



KV-N14AT

Base Unit, AC power supply type, Input 8 points/output 6 points, transistor (sink) output



*Please note that accessories depicted in the image are for illustrative purposes only and may not be included with the product.

Specifications

Model			KV-N14AT
General specifications	Power voltage	100 to 240 VAC (+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	24 VDC (±10%; output capacity : 0.6 A)	
	Storage temperature	-25 to +75°C -13 to +167°F	
	Vibration resistance	Frequency: 5 to 9 Hz	Amplitude: 3.5 mm 0.14***3*4
		Frequency: 9 to 150 Hz	Acceleration: 9.8 m/s ² 32.2/s²3*4
		Frequency: 5 to 9 Hz	Amplitude: 1.75 mm 0.07***3*4
		Frequency: 9 to 150 Hz	Acceleration: 4.9 m/s ² 16.1/s²3*4
	Shock resistance		Acceleration: 150 m/s ² 492.1/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		3
	Maximum number of I/O points		128 (excluding the base unit I/O)
	Input relay/ Output relay/	R	Total of 9600 points 1 bit (R000 to R59915)

Internal 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: 8 points, output: 6 points, Input common: 1 point, Output common: 1 point
Number of comments and labels that can be stored in the main unit	Device comment	10000 When a maximum-length ladder program is written with no labels.
	Label	14000 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 (4 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 R505 (2 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
			7 bits, 8 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		75 VA (* The VA values are calculated with a power factor of 30%.)	
Weight		Approx. 420 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 (N-ch) output for the sink 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-N14AR/N14AT(P)

