



MASTER-K200S

Programmable Logic Controller

■ Features

- Small- and medium-scale control with 384 points
- High-speed processing: 0.5 μ s/step
- On-line editing
- Change I/O value by force
- Small- and medium-sized manufacture line control by network
- Various special modules: analog, HSC, positioning, etc
- Built-in flash memory
- 3 types of CPU
- System monitoring function
- Trigger function
- Network support: Cnet, Fast Ethernet, Fnet, Rnet, DeviceNet, and Profibus-DP



■ Specifications

Items			K3P-07AS	K3P-07BS	K3P-07CS
Operation method			Cyclic execution of stored program, Time-driven operation, Interrupt task operation		
I/O control method			Scan synchronized batch processing method (Refresh method), Direct method by program		
Program language			Ladder diagram, Mnemonic		
Number of instructions	Basic		30		
	Application		218		
Processing speed	Basic instructions		0.5 μ s/Step		
Program memory capacity			7k steps		
Max. I/O points			384		
Memory device	P (I/O Relay)		P0000~P031F (512 points) *1)		
	M (Auxiliary relay)		M0000~M191F (3,072 points)		
	K (Keep relay)		K0000~K031F (512 points)		
	L (Link relay)		L0000~L063F (1,024 points)		
	F (Special relay)		F0000~F063F (1,024 points)		
	T (Timer)	100ms	T000~T191 (192 points): available to change by parameter		
		10ms	T192~T255 (64 points): available to change by parameter		
	C (Counter)		C000~C255 (256 points)		
	S (Step controller)		S00.00~S99.99 (100X100 step)		
D (Data register)		D0000~D4999 (5,000 words)			
Timer type			On-delay, Off-delay, Integration, Monostable, Retriggerable timer		
Counter type			Up, Down, Up-down, Ring counter		
Special function			On-line editing, Change I/O value by force		
Operation mode			Run, Stop, Pause, Debug		
Max. expansion stage			Main base only		
Self-diagnostic functions			Watchdog timer, Memory error, I/O error, Battery error, Power supply error		
Base type			4/6/8/12 slot *2)		
Built-in functions			Cnet (RS-232C) *3)	PID control Cnet (RS-422/485) RTC function	PID control Cnet (RS-232C) *3) HSC (50kHz) RTC function
Internal current consumption			170mA	210mA	170mA

*1) With a 32-point I/O installation, P area is P0000~P023F and the rest of it is available to use as internal memory.

*2) The suitable power module for GM6-B12M is GM6-PAFC, which can't support an analog module. For analog modules or TC module, you are supposed to use GM6-PAFB or GM6-PDFB considering internal current consumption of each module. Communication modules are not to be installed in after slot number 7.

