The high-performance N-Series hydraulic-magnetic circuit breaker is ideally suited for the rigors and confined spaces of telecom and datacom power distribution units and rack systems. Its innovative, low profile design features easily accessible load and line terminals and sliding barriers for effortless installation.

The optional current transformer allows for remote outlet metering and monitoring of power usage thus facilitating load adjustments and maximizing efficiency.

A patent pending, flush-rocker actuator and push-to-reset guard offer additional protection against accidental switching.
N-Series Circuit Breaker

DESIGN FEATURES

CURRENT TRANSFORMER
Remote current sensing via molex connector

UPPER ARC RUNNER
Optional, for 277 VAC rated breakers

GRIDS (5x)
Arc deionizing splitter plates that increase arc voltage for quick interrupt

TERMINAL
Allows for easy hook-up of wires on both sides of the breaker

“LOAD”

“LINE”

LOWER ARC RUNNER
Motivates arc off of the stationary contact

SLIDING TERMINAL BARRIERS
# Electrical Tables

## Table 1: Voltage and Current Ratings

<table>
<thead>
<tr>
<th>VOLTAGE</th>
<th>CURRENT (AMPS)</th>
<th>NUMBER OF POLES</th>
<th>INTERRUPT CAPACITY (AMPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>UL 489</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1-20 A</td>
</tr>
<tr>
<td>120/240 VAC</td>
<td>1 - 30</td>
<td>2</td>
<td>10000</td>
</tr>
<tr>
<td>240 VAC</td>
<td>1 - 20</td>
<td>1</td>
<td>22000</td>
</tr>
<tr>
<td>277 VAC</td>
<td>1 - 20</td>
<td>1</td>
<td>10000</td>
</tr>
</tbody>
</table>

## Table 2: Time Delay

<table>
<thead>
<tr>
<th>DELAY CURVE NUMBER</th>
<th>VOLTAGE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>50/60 Hz</td>
<td>Ultrashort</td>
</tr>
<tr>
<td>22</td>
<td>50/60 Hz</td>
<td>Short</td>
</tr>
<tr>
<td>24</td>
<td>50/60 Hz</td>
<td>Medium</td>
</tr>
<tr>
<td>26</td>
<td>50/60 Hz</td>
<td>Long</td>
</tr>
<tr>
<td>42</td>
<td>50/60 Hz</td>
<td>Hi-inrush, Short</td>
</tr>
<tr>
<td>44</td>
<td>50/60 Hz</td>
<td>Hi-inrush, Medium</td>
</tr>
<tr>
<td>46</td>
<td>50/60 Hz</td>
<td>Hi-inrush, Long</td>
</tr>
</tbody>
</table>

## Electrical: Impedance / Resistance

![Resistance Impedance Graph](image)

<table>
<thead>
<tr>
<th>Current (amps)</th>
<th>Tolerance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 - 5.0</td>
<td>+/-15</td>
</tr>
<tr>
<td>5.1 - 30.0</td>
<td>+/-25</td>
</tr>
</tbody>
</table>
### Electrical

**Current Metering**

- Integrated current transformer.
- Measurement range: 1-30 Amps.
- Voltage output: 10mV per Amp according to the formula below:
  
  \[
  V = 0.01 \times I \pm 2\% 
  \]
  
  \[
  \begin{align*}
  &I \leq 10 \text{ (A)}; \\
  &I = \text{primary current in amperage (50/60 Hz). Phase shift between primary current and CT output is 0.25±0.25°. Maximum crest factor of primary current is 1.73. R1 shall be integrated in the breaker, R2 and R3 are provided by end user and external to the breaker. Connection: below Load Terminal, 2-pin connector, Molex 35362-0250. Mating Connector housing – Molex PN35507-0200. (Current metering is available on AC rated devices only)}
  \end{align*}
  \]

