



Calculation of the Standard Uncertainty according to the EN 14181:2004 QAL3 based on Performance Specifications of the EN 15267-3:2008

Description of Gas Monitoring AMS

Automated Measuring System (AMS) based on
ABB order number
Intended for monitoring of
Applicable EU directive
Name of plant
Identification of measuring point
Gas to be measured
Smallest measurement range
Largest measurement range (includes reference point)

ACF-NT NH3	
3.250936.4	
Non-specific plant	
Linea Cottura Clinker	
Camino E06	
NH3	
100	mg/m ³
100	mg/m ³

Field conditions of operation used in the uncertainty assessment

	Min. value	Max. value	
Ambient temperature range	25	35	°C
Ambient pressure range	970	1030	hPa
Flow range	30	100	l/h
Voltage range	190	250	V
Period of unattended operation, Zero point		1	day(s)
Period of unattended operation, Reference point		181	day(s)

Zero point performance specifications and resulting partial standard uncertainties

Drift		3%	of smallest range
	$u_{inst,0}$	1.73	mg/m ³
Shift due to ambient temperature change		5%	of smallest range
	$u_{temp,0}$	2.89	mg/m ³
Repeatability		2%	of smallest range
	$u_{others,0}$	1.15	mg/m ³

$$\text{Zero point } s_{AMS} = (u_{inst,0}^2 + u_{temp,0}^2 + u_{others,0}^2)^{1/2}$$

Zero point s_{AMS} = 3.56 mg/m³

Reference point performance specifications and resulting partial standard uncertainties

Drift		3%	of largest range
	u_{inst}	1.73	mg/m ³
Shift due to ambient temperature change		5%	of largest range
	u_{temp}	2.89	mg/m ³
Effect of sample gas pressure		2%	of largest range for 3 kPa change
	u_{pres}	1.15	mg/m ³
Effect of sample gas flow		1%	of largest range
	u_{flow}	0.58	mg/m ³
Voltage effect		2%	of largest range
	u_{volt}	1.15	mg/m ³
Repeatability		2%	of largest range
	u_{others}	1.15	mg/m ³
Converter efficiency for NOx		0%	of largest range
	u_{ce}	0.00	mg/m ³

$$\text{Reference point } s_{AMS} = (u_{inst}^2 + u_{temp}^2 + u_{pres}^2 + u_{volt}^2 + u_{flow}^2 + u_{others}^2 + u_{ce}^2)^{1/2}$$

Reference point s_{AMS} = 4.12 mg/m³

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