



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.

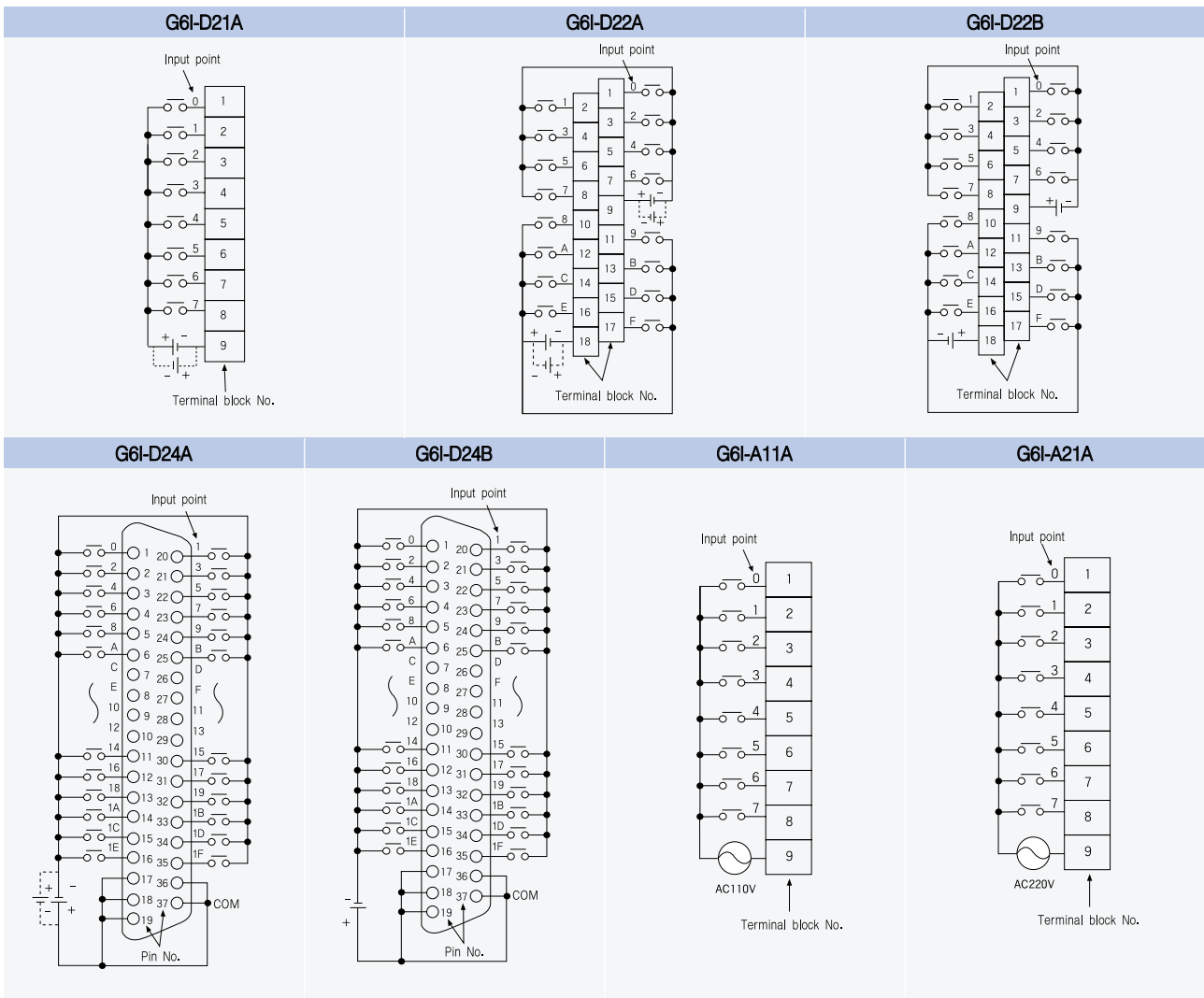
*3) Built-in RS-232C port: 4(Rx), 7 (Tx), 5 (SG)

