THERMAL RELAY

A130 Thermal relay

Application

FDR2 Series overload relays apply to circuit of AC 50Hz or 60Hz,rated voltage to below 660V and rated current 0.1A~93A for AC motor overload and open-phase protection during long time or intermittent long time service, which can also protect 3-phase serious imbalance and long starting time of motor or long time operation, can also be used for corresponding AC contactor for electromagnetic starter.

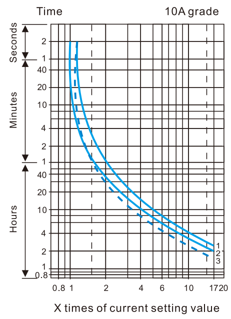
This product has innovative, elegant model and small installation area, functions such as temperature compensation,action indication, automatic and manual reset, stop with steady and reliable performance

Thermal relay can be combined/connected with contactor or installed separately.

Standard: IEC 60947-4-1

Tripping curve

FDR2



1. Equilibrium running, 3 phase, start from cold state
2. Equilibrium running, 2 phase, start from cold state
3. Equilibrium running, 3 phase, after long period of setting current (hot state)

Technical Data

Type			FDR2-D13	FDR2-D23	FDR2-D33
Standard			IEC60947-4-1	IEC60947-4-1	IEC60947-4-1
Rated working current Ie		A	25	36	93
Rated insulating voltage Ui		V	660	660	660
Phase failure protection function			yes	yes	yes
Automatic & manual reset			yes	yes	yes
Temperature compensation			yes	yes	yes
Releasing indicator			yes	yes	yes
Test & stop pushbutton			yes	yes	yes
Auxiliary contacts					
Rated current	AC-15 230V	A	2.73	2.73	2.73
	AC-15 380V	A	1.58	1.58	1.58
	DC-13 230V	A	0.2	0.2	0.2
Ambient air temperature		℃	-5 ~ +40	-5 ~ +40	-5 ~ +40
Altitude	max.	meter	2000	2000	2000
Pollution grade			3	3	3
Installation category			3	3	3
Mounting type	Independent		yes	yes	yes
	Plug-in		yes	yes	yes

Action Characteristics

Overload Protecion

Item No.	Setting current multiple	Action time	Start condition	Ambient air temperature
1	1.05	≥ 2h	Cold state start	
2	1.2	<2h	After test item 1	20 ℃ ±5 ℃
3	1.5	<2min	After test item 1	
4	7.2	2s<Tp≤ 10s	Cold state start	

Phase failure protection

Item No.	Setting current multiple		Action time	Start condition	Ambient air temperature
	Any two phase	The third phase			
5	1.0	0.9	≥ 2h	Cold state start	20°C±5°C
6	1.15	0	<2h	After test item 5	

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FDR2

Ref.	Model	Setting Range(A)	For Contactor	Case Qty.(Pcs)
 FDR2-25	FDR2-25-D1301	0.10-0.16	FDC1-D09	100
	FDR2-25-D1302	0.16-0.25	FDC1-D09	100
	FDR2-25-D1303	0.25-0.40	FDC1-D09	100
	FDR2-25-D1304	0.40-0.63	FDC1-D09	100
	FDR2-25-D1305	0.63-1	FDC1-D09	100
	FDR2-25-D1306	1-1.6	FDC1-D09	100
	FDR2-25-D1307	1.6-2.5	FDC1-D09	100
	FDR2-25-D1308	2.5-4	FDC1-D09	100
	FDR2-25-D1310	4-6	FDC1-D09	100
	FDR2-25-D1312	5.5-8	FDC1-D09	100
	FDR2-25-D1314	7-10	FDC1-D12	100
	FDR2-25-D1316	9-13	FDC1-D12	100
	FDR2-25-D1321	12-18	FDC1-D18	100
	FDR2-25-D1322	17-25	FDC1-D25	100
 FDR2-36	FDR2-36-D2353	23-32	FDC1-D32	75
	FDR2-36-D2355	30-40	FDC1-D32	75
 FDR2-93	FDR2-93-D3322	17-25	FDC1-D40	50
	FDR2-93-D3353	23-32	FDC1-D40	50
	FDR2-93-D3355	30-40	FDC1-D40	50
	FDR2-93-D3357	37-50	FDC1-D50	50
	FDR2-93-D3359	48-65	FDC1-D65	50
	FDR2-93-D3361	55-70	FDC1-D80	50
	FDR2-93-D3363	63-80	FDC1-D80	50
	FDR2-93-D3365	80-93	FDC1-D95	50

