



## CIRCUIT BREAKER OF M06N-DC

### Basic product data

Circuit breaker of M06N-DC type of ARMAT series of IEK trademark (hereinafter – the circuit breaker) is designed for switching of electric circuits with voltage up to 1000 V DC. The circuit breaker performs the functions of automatic disconnection of the electrical installation in case of overcurrent (overload or short-circuit) and operational control of sections of electrical circuits.

### Type designation

AR-M06N-X1-X2XXX3DC  
 AR – series ARMAT;  
 M – (MCB) – circuit breaker;  
 06 – breaking capacity: 6 kA (for 1P and 2P circuit breakers – 10 kA);  
 N – frame size (module width) – 18 mm;  
 DC – direct current;  
 X1 – number of poles: 1 – one pole; 2 – two poles; 3 – three poles; 4 – four poles;  
 X2 – type of protective characteristic: B, C according to IEC 60898-2 and Z; L;  
 K according to IEC 60947-2;  
 XXX3 – designation of rated current: 0D5 – 0,5 A; 001 – 1 A; 002 – 2 A; 003 – 3 A; 004 – 4 A; 005 – 5 A; 006 – 6 A; 010 – 10 A; 013 – 13 A; 016 – 16 A; 020 – 20 A; 025 – 25 A; 032 – 32 A; 040 – 40 A; 050 – 50 A; 063 – 63 A;  
 DC – direct current.

Example of recording a single-pole circuit breaker of ARMAT series with a rated current of 16 A with protective characteristic of "C" type, with a breaking capacity of 10 kA, of IEK trademark:

AR-M06N-1-C016DC.

Example of recording for a four poles circuit breaker of ARMAT series with a rated current of 63 A with protective characteristic of "Z" type, with a breaking capacity of 6 kA, of IEK trademark:

AR-M06N-4-Z063DC.

### Specifications

Parameter denomination	Value
Breaking capacity	For circuit breakers type B and C rated short-circuit breaking capacity I <sub>cn</sub> , kA 10
	For circuit breakers type Z, L, K ultimate short-circuit breaking capacity I <sub>cu</sub> , kA 1P, 2P 10 3P, 4P 6
Service short-circuit breaking capacity I <sub>cs</sub> , kA	1P, 2P 7,5 3P, 4P 6

1

Parameter denomination	Value
Poles quantity	B, C 1, 2 Z, L, K 1, 2, 3, 4
Existence of overcurrent protection in the poles	In all poles
Rated continuous working voltage U <sub>e</sub> , V	B, C 1P 220 2P 440 Z, L, K 1P 250 2P 500 3P 750 4P 1000
Rated current I <sub>n</sub> , A	0,5; 1; 2; 3; 4; 5; 6; 10; 13; 16; 20; 25; 32; 40; 50; 63
Rated impulse withstand voltage U <sub>imp</sub> , kV	6
Operating temperature range, °C	From -40 to 70
Base altitude, m	2000
Overcurrent triggering characteristic, type	B, C, Z, L, K
Mechanical wear resistance, ON-OFF cycles	20000
Electrical wear resistance, ON-OFF cycles	6000
Protection class according to IEC 60529	IP20
Cross-section of the wire connected to the contact clamps, mm <sup>2</sup>	1...25
Tightening torque of screws of contact clamps, N·m	Recommended 2,5 Maximal 5
Possibility to connect to the contact clamps of connecting busbars	PIN (pin); FORK (fork)
Weight of 1 pole, kg, max	0,118
Power supply	According to marking
Contact position indicator (front panel)	There is
Relative air humidity at 20 °C, %	90
Working position	Any

