

# THERMAL OVERLOAD RELAYS



# Ex9R

## Thermal Overload Relays

### Ex9R Product Overview

# Features

- For use with Ex9C and Ex9CR\*
- Rated current up to 500 A @ 600 Vac, 50/60 Hz
- Overload protection trip Class 10 and Class 10 A
- Phase loss sensitivity
- Adjustable current setting for overload protection
- Automatic or manual reset selectable
- Status indication
- STOP and TEST function
- Direct mount to contactors or 35 mm DIN rail mounting base option
- 5-year limited warranty



## Certifications

- UL Listed, File Number E353865, UL 60947-1 and 60947-4-1
- Certified for Canada CSA standards under cUL testing
- IEC/EN 60947-4-1
- CE Approved
- CCC Certified



## Thermal Overload Relays Ex9R Product Selection Guide

### Label



1. Brand
2. Label with UL Logo, CE Logo and Data
3. Adjustable Current Range
4. Push to Test
5. Product Series/Frame Amperage
6. Manual Stop
7. Manual/Auto Reset
8. Auxiliary Contacts

### Product Selection Guide

Ex9R	12	B	0.16A
NOARK Ex9R Series	Frame Size	Trip Class*	Setting Amperage
	12: 12 A	B: Class 10	0.16A: 0.1~0.16 A
	38: 38 A		0.25A: 0.16~0.25 A
	100: 100 A		0.4A: 0.25~0.4 A
	185: 185 A		0.63A: 0.4~0.63 A
	500: 500 A		1A: 0.63~1 A
			1.6A: 1~1.6 A
			2.5A: 1.6~2.5 A
			4A: 2.5~4 A
			6A: 4~6 A
			8A: 5.5~8 A
			10A: 7~10 A
			12A: 9~12 A
			13A: 9~13 A
			18A: 12~18 A
			24A: 16~24 A
			32A: 23~32 A
			38A: 30~38 A
			40A: 30~40 A
			50A: 37~50 A
			65A: 48~65 A
			70A: 55~70 A
			80A: 63~80 A
			100A: 80~104 A
			115A: 75~115 A
			150A: 110~150 A
			185A: 140~210 A
			225A: 160~225 A
			300A: 210~300 A
			400A: 280~400 A
			500A: 380~500 A

Note: Consult NOARK for information on Tripping Class 10 A.

## Thermal Overload Relays

### Ex9R 12~100 A

**Certifications**  
IEC/EN 60947-4-1

CE e UL US LISTED



**12 A**



**38 A**



**100 A**

**B**

Current Range Amp (Min-Max)	Use with Contactors: Ex9CS06~12		Use with Contactors: Ex9C09~38		Use with Contactors: Ex9C40~100	
	Product	Part Number	Product	Part Number	Product	Part Number
0.1~0.16	Ex9R12B0.16A	1420001	-	-	-	-
0.16~0.25	Ex9R12B0.25A	1420002	-	-	-	-
0.25~0.4	Ex9R12B0.4A	1420003	-	-	-	-
0.4~0.63	Ex9R12B0.63A	1420004	-	-	-	-
0.63~1	Ex9R12B1A	1420005	Ex9R38B1A	1420013	-	-
1~1.6	Ex9R12B1.6A	1420006	Ex9R38B1.6A	1420014	-	-
1.6~2.5	Ex9R12B2.5A	1420007	Ex9R38B2.5A	1420015	-	-
2.5~4	Ex9R12B4A	1420008	Ex9R38B4A	1420016	-	-
4~6	Ex9R12B6A	1420009	Ex9R38B6A	1420017	-	-
5.5~8	Ex9R12B8A	1420010	Ex9R38B8A	1420018	-	-
7~10	Ex9R12B10A	1420011	Ex9R38B10A	1420019	-	-
9~12	Ex9R12B12A	1420012	-	-	-	-
9~13	-	-	Ex9R38B13A	1420020	-	-
12~18	-	-	Ex9R38B18A	1420021	-	-
16~24	-	-	Ex9R38B24A	1420022	-	-
23~32	-	-	Ex9R38B32A	1420023	Ex9R100B32A	1420025
30~38	-	-	Ex9R38B38A	1420024	-	-
30~40	-	-	-	-	Ex9R100B40A	1420026
37~50	-	-	-	-	Ex9R100B50A	1420027
48~65	-	-	-	-	Ex9R100B65A	1420028
55~70	-	-	-	-	Ex9R100B70A	1420029
63~80	-	-	-	-	Ex9R100B80A	1420030
80~104	-	-	-	-	Ex9R100B104A	1420046

## Thermal Overload Relays

### Ex9R 185~500 A

**Certifications**  
IEC/EN 60947-4-1

CE cUL US LISTED



**185 A**



**500 A**

Current Range Amp (Min-Max)	Use with Contactors: Ex9C115~185		Use with Contactors: Ex9C225~500	
	Product	Part Number	Product	Part Number
75~115	Ex9R185B115A	1420032	-	-
110~150	Ex9R185B150A	1420033	-	-
140~210	Ex9R185B210A	1420047	-	-
160~225	-	-	Ex9R500B225A	1420035
210~300	-	-	Ex9R500B300A	1420036
280~400	-	-	Ex9R500B400A	1420037
380~500	-	-	Ex9R500B500A	1420038

