
Formula Air

New low voltage air circuit-breakers



Simplicity and safety, up to 65kA

Protecting your electrical installation has never been easier thanks to Formula Air. This is the new line of low-voltage automatic circuit-breakers.

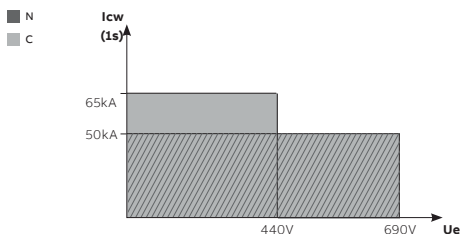
Easy to order, use and install, the Formula Air series offers all of the standard performance levels, quality and reliability you would expect from ABB technology.

The performance levels you need

The automatic circuit-breakers are available three sizes up to 4000A, with short-circuit performance levels up to 65kA. They are equipped with the new Ek 1 and Ek 2 trip units, which guarantee maximum flexibility because they are interchangeable and common all the three frames.

Current capacity	
F4	2500 - 4000
F2	2000
F1	800 - 1600

Short circuit level - $I_{cs} = 100\% I_{cu} @ 440\text{ VAC}$

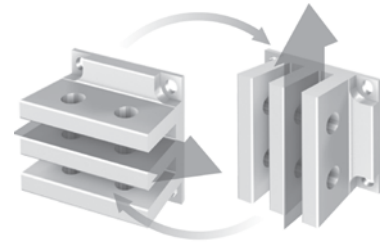


The simplicity you are looking for

The installation of Formula Air and its accessories is simple, quick and safe. The accessories, pre-cabled and common to all the three frames, allow for rapid mounting and a significant reduction in warehouse stock.

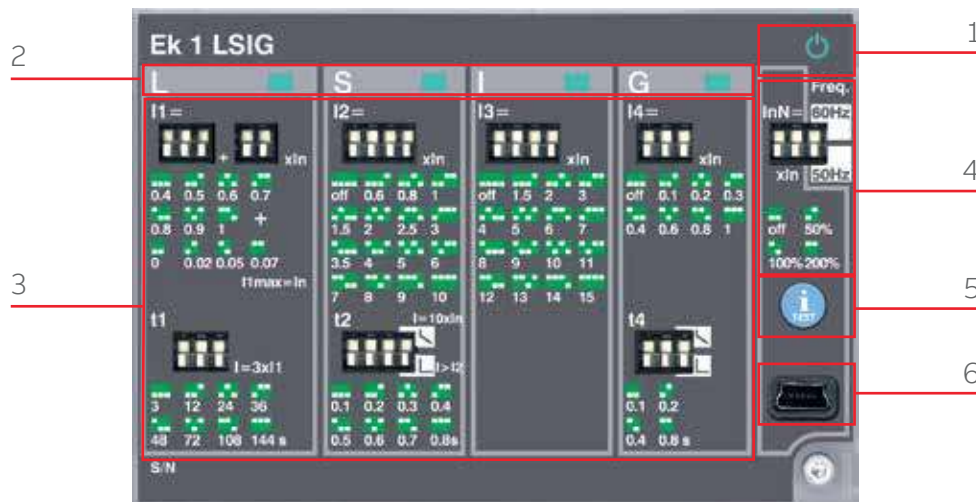
The innovative design guarantees flexibility in the installation of the circuit-breaker and permits last-minute changes.

It is actually possible to change, on site, the orientation of the rear terminals from horizontal to vertical or vice versa. If you need a switchboard with more compact dimensions, front terminals are available.



Key:

1. Power-on LED for signalling correct operation (watchdog)
2. LEDs for alarm signalling of L, S, I and G protection functions and diagnostics
3. Dip switches for setting the protection functions
4. Dip switches for setting the network frequency and neutral protection device
5. Pushbutton for test and for indicating the cause of tripping
6. Test and programming connector



Formula Air automatic circuit-breakers

Common data		
Rated service voltage Ue	[V]	690
Rated insulation voltage Ui	[V]	1000
Rated impulse withstand voltage Uimp	[kV]	12
Frequency	[Hz]	50 - 60
Number of poles		3- 4
Version		Fixed - Withdrawable
Operating temperature		-25°C....+70°C
Storage temperature		-40°C....+70°C



Formula Air		FA1	FA2	FA4
Max rated uninterrupted current at 40°C - Iu		[A]	630	800
		[A]	800	1000
		[A]	1000	1250
		[A]	1250	1600
		[A]	1600	2000
Neutral pole current-carrying capacity for 4 poles breakers		[%Iu]	100	100
Rated ultimate breaking capacity under short circuit - Icu	@400-415V	[kA]	50	50
	@440V	[kA]	50	50
	@500-525V	[kA]	42	42
	@690V	[kA]	42	42
Rated service breaking capacity under short-circuit - Ics		[%Icu]	100	100
Rated short time withstand current - Icw	(1s) @440V	[kA]	50	50
	(1s) @690V	[kA]	42	50
	(3s)	[kA]	24	25
Rated making capacity under short-circuit (peak value) - Icm	440 V	[kA]	105	105
	690 V	[kA]	88	88
Utilization category (according to IEC 60947-2)			B	B
Operating times		[ms]	40	40
Dimensions	H - Fixed/Withdrawable	[mm]	296/363.5	371/425
	D - Fixed/Withdrawable	[mm]	183/271	270/383
	W - Fixed 3p/4p	[mm]	210/280	276/317
	W - Withdrawable 3p/4p	[mm]	278/384	317/407
Weights (CB with trip unit and current sensor)	Fixed 3p/4p	[kg]	14/16	41/53
	Withdrawable 3p/4p (fixed part included)	[kg]	38/43	84/99

Formula AIR		FA1			FA2		FA4	
Mechanical life with regular ordinary maintenance		[Iu]	≤ 1000	1250	1600	≤ 2000	≤ 3200	≤ 4000
		[No. cycles x 1000]	10	10	10	20	20	15
Frequency		[Oper./Hour]	60	60	60	60	60	60
Electrical life with regular ordinary maintenance	440 V	[No. cycles x 1000]	8	8	8	6	5	5
	690 V	[No. cycles x 1000]	8	6,5	6,5	4	2.5	2.5
Frequency		[Cycles/Hour]	30	30	30	30	20	20



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