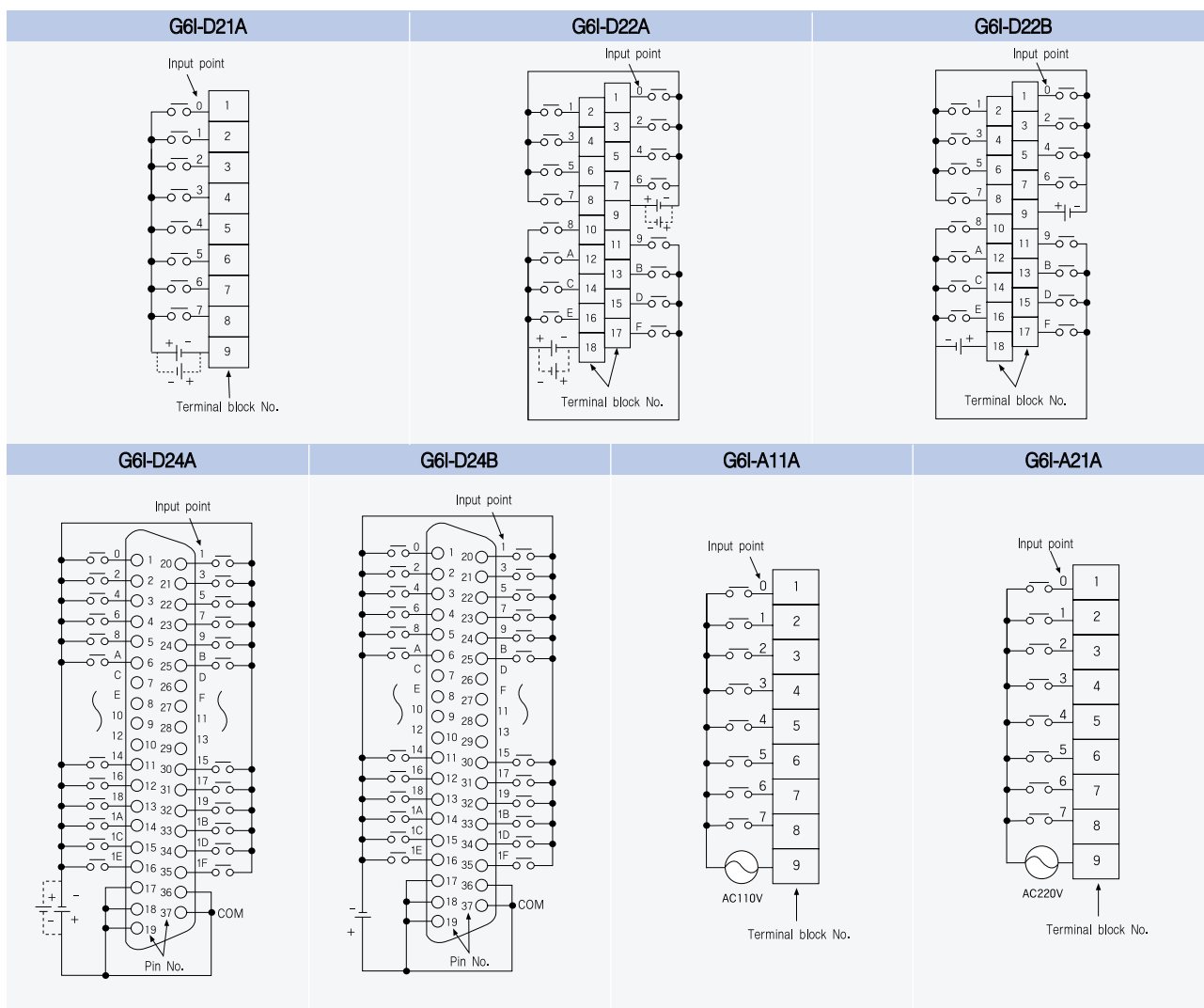
*3) Built-in RS-232C port: 4(Rx), 7 (Tx), 5 (SG)

Input modules

Input module specifications

Input type		DC Input					AC Input *1)	
Part number		G6I-D21A	G6I-D22A	G6I-D22B	G6I-D24A	G6I-D24B	G6I-A11A	G6I-A21A
Input point		8 points	16 points		32 points		8 points	
Rated input voltage		DC12/24V	DC12/24V	DC24V	DC12/24V	DC24V	AC100~120V	AC200~240V
Rated input current		3/7mA	3/7mA	7mA	3/7mA	7mA	7mA	11mA
On voltage/current		DC9.5V or more/ 3.5mA or more	DC9.5V or more/ 3.5mA or more	DC15V or more/ 4.3mA or more	DC9.5V or more/ 3.5mA or more	DC15V or more/ 4.3mA or more	AC80V or more/ 5mA or more	AC80V or more/ 5mA or more
Off voltage/current		DC5V or less/ 1.5mA or less	DC5V or less/ 1.5mA or less	DC5V or less/ 1.7mA or less	DC5V or less/ 1.5mA or less	DC5V or less/ 1.7mA or less	AC30V or less/ 2mA or less	AC30V or less/ 2mA or less
Response time	Off→On	5ms or less	5ms or less	5ms or less	5ms or less	5ms or less	15ms or less	15ms or less
	On→Off	5ms or less	5ms or less	5ms or less	5ms or less	5ms or less	25ms or less	25ms or less
Common		8 points/COM			32 points/COM		8 points/COM	
Operating indicator		LED						
Insulation method		Photocoupler insulation						
Current consumption (DC5V)		40mA	70mA		75mA		35mA	

*1) AC input modules: 50/60Hz



* Refer to user's manual for wiring.

