

KV-N24DTP

Base Unit, DC power supply type, Input 14 points/output 10 points, transistor (source) output

Specifications

Model				KV-N24DTP
General specifications	Power voltage			24 VDC (+10%/-15%)
	Operating ambient temperature			0 to 55°C 32 to 131°F (no freezing)*1*2
	Operating ambient humidity			5 to 95% RH (no condensation)*1
	Operating environment			As little dust and corrosive gas as possible
	Noise immunity			1500 V peak-to-peak or more, pulse duration 1 μs, 50 ns (based on noise simulator), IEC standard compliant (IEC61000-4-2/3/4/6)
	Withstand voltage			1500 VAC for 1 minute, between power supply terminal and I/O terminals and between all external terminals and case
	Insulation resistance			50 MΩ or more (500 VDC megger used to perform measurements between power terminal and input terminals, and between all external terminals and case)
	Output power supply voltage			−
	Storage temperature			−25 to +75°C −13 to +167°F
	Vibration resistance	Intermittent vibration	Frequency: 5 to 9 Hz	Amplitude: 3.5 mm 0.14"*3*4
			Frequency: 9 to 150 Hz	Acceleration: 9.8 m/s² 32.2'/s²*3*4
		Continuous vibration	Frequency: 5 to 9 Hz	Amplitude: 1.75 mm 0.07"*3*4
			Frequency: 9 to 150 Hz	Acceleration: 4.9 m/s² 16.1'/s²*3*4
	Shock resistance			Acceleration: 150 m/s² 492.1'/s², application time: 11 ms, three times in each of the X, Y, and Z directions
	Operating altitude			2000 m 6561.7' or less
	Overvoltage category			AC: II, DC: I
	Pollution degree			2
Performance specifications	Calculation control method			Program storage method
	I/O control method			Refresh method
	Program language			Expanded ladder, KV Script, mnemonic
	Number of instructions			Basic instruction: 81 types and 182 instructions, Application instruction: 39 types and 56 instructions, Calculation instruction: 123 types and 311 instructions, Expansion instruction: 92 types and 141 instructions, Total: 335 types and 690 instructions
	Instruction execution speed			Basic instruction: 50 ns minimum, Application instruction: 170 ns minimum
	Program capacity			8k steps
	Maximum number of attachable I/O units			8
	Maximum number of I/O points			256 (excluding the base unit I/O)
	Input relay/Output relay/Inter-	R		Total of 9600 points 1 bit (R000 to R59915)

	nal auxiliary relay		
	Link relay	B	8192 points 1 bit (B0 to B1FFF)
	Internal auxiliary relay	MR	9600 points 1 bit (MR000 to MR59915)
	Latch relay	LR	3200 points 1 bit (LR000 to LR19915)
	Control relay	CR	1440 points 1 bit (CR000 to CR8915)
	Timer	T	512 points 32 bit (T0 to T511)
	Counter	C	256 points 32 bit (C0 to C255)
	Data memory	DM	32768 points 16 bit (DM0 to DM32767)
	Link register	W	16384 points 16 bit (W0 to W3FFF)
	Temporary memory	TM	512 points 16 bit (TM0 to TM511)
	High-speed counter	CTH	2 points (CTH0 to CTH1) 32-bit automatic reset counter*5(Input response: 100 kHz per single phase, 50 kHz per phase difference)*6
	High-speed counter comparator	CTC	4 points (CTC0 to CTC3), 32 bits, two points per high-speed counter
	Index register	Z	12 points 32 bit (Z01 to Z12)
	Control memory	CM	9000 points 16 bit (CM0 to CM8999)
	Positioning pulse output		2 axes Maximum output frequency: 100 kHz
	Base unit I/O		Input: 14 points, output: 10 points Input common: 1 point Output common: 1 point
	Number of comments and labels that can be stored in the main unit	Device comment	20000 When a maximum-length ladder program is written with no labels.
		Label	28000 When a maximum-length ladder program is written with no device comments.
	Power off hold function	Program memory	Flash ROM can be rewritten 10000 times
		Device	Nonvolatile RAM*7
	Self-diagnosis function		CPU error, RAM error, and other problems
Input specifications	Relay number		General input: R000 to R003, R008 to R013 (10 points) High-speed A-phase and B-phase input: R004 to R007 (2 channels, 4 points in total)
	Input mode		24 VDC input (open collector)
	Maximum input voltage		26.4 VDC
	Rated input voltage		24 VDC (General input: 5.3 mA, High-speed A-phase and B-phase input: 6.5 mA*8)
	Minimum ON voltage		19 VDC
	Maximum OFF current		1.5 mA
	Common method		General input: All points/1 common (1 terminal) High-speed A-phase and B-phase input: Shared common for all points (shared with general input)
	Circuit delay time		General input: OFF to ON: Max. 30 µs (Typ. 3.5 µs), ON to OFF: Max. 50 µs (Typ. 15 µs) High-speed A-phase and B-phase input: OFF to ON: Max. 2 µs (Typ. 1.1 µs), ON to OFF: Max. 2 µs (Typ. 0.3 µs) *9
	Input time constant		Normal: 10 ms, When the HSP instruction is used: 10 µs When CR2305 is turned ON: 10 µs to 10 ms, eight-level switching is possible (set with CM1620). Can also be set from the Unit Editor.*9
			Input time constant setting 10 µs: Digital filter 1.6 to 2 µs Input time constant setting 20 µs: Digital filter 9 to 12 µs

