DB LECTRO
COMPOSANTS ÉLECTRONIQUES
ELECTRONIC COMPONENTS

NT90T (T91)



32.4×27.5×28.0 32.4×27.5×20 （$NT90T_2$）

CH050401—2000 E9930952E01
E160644 E233737 R2033977.06
Patent No. 99312549.2

Features

- Small size, light weight. Low coil power consumption, heavy contact load. Strong anti-shock and anti-vibration, high reliability, long life.
- Suitable for automobile, machine, electronic equipment, air conditioner and household appliance applications.
- PC board mounting and direct insert mounting available.

Ordering Information

NT90T H L A S DC12V C B 0.9
1 2 3 4 5 6 7 8 9

1 Part number：NT90T、$NT90T_2$
2 Load：H:30A；N:40A
3 High：NIL: Standard；L: Low profile type
4 Contact arrangement：A:1A；B:1B；C:1C
5 Enclosure：S: Sealed type；D: Dust cover；
E: Covered；O: Open type
6 Coil rated Voltage(V)：AC:12,24,110,120,220
DC:3,5,6,9,12,15,18,24,48,110
7 Contact material：C: Ag·CdO；S: Ag·SnO_2
8 Resist heat class：B:130℃ F:155℃
9 Coil power consumption：0.6:0.6W；0.9:0.9W
NIL:2VA

Contact Data

Contact Arrangement		1A（SPSTBNO）、1B（SPSTNC）、1C（SPDT(B-M)）	
Contact Material		Ag·CdO Ag·SnO_2 Ag·SnO_2·In_2O_3	
Contact Rating (resistive)		NO：30A/240VAC,14VDC；NC：20A/240VAC ;30A/14VDC NO：40A/250VAC,30VDC；NC：30A/250VAC,30VDC (0.9W) Motor load：2HP 250VAC ； 1.5HP 250V Lamp load：TV-5	
Max. Switching Power		1100W 7200VA	
Max. Switching Voltage		110VDC 250VAC	Max. Switching Current:40A
Contact Resistance or Voltage drop		≤30mΩ	Item 3.12 of IEC255-7
Operation life	Electrical	10^5	Item 3.30 of IEC255-7
	Mechanical	10^7	Item 3.31 of IEC255-7

Coil Parameter

AC Coil Parameter

DASH NUMBERS	RATED VOLTAGE VAC		COIL RESISTANCE Ω±10%	PICK UP VOLTAGE VAC(max) (75%of rated voltage)	RELEASE VOLTAGE VAC(min) (30%of rated voltage)	COIL POWER	Operate Time ms	Release Time ms
	RATED	Max						
012AC	12	15.6	27	9.0	3.6	2VA	_	_
024AC	24	31.2	120	18.0	7.2			
110AC	110	143	2360	82.5	33.0			
120AC	120	156	3040	90.0	36.0			
220AC	220	286	13490	165.0	66.0			

CAUTION: 1.The use of any coil voltage less than the rated coil voltage will compromise the operation of the relay.
2.Pickup and release voltage are for test purposes only and are not to be used as design criteria.

Coil Parameter

DC Coil Parameter

DASH NUMBERS	RATED VOLTAGE VDC		COIL RESISTANCE Ω±10%	PICK UP VOLTAGE VDC(max) (75%of rated voltage)	RELEASE VOLTAGE VDC(min) (10%of rated voltage)	COIL POWER W	Operate Time ms	Release Time Ms
	RATED	Max						
003-900	3	3.9	10	2.25	0.3	0.9	⩽15	⩽10
005-900	5	6.5	28	3.75	0.5			
006-900	6	7.8	40	4.50	0.6			
009-900	9	11.7	90	6.75	0.9			
012-900	12	15.6	160	9.00	1.2			
015-900	15	19.5	250	10.25	1.5			
018-900	18	23.4	360	13.50	1.8			
024-900	24	31.2	640	18.00	2.4			
048-900	48	62.4	2560	36.00	4.8			
110-900	110	143	13445	82.50	11.0			
003-600	3	3.9	15	2.25	0.3	0.6	⩽15	⩽10
005-600	5	6.5	42	3.75	0.5			
006-600	6	7.8	60	4.50	0.6			
009-600	9	11.7	135	6.75	0.9			
012-600	12	15.6	240	9.00	1.2			
015-600	15	19.5	375	10.25	1.5			
018-600	18	23.4	540	13.50	1.8			
024-600	24	31.2	960	18.00	2.4			
048-600	48	62.4	3840	36.00	4.8			
110-600	110	143	20167	82.50	11.0			

CAUTION: 1.The use of any coil voltage less than the rated coil voltage will compromise the operation of the relay.
2.Pickup and release voltage are for test purposes only and are not to be used as design criteria.

