

			Ref : MID Certificates
			Date : 26/01/2017
			Version: 1 Revision 59
Title: MID Certificates:			Checked / Validated:
<ul style="list-style-type: none"> o Evaluation Certificate TC7138 WWC Calculator 			Name : A. Onclin Date : 26/01/2017 Signature :
Date	Author	Revision	Justification
13/04/2007	Nmi	0	<ul style="list-style-type: none"> • WWC
14/06/2007	Nmi	1	<ul style="list-style-type: none"> • EIN-communication interface • Software releases for: Autotank communication interface IFSF communication interface M32 communication interface • Software indications for: Hydraulic Communication Module (HCM) Hydraulic Option Module (HOM)
25/09/2007	Nmi	2	<ul style="list-style-type: none"> • Eltomatic pulser 08/01 • Eltomatic pulser 09/01 • Communication interface manufactured by Tokheim, type Logitron
09/10/2007	Nmi	3	<ul style="list-style-type: none"> • Impuls encoder MPEv3 • Volume confersion and related items
26/10/2007	Nmi	4	<ul style="list-style-type: none"> • New Software revisions
05/12/2007	Nmi	5	<ul style="list-style-type: none"> • New Software revisions



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09/01/2008	Nmi	6	<ul style="list-style-type: none"> • New Software revisions 	
14/03/2008	Nmi	7	<ul style="list-style-type: none"> • New Software revisions 	
15/05/2008	Nmi	8	<ul style="list-style-type: none"> • New Software revisions 	
02/07/2008	Nmi	9	<ul style="list-style-type: none"> • LPG conversion calculation 	
22/10/2008	Nmi	10	<ul style="list-style-type: none"> • New Software revisions 	
09/02/2009	Nmi	11	<ul style="list-style-type: none"> • New Software revisions • New temperature sensor 	
21/04/2009	Nmi	12	<ul style="list-style-type: none"> • New Software revisions 	
08/05/2009	Nmi	13	<ul style="list-style-type: none"> • New Software revisions 	
02/07/2009	Nmi	14	<ul style="list-style-type: none"> • Extension with additional seals 	
09/09/2009	Nmi	15	<ul style="list-style-type: none"> • New Software revisions 	
16/11/2009	Nmi	16	<ul style="list-style-type: none"> • Extended with totalizer sealing drawings 	
11/01/2010	Nmi	17	<ul style="list-style-type: none"> • New Software revisions 	
14/01/2010	Nmi	18	<ul style="list-style-type: none"> • New Software revisions 	
11/02/2010	Nmi	19	<ul style="list-style-type: none"> • New Software revisions 	
26/02/2010	Nmi	20	<ul style="list-style-type: none"> • New Software revisions 	
14/04/2010	Nmi	21	<ul style="list-style-type: none"> • New Software revisions 	
12/05/2010	Nmi	22	<ul style="list-style-type: none"> • New Software revisions 	
15/07/2010	Nmi	23	<ul style="list-style-type: none"> • New Software revisions 	
04/11/2010	Nmi	24	<ul style="list-style-type: none"> • New Software revisions 	
20/01/2011	Nmi	25	<ul style="list-style-type: none"> • New Software revisions 	
08/04/2011	Nmi	26	<ul style="list-style-type: none"> • New Software revisions 	
12/05/2011	Nmi	27	<ul style="list-style-type: none"> • New Software revisions 	

04/07/2011	Nmi	28	<ul style="list-style-type: none"> New Software revisions
25/07/2011	Nmi	29	<ul style="list-style-type: none"> New Software revisions
23/08/2011	Nmi	30	<ul style="list-style-type: none"> New Software revisions
26/08/2011	Nmi	31	<ul style="list-style-type: none"> New Software revisions
17/11/2011	Nmi	32	<ul style="list-style-type: none"> New Software revisions (Nuovo Pignone 3.03)
19/12/2011	Nmi	33	<ul style="list-style-type: none"> New Software revision (MPE pulser 3.05) Paragraph 1.2.8, (Legal parameters and settings for the MPE impulse encoder)
24/01/2012	Nmi	34	<ul style="list-style-type: none"> New Software revisions
16/02/12	Nmi	35	<ul style="list-style-type: none"> Environment class "M1" changed into "M2"
26/03/2012	Nmi	36	<ul style="list-style-type: none"> New Software revisions (Kienzle ER3, S.W.: 3.12, Checksum: 821D)
13/08/2012	Nmi	37	<ul style="list-style-type: none"> New Software revision (ZSR 3.10, Checksum B56F)
23/08/2012	Nmi	38	<ul style="list-style-type: none"> New Software revisions WWC-EIN 3.20 (checksum: 0x0D6F) WWC-EIN 3.21 (checksum: 0xD7FD) WWC-IFSF 3.34 (checksum 0x8CA9) WWC-IFSF 3.35 (checksum 0x6FD6) WWC-IFSF 3.36 (checksum 0x72E0) WWC-IFSF 3.37 (checksum 0x8225) WWC-EPS 3.05 (checksum: 0x6BD4) WWC-EPS 3.05 (checksum: 0x3827) WWC-M3000 3.13 (checksum:



