

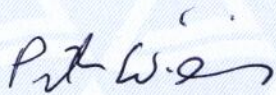
CERTIFICATE

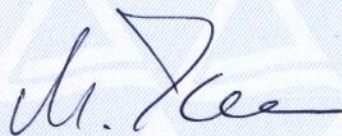
TÜV Rheinland Immissionsschutz und Energiesysteme GmbH

Manufacturer:	SICK Engineering GmbH, Ottendorf-Okrilla	
Measuring System:	FLOWSIC100	
Components:	Gas velocity	
Test Report:	936/21206702/E	2008-10-5

The measurement system fulfils
the requirements of
QAL 1
according to EN 15267-3 and EN 14181.

Köln, 2009-02.16


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The company is accredited to DIN EN ISO/IEC 17025.

EN ISO 14956 and EN 15267-3 calculation for QAL1 in EN 14181

Manufacturer data

Manufacturer
 Name of measuring system
 Serial Number
 Measuring Principle

Sick
 Flowsic100
 SN 8724/25 / SN 8726/27
 Ultrasonic

TÜV Data

Approval Report
 Date
 Editor

936/21206702/E
 2008-10-05
 Kerpa

Measurement Component

Certificated range

Velocity
 20 m/s

Calculation of the combined standard uncertainty

Test Value

Repeatability standard deviation at span *
 Lack of fit
 Zero drift from field test
 Span drift from field test
 Influence of ambient temperature at span
 Influence of supply voltage

	$\Delta X_{max,j}$	u^2
u_{lof}	0,40 m/s	0,160
$u_{d,z}$	0,28 m/s	0,026
$u_{d,s}$	-0,16 m/s	0,009
u_t	-0,16 m/s	0,009
u_p	0,02 m/s	0,000
u_f	-0,06 m/s	0,001

* The greater value of: "Repeatability standard deviation at span" or "Standard deviation from paired measurements under field conditions"

Combined standard uncertainty (u_c)

$$u_c = \sqrt{\sum (u_{max,j})^2} \quad 0,452$$

Total expanded uncertainty

$$U = u_c \cdot k = u_c \cdot 1,96 \quad 0,886$$

Relative total expanded uncertainty

U in % of the range 20 m/s 4,4

Requirement

U in % of the range 20 m/s 7,5

Result: Requirements of EN 15267- 3 are fulfilled -> QAL1 pass

Attention: For this component no requirements in the EC-directives 2001/80/EG und 2000/76/EG are given.