

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



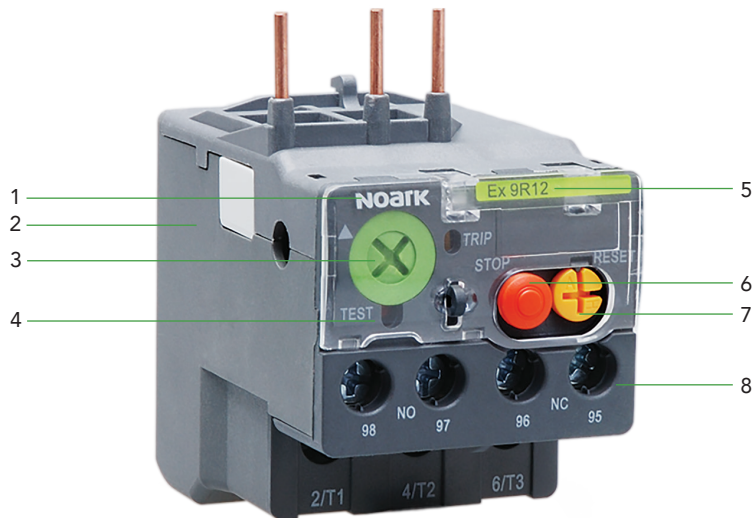
Certifications

- 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



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



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) | 220/380 | |
| | | DC-13 | 220 |
| | Rated Operating Current Ie (A) | 1.64 / 0.95 | |
| | | DC-13 | 0.13 |
| | Circuit Continuous Current | 5 A 600 Vac, 1 A 300 Vdc | |
| | Contact Rating | B600, R300 | |
| | Terminal Wire Range AWG (mm ²) | #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