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			0x57F5) WWC-Tokheim 3.29 (checksum 0xEDED) WWC-Tokheim 3.30 (checksum 0xEB6D) WWC-Tokheim 3.31 (checksum 0x6176) WWC-Tokheim 3.32 (checksum 0x8CD3) WWC-Tokheim 3.33 (checksum 0x8CE4) WWC-Tokheim 3.34 (checksum 0XCF52) WWC-Dunclare 3.06 (checksum: 0x85FA) WWC-Logitron 3.11 (checksum: 0x9E1E)	
06/12/2012	Nmi	39	<ul style="list-style-type: none"> • WWC version 7 	
25/01/2013	Nmi	40	<ul style="list-style-type: none"> • New Software release 	
04/03/2013	Nmi	41	<ul style="list-style-type: none"> • Manufacturers address 	
08/03/2013	Nmi	42	<ul style="list-style-type: none"> • Checksum ZSR 3.10 fixed to 0B56 	
20/03/2013	Nmi	43	<ul style="list-style-type: none"> • New Software releases • Sealing WWC (void sticker) 	
20/03/2013	Nmi	44	<ul style="list-style-type: none"> • New Software releases 	
17/05/2013	Nmi	45	<ul style="list-style-type: none"> • New Software releases 	
05/07/2013	Nmi	46	<ul style="list-style-type: none"> • New Software releases 	
13/09/2013	Nmi	47	<ul style="list-style-type: none"> • New Software releases 	
30/09/2013	Nmi	48	<ul style="list-style-type: none"> • New Software releases 	
01/05/2014	Nmi	49	<ul style="list-style-type: none"> • Extension with SLC board 	
03/07/2014	Nmi	50	<ul style="list-style-type: none"> • New Software releases to solve a bug for LPG 	
14/10/2014	Nmi	51	<ul style="list-style-type: none"> • New Software releases 	
29/10/2014	Nmi	52	<ul style="list-style-type: none"> • New Software releases 	
21/11/2014	Nmi	53	<ul style="list-style-type: none"> • New Software releases 	
07/07/2015	Nmi	54	<ul style="list-style-type: none"> • New Software releases • New impulse encoder 	



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23/07/2015	Nmi	55	<ul style="list-style-type: none">• New Software releases	
06/01/2016	Nmi	56	<ul style="list-style-type: none">• New Software releases	
08/03/2016	NMi	57	<ul style="list-style-type: none">• New Software release• New address	
14/11/2016	Nmi	58	<ul style="list-style-type: none">• Software and Checksum from HOM and HCM on sticker	
26/01/2017	NMi	59	<ul style="list-style-type: none">• New sealing options pulsers	



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Issued by NMI Certin B.V.

In accordance with
– WELMEC guide 8.8 "General and Administrative Aspects of the Voluntary System of Modular Evaluation of Measuring instruments under the MID".
– OIML R117-1 Edition 2007 (E) "Dynamic measuring systems for liquids other than water".

Producer Tokheim France SAS
31/35, Allée des Impressionnistes
BP 67040 Villepinte
95971 Roissy Ch de Gaulle Cedex
France

Measuring instrument An **Electronic calculating and indicating device**, intended to be used as a part of a liquid measurement installation.

Producer's mark or name : Tokheim
Designation : WWC v4 or WWC v7
Software version : See the description.
Accuracy class : 0,5
Environment classes : M1 or M2 / E1
Temperature range ambient : -40 °C ... +55 °C
Humidity : Condensing

Further properties and test results are described in the annexes:
– Description TC7138 revision 59;
– Documentation folder TC7138-7.

Remark This revision replaces the earlier versions, except for its documentation folder.
This revision was issued due to addition of pulser sealing pictures.

