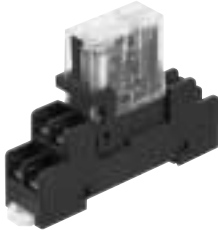


# NAIS

## SLIM AND COMPACT RELAY FOR WIDER APPLICATIONS

# HN RELAYS (AHN)



### FEATURES

- Slim and compact size**  
 20% more compact (width and height) than existing model\* (with the condition of screw terminal socket for DIN rail)  
\*Compared with our HJ relay.
- High reliability and reasonable price**  
 Uses gold-flashed contacts for highly reliable contact.
- Environmentally friendly**  
 In consideration of the environment, cadmium-free contacts are used. Also supports lead-free.  
 (Both relays and screw terminal socket.)

- Slim screw terminal socket**  
 Utilizes relay-securing hook for easy relay removal.

### TYPICAL APPLICATIONS

- Control panels
- Machine tools
- Forming machines
- Commercial equipment
- Agricultural machines
- Vending machines

## SPECIFICATIONS

### Contacts

Contact arrangement		2 Form C
Initial contact resistance, max. (By voltage drop 6 V DC 1 A)		50mΩ
Contact material		Gold-flashed silver alloy
Rating (resistive load)	Nominal switching capacity	5A 250V AC, 5A 30V DC
	Max. switching power	1,250 VA, 150W
	Max. switching voltage	250V AC, 30V DC
	Max. switching current	5 A
Expected life (min. operations)	Min. switching current* <sup>9</sup>	1V 1 mA
	Mechanical (at 300 cpm)	AC: 10 <sup>7</sup> DC: 2×10 <sup>7</sup>
	Electrical (at 20 cpm) (resistive load)	10 <sup>5</sup>

### Coil

Nominal operating power	0.53W 0.9VA
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### Remarks

- \* Specifications will vary with foreign standards certification ratings.
- \*<sup>1</sup> Measurement at same location as "Initial breakdown voltage" section
- \*<sup>2</sup> Detection current: 10mA
- \*<sup>3</sup> Excluding contact bounce time
- \*<sup>4</sup> For the AC coil types, the operate/release time will differ depending on the phase.
- \*<sup>5</sup> Half-wave pulse of sine wave: 11ms; detection time: 10μs
- \*<sup>6</sup> Half-wave pulse of sine wave: 6ms
- \*<sup>7</sup> Detection time: 10μs
- \*<sup>8</sup> Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT.
- \*<sup>9</sup> This value can change due to the switching frequency, environmental conditions and desired reliability level, therefore it is recommended to check this with the actual load.

### Characteristics

Max. operating speed		20 cpm (at max. rating)
Initial insulation resistance* <sup>1</sup>		Min. 1,000 MΩ at 500 V DC
Initial breakdown voltage* <sup>2</sup>	Between open contacts	1,000 Vrms for 1 min.
	Between contact sets	3,000 Vrms for 1 min.
	Between contact and coil	5,000 Vrms for 1 min.
Operate time* <sup>3</sup> (at nominal voltage)		Max. 15 ms* <sup>4</sup>
Release time (without diode)* <sup>3</sup> (at nominal voltage)		Max. 10 ms* <sup>4</sup>
Temperature rise, max. (at 70°C) (at nominal voltage)		60°C
Shock resistance	Functional* <sup>5</sup>	Min. 100 m/s <sup>2</sup> {10 G}
	Destructive* <sup>6</sup>	Min. 1,000 m/s <sup>2</sup> {100 G}
Vibration resistance	Functional* <sup>7</sup>	10 to 55 Hz at double amplitude of 1.5 mm
	Destructive	10 to 55 Hz at double amplitude of 1.5 mm
Conditions for operation, transport and storage* <sup>8</sup> (Not freezing and condensing at low temperature)	Ambient temp.	-40°C to +70°C -40°F to +158°F
	Humidity	5 to 85% R.H.
Unit weight		Approx. 19g .67 oz