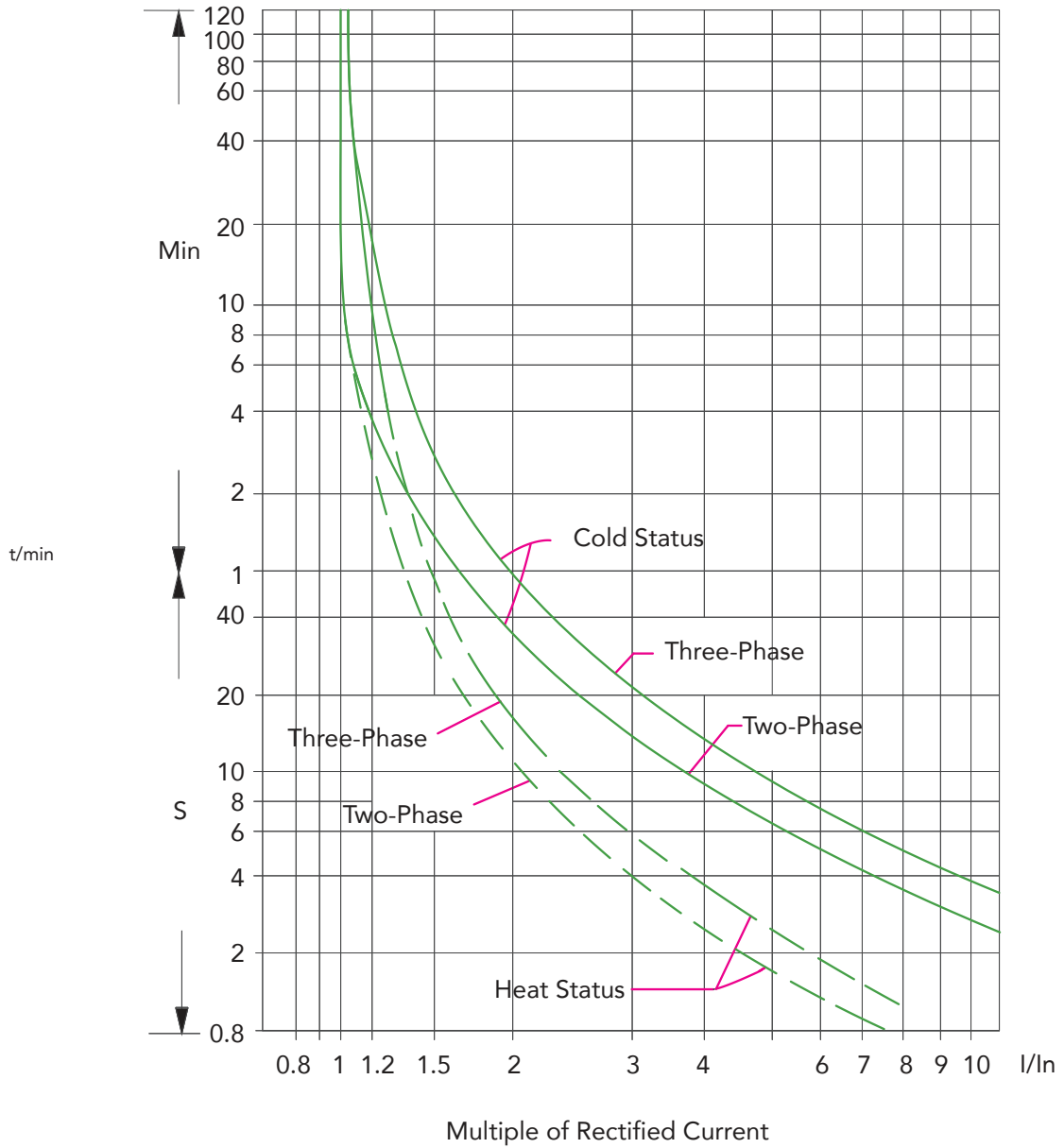
Ex9R Specifications

| 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

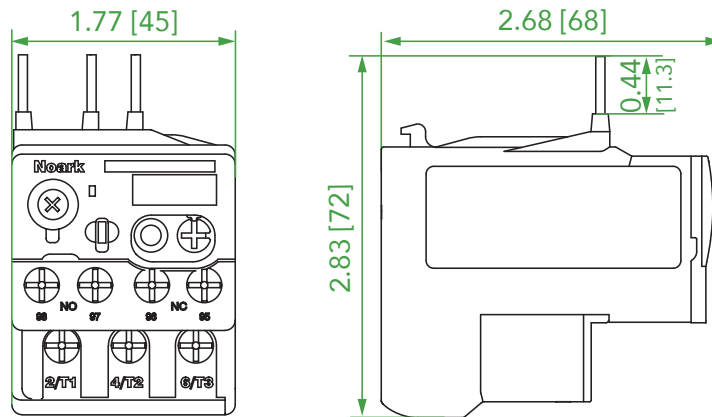


Thermal Overload Relays

Ex9R12 Dimensions

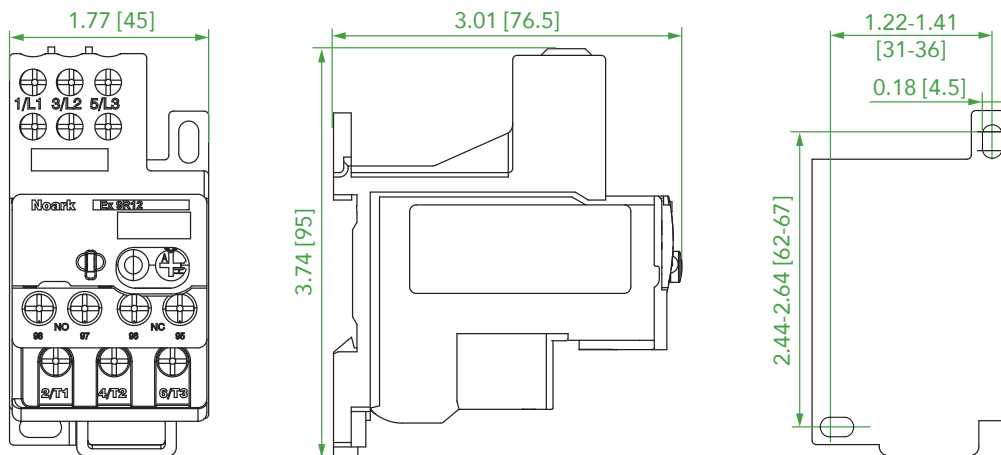
Ex9R12

Unit: in [mm]