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

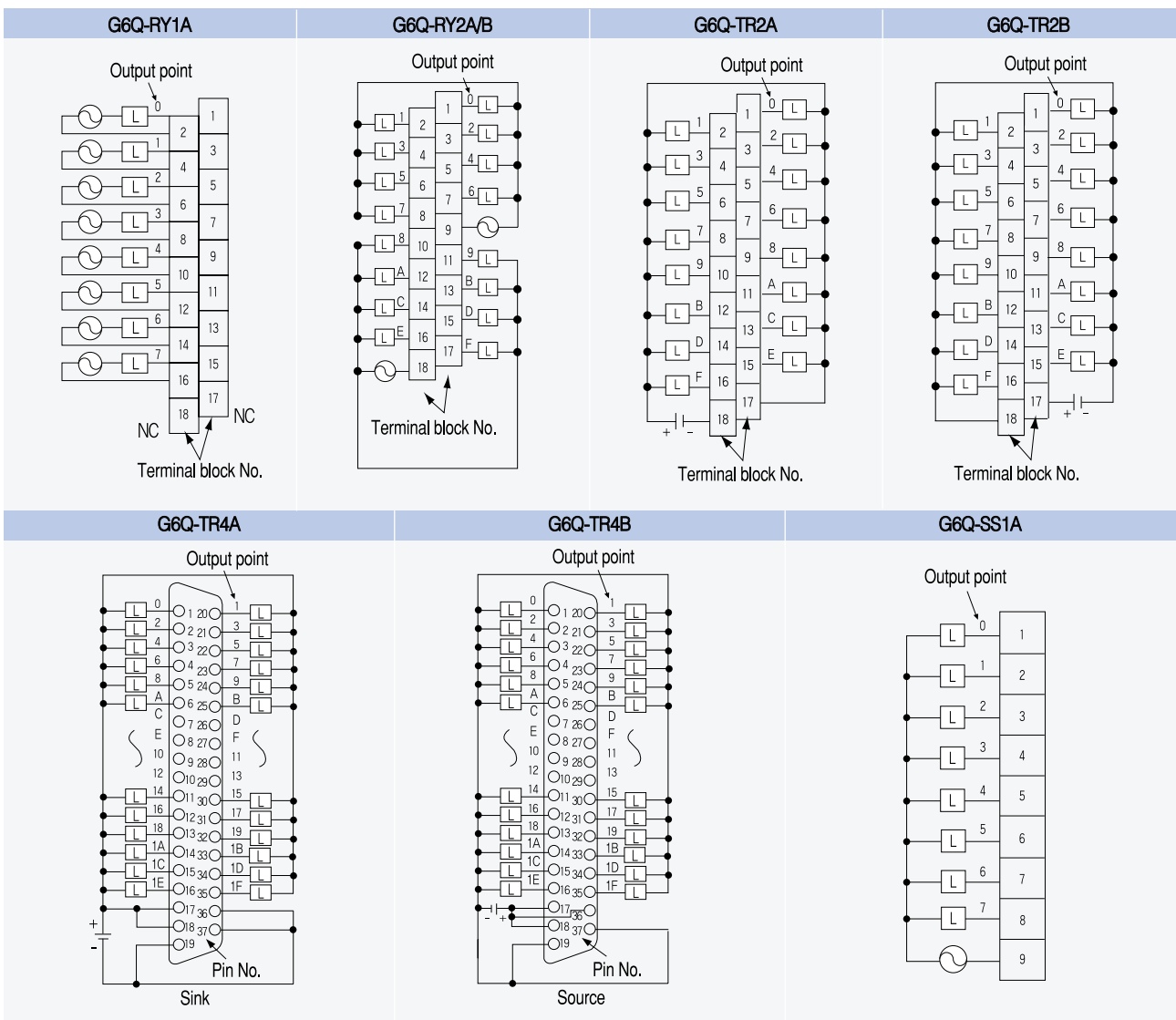
Programmable Logic Controller

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	-			Clamp diode				Varistor, CR absorber
Current consumption (DC5V)	210mA	400mA		180mA	170mA	140mA	145mA	190mA
External power supply	-			DC24V				-

