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## NRAS1100-30A-AA

[Dual mounting circuit breakers]



### Product Specifications

<b>Status</b>	Active
<b>Product Type</b>	Series Trip
<b>Number of Poles</b>	1
<b>Mounting Style</b>	Panel Mount
<b>Trip Current</b>	30A
<b>Trip Time Curve</b>	Medium (Typical)
<b>Load Voltage (Max)</b>	250V AC

**Termination Type (Load)** Quick Connect Blade  
**Termination Size (Load)** 0.250"  
**Auxiliary Contact** None  
**Alarm Contact** None  
**Actuator Style** Lever  
**Panel Mount Cutout** Circular  
**Notes** (1) Din Rail Mounts with NR21 Plug In Base (2) Surface Mounts with NUS1 Plug In Base (3) For M3.5 Screw Termination use NRT Screw Terminal Adaptor (Only when panel mounting)  
**Product Series Name** NRA Series

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NRA Series

Features:

- Available in 4 different styles
- Excellent overload and short circuit protection
- Small size and high-efficiency
- Life expectancy of over 10,000 operations
- UL1077 recognized “Supplementary Protectors”
- VDE certified to EN60934



NRAS



NRAN



NRAR



Rocker



Illuminated Rocker  
(with Neon lamp)

Specifications

<b>Protection Method</b>	Electromagnetic tripping
<b>Internal Circuit</b>	Series current trip
<b>Number of Poles</b>	NRAS and NRAN: 1, 2, 3 NRAR: 1
<b>Rated Voltage</b>	250V AC, 50/60Hz, 65V DC
<b>Rated Tripping Currents</b>	0.3A, 0.5A, 0.75A 1A, 2A, 3A, 5A, 7.5A, 10A, 15A, 20A, 25A, 30A
<b>Rated Interrupting Capacity</b>	250V AC, 50/60Hz, 1,000A 65V DC, 1,000A
<b>Auxiliary Contact</b>	SPDT microswitch: 250V AC, 5A (resistive load), 50V DC, 1A (resistive load)
<b>Alarm Contact</b>	SPDT microswitch: 250V AC, 5A (resistive load), 50V DC, 1A (resistive load)
<b>Reference Temperature</b>	25°C
<b>Operating Temperature</b>	-40 to +85°C (avoid freezing)
<b>Insulation Resistance</b>	100MΩ (measured with 500V megger)
<b>Dielectric Strength</b>	Between main circuit terminals: 2,000V AC, 1 minute Between main circuit and auxiliary contact: 2,000V AC, 1 minute
<b>Vibration Resistance</b>	100N (approximately 10G) (10 to 100Hz)
<b>Shock Resistance</b>	1,000N (approximately 100G)
<b>Life Expectancy</b>	Minimum 10,000 cycles (at 6 operations per minute)
<b>Termination</b>	Main terminal: Quick-connect receptacle 0.250" (accepts M3.5 screw terminal adapter) Auxiliary contact, alarm contact: Quick-connect receptacle 0.080"
<b>Illumination Voltage</b> (NRAR illuminated units)	Neon: 120, 240V AC, 50/60Hz



Not suitable for branch circuit protection.

Switches & Pilot Lights

Display Lights

Relays & Sockets

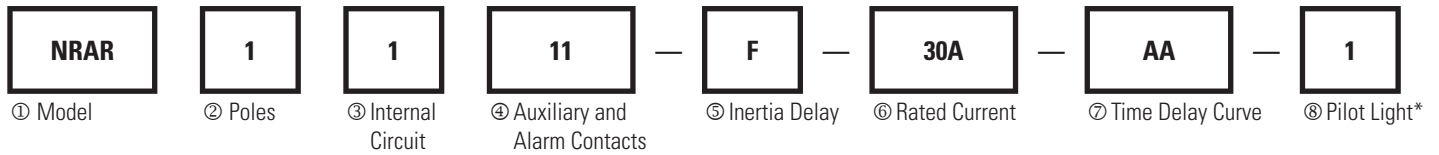
Timers

Terminal Blocks

Circuit Breakers

### Part Numbering Guide

NRA series part numbers are composed of up to 8 part number codes. When ordering an NRA series part, select one code from each category.  
 Example: NRAR 1 1 11 -F - 30A -AA -1