## ORDERING INFORMATION

Ex. AHN



Contact arrangement	Terminal arrangement	Type classification	Coil voltage
2: 2 Form C	1: AC plug-in type 2: DC plug-in type	0: Standard 1: With LED indication 2: With diode 3: With LED indication, diode	05: 5, 06: 6, 12: 12, 24: 24, 48: 48 V X0: 100/110 V AC, 100 V DC X1: 110/120 V AC, 110 V DC Y0: 200/220 V AC, Y2: 220/240 V AC

Note: Products conform to UL/C-UL and VDE, as standard (VDE pending).

## TYPES

### 1. Plug-in type

Coil voltage	2 Form C
	Part No.
5V DC	AHN22005
6V DC	AHN22006
12V DC	AHN22012
24V DC	AHN22024
48V DC	AHN22048
100V DC	AHN220X0
110V DC	AHN220X1
12V AC	AHN21012
24V AC	AHN21024
100/110V AC	AHN210X0
110/120V AC	AHN210X1
200/220V AC	AHN210Y0
220/240V AC	AHN210Y2

Note: Packing quantity; Inner carton: 50 pcs, Outer carton: 500 pcs.

### 2. Plug-in with LED indication type

Coil voltage	2 Form C
	Part No.
5V DC	AHN22105
6V DC	AHN22106
12V DC	AHN22112
24V DC	AHN22124
48V DC	AHN22148
100V DC	AHN221X0
110V DC	AHN221X1
12V AC	AHN21112
24V AC	AHN21124
100/110V AC	AHN211X0
110/120V AC	AHN211X1
200/220V AC	AHN211Y0
220/240V AC	AHN211Y2

Note: Packing quantity; Inner carton: 50 pcs, Outer carton: 500 pcs.

### 3. Plug-in with diode type

Coil voltage	2 Form C
	Part No.
5V DC	AHN22205
6V DC	AHN22206
12V DC	AHN22212
24V DC	AHN22224
48V DC	AHN22248
100V DC	AHN222X0
110V DC	AHN222X1

Note: Packing quantity; Inner carton: 50 pcs, Outer carton: 500 pcs.

### 4. Plug-in with diode and LED indication type

Coil voltage	2 Form C
	Part No.
5V DC	AHN22305
6V DC	AHN22306
12V DC	AHN22312
24V DC	AHN22324
48V DC	AHN22348
100V DC	AHN223X0
110V DC	AHN223X1

Note: Packing quantity; Inner carton: 50 pcs, Outer carton: 500 pcs.

### 5. Screw terminal socket

Type	No. of channels	Item	Part No.
For DIN rail assembly	2 channels	HN2 screw terminal socket	AHNA21

Notes) 1. Packing quantity: 10pcs. (Inner carton), 100pcs. (Outer carton)

2. Products conform to UL, C-UL, as standard.

3. In order to prevent breakage and disfiguring, the screw tightening torque for the terminal socket should be within the range of 0.5 to 0.8 N·m.

4. When attaching directly to a chassis, please use an M3 × 16 metric coarse screw thread.

5. To prevent damage and deformity, please use the relay-securing hook at 10 N or less.

## COIL DATA (at 20°C 68°F)

### DC coils

Coil voltage V DC	Pick-up voltage, V DC (max.) (Initial)	Drop-out voltage, V DC (min.) (Initial)	Nominal coil current, mA (±20%)	Coil resistance, Ω (±10%)	Nominal operating power, W	Max. allowable voltage, V DC
5	3.5	0.5	105.9	47	0.53	8.5
6	4.2	0.6	88.4	68		10.2
12	8.4	0.12	44.2	270		20.4
24	16.8	0.24	22.1	1,090		40.8
48	33.6	0.48	11	4,350		81.6
100	70	10	5.3	18,870		170
110	77	11	4.8	22,830		187

