SACE Tmax XT UL/CSA
Low voltage molded case circuit breakers for UL489 and CSA CS22.2 Standards

BREAK NEW GROUND
• Data and connectivity
• Ease of use and installation
• Performance and protection
• Safety and reliability
SACE Tmax XT
The complete offering
Installation

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Temperature

The Tmax XT circuit-breakers can be used in environmental conditions where the ambient air temperature varies between -25°C and +70°C, and can be stored at temperatures between -40 °C and +70 °C.

Circuit-breakers fitted with thermomagnetic trip units have their thermal element set for a reference temperature. For temperatures other than the reference, a trip threshold variation must be taken into account. Electronic trip units do not undergo any variations in performance as the temperature varies, but, in the case of temperatures exceeding +40°C, the maximum setting for protection L (protection against overloads) must be reduced, as indicated in the derating graph, to take into account the heating phenomena which occur in the copper parts of the circuit-breaker which the phase current passes through. For temperatures above +70°C the circuit-breaker performances are not guaranteed.

Environmental conditions

The Tmax XT circuit-breakers are designed to operate in environments with a pollution degree of 3 according to the IEC 60947-2 Standard classification.

Altitude

Up to an altitude of 2000m/6561 ft, the Tmax XT circuit-breakers do not undergo any alteration in their rated performances. As the altitude increases, the atmospheric properties are altered in terms of composition, dielectric resistance, cooling capacity and pressure. Therefore, some performance aspects of the circuit-breaker (e.g. the maximum rated operating voltage and the rated uninterrupted current) undergo derating.

<table>
<thead>
<tr>
<th>Altitude</th>
<th>2000m/6561ft</th>
<th>3000m/9842ft</th>
<th>4000m/13123ft</th>
<th>5000m/16404ft</th>
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Electromagnetic compatibility

Protection is guaranteed in the presence of interference caused by electronic apparatus, atmospheric disturbances or electrical discharges by using the electronic trip units and the electronic residual current releases. No interference with other electronic apparatus near the place of installation is generated either. This is in compliance with the IEC 60947-2 Annex B + Annex F Standards, European Directive No. 2014/30/EC regarding EMC - electromagnetic compatibility and UL489 Standard.
Installation environment

Degrees of protection

The IP degree of the circuit-breaker can vary depending on the area considered and on the presence of accessories such as a motor or terminal cover.

The following table indicates the degrees of protection guaranteed by Tmax XT circuit-breakers according to the prescriptions of the IEC 60529 Standard, in the different configurations. Furthermore, special kits are available to achieve IP54 with the MOE or RHD installed on the XT5, XT6 and XT7.

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<th>MOE</th>
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<td>-</td>
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<td>XT5, XT6, XT7</td>
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<table>
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<tr>
<th>With front</th>
<th>Without front</th>
<th>With FLD</th>
<th>With RHD</th>
<th>With RHE</th>
<th>Motor operator MOD, MOE or MOE-E</th>
<th>Residual current devices</th>
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<td>IP40(1)</td>
<td>IP40(2)</td>
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(1) XT5 W - XT6 W: IP30
(2) XT5-XT6-XT7: IP65

Installation position

It is possible to mount circuit-breakers in the fixed version in horizontal, vertical or lying down positions without any derating of the rated characteristics.
Temperature performance

Circuit-breakers with thermal-magnetic trip units

The circuit-breakers fitted with thermal-magnetic trip units have the thermal element set for a reference temperature of +40°C. With the same setting, for temperatures other than +40°C there is a variation in the thermal trip threshold as indicated in the tables below.

### XT1 - TMF

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## Temperature performance

Circuit-breaker with magnetic only or electronic trip units and switch-disconnectors

The electronic overcurrent trip units do not undergo any variations in performance as the temperature varies. However, even though heating does not affect the trip thresholds of the electronic trip units, in the case of temperatures exceeding +40°C it is advisable to reduce the maximum L (protection against overloads) setting to protect the copper parts of the circuit-breaker against high temperatures.

The same considerations can be made for the switch-disconnectors and magnetic only circuit-breakers.

The table below shows the maximum value at which, with terminals and lugs, the threshold of I₁ of the overcurrent protection (L) must be set according to the ambient temperature.

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Power losses

To ensure service continuity of the plants, careful assessment of how to keep temperatures within acceptable levels to guarantee operation of all devices is necessary (e.g. by using forced ventilation in switchboards and installation rooms).

The table below shows the dissipated power values per single pole at the rated current In for each fixed circuit-breaker used. The total maximum dissipated power for a circuit-breaker used at 50/60Hz is equal to the power per single pole multiplied by the number of poles.

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Power losses gives indication of the heat generated under specified conditions. Measurement of power losses are performed on new samples in free air (according to Annex G of IEC). The measurement of resistance cannot be directly related to the power loss of the device and is not enough to ascertain the quality of the contacts.
Insulation distances

Enclosure dimensions

XT1, XT2, XT3, XT4, XT5, XT6 and XT7 circuit breakers are available both as standard version and as 100% rated version. Because of the additional heat generated bringing 100% of continuous current rating the use of specific 90°C rated wires sized per 75°C ampacity may be required.

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<th>XT2</th>
<th>XT3</th>
<th>XT4</th>
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<th>XT6</th>
<th>XT7</th>
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<tr>
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<td>3.54 (4.72 4p)/90 (120 4p)</td>
<td>3.25/82.5</td>
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<td>6.57 (7.01)(3)/166 (178)(3)</td>
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(3) For XT7 M
## Insulation distances

### AC-DC Minimum enclosure sizes for 80% rated fixed circuit-breakers (HxWxD)

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<th>Cubicle dimension (in/mm) for 3p fixed version</th>
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<td>XT1</td>
<td>Cubicle dimension: 14.57x8.50x2.85/370x216x72.5 (with rear terminals: 15x9.84x9.84/380x250x250)</td>
</tr>
<tr>
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<td>Cubicle dimension: 14.57x9.50x2.85/370x241x72.5 (with rear terminals: 15x10.82x9.84/380x275x250)</td>
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<table>
<thead>
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<th>Cubicle dimension (in/mm) for 3p fixed version</th>
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<td>XT2</td>
<td>Cubicle dimension: 12.2x7.09x3.29/310x180x83.5 (with rear terminals: 12.83x8.9x11.5/326x226x292)</td>
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<td>Cubicle dimension: 12.2x8.27x3.29/310x210x83.5 (with rear terminals: 12.83x10.08x11.5/326x256x292)</td>
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<table>
<thead>
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<th>Cubicle dimension (in/mm) for 3p fixed version</th>
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<td>XT3</td>
<td>Cubicle dimension: 14.57x8.4x2.83/370x217x72 (with rear terminals: 15.28x10.47x11.81/388x266x300)</td>
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<td>Cubicle dimension: 14.57x9.84x2.83/370x250x72 (with rear terminals: 15.28x11.85x11.81/388x301x300)</td>
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<td>Cubicle dimension: 20.47x19.29x7.87/520x490x200 (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Cubicle dimension (in/mm) for 3p fixed version</th>
</tr>
</thead>
<tbody>
<tr>
<td>XT7</td>
<td>Cubicle dimension: 27.95x21.65x6.81/710x550x173 (1)</td>
</tr>
<tr>
<td></td>
<td>Cubicle dimension: 27.95x24.4x6.81/710x620x173 (1)</td>
</tr>
</tbody>
</table>

(1) For installations with rear terminals please ask ABB
AC-DC Minimum enclosure sizes for 100% rated fixed circuit-breakers (HxWxD)

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Cubicle dimension (in/mm) for 3p fixed version:</th>
<th>Cubicle dimension (in/mm) for 4p fixed version:</th>
</tr>
</thead>
<tbody>
<tr>
<td>XT1</td>
<td>Suitable for continuous operation at 100-percent of rating up to 100A with 90°C wire.</td>
<td>14.57x9.50x2.85/370x216x72.5 (with rear terminals: 15x9.84x9.84/380x250x250)</td>
<td>14.57x9.50x2.85/370x214x72.5 (with rear terminals: 15x10.82x9.84/380x275x250)</td>
</tr>
<tr>
<td>XT2</td>
<td>Suitable for continuous operation at 100-percent of rating up to 100A with thermal magnetic trip unit and up to 125A with electronic trip unit</td>
<td>12.2x7.09x3.29/310x180x83.5 (with rear terminals: 12.83x8.9x11.5/326x226x292)</td>
<td>12.2x8.27x3.29/310x210x83.5 (with rear terminals: 12.83x10.08x11.5/326x256x292)</td>
</tr>
<tr>
<td>XT3</td>
<td>Suitable for continuous operation at 100-percent of rating up to 225A with 90°C wire. The wire size shall be based on the ampacity of 75°C rated wire</td>
<td>14.57x8.54x2.83/370x217x72 (with rear terminals: 15.28x9.84x11.81/388x266x300)</td>
<td>14.57x9.84x2.83/370x250x72 (with rear terminals: 15.28x11.85x11.81/388x301x300)</td>
</tr>
<tr>
<td>XT4</td>
<td>Suitable for continuous operation at 100-percent of rating up to 250A, with 90°C wire. The wire size shall be based on the ampacity of 75°C rated wire. With 75°C wire suitable for continuous operation at 100-percent of rating up to 200A with lugs FC CuAl only</td>
<td>14.96x7.68x3.29/380x195x83.5 (with rear terminals: 15.59x9.6x11.5/396x244x292)</td>
<td>14.96x9.05x3.29/380x230x83.5 (with rear terminals: 15.59x10.98x11.5/396x279x292)</td>
</tr>
<tr>
<td>XT5 400</td>
<td>Suitable for continuous operation at 100-percent of rating up to 400A. For XT5 V-X 90°C wire needed, the wire size shall be based on the ampacity of 75°C rated wire</td>
<td>Cubicle dimension (in/mm) for 3p fixed version, with vents for V-X versions: 19.92x15x6.02/506x381x153, vents: 2 x (4.33x6.9/110x175)</td>
<td>Cubicle dimension (in/mm) for 4p fixed version, with vents for V-X versions: 19.92x16.33x6.02/506x427.5x153, vents: 2 x (4.33x8.66/110x220)</td>
</tr>
<tr>
<td>XT5 600</td>
<td>N-S-H-L versions suitable for continuous operation at 100-percent of rating up to 600A with 90C wire. The wire size shall be based on the ampacity of 75°C rated wire</td>
<td>Cubicle dimension (in/mm) for 3p fixed version, with vents for V-X versions: 19.92x15x6.02/506x381x153, vents: 2 x (4.33x6.9/110x175)</td>
<td>Cubicle dimension (in/mm) for 4p fixed version, with vents for V-X versions: 19.92x16.33x6.02/506x427.5x153, vents: 2 x (4.33x8.66/110x220)</td>
</tr>
<tr>
<td>XT6</td>
<td>Suitable for continuous operation at 100-percent of rating up to 800A with electronic trip unit and with 90°C wire. The wire size shall be based on the ampacity of 75°C rated wire</td>
<td>20.47x16.51x7.87/520x420x200</td>
<td>20.47x18.37x7.87/520x466.5x200</td>
</tr>
<tr>
<td>XT7</td>
<td>Suitable for continuous operation at 100-percent of rating up to 1200A with 90°C wire. The wire size shall be based on the ampacity of 75°C rated wire</td>
<td>27.95x21.65x6.81/710x550x173</td>
<td>27.95x24.4x6.81/710x620x173</td>
</tr>
</tbody>
</table>

(1) For installations with rear terminals please ask ABB
Insulation distances

Minimum clearance between two side by side circuit-breakers

This section gives the clearances to be observed for side by side installation of SACE Tmax XT circuit-breakers in plants with voltages up to 600V. The following table shows the minimum center distance between two circuit-breakers of the same size mounted side by side. In case of XT2, XT3 and XT4 this installation is obtained by breaking the internal part of back insulating plate supplied with the breaker. Moreover in case of Tmax XT1 up to XT5(1), the values are valid only when they have an HTC or a phase separator is inserted in the slot formed when placing the two fixed circuit-breakers side by side (see Fig.1 and Fig.2). For further details about installation, please see the related instructions provided with the circuit-breaker.

<table>
<thead>
<tr>
<th>Circuit-breaker width (in/mm)</th>
<th>Centre distance I (in/mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 poles</td>
</tr>
<tr>
<td>XT1</td>
<td>2.99/76</td>
</tr>
<tr>
<td>XT2</td>
<td>3.54/90</td>
</tr>
<tr>
<td>XT3</td>
<td>4.13/105</td>
</tr>
<tr>
<td>XT4</td>
<td>4.13/105</td>
</tr>
<tr>
<td>XT5</td>
<td>5.51/140</td>
</tr>
<tr>
<td>XT6</td>
<td>8.27/210</td>
</tr>
<tr>
<td>XT7</td>
<td>8.26/210</td>
</tr>
</tbody>
</table>

(1) XT5: HTC or phase separator requested for installation voltage values Ue≥500V only
(2) for installations with F terminals only. With other connections refer to dimensions of back insulating plates requested
If the conditions on page 4 are not complied with, SACE Tmax XT circuit-breakers can be installed side by side with a minimum clearance D as shown in the following table:

<table>
<thead>
<tr>
<th>Circuit-breaker Terminals</th>
<th>D [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>XT1-XT3 F-P ES 35</td>
<td></td>
</tr>
<tr>
<td>XT2-XT4 F-W-P ES 120</td>
<td></td>
</tr>
<tr>
<td>Other types of terminals</td>
<td>25</td>
</tr>
</tbody>
</table>

Here are some examples:
- Adjustable rear terminals R and low terminal covers LTC
- Circuit-breakers with front extended spread terminals ES
- Circuit-breakers with front extended terminals EF

Note:
Back insulating plate XT1...XT4 supplied with the breaker

Fig. 1
Side by side XT1...XT5 with HTC

Fig. 2
Side by side XT1...XT5 with phase separators
## Insulation distances

If the conditions written above are not fulfilled, SACE Tmax XT circuit-breakers can be installed side by side with a minimum clearance $D$ as shown in the following table:

<table>
<thead>
<tr>
<th>Circuit-breaker</th>
<th>Terminals</th>
<th>$D$ [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>XT1-XT3 F-P</td>
<td>ES</td>
<td>1.37/35</td>
</tr>
<tr>
<td></td>
<td>EF</td>
<td>1.37/35</td>
</tr>
<tr>
<td></td>
<td>Other types of terminals</td>
<td>0.98/25</td>
</tr>
<tr>
<td>XT2-XT4 F-P-W</td>
<td>ES</td>
<td>4.72/120</td>
</tr>
<tr>
<td></td>
<td>EF</td>
<td>1.37/35 (Ue≤480V) 1.97/50 (Ue&gt;480V)</td>
</tr>
<tr>
<td></td>
<td>Other types of terminals</td>
<td>0.98/25 (Ue≤480V) 1.57/40 (Ue&gt;480V)</td>
</tr>
<tr>
<td>XT5 F-P-W</td>
<td>ES</td>
<td>4.72/120</td>
</tr>
<tr>
<td></td>
<td>EF</td>
<td>5.9/150</td>
</tr>
<tr>
<td></td>
<td>Other types of terminals</td>
<td>2/50</td>
</tr>
<tr>
<td>XT6 F-W</td>
<td>ES</td>
<td>4.72/120</td>
</tr>
<tr>
<td></td>
<td>EF</td>
<td>5.9/150</td>
</tr>
<tr>
<td></td>
<td>Other types of terminals</td>
<td>2/50</td>
</tr>
<tr>
<td>XT7 F-W</td>
<td>ES</td>
<td>5.9/150</td>
</tr>
<tr>
<td></td>
<td>EF</td>
<td>2.75/70</td>
</tr>
<tr>
<td></td>
<td>Other types of terminals</td>
<td>0 F - 2.75/70 W</td>
</tr>
</tbody>
</table>

### Adjustments

- **Circuit-breakers with front extended spread terminals ES**
- **Circuit-breakers with front extended terminals EF**
- **Adjustable rear terminals R and low terminal covers LTC**
Minimum clearance between two superimposed circuit-breakers

This section gives the clearances H to meet for superimposed mounting of the SACE Tmax XT circuit-breakers in installations with voltages up to 600V. Verify that the bare bars or connection cables do not reduce the recommended clearances.

The distances given in the table refer to the maximum overall dimensions of the circuit-breakers in the different versions (F/W/P), with terminals and metallic lugs of insulated cables included, for example.

When superimposed circuit-breakers are different in size, the larger reference clearance should be considered.

<table>
<thead>
<tr>
<th>Circuit-breaker</th>
<th>H [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>XT1</td>
<td>3.14/80</td>
</tr>
<tr>
<td>XT2</td>
<td>3.94/100</td>
</tr>
<tr>
<td>XT3</td>
<td>5.51/140</td>
</tr>
<tr>
<td>XT4</td>
<td>5.9/150</td>
</tr>
<tr>
<td>XT5</td>
<td>6.3/160</td>
</tr>
<tr>
<td>XT6</td>
<td>7.09/180</td>
</tr>
<tr>
<td>XT7</td>
<td>7.09/180</td>
</tr>
</tbody>
</table>

In case of cables with metallic lugs, an insulating screen behind the metallic lugs (on the rear of the circuit-breaker) or high terminal covers is mandatory.
Insulation distances

The first insulated anchor

For the Tmax XT molded-case circuit-breakers, the figure below gives an example of the maximum recommended distance (in mm) within which the first insulated anchor should be positioned according to the highest admissible peak current value of the circuit-breaker and according to the cross-sectional area of the cable. The maximum recommended distance is also valid for busbar connections. For further information and details, reference must be made to the circuit-breaker technical catalogues and instruction manuals.
The first insulated anchor

For the moulded-case circuit-breakers SACE Tmax XT1, XT2, XT3 and XT4, the figure below gives an example of the maximum recommended distance (in mm) within which the first insulated anchor shall be positioned according to the highest admissible peak current value of the circuit-breaker and to the cross-sectional area of the cable.

The maximum recommended distance is valid also with busbar connections. For further information and details reference must be made to the circuit-breaker technical catalogues and instruction manuals.

SACE Tmax XT5

SACE Tmax XT6

SACE Tmax XT7

(*) Value valid also with rear terminals
Special applications

Use of direct current apparatus

The thermal-magnetic trip units of the SACE Tmax XT circuit-breakers are suitable for use in direct current applications and to obtain the number of poles in series needed to guarantee the required breaking capacity at the various operating voltages, following connection diagrams must be used.

Connection diagrams of poles in a grounded/ungrounded network

<table>
<thead>
<tr>
<th>Grounded/ungrounded network</th>
<th>Un up to 250V DC</th>
</tr>
</thead>
</table>
| +(-) | -(+)
| XT1 | (1)
| XT2 | (1)
| XT3 | (1)
| XT4 | (1)
| XT5 | (1)
| XT6 | (1)

(1) Ungrounded only

<table>
<thead>
<tr>
<th>Grounded/ungrounded network</th>
<th>Un up to 500V DC</th>
</tr>
</thead>
</table>
| +(-) | -(+)
| XT1 | (1)
| XT2 | (1)
| XT3 | (1)
| XT4 | (1)
| XT5 | (1)
| XT6 | (1)

(1) Ungrounded only
Unup to 600V DC

<table>
<thead>
<tr>
<th>XT1</th>
<th>XT2</th>
<th>XT3</th>
<th>XT4</th>
<th>XT5</th>
<th>XT6</th>
</tr>
</thead>
</table>

(2) Grounded V-X versions only
Characteristic curves

Example of curves reading

Example 1 – XT3N 225
Trip curves for distribution (thermal magnetic trip unit)

These curves provide information about the tripping time of the thermal magnetic trip units. The red band indicates the hot trip times, so having the breaker already loaded with its rated current once the overload occurs. The blue band gives the cold trip times, so with no current flowing into the breaker before the fault. The curves are assumed at reference air ambient temperature of 40°C and considering three phase overload with symmetrical and equilibrated currents.

Let us consider an XT3N TMF In = 225A circuit-breaker. According to the conditions the overload is found in; i.e., with the circuit-breaker at thermal regime or not, thermal protection tripping varies considerably.

For example, for an overload current 3xI1, the trip time is between 152.7s and 40.2s for cold tripping and between 40.2s and 6.9s for hot tripping.

For fault current values higher than 225A, the circuit-breaker trips with the instantaneous magnetic protection I3.

