EXPRO PassiveSONAR models –

HAZARDOUS AREA Certification Guide

Model #	**TB8-xx-xx-xx-<u>03</u> Transmitter SH-xxx-xx-xA-xxx-<u>03</u> Sensor Head ("ATEX Zone 2")**	**TB8-xx-xx-xx-<u>02</u> Transmitter SH-xxx-xx-xx-xxx-<u>02</u> Sensor Head ("US/CAN Div 2")**
Shipping Address	This model is intended for use in Europe and other countries accepting ATEX Zone 2 certified equipment, as well as in Customs Union countries accepting EAC Zone 2 certified equipment.	This model is intended for use in the United States, Canada, and other countries accepting United States-certified or Canada-certified Class I, Division 2 equipment.
Surface or Mining?	Only certified for Surface use (Group II). Not certified for Mining (Group I).	Only certified for Surface use. Not certified for Mining.
Explosive Gas or Dust or Flyings?	Only certified for Explosive Gas (G). Not certified for Dust (D).	Only certified for Explosive Gas (Class I). Not certified for Dust (Class II) or Flyings (Class III).
What Zone?	Zone 2 (EUR/EAC) - OK Zone 1 (EUR/EAC) – Not Certified Zone 0 (EUR/EAC) – Not Certified	Zone 2 - (US/CAN) OK (*1) Zone 1 – (US/CAN) Not Certified Zone 0 – (US/CAN) Not Certified
What Division? (only applies to US & Canada)	Div 2 – Not recognized in EUR/EAC Div 1 – Not recognized in EUR/EAC	Div 2 (US/CAN) – OK Div 1 (US/CAN) – Not Certified
What Gas Groups? [Note: Propane is a typical group D or group IIA gas. Ethylene is a typical group C or group IIB gas. Hydrogen is a typical group B gas. Acetylene is a typical group A or group IIC gas.]	IIA – OK IIB – OK IIB+H2 – Not certified IIC – Not certified D – Not recognized in EUR/EAC C – Not recognized in EUR/EAC B – Not recognized in EUR/EAC A – Not recognized in EUR/EAC	IIA – Not recognized in US/CAN IIB – Not recognized in US/CAN IIB+H2 – Not recognized in US/CAN IIC – Not recognized in US/CAN D – OK C – OK B – OK A – OK
What is required minimum T-rating? [Note: The T-rating indicates the worst-case temperature that could be generated on the outside surface of the meter. T6 is the coolest at 85°C. T4 is 135°C. The required minimum T-rating is based on the Autoignition Temperature of the explosive gasses present.]	T1 – OK T2 – OK T3 – OK T4 – OK T4A – Not recognized in EUR/EAC T5 – Not certified T6 – Not certified	T1 – OK T2 – OK T3 – OK T4 – OK T4A – Not certified (*4) T5 – Not certified T6 – Not certified
What is required Ingress Protection rating of enclosures?	IP20 to IP55 – OK IP56 to IP68 – Not certified Type 4X –partially (*2)	IP20 to IP55 – Not marked (*2) IP56 to IP68 – Not certified Type 4X – partially (*2)
What is ambient air temp at meter location?	Only certified for range: -40°C to +60°C	Only certified for range: -40°C to +60°C.
What is ambient air temp at the location where the Transmitter will be installed?	Only certified for range: -20°C to +57°C	Only certified for range: -20°C to +60°C

What is the length of cable needed between the meter and the Transmitter?	Only certified for less than 114 meters (375 feet). Typically, Expro supplies cable only up to 300 feet long.	Only certified for less than 114 meters (375 feet). Typically, Expro supplies cable only up to 300 feet long.
What is the maximum temperature of pipe contents?	Only certified if not more than +100°C.	Only certified if not more than +100°C.
What is the minimum temperature of pipe contents?	Only certified if not less than -40°C.	Only certified if not less than -40°C.
Limitations for the Transmitter display window	The ATEX-certified Transmitter is NOT available with a window. The enclosure door must be opened to access the display and keypad.	The US/Canada Div 2 Transmitter comes with a window so the display can be read without opening the enclosure door.
Ex Safety Instructions for additional safety information [Includes the markings.]	20909-03C (Safety Manual) (*3) 20907-03C (Control drawing in appendix of the manual) (*3)	20822-01-03 – (Installation Manual) 20944-01C (Control drawing in appendix of the manual)
Hazardous Area certificates	EU-DEMKO 11 ATEX 1015266X (*3) EAC-TC RU C-US.ГБ04.B.00626 (EMI P/N ECD00066RU)	UL WYMV.E326286 (US) UL WYMV7.E326286 (Canada)
EU Declaration of Conformity	EU-ECD00055 (*3) EAC-ECD00064RU	Not applicable outside of Europe.
Installation Manual	EU-20822-01-03 EAC-20822-01-RU	20822-01-03
For questions or for copies of any of the listed documents, please contact us at:	Telephone: +1 203.303.5691 E-mail: ExproMetersTechnical@exprogroup.com	

Notes:

*1 – The US and Canadian model is certified for Class I, Division 2 (not Class I, Zone 2). However, the US and Canadian Electric Codes permit the use of equipment marked Class I, Division 2 in areas classified as Class I, Zone 2.

