CERTIFICATE OF CONFORMITY

1. **HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**
2. **Certificate No:** **FM18CA0091X**
3. **Equipment:**
   (Type Reference and Name) **CGR Series Centurion Guided Radar Level Measurement**
4. **Name of Listing Company:** **Hawk Measurement Systems Pty. Ltd**
5. **Address of Listing Company:** **15-17 Maurice Ct**
   Nunawading Victoria 3131,
   Australia
6. The examination and test results are recorded in confidential report number:

   3057129 dated 21st November 2018
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

   CSA-C22.2 No. 0: 2015, CSA-C22.2 No. 0.4: 2009, CSA C22.2 No. 0.5: 2008, CSA-C22.2 No. 25: 2009, CSA-C22.2 No. 30: 2007, CSA-C22.2 No. 94:2011, CSA-C22.2 No. 60529: 2010, CAN/CSA-C22.2 No. 60079-0:2015, CAN/CSA-C22.2 No. 60079-1:2016, CAN/CSA C22.2 No. 60079-11:2014, CAN/CSA C22.2 No. 60079-26:2016, CAN/CSA C22.2 No.60079-31:2015, CAN/CSA-C22.2 No. 61010-1:2012
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

Certificate issued by:

J. E. Marquedant
Manager, Electrical Systems

21 November 2018
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

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10. Equipment Ratings:

Explosionproof for Class I, Division 1 Groups B, C, and D with Intrinsically Safe probe for Class I, Division 1, Groups A, B, C, and D, T6…T2B for hazardous (classified) locations; Flameproof with Intrinsically Safe probe for Ex ia/db IIC T6…T2 Ga/Gb.

Dust-ignitionproof with Intrinsically Safe probe for Class II, III, Division 1, Group E, F and G, T6…T2B; Dust ignitionproof with Intrinsically safe probe for Ex ia IIIC T85°C…T250°C Da; Ex tb IIIC T85°C Db

Ambient temperature rating of T* to +60°C
IP66, Type 4X

T*= See Tables #1 or Table #2

11. The marking of the equipment shall include:

XP Cl I, Div 1, Gp B-D with IS Probe Cl I, Div I, Gp A-D, T6...T2B, Ta = T* to 60°C;

Ex ia/db IIC T6…T2 Ga/Gb, Ta = T* to +60°C

DIP-IS, Class II, III, Division 1, Groups E, F and G, T6…T2B, Ta = T* to +60°C

Ex ia IIIC T85°C…T250°C Da; Ex tb IIIC T85°C Db, Ta = T* to +60°C

IP66, Type 4X

T*= See Safety Instructions SI0055

12. **Description of Equipment:**

General – HAWK CGR series equipment is a continuous Level and Interface Measurement unit. It uses low power high frequency RF pulses based on the TDR principle to measure liquids and solids in contact with the sensing probe. These units are usually mounted directly at the level measurement point – at the top of a storage vessel – with the probe directed downwards in contact with the material product surface. HAWK CGR units are available with either 2 wire loop power or 4 wire option. User interface controls shall be accessed only when an explosive atmosphere is not present.

Construction – The HAWK CGR enclosure has a dual compartment with segregated explosion proof and cable connection sections. The amplifier is located inside the explosionproof (XP),dust-ignition proof (DIP) or Flameproof compartment and the user connections are terminated in the rear compartment. The sensing probe is protected using the Intrinsic Safety method, where the energy supplied from the amplifier is limited to a safe level according to the standards.

The enclosure is manufactured by International Metal Engineering Pty. Ltd and carries the following certifications:

- FM Approved for XP Class I, Division 1 Gr. B, C and D, DIP Class II, III Divison 1 Gr. E, F and G, with an enclosure rating of IP66, NEMA 4X; See FM Certificate 3049139, 3049139C.
- Qualified for Zone 0/1 EX ia/db IIC Ga/Gb, Zone 20/21 Ex ia IIIC Da, Ex tb IIIC Db under Project 3057129.

Operation Temperature Ranges:
The HAWK CGR series equipment are rated for use in an ambient temperature range of T* to +60°C. Low ambient

temperature range is based on O-ring selected, See Safety Instructions SI0055.

Electrical data:
Ratings - Um = 250 VAC. Un= 14VDC to 28VDC, In= 4 to 20mA, Pn= 0.9W.