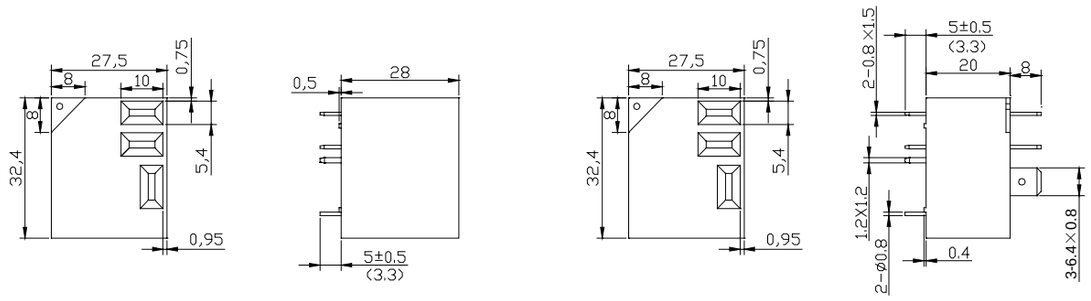
Operation condition

Insulation Resistance	1000MΩ min (at 500VDC)	Item 7 of IEC255-5
Dielectric Strength		
Between contacts	50Hz 1500V	Item 6 of IEC255-5
Between contact and coil	50Hz 2500V	Item 6 of IEC255-5
Shock resistance	200m/s² 11ms	IEC68-2-27 Test Ea
Vibration resistance	10~55Hz double amplitude 1.5mm	IEC68-2-6 Test Fc
Terminals strength	10N	IEC68-2-21 Test Ua1
Solderability	235℃ ±2℃ 3±0.5s	IEC68-2-20 Test Ta method 1
Ambient Temperature	-55~100℃ -55~125℃	
Relative Humidity	85% (at 40℃)	IEC68-2-3 Test Ca
Mass	31g （ Low profile type） . 35g	

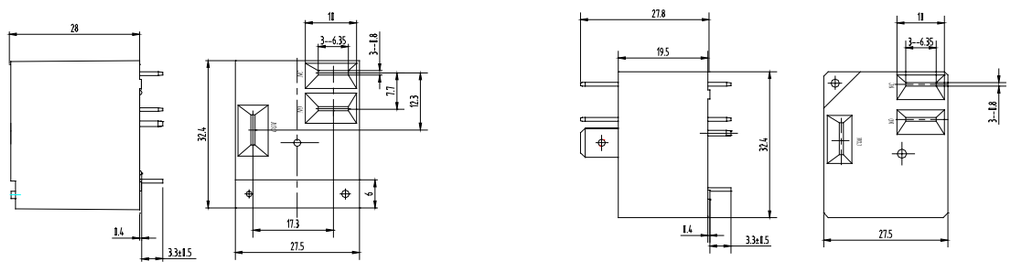
Qualification inspection:

Perform the qualification test as specified in the table Ⅳ of IEC255-19-1 and minimum sample size 24.