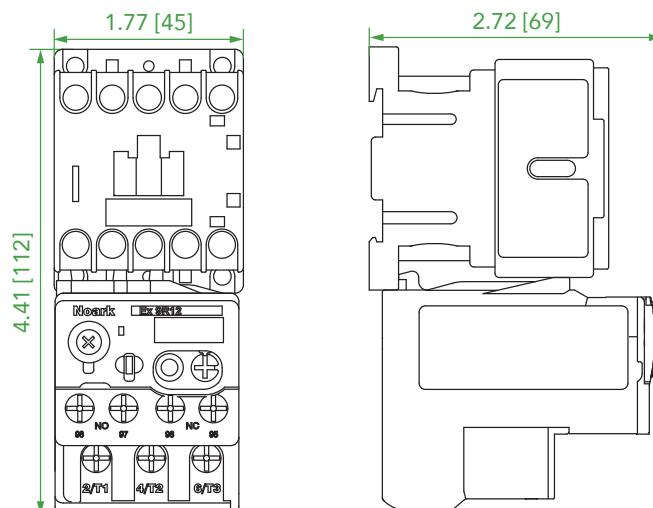
Ex9R12+AD51

Unit: in [mm]



Ex9R12+Ex9CS06~12

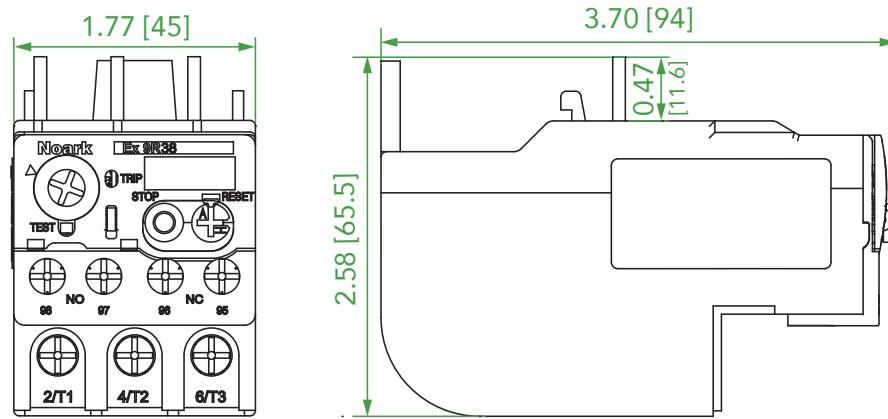
Unit: in [mm]



Thermal Overload Relays

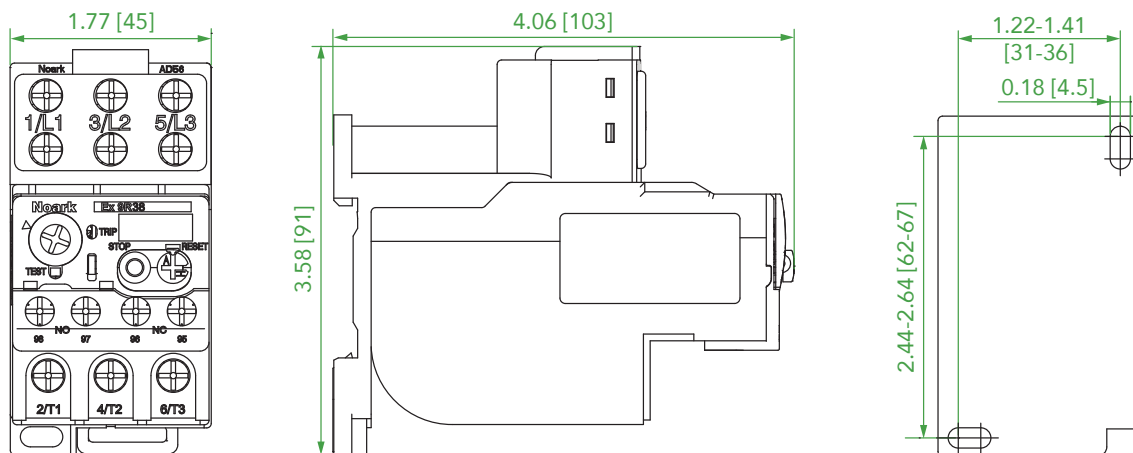
Ex9R38 Dimensions

Ex9R38
Unit: in [mm]