# Thermal Overload Relays

## Ex9R Specifications

		Ex9R
Tripping Class		Class 10/10 A
Operating Frequency (Hz)		50/60
Phase Failure Protection Function		
Automatic and Manual Reset		
Temperature Compensation		Yes
Tripping Indicator		
Test and Stop Pushbutton		
Environmental Conditions	Altitude ft (m)	6,562 (2,000)
	Pollution Degree	Class III
Rated Tripping Current (In)		1.2
Sensitivity to Phase Failure (In)		30%
Rated Working Voltage (V)		600
Rated Impulse Withstand Voltage Uimp		6 kV
Auxiliary Contacts	Number of Contacts	1NO+1NC
	Rated Operating Voltage Ue (V)	AC-15 DC-13 220/380
	Rated Operating Current Ie (A)	AC-15 DC-13 220
		1.64 / 0.95
		0.13
	Circuit Continuous Current	5 A 600 Vac, 1 A 300 Vdc
	Contact Rating	B600, R300
	Terminal Wire Range AWG (mm <sup>2</sup> )	#18-12 (1-2.5)
Terminal Torque in-lb (N.m)		15 (1.70)
Terminal Wire Strip Length in (mm)		0.43 (11)

B

## Thermal Overload Relays

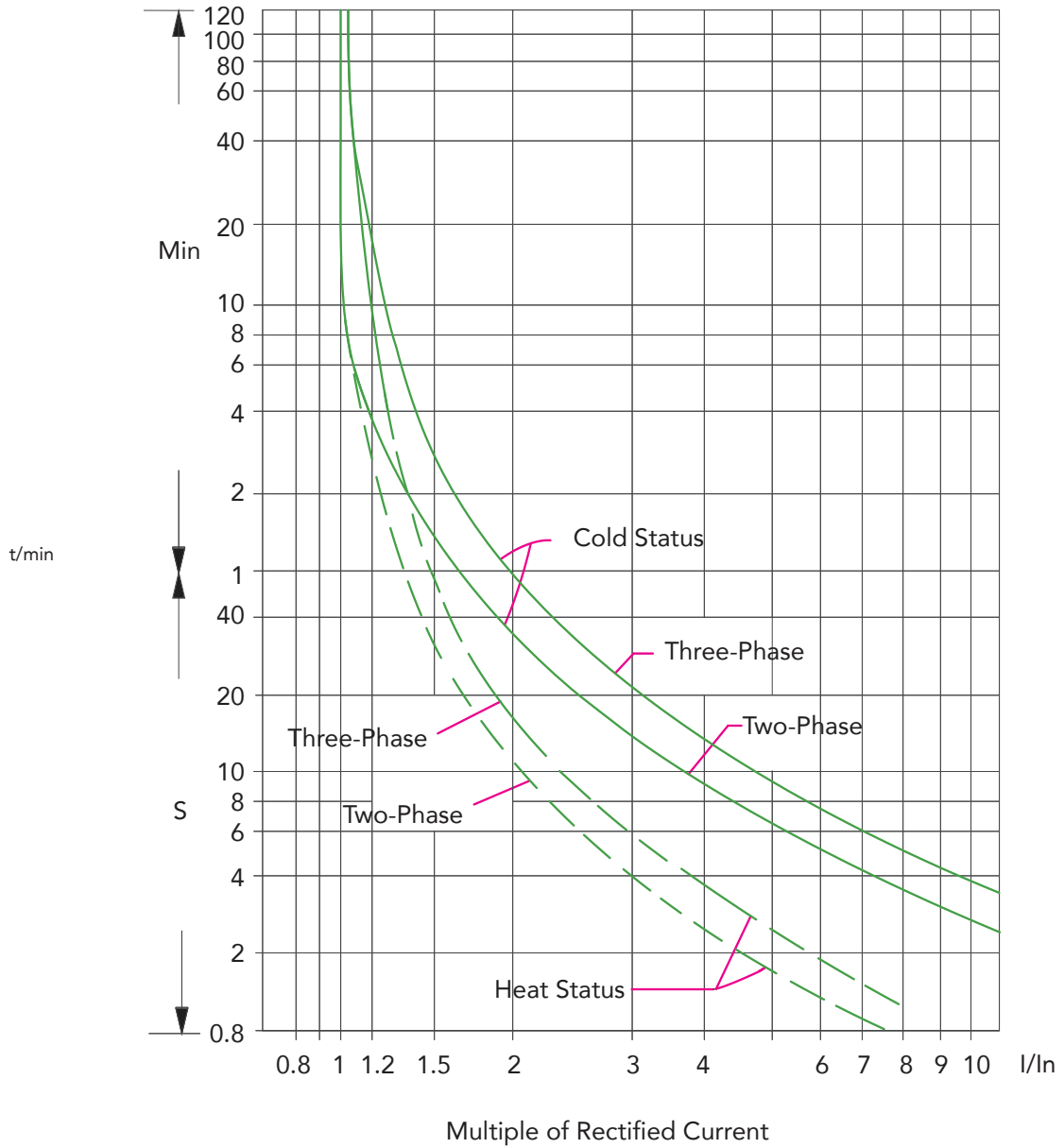
### Ex9R Specifications

Ex9R	12 A											
Current Rated (A)	0.16~1.6					2.5~12						
Current Setting Range (A)	0.1~0.16	0.16~0.25	0.25~0.4	0.4~0.63	0.63~1	1~1.6	1.6~2.5	2.5~4	4~6	5.5~8	7~10	9~12
Short Circuit Rating, 3 Phase at 600 Vac (kA)	1					5						
Power Terminal	#18-12 AWG											
Power Terminal Torque in-lb (N.m)	15 (1.7)											
Power Terminal Wire Strip Length in (mm)	0.43 (11)											
Matched Contactor Type	Ex9CS06~12											
Matched Adapter	AD51											
Ex9R	38 A											
Current Rated (A)	1~1.6			2.5~38								
Current Setting Range (A)	0.63~1	1~1.6	1.6~2.5	2.5~4	4~6	5.5~8	7~10	9~13	12~18	16~24	23~32	30~38
Short Circuit Rating, 3 Phase at 600 Vac (kA)	1			5								
Power Terminal	#18-10 AWG / #8 AWG Str											
