

上海良信电器股份有限公司

Shanghai Liangxin Electrical Co., Ltd.

NDR3E-65/95 电子式过载继电器

NDR3E-65/95 electronic overload relay

(Product type& Product Name)

产品说明书

Product Manual

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1. 用范围与用途/ Application scope

NDR3E-65/95 电子式过载继电器适用于交流 50Hz/60Hz、额定电压至 690V、电流 20A 至 95A 的电路中, 作三相交流电动机的过载、断相和三相电流不平衡保护之用; 能与 NDC3-65/95 交流接触器组合成电机起动器。

NDR3E-65/95 electronic overload relays provide the overload、phase failure and unbalance protection for three-phase AC motors in the circuit with the AC 50Hz/60Hz, the rated voltage up to 690V and the current from 20A to 95A, they can be used as motor starters with the NDC3-65/95 AC contactors.

2. 型号说明/ Model and implication

ND R 3 E - □ □ / □ / □
1 2 3 4 5 6 7 8

序号 SN	序号说明 SN description	NDR3E 型号 NDR3E model
1	企业代号 Enterprise code	ND: Nader 牌低压电器 Nader brand low-voltage electrical appliance
2	产品代号 Product code	R: 过载继电器 R: Relay
3	设计序号 Design SN	3
4	过载方式 Overload mode	E: 电子式 E: Electronic
5	产品基型代号 Product basic-type code	65、95
6	整定电流规格代号 Setting range code	见表 1 See Table 1
7	辅助触头工作电压 Rated operating voltage of the auxiliary contact	0:230V(AC-15) 230V (DC-13) 1:400V(AC-15) 230V (DC-13)
8	辅助电源电压 Rated power supply	1: AC110V (±15%) 50HZ/60HZ 2: AC220V (±15%) 50HZ/60HZ 3: AC380V (±15%) 50HZ/60HZ

表 1 Table 1

电流规格代号 Setting range code	整定电流调节 范围 Setting current range/A	与熔断器一同使用的熔 断器类型 Short circuit protection device		配套的接触器 型号 Contactor type
		aM/A	gG/A	
11 (65 壳架) (65frame)	20-50	100	160	NDC3-40~80
12 (65 壳架) (65frame)	32-80	100	160	

11 (95 壳架) (95frame)	40~110	140	200	NDC3-95
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3. 技术参数/ Main technical parameters

表 2 Table 2

产品基型代号 Basic product code			NDR3E-65	NDR3E-95
整定电流范围 Setting range			20～80A	40～110A
额定绝缘电压及频率 Rated insulation voltage and frequency			690V， 50Hz/60Hz	
脱扣等级 Tripping class			10/20 可调 10/20 (adjustable)	
主回路 接线 Main circuit wiring capacity	无接线端子的 软导线 1 根 Flexible conductor (1 piece) without terminals	最小/最大 截面 Minimum/ maximum cross section	2.5/25 mm ²	4/35 mm ²
	有接线端子的 软导线 1 根 Flexible conductor (1 piece) with terminals		2.5/25 mm ²	4/35 mm ²
	无接线端子的 硬导线 1 根 Solid conductor (1 piece) without terminals		2.5/25 mm ²	4/35 mm ²
主回路端子紧固扭矩 Terminal tightening torque of the main circuit			4N.m	6N.m
辅助电源电压 Power supply			110V、220/230V、380/400V（50Hz/60Hz）	
辅助触头类型 Auxiliary contact type			1NC+1NO(电气不分离 electrical without isolation) NDR3E-38□/0/□ 1NC+1NO(电气分离 electrical isolation) NDR3E-38□/1/□	
辅助触头额定工作电压 Rated operating voltage of the auxiliary contact			AC-15 230V/0.75A 400V/0.47A DC-13 230V/0.1A	
辅助回 路接线	无接线端子的 软导线 1 根	最小/最大 截面	1/2.5 mm ²	

Auxiliary circuit wiring capacity	Flexible conductor (1 piece) without terminals	积 Minimum/ maximum cross section	
	有接线端子的软导线 1 根 Flexible conductor (1 piece) with terminals		1/2.5 mm ²
	无接线端子的硬导线 1 根 Solid conductor (1 piece) without terminals		1/2.5 mm ²
辅助端子紧固扭矩 Auxiliary terminal tightening torque			0.8N.m

