Low Voltage

# Compact NS

Circuit breakers and switch-disconnectors
from 80 to 3200 A

## Catalogue
## 2008

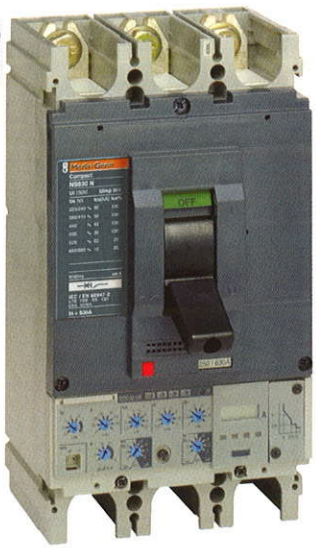
Schneider Electric

# Compact NS AC circuit breakers up to 630 A

PB101050_33

*Compact NS250H.*

PB101044_42



*Compact NS630N.*

## Compact circuit breakers

| | | | |
|---|---|---|---|
| Number of poles | | | |
| Control | manual | toggle | |
| | | direct or extended rotary handle | |
| | electric | | |
| Connections | fixed | | front connection |
| | | | rear connection |
| | plug-in (on base) | | front connection |
| | | | rear connection |
| | withdrawable (on chassis) | | front connection |
| | | | rear connection |

### Electrical characteristics as per IEC 60947-2 and EN 60947-2

| | | | |
|---|---|---|---|
| Rated current (A) | **In** | 40 °C | |
| | | 65 °C | |
| Rated insulation voltage (V) | **Ui** | | |
| Rated impulse withstand voltage (kV) | **Uimp** | | |
| Rated operational voltage (V) | **Ue** | AC 50/60 Hz | |
| | | DC | |
| **Type of circuit breaker** | | | |
| Ultimate breaking capacity (kA rms) | **Icu** | AC | 220/240 V |
| | | 50/60 Hz | 380/415 V |
| | | | 440 V |
| | | | 500 V |
| | | | 525 V |
| | | | 660/690 V |
| Service breaking capacity (kA rms) | **Ics** | % Icu | |
| Suitability for isolation | | | |
| Utilisation category | | | |
| Durability (C-O cycles) | mechanical | | |
| | electrical | 440 V | In/2 |
| | | | In |

### Electrical characteristics as per NEMA AB1 (H.I.C.)

| | |
|---|---|
| Breaking capacity (kA) | 240 V |
| | 480 V |
| | 600 V |

### Electrical characteristics as per UL508

| | |
|---|---|
| Breaking capacity (kA) | 240 V |
| | 480 V |
| | 600 V |

**Protection**

| | | |
|---|---|---|
| Trip units | | |
| Overload protection | long time | **Ir** (In x ...) |
| Short-circuit protection | short time | **Isd** (Ir x ...) |
| | instantaneous | **Ii** (In x ...) |
| Earth-fault protection | | **Ig** (In x ...) |
| Zone selective interlocking | | **ZSI** |
| Add-on earth-leakage protection | | add-on Vigi module |
| | | combination with Vigirex relay |
| Current measurements | | |

**Additional measurement, indication and control auxiliaries**

| |
|---|
| Indication contacts |
| MX shunt and MN undervoltage releases |
| Voltage-presence indicator |
| Current-transformer module and ammeter module |
| Insulation-monitoring module |

**Remote communication by bus**

| |
|---|
| Device-status indication |
| Device remote operation |
| Transmission of settings |
| Indication and identification of protection devices and alarms |
| Transmission of measured current values |

### Installation

| | | |
|---|---|---|
| Accessories | terminal extensions and spreaders<br>terminal shields and interphase barriers<br>escutcheons | |
| Dimensions (mm) W x H x D | fixed, front connections | 2-3P / 4P |
| Weight (kg) | fixed, front connections | 3P / 4P |