#### Part Number Codes: NRA Series

	Description	Part Number Code	Remarks
① Model	Lever (round cutout)	NRAS	
	Lever (rectangular cutout)	NRAN	
	Rocker	NRAR	
② No. of Poles	1-pole	1	NRAR available in 1-pole only.
	2-pole	2	All multi-pole circuit breakers are simultaneous throw/simultaneous break.
	3-pole	3	All levers are mechanically interlocked.
③ Internal Circuit	Series current trip	1	
④ Auxiliary and Alarm Contacts	Without	00	
	With auxiliary contact	11	Auxiliary contact switches change state with lever and/or overload condition
	With alarm contact	21	Alarm contact switches change state only with overload condition
⑤ Inertia Delay	Without inertia delay	Blank	
	With inertia delay	F	
⑥ Rated Current	Rated current (current trip)	0.3A, 0.5A, 0.75A, 1A, 2A, 3A, 5A, 7.5A, 10A, 15A, 20A, 25A, 30A	All current ratings must be listed in amps (A). Example conversion: 300mA = 0.30A.
⑦ Time Delay Curve	AC curves	AA, BA,MA	For time delay curves, see page 888.
	DC curves	AD, MD	
⑧ Pilot Light*	With neon light 120V AC (50/60Hz)	1	*Applicable to illuminated NRAR only.
	With neon light 240V AC (50/60Hz)	2	

- 1. For NRA series accessories, see page 886.
- 2. For NRA series time delay curves, see page 888.
- 3. For NRA series dimensions, see page 890.
- 4. Not suitable for branch circuit protection.
- 5. UL recognized, applicable standard: UL1077, "Supplementary Protectors."

Switches & Pilot Lights

Display Lights

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## Resistance and Impedance Characteristics

### Coil Data

Rated Current	DC Resistance	AC Impedance (50/60Hz)
	Curves AD, MD	Curves AA, BA, MA
0.3A	9.67Ω	9.82Ω
0.5A	3.24Ω	3.36Ω
0.75A	1.45Ω	1.49Ω
1A	0.90Ω	0.92Ω
2A	0.21Ω	0.21Ω
3A	0.09Ω	0.092Ω
5A	0.036Ω	0.036Ω
7.5A	0.017Ω	0.018Ω
10A	0.012Ω	0.012Ω
15A	0.0066Ω	0.0068Ω
20A	0.0048Ω	0.0048Ω
25A	0.0043Ω	0.0043Ω
30A	0.0036Ω	0.0041Ω



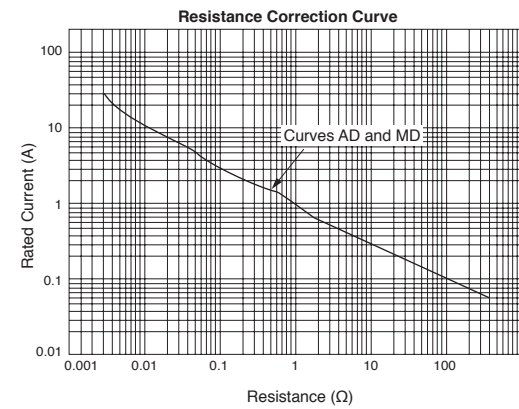
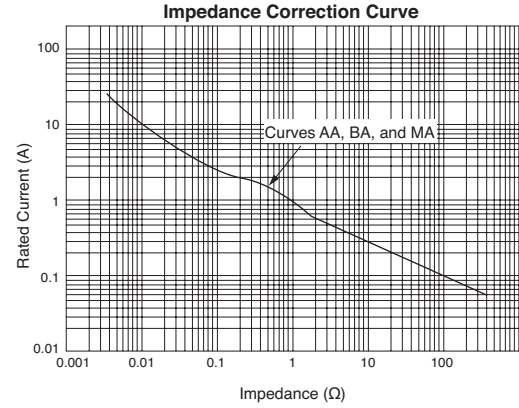
Tolerance ±25% (up to 20A), ±50% (25A and over).

