



# NB90

32\*27.2\*20mm



## Product Features

- ◆ Contacts switching capability: 40A
- ◆ 2500VAC&4000VAC is available for dielectric strength between contact and coil
- ◆ Coil insulation grade Class F
- ◆ Contacts forms NO,NC&SPDT
- ◆ Dust-proof&Sealed type
- ◆ Complies with RoHS-Directive

## Contact Rating

|                         |                               |                               |                                                     |
|-------------------------|-------------------------------|-------------------------------|-----------------------------------------------------|
| Contact Form            | 1A、1B、1C                      |                               |                                                     |
| Contact Material        | AgCdO AgSnO <sub>2</sub>      |                               |                                                     |
| Contact Load Capacity   | 1A                            | 1B                            | 1C                                                  |
|                         | NO: 40A/240VAC,30VDC          | 30A/240VAC,30VDC              | 40A 240VAC,30VDC                                    |
|                         | 40A 277VAC,1HP<br>240VAC TV-5 | 30A 277VAC,1HP<br>240VAC TV-5 | 40A 277VAC,1HP 240VAC<br>TV-5                       |
|                         | NC:                           |                               | 30A 240VAC,30VDC<br>30A 277VAC,1/2HP<br>240VAC TV-5 |
| Switching Power Max.    | 1200W 9600VA                  |                               |                                                     |
| Switching Voltage Max.  | 30VDC/277VAC                  |                               |                                                     |
| Switching Current Max.  | 1A: 40A ; 1B: 30A ; 1C: 40A   |                               |                                                     |
| Contact Resistance Max. | 50mΩ (1A , 24VDC)             |                               |                                                     |
| Life expectancy         | Electrical                    | 10 <sup>5</sup>               |                                                     |
|                         | Machanical                    | 10 <sup>7</sup>               |                                                     |

**Coil Rating**

| 900mw |              |      |                                           |                                              |                                              | 2VA |              |       |                                           |                                              |                                              |
|-------|--------------|------|-------------------------------------------|----------------------------------------------|----------------------------------------------|-----|--------------|-------|-------------------------------------------|----------------------------------------------|----------------------------------------------|
| No.   | Coil Voltage |      | Coil Resistance<br>$\Omega$<br>$\pm 10\%$ | Pick up (VDC)<br>Max. (75% of Rated Voltage) | Drop out (VDC)<br>Min.(10% of Rated Voltage) | No. | Coil Voltage |       | Coil Resistance<br>$\Omega$<br>$\pm 10\%$ | Pick up (VDC)<br>Max. (75% of Rated Voltage) | Drop out (VDC)<br>Min.(10% of Rated Voltage) |
|       | Rated        | Max. |                                           |                                              |                                              |     | Rated        | Max.  |                                           |                                              |                                              |
| 005   | 5            | 6.5  | 28                                        | 3.75                                         | 0.5                                          | 024 | 24           | 28.80 | 120                                       | 19.20                                        | 2.4                                          |
| 006   | 6            | 7.8  | 40                                        | 4.50                                         | 0.6                                          | 120 | 120          | 144   | 3040                                      | 96.00                                        | 12                                           |
| 009   | 9            | 11.7 | 90                                        | 6.75                                         | 0.9                                          | 220 | 220          | 264   | 13490                                     | 176.00                                       | 22                                           |
| 012   | 12           | 15.6 | 160                                       | 9.00                                         | 1.2                                          | 240 | 240          | 288   | 13490                                     | 192.00                                       | 24                                           |
| 015   | 15           | 19.5 | 250                                       | 10.25                                        | 1.5                                          | 277 | 277          | 332   | 15000                                     | 220.00                                       | 27.7                                         |
| 018   | 18           | 23.4 | 360                                       | 13.50                                        | 1.8                                          |     |              |       |                                           |                                              |                                              |
| 024   | 24           | 31.2 | 640                                       | 18.00                                        | 2.4                                          |     |              |       |                                           |                                              |                                              |
| 048   | 48           | 62.4 | 2560                                      | 36.00                                        | 4.8                                          |     |              |       |                                           |                                              |                                              |
| 110   | 110          | 143  | 13445                                     | 82.50                                        | 11                                           |     |              |       |                                           |                                              |                                              |