MASTER-K200S

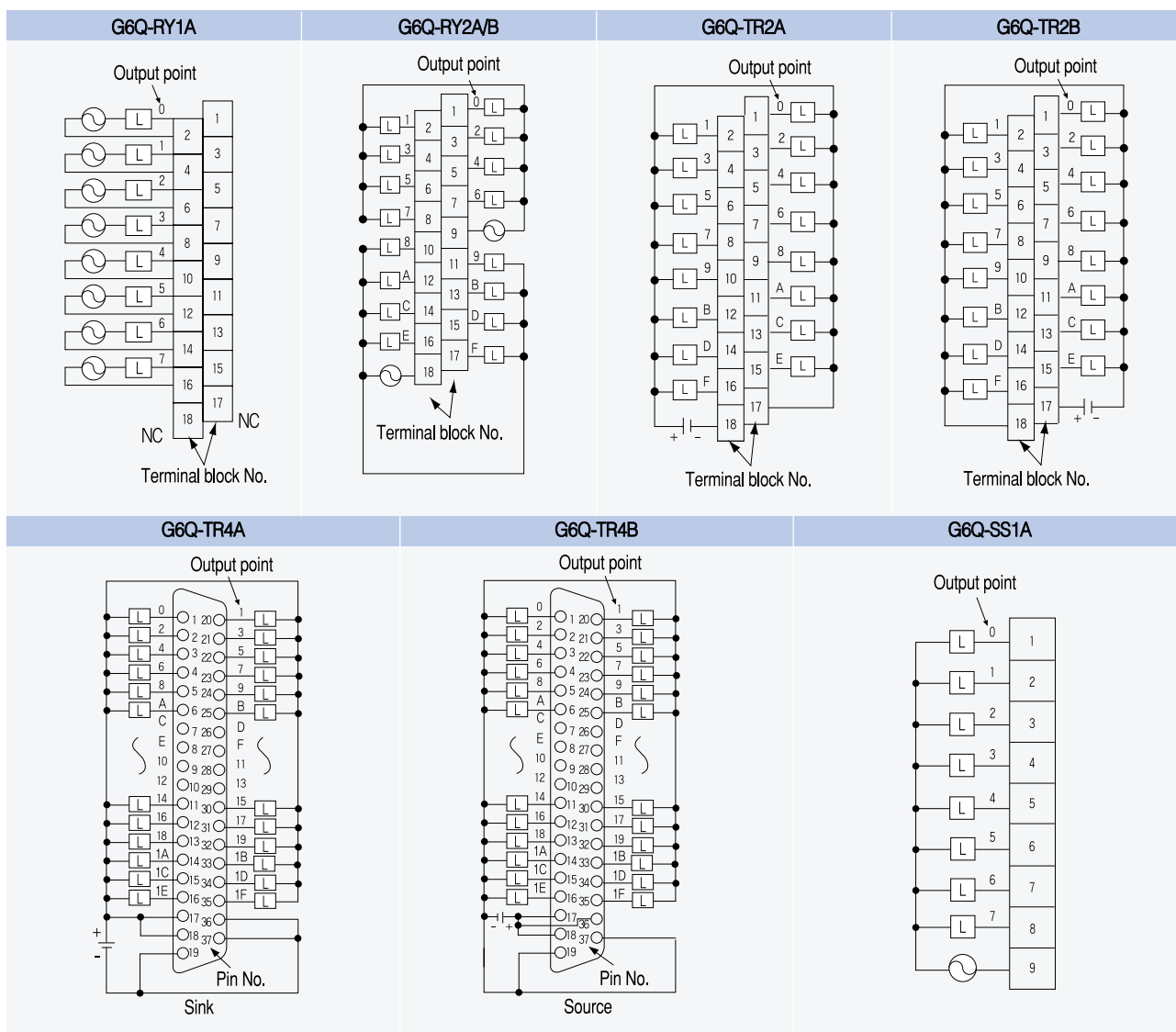
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Output modules

■ Output module specifications

Output module type		Relay output			Transistor output				Triac output
Part number		G6Q-RY1A	G6Q-RY2A	G6Q-RY2B	G6Q-TR2A	G6Q-TR2B	G6Q-TR4A	G6Q-TR4B	G6Q-SS1A
Output point		8 points	16 points		16 points	16 points	32 points	32 points	8 points
Rated load voltage		DC12/24V, AC110/220V (50/60Hz)			DC12/24V				AC110/220V (50/60Hz)
Off leakage current					0.1mA or less				2.5mA or less
On voltage drop		-			DC1.5V or less		DC2.5V or less	DC3V or less	AC1.5V or less
Rated load current	1 Point	2A			0.5A		0.1A		1A
	1 Common	-	5A		3A		2A		4A
Response time	Off → On	10ms or less			2ms or less				1ms or less
	On → Off	12ms or less			2ms or less				0.5cycle+ 1ms or less
Common		1 point/COM	8 points/COM		16 points/COM		32 points/COM		8 points/COM
Operating indicator		LED							
Insulation method		Relay			Photocoupler				
Surge absorber		-	Varistor		Clamp diode				Varistor, CR absorber
Current consumption (DC5V)		210mA	400mA		180mA	170mA	140mA	145mA	190mA
External power supply		-			DC24V				-