Example 2 – XT2H 125
Specific let-through energy curves

This figure shows a sample graph of the specific let-through energy of the XT2H 125 circuit-breaker at a voltage of 220/230V. The prospective symmetrical short-circuit current is indicated on the abscissas, whereas the values of the specific let-through energy expressed in A²s are shown on the ordinates. The circuit-breaker lets through a value of I²t equal to 0.42 · 10^6 · A²s relative to a short-circuit current of 14kA.
Example 3 – XT2L 125
Limitation curves

The figure at right gives the trend of the Limitation curves of the XT2L 125 In = 125A circuit-breaker. The effective value of the prospective symmetrical short-circuit current is given on the abscissas of the diagram, whereas the peak value corresponding to the prospective short-circuit current is indicated on the ordinates. For a value current of 22kA, the XT2L 125 circuit breaker with a thermomagnetic trip unit In = 125A limits the peak prospective short-current current to 18kA at a voltage of 600V.
Characteristic curves
Trip curves with thermal magnetic trip unit

Trip curves for distribution

**XT1 125 TMF In=15...30A**

**XT1 125 TMF In=35...50A**

**XT1 125 TMF In=60...110A**

**XT1 125 TMF In=125A**
Characteristic curves

Trip curves with thermal magnetic trip unit

XT2 125 TMA In=110..125A

XT3 225 TMF In=60..100A

XT3 250 TMF In=110..150A

XT3 250 TMF In=175..225A

XT3 250 TMF In=175..225A
XT4 250 TMF In=25...50A

XT4 250 TMF In=60...70A

XT4 250 TMF In=80...100A

XT4 250 TMF In=110...150A
Characteristic curves
Trip curves with thermal magnetic trip unit

XT4 250 TMF In=175...225A

XT4 250 TMF In=250A

XT4 250 TMA In=80...100A

XT4 250 TMA In=110...150A
XT4 250 TMA In=175...225A

XT4 250 TMA In=250A

XT5 400/600 TMA In=300...600A

XT6 800 TMA In=600...800A
Characteristic curves
Trip curves with thermal magnetic trip unit

Trip curves for motor protection

**XT1 125 MA In=3...125A**

**XT2 125 MA In=3...100A**

**XT2 125 MA In=125A**

**XT3 225 MA In=100...200A**
Trip curves for generator protection

XT4 250 MA 25...50A

XT 500 MA 80...250A

XT5 250 MA 300...500A

XT5 TMG 300...600A
Characteristic curves
Trip curves with electronic trip unit Ekip Dip

Trip curves for distribution

XT2 Ekip LS/I
L-I functions

XT2 Ekip LS/I
L-S functions

XT2 Ekip LIG
L-I functions

XT2 Ekip LIG
G function
Characteristic curves
Trip curves with electronic trip unit Ekip Dip

XT4 Ekip LS/I
L-S functions

XT4 Ekip LIG
L-I functions

XT4 Ekip LIG
G function

XT4 Ekip LSI
L-S-I functions
Characteristic curves
Trip curves with electronic trip unit Ekip Dip

XT5 600 Ekip Dip LIG
L-I functions

XT6 Ekip Dip LIG
L-I functions

XT5-XT6 Ekip Dip LIG
G functions

XT5 Ekip Dip LSI
L-S-I functions
Characteristic curves
Trip curves with electronic trip unit Ekip Dip

XT7 - XT7 M Ekip Dip LS/I
L-S functions

XT7 - XT7 M Ekip Dip LIG
L-I functions

XT7 - XT7 M Ekip Dip LIG
G function

XT7 - XT7 M Ekip Dip LSI
L-S-I functions
XT7 - XT7 M Ekip Dip LSIG
L-S-I functions

XT7 - XT7 M Ekip Dip LSIG
G function

Trip curves for motor protection

XT2 Ekip I
I function

XT4 Ekip I
I function
Characteristic curves
Trip curves with electronic trip unit Ekip Dip

XT2 - XT4 Ekip M-LIU
L function (cold trip)

XT2 - XT4 Ekip M-LIU
(hot trip)

XT2 - XT4 Ekip M-LIU
I function

XT2 - XT4 Ekip M-LIU
U function
Characteristic curves

Trip curves with electronic trip unit Ekip Dip

XT5-XT6 Ekip M Dip LIU
U function

XT7-XT7 M Ekip M Dip I
I function
Trip curves for generator protection

XT5-XT6 Ekip G Dip LS/I
L-S-I functions

XT7 - XT7 M Ekip G Dip LS/I
L-I functions

XT7 - XT7 M Ekip G Dip LS/I
L-S functions
Characteristic curves
Trip curves with electronic trip unit Ekip Touch and Hi-Touch

Trip curves for distribution

**XT2**
Ekip Touch LSI • Ekip Touch LSIG • Ekip Touch Measuring LSI • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSI • Ekip Hi-Touch LSIG • L – S – I function

**XT4**
Ekip Touch LSI • Ekip Touch LSIG • Ekip Touch Measuring LSI • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSI • Ekip Hi-Touch LSIG • G function
INSTALLATION

XT5
Ekip Touch LSI • Ekip Touch LSIG • Ekip Touch Measuring LSI • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSI • Ekip Hi-Touch LSIG • L – S – I function

XT7 – XT7 M
Ekip Touch LSI • Ekip Touch LSIG • Ekip Touch Measuring LSI • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSI • Ekip Hi-Touch LSIG • L – S – I function

XT5
Ekip Touch LSIG • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSIG • G function

XT7 – XT7 M
Ekip Touch LSIG • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSIG • G function
Characteristic curves
Trip curves with electronic trip unit Ekip Touch and Hi-Touch

Trip curves for motor protection

XT2 Ekip M Touch LRIU
L function (cold trip)

XT2 Ekip M Touch LRIU
(hot trip)

XT2 Ekip M Touch LRIU
R function - JAM

XT2 Ekip M Touch LRIU
R function - STALL
XT2 Ekip M Touch LRIU
I function

XT2 Ekip M Touch LRIU
U function

XT4 Ekip M Touch LRIU
L function (cold trip)

XT4 Ekip M Touch LRIU
(hot trip)
Characteristic curves
Trip curves with electronic trip unit Ekip Touch and Hi-Touch

XT4 Ekip M Touch LRIU
R function - JAM

XT4 Ekip M Touch LRIU
R function - STALL

XT4 Ekip M Touch LRIU
I function

XT4 Ekip M Touch LRIU
U function
INSTALLATION

XT5 Ekip M Touch LRIU
L function (cold trip)

XT5 Ekip M Touch LRIU
( hot trip )

XT5 Ekip M Touch LRIU
R function - JAM

XT5 Ekip M Touch LRIU
R function - STALL
Characteristic curves
Trip curves with electronic trip unit Ekip Touch and Hi-Touch

XT5 Ekip M Touch LRIU
I function

XT5 Ekip M Touch LRIU
U function

XT7 – XT7 M Ekip M Touch LRIU
L function (cold trip)

XT7-XT7M Ekip M Touch LRIU
(hot trip)
Characteristic curves
Trip curves with electronic trip unit Ekip Touch and Hi-Touch

Trip curves for generator protection

XT5 Ekip G Touch LSIG • Ekip G Hi-Touch LSIG
L-S-I functions

XT5 Ekip G Touch LSIG • Ekip G Hi-Touch LSIG
G function

XT7 – XT7 M Ekip G Touch LSIG • Ekip G Hi-Touch LSIG
L-S-I functions

XT7 – XT7 M Ekip G Touch LSIG • Ekip G Hi-Touch LSIG
G function
Characteristic curves
Specific let-through energy curves

480V

**XT2H**

**XT2L**

**XT2V**

**XT4H**
Characteristic curves
Specific let-through energy curves

480V

XT4L

XT4V

XT5L

XT5H
INSTALLATION

XT5V

XT2H

600V

XT2L

XT2V
Characteristic curves
Specific let-through energy curves

600V

XT4H

XT4L

XT4V

XT5L
Characteristic curves

Limiting curves

480V

XT2H

XT2L

XT2V

XT4H
Characteristic curves
Limiting curves

480V
- XT5V

600V
- XT2H

- XT2L

- XT2V
INSTALLATION

XT4H

XT4L

XT4V

XT5L

Ip [kA] x Irms [kA]
Characteristic curves
Limiting curves

600V

XTSH

XT5V, X
Overall dimensions

**Tmax XT1**

2/4  Installation for fixed circuit-breaker  
2/7  Terminals for fixed circuit-breaker  
2/10 Accessories for fixed circuit-breaker  
2/16 Installation for plug-in circuit-breaker  
2/21 Terminals for plug-in circuit-breaker  
2/24 Accessories for plug-in circuit-breaker

**Tmax XT2**

2/25 Installation for fixed circuit-breaker  
2/29 Terminals for fixed circuit-breaker  
2/33 Accessories for fixed circuit-breaker  
2/39 Installation for plug-in circuit-breaker  
2/43 Terminals for plug-in circuit-breaker  
2/46 Accessories for plug-in circuit-breaker  
2/50 Installation for withdrawable circuit-breaker  
2/54 Terminals for withdrawable circuit-breaker  
2/58 Accessories for withdrawable circuit-breaker

**Tmax XT3**

2/62 Installation for fixed circuit-breaker  
2/65 Terminals for fixed circuit-breaker  
2/69 Accessories for fixed circuit-breaker  
2/75 Installation for plug-in circuit-breaker  
2/78 Terminals for plug-in circuit-breaker  
2/81 Accessories for plug-in circuit-breaker

**Tmax XT4**

2/82 Installation for fixed circuit-breaker  
2/85 Terminals for fixed circuit-breaker  
2/88 Accessories for fixed circuit-breaker  
2/94 Installation for plug-in circuit-breaker
2/98  Terminals for plug-in circuit-breaker
2/102  Accessories for plug-in circuit-breaker
2/106  Installation for withdrawable circuit-breaker
2/110  Terminals for withdrawable circuit-breaker
2/114  Accessories for withdrawable circuit-breaker

**Tmax XT5**
2/119  Installation for fixed circuit-breaker
2/121  Terminals for fixed circuit-breaker
2/127  Accessories for fixed circuit-breaker
2/137  Installation for plug-in circuit-breaker 400A
2/139  Terminals for plug-in circuit-breaker 400A
2/142  Accessories for plug-in circuit-breaker 400A
2/152  Installation for plug-in circuit-breaker 600A
2/154  Terminals for plug-in circuit-breaker 600A
2/157  Accessories for plug-in circuit-breaker 600A
2/167  Installation for withdrawable circuit-breaker 400A
2/169  Terminals for withdrawable circuit-breaker 400A
2/174  Accessories for withdrawable circuit-breaker 400A
2/180  Installation for withdrawable circuit-breaker 600A
2/182  Terminals for withdrawable circuit-breaker 600A
2/187  Accessories for withdrawable circuit-breaker 600A
Tmax XT6 – Installation
2/193 Installation for fixed circuit-breaker
2/195 Terminals for fixed circuit-breaker
2/200 Accessories for fixed circuit-breaker
2/207 Installation for withdrawable circuit-breaker
2/209 Terminals for withdrawable circuit-breaker
2/210 Accessories for withdrawable circuit-breaker

Tmax XT7 – Installation
2/216 Installation for fixed circuit-breaker
2/217 Terminals for fixed circuit-breaker
2/221 Accessories for fixed circuit-breaker
2/223 Installation for withdrawable circuit-breaker
2/225 Terminals for withdrawable circuit-breaker
2/228 Accessories for withdrawable circuit-breaker

Tmax XT7 M – Installation
2/230 Installation for fixed circuit-breaker
2/231 Terminals for fixed circuit-breaker
2/235 Installation for withdrawable circuit-breaker
2/236 Terminals for withdrawable circuit-breaker

Tmax XT – Common accessories
2/237 Horizontal interlock XT series
2/239 Vertical interlock XT series
Tmax XT1 - Installation
Installation for fixed circuit-breaker

Mounting on the backplate

Key
1. Insulating plate (compulsory)
2. Overall dimension of optional wiring ducts 12.79”/325mm
3. Insulating barriers between phases (compulsory) provided
4. Front carter obligatory for through door of the panel ≤ 0.98”/25mm

Mounting on DIN 50022 rail

Key
1. Mounting bracket
2. Overall dimension of optional wiring ducts
3. 0.98”/25mm insulating barriers between phases (compulsory) provided
4. Optional front cover for DIN rail
5. Insulating plate (compulsory)
Drilling template for circuit-breaker mounting

Flanges

Key
1. Flange for circuit breaker III
2. Flange for circuit breaker IV
3. Flange for fixed III-IV with direct motor operator (MOD)
4. Flange for III-IV with direct rotary handle (RHD)
5. Optional flange
Tmax XT1 - Installation
Installation for fixed circuit-breaker

Drilling templates for compartment door

**With standard flange**

A=2.91/74
3 POLES

A=2.91/74
4 POLES

**Without flange**

A=2.79/71
3 POLES

A=2.79/71
4 POLES

A=3.11/79
3-4 POLES

**With optional flange**

A=3.11/79
3-4 POLES
**Tmax XT1 - Installation**

**Terminals for fixed circuit-breaker**

**Terminals F**

Key
1. Front terminals for busbar connection
7. 0.98"/25mm insulating barriers between phases (compulsory) provided

**Terminals EF**

Key
2. Front extended terminals
3. High terminal covers with degree of protection IP40 (optional) not provided
5. 3.94"/100mm insulating barriers between phases (compulsory) provided
9. Internal insulating plate compulsory with phase barriers (customer)

**Terminals ES**

Key
4. Front extended spread terminals for busbar connection
6. 7.87'/200mm insulating barriers between phases (compulsory) provided
Tmax XT1 - Installation

Terminals for fixed circuit-breaker

Terminals FCCu

Key
2 Front terminal FCCu

Terminals MC

Key
4 Terminal covers with degree of protection IP40 (compulsory) provided
5 Front terminal for multi-cable connection
Terminals R

Key
1. Adjustable rear terminals
2. Bottom terminal covers with degree of protection IP30 (optional) not provided
3. Drilling template for mounting circuit-breaker III on sheet
4. Drilling template for mounting circuit-breaker IV fixing on sheet

3 POLES

4 POLES
Tmax XT1 - Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on circuit-breakers (RHD)

Key
2 Rotary handle operating mechanism on circuit-breaker RHD
4 Door drilling template with direct rotary handle
6 0.98’/25mm insulating barriers between phases (compulsory) provided
Rotary handle operating mechanism with padlock on the compartment door (RHE-PL)

Key
1 Transmitted rotary handle
3 Door drilling template with transmitted rotary handle
5 Transmission unit
6 0.98/25mm insulating barriers between phases provided with circuit-breaker
Tmax XT1 - Installation

Accessories for fixed circuit-breaker

Large rotary handle operating mechanism with padlock on the compartment door (RHE-LH)

---

Key
1. Transmission unit
2. 0.98”/25mm Insulating barriers between phases provided with circuit-breaker
3. Optional wiring ducts
4. Wide type rotary handle
5. Door drilling template with extended rotary handle

---

MINIMUM DISTANCE FROM DOOR HINGE R \( \text{min} \) 0.00 7.87
Large rotary handle operating mechanism with padlock on the compartment door (RHE-LH)

Key
1. Transmission unit
2. 0.98”/25mm Insulating barriers between phases (compulsory) provided
3. Optional wiring ducts
4. Wide type rotary handle
Tmax XT1 - Installation
Accessories for fixed circuit-breaker

Direct motor operator (MOD)

Key
3 Key lock (not provided)
4 Direct motor operator (MOD)
5 Drilling template of door with MOD without flange
6 Drilling template of door with MOD with flange
7 Cable connections
8 0.98”/25mm phase barriers
RC Inst and RC Sel residual current release for 3-pole circuit-breaker

Key
1. Front terminals for busbar connection
2. Terminal covers with degree of protection IP40
3. Drilling template of door with direct rotary handle with flange
4. Drilling template of door with direct rotary handle without flange
5. Drilling template for mounting circuit-breaker on sheet

<table>
<thead>
<tr>
<th>A [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange III</td>
</tr>
<tr>
<td>Without flange III</td>
</tr>
</tbody>
</table>
Tmax XT1 - Installation
Accessories for fixed circuit-breaker

RC Inst and RC Sel residual current release for 4-pole circuit-breaker

Key
1. Front terminals for busbar connection
2. Terminal covers with degree of protection IP40
3. Drilling template of door with direct rotary handle with flange
4. Drilling template of door with direct rotary handle without flange
5. Drilling template for mounting circuit-breaker on sheet

<table>
<thead>
<tr>
<th>A [in/mm]</th>
<th>With standard flange</th>
<th>Without flange</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>2.91/74</td>
<td>2.79/71</td>
</tr>
</tbody>
</table>

---

SACE TMAX XT UL/CSA LOW VOLTAGE MOLDED CASE CIRCUIT-BREAKERS UL489 AND CSA CS22.2 STANDARDS
 RC Sel 200 4-pole residual current release

Key
1 Front terminals for busbar connection
2 Terminal covers with degree of protection IP40
3 Drilling template of door with direct rotary handle
4 Drilling template for mounting circuit-breaker on sheet
Tmax XT1 - Installation

Installation for plug-in circuit-breaker

Mounting on the backplate

Drilling template for mounting circuit-breaker
Flanges

Key
1. Flange for plug-in circuit-breaker III
2. Flange for circuit breaker IV
5. Flange for plug-in circuit-breaker III-IV with direct motor operator (MOD)
6. Flange for plug-in circuit-breaker III-IV with direct rotary handle RHD
7. Optional flange
Tmax XT1 - Installation
Installation for plug-in circuit-breaker

Drilling templates for compartment door

**With standard flange**

![Template Diagram](image)

B=4.88/124 C=5.67/144
3 POLES

B=4.88/124 C=5.67/144
4 POLES

**Without flange**

![Template Diagram](image)

B=4.76/121 C=5.55/141
3 POLES

B=4.76/121 C=5.55/141
4 POLES

B=5.08/129 C=5.87/149
3-4 POLES

**With optional flange**

![Template Diagram](image)

B=5.08/129 C=5.87/149
3-4 POLES
**Tmax XT1 - Installation**

Terminals for plug-in circuit-breaker

**Terminals EF**

Key
4 Front extended terminals
5 3.94"/100mm insulating barriers between phases (compulsory) provided

**Terminals ES**

Key
3 Front extended spread terminals
6 7.87"/200mm insulating barriers between phases (compulsory) provided
7 Adapter (compulsory) not provided

---

OVERALL DIMENSIONS
Tmax XT1 - Installation

Terminals for plug-in circuit-breaker

Terminals FCCu

Key
4 Terminals FCCu
5 Adapter (compulsory) not provided
6 0.98”/25mm insulating barriers between phases (compulsory) provided

MOUNTING AT 1.97”/50mm

Terminals MC

Key
2 Terminal covers with degree of protection IP40 (optional) provided
3 Front terminal for multi-cable connection
5 Adapter (compulsory) not provided

MOUNTING AT 1.97”/50mm
Key
1. Rear vertical terminals
2. Rear horizontal terminals
3. 3.54"/90mm insulating barriers between phases (compulsory) not provided
Tmax XT1 - Installation
Accessories for plug-in circuit-breaker

Direct motor operator (MOD)

Key
1. Fixed part
2. Moving part
3. Key lock (not provided)
4. Direct motor operator (MOD)
5. Drilling template of door with MOD without flange
6. Drilling template of door with MOD with flange
7. Cable connection

MOUNTING AT 1.97”/50mm
Tmax XT2 - Installation

Installation for fixed circuit-breaker

Fixed circuit-breaker mounting on the backplate

---

Key
1. Insulating plate compulsory
2. Optional wiring ducts
3. 0.98’/25mm insulating barriers between phases (compulsory) provided
4. Front carter compulsory for through door of the panel ≤ 0.98”/25mm

With side connector for Ekip Touch trip units

---

<table>
<thead>
<tr>
<th>A [in/mm]</th>
<th>III - IV</th>
<th>III - IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange</td>
<td>3.38/86</td>
<td>3.29/83.5</td>
</tr>
<tr>
<td>Without flange</td>
<td>3.60/91.5</td>
<td>3.60/91.5</td>
</tr>
</tbody>
</table>

---

With standard flange

III - IV

- 3.38/86

Without flange

III - IV

- 3.60/91.5

---

<table>
<thead>
<tr>
<th>A [in/mm]</th>
<th>III - IV</th>
<th>III - IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>With side connector for Ekip Touch trip units</td>
<td>3.29/83.5</td>
<td>3.60/91.5</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>A [in/mm]</th>
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</thead>
<tbody>
<tr>
<td>With standard flange</td>
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</tr>
<tr>
<td>Without flange</td>
<td>3.60/91.5</td>
<td>3.60/91.5</td>
</tr>
</tbody>
</table>

---

With side connector for Ekip Touch trip units

---

Key
1. Front terminals
2. Flange for IV circuit-breaker (always supplied with IV cb)
3. Flange for III circuit-breaker (always supplied with III cb)
4. Tightening torque 1.1 Nm
5. Flange for IV circuit-breaker (always supplied with IV cb)
6. Tightening torque 6 Nm
7. Optional wiring duct
8. Interphase insulating barriers 0.98’/25mm (compulsory)
9. Rear plate insulating III (only ul version)
10. Rear plate insulating IV (only ul version)
11. Connection kit F/P IntBus/ExtNeut/Se
**Tmax XT2 - Installation**

Installation for fixed circuit-breaker

Fixed circuit-breaker mounting on DIN EN 50022 rail

---

**Key**
1. Mounting bracket
2. Insulating plate compulsory
3. 0.98’/25mm insulating barriers between phases (compulsory) provided

---

**Drilling templates**

3 POLES

4 POLES
Flanges

Key
1 Flange for fixed circuit-breaker III
2 Flange for fixed circuit-breaker IV
3 Flange for fixed circuit-breaker III-IV with MOE and FLD
4 Flange for circuit breaker III-IV with direct rotary handle RHD
5 Optional flange
**Tmax XT2 - Installation**

Installation for fixed circuit-breaker

Drilling templates for compartment door

**With standard flange**

**Without flange**

**With optional flange**

<table>
<thead>
<tr>
<th>Key</th>
<th>1. Optional flange</th>
</tr>
</thead>
</table>

### Execution | A (in/mm) | B (in/mm) | C (in/mm) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>With fixed flange</td>
<td>3.62/92</td>
<td>3-4 poles</td>
<td></td>
</tr>
<tr>
<td>Plug-in, mounting at 1.97”/50mm</td>
<td>5.59/142</td>
<td>3-4 poles</td>
<td></td>
</tr>
<tr>
<td>Plug-in, mounting at 2.76”/70mm</td>
<td>6.38/162</td>
<td>3-4 poles</td>
<td></td>
</tr>
</tbody>
</table>
Tmax XT2 - Installation

Terminals for fixed circuit-breaker

Terminals F

Key
1 0.98”/25mm uninsulating barriers between phases (compulsory) provided
2 Front terminals for busbar connection

Terminals EF

Key
3 Front extended terminals
4 Terminal covers with degree of protection IP40 (optional) not provided
5 3.94”/100mm uninsulating barriers between phases (compulsory) provided
6 Insulated plate (compulsory) provided for XT2 Ue>440V
7 Drilling template for 3p circuit-breaker Ue>440V (compulsory)
8 Drilling template for 4p circuit-breaker Ue>440V (compulsory)
Tmax XT2 - Installation
Terminals for fixed circuit-breaker

Key
1 Drilling template for 3p circuit-breaker Ue>440V (compulsory)
2 Drilling template for 4p circuit-breaker Ue>440V (compulsory)
3 Front extended spread terminals
4 7.87”/200mm insulating barriers between phases (compulsory) provided for Ue>440V
5 Insulated plate (compulsory) provided for XT2 Ue>440V
Terminals FCCu

Key
3 0.98'/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
6 Terminals FCCu

1x14...1/0AWG terminals FCCuAl

Key
1 1x14...1/0AWG terminals FCCuAl
3 0.98'/25mm insulating barriers between phases (compulsory) provided

Terminals MC

Key
6 Multi-cable terminals
Tmax XT2 - Installation

Terminals for fixed circuit-breaker

Terminals R

Key
1. Rear adjustable terminals
2. Bottom terminal covers with degree of protection IP30 (optional) provided
3. Drilling template for mounting circuit-breaker III sheet
4. Drilling template for mounting circuit-breaker IV sheet
Tmax XT2 - Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on circuit-breaker (RHD)

Key
2. Rotary handle operating mechanism on circuit-breaker
4. Drilling template of door with direct rotary handle
6. 0.98”/25mm Insulating barriers between phases provided with circuit-breaker
**Tmax XT2 - Installation**

*Accessories for fixed circuit-breaker*

Rotary handle operating mechanism with padlock on the compartment door (RHE-PL)

---

**Key**

1. Extended rotary handle operating mechanism
2. Door drilling template with extended rotary handle
3. Minimum rotation radius for door fulcrum
4. Insulating barriers between phases provided with circuit-breaker

---
Stored energy motor operator (MOE)

Key
1 Stored energy motor operator (MOE)
2 Key lock (not provided)
3 Drilling template of door with MOE with flange
4 Door drilling template with MOE without flange
5 Drilling template for mounting 3p circuit breaker on the backplate
6 Drilling template for mounting 4p circuit breaker on the backplate
7 0.98”/25mm insulating barriers between phases provided with circuit-breaker
**Tmax XT2 - Installation**

**Accessories for fixed circuit-breaker**

Front for lever operating mechanism (FLD)

---

**Key**
1. Key lock optional
2. Front for lever operating mechanism (FLD)
3. Drilling template of door with FLD with flange
4. Drilling template of door with FLD without flange
5. 0.98’’/25mm insulating barriers between phases provided with circuit-breaker
Ekip Display or Ekip LED Meter

Key
1. 0.98"/25mm insulating barriers between phases provided with circuit-breaker
2. Ekip Display or Ekip LED Meter
Tmax XT2 - Installation
Accessories for fixed circuit-breaker

Residual current RC Sel

Key
1. Residual current
2. Front terminals
7. Drilling template of door with direct rotary handle and mounting with flange
8. Drilling template of door with direct rotary handle and mounting without flange
9. Drilling template for mounting circuit breaker on sheet

<table>
<thead>
<tr>
<th></th>
<th>With standard flange</th>
<th>Without flange</th>
</tr>
</thead>
<tbody>
<tr>
<td>A [in/mm]</td>
<td>IV 3.39/86</td>
<td>IV 32.87/83.5</td>
</tr>
</tbody>
</table>
**Tmax XT2 - Installation**