Dimensions (Unit: mm)



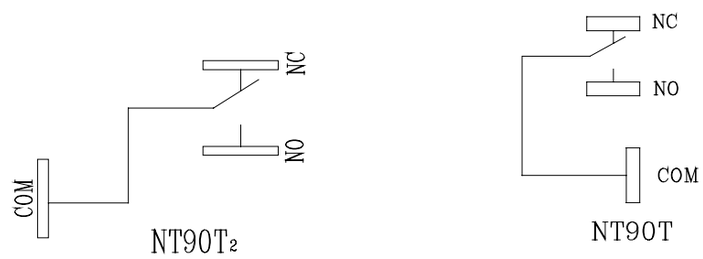
NT90T



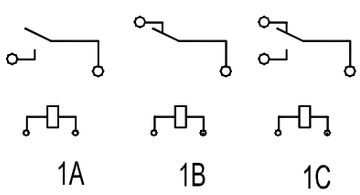
$NT90T_2$

Dimensions

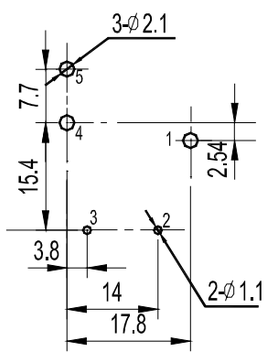
mm	inch
0.4	0.016
0.5	0.020
0.75	0.029
0.8	0.031
0.95	0.037
1.1	0.043
1.2	0.047
1.5	0.059
2.1	0.083
2.54	0.100
3.3	0.130
3.8	0.150
5.0	0.197
5.4	0.213
6	0.236
6.35	0.250
6.4	0.252
7.7	0.303
8	0.315
10	0.394
12.3	0.484
14	0.551
15.4	0.606
17.3	0.681
17.8	0.701
20	0.787
27.5	1.083
28	1.102
32.4	1.275



Wiring diagram(Top views)



Wiring diagram(Bottom views)



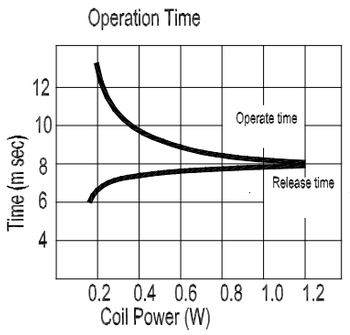
Mounting (Bottom views)

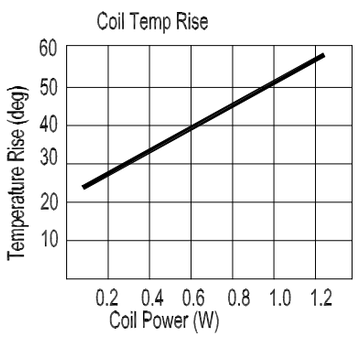
NOTES 1).Dimensions are in millimeter.
2).Inch equivalents are given for general information only.

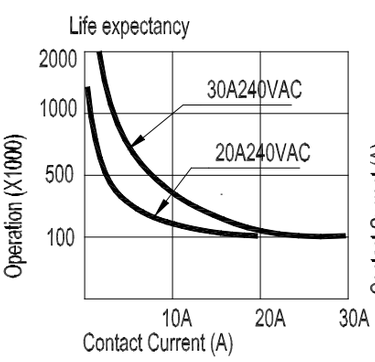
Safety approvals

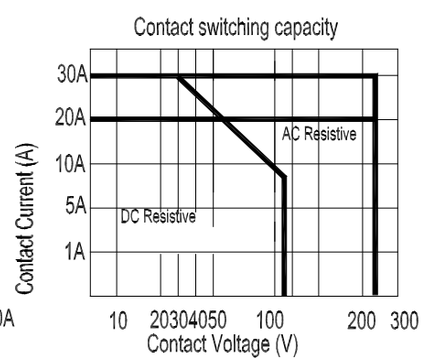
Safety approval	UL	TüV	CCEE
Load	No 40A/250VAC 30A/277VAC Nc 30A/250VAC 20A/277VAC 2HP 250VAC 11/2HP 250VAC TV-5 Insulation：B-class F-class	No 40A/240VAC 14VDC Nc 30A/240VAC 14VDC Insulation：B-class F-class	No 30A/240VAC Nc 20A/240VAC

Reference Data









DB LECTRO INC
COMPOSANTS ÉLECTRONIQUES
ELECTRONIC COMPONENTS

NT90 (T90)

30.5×24.2×17　　32.5×27.6×20.5

CH0050401—2000　　E9930952E01

E160644　　R2033977.05

Patent No. 95213824.7　99218304.9

99312549.2　01311661.4

Features

- Small size, light weight. Low coil power consumption, heavy contact load. Strong anti-shock and anti-vibration, high reliability, long life.
- Suitable for automobile, machine, electronic equipment, air conditioner and household appliance applications.
- PC board mounting.

