



Calculation of the Standard Uncertainty according to the EN 14181:2004 QAL3 based on Performance Specifications of the prEN 15267-3:2005

Description of Gas Monitoring AMS

Automated Measuring System (AMS) based on	AO2000 Uras14 CO	
ABB order number	3-242471-3	
Intended for monitoring of	Large combustion plant	
Applicable EU directive	2001/80/EC	
Name of plant	Enipower Ravenna	
Identification of measuring point	CC2	
Gas to be measured	CO	
Smallest measurement range	75	mg/m ³
Largest measurement range (includes reference point)	75	mg/m ³

Field conditions of operation used in the uncertainty assessment

	Min. value	Max. value	
Ambient temperature range	5	30	°C
Ambient pressure range	980	1010	hPa
Flow range	50	90	l/h
Voltage range	190	250	V
Period of unattended operation, Zero point		7	day(s)
Period of unattended operation, Reference point		7	day(s)

Zero point performance specifications and resulting partial standard uncertainties

Drift	$u_{inst,0}$	3%	of smallest range
		1.30	mg/m ³
Shift due to ambient temperature change	$u_{temp,0}$	5%	of smallest range
		2.17	mg/m ³
Repeatability	$u_{others,0}$	2%	of smallest range
		0.87	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} =	2.67	mg/m³
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Reference point performance specifications and resulting partial standard uncertainties

Drift	u_{inst}	3%	of largest range
		1.30	mg/m ³
Shift due to ambient temperature change	u_{temp}	5%	of largest range
		2.17	mg/m ³
Effect of sample gas pressure	u_{pres}	2%	of largest range for 3 kPa change
		0.43	mg/m ³
Effect of sample gas flow	u_{flow}	1%	of largest range
		0.43	mg/m ³
Voltage effect	u_{volt}	2%	of largest range
		0.87	mg/m ³
Repeatability	u_{others}	2%	of largest range
		0.87	mg/m ³
Converter efficiency for NOx	u_{ce}	0%	of largest range
		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} =	3.00	mg/m³
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