Product brochure

Sectos pole mounted SF$_6$ load break switch
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<th><strong>Ordering type code</strong></th>
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<tbody>
<tr>
<td>21</td>
<td>10.1</td>
<td>Type code of Sectos NXB and NXBD</td>
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<tr>
<td>22</td>
<td>10.2</td>
<td>Type code of Sectos NXA</td>
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<tr>
<td>23</td>
<td>10.3</td>
<td>CT, VT</td>
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1 General

Product family name “Sectos” is used, when the clause is applicable to all NXA_, NXB_, NXBD_ types. The more specific type markings are given, when the clause is applicable to limited types only.

Sectos is an SF6-insulated, outdoor pole mounted load break switch family for overhead lines and specifically designed for use in modern remote controlled distribution automation systems. The Sectos offers reliable maintenance free operation even in the most demanding climatic conditions including salt laden atmospheres, corrosive industrial pollution, snow and ice. It has excellent load breaking and fault making capacity and satisfies the isolation requirements specified for load break switch. The earthed metal tank prevents all possible leakage currents across an open switch. Sectos can be manually operated or motor operated for local and remote electric control, and can be upgraded easily.

NXB is designed up to 24 kV rated voltages. The unique feature of this type is integrated earthing switch option.

NXBD is a 3-way load break switch using NXB components. Two independent load break switch in one enclosure with the third tapped way can be used for easy and reliable line branching in overhead, cable, or mixed networks.

NXA is available for rated voltages 36 kV to IEC standards.
## 2 Standards for reference

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEC 62271-102</td>
<td>High-voltage switchgear and controlgear. Part 102 Alternating current disconnectors and earthing switches</td>
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<tr>
<td>IEC 62271-103</td>
<td>High-voltage switchgear and controlgear. Part 103: switches for rated voltage above 1 kV up to and including 52 kV</td>
</tr>
<tr>
<td>IEC 62271-1</td>
<td>High-voltage switchgear and controlgear-Part 1: common specifications</td>
</tr>
</tbody>
</table>
3 Basic switch configurations

Two-position load break switch are available for all NXA_ and NXB_ types.

All NXB_ types are also available with an integrated earthing switch for safe and reliable earthing of the downstream line. This version is called a 3-position switch to differentiate from the standard 2-position switch.
## 4 Electrical performance data

### Insulation level

<table>
<thead>
<tr>
<th></th>
<th>N XB and NX BD</th>
<th>N X A</th>
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<tbody>
<tr>
<td>Rated voltage</td>
<td>12 kV</td>
<td>24 kV</td>
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<tr>
<td>Power frequency withstand voltage, 50 Hz</td>
<td></td>
<td></td>
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<tr>
<td>- to earth and between phases</td>
<td>28 kV</td>
<td>50 kV</td>
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<tr>
<td>- across the isolating distance</td>
<td>32 kV</td>
<td>60 kV</td>
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<tr>
<td>Lightning impulse withstand voltage</td>
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<tr>
<td>- to earth and between phases</td>
<td>75 kV</td>
<td>125 kV</td>
</tr>
<tr>
<td>- across the isolating distance</td>
<td>85 kV</td>
<td>145 kV</td>
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### Current ratings

<table>
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<tr>
<th></th>
<th>N XB and NX BD</th>
<th>N X A</th>
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<tbody>
<tr>
<td>Rated normal current</td>
<td>A 630 kA</td>
<td>630 kA</td>
</tr>
<tr>
<td>Mainly active load breaking current</td>
<td>A 630 kA</td>
<td>630 kA</td>
</tr>
<tr>
<td>Number of breaking operations CO</td>
<td>n 400 A</td>
<td>400 A</td>
</tr>
<tr>
<td>Line-charging breaking current</td>
<td>A 50 A</td>
<td>50 A</td>
</tr>
<tr>
<td>Cable-charging breaking current</td>
<td>A 50 A</td>
<td>50 A</td>
</tr>
<tr>
<td>Earth fault breaking current</td>
<td>A 50 A</td>
<td>50 A</td>
</tr>
<tr>
<td>Cable charging breaking current</td>
<td>A 28 A</td>
<td>28 A</td>
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</table>

### No-load transformer breaking current

<table>
<thead>
<tr>
<th></th>
<th>N X A</th>
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<tbody>
<tr>
<td>A</td>
<td>20 A</td>
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### Short-circuit ratings