表 3 Table 3

动作特性 Action features	序号 SN	整定电流 Setting current	动作时间 Trip time	起始条件 Initial conditions	周围空气温度℃ Ambient air temperature °C
各相负载平衡时 Load balance of each phase	1	1.05In	>2h	冷态 Cold state	-25℃～60℃
	2	1.2In	<2h	接序 1 试验后 Following the sequence 1 test	
	3	1.5In	10 级（class 10）< 4min 20 级（class 20）< 8min	接序 1 试验后 Following the sequence 1 test	
	4	7.2In	10 级（class 10）4s< Tp≤10s	冷态 Cold state	
			20 级（class 20）: 6s< Tp≤20s	冷态 Cold state	
	缺相保护 Phase failure protection	当一相或二相电流 I≥0.8In, 剩余相电流为 0 时 When the one or two-phase current satisfies I≥0.8In and the other-phase failure		3～8s	

相不平衡保护 Phase unbalance protection	相不平衡率 $\geq 60\%$ 时 When the phase unbalance rate over 60%	30~40s	冷态或热态 Cold state or warm state	
锁定功能 Locking function	当一相或二相电流 $I \geq 0.8I_n$, 剩余相电流为 0, 连续三次故障后锁定自动复位功能, 需手动复位 When the one or two-phase current satisfies $I \geq 0.8I_n$ with the other-phase current is 0 ,the automatic reset function locked after failure for consecutive three times, it is necessary to perform the manual reset			
	当过载电流 $I \geq 4I_n$ 、故障时间 $\geq 8\text{min}$ 、连续三次故障后锁定自动复位功能, 需手动复位 When the overload current satisfies $I \geq 4I_n$ and the fault time is $\geq 8\text{min}$,the automatic reset function locked after failure for consecutive three times, it is necessary to perform the manual reset			

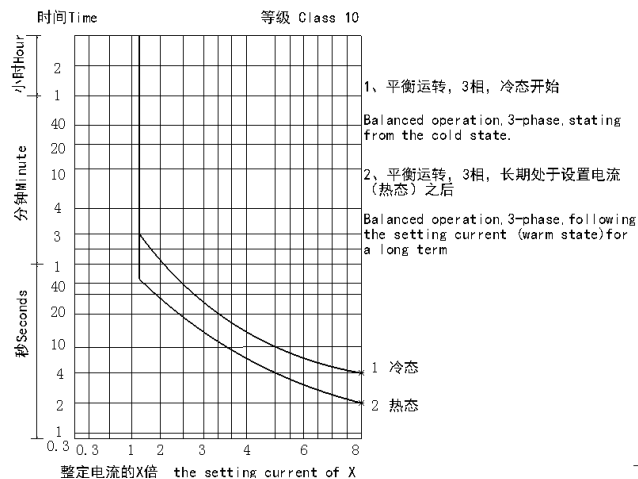
表 4 指示灯状态与工况

Table 4 Indicator status and working condition

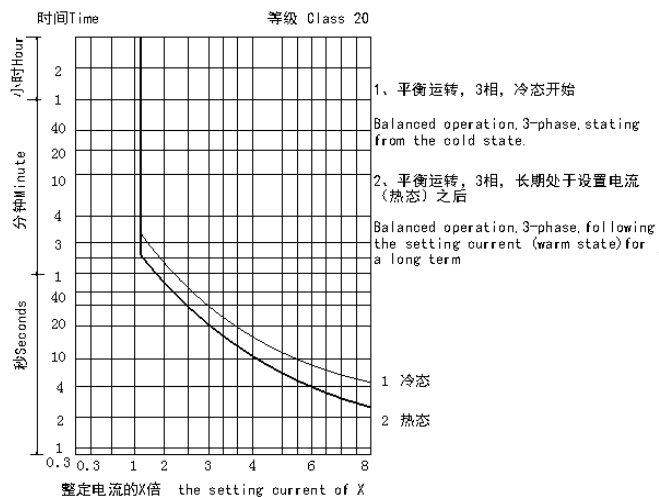
工况 Operating condition	指示灯状态 Indicator status
正常 Normal	绿灯常亮 Green light constantly on
过载、测试 Overload, test	绿灯均匀闪烁 Green light equal slow flashing
不平衡 Unbalance	
缺相 Phase failure	
过载脱扣 Overload tripped	红灯常亮 Red light constantly on
缺相脱扣 phase failure tripped	红灯快闪 Red light fast flashing
不平衡脱扣 Unbalance tripped	红灯慢闪 Red light low flashing
三次脱扣后锁定 Locked	红绿灯交替闪烁 Red light and green light alternately flashing