				Input time constant setting 110 µs: Digital filter 90 to 93 µs Input time constant setting 500 µs: Digital filter 300 to 400 µs Input time constant setting 1 ms: Digital filter 800 to 900 µs Input time constant setting 2.5 ms: Digital filter 2.3 to 2.4 ms Input time constant setting 5 ms: Digital filter 4.0 to 4.5 ms Input time constant setting 10 ms: Digital filter 9 to 9.5 ms
	Response frequency			(High-speed A-phase and B-phase input) Single phase: 100 kHz, phase difference: 50 kHz, 24 V ±10%, Duty 50%
Output specifications	Relay number			General output: R504 to R509 (6 points), High-speed output: R500 to R503 (4 points)
	Output mode			MOSFET *10
	Rated load			30 VDC, 0.5 A
	Maximum OFF voltage			30 VDC
	Leakage current at OFF			100 µA or less
	Residual voltage at ON			0.8 VDC or less (with 0.5 A output), 0.6 VDC or less (with 0.3 A output)
	Common method			8 to 10 points/1 common
	ON/OFF response time			General output: OFF to ON: 100 µs (load of 1 mA or more), ON to OFF: 200 µs (load of 1 mA or more) High-speed output: OFF to ON: 2 µs (7 to 100 mA load), ON to OFF: 5 µs (7 to 100 mA load)
	Overcurrent protection			Protection provided for each common*11
	Output frequency			High-speed output: 100 kHz (7 to 100 mA load)
Built-in serial port	Interface	Communication standard		RS-232C
		Connection		Modular connector
	Transmission specifications RS-232C	Baud rate		1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
		Transmission method		Full duplex
		Data format	Start bit	1 bit
			Data bits	7 bits, 8 bits
			Stop bits	1 bit, 2 bits
		Error detection	Parity	Even, odd, none
		Transmission distance		15 m 49.2'
		Number of transmission units		1
	Indication			SD (green), RD (red)
Internal current consumption				160 mA
Weight				Approx. 390 g

*1 The range guaranteed as a system (excluding items specially noted for the units and cassettes).
*2 The temperature below the unit center (30 mm 1.18") inside a control panel.
*3 These specifications correspond to situations in which the unit is mounted on a DIN rail and in which the unit is mounted on the panel directly.
*4 Conforms to JIS B 3502 and IEC61131-2, Scan times: 10 times (100 minutes) in each of the X, Y, and Z directions
*5 You can also configure the settings so that automatic reset is not used.
*6 Only open collectors are supported. Line drivers are not supported.
*7 You can set the target device by clicking “CPU system setting” and then “Power off holding” in KV STUDIO.
*8 Reference value of input current.
*9 The input response time corresponding to the input time constant can be calculated as shown below. (Response time) = (Circuit delay of the input circuit) + (Delay by the digital filter)
Example: Maximum response time when the input time constant is set to 500 µs
OFF to ON: 30 µs (circuit delay) + 400 µs (digital filter) = 430 µs
ON to OFF: 50 µs (circuit delay) + 400 µs (digital filter) = 450 µs
*10 MOSFET (P-ch) output for the source output type.
*11 If an overcurrent occurs, the protection operation (output turned OFF) and automatic recovery are repeated for all outputs within the shared common until the cause of the problem is removed.

Dimensions

* Download CAD file or product manual for larger image/text and more detail.

KV-N24DR/N24DT(P)

