

# 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

IEC	cUL <sub>us</sub>	Auxiliary contacts fitted	Catalog number
Rated current	General use		
AC-1	600V		
A	A		state coil voltage
2050	2100	1 1	AF2050-30-11-70
		2 2	AF2050-30-22-70
Description accessories			Catalog number
Main contact set			ZL2050

Note: For coils and mechanical interlocks use AF1650 accessories

### Coil voltages and codes

Voltage	Voltage	Code
V - 50/60Hz	V d.c.	
100...250	100...250	7 0

### Auxiliary Contacts

Contacts	Catalog number
1N.O. - 1N.C. (inside mount)	CAL18-11
1N.O. - 1N.C. (outside mount)	CAL18-11B
1N.C. (low energy)	CEL18-01
1N.O. (low energy)	CEL18-10



# AF2050 3-pole Contactors

## Technical Data

### General Technical Data

<b>Rated insulation voltage <math>U_i</math></b>		
according to IEC 60947-4-1	<b>V</b>	1000
according to UL/CSA	<b>V</b>	600

<b>Rated impulse withstand voltage</b>		
$U_{imp.}$	<b>kV</b>	8

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

### Certifications - Approvals

<b>Air temperature</b> close to contactor		
- fitted with thermal O/L relay	<b>°C</b>	-25 to +70
- without thermal O/L relay	<b>°C</b>	-40 to +70
- for storage	<b>°C</b>	-40 to +70

<b>Operating altitude</b>	<b>m</b>	≤3000
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### Magnet System Characteristics

<b>Rated control circuit voltage</b> ( $U_{cmin}...U_{c max}$ )		
- at 50 Hz	<b>V</b>	100...250
- at 60 Hz	<b>V</b>	100...250
- d.c.	<b>V</b>	100...250

<b>Coil operating limits</b>	$\theta \leq 70$ °C
according to IEC 60947-4-1	0.85 x $U_c$ min...1.1 x $U_c$ max

<b>Drop-out voltage</b> in % of $U_c$ min. level	55 %
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<b>Coil consumption</b>		
Average pull-in value		
50 Hz	<b>VA</b>	1900
60 Hz	<b>VA</b>	1900
d.c.z.	<b>W</b>	1700
Average holding value		
50 Hz	<b>VA/W</b>	48/17
60 Hz	<b>VA/W</b>	48/17
d.c.	<b>W</b>	16

<b>Operating time</b>		
A1-A2		
between coil energization and:		
N.O. contact closing	<b>ms</b>	50...80
N.C. contact opening	<b>ms</b>	50...80
between coil de-energization and:		
N.O. contact opening	<b>ms</b>	35...55
N.C. contact closing	<b>ms</b>	35...55
with PLC		
between coil energization and:		
N.O. contact closing	<b>ms</b>	40...65
N.C. contact opening	<b>ms</b>	40...65
between coil de-energization and:		
N.O. contact opening	<b>ms</b>	10 ... 30
N.C. contact closing	<b>ms</b>	10 ... 30



### Main Pole - Utilization Characteristics

<b>Rated operational voltage <math>U_e</math> max.</b>	<b>V</b>	1000
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<b>Rated frequency limits</b>	<b>Hz</b>	25 ... 400
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<b>Conventional free-air thermal current <math>I_{th}</math></b>		
acc. to IEC 60947-4-1,		
open contactors $\theta \leq 40$ °C	<b>A</b>	2050
with bar cross-sectional area	<b>mm<sup>2</sup></b>	2000 <sup>1)</sup>

<b>Rated operational current <math>I_e</math> /AC-1</b>		
for air temperature close to contactor		
$\theta \leq 40$ °C	<b>A</b>	<b>2050</b>
$\theta \leq 55$ °C	<b>A</b>	1750
$\theta \leq 70$ °C	<b>A</b>	1500
with bar cross-sectional area	<b>mm<sup>2</sup></b>	2000 <sup>1)</sup>

<b>General use rating, UL</b>		
<b>Amp-rating</b>	600 V	<b>A</b>
with busbar dim.	Inch	4//2½x¼

<b>Max. making capacity</b>	<b>A</b>	10500
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<b>Max. breaking capacity</b> at 440V	<b>A</b>	8400
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**Short-circuit protection** Product coordination with ABB circuit breaker. Please consult your nearest sales office for more information.

<b>Rated short-time withstand current <math>I_{cw}</math></b>		
at 40 °C ambient temp., in free air,		
from a cold state		
1 s	<b>A</b>	12000
10 s	<b>A</b>	10000
30 s	<b>A</b>	7500
1 min	<b>A</b>	5500
15 min	<b>A</b>	2200

<b>Heat dissipation per pole <math>I_e</math> /AC-1</b>	<b>W</b>	125
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<b>Max. electrical switching frequency</b>		
- for AC-1	<b>cycles/h</b>	300

<b>Electrical durability</b>		
- for AC-1, 2050 A		
max. 440 V		50 000 operations
max. 690 V		50 000 operations
max. 1000 V		30 000 operations

<b>Mechanical durability</b>		
- number of operating cycles		500 000
- max. mechanical switching frequency	<b>cycles/h</b>	300

1) Max. connection bar width 100 mm

### Dimensions (in mm)