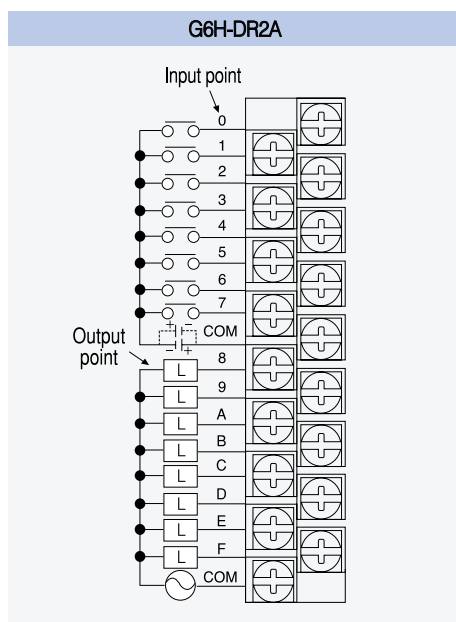
* G6Q-TR2A/TR4A: Sink type, G6Q-TR2B/TR4B: Source type



* Refer to user's manual for wiring.

■ I/O hybrid module specifications

G6H-DR2A					
Input			Output		
Input point		8 points	Output point		8 points
Insulation method		Photocoupler	Insulation method		Relay
Rated input voltage		DC 12/24V	Rated load voltage/current		DC 24V, 2A (Resistance)/1 point, 4A/COM AC 220V, 2A (COS $\varnothing$ = 1)/1 point, 4A/COM
Rated input current		3/7mA	Min. load voltage/current		DC 5V/1mA
Operating voltage range		DC 10.2~28.8V (Ripple rate < 5%)	Max. load voltage		AC 250V, DC 125V
Max. simultaneous input		8 points (100% simultaneous ON)	Off leakage current		0.1mA (AC 220V, 60Hz)
On voltage/current		DC 9.5V/3.5mA or more	Max. switching frequency		1,200 times/hour
Off voltage/current		DC 5V/1.5mA or less	Surge absorber		-
Input impedance		About 3.3k Ω	Service life	Mechanical	20 million times or more
Response time	Off $\rightarrow$ On	5ms or less	Response time	Electrical	100,000 times or more (Rated load V/C)
	On $\rightarrow$ Off	7ms or less		Off $\rightarrow$ On	10ms or less
-		-		On $\rightarrow$ Off	12ms or less
Common		8 points/COM	Common		8 points/COM
Operating indicator		LED	Operating indicator		LED
External connection		18-point terminal block connector (M3 $\times$ 6 screws)			
Current consumption (DC 5V)		250mA			
Weight		200g			



* Refer to user's manual for wiring.

■ Features

- Small- and medium-scale control with 1,024 points ^{*1)}
 - High-speed processing: 0.2 μ s/step
 - On-line editing
 - Change I/O value by force
 - Small- and medium-sized manufacture line control by network
 - Downsizing and high performance
- Various special modules: analog, HSC, PID, positioning, etc
 - Network support: Cnet, Fast Ethernet, Fnet, Rnet, DeviceNet, Profibus-DP
 - CPU version 3.0 or later: max. 4 modules in total
 - CPU version 2.9 or less: max. 2 modules in total



■ Specifications

Items		K4P-15AS
Operation method		Cyclic execution of stored program, Time-driven operation, Interrupt task execution
I/O control method		Scan synchronized batch processing method (Refresh method), Direct method by program
Program language		Ladder diagram, Mnemonic
Number of Instructions	Basic	30
	Application	218
Processing speed	Basic instructions	0.2 μ s/Step
Program memory capacity		15k steps
Max. I/O points		1,024
Memory device	P (I/O relay)	P0000~P063F (1,024 points)
	M (Aux. relay)	M0000~M191F (3,072 points)
	K (Keep relay)	K0000~K031F (512 points)
	L (Link relay)	L0000~L063F (1,024 points)
	F (Special relay)	F0000~F063F (1,024 points)
	T (Timer)	T000~T191 (192 points): available to change by parameter
		T192~T255 (64 points): available to change by parameter
	C (Counter)	C000~C255 (256 points)
	S (Step controller)	S00.00~S99.99 (100X100 step)
	D (Data register)	D0000~D4999 (5,000 words)
Timer type		On-delay, Off-delay, Integration, Monostable, Retriggerable timer
Counter type		Up, Down, Up-down, Ring counter
Special functions		RTC, On-line editing, Change I/O value by force
Operating mode		Run, Stop, Pause, Debug
Max. expansion stage		3 ^{*2)}
Self-diagnostic functions		Watchdog timer, Memory error, I/O error, Battery error, Power supply error
Data retention at power failure		Latch area setting in parameter (Basic)
Base type		4/6/8/12 ^{*3)} slot
Internal current consumption		130mA

^{*1)} CPU version 2.9 or less: max. number of I/Os is 512 points.