Power Terminal Torque in-lb (N.m)	22 (2.5)											
Power Terminal Wire Strip Length in (mm)	0.51 (13)											
Matched Contactor Type	Ex9C09~38											
Matched Adapter	AD56											
Ex9R	100 A											
Current Rated (A)	32~50				65~104							
Current Setting Range (A)	23~32	30~40	37~50	48~65	55~70	63~80	80~104					
Short Circuit Rating, 3 Phase at 600 Vac (kA)	5				10							
Power Terminal	#12-10 AWG / #8-1 AWG Str											
Power Terminal Torque in-lb (N.m)	80 (9)											
Power Terminal Wire Strip Length in (mm)	0.71 (18)											
Matched Contactor Type	Ex9C40~100											
Matched Adapter	AD53											
Ex9R	185 A											
Current Rated (A)	115~210											
Current Setting Range (A)	75~115		110~150		140~210							
Short Circuit Rating, 3 Phase at 600 Vac (kA)	10											
Power Terminal	Bus Bar Only											
Power Terminal Torque in-lb (N.m)	159 (18)											
Power Terminal Wire Strip Length in (mm)	-											
Matched Contactor Type	Ex9C115~185											
Matched Adapter	AD54											
Ex9R	500 A											
Current Rated (A)	225~500											
Current Setting Range (A)	160~225	210~300	280~400	380~500								
Short Circuit Rating, 3 Phase at 600 Vac (kA)	30											
Power Terminal	Bus Bar Only											
Power Terminal Torque in-lb (N.m)	310 (35)											
Power Terminal Wire Strip Length in (mm)	-											
Matched Contactor Type	Ex9C225~500											
Matched Adapter	AD55											

# Thermal Overload Relays

## Ex9R Trip Curves

B



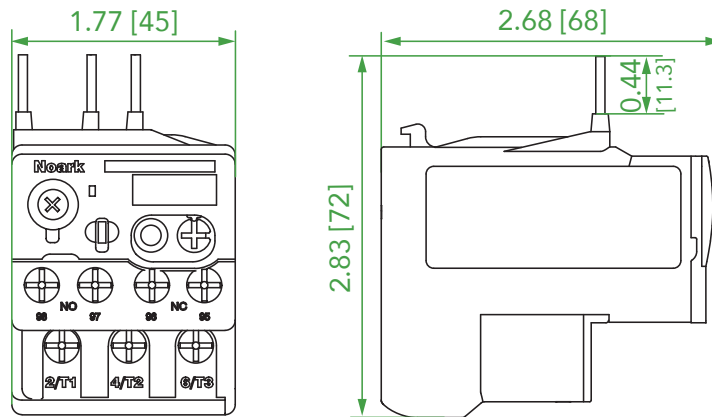


## Thermal Overload Relays

### Ex9R12 Dimensions

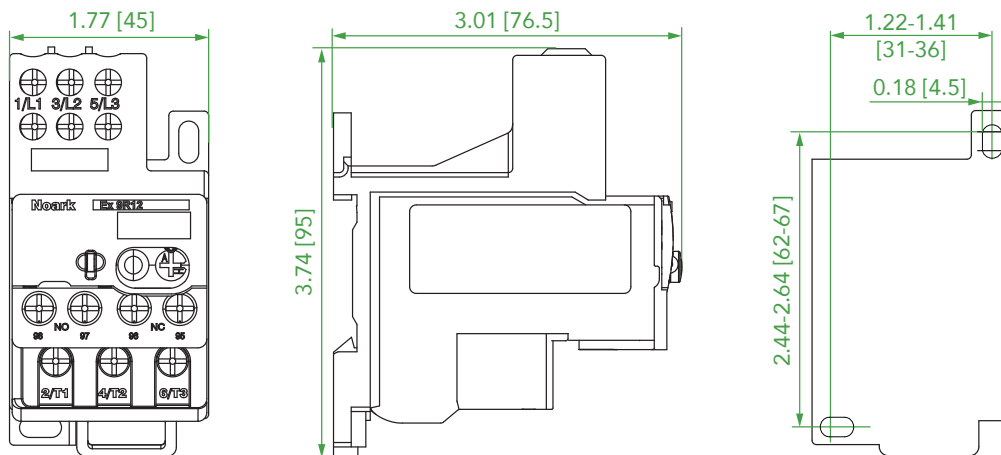
#### Ex9R12

Unit: in [mm]



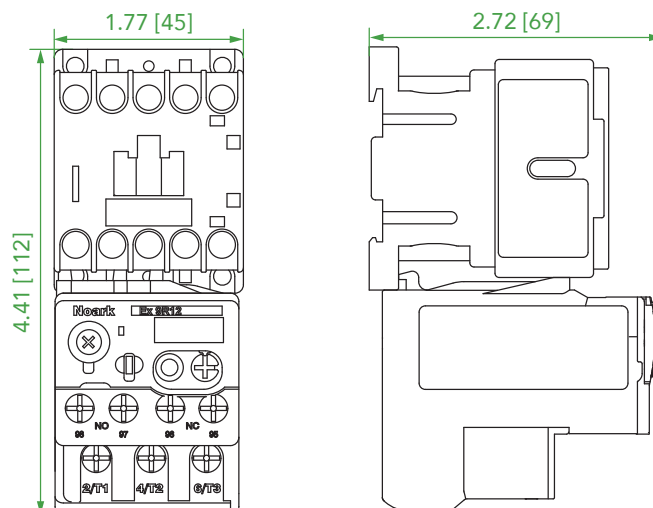
#### Ex9R12+AD51

Unit: in [mm]



