

[1]

EU-TYPE EXAMINATION CERTIFICATE

[2] Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014

[3] EU-Type Examination Certificate Number: **DNV 21 ATEX 71985X** **Issue 4**

[4] Product: **PTC VR Sensor**

[5] Manufacturer: **Petroleum Technology Company AS**

[6] Address: **Slettestrandveien 13,
4032 Stavanger
Norway**

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

[8] DNV Product Assurance AS, notified body number 2460, in accordance with Article 17 and Article 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in confidential reports listed in item 16.


[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with: **EN IEC 60079-0:2018 and EN 60079-11: 2012**

Where additional criteria beyond those given here have been used, they are listed at item 18 in the Schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the "Specific Conditions of Use" listed under item 17 of this certificate.

[11] This EU-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:

 **II 1 G** **Ex ia IIB T3 Ga -20°C ≤ Ta ≤ +60°C**
Ex ia IIB T4 Ga -20°C ≤ Ta ≤ +60°C



Date of issue:
2024-02-22



Asle Kaastad
For DNV Product Assurance AS
The Certificate has been digitally signed.
See www.dnv.com/digitalsignatures for info

[13] **Schedule**

 [14] **EU-Type Examination Certificate No:** DNV 21 ATEX 71985X Issue 4

 [15] **Description of Product**

PTC VR Sensor is a Pressure and Temperature sensor. There are two main types, "PTC VR SensorWireless", and "PTC VR Sensor wired". The PTC VR version comes in two versions, Npolar and Polar. These are almost identical, the Npolar is indiscriminate on wiring input polarity, the other not. The communication protocol is HART. All variants consist of 3 electronics boards where the main differences is located on an interface unit. The main electronics printed circuit boards are encapsulated. In addition, the Wireless version has a Hart wireless transmitter and a battery pack. The outer chassis are heavy-duty stainless-steel enclosures.

Type designation

PTC VR Sensor Wireless, Ex ia IIB T3 Ga

PTC VR Sensor Wired, Ex ia IIB T4 Ga

	Variant	Type designation
1	AN3109	PTC VR Sensor Wired, Ex ia IIB T4 Ga
2	AN6312	PTC VR Sensor Wired, Ex ia IIB T4 Ga
3	AN8021	PTC VR Sensor Wired, Ex ia IIB T4 Ga
4	AN10663	PTC VR Sensor Wired, Ex ia IIB T4 Ga
5	AN11164	PTC VR Sensor Wired, Ex ia IIB T4 Ga
6	AN11200	PTC VR Sensor Wired, Ex ia IIB T4 Ga
7	AN10350	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
8	AN8189	PTC VR Sensor Wired, Ex ia IIB T4 Ga
9	AN10531	PTC VR Sensor Wired, Ex ia IIB T4 Ga
10	AN10548	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
11	AN11904	PTC VR Sensor Wired, Ex ia IIB T4 Ga
12	AN12007	PTC VR Sensor Wired, Ex ia IIB T4 Ga
13	AN12016	PTC VR Sensor Wired, Ex ia IIB T4 Ga
14	AN12206	PTC VR Sensor Wired, Ex ia IIB T4 Ga
15	AN12226	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
16	AN12227	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
17	AN11685	PTC VR Sensor Wired, Ex ia IIB T4 Ga
18	AN11927	PTC VR Sensor Wired, Ex ia IIB T4 Ga
19	AN11958	PTC VR Sensor Wired, Ex ia IIB T4 Ga
20	AN12046	PTC VR Sensor Wired, Ex ia IIB T4 Ga
21	AN12111	PTC VR Sensor Wired, Ex ia IIB T4 Ga
22	AN12101	PTC VR Sensor Wired, Ex ia IIB T4 Ga
23	AN10661	PTC VR Sensor Wired, Ex ia IIB T4 Ga
24	AN11489	PTC VR Sensor Wired, Ex ia IIB T4 Ga
25	AN10333	PTC VR Sensor Wired, Ex ia IIB T4 Ga
26	AN11971	PTC VR Sensor Wired, Ex ia IIB T4 Ga
27	AN12014	PTC VR Sensor Wired, Ex ia IIB T4 Ga