### Source changeover system

Manual, remote-operated and automatic source changeover systems

*(1) 2P in 3P case for type N only.*
*(2) Specific trip units are available for operational voltages > 525 V.*
*(3) NS100N et U ≥ 500 V: Ics = 50 % Icu.*
*(4) Operational voltage ≤ 500 V.*

| NS125E | NS100 | | | | NS160 | | | | NS250 | | | | NS400 | | | NS630 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-4 | 2 (1)-3-4 | | | | 2 (1)-3-4 | | | | 2 (1)-3-4 | | | | 3-4 | | | 3-4 | | |
| ■ | ■ | | | | ■ | | | | ■ | | | | ■ | | | ■ | | |
| - | ■ | | | | ■ | | | | ■ | | | | ■ | | | ■ | | |
| - | ■ | | | | ■ | | | | ■ | | | | ■ | | | ■ | | |
| ■ | ■ | | | | ■ | | | | ■ | | | | ■ | | | ■ | | |
| ■ | ■ | | | | ■ | | | | ■ | | | | ■ | | | ■ | | |
| - | ■ | | | | ■ | | | | ■ | | | | ■ | | | ■ | | |
| - | ■ | | | | ■ | | | | ■ | | | | ■ | | | ■ | | |
| - | ■ | | | | ■ | | | | ■ | | | | ■ | | | ■ | | |
| - | ■ | | | | ■ | | | | ■ | | | | ■ | | | ■ | | |
| 125 | 100 | | | | 160 | | | | 250 | | | | 400 | | | 630 | | |
| - | 100 | | | | 150 | | | | 220 | | | | 320 | | | 500 | | |
| 750 | 750 | | | | 750 | | | | 750 | | | | 750 | | | 750 | | |
| 8 | 8 | | | | 8 | | | | 8 | | | | 8 | | | 8 | | |
| 500 | 690 | | | | 690 | | | | 690 | | | | 690 | | | 690 | | |
| - | 500 | | | | 500 | | | | 500 | | | | 500 | | | 500 | | |
| **E** | **N** | **SX** | **H** | **L** | **N** | **SX** | **H** | **L** | **N** | **SX** | **H** | **L** | **N** | **H** | **L** | **N** | **H** | **L** |
| 25 | 85 | 90 | 100 | 150 | 85 | 90 | 100 | 150 | 85 | 90 | 100 | 150 | 85 | 100 | 150 | 85 | 100 | 150 |
| 16/10 | 36 | 50 | 70 | 150 | 36 | 50 | 70 | 150 | 36 | 50 | 70 | 150 | 50 | 70 | 150 | 50 | 70 | 150 |
| 10 | 35 | 50 | 65 | 130 | 35 | 50 | 65 | 130 | 35 | 50 | 65 | 130 | 42 | 65 | 130 | 42 | 65 | 130 |
| 6 | 25 | 36 | 50 | 100 | 30 | 36 | 50 | 70 | 30 | 36 | 50 | 70 | 30 | 50 | 100 | 30 | 50 | 70 |
| - | 22 | 35 | 35 | 100 | 22 | 35 | 35 | 50 | 22 | 35 | 35 | 50 | 22 | 35 | 100 | 22 | 35 | 50 |
| - | 8 | 10 | 10 | 75 | 8 | 10 | 10 | 20 | 8 | 10 | 10 | 20 | 10 (2) | 20 (2) | 75 (2) | 10 (2) | 20 (2) | 35 (2) |
| 50 % | 100 % (3) | | | | 100 % | | | | 100 % | | | | 100 % | | | 100 % (4) | | |
| ■ | ■ | | | | ■ | | | | ■ | | | | ■ | | | ■ | | |
| A | A | | | | A | | | | A | | | | A | | | A | | |
| 10000 | 50000 | | | | 40000 | | | | 20000 | | | | 15000 | | | 15000 | | |
| 6000 | 50000 | | | | 40000 | | | | 20000 | | | | 12000 | | | 8000 | | |
| 6000 | 30000 | | | | 20000 | | | | 10000 | | | | 6000 | | | 4000 | | |
| **E** | **N** | **SX** | **H** | **L** | **N** | **SX** | **H** | **L** | **N** | **SX** | **H** | **L** | **N** | **H** | **L** | **N** | **H** | **L** |
| 5 | 85 | 90 | 100 | 200 | 85 | 90 | 100 | 200 | 85 | 90 | 100 | 200 | 85 | 100 | 200 | 85 | 100 | 200 |
| 5 | 35 | 50 | 65 | 130 | 35 | 50 | 65 | 130 | 35 | 50 | 65 | 130 | 42 | 65 | 130 | 42 | 65 | 130 |
| - | 8 | 20 | 35 | 50 | 20 | 20 | 35 | 50 | 20 | 20 | 35 | 50 | 20 | 35 | 50 | 20 | 35 | 50 |
| **E** | **N** | **SX** | **H** | **L** | **N** | **SX** | **H** | **L** | **N** | **SX** | **H** | **L** | **N** | **H** | **L** | **N** | **H** | **L** |
| - | 85 | 85 | 85 | - | 85 | 85 | 85 | - | 85 | 85 | 85 | - | - | - | - | - | - | - |
| - | 25 | 50 | 65 | - | 35 | 50 | 65 | - | 35 | 50 | 65 | - | - | - | - | - | - | - |
| - | 10 | 10 | 10 | - | 10 | 10 | 10 | - | 18 | 18 | 18 | - | - | - | - | - | - | - |