Installation for plug-in circuit-breaker

Plug-in circuit-breaker mounting on sheet

---

**Key**
1. Fixed part
2. Moving part

---

**Fixing at 1.97”/50mm**

<table>
<thead>
<tr>
<th>A [in/mm]</th>
<th>III - IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange</td>
<td>5.35/136</td>
</tr>
<tr>
<td>Without flange</td>
<td>52.56/133.5</td>
</tr>
</tbody>
</table>

| III - IV | 55.71/141.5 |

---

**Fixing at 2.76”/70mm for extended front terminals**

<table>
<thead>
<tr>
<th>A [in/mm]</th>
<th>III - IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange</td>
<td>6.14/156</td>
</tr>
<tr>
<td>Without flange</td>
<td>60.43/153.5</td>
</tr>
</tbody>
</table>

| III - IV | 63.68/161.5 |

---

**With side connector for Ekip Touch trip units**

---

**Key**
9. Optional wiring duct
10. Interphase insulating barriers 0.98”/25mm (COMPULSORY)
15. Connection kit F/P IntBus/ExtNeut/Se
Tmax XT2 - Installation
Installation for plug-in circuit-breaker

Drilling templates for the backplate

3 POLES

4 POLES

3-4 POLES
Flanges

Key
1 Flange for withdrawable circuit breaker III
2 Flange for circuit-breaker IV
3 Flange for plug-in circuit-breaker III-IV with MOE and FLD
4 Flange for circuit-breaker III-IV with direct rotary handle (RHD)
5 Optional flange
Tmax XT2 - Installation
Installation for plug-in circuit-breaker

Drilling templates for compartment door

With standard flange

B=5.35/136 C=6.14/156
3 POLES

B=5.35/136 C=6.14/156
4 POLES

Without flange

B=5.26/133.5 C=6.12/155.5
3 POLES

B=5.26/133.5 C=6.04/153.5
4 POLES

B=5.35/5.57 C=4.00/101.5
3-4 POLES

With optional flange

B=5.59/142 C=6.38/162
3-4 POLES
Tmax XT2 - Installation

Terminals for plug-in circuit-breaker

Terminals EF

Key
4 Front extended terminals
5 3.94”/100 mm insulating barriers between phases (compulsory) provided

Terminals ES

Key
1 Front extended spread terminals
2 7.87”/200 mm insulating barriers between phases (compulsory) provided
3 Insulated plate (compulsory) provided
4 Drilling template for 3p circuit-breaker Ue>440V (compulsory)
5 Drilling template for 4p circuit-breaker Ue>440V (compulsory)
**Tmax XT2 - Installation**

**Terminals for plug-in circuit-breaker**

1x14...1/0AWG terminals FCCuAl

---

**Key**

1 1x14...1/0AWG front terminal FCCuAl
2 0.98"/25mm insulating barriers between phases (compulsory) provided
6 Adaptor (compulsory) not provided

---

**Terminals FCCu**

---

**Key**

3 Terminals FCCu
4 Adapter (compulsory) not provided

---

**Terminals MC**

---

**Key**

3 High terminal covers with degree of protection IP40 (optional) provided
4 Multi-cable terminals
6 Adaptor (compulsory) not provided

---

MOUNTING AT 1.97"/50mm
Terminals HR/VR

Key
1. Rear vertical terminals
2. Rear horizontal terminals
3. 3.54”/90mm insulating barriers between phases (compulsory) not provided

OVERALL DIMENSIONS

MOUNTING AT 1.97”/50mm

MOUNTING AT 1.97”/50mm
Tmax XT2 - Installation
Accessories for plug-in circuit-breaker

Stored energy motor operator (MOE)

Key
1 Fixed part
2 Moving part
3 MOE
4 Key lock (not provided)
5 \(3.94\text{"}/100\text{mm}
insulating barriers between phases (compulsory) provided
6 Drilling template of door with direct rotary handle with flange
7 Drilling template of door with direct rotary handle without flange
Front for lever operating mechanism (FLD)

Key
1 Fixed part
2 Moving part
3 Front for lever operating mechanism (FLD)
4 Key lock (not provided)
5 3.94"/100mm insulating barriers between phases (compulsory) provided
6 Drilling template of door with direct rotary handle with flange
7 Drilling template of door with direct rotary handle without flange
Tmax XT2 - Installation
Accessories for plug-in circuit-breaker

Ekip Display or Ekip LED Meter

Key
1 3.94"/100mm insulating barriers between phases
2 Ekip Display or Ekip LED Meter
Residual current RC Sel

Key
1 Residual current
2 Fixed part
3 Moving part
4 Insulating barriers between phases (compulsory) provided
5 Extended terminals
6 Drilling template of door with direct rotary handle and mounting with flange
7 Drilling template of door with direct rotary handle and mounting without flange
8 Drilling template for mounting circuit-breaker on sheet

<table>
<thead>
<tr>
<th>A [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange IV</td>
</tr>
<tr>
<td>Without flange IV</td>
</tr>
</tbody>
</table>

Dimensions in mm
Tmax XT2 - Installation
Installation for withdrawable circuit-breaker

Fixing on the backplate

**Key**
1. Fixed part
2. Moving part
3. FLD (FLD or RHD or RHE or MOE) compulsory for withdrawable version
6. Optional wiring ducts

---

<table>
<thead>
<tr>
<th>A [in/mm]</th>
<th>III - IV Fixing at 1.97&quot;/50mm</th>
<th>6.69/170</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange</td>
<td>III - IV Fixing at 2.76&quot;/70mm for extended front terminals</td>
<td>7.48/190</td>
</tr>
</tbody>
</table>
With side connector for Ekip Touch trip units

---

**Key**

1. Fixed part
2. Moving part
3. FLD (FLD o RHD o RHE o MOE) mandatory for withdrawable version
10. Optional Wiring Duct
13. Connection Kit W IntBus/ExtNeut/Sel

---

**Table A [in/mm]**

<table>
<thead>
<tr>
<th>III - IV Fixing</th>
<th>A [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>at 1.97&quot;/50mm</td>
<td>6.69/170</td>
</tr>
<tr>
<td>with standard flange</td>
<td></td>
</tr>
<tr>
<td>III - IV Fixing at 2.76&quot;/70mm for extended front terminals</td>
<td>7.48/190</td>
</tr>
</tbody>
</table>
Tmax XT2 - Installation

Installation for withdrawable circuit-breaker

Drilling templates for the backplate

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Flange for circuit-breaker III-IV withdrawable</td>
</tr>
<tr>
<td>6</td>
<td>Flange for withdrawable circuit-breakers III IV with direct rotary handle RHD</td>
</tr>
<tr>
<td>7</td>
<td>Flange for withdrawable circuit-breakers III IV with front extended terminals</td>
</tr>
</tbody>
</table>

### Flanges

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>C [in/mm]</th>
<th>D [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHD</td>
<td>4.37/111</td>
<td>4.90/124.5</td>
</tr>
<tr>
<td>FLD - MOE</td>
<td>4.5/114.3</td>
<td>5.29/134.5</td>
</tr>
</tbody>
</table>
Drilling templates compartment door

**With standard flange**

- **B=5.35/136 C=6.14/156**
  - 3 POLES
- **B=5.35/136 C=6.14/156**
  - 4 POLES

**Without flange**

- **B=5.26/133.5 C=6.12/155.5**
  - 3 POLES
- **B=5.26/133.5 C=6.12/155.5**
  - 4 POLES

**With optional flange**

- **B=5.59/142 C=6.38/162**
  - 3-4 POLES
Tmax XT2 - Installation
Terminals for withdrawable circuit-breaker

Terminals EF

Key
2 Moving part
3 FLD (FLD or RHD or RHE or MOE) compulsory for withdrawable version
4 Front extended terminals
5 3.94"/100mm insulating barriers between phases (compulsory) provided

Note:
insulated plate (compulsory) provided
Terminals ES

- **Key**
  1. 7.84”/200mm insulating barriers between phases (compulsory) provided
  2. Front extended spread terminals
  3. Adapter (compulsory) not provided
  4. Insulated plate (compulsory) provided
  5. Drilling template for 3p circuit-breaker Ue>440V (compulsory)
  6. Drilling template for 4p circuit-breaker Ue>440V (compulsory)

**MOUNTING AT 1.97”/50mm**
Tmax XT2 - Installation

Terminals for withdrawable circuit-breaker

1x14...1/0AWG terminals FC CuAl

**Key**
1. Multi-cable terminals
2. 0.98’/25mm insulating barriers between phases (compulsory) provided
3. High terminal covers with degree of protection IP40 (optional) provided
4. Adapter (compulsory) not provided
5. 0.98’/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

---

Terminals FCCu

**Key**
2. Terminals FCCu
4. Adapter (compulsory) not provided
5. 0.98’/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

---

Terminals MC

**Key**
1. Multi-cable terminals
3. High terminal covers with degree of protection IP40 (optional) provided
4. Adapter (compulsory) not provided

---
OVERALL DIMENSIONS

Key
1 Rear vertical terminals
2 Rear horizontal terminals
3 3.54°/90mm insulating barriers between phases (compulsory) not provided

Terminals HR/VR

MOUNTING AT 1.97°/50mm

MOUNTING AT 1.97°/50mm
Tmax XT2 - Installation
Accessories for withdrawable circuit-breaker

Rotary handle operating mechanism on circuit-breakers (RHD)

---

Key
1 Fixed part
2 Moving part
3 Rotary handle operating mechanism on circuit-breaker
4 3.94"/100mm insulating barriers between phases (compulsory) provided
5 Extended terminals
6 Drilling template of door with direct rotary handle

---
Rotary handle operating mechanism with padlock on the compartment door (RHE-PL)

Key
1 Fixed part
2 Moving part
4 3.94'/100 mm insulating barriers between phases (compulsory) provided
5 Extended terminals
6 Key lock (not provided)
7 Stored energy motor operator (MOE)
Tmax XT2 - Installation

Accessories for withdrawable circuit-breaker

Stored energy motor operator (MOE)

Key
1 Fixed part
2 Moving part
3 Front for lever operating (FLD)
4 3.94"/100mm insulating barriers between phases (compulsory) provided
5 Extended terminals
6 Key lock (not provided)
Front for lever operating (FLD)

Key
1 Fixed part
2 Moving part
3 Front for lever operating (FLD)
4 3.94”/100mm insulating barriers between phases (compulsory) provided
5 Extended terminals
6 Key lock (not provided)

<table>
<thead>
<tr>
<th>A (in/mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front for lever operating FLD III - IV 6.69/170</td>
</tr>
</tbody>
</table>
Tmax XT3 - Installation
Installation for fixed circuit-breaker

Mounting on the backplate

Key
1. Insulating plate compulsory
2. Overall dimension of optional wiring ducts
3. 0.98"/25mm insulating barriers between phases (compulsory) provided
4. Front carter compulsory for through door of the panel ≤ 0.98"/25mm

Mounting on DIN EN 50022 rail

Key
1. Mounting bracket
2. Optional wiring ducts
3. Optional front cover for DIN rail
4. 0.98"/25mm insulating barriers between phases (compulsory) provided

<table>
<thead>
<tr>
<th>A [in/mm]</th>
<th>With standard flange</th>
<th>Without flange</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II - IV</td>
<td>III - IV</td>
</tr>
<tr>
<td></td>
<td>2.91/74</td>
<td>2.79/71</td>
</tr>
<tr>
<td></td>
<td>3.11/79</td>
<td></td>
</tr>
</tbody>
</table>
Drilling template

Flanges

Key
1 Flange for fixed circuit-breaker III
2 Flange for fixed circuit-breaker IV
3 Flange for circuit-breaker with direct motor operator MOD
4 Flange for circuit-breaker with direct rotary handle (RHD)
5 Optional flange
Tmax XT3 - Installation
Installation for fixed circuit-breaker

Drilling templates for compartment door

**With standard flange**

![Diagram with dimensions and labels for 3 and 4 poles with standard flange]

**Without flange**

![Diagram with dimensions and labels for 3 and 4 poles without flange]

**With optional flange**

![Diagram with dimensions and labels for 3 and 4 poles with optional flange]

---

Key
1. Optional flange
**Tmax XT3 - Installation**

**Terminals for fixed circuit-breaker**

---

**Terminals F**

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Front terminals for busbar connection</td>
</tr>
<tr>
<td>7</td>
<td>0.98”/25mm insulating barriers between phases (compulsory) provided</td>
</tr>
</tbody>
</table>

---

**Terminals EF**

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Front extended terminals</td>
</tr>
<tr>
<td>3</td>
<td>Terminal covers with degree of protection IP40 (optional) not provided</td>
</tr>
<tr>
<td>5</td>
<td>3.94”/100mm insulating barriers between phases (compulsory) provided</td>
</tr>
</tbody>
</table>
Tmax XT3 - Installation

Terminals for fixed circuit-breaker

Terminals ES

Key
4 Front extended spread terminals for busbar connection
6 7.87'/200mm insulating barriers between phases (compulsory) provided

1 x 14...1/0AWG terminals FCCuAl

Key
1 1 x 14...1/0AWG terminals FCCuAl
9 0.98'/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
1 x 4AWG...300kcmil terminals FCCuAl

 KEY

1 1 x 4AWG...300kcmil terminals FCCuAl
2 0.98"/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

Terminals FCCu

 KEY

6 Front terminals FCCu
9 0.98"/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

Terminals MC

 KEY

3 Terminal covers with degree of protection IP40 (optional) provided
5 Front terminal for multi-cable connection
Tmax XT3 - Installation

Terminals for fixed circuit-breaker

Terminals R

Key
1 Adjustable rear terminals
2 Bottom terminal covers with degree of protection IP30 (optional) provided
3 Drilling template for mounting circuit-breaker IV on sheet
4 Drilling template for mounting circuit-breaker III on sheet

---

3 POLES

4 POLES
Tmax XT3 - Installation
Accessories for fixed circuit-breaker

Rotary handle operating mechanism on circuit-breaker (RHD)

Key
2 Rotary handle operating mechanism on circuit-breaker RHD
4 Drilling template of door with direct rotary handle
6 0.98”/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
**Tmax XT3 - Installation**

**Accessories for fixed circuit-breaker**

Rotary handle operating mechanism with padlock on the compartment door (RHE-PL)

---

**Key**

1. Rotary handle operating mechanism on the compartment door (RHE)
2. Drilling template of door with extended rotary handle (RHE)
3. Transmission unit
4. 0.98"/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

---

![Diagram of Tmax XT3 installation accessories](image.png)
Large rotary handle operating mechanism with padlock on the compartment door (RHE-LH)

Key
1 Transmission unit
2 0.98”/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
3 Optional wiring ducts
4 Large transmitted rotary handle
5 Drilling template of door with large transmitted rotary handle

MINIMUM DISTANCE FROM DOOR HINGE: 200

OVERALL DIMENSIONS
Tmax XT3 - Installation
Accessories for fixed circuit-breaker

Direct motor operator (MOD)

Key
3 Key lock (not provided)
4 Direct motor operator MOD
5 Drilling template of door with MOD with flange
6 Drilling template of door with MOD without flange
7 0.98"/25mm insulating barriers
RC Inst and RC Sel residual current release for 3-pole circuit-breaker

Key
1 Front terminals for cable connection
2 Terminal covers with degree of protection IP40
3 Drilling template of door with direct rotary handle with flange
4 Drilling template of door with direct rotary handle without flange
5 Drilling template for mounting circuit-breaker on sheet

<table>
<thead>
<tr>
<th>A [in/mm]</th>
<th>With standard flange</th>
<th>Without flange</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>2.91/74</td>
<td>2.79/71</td>
</tr>
</tbody>
</table>
Tmax XT3 - Installation
Accessories for fixed circuit-breaker

RC Inst and RC Sel residual current release for 4-pole circuit-breaker

Key
1 Front terminals for cable connection
2 Terminal covers with degree of protection IP40
3 Drilling template of door with direct rotary handle with flange
4 Drilling template of door with direct rotary handle without flange
5 Drilling template for mounting circuit-breaker on sheet

<table>
<thead>
<tr>
<th></th>
<th>With standard flange</th>
<th>Without flange</th>
</tr>
</thead>
<tbody>
<tr>
<td>A [in/mm]</td>
<td>IV 2.91/74</td>
<td>IV 2.79/71</td>
</tr>
</tbody>
</table>
Tmax XT3 - Installation
Installation for plug-in circuit-breaker

Mounting on the backplate

<table>
<thead>
<tr>
<th>Key</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fixed part</td>
</tr>
<tr>
<td>2</td>
<td>Moving part</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fixing at 1.97”/50mm</th>
<th>A [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange</td>
<td>II IV</td>
</tr>
<tr>
<td>Without flange</td>
<td>III - IV</td>
</tr>
<tr>
<td></td>
<td>III - IV</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fixing at 2.76”/70mm for extended front terminals</th>
<th>A [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange</td>
<td>II IV</td>
</tr>
<tr>
<td>Without flange</td>
<td>III - IV</td>
</tr>
<tr>
<td></td>
<td>III - IV</td>
</tr>
</tbody>
</table>
Tmax XT3 - Installation
Installation for plug-in circuit-breaker

Drilling templates for the backplate

Flanges

Key
1 Flange for plug-in circuit-breaker III
2 Flange for plug-in circuit-breaker IV
3 Flange for plug-in circuit-breaker with direct motor operator MOD
4 Optional flange
Drilling templates for compartment door

**With standard flange**

- **A=4.88/124 C=5.67/144**
- **3 POLES**

- **A=4.88/124 C=5.67/144**
- **4 POLES**

**Without flange**

- **A=4.76/121 C=5.55/141**
- **3 POLES**

- **A=4.76/121 C=5.55/141**
- **4 POLES**

- **A=2.79/129 C=5.87/149**
- **3-4 POLES**

**With optional flange**

- **A=2.79/129 C=5.87/149**
- **3-4 POLES**
Tmax XT3 - Installation
Terminals for plug-in circuit-breaker

Terminals EF

---

Key
4 Front extended terminals
5 3.94”/100mm insulating barriers between phases (compulsory) provided

---

Terminals ES

---

Key
3 Front extended spread terminals for busbar connection
5 Adapter for fixed part (compulsory) not provided
6 7.87”/200mm insulating barriers between phases (compulsory) provided
1 x 14...1/0AWG terminals FCCuAl

Key
1 1 x 14...1/0AWG front terminal FCCuAl
5 Adapter for fixed part (compulsory) not provided
6 0.98"/25mm insulating barriers between phases (compulsory) provided

Terminals FCCu

Key
4 Front terminals FCCu
5 Adapter for fixed part (compulsory) not provided
6 0.98"/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

1x4AWG...300kcmil terminals FCCuAl

Key
1 1x4AWG...300kcmil terminals FCCuAl
2 0.98"/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
3 Adapter for fixed part (compulsory) not provided
Tmax XT3 - Installation
Terminals for plug-in circuit-breaker

Terminals MC

Terminals HR/VR

Key
1 Rear vertical terminals
2 Rear horizontal terminals
3 3.54”/90mm Insulating barriers between phases (compulsory) not provided

MOUNTING AT 1.97”/50mm

MOUNTING AT 1.97”/50mm
Tmax XT3 - Installation
Accessories for plug-in circuit-breaker

Direct motor operator (MOD)

MOUNTING AT 1.97"/50mm

---

Key
1. Fixed part
2. Moving part
3. Key lock (not supplied)
4. Direct motor operator MOD
5. Drilling template of door with MOD with flange
6. Drilling template of door with MOD without flange
Tmax XT4 - Installation
Installation for fixed circuit-breaker

Mounting on the backplate

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Insulating plate compulsory</td>
</tr>
<tr>
<td>2</td>
<td>Overall dimension of optional wiring ducts</td>
</tr>
<tr>
<td>3</td>
<td>0.98”/25mm insulating barriers between phases (compulsory) provided</td>
</tr>
<tr>
<td>4</td>
<td>Front carter compulsory for through door of the panel’s 25mm/0.98”</td>
</tr>
</tbody>
</table>

Fixing at 1.97”/50mm A [in/mm]

<table>
<thead>
<tr>
<th>With standard flange</th>
<th>Without flange</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>II IV</td>
<td>III - IV</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>3.39/86</td>
<td>3.29/83.5</td>
</tr>
<tr>
<td></td>
<td>3.60/91.5</td>
</tr>
</tbody>
</table>

With side connector for Ekip Touch trip units

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Front terminals</td>
</tr>
<tr>
<td>2</td>
<td>Flange for iv circuit-breaker (always supplied with iv cb)</td>
</tr>
<tr>
<td>3</td>
<td>Flange for iii circuit-breaker (always supplied with iii cb)</td>
</tr>
<tr>
<td>4</td>
<td>Insulating plate compulsory</td>
</tr>
<tr>
<td>5</td>
<td>Overall dimension of optional wiring ducts</td>
</tr>
<tr>
<td>6</td>
<td>0.98”/25mm insulating barriers between phases (compulsory) provided</td>
</tr>
<tr>
<td>7</td>
<td>Front carter compulsory for through door of the panel’s ≤ 25mm/0.98”</td>
</tr>
<tr>
<td>8</td>
<td>Interphase insulating barriers 0.98”/25mm (compulsory)</td>
</tr>
<tr>
<td>9</td>
<td>Rear plate insulating III (only ul version)</td>
</tr>
<tr>
<td>10</td>
<td>Rear plate insulating IV (only ul version)</td>
</tr>
<tr>
<td>11</td>
<td>Connection kit F/P IntBus/ExtNeut/Se</td>
</tr>
</tbody>
</table>

With standard flange II IV 3.39/86
Without flange III - IV 3.29/83.5
III - IV 3.60/91.5
Mounting on DIN 50022 rail

Key
1 Mounting bracket
2 Flange for fixed circuit-breaker III
3 Flange for fixed circuit-breaker IV
4 Flange for circuit-breaker III-IV with direct rotary handle RHD
5 Optional flange

Drilling templates for the backplate

Key
1 Mounting bracket
3 0.98/25mm insulating barriers between phases (compulsory) provided

Flanges
Tmax XT4 - Installation

Installation for fixed circuit-breaker

Drilling templates for compartment door

With standard flange

With optional flange
Tmax XT4 - Installation
Terminals for fixed circuit-breaker

Terminals F

Key
1  0.98”/25mm insulating barriers between phases (compulsory) provided
2  Top terminal covers with degree of protection IP30 (optional) not provided

Terminals EF

Key
3  Front extended terminals
4  Terminal covers with degree of protection IP40 (optional) not provided
5  3.94”/100mm insulating barriers between phases (compulsory) provided
6  Insulated plate provided compulsory for Ue>440V
7  Drilling template for 3p circuit-breaker
8  Drilling template for 4p circuit-breaker
# Tmax XT4 - Installation

## Terminals for fixed circuit-breaker

### Terminals ES

**Key**
1. Drilling template for 3p circuit-breaker
2. Drilling template for 4p circuit-breaker
3. Front extended spread terminals
4. 7.87”/200mm insulating barriers between phases (compulsory) provided
5. Insulated plate provided compulsory for Ue>440V

### 3 POLES

### 4 POLES

### 1 x 14...1/0AWG terminals FCCuAl

**Key**
1. 1 x 14...1/0AWG terminals FCCuAl
2. 0.98”/25mm insulating barriers between phases (compulsory) provided
### OVERALL DIMENSIONS