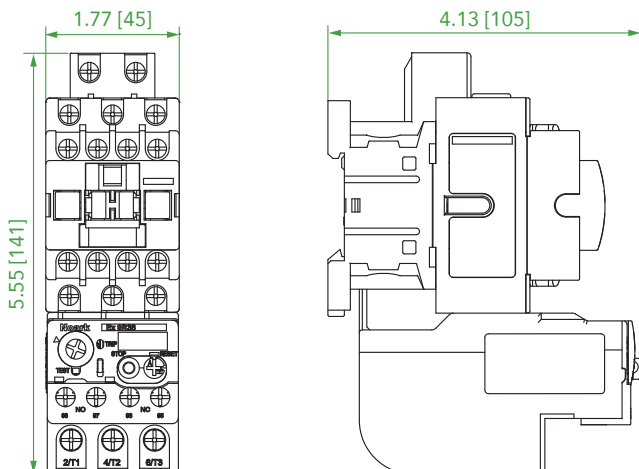


B

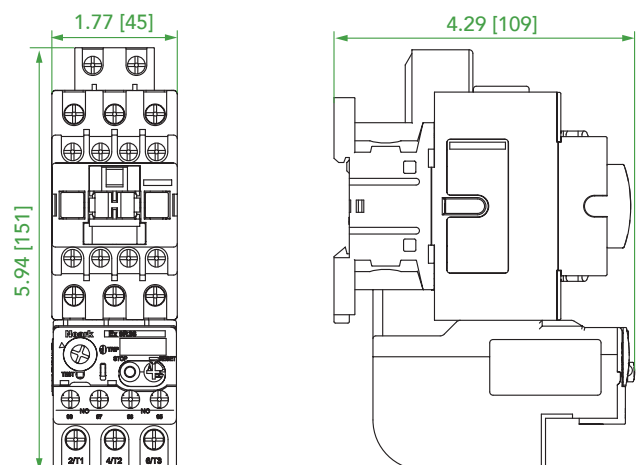
Ex9R38-TAVJ6
Unit: in [mm]



Ex9R38+Ex9C09~18
Unit: in [mm]



Ex9R38+Ex9C25~38
Unit: in [mm]