28	AN11076	PTC VR Sensor Wired, Ex ia IIB T4 Ga
29	AN11555	PTC VR Sensor Wired, Ex ia IIB T4 Ga
30	AN10588	PTC VR Sensor Wired, Ex ia IIB T4 Ga
31	AN10592	PTC VR Sensor Wired, Ex ia IIB T4 Ga
32	AN10817	PTC VR Sensor Wired, Ex ia IIB T4 Ga
33	AN10207	PTC VR Sensor Wired, Ex ia IIB T4 Ga
34	AN11247	PTC VR Sensor Wired, Ex ia IIB T4 Ga
35	AN10359	PTC VR Sensor Wired, Ex ia IIB T4 Ga
36	AN09928	PTC VR Sensor Wired, Ex ia IIB T4 Ga
37	AN6135	PTC VR Sensor Wired, Ex ia IIB T4 Ga
38	AN7599	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
39	AN09926	PTC VR Sensor Wired, Ex ia IIB T4 Ga
40	AN7598	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
41	AN8026	PTC VR Sensor Wired, Ex ia IIB T4 Ga
42	AN9865	PTC VR Sensor Wired, Ex ia IIB T4 Ga
43	AN7597	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
44	AN8509	PTC VR Sensor Wired, Ex ia IIB T4 Ga
45	AN8510	PTC VR Sensor Wired, Ex ia IIB T4 Ga
46	AN7577	PTC VR Sensor Wired, Ex ia IIB T4 Ga
47	AN7632	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
48	AN9442	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
49	AN10218	PTC VR Sensor Wired, Ex ia IIB T4 Ga
50	AN10461	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
51	AN10818	PTC VR Sensor Wired, Ex ia IIB T4 Ga
52	AN10445	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
53	AN9864	PTC VR Sensor Wired, Ex ia IIB T4 Ga
54	AN9734	PTC VR Sensor Wired, Ex ia IIB T4 Ga
55	AN3868	PTC VR Sensor Wired, Ex ia IIB T4 Ga
56	AN4730	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
57	AN5219	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
58	AN5755	PTC VR Sensor Wired, Ex ia IIB T4 Ga
59	AN6170	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
60	AN6398	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
61	AN7199	PTC VR Sensor Wired, Ex ia IIB T4 Ga
62	AN7566	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
63	AN7567	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
64	AN12386	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
65	AN12351	PTC VR Sensor Wired, Ex ia IIB T4 Ga
66	AN12352	PTC VR Sensor Wired, Ex ia IIB T4 Ga
67	AN12259	PTC VR Sensor Wired, Ex ia IIB T4 Ga
68	AN12396	PTC VR Sensor Wireless, Ex ia IIB T3 Ga
69	AN12218	PTC VR Sensor Wired, Ex ia IIB T4 Ga
70	AN12750	PTC VR Sensor Wireless, Ex ia IIB T3 Ga

71	AN12754	PTC VR Sensor Wired, Ex ia IIB T4 Ga
72	AN12768	PTC VR Sensor Wired, Ex ia IIB T4 Ga
73	AN13087	PTC VR Sensor Wired, Ex ia IIB T4 Ga
74	AN13108	PTC VR Sensor Wired, Ex ia IIB T4 Ga
75	AN13133	PTC VR Sensor Wired, Ex ia IIB T4 Ga

Electrical Data

I/O parameters for 4-20 mA and Hart input, PTC VR Sensor only:
 $U_i = 28 \text{ V}$, $I_i = 93 \text{ mA}$, $P_i = 651 \text{ mW}$, $C_i = 6.27 \text{ nF}$, $L_i = 3.5 \mu\text{H}$