### Time-current operating characteristics at calibration reference temperature 30 °C

Thermal release	B, C 1,13 I <sub>n</sub> : t <sub>cp</sub> ≤ 1 h – without releasing 1,45 I <sub>n</sub> : t <sub>cp</sub> < 1 h – releasing 2,55 I <sub>n</sub> : 1 s < t <sub>cp</sub> < 60 s – (at I <sub>n</sub> ≤ 32 A) – releasing 1 s < t <sub>cp</sub> < 120 s – (at I <sub>n</sub> > 32 A) – releasing
	Z, L, K 1,05 I <sub>n</sub> : t <sub>cp</sub> ≤ 1 h – without releasing 1,3 I <sub>n</sub> : t <sub>cp</sub> < 1 h – releasing 2,55 I <sub>n</sub> : 1 s < t <sub>cp</sub> < 60 s – (at I <sub>n</sub> ≤ 32 A) – releasing 1 s < t <sub>cp</sub> < 120 s – (at I <sub>n</sub> > 32 A) – releasing
Electromagnetic release	B 4 I <sub>n</sub> : 0,1 s < t <sub>cp</sub> < 45 s – (при I <sub>n</sub> ≤ 32 A) – releasing 0,1 s < t <sub>cp</sub> < 90 s – (при I <sub>n</sub> > 32 A) – releasing 7 I <sub>n</sub> : t <sub>cp</sub> < 0,1 s – releasing
	C 7 I <sub>n</sub> : 0,1 s < t <sub>cp</sub> < 15 s – (при I <sub>n</sub> ≤ 32 A) – releasing 0,1 s < t <sub>cp</sub> < 30 s – (при I <sub>n</sub> > 32 A) – releasing 15 I <sub>n</sub> : t <sub>cp</sub> < 0,1 s – releasing
	Z 4,4 I <sub>n</sub> : t <sub>cp</sub> ≤ 0,2 s – without releasing 6,6 I <sub>n</sub> : t <sub>cp</sub> < 0,2 s – releasing

2

### Installation rules

Electrical connections are made in accordance with the connection diagrams.

**WARNING**  
 The polarity must be observed when connecting the circuit breakers.

When connecting conductors, be careful not to allow them to create forces that bend the output terminals.

All connecting conductors and cable lugs should be tightly tightened to the contact clamps. The connection points should be clean and free of burrs. If necessary, it is allowed to bend the cable lugs to ensure installation of external conductors.

When terminating conductors with cable lugs, be sure to use insulating sleeves or adhesive tape.

The contact screw terminals of the circuit breakers allow the connection of copper or aluminum conductors with a cross-section not exceeding 25 mm<sup>2</sup> or the connection busbars of types PIN (pin) and FORK (plug).

### Maintenance

Under normal operating conditions, the breaker should be inspected once a year. Regardless of this, inspection of the circuit breaker must be carried out after each short-circuit current trip.

The inspection includes:

- removal of dust and dirt;
- checking the reliability of fixing the circuit breaker to the structure;
- tightening the screws of the main and auxiliary contacts terminals;
- turning the circuit breaker on and off manually without load;
- check the serviceability of the circuit breaker as part of the equipment when testing its functioning in the workplace.

Circuit breakers are not repairable. If defective, they should be replaced.

### Transportation, storage and disposal

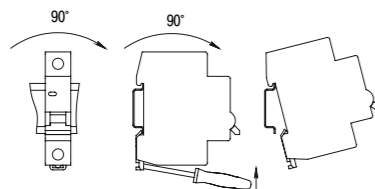
Circuit breakers are transported at ambient temperature from minus 25 °C to plus 55 °C and relative humidity 90 % at plus 20 °C.

Circuit breakers can be transported by any type of covered transport in the manufacturer's package, providing protection of packed breakers from mechanical damage, contamination and moisture.

Breakers are stored only in the manufacturer's package in rooms with natural ventilation at ambient air temperature from minus 25 °C to plus 55 °C and relative humidity not more than 90 % at temperature above 20 °C. Storage is allowed at 50 % relative humidity and temperature plus 40 °C.

Disposal of products is carried out by transferring circuit breakers and their parts to specialized organizations.

**IT IS FORBIDDEN**  
 To use the circuit breaker if cracks or chips form on the case during operation.



5

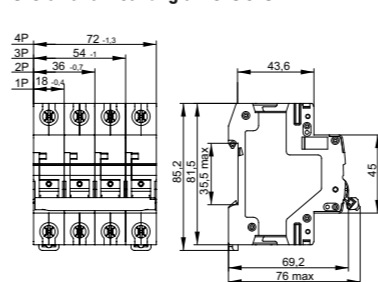
### Time-current operating characteristics at calibration reference temperature 30 °C (continuation)

Electromagnetic release	L 6,8 I <sub>n</sub> : t <sub>cp</sub> J 0,2 s – without releasing 10,2 I <sub>n</sub> : t <sub>cp</sub> < 0,2 s – releasing
	K 9,6 I <sub>n</sub> : t <sub>cp</sub> J 0,2 s – without releasing 14,4 I <sub>n</sub> : t <sub>cp</sub> < 0,2 s – releasing

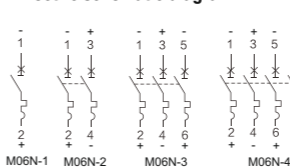
### The dependence of the rated current value on the ambient temperature

