Data Processing Sheet

Instrument:	HydroC CO_2	Date of calibration:	19.01.2017
Serial number:	CO2-0212-001	Date of delivery:	24.01.2017
Customer:	ISMAR	PO:	RMA47879

KONGSBERG

Note! *For more information about the HydroC calibration, please check your individual sensor Calibration Sheet.*

Note! *For data processing, apply the application note Data Processing for CONTROS HydroC CO_2.*

Sensor Specific Values

T_0	273.15 K
p_0	1013.25 mbar
F	62256
T_{sensor}	39.0°C
$f(T_{\text{sensor}})$	9849.55 (only for T_{sensor} as given above)
$S'_{\text{2beam,Z}}$	14083.68 (found during calibration)
Polynomial degree	3 (with forced zero crossing)
Regression error:	< ± 1.0 ppm (estimate error found during calibration)

Calibration coefficients

k_1	5.152979e-02
k_2	1.995406e-06
k_3	1.895986e-10

Data Processing Sheet

Instrument:	HydroC CO_2	Date of calibration:	19.01.2017
Serial number:	CO2-0212-001	Date of delivery:	24.01.2017
Customer:	ISMAR	PO:	RMA47879

KONGSBERG

Calibration Data

S_{raw}	S_{ref}	T_{gas}	p_{NDIR}	S_{proc}	$x_{CO_2,reference}{}^*$
[]	[]	[°C]	[mbar]	[]	[ppm]
18904.29	15437.67	24.36	1032.53	8939.73	808.04
20044.85	15420.04	24.38	1036.16	5658.33	416.60
20875.03	15404.11	24.42	1043.14	3253.32	206.07
19439.15	15429.55	24.43	1046.56	7402.38	597.48

Equations

Equation for $x_{CO_2,wet}$

$$x_{CO_2,wet} = \left(k_3 S_{proc}^3 + k_2 S_{proc}^2 + k_1 S_{proc}\right) \frac{p_0 T_{gas}}{T_0 p_{NDIR}}$$

Equation for p_{CO_2}

$$p_{CO_2} = x_{CO_2,wet} \frac{p_{in}}{1013.25}$$

Calibration Curve

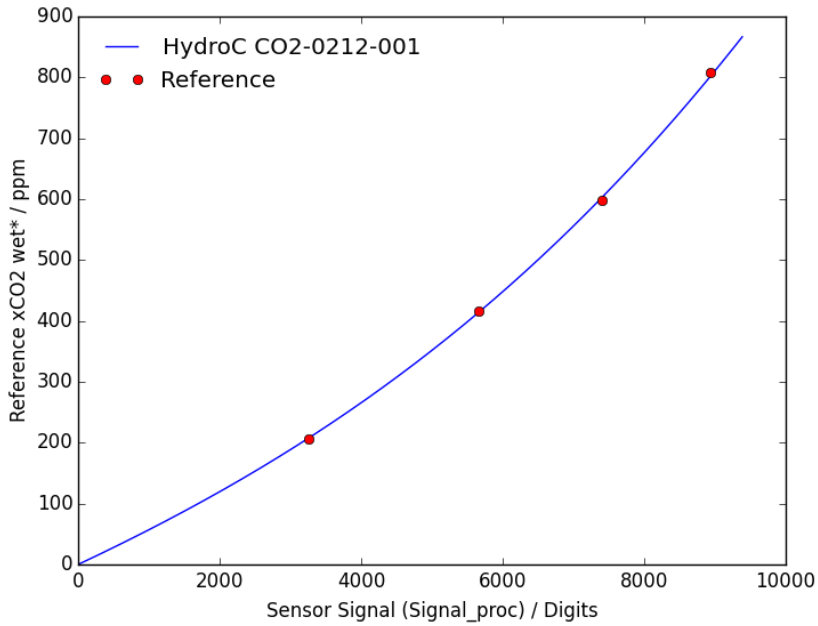

Figure 1: Calibration curve of the processed sensor signal (S_{proc}) against the x_{CO_2} of the KM Contros CO_2 reference system.

Data Processing Sheet

Instrument:	HydroC CO_2	Date of calibration:	19.01.2017
Serial number:	CO2-0212-001	Date of delivery:	24.01.2017
Customer:	ISMAR	PO:	RMA47879

KONGSBERG

*Converted from the x_{CO_2} value in the reference system to the conditions in the gas stream of the sensor.