



# Certificate of Compliance

Certificate: 2489860

Master Contract: 160686

Project: 70008603

Date Issued: November 5, 2014

Issued to: Endress + Hauser Flowtec AG

Kagenstrasse 7  
Reinach, Basel Land 4153  
Switzerland  
Attention: Utz Dette

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.*



*Eshwar Kashyap*

Issued by: Eshwar Kashyap

## PRODUCTS

**CLASS 2258 02** - PROCESS CONTROL EQUIPMENT - For Hazardous Locations

**CLASS 2258 82** - PROCESS CONTROL EQUIPMENT - For Hazardous Locations -  
Certified to US Standards

**Class I, Division 2, Groups A, B, C and D:**

**Ex nA IIC T4...T1 Gc:**

**AEx nA IIC T4...T1 Gc:**

Product	6AABcc-ddefghikklllm+### t-mass A150 Thermal Mass Flowmeter for Gases  O6AABcc-ddefghikklllmn+### t-mass A150 Thermal Mass Flowmeter for Gases  6BABcc-ddefghikklllm+### t-mass B150 Thermal Mass Flowmeter for Gases
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	<p>O6BABcc-ddefghikkllmn+### t-mass B150 Thermal Mass Flowmeter for Gases</p> <p>6LABcc-ddefghikkllm+### t-mass L150 Thermal Mass Flowmeter for Liquids</p> <p>O6LABcc-ddefghikkllmn+### t-mass L150 Thermal Mass Flowmeter for Liquids</p> <p>6TABcc-ddefghikkllm+### t-mass T150 Thermal Mass Flowmeter for Liquids</p> <p>O6TABcc-ddefghikkllmn+### t-mass T150 Thermal Mass Flowmeter for Liquids</p> <p>Where</p> <p>dd = C4</p> <p>e = D or X</p> <p>f = A, B, K, Q or X</p> <p>h = A or X</p> <p>i = A, B, C, D, Q or X</p>
Electrical Rating	24 Vdc nominal (18 to 30Vdc max), 4.0 W max
Enclosure Rating	Type 4X, IP 66/67
Temp. code and ambient temperature	T4 with Ta of -40°C to + 60°C with process temperature (-40°C to +130°C)



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	T3-T1 with Ta of -40°C to + 60°C with process temperature (-40°C to +150°C)
Process temperature and MWP	Max process temperature:+150°C  Maximum Working Pressure (MWP): 51.7 barg/750 psig
Installation Drawing	FES0189B

**Class I, Division 2, Groups A, B, C and D; Class II, Div. 1, Groups E, F and G; Class III, Div. 1:**

**Ex nA IIC T4...T1 Gc:**

**AEx nA IIC T4...T1 Gc:**

Product	6AABcc-ddefghikklllm+### t-mass A150 Thermal Mass Flowmeter for Gases  O6AABcc-ddefghikklllmn+### t-mass A150 Thermal Mass Flowmeter for Gases  6BABcc-ddefghikklllm+### t-mass B150 Thermal Mass Flowmeter for Gases  O6BABcc-ddefghikklllmn+### t-mass B150 Thermal Mass Flowmeter for Gases  6LABcc-ddefghikklllm+### t-mass L150 Thermal Mass Flowmeter for Liquids
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	<p>O6LABcc-ddefghikklllmn+### t-mass L150 Thermal Mass Flowmeter for Liquids</p> <p>6TABcc-ddefghikklllm+### t-mass T150 Thermal Mass Flowmeter for Liquids</p> <p>O6TABcc-ddefghikklllmn+### t-mass T150 Thermal Mass Flowmeter for Liquids</p> <p>Where</p> <p>dd = C4</p> <p>e = D or X</p> <p>f = A, B, K, Q or X</p> <p>h = A or X</p> <p>i = A, B, C, D, Q or X</p>
Electrical Rating	24 Vdc nominal (18 to 30Vdc max), 4.0 W max
Enclosure Rating	Type 4X, IP 66/67
Temp. code and ambient temperature	<p>T4 with Ta of -40°C to + 60°C with process temperature (-40°C to +130°C)</p> <p>T3-T1 with Ta of -40°C to + 60°C with process temperature (-40°C to +150°C)</p>
Process temperature and MWP	<p>Max process temperature:+150°C</p> <p>Maximum Working Pressure (MWP): 51.7 barg/750 psig</p>
Installation Drawing	FES0188B



