GAM 3000
Converter Gas Analysis

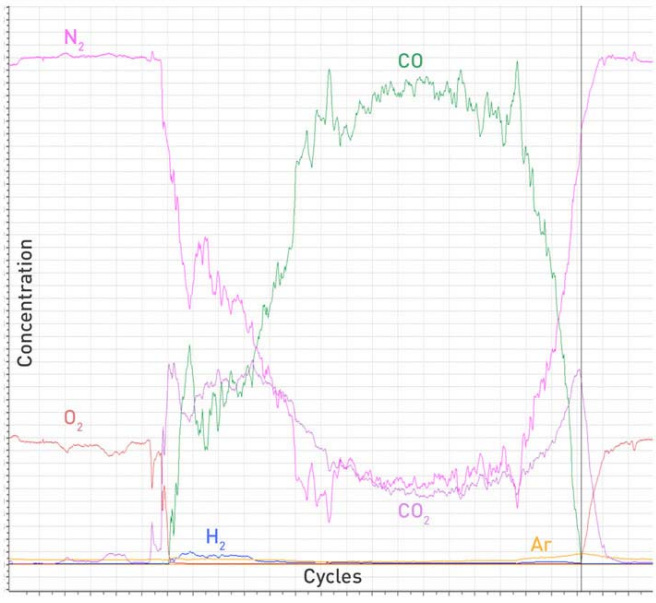
The GAM 3000 was developed by InProcess Instruments especially for steel applications. The main applications are converter gas and blast furnace analysis.
The current process status can be determined at any time by continuous monitoring of the exhaust gases. Corrections of the process conditions are 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 O_2 Ar N_2 - fast analysis

Standard measuring mode:
1 cycle per second

Conditions:

- *Mass Range: 100 % ... 1 %*
- *6 - 8 components,*
- *8 - 10 masses (channels)*
- *Parameter setting time optimized*
- *Output of data via Ethernet, I/O, PROFIBUS, PROFINET*
- *IPI SteelProcess Software*



Specifications for the Converter Gas Analysis

Detection Limits: *(basic sensitivity of the analyzer)*	*Faraday detector: < 1 ppm* *(without peak interferences)* *SEM: < 10 ppb* *(without peak interferences)*
Mass Range:	*1 - 300 amu*
Ion Source:	*open crossbeam ion source with 2 long life filaments*
Number of Components:	*6 – 8 components per analysis*
Measurement Speed:	*1 s per cycle for 7 components in the % range (N_2, CO_2, CO, CH_4, O_2, Ar, H_2)*
Calibration Intervals:	*automatic or operator selectable*
Calibration Time:	*typ. < 10 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: < 0.1 % (relative) after calibration of the components over approx. 15 minutes*
Accuracy:	*depending on application and calibration gases, typ. < 1 % referred to the mass range (percentage components)*

Gas Mixture (Physical Data):

Pressure	mbar	approx. 1200 mbar absolute
Temperature	°C	20
Condensing point	°C	no details
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	0-90
O_2	0-100	0-25
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 for the a.m. gas composition:

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

subject to alteration

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