Degrees of protection (IP Code)

Wireless version: IP67

Wired version: IP67

Wired retrievable version: IP69

Wireless retrievable version: IP67

Ambient temperature:

$-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$

External heat source is max 80°C

Routine tests

None

[16] **Report No.:** 400880/02

[17] **Specific Conditions of Use**

1. The antenna contains aluminum and is considered to constitute a potential risk of ignition by impact or friction. Care must be taken during installation and use to prevent impact and friction. This is according to the antenna certificate FM17ATEX0046X.
2. If located in zone, battery must be disconnected before the connector to the antenna is disconnected or connected. The female connector must be secured with the screws.

[18] **Essential Health and Safety Requirements**

Met by compliance with the requirements mentioned in item 9.

[19] Drawings and documents

Number	Title	Rev.	Date
22014724	*VR Sensor Systems - ATEX IECEx UKEx List	5	23.01.2024
20011506	PTC-209-IF Board S-Modem	1	16.02.2021
20011509	PTC-209-IF Board T-Modem	1	16.02.2021
20011515	Schematic of: Ceramic Adapter Board	1	16.02.2021
20011516	Interface board (Sine Modem)	1	18.02.2021
20011517	Interface board (T Modem)	1	18.02.2021
20011519	PTC Sensor Board	1	18.02.2021
20011544	BOM for: Ceramic Adapter Board	1	18.02.2021
20011546	Main SCH (IF Board, Sine Modem 2)	1	18.02.2021
20011548	PTC Sensor Board Schematics	1	18.02.2021
20011565	(Sensorboard layout, 14 sheets)	1	19.02.2021
20011566	(Connection board layout, 14 sheets)	1	26.02.2021
20011567	Battery pack	1	26.02.2021
20011568	ConnBoard_Variant 1_Wireless	1	19.02.2021
20011569	Battery Pack Variant 1 Non-rechargeable Battery	1	19.02.2021
20011570	ConnBoard(Variant-1(Wireless))	1	19.02.2021
20011571	ConnBoard_Variant 2_Wired NPolar	1	19.02.2021
20011572	ConnBoard_Variant 2_Wired Polar	1	19.02.2021
20011573	Wired potted plug assembly	1	19.02.2021
20011577	AN7108 - Martec HP Cable - Identification View	2	26.04.2023
20011578	AN7113 - EM v2.1 Wired Martec - Identification View	1	26.02.2021
20011579	AN2994_0 Sensor flange assembly	1	26.02.2021
20011581	AN10346 - Conn Box VR Sense-R Wireless BOM	1	26.02.2021
20011582	AN8254 - Electronic Module Wireless Retrievable,7C 6 Pins	1	26.02.2021
20011583	AN6847 - Wireless Adapter Rev.1	1	26.02.2021
20011664	Interface board S-Modem-2	1	26.02.2021
20011684	(Ceramic adapter layout, 14 sheets)	1	26.02.2021
20011731	(Battery pack layout, 14 sheets)	1	01.03.2021
20011751	Wired GTMS receptacle	1	26.02.2021
20011755	(IF-board T-Modem layout, 14 sheets)	1	01.03.2021
20011756	(IF-board S-Modem layout, 14 sheets)	1	02.03.2021
20011763	PTC VR SENSOR	1	26.02.2021
20011764	Sensor Board Layout (15 sheets)	1	02.03.2021
20011769	Split feed – throught assembly	1	25.02.2021
20011774	2.0" VR Sensor Plug –API	1	25.02.2021
20011780	Connection Box Retrievable	1	25.02.2021
20011782	VR Sensor connection box comparison	1	25.02.2021
20011788	VR Sensor retrievable	1	25.02.2021
20011797	VR Sensor spool assembly 3-1/16" to 3-1/16" 10k	1	25.02.2021
20011802	18006252 - AN8021 Comparison drawing Connection Box_0	1	25.02.2021
20011803	18006253 - AN8021 Comparison drawing Electronic Bulkhead_0	1	25.02.2021