Issuing Authority **NMI Certin B.V.**
26 January 2017


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1 General information on the electronic calculating and indicating device

All properties of the electronic calculating and indicating device, whether mentioned or not, shall not be in conflict with the legislation.

This Evaluation Certificate is the positive result of the applied voluntary, modular approach, for a component of a measuring instrument, as described in WELMEC guide 8.8.

The complete measuring system must be covered by an EC type-examination Certificate or EU-type examination Certificate.

The electronic calculating and indicating device is produced at the following production locations:

- Tokheim UK Limited, Unit 3 Baker Rd., West Pitkerro Industrial Estate, Dundee DD5-3RT, Scotland;
- Tokheim Sofitam Applications SAS, Rue De Soliers, 14540 Grentheville, France.

1.1 Essential parts

One or more of the below specified parts may not be present. Unless otherwise specified all parts made by Tokheim.

Part	Identification	Documentation
Main Board	WWCv4	7138/39-01
Main Board	WWCv7	7138/39-02, -03
I/O board	I/O board v5	7138/39-01
Electro mechanical type display	CSD-F	7138/39-01
LCD type display	CSD-LCD5	7138/39-01
Option module	OCB	7138/39-01
Hydraulic Option Modules	HOM	7138/39-01
I/O-Extension Board	IEB	7138/39-01
Display-Ethernet board	SLC	7138/49-01, 02
WWC Autotank comm. interface v1	COM-AUT1	7138/39-01
Sofitam comm. interface v1	CSI 1	7138/39-01
WWC LON comm. interface v1	COM-LON 1	7138/39-01
WWC EPS comm. interface v1	COM-EPS 1	7138/39-01
Kienzle comm. interface v1	COM_KZL1	7138/39-01
WWC M32 comm. interface v1	COM-M32-1	7138/39-01
Nuovo Pignone comm. interface v1	WWC_COM_NUP1	7138/39-01
Tokheim comm. interface v2	WWC_COM_TOK2	7138/39-01
WWC ZSR comm. interface v1	COM-ZSR-1	7138/39-01
Logitron comm.. interface v1	Comm Logitron	7138/39-01
WWC optional peripheral unit with electro mechanical display's		7138/39-01
WWC optional peripheral unit with LCD type display's		7138/39-01
Impulse encoder	MPE3	7138/39-01
Impulse encoder	MP-T1	7138/39-01
Impulse encoder	MPT1-4	7138/54-01, -02



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Impulse encoder, make Eltomatic	08/01	-
Impulse encoder, make Eltomatic	09/01	-
Temperature sensors Pt100 Class A. Remark: temperature sensors can be used only in combination with the MPE3 impulse encoder.	make Thermo Electric, type Pt100/4W, or make Atexis, type 909545, or similar	-
power distribution unit	HVU	7138/39-01
Part	Identification	Documentation
Seals	-	7138/39-01
Totalizer seals	-	7138/39-01

1.1.1 Further information on the above specified parts

1.1.1.1 Calculator module

The calculator module is able to manage two deliveries independently, one on each road side, controls the deliveries, maintains the volume and amount counters, controls the transaction displays and the hydraulic units and communicates with the self-service-device. The HCM is responsible to support the hydraulic interface by means of checking the volume pulser devices, counting and checking the incoming 2 line volume pulses, controlling the motor and valves and updating the electromechanical totalizers. The main board provides also all interfaces to drive the so called low-end hydraulics without the need of the I/O board, namely: Single product and Twin functionality (2 motors, 2 pulsers, 4 valves).

1.1.1.2 The I/O Board is a level converter and control signal distributor for 1 to 4 single product hydraulic units

1.1.1.3 The Pulser Sealing Board is applied when impulse encoders with product temperature compensation and electronic meter calibration are applied.

1.1.1.4 The IEB, the I/O-Extension Board is directly connected to the main board (piggy back), and is used to connect the communication interfaces. A preset keypad and a configuration keypad may also be connected to this board. The IEB may also be used as a separate interface board.

1.1.1.5 The OCB, the option Module provides an interface to a various number of optional modules such as:

- unit price displays (UPD)
- product indicators
- traffic light
- preset keypads
- others

1.1.1.6 Up to 4 Hydraulic Option Modules (HOM) could be connected to the Main Board via the Dipnet to operate in a similar way the HCM does. The HOM's are to be used to provide the interface to optional hydraulic units like Super High Speed, Satellite, Blender or just to extend the number of products up to 5. Like the HCM the HOM is responsible to support the optional hydraulic interface by means of checking the volume pulser devices, counting and checking the incoming 2 line volume pulses, controlling the motor(s) and valves.