#### 1x4AWG...300kcmil terminals FCCuAl

- **Key**
  1. 1x4AWG...300kcmil terminals FCCuAl
  3. 0.98"/25mm insulating barriers between phases (compulsory) provided

#### Terminals FCCu

- **Key**
  1. Terminals FCCu
  4. 0.98"/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

#### Terminals MC

- **Key**
  2. Multi-cable terminals
  3. Terminal covers with degree of protection IP40 (optional) provided
Tmax XT4 - Installation
Accessories for fixed circuit-breaker

Rotary handle operating mechanism on circuit-breaker (RHD)

Key
2 Rotary handle operating mechanism on circuit-breaker
4 Drilling template of door with direct rotary handle
6 0.98’/25mm insulating barriers between phases
Rotary handle operating mechanism with padlock of the compartment door (RHE-PL)

Key
1 Rotary handle operating mechanism of the compartment door
3 Drilling template for RHE
5 Transmission unit
6 0.98”/25mm insulating barriers between phases
Tmax XT4 - Installation

Accessories for fixed circuit-breaker

Stored energy motor operator (MOE)

---

Key
1. Stored energy motor operator (MOE)
2. Key lock (not provided)
3. Drilling template of door with direct rotary handle with flange (MOE)
4. Drilling template of door with direct rotary handle without flange (MOE)
5. Drilling template for mounting circuit breaker III on the backplate
6. Drilling template for mounting circuit-breaker IV on the backplate
7. 0.98”/25mm insulating barriers between phases
Front for lever operating mechanism (FLD)

Key
1 Front for lever operating mechanism (FLD)
2 Key lock (not provided)
3 Drilling template of door with direct rotary handle with flange (FLD)
4 Drilling template of door with direct rotary handle without flange (FLD)
5 Drilling template for mounting circuit breaker III on the backplate
6 Drilling template for mounting circuit breaker IV on the backplate
7 0.98”/25mm insulating barriers between phases
Tmax XT4 - Installation
Accessories for fixed circuit-breaker

Ekip Display or LED Meter

Key
1  Ekip Display or LED Meter
2  Optional wiring ducts
3  0.98”/25mm insulating barriers between phases
Residual current RC Sel

Key
1 Residual current
2 Front terminals
7 Drilling template of door with direct rotary handle and mounting with flange
8 Drilling template of door with direct rotary handle and mounting without flange
9 Drilling template for mounting circuit-breaker on sheet

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without flange</td>
<td>IV</td>
<td>3.29/83.5</td>
</tr>
</tbody>
</table>
Tmax XT4 - Installation
Installation for plug-in circuit-breaker

Mounting on the backplate

<table>
<thead>
<tr>
<th>Key</th>
<th>1</th>
<th>Fixed part</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>Moving part</td>
</tr>
</tbody>
</table>

Fixing at 1.97”/50mm

<table>
<thead>
<tr>
<th></th>
<th>A [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange</td>
<td>II IV</td>
</tr>
<tr>
<td></td>
<td>5.35/136</td>
</tr>
<tr>
<td>Without flange</td>
<td>III - IV</td>
</tr>
<tr>
<td></td>
<td>5.26/133.5</td>
</tr>
</tbody>
</table>

Fixing at 2.76”/70mm for extended front terminals

<table>
<thead>
<tr>
<th></th>
<th>A [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange</td>
<td>II IV</td>
</tr>
<tr>
<td></td>
<td>6.14/156</td>
</tr>
<tr>
<td>Without flange</td>
<td>III - IV</td>
</tr>
<tr>
<td></td>
<td>6.04/153.5</td>
</tr>
</tbody>
</table>

With side connector for Ekip Touch trip units

<table>
<thead>
<tr>
<th>Key</th>
<th>1</th>
<th>Front terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>Flange for iv circuit-breaker (always supplied with iv CB)</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Optional wiring duct</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Interphase insulating barriers 0.98”/25mm (compulsory)</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>Connection kit F/P IntBus/ExtNeut/Se</td>
</tr>
</tbody>
</table>
Drilling templates

3 POLES

4 POLES

3-4 POLES
Tmax XT4 - Installation

Installation for plug-in circuit-breaker

Flanges

Key
1 Flange for plug-in circuit-breaker III
2 Flange for plug-in circuit-breaker IV
3 Flange for plug-in circuit-breaker III-IV with MOE and FLD
4 Flange for circuit-breaker III-IV with direct rotary handle
5 Optional flange
Drilling templates compartment door

**With standard flange**

With standard flange:

- **B=5.35/136 C=6.14/156**
  - 3 POLES
- **B=5.35/136 C=6.14/156**
  - 4 POLES

**Without flange**

Without flange:

- **B=5.26"/133.5 C=6.04/153.5**
  - 3 POLES
- **B=5.26"/133.5 C=6.04/153.5**
  - 4 POLES

**With optional flange**

With optional flange:

- **B=5.60/142 C=6.38/162**
  - 3-4 POLES
**Tmax XT4 - Installation**

Terminals for plug-in circuit-breaker

**Terminals EF**

---

**Key**

4 Front extended terminals

5 3.94”/100mm insulating barriers between phases (compulsory) provided

---

**Note:** insulated plate to be provided by customer
## OVERALL DIMENSIONS

### Terminals ES

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Front extended spread terminals</td>
</tr>
<tr>
<td>2</td>
<td>7.87&quot;/200mm insulating barriers between phases</td>
</tr>
<tr>
<td>3</td>
<td>Insulated plate (compulsory) provided</td>
</tr>
<tr>
<td>4</td>
<td>Drilling template for 3p circuit-breaker</td>
</tr>
<tr>
<td>5</td>
<td>Drilling template for 4p circuit-breaker</td>
</tr>
<tr>
<td>6</td>
<td>Adapter (compulsory) not provided</td>
</tr>
</tbody>
</table>

### MOUNTING AT 1.97"/50mm

### 3 POLES

1. **Insulated Plate**
2. **Adapting plate**
3. **End plate**
4. **Drilling template**
5. **Cable duct**
6. **Cable duct**

### 4 POLES

1. **Insulated Plate**
2. **Adapting plate**
3. **End plate**
4. **Drilling template**
5. **Cable duct**
6. **Cable duct**

### 1 x 14...1/0 AWG terminals FCCuAl

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 x 14...1/0 AWG front terminals FCCuAl</td>
</tr>
<tr>
<td>2</td>
<td>0.98&quot;/25mm insulating barriers between phases</td>
</tr>
<tr>
<td>3</td>
<td>(compulsory) provided</td>
</tr>
<tr>
<td>6</td>
<td>Adapter (compulsory) not provided</td>
</tr>
</tbody>
</table>

### MOUNTING AT 1.97"/50mm

1. **Insulated Plate**
2. **Adapting plate**
3. **End plate**
4. **Drilling template**
5. **Cable duct**
6. **Cable duct**
**Tmax XT4 - Installation**

**Terminals for plug-in circuit-breaker**

1x4AWG...300kcmil terminals FCCuAl

---

**Key**

1 1x4AWG...300kcmil front terminals FCCuAl
2 0.98”/25mm insulating barriers between phases (compulsory) provided
6 Adaptor (compulsory) not provided

---

**Terminals FCCu**

---

**Key**

2 0.98”/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
5 Terminals FCCu
6 Adaptor (compulsory) not provided

---

**Terminals MC**

---

**Key**

3 Provided high terminal covers with degree of protection IP40 (compulsory for multicables terminals)
4 Multicable terminals
6 Adapter (compulsory) not provided
Terminals HR/VR

MOUNTING AT 1.97"/50mm

MOUNTING AT 1.97"/50mm

---

Key
1. Rear vertical terminals
2. Rear horizontal terminals
3. 3.54"/90mm insulating barriers between phases (compulsory) not provided
**Tmax XT4 - Installation**

**Accessories for plug-in circuit-breaker**

Stored energy motor operator (MOE)

---

**Key**
1. Fixed part
2. Moving part
3. Stored energy motor operator (MOE)
4. Key lock (not provided)
5. 3.94'/100mm insulating barriers between phases (compulsory) provided
6. Drilling template of door with direct rotary handle with flange
7. Drilling template of door with direct rotary handle without flange
8. Extended terminals
Front for lever operating mechanism (FLD)

Key
1 Fixed part
2 Moving part
3 Front for lever operating mechanism (FLD)
4 3.94"/100mm insulating barriers between phases (compulsory) provided
5 Drilling template of door with direct rotary handle with flange
6 Drilling template of door with direct rotary handle without flange
**Tmax XT4 - Installation**

**Accessories for plug-in circuit-breaker**

Ekip Display or LED Meter

---

**Key**

1. 3.94”/100mm insulating barriers between phases (compulsory) provided
2. Ekip Display or LED Meter

---

MOUNTING AT 1.97”/50mm

MOUNTING AT 2.76”/70mm
Residual current RC Sel

Key
1 Residual current
3 Fixed part
4 Moving part
5 3.94'/100mm insulating barriers between phases (compulsory) provided
6 Extended terminals
7 Drilling template of door with direct rotary handle and mounting with flange
8 Drilling template of door with direct rotary handle and mounting without flange
9 Drilling template for mounting circuit-breaker on sheet

### Overall Dimensions

<table>
<thead>
<tr>
<th>A (in/mm)</th>
<th>With standard flange</th>
<th>Without flange</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>5.35/136</td>
<td>52.56/133.5</td>
</tr>
</tbody>
</table>
Tmax XT4 - Installation

Installation for withdrawable circuit-breaker

Fixing on sheet

---

**Key**
1 Fixed part
2 Moving part
3 FLD (FLD or RHD or RHE or MOE) mandatory with withdrawable version
6 Optional wiring ducts

---

<table>
<thead>
<tr>
<th></th>
<th>A [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>III - IV Fixing at 1.97”/50mm</td>
<td>6.69/170</td>
</tr>
<tr>
<td>III - IV Fixing at 2.76”/70mm for extended front terminals</td>
<td>7.48/190</td>
</tr>
</tbody>
</table>

---

**DET. “B”**

1:1
With side connector for Ekip Touch trip units

---

**Key**

1. Fixed part
2. Moving part
3. FLD (FLD or RHD or RHE or MOE) mandatory with withdrawable version
4. Flange
5. Optional wiring ducts
6. Fd (FLD or RHD or RHE or MOE) Compulsory with withdrawable version
7. Connection kit W IntBus/ExtNeut/Sel

---

**Table:**

<table>
<thead>
<tr>
<th>A [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>III - IV Fixing at 1.97&quot;/50mm</td>
</tr>
<tr>
<td>With standard flange</td>
</tr>
</tbody>
</table>
**Tmax XT4 - Installation**

Installation for withdrawable circuit-breaker

Drilling templates for the backplate

---

**Key**

1 Flange for withdrawable circuit-breaker III-IV

---

**Flanges**

<table>
<thead>
<tr>
<th>Flange Type</th>
<th>C [in/mm]</th>
<th>D [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHD</td>
<td>4.37/111</td>
<td>4.90/124.5</td>
</tr>
<tr>
<td>FLD - MOE</td>
<td>4.5/114.3</td>
<td>5.29/134.5</td>
</tr>
</tbody>
</table>
Drilling templates for compartment door

With standard flange

With optional flange

Without flange

OVERALL DIMENSIONS
Tmax XT4 - Installation

Terminals for withdrawable circuit-breaker

Terminals EF

MOUNTING AT 2.76”/70mm
MOUNTING AT 1.97”/50mm

---

Key
4 Front extended terminals
5 3.94”/100mm Insulating barriers between phases (compulsory) provided

---

Note:
Insulated plate (compulsory) provided
## Terminals ES

### Key
1. Front extended spread terminals
2. 7.87”/200mm insulating barriers between phases (compulsory) provided
3. Insulated plate provided compulsory for Ue>440V
4. Drilling template for 3p circuit-breaker
5. Drilling template for 4p circuit-breaker
6. Adapter (compulsory) not provided

### Mounting at 1.97”/50mm

- **3 POLES**
- **4 POLES**
Tmax XT4 - Installation

Terminals for withdrawable circuit-breaker

1 x 14...1/0 AWG terminals FCCuAl

Key
1 0.98”/25mm insulating barriers between phases (compulsory) provided
4 Front terminals FCCuAl
5 Adapter (compulsory) not provided

1 x 4AWG...300kcmil terminals FC CuAl

Key
1 0.98”/25mm insulating barriers between phases (compulsory) provided
4 Front terminals FCCuAl
5 Adapter (compulsory) not provided

Terminals FCCu

Key
1 0.98”/25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
2 Terminals FCCu
3 Adapter (compulsory) not provided

MOUNTING AT 1.97”/50mm
Terminals MC

Key
1 Multicable terminals
2 High terminal covers with degree of protection IP40 (optional) provided
3 Adapter (compulsory) not provided

Terminals HR/VR

Key
1 Rear vertical terminals
2 Rear horizontal terminals
3 3.54”/90mm insulating barriers between phases (compulsory) not provided
Tmax XT4 - Installation
Accessories for withdrawable circuit-breaker

Rotary handle operating mechanism on circuit-breakers (RHD)

Key
1. Fixed part
2. Moving part
4. Tightening torque
   1.1Nm
5. Flange for the compartment door
6. Rotary handle operating mechanism for circuit-breaker
Rotary handle operating mechanism with padlock on the compartment door (RHE-PL)

Key
1 Fixed part
2 Moving part
3 Rotary handle operating mechanism on the compartment door (RHE)
4 3.94”/100mm insulating barriers between phases (compulsory) provided
5 Extended terminals
6 Door drilling template with extended rotary handle
7 Transmission unit
Tmax XT4 - Installation
Accessories for withdrawable circuit-breaker

Front for lever operating mechanism (FLD)

---

Key
1 Fixed part
2 Moving part
3 Front for lever operating mechanism FLD
4 Drilling template of door with direct rotary handle and fixed flange
5 3.94"/100mm insulating barriers between phases (compulsory) provided
6 Extended terminals
Stored energy motor operator (MOE)

---

Key:
1. Fixed part
2. Moving part
3. Stored energy motor operator (MOE)
4. Drilling template of door with MOE and fixing flange
5. 3.94”/100mm insulating barriers between phases (compulsory) provided
6. Extended terminals
7. Key lock (not provided)
Tmax XT4 - Installation
Accessories for withdrawable circuit-breaker

Residual current RC Sel 4 poles

---

Key
1 Fixed part
2 Moving part
3 Front for lever operating mechanism
4 Connector residual current (optional)
5 3.94"/100mm insulating barriers between phases (compulsory) provided
6 Residual current
7 Extended terminals
8 Mounting screws for fixed part of connector
9 Drilling template of door with direct rotary handle and fixed flange
**Tmax XT5 - Installation**

Installation for fixed circuit-breaker

**Fixing on sheet**

**Drilling templates for support sheet**

---

Key
1. Front terminals for flat connection
2. Connection bar
3. Flange without gasket for the compartment door (optional)
4. Tightening torque 36Nm
5. Tightening torque 2Nm
6. Interphase insulating barriers 0.98"/25mm compulsory ≥500V
7. Spacing when equipped (optional)
8. Lateral conduit (optional)
9. Plate insulating by the client or plate cap kits (optional, compulsory with supply from bottom and ≥500V)
Tmax XT5 - Installation

Installation for fixed circuit-breaker

Flange

Drilling template compartment door

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Flange without gasket for the compartment door (optional)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Compartment door sheet steel drilling with/without flange</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>With flange</td>
<td>III - IV</td>
<td>6.85/174</td>
<td>5.98/152</td>
<td>3.42/87</td>
</tr>
<tr>
<td>Without flange</td>
<td>III - IV</td>
<td>6.49/165</td>
<td>5.63/143</td>
<td>3.24/82.5</td>
</tr>
</tbody>
</table>
**Tmax XT5 - Installation**

Terminals for fixed circuit-breaker

Terminals EF

---

**Key**

1. Extended front terminals
2. Flange for the compartment door (optional)
3. Tightening torque 36Nm
4. Tightening torque 2Nm
5. High terminal cover
6. Separating partition 100mm
7. Lateral conduit (optional)
8. Spacing with equipped (optional)
9. Caps kit plate (optional)
Tmax XT5 - Installation
Terminals for fixed circuit-breaker

Terminals ES

Key
1 Extended front terminals
2 Flange for the compartment door
5 Tightening torque 18Nm
6 Tightening torque 2Nm
8 High spread terminal cover
9 Separating partition 200mm
10 Lateral conduit (optional)
11 Spacing with equipped (optional)
12 Caps kit plate (optional)
1 x 4/0...500kcmil and 1 x 6AWG...350kcmil terminals FC CuAl

Key
1 Terminals FCuAl 1x4/0...500Kcmil
2 Flange for the compartment door
5 Tightening torque 23Nm
6 Tightening torque 2Nm
8 Terminals FCuAl 1x6AWG...350Kcmil
9 Tightening torque 23Nm
10 Lateral conduit (optional)
11 Spacing with equipped (optional)
12 Plate insulating by the client or plate cap kits (optional, compulsory with supply from bottom and ≥500V)
13 Interphase insulating barriers 0.98"/25mm compulsory
Tmax XT5 - Installation

Terminals for fixed circuit-breaker

2 x 2/0AWG…500kcmil terminals FC CuAl

---

Key
1 Terminals FCuAl 2 x 2/0AWG…500kcmil
2 Flange for the compartment door (optional)
5 Tightening torque 36Nm
6 Tightening torque 2Nm
7 Compartment door sheet steel drilling for flange without gasket
8 Phase barrier 100mm
9 Tightening torque 32Nm
10 Lateral conduit (optional)
11 Spacing with equipped (optional)
12 Cap kits plate
13 High terminal cover
14 Form base iv optional in alternative plate cap kits
Terminals R

Key
1 Rear terminals (horizontal and vertical)
2 Flange without gasket for the compartment door (optional)
5 Tightening torque 18Nm
8 Low terminal cover
9 Lateral conduit (optional)
10 Spacing when equipped (optional)
**Tmax XT5 - Installation**

Terminals for fixed circuit-breaker

Terminals HR upper

Key

6  Tightening torque 2Nm

Terminals VR lower

Key

3  Fixing on sheet steel III
4  Fixing on sheet IV
6  Tightening torque 2Nm
**Tmax XT5 - Installation**

**Accessories for fixed circuit-breaker**

Rotary handle operating mechanism on the circuit-breaker (RHD)

Drilling templates for support sheet

---

**Key**

1. Base breaker
2. Rotary handle operating mechanism on circuit-breaker
3. Flange for the compartment door
4. Compartment door sheet steel drilling with/without flange
5. Fixing on sheet steel III
6. Fixing on sheet steel IV
Tmax XT5 - Installation

Accessories for fixed circuit-breaker

---

### Flange

<table>
<thead>
<tr>
<th>Key</th>
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<tbody>
<tr>
<td>3</td>
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<tr>
<td>4</td>
</tr>
</tbody>
</table>

---

### Drilling template compartment door

---

<table>
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</thead>
<tbody>
<tr>
<td>With flange</td>
<td>III - IV</td>
<td>5.81/147.5</td>
<td>4.89/124.3</td>
</tr>
<tr>
<td>Without flange</td>
<td>III - IV</td>
<td>5.53/140.5</td>
<td>4.54/115.3</td>
</tr>
</tbody>
</table>

---

### Flange IP54

<table>
<thead>
<tr>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
</tbody>
</table>

---

### Drilling template compartment door with flange IP54

---
Rotary handle operating mechanism on the compartment door (RHE)

Key
1 Base breaker
2 Base of rotary handle operating mechanism
3 300mm transmission rod
4 Rotary handle operating mechanism of compartment door
5 Compartment door sheet steel drilling
6 Fixing on sheet steel III
7 Fixing on sheet steel IV
Tmax XT5 - Installation

Accessories for fixed circuit-breaker

Stored energy motor operator (MOE)

Drilling templates for support sheet

Key
1 Base breaker
2 Stored energy motor operator
3 Flange for the compartment door
4 Compartment door sheet steel drilling of compartment door with/without flange
5 Fixing on sheet steel III
6 Fixing on sheet steel IV
Flange

Key
3 Flange for the compartment door

Drilling template compartment door

Key
4 Compartment door sheet steel drilling of compartment door with/without flange

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>With flange</td>
<td>III - IV</td>
<td>5.81/147.5</td>
<td>4.89/124.3</td>
<td>3.38/85.8</td>
</tr>
<tr>
<td>Without flange</td>
<td>III - IV</td>
<td>5.53/140.5</td>
<td>4.54/115.3</td>
<td>3.20/81.3</td>
</tr>
</tbody>
</table>
Tmax XT5 - Installation
Accessories for fixed circuit-breaker

Residual current RC

Drilling template for support sheet

Key
1 Base breaker
2 Residual current release
3 Tightening torque 2Nm
4 Front terminals for flat connection
5 Connection bar
6 Tightening torque 36Nm
7 Compartment door sheet steel drilling of compartment door with/without flange
8 Flange without gasket for the compartment door
9 Fixing on sheet steel IV
### Overall Dimensions

**Flange**

![Flange Diagram]

**Drilling template compartment door**

![Drilling Template Diagram]

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>With flange</td>
<td>III - IV</td>
<td>-</td>
<td>5.81/147.5</td>
<td>3.34/84.8</td>
<td>-</td>
<td>-</td>
<td>5.81/147.5</td>
</tr>
<tr>
<td>Without flange</td>
<td>III - IV</td>
<td>6.44/163.5</td>
<td>5.57/141.5</td>
<td>3.22/81.8</td>
<td>4.00/101.5</td>
<td>3.16/80.3</td>
<td>5.57/141.5</td>
</tr>
</tbody>
</table>

---

**Key**

3. Flange for the compartment door

4. Compartment door sheet steel drilling of compartment door with/without flange
Tmax XT5 - Installation

Accessories for fixed circuit-breaker

Front for lever operating mechanism (FLD)

Drilling templates for support sheet

Key
1 Base breaker
2 Front for lever operating system (FLD)
3 Flange for the compartment door
4 Compartment door sheet steel drilling with/without flange
5 Fixing on sheet steel III
6 Fixing on sheet steel IV
7 Door lock
### OVERALL DIMENSIONS

**A [in/mm]** | **B [in/mm]** | **C [in/mm]** | **D [in/mm]**
--- | --- | --- | ---
With flange III-IV | 5.81/147.5 | 4.89/124.3 | 3.38/85.8 | 2.90/73.75
Without flange III-IV | 5.53/140.5 | 4.54/115.3 | 3.20/81.3 | 2.77/70.25

**Key**
3 Flange for the compartment door
4 Compartment door sheet steel drilling with/without flange

---

**Flange**

**Drilling template compartment door**

---

---
### Tmax XT5 - Installation

**Accessories for fixed circuit-breaker**

Lateral rotary handle operating mechanism on the compartment door (RHL)

---

**Key**

1. Fixed part
2. Moving part
3. Tightening torque 2Nm
4. 100mm insulating barriers between phases (compulsory) provided
5. Base of rotary handle operating mechanism
6. Lateral handle
7. 500mm transmission ROD
8. Rotary handle on compartment door
9. Compartment door sheet steel drilling
Tmax XT5 - Installation
Installation for plug-in circuit-breaker 400A

