The KP3000 series is a 96x96mm digital program setter with the analog output accuracy of ±0.1% and maximum 30 program patterns (maximum 19 steps/pattern).

Output signal can be specified from analog output type and digital output type. By combination with a digital indication controller with digital input, the configuration of low cost program control system is enabled.

**FEATURES**

**Program pattern**
Settings of maximum 19 steps per pattern and maximum 30 sets of patterns are enabled. Repeating of a whole program pattern, linking of program patterns and repeating of a specific step in a program pattern are enabled, too.

**Analog output type and digital output type**
Output of setting unit is selected from high accuracy (0.1%FS) analog output type and digital output type which has no setting error by using communications function.

**Communications 2-port type provided**
Models with 2 communications ports are available. In addition, speeding up and highly-functionalization of communications have been realized. For example, you can use 1 port for high order communications with a personal computer and another port for the communications remote (digital remote) function. The communications protocol can be arbitrarily selected from [MODBUS] and [PRIVATE]. In the digital output type, however, 1-port type of communications is only available.

**DI/DO arbitrarily-allocation**
When the digital input (DI) or the digital output (DO) is added, arbitrarily-allocation for assigning functions to those DI/DO’s is enabled. It is the function enabling allocations such as [External drive input] to DI1 to DI3 and [Pattern selecting input] to DI4 to DI6.

**Conforming to international safety standards and European directives (CE)**
The controller is conformity with European directives (CE), and is UL and c-UL approved.

**Conforming to RoHS**
The controller is an environmental consideration product which does not contain directed hazardous substances such as lead, etc.
KP3000 SERIES

**SCREENS**

1. **Operation status (RUN) indication**
   Lights in operation.

2. **Operation stop (STOP) indication**
   Lights in the state of operation stop.

3. **RESET indication**
   Lights when operation is cancelled and returns to the start point.

4. **Pattern No. (PTN) indication**

5. **Program remote (REM) indication**
   Lights when operation is executed by digital input.

6. **Executing step number (STP) indication**
   The step No. being executed is indicated.

7. **Function (FNC) operation indication**
   Lights when the function key is operated.

15. **Set value (SV) indication**

16. **Time signal (TS1 to TS8) indication**

---

**Upper display**

8. **FNC key**
   With the operation screen displayed, pressing it puts the controller in the operation key mode. With the settings screen displayed, pressing it puts the controller in the setting key mode and it operates to move the cursor backwards.

9. **RUN key**
   In the operation key mode, it operates as Run key. With the settings screen displayed, pressing it puts the controller in the setting key mode and it is used for switching between the operation screen and the mode screen of Mode 0, or for switching from the settings screen to the mode screen.

10. **STOP key**
    In the operation key mode, it operates as Stop key. With the settings screen displayed, pressing it puts the controller in the setting key mode and it is used to switch the settings screen.

11. **ADV key**
    In the operation key mode, it operates as Advance key. With the settings screen displayed, pressing it puts the controller in the setting key mode and it is used for moving the cursor and for selecting a parameter.

12. **RESET key**
    In the operation key mode, it operates as Reset key. With the settings screen displayed, pressing it puts the controller in the setting key mode and it is used for changing a setting value (or selecting a parameter) in descending order.

13. **PTN key**
    In the operation key mode, it operates as Pattern key. With the settings screen displayed, pressing it puts the controller in the setting key mode and it is used for changing a setting value (or selecting a parameter) in ascending order.

14. **ENT key**
    It is used for registering the settings.

18. **Engineering port**

---

**Lower display**

17. **A wide variety of operation screens are prepared and arbitrarily-selection is enabled.**
    On the whole program pattern display screen, the simultaneous display of the shape of whole program pattern and the progressed pattern position has been realized.

---

**Time screen**

**Pattern screen**
**OUTPUT SPECIFICATIONS**

Output signal: Analog output 4 to 20mA, 0 to 1V, 0 to 10V

Digital output RS422A, RS485

Accuracy rating: ±0.1% of full scale

Output updating cycle:

Analog output: Approximately 0.1 seconds

Digital output: Approximately 1 second

Resolution: Approximately 1/30000

Output impedance:

Voltage output: Approximately 10Ω

Load resistance: Current output 400Ω or more

Voltage output 50kΩ or more

**DISPLAY SPECIFICATIONS**

Upper display: LED

Lower display: LCD (with back light) 108 x 24 dots

**GENERAL SPECIFICATIONS**

No. of program patterns:

30 patterns

Pattern repetition… Max.9999 times

No. of program step:

19 step/pattern

Step repetition… Max.99 times

Rated power voltage:

General power supply specifications 100 to 240VAC

24V Power supply specifications 24VAC/24VDC

Rated power supply frequency:

General power supply specifications 50/60Hz

24V Power supply specification 50/60Hz (24VAC)

Maximum power consumption:

General power supply specifications

Without options 100VAC 10VA

240VAC 15VA

With options 100VAC 15VA

240VAC 20VA

24V Power supply specifications

Without options 24VAC 10VA

24VDC 5W

With options 24VAC 15VA

24VDC 10W

Power supply frequency:

General power supply specifications 21.6 to 26.4VDC/AC

Power supply specifications:

General power supply specifications 50/60Hz ±2%

24V Power supply specifications DC, 50/60Hz ±0.5%

Power supply frequency:

General power supply specifications 50/60Hz ±0.5%

24V Power supply specifications DC

Mounting angle:

Forward or backward ±3°, lateral ±3°

Installation height: Altitude 2000m or below

Vibration: 0m/s²

Impact: 0m/s²

Mounting condition:

Single-unit panel mounting (Space above, below, right and left of unit is needed.)