Ordering Information

NT90	R	H	A	S	DC12V	C	B	0.9
1	2	3	4	5	6	7	8	9

1 Part number：NT90T、$NT90T_2$

2 Terminal： R: without Pin 6；NIL: With Pin 6

3 Load：H:30A；N:40A

4 Contact arrangement：1A:1A；1B:1B；1C:1C

5 Enclosure：S: Sealed type；D: Dust cover；
E: Covered；O: Open type

6 Coil rated Voltage(V)：AC:12,24,110,120,220
DC:3,5,6,9,12,15,18,24,48,110

7 Contact material：C: Ag·CdO；S: Ag·SnO_2

8 Resist heat class：B:130℃　F:155℃

9 Coil power consumption：0.6:0.6W；0.9:0.9W
NIL:2VA

Contact Data

Contact Arrangement	1A（SPSTNO）、1B(SPSTNC)、1C(SPDT(B-M))	
Contact Material	Ag·CdO　Ag·SnO_2　Ag·SnO_2·In_2O_3	
Contact Rating (resistive)	NO：30A/240VAC,14VDC; NC:20A/240VAC ;30A/14VDC NO：40A/250VAC,30VDC; NC:30A/250VAC,30VDC (0.9W) Motor load：2HP 250VAC ；1.5HP 250V Lamp load：TV-5	
Max. Switching Power	1100W　7200VA	
Max. Switching Voltage	110VDC 250VAC	Max. Switching Current:40A
Contact Resistance or Voltage drop	≤30mΩ	Item 3.12 of IEC255-7
Operation life — Electrical	10^5	Item 3.30 of IEC255-7
Operation life — Mechanical	10^7	Item 3.31 of IEC255-7

Coil Parameter

AC Coil Parameter

DASH NUMBERS	RATED VOLTAGE VAC		COIL RESISTANCE Ω±10%	PICK UP VOLTAGE VAC(max) (75%of rated voltage)	RELEASE VOLTAGE VAC(min) (30%of rated voltage)	COIL POWER	Operate Time ms	Release Time ms
	RATED	Max						
012AC	12	15.6	27	9.0	3.6	2VA	–	–
024AC	24	31.2	120	18.0	7.2			
110AC	110	143	2360	82.5	33.0			
120AC	120	156	3040	90.0	36.0			
220AC	220	286	13490	165.0	66.0			

CAUTION: 1.The use of any coil voltage less than the rated coil voltage will compromise the operation of the relay.
2.Pickup and release voltage are for test purposes only and are not to be used as design criteria.

Coil Parameter

DC Coil Parameter

DASH NUMBERS	RATED VOLTAGE VDC		COIL RESISTANCE Ω±10%	PICK UP VOLTAGE VDC(max) (75%of rated voltage)	RELEASE VOLTAGE VDC(min) (10%of rated voltage)	COIL POWER W	Operate Time ms	Release Time ms
	RATED	Max						
003-900	3	3.9	10	2.25	0.3	0.9	⩽15	⩽10
005-900	5	6.5	28	3.75	0.5			
006-900	6	7.8	40	4.50	0.6			
009-900	9	11.7	90	6.75	0.9			
012-900	12	15.6	160	9.00	1.2			
015-900	15	19.5	250	10.25	1.5			
018-900	18	23.4	360	13.50	1.8			
024-900	24	31.2	640	18.00	2.4			
048-900	48	62.4	2560	36.00	4.8			
110-900	110	143	13445	82.50	11.0			
003-600	3	3.9	15	2.25	0.3	0.6	⩽15	⩽10
005-600	5	6.5	42	3.75	0.5			
006-600	6	7.8	60	4.50	0.6			
009-600	9	11.7	135	6.75	0.9			
012-600	12	15.6	240	9.00	1.2			
015-600	15	19.5	375	10.25	1.5			
018-600	18	23.4	540	13.50	1.8			
024-600	24	31.2	960	18.00	2.4			
048-600	48	62.4	3840	36.00	4.8			
110-600	110	143	20167	82.50	11.0			

CAUTION: 1.The use of any coil voltage less than the rated coil voltage will compromise the operation of the relay.
2.Pickup and release voltage are for test purposes only and are not to be used as design criteria.