| non interchangeable | TM (thermal-magnetic) | STR22 (electronic) | STR23 (electronic) | STR53 (electronic) |
|---|---|---|---|---|
| 12.5... 125 (A) | ■ | ■ | ■ | ■ |
| - | - | ■ | ■ | ■ |
| - | ■ | ■ | ■ | ■ |
| - | - | - | - | ■ |
| - | - | - | - | ■ |
| ■ | ■ | ■ | ■ | ■ |
| ■ | ■ | ■ | ■ | ■ |
| - | - | - | - | ■ |
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| - | ■ | ■ | ■ | ■ |
| - | ■ | ■ | ■ | ■ |
| - | - | - | - | ■ |
| - | - | - | - | ■ |
| - | - | - | - | ■ |
| ■ | ■ | | ■ | |
| ■ | ■ | | ■ | |
| ■ | ■ | | ■ | |
| 105 x 161 x 86 | 105 x 161 x 86 / 140 x 161 x 86 | | 140 x 255 x 110 / 185 x 255 x 110 | |
| 1.8 / 2.3 | 2.0 to 2.2 / 2.6 to 2.8 | | 6.2 to 8.1 | |
| - | ■ | | ■ | |

# Compact NS AC circuit breakers from 630 to 3200 A

PB101206_39

*Compact NS1600H.*

E45178R_68

*Compact NS2000H.*

## Compact circuit breakers

| | | | |
|---|---|---|---|
| Number of poles | | | |
| Control | manual | toggle<br>direct or extended rotary handle | |
| | electric | | |

### Type of circuit breaker

| | | | |
|---|---|---|---|
| Connections | fixed | front connection<br>rear connection<br>front connection with bare cables | |
| | withdrawable (on chassis) | front connection<br>rear connection | |

### Electrical characteristics as per IEC 60947-2 and EN 60947-2

| | | | |
|---|---|---|---|
| Rated current (A) | **In** | 50 °C<br>65 °C (1) | |
| Rated insulation voltage (V) | **Ui** | | |
| Rated impulse withstand voltage (kV) | **Uimp** | | |
| Rated operational voltage (V) | **Ue** | AC 50/60 Hz<br>DC | |
| **Type of circuit breaker** | | | |
| Ultimate breaking capacity (kA rms) | **Icu** | AC<br>50/60 Hz | 220/240 V<br>380/415 V<br>440 V<br>500/525 V<br>660/690 V |
| | | DC | 250 V<br>500 V |
| Service breaking capacity (kA rms) | **Ics** | Value or % Icu | manual operation<br>electrical operation |
| Short-time withstand current (kA rms)<br>V AC 50/60 Hz<br>V AC 50/60 Hz | **Icw** | 0.5 s<br>1 s<br>3 s | |
| Integrated instantaneous protection | | kA peak ±10 % | |
| Suitability for isolation | | | |
| Utilisation category | | | |
| Durability (C-O cycles) | mechanical | | |
| | electrical | 440 V | In/2<br>In |
| | | 690 V | In/2<br>In |
| Pollution degree | | | |