**Dielectric Strength**

- UL, CSA-1960V 50/60 Hz for one minute between all electrically isolated terminals. Comply with the 8mm spacing and 3750V 50/60 Hz dielectric requirements from hazardous voltage to operator accessible surfaces and between main circuits of adjacent poles per Publications EN 60950 and VDE 0805

**Insulation Resistance**

- Minimum of 100 Megohms @ 500VDC

**Overload**

- 50 operations @ 600% of rated current for AC rated devices

### Environmental

**R1=28Ω±1%**

\[\text{V} = 0.02 \times I\]  

**R2=14Ω±1%**

**R3=14Ω±1%**

**Shock**

- MIL-PRF-55629 and MIL-STD-202G, Method 213B, test condition “I”. Instantaneous and ultra short curves tested at 90% of rated current

**Thermal Shock**


**Moisture Resistance**

- MIL-PRF-55629 and MIL-STD-202G, Method 106G, i.e., Ten 24-hour cycles at +25°C to +65°C, 80-98% RH

**Salt Spray**

- MIL-PRF-55629 and MIL-STD-202G, Method 101, Condition A (90-95% RH @ 5% NaCl Solution, 96hrs)

### Physical

**Number of Poles**

- 1 - 2 poles

**Termination**

- Wire ready and touch proof wire clamp (See Figure 1). Accepts up to (2) #10 AWG wires per terminal. Designed for use with solid, stranded and flexible stranded wires, with or without ferrule or pin terminals. Also accepts straight fork and flanged fork terminals.

**Termination Torque**

- 15-20 in-lbs (Line & Load terminals)

**Termination Barrier**

- Integral sliding barrier to comply with spacing requirements (See figure 1)

**Mounting**

- Threaded Insert: #6-32 UNC-2B, or M3X0.5-6H B ISO (2 per Pole)

**Insert Termination Torque**

- 7-9 in-lbs

**Rocker**

- Rocker, with or without guard (See figures 1, 2, and 4)

**Internal Circuit Config.**

- Series Trip

**Weight**

- ~107 grams (~3.76 ounces) per pole

**Materials**

- Housing - Glass Filled Polyester

**Agency Approvals**

- UL 489, cUL, TUV EN60947-2

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*Manufacturer reserves the right to change product specification without prior notice.*
### N-Series Circuit Breaker – Ordering Scheme

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>N</th>
<th>N-Series Circuit Breaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ACTUATOR</td>
<td>1</td>
<td>Single Color Low Profile Rocker, Vertical Legend</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Single Color Low Profile Rocker, Horizontal Legend</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Single Color Push To Reset Low Profile Rocker, Vertical Legend</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Single Color Push To Reset Low Profile Rocker, Horizontal Legend</td>
</tr>
<tr>
<td>3 POLES</td>
<td>1</td>
<td>One</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Two</td>
</tr>
<tr>
<td>4 CIRCUIT</td>
<td>B</td>
<td>Series Trip (current)</td>
</tr>
<tr>
<td>5 CURRENT METERING</td>
<td>0</td>
<td>Without Current Transformer</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Integrated Current Transformer, 1 per unit (1)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Integrated Current Transformer, 1 per pole</td>
</tr>
<tr>
<td>6 FREQUENCY &amp; DELAY</td>
<td>21</td>
<td>50/60 Hz Ultra Short</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>50/60 Hz Short</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>50/60 Hz Medium</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>50/60 Hz Long</td>
</tr>
<tr>
<td>7 CURRENT RATING (AMPRES)</td>
<td>CODE</td>
<td>AMPERES</td>
</tr>
<tr>
<td></td>
<td>410</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>512</td>
<td>1.25</td>
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<tr>
<td></td>
<td>415</td>
<td>1.50</td>
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<tr>
<td></td>
<td>517</td>
<td>1.75</td>
</tr>
<tr>
<td></td>
<td>420</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>522</td>
<td>2.25</td>
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<tr>
<td></td>
<td>425</td>
<td>2.50</td>
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<tr>
<td></td>
<td>527</td>
<td>2.75</td>
</tr>
<tr>
<td></td>
<td>430</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>435</td>
<td>3.50</td>
</tr>
</tbody>
</table>