^{*2)} Max. length of the expansion cable: 3m

^{*3)} No expansion is available in the 12-slot base

Input/output modules

■ Features

- 16/32/64 points
- Operation status monitoring by LED
- Insulated by Photocoupler
- Easy maintenance with terminal block & one touch installation

■ Input module specifications

Input type		DC Input					
Part number		G4I-D22A/C *1)		G4I-D22B	G4I-D24A/C *1)	G4I-D24B	G4I-D28A *2)
Input point		16 points			32 points		64 points
Rated input voltage		DC 12/24V *1)					
Rated input current		5/11mA			3/7mA		3/6mA
On voltage/current		DC 9.5V or more/4mA or more			DC 9.5V or more/3mA or more		
Off voltage/current		DC 6V or less/1.0mA or less					
Response time	Off → On	10ms or less					
	On → Off	10ms or less					
Common		8 points/COM			32 points/COM		
Type		Source/Sink	Source (+COM)		Source/Sink	Source (+COM)	Source/Sink
Operating indicator		LED					
Insulation method		Photocoupler insulation					
Current consumption (DC 5V)		70mA			75mA		250mA

Input type		AC Input		Interrupt
Part number		G4I-A12A	G4I-A22A	G4F-INTA
Input point		16 points		8 points
Rated input voltage		AC 100~120V (50/60Hz)	AC 200~240V (50/60Hz)	DC 24V
Rated input current		11mA		10mA
On voltage/current		AC 80V or more/6mA or more	AC 150V or more/4.5mA or more	DC 15V or more
Off voltage/current		AC 30V or less/3mA or less	AC 50V or less/3mA or less	DC 5V or less
Response time	Off → On	15ms or less		0.5ms or less
	On → Off	25ms or less		0.5ms or less
Common		8 points/COM		1 point/COM
Operating indicator		LED		
Insulation method		Photocoupler insulation		
Current consumption (DC 5V)		70mA		

■ Output module specifications

Output type		Transistor output				
Part number		G4Q-TR2A	G4Q-TR2B	G4Q-TR4A	G4Q-TR4B	G4Q-TR8A
Output point		16 points		32 points		64 points
Rated load voltage		DC 12/24V				
Rated load current	1 Point	0.5A		0.1A		
	1 Common	3A/COM		2A/COM		
Response time	Off → On			2ms or less		
	On → Off			2ms or less		
Common		8 points/COM		32 points/COM		
Operating indicator		LED				
Type		Sink (-COM)	Source (+COM)	Sink (-COM)	Source (+COM)	Sink (-COM)
Insulation method		Photocoupler insulation				
Surge absorber		Varistor		-		
Current consumption (DC 5V)		100mA		160mA		250mA
External power supply		DC 24V				

Output type		Relay output	Triac output			
Part number		G4Q-RY2A *3)	G4Q-SS2A	G4Q-SS2B		
Output point			16 points			
Rated load voltage		DC 12/24V, AC 110/220V (50/60Hz)		AC 100~240V (50/60Hz)		
Rated load current	1 Point	2A	1A	0.6A		
	1 Common	4A/COM	5A/COM	2.4A/COM		
Response time	Off → On	10ms or less	0.5cycle + 1ms or less		0.5cycle + 1ms or less	
	On → Off	12ms or less				
Common		8 points/COM				
Operating indicator		LED				
Type		-				
Insulation method		Photocoupler insulation				
Surge absorber		-	Varistor, CR absorber			
Current consumption (DC 5V)		100mA	330mA			
External power supply		DC24V	-			

