Shanghai Liangxin Electrical Co., Ltd.

Product Specification of NDR1E

（IPD-ENG-DEV-T22 A1 2016-09-23）

Product Name: Electronic Overload Relay

Product type: NDR1E-38/95

Date: 20190506

Prepared	Liu Jichao	Date	2019-05-06
Reviewed	Wang Tingting	Date	2019-05-06
Approved	Luo Guorui	Date	2019-05-06

Revision information					
Version	Revised contents and reasons	Date	Prepared	Reviewed	Approved
0	New addition	20181105	Liu Jichao	Wang Tingting	Gu Jianming
1	Change 7.2 times current characteristic trip time	20181227	Liu Jichao	Wang Tingting	Yang Hairong
2	File version number is incorrectly changed	20190102	Liu Jichao	Wang Tingting	Yang Hairong
3	The phase loss action time“＜8s”change“3~8s” Unbalanced action time“＜40s”change“30~40s”	20190506	Liu Jichao	Wang Tingting	Luo Guorui

1、Application

NDR1E-38/95 electronic overload relays apply to the overload, open-phase and three-phase current unbalance protection of three-phase AC motors in the circuit with the AC 50Hz/60Hz, the rated voltage to 690V and the current of 0.1A ~ 95A; they can be used as motor starters with the NDC1-09~95 AC contactors.

2、Product Pictures

Model	NDR1E-38	NDR1E-95
Picture		

3、Model and implication

ND R 1 E— □ □ □ □ / □

1 2 3 4 5 6 7 8 9

SN	SN description	NDR1E model
1	Enterprise code	ND: Nader brand low-voltage electrical appliance
2	Product code	R: Relay
3	Design SN	1
4	Overload mode	E: Electronic
5	Product basic-type code	38, 95
6	Setting current specification code	See Table 1
7	Tripping level code	B: Level 10 C: Level 20
8	Working voltage of the auxiliary contact	0:230V (AC-15) 1:400V (AC-15)
9	Auxiliary power voltage	110V, 220/230V, 380/400V (50Hz/60Hz)

Table 1

NDR1E-38/95 Electronic Overload Relay Setting current/A	Fuse type to be used with the fuse		Matched with the NDC1-09~95 AC contactor (To be directly plugged with the contactor)	Product current specification code
	aM/A	gG/A	NDC1-	NDR1E
0.1~0.16	0.25	2	09~38	NDR1E-3811
0.16~0.25	0.5	2	09~38	NDR1E-3812
0.25~0.4	1	2	09~38	NDR1E-3813
0.4~0.63	1	2	09~38	NDR1E-3814
0.63~1	2	4	09~38	NDR1E-3815
1~1.6	2	4	09~38	NDR1E-3816
1.6~2.5	4	6	09~38	NDR1E-3817
2.5~4	6	10	09~38	NDR1E-3818
4~6	8	16	09~38	NDR1E-3821
5.5~8	12	20	09~38	NDR1E-3822
7~10	12	20	09~38	NDR1E-3823
9~13	16	25	09~38	NDR1E-3824
12~18	20	35	12~38	NDR1E-3825
17~25	25	50	18~38	NDR1E-3826
23~32	40	63	25~38	NDR1E-3827
30~40	40	80	32~38	NDR1E-3828
23~32	40	63	40~95	NDR1E-9531
30~40	40	100	40~95	NDR1E-9532
37~50	63	100	40~95	NDR1E-9533
48~65	63	100	50~95	NDR1E-9534
55~70	80	125	65~95	NDR1E-9535
63~80	80	125	65~95	NDR1E-9536
80~95	100	160	80~95	NDR1E-9537

4、Main technical parameters

Product basic-type code			NDR1E-38	NDR1E-95
Setting current range			0.1~40A	23~95A
Rated insulation voltage and frequency			690V, 50Hz/60Hz	
Tripping level			10/20	10/20
Main circuit wiring	Flexible conductor (1 piece) without terminals	Minimum/maximum cross section	1.5/10 mm^2	4/35 mm^2
	Flexible conductor (1 piece) with terminals		1/4 mm^2	4/35 mm^2
	Hard conductor (1 piece) without terminals		1/6 mm^2	4/35 mm^2
Terminal tightening torque of the main circuit			1.5N.m	9N.m
Auxiliary power voltage			110V, 220/230V, 380/400V (50Hz/60Hz)	
Auxiliary contact type			1NC+1NO (electrical without separation) NDR1E-□□□0 1NC+1NO (electrical separation) NDR1E-□□□1	
Rated working voltage of the auxiliary contact			AC-15 230V/0.75A 400V/0.47A DC-13 230V/0.1A	
Auxiliary circuit wiring	Flexible conductor (1 piece) without terminals	Minimum/maximum cross section	1/2.5 mm^2	
	Flexible conductor (1 piece) with terminals		1/2.5 mm^2	
	Hard conductor (1 piece) without terminals		1/2.5 mm^2	
Auxiliary terminal tightening torque			0.8N.m	