<table>
<thead>
<tr>
<th></th>
<th>k A/s</th>
<th>20 k A/4 s</th>
<th>20 k A/4 s</th>
<th>12.5 k A/3 s</th>
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<tr>
<td>Short-time withstand current, kA</td>
<td>50 kA</td>
<td>50 kA</td>
<td>50 kA</td>
<td>50 kA</td>
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<tr>
<td>Peak withstand current</td>
<td>50 kA</td>
<td>50 kA</td>
<td>31.5 kA</td>
<td></td>
</tr>
<tr>
<td>Short-circuit making current</td>
<td>50 kA</td>
<td>50 kA</td>
<td>31.5 kA</td>
<td></td>
</tr>
<tr>
<td>Number of making operations</td>
<td>n 5</td>
<td>n 10</td>
<td>n 5</td>
<td>n 5</td>
</tr>
<tr>
<td>- main switch 50 kA (CL E3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- main switch 31.5 kA (CL E3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- earthing switch 50 kA (CL E2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- earthing switch 31.5 kA (CL E3)</td>
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<td></td>
<td></td>
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<tr>
<td>Creepage distance</td>
<td>620 mm</td>
<td>620 mm</td>
<td>620 mm</td>
<td>1440 mm</td>
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<tr>
<td>Ambient air temperature limits</td>
<td>-40°C...+60°C</td>
<td>-40°C...+60°C</td>
<td>-40°C...+60°C</td>
<td></td>
</tr>
<tr>
<td>Mechanical endurance (number of close-open operations)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- main switch</td>
<td>n 5000</td>
<td>5000</td>
<td>5000</td>
<td></td>
</tr>
<tr>
<td>- earthing switch&lt;sup&gt;1&lt;/sup&gt;</td>
<td>n 2000</td>
<td>2000</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>Filling pressure (+20°C)</td>
<td>bar (abs) 1.4-1.5</td>
<td>1.4-1.5</td>
<td>1.8-1.9</td>
<td></td>
</tr>
<tr>
<td>Alarm pressure (+20°C)</td>
<td>bar (abs) 1.2</td>
<td>1.2</td>
<td>1.65</td>
<td></td>
</tr>
<tr>
<td>- density switch</td>
<td>bar (abs) 1.2</td>
<td>1.2</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>- low gas lock-out mechanism</td>
<td>bar (abs) 1.1</td>
<td>1.1</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg 82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NXB (manual operated type)</td>
<td>kg 117</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NXA (manual operated type)</td>
<td>kg 138</td>
<td></td>
<td></td>
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<tr>
<td>Degree of protection of the mechanism box</td>
<td>IP65</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>1</sup>: Not suitable for N X A type.
5 Features

The high quality 3 mm stainless steel are used for tank, which is designed for its maximum robustness and minimum welding line to minimize corrosion, and specifically to guarantee the safety of the operation personnel even with the internal arc faults at the maximum fault capacity of the tank the Sectos can withstands an internal fault without venting hot gases.

The independent spring operation mechanism adopt ABB patent spiral spring, provides a guaranteed load break fault make capability by ensuring the opening and closing speed of the switch.

Standard SF₆ gas density units with temperature compensated are provided by Sectos (density switch is standard for electrical operated type; density gauge is standard for manual operated type), which ensure no misguide to wrong operating or lock-out by reliable and stable gas pressure measuring.

The Sectos is provided with light reflecting position indicator which are directly connected to the switch operating shaft providing clear and unambiguous switch position indication. Indicator made of light reflecting material, which is easily visible from ground level even at night in driving rain.

Advanced and Integrated helium leakage detecting and filling equipment are be adopted, which ensuring SF₆ leakage of each switch is less than 0.1% strictly per year.

The NXB and NXBD type are available as 2-position (ON-OFF) or 3-position (ON-OFF-EARTH) switch. When supplied as a 3-positions switch the unit has facility to earth the line on one side of the switch. The earth position of the 3-positions switch is manually operated only.

The combined and integrated sensors are optional for NXB and NXBD type, which ensure system safety (no effects of short-circuited or interrupted signal circuits; no risk for ferroresonance), compact design (voltage and current can be measured in one combi sensor) and wide dynamic range (current from rated continuous current to short-time withstand current 20 kA, voltage rating is applicable from 7.2 kV to 24 kV networks).

The switch can be manually controlled or it can be provided with an integrated motor drive device for both remote and/or local electrical control. The motor drive device can easily be retrofitted on site to manually operated units.

