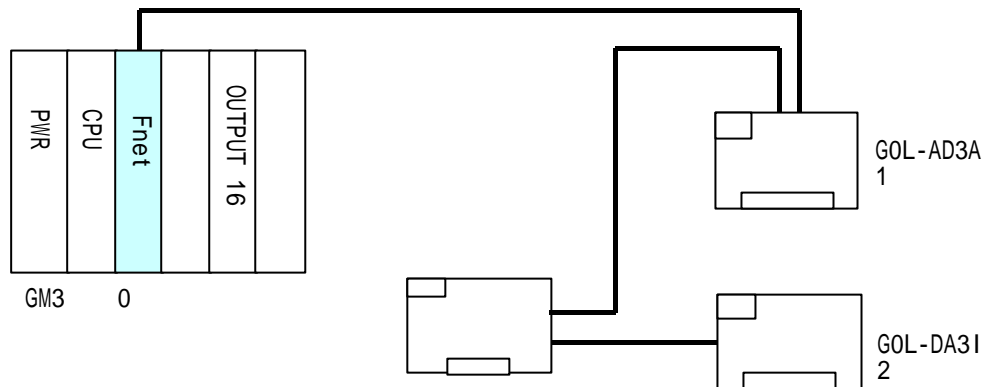


## 1) GM4 0

## 2) GM4 0

5.2.5 GM3 PLC

GM3	0	Fnet	%MWO	8
GOL-DA3I	%QWO.0.0	, GOL-AD3A	%IWO.0.0	8
	%MW100			



						( )
GM3	G3L-FUEA	%MWO	%MW100	-	8	0 (0 )
	GOL-DA3I	-	%QWO.0.0	0	8	2
	GOL-AD3A	%IWO.0.0	-	1	8	1
	GOL-FREA	-	-	-	-	-



5.3

5.3.1

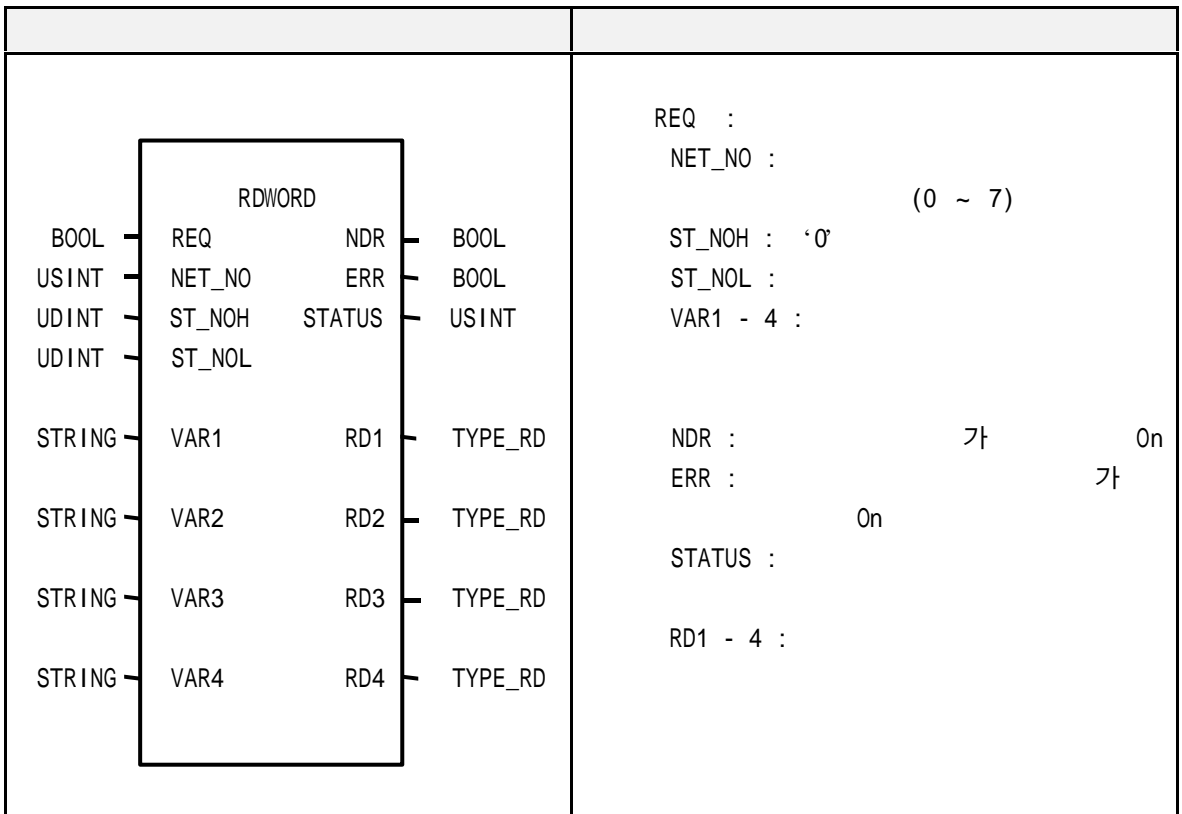
3가

READ		RDWORD
WRITE		WRWORD
STATUS	PLC	STATUS

[ 1]	I/O	%IWO.0.0,	%QWO.0.0,
	%IWO.0.0( ) , %QWO.0.0( )		,
	가		.
[ 2]	( 8 , 8 )		
	(8 )	1	
			.
[ 3]	STATUS	GLOFA-GM Fnet(Fieldbus)/	
	Mnet(Mini-MAP) ‘ 6		,

5.3.2

1) RDWORD



		'0' '1'
	REQ	NDR ERR 가
	NET_NO	PLC CPU '0'
	ST_NOH/ ST_NOL	/

	VAR1 - VAR4	(String) ( "RDWORD" VAR1 - VAR 4 (WORD) ).
	NDR	가 On , Off .
	ERR	가 On , On 가 Off . 가
	STATUS	가 가 Off .
	RD1 - RD4	가 . VAR1 RD1 가 VAR2,3,4 RD2,3,4 .

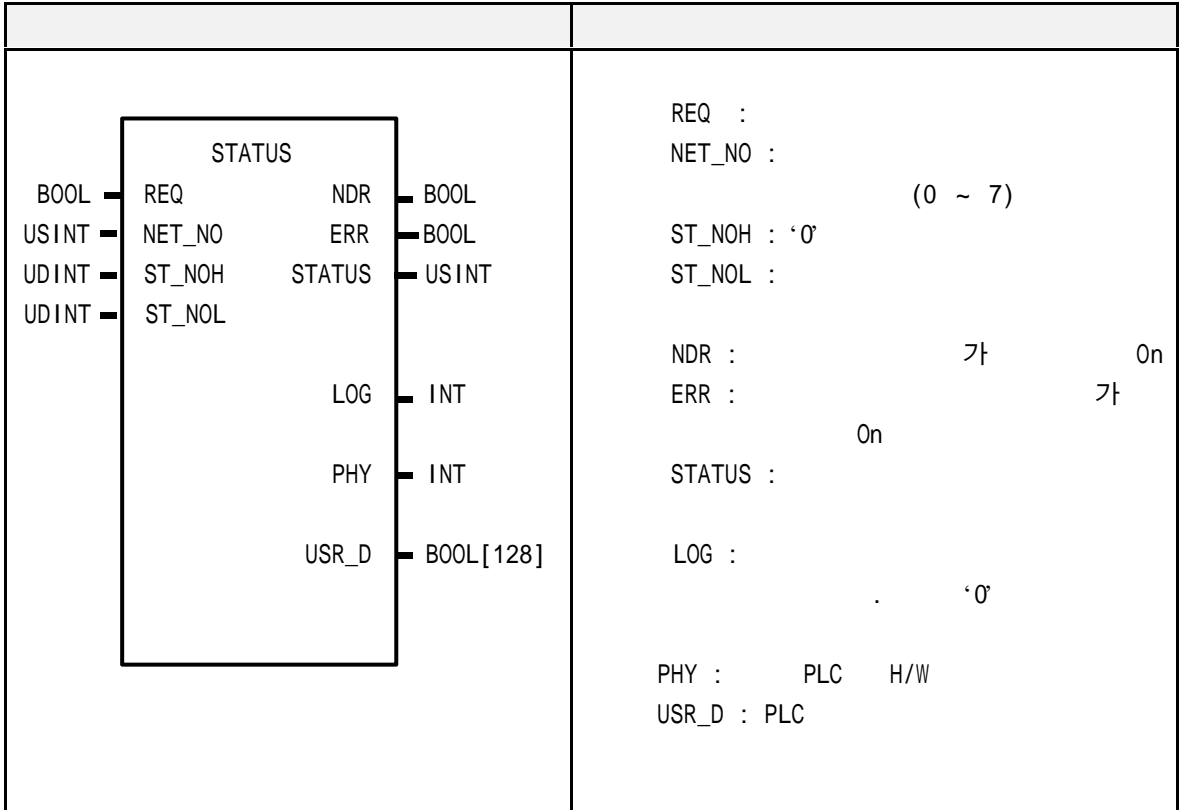


	SD1 - SD4	SD1 가 SD2,3,4 SD1 - SD4	VAR1 R2,3,4 0
--	-----------	----------------------------------	---------------------

	NDR	가 Off	On
	ERR	가 On 가	On 가 Off
	STATUS	가 가 Off	



3) STATUS

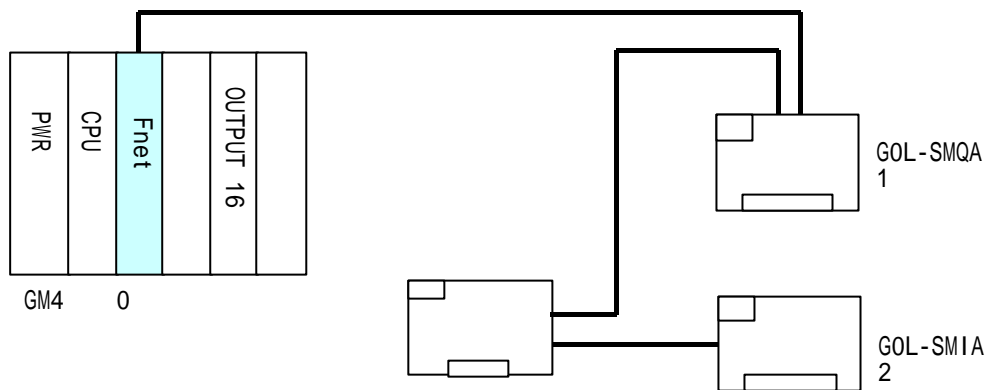
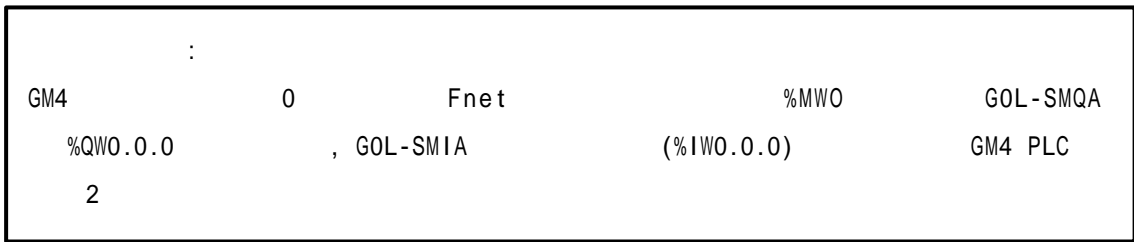