Operation condition

Insulation Resistance	1000MΩ min (at 500VDC)	Item 7 of IEC255-5
Dielectric Strength		
Between contacts	50Hz 1500V	Item 6 of IEC255-5
Between contact and coil	50Hz 2500V 4000V (without Pin 6)	Item 6 of IEC255-5
Shock resistance	200m/s² 11ms	IEC68-2-27 Test Ea
Vibration resistance	10~55Hz double amplitude 1.5mm	IEC68-2-6 Test Fc
Terminals strength	10N	IEC68-2-21 Test Ua1
Solderability	235℃±2℃ 3±0.5s	IEC68-2-20 Test Ta method 1
Ambient Temperature	-55~100℃ -55~125℃	
Relative Humidity	85% (at 40℃)	IEC68-2-3 Test Ca
Mass	27g (Open type) 30g	

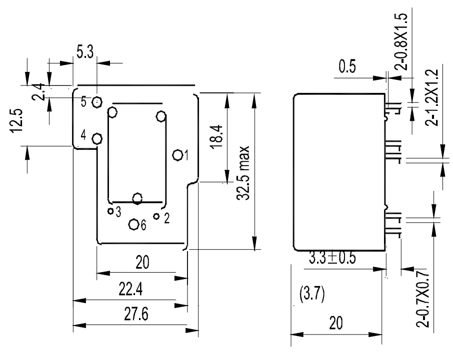
Qualification inspection:

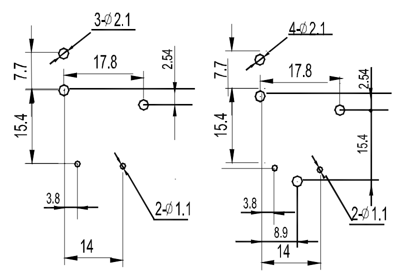
Perform the qualification test as specified in the table Ⅳ of IEC255-19-1 and minimum sample size 24.

Safety approvals

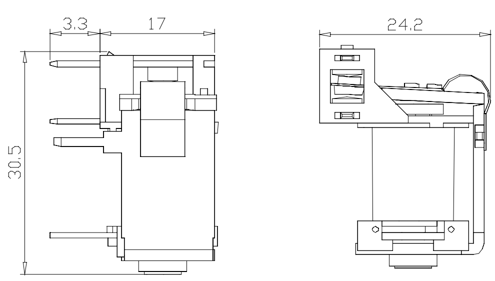
Safety approval	UL	TüV	CCEE
Load	No:40A/250VAC 30A/277VAC Nc:30A/250VAC 20A/277VAC 2HP 250VAC TV-5 11/2HP 250VAC Insulation：B-class F-class	No 40A/240VAC 14VDC Nc 30A/240VAC 14VDC Insulation：B-class F-class	No 30A/240VAC Nc 20A/240VAC

Dimensions (Unit: mm)

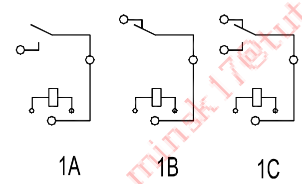




Mounting (Bottom views)



Dimensions



Wiring diagram(Bottom views)

mm	inch
0.5	0.020
0.7	0.027
0.8	0.031
1.1	0.043
1.2	0.047
1.5	0.059
2.1	0.083
2.4	0.094
2.54	0.100
3.3	0.130
3.7	0.146
3.8	0.150
5.3	0.209
7.7	0.303
8.9	0.350
12.5	0.492
14	0.551
15.4	0.606
17	0.669
17.8	0.701
18.4	0.724
20	0.787
22.4	0.882
24.2	0.953
27.6	1.087
30.5	1.201
32.5	1.279

NOTES 1).Dimensions are in millimeter.

2).Inch equivalents are given for general information only.

Reference Data