Action features

Action features	SN	Setting current	Action time	Initial conditions	Ambient air temperature ℃
In case of load balance of each phase	1	1.05In	＞2h	Cold state	-25℃~60℃
	2	1.2In	＜2h	Following the sequence 1 test	
	3	1.5In	＜4min（class 10） ＜8min（class 20）	Following the sequence 1 test	
	4	7.2In	Class 10： 4s＜Tp≤10s	Cold state	

			Class 20 ： 6s＜Tp≤20s	Cold state	
Open phase	When the one or two-phase current satisfies I≥0.3Ie with the other-phase current as 0		3~8s	Cold state or warm state	
Phase unbalance	When the phase unbalance rate is ≥60%		30~40s	Cold state or warm state	
Locking function	Tripping level	Conditions			
	Level 10	When the one or two-phase current satisfies I≥0.8In with the other-phase current as 0 and the fault time is ≥ 8min with the automatic reset function locked after failure for consecutive three times, it is necessary to perform the manual reset			
		When the overload current is I≥4In and the fault time is ≥ 8min with the automatic reset function locked after failure for consecutive three times, it is necessary to perform the manual reset			
	Level 20	When the one or two-phase current satisfies I≥0.8In with the other-phase current as 0 and the fault time is ≥ 14min with the automatic reset function locked after failure for consecutive three times, it is necessary to perform the manual reset			
		When the overload current is I≥4In and the fault time is ≥ 14min with the automatic reset function locked after failure for consecutive three times, it is necessary to perform the manual reset			

Indication

Operating condition	Indicator status
Normal	Constantly on
Overload, test	Slow flashing
Unbalance	2-fast+1-slow flashing
Default phase	3-fast+1-slow flashing
Locked after tripped for three times	Quick flashing
Tripping	Off

5、Working conditions

Ambient temperature:-25℃～+60℃;

Storage temperature:-40℃～+70℃;

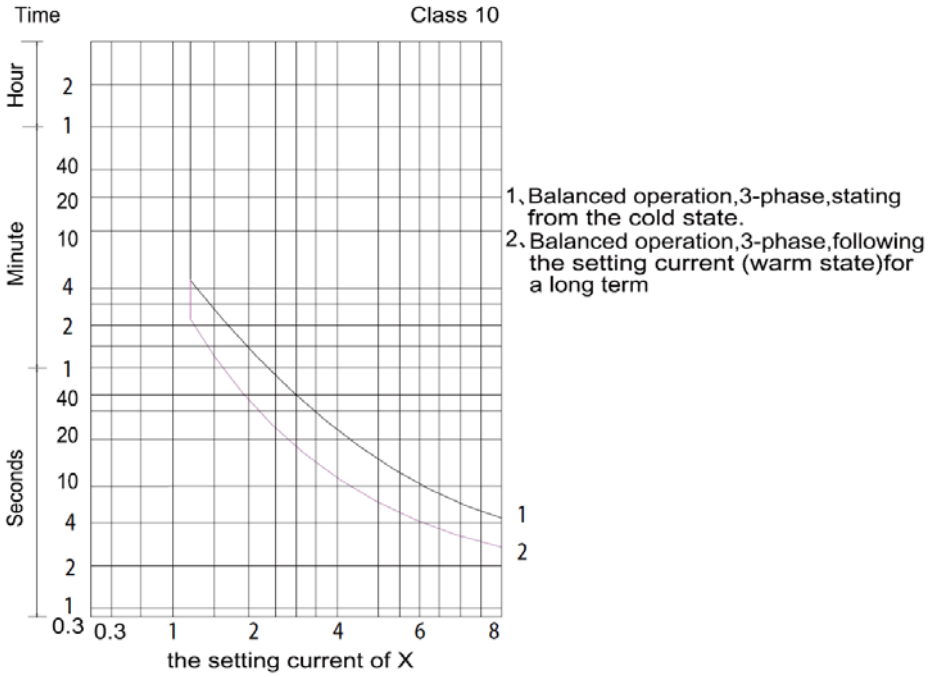
Altitude：The installation location does not exceed 3000m above sea level;

