

# Contactors type AF1350-AF1650



# AF1350/AF1650 3-pole Contactors



a.c./d.c. Operated - Wide voltage range  
Electronic Coil Interface

## Application

The AF1350 and 1650 are compact 3-pole contactors designed for AC-1 applications, but can also be used in inductive circuits as by-pass contactors. Typical fields of application: main isolation contactor in windmills and gen-sets, by-pass contactor in softstarter and drive applications.

## Description

The AF1350/AF1650 3-pole contactors are of the block type design.

### ● Main poles and auxiliary contact blocks

- 3 main poles,
- 1 N.O. and 1 N.C. auxiliary contacts (1 contact block fitted on the left hand side).
- 2 N.O. and 2 N.C. auxiliary contacts (1 contact block fitted on each side)

A maximum of 4 auxiliary contact blocks can be fitted on each contactor.

### ● Electronic control

The contactors are fitted with an electronic interface controlled by a specific integrated circuit developed by ABB.

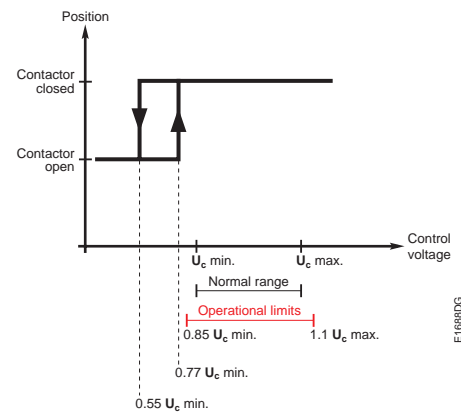
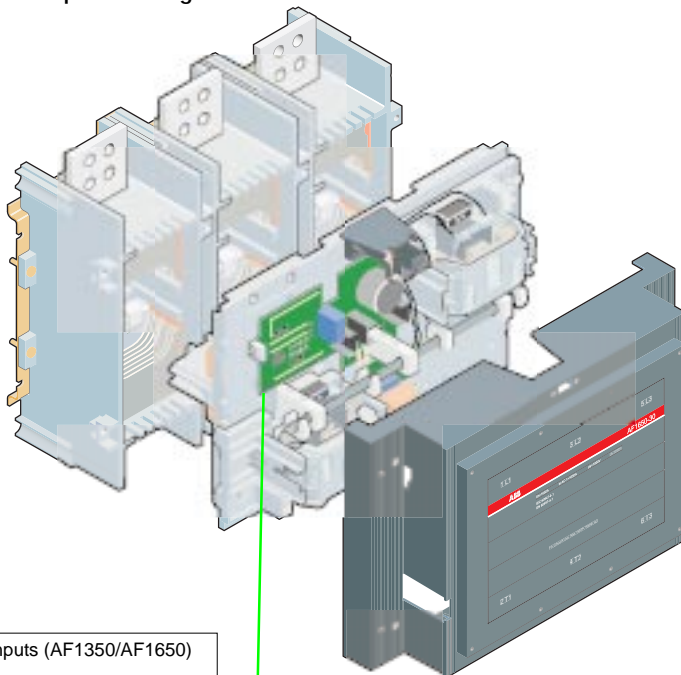
### Advantages

- Wide voltage range, 100...250 V a.c. and d.c.
- Can manage large voltage variations
- Reduced power consumption
- Very distinct closing and opening
- Noise free
- Can withstand voltage interruptions or voltage dips in the control supply ( $\leq 20$  ms)

### ● Control inputs

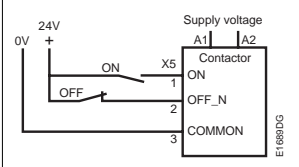
The AF1350/AF1650 contactors are as standard equipped with low voltage inputs for control, for example by a PLC (☞ see drawing below)

## AF1350/AF1650 specific design



EF1688DG

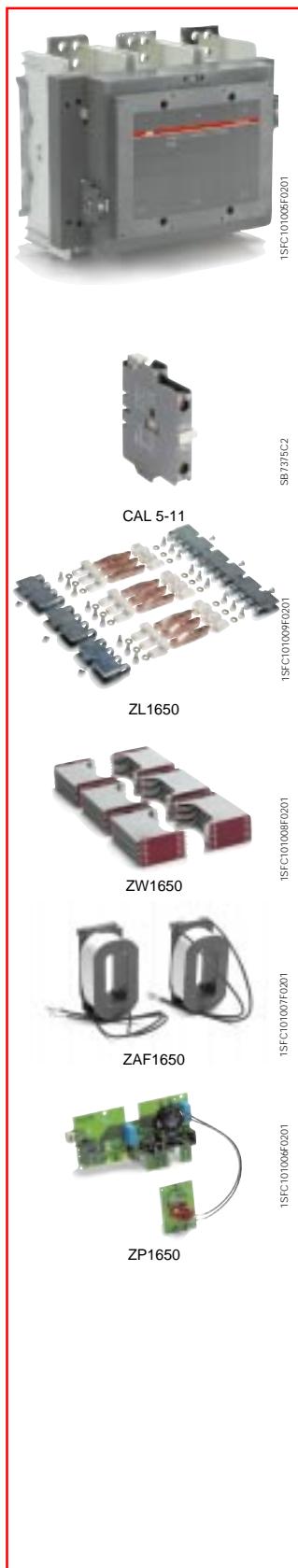
### Control inputs (AF1350/AF1650)



Control circuit with electronic coil interface.