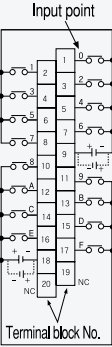
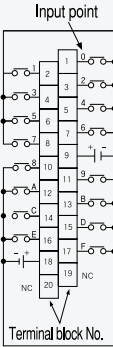
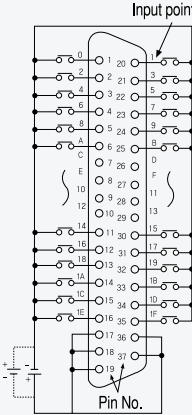
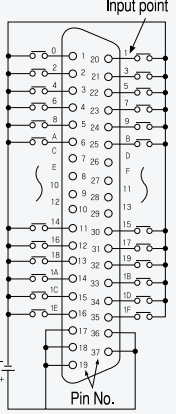
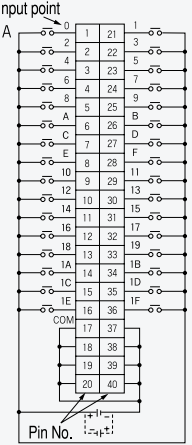
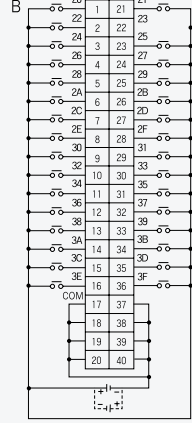
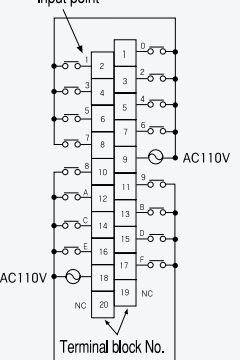
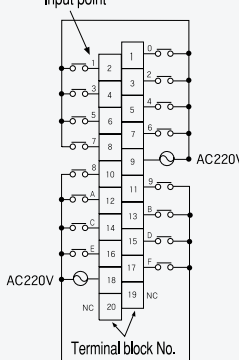
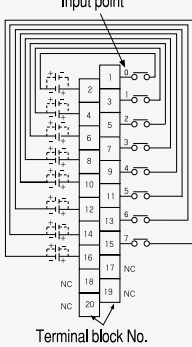
*1) Rated input voltage for G4I-D2XC is DC24V and on voltage is 19.6V

*2) G4I-D28A and G4Q-TR8A are connector-type modules

*3) For G4Q-RY2A operation, you need to supply DC24V.