20011806	18006307 - AN8021 Comparison drawing VRSensor Plug_0	1	25.02.2021
20012454	PN34149 - Battery Securing Ring	1	25.02.2021
20012456	PN27342_1 Thread Cover Mech. Drawing	1	25.02.2021
20012458	BOM - AN10112_0 - 2,875" Sharp Vee VR Sense Plug	1	25.02.2021
20012459	BOM - AN7623_0 - Fire Protection Plug 6 Pin	1	25.02.2021
20012460	BOM - AN8171_0 - 3,5" Feed-Through Plug - Solid	1	24.02.2021
20012461	BOM - AN8242_0 - Connection Box for VR Sense R	1	24.02.2021
20012466	AN8170 VRSensor-R flange	1	24.02.2021
21012490	Comparison drawing VR Sensor Plugs	1	23.02.2021
21012491	Comparison drawing Connection Box VR Sense-R	1	23.02.2021
21012514	Comparison drawing VR Sense-R Wireless	1	23.02.2021
21012515	Section View VR Sense-R Wireless	1	23.02.2021
21012525	18006251 - AN8021 System Section View_0c	1	23.02.2021
21012527	AN 6312 VR Sensor Retrievable	1	23.02.2021
21012529	AR6571 VR Sensor Assembly	1	19.02.2021
21012536	Component list – Manufacturing (variant 01)	1	19.02.2021
21012537	PTC-209-IF SCH (variant 01)	1	03.03.2021
21012538	PTC-209-IF SCH	1	03.03.2021
21012539	PTC VR Sensor BOM	1	19.02.2021
PN18500	ATEX Label VR Sensor (Wired)	9	11.11.2022
PN21209	ATEX Label VR Sensor (Wireless)	9	11.11.2022
PN25934	ATEX Label VR Sensor Retrievable (Wired)	5	11.11.2022
PN34232	ATEX Label VR Sensor Retrievable (Wireless)	4	11.11.2022
PN15717	ATEX Label VR Sensor (All Systems)	10	11.11.2022
21012953	PCB-209-212-206 IF Board Layout - SIL	1	09.04.2020
21013724	SCHEMATICS PCA-209-211-201-ConnBoard-Wired	01	15.09.21
21013725	SCHEMATICS PCA-209-211-201-ConnBoard-Wireless	01	15.09.21
21013721	PCB Layout -PCA-209-211-201-ConnBoard-WIRED	01	15.09.21
21013722	PCB Layout -PCA-209-211-201-ConnBoard-WIRELESS	01	15.09.21
21013723	PCB Layout -PCA-209-212-207_IF_Board-Generic	01	15.09.21
22014844	Schematics-PCA-209-150-100-SB(Variant Default)	0	09.05.2022
22014566	BOM-M-PCA-209-150-100-SB(Variant Default)	1	12.01.2023
22015240	VR Sensor System AN3109 Doc. Package	0	15.08.2022
22015241	VR Sensor System AN6312 Doc. Package	0	15.08.2022
22015242	VR Sensor System AN8021 Doc. Package	0	12.08.2022
22015243	VR Sensor System AN10663 Doc. Package	0	17.08.2022
22015244	VR Sensor System AN11164 Doc. Package	0	17.08.2022
22015245	VR Sensor System AN11200 Doc. Package	0	17.08.2022
22015246	VR Sensor System AN10350 Doc. Package	0	18.08.2022
22015157	VR Sensor System AN8189 Doc. Package	0	12.08.2022
22015172	VR Sensor System AN10531 Doc. Package	0	17.08.2022
22015173	VR Sensor System AN10548 Doc. Package	0	17.08.2022
22015191	VR Sensor System AN11904 Doc. Package	0	17.08.2022
22015200	VR Sensor System AN12007 Doc. Package	0	16.08.2022
22015202	VR Sensor System AN12016 Doc. Package	0	16.08.2022