### Electrical characteristics as per Nema AB1

| | |
|---|---|
| Breaking capacity at 60 Hz (kA) | 240 V<br>480 V<br>600 V |

### Protection and measurements

| | | |
|---|---|---|
| Interchangeable control units | | |
| Overload protection | long time | **Ir** (In x ...) |
| Short-circuit protection | short time | **Isd** (Ir x ...) |
| | instantaneous | **Ii** (In x ...) |
| Earth-fault protection | | **Ig** (In x ...) |
| Residual earth-leakage protection | | **IΔn** |
| Zone selective interlocking | | **ZSI** |
| Protection of the fourth pole | | |
| Current measurements | | |

### Remote communication by bus

| |
|---|
| Device-status indication |
| Device remote operation |
| Transmission of settings |
| Indication and identification of protection devices and alarms |
| Transmission of measured current values |

### Additional indication and control auxiliaries

| | |
|---|---|
| Indication contacts | |
| Voltage releases | MX shunt release<br>MN undervoltage release |

## Installation

| | | |
|---|---|---|
| Accessories | terminal extensions and spreaders<br>terminal shields and interphase barriers<br>escutcheons | |
| Dimensions fixed devices, front connections (mm)<br>H x W x D | | 3P<br>4P |
| Weight fixed devices, front connections (kg) | | 3P<br>4P |

## Source changeover system

Manual, remote-operated and automatic source changeover systems

*(1) 65 °C with vertical connections. See the temperature derating tables for other types of connections.*
*(2) Ics: 100 % Icu for breaking capacity 440V/500V/660V*
*Ics: 75 % Icu for breaking capacity 220V/380V.*

| NS630b | NS800 | NS1000 | NS1250 | NS1600 | NS1600b | NS2000 | NS2500 | NS3200 |
|---|---|---|---|---|---|---|---|---|
| 3-4 | | | 3-4 | 3-4 | 3-4 | | | |
| ■ | | | ■ | ■ | ■ | | | |
| ■ | | | ■ | ■ | - | | | |
| ■ | | | ■ | ■ | - | | | |
| **N** | **H** | **L** | **N** | **H** | **N** | **H** | **N** | **H** |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ | - | - |
| ■ | ■ | - | ■ | ■ | - | - | - | - |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ | - | - |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ | - | - |
| 630 | | 800 | 1000 | 1250 | 1600 | 1600 | 2000 | 2500 | 3200 |
| 630 | | 800 | 1000 | 1250 | 1510 | 1550 | 1900 | 2500 | 2970 |
| 750 | | | | 750 | 750 | 750 | | | |
| 8 | | | | 8 | 8 | 8 | | | |
| 690 | | | | 690 | 690 | 690 | | | |
| 500 | | | | 500 | 500 | 500 | | | |
| **N** | **H** | **L** | | **N** | **H** | **N** | **H** | **N** | **H** |
| 50 | 70 | 150 | | 50 | 70 | 50 | 70 | 85 | 125 |
| 50 | 70 | 150 | | 50 | 70 | 50 | 70 | 70 | 85 |
| 50 | 65 | 130 | | 50 | 65 | 50 | 65 | 65 | 85 |
| 40 | 50 | 100 | | 40 | 50 | 40 | 50 | 65 | - |
| 30 | 42 | 25 | | 30 | 42 | 30 | 42 | 65 | - |
| - | - | - | | - | - | - | - | - | - |
| - | - | - | | - | - | - | - | - | - |
| 100 % | 75 % | 100 % | | 100 % | 75 % | 75 % | 50 % | 100 % [2] | 75 % |
| 75 % | 50 % | 100 % | | 75 % | 50 % | 75 % | 50 % | 100 % [2] | 75 % |
| 25 | 25 | 10 | | 25 | 25 | 25 | 25 | - | - |
| 17 | 17 | 7 | | 17 | 17 | 17 | 17 | - | - |
| - | - | - | | - | - | - | - | 32 | 32 |
| 55 | | | | 55 | | 55 | | 130 | 130 |
| ■ | | | | ■ | | ■ | | ■ | |
| B | B | A | | B | B | B | B | B | B |
| 10000 | | | | 10000 | | 10000 | | 5000 | |
| 6000 | 6000 | 4000 | | 5000 | | 5000 | | 3000 | |
| 5000 | 5000 | 3000 | | 4000 | | 2000 | | 2000 | |
| 4000 | 4000 | 3000 | | 3000 | | 2000 | | 2000 | |
| 2000 | 2000 | 2000 | | 2000 | | 1000 | | 1000 | |
| III | | | | III | | III | | III | |
| **N** | **H** | **L** | | **N** | **H** | **N** | **H** | **N** | **H** |
| 50 | 65 | 125 | | 50 | 65 | 50 | 65 | 85 | 125 |
| 35 | 50 | 100 | | 35 | 50 | 35 | 50 | 65 | 85 |
| 25 | 50 | - | | 25 | 50 | 25 | 50 | 50 | - |