LA7-D3064

Matched relay	code
FDR2-25	LA7-D1064
FDR2-36	LA7-D2064
FDR2-93	LA7-D3064

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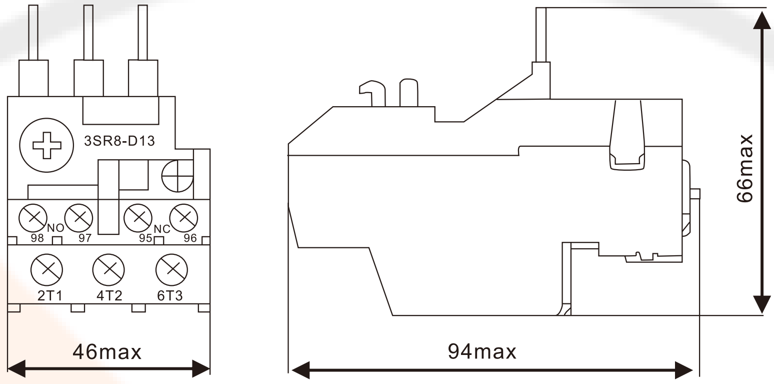
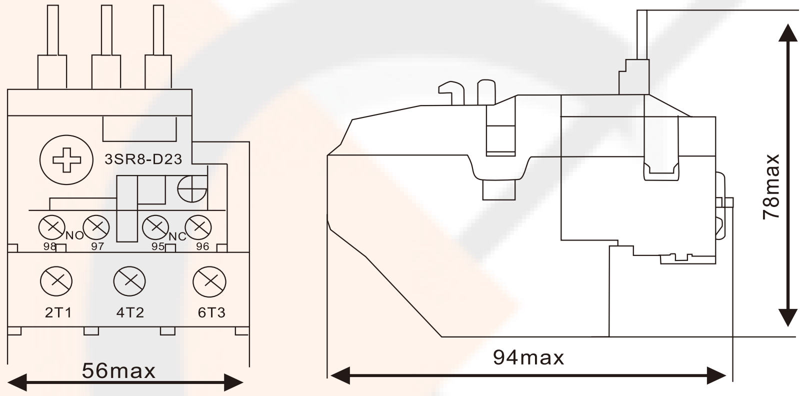
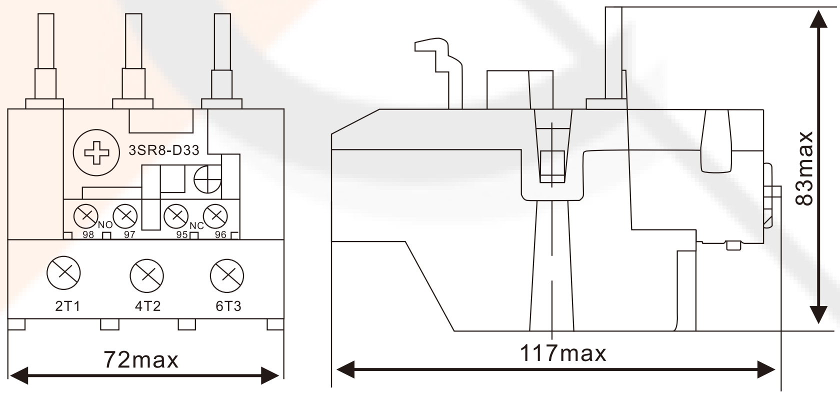