**Technical Rating**

|                       |                      |                                                                                                              |                     |
|-----------------------|----------------------|--------------------------------------------------------------------------------------------------------------|---------------------|
| Insulation Resistance |                      | Min.1000M $\Omega$ (500VDC)                                                                                  | IEC 60255-5         |
| Dielectric Strength   | Between Contacts     | 1500VAC                                                                                                      | IEC 60255-5         |
|                       | Between Coil&Contact | 2500VAC Min; (4000VAC Min without Pin #6,when required)                                                      | IEC 60255-5         |
| Operate Time          |                      | $\leq 15\text{ms}$                                                                                           |                     |
| Release Time          |                      | $\leq 10\text{ms}$                                                                                           |                     |
| Shock Resistance      |                      | Operation extremes 10G    Damage limits 100G                                                                 | IEC 68-2-27 test Ea |
| Vibration Resistance  |                      | 10Hz $\sim$ 55Hz double amplitude 1.5mm                                                                      | IEC 68-2-6 test Fc  |
| Ambient Temperature   |                      | - 40 $^{\circ}\text{C}$ $\sim$ 85 $^{\circ}\text{C}$ ; - 40 $^{\circ}\text{C}$ $\sim$ 105 $^{\circ}\text{C}$ |                     |
| Relative Humidity     |                      | 85% RH , 40 $^{\circ}\text{C}$                                                                               | IEC 68-2-3 test Ca  |
| Weight                |                      | Approx.26.0g                                                                                                 |                     |
| Package               |                      | Sealed;Dust-proof type                                                                                       |                     |

## Designation

**NB90 E - 12S - S - A 4 W 4KV T-105°C X**

1    2    3 4    5    6 7 8    9    10    11

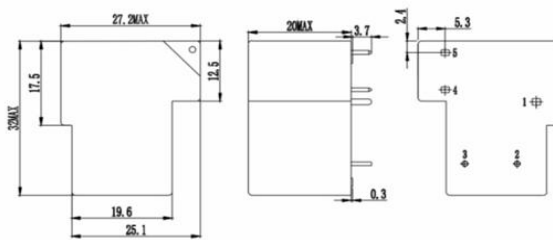
- 1、 **NB90:** Model No.(Max. contact load capacity 40A)
  - 2、 **E:** NO max 30 amper none: NO max 40 ampere
  - 3、 **12:** Coil Rated Voltage:5V,6V,9V,12V,15V,18V,24V,48V,110V(DC) AC type: AC24 AC120 AC220V AC240 AC277V
  - 4、 **S:** Package: S:Sealed D:Dust proof
  - 5、 **S:** Contact Material: S:AgSnO<sub>2</sub> C:AgCdO
  - 6、 **A:** Contact Form: A:Normally Open B:Normally Close C:SPDT(NO&NC)
  - 7、 **4:** Pin Form: A4:Normally open(4 pins), A5:Normally open(5 pins);  
B4:Normally close(4 pins), B5:Normally colse(5 pins);  
C5:SPDT(5 pins), C6:SPDT(6 pins).
  - 8、 **W:** white **None:** black
  - 9、 **4KV:** Between contact and coil pressure-proof 4KV **None:** 2500V
  - 10、 **T-105°C:** ambient temperature 105°C. **None:** normal temperature resistant
  - 11、 **X:** Customer code
- Note:**(1) Applying under clean environment(excluding H<sub>2</sub>S、 SO<sub>2</sub>、 NO<sub>2</sub>、 dust contaminants), dust-proof type is recommended;  
Applying under polluted environment(containing H<sub>2</sub>S、 SO<sub>2</sub>、 NO<sub>2</sub>、 dust contaminants), sealed type is recommended, and please confirm during pratical applying;
- (2) When installed on PCB,and entire washing is needed,please notice us before order, so as to provide proper items;
  - (3) If dielectric strength between coil&contacts have to be over 2500VAC, please notice us before order, so as to provide proper items;
  - (4) Avoid applying under strong magnetic or shock extremes,or technical rating will change.