| Micrologic 2.0 | Micrologic 5.0 | Micrologic 2.0 A | Micrologic 5.0 A | Micrologic 6.0 A | Micrologic 7.0 A |
|---|---|---|---|---|---|
| ■ | ■ | ■ | ■ | ■ | ■ |
| - | ■ | - | ■ | ■ | ■ |
| ■ | ■ | ■ | ■ | ■ | ■ |
| - | - | - | - | ■ | - |
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| - | - | ■ | ■ | ■ | ■ |
| - | - | ■ | ■ | ■ | ■ |
| - | - | ■ | ■ | ■ | ■ |

| | |
|---|---|
| ■ | ■ |
| ■ | ■ |
| ■ | ■ |
| ■ | - |
| ■ | ■ |
| ■ | ■ |
| 327 x 210 x 147 | 350 x 420 x 160 |
| 327 x 280 x 147 | 350 x 535 x 160 |
| 14 | 24 |
| 18 | 36 |
| ■ | - |

# Compact NS DC circuit breakers from 100 to 630 A


PB101047a-14


PB101048a-20


PB101055a-27


PB100905a-36

## Compact circuit breakers

Number of poles

### Electrical characteristics as per IEC 60947-1/ 60947-2 and EN 60947-1 / 60947-2

| | | | | |
|---|---|---|---|---|
| Rated current at 40 °C | **In** | (A) | | |
| Rated insulation voltage | **Ui** | (V) | | |
| Rated impulse withstand voltage | **Uimp** | (kV peak) | | |
| Rated operational voltage | **Ue** | (V DC) | | |
| **Type of circuit breaker** | | | | |
| Ultimate breaking capacity (L/R = 5 ms and L/R = 15 ms) | **Icu** | (kA rms) | V DC | 48-125 V (1P) (1) |
| | | | | 250 V (1P) (1) |
| | | | | 500 V (2P) (1) |
| | | | | 750 V (3P) (1) |
| Service breaking capacity | **Ics** | % Icu | | |
| Rated making capacity | **Icm** | % Icu | | |
| Utilisation category | | | | |
| Breaking time | | (ms) | | |
| Suitability for isolation | | | | |
| Pollution degree (as per IEC 60664-1) | | | | |

**Protection against overcurrents (see "LV circuit breakers and switch-disconnectors direct current 16 to 4000 A" - ABTED205160EN)**

| | | |
|---|---|---|
| Trip units | | Built-in |
| | | Interchangeable |
| Protection | | Overloads |
| | | Short-circuits |

**Durability**

| | | |
|---|---|---|
| (O/F cycles) | Mechanical | |
| | Electrical | 250 V In |
| | | 250 V In/2 |
| | | 500 V In |
| | | 500 V In/2 |
| | | 750 V In |
| | | 750 V In/2 |

**Indication and control auxiliaries**

| | |
|---|---|
| Auxiliary contacts | |
| Voltage release | MX shunt release |
| | MN undervoltage release |

## Installation and connections

| | |
|---|---|
| Fixed | Front connection |
| | Rear connection |
| Plug-in (base) | Front connection |
| | Rear connection |
| Withdrawable (chassis) | Front connection |
| | Rear connection |