# AF1350/AF1650 3-pole Contactors

## Ordering details



### Contactor (Terminal screws and fixing screws included)

Rated operational current AC-1 $\theta < 40\text{ }^{\circ}\text{C}$ A	Auxiliary contacts fitted	Type	Order code	Weight kg
				1 piece
1350	1 1	AF1350-30-11	1SFL 65 7001 R7011	34.00
	2 2	AF1350-30-22	1SFL 65 7001 R7022	34.00
1650	1 1	AF1650-30-11	1SFL 67 7001 R7011	35.00
	2 2	AF1650-30-22	1SFL 67 7001 R7022	35.00

### Accessories

#### Auxiliary contact blocks (side mounting)

For contactor type	Contact blocks	Type	Order code	Packing pieces	Weight kg
AF1350, AF1650	1 1	CAL5-11	1ISBN 01 0020 R1011	2	0.050
	1 1	CAL5-11B <sup>1)</sup>	1ISBN 01 0420 R3311	2	0.050

<sup>1)</sup> CAL5-11B is a block for mounting outside a CAL5-11 block.

#### Main contact sets

For contactor type	Type	Order code	Packing set	Weight kg
AF1350	ZL1350	1SFN 16 6503 R1000	1	2.500
AF1650	ZL1650	1SFN 16 6703 R1000	1	3.500

#### Arc chutes/De-ionizing plates

For contactor type	Type	Order code	Packing set	Weight kg
AF1350, AF1650	ZW1650	1SFN 16 6510 R1000	1	4.000

#### Coils

For contactor type	Type	Order code	Packing set	Weight kg
AF1350, AF1650	ZAF1650	1SFN 15 6570 R7026	1	0.900



#### Printed circuit-board

For contactor type	Type	Order code	Packing set	Weight kg
AF1350, AF1650	ZP1650	1SFN 16 6521 R1070	1	0.300

# AF1350/AF1650 3-pole Contactors

## Technical Data

### General Technical Data

Contactor type:	AF...	1350	1650
<b>Rated insulation voltage <math>U_i</math></b>			
according to IEC 60947-4-1	V	1000	
according to UL	V	600	
<b>Rated impulse withstand voltage</b>			
$U_{imp.}$	kV	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	
<b>Certifications - Approvals</b>			
			
<b>Air temperature</b> close to contactor			
- in service	°C	-40 to +70	
- storage	°C	-40 to +70	
<b>Operating altitude</b>	m	< 3000	

### Magnet System Characteristics

Contactor type:	AF...	1350	1650
<b>Rated control circuit voltage <math>U_c</math></b>			
- at 50 Hz	V	100 ... 250	
- at 60 Hz	V	100 ... 250	
- d.c.	V	100 ... 250	
<b>Coil operating limits</b>			
according to IEC 60947-4-1		$\theta < 70$ °C	
		0.85 ... 1.1 x $U_c$	
<b>Drop-out voltage</b> in % of $U_c$ min. level		55 %	
<b>Coil consumption</b>			
Average pull-in value			
50 Hz	VA	1900	
60 Hz	VA	1900	
d.c.z.	W	1700	
Average holding value			
50 Hz	VA/W	48/17	
60 Hz	VA/W	48/17	
d.c.	W	16	
<b>Operating time</b>			
A1-A2			
between coil energization and:			
N.O. contact closing	ms	50 ... 80	
N.C. contact opening	ms	50 ... 80	
between coil de-energization and:			
N.O. contact opening	ms	35 ... 55	
N.C. contact closing	ms	35 ... 55	
with PLC			
between coil energization and:			
N.O. contact closing	ms	40 ... 65	
N.C. contact opening	ms	40 ... 65	
between coil de-energization and:			
N.O. contact opening	ms	10 ... 30	
N.C. contact closing	ms	10 ... 30	