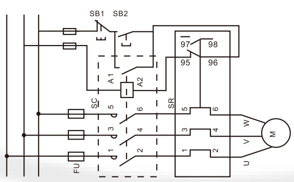
FDR2-25



FDR2-36



FDR2-93



FU-fuse
SC -AC contactor
SR -thermal relay
SB1- stop button SB2-start button

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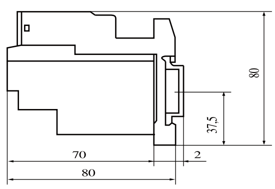
FDR2N

Ref.	Model	Setting Range(A)	For Contactor	Case Qty.(Pcs)
FDR2N-D13	FDR2N-D1301	0.10-0.16	FDC1N-D09	100
	FDR2N-D1302	0.16-0.25	FDC1N-D09	100
	FDR2N-D1303	0.25-0.40	FDC1N-D09	100
	FDR2N-D1304	0.40-0.63	FDC1N-D09	100
	FDR2N-D1305	0.63-1.0	FDC1N-D09	100
	FDR2N-D1306	1.0-1.7	FDC1N-D09	100
	FDR2N-D1307	1.6-2.5	FDC1N-D09	100
	FDR2N-D1308	2.5-4.0	FDC1N-D09	100
	FDR2N-D1310	4.0-6.0	FDC1N-D09	100
	FDR2N-D1312	5.5-8.0	FDC1N-D09	100
	FDR2N-D1314	7.0-10.0	FDC1N-D12	100
	FDR2N-D1316	9.0-13.0	FDC1N-D12	100
	FDR2N-D1321	12.0-18.0	FDC1N-D18	100
	FDR2N-D1322	16.0-24.0	FDC1N-D25	100
	FDR2N-D1353	30.0-38.0	FDC1N-D32	100
FDR2N-D23	FDR2N-D2353	23.0-32.0	FDC1N-D32	75
	FDR2N-D2355	30.0-40.0	FDC1N-D40	75
FDR2N-D33	FDR2N-D3322	17.0-25.0	FDC1N-D25	50
	FDR2N-D3353	23.0-32.0	FDC1N-D32	50
	FDR2N-D3355	30.0-40.0	FDC1N-D40	50
	FDR2N-D3357	37.0-50.0	FDC1N-D50	50
	FDR2N-D3359	48.0-65.0	FDC1N-D65	50
	FDR2N-D3361	55.0-70.0	FDC1N-D80	50
	FDR2N-D3363	63.0-80.0	FDC1N-D80	50
	FDR2N-D3365	80.0-93.0	FDC1N-D95	50

FDR2N-D13

FDR2N-D23

FDR2N-D33



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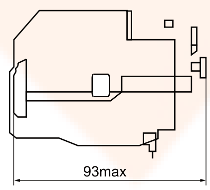
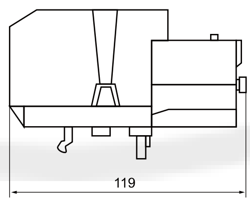


FDR2N-D23



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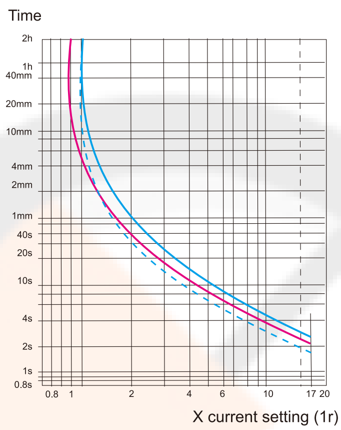
Application

FDR3-F

FDR1-F thermal overload relays are designed for use with contactors from FDC1-F115 to FDC1-F330. In addition to the protection provided by modular thermal overload relays FDR2, they offer the following special features:

- ☐ Protection against phase imbalance.
- ☐ Choice of starting class.
- ☐ Protection of unbalanced circuits.
- ☐ Protection of single-phase circuits.