1.1.1.7 The power distribution unit, type HVU, is connected to a transformer and a rechargeable backup battery. The HVU may be replaced by a mains filter.



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1.1.1.8 The SLC board reads the information that is sent from processor to display, and converts it to Ethernet format.

1.2 Essential characteristics

1.2.1.1 Determining the volume at delivery conditions. This applies to the impulse encoders make Tokheim, Type MP-T1i CW and Type MP-T1i CCW; make Eltomatic, type 08/01 and type 09/01.

1.2.2 Determining the volume at delivery conditions when using the impulse encoder, make Tokheim, type MPE. During a delivery this volume can be seen on a connected hand terminal.

1.2.3 The following functions, applicable only in combination with the impulse encoder make Tokheim, type MPE.

1.2.3.1 From the volume and measured temperature at delivery conditions calculating the volume at reference conditions, and outputting a corresponding number of impulses. Thus the calculating and indicating device presents the converted volume. During a delivery the reference volume and the product temperature can also be seen on a connected hand terminal.

1.2.3.2 Calculation of the converted volume with the calculation method in conformity with ASTM D1250 – 2004, method 54B.
The calculation uses either fixed reference product density values, or a manually input density value. Input can be performed with a hand terminal, after breaking a Weights & Measures seal.

1.2.3.3 Calculation of the converted volume with the calculation method in conformity with the standard TP-27 (edition 2007), also known as ASTM manual, chapter 11, section 2, part 4, method 54E.
The calculation uses either fixed reference product density values, or a manually input density value. Input can be performed with a hand terminal, after breaking a Weights & Measures seal.

1.2.3.4 Volume conversion calculations for Biodiesel and Petrol-Ethanol mixtures. Those calculations are applicable only in countries that accept these calculations. Germany is one of those countries.

The volume at reference conditions is calculated with the formula:

$$V_{ref} = V_t * (1 - k * (t - 15))$$

in which

V_{ref} = volume at reference conditions

V_t = volume at measured conditions

1.2.4 Setting of the parameters (including those for the impulse encoder MPE) is carried out using an external source, i.e. a hand terminal or a computer with a dedicated program.

1.2.5 Use of the MPE impulse encoder calibration facility is carried out using a hand terminal.

1.2.6 Switch S300-4 in the MPE impulse encoder shall be set to OFF, thus enabling the watchdog.

1.2.7 Software identifications



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- 1.2.7.1 Applicable only to the impulse encoder MPE v 1.07 or MPE v1.09: the software version can be visualized with the aid of the hand held terminal.
Impulse encoder type MPE

version	checksum
1.07	D33F
1.09	A805
3.02	7009
3.03	6B1B
3.04	DBC8
3.05	39AB

A 5 pole connector is available to have programming capabilities available. This connector is only used during manufacturing, namely for programming the base software. During normal use the impulse encoder enclosure is sealed with a Weights & Measures seal, thus preventing any access.
Impulse encoder Type MPT1-4 CW

version	checksum
0.00	BEC1

Impulse encoder Type MPT1-4 CCW

version	checksum
0.00	BB3C

The impulse encoder software fulfils the part P of the Welmec guide 7.2., while the parts U, L, T, S and D are not applicable.

In both the MPE and the MPT1-4 a 5 pole connector is available for programming. This connector is only used during manufacturing, namely for programming the base software. During normal use the impulse encoder enclosure is sealed with a Weights & Measures seal, thus preventing any access.

- 1.2.7.2 WWC Autotank communication interface v1 (COM-AUT1)

version	checksum
3.02	26AB
3.03	58B1
3.04	5FC8
3.05	08F2

- 1.2.7.3 Communication Sofitam interface v1 (CSI1)

version	checksum
3.0	8F5F

- 1.2.7.4 WWC T1 EIN-interface

version	checksum
3.08	030B
3.09	C727



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version	checksum
3.11	0C9C
3.12	7BAE
3.13	3533
3.15	ACDE
3.16	19F4
3.17	DB28
3.18	1F16
3.19	0D6F
3.20	0D6F
3.21	D7FD
3.22	2499
3.23	4255
3.24	EF26

Remark: WWC T1 EIN-interface hardware is identical to the Communication Sofitam interface v1 (CS11).