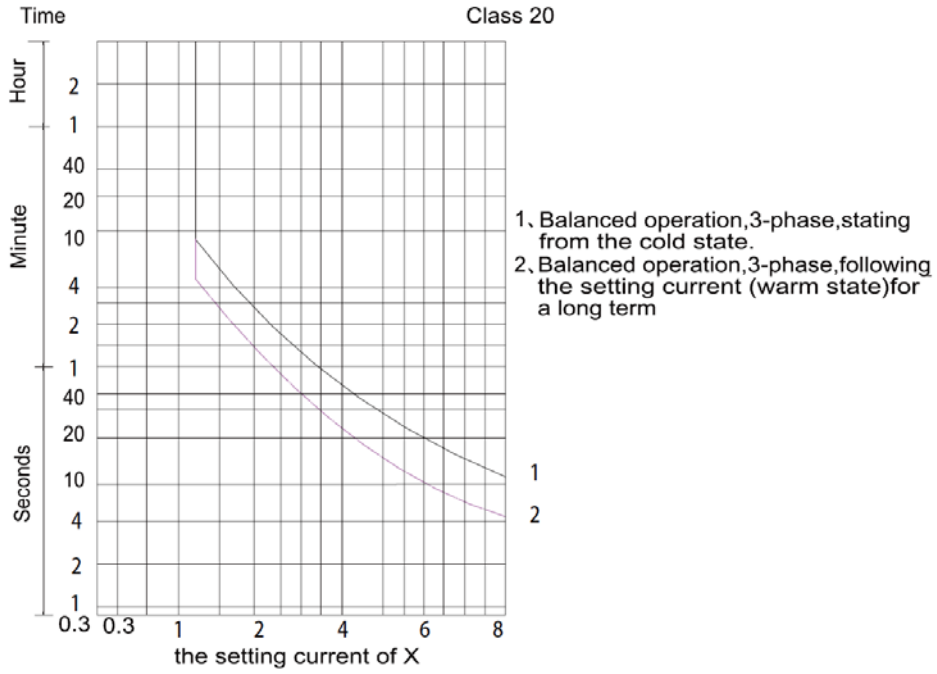
Humidity: The maximum temperature is +40℃,the relative humidity of the air does not exceed 50%,and the higher relative humidity can be allowed at lower temperatures. for example ,20℃ can be reach 90%.the occasional condensation due to temperature changes should be special measure.

Pollution level：level 3

6、Time-Current curves

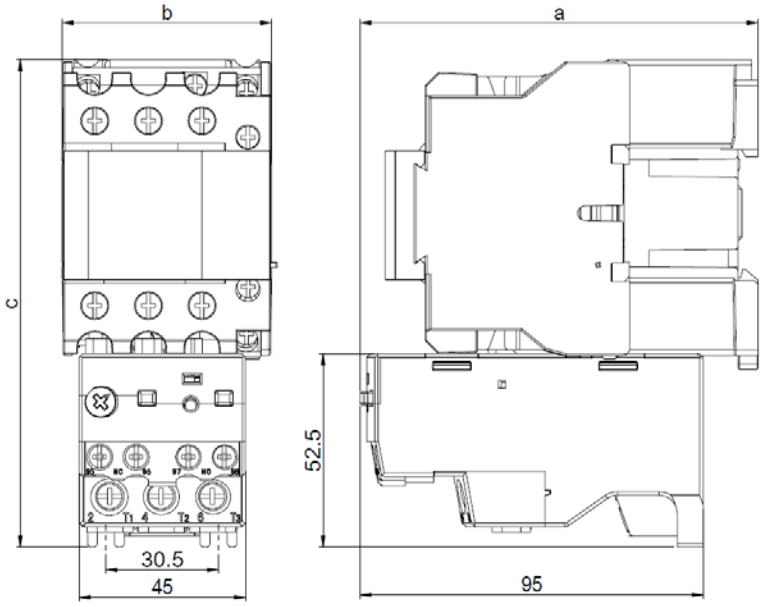
The relationship between the average tripping time and the setting current multiple is shown, see the class 10 tripping characteristic curve and class 20 tripping characteristic curve.


