Issued by	NMi Certin B.V.
In accordance with	The "Metrologiewet" (Stb. 2006, 137) and the "Regeling nationaal autonoom geregelde meetinstrumenten"
Producer	Rosemount Tank Radar AB Layoutvägen 1 SE 43523 Mölnlycke Sweden

Part

The model of a **central system for calculation and indication**, intended for use as part of a tank inventory measuring system

Manufacturer's mark or name	:	Saab Marine Electronics AB or Rosemount Tank Radar AB
Type designation	:	Rosemount Tankmaster

Further properties are described in the annex:
− Description TC7711 revision 5.

Remark This revision replaces the previous revisions.

Issuing Authority

The Designated Body, NMi Certin B.V.
8 February 2022

Certification Board

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1 General information about the central system for calculation and indication

Properties of the central system for calculation and indication, whether mentioned or not, shall not conflict with the legislation, in particular the "Regeling nationaal autonoom geregelde meetinstrumenten".

1.1 Essential parts

1.1.1 TankMaster/WinSetup program
1.1.2 TankMaster/Operators Interface (WinOpi)
These programs are run from within a Windows 95, Windows 98, Windows NT 4.0, Windows 2000, Windows 2003 Server, Windows 2008 Server, Windows XP, Windows Vista, Windows 7, Windows Server 2012 R2, Windows 10 platform, Windows server 2016, Windows server 2019. For a detailed user description, refer to the manual.
Unauthorized alterations in the basic programme result in a non-functioning of the program.

1.2 Essential characteristics

1.2.1 TankMaster/WinSetup program
1.2.2 TankMaster/Operators Interface (WinOpi)
The following in the OPI program implemented functions shall be activated:
- making it impossible for the operator to reach the Task-Manager,
- making it impossible for the operator to start and stop other programs,
- making it impossible for the operator to utilize the Ctrl+Alt+Del key combination,
- making it impossible for the operator to minimize the application itself.
1.2.3 Calculations and presentations for use with liquid level gauges.
and / or
calculations and presentations when used as part of a Hydrostatic Tank Gauging system.
1.2.4 Reports generation by a Crystal Report Server.
1.2.5 The following conversion and calculation methods:
1.2.5.1 The conversion tables 54A, 54B, 54C, 54D from Chapter 11, section 1 of the API Manual of Petroleum Measurement Standards, issue 1980;
1.2.5.2 D4311 (asphalt);
1.2.5.3 ISO 4267 (liquid and mass calculation of vapour in LPG);
Calculations for volume, mass and shell temperature correction for upright cylindrical tanks, as given in Chapter 12, section 1, part 1 of the API Manual of Petroleum Measurement Standards.

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

Software version	Checksum	Remarks
3.A0, 3.A1, 3.A2, 3.A3, 3.A4, 3.B0, 3.C0, 3.D0, 3.D1, 3.D2, 3.D3, 3.E0, 3.E1, 3.E2, 3.E3, 3.E4, 3.E5, 3.F0, 3.F1, 3.F2 4.A1, 4.B0, 4.C0, 4.C1, 4.C2, 4.D0, 4.D1, 4.D2, 4.D3, 4.E0, 4.E1, 4.F0, 4.F1, 4.F2, 4.G0, 4.G1, 4.H0, 4.H1 5.A0, 5.A1, 5.B0 6.A0, 6.A1, 6.A2, 6.A3, 6.B1, 6.B2, 6.B4, 6.B6, 6.C0, 6.D0, 6.D1, 6.D2	-	No checksum applicable
6.E0	0xCD54C471	-
6.E1	0x13574E21	Including TCP interface.
6.G0	0x9A33C078	-

The "about" menu in Tankmaster describes the software version used.

1.2.7   Transportation of legal data between the connected devices
The central system for calculation and indication can communicate tank gauging protocol GPU (BPM interface) to allow integration of third party gauging equipment into the Rosemount system.