### AC coils (50/60Hz)

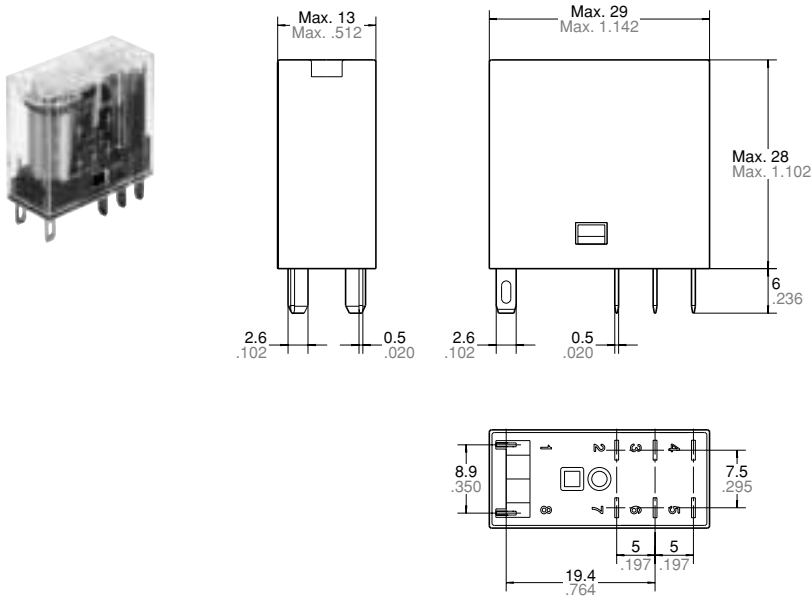
Coil voltage V AC	Pick-up voltage, V AC (max.) (Initial)	Drop-out voltage, V AC (min.) (Initial)	Nominal coil current, mA (±20%)		Nominal operating power, VA		Max. allowable voltage, V AC
			50Hz	60Hz	50Hz	60Hz	
12	9.6	3.6	93	75	Approx. 1.1 to 1.4	Approx. 0.9 to 1.2	16.8
24	19.2	7.2	46.5	37.5			33.6
100/110	80/88	30/33	11.0/13.0	9.0/10.6			140/154
110/120	88/96	33/36	10.0/11.8	8.2/9.7			154/168
200/220	160/176	60/66	5.5/6.5	4.5/5.3			280/308
220/240	176/192	66/72	5.0/5.9	4.1/4.8			308/336

# HN (AHN)

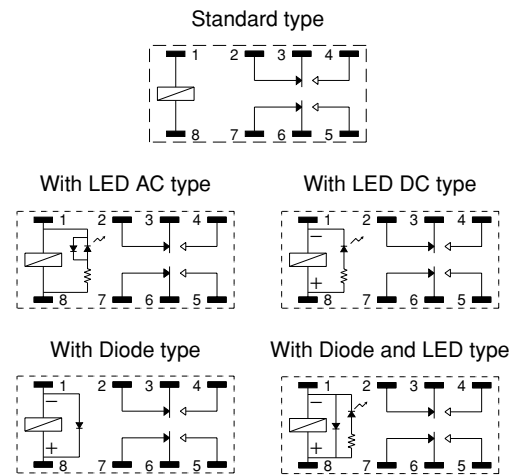
## DIMENSIONS

mm inch

### 1. Plug-in type 2 Form C

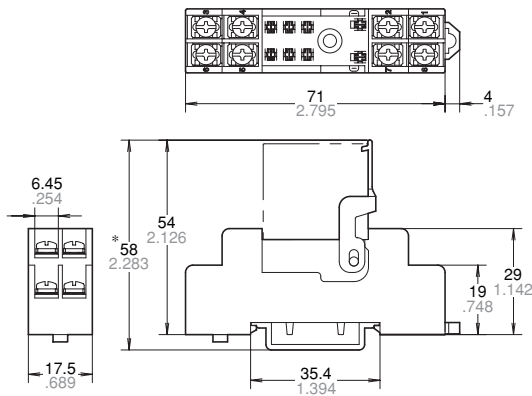


#### Schematic (Bottom view)

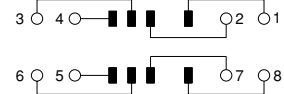


Dimension :	Tolerance
Max. 1mm .039 inch:	$\pm 0.1 \pm 0.004$
1 to 3mm .039 to .118 inch:	$\pm 0.2 \pm 0.008$
Min. 3mm .118 inch:	$\pm 0.3 \pm 0.012$