	REQ	'0' '1'
		NDR ERR 가
	NET_NO	PLC CPU '0'
	ST_NOH/ ST_NOL	/

	NDR	가 On Off .
	ERR	가 On , On 가 Off . 가 가 .
	STATUS	가 가 Off .
	LOG	(Logical State) 0 = STATE-CHANGE-ALLOWED
	PHY	Physical State PLC H/W . 0 = OPERATIONAL( ) 1 = PARTIALLY-OPERATIONAL-H/W(PLC 가 ) 2 = INOPERABLE-H/W( ) 3 = NEED-COMMISSION-H/W( )
	USR_D	PLC 128 [ 1]

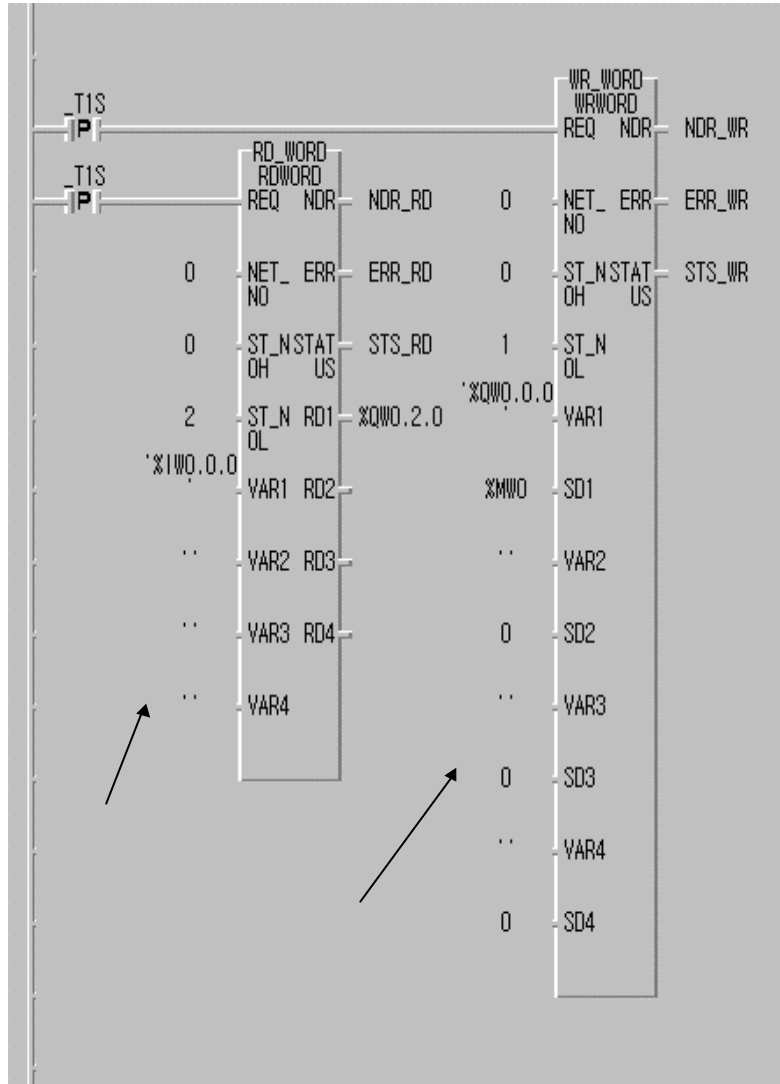
[ 1] STATUS USR\_D  
GLOFA-GM Fnet(Fieldbus)/Mnet(Mini-MAP) 6 ,

5.3.3 GM4 PLC



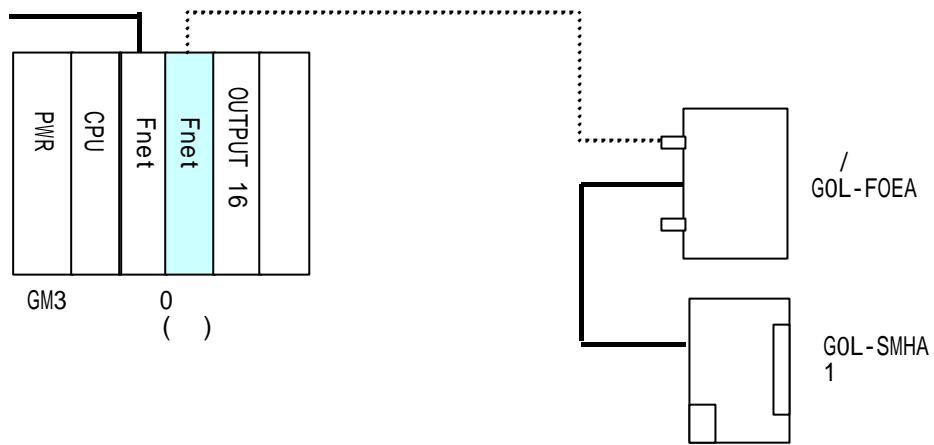
GM4	G4L-FUEA	0
	GOL-SMQA	1
	GOL-SMIA	2
	GOL-FREA	-

1) GM4 0



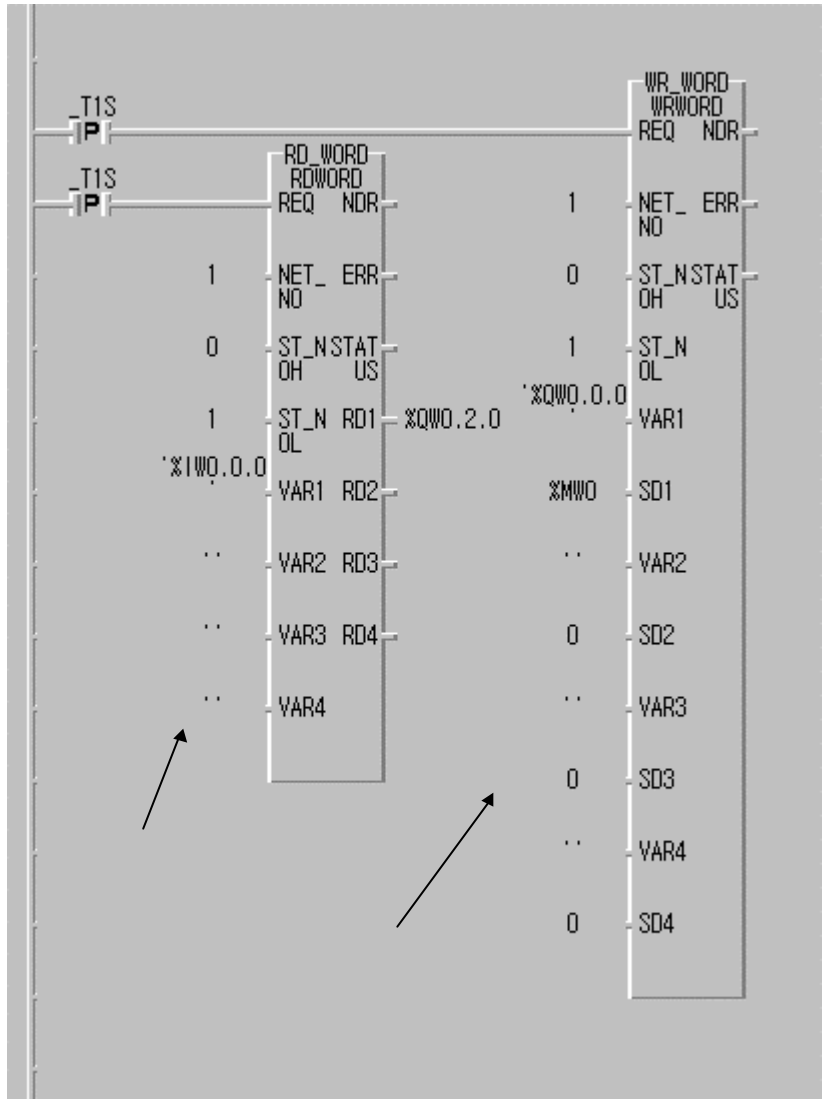
5.3.4 GM3( ) PLC

GM3	:	1	Fnet	%MWO	GOL-SMHA
			, GOL-SMHA	%IWO.0.0	GM3 PLC
		2			



GM3	G3L-FUQA	0
	GOL-SMHA	1
/	GOL-FOEA	-

1) GM3 0



5.4

5.4.1

1)

(1) \_NETx\_LIV[n] ( n = 0 ~ 63 : )  
Alive ,  
가 .

(2) \_NETx\_RST[n]  
'On'

2) I/O

(1) \_FSMx\_RESET ,  
FSM  
FSMx\_ST\_NO , \_FSMx\_RESET 'On'  
, 'On'

(2) \_FSMx\_IO\_RESET ,  
FSM 가  
\_FSMx\_ST\_NO , \_FSMx\_IO\_RESET 'On'  
'On'

‘x’ (FMM) ( : 0 ~ 7 )

3)

(1) \_FSMx\_HS\_RESET

( , ) 가  
 On  
 \_HS\_MODE Off ( )  
 ).  
 \_HS\_MODE 가 (On)가  
 FSMx\_HS\_RESET On \_HS\_MODE  
 \_FSMx\_ST\_NO , \_FSMx\_HS\_RESET 'On' \_HS\_MODE  
 '1' .