Fixing on sheet

Drilling templates for support sheet

---

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Compartent door sheet steel drilling of compartment door with/without flange
6 Flange without gasket for the compartment door
7 Fixing on sheet steel III
8 Fixing on sheet steel IV
### Tmax XT5 - Installation

Installation for plug-in circuit-breaker 400A

#### Flange

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Flange without gasket for the compartment door</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Flange</th>
<th>III - IV</th>
<th>6.85/174</th>
<th>5.98/152</th>
<th>3.42/87</th>
<th>3.00/76</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without flange</td>
<td>III - IV</td>
<td>6.49/165</td>
<td>5.63/143</td>
<td>3.24/82.5</td>
<td>2.81/71.5</td>
</tr>
</tbody>
</table>

#### Drilling template compartment door

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Compartment door sheet steel drilling of compartment door with/without flange</td>
</tr>
</tbody>
</table>
**Tmax XT5 - Installation**

Terminals for plug-in circuit-breaker 400A

Terminals EF

---

**Key**

1. Fixed part
2. Moving part
3. Tightening torque 2Nm
4. 100mm insulating barriers between phases (compulsory) provided
Tmax XT5 - Installation
Terminals for plug-in circuit-breaker 400A

Terminals HR

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
### Key
1. Fixed part
2. Moving part
3. Tightening torque 2Nm

**Terminals VR**
Tmax XT5 - Installation

Accessories for plug-in circuit-breaker 400A

Rotary handle operating mechanism on the circuit-breaker (RHD)

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Rotary handle operating mechanism (RHD)

Drilling templates for support sheet

Key
8 Fixing on sheet steel III
9 Fixing on sheet steel IV
OVERALL DIMENSIONS

---

**Flange**

- Key
  - 7 Flange for the compartment door
  - 8 Compartment door sheet steel drilling with/without flange

---

**Drilling template compartment door**

---

<table>
<thead>
<tr>
<th></th>
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<tr>
<td>Without flange</td>
<td>III - IV</td>
<td>5.53/140.5</td>
<td>4.54/115.3</td>
</tr>
</tbody>
</table>

---

**Flange IP54**

- Key
  - 10 IP54 flange for the compartment door
  - 11 Compartment door sheet steel drilling with IP54 flange

---

**Drilling template compartment door with flange IP54**
Tmax XT5 - Installation

Accessories for plug-in circuit-breaker 400A

Lateral rotary handle operating mechanism on the compartment door (RHL)

---

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Base of rotary handle operating mechanism
6 Lateral handle
7 500mm transmission ROD
8 Rotary handle on compartment door
9 Compartment door sheet steel drilling
Stored energy motor operator (MOE)

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Stored energy motor operator (MOE)

Drilling templates for support sheet

Key
8 Fixing on sheet steel III
9 Fixing on sheet steel IV
**Tmax XT5 - Installation**

Accessories for plug-in circuit-breaker 400A

**Flange**

---

**Drilling template compartment door**

---

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<tr>
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<tbody>
<tr>
<td>With flange III - IV</td>
<td>5.81/147.5</td>
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<tr>
<td>Without flange III - IV</td>
<td>5.53/140.5</td>
<td>4.54/115.3</td>
<td>3.20/81.3</td>
</tr>
</tbody>
</table>

---

**Key**
- Flange without gasket for the compartment door
- Compartment door sheet steel drilling of compartment door with/without flange
Front for lever operating mechanism (FLD)

Drilling templates for support sheet

Key
1 Fixed part
2 Moving part
3 Tightening torque 2N.m - 18lbs in
4 Front for lever operating system (FLD)
5 100mm insulating barriers between phases (optional)
7 Flange without gasket for the compartment door
10 Door lock
### Tmax XT5 - Installation

**Accessories for plug-in circuit-breaker 400A**

**Flange**

**Drilling template compartment door**

---

**Key**

6 Compartment door sheet steel drilling with/without flange

7 Flange without gasket for the compartment door

<table>
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</tr>
</tbody>
</table>
Rotary handle operating mechanism on the compartment door (RHE)

Key
1 Fixed part
2 Moving part
3 Tightening torque
   2Nm-18lbs in
4 100mm insulating barriers between phases (compulsory) provided
5 Rotary handle operating mechanism base (RHE_B)
6 500mm transmission ROD (RHE_S)
7 Rotary handle on compartment door (RHE_H)
8 Compartment door sheet steel drilling
Tmax XT5 - Installation
Accessories for plug-in circuit-breaker 400A

Residual current RC

Drilling template for support sheet

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm-18lbf in
4 Residual current release
5 Terminal cover for residual current release
8 Fixing on sheet steel
OVERALL DIMENSIONS

Flange

Drilling template compartment door

<table>
<thead>
<tr>
<th>Key</th>
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<tbody>
<tr>
<td>6</td>
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<tr>
<td>7</td>
<td>Compartment door sheet steel drilling with/without flange</td>
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<td>5.81/147.5</td>
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<td>10.61/269.5</td>
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<td>3.16/80.3</td>
<td>5.57/141.5</td>
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</tbody>
</table>
**Tmax XT5 - Installation**

Installation for plug-in circuit-breaker 600A

Fixing on sheet

- **Key**
  1. Fixed part
  2. Moving part
  3. Tightening torque 2Nm
  4. 100mm insulating barriers between phases (compulsory) provided

Drilling templates for support sheet

- **Key**
  7. Fixing on sheet steel III
  8. Fixing on sheet steel IV
**Flange**

- Key
  6 Flange without gasket for the compartment door

- Key
  5 Compartment door sheet steel drilling with/without flange

---

---|---|---|---
With flange III - IV 6.85/174 | 5.98/152 | 3.42/87 | 3.00/76  
Without flange III - IV 6.49/165 | 5.63/143 | 3.24/82.5 | 2.81/71.5
**Tmax XT5 - Installation**

**Terminals for plug-in circuit-breaker 600A**

**Terminals EF**

---

**Key**

1. Fixed part
2. Moving part
3. Tightening torque 2Nm
4. 100mm insulating barriers between phases (compulsory) provided
Terminals HR

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
Tmax XT5 - Installation
Terminals for plug-in circuit-breaker 600A

Terminals VR

---

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
Tmax XT5 - Installation

Accessories for plug-in circuit-breaker 600A

Rotary handle operating mechanism on the circuit-breaker (RHD)

Drilling templates for support sheet

---

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Direct rotary handle operating mechanism (RHD)

---

Key
8 Fixing on sheet steel III
9 Fixing on sheet steel IV
Tmax XT5 - Installation
Accessories for plug-in circuit-breaker 600A

Flange

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<thead>
<tr>
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<tr>
<td>6</td>
<td>Compartment door sheet steel drilling with/without flange</td>
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Drilling template compartment door

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<tr>
<th>Key</th>
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<tbody>
<tr>
<td>10</td>
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<tr>
<td>11</td>
<td>Compartment door sheet steel drilling with IP54 flange</td>
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### Dimensions

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Drilling template compartment door with flange IP54

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<tr>
<td>10</td>
<td>IP54 flange for the compartment door</td>
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<tr>
<td>11</td>
<td>Compartment door sheet steel drilling with IP54 flange</td>
</tr>
</tbody>
</table>
Lateral rotary handle operating mechanism on the compartment door (RHL)

Key
1 Fixed part
2 Moving part
3 Tightening torque 2N.m
4 100mm insulating barriers between phases (compulsory) provided
5 Base of rotary handle operating mechanism
6 Lateral handle
7 500mm transmission ROD
8 Rotary handle on compartment door
11 Compartment door sheet steel drilling

Dimensions:
- 108 - 6180 (P) / 122 - 615 (4P)
- 4.23 - 20.39 (8P) / 8.08 - 20.39 (14P)
- 3.23 - 17.52
- 2.5 / 2.47
- 4x 0.18
- 2x 0.18
- 0.12
- 20.39
- 4.5
- 0.18
- 0.12
- 22.75
- 8.08
- 7.59
- 0.29
- 12.39
- 0.29
- 165.75
- 0.19
- 25
- 0.29
- 0.12
- 154.25
- 3.99
- 48.6
- 0.14
- 500
- 0.14
- 36.75
- 0.14
- 168.5
- 0.48
- 48.5
- 0.48
- 36.75
Tmax XT5 - Installation
Accessories for plug-in circuit-breaker 600A

Stored energy motor operator (MOE)

Drilling templates for support sheet
### Flange

Key
7 Flange without gasket for the compartment door

### Drilling template compartment door

Key
6 Compartment door sheet steel drilling of compartment door with/without flange

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**Tmax XT5 - Installation**

**Accessories for plug-in circuit-breaker 600A**

**Front for lever operating mechanism (FLD)**

**Drilling templates for support sheet**

---

**Key**
1. Fixed part
2. Moving part
3. Tightening torque 2Nm-18lbs in
4. 100mm insulating barriers between phases (compulsory) provided
5. Front for lever operating mechanism (FLD)
8. Fixing on sheet steel III
9. Fixing on sheet steel IV
10. Door lock
**Flange**

Key

7 Flange without gasket for the compartment door

**Drilling template compartment door**

Key

6 Compartment door sheet steel drilling with/without flange

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**Tmax XT5 - Installation**

**Accessories for plug-in circuit-breaker 600A**

Rotary handle operating mechanism on the compartment door (RHE)

---

**Key**
1. Fixed part
2. Moving part
3. Tightening torque
   - 2Nm-18lbs in
4. 100mm insulating barriers between phases (compulsory) provided
5. Rotary handle operating mechanism base (RHE_B)
6. 500mm transmission ROD (RHE_S)
7. Rotary handle on compartment door (RHE_H)
8. Compartment door sheet steel drilling
Residual current RC

Drilling template for support sheet

Key
1 Fixed part
2 Moving part
3 Tightening torque
2Nm-18lbs in
4 100mm insulating barriers between phases (compulsory) provided
5 Residual current release
6 Terminal cover for residual current release
9 Fixing on sheet steel
Tmax XT5 - Installation

Accessories for plug-in circuit-breaker 600A

Flange

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Tmax XT5 - Installation
Installation for withdrawable circuit-breaker 400A

Fixing on sheet

Drilling templates for support sheet

Key
1 Fixed part
2 Moving part
3 Tightening torque 2N\text{m}
4 Front for lever operating mechanism (FLD)
5 100mm insulating barriers between phases (optional)
8 Fixing on sheet steel III
9 Fixing on sheet steel IV
10 Door lock
Tmax XT5 - Installation
Installation for withdrawable circuit-breaker 400A

Flange

Drilling template compartment door

Key
7 Flange without gasket for the compartment door
6 Comparator door sheet steel drilling of compartment door with/without flange
Tmax XT5 - Installation
Terminals for withdrawable circuit-breaker 400A

Terminals EF

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Front for lever operating mechanism (FLD)
5 100mm insulating barriers between phases (optional)
Tmax XT5 - Installation
Terminals for withdrawable circuit-breaker 400A

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Front for lever operating mechanism (FLD)
9 Door lock
Terminals VR

Key
1 Fixed part
2 Moving part
3 Tightening torque 2N
4 Front for lever operating mechanism (FLD)
**Tmax XT5 - Installation**

Terminals for withdrawable circuit-breaker 400A

Residual current (RC) and Front for lever operating mechanism (FLD)

---

**Key**

1. Fixed part
2. Moving part
3. Tightening torque 2Nm-18lbs in
4. Front for operating lever mechanism
5. Residual current release
6. Terminal cover for residual current release
7. Flange for the compartment door
8. Flange for residual current release
9. Door lock plate
10. Plup and socket adapter for residual current release
Key
7 Flange for the compartment door
8 Flange for residual current release
9 Compartment door sheet steel drilling with/without flange
10 Fixing on sheet steel
Tmax XT5 - Installation

Accessories for withdrawable circuit-breaker 400A

Rotary handle operating mechanism on the circuit-breaker (RHD)

Drilling templates for support sheet

Key:
1. Fixed part
2. Moving part
3. Tightening torque 2Nm
4. Rotary handle operating mechanism (RHD)
5. 100mm insulating barriers between phases (optional)
6. Fixing on sheet steel III
7. Fixing on sheet steel IV
8. Door lock
Flange

- Key
- 7 Flange without gasket for the compartment door

Drilling template compartment door

- Key
- 6 Compartment door sheet steel drilling with flange
Tmax XT5 - Installation

Accessories for withdrawable circuit-breaker 400A

Lateral rotary handle operating mechanism on the compartment door (RHL)

---

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (optional)
5 Base of rotary handle operating mechanism
6 Lateral handle
7 500mm transmission ROD
8 Rotary handle on compartment door
11 Compartment door sheet steel drilling
**Stored energy motor operator (MOE)**

1. **Fixed part**
2. **Moving part**
3. **Tightening torque 2Nm**
4. **Stored energy motor operator (MOE)**
5. **100mm insulating barriers between phases (optional)**
6. **Fixing on sheet steel III**
7. **Fixing on sheet steel IV**

**Drilling templates for support sheet**

---

**Key**
- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Stored energy motor operator (MOE)
- 5 100mm insulating barriers between phases (optional)
- 6 Fixing on sheet steel III
- 7 Fixing on sheet steel IV
Tmax XT5 - Installation

Accessories for withdrawable circuit-breaker 400A

---

Drilling template compartment door

---

Key
7 Flange without gasket for the compartment door

---

Key
6 Compartment door sheet steel drilling with flange
Rotary handle operating mechanism on the compartment door (RHE)

Key
1 Fixed part
2 Moving part
3 Tightening torque
4 2Nm-18lbs in
5 100mm insulating barriers between phases (compulsory) provided
6 Rotary handle operating mechanism base (RHE_B)
7 Transmission ROD (RHE_S)
8 Rotary handle on compartment door (RHE_H)
9 Compartment door sheet steel drilling
**Tmax XT5 - Installation**

**Installation for withdrawable circuit-breaker 600A**

**Fixing on sheet**

---

**Key**

1. Fixed part
2. Moving part
3. Tightening torque 2Nm
4. 100mm insulating barriers between phases (compulsory) provided
5. Front for lever operating mechanism
8. Fixing on sheet steel III
9. Fixing on sheet steel IV
10. Door lock
Flange

Key
7 Flange without gasket for the compartment door

Drilling template compartment door

Key
6 Compartment door sheet steel drilling with flange
Tmax XT5 - Installation

Terminals for withdrawable circuit-breaker 600A

Terminals EF

Key
1 Fixed part
2 Moving part
3 Tightening torque 2N\(\text{m}\)
4 100mm insulating barriers between phases (compulsory) provided
5 Front for lever operating mechanism
Terminals HR

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Front for lever operating mechanism
**Tmax XT5 - Installation**

Terminals for withdrawable circuit-breaker 600A

**Terminals VR**

---

**Key**
1. Fixed part
2. Moving part
3. Tightening torque 2Nm
4. Front for lever operating mechanism (FLD)
Residual current (RC) and Front for lever operating mechanism (FLD)

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm-18lbs in
4 Front for operating lever mechanism
5 Residual current release
6 Terminal cover for residual current release
7 Flange for compartment door
8 Flange for residual current release
11 Door lock plate
12 Plup and socket adapter for residual current release
**Tmax XT5 - Installation**

**Terminals for withdrawable circuit-breaker 600A**

Drilling template for support sheet

![Drilling template for support sheet diagram]

**Flange**

Drilling template compartment door

![Drilling template compartment door diagram]

**Key**

7 Flange for the compartment door
8 Flange for residual current release
9 Compartment door sheet steel drilling with/without flange
10 Fixing on sheet steel
**Tmax XT5 - Installation**

**Accessories for withdrawable circuit-breaker 600A**

Rotary handle operating mechanism on the circuit-breaker (RHD)

Drilling templates for support sheet

---

**Key**
1. Fixed part
2. Moving part
3. Tightening torque 2Nm
4. 100mm insulating barriers between phases (compulsory) provided
5. Rotary handle operating mechanism (RHD)
8. Fixing on sheet steel III
9. Fixing on sheet steel IV
10. Door lock
Tmax XT5 - Installation
Accessories for withdrawable circuit-breaker 600A

**Flange**

- Key
- 7 Flange without gasket for the compartment door

**Drilling template compartment door**

- Key
- 6 Compartment door sheet steel drilling with flange
Lateral rotary handle operating mechanism on the compartment door (RHL)

Key
1  Fixed part
2  Moving part
3  Tightening torque 2Nm
4  100mm insulating barriers between phases (compulsory) provided
5  Base of rotary handle operating mechanism
6  Lateral handle
7  500mm transmission ROD
8  Rotary handle on compartment door
11 Compartment door sheet steel drilling
Tmax XT5 - Installation

Accessories for withdrawable circuit-breaker 600A

Stored energy motor operator (MOE)

Drilling templates for support sheet

Key:
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Stored energy motor operator (MOE)
8 Fixing on sheet steel III
9 Fixing on sheet steel IV
OVERALL DIMENSIONS

Flange

Key

7 Flange without gasket for the compartment door

Drilling template compartment door

Key

6 Compartment door sheet steel drilling with flange
Tmax XT5 - Installation
Accessories for withdrawable circuit-breaker 600A

Rotary handle operating mechanism on the compartment door (RHE)

Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm-18lbs
4 100mm insulating barriers between phases (compulsory) provided
5 Rotary handle operating mechanism base (RHE_B)
6 Transmission ROD (RHE_S)
7 Rotary handle on compartment door (RHE_H)
8 Compartment door sheet steel drilling
**Tmax XT6 - Installation**

Installation for fixed circuit-breaker

Fixing on sheet

---

Key:

1. Front terminals for flat connection
2. Connection bar
6. Tightening torque 9Nm
7. Tightening torque 2Nm
9. Spacing when equipped (optional)
10. Lateral conduit (optional)

---

Drilling templates for support sheet

---

Key:

4. Fixing on sheet steel III
5. Fixing on sheet steel IV
Tmax XT6 - Installation
Installation for fixed circuit-breaker

Flange

---
Key
3 Flange without gasket for compartment door

---
Drilling template compartment door

---
Key
8 Compartment door sheet steel drilling with/without flange

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**Tmax XT6 - Installation**

Terminals for fixed circuit-breaker

**Terminals EF**

---

**Key**

1. Extended front terminals
2. Tightening torque 9Nm
3. Tightening torque 2Nm
4. Separating partitions 100mm
5. High terminal cover with IP40 protection degree
6. Spacing when equipped (optional)
7. Lateral conduit (optional)
**Tmax XT6 - Installation**

**Terminals for fixed circuit-breaker**

**Terminals ES**

---

**Key**

1. Extended front terminals
2. Tightening torque 9Nm
3. Tightening torque 2Nm
4. Separating partitions 200mm
5. Spacing when equipped (optional)
6. Lateral conduit (optional)
2 x 250...500kcmil and 3 x 2/0AWG...400kcmil terminals FC CuAl

Key
1 Terminal FCCuAl 600A
2 Terminal FCCuAl 800A
6 Tightening torque 9Nm
7 Tightening torque 2Nm
9 High terminal cover with IP40 protection degree
10 Tightening torque 31Nm
11 Tightening torque 43Nm
12 Spacing when equipped (optional)
13 Lateral conduit (optional)
Tmax XT6 - Installation
Terminals for fixed circuit-breaker

Terminals R

Terminals HR upper

Key
1 Rear terminals (horizontal or vertical)
5 Tightening torque 18Nm
6 Tightening torque 2Nm
8 Terminals cover with IP20 protection degree (included in the supply of rear terminals)
9 Spacing when equipped (optional)
10 Lateral conduit (optional)
Terminals VR lower

Key
3 Fixing on sheet steel III
4 Fixing on sheet steel IV
6 Tightening torque 2Nm
Tmax XT6 - Installation
Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the circuit-breaker (RHD)

Drilling templates for support sheet

Key
1 Base breaker
2 Tightening torque 2Nm
3 Rotary handle operating mechanism on circuit-breaker (RHD)
6 Fixing on sheet steel III
7 Fixing on sheet steel IV
Flange

Key
4 Flange for the compartment door

Drilling template compartment door

Key
5 Compartment door sheet steel drilling with/without flange

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**Tmax XT6 - Installation**

**Accessories for fixed circuit-breaker**

Stored energy motor operator (MOE)

---

**Key**

1. Base breaker
2. Tightening torque 2Nm
3. Stored energy motor operator (MOE)
6. Fixing on sheet steel III
7. Fixing on sheet steel IV

---

**Drilling templates for support sheet**
**Flange**

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**Drilling template compartment door**

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<tbody>
<tr>
<td>5</td>
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Tmax XT6 - Installation
Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the circuit-breaker (RHD)

Drilling templates for support sheet

Key
1 Base breaker
2 Tightening torque
2Nm-18lbs in
3 Front for lever operating mechanism (FLD)
4 Flange for the compartment door
6 Fixing on sheet steel III
7 Fixing on sheet steel IV
Flange

Drilling template compartment door

Key
4 Flange for the compartment door
5 Compartment door sheet steel drilling with / without flange

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Tmax XT6 - Installation
Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)

Key
1 Base breaker
2 Tightening torque
3 Base of rotary handle operating mechanism
4 Transmission ROD
5 Rotary handle operating mechanism of the compartment door
6 Compartment door sheet steel drilling
Tmax XT6 - Installation
Installation for withdrawable circuit-breaker

Fixing on sheet

Drilling template for support sheet

---

Key
1 Fixed part
2 Moving part
3 Extended front terminals
5 Fixing on sheet steel III-IV
6 Tightening torque 8Nm
8 FLD compulsory with withdrawable version

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Tmax XT6 - Installation
Installation for withdrawable circuit-breaker

Flange

Drilling template compartment door

Key
1 Flange
4 Fixing on sheet steel III

Key
7 Compartment door sheet drilling with flange
**Tmax XT6 - Installation**

Terminals for withdrawable circuit-breaker

Terminals EF

---

**Key**

1. Fixed part
2. Moving part
3. Extended front terminals
4. Tightening torque 8Nm
5. FLD compulsory with withdrawable version
Tmax XT6 - Installation
Accessories for withdrawable circuit-breaker

Rotary handle operating mechanism on the circuit-breaker (RHD)

Drilling template for support sheet

Key
1 Fixed part
2 Moving part
3 Extended front terminals
5 Fixing on sheet steel III-IV
6 Tightening torque 8Nm
8 Rotary handle operating mechanism on circuit breaker (RHD)

<table>
<thead>
<tr>
<th></th>
<th>A [in/mm]</th>
<th>B [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>5.51/140</td>
<td>8.43/214</td>
</tr>
<tr>
<td>IV</td>
<td>8.27/210</td>
<td>11.18/284</td>
</tr>
</tbody>
</table>
Flange

Key
4 - Flange for the compartment door

Drilling template compartment door

Key
7 - Compartment door sheet steel drilling with flange
Tmax XT6 - Installation
Accessories for withdrawable circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)

---

Key:
1. Fixed part
2. Moving part
3. Extended front terminals
4. Tightening torque 2Nm-18lbs in
5. Base of rotary handle operating mechanism
6. Transmission rod
7. Rotary handle operating mechanism of the compartment door
8. Compartment door sheet steel drilling
Horizontal interlock between two circuit breakers (MIR-H)

Key
1 Interlocking mechanism
2 Drilling template for fixing interlocking system
3 Drilling template for all version with rear terminals
4 Tightening torque 18Nm
5 Tightening torque 3Nm
6 Couplink plate e for circuit-breakers
8 Breaking for 4P version
Tmax XT6 - Installation

Accessories for withdrawable circuit-breaker

Stored energy motor operator (MOE)

