GAM 3000
Converter Gas Analysis

The GAM 3000 was developed by InProcess Instruments especially for steel applications. The main applications are converter gas and blast furnace analysis.
The current process status can be determined at any time by continuous monitoring of the exhaust gases. Corrections of the process conditions are possible immediately and the exact end point of a O_2 blowing process can be precisely determined. The exhaust gas control system of the GAM 3000 can reduce the duration of a blowing cycle and prevent process disturbances.

H_2 CO CO_2 CH_4 O_2 Ar N_2 - fast analysis

Standard measuring mode:
1 cycle per second

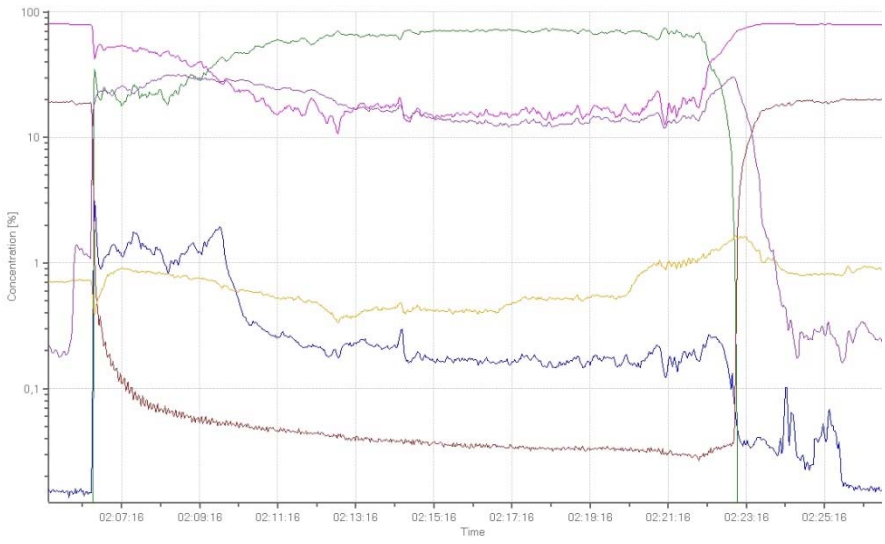
Conditions:

- *up to 7 components,*
- *9 masses (ion currents)*
- *Output of data via PROFIBUS, PROFINET*
- *IPI Steel Process Software*

Optional: 3 cycles per second

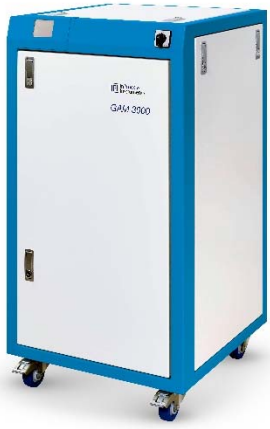
Conditions:

- *Mass Range: 100%...1%*
- *up to 7 components,*
- *9 masses (ion currents)*
- *Parameter setting time optimized*
- *Output of data via PROFIBUS, PROFINET*
- *IPI Steel Process Software*



Specifications for the Converter Gas Analysis

Detection Limits: *(base sensitivity of the analyser)*	*typ. < 1 ppm with the faraday detector (without peak interferences)* *typ. < 1 ppb with SEM (without peak interferences)*
Mass Range:	*1..300 amu*
Ion Source:	*open crossbeam ion source with 2 2 long life filaments*
Number of Components:	*up to 64 components per analysis*
Measurement Speed:	*for 7 components in the %-range up to 3 measurement cycles per second are possible (N_2, CO_2, CO, CH_4, O_2, Ar, H_2)*
Calibration Intervals:	*automatic or free operator selectable*
Calibration Time:	*typ. < 5 minutes*
Reproducibility:	
Air (N_2, O_2, Ar)	*< 0.1 % relative for measurements with a cycle time of 6 seconds and a duration of 8 hours*
Test gas with peak interferences	*achievable: <0.01% (relative) after calibration of the components over approx. 15 minutes*
Accuracy:	*dependent on application and calibration gases, typ. < 1% referred to the mass range (percent components)*



Gas Mixture (Physical Data):

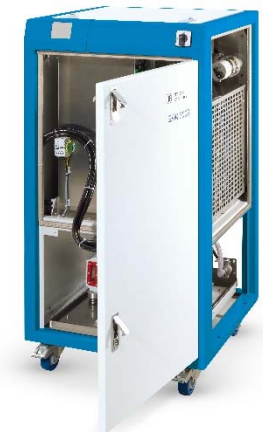
Pressure	mbar	ca. 1200 mbar absolute
Temperature	°C	20
Condensing point	°C	no comment
Humidity	%	< 1,0
Dust	g/m³	< 0,1
Particle Size	µm	< 5,0

Gas Matrix: Converter Gas, fully automated analysis
The following components are detected:

Main Component	Concentration Range (%)	Typ. (%)
H_2	0-100	0-1
N_2	0-100	40-80
CO	0-100	0-30
O_2	0-100	0-21
Ar	0-100	0-2
CH_4	0-100	0-1
CO_2	0-100	0-40

The following gases are needed for the fully automated calibration and the test of the GAM 3000:

Cal. Gas Bottle #	Content (Balance Gas: Ar)	Comment
1	10% H_2, 40% N_2	
2	20% CO	
3	10% CO_2	
4	10% O_2	
5	10% CH_4	
6	30% N_2, 25% CO, 2% O_2, 30% CO_2	gas mixture for the quick test of the ***GAM 3000***



subject to alteration

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