22015206	VR Sensor System AN12206 Doc. Package	0	16.08.2022
22015207	VR Sensor System AN12226 Doc. Package	0	16.08.2022
22015208	VR Sensor System AN12227 Doc. Package	0	16.08.2022
22015190	VR Sensor System AN11685 Doc. Package	0	17.08.2022
22015197	VR Sensor System AN11927 Doc. Package	0	17.08.2022
22015198	VR Sensor System AN11958 Doc. Package	0	17.08.2022
22015203	VR Sensor System AN12046 Doc. Package	0	16.08.2022
22015205	VR Sensor System AN12111 Doc. Package	0	16.08.2022
22015204	VR Sensor System AN12101 Doc. Package	0	16.08.2022
22015180	VR Sensor System AN10661 Doc. Package	0	17.08.2022
22015188	VR Sensor System AN11489 Doc. Package	0	17.08.2022
22015168	VR Sensor System AN10333 Doc. Package	0	18.08.2022
22015199	VR Sensor System AN11971 Doc. Package	0	16.08.2022
22015201	VR Sensor System AN12014 Doc. Package	0	16.08.2022
22015185	VR Sensor System AN11076 Doc. Package	0	17.08.2022
22015189	VR Sensor System AN11555 Doc. Package	0	17.08.2022
22015174	VR Sensor System AN10588 Doc. Package	0	17.08.2022
22015179	VR Sensor System AN10592 Doc. Package	0	17.08.2022
22015182	VR Sensor System AN10817 Doc. Package	0	17.08.2022
22015166	VR Sensor System AN10207 Doc. Package	0	18.08.2022
22015186	VR Sensor System AN11247 Doc. Package	0	17.08.2022
22015169	VR Sensor System AN10359 Doc. Package	0	18.08.2022
22015165	VR Sensor System AN09928 Doc. Package	0	18.08.2022
22015147	VR Sensor System AN6135 Doc. Package	0	10.08.2022
22015154	VR Sensor System AN7599 Doc. Package	0	11.08.2022
22015164	VR Sensor System AN09926 Doc. Package	0	18.08.2022
22015153	VR Sensor System AN7598 Doc. Package	0	11.08.2022
22015156	VR Sensor System AN8026 Doc. Package	0	12.08.2022
22015163	VR Sensor System AN9865 Doc. Package	0	12.08.2022
22015152	VR Sensor System AN7597 Doc. Package	0	11.08.2022
22015158	VR Sensor System AN8509 Doc. Package	0	12.08.2022
22015159	VR Sensor System AN8510 Doc. Package	0	12.08.2022
22015151	VR Sensor System AN7577 Doc. Package	0	11.08.2022
22015155	VR Sensor System AN7632 Doc. Package	0	11.08.2022
22015160	VR Sensor System AN9442 Doc. Package	0	12.08.2022
22015167	VR Sensor System AN10218 Doc. Package	0	18.08.2022
22015171	VR Sensor System AN10461 Doc. Package	0	18.08.2022
22015183	VR Sensor System AN10818 Doc. Package	0	17.08.2022
22015170	VR Sensor System AN10445 Doc. Package	0	18.08.2022
22015162	VR Sensor System AN9864 Doc. Package	0	12.08.2022
22015161	VR Sensor System AN9734 Doc. Package	0	12.08.2022
22015209	VR Sensor System AN3868 Doc. Package	0	15.08.2022
22015210	VR Sensor System AN4730 Doc. Package	0	15.08.2022
22015211	VR Sensor System AN5219 Doc. Package	0	15.08.2022
22015212	VR Sensor System AN5755 Doc. Package	0	15.08.2022
22015213	VR Sensor System AN6170 Doc. Package	0	15.08.2022