#### Ex9R12+Ex9CS06~12

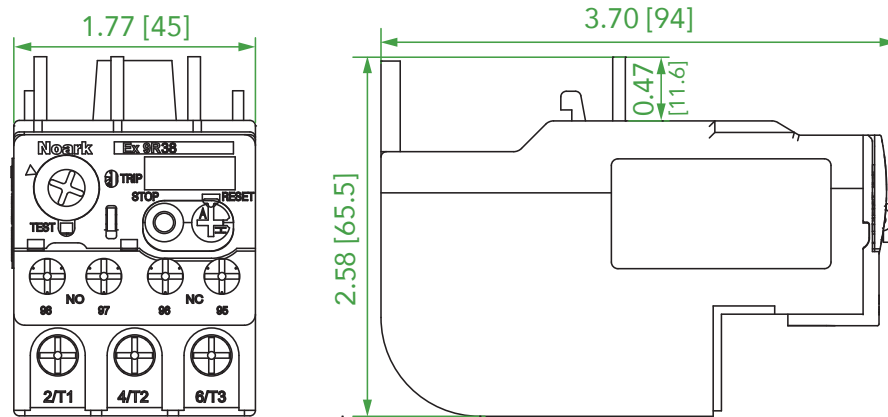
Unit: in [mm]



# Thermal Overload Relays

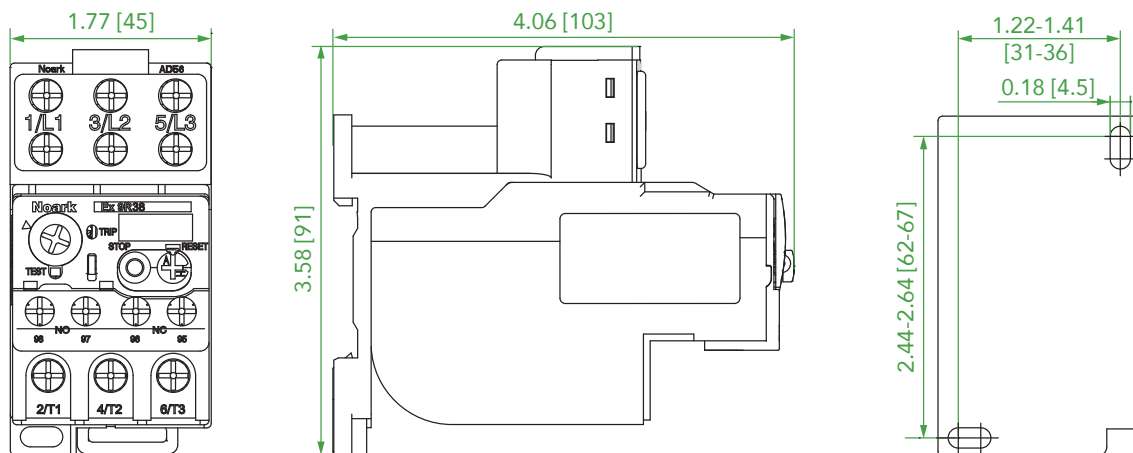
## Ex9R38 Dimensions

**Ex9R38**  
Unit: in [mm]

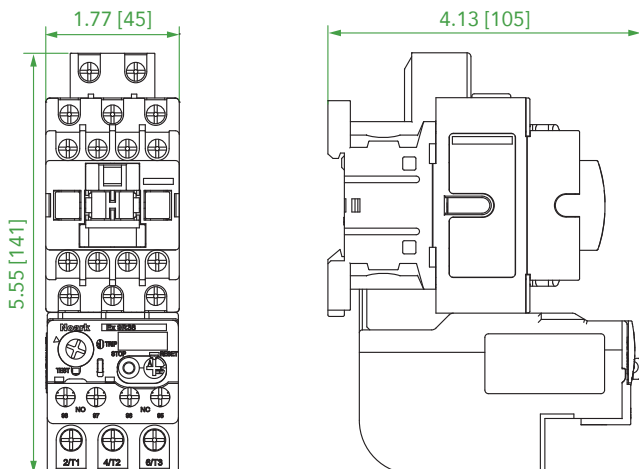


**B**

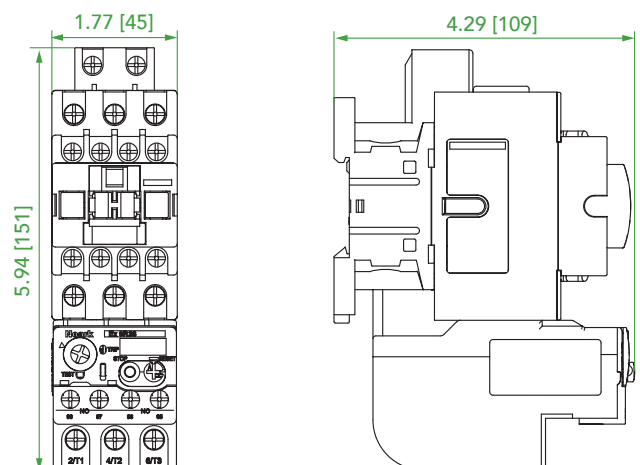
**Ex9R38-TAVJ6**  
Unit: in [mm]