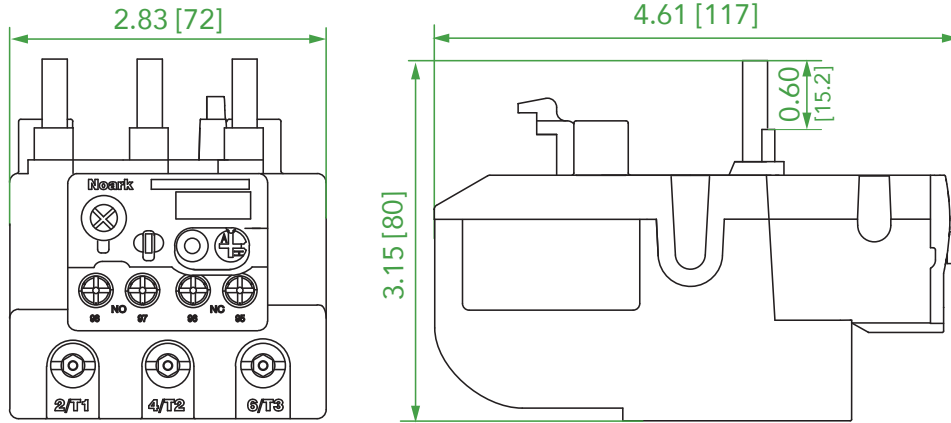


Thermal Overload Relays

Ex9R100 Dimensions

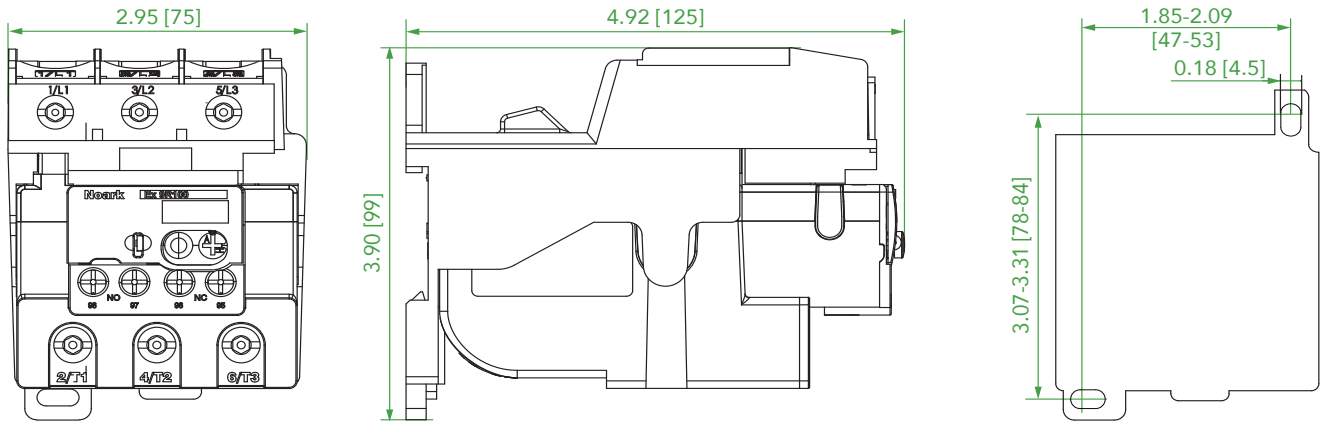
Ex9R100

Unit: in [mm]



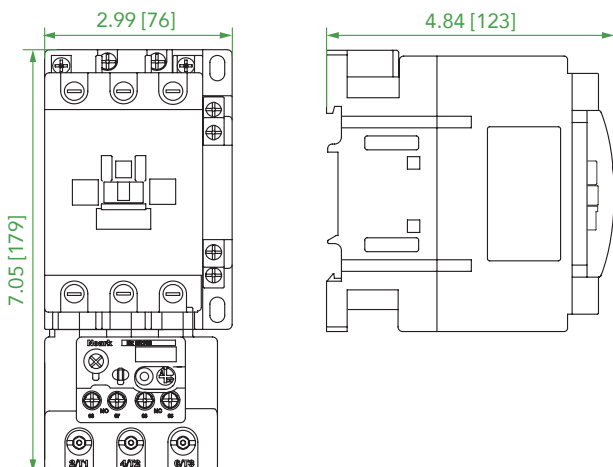
Ex9R100+AD53

Unit: in [mm]



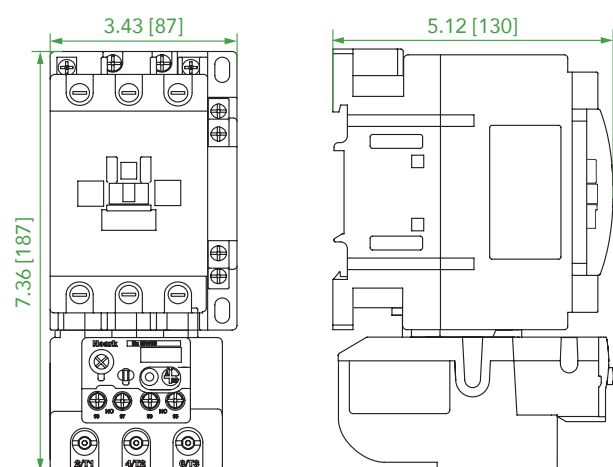
Ex9R100+Ex9C40~65

Unit: in [mm]



Ex9R100+Ex9C80~100

Unit: in [mm]