### Voltage Drop Due to Resistance or Impedance

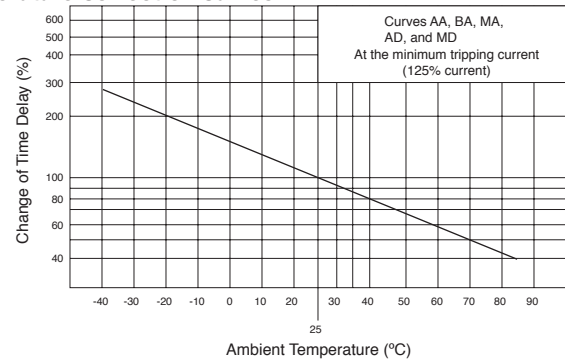
The internal resistance or impedance of a circuit breaker tends to be larger for a smaller rated current. Therefore, when circuit breakers with a small rated current are used, voltage drop should be taken into consideration. Internal resistance also varies with time delay curves, even at the same rated current. This should also be considered during installation.

### Time Delay Curve and Ambient Temperature

Since NRA series circuit breakers employ an electromagnetic tripping system, the rated current (trip current) is not affected by the ambient temperature, but the time delay varies with the oil viscosity in the tube. Lower oil viscosity at higher temperatures results in shorter delay; whereas at lower temperatures, the delay will be prolonged. The time delay curves, shown starting on page 888, are at 25°C. Time delay curves can be corrected.