**Dimensions and weight**

| | | |
|---|---|---|
| Dimensions H x W x D (mm) connected in series | Fixed | 1P |
| | | 2P |
| | | 3P |
| | | 4P |
| Weight (kg) connected in series | Fixed | 1P |
| | | 2P |
| | | 3P |
| | | 4P |

*(1) Number of poles taking part in current interruption.*
*Example. The NS100N circuit breaker exists in the following versions:*
*- 1 pole with an Icu of 50 kA, for systems ⩽ 250 V*
*- 2 poles with an Icu of 85 kA, for systems ⩽ 500 V; 1 pole can be used in a 250 V system.*

| NS100 | | | | | NS160 | | | | | NS250 | NS400 | NS630 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 2 | | 3-4 | 1 | | 2 | | 3-4 | 3-4 | 3-4 | 3-4 |
| 100 | | | | | 160 | | | | | 250 | 400 | 550 |
| 800 | | | | | 800 | | | | | 800 | 800 | 800 |
| 8 | | | | | 8 | | | | | 8 | 8 | 8 |
| 250 | | 500 | | 750 | 250 | | 500 | | 750 | 750 | 750 | 750 |
| **N** | **H** | **N** | **H** | **DC** | **N** | **H** | **N** | **H** | **DC** | **DC** | **DC** | **DC** |
| 50 | 85 | 85 | 100 | 100 | 50 | 85 | 85 | 100 | 100 | 100 | 100 | 100 |
| 50 | 85 | 85 | 100 | 100 | 50 | 85 | 85 | 100 | 100 | 100 | 100 | 100 |
| - | - | 85 | 100 | 100 | - | - | 85 | 100 | 100 | 100 | 100 | 100 |
| - | - | - | - | 100 | - | - | - | - | 100 | 100 | 100 | 100 |
| 100 % | | | | | | | | | | | | |
| 100 % | | | | | | | | | | | | |
| A | | | | | | | | | | | | |
| < 10 ms | | | | | | | | | | | | |
| ■ | | | | | | | | | | | | |
| III | | | | | | | | | | | | |
| ■ | ■ | ■ | ■ | - | ■ | ■ | ■ | ■ | - | - | - | - |
| - | - | - | - | ■ | - | - | - | - | ■ | ■ | ■ | ■ |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | - | - | - |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| 10000 | | | | | | | | | | | | 5000 |
| 5000 | | | | | | | | | | | | 1000 |
| 10000 | | | | | | | | | | | | 2000 |
| 5000 | | | | | | | | | | | | 1000 |
| 10000 | | | | | | | | | | | | 2000 |
| 5000 | | | | | | | | | | | | 1000 |
| 10000 | | | | | | | | | | | | 2000 |
| ■ | | | | | | | | | | | | |
| ■ | | | | | | | | | | | | |
| ■ | | | | | | | | | | | | |
| ■ | | | | | | | | | | | | |
| ■ | | | | | | | | | | | | |
| - | - | - | - | ■ | - | - | - | - | ■ | ■ | ■ | ■ |
| - | - | - | - | ■ | - | - | - | - | ■ | ■ | ■ | ■ |
| - | - | - | - | ■ | - | - | - | - | ■ | ■ | ■ | ■ |
| - | - | - | - | ■ | - | - | - | - | ■ | ■ | ■ | ■ |
| 161 x 35 x 86 | | - | | - | 161 x 35 x 86 | | - | | - | - | - | - |
| - | | 161 x 70 x 86 | | - | - | | 161 x 70 x 86 | | - | - | - | - |
| - | | - | | 161 x 105 x 86 | - | | - | | 161 x 105 x 86 | 255 x 140 x 110 | | |
| - | | - | | 161 x 140 x 86 | - | | - | | 161 x 140 x 86 | 225 x 185 x 110 | | |
| 0.7 | | - | | - | 0.7 | | - | | - | - | - | - |
| - | | 1.2 | | - | - | | 1.2 | | - | - | - | - |
| - | | - | | 1.6 to 1.9 | - | | - | | 1.6 to 1.9 | 6.0 | | |
| - | | - | | 2.1 to 2.3 | - | | - | | 2.1 to 2.3 | 7.8 | | |