## Safety Certification

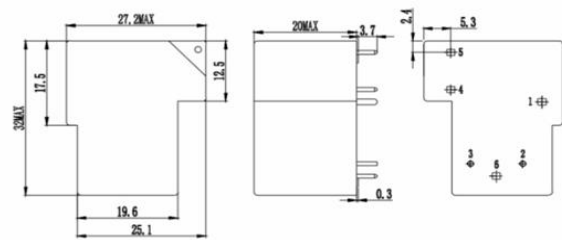
| Approval | CQC                                        | TUV                                           | UL                                                                    |
|----------|--------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------|
| Load     | NO:40A 240VAC 30VDC<br>NC:30A 240VAC 30VDC | 40A 240VAC 30VDC<br>AC relay is being applied | NO:40A 277VAC 1.5HP 240VAC TV-15<br>NC:30A 277VAC 1/2HP 240VAC 125VAC |

## Dimensions

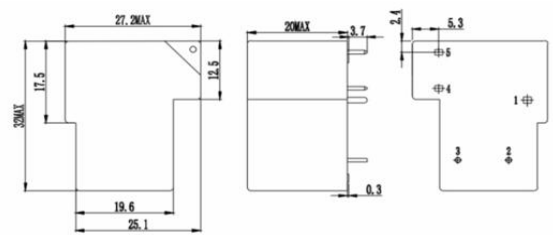
### Outline Dimension



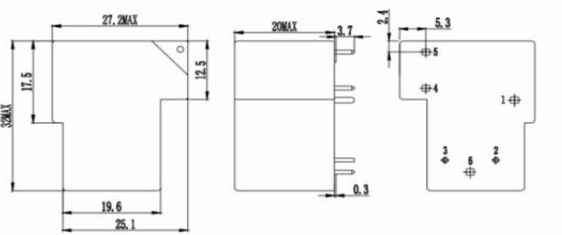
Without Pin#6



With Pin#6

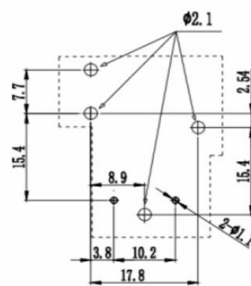
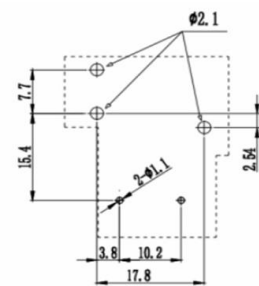


Without Pin#6

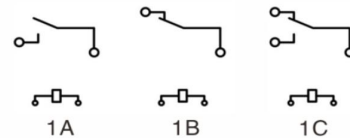


With Pin#6

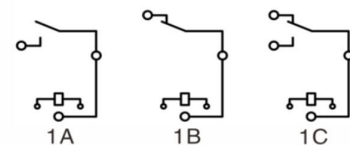
### Bottom View Layout



### Wiring Diagram



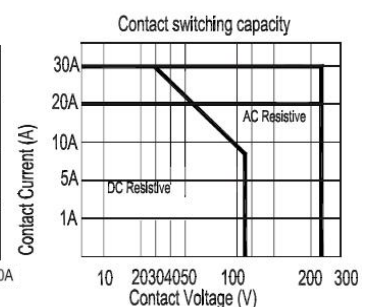
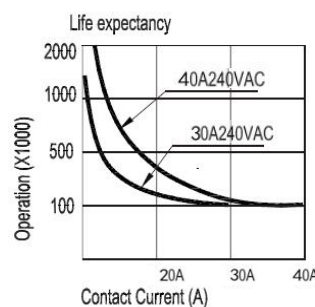
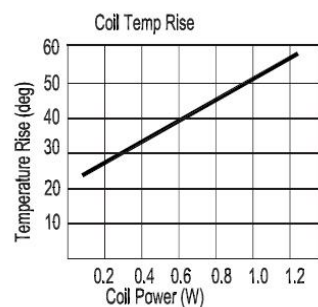
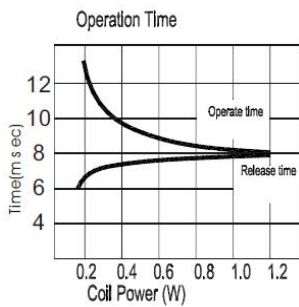
Without Pin#6



With Pin#6

Note (1) Tolerance is not marked on part of outline dimensions. Dimensions  $\leq 1\text{mm}$ , Tolerance  $\pm 0.2\text{mm}$ ;  
 Dimensions  $(1 \sim 5)\text{mm}$ , Tolerance  $\pm 0.3\text{mm}$ ; Dimensions  $> 5\text{mm}$ , Tolerance  $\pm 0.4\text{mm}$ ;  
 (2) Tolerance in bottom view layout is  $\pm 0.1\text{mm}$ .

## Engineering Data



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NINGBO BAOCHEG ELECTRONICS CO., LTD.