Table #1 Max Process Temperature and Pressure Range for Gas Application

Temp Class	Process Temperature Range	Barrier Conduit Fitting Type	Requirement for extension	Probe Model	O-ring material	Part code for letters "h" and "i"	Maximum Process Pressure
T6	-40°C to +80°C	Hawk Barrier Conduit Fitting with Sealing Compound Or Hawke SB474 Barrier Fitting (optional for Zones)	With or without extension	X8	NBR	B1 or BA	40bar
					EPDM	E1 or EA	
					VITON	V1 or VA	
					SILICON	S1 or SA	
				X6 X4	NBR	B1 or BA	100bar
					EPDM	E1 or EA	
					VITON	V1 or VA	
					SILICON	S1 or SA	
T6	-10 °C to +80 °C			X6 X4	MARKEZ (FFKM)	M1 or MA	100bar
T5	-40 °C to +100 °C	Hawk Barrier Conduit Fitting with Sealing Compound	With or without extension	X8	EPDM	E2 or EB	6bar
					SILICON	S2 or SB	
					VITON	V2 or VB	40bar
				X6	EPDM	E2 or EB	100bar
					VITON	V2 or VB	
				X4	EPDM	E2 or EB	100bar
					VITON	V2 or VB	
					SILICON	S2 or SB	6bar
		Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x50 mm extension	X8	EPDM	E2 or EB	6bar
					SILICON	S2 or SB	
					VITON	V2 or VB	40bar
				X6	EPDM	E2 or EB	100bar
					VITON	V2 or VB	

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				X4	EPDM	E2 or EB	100bar
					VITON	V2 or VB	
					SILICON	S2 or SB	6bar
T5	-10 °C to +100 °C	Hawk Barrier Conduit Fitting with Sealing Compound	With or without extension	X6 X4	MARKEZ (FFKM)	M2 or MB	100bar
		Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x50 mm extension				
T4	-40 °C to +130 °C	Hawk Barrier Conduit Fitting with Sealing Compound	With or without extension	X8	EPDM	E3 or EC	6bar
					SILICON	S3 or SC	
					VITON	V3 or VC	40bar
				X6	EPDM	E3 or EC	100bar
					VITON	V3 or VC	
				X4	EPDM	E3 or EC	100bar
					VITON	V3 or VC	
					SILICON	S3 or SC	6bar
T4	-40 °C to +130 °C	Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x50 mm extension	X8	EPDM	E3 or EC	6bar
					SILICON	S3 or SC	
					VITON	V3 or VC	40bar
				X6	EPDM	E3 or EC	100bar
					VITON	V3 or VC	
				X4	EPDM	E3 or EC	100bar
					VITON	V3 or VC	
					SILICON	S3 or SC	6bar

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T4	-10 °C to +130 °C	Hawk Barrier Conduit Fitting with Sealing Compound	With or without extension	X6 X4	MARKEZ (FFKM)	M3 or MC	100bar
		Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x50 mm extension				
T3C (Div) T3 (Zones)	-40 °C to +150 °C	Hawk Barrier Conduit Fitting with Sealing Compound	Minimum Ø34x50 mm extension	X6; X4	VITON	V4 or VD	100bar
		Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x95 mm extension				
T3C (Div) T3 (Zones)	-10 °C to +150 °C	Hawk Barrier Conduit Fitting with Sealing Compound	Minimum Ø34x50 mm extension	X6 X4	MARKEZ (FFKM)	M4 or MD	100bar
		Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x95 mm extension				
T3	-10 °C to +200 °C	Hawk Barrier Conduit Fitting with Sealing Compound	Minimum Ø34x50 mm extension	X6; X4	MARKEZ (FFKM)	M5 or ME	100bar

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		Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x95 mm extension				
T2B (Div) T2 (Zones)	-5 °C to +250 °C	Hawk Barrier Conduit Fitting with Sealing Compound	Minimum Ø34x50 mm extension	X6; X4	MARKEZ (FFKM)	M6 or MF	40bar
		Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x95 mm extension				

Note: O-ring selection also depends on O-ring material suitability with respect to process medium.

Table #2 Max Process Temperature Range for Dust Application

Temp Class for Divisions only	**Maximum Surface Temp**	**Process Temp Range**	**Barrier Conduit Fitting Type**	**Requirement for extension**	**Probe Model**	**O-ring material**	**Part code for letters "h" and "i"**
T6	T85 °C	-40 °C to +80 °C	Hawk Barrier Conduit Fitting with Sealing Compound Or Hawke SB474 Barrier Fitting (optional	With or without extension	X8 X6 X4	NBR	B1 or BA
						EPDM	E1 or EA
						VITON	V1 or VA
						SILICON	S1 or SA
T6	T85 °C	-10 °C to +80 °C			X6 X4	MARKEZ (FFKM)	M1 or MA

