1. **EC-TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially explosive atmospheres Directive 94/9/EC**

3. Reference: **VTT 03 ATEX 024X**

4. Equipment: **Capacitive level probe**

Certified types: **SET/TSH2, SET/TSHS2, SET/TSH2/VP**

5. Manufactured by: **Oy Labko Ab**

6. Address: **Labkotie 1**
FIN-36240 Kangasala
Finland

7. This equipment or protective system and any acceptable variations thereto is specified in the schedule and possible supplement(s) to this Certificate and the documents therein referred to.

8. VTT Industrial Systems, notified body number 0537, in accordance with Article 9 of the Council Directive 94/9/EC of March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective system intended for use in potentially explosive atmospheres given in Annex II to the Directive

The examination and test results are recorded in confidential report no TUO26-032257.

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with the standards:

EN 50014 (1997) +A1&A2
EN 50020 (2002)
EN 50284 (1999)

VTT INDUSTRIAL SYSTEMS
Ex-Laboratory
Otakaari 7B, Espoo
P.O.Box 13071, FIN-02044 VTT, Finland

Tel + 358 9 4561
Fax + 358 9 456 7042

1018

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 EC-Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. This certificate does not cover these.

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

II 1 G EEx ia IIB T5 (Ta = -25 °C ... +70°C)

Espoo, 07.04.2003

VTT INDUSTRIAL SYSTEMS
Ex-Laboratory

1018
(EN45004,IIIte A)

Risto Sulonen
Senior research scientist

Martti Siirola
Research scientist

13. # Schedule

14. **EC-TYPE EXAMINATION CERTIFICATE VTT 03 ATEX 024X**

15. Description of Equipment

The capacitive probes type SET/TSH2, SET/TSHS2 and SET/TSH2/VP are meant for liquid level detection. The probe is a switch type probe and meant to indicate low/high level of liquids or indicate the interface between two liquids. The probes may have a type name SET/TSH(S)2-O or SET/TSH(S)2-V. The sign O/V means the sensitivity range. The probes are equipped with a permanently connected cable max length 15 m. The probe is of robust construction. The enclosure is of AiSi316. The SET/TSHS2 has a fork type electrode. The central sensor element is protected with PTFE plastics. The probe shall be connected to an intrinsically safe circuit.

Electrical data

The nominal voltage of the probe is $U_N = 9 ... 18$ V and the maximum input values of the probe type SET/TSH2, SET/TSHS2 or SET/TSH2/VP (with 15 m connecting cable) are:

Ui	Ii	Pi	Ci	Li
18 V	66 mA	297 mW	3 nF	30 µH

Documents:

Description of the SET/TSH2 - /TSHS2 -/TSH2 LPG, XA25188_s, 5 pages, 06.06.2002
Circuit diagram, Capacitive level switch board CBS1.4, XB25153Ae
Component layout CBS1.4, XK25255Ae, 2 pages, 16.05.2002
Printed circuit board CBS1.4, XK25154_e, 2 pages, 16.05.2002
Part list CBS1.4, XC25155Ae, 01.11.2002
Assembly and main dimensions, SET/TSH2, XK25220_s, 28.11.2002
Assembly and main dimensions, SET/TSHS2, XK25219_s, 27.11.2002
Assembly and main dimensions, SET/TSH2/VP, XK25221_s, 28.11.2002
Assembly drawing SET/TSH2, SET/TSHS2, XK25215_s, 11.11.2002
Assembly part list , XC25215_s, 18.11.2002
Electrode insulation teflon tube, XK25180_s or XK25185_s, 02.07.2002
Marking plate, XK25081As, 18.11.2002

16. Report No. TUO26-032257

17. Special conditions for safe use:

The free end of the permanently connected cable shall be connected according to the manufacturers instructions.

The permissible ambient temperature range is $-25\ °C \leq T_a \leq +70\ °C$.

The probe cable can be extended with the junction box type Labko LJB2-78-83 or LJB3-78-83. The junction box is of light metal so there may be sparks, if the box is subjected to friction or impact. The box shall be grounded.

18. Essential Health and Safety Requirements

Met by compliance with the standards referred in point 9.

Espoo, 07.04.2003

VTT INDUSTRIAL SYSTEMS
Ex-Laboratory

FINAS AKKREDITOINTI SUOMI FINLAND
1018
(EN45004,IIIte A)

Risto Sulonen
Senior research scientist

Martti Siirola
Research scientist

1. SUPPLEMENT TO EC-TYPE EXAMINATION CERTIFICATES

VTT 02 ATEX 012X	**VTT 03 ATEX 067X**
VTT 02 ATEX 021U	**VTT 03 ATEX 068U**
VTT 02 ATEX 022X	**VTT 03 ATEX 073U**
VTT 03 ATEX 007X	**VTT 03 ATEX 075X**
VTT 03 ATEX 009X	**VTT 03 ATEX 088X**
VTT 03 ATEX 015X	**VTT 03 ATEX 089X**
VTT 03 ATEX 024X	**VTT 03 ATEX 090X**
VTT 03 ATEX 030X	**VTT 03 ATEX 094X**

2. Equipment: **Surface level measuring sensors**

Certified types:

KAH/3W, KAR/SA/3W, PA/3W, PAH/3W, SA/FEP/3W,
KAH/2W, KAR/SA/2W, PA/2W, PAH/2W or SA/FEP/2W
TSSH(S)/3W, MET LPG/3W
TSSH(S)/2W, MET LPG/2W
WBS 500 or WBS 500 RTD
WBS 1000/SETTSH2/SETSA2
WBS 3000
LABKO 3000 or LABKO 3000 LPG
MET3VL, MET3V, MET3R
CBM22 R or CBM22 V
SET/OS2, SET/TSH2, SET/TSHS2, SET/TSH2/VP,
SET/OELO2, SET/TSH2 LPG, SET DM/3 or SET DM/3E,
SET/TSSH2, SET/TSSHS2 or SET/SA2, CBS1e, SET/S

3. Manufactured by: **Labkotec Oy**

4. Address: **Myllyhaantie 6**
FI-33960 PIRKKALA
Finland

5. The manufacturer name Wavin-Labko Oy or Wavin-Labko ltd. or Oy Labko Ab has been changed to Labkotec Oy

6. Compliance with the Essential Health and Safety Requirements has been assured by compliance with the standards:

EN 60079-0 (2009)
EN 60079-11 (2007)
EN 60079-26 (2007)

VTT
Electrical Ex-Apparatus
Otakaari 7B, Espoo
P.O.Box 1000, FI-02044 VTT, Finland

Tel + 358 20 722 111
Fax + 358 20 722 7042

7. The marking of the equipment or protective system shall be according to the standards above.

Espoo, 8.10.2009

VTT Technical Research Centre of Finland

Pertti Kokkonen
Research engineer

Martti Siirola
Research scientist

VTT
Electrical Ex-Apparatus
Otakaari 7B, Espoo
P.O.Box 1000, FI-02044 VTT, Finland

Tel +358 20 722 111
Fax +358 20 722 7042