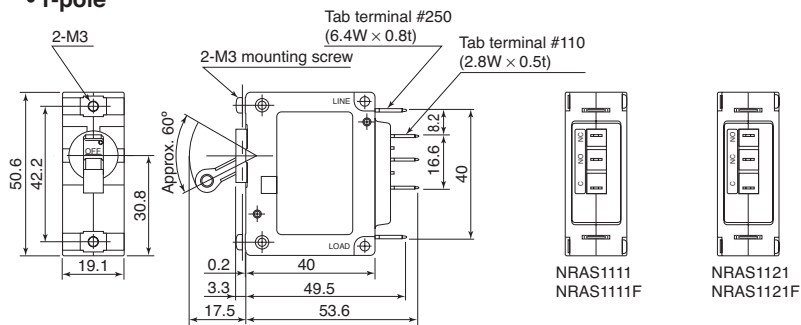
### Temperature Correction Curves



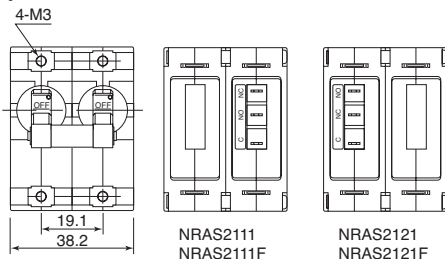
Dimensions

NRAS

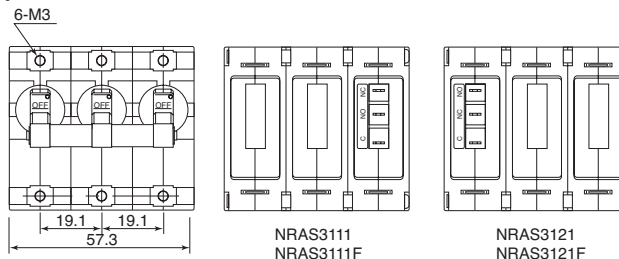
•1-pole



•2-pole

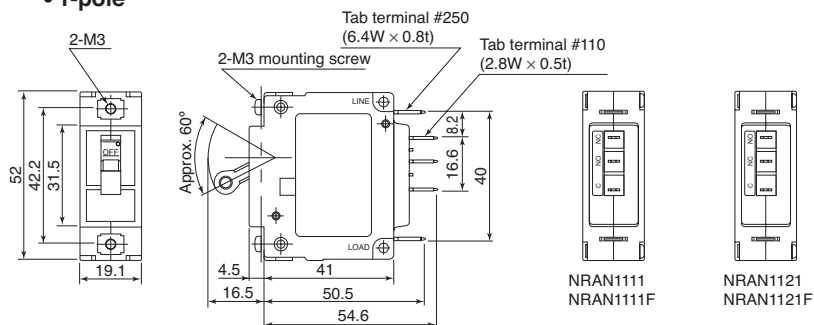


•3-pole

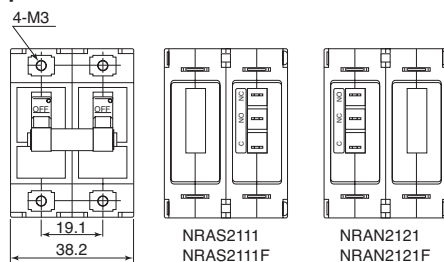


NRAN

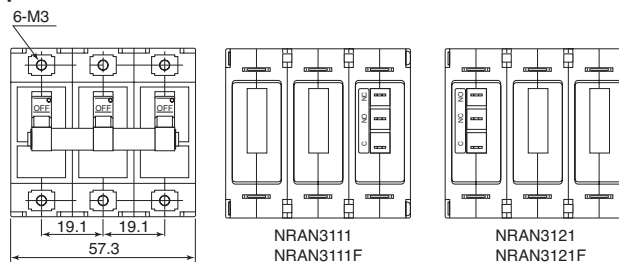
•1-pole



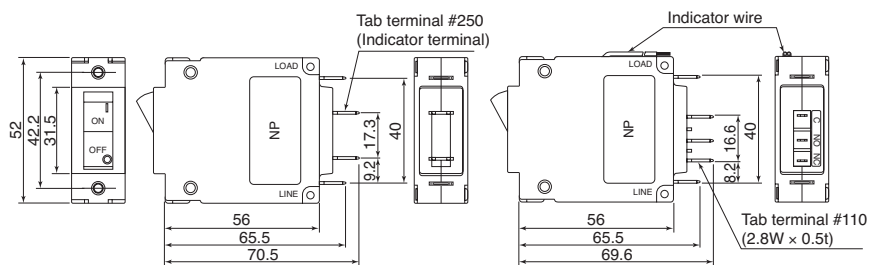
•2-pole



•3-pole



NRAR



Switches & Pilot Lights

Display Lights

Relays & Sockets

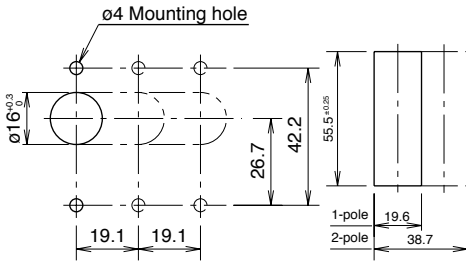
Timers

Terminal Blocks

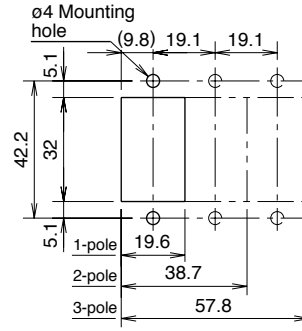
Circuit Breakers

Panel Cut-Outs

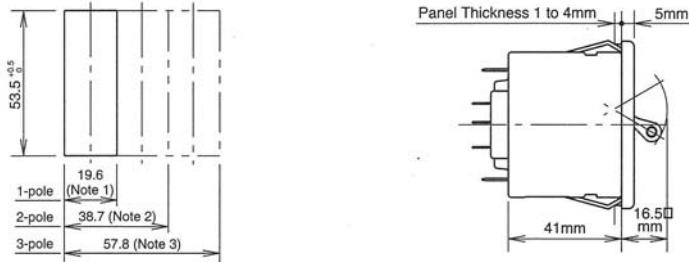
NRAS Series



NRAR, NRAN



NR31, NR32, NR33 – Panel Mount Flush Plate



Panel cut-out when two or more units are mounted closely (n = number of units).  
 Note 1: 24.3n - 5  
 Note 2: 48.8n - 10  
 Note 3: 69.3n - 10



**Installation Angle:** Circuit breakers are designed to operate on a vertical surface. The mounting angle should not exceed a vertical plane by more than 10°.

Model	Maximum Mounting Distance		Dimensions (mm)	
	A	B	Mounting to Panel Surface	Mounting to DIN Rail
NRAS	3.02" (77.5mm)	3.57" (91.5mm)	Mounting on a panel surface 19.1 mm, 20.2 mm	Mounting on a DIN rail 26 mm, 75 mm
NRAN	3.02" (77.5mm)	3.57" (91.5mm)	Mounting on a panel surface 19.1 mm, 20.2 mm	Mounting on a DIN rail 26 mm, 75 mm
NRAR	3.38" (86.7mm)	3.93" (100.7mm)	Mounting on a panel surface 19.1 mm, 20.2 mm	Mounting on a DIN rail 26 mm, 75 mm