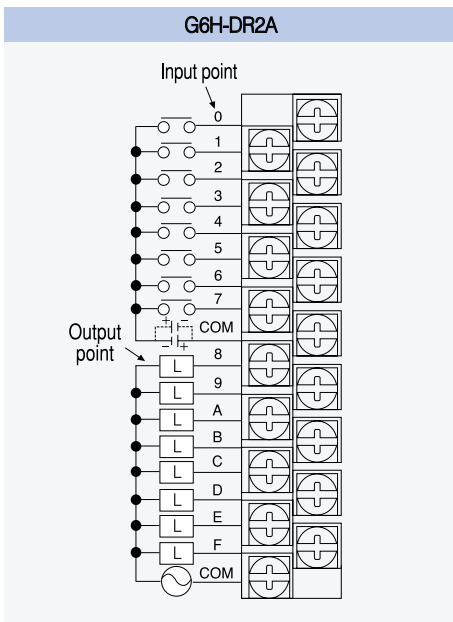
* G6Q-TR2A/TR4A: Sink type, G6Q-TR2B/TR4B: Source type



* 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 ϕ = 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 Electrical: 100,000 times or more (Rated load V/C)
Response time	Off \rightarrow On	5ms or less	Response time	Off \rightarrow On: 10ms or less On \rightarrow Off: 12ms or less
	On \rightarrow Off	7ms 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)			Weight	250mA 200g



* Refer to user's manual for wiring.



MASTER-K300S

Programmable Logic Controller

■ 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	Basic	30	
Instructions	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)	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 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	
	On → Off	12ms or less		0.5cycle + 1ms 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.

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Input/output modules

■ Wiring diagram for input modules

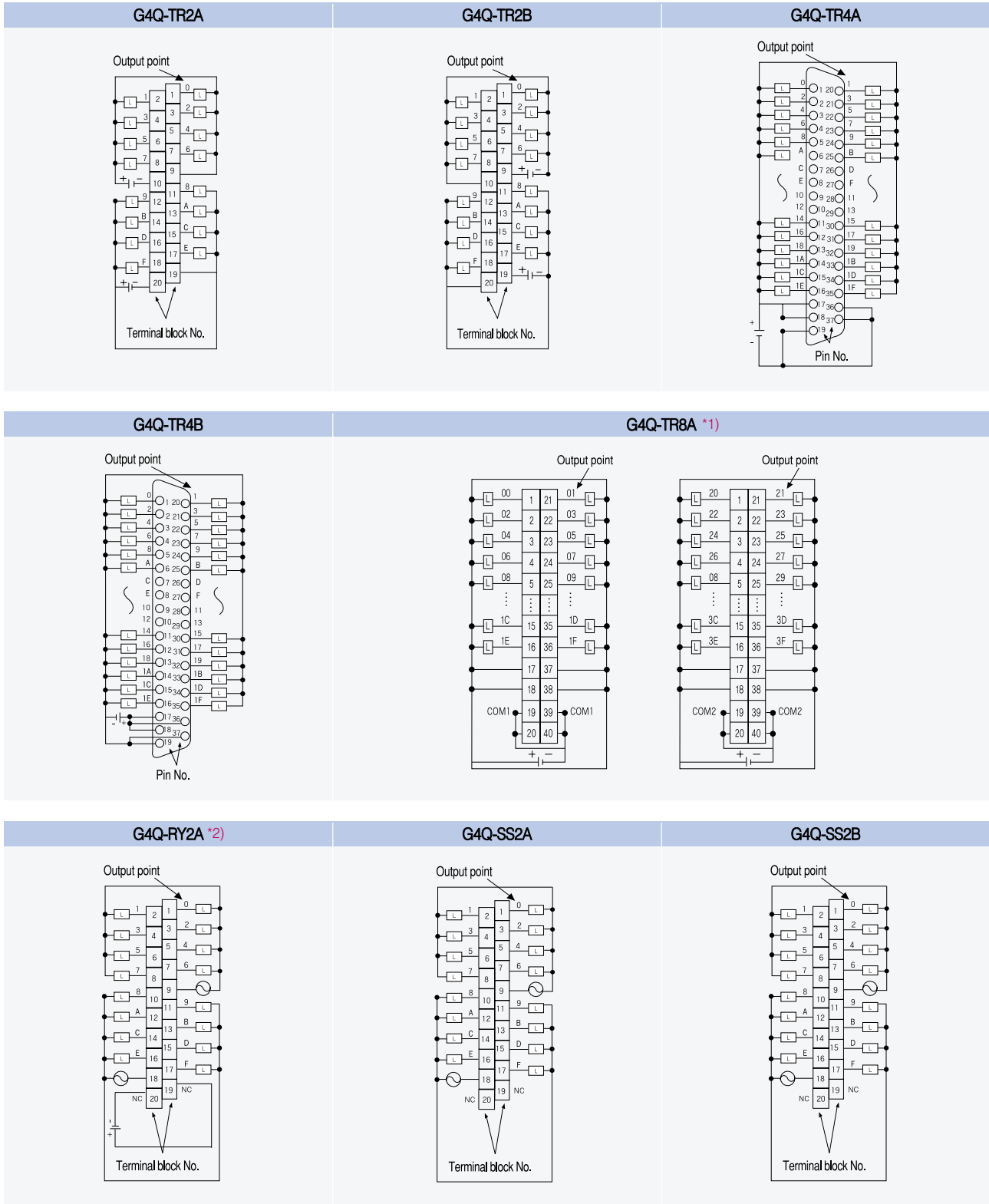
<p>G4I-D22A/C *1)</p>	<p>G4I-D22B</p>	<p>G4I-D24/ *1)</p>
<p>G4I-D24B</p>	<p>G4I-D28A *2)</p>	
<p>G4I-A12A</p>	<p>G4I-A22A</p>	<p>G4F-INTA</p>