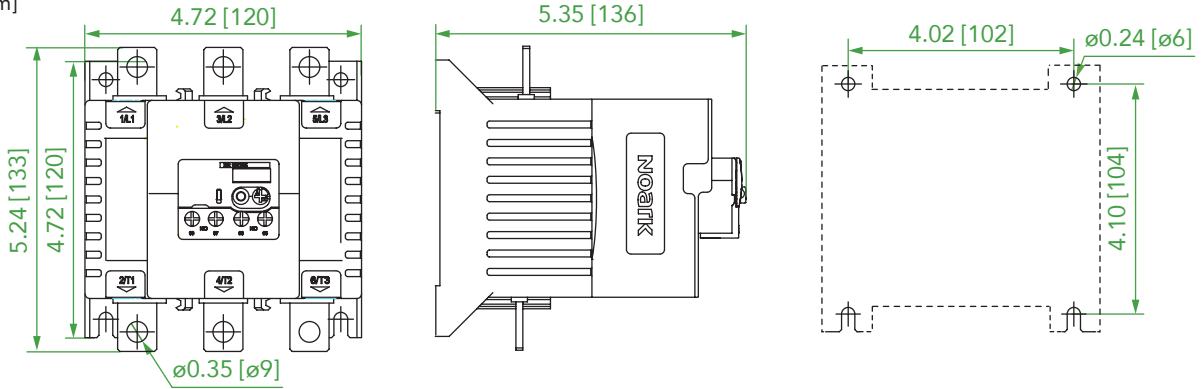


Thermal Overload Relays

Ex9R185 Dimensions

Ex9R185

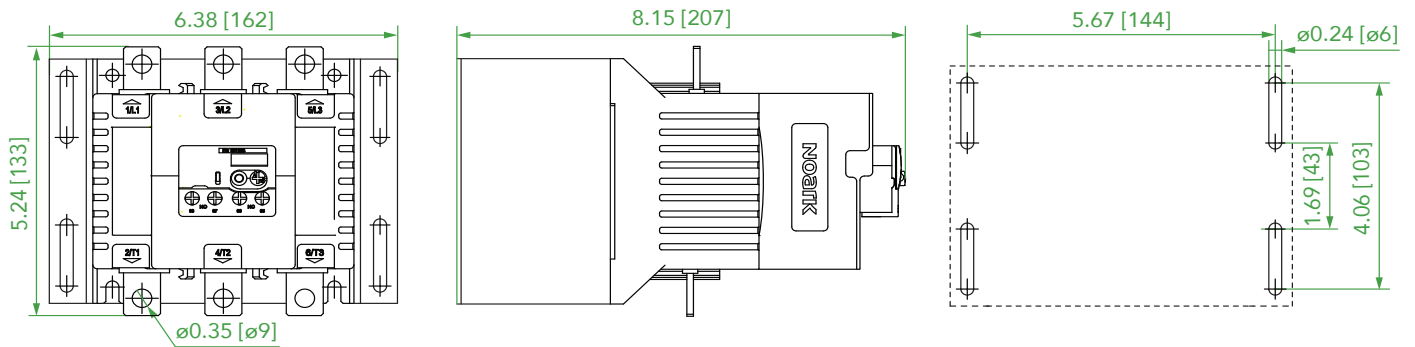
Unit: in [mm]



B

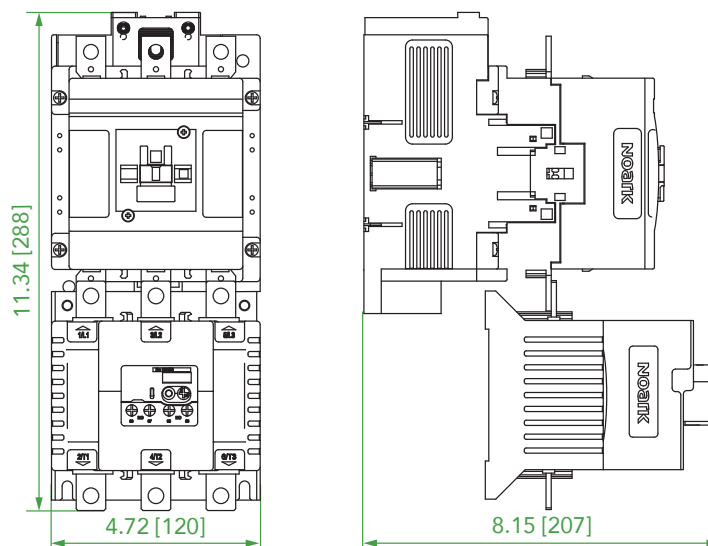
Ex9R185+AD54

Unit: in [mm]