4)

\_FSMx\_RESET/\_FSMx\_IO\_RESET/\_FSMx\_HS\_RESET  
 255(16#FF)  
 \_FSMx\_RESET/\_FSMx\_IO\_RESET/\_FSMx\_HS\_RESET

5.4.2 Fnet

_FSMx_ST_NO 0 ~ 63 (255 )	USINT	/ 가	FSM
_FSMx_RESET	BOOL	/ 가	
_FSMx_IO_RESET	BOOL	/ 가	
_FSMx_HS_RESET	BOOL	/ 가	
_NETx_LIV[n] ( n = 0 ~ 63)	USINT		FSM/FMM
_NETx_RST[n] ( n = 0 ~ 63)	USINT	/ 가	



5.5

5.5.1

Off

(3~7 )

(2.2.9 Fnet ) .

1)

가

( ) .

2)

가

I/O

(1)

\_BASEx\_DATA

[ 1]

FSM

'\_BASEx\_DATA'

I/O

Off

\_BASEx\_DATA x

0~3

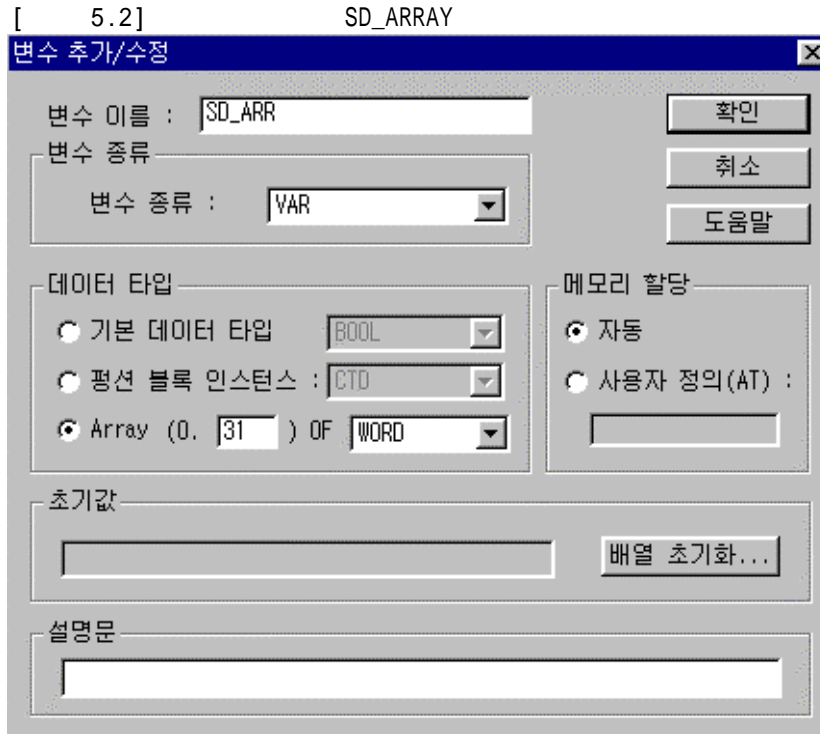
가

[ 1]

\_BASEx\_DATA

On/Off

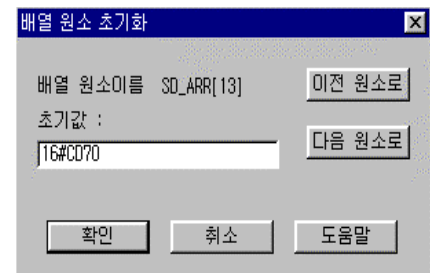




[ 5.2]

[ 5.3]

[ 5.4]



[ 5.4]

6.1

1)

2) PLC

3) GOL-SMQA/GOL-SMIA/GOL-SMHA

4) GOL-AD3A/GOL-DA3I /

5) GOL-SMQA/GOL-SMIA/GOL-SMHA/GOL-AD3A/GOL-DA3I

(110Ω) (GOL-FREA, GOL-FOEA)  
CON1 CON2  
).

6)

CON1, CON2

7)

GMWIN

LED

8)

가

가

6.2

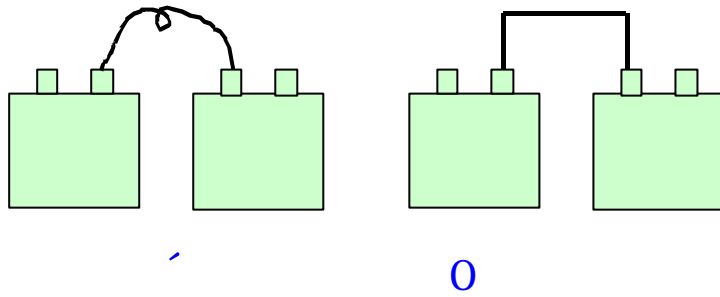
1) GOL-SMQA/GOL-SMIA/GOL-SMHA/GOL-AD3A/GOL-DA3I

2)

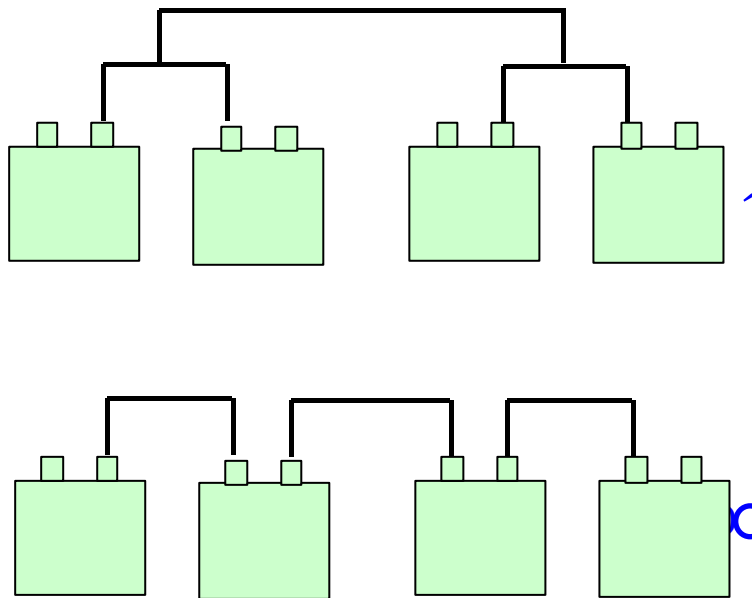
3)

4)

5)

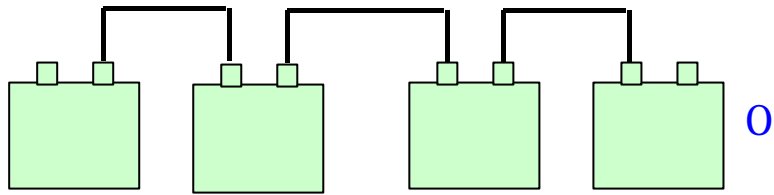
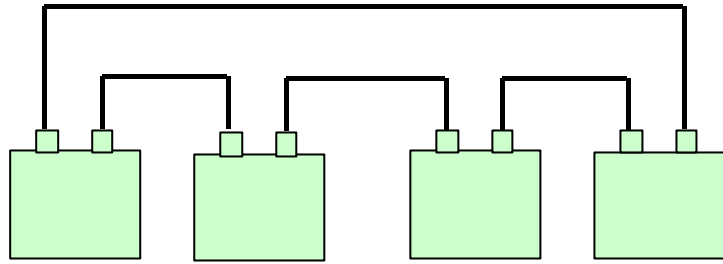


6)



7)

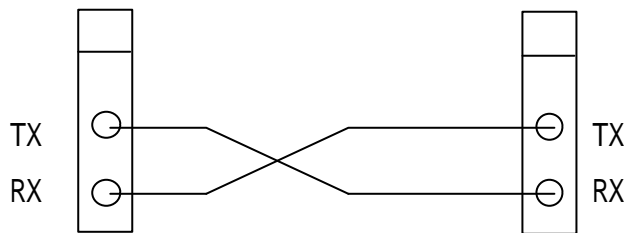
가



8)

9) ( ) 9

10) TX RX TX/RX TX/RX 가



11) 가

12) LED '7' ,  
A/S

6.3

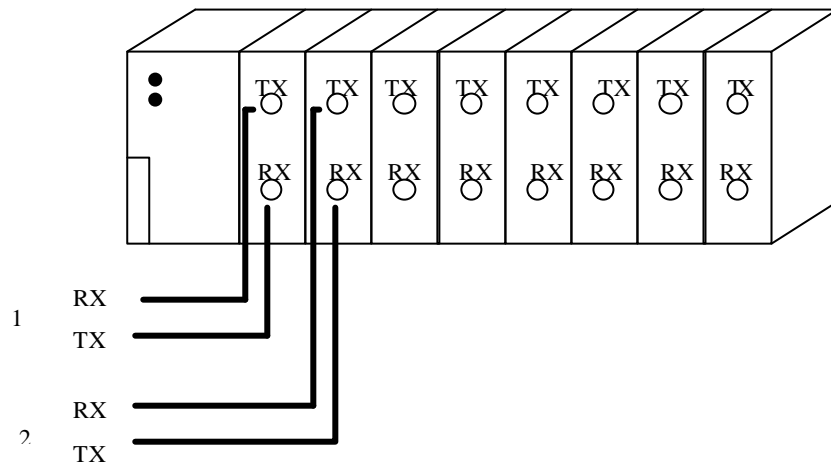
6.3.1 ( )

1)

GOL-FAPA( )/GOL-FABA( )/GOL-FACA( )

[ 6.1]

[ 6.1]



(1)

(2)

(3)

(4)

가

(5)

(6)