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Conditions of certification:

- The equipment is to be disconnected only when the device is not energized or the area is known to be non hazardous.
- The transmitter housing shall only be opened when the device is not energized or the area is known to be non hazardous

**APPLICABLE REQUIREMENTS**

CAN/CSA-C22.2 No. 0 - M91 - General Requirements – Canadian Electrical Code, Part II

C22.2 No. 25-1966 - Enclosures for Use in Class II, Groups E, F and G Hazardous Locations

CAN/CSA-C22.2 No. 94-M91 - Special Purpose Enclosures

CAN/CSA-C22.2 No. 61010-1-04 - Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1: General Requirements

C22.2 No. 213-M1987 (R2013) - Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations

CAN/CSA-C22.2 No. 60529:05 - Degrees of protection provided by enclosures (IP Code)

ANSI/ISA-12.12.01-2010 - Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations

FMRC 3600 – 1998 - Electrical Equipment for Use in Hazardous (Classified) Locations, General Requirements

FMRC 3611 - 1999 - Nonincendive Electrical Equipment for Use in Class I and Class II, Division 2, and Class III, Division 1 and 2 Hazardous (Classified) Locations

FMRC 3810 – 1995 - Electrical and Electronic Test, Measuring, and Process Control Equipment

ISA S82.02.01 2nd (IEC 61010-1 Mod) (2nd Ed.) - Safety Standards for Electrical and Electronic Test, Measuring, Controlling and Related Equipment - General Requirements.

UL 61010-1 (2nd Ed.) - Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1: General Requirements

ANSI/NEMA 250 – 2008 - Enclosures for Electrical Equipment

UL 50 (11th Ed.) - Enclosures for Electrical Equipment

ANSI/IEC 60529:2004 - Degrees of Protection Provided by Enclosures (IP Code)



## *Supplement to Certificate of Compliance*

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*The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.*

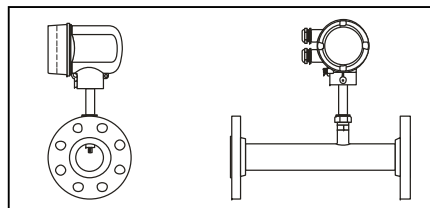
### **Product Certification History**

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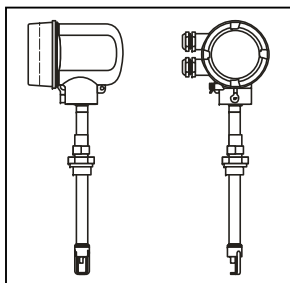
<b>Project</b>	<b>Date</b>	<b>Description</b>
70008603	Nov 5, 2014	Update to include a minor change in the design of the enclosure and sensor assembly.
2678423	Nov 28, 2013	Update to include revised design of the t-mass A/B 150 and new models L/T 150 for Cl. I Div. 2. Additionally, all models were assessed for AEx/Ex nA IIC T4...T1 Gc based on evaluation conducted under CA/CSA/ExTR13.0030/00.
2532272	Jun 22, 2012	Update to cover minor revisions to marking label drawings.
2489860	Jan 28, 2012	cCSAus Certification of t-mass A150 and B150 Thermal Flow Measuring System for Class I, Div. 2, Class II, Div. 1, Class III Div. 1 hazardous locations; Type 4X, IP66/67.

### Hazardous Locations

Class I Division 2 Groups ABCD T4 or Class I Zone 2 IIC T4,  
AEx nA IIC T4, Ex nA IIC T4



t-mass A/L 150



t-mass B/T 150

**WARNING: SUBSTITUTION OF COMPONENTS MAY  
IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**

Notes:

1. Product to be used for flow measurement of fluids.
2. Install all per Canadian Electrical Code (CEC) resp. National Electrical Code (NEC) ANSI/NFPA 70.
3. Warning: The equipment is to be disconnected only when the device is not energized or the area is known to be non hazardous.
4. Warning: The transmitter housing shall only be opened when the device is not energized or the area is known to be non hazardous.
5. Caution: Use supply wires suitable for 20 K above ambient temperature, but at least for 70 °C / 158°F.