Time
Class 10
Hour
Minute
Seconds
2
1
40
20
10
4
2
1
40
20
10
4
2
1
0.3
0.3
1
2
4
6
8
the setting current of X
1、Balanced operation,3-phase,stating from the cold state.
2、Balanced operation,3-phase,following the setting current (warm state)for a long term
1
2


Time
Class 20
Hour
Minute
Seconds
2
1
40
20
10
4
2
1
40
20
10
4
2
1
0.3
0.3
1
2
4
6
8
the setting current of X
1、Balanced operation,3-phase,stating from the cold state.
2、Balanced operation,3-phase,following the setting current (warm state)for a long term
1
2

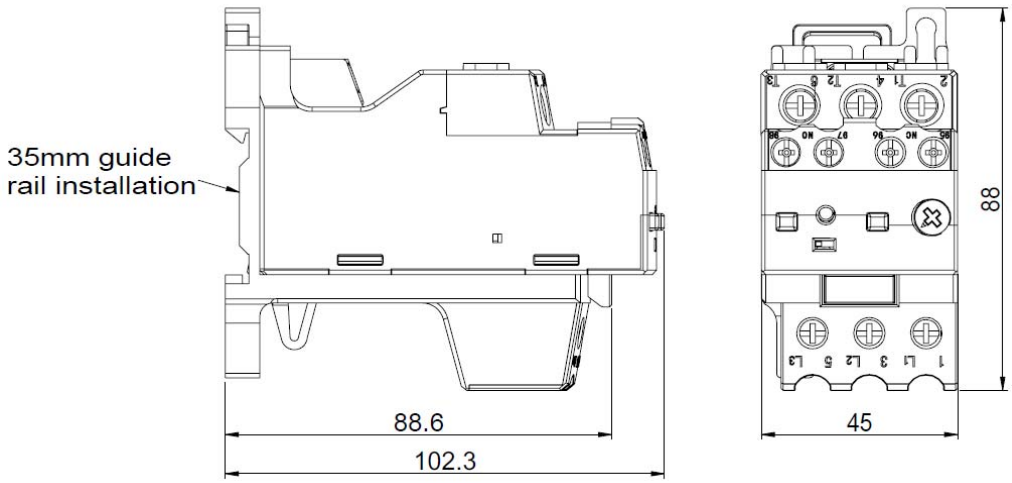
7、Outline and installation dimensions

7.1 Installation Dimensions of NDR1E-38 with Contactor

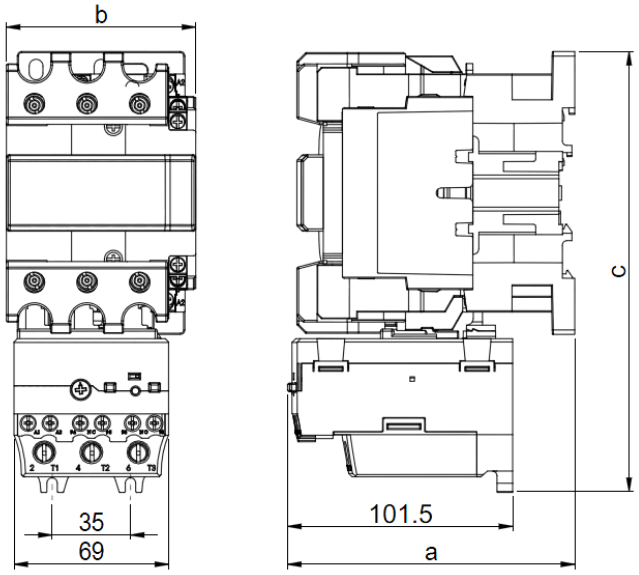


Contactor model	a	b	c
NDC1-09/12	103	45	127
NDC1-18	103	45.5	127
NDC1-25	115	57	136
NDC1-32	115	57	136
NDC1-38	115	57	136