Drilling template for support sheet

Key
1 Fixed part
2 Moving part
3 Extended front terminals
5 Fixing on sheet
6 Tightening torque 8Nm
8 Stored energy motor operator

<table>
<thead>
<tr>
<th>Key</th>
<th>A [in/mm]</th>
<th>B [in/mm]</th>
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<tbody>
<tr>
<td>III</td>
<td>5.51/140</td>
<td>8.43/214</td>
</tr>
<tr>
<td>IV</td>
<td>8.27/210</td>
<td>11.18/284</td>
</tr>
</tbody>
</table>
Flange

Key
4. Flange for the compartment door

Drilling template compartment door

Key
7. Compartment door sheet steel drilling with flange
Tmax XT7 - Installation

Installation for fixed circuit-breaker

Fixing on sheet

Drilling templates for support sheet

Flange

Drilling templates compartment door

---

Key
1. Front terminals for flat connection
2. Extended front terminals
3. Flange for the compartment door
4. Flange fixing screws
5. Tightening torque 0.5Nm
6. Fixing on sheet steel III
7. Fixing on sheet steel IV
8. Tightening torque 1Nm
9. Key look (optional)
10. Padlock device (optional)
11. Tightening torque 2Nm
12. Compartment door sheet steel drilling for flange
13. Compartment door sheet steel drilling for 206x204 frontal
14. Clamp for auxiliary contacts

---

<table>
<thead>
<tr>
<th>A [in/mm]</th>
<th>With standard flange</th>
<th>Without flange</th>
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<tbody>
<tr>
<td></td>
<td>III-IV</td>
<td>III-IV</td>
</tr>
<tr>
<td></td>
<td>5.12+5.55/130+141</td>
<td>5.78/147</td>
</tr>
</tbody>
</table>

---
**Tmax XT7 - Installation**

Terminals for fixed circuit-breaker

Terminals EF

---

**Key**
1. Extended front terminals EF
2. Flange for the compartment door
3. Flange fixing screws
4. Tightening torque 0.5Nm
5. Tightening torque 18Nm
6. Key look (optional)
7. Padlock device (optional)
8. Clamp for auxiliary contacts
9. Insulating plate
10. Separating partitions
11. Flange fixing screws
12. Flange for the compartment door
13. High terminal cover with IP40 protection degree

---

**OVERALL DIMENSIONS**
Tmax XT7 - Installation
Terminals for fixed circuit-breaker

Terminals ES

---

Key
1. Spreaded extended front terminals ES
2. Flange for the compartment door
3. Flange fixing screws
4. Tightening torque 0.5Nm
5. Tightening torque 18Nm
6. Key look (optional)
7. Padlock device (optional)
8. Clamp for auxiliary contacts
9. Insulating plate
10. Separating partitions 7.87'/200mm

---

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</thead>
<tbody>
<tr>
<td></td>
<td>5.12+5.55/130+141</td>
<td>5.78/147</td>
</tr>
</tbody>
</table>
4 x 500 kcmil and 2 x 500 kcmil (IEC only) FC CuAl

Key
1. Fc Cu-Al terminal 4x500 kcmil
2. Fc Cu-Al terminal 2x500kcmil (IEC only)
3. Flange for the compartment door
4. Flange fixing screws
5. Tightening torque 0.5Nm
6. Fixing on sheet steel IV
7. Tightening torque 18Nm
8. Tightening torque 43Nm
9. Key look (optional)
10. Padlock device (optional)
11. Clamp for auxiliary contacts
12. Insulating plate
13. High terminal cover with IP40 protection degree
14. Low protection cover with IP30 protection degree
15. Clamp for auxiliary contacts
16. Insulating plate
17. High terminal cover with IP40 protection degree
18. Low protection cover with IP30 protection degree
19. Tightening torque 18Nm

<table>
<thead>
<tr>
<th></th>
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<tr>
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<td>5.12÷5.55/130÷141</td>
<td>5.78/147</td>
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</table>
Tmax XT7 - Installation

Terminals for fixed circuit-breaker

Terminals R

Terminals HR upper

Terminals VR lower

---

Key
1  HR horizontal rear terminal HR
2  VR vertical rear terminal VR
3  Flange for the compartment door
4  Flange fixing screws
5  Tightening torque 0.5Nm
6  Drilling template support plate
7  Keylock (optional)
8  Padlock (optional)
9  Clamp for auxiliary contacts
10  Low protection cover with IP30 protection degree
11  Tightening torque 9Nm

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>With flange</td>
<td>7.91/201</td>
<td>4.56/116</td>
<td>0.95/24.25</td>
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<tr>
<td>Without flange</td>
<td>7.67/192</td>
<td>4.21/107</td>
<td>0.77/19.75</td>
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</table>
**Tmax XT7 - Installation**

**Accessories for fixed circuit-breaker**

Rotary handle operating mechanism on the circuit-breaker (RHD)

Drilling templates for support sheet

Flange

Drilling template compartment door

---

Key
1. Base breaker
2. Tightening torque 2Nm
3. Rotary handle operating mechanism for circuit-breaker
4. Plate for door lock
5. Flange without gasket for the compartment door
6. Compartment door sheet steel drilling with/without flange
7. Fixing on sheet steel III
8. Fixing on sheet steel IV

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>With flange</td>
<td>7.91/201</td>
<td>4.57/116</td>
<td>0.95/24.25</td>
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<tr>
<td>Without flange</td>
<td>7.56/192</td>
<td>4.21/107</td>
<td>0.78/19.75</td>
</tr>
</tbody>
</table>
Tmax XT7 - Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)

---

Key

1. Base breaker
2. Tightening torque 2Nm
3. Base for rotary handle operating mechanism
4. 500mm transmission ROD
5. Rotary handle operating mechanism of the compartment door
6. Compartment door sheet steel drilling
Tmax XT7 - Installation
Installation for withdrawable circuit-breaker

Fixing on sheet

Key
1 EF front terminal
2 ES front terminal
3 Flange for the compartment door
4 Flange fixing screws
5 Tightening torque 0.5Nm
6 Tightening torque 9Nm
10 Key lock (optional)
11 Padlock (optional)
12 Clamp for auxiliary contacts
13 Tightening torque 9Nm
**Tmax XT7 - Installation**

Installation for withdrawable circuit-breaker

Drilling templates for support sheet

<table>
<thead>
<tr>
<th>III [in/mm]</th>
<th>IV [in/mm]</th>
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<tbody>
<tr>
<td>B</td>
<td>8.11/206</td>
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<tr>
<td>C</td>
<td>8.62/219</td>
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</tbody>
</table>

**Flange**

**Drilling template compartment door**

---

Key:
3 Flange for the compartment door
6 Compartment door sheet steel drilling for flange
7 Fixing on sheet steel drilling template
9 Mounting at wall
Tmax XT7 - Installation
Terminals for withdrawable circuit-breaker

Terminals EF and ES

Key:
1. EF front terminal
2. ES front terminal
4. Flange fixing screws
5. Tightening torque 0.5Nm
8. Tightening torque 9Nm
10. Key lock (optional)
11. Padlock (optional)
12. Clamp for auxiliary contacts
13. Tightening torque 9Nm
**Tmax XT7 - Installation**

Terminals for withdrawable circuit-breaker

---

**Terminals R**

---

**Terminals VR upper**

---

**Terminals HR lower**

---

---

**Key**

1. HR horizontal rear terminal HR
2. VR vertical rear terminal VR
3. Flange for the compartment door
4. Flange fixing screws
5. Tightening torque 0.5Nm
6. Tightening torque 9Nm
7. Mounting at wall
8. Key lock (optional)
9. Padlock (optional)
10. Clamp for auxiliary contacts
11. Tightening torque 9Nm
**OVERALL DIMENSIONS**

**Terminals SHR**

**Terminals VR upper**

**Terminals HR lower**

---

**Key**
1. SHR rear side terminals (III)
2. SHR rear side terminals (IV)
3. Flange for the compartment door
4. Flange fixing screws
5. Tightening torque 0.5Nm
6. Tightening torque 9Nm
7. Mounting at wall
8. Keylock (optional)
9. Padlock (optional)
10. Clamp for auxiliary contacts
11. Tightening torque 9Nm
Tmax XT7 - Installation
Accessories for withdrawable circuit-breaker

Rotary handle operating mechanism on the circuit-breaker (RHD)

Drilling templates for support sheet

Drilling template compartment door

Flange

Key
1 Moving part
2 Fixed part
3 Rotary handle operating mechanism for circuit-breaker
4 Flange for the compartment door
5 Compartment door sheet steel drilling for flange
6 Mounting at wall
7 Fixing on sheet steel drilling template
Rotary handle operating mechanism on the compartment door (RHE)

Key
1 Base breaker
2 Fixed part
3 Base for rotary handle operating mechanism
5 500mm transmission ROD
6 Rotary handle operating mechanism of the compartment door
**Tmax XT7 M - Installation**

Installation for fixed circuit-breaker

**Fixing on sheet**

**Drilling templates for support sheet**

**Flange**

**Drilling templates compartment door**

---

**Key**

1. Front terminals for flat connection
2. Extended front terminals
3. Flange for the compartment door
4. Flange fixing screws
5. Tightening torque 0.5Nm
6. Fixing on sheet steel III
7. Fixing on sheet steel IV
8. Tightening torque 18Nm
9. Key look (optional)
10. Tightening torque 2 Nm
11. Compartment door sheet steel drilling for flange
12. Compartment door sheet steel drilling for 206x204 frontal
13. Clamp for auxiliary contacts

---

**A [in/mm]**

<table>
<thead>
<tr>
<th>Description</th>
<th>III-IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange</td>
<td>3.82/5.12</td>
</tr>
<tr>
<td>Without flange</td>
<td>3.75/5.78</td>
</tr>
</tbody>
</table>

---

**Dimensions**

- Fixing on sheet: 280 x 200
- Drilling templates: 140
- Flange: 208 x 140
- Drilling templates compartment door: 244 x 96

---

**Notes**

- Low Voltage Breakers
- A division of ABB S.p.A.
- Disclosure to third parties without express authority
**Tmax XT7 M - Installation**

**Terminals for fixed circuit-breaker**

Terminals EF

---

**Key**

1. Extended front terminals EF
2. Flange for the compartment door
3. Flange fixing screws
4. Tightening torque 0.5Nm
5. Tightening torque 18 Nm
6. Fixing on sheet steel IV
7. Fixing on sheet steel III
8. Key look (optional)
9. Tightening torque 2Nm
10. Clamp for auxiliary contacts
11. Insulating plate
12. Separating partitions 100mm
13. High terminal cover with IP40 protection degree
14. High terminal cover with IP40 protection degree
15. Flange for the compartment door

---

**OVERALL DIMENSIONS**

<table>
<thead>
<tr>
<th>Component</th>
<th>Dimension (mm)</th>
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<td>Y</td>
<td>11.02</td>
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**Caption**

**Legend**

**Title**

**Mod.**

**Rev.**

**N. Doc.**

---

**App.**

**App.**

**Prep.**

**Dis.**

---

**Horizontal Scale**

1:10

**Vertical Scale**

1:4

---

**XT7M**

**Version**

**Sh. No.**

**N. Pag.**

**Scala**

---

**ABB SACE**
Tmax XT7 M - Installation

Terminals for fixed circuit-breaker

Terminals ES

---

Key
1 Spreaded extended front terminals ES
2 Flange for the compartment door
3 Flange fixing screws
4 Tightening torque 0.5Nm
5 Tightening torque 18Nm
8 Key look (optional)
9 Tightening torque 2 Nm
12 Clamp for auxiliary contacts
13 Insulating plate

---

<table>
<thead>
<tr>
<th></th>
<th>A [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange</td>
<td>III-IV 5.12-5.55/130-141</td>
</tr>
<tr>
<td>Without flange</td>
<td>III-IV 5.78/147</td>
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</tbody>
</table>
4 x 500 kcmil and 2 x 500 kcmil (IEC only) FC CuAl

Key:
1. FC Cu-Al terminal 4x500kcmil
2. FC Cu-Al terminal 2x500kcmil (IEC only)
3. Flange for the compartment door
4. Flange fixing screws
5. Tightening torque 0.5Nm
6. Tightening torque 18Nm
7. Fixing on sheet steel IV
8. Fixing on sheet steel III
9. Tightening torque 43 Nm
10. Key look (optional)
11. Tightening torque 2 Nm
12. Insulating plate
13. Clamp for auxiliary contacts
14. Low terminal cover with IP30 protection degree
15. High terminal cover with IP40 protection degree
16. Tightening torque 18 Nm

<table>
<thead>
<tr>
<th>A [ln/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>With standard flange III-IV</td>
</tr>
<tr>
<td>Without flange III-IV</td>
</tr>
</tbody>
</table>
**Tmax XT7 M - Installation**

**Terminals for fixed circuit-breaker**

**Terminals R**

![Terminal Diagram](image)

**Terminals HR upper**

![Terminal Diagram](image)

**Terminals VR lower**

![Terminal Diagram](image)

### Key

1. HR horizontal rear terminal HR
2. VR vertical rear terminal VR
3. Flange for the compartment door
4. Flange fixing screws
5. Tightening torque 0.5Nm - 4.4lbs in
6. Compartment door sheet steel drilling for flange
7. Compartment door sheet steel drilling for 206x204 frontal
8. Drilling template support plate
9. Key lock (optional)
10. Clamp for auxiliary contacts
11. Low protection cover with IP30 protection degree
12. Tightening torque 9Nm

### Table

<table>
<thead>
<tr>
<th></th>
<th>III [in/mm]</th>
<th>IV [in/mm]</th>
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<tbody>
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<td>5.51/140</td>
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<tr>
<td>C</td>
<td>7.58/192.5</td>
<td>10.33/262.5</td>
</tr>
</tbody>
</table>
**Tmax XT7 M - Installation**

Installation for withdrawable circuit-breaker

Fixing on sheet

Drilling template for support sheet

---

**Key**

3 Flange for the compartment door
6 Compartment door sheet steel drilling for flange
7 Fixing on sheet steel drilling template
10 Key lock (optional)
11 Padlock (optional)
Tmax XT7 M - Installation
Terminals for withdrawable circuit-breaker

Terminals R

Terminals VR lower

Terminals HR lower

---

Key:
1. HR horizontal rear terminal HR
2. VR vertical rear terminal VR
3. Flange for the compartment door
4. Flange fixing screws
5. Tightening torque 0.5Nm
6. Tightening torque 9Nm
7. Mounting at wall
8. Key lock (optional)
9. Padlock (optional)
10. Clamp for auxiliary contacts
11. Tightening torque 9Nm
### Tmax XT - Common accessories

**Horizontal interlock XT series**

---

**Key**

1. Interlocking mechanism
2. Drilling template for fixing interlocking system
3. Drilling template for all version with rear terminals
4. Tightening torque 3.7Nm
5. Tightening torque 3 Nm
6. Tightening torque 2.5Nm
7. Couplink plate for circuit-breakers
8. Breaking for 4p version
9. A = 1.38”/35mm XT4 withdrawable with key lock for fixed part
   
   A = 0.98”/25mm XT2 withdrawable with key lock for fixed part

---

<table>
<thead>
<tr>
<th></th>
<th>B [in/mm]</th>
<th>C [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>XT1</td>
<td>4.10/104.25</td>
<td>5.09/129.25</td>
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<tr>
<td>XT2</td>
<td>4/101.75</td>
<td>5.19/131.75</td>
</tr>
<tr>
<td>XT3</td>
<td>3.92/99.75</td>
<td>5.26/133.75</td>
</tr>
<tr>
<td>XT4</td>
<td>3.91/99.25</td>
<td>5.28/134.25</td>
</tr>
</tbody>
</table>
Tmax XT - Common accessories
Horizontal interlock XT series

Horizontal interlock between two circuit breakers (MIR-H)

Key
1 Interlocking mechanism
2 Drilling template for fixing interlocking system
3 Drilling template for all version with rear terminals
4 Tightening torque 3.7Nm
5 Tightening torque 3Nm
6 Tightening torque 2.5Nm
7 Couplink plate e for circuit-breakers
8 Breaking for 4p version
9 Dimension for XT4 circuit-breaker only
10 A = 23mm XT4 withdrawable with key lock for fixed part
11 Hole for front mounted only
12 Hole for rear mounted only

Drilling template

Interlocking plate

---

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>B [in/mm]</th>
<th>C [in/mm]</th>
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</thead>
<tbody>
<tr>
<td>Plate A</td>
<td>XT4 F</td>
<td>3.14/79.75</td>
<td>5.99/152.25</td>
</tr>
<tr>
<td>Plate B</td>
<td>XT4 P/W</td>
<td>3.14/79.75</td>
<td>5.99/152.25</td>
</tr>
<tr>
<td>Plate C</td>
<td>XT5 F</td>
<td>3.81/96.75</td>
<td>5.32/135.25</td>
</tr>
<tr>
<td>Plate D</td>
<td>XT5 400 P/W</td>
<td>3.81/96.75</td>
<td>5.32/135.25</td>
</tr>
<tr>
<td>Plate E</td>
<td>XT5 630 P/W</td>
<td>3.81/96.75</td>
<td>5.32/135.25</td>
</tr>
</tbody>
</table>
**Tmax XT - Common accessories**

Vertical interlock XT series

---

**Key**

1. Interlock device
2. Drilling template for fixing the interlock device on sheet Steel
3. Drilling template for all rear terminal version
4. Tightening torque 9Nm
5. Tightening torque 1Nm
6. Tightening torque under customer's responsibility
7. Pre-breacking for IV poles
8. A = 1.38"/35mm for XT4 fixed part
9. A = 1.18"/30mm for XT2 fixed part

---

**Note:**
For the overall dimension of the circuit-breaker see the relevant dimension tables and the configuration.
Tmax XT - Common accessories
Vertical interlock XT series

Vertical interlock between two circuit breakers (MIR-V)

Key
1 Interlocking mechanism
4 Tightening torque 3.7Nm
5 Tightening torque 3Nm
6 Tightening torque 2.5Nm
7 Couplink plate for circuit-breakers
8 Breaking for 4p version
9 A = 26mm XT4 withdrawable with key lock for fixed part
   A = 29.5mm XT5 withdrawable with key lock for fixed part
OVERALL DIMENSIONS

Drilling template

Interlocking plate

---

Key

2 Drilling template for fixing interlocking system
3 Drilling template for all version with rear terminals
10 Hole for front mounted only
11 Hole for rear mounted only

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>B [in/mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate A</td>
<td>XT4 F</td>
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<tr>
<td>Plate B</td>
<td>XT4 P/W</td>
<td>1.58/40.25</td>
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<tr>
<td>Plate C</td>
<td>XT5 F</td>
<td>0.92/23.25</td>
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<tr>
<td>Plate D</td>
<td>XT5 400 P/W</td>
<td>0.92/23.25</td>
</tr>
<tr>
<td>Plate E</td>
<td>XT5 630 P/W</td>
<td>0.92/23.25</td>
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Tmax XT - Common accessories
Vertical interlock XT series

Drilling template

Interlocking plate

<table>
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<th>B [in/mm]</th>
<th>C [in/mm]</th>
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<tbody>
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<td>9.14/232.1</td>
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<tr>
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<td>0.52/13.25</td>
<td>4.05/102.9</td>
<td>9.14/232.1</td>
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<tr>
<td>MIR-P XT6 F</td>
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<td>5.41/137.5</td>
<td>7.78/197.5</td>
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<tr>
<td>MIR-P XT6 W</td>
<td>0/0</td>
<td>5.41/137.5</td>
<td>7.78/197.5</td>
</tr>
</tbody>
</table>

Key
9 - 4×Ø9-M8 hole for front mounted only
10 - 4×Ø9 hole for rear mounted only
Vertical interlock between two circuit breakers (MIR-V)

Key
1 Interlocking mechanism
4 Tightening torque 18Nm
5 Tightening torque 3Nm
6 Tightening torque 3Nm
7 Couplink plate e for circuit-breakers
8 Breaking for 4P version
**Tmax XT - Common accessories**

**Vertical interlock XT series**

### Drilling template

1. 4xØ9-M8 hole for front mounted only
2. 4xØ9-M8 hole for rear mounted only
3. Drilling template for all version with rear terminals
4. Drilling template for fixing interlocking system

### Interlocking plate

### Couplink plate type

<table>
<thead>
<tr>
<th>Plate Type</th>
<th>A [in/mm]</th>
<th>B [in/mm]</th>
<th>C [in/mm]</th>
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</thead>
<tbody>
<tr>
<td>MIR-P XT5 F</td>
<td>2.64/67.1</td>
<td>8.30/210.75</td>
<td>9.34/237.25</td>
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<tr>
<td>MIR-P XT5 P/W 400</td>
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<td>8.30/210.75</td>
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<td>8.30/210.75</td>
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<tr>
<td>MIR-P XT6 F</td>
<td>1.28/32.5</td>
<td>8.82/224</td>
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<tr>
<td>MIR-P XT6 W</td>
<td>1.28/32.5</td>
<td>8.82/224</td>
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Wiring diagrams

Reading information
3/2 Graphical symbols for electrical diagrams (617 IEC STANDARDS)
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3/68 XT2-XT4-XT5-XT7-XT7 M modules
Reading information
Graphical symbols for electrical diagrams
(617 IEC STANDARDS)

Graphical symbols for electrical diagrams (Standards IEC 617)

- Thermal effect
- Electromagnetic effect
- Timing
- Mechanical connection
- Manual mechanical operating mechanism (general case)
- Rotary handle operating mechanism
- Pushbutton operating mechanism
- Converter separated galvanically
- Conductors in shielded cable (example two conductors)
- Watt-hour meter
- Conductor with corded cables (example two conductors)
- Key operating mechanism
- Cam operating mechanism
- Ground (general symbol)
- Connection of conductors
- Terminal or clamp
- Socket and plug (female and male)
- Resistor (general symbol)
- Resistor dependent on the temperature
- Motor (general symbol)
- Three-phase asynchronous motor, with short-circuited rotor (cage)
- Current transformer
- Current transformer with primary consisting of 4 passing conductors and with wound secondary, with socket
- Closing contact
- Voltmeter
- Opening contact
- Changeover contact with momentary break
- Closing position contact (limit switch)
- Opening position contact (limit switch)
- Changeover contact with momentary break (limit switch)
Overcurrent release for earth fault with short inverse time characteristic
Current relay for unbalance between phases
Residual current release
Relay for detecting lack of phase in a three-phase system
Relay for detecting blocked rotor by means of current measurement
Motor with excitation in series
Primary cell, secondary cell, battery of primary cell or secondary cell

Wiring Diagrams

Contactor (closing contact)
Power cut-off of switch-disconnector power with automatic opening
Switch-disconnector
Control coil (general symbol)
Thermal trip unit
Instantaneous overcurrent release
Ammeter
Overcurrent release with short adjustable time delay characteristic
Overcurrent release with short inverse adjustable time delay characteristic
Overcurrent release with long inverse adjustable time delay characteristic
Brush
Wattmeter
Screen, shield (it may be drawn in any convenient shape)
Ideal current source
Three connections
Voltage transformer
Winding of three-phase transformer, connection star
Primary cell, secondary cell, battery of primary cell or secondary cell
**Reading information**

Information on how to read the diagrams

**State of operation shown**
The diagrams are shown in the following conditions:
- **fixed version circuit-breaker, open**;
- withdrawable or plug-in version circuit-breaker, open and connected;
- contactor for starting the motor open;
- circuits de-energised;
- trip units not tripped;
- motor operator with springs charged.