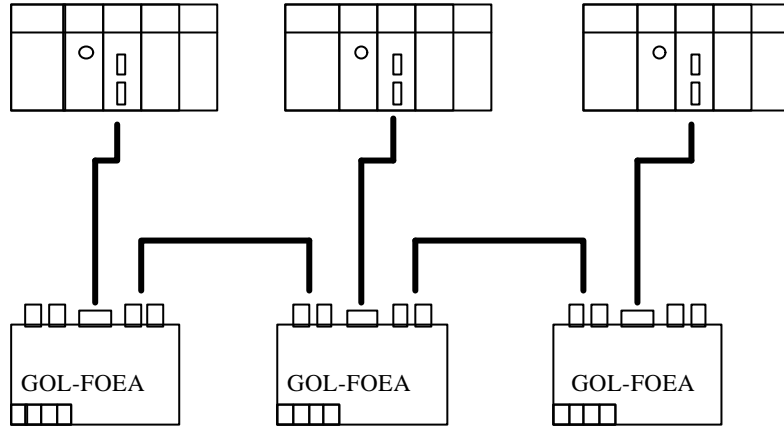
(GOL-FADA)

가

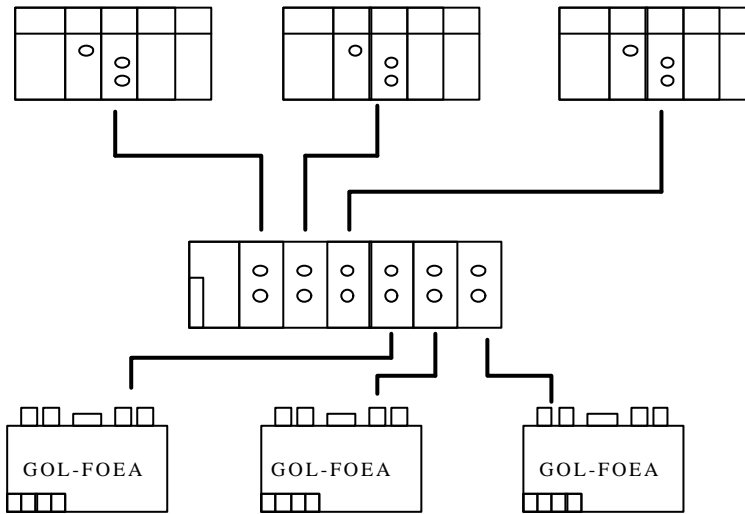
6.3.2 E/O ( / )

Fnet

(GOL-FOEA)



[ [ Fnet I/F ] ]



[ Fnet I/F ]

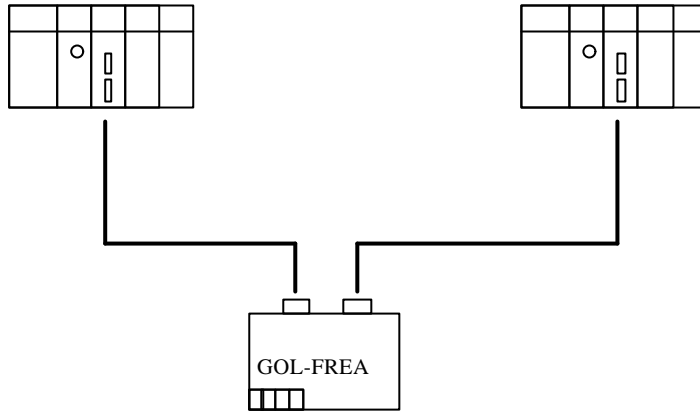
- 1)
- 2)
- 3)
- 4)

TX/RX



## 6.3.3 ( )

(GOL-FREA) Fnet



[Fn, [Fnet I/F ]

1)

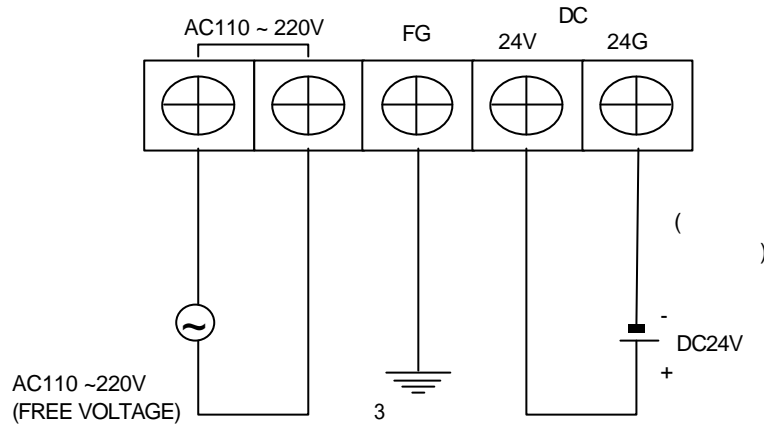
2)

3)

PLC

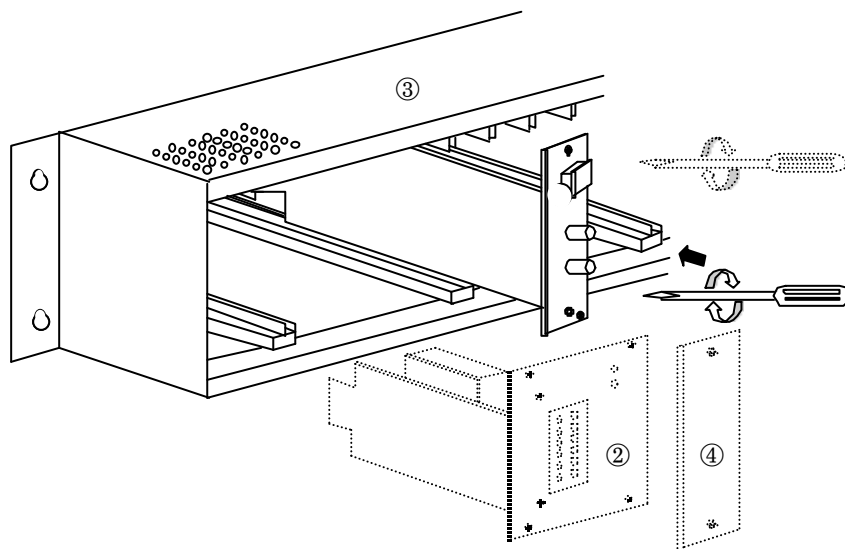
6.3.4

GOL-FREA(                    ), GOL-FOEA( ↔                    ),  
 GOL-FAPA  
 AC                    DC                    가



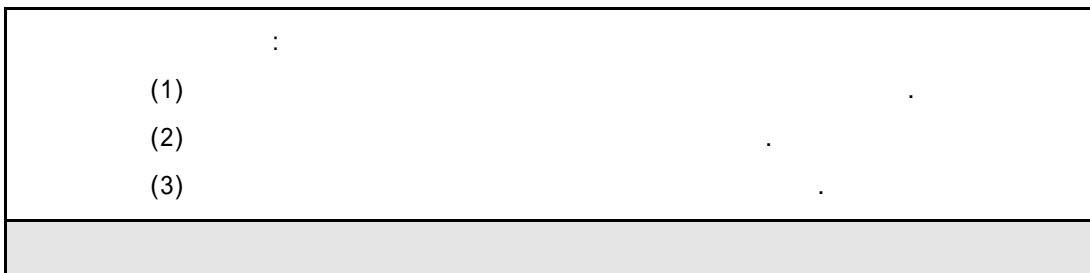
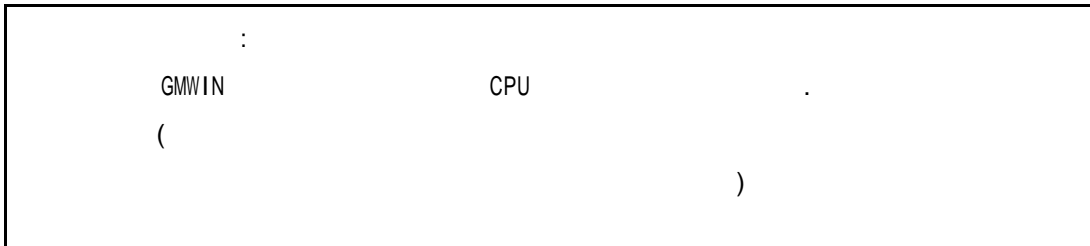
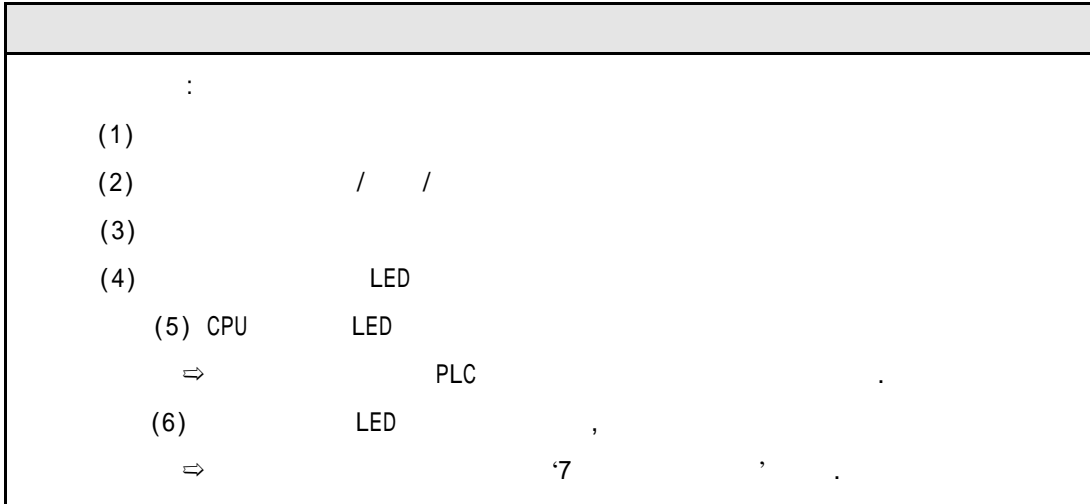
6.3.5

(                    )                    (GOL-FABA),                    (GOL-FAPA)                    (GOL-FACA).  
 (GOL-FADA)                    ③  
 GOL-FABA                    ② GOL-FAPA                    GOL-FACA  
 ①                    . GOL-FACA 가                    ④ GOL-FADA                    ③



6.4

PLC



## 6.5

## 6.5.1

[ 6.1]