**Ex9R38+Ex9C09~18**  
Unit: in [mm]



**Ex9R38+Ex9C25~38**  
Unit: in [mm]

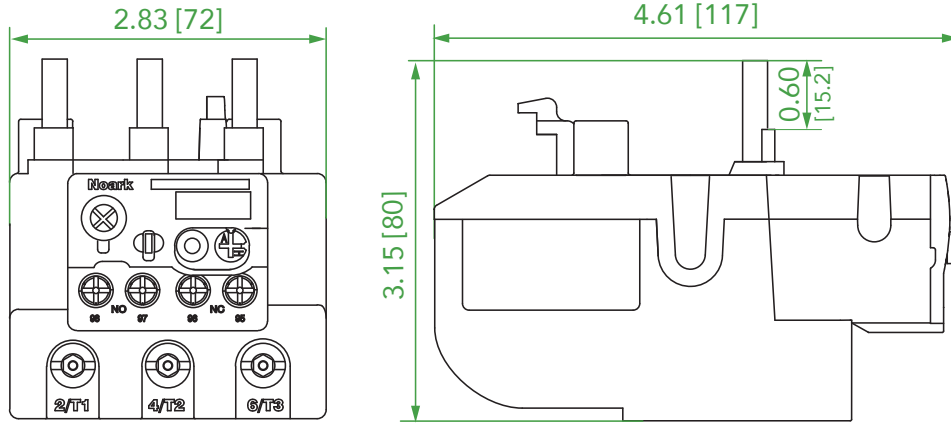


## Thermal Overload Relays

### Ex9R100 Dimensions

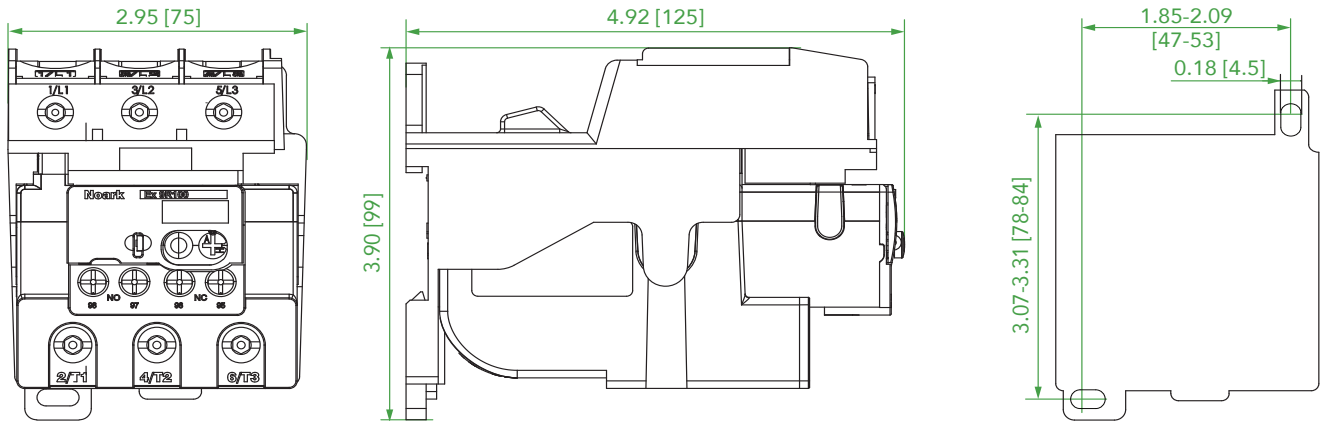
#### Ex9R100

Unit: in [mm]



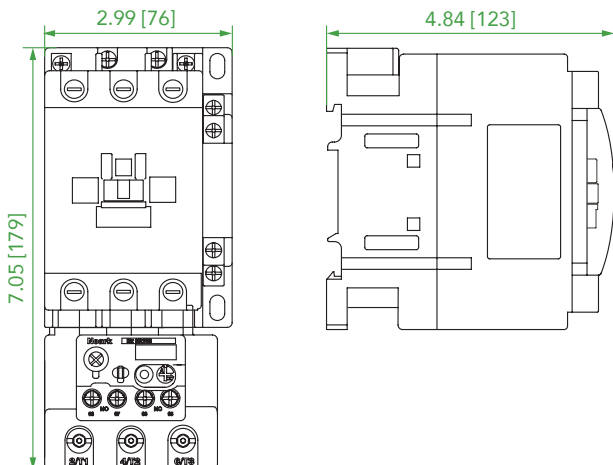
#### Ex9R100+AD53

Unit: in [mm]



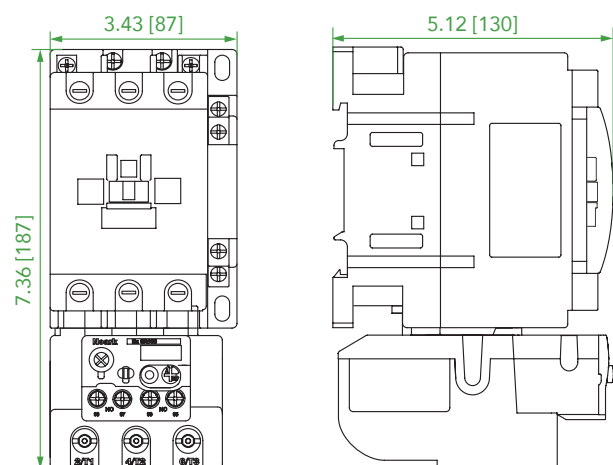
#### Ex9R100+Ex9C40~65

Unit: in [mm]



#### Ex9R100+Ex9C80~100

Unit: in [mm]