**Key XT1...XT4**
- * = See note indicated by the letter
- A12 = Ekip Corn type interface unit
- A13 = Ekip Signaling 10K type signaling unit
- A14 = MOE-E type stored energy motor operator actuating unit
- A15 = Ekip Multimeter type measurement unit
- A16 = Ekip Micro Module I/O type interface unit
- A17 = MOE type stored energy motor operator actuating unit
- BUS1 = Serial interface with external bus
- BUS2 = Redundant serial interface with external bus
- LINK BUS = Interface with external Link bus
- D 2 = Electronic time-delay device for undervoltage release coil YU, outside circuit-breaker (only for voltage up to 250 V)
- H2 = Signaling lamp for stored energy motor operator blocked
- I 11...32 = Programmable digital inputs
- | 41...43 51...53 = Analog inputs from temperature sensor
- | 44-54 = Analog inputs from 4-20mA sensor
- | Pt100 = Analog input from Pt100 temperature sensor of motor
- I reset = Digital input for resetting tripped motor starting contactor operating unit
- J... = Connectors for auxiliary circuits of withdrawable circuit-breaker. Withdrawal of connectors occurs at the same time as that of circuit-breaker
- K = Motor starting contactor
- K51 = Ekip type electronic relay for overcurrent protection
- K51/Cl = Motor starting contactor operator module
- K51/COM = Communication module
- K51/MEAS = Measurement module
- K51/SIGN = Signaling module
- K51/SUPPLY = Auxiliary supply module (110-240VAC/DC and 24-48VDC)
- K51/SYNC = Synchronizing module
- K51/TEMP = Temperature monitoring module
- K87 = Residual current relay
- M = Motor with energizing in series for circuit-breaker opening and closing (Fig. 21)
- M = Motor for opening circuit-breaker and loading the closing springs (Fig. 22-54-55-56-57)
- M1 = Three-phase asynchronous motor
- 0 11...32 = Programmable signaling contacts
- OCI = Contact for motor starting contactor operating mechanism
- 0 SC = Synchronism monitoring contact
- Q = Main circuit-breaker
- Q/O...7 = Auxiliary contacts of the circuit-breaker open/closed
- R-R1 = Resistor
- R2 = Pt100 temperature sensor of motor
- 81 = Contact controlled by the motor operator cam
- 82 = Contact controlled by the key lock of the direct action motor operator
- 83/1-2 = Contacts operated by Auto/Manual selector switch and by key lock of the stored energy motor operator
- S4 = Contact operated by direct action motor operator cam
- S4/1-2 = Early auxiliary contacts operated by circuit-breaker mounted crank handle
- 851 = Contact for signaling circuit-breaker open due to tripped thermomagnetic overcurrent protection release or electronic relay
- 86/1-2 = Contacts controlled by Auto/Manual selector switch of direct action motor operator
S75E/1-2 = Contacts for signaling circuit-breaker in withdrawn position (only applicable to withdrawable circuit-breaker versions)
S75l/1-2-5 = Contacts for signaling circuit-breaker in racked-in position (only applicable to withdrawable or plug-in circuit-breaker versions)
S87/1 = Contact for electrical signaling of residual current relay prealarm
S87/2 = Contact for electrical signaling of residual current relay alarm
S87/3 = Contact for electrical signaling of circuit-breaker open due to residual current relay trip
SC = Pushbutton or contact for closing the circuit-breaker
SC3 = Motor start pushbutton
SD = Residual current relay supply disconnector
SO = Pushbutton or contact for opening circuit-breaker
SO3 = Motor stop pushbutton
SR = Electrical reset pushbutton or contact
SY/1-3 = Contacts for signaling circuit-breaker open due to tripped overcurrent protection relay, thermomagnetic release and coils Y0, Y01, Y02, YU (tripped position)
TI = Toroidal current transformer
TI/L1-L2-L3 = L1-L2-L3 phase current transformer
TI/N = Current transformer on neutral
TU2 = Insulation voltage transformer (outside circuit-breaker)
Uaux = Auxiliary supply voltage
V1 = Circuit-breaker applications
V2 = Motor operator applications
V4 = Indicative switchgear and connections for operation and signaling, outside circuit-breaker
V5 = Ekip DIN Rail Cartridge Basic or Ekip DIN Rail Cartridge applications
W2 = Serial interface with internal bus (local bus)
W9...14 = Connector RJ45 for interface unit and for communication modules
W9R...12R = Connector RJ45 for redundant communication modules
X3-X4-X8 = Protection relay connectors
X41 = Connector of current circuit for external neutral
XB.. = Three-way connector for auxiliary circuits of plug-in circuit-breaker
XC.. = Six-way connector for auxiliary circuits of plug-in circuit-breaker
XC2-3 = Six-way connector for auxiliary circuits of plug-in circuit-breaker for voltage up to 400V
XCT1-2 = Terminal box of Ekip DIN Rail Cartridge Basic or Ekip DIN Rail Cartridge
XD.. = Nine-way connector for auxiliary circuits of plug-in circuit-breaker
XE.. = Fifteen-way connector for auxiliary circuits of plug-in circuit-breaker
XF.. = Ekip Com type interface unit connector
XG = Protection relay connector
XH1 = Protection relay connector
XK7 = Connector of contact S75I/5
XM = MOE-E actuator unit connector
XV = Terminal box of circuit-breaker applications
YC = Closing coil of stored energy motor operator
YO = Opening coil
YO1 = Coil for opening due to overcurrent
YO2 = Opening coil of residual current relay
YU = Undervoltage coil
Reading information
Information on how to read the diagrams

Notes XT1...XT4
A) The presence of an auxiliary supply is required for the local bus and zone selectivity functions (see Fig. 51-81).
B) The undervoltage coil is provided for power supply branched on the supply side of the circuit-breaker or from an independent source: circuit-breaker can only close when coil is energized (closing lock is obtained mechanically).
C) Contacts 84/1 and 84/2 of Fig. 7-8 open circuit when circuit-breaker is open and close it again when a manual closing command is imparted by means of the rotary handle, in accordance with the Standards governing machine tools (however, circuit-breaker will not close if undervoltage release is not being supplied).
E) If the application in Fig. 21 and the contacts in Fig. 31 must be installed at the same time, contact 0/2 must be installed in the adjacent slot (marked 0/1).
F) R= Additional external undervoltage resistor supplied at 380/440 VAC and 480/525 VAC. R1= Additional external resistor for stored energy motor operator or direct action motor operator supplied at 480/525VAC.
G) If a three-pole fixed circuit-breaker with current transformer on the neutral conductor outside the circuit-breaker is used, the terminals of the T1/N transformer must be short-circuited when the circuit-breaker must be removed.
H) “Galvanically separated converters” conforming to standards IEC 60950 (UL 1950) or equivalent must be used since an earthed Uaux is required.
I) Mandatory in the presence of any sort of Ekip module.
L) Only one application among Fig. 83...97-131-132 can be supplied in the case of Ekip DIN Rail Cartridge Basic. In the case of Ekip DIN Rail Cartridge, up to three applications can be supplied among Fig. 83...97-131-132, taken once only. In addition, the Ekip Com module (if chosen) can be duplicated by choosing among Fig. 110...116.
M) To ensure correct operation, at least one module must always be present.
N) BELDEN 3105A cables or an equivalent type must be used.
O) When there are several Ekip Com modules with withdrawable circuit-breakers, contact S75I/5 must be connected once only to one single module.
P) Auxiliary voltage Uaux allows all the functions of Ekip electronic protection relays to be activated. “Galvanically separated converters” conforming to standards IEC 60950 (UL 1950) or equivalent must be used since an earthed Uaux is required.
Q) BELDEN 3105A cables or an equivalent type must be used. Maximum length 15 m.
R) Recommended RJ45 cable: CAT6 STP.
T) Short-circuit terminals 1200 on to install a termination resistor on the Local Bus.
U) Use Belden 3079A cables or equivalent. Consult White Paper 1SDC007412G0201 “Communication with SACE Emax 2 circuit-breakers” for further details.
V) Use Belden 3084A cables or equivalent. Consult White Paper 1SDC007412G0201 “Communication with SACE Emax 2 circuit-breakers” for further details.
Z) Ekip Supply cannot be used to energize the electronic relay via terminals K1 and K2.
AA) Consult Fig. 51 or 81 for the connection of W3 and W4.
AB) Use two-pole shielded cable type BELDEN 8762/8772 or equivalent. The shield must be earthed on the selectivity input side (for zone selectivity) or on both sides (for other applications).
AC) The rated maximum secondary voltage is 120V.
AD) Use insulated cables for thermocouples such as PENTRONIC TEC/SITW-24F (Type TX) or equivalent. Maximum length 3 m.
AE) Use suitable cables up to 3 meters in length compatible with the workplace in which the 4-20mA current sensor is used.
### Key XT5-XT6

- **K51/TEMP** = Temperature monitoring
- **K87** = Residual current release type RC Inst, RC Sel, RC Sel 200, RC B Type
- **KO** = Auxiliary opening relay
- **M** = Motor for opening circuit-breaker and loading closing springs
- **0 01-11...32** = Programmable signaling contacts
- **OCI** = Contact for motor starting contactor operating mechanism
- **Q SC** = Synchronism monitoring contact
- **Q** = Main circuit-breaker
- **Q/0..7** = Auxiliary contacts of the circuit-breaker open/closed
- **Q/26** = Open/Closed auxiliary used internally by protection release
- **R** = Resistor
- **R2** = Pt100 temperature sensor of motor
- **S1** = Contact controlled by the motor operator cam
- **S3/1-2** = Contacts controlled by Auto/Manual selector switch and key lock of motor
- **S4/1-2** = Early auxiliary contacts
- **S4/1-4** = Early auxiliary contacts operated by circuit-breaker mounted crank handle
- **S51** = Contact for signaling circuit-breaker open due to tripped thermomagnetic overcurrent protection release or electronic relay
- **S52** = YU/YO trip signaling contact (for voltage up to 250V)
- **S75E/1** = Contact for signaling circuit-breaker in racked out position (only applicable to withdrawable circuit-breaker versions)
- **S75E/1-2-3** = Contacts for signaling circuit-breaker in racked-in position (only applicable to withdrawable or plug-in circuit-breaker versions)
- **S75T/1** = Contact for signaling circuit-breaker in test position (only applicable to withdrawable circuit-breaker versions)
- **S87/1** = Contact for electrical signaling of residual current relay prealarm
- **S87/2** = Contact for electrical signaling of residual current relay alarm

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<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>XT5-XT6</td>
<td>See note indicated by the letter</td>
</tr>
<tr>
<td>A12</td>
<td>Ekip Com type Interface unit</td>
</tr>
<tr>
<td>A13</td>
<td>Ekip Signaling 10K type signaling unit</td>
</tr>
<tr>
<td>A14</td>
<td>MOE-E type stored energy motor operator actuating unit</td>
</tr>
<tr>
<td>A15</td>
<td>Ekip Multimeter type measurement unit</td>
</tr>
<tr>
<td>A16</td>
<td>Ekip Micro Module I/O type interface unit</td>
</tr>
<tr>
<td>A17</td>
<td>MOE type stored energy motor operator actuating unit</td>
</tr>
<tr>
<td>A18</td>
<td>Ekip DIN Rail Cartridge Basic</td>
</tr>
<tr>
<td>A19</td>
<td>Ekip DIN Rail Cartridge</td>
</tr>
<tr>
<td>BUS1</td>
<td>Serial interface with external bus</td>
</tr>
<tr>
<td>BUS2</td>
<td>Redundant serial interface with external bus</td>
</tr>
<tr>
<td>LINK BUS</td>
<td>Interface with external Link bus</td>
</tr>
<tr>
<td>D</td>
<td>Electronic time delay device for undervoltage release coil YU, outside circuit-breaker (only for voltages up to 250V)</td>
</tr>
<tr>
<td>H2</td>
<td>Signaling lamp for stored energy motor operator blocked</td>
</tr>
<tr>
<td>I 01-11...32</td>
<td>Programmable digital inputs</td>
</tr>
<tr>
<td>I 41-51</td>
<td>Analog inputs from 4-20mA sensor</td>
</tr>
<tr>
<td>I 42-44</td>
<td>Analog inputs temperature sensor</td>
</tr>
<tr>
<td>I Pt 100</td>
<td>Analog input from Pt 100 temperature sensor of motor</td>
</tr>
<tr>
<td>I reset</td>
<td>Digital input for resetting tripped motor starting contactor operating unit</td>
</tr>
<tr>
<td>J...</td>
<td>Connectors for auxiliary circuits of a withdrawable circuit-breaker. Withdrawal of connectors occurs at the same time as that of circuit-breaker</td>
</tr>
<tr>
<td>K</td>
<td>Motor starting contactor</td>
</tr>
<tr>
<td>K51</td>
<td>Ekip type electronic relay for overcurrent protection</td>
</tr>
<tr>
<td>K51/CI</td>
<td>Motor starting contactor operator module</td>
</tr>
<tr>
<td>K51/COM</td>
<td>Communication module</td>
</tr>
<tr>
<td>K51/SIGN</td>
<td>Signaling module</td>
</tr>
<tr>
<td>K51/SUPPLY</td>
<td>Auxiliary supply module (110-240VAC/DC and 24-48Vdc)</td>
</tr>
<tr>
<td>K51/SYNC</td>
<td>Synchronizing module</td>
</tr>
</tbody>
</table>
Reading information
Information on how to read the diagrams

S87/3  = Contact for electrical signaling of circuit-breaker open due to residual current relay trip
SC    = Pushbutton or contact for closing the circuit-breaker
SC3   = Motor start pushbutton
SD    = Residual current relay supply disconnector
SO    = Pushbutton or contact for opening circuit-breaker
SO3   = Motor stop pushbutton
SR    = Electrical reset pushbutton or contact
SY/1...3 = Contacts for signaling circuit-breaker open due to tripped overcurrent protection relay, thermomagnetic release and coils YO, Y01, Y02, YU (triped position)
TI    = Toroidal current transformer
TI/L1-L2-L3 = L1-L2-L3 phase current transformer
TI/N  = Current transformer on neutral
TU2   = Insulation voltage transformer (outside circuit-breaker)
Uaux  = Auxiliary supply voltage
V1    = Circuit-breaker applications
V2    = Motor operator applications
V4    = Indicative switchgear and connections for operation and signaling, outside circuit-breaker
V5    = Ekip DIN Rail Cartridge Basic or Ekip DIN Rail Cartridge applications
W2    = Serial interface with internal bus (local bus)
W9...14 = Connector RJ45 for interface unit and for communication modules
W9R...12R = Connector RJ45 for redundant communication modules
X3-X8 = Protection relay connectors
XB..  = Three-way connector for auxiliary circuits of plug-in circuit-breaker
XC..  = Six-way connector for auxiliary circuits of plug-in circuit-breaker
XC2-3 = Six-way connector for auxiliary circuits of plug-in circuit-breaker for voltage up to 400V
XCT1-2 = Terminal box of Ekip DIN Rail Cartridge Basic or Ekip DIN Rail Cartridge
XD.. = Nine-way connector for auxiliary circuits of plug-in circuit-breaker
XE.. = Fifteen-way connector for auxiliary circuits of plug-in circuit-breaker
XF.. = Ekip Corn type interface unit connector
XH1   = Protection relay connector
XV    = Terminal box of circuit-breaker applications
YC    = Closing coil of stored energy motor operator
YO    = Opening coil
YO1   = Coil for opening due to overcurrent
YO2   = Opening coil of residual current relay
YU    = Undervoltage coil
YU/0  = Undervoltage and opening coil (Combo)
Notes XT5-XT6
A) The presence of an auxiliary supply is required for the local bus and zone selectivity functions (see Fig. 41-78).
B) The undervoltage coil is provided for power supply branched on the supply side of the circuit-breaker or from an independent source: circuit-breaker can only close when coil is energized (closing lock is obtained mechanically).
C) Contacts S4/1 and S4/2 of Fig. 7-10-15 open circuit when circuit-breaker is open and close it again when a manual closing command is imparted by means of the rotary handle, in accordance with the Standards governing machine tools (however, circuit-breaker will not close if undervoltage release is not being supplied).
D) Only for XT5 F-P.
E) Only for XT6.
G) If a three-pole fixed circuit-breaker with current transformer on the neutral conductor outside the circuit-breaker is used, the terminals of the TI/N transformer must be short-circuited when the circuit-breaker must be removed.
H) "Galvanically separated converters" conforming to standards IEC 60950 (UL 1950) or equivalent must be used since an earthed Uaux is required.
I) Mandatory in the presence of any sort of Ekip module.
L) Only one application among Fig. 79...93-131-132 can be supplied in the case of Ekip DIN Rail Cartridge Basic. In the case of Ekip DIN Rail Cartridge, up to three applications can be supplied among Fig. 79...93-131-132, taken once only. In addition, the Ekip Com module (if chosen) can be duplicated by choosing among Fig. 110...116.
M) To ensure correct operation, the Ekip Supply module and at least one module must always be present.
N) BELDEN 3105A cables or an equivalent type must be used.
O) When there are several Ekip Com modules with withdrawable circuit-breakers, contact 5751/2 must be connected once only to one single module.
P) Auxiliary voltage Uaux allows all the functions of Ekip electronic protection relays to be activated. "Galvanically separated converters" conforming to standards IEC 60950 (UL 1950) or equivalent must be used since an earthed Uaux is required.
Q) BELDEN 3105A cables or an equivalent type must be used. Maximum length 15 m.
R) Recommended RJ45 cable: CAT6 STP.
T) Short-circuit terminals 1200 on to install a termination resistor on the Local Bus.
U) Use Belden 3079A cables or equivalent. Consult White Paper 1SDC007412G0201 "Communication with SACE Emax 2 circuit-breakers" for further details.
V) Use Belden 3084A cables or equivalent. Consult White Paper 1SDC007412G0201 "Communication with SACE Emax 2 circuit-breakers" for further details.
Z) Ekip Supply cannot be used to energize the electronic relay via terminals K1 and K2.
AA) Consult Fig. 78 for the connection of W3 and W4.
AB) Use two-pole shielded cable type BELDEN 8762/8772 or equivalent. The shield must be earthed on the selectivity input side (for zone selectivity) or on both sides (for other applications).
AC) The rated maximum secondary voltage is 120V.
AD) Use insulated cables for thermocouples such as PENTRONIC TEC/SITW-24F (Type TX) or equivalent. Maximum length 3 m.
AE) Use suitable cables up to 3 meters in length compatible with the workplace in which the 4-20mA current sensor is used.
AG) Relay type TMG for XT5 only
AH) Designation Connector X .. -> X3 for XT5; X4 for XT6.
### Reading information

**Information on how to read the diagrams**

#### Key XT7-XT7M

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>See note indicated by the letter</td>
</tr>
<tr>
<td>A1</td>
<td>Applications located on the moving part of the circuit-breaker</td>
</tr>
<tr>
<td>A3</td>
<td>Applications located on the fixed part of the circuit-breaker</td>
</tr>
<tr>
<td>A4</td>
<td>Indicative devices and connections for control and signaling, outside the circuit-breaker</td>
</tr>
<tr>
<td>A13</td>
<td>Signaling unit type Ekip Signalling 10K</td>
</tr>
<tr>
<td>A15</td>
<td>Metering unit type Ekip Multimeter</td>
</tr>
<tr>
<td>BUS1</td>
<td>Serial interface with external bus</td>
</tr>
<tr>
<td>BUS2</td>
<td>Redundant serial interface with external bus</td>
</tr>
<tr>
<td>LINK BUS</td>
<td>Interface with the external Link bus</td>
</tr>
<tr>
<td>D</td>
<td>Electronic time-lag device of YU under voltage coil, outside the circuit-breaker</td>
</tr>
<tr>
<td>GZi(DBi)</td>
<td>Zone selectivity input for G protection or input in &quot;reverse&quot; direction for D protection</td>
</tr>
<tr>
<td>GZo(DBo)</td>
<td>Zone selectivity output for G protection or output in &quot;reverse&quot; direction for D protection</td>
</tr>
<tr>
<td></td>
<td>Programmable digital inputs</td>
</tr>
<tr>
<td></td>
<td>Analogue inputs from temperature sensor</td>
</tr>
<tr>
<td></td>
<td>Analogue inputs from 4-20mA sensor</td>
</tr>
<tr>
<td>K51</td>
<td>Ekip type electronic release for overcurrent protection</td>
</tr>
<tr>
<td>K51/COM</td>
<td>Communication module</td>
</tr>
<tr>
<td>K51/MEAS</td>
<td>Measurement module</td>
</tr>
<tr>
<td>K51/SIGN</td>
<td>Signaling module</td>
</tr>
<tr>
<td>K51/SUPPLY</td>
<td>Auxiliary supply module (110-220VAC/DC and 24-48VDC)</td>
</tr>
<tr>
<td>K51/SYNC</td>
<td>Synchronization module</td>
</tr>
<tr>
<td>K51/TEMP</td>
<td>Temperature monitoring module</td>
</tr>
<tr>
<td>K51/YC</td>
<td>Closing command from EKIP protection release</td>
</tr>
<tr>
<td>K51/YO</td>
<td>Opening command from EKIP protection release</td>
</tr>
<tr>
<td>M</td>
<td>Motor for loading closing springs</td>
</tr>
<tr>
<td>O</td>
<td>Programmable signaling contacts</td>
</tr>
<tr>
<td>O SC</td>
<td>Contact for synchronism control</td>
</tr>
<tr>
<td>Q</td>
<td>Circuit-breaker</td>
</tr>
<tr>
<td>Q/1...25</td>
<td>Open/close auxiliary contacts of circuit-breaker</td>
</tr>
<tr>
<td>Q/26-27</td>
<td>Open/close auxiliary contacts used internally by protection release</td>
</tr>
<tr>
<td>RC</td>
<td>RC (residual current) protection sensor</td>
</tr>
<tr>
<td>RTC EKIP</td>
<td>Ready to close auxiliary contact of circuit-breaker, used internally by protection release</td>
</tr>
<tr>
<td>RTC</td>
<td>Contact for signaling circuit-breaker is ready to close</td>
</tr>
<tr>
<td>S4/1-2</td>
<td>Early auxiliary contacts (AUE1-2)</td>
</tr>
<tr>
<td>S33M/1-2</td>
<td>Limit contacts of spring loading motor</td>
</tr>
<tr>
<td>S43</td>
<td>Switch for presetting remote/local control</td>
</tr>
<tr>
<td>S51</td>
<td>Contact for signaling circuit breaker open due to tripping of overcurrent protection release</td>
</tr>
<tr>
<td>S52</td>
<td>Contact for signaling circuit breaker open due to tripping of opening coil and undervoltage coil</td>
</tr>
<tr>
<td>S75E/1-2</td>
<td>Contacts for signaling circuit-breaker in racked-out position (only provided with withdrawable circuit-breakers)</td>
</tr>
<tr>
<td>S75I/1-2-5</td>
<td>Contacts for signaling circuit-breaker in racked-in position (only provided with withdrawable circuit-breakers)</td>
</tr>
<tr>
<td>S75T/1-2</td>
<td>Contact for signaling circuit-breaker in test position (only provided with withdrawable circuit-breakers)</td>
</tr>
<tr>
<td>SC</td>
<td>Pushbutton or contact for closing circuit-breaker</td>
</tr>
<tr>
<td>S0</td>
<td>Pushbutton or contact for immediate opening of circuit-breaker</td>
</tr>
<tr>
<td>S01</td>
<td>Pushbutton or contact for opening circuit-breaker with time-delayed trip resetting of S51 trip contact</td>
</tr>
<tr>
<td>SR</td>
<td>Pushbutton or contact for electrical resetting of S51 trip contact</td>
</tr>
<tr>
<td>SY</td>
<td>Contact for signaling circuit breaker open due to tripping of overcurrent protection release and of Y0, Y02, YU coils (tripped position)</td>
</tr>
<tr>
<td>Szi(DFi)</td>
<td>Zone selectivity input for S protection or input in &quot;forward&quot; direction for S protection</td>
</tr>
</tbody>
</table>
**WIRING DIAGRAMS**

**Notes XT7-XT7M**

A) Auxiliary power supply must be present for zone selectivity and local bus functions (consult Fig. 31-32).