GOL-SMQA GOL-SMQA GOL-SMQA GOL-AD3A GOL-DA3I	PWR LED		( )	
	TRX LED		( )	
	ERR LED		/	
GOL-FREA	PWR-LED		( )	
	TRX A LED		( )	
	TRX B LED			
GOL-FOEA	PWR LED		( )	
	TRX LED		( )	
GOL-FAPA	PWR LED		( )	
	TRX LED		( )	

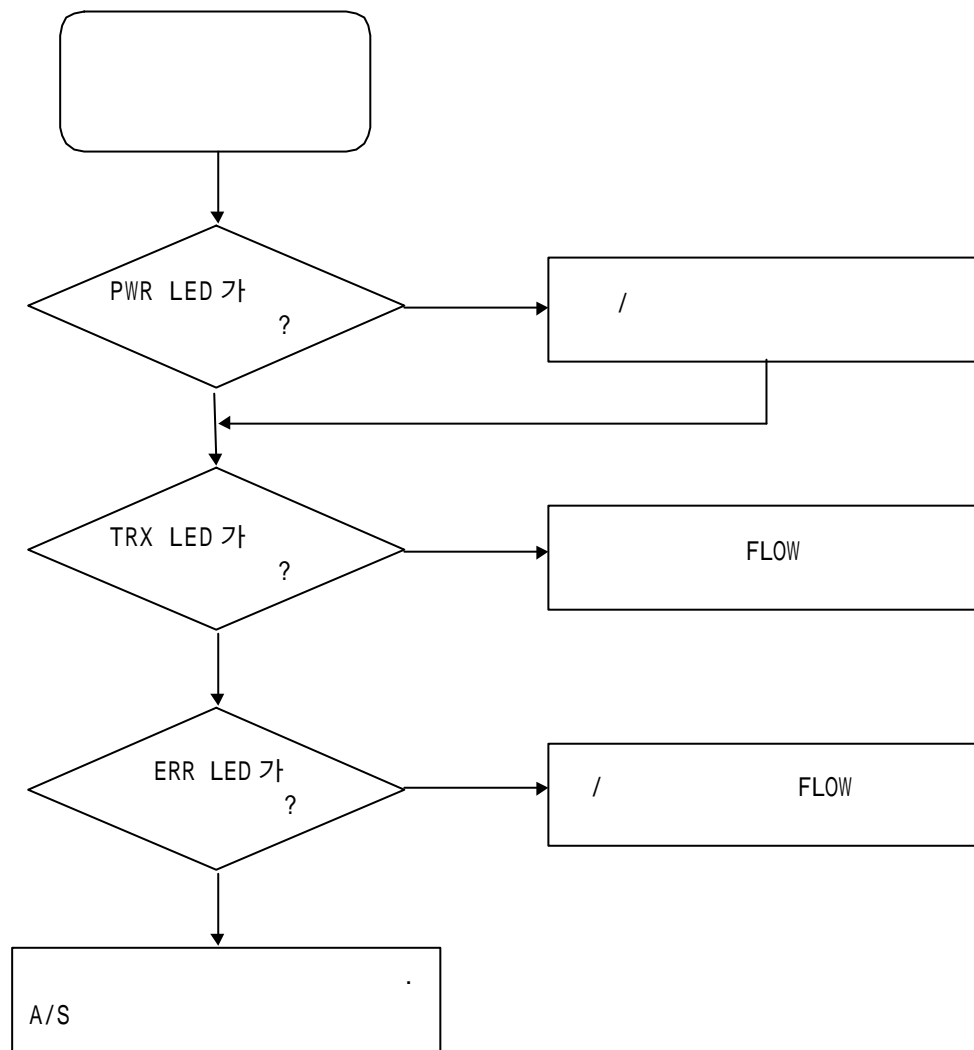
## 6.5.2

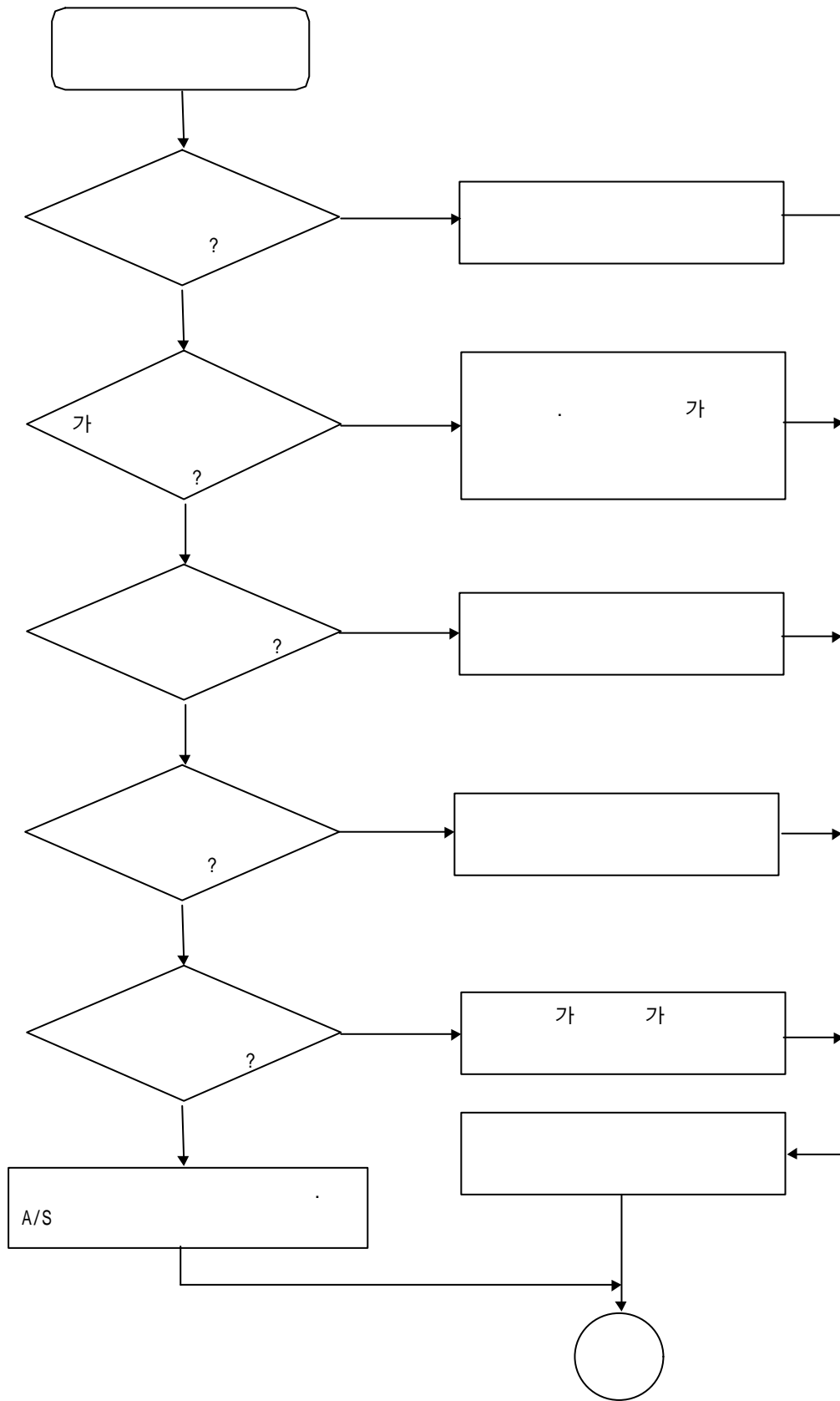
6 1~2

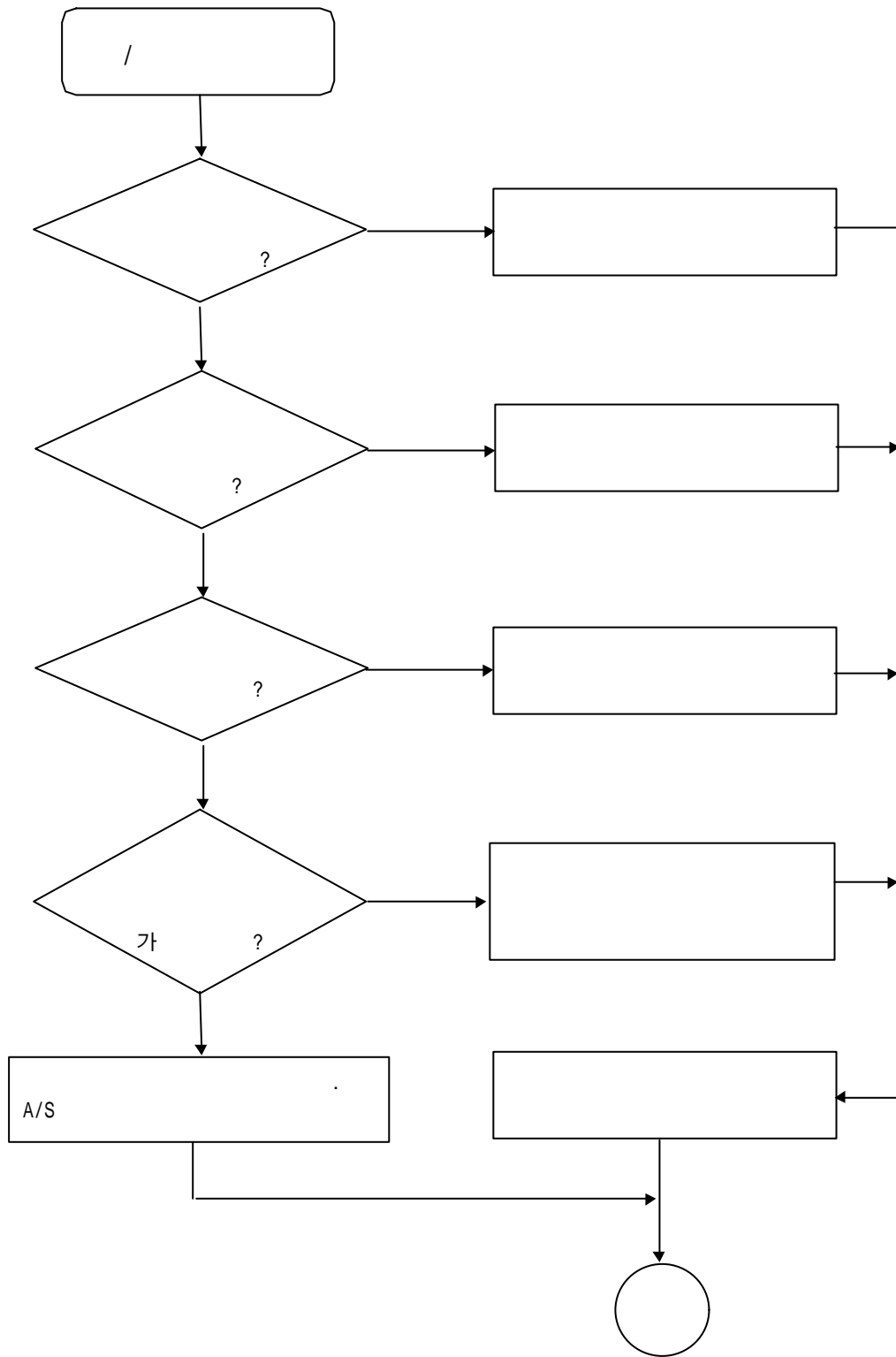
[ 6.2]