I <sub>n</sub> , A	Current value at ambient temperature, °C											
	-40	-30	-20	-10	0	10	20	30	40	50	60	70
0,5	0,77	0,71	0,68	0,65	0,61	0,58	0,54	0,5	0,46	0,41	0,35	0,29
1	1,37	1,32	1,27	1,22	1,17	1,12	1,06	1,00	0,94	0,87	0,79	0,71
2	2,75	2,65	2,56	2,45	2,35	2,24	2,12	2,00	1,87	1,73	1,58	1,41
3	4,05	3,92	3,78	3,64	3,49	3,33	3,17	3,00	2,82	2,62	2,41	2,18
4	5,66	5,45	5,24	5,01	4,78	4,54	4,28	4,00	3,70	3,38	3,02	2,62
5	6,83	6,60	6,36	6,11	5,85	5,58	5,30	5,00	4,68	4,34	3,97	3,56
6	8,83	8,49	8,12	7,75	7,35	6,93	6,48	6,00	5,48	4,90	4,24	3,46
8	11,53	11,09	10,64	10,17	9,67	9,15	8,59	8,00	7,36	6,66	5,87	4,96
10	14,72	14,14	13,54	12,91	12,25	11,55	10,80	10,00	9,13	8,16	7,07	5,77
13	17,02	16,51	15,98	15,43	14,86	14,26	13,65	13,00	12,32	11,60	10,83	10,00
16	22,63	21,80	20,95	20,06	19,12	18,14	17,10	16,00	14,81	13,52	12,09	10,47
20	27,39	26,46	25,50	24,49	23,45	22,36	21,21	20,00	18,71	17,32	15,81	14,14
25	34,04	32,90	31,72	30,49	29,22	27,88	26,48	25,00	23,43	21,74	19,91	17,89
32	43,45	42,00	40,51	38,96	37,34	35,65	33,87	32,00	30,01	27,88	25,57	23,03
40	53,60	51,87	50,09	48,24	46,32	44,31	42,21	40,00	37,66	35,16	32,47	29,54
50	66,19	64,13	62,00	59,79	57,50	55,11	52,62	50,00	47,24	44,30	41,15	37,75
63	81,03	78,71	76,31	73,84	71,29	68,64	65,88	63,00	59,98	56,81	53,44	49,85

### Overall and mounting dimensions



### Electric schematic diagram

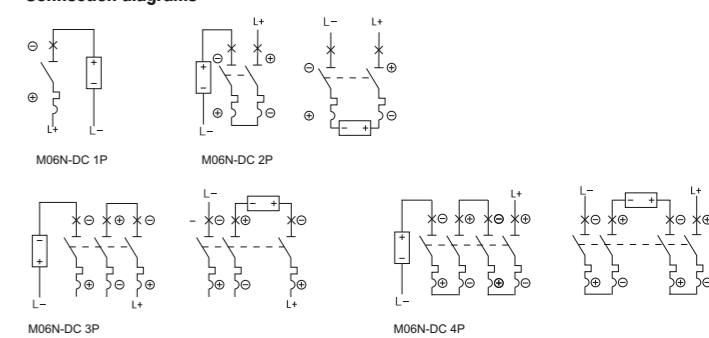


3

### Service life and manufacturer's warranty

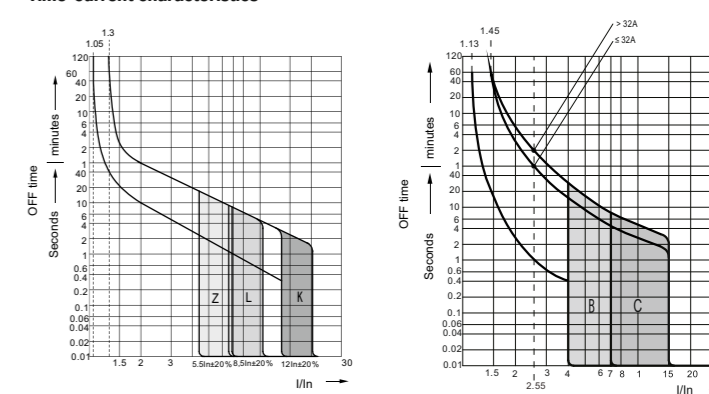
Circuit breaker service life – 15 years.  
 The warranty period of the circuit breaker is 10 years from the date of sale to the consumer, provided if the consumer observes the requirements of transportation, storage and operation.

### Connection diagrams



The wiring diagrams are given for a system with a grounded negative pole or power supply midpoint.

### Time-current characteristics



### Completeness

Denomination	Quantity per multiple package, pcs. (copy)			
	1-pole	2-poles	3-poles	4-poles
Circuit breaker	12	6	4	3
Passport	1			

4

6

7

8