The control cabinet is fitted with an automatism option (equip with advanced FTU type REC615) which makes the Sectos an automatic sectionalizer function. It can be current-counter scheme with current detection or can be voltage-time scheme with voltage detection.
6 Accessories

Single spring mechanism NXBZ2A
Usually Sectos load break switch is equipped with single spring mechanism. This kind of spring mechanism is suitable for most applications. It’s ABB’s patent spiral spring, have stable and reliable characteristics. When the operating shaft of the switch is turned by manual or motor drive device, the spring charges during the first part of the movement, releases in the last part of the movement, and turns the switch abruptly to new position. Therefore the switch operates for opening and for closing with the speed, which is completely independent from the operator or from the operating device. Normally, the motor operated switch close or open between 1.5-2.5 seconds from the command signal initiation.

Standard locking device NXBZ90
As an option for Sectos, there is available a locking device, which can lock switch at open or close position by hook stick manual operated under the pole. As locking device operates, an indication sign (locked) becomes visible through the position indicator window.

The manual locking device is installed in the factory, and is equipped with an auxiliary contact, which provides electrical lock out for electrical operated type switch.

Density gauge NXAP3
For manual operated Sectos, density gauge can be standard accessory, which indicates gas pressure inside tank.

The density gauge is temperature compensated, variation of the outside air pressure does not affect the indication of the gauge. Therefore is actually indicated the effective pressure of the SF6 gas inside of the tank.

Density switch ELEGMDI/0
For electrical operated Sectos, density switch is standard accessory, which indicates gas pressure state inside tank. The alarm contact of the density switch is normally closed (NC) and it opens if the gas pressure in the tank falls below 1.2 bar (absolute) at 20°C.
6 Accessories

The density switch is temperature compensated, variation of the outside air pressure does not affect the change over switch contact. Therefore is actually showing the density state of the SF6 gas inside of the tank.

Manual operated type 1
The Sectos are usually operated manually by an insulated hook stick pulled from ground through the hook stick lever in the up mechanism box of switch. This hook stick lever can be pulled in the left to open and the right to close. And it is the only way to be operated for earthing switch when equipped.

Hook stick normally can be provided or be purchased locally according to local requirement.

Manual operated type 2*
As left picture, Sectos can be selected manual operated by device which normally located near to the ground level, and the mechanical movement is transferred to the switch by an operating rod, which moves up and down.

Operating rods NPTOT_
Operating rod sets are available with rods of 2x4 m and 3x3 m lengths, each set including rod supports and necessary joint pieces.

Rod support NPAZL9
The operating rod is fitted to the pole with rod supports. Normally at least 2 supports are needed. The extension rod set (if necessary) includes 1 rod support.

Protection insulator of the operating rod NPSZJ30
The protection insulator is commonly used with wooden or concrete poles. Its purpose is to increase the safety of the operator.

Manual operating device UEKE3
The manual operating device UEKE3 is suitable for use with sectos load break switch. It can be locked in open and in closed positions with a padlock.

* These accessories are for wood pole mounted, accessories for concrete pole can be offered if required. And this operated type can not be selected when inner earthing switch is needed.
7 Electrical and remote control

7.1 Electrical control
The Sectos can be electrical operated locally, which motor device and electrical control cabinet are needed.

Motor drive device UEMC40KB-24 VDC
Motor drive device is mounted inside mechanism box of side of switch which mounted on the pole. It’s can be assembled before leave factory, also can be retrofitted on site to manually operated units when needed by experienced people easily.

24 VDC is normal for this UEMC 40K8 motor drive device, 48 VDC, 60 VDC, 110 VDC, 125 VDC, 220 VDC are can be ordered for other needs.

Electrical control cabinet UEMC-A2/A3
Electrical control cabinet is mounted under the pole, normally 2-3 meters above ground level on the pole.

Electrical control cabinet UEMC-__ is including relevant control circuit and components (heater, protection MCB, push button, operating circuit, and so on), which ensure electrical control locally, and have enough space for relevant FTU (feeder terminal unit) communication device.

For 24 VDC products, relevant charger and batteries are equipped as backup power. Primary power should be double-pole voltage transformer or from close-by substation.

There are 2 standard types of this electrical control cabinet, UEMC-A2 and UEMC-A3.

The cabinet code REC615-A2/A3 will be used if equiped with FTU REC615.