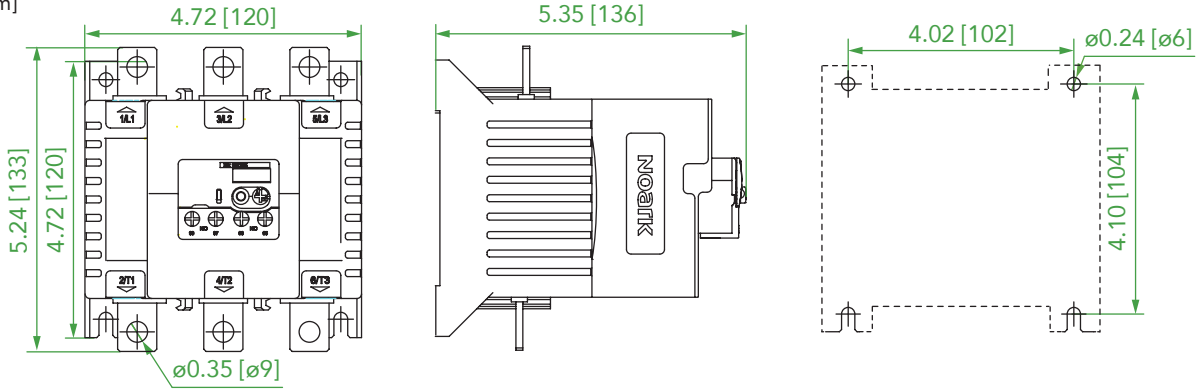


# Thermal Overload Relays

## Ex9R185 Dimensions

### Ex9R185

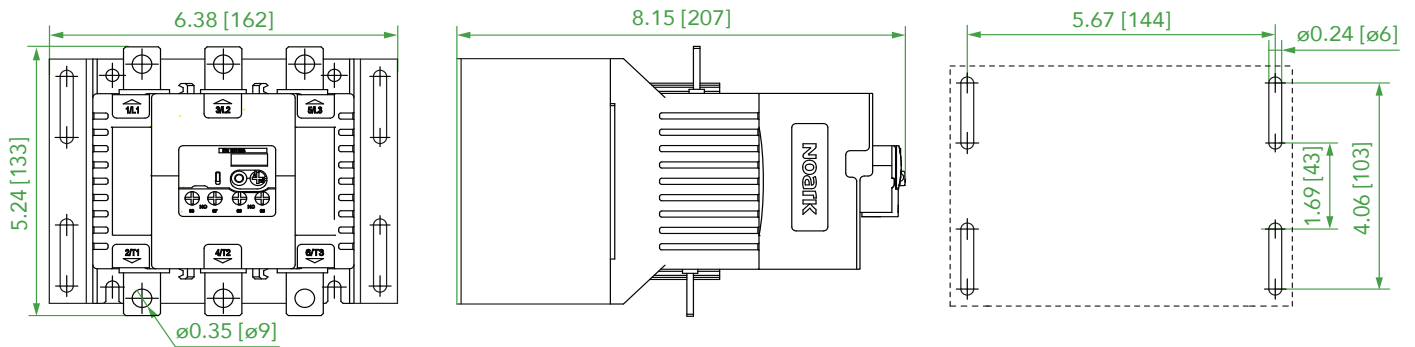
Unit: in [mm]



B

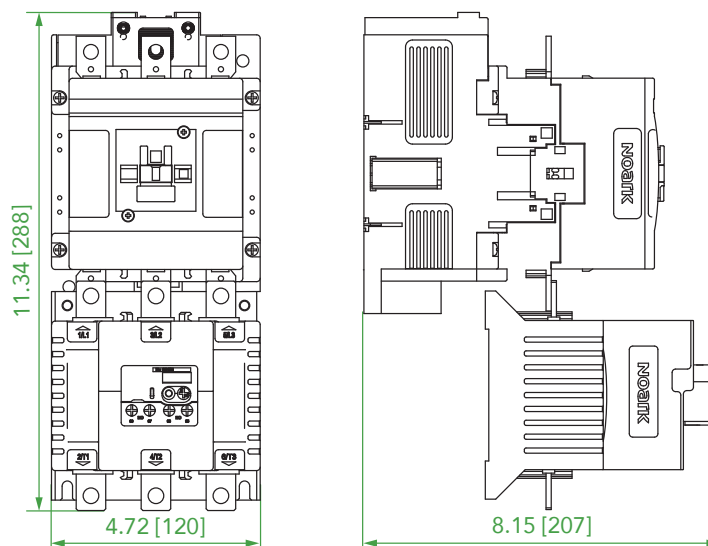
### Ex9R185+AD54

Unit: in [mm]



### Ex9R185+Ex9C115~185

Unit: in [mm]