*2 – The empty Transmitter enclosure is Type 4X certified by its manufacturer. The Sensor Head is not. Note: US/Canada Div 2 Transmitter and Sensor Head enclosures are the same as the ATEX model's enclosures which were tested and certified IP55 as part of the ATEX Zone 2 certification.

*3 – For PassiveSONAR meters ordered prior to 4Q 2011, the ATEX certificate was DEMKO 07 ATEX 0608105X, the EC Declaration of Conformity was 20921-01, the ATEX Safety Manual was 20909-01C, and the ATEX Control Drawing was 20907-01C.

*4 – The Transmitter is T4A but the Sensor Head is T4 because of the 100°C maximum allowed temperature of the pipe contents.

[1] # TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

[3] Type Examination Certificate Number: **DEMKO 11 ATEX 1015266X Rev. 1**

[4] Equipment: **Transmitter Part No. TB8-xx-xx-xx-03 used with Sensor Head Part No. SH-xxx-xx-xA-xxx-03 and standalone Transmitter Part No. TB8-xx-xx-xx-04**

[5] Manufacturer: **Expro Meters Inc.**

[6] Address: **50 Barnes Park North, Wallingford, CT 06492 USA**

[7] This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S certifies that this equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of **Category 3** equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to the European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in confidential report no. **12NK10476**

[9] Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to Standards:

EN 60079-0:2012 **EN 60079-11:2012** **EN 60079-15:2010**

[10] If the sign "**X**" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This Type examination certificate relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured.

[12] The marking of the equipment or protective system shall include the following:

II 3 G Ex ic nA [ic] IIB T4 Gc

II 3 G Ex ic nA IIB T4 Gc

Certification Manager
Jan-Erik Storgaard

Certification Body

This is to certify that the Product(s) described herein has been investigated to the Standard(s) indicated on this Certificate, in accordance with the ATEX Equipment Certification Program Requirements. The certificate and test results obtained apply only to the Product(s) tested. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all Product(s) described herein to all applicable standards, specifications, requirements and Directives.

Date of issue: 2011-06-17
Re-issued: 2013-05-15

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

[13] **Schedule**

[14] **TYPE EXAMINATION CERTIFICATE No.**
DEMKO 11 ATEX 1015266X Rev. 1
Report: 12NK10476

[15] Description of Equipment:
The Passive SONAR Flow Monitoring System is a clamp-on, non-wetted, flow measurement system used to measure certain properties of process fluids within enclosed pipes. An ATEX Zone 2 approved system consists of a clamp-on Sensor Head Part No. SH-xxx-xx-xA-xxx-03 which sends conditioned sensor array signals through a cable to a Transmitter Part No. TB8-xx-xx-xx-03 which processes the sensor signals and outputs calculated fluids properties, such as flow velocity, in a variety of electronic formats. Either or both of these components may be located in areas classified ATEX Zone 2 when installed in accordance with system control drawing 20907-03C. TB8-xx-xx-xx-03 has been evaluated with the sensor head (SH-xxx-xx-xA-xxx-03) as a system (Ex ic nA [ic] IIB T4 Gc). Alternatively under this certificate, an ATEX certified flow measurement system may be comprised of a certified Transmitter Part No. TB8-xx-xx-xx-04 which connects via a cable to a separately certified Sensing device installed in accordance with the restrictions of each component's certification. The Transmitter Part No. TB8-xx-xx-xx-04 (Ex ic nA IIB T4 Gc) may be installed in ATEX Zone 2 in accordance with its Control Drawing 20908-03C.