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1 Motor drive device UEMC 40KB-24 VDC  |  2 Electrical control cabinet UEMC- |  3 UEMC-A2  |  4 UEMC-A3
7 Electrical and remote control

7.2 Remote control and automatic sectionalizer
The control cabinet which is equipped with FTU REC615 can realize remote-control, indication, measurement function, and automatic sectionalizer function.

7.2.1 Functionality of REC615
REC615 is a dedicated grid automation IED (intelligent electronic device) designed for remote control and monitoring, protection, fault indication, power quality analyzing and automation in medium-voltage secondary distribution systems. REC615 is a member of the Relion® product family and a part of its 615 protection and control product series. The 615 series IEDs are characterized by their compactness and withdrawable-unit design. Re-engineered from the ground up, the 615 series has been designed to unleash the full potential of the IEC 61850 standard for communication and interoperability between substation automation devices.

Application
With REC615, the grid reliability can be enhanced, ranging from basic, non-directional overload protection to extended protection functionality with power quality analyses. Thus, REC615 meets today’s requirements for smart grids and supports the protection of overhead line and cable feeders in isolated neutral, resistance-earthed, compensated and solidly earthed networks. REC615 is freely programmable with horizontal GOOSE communication, thus enabling sophisticated interlocking functions. The new adaptable standard configuration allows the IED to be taken into use right after the application-specific parameters have been set. As a part of an ABB smart grid solution, REC615 provides superior fault location, isolation and restoration (FLIR) to lower the frequency and shorten the duration of faults (SAIFI/SAIDI).

REC615 offers a variety of features to enhance grid reliability.
- Multiple controllable objects (up to five load-break switches)
- Sophisticated protection functionality to detect, isolate and restore power in all types of network
- Integrated power quality measurement, including voltage dips and swells logging
- Freely programmable
- Load profile and event logging
- Six easily manageable setting groups
- Adaptable standard configuration for rapid commissioning
- Web-based parametrization tool with download possibility
- Same configuration tools as for other ABB relion IEDs such as the 615, 620 and 630 series
- Cyber security features such as audit trail
- Withdrawable-unit design
- Large, easy-to-read LCD screen with SLD, local control and parametrization possibilities with dedicated push buttons for safe operation
- Extendable I/O with RIO 600
- Environmentally friendly design with ROHS compliance

Human machine Interface
As a member of the relion family, REC615 shares the same human machine interface (HMI) look and feel as the other Relion IEDs. The location of a push button with a certain function is always the same and the menu structure identical. Consequently, once you become familiar with one Relion IED, you can use them all.

Up to five load-break switches can be controlled via the IED’s front panel HMI or a remote control system. To protect the IED from unauthorized access and to maintain the integrity of information, the IED is provided with a four-level, role-based user authentication system, with individual passwords for the viewer, operator, engineer and administrator levels. The access control system applies to the front panel HMI, embedded web browser-based HMI and protection and control IED manager PCM 600.

Standardized communication
REC615 supports a variety of communication protocols for remote communication, such as IEC 60870-5-101/104, DNP3 level 2 and modbus, simultaneously also supporting IEC 61850 with GOOSE messaging.

Communication Protocols
- IEC 60870-5-101/104
- DNP3 level 2
- Modbus
- IEC 61850 with GOOSE messaging communication
7.2.2 Automatic sectionalizer
Sectos load break switch can as automatic sectionalizer with control cabinet easily. Which also includes all remote-function at the same time, don't need add any hardware components.

As the 80-90% of medium voltage overhead line faults are self clearing or transient by nature and last for a few cycles or seconds. In coordination with the main circuit-breaker or reclosers, The Sectos load break switch is able to distinguish between transitory and permanent faults occurring in the section it is installed in. Only in case of a permanent fault, it will isolate the line automatically.

From principle and application, the Sectos can as two kinds of sectionalizer, one is current based sectionalizer (need current detection), the other is voltage based sectionalizer (need voltage detection).