		/	-10 ~ 60	( )
			5 ~ 95%RH	
		가	가 가	
	,	.		
	,			
				/
		AC 110V/220V	AC 85 ~ 132V AC 170 ~ 264V	
		DC 24(+)(-)	DC 20 ~ 30V	

7.1 (GOL-SMQA/GOL-SMIA/GOL-SMHA/GOL-AD3A/GOL-DA3I)

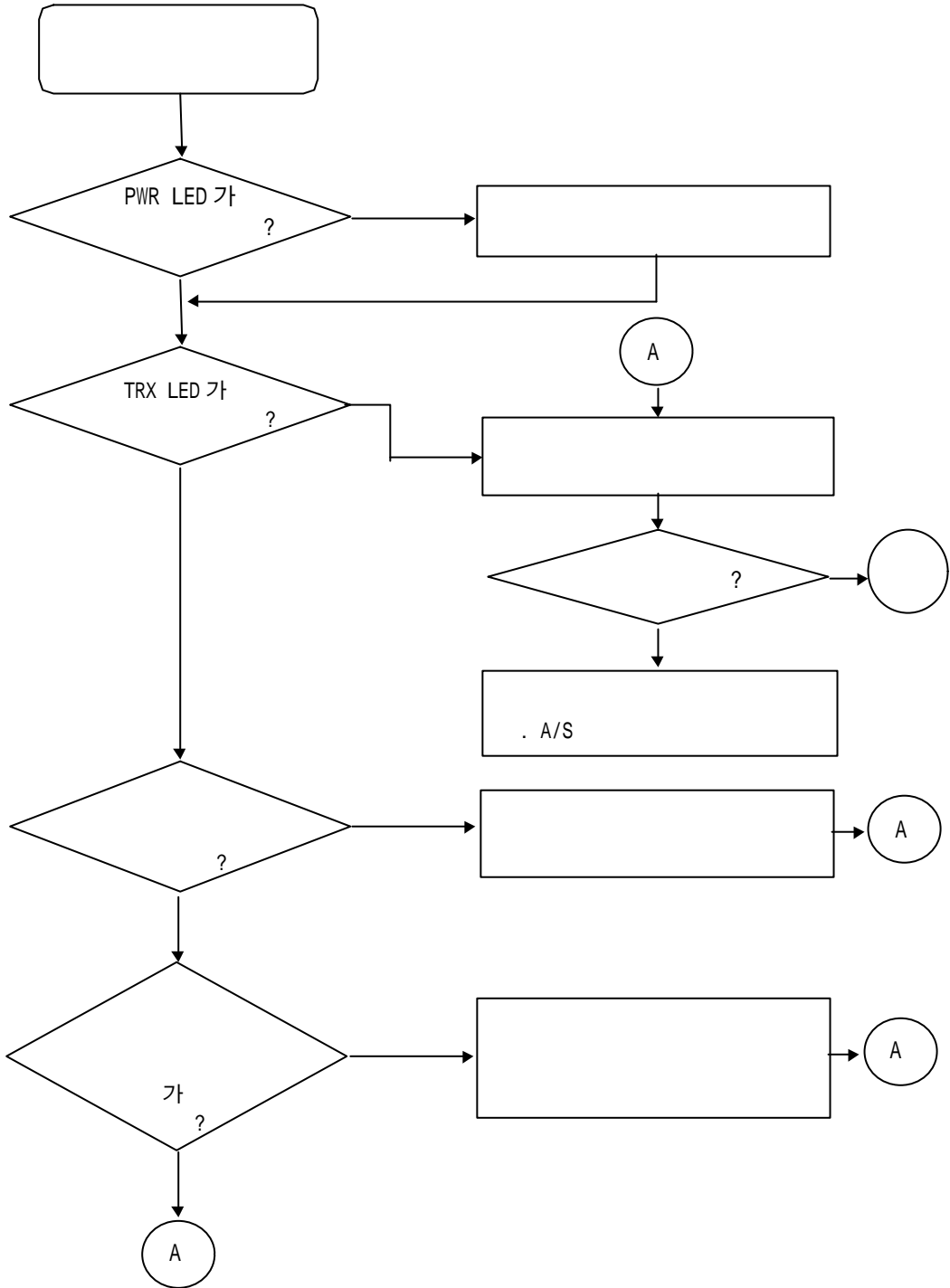


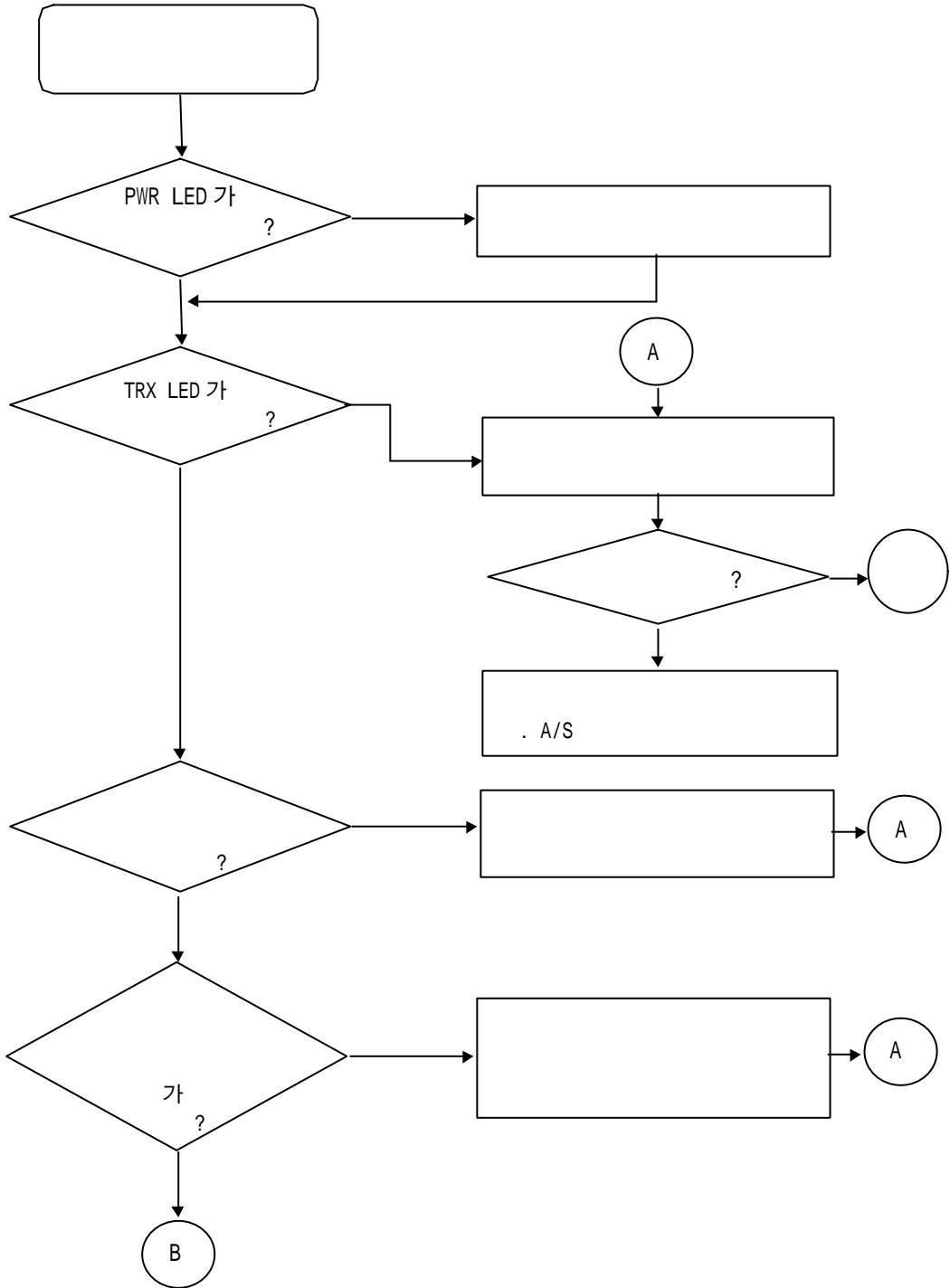


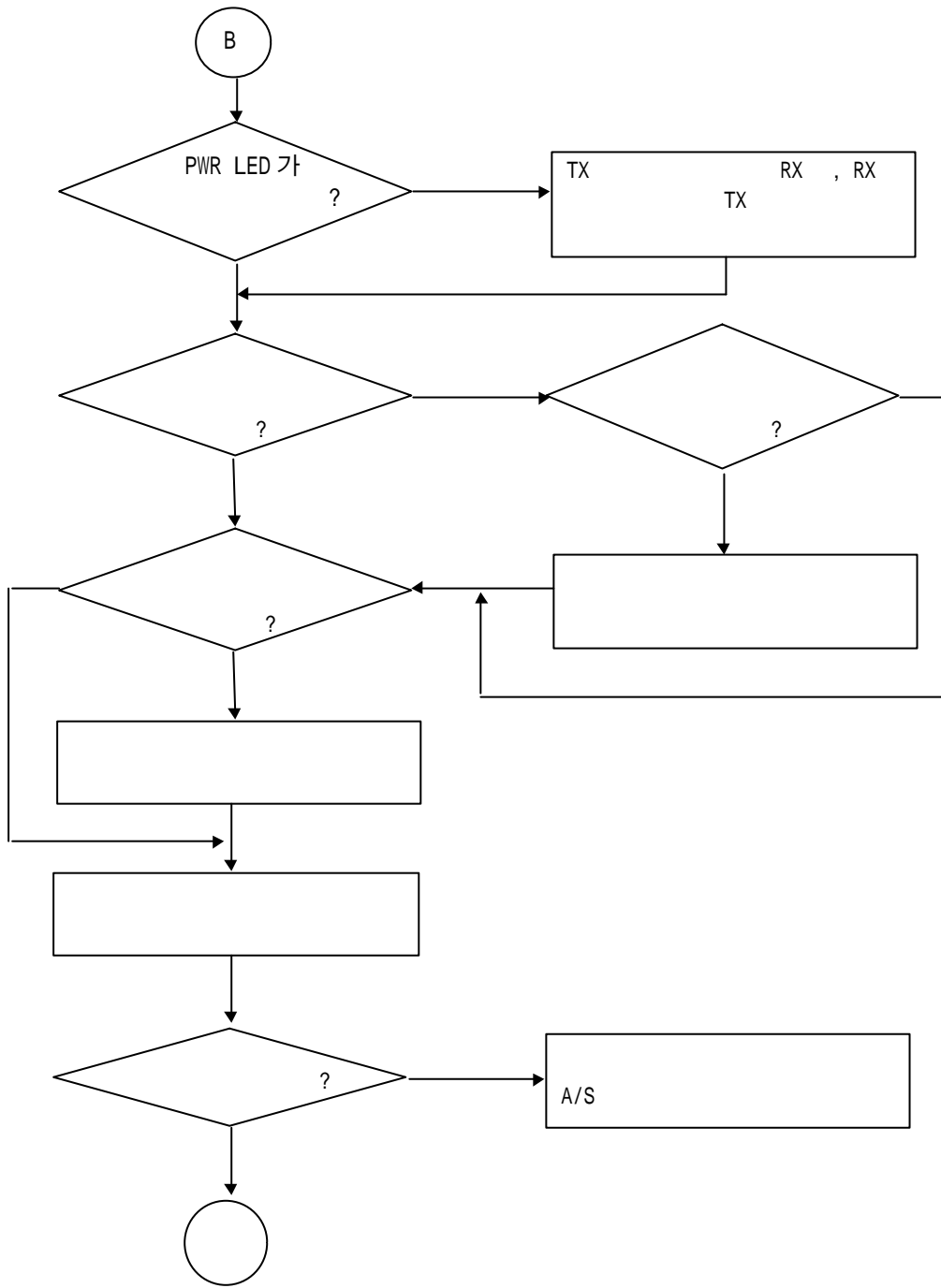




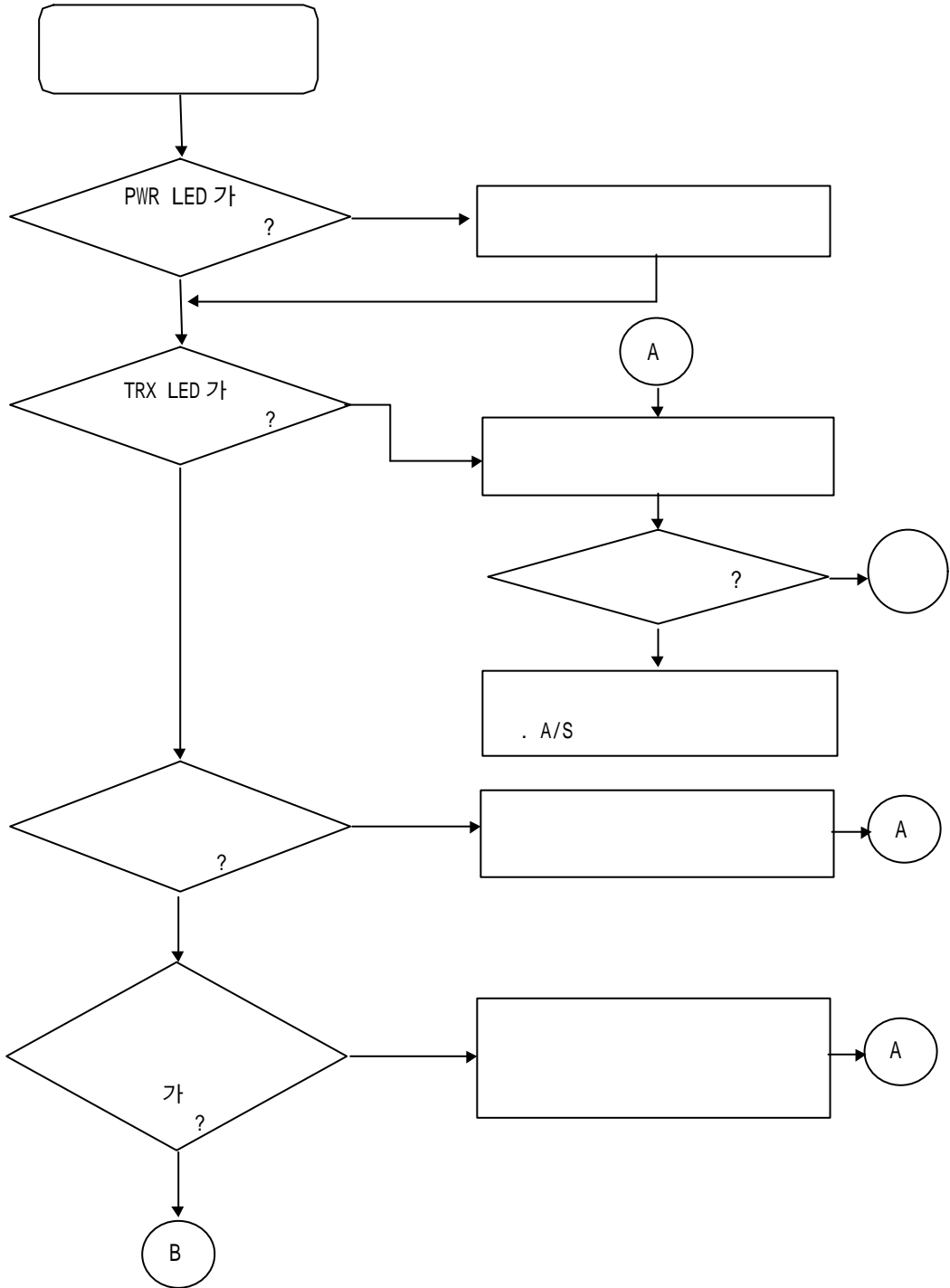
7.2 (GOL-FREA)

