Test certificate

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Issued by	NMi Certin B.V.
In accordance with	The "Metrologiewet" (Stb. 2006, 137) and the "Meetinstrumentenbesluit II", article 5, point a (Stb. 2009, 494)
Producer	Endress + Hauser GmbH + Co. KG Hauptstrasse 1 79689 Maulburg Germany
Part	A **calculating and indicating device, intended for use as part of a liquid level gauge**

Make	:	Endress + Hauser GmbH + Co. KG
Type	:	Tankvision Professional
Model	:	NXA85
Software versions	:	See the description, paragraph 1.2.2

Further properties and test results are described in the annexes:
- Description TC8732 revision 0;
- Annex 1 of TC8732.

Issuing Authority **The Designated Body, NMi Certin B.V.**
4 May 2016

C. Oosterman
Head Certification Board

INSPECTION
RvA I 122

Endress+Hauser **EH**
People for Process Automation

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1   General information about the calculating and indicating device

Properties of the measuring instrument shall not be in conflict with the legislation, in particular the "Regeling meetreservoirs, vloeistofhoogtemeters en discontinue brandstofmeters (Stcrt. 2008, 069)".

1.1   Essential parts

Tankvision Professional is composed of the following software parts:

File	Drive / Folder
DCCHost.exe	C:\Program Files\Common Files\Tank Farm Automation\Server
Hermes.exe	C:\Program Files\Common Files\Tank Farm Automation\Server
InventoryCalculator.dll	C:\Windows\system32
TankCapacityTables.dll	C:\Program Files\Common Files\Tank Farm Automation\Common
TankCapacityTablesGUI.exe	C:\Program Files\Common Files\Tank Farm Automation\Common
Core.Library.dll	GAC (Global Assembly Cache)
Core.Enumerations.dll	GAC (Global Assembly Cache)
Enumerations.dll	C:\Program Files\Common Files\Tank Farm Automation\Common
TankGauging.Library.dll	C:\Program Files\Common Files\Tank Farm Automation\Common
Library.dll	C:\Program Files\Common Files\Tank Farm Automation\Common
Library2.dll	C:\Program Files\Common Files\Tank Farm Automation\Common
TankCharacteristics.exe	C:\Program Files\Endress+Hauser\Tankvision Professional
DeviceConfig.exe	C:\Program Files\Common Files\Tank Farm Automation\Common Tank
Gauging.exe	C:\Program Files\Endress+Hauser\Tankvision Professional
TankMimic.dll	C:\Program Files\Endress+Hauser\Tankvision Professional
GridView.exe	C:\Program Files\Endress+Hauser\Tankvision Professional
Single Tank.exe	C:\Program Files\Endress+Hauser\Tankvision Professional
Multi Tank.exe	C:\Program Files\Endress+Hauser\Tankvision Professional
CustomDesign.dll	C:\Program Files\Endress+Hauser\Tankvision Professional
CustomRuntime.dll	C:\Program Files\Endress+Hauser\Tankvision Professional
Weights.And.Measures.dll	C:\Program Files\Common Files\Tank Farm Automation\Common
Weights.And.Measures.Wrapper.dll	C:\Program Files\Common Files\Tank Farm Automation\Server
Reports (A4)\Inventory.rpt	C:\Program Files\Endress+Hauser\Tankvision Professional\Reports (A4)
Reports (A4)\SingleTankInventory.rpt	C:\Program Files\Endress+Hauser\Tankvision Professional\Reports (A4)
Reports (A4)\SingleTankOverview.rpt	C:\Program Files\Endress+Hauser\Tankvision Professional\Reports (A4)
Reports (A4)\GaugeConfigurationSeals.rpt	C:\Program Files\Common Files\Tank Farm Automation\Common\Reports (A4)
Reports (A4)\SoftwareSeals.rpt	C:\Program Files\Common Files\Tank Farm Automation\Common\Reports (A4)

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File	Drive / Folder
Reports (A4)\TankCapacityTableSeals.rpt	C:\Program Files\Common Files\Tank Farm Automation\Common\Reports (A4)
Reports (A4)\WMAuditTrail.rpt	C:\Program Files\Common Files\Tank Farm Automation\Common\Reports (A4)
Tanks	SQL Datenbank
StrapTables	SQL Datenbank

Note: A single CRC checksum is calculated on legal relevant data as stated in the table above. This CRC will change by doing modification in the legal relevant binaries. See paragraph 1.2.2 for the approved software version and CRC checksum.