Wind: None

External noise: None

Warm up time: 30 minutes or longer

**SAFTY STANDARD**

CE directives: EN61326: 1997 +A1+A2+A3

EN61010-1: 2001 (Overvoltage category II, pollution degree 2)

* Under the test conditions of EMC directives, there may be a variation of indication value or output value which is equivalent to maximum ±10% or maximum 2mV, whichever is greater.

UL: UL61010-1 2nd edition

c–UL: CAN/CSA C22.2 No.61010-1-04

**REFERENCE OPERATION CONDITIONS**

Ambient temperature:

23°C ± 2°C

Ambient humidity:

55%RH ± 5% (No condensation)

Power voltage:

General power supply specifications 100VAC ±1%

24V power supply specifications ±1%

Power supply frequency:

General power supply specifications 50/60Hz ±0.5%

24V power supply specifications DC

Mounting angle:

Forward or backward ±3°, lateral ±3°

Installation height: Altitude 2000m or below

Vibration: 0m/s²

Impact: 0m/s²

Mounting condition:

Single-unit panel mounting (Space above, below, right and left of unit is needed.)

Wind: None

External noise: None

Warm up time: 30 minutes or longer

**NORMAL OPERATION CONDITIONS**

Ambient temperature:

-10°C to 50°C (-10°C to 40°C for closed installation)

Ambient humidity: 10 to 90%RH (no condensation)

Power voltage:

General power supply specifications 90 to 264VAC

24V Power supply specifications 21.6 to 26.4VDC/AC

Power supply frequency:

General power supply specifications 50/60Hz ±2%

24V Power supply specifications DC, 50/60Hz ±2%

Mounting angle:

Forward or backward ±10°, lateral ±10°

Installation height: Altitude 2000m or below

Vibration: 2m/s²

Shock: 0m/s²

Mounting condition:

Single-unit panel mounting (Space above and below of the unit is needed.)

External noise: None

Rate of ambient temperature change:

10°C/hour or less

**TRANSPORT CONDITIONS**

Ambient temperature:

-20°C to 60°C

Ambient humidity: 5 to 90%RH (no condensation)

Vibration: 4.9m/s² (10 to 60Hz)

Impact: 392m/s²

Under the condition that the unit is packed for shipment by the factory

**STORAGE CONDITIONS**

Ambient temperature:

-20°C to 60°C

For long term storage, the temperature should be 10°C to 30°C.

Ambient humidity:

5 to 90%RH (no condensation)

Vibration: 0m/s²

Impact: 0m/s²

Under the condition that the unit is packed for shipment by the factory

Vibration: 0m/s²

Impact: 0m/s²

Under the condition that the unit is packed for shipment by the factory

Vibration: 0m/s²

Impact: 0m/s²

Under the condition that the unit is packed for shipment by the factory

Vibration: 0m/s²

Impact: 0m/s²

Under the condition that the unit is packed for shipment by the factory

Vibration: 0m/s²

Impact: 0m/s²

Under the condition that the unit is packed for shipment by the factory
OPTIONS

Communications interface
With RS232C, RS422A or RS485, the setting and measured values of the controller can be transmitted to a master CPU and various parameters can be set by the master CPU.
Number of communications points: 2 points
Communications type: RS232C, RS422A, RS485
Communication speed: 2400/4800/9600/19200/38400 bps
Protocol: MODBUS (RTU), MODBUS (ASCII), PRIVATE

Digital signal input
The following switching is enabled by digital input signal.
Input signal: No-voltage contact, open-collector signal
External contact capacity: 5VDC 2mA
Functions: 1. Selection of pattern No. (6 points)
2. Run/stop
3. Advance
4. Reset
5. Wait
6. Fast

Digital signal output
Time signal or status signal can be outputted externally open-collector signal.
Output signal: Open-collector signal
Capacity: 24VDC, Maximum 50mA
Functions: 1. Time signal (Maximum 8 points)
2. Run/stop
3. Advance
4. Reset
5. Wait
6. End

Panel sealing
By mounting the controller to a panel, it has the panel sealing equivalent to IP54 compliance.

Terminal cover
It covers the terminals for safe. The cover is transparent.
**TERMINAL ARRANGEMENT**

- **Option terminals**
- **100-240V AC**
- **24V AC/DC**

### Digital output + Communications

<table>
<thead>
<tr>
<th>Communications RS232C</th>
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- **RD**
- **SA**
- **DI**
- **COM**

### Option terminals

**Options common to each zone**

- **P**: 6 digital inputs
- **T**: 6 digital outputs

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Based on combination with other options, assign the zone in the above order.

- R: Communications RS232C + 3 Digital inputs
- A: Communications RS422A + 1 Digital input
- B: Communications RS232C + 3 Digital inputs
- C: Communications RS232C + Communications RS422A + 1 Digital input
- D: Communications RS232C + Communications RS485 + 1 Digital input
- E: Communications RS485 + Communications RS232C + 1 Digital input
- F: Communications RS485 + Communications RS422A + 1 Digital input
- G: Communications RS485 + Communications RS485 + 1 Digital input
- U: 8 Digital inputs
- W: 8 Digital outputs
- Y: 3 Digital inputs + 5 Digital outputs
- Z: 4 Digital inputs + 4 Digital outputs
ABOUT CRIMP STYLE TERMINALS

- **Ring type**
  - 7 or less
  - 3.7 or less
  - (in pressed condition)

- **Spade type**
  - 7 or less
  - 3.7 or less
  - (in pressed condition)

*Use terminal with insulation

EXTERNAL DIMENSIONS

- **Panel cutout**
  - Unit: mm
  - 92 \( \times \) 7

- **Closed mounting panel dimensions**
  - Unit: mm
  - 96 \( \times \) N \( \times \) 4 \( \times \)

N: Number of mounted instruments

Specifications subject to change without notice. Printed in Japan (I) 2018. 8