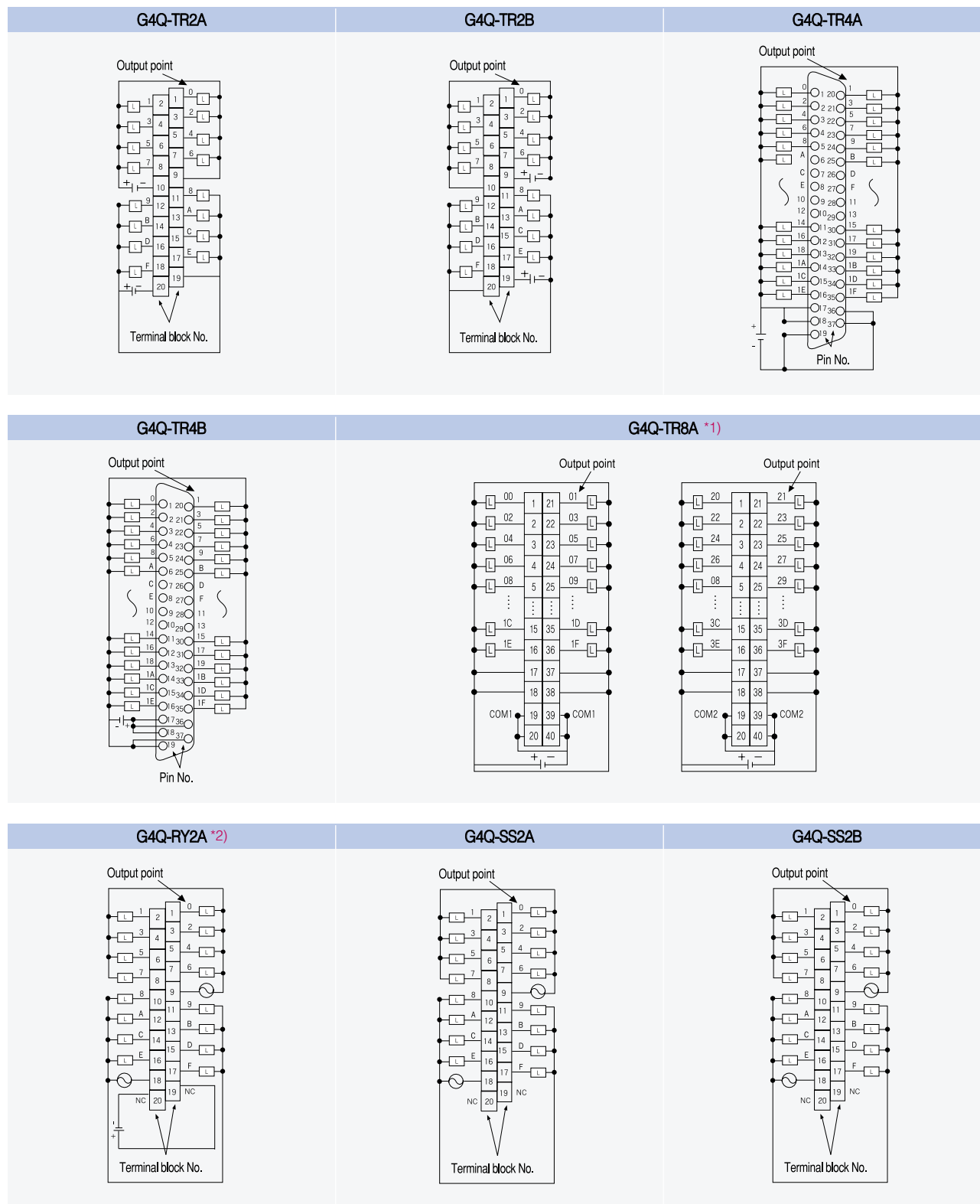
Input/output modules

■ Wiring diagram for input modules

G4I-D22A/C *1) 	G4I-D22B 	G4I-D24/ *1) 
G4I-D24B 	G4I-D28A *2) 	G4I-D28A *2) 
G4I-A12A 	G4I-A22A 	G4F-INTA 

*1) Rated input voltage for G6I-D2XC is DC24V and on voltage is 19.6V.
 *2) G4I-D28A is a connector-type module.
 * Refer to user's manual for wiring.

■ Wiring diagram for output modules



*1) G4Q-TR8A is a connector. type module.

*2) For G4Q-RY2A operation, you need to supply DC24V.

* Refer to user's manual for wiring.



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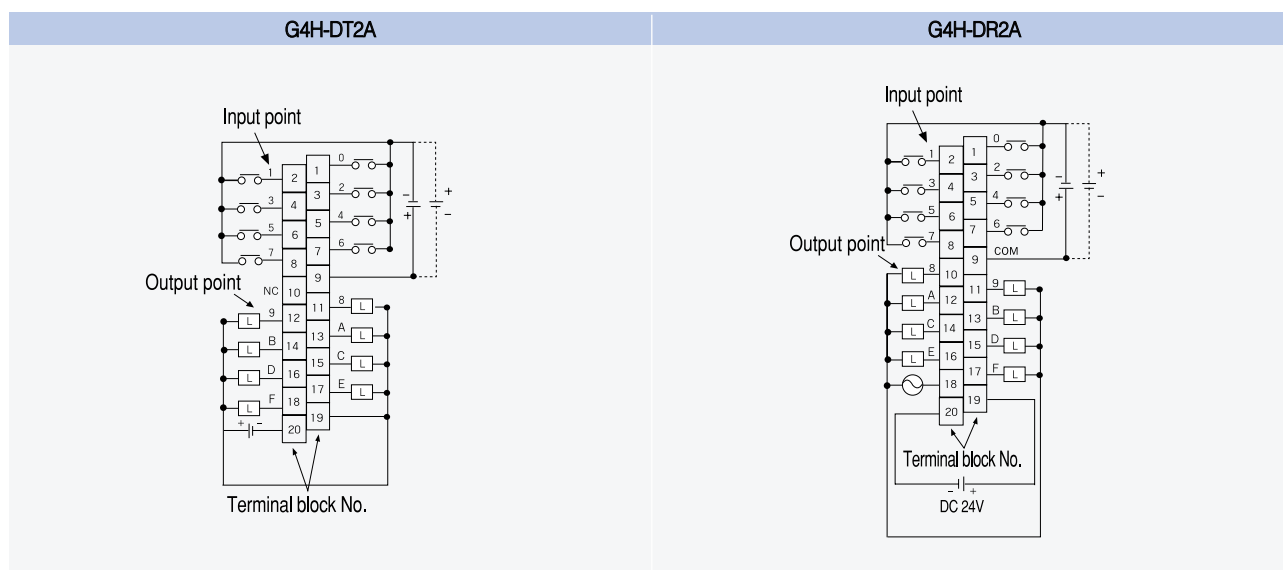
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I/O hybrid module specifications

Input type		DC Input			
Part number		G4H-DT2A		G4H-DR2A *1)	
Input point		8 points			
Rated input voltage		DC 12V	DC 24V	DC 12V	DC 24V
Rated input current		5mA	11mA	5mA	11mA
On voltage/current		DC 9.5V or more/4.0mA or more			
Off voltage/current		DC 6V or less/1.0mA or less			
Response time	Off → On	10ms or less			
	On → Off	10ms or less			
Common		8 points/1COM			
Operating indicator		LED			
Insulation method		Photocoupler insulation			
Current consumption(DC 5V)		100mA			