1.2   Essential characteristics

Tankvision Professional is a scalable tank inventory management application suited for small terminals and depots to large refineries. The system can be provided on a standalone single user station or as a multi-user system configured as a client server architecture.

1.2.1   Indication
The indication is presented in read-only mode on a personal computer screen; the data is transported from the Tankvision (type NXA820) to the personal computer with an Ethernet connection and using the TCP / IP protocol. The settings of the protocol parameters are such that the data on the personal computer cannot be altered.
1.2.1.1 All legally relevant measured values are stated with # sign, if the Tankvision Professional is sealed.
1.2.1.2 Indication of the measured level in mm.
1.2.1.3 Indication of status messages, error messages and alarms.

1.2.2   Software specification (refer to WELMEC guide 7.2):
- Software type U;
- Risk Class C;
- Extension T and S, while extensions L and D are not applicable.

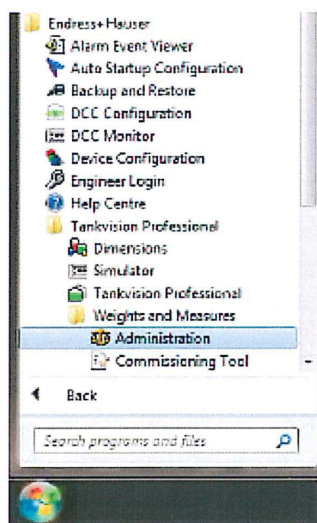| Software version	Checksum
18.0.3	AF09D2F83D85200334E2C49900FC84FA043F24F3

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The software version and belonging CRC checksum can be shown with the Administration tool (Weights and Measures) found in the Start Menu in the following location:

Start\Endress+Hauser\Tankvision Professional\Weights and Measures

Select the 'Seal Software' icon from the view menu:

Herewith the software version and CRC can be found:

1.3   Essential shapes

1.3.1   Ethernet connection.

1.3.2   Nameplate
The main nameplate is bearing at least, good legible, the following information:
- the Test certificate TC8732;
- name or trade mark of the manufacturer;
- model number;
- serial number and year of manufacture.

1.4   Conditional parts

1.4.1   Ethernet switch (optional)
An ethernet switch can be used to combine multiple Tankvision (type NXA820) systems with Tankvision Professional. The ethernet switch shall be tested to ensure it meets safety requirements (e.g. UL 1604, CSA C22.2/213 (Class 1, Div. 2)).

The power supply for the ethernet switch shall be tested to ensure it meets safety requirements (e.g. SELV).

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1.5 Conditional characteristics

1.5.1 Programming
When the system is configured, the software can be sealed with a W&M certificate protected with password filled in by the authorizing body. If the software is sealed, no chances on the legal relevant configuration can be done. A change is rejected by the system or will end in an unsealed system.

1.5.2 Printing of a report using the Printer Agent; only a one to one print of a tank detail report is considered as being Weights & Measures approved.

1.5.3 Error messages
During error conditions on the indication is shown that the measured value is not W&M approved.

2 Conditions for Conformity Assessment

- The calculating and indicating device shall be constructed in conformity with the description that belong to this Test certificate;
- The seals shall be applied as described in chapter 3;
- Other parties may use this Test Certificate only with the written permission of Endress+Hauser.

3 Seals

The following seals are applied:
- The data plate is fixed to the calculating and indicating device and secured against removal by seal or it will be destroyed when removed;
- For sealing of Tankvision Professional, see Annex 1 of TC8732.

4 Test reports

An overview of performed tests is given in the test reports:
- NMi-15200301-05;
- NMi-15200301-06.

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