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File
LR 1322

CERTIFICATE OF COMPLIANCE

(ISO TYPE 3 CERTIFICATION SYSTEM)

Issued to	**KROHNE Messtechnik GmbH**
Address	Ludwig-Krohne-Strasse 5 47058 Duisburg, Germany
Project Number	LR1322-5R1
Product	Vortex flow meter series OPTISWIRL 4200, models:
Model Number	OPTISWIRL 4200 C . .. (Compact version), OPTISWIRL 4200 F (Remote version) consisting of: VFC200 F … (signal converter), and OPTISWIRL 4000 F (sensor)
Ratings	See appendix below for ratings
markings	See appendix below for markings
Applicable Standards	CSA C22.2 No. 30-1986: 2012, CSA C22.2 No. 213-16, CAN/CSA C22.2 No. 60079-0: 2015, CAN/CSA C22.2 No. 60079-1: 2016, CAN/CSA C22.2 No. 60079-7: 2016, CAN/CSA C22.2 No. 60079-11: 2014, CAN/CSA C22.2 No. 60079-15: 2016, CAN/CSA C22.2 No. 60079-31: 2015, CAN/CSA C22.2 No. 61010-1-12,CSA C22.2 no. 94.2-15 ANSI/UL 60079-0, 6th edition: 2013, ANSI/UL 60079-1, 6th edition: 2015, ANSI/UL 60079-7, 5th edition: 2017, ANSI/UL 60079-11, 6th edition: 2013, ANSI/UL 60079-15, 4th edition: 2013 , ANSI/UL 60079-31, 2nd edition: 2015 , UL 61010-1, 3rd edition, UL 50E, 2nd edition:2015, FM 3600:2011, FM3615:2006, ANSI/ISA 12.12.01-2016, ANSI/ISA 12.27.01 -2003
Factory/Manufacturing Location	Same as above

Statement of Compliance: The product(s) identified in this Certificate and described in the Report covered under the above referenced project number have been investigated and found to be in compliance with the relevant requirements of the above referenced standard(s). As such, they are eligible to bear the QPS Certification Mark shown below, in accordance with the provisions of QPS's Service Agreement.

CERTIFIED
ELECTRICAL SAFETY

Issued By: Dave Adams, P.Eng.

Signature:

Date: October 3, 2017

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APPENDIX:

Nomenclature:

Models OPTISWIRL 4200 C:

OPTISWIRL 4200	C	..	-Ex
	1	2	3

Digit	Description		
1	C	=	compact version
2	blank	=	current output 4 … 20 mA with optional HART® communication
	FF	=	foundation FIELDBUS bus connection
	PA	=	PROFIBUS PA bus connection
3	blank	=	non-Ex version
	-Ex	=	Explosion protected version – non- intrinsically safe supply

Nomenclature (Cont'd):

Models OPTISWIRL 4200 F, consisting of signal converter VFC200 F … , and sensor OPTISWIRL 4000 F :

VFC200	F	..		020	-Ex
	1	2		4	5

Digit	Description		
1	F	=	remote version
2	blank	=	current output 4 … 20 mA with optional HART® communication
	FF	=	foundation FIELDBUS bus connection
	PA	=	PROFIBUS PA bus connection
3	blank	=	non- intrinsically safe supply
4	020	=	VFC020 sensor electronics
5	blank	=	non-Ex version
	-Ex	=	Explosion protected version

Ratings:

OPTISWIRL 4200 C-Ex, OPTISWIRL 4200 C :
VFC200 F 020-Ex and VFC200 F 020

Supply/ Output: : U_n= 12 – 32 V
terminals: C1, C2 I_n = 4 – 20 mA with HART® communication

Digital output: : U_n= 8 – 32 V
terminals: M1 and M2/M4 (Open $I_n \leq 100$ mA

Collector),
M3 and M2/M4 (NAMUR) : U_n= 8 V
I_n ≤ 1 mA / ≥ 3 mA

Current input:, : U_n= 9 – 32 V
terminals: I1, I2 I_n = 4 – 20 mA

OPTISWIRL 4200 C FF / PA -Ex, OPTISWIRL 4200 C FF / PA :
VFC200 F FF / PA 020-Ex and VFC200 F FF / PA 020
Field Bus connection, : U_n= 9 – 32 V
terminals: B1/B2 and A1/A2 I_n = 20 mA

Sensor circuit, : U_o = 6.65 V, I_o = 1107 mA, P_o = 650 mW, C_o = 1.5 µF,
terminals 1 to 7 (colour coded) L_o = 73 µH.