Ex9R185+Ex9C115~185

Unit: in [mm]

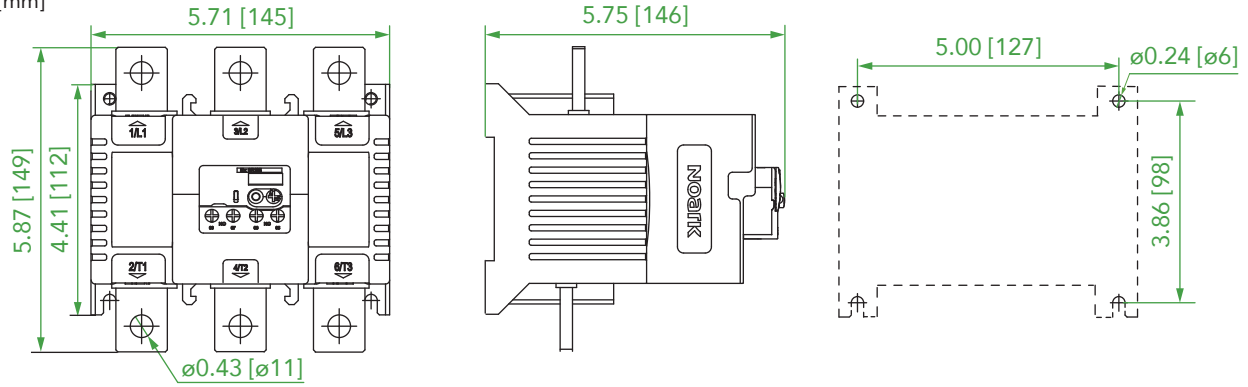


Thermal Overload Relays

Ex9R500 Dimensions

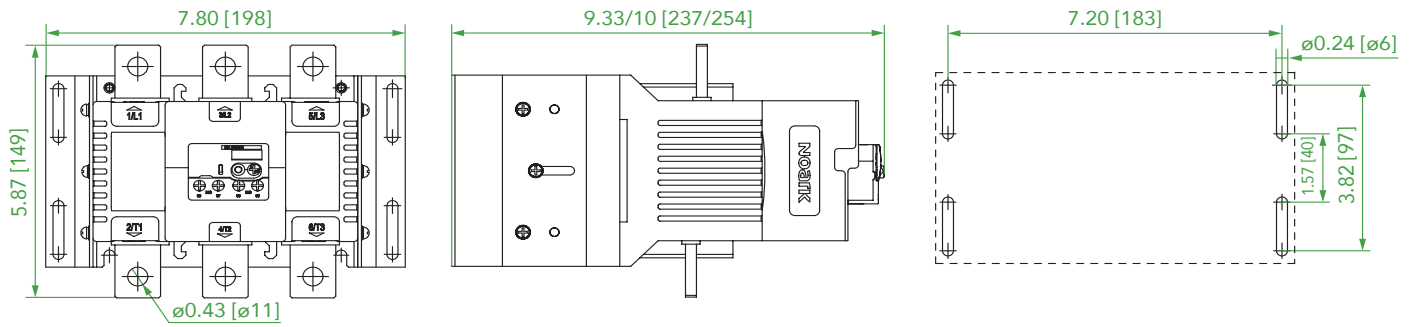
Ex9R500

Unit: in [mm]



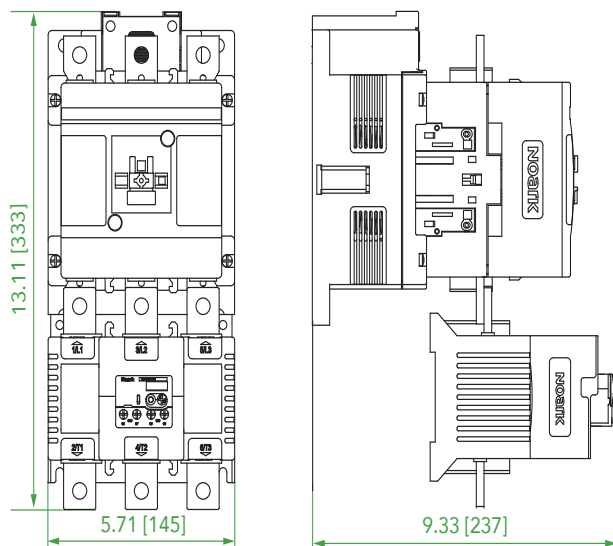
Ex9R500+AD55

Unit: in [mm]