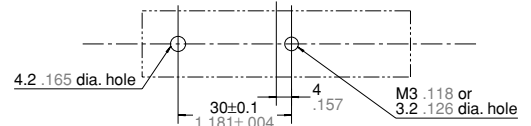
### 2. Screw terminal socket



#### Schematic (Top view)



#### Mounting hole dimensions

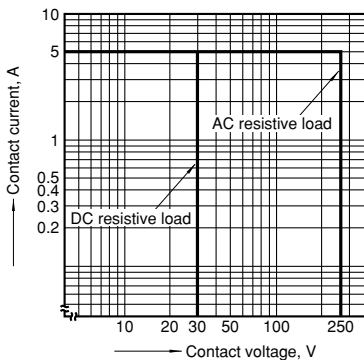


General tolerance:  $\pm 0.5 \pm 0.020$

\* Reference in case of using DIN rail (ATA48011)

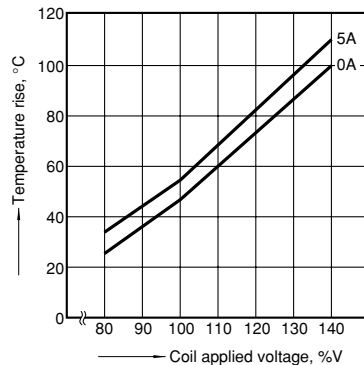
## REFERENCE DATA

### 1. Max. switching capacity



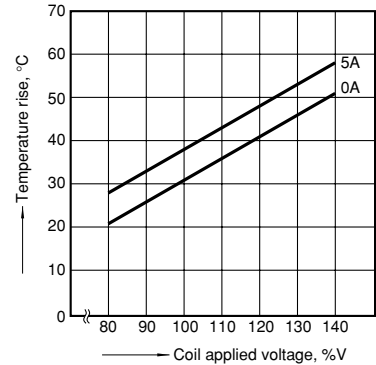
### 2-(1). Coil temperature rise (AC type)

Measured portion: Inside the coil  
Ambient temperature: 23°C 73°F



### 2-(2). Coil temperature rise (DC type)

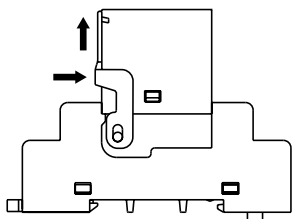
Measured portion: Inside the coil  
Ambient temperature: 30°C 86°F



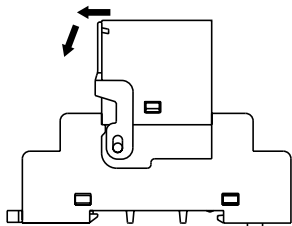
## NOTES

### 1. About the relay-securing hook

1) Installation of the securing hook is easily performed by pressing upward in the direction of the arrows.



2) Removal of the securing hook is easily performed by releasing the hook and pressing down, as shown in the figure.



### 2. Diode characteristics

- 1) Reverse breakdown voltage:  
90V (5 to 48V DC type)  
250V (100, 110V DC type)

### 3. Diode type

Since the diode inside the relay coil are designed to absorb the counter emf, the element may be damaged if a large surge, etc., is applied to the diode.

If there is the possibility of a large surge voltage from the outside, please implement measures to absorb it.

**For Cautions for Use, see Relay Technical Information.**