Ambient temperature :

-40 °C / -40 °F ≤ Ta ≤ +60 °C / +140 °F


Fluid temperature:

t-mass A/B 150: -40°C / -40 °F C ≤ T<sub>Fluid</sub> ≤ +100 °C / +212 °F

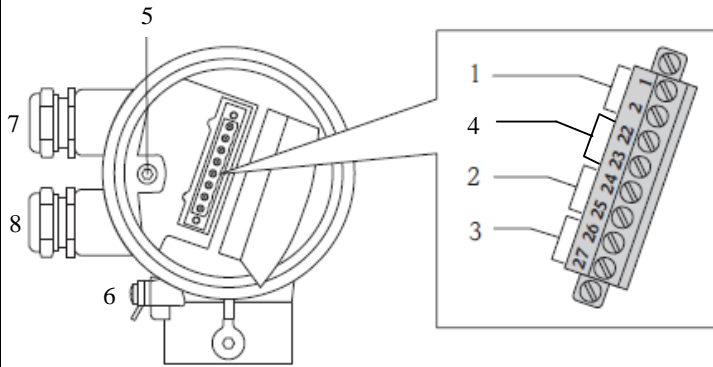
t-mass L/T 150: -20°C / -4 °F C ≤ T<sub>Fluid</sub> ≤ +100 °C / +212 °F

t-mass L/T: SIP, CIP cleaning up to +150 °C / +302 °F

	Ta	T4	T3	T2	T1
		+135 °C	+200 °C	+300 °C	+450 °C
All	+60 °C	+130 °C	+150 °C	+150 °C	+150 °C

Aenderungen:	A	11.11.2011	F	Alle gesetzlichen Urheberrechte vorbehalten. Diese Zeichnung darf ohne unsere Genehmigung weder vervielfältigt werden noch dritten Personen und Konkurrenzfirmen zugänglich gemacht werden.	Ersteller: FES FILE: FES0189B.doc																
	B	23.08.2013	G																		
	C		H																		
	D		J																		
	E		K																		
©CSA <sub>US</sub> Control Drawing Cl. I, Div. 2 Gps. A, B, C, D T4 Class I Zone 2 AEx/Ex nA IIC T4 Gc					<table border="1"> <tr> <td>Masstab</td> <td>Gezeichnet</td> <td>11.11.2011</td> <td>UD</td> </tr> <tr> <td></td> <td>Geprüft</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Ex-geprüft</td> <td>23.08.2013</td> <td>UD</td> </tr> <tr> <td></td> <td>Gesehen</td> <td></td> <td></td> </tr> </table>	Masstab	Gezeichnet	11.11.2011	UD		Geprüft				Ex-geprüft	23.08.2013	UD		Gesehen		
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 Flowtec AG, Kägenstrasse 7, CH-4153 Reinach BL1, Postfach																					
FES0189B					1 / 2																

Electrical connections by field wiring :



- 1 Terminals 1(L+) und 2 (L-), Power Supply: DC 24 V
  - 2 Terminals 24 (+) und 25 (-), Pulse/freq/switch output: DC 30 V
  - 3 Terminals 26 (+) und 27 (-), 4 ... 20 mA HART: DC 30 V
  - 4 Terminals 22 (+) und 23 (-), Status input: DC 30 V
- Firmly tighten the screws in the terminal block.  
Connectable cross section: 0.2 – 2.5 mm<sup>2</sup>, rigid or flexible.
- 5 Ground terminal for cable shield
  - 6 Ground terminal for external connection: e.g. potential equalization
  - 7 Cable entry for power supply and status input
  - 8 Cable entry for PFS output and 4 ... 20 mA HART output

Electrical connection by plug connectors for non-hazardous (unclassified) locations:

Power supply, status input, M12- plug connector (A-coded)


Pin	Designation	
	Pin	Designation
1	L+	Power Supply
2	+	Status input
3	-	Status input
4	L-	Power Supply
5		GND/Screen

4-20 mA HART, PFS, M12- socket connector (A-coded)

Pin	Designation	
	Pin	Designation
1	+	4-20mA HART (active)
2	-	4-20mA HART (active)
3	+	FPS (passive)
4	-	FPS (passive)
5		GND/Screen

Notes for electrical connections by plug connectors:

- Use mating connectors certified for type of protection with thread M20 x 1.0 and appropriate ingress protection and ambient temperature rating.

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