Performance Curve



Specifications

Type	Number	Setting range(A)	For contactor
FDR1-F53	F5357	30~50	FDC1-F115~F185
	F5363	48~80	FDC1-F115~F185
	F5367	60~100	FDC1-F115~F185
	F5369	90~150	FDC1-F115~F185
	F5371	132~220	FDC1-F225~F265
FDR1-F73	F7357	200~330	FDC1-F225~F500
	F7379	300~500	FDC1-F225~F500
	F7381	380~630	FDC1-F400~F630

Relay setting range	Fuses to be used with selected relay Maximum rating		Contactor	Code
	aM Type	gG Type		
A	A	A		
30-50	50	80	FDC1-F115...F185	FDR1-F5350
48-80	80	125	FDC1-F115...F185	FDR1-F5380
60-100	100	200	FDC1-F115...F185	FDR1-F53100
90-150	160	250	FDC1-F115...F185	FDR1-F53150
132-220	250	315	FDC1-F225...F265	FDR1-F53220
200-330	400	500	FDC1-F225...F500	FDR1-F53330
300-500	500	800	FDC1-F225...F500	FDR1-F53500
380-630	630	800	FDC1-F400...F630	FDR1-F53630

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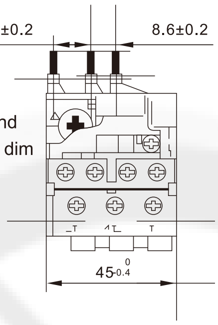
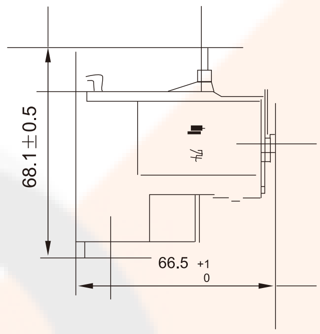
Specifications

FDR2-K

Setting Range(A)	0.10-0.16 1.6- 2.5	0.16-0.25 2.5-4	0.25-0.4 4-6	0.4-0.63 5.5-8	0.63-1 7-10	1-1.6 9-13
For Contactor	FDC1-K06/09	FDC1-K09	FDC1-K12	FDC1-K18		
Contactor parameter	Ith=10A、INO+INC					

Outline and mounting dim





	Relay setting range A	Fuses to be used with selected relay aM Type A	 gG Type A	Code
FDR2-K03 3 Pins	0.10-0.16	0.25	0.5	FDR2-K0301
	0.16-0.25	0.25	0.5	FDR2-K0302
	0.25-0.4	0.5	1	FDR2-K0303
	0.4-0.63	1	1.6	FDR2-K0304
	0.63-1	1	2	FDR2-K0305
	1-1.6	2	6	FDR2-K0306
	1.6-2.5	4	8	FDR2-K0308
	2.5-4	4	10	FDR2-K0310
	4-6	6	16	FDR2-K0312
	5.5-8	8	20	FDR2-K0314
	7-10	10	25	FDR2-K0316
	9-13	16	32	FDR2-K0321
FDR2-K05 5 Pins	0.10-0.16	0.25	0.5	FDR2-K0501
	0.16-0.25	0.25	0.5	FDR2-K0502
	0.25-0.4	0.5	1	FDR2-K0503
	0.4-0.63	1	1.6	FDR2-K0504
	0.63-1	1	2	FDR2-K0505
	1-1.6	2	6	FDR2-K0506
	1.6-2.5	4	8	FDR2-K0508
	2.5-4	4	10	FDR2-K0510
	4-6	6	16	FDR2-K0512
	5.5-8	8	20	FDR2-K0514
	7-10	10	25	FDR2-K0516
	9-13	16	32	FDR2-K0521