Nomenclature for Transmitter
TB8-aa-bb-cd-ee

aa: Software
Any alphanumeric combination

bb: Input Power
05-AC
06-DC

c: Communication I/F
0-RS232/485
1-RS232/485, MODBUS
2-Foundation Fieldbus
3 –Profibus

d: Terminal block options
Any alphanumeric except for “0” or “1”

ee: Hazardous Area Location Rating
03-European ATEX Zone 2 Transmitter in system with Sensor head SH-xxx-xx-xA-xxx-03 (Ex ic nA [ic] IIB T4 Gc)
04-European ATEX Zone 2 Transmitter standalone (Ex ic nA IIB T4 Gc)

Nomenclature for Sensor Head (SH-xxx-xx-xA-xxx-03) has been evaluated with the transmitter box (TB8-xx-xx-xx-03) as a system).
SH-abb-cc-dd-eee-ff

abb: Pipe/Tube Type and Size
abb: Any 3 –digit number no greater than 914
OR
a: Pipe/Tube Type, Any Alphabetic (non-numeric) character
bb: Pipe/Tube Size , Any 2-digit number no greater than 36

cc: Band Type
00,01,02,04,05,06,07,08,09,12,18,19,26,28,45,46,48,50,51,52

dd: Cover Type
xA – where “x” can be any alphanumeric character

eee: Preamp Type
Any alphanumeric combination

ff: Hazardous Area Location Rating
03 – European ATEX Zone 2 Sensor head in system

Temperature range
The ambient temperature range is:

-20°C to +57°C for Transmitters and
-40°C To +100°C for Sensor Head.

[13] [14]

Schedule
TYPE EXAMINATION CERTIFICATE No.
DEMKO 11 ATEX 1015266X Rev. 1
Report: 12NK10476

Electrical data

Models TB8 xx-xx-xx-04 and TB8-xx-xx-xx-03 Series
POWER ENTRY:
TB8-xx-05-xx-xx Transmitter: 100 - 240VAC, 50/60HZ, 25W
TB8-xx-06-xx-xx Transmitter: 18-36VDC, 25W

Entity Parameters for Model TB--xx-xx-xx-03
Transmitter Provisional Sensor Input (Energy Limited Inputs)
Uo : 24.1 V
Io : 47 mA
Ca : 60 nF
La : 200 uH
Po: 0.29W

Installation instructions

- Cable glands to be ATEX certified for Group II or IIB gasses, have IP55 rating and be sized for cable and mounting hole.
- External transient protection shall be provided to prevent rated voltage being exceeded by transient disturbance of more than 40%..
- Installation shall be per Control Drawing 20907-03C for complete system and per Control Drawing 20908-03C for Transmitter alone.
- The Transmitter and Sensor Head enclosures shall not be rubbed except with a clean rag dampened with water or water based cleaner (non-flammable solvent).

[16] Descriptive Documents
Project Report No.: 12NK10476 (Hazardous Location Testing)

Drawings:

Certification, Transmitter Enclosure, Expro, Zone 2	20873-03C	02	2013-04-26
Certification, Transmitter Electronics, Zone 2	20873-03SC	01	2011-05-13
Certification, Cable Gland, Expro, Zone 2	20885-03C	02	2013-04-26
Certification, Fiberglass Cover, Zone 2 & Label	20874-03C	01	2011-05-13
Certification, Sensor Head Electronics, Zone 2	20874-03SC	01	2011-05-13
Control Drawing, System ATEX, Zone 2	20907-03C	02	2013-04-26
Control Drawing, Transmitter, Expro, ATEX, Zone 2	20908-03C	02	2013-04-26
Installation Instruction	20909-03C	03	-

[17] Special conditions for safe use:

- Cable glands to be ATEX certified for Group II or IIB gasses, have at least IP55 rating and be sized for cable and mounting hole where installed, temperature rating of -20°C to +57°C.
- External transient protection shall be provided to prevent rated voltage being exceeded by transient disturbance of more than 40%.
- Installation shall be per Control Drawing 20907-03C for complete system, Transmitter Part No. TB8-xx-xx-xx-03 used with Sensor Head Part No. SH-xxx-xx-xA-xxx-03, or per Control Drawing 20908-03C for Transmitter Part No. TB8-xx-xx-xx-04.
- The Transmitter and Sensor Head enclosures shall not be rubbed except with a clean rag dampened with water or water based cleaner (non-flammable solvent).
- This equipment will be used in an area not more than pollution degree 2 as defined by IEC60664-1.

[18] Essential Health and Safety Requirements
Met by compliance with the standards EN 60079-0:2012, EN 60079-11:2012, EN 60079-15:2010.

Additional information
The Transmitter and Sensor models mentioned above have in addition passed the tests for Ingress Protection to IP 55 in accordance with EN60529: 1991/A1 2000. These products have also been evaluated to the requirements found in standards EN60079-0:2012, EN60079-11:2012, and EN 60079-15:2010.