产品脱扣特性曲线 $20 \pm 2^\circ\text{C}$ Tripping characteristic curve of the product at $20 \pm 2^\circ\text{C}$

10 级产品脱扣曲线 Tripping characteristic curve of the class 10



20 级产品脱扣曲线 Tripping characteristic curve of the class 20



4. 工作环境/ Working conditions

4.1 运行温度: $-25^{\circ}\text{C} \sim 60^{\circ}\text{C}$ 。极限运行温度: $-40^{\circ}\text{C} \sim 70^{\circ}\text{C}$, 存储温度: $-60^{\circ}\text{C} \sim +80^{\circ}\text{C}$

Operating temperature: $-25^{\circ}\text{C} \sim 60^{\circ}\text{C}$, extreme operating temperature: $-40^{\circ}\text{C} \sim 70^{\circ}\text{C}$, Storage temperature: $-60^{\circ}\text{C} \sim 80^{\circ}\text{C}$

4.2 海拔条件: 3000m, 5000m 需与制造厂协商

Altitude: The altitude of the installation site is under 3,000m. Negotiate with the manufacture when the altitude is up to from 3000m to 5000m

4.3 污染等级

III 级 Pollution level: 3

4.4 防护等级:

IP20 Protection grade: IP20

4.5 安装类别为 III

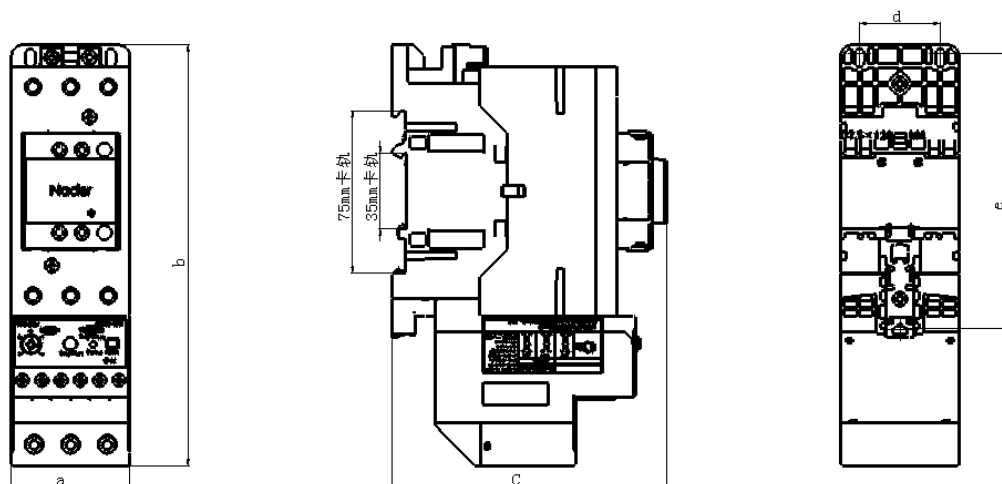
Installation Category: III