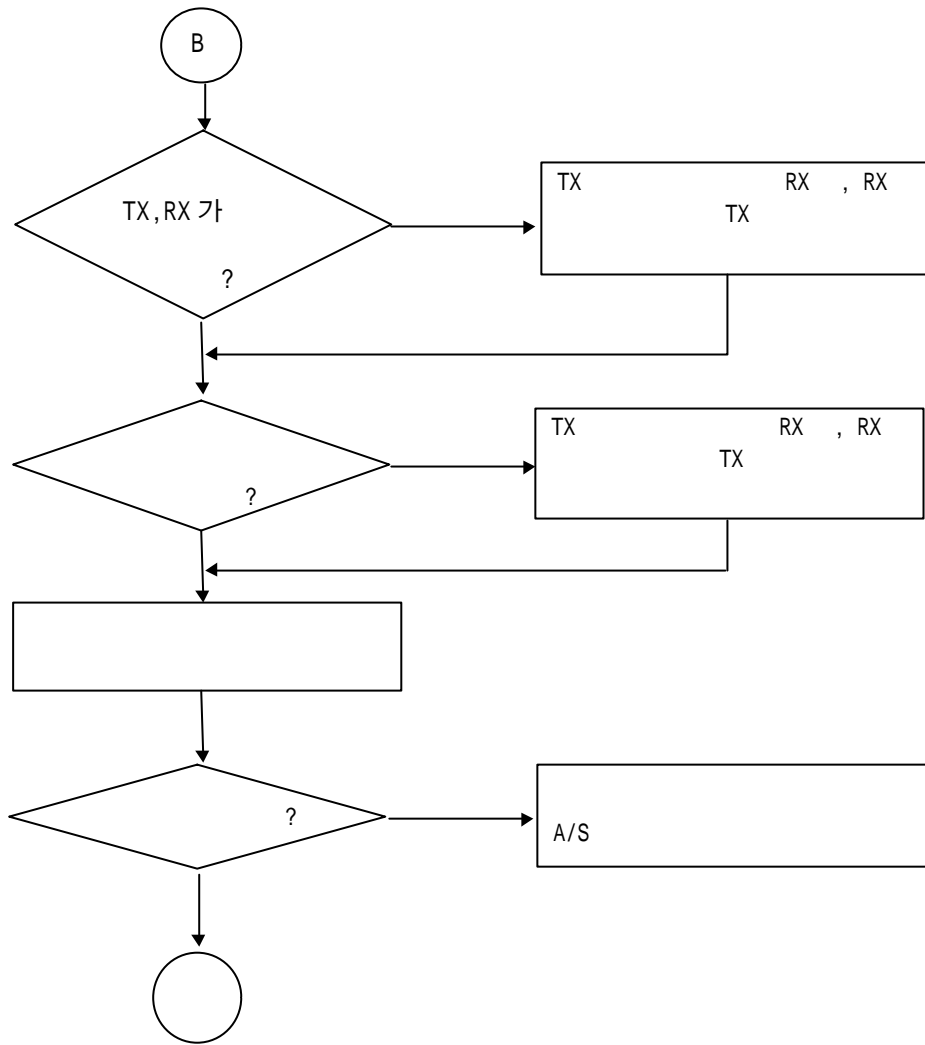




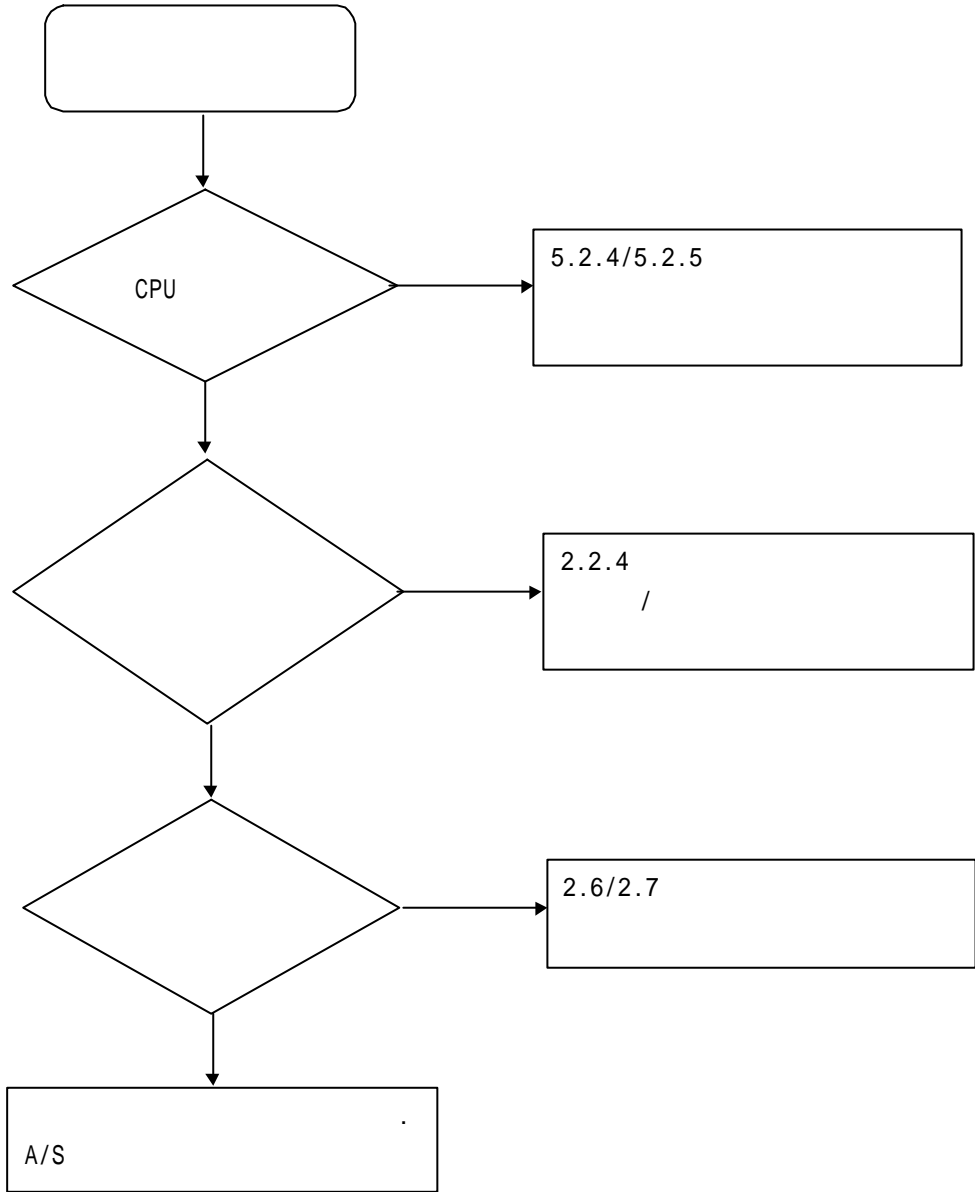


7.4 (GOL - FAPA / FABA / FACA)





7.5 / (GOL-AD3A/GOL-DA3I)



---

## A1 LED

### A1.1 LED

(1) PWR : 가 LED

- On :
- Off: ( 가).

(2) TRX :

- On :
- Off: (Frame)

(3) ERR : LED 'Off'

- On :
- Off:

A1.2

LED

		LED PWR/ONTX/ER	
GOL-SMQA		● ○ ○	
GOL-SMIA		● ○ ●	
GOL-SMHA		● ○ ●	
GOL-AD3A		● ○ ○	
GOL-DA3I	Off	○ ○ ○	Off

A1.3

LED

		LED PWR/TRXA/TR	
GOL-FREA		● ○ ○	
		● ○ ○	A 가
		● ○ ○	B 가
		● ○ ○	
	Off	○ ○ ○	Off

A1.4

LED

		LED PWR/TRX	
GOL-FOEA		● ○	
		● ○	가
	Off	○ ○	Off

A1.5

( ) LED

		LED PWR/TRX	
		● ○	
		● ○	가
	Off	○ ○	Off



Off



( F M M ) )	I/O Fnet
( F S M )	CPU Fnet
( F O U )	, , Fnet
	CPU 가 / G M W I N
I/O	PLC I/O PLC CPU , ,
Fnet	Fieldbus , OSI 7 3 . 3 H2(1Mbps ) , H1(31.23Kbbs ) , (Wireless) , Scheduled Circulated Token bus , 가
(Token)	Physical Medium
Fnet	Fnet (G3L-FUEA... ). Fnet
(Active Coupler)	, 가

( Repeater )	,
E.O.C( / )	가
Manchester Biphase-L	Fnet . Manchester-I Code (Encode) , Manchester (Decode)
CRC (Cyclic Redundancy Check)	, 가
	, 110 ,1/2 W
( HS Link )	GLOFA PLC 가 , GMWIN
( Segment )	(Gateway, EOC, ) (Token)
( Network )	(Token)

가 On , STATUS

1)

(10 )	
0	( )
1	( , 가) - Off,
3	가
4	
5	-
6	가 가
7	가 가
8	가 가 가
9	가 가
10	(Time Out) -
11	Structure
12	Abort( / ) -
13	Reject( / ) - MMS
14	(Connect/Disconnect) PI/DOMAIN/GEN (Mini-MAP )
15	
33	-

34	-	Structure	(Range)
50	-		CPU
113		Object Access Unsupported	
	-	VMD Specific	Symbolic Address
187	-	(	)

2) CPU STATUS

(1)

(10 )	
16	.
17	SLOT_NO
18	
19	
20	
21	( -Time Out)

(2) (FSM) STATUS

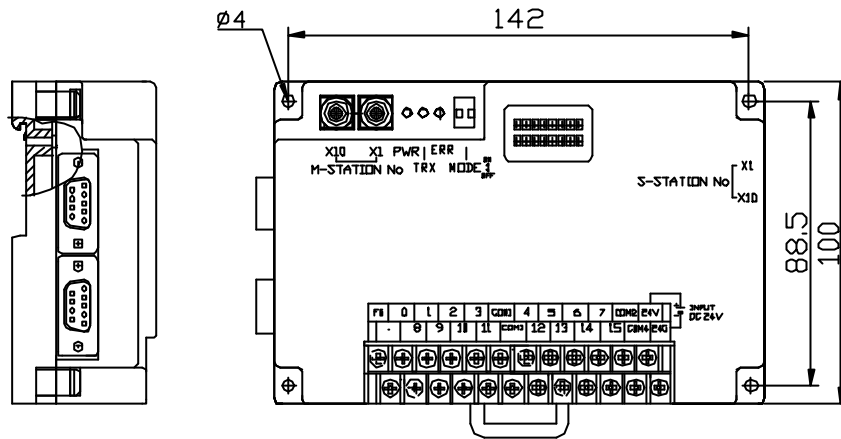
(10 )	
128	FSM
129	BASE(Rack)
130	
131	
132	(Invalid Range)
133	
136	( )
137	

A 4

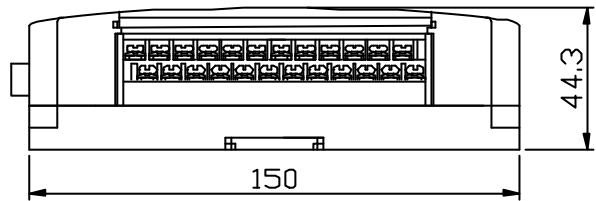
A 4.1

: mm

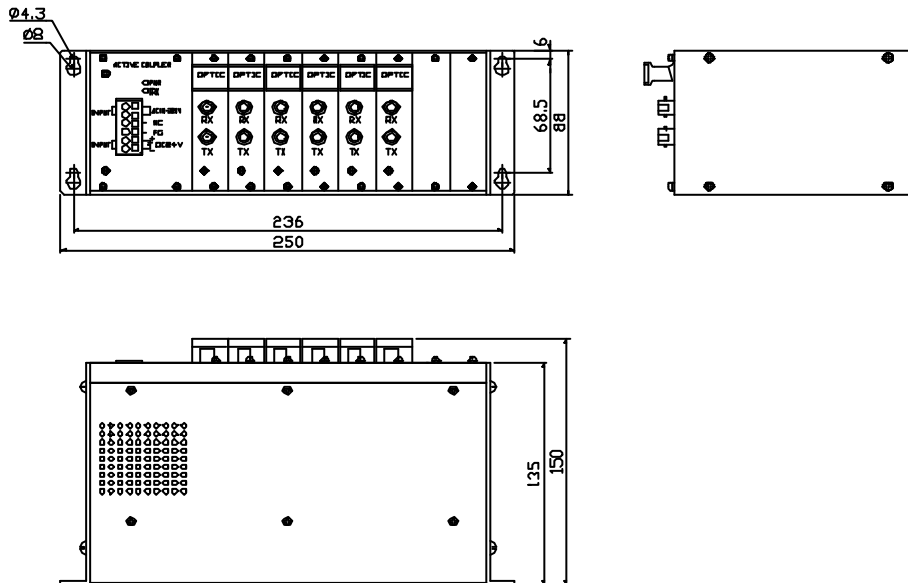
(GOL-SMQA, GOL-SMIA, GOL-SMHA, GOL-AD3A/GOL-DA3I)  
 (GOL-FREA)  
 (GOL-FOEA)



: mm



(GOL-FAPA/GOL-FABA/GOL-FACA)



: mm

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