### Main Pole - Utilization Characteristics

Contactor type:	AF...	1350	1650
<b>Rated operational voltage <math>U_e</math> max.</b>	V	1000	
<b>Rated frequency limits</b>	Hz	25 ... 400	
<b>Conventional free-air thermal current <math>I_{th}</math></b>			
acc. to IEC 60947-4-1,			
open contactors $\theta \leq 40$ °C	A	1350	1650
with conductor cross-sectional area	mm <sup>2</sup>	2//100x5	3//100x5
<b>Rated operational current <math>I_e</math>/AC-1</b>			
for air temperature close to contactor			
$\theta \leq 40$ °C	A	1350	1650
<b><math>U_e</math> max. 1000 V</b>			
$\theta \leq 55$ °C	A	1150	1450
$\theta \leq 70$ °C	A	1000	1270
with conductor cross-sectional area	mm <sup>2</sup>	2//100x5	3//100x5 <sup>1)</sup>

#### General use rating, UL

##### Main contacts

Nominal current	A	2)	1650
Nominal voltage	V a.c.	2)	600

##### Auxiliary contacts

"pilot -duty"		2)	A 600, P 600
Nominal current	A	2)	10
Nominal voltage	V a.c.	2)	600

##### 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	10 000	12 000	
10 s	A	8 000	10 000	
30 s	A	6 000	7 500	
1 min	A	4 500	5 500	
15 min	A	1 600	2 200	

##### Heat dissipation per pole $I_e$ /AC-1 W

	80	80
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##### Max. electrical switching frequency

- for AC-1	cycles/h	60
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##### Electrical durability

- operating cycles	50 000
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##### Mechanical durability

- operating cycles	500 000	
- max. mechanical switching frequency	cycles/h	60

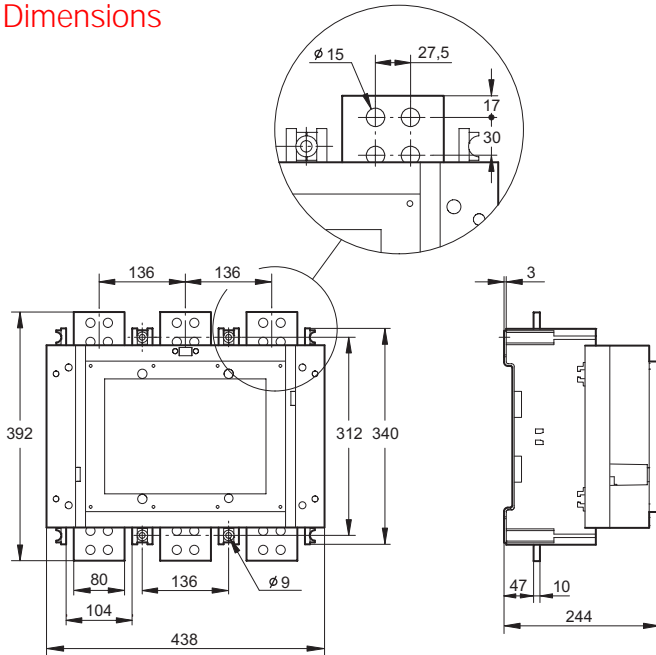
<sup>1)</sup> Dimensions of the bars

<sup>2)</sup> UL-listing pending

# AF1350/AF1650 3-pole Contactors

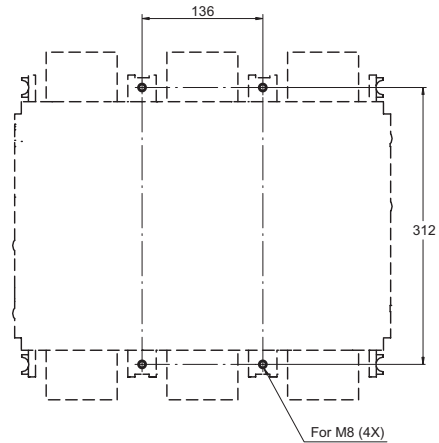
## Dimensions, Drilling plan and Diagrams

### Dimensions



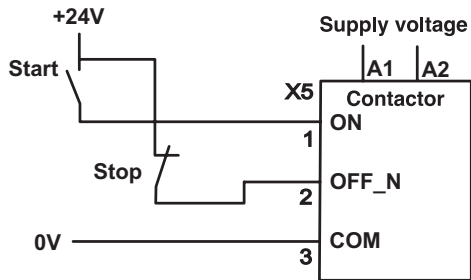
AF1350/AF1650

### Drilling plan



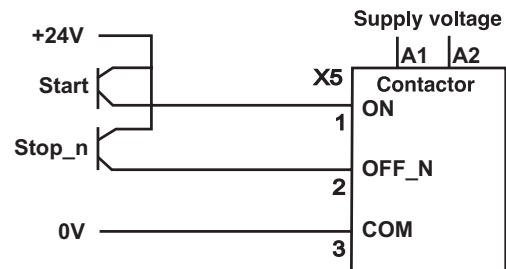
### Control with logic control signals

When used with switches the wiring can be done as below.



Note: Emergency stop should disconnect A1 and A2

When used with transistor outputs the wiring can be done as below.



Note: Emergency stop should disconnect A1 and A2

# World-wide support, industry-wide experience

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