Introducing the New AF2050 Contactor
– a jump to higher ratings

Large Contactors with Electronic Control

Large contactors are used in many different applications and for different utilization categories. ABB is now introducing one step higher ratings with the new AF2050 especially designed for wind turbine generator control and large generator sets.

The AF2050 contactor is a 2100 A contactor specially designed for AC-1 application requirements with the same features as the existing Large AF Contactors, AF400-AF1650.

The AF2050 contactor can be used to provide reliable grid connections even in locations with unstable networks and uncertain load conditions.

- Higher rating, 2100 A up to 1000 V
- Wide coil voltage range, 100-250 VAC/DC
- Direct PLC control possibility
- Coordination with ABB Emax Air Circuit Breaker

### Ordering Details

<table>
<thead>
<tr>
<th>IEC</th>
<th>UL</th>
<th>Auxiliary contacts fitted</th>
<th>Catalog number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rated current</th>
<th>General use</th>
<th>AC-1</th>
<th>A</th>
<th>A</th>
<th>state coil voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2050</td>
<td>600V</td>
<td>1 1</td>
<td>2 2</td>
<td>AF2050-30-11-70</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AF2050-30-22-70</td>
<td></td>
</tr>
</tbody>
</table>

Description accessories

- Main contact set: ZL2050

### Coils voltages and codes

<table>
<thead>
<tr>
<th>Voltage V - 50/60Hz</th>
<th>Voltage V d.c.</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>100...250</td>
<td>100...250</td>
<td>7 0</td>
</tr>
</tbody>
</table>

### Auxiliary Contacts

<table>
<thead>
<tr>
<th>Contacts</th>
<th>Catalog number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1N.O. - 1N.C. (inside mount)</td>
<td>CAL18-11</td>
</tr>
<tr>
<td>1N.O. - 1N.C. (outside mount)</td>
<td>CAL18-11B</td>
</tr>
<tr>
<td>1N.C. (low energy)</td>
<td>CEL18-01</td>
</tr>
<tr>
<td>1N.O. (low energy)</td>
<td>CEL18-10</td>
</tr>
</tbody>
</table>

Note: For coils and mechanical interlocks use AF1650 accessories.
General Technical Data

Rated insulation voltage $U_i$

- according to IEC 60947-4-1: $V_{1000}$
- according to UL/CSA: $V_{600}$

Rated impulse withstand voltage $U_{imp.}$: $8$ kV

Standards
Devices complying with:
- International standards: IEC 60947-4-1 / 60947-4-1
- European standards: EN 60947-4-1 / 60947-4-1
- UL: 508

Certifications - Approvals

Air temperature
- close to contactor with thermal O/L relay: $-25$ to $+70$ °C
- without thermal O/L relay: $-40$ to $+70$ °C
- for storage: $-40$ to $+70$ °C

Operating altitude: $m \leq 3000$

Magnet System Characteristics

Rated control circuit voltage (Ucmin...Uc max)

- at 50 Hz: $V_{100...250}$
- at 60 Hz: $V_{100...250}$
- d.c.: $V_{100...250}$

Coil operating limits

- according to IEC 60947-4-1: $0.85 \times Uc_{min} \ldots 1.1 \times Uc_{max}$

Drop-out voltage: in % of $Uc_{min}$ level: 55 %

Coil consumption

<table>
<thead>
<tr>
<th>Average pull-in value</th>
<th>VA</th>
<th>1900</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 Hz</td>
<td>VA</td>
<td>1900</td>
</tr>
<tr>
<td>60 Hz</td>
<td>VA</td>
<td>1700</td>
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</table>

Average holding value

<table>
<thead>
<tr>
<th>50 Hz</th>
<th>VA/W</th>
<th>48/17</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 Hz</td>
<td>VA/W</td>
<td>48/17</td>
</tr>
<tr>
<td>d.c.</td>
<td>W</td>
<td>16</td>
</tr>
</tbody>
</table>

Operating time

A1-A2 between coil energization and:

- N.O. contact closing: ms 50...80
- N.C. contact opening: ms 50...80

with PLC:

- N.O. contact opening: ms 35...55
- N.C. contact closing: ms 35...55

AF2050 3-pole Contactors Technical Data

Main Pole - Utilization Characteristics

Rated operational voltage $U_{e \ max.}$: $1000$

Rated frequency limits: Hz 25 ... 400

Conventional free-air thermal current $I_{th}$

- acc. to IEC 60947-4-1:
  - open contactors: $\theta \leq 40 ^\circ C$: $A_{2050}$
  - with bar cross-sectional area: $mm^2$: $2000$

Rated operational current $I_{AC1}$

- for air temperature close to contactor:
  - $\theta \leq 40 ^\circ C$: $A_{2050}$
  - with bar cross-sectional area: $mm^2$: $2000$

General use rating, UL

Amp-rating: 600 V $A_{2100}$

Max. making capacity: $A_{10500}$

Max. breaking capacity:

- at 440V: $A_{8400}$

Short-circuit protection

Product coordination with ABB circuit breaker. Please consult your nearest sales office for more information.

Rated short-time withstand current $I_{cw}$

- at 40 °C ambient temp., in free air, from a cold state:
  - 1 s: $A_{12000}$
  - 10 s: $A_{10000}$
  - 30 s: $A_{7500}$
  - 1 min: $A_{5500}$
  - 15 min: $A_{2200}$

Heat dissipation per pole $I_e$ /AC-1

W $125$

Max. electrical switching frequency

- for AC-1: cycles/h $300$

Electrical durability

- for AC-1, 2050 A max. 440 V:
  - max. 690 V: 50 000 operations
  - max. 1000 V: 30 000 operations

Mechanical durability

- number of operating cycles: $500 000$
- max. mechanical switching frequency cycles/h $300$

Dimensions

(in mm)

Dimensions (in mm)

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