4.6 抗振性能: $5 \cdots 300 \text{ Hz}$, 2gn

Anti-vibration performance: $5 \cdots 300 \text{ Hz}$, 2gn

4.7 抗冲击性能: 1/2 正弦波 = 11ms, 15gn

Shock t resistance: 1/2 sine wave = 11ms, 15gn

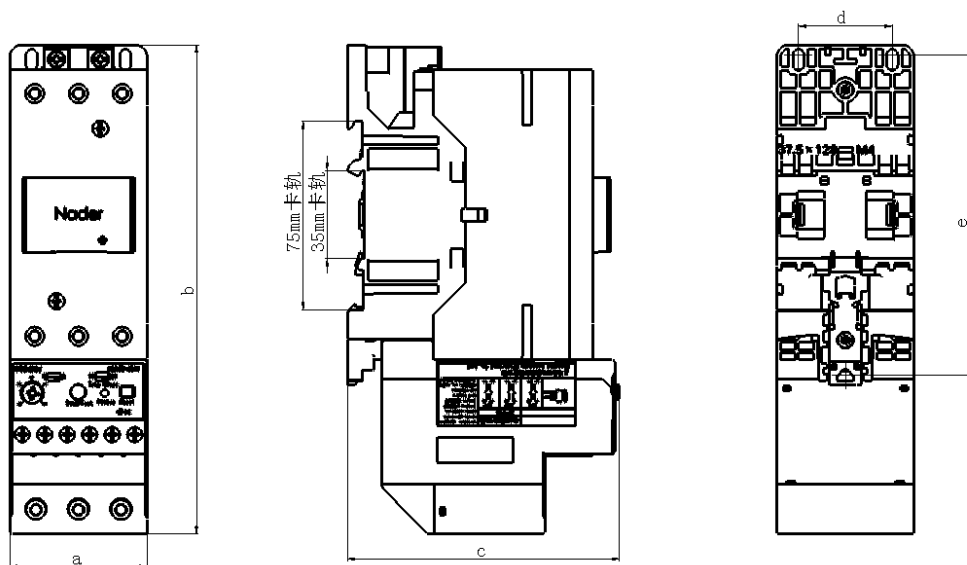


型号 Type	a	b	c	d	e
NDC3-4011(S)~8011(S)+NDR3E-65	55 ± 0.8	195.5 ± 1.5	121.4 ± 0.8	37.5 ± 0.8	128 ± 1
NDC3GV-4011(S)~8011(S)+NDR3E-65	55 ± 0.8	195.5 ± 1.5	127.9 ± 0.8	37.5 ± 0.8	128 ± 1
NDC3-9511(S)+NDR3E-95	70 ± 0.8	203.5 ± 1.5	132 ± 0.8	60 ± 0.8	128 ± 1
NDC3GV-9511(S)+NDR3E-95	70 ± 0.8	203.5 ± 1.5	140.6 ± 0.8	60 ± 0.8	128 ± 1

6.2 NDR3E-65 匹配 NDC3 (GV) -40 ~80/NDR3E-95 匹配 NDC3 (GV) -95 外形、安装尺寸 (mm)

Installation dimensions of NDR3E-65 with NDC3(GV)-40 ~80 contactor

Installation dimensions of NDR3E-95 with NDC3 (GV) -95 contactor



型号 Type	a	b	c	d	e
NDC3-40~80+NDR3E-65	55 ± 0.8	195.5 ± 1.5	108.8 ± 1	37.5 ± 0.8	128 ± 1
NDC3GV-40~80+NDR3E-65	55 ± 0.8	195.5 ± 1.5	115.3 ± 1	37.5 ± 0.8	128 ± 1
NDC3-95+NDR3E-95	70 ± 0.8	203.5 ± 1.5	120.8 ± 1	60 ± 0.8	128 ± 1