7.2 NDR1E-38+A1/R1-38 Guide Rail and Screw Installation

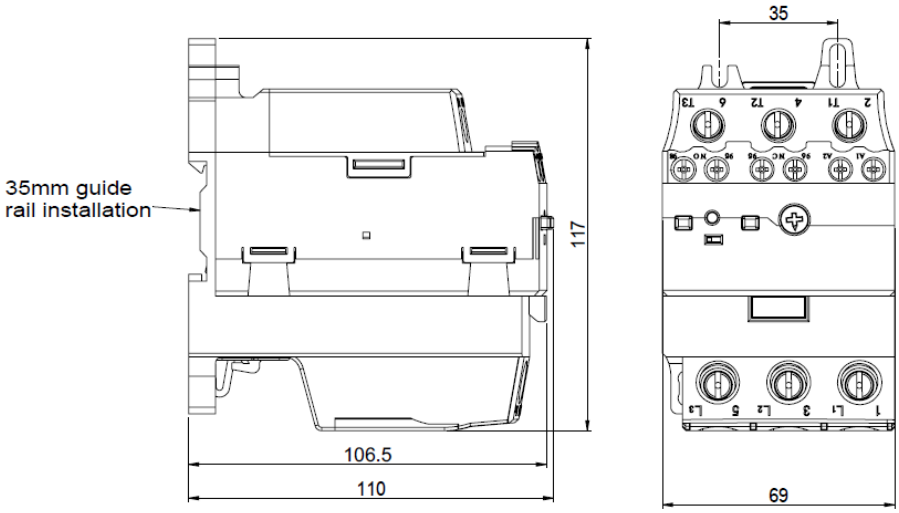


7.3 Installation Dimensions of NDR1E-95 with Contactor

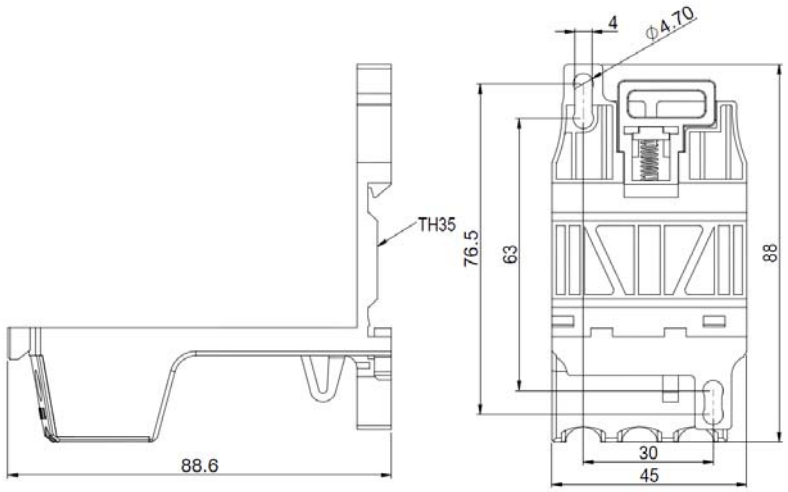


Contactor model	a	b	c
NDC1-40/50/65	128	74.5	195
NDC1-80/95	134	84.5	200

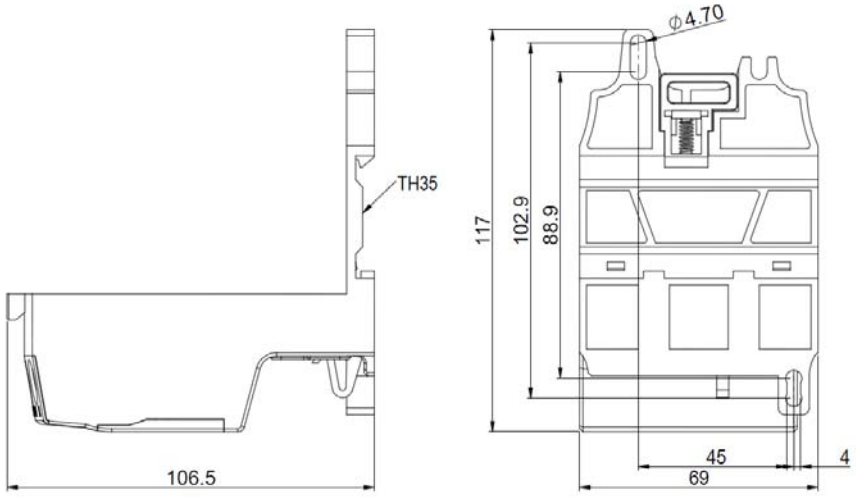
7.4 NDR1E-95+A1/R1-95 Guide Rail and Screw Installation



7.5 External and Installation Dimensions of the Stand-alone Mounting Base



A1/R1-38 Outline and Installation Dimensions



A1/R1-95 Outline and Installation Dimensions

Note: All installation and outline dimensions are in mm with those not indicated with the tolerance as per "×.×±0.5, ×±1".

8、Installation method

8.1 Directly inserted into the matching contactor.

8.2 Mount the relay to a separate mount using screws and then attach the stand-alone mount to the standard rail.

9、Packaging and storage

Each product uses a small package and is then placed in a large package. the packaged product should be stored in a warehouse with a smooth air ,no temperature above the +70℃,no less than -40℃,and no acid in the stored ambient air. alkaline or other corrosive gases.

10、Environment

Product design meets RoHS requirements.

11、Accessory list and installation

NO

12、Notices

12.1 The product shall be installed and used in places without obvious impact or shock.

12.2 This product is maintenance-free. Therefore, do not open it for maintenance without authorization. a user must be responsible for addressing a product issue that occurs because the user disassembles the product without approval.

12.3 Reliable installation wiring is required to prevent the abnormal heat at the terminals due to poor wiring, thus resulting in the product damage.

12.4 Normal operation of the product requires the A1 and A2 auxiliary power supplies (namely the control power supply).

12.5 The product is set to the manual reset state when deliver.