B) When there are mixed auxiliary contacts, 01 and 02 are 400V, while 03-04 are 24V.

C) Always supplied with Ekip Com module.

D) Always supplied with motor for loading closing springs in Fig. 13.

E) A voltage transformer is mandatory in the case of external sockets. External sockets are mandatory for systems for over 690V rated voltage. Admissible maximum rated secondary voltage is 230V.

F) Connections between RC residual current protection sensor and poles of connector X (or XV) of the circuit-breaker must be made of 4-pole shielded cable with paired braided conductors (BELDEN 9696 paired type or equivalent) no more than 10 m in length.

G) Earth fault protection (Gext) by means of a current sensor on the neutral point of the MV/LV transformer is available with all electronic protection releases equipped with display interface with LSIG protections. The connection between terminals 1 and 2 of the UI/O current transformer and Ge+ and Ge- poles of connector X (or XV) must be made of shielded and stranded 2-pole cable (BELDEN 8841 or equivalent) no more than 15 m in length.

H) Use the supplied cable to make the connection. There must be no break in the cable. Use of other cables or extensions using intermediate terminal boxes is not allowed. With a circuit-breaker, poles Ne+ and Ne- of connector X (or XV) are short-circuited unless the external neutral is present: enable short-circuit if connection is absent.

I) Mandatory if any Ekip module is present.

J) Up to two applications between Fig. 41...59 taken only once can be supplied. The Ekip Com module selected can be duplicated by choosing between Fig. 61...67.

**Symbols**

- **SZo(DFo)** = Zone selectivity output for S protection or output in “forward” direction for D protection
- **TI/L1-L2-L3** = Current transformer phase L1-L2-L3
- **TI/N** = Current transformer on neutral
- **TU1-2** = Insulation voltage transformer (outside circuit-breaker)
- **Uaux** = Auxiliary supply voltage
- **Ul/L1-L2-L3** = Current sensor phase L1-L2-L3
- **Ul/N** = Current sensor on neutral
- **Ul/O** = Single-pole current sensor
- **W2** = Serial interface with internal bus (local bus)
- **W9...14** = RJ45 connector for communication modules
- **W9R...12R** = RJ45 connector for redundant communication modules
- **X** = Delivery connector for auxiliary circuits of withdrawable circuit-breaker
- **XB1...7** = Connectors for circuit-breaker applications
- **XF** = Delivery terminal box for position contacts of withdrawable circuit-breaker
- **XK1...3** = Connectors for auxiliary circuits of EKIP protection release
- **XK7** = Connector for auxiliary circuits of communication modules
- **XV** = Delivery terminal board for auxiliary circuits of fixed circuit-breaker
- **YC** = Closing coil
- **YO** = Opening coil
- **YO1** = Opening coil for overcurrent
- **YO2** = Second opening coil
- **YR** = Coil for electrical resetting of trip contact S51
- **YU** = Undervoltage coil
Reading information
Information on how to read the diagrams

M) Opening and closing commands from Ekip Actuator can be obtained with Y0 and Y0 coils, with 110-120VDC and 240-250VAC maximum voltage values.
N) Use BELDEN 3105A cables or equivalent.
O) Contact 8751/5 should be connected once only to a single module when there are several Ekip Com modules with withdrawable circuit-breakers.
P) Auxiliary voltage Uaux. Enables all the functions of the EKIP electronic protection releases to be activated. “Galvanically separated convertors” conforming to standard IEC 60950 (UL 1950) or equivalent must be used since an earthed Uaux is required.
Q) Use BELDEN 3105A cables or equivalent not more than 15m in length.
R) Recommended RJ45 cable: CAT6 STP.
T) Short-circuit terminals 1200 on if a terminating resistor must be connected to the Local Bus.
U) Use Belden 3079A cables or equivalent. For further details see White Paper 1SDCO0741200201 "Communication with SACE Emax 2 Circuit-Breakers”.
V) Use Belden 3084A cables or equivalent. For further details see White Paper 18DCOO7412G0201 "Communication with SACE Emax 2 Circuit-Breakers”.
W) Contacts S4/1 and S4/2 in Fig. 17 can be used to open the undervoltage coil circuit shown in Fig. 73-74 when the circuit-breaker is open and to close it again in the presence of a closing command, in compliance with the Standard governing machine tools.
X) Contact S52 signals the state of the Y02 / YU opening coils.
For coil Y02, the contact connected to poles 25-28 of connector X (or XV) is closed with Y02 energized (circuit-breaker opening activated), contact 25-26 is closed with Y02 de-energized. For coil YU, the contact connected to poles 25-28 of connector X (or XV) is closed with YU de-energized (circuit-breaker opening activated), contact 25-26 is closed with YU energized.
Z) Ekip Supply cannot be used for direct supply to the electronic release by means of terminals K1 and K2.
AA) See Fig. 31 and 32 for connection of W3 and W4.
AB) Use BELDEN 8762/8722 two-pole shielded cable or equivalent. The shield must be earthed on the selectivity input side (for zone selectivity) or on both sides (for other applications).
AC) Admissible maximum rated secondary voltage is 120V.
AD) Use PENTRONIC TEC/SITW-24F (type TX) insulated cables for thermocouples or equivalent, no more than 1m in length.
AE) Use appropriate cables compatible with the workplace in which the 4-20mA current sensor is used and not more than 3m in length.
Wiring diagrams

Three-pole or four-pole circuit-breaker with thermal magnetic trip unit

Three-pole circuit-breaker with magnetic trip unit

Three-pole or four-pole molded case switch

Three-pole or four-pole version circuit-breaker with Ekip Dip trip unit
Wiring diagrams

Three-pole or four pole version circuit-breaker XT5-XT6 with Ekip Touch trip unit

Three-pole or four-pole version circuit-breaker with thermal magnetic trip unit and residual current device

Three-pole or four-pole version circuit-breaker with Ekip Dip trip unit and residual current device

Three-pole or four pole version circuit-breaker with Ekip Touch trip unit and residual current device
Four-pole circuit-breaker with thermal magnetic trip unit and RC Sel 200 or RC B type residual current release

Four-pole circuit-breaker with electronic trip unit and RC Sel residual current release

Four-pole circuit-breaker with electronic trip unit and RC Sel residual current release

Three-pole fixed version circuit-breaker with Ekip Dip trip unit with current transformer on the neutral conductor outside the circuit-breaker
Wiring diagrams

Three-pole fixed version circuit-breaker with Ekip Touch trip unit with current sensor on the neutral conductor outside the circuit-breaker.

Diagram recommended for three-pole plug-in or withdrawable version circuit-breakers with Ekip Dip trip unit with current sensor on the neutral conductor outside the circuit-breaker.

Advisable diagram for plug-in or withdrawable version three-pole circuit-breakers with Ekip Dip trip unit, current transformer and voltage connection on neutral conductor, external to circuit-breaker.
Wiring diagrams
Diagrams for XT1...XT4

1) Shunt opening release.
2) Supplementary shunt opening release (only for four-pole circuit-breakers).
4) Supplementary permanent shunt opening release (only for four-pole circuit-breakers).
5) Instantaneous undervoltage release (see Notes B and F).
6) Undervoltage release with electronic time delay device outside the circuit-breaker, see note B).
Wiring diagrams
Diagrams for XT1...XT4

7) Instantaneous undervoltage release in the version for machine tools with one contact in series (see notes B, C and F).
8) Instantaneous undervoltage release in the version for machine tools with two contacts in series (see Notes B, C and F).
9) First auxiliary early contact operated by the crank handle.
10) Second auxiliary early contact operated by the crank handle.
11) One changeover contact for electrical signaling of circuit-breaker open due to tripping of the residual current release type RC Inst, RC Sel, RC B Type or RC Sel 200.
12) Residual current release circuits type RC Sel, RC B Type or RC Sel 200.
13) Two contacts for electrical signaling of residual current release pre-alarm and alarm type RC Sel, RC B Type or RC Sel 200.
Motor operator

21) Direct control motor operator (MOD) (only for XT1 and XT3 fixed or plug-in circuit-breakers) (see note I).

22) Motor operator with stored energy (MOE) (only for circuit-breakers XT2 and XT4).

23) A contact for electrical signaling of stored energy motor operator that can be operated remotely.
Signaling contacts

31) One changeover contact for electrical signaling of circuit-breaker open or closed and one changeover contact for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V) (see notes E and I).

32) Two changeover contacts for electrical signaling of circuit-breaker open or closed, two changeover contacts for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) and one changeover contact for electrical signaling of circuit-breaker open due to tripping of the ther momagnetic or electronic trip unit (only for voltages up to 250V).

33) Three changeover contacts for electrical signaling of circuit-breaker open or closed and two changeover contacts for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V).
Signaling contacts

34) Three changeover contacts for electrical signaling of circuit-breaker open and one changeover contact for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal-magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V).
35) One changeover contact for electrical signaling of circuit-breaker open due to tripping of the thermal magnetic electronic trip unit (only for voltages up to 250V).
36) Two changeover contacts for electrical signaling of circuit-breaker open or closed and one changeover contact for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V).
37) One changeover contact for electrical signaling of circuit-breaker open or closed and one changeover contact for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltage up to 400V).
38) Two changeover contacts for electrical signaling of circuit-breaker open or closed (only for voltage up to 400V).
Wiring diagrams
Diagrams for XT1...XT4

39) Three supplementary changeover contacts for electrical signaling of circuit-breaker open or closed (only for fixed or plug-in version circuit-breakers).
41) First changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
42) Second changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
43) Third changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
44) Fourth changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
45) First changeover position contact of the circuit-breaker, for electrical signaling of isolated (only for withdrawable version circuit-breakers).
46) Second changeover position contact of the circuit-breaker, for electrical signaling of isolated (only for withdrawable version circuit-breakers).
48) Auxiliary circuits of the 24V auxiliary power supply unit and of the HMI030 type interface unit (see note E).
Signaling contacts

104) Auxiliary circuits of Ekip Com or Kit of 24V DC auxiliary voltage for electronic trip units and of Ekip Multimeter display.
Wiring diagrams

Diagrams for XT1...XT4

Electronic trip unit Ekip LSI, Ekip LSIG, connected with Ekip Display or Ekip LED Meter

51) Auxiliary circuits of the electronic trip unit type Ekip LSI, Ekip LSIG or Ekip MLRIU connected to display unit type Ekip Display (display) or Ekip LED Meter (current display).
Auxiliary circuit of Ekip-Com and HMI030

52) Auxiliary circuits of the Ekip Com type interface unit and of the HMI030 type interface unit (see note E).
Electronic trip unit Ekip LSI or Ekip LSIG connected to interface unit Ekip Com and with actuator unit type MOE-E for the stored energy motor operator.

23) One Contact for electrical signaling of stored energy motor operator that can be operated remotely.

53) Auxiliary circuits of the electronic trip unit type Ekip LSI or Ekip LSIG connected to interface unit type Ekip Com and with actuator unit type MOE-E for the stored energy motor operator.
Instructions for resetting the circuit-breaker after tripping

Selection of the type of circuit-breaker resetting depends on design requirements and on service conditions. Resetting can take place following tripping of the following releases:

- overcurrent;
- undervoltage;
- shunt opening.

The following three possibilities are suggested (see diagrams in the following page):

1. Only manual resetting
   To be wired (by the customer): contact SO1, contact SY/1 and the auxiliary relay KO (only for MOD).
   Opening is prevented until the circuit-breaker is in the tripped position.
   To reset the circuit-breaker it is necessary to activate the special lever on the front of the motor until the circuit-breaker goes into the open position.

2. Electrical resetting under the operator’s responsibility
   To be wired (by the customer): contact SO1, SO2, contact SY/1 and the auxiliary relay KO (only for MOD).
   Opening of the circuit-breaker is allowed by means of the contact S02. Such contact shall be protected to avoid unwanted activation and can be used only if the information received by the operator make it possible to exclude tripping due to a short-circuit, or if the causes of the short-circuit have been removed.

3. Electrical resetting always allowed
   To be wired (by the customer): contact SO1, SO2, contact SY/1 and the auxiliary relay KO (only for MOD).
   Opening is always allowed by means of contact S02.

NB: If the magnetic, thermal magnetic or electronic trip unit is present, it is necessary to find the causes which led to the circuit-breaker being in the tripped position so as to prevent reclosing under short-circuit conditions. In all cases, manual resetting is always allowed.
Wiring diagrams
Diagrams for XT1...XT4
55a) Interface unit type Ekip Com with direct supply to the trip unit and MOE-E motor operator
54a) Stand-alone interface unit type Ekip Com with MOE-E motor operator
61) Modbus RTU STA interface of Ekip Com Unit to be installed inside the circuit-breaker
62a) Modbus RTU interface of Ekip Com Unit to be installed inside the circuit-breaker
63a) Modbus TCP STA interface of Ekip Com Unit to be installed inside the circuit-breaker
64) Modbus TCP interface of Ekip Com Unit to be installed inside the circuit-breaker
65) Profinet interface of Ekip Com Unit to be installed inside the circuit-breaker
66) Ethernet IP interface of Ekip Com Unit to be installed inside the circuit-breaker
67) IEC61850 interface of Ekip Com Unit to be installed inside the circuit-breaker
68) Ekip Link interface of Ekip Com Unit to be installed inside the circuit-breaker
69) Ekip Com Hub interface of Ekip Com Unit to be installed inside the circuit-breaker

61 - 62 - 63 - 64 - 65 - 66 - 67 - 68 - 69 as an alternative to each other
Wiring diagrams
Diagrams for XT1...XT4

131) Motor starting module Ekip CI
132) Motor starting module Ekip CI with ABB contactor series AF
Wiring diagrams
Diagrams for XT5 and XT6

1) Left opening coil - YO
2) Right opening coil - YO

(1) Up to 380-440V YO version
5) Instantaneous left undervoltage coil - YU\(^{(1)}\)
6) Left undervoltage coil with electronic time-delay device outside the circuit-breaker - YU\(^{(1)}\)
7) Instantaneous left undervoltage coil in the version for machine tools with a contact in series - YU\(^{(1)}\)

\(^{(1)}\) Up to 380-440V YU version
8) Instantaneous right undervoltage coil - YU (1)
9) Right undervoltage coil with electronic time-delay device outside the circuit-breaker - YU (1)
10) Instantaneous right undervoltage coil in the version for machine tools with a contact in series - YU (1)

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Wiring diagrams
Diagrams for XT5 and XT6

(1) Up to 380-440V YU version
15) Instantaneous undervoltage coil in the version for machine tools with two contact in series - YU
**Wiring diagrams**

Diagrams for XT5 and XT6

18) Open/closed circuit-breaker signalling contact and circuit-breaker tripped signalling contact (for voltage up to 250V)

19) Open/closed circuit-breaker signalling contact and circuit-breaker tripped signalling contact (for voltage up to 250V) left position

20) Signalling contact for minimum voltage relay tripping
21) Three open/closed circuit-breaker signalling contacts and circuit-breaker tripped signalling contacts (for voltage up to 250V)

22) Open/closed circuit-breaker 2 signalling contacts (for voltage up to 400V)
Wiring diagrams
Diagrams for XT5 and XT6

23) Protection relay tripped signalling contact (for voltage up to 250V)
24) Two open/closed circuit-breaker signalling contacts and circuit-breaker tripped signalling contacts (for voltage up to 250V)
25) Open/closed circuit-breaker signalling contacts and circuit-breaker tripped signalling contacts (for voltage up to 400V)
28) Circuit-breaker test position signalling contacts
29) Circuit-breaker disconnected position signalling contacts
30) Circuit-breaker inserted position signalling contacts
31) Circuit-breaker inserted position signalling contacts
32) Circuit-breaker inserted position signalling contacts

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28 - 29
Only for withdrawable version circuit-breaker

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30 - 31 - 32
Only for plug-in or withdrawable version circuit-breaker
Wiring diagrams
Diagrams for XT5 and XT6

35) Differential relay tripped signalling contact S87/3
36) Differential relay circuits K87
37) Two contacts signalling differential relay pre-alarm and alarm S87
39) Auto/manual/lock status feedback
40) Stored energy motor operator (MOE)
Wiring diagrams
Diagrams for XT5 and XT6

41) Direct auxiliary supply 24Vdc and local bus

As an alternative to figure 78
42) Interface unit type Ekip Com

![Wiring Diagram]

W2 (LOCAL BUS)

K51

CC1 Cable

Communication

62
64
65
66
67
68
69

Exip Com
Wiring diagrams
Diagrams for XT5 and XT6

43) Stand alone interface unit type Ekip Com

![Diagram of XT5 and XT6 wiring](image-url)
39) Auto/manual/lock status feedback
44) Stand alone interface unit type Ekip Com with MOE-E motor operator
Wiring diagrams
Diagrams for XT5 and XT6

39) Auto/manual/lock status feedback
45) Interface unit type Ekip Com with direct supply to relay and MOE-E motor operator
39) Auto/manual/lock status feedback
46) Interface unit type Ekip Micro Module I/O with MOE-E motor operator
47) Ekip Micro Module I/O
Wiring diagrams
Diagrams for XT5 and XT6

50) Zone selectivity
61) Modbus RTU STA interface of Ekip Com unit
62) Modbus RTU interface of Ekip Com unit
63) Modbus TCP STA interface of Ekip Com unit
64) Communication interface of Ekip Com unit (see table below)
65) Communication interface of Ekip Com unit (see table below)
66) Communication interface of Ekip Com unit (see table below)
67) Communication interface of Ekip Com unit (see table below)
68) Communication interface of Ekip Com unit (see table below)
69) Communication interface of Ekip Com unit (see table below)

As in alternative to each other
Wiring diagrams
Diagrams for XT5 and XT6

71) Ekip signalling 1K
72) Ekip signalling maintenance module
94) Ekip CI

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71 - 72
As in alternative to each other
131) Motor starting module Ekip CI
Wiring diagrams
Diagrams for XT5 and XT6

132) Motor starting module Ekip CI with ABB contactor series AF

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[Diagram of Wiring Diagrams]

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141) Ekip signalling 10K signalling unit
Wiring diagrams
Diagrams for XT5 and XT6

142) Ekip Multimeter unit with relay and direct auxiliary supply 24Vdc
143) Ekip Multimeter unit with relay and auxiliary supply through module 110-240Vac/dc or 24-48Vdc
Wiring diagrams

Diagrams for XT7 and XT7 M

Three-pole or four-pole circuit-breaker with Ekip Dip trip unit

Three-pole or four-pole circuit-breaker with Ekip Touch trip unit

Three-pole or four-pole molded case switch
11a) Protection trip unit tripped signaling contact – S51
12a) Contact for signaling position of loaded springs – S33M
13a) Motor for loading closing springs – M
14a) Trip contact reset coil – YR

12 - 13 - 14 only for XT7 M circuit-breakers
Wiring diagrams
Diagrams for XT7 and XT7 M

16) Tripped position breaker signaling contact SY
17) Auxiliary early contacts – S4

16 - 17 only for XT7 circuit-breakers
24) RC residual current sensor input (ANSI 64&50N TD)
24a) RC differential ground fault protection sensor input (ANSI 87N)

24 - 24a as an alternative to each other and to figure 25
Wiring diagrams
Diagrams for XT7 and XT7 M

25) Transformer star centre sensor input
27) Current sensor input on external neutral (only for 3-pole circuit breaker)
70) Y02/YU opening coil state signaling contact – S52
71) Ready to close contact – RTC
72) Second opening coil – YO2
73) Undervoltage coil – YU
74) Undervoltage coil with externa time-lag device YU, D

70 only for XT7 circuit-breakers
71 only for XT7 M circuit-breakers
72 - 73 - 74 as an alternative to each other
Wiring diagrams
Diagrams for XT7 and XT7 M

75) First opening coil – YO
76) First opening coil with control from protection trip unit – YO, Ekip Com Actuator
77) First closing coil – YC
78) First opening coil with control from protection trip unit – YC, Ekip Com Actuator

75 - 76 as an alternative to each other
77 - 78 only for XT7 M circuit-breakers
77 - 78 as an alternative to each other
81) Open/Close auxiliary contacts of the circuit-breaker (first set)
91a) Supplementary open/close auxiliary contacts outside the circuit-breaker
Wiring diagrams
Diagrams for XT7 and XT7 M

95a) Contacts for signaling of circuit-breaker in racked-in, test, racked-out position
Wiring diagrams
XT2-XT4-XT5-XT7-XT7 M modules

75a) Ekip Cartridge for one module and one Ekip Supply
76a) Ekip Cartridge for three modules and one Ekip Supply

75 - 76 as an alternative to each other
Wiring diagrams
XT2-XT4-XT5-XT7-XT7 M modules

Installation slot
For XT2-XT4-XT5 Ekip Cartridge

For XT7-X7M terminal box

81a) Ekip Supply: auxiliary supply through module 110-240Vac/dc or 24/48Vdc and local bus

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81 as an alternative to figure 49
83) Ekip Signalling 2K-1
84) Ekip Signalling 2K-2
Wiring diagrams
XT2-XT4-XT5-XT7-XT7 M modules

85) Ekip Signalling 2K-3
86) Ekip Synchrocheck
87) Ekip Signalling 3T-1
88) Ekip Signalling 3T-2

![Wiring Diagrams](image-url)
Wiring diagrams
XT2-XT4-XT5-XT7-XT7 M modules

XT2-XT4-XT7-XT7 M

89) Ekip Com Modbus RTU
90) Ekip Com Modbus TCP
92) Ekip Com Ethernet/IP
94) Ekip Com IEC61850
95) Ekip Link
96) Ekip Com HUB
97) Ekip Com Profinet
91) Ekip Com Profibus DP
93) Ekip Com DeviceNet
XT5

85) Ekip Com Modbus RTU
86) Ekip Com Modbus TCP
87) Ekip Com Profinet
88) Ekip Com I/P™
89) Ekip Com IEC61850
90) Ekip Com Link
91) Ekip Com HUB
92) Ekip Com Profibus DP
93) Ekip Com DeviceNet™
Wiring diagrams
XT2-XT4-XT5-XT7-XT7 M modules

Installation slot
For XT2-XT4-XT5 Ekip Cartridge

For XT7-X7M terminal box

110) Ekip Com Modbus RTU redundant
111) Ekip Com Modbus TCP redundant
113) Ekip Com Profinet redundant
115) Ekip Com Ethernet IP redundant

116) Ekip Com IEC61850 redundant
112) Ekip Com Profibus DP redundant
114) Ekip Com Devicenet™ redundant