OPTISWIRL 4000 F:
Sensor circuit, : U_i = 7 V, I_i = 1107 mA, P_i = 650 mW, C_i = 17 nF,
terminal 1 to 7 L_i ~ 0 µH.

Classification :
OPTISWIRL 4200 C .. -Ex : Class I, Division 1, 2, Group A, B, C, D T6…T2 (US)
Class I, Division 1, 2, Group B, C, D T6…T2 (CAN)
Class I, Division 2 A,B, C, D T6…T2
Class II Division 1 Gr EFG
Class II Division 2 Gr FG
Class III Division 1
Class I, Zone 1, AEx db ia IIC T6…T2
Ex db ia IIC T6…T2 ,
Class I, Zone 1, AEx db eb ia IIC T6…T2
Ex db eb ia IIC T6…T2 ,
Class I, Zone 2, AEx nA ic IIC T6…T2
Ex nA ic IIC T6…T2 , or
Zone 21, AEx tb ia IIIC T70°C … T240°C
Ex tb ia IIIC T70°C … T240°C
Enclosure Type 4X/6
Dual Seal

VFC 200 F .. 020-Ex : Class I, Division 1, 2, Group A, B, C, D T6 (US)
Class I, Division 1, 2, Group B, C, D T6 (CAN)
Class II Division 1 Gr EFG
Class II Division 2 Gr FG
Class III Division 1
Class I, Zone 1, AEx db [ia] IIC T6
Ex db [ia] IIC T6 ,
Class I, Zone 1, AEx db eb [ia] IIC T6
Ex db eb [ia] IIC T6,

		Class I, Zone 2, AEx nA [ic] IIC T6 Ex nA [ic] IIC T6, or Zone 21, AEx tb [ia] IIIC T70°C Ex tb [ia] IIIC T70°C Enclosure Type 4X/6 Dual Seal
OPTISWIRL 4000F when connected to VFC 200 F .. 020-Ex	:	Class I Division 1,2, Gr ABCD T6…T2 Class II Division 1 Gr EFG Class II Division 2 Gr FG Class III Division 1 Intrinsically Safe Class I, Zone 1, AEx ia IIC T6…T2 Ex ia IIC T6…T2, Class I, Zone 2, AEx ic IIC T6…T2 Ex ic IIC T6…T2 , or Zone 21, AEx ia IIIC T70°C … 240°C Ex ia IIIC T70°C … 240 °C Dual Seal
Ambient temperature : OPTISWIRL 4200 C .. -Ex, VFC 200 F .. 020-Ex (including OPTISWIRL 4000F) and , OPTISWIRL 4200 C .. , VFC 200 F .. 020(including OPTISWIRL 4000F)		-40 °C to +65 °C
Process temperature	:	-40 to +240 °C (measuring device not painted) -40 to +120 °C (measuring device painted)

Notes:

1. The model name OPTISWIRL 4200 F (Remote version) is for marketing purposes only. The model OPTISWIRL 4200 F consist of the signal converter VFC200 F .. 020-Ex and the separate sensor OPTISWIRL 4000 F. Both devices are be marked as such.
2. The sensor OPTISWIRL 4000 F is intended for connection to the VFC200 F .. 020-Ex models only.
3. The sensor OPTISWIRL 4000 F and the VFC200 F .. 020-Ex models are intended to be connected to each other only with the interconnection cable, type TPE/ST/C/XLPE 3x0.22 GY, colour blue, manufactured by U.I. Lapp, with a maximum length of 50 m (164 ft).
4. The models of the OPTISWIRL 4200 C . .. and the sensor OPTISWIRL 4000 F are available in nominal sizes of DIN15 up to DIN300 in different pressure ranges. The maximum pressure is limited to PN 100 bar.
5. For maximum permissible process and ambient temperature per temperature class, mounting position and sensor size of Ex versions of the series OPTISWIRL 4200, refer to doc. APPR GD 80068-01 and APPR GD 80068-02.
6. For, mounting position and sensor size of non-Ex versions of the series OPTISWIRL 4200, refer to doc. APPR MA 821078-01.