



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

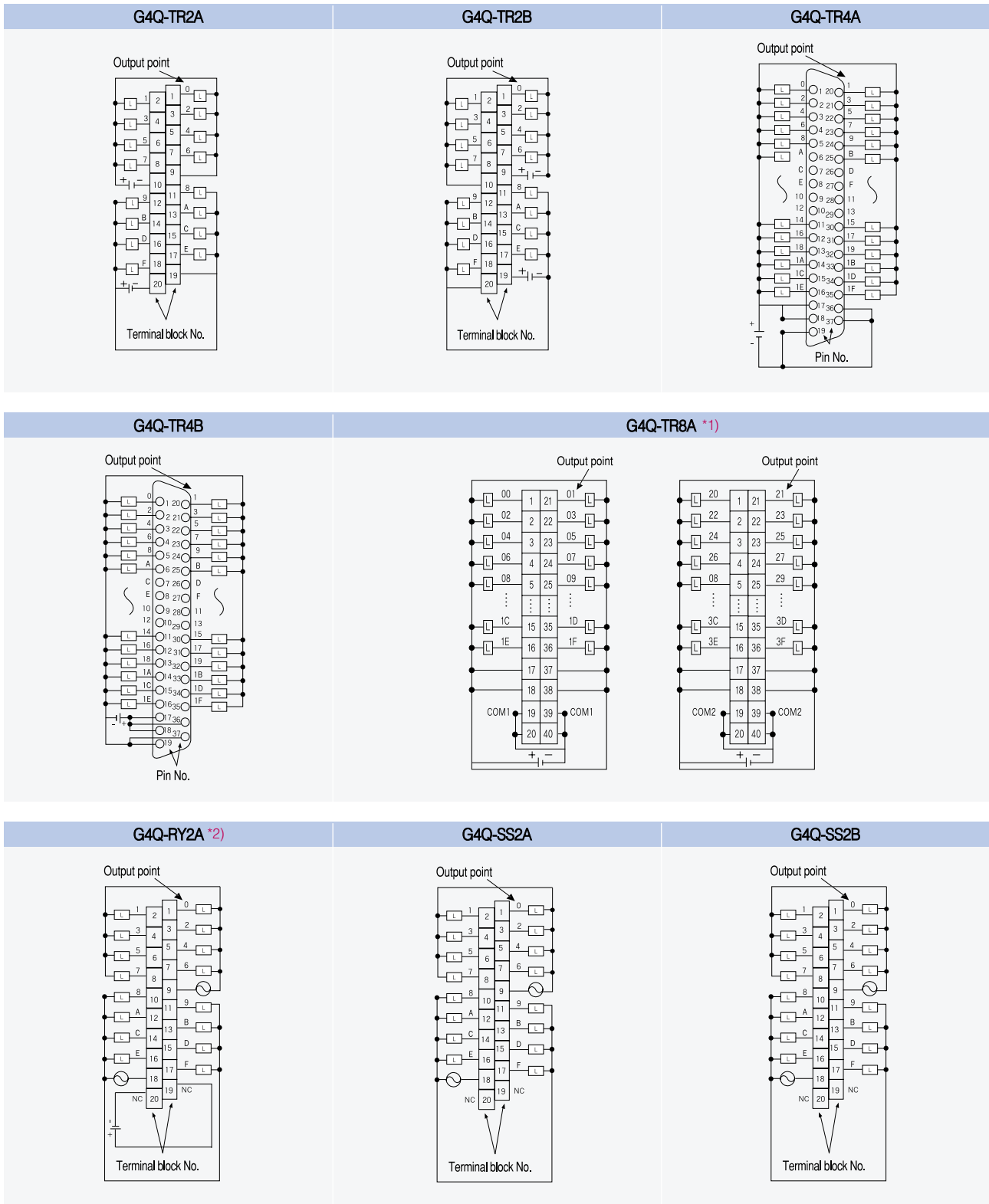
| | | |
|---|---|---|
| <p>G4I-D22A/C *1)</p> <p>Input point</p> <p>Terminal block No.</p> | <p>G4I-D22B</p> <p>Input point</p> <p>Terminal block No.</p> | <p>G4I-D24/ *1)</p> <p>Input point</p> <p>Pin No.</p> |
| <p>G4I-D24B</p> <p>Input point</p> <p>Pin No.</p> | <p>G4I-D28A *2)</p> <p>Input point</p> <p>Pin No.</p> | |
| <p>G4I-A12A</p> <p>Input point</p> <p>AC110V</p> <p>Terminal block No.</p> | <p>G4I-A22A</p> <p>Input point</p> <p>AC220V</p> <p>Terminal block No.</p> | <p>G4F-INTA</p> <p>Input point</p> <p>Terminal block No.</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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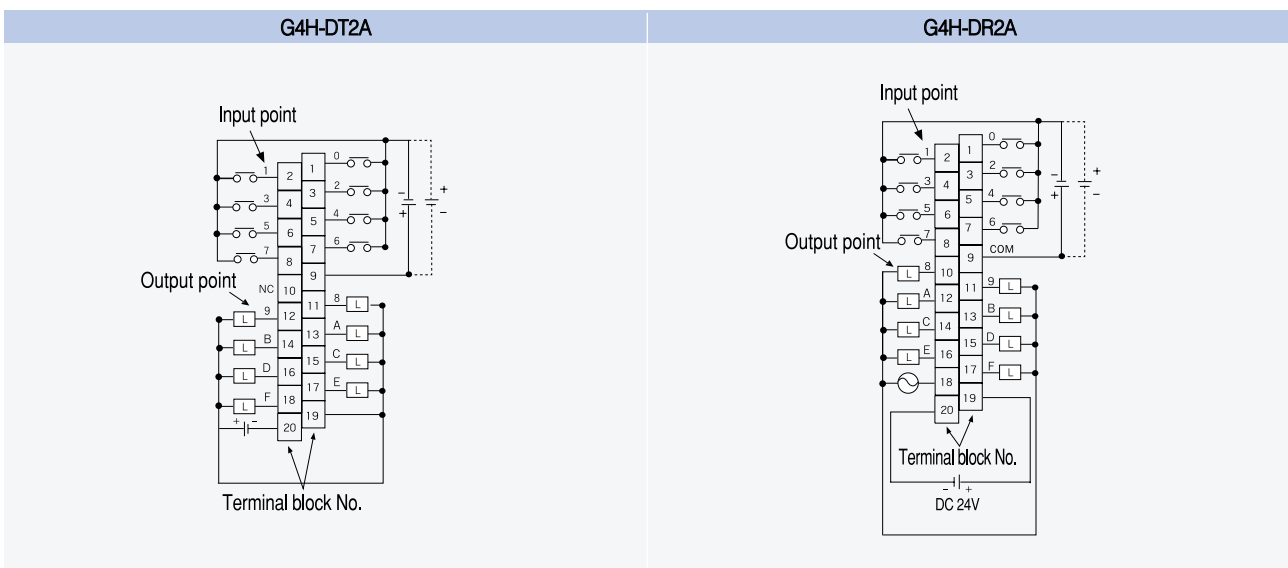
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I/O hybrid module specifications

| 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 | 2A/1 point |
| | | 3A/COM | 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.