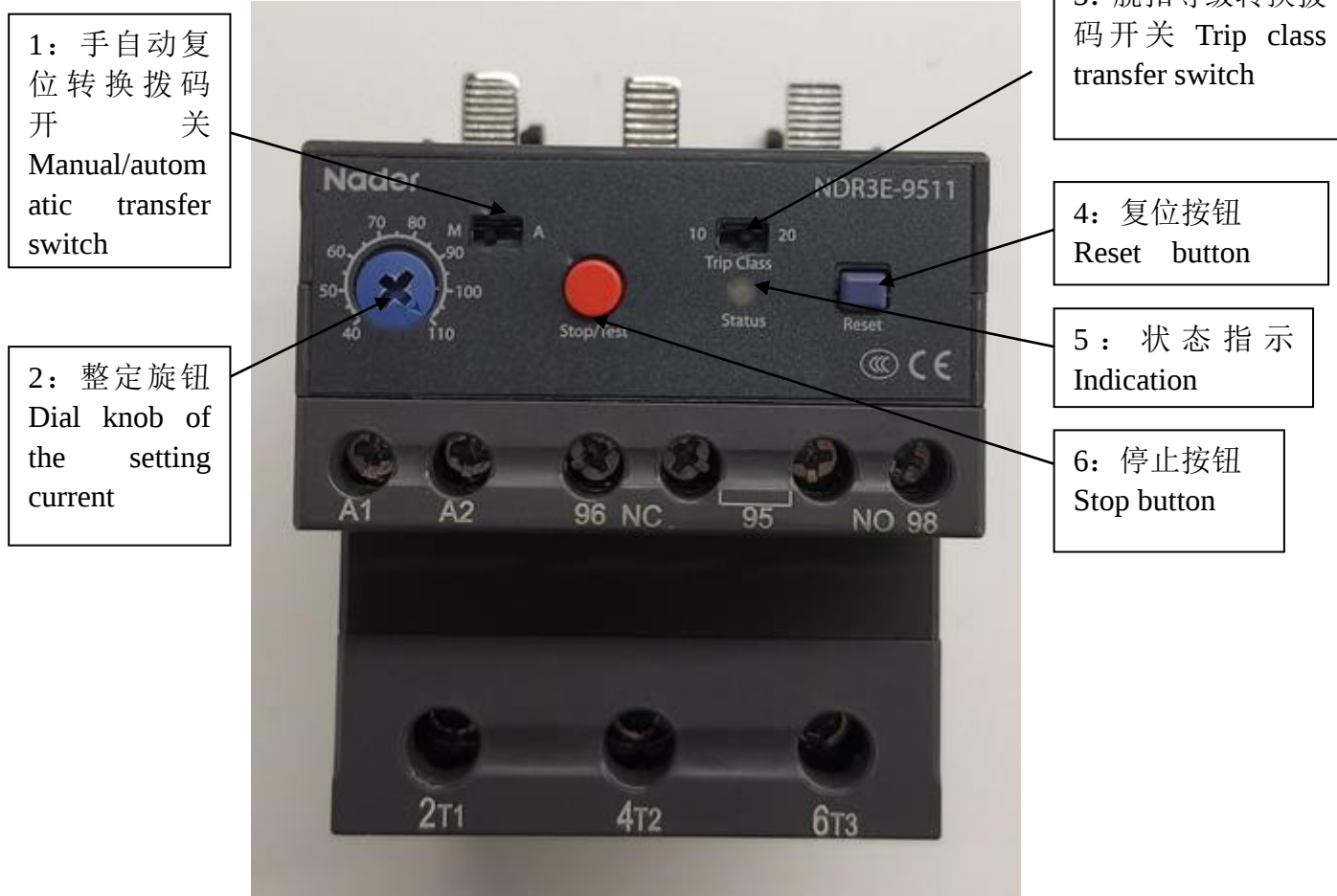
NDC3GV-95+NDR3E-95	70±0.8	203.5±1.5	129.4±1	60±0.8	128±1
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7. 安装方式/ Mounting Method

直接插接在所配套的接触器上

Plugged with the contactor

8. 使用和维护/ Application & Maintenance



8.1 手自动复位拨码开关，左右拨动可使产品处于手动(M)或自动(A)复位的状态。

Make the product in the manual (M) or automatic (A) reset status by adjusting the manual/automatic transfer dial switch in the left or right direction.

8.2 整定旋钮刻度盘，可进行调节

The setting current can be adjusted by the dial knob

8.3 脱扣等级转换拨码开关，左右拨动可使产品处于 10 级或 20 级的状态。

Adjust the trip class transfer dial switch in the left or right direction can keep the product in the class10 or class 20 status

8.4 复位按钮,按下复位按钮可实现手动复位功能。可使 NC、NO 触头切换。

The contact can reset by pressing the reset button

8.5 状态指示, 在正常使用中可指示继电器正常工作、 过载、缺相、相不平衡、锁定、脱扣状态 (具体见表)

Indication LED light which can indicate the relay's normal operation 、 overload tripping 、 phase failure、 phase unbalance、 locked、 tripped status (Refer to table 4)

8.6 停止按钮,主回路及外接电源通电情况下, 按下按钮, NC 触头立马断开, NO 触头接通, 松开按钮, NC 触头恢复到原来的状态 (停止用)。仅外接电源通电情况下, 按下按钮约 4-6s, NC 触头断开, NO 触头接通.(测试用)。

If the main circuit and the power supply are on normally, press the Stop button and the NC/NO will switch to opposite status immediately until you release the button. On the other hand, if the main circuit is off and only the power supply is on, the NO/NC will switch to opposite status till you press the button 4~6s

9. 主要事项/ Notices

9.1 产品应安装使用在无明显冲击和振动的地方。

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

9.2 安装接线可靠, 应防止接线不良导致接线端子异常发热, 引起产品受损。

Reliable installation is required to prevent the product from the abnormal over-heat damage due to the poor wiring

9.3 产品自身的正常工作需要接通 A1、A2 辅助电源 (即控制电源)。

Connect the A1 A2 power supply for normal use

9.4 产品出厂时整定在手动状态。

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