EU Declaration of Conformity

(No. ECD00055)

Herewith declare that the Products: **PassiveSONAR™ Industrial Flowmeters**

Product identification:
Brand and catalog number/part number.
Traceability: serial number and date code

TB8-xx-xx-xx-03 Transmitter with
SH-xxx-xx-xA-xxx-03 Sensor Head
or
TB8-xx-xx-xx-04 Transmitter (stand-alone)
(where x represents any alphanumeric combination)

The undersigned, representing the Manufacturer:
Expro Meters, Inc., 50 Barnes Park North, Wallingford, CT 06492 USA

This Declaration of Conformity is issued under the sole responsibility of the Manufacturer, and further declare that the Products are in conformity with the provisions of the following EU Directives when installed in accordance with the installation instructions contained in the product documentation:

2014/30/EU	Electromagnetic Compatibility (EMC) Directive [Group 1, Class A ISM equipment]
2014/34/EU	Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres (ATEX) Directive
2011/65/EU	Restriction of Hazardous Substances (RoHS3 2015/863/EU)

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and that the standards referenced below have been applied:

EN 55011:2009 + A1:2010	Industrial, Scientific, and Medical (ISM) Radio-Frequency Equipment – Electromagnetic Disturbance Characteristics – Limits and Methods of Measurement (CISPR 11:2003)
EN 61326-1:2013	Electrical Equipment for Measurement, Control and Laboratory Use – EMC Requirements – Part 1: General Requirements
EN 61326-2-3:2013	Electrical Equipment for Measurement, Control and Laboratory Use – EMC Requirements – Part 2-3: … Transducers …
EN 60079-0:2012	Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General Requirements
EN 60079-11:2012	Electrical Apparatus for Explosive Gas Atmospheres – Part 11: Equipment Protected by Intrinsic Safety 'i'
EN 60079-15:2010	Explosive Atmospheres - Part 15: Equipment Protected by Nonincendive Electrical Apparatus 'n'
EN 60529:1991 +A1:2000	Degrees of Protection Provided by Enclosure (IP Code)

EN IEC 63000:2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Component/ATEX markings

TB8-xx-xx-xx-03 with SH-xxx-xx-xA-xxx-03	II 3 G Ex ic nA [ic] IIB T4 Gc IP55
TB8-xx-xx-xx-04	II 3 G Ex ic nA IIB T4 Gc IP55

Notified Body:	UL International Demko A/S, Lyskaer 8; P.O. Box 514; DK-2730; Herlev, Denmark
ATEX Certificate:	DEMKO 11 ATEX 1015266X

Name:	Bill Smith	*Title:*	Product Line Director Expro Meters, Inc 50 Barnes Park North Wallingford, CT 06492 USA
Signature:			
Date:	20 April, 2022		
Year of CE Marking:	2011		

Note: As of Rev 09 of this EU Declaration of Conformity, compliance with the Low Voltage Directive per standard EN 61010-1 is no longer claimed. Electrical equipment for use in an explosive atmosphere is within the scope of the ATEX Directive, but is outside of the scope of the Low Voltage Directive.

Confirmation Letter

UL CUSTOMER	EXPRO METERS INC 50 Barnes Park Rd N Wallingford, CT 06492-5920 United States
UL CUSTOMER FILE #	E326286
CATEGORY	Telemetering Equipment for Use in Hazardous Locations | WYMV

April 9, 2021

As of the above date, UL LLC confirms that EXPRO METERS INC is the party associated with UL File # E326286 that appears in the UL Product iQ platform. Public information contained in UL File # E326286 can be viewed using the following link:

https://iq.ulprospector.com/en/profile?e=164787

The appearance of a company's name or a specific product/component designation in the UL Product iQ platform does not in itself mean that product or component so specified or identified is subject to UL's Surveillance Program.

The manufacturer's products are not covered under UL's Surveillance Program unless they bear the authorized UL Mark. Therefore, only those products bearing the appropriate authorized UL Mark or UL Recognized Component Mark, the authorized company name, tradename, trademark and product designation shall be considered as being covered by UL's Listing, Classification, or Recognition Service.

If you have questions regarding this letter, please contact the UL Customer Experience Center at cec@ul.com.

Sincerely,

Leadership & Governance Team
UL Product iQ

UL LLC
333 Pfingsten Road, Northbrook, IL 60062-2096 USA
T: 847.272.8800 / F: 847.272.8129 / W: UL.com

Confirmation Letter

UL CUSTOMER	EXPRO METERS INC 50 Barnes Park Rd N Wallingford, CT 06492-5920 United States
UL CUSTOMER FILE #	E326286
CATEGORY	Telemetering Equipment for Use in Hazardous Locations Certified for Canada | WYMV7

April 9, 2021

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https://iq.ulprospector.com/en/profile?e=164899

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If you have questions regarding this letter, please contact the UL Customer Experience Center at cec@ul.com.

Sincerely,

Leadership & Governance Team
UL Product iQ

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