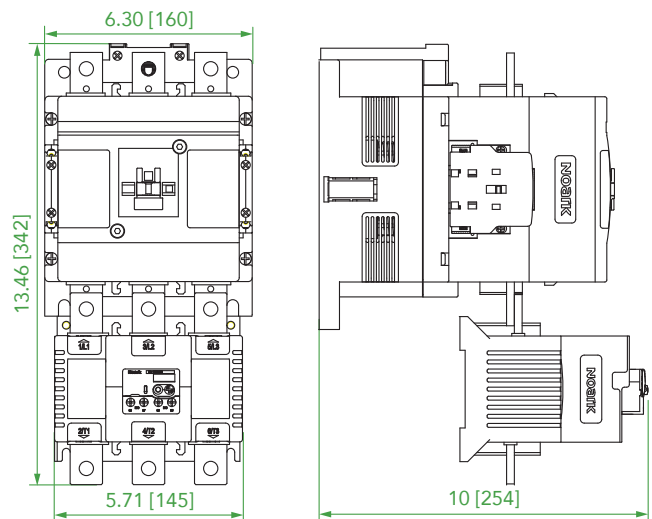
Ex9R500+Ex9C225~300

Unit: in [mm]



Ex9R500+Ex9C400~500

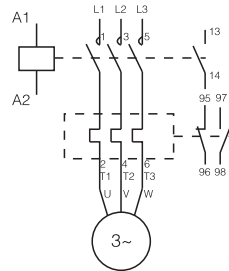
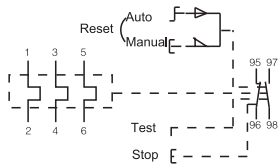
Unit: in [mm]



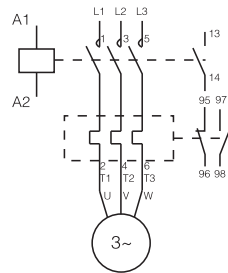
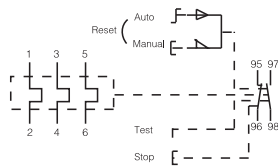
Thermal Overload Relays

Ex9R Wiring Diagrams

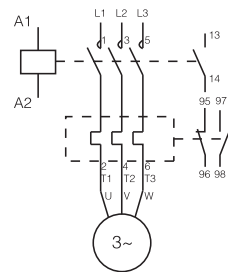
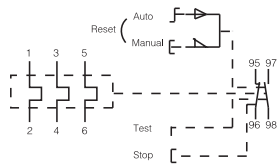
Ex9R12



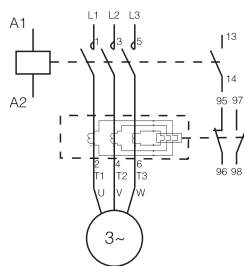
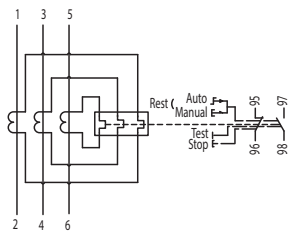
Ex9R38



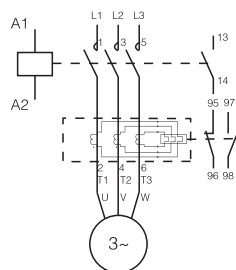
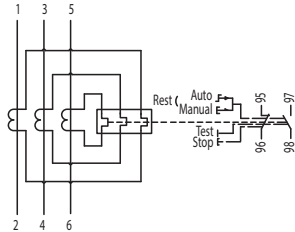
Ex9R100



Ex9R185



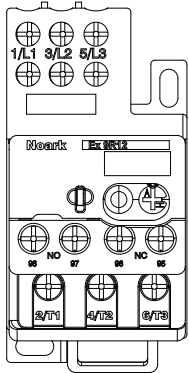
Ex9R500



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®

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