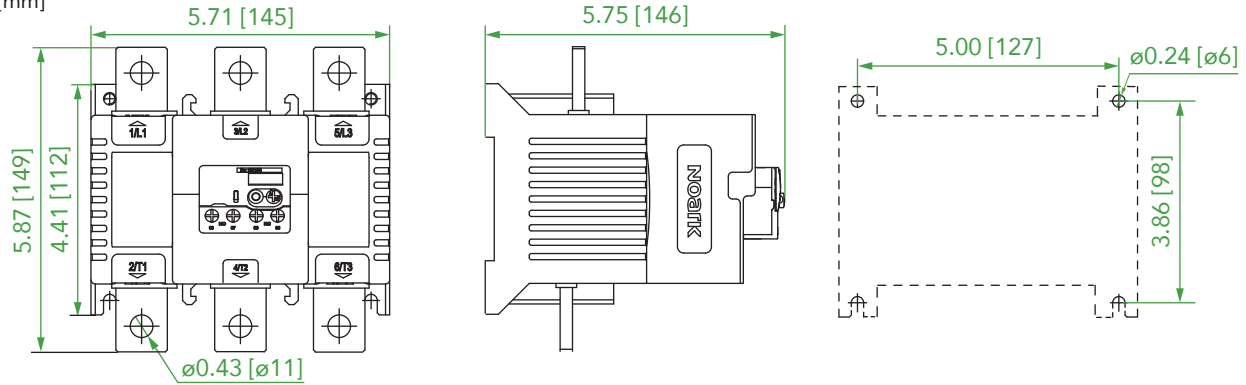


## Thermal Overload Relays

### Ex9R500 Dimensions

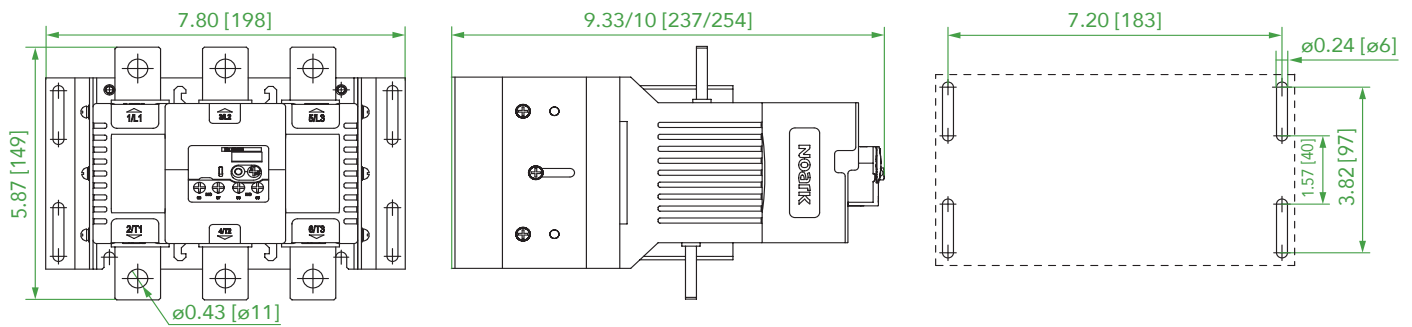
#### Ex9R500

Unit: in [mm]



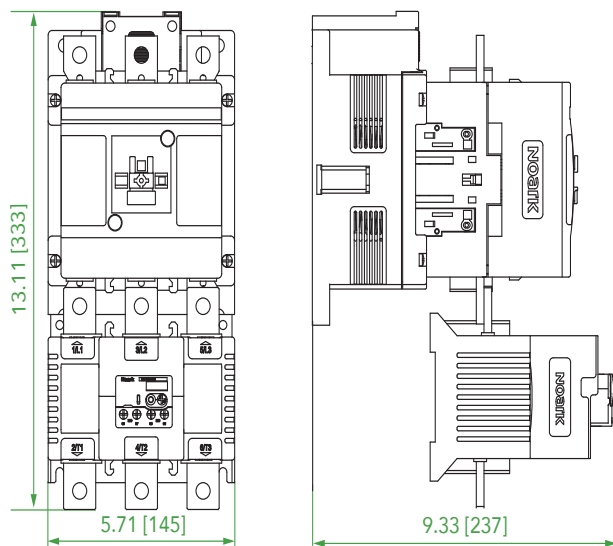
#### Ex9R500+AD55

Unit: in [mm]



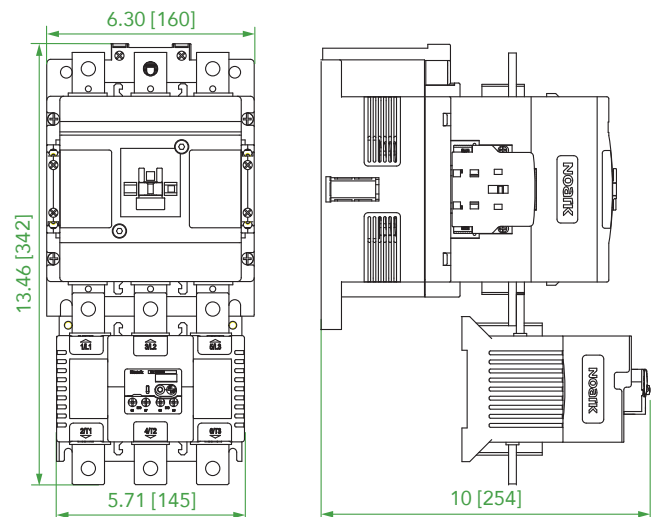
#### Ex9R500+Ex9C225~300

Unit: in [mm]



#### Ex9R500+Ex9C400~500

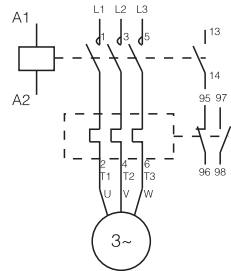
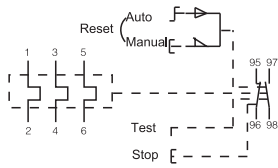
Unit: in [mm]



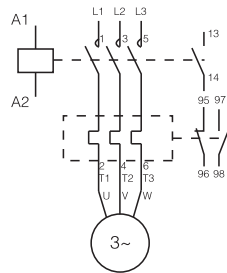
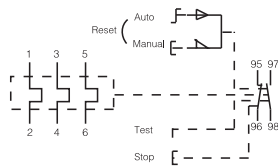
# Thermal Overload Relays

## Ex9R Wiring Diagrams

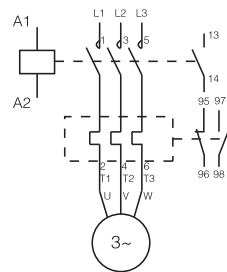
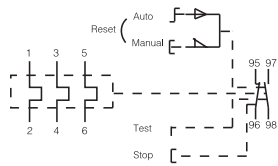
### Ex9R12