*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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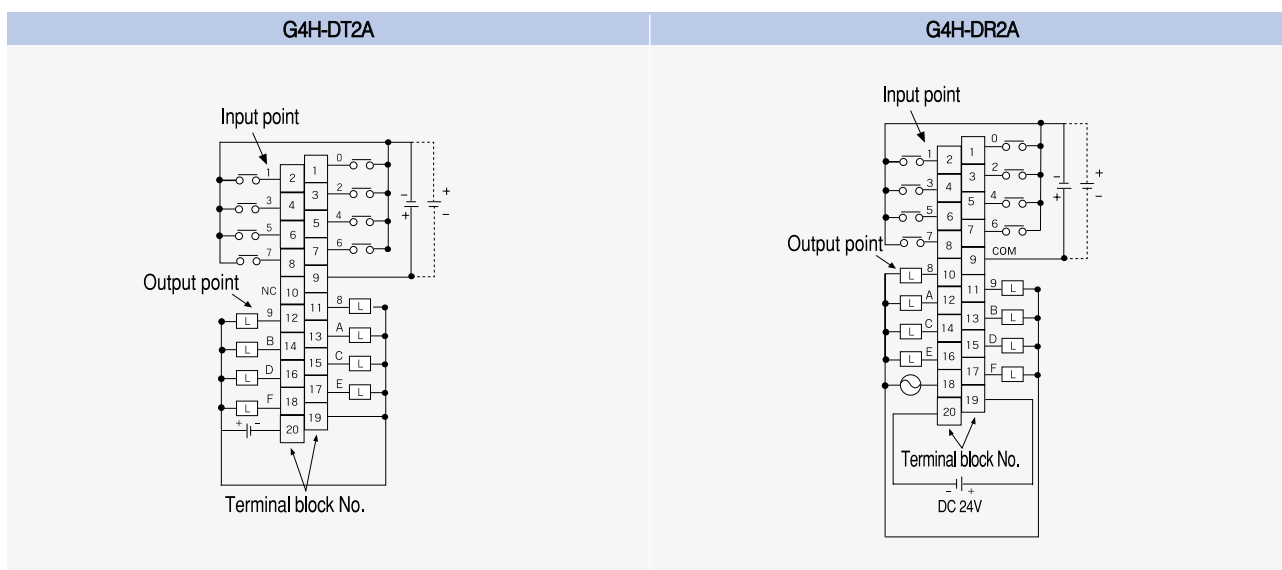
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I/O hybrid module specifications