Output type		Transistor output	Relay output
Part number		G4H-DT2A	G4H-DR2A
Output point		8 points	
Rated load voltage		DC 12/24V	DC 24V/AC 220V (50/60Hz)
On voltage drop		DC 1.5V or less	-
Off leakage current		0.1mA or less	
Rated load current		0.5A/1 point	2A/1 point
		3A/COM	5A/COM
Response time	Off → On	2ms or less	
	On → Off	2ms or less	
Common		8 points/1COM	
Operating indicator		LED	
Insulation method		Photocoupler insulation	
Surge absorber		Varistor	-

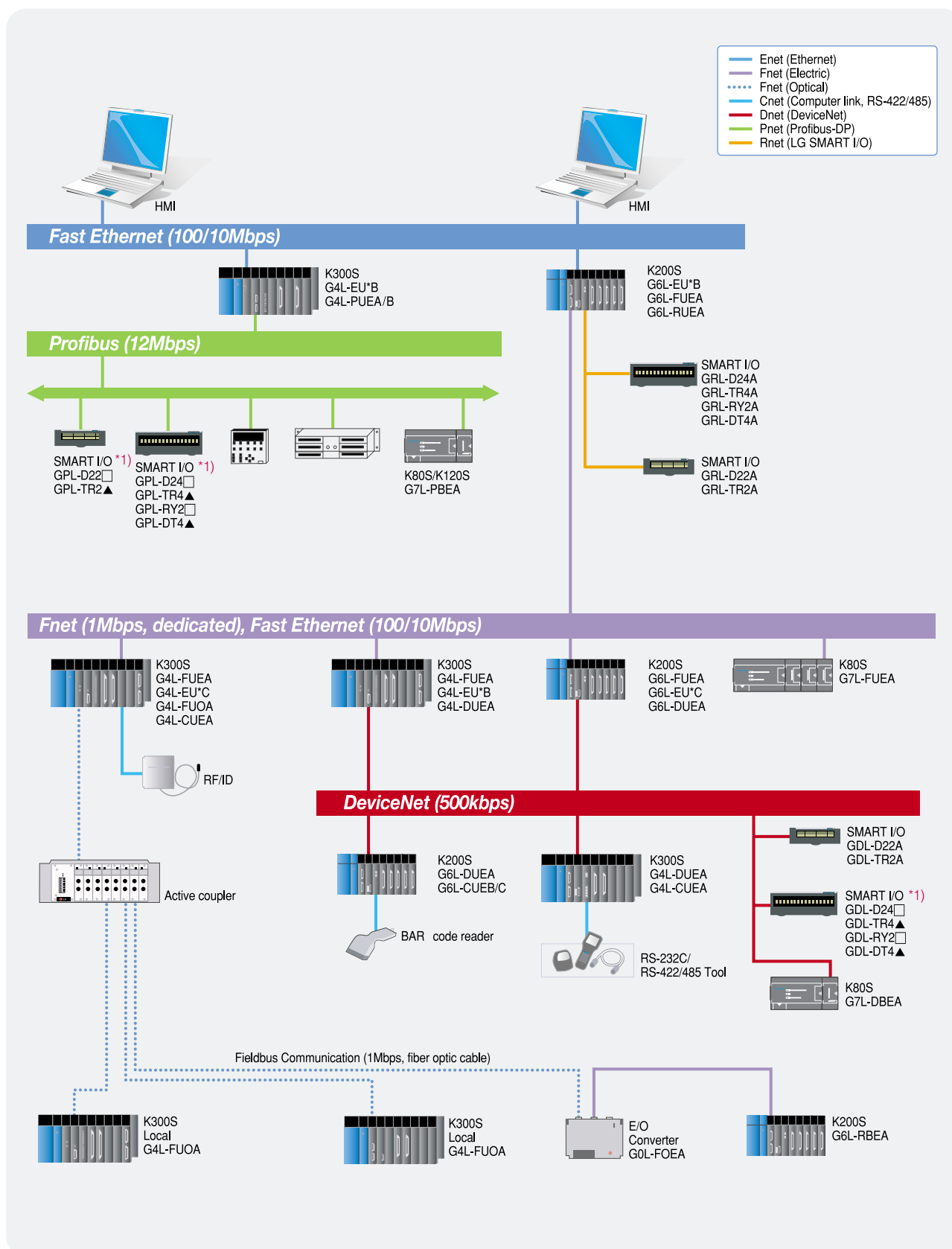
Wiring diagram



*1) For G4H-DR2A operation, you need to supply DC24V.

* Refer to user's manual for wiring.

System configuration



*1) Refer to P37, please.