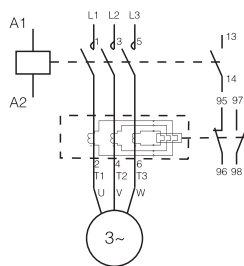
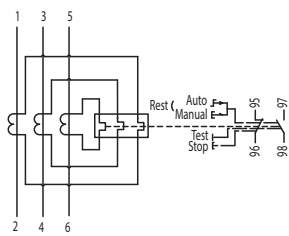
### Ex9R38



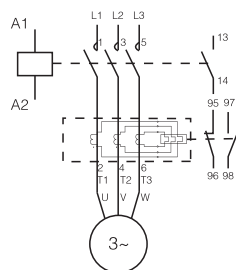
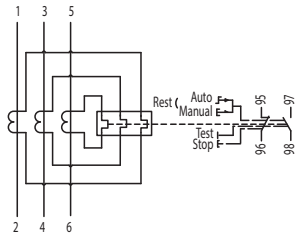
### Ex9R100



### Ex9R185



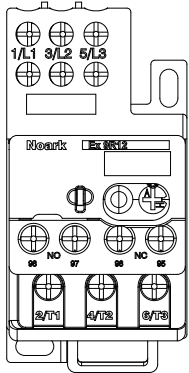
### Ex9R500



B

## Thermal Overload Relays

### Ex9R Accessories: Mounting Base



AD51 shown with Ex9R12 for reference only

AD		51	
Description		Relay Type	
Mounting Base	51:	Ex9R12	
	56:	Ex9R38	
	53:	Ex9R100	
	54:	Ex9R185	
	55:	Ex9R500	

Accessory Description	Product	Part Number
Mounting Base	AD51	1420039
	AD56	1420040
	AD53	1420041
	AD54	1420042
	AD55	1420043

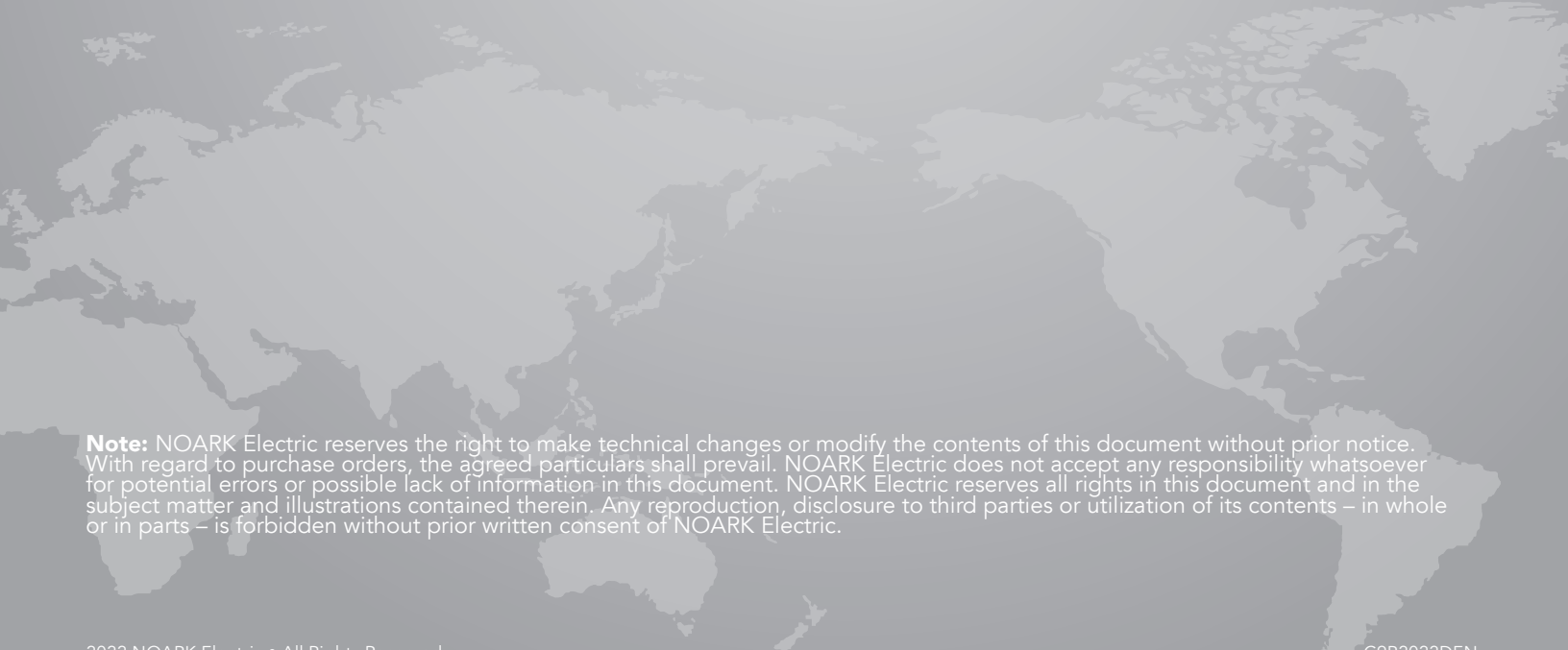
Mounting Base	AD51	AD56	AD53	AD54	AD55
Current Rating (A)	12	38	104	185	500
Voltage (Vac)	600				
Terminal Wire Range	#18-12 AWG	#18-10 AWG / #8 AWG Str	#12-10 AWG / #8-1 AWG, Str		
Terminal Torque in-lb (N.m)	7 (0.80)	22 (2.50)	80 (9)		
Wire Strip Length in (mm)	0.39 (10)	0.51 (13)	0.71 (18)		
Matched Contactor Type	Ex9CS6~12	Ex9C09~38	Ex9C40~100	Ex9C115~185	Ex9C225~500

# NOARK®



**NOARK Electric North America**  
(626) 330-7007

na.noark-electric.com • nasales@noark-electric.com



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