### Notes:
1. On multi pole units one current transformer is supplied on the actuator pole
2. Available up to 20 amps
3. Voltage rating F only available as a 1 pole device at 20 amps maximum
4. TUV approval requires I-O or Dual (I-O, ON-OFF) markings on rocker
5. Approval Code “3” requires Dual (I-O, ON-OFF) markings on rocker
Form & Fit

Figure 1. N-Series 1-Pole Construction

Notes:
1. All dimensions are in inches [millimeters].
2. Tolerance ±0.020 [0.51] unless otherwise specified.
Form & Fit

Figure 2. N-Series 2-Pole Construction

Figure 3. N-Series Panel Cut-Out

Notes:
1. All dimensions are in inches [millimeters].
2. Tolerance ±0.020 [0.51] unless otherwise specified.
Time Delay Curves

Ultrashort - AC 21

Short - AC 22

Medium - AC 24

Long - AC 26

50/60 Hz
ULTRASHORT DELAY CURVE NO. 21

50/60 Hz
SHORT DELAY CURVE NO. 22

50/60 Hz
MEDIUM DELAY CURVE NO. 24

50/60 Hz
LONG DELAY CURVE NO. 26

TRIP TIME IN SECONDS

PERCENT OF RATED CURRENT

PERCENT OF RATED CURRENT

PERCENT OF RATED CURRENT

PERCENT OF RATED CURRENT
Time Delay Curves

Hi-Inrush Short - AC 42

Hi-Inrush Medium - AC 44

Hi-Inrush Long - AC 46
Authorized Sales Representatives

Click on the group name on the map below to find your local representative or visit www.carlingtech.com/findarep.

About Carling

Founded in 1920, Carling Technologies is a leading manufacturer of electrical and electronic switches and assemblies, circuit breakers, electronic controls, power distribution units, and multiplexed power distribution systems. With four ISO registered manufacturing facilities and technical sales offices worldwide, Carling Technologies Sales, Service and Engineering teams do much more than manufacture electrical components, they engineer powerful solutions! To learn more about Carling please visit www.carlingtech.com/company-profile.

To view all of Carling’s environmental, quality, health & safety certifications please visit www.carlingtech.com/environmental-certifications
Worldwide Headquarters
Carling Technologies, Inc.
60 Johnson Avenue, Plainville, CT 06062
Phone: 860.793.9281  Fax: 860.793.9231
Email: sales@carlingtech.com

Northern Region Sales Office: nrsm@carlingtech.com
Southeast Region Sales Office: sersm@carlingtech.com
Midwest Region Sales Office: mrsm@carlingtech.com
West Region Sales Office: wrsm@carlingtech.com
Latin America Sales Office: larzm@carlingtech.com

Asia-Pacific Headquarters
Carling Technologies, Asia-Pacific Ltd.,
Kowloon, Hong Kong
Phone: Int + 852-2737-2277  Fax: Int + 852-2736-9332
Email: sales@carlingtech.com.hk

Shenzhen, China: shenzhen@carlingtech.com
Shanghai, China: shanghai@carlingtech.com
Pune, India: india@carlingtech.com
Kaohsiung, Taiwan: taiwan@carlingtech.com
Yokohama, Japan: japan@carlingtech.com

Europe | Middle East | Africa Headquarters
Carling Technologies LTD
4 Airport Business Park, Exeter Airport,
Clyst Honiton, Exeter, Devon, EX5 2UL, UK
Phone: Int + 44 1392.364422  Fax: Int + 44 1392.364477
Email: ltd.sales@carlingtech.com

Germany: gmbh@carlingtech.com
France: sas@carlingtech.com