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			for Zones)				
T5	T100 °C	-40 °C to +100 °C	Hawk Barrier Conduit Fitting with Sealing Compound	With or without extension	X8 X6 X4	EPDM	E2 or EB
			Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x50 mm extension		VITON	V2 or VB
			Hawk Barrier Conduit Fitting with Sealing Compound	With or without extension	X8 X4	SILICON	S2 or SB
			Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x50 mm extension			
T5	T100 °C	-10 °C to +100 °C	Hawk Barrier Conduit Fitting with Sealing Compound	With or without extension	X6 X4	MARKEZ (FFKM)	M2 or MB
			Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x50 mm extension			
T4	T135 °C	-40 °C to +130 °C	Hawk Barrier Conduit Fitting with Sealing	With or without extension	X8 X6 X4	EPDM	E3 or EC

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			Compound				
			Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x50 mm extension		VITON	V3 or VC
			Hawk Barrier Conduit Fitting with Sealing Compound	With or without extension	X8 X4	SILICON	S3 or SC
			Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x50 mm extension			
T4	T135 °C	-10 °C to +130 °C	Hawk Barrier Conduit Fitting with Sealing Compound	With or without extension	X6 X4	MARKEZ (FFKM)	M3 or MC
			Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x50 mm extension			
T3C	T150 °C	-40 °C to +150 °C	Hawk Barrier Conduit Fitting with Sealing Compound	Minimum Ø34x50 mm extension	X6 X4	VITON	V4 or VD
			Hawke SB474 Barrier Fitting	Minimum Ø34x95 mm extension			

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			(optional for Zones)				
T3C	T150 °C	-10 °C to +150 °C	Hawk Barrier Conduit Fitting with Sealing Compound	Minimum Ø34x50 mm extension	X6 X4	MARKEZ (FFKM)	M4 or MD
			Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x95 mm extension			
T3	T200 °C	-10 °C to +200 °C	Hawk Barrier Conduit Fitting with Sealing Compound	Minimum Ø34x50 mm extension	X6 X4	MARKEZ (FFKM)	M5 or ME
			Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x95 mm extension			
T2B	T250 °C	-5 °C to +250 °C	Hawk Barrier Conduit Fitting with Sealing Compound	Minimum Ø34x50 mm extension	X6 X4	MARKEZ (FFKM)	M6 or MF
			Hawke SB474 Barrier Fitting (optional for Zones)	Minimum Ø34x95 mm extension			

Note: O-ring selection also depends on O-ring material suitability with respect to process medium.

Model Code:

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CGRabcdeeefgggghijkkllllm Centurion Guided Radar

a= 2 (for 2 wire) or 4 (for 4 wire)
b = A to Z –(Communication)
c = 0-5 –(Housing)
d= 0 (none), 1 (½"NPT), 2 (3/4" NPT), 3 (M20), 4 (M25), 5-9 (various sizes) –(Gland Entry)
eee= Axx, Bxx, Cxx, Dxx, Exx, Fxx, Jxx and Kxx –(Probe type)
f= A to Z –(probe variant/materials)
gggg = X (mounting options for threads and flanges)
h= B, E, V, S or M –(O-ring seal)
i= 1-9 or A-Z –(Temperature Class)
j= 1-9 –(Process Pressure)
kk= 1C, 2C, 3C, and 4C -(Approval standard)
llll= 0-9999 – (Probe length)
m = OEM company Code (optional)

13. **Specific Conditions of Use:**

1. The equipment includes flameproof joints, contact Hawk Measurement Systems Pty. Ltd. for information specific to the flameproof joints.

2. When the equipment is used in gas applications with various process temperatures and different ambient temperature ranges, the selection of the materials, use of extension and temperature class for the equipment must be in accordance with Safety Instructions SI0055.

3. When the equipment is used in dust applications with various process temperatures and different ambient temperature ranges, the selection of the materials, use of extension and the maximum surface temperature of the equipment must be in accordance with Safety Instructions SI0055.

4. For Group III application, the aluminium Ex tb housing with epoxy finish has a non-conducting coating and may generate an ignition capable level of electrostatic charge under certain extreme conditions. The user shall ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.

5. CGR equipment can be installed at boundary wall across Zone 0/1 (Ga/Gb) or Zone 20/21 (Da/Db) with the sensing probe in Zone 0 (Ga) or Zone 20 (Da) and electronics housing in Zone1 (Gb) or Zone 21 (Db).

14. **Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals Canadian Certification Scheme.

15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

16. **Certificate History**

Details of the supplements to this certificate are described below:

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Date	Description
21st November 2018	Original Issue.