Current based automatic sectionalizer
• Automatic sectionalizers are selfcontained, automatically controlled circuit-opening devices
• Automatic sectionalizers counts the fault current operations of a upstream reclosing device
• Automatic sectionalizers operates after a preselected number of fault current operations
• Automatic sectionalizers isolate the faulted section of a distribution feeder after the feeder has been deenergized by e.g. a recloser or reclosing CB

Voltage based automatic sectionalizer
• Automatic sectionalizers are selfcontained, automatically controlled circuit-opening devices
• Lose voltage to open
  If switch detect lost voltage two side of switch, switch open immediately
• Add voltage to close (A-Time)
  Either side add voltage and last A-Time switch close
• A-Time open lockout
  Either side add voltage and lost it within A-Time, switch hold open and lockout
• B-Time
  Switch close and start B-Time, If no lost voltage till B-Time time out, switch hold close
• B-Time open lockout
  Switch close and start B-Time, If lost voltage within B-Time, switch open and lockout (load side fault)
• Apply to loop and emanative circuits

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1 Current based automatic sectionalizer  2 Voltage based automatic sectionalizer

1
2

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Typical circuit

Recloser or CB
Sectionalizer (transient fault)
Recloser or CB
Sectionalizer (permanent fault)
8 Main construction and mounting

8.1 Main construction
Above picture take example for NXB load break switch.

Manual operated type including item 1 and 2.

Local electrical operated type including item 1, 2, 3 and 6.

Remote control or automatic sectionalizer (current based scheme) type including all items above.

Voltage based scheme need voltage detection only, CT relevant item 4 and 5 are not necessary.

8.2 Mounting modes
Sectos load break switch can be mounted below or above crossarm which mounted on single or double poles easily.

8.2.1 Below the crossarm
Sectos can be mounted below the crossarm easily.

Crossarm NPTRN1T6 / 3401464
The standard crossarm is 80x80 square tube. There are two standardized lengths, 2,000 mm (NPTRN1T6) and 2,850 mm (3401464). See dimension drawings at the point 9.4

Fixing clamp NXAM 1 or 2
Sectos is easy to install below the crossarm using these 2 pieces fixing clamps.

See dimension drawings at the point 9.5.

NXAM1 is use for 80...100x80...100 crossarm. 2 pieces NXAM1 are included in the delivery as a standard accessory for every type Sectos switch.

NXAM2 is use for 120...160x120...160 crossarm.
1 Single pole (suitable for NXA and NXB)

1. Crossarm
2. Fixing clamp
3. Spacer plate
4. Surge arrester

2 Double poles (suitable for NXA and NXB)

1. Crossarm
2. Fixing clamp
3. Spacer plate
4. Surge arrester
8 Main construction and mounting

Spacer plate NXBZ59
The spacer plates are required, if a 3-position switch (with inner earthing switch).

The spacer plates can be without, if a 2-position switch (without inner earthing switch).

The spacer plate is standard for NXBD type. See dimension drawings at point 9.6.

Surge arresters POLIM
To protect the Sectos against atmospheric overvoltages, it is often necessary to install surge arresters on one or both sides of the switch. Normally, it can be purchased locally according to features of local power network.

Also silicon rubber insulated surge arresters of ABB, type POLIM can be used.

8.2.2 Above the crossarm
Sectos (except NXBD) can be mounted below the crossarm easily.

Description of crossarm and surge arrester can be found above in point 8.2.1.

Fixing clamp NXAM 4 or 5
NXB is easy to install above the crossarm using 2 pieces fixing clamps—NXAM 1 or NXAM 2.

NXA is easy to install above the crossarm using 2 pieces fixing clamps—NXAM 4 or NXAM 5.

See dimension drawings at point 9.7.

NXA M1 is use for 80...100x80...100 crossarm.
NXA M2 is use for 120...160x120...160 crossarm.
Main construction and mounting

NXBD mounted at double poles normally

1 Crossarm
2 Fixing clamp
3 Surge arrester

8.2.3 Mounted on pole directly
Sectos (only NXB) can be mounted on pole (diameter 180 mm to 350 mm) directly (as right picture) when this mounting type is selected, a set of fixing accessory (named NXBZ204) should be selected.
9 Dimension drawings

Dimensions are given in millimeters

9.1 NXB load break switch

9.2 NXBD load break switch
9.3 NXA load break switch

9.4 Crossarm NPTRN1T6/J40164

Type NPTRN1T6 only for NXB

Type J401464 for NXA and NXB
9 Dimension drawings

Dimensions are given in millimeters

9.5 Fixing clamp

9.6 Spacer plate

9.7 Fixing clamp

Dimensions are given in millimeters
10 Ordering type code

10.1 Type code Sectos NXB and NXBD

The pole mounted load break switch type

- Pole mounted load break switch: NXB
- 3-way pole mounted load break switch: NXBD
- Single phase pole mounted load break switch: NXBS

