

Fixed gas analyzers of combustion modes optimization AKBT-01,-02,-03



Designed for maintenance of optimum relationship fuel-air due to continuous monitoring of content of oxygen (AKBT-01;-02) or oxygen or carbon oxide AKBT-03) in order to optimize combustion processes and to prevent incomplete combustion.

Application: AKBT-01, AKBT-03 (general purpose industrial version) – at heat-power engineering plants, in boiler units of heat electropower stations, hydroelectric power plants and different boiler houses, as well as in industrial furnaces, in metallurgy, oil processing, mechanical engineering and other branches of industry. AKBT-02 (explosion-proof version) – mounting in hazardous areas on waste incinerators of oil processing plants and similar objects.

Type of gas analyzer - fixed.

Principle of operation - electrochemical (based on ZrO₂) and thermocatalytic based on CO.

Sampling - diffusion (AKBT-01, AKBT-02); forced (AKBT-03).

Basic technical characteristics

Version	Measured component	Measuring range	Indication range	Value of low-order digit of indication	Range	Intrinsic absolute error	Measurement unit	Thresholds
AKBT-01	O ₂	0,10 – 21,00	0 – 23	0,01	0,10 – 2,00	± 0,04	%vol.	threshold 1 – 4,3
					2,00 – 21,00	± (0,04+0,02(Ao-2))		threshold 2 – 8,1
AKBT-02	O ₂	0,10 – 21,00	0 – 23	0,01	0,10 – 2,00	± 0,04	%vol.	threshold 1 – 4,3
					2,00 – 21,00	± (0,04+0,02(Ao-2))		threshold 2 – 8,1
AKBT-03	O ₂	0,3 – 21,0	0 – 23	0,01	0,3 – 2,0	± 0,08	%vol.	threshold 1 – 4,3
					2,0 – 21,0	± (0,08+0,04(Ao-2))		threshold 2 – 8,1
	CO	0 – 1000	0 – 2000	1	0 – 1000	± 100	ppm	threshold 3 – 500

Additional technical characteristics

Name	Overall dimensions (without regard to immersed part), mm	Designation	Length of immersed part, mm	Weight, kg	Version	Temperature of analyzed medium, °C	Ambient temperature, °C
AKBT-01	260x450x330	ИБЯЛ.4.13415.003	200	25	non explosion-proof	0 – 850	- 35 – +70
		ИБЯЛ.4.13415.003-01	400	30			
		ИБЯЛ.4.13415.003-02	900	35			
		ИБЯЛ.4.13415.003-03	1530	40			
AKBT-02	340x330x280	ИБЯЛ.4.13415.003-04	200	30	explosion-proof 1Exd[ib]IIBT4 X	0 – 850	- 35 – +70
		ИБЯЛ.4.13415.003-05	400	35			
		ИБЯЛ.4.13415.003-06	900	40			
		ИБЯЛ.4.13415.003-07	1530	45			
AKBT-03 Sensor unit	254,5x407x471	ИБЯЛ.4.13415.003-08	300	50	non explosion-proof	100 – 1050	0 – +70
		ИБЯЛ.4.13415.003-09	500	50			
Power supply and processing unit	231x178x314	ИБЯЛ.4.13415.003-10	750	50			
		ИБЯЛ.4.13415.003-11	1000	50			
		ИБЯЛ.4.13415.003-12	1500	50			
		ИБЯЛ.4.13415.003-13	2000	50			

Gas analyzers are powered from ac voltage mains 220 V, 50 Hz.

Gas analyzer warm-up time not more 4h.

All versions have "dry" relay contacts (220 V, 2,5 A), unified current signals (0 - 5) and (4 - 20) mA and communication channel RS 485 MODBUS.RTU to connect external devices (PC).

Gas analyzers consist of:

- AKBT-01: power supply and processing unit (PPU) and probe fixed on chassis;
 - AKBT-02: monoblock with probe immersible into gas stream;
 - AKBT-03: power supply and processing unit (PPU) and sensor unit (SU).
- In AKBT-03 maximum length of connection cable between PPU and SU not more than 50 m.
 In AKBT-01 the possibility of PPU and SU separation at a distance up to 125 m (on special order).

Additional technical characteristics

Name	Setting time, s, not more	Operation time without readings adjustment, months	Rated power, VA, not more
AKBT-01	5	6	200
AKBT-02	5	6	200
AKBT-03	30 (O ₂)	6 (O ₂)	400
	100 (CO)	1 (CO)	

Advantages:

- immersed sensor;
- operation without sampling probe (AKBT-01, -02);
- gas analyzer operates without reference gas;
- availability of current output for automatic control with software set range;
- operation without readings adjustment on TGM (test gas mixtures) during 6 months;
- sensor service life - 5 years;
- availability of programmable thresholds;
- gas analyzer use without sample preparation unit;
- degree of protection IP54;
- availability of explosion-proof version;
- wide temperature range;
- compatibility with PC;
- availability of digital indication.

Delivery set:

Gas analyzer, SPTA set, operation documents.
 The following is supplied at extra charge for gas analyzer verification:

- cylinders with TGM-SSS;
- fine adjustment valve ИБЯЛ.306577.002;
- flow rate indicator ИБЯЛ.418622.001.

The following is supplied at extra charge:

for AKBT-01:

- sensor-probe ИБЯЛ.418312.113 ... -03 (for AKBT-01 length 200 ... 1530 respectively);
- solid electrolyte cell ИБЯЛ.418421.035-03;
- filter ИБЯЛ.711111.097.

for AKBT-02:

- solid electrolyte cell ИБЯЛ.418421.035-03;
- sensor-probe ИБЯЛ.418312.113 ... -03 (for AKBT-02 length 200 ... 1530 respectively);
- filter ИБЯЛ.711111.097.

for AKBT-03:

- high-temperature oxygen sensor (O₂) ИБЯЛ.413425.006;
- thermocatalytic sensor (CO) ИБЯЛ.413425.009;
- sampling unit (water ejector) ИБЯЛ.418311.049;
- sampling unit (air ejector) ИБЯЛ.418311.049-01;
- sampling unit (flow rate pump) ИБЯЛ.418311.023-10.

At extra charge for operation with PC CD-disk with software is supplied ИБЯЛ.431214.225 (description of operation procedure is on the data carrier).