22015214	VR Sensor System AN6398 Doc. Package	0	15.08.2022
22015215	VR Sensor System AN7199 Doc. Package	0	15.08.2022
22015216	VR Sensor System AN7566 Doc. Package	0	15.08.2022
22015217	VR Sensor System AN7567 Doc. Package	0	15.08.2022
22015221	VR Sensor System AN12386 Doc. Package	0	16.08.2022
22015219	VR Sensor System AN12351 Doc. Package	0	16.08.2022
22015220	VR Sensor System AN12352 Doc. Package	0	16.08.2022
22015218	VR Sensor System AN12259 Doc. Package	0	16.08.2022
22015239	VR Sensor System AN12396 Doc. Package	0	11.08.2022
AN6905	AN6905 - Power Module - Battery Pack	5	22.11.2022
22014849	Schematics-PCA-209-212-207_IF_Board-Generic	0	10.05.2022
22014850	Schematics-PCA-209-212-207_IF_Board-WIRED	0	10.05.2022
22014851	Schematics-PCA-209-212-207_IF_Board-WIRELESS	0	10.05.2022
22014588	BOM-M-PCA-209-212-207_IF_Board-Generic	1	12.01.2023
22014556	BOM-M-PCA-209-140C-3-SB(Variant Default)	1	12.01.2023
22014575	*BOM-M-PCA-209-211-201-ConnBoard-WIRED	1	23.01.2024
22014580	*BOM-M-PCA-209-211-201-ConnBoard-WIRELESS	1	23.01.2024
22014585	BOM-M-PCA-291-120-001(I2C - PIC16F25K22)	0	11.05.2022
22015666	VR Sensor System AN12218 Doc. Package	0	04.11.2022
23016542	VR Sensor System AN12750 Doc. Package	0	25.04.2023
23016593	VR Sensor System AN12754 Doc. Package	0	25.04.2023
PN14458	Martec Bulkhead	3	26.04.2023
23016887	* VR Sensor-TIB System	0	09.06.2023
AN12788	*HP Cable Assembly – Martec For VR Sensor-TIB	0	29.09.2023
24018347	*VR Sensor System AN13087 Doc. Package	0	19.01.2024
24018348	*VR Sensor System AN13108 Doc. Package	0	23.01.2024
24018349	*VR Sensor System AN13133 Doc. Package	0	23.01.2024

[20] Certificate History

Issue	Description	Issue date	Report no.
0	Original issue	2016-11-22	D0002138
1	Larger outer dimension on enclosure. Minor change in bulkhead. New Wireless HART bullet. New ATEX label VR Sensor Retrievable Wireless	2018-10-01	D0002138
2	Update the sensor board to V1.5 with minor changes. New version of interface board with minor changes. New version of battery pack.	2020-08-28	183020
0	Replace the Presafe 16 ATEX 9081X. Change manufacturer to Petroleum Technology Company AS. Update the marking labels.	2021-05-05	189168
1	Update to latest EN 60079-0:2018 Add variants connection board revision 2.11. Minor changes to PCB layout. Add interface board revision 2.12. Replaced components LED1 and LED2. Minor changes to PCB layout.	2021-11-01	189168/01
2	Addition components alternatives in BOMs. New variant of sensor board PCA-209-150-100-	2022-09-13	400880

	<p>SB(Variant Default). New variant of interface board PCA-209-212-207_IF_Board(Generic). Change to AN6905 Power Module shell mechanical tolerances. Minor changes in documents. New VR Sensor documentation systems.</p>		
3	<p>Minor changes in documents. Correct typos on BOMs. New VR Sensor System variants.</p>	2023-08-17	400880/01
4	<p>New VR Sensor System variants VR Sensor-TIB. Added alternative component for Duratool D00789 Washers: Keystone Electronics 3111</p>	2024-02-22	400880/02

END OF CERTIFICATE