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 3A/COM	2A/1 point 5A/COM
Response time	Off → On	2ms or less	10ms or less
	On → Off	2ms or less	10ms or less
Common		8 points/1COM	
Operating indicator		LED	
Insulation method		Photocoupler insulation	
Surge absorber		Varistor	-

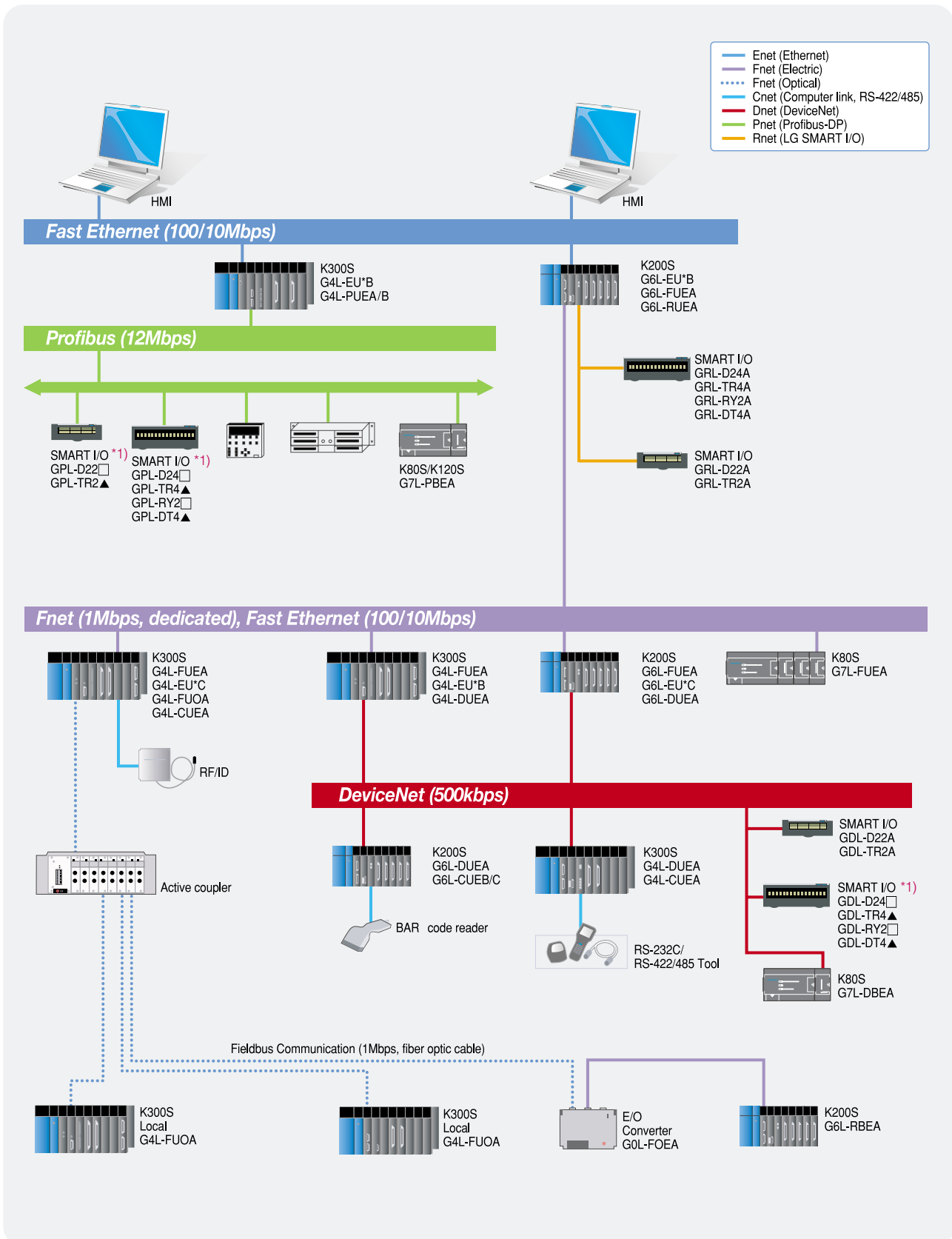
Wiring diagram



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

* Refer to user's manual for wiring.

System configuration



*1) Refer to P37, please.