1.3   **Essential shapes**

1.3.1   Inscriptions;
1.3.1.1 name or logo of the manufacturer;
1.3.1.2 the number of this test certificate TC7711, and a serial number.

1.3.2   Sticker with the text:
1.3.2.1 "# = Geijkte waarde." (Translation: # = Legal value).
1.3.2.2 "C" = Calculated value.
1.3.2.3 "Uitsluitend tank detail screen is ijkwaardig."
         (Translation: Only the tank detail screen is legal).
1.3.2.4 "Handmatig ingevoerde waarden in geel veld."
         (Translation: Manually input values in yellow field).

1.4 Conditional parts

1.4.1 Personal computer with operating system Windows 95, Windows 98, Windows NT 4.0, Windows 2000, Windows 2003 Server, Windows 2008 Server, Windows XP, Windows Vista, Windows 7, Windows Server 2012 R2, Windows 10, Windows Server 2016, Windows Server 2019.
The computer must have a CE-mark.

1.4.2 Tank inventory screen.
Open "Groups", open one of the groups (i.e. "All tanks") and double-click on the tank to select.
The "Tank inventory screen", which may also be presented on the Tankmaster Operator's Interface with "View - Tank –Tank inventory 'NNNN' (where NNNN is the tank-identification) is the only legal screen. Level, temperature, volumes and mass are legal, and indicated as such. In case indicated values are (partly) derived from manually input values, the applying calculations are considered as legally approved.

Dongle with SEAL-function.
Remark: Prior to a legal verification a dongle without SEAL-function may be connected. In that case, this dongle shall be replaced by a dongle with the SEAL function included.

1.5 Conditional characteristics

1.5.1 Parameters
With another dongle than the SEAL-dongle mounted, the following parameters may be set from within TankMaster/Operators Interface (WinOpi) program. When all parameters are correct, the mounted dongle shall be replaced by the SEAL-dongle, thus sealing the parameters.

1.5.1.1 Open "Groups", open one of the groups (i.e. "All tanks") and click on the tank to select.

1.5.1.2 From within the "Setup – Tank Setup" menu the tank type.

1.5.1.3 From within the "Setup – Tank Volume Calculation" menu the volume setup and, in case of a floating roof tank, the roof setup.
In the tank roof setup screen for the roof critical zone the upper and lower operational values.
Remark: In the ""Setup - Tank Entry" screen the field shall read "Operational". After sealing the system with the Seal-dongle this field shall also read, "[Sealed value]".

1.5.1.4 From within the "Setup – Tank Capacity setup" menu the Tank Capacity Table.
Also Tank Shell Correction parameters are input here.
Remark: The Tank Shell Correction parameters apply only to the temperature correction of the tank capacity table. In case the reference height needs temperature correction, this correction is performed in the level gauge. The gauge is considered to give out a correct level measurement, see Test Certificate TC3429 section 1.3.2 as an example.

1.5.1.5 From within the "Setup – Product table" menu the product specifications.

1.5.1.6 From within the "Setup – System setup" menu the unit settings, the VCF-rounding, the strapping table method, the reference temperature, the local gravity and the ambient air density.

2   Seals

The following seals are applied:
- Sealing of the legal parameters by means of a "dongle" that has the "sealing" function including.
- Sealing of the legal settings and of the tank detail screen. This seal is realized by sealing with a sealing stamp of the dongle with SEAL-functionality included, either to the parallel port of the computer or to an USB port of the computer.
- The computer enclosure is sealed with a sealing stamp against unauthorized opening.
- The inscription plate must be sealed with a seal.

3   Conditions for conformity assessment

- The central system for calculation and indication shall be constructed in conformity with the description that belong to this Test certificate;
- The seals shall be applied as described in chapter 2;
- Other parties may use this Test certificate only with the written permission of the producer.

4   Reports

An overview of performed tests is given in the reports:
- R85/2008-SE-11.01;
- NMi-1902270-01 dated 21 June 2018.

A report can be a test report, an evaluation report, a type evaluation report and/or a pattern evaluation report.