Rated voltage:
- 12 kV IEC: 12
- 24 kV IEC: 24

Type of insulators:
- Standard silicone rubber insulators with 620 mm creepage distance: C
- Silicone rubber insulators with 960 mm creepage distance: D
- Silicone rubber insulators with 6 CVD sensors and 3-phase CTs: CK
- Series 400 for underground cable bushings according to IEC: E

Rated current 630 A: 630

Without earthing switch: A
Earthing switch on one side when NXB: C
Earthing switches on both sides/disconnectors when NXBD: C

Motor operating device: M
- Only manual operating=BLANK

Manual operated type with NXAP3 gas density gauge, with temp. compensated: 3
Motor operated type with ELEGMD 1/0 gas density switch, with temp. compensated: 3
Motor operated type with gas density gauge NXAP 3 and gas density switch ELEGMD 1/0: 1
Without gas density density gauge and gas density switch: 0

Motor voltage is 24 VDC: 24 VDC
Other voltages on special request

A control cable is always needed with motor operating device: 8 M
The alternatives are 8 m, 10m, 12 m, 16 m, other lengths on request s (max. 25 m)

Small control cabinet with relevant control circuit and components, spare space ready for radio and ABB FTU: UEMC-A2
Big control cabinet with relevant control circuit and components, spare space ready for bigger size communication device: UEMC-A3

Other special requests...
# 10 Ordering type code

## 10.2 Type code Sectos NXA

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<thead>
<tr>
<th>The pole mounted load break switch type</th>
<th>NXA</th>
<th>36</th>
<th>C</th>
<th>630</th>
<th>A</th>
<th>M</th>
<th>3/24VDC/8 M/UEMC-A2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pole mounted load break switch</td>
<td>NXA</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Rated voltage 24 kV IEC (*creepage distance up to 960 mm)</td>
<td>24</td>
<td></td>
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</tr>
<tr>
<td>36 kV IEC (*creepage distance up to 1440 mm)</td>
<td>36</td>
<td></td>
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</tr>
<tr>
<td>Type of insulators</td>
<td></td>
<td></td>
<td>C</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Silicone rubber insulators</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Series 400 for underground cable bushings according to IEC</td>
<td>E</td>
<td></td>
<td></td>
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<tr>
<td>Rated current 630 A</td>
<td></td>
<td></td>
<td></td>
<td>630</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Without earthing switch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor operating device</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>Only manual operating=BLANK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Manual operated type with NXAP3 gas density gauge, with temp. compensated</td>
<td>3</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Motor operated type with ELEGMD 1/0 gas density switch, with temp. compensated</td>
<td>3</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Motor operated type with gas density gauge NXAP 3 and gas density switch ELEGMD 1/0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Without gas density density gauge and gas density switch</td>
<td>0</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Motor voltage is 24 VDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24 VDC</td>
</tr>
<tr>
<td>Other voltages on special request</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A control cable is always needed with motor operating device</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8 M</td>
</tr>
<tr>
<td>The alternatives are 8 m, 10 m, 12 m, 16 m, other lengths on request s (max. 25 m)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Small control cabinet with relevant control circuit and components, spare space ready for radio and ABB FTU</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>UEMC-A2</td>
<td></td>
</tr>
<tr>
<td>Big control cabinet with relevant control circuit and components, spare space ready for bigger size communication device</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UEMC-A3</td>
<td></td>
</tr>
</tbody>
</table>
10.3 CT, VT
CT and VT are option items when order Sectos.

Ring type current transformer KOKU 072 G4 are standard type for Sectos.

Installed around the bushings of Sectos
• Type: KOKU 072 G4
• Ratio: 150/1 - 600 /1 A
• Burden: 0,5 -3 VA
• Class: 5P10, 5P20

VT (voltage transformer) should be equipped as power supply of low voltage control cabinet or voltage measuring.

VOL 24 or VOL 40.5 type can be provided, also local purchasing according local requirement is available.

Outdoor voltage transformers VOL
• Highest voltage for equipment [kV] 24-40,5
• Power frequency test voltage, 1 min [kV] 50-95
• Lightning impulse test voltage [kV] 125-200
• Max. rated burden, classes [VA/cl] 25/0.2-500/3
ABB Group operates a process of continuous product development. We therefore reserve the right to change designs, dimensions and data without prior notice.