1.2.7.5 WWC ETD-interface

version	checksum
3.02	B7C9

Remark: WWC ETD-interface hardware is identical to the Communication Sofitam interface v1 (CS11).

1.2.7.6 WWC IFSF LON communication interface v1 (COM-LON1)

version	checksum
3.03	20F7
3.10	32FD
3.10a	E428
3.11	51A6
3.12	78B0
3.13	83B7
3.14	D51F
3.15	25A8
3.16	3694
3.17	64ED
3.18	DD59
3.19	F5E7
3.20	EB55
3.22	291D
3.23	4787
3.24	6BBE
3.25	3D47
3.26	1657
3.27	9500
3.28	1F90



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version	checksum
3.29	B0AC
3.30	6F0D
3.31	E8C1
3.32	9769
3.33	8C9F
3.34	8CA9
3.35	6FD6
3.36	72E0
3.37	8225
3.38	A29A
3.39	FB6C
3.40	E8AC
3.41	82F5
3.42	9A64
3.43	BE35
3.44	AA44
3.45	F3BD
3.46	AB75
3.47	F3C9
3.49	0CB8
3.50	141A
3.51	903C
3.52	B00A
3.53	AB6F
3.54	ABF3

1.2.7.7 WWC EPS communication interface v1 (COM-EPS1)

EPS	
version	checksum
3.01	609F
3.02	CE91
3.03	D549
3.04	AB8B
3.05	6BD4
3.06	3827
3.07	B483

EPS Tatsuno	
version	checksum
3.00	6E7C
3.01	47E3

Dresser	
version	checksum
3.08	2744
3.09	8D8E
3.10	EE89



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3.11	3B29
3.12	5D0F
3.13	F8B3
3.14	4143
3.15	38C9

1.2.7.8 Kienzle communication interface v1 (COM_KZL1)

Kienzle ER3	
version	checksum
3.01	1E2A
3.02	18FF
3.03	FAFB
3.04	FAFF
3.05	810E
3.06	6AC5
3.07	50CD
3.08	F58D
3.09	495F
3.10	2288
3.11	228C
3.12	821D
3.13	49D3
3.14	BF25
3.15	C2B1

Scheidt & Bachmann	
version	checksum
3.00	0285

1.2.7.9 WWC M3000 communication interface v1 (COM-M32-1)

version	checksum
3.00	ED88
3.02	F2B3
3.03	A655
3.04	2EC9
3.05	3A88
3.06	8701
3.07	ADE0
3.08	463C
3.10	1158
3.11	1901
3.12	A56E
3.13	57F5
3.14	3751
3.15	93C5
3.16	B9B5



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1.2.7.10 Nuovo Pignone communication interface version_1 (WWC_COM_NUP1)

version	checksum
1.06	FBE8
1.07	D480
1.08	639B
1.09	BA3A
3.00	827F
3.02	4B45
3.03	AB9E
3.04	1CBB
3.05	13B4
3.06	0B37
3.08	F329

1.2.7.11 Tokheim communication interface version_2 (WWC_COM_TOK2)

version	checksum
3.05	9E11
3.07	0F7B
3.08	229C
3.09	4C5D
3.10	8221
3.11	94D1
3.12	79C8
3.13	1E17
3.14	A744
3.15	8FF2
3.16	9062
3.17	E805
3.18	1EFD
3.19	D2AA
3.20	A4D7
3.21	A483
3.22	8963
3.23	7C79
3.24	B0A3
3.25	B0A7
3.26	83C7
3.27	84E8
3.28	7056
3.29	EDED
3.30	EB6D
3.31	6176
3.32	8CD3
3.33	8CE4
3.34	CF52
3.35	8CE4



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version	checksum
3.36	D219
3.37	8F55
3.38	0355
3.39	B389
3.41	B05C
3.42	AEF8

1.2.7.12 WWC ZSR communication interface v1 (COM-ZSR1)

ZSR	
version	checksum
3.01	C23D
3.02	28B8
3.03	6C37
3.04	A06B
3.05	866A
3.07	294C
3.08	A854
3.09	AA36
3.10	0B56
3.11	FBD7
3.12	9A87

Dunclare	
version	checksum
3.02	3C57
3.03	D424
3.04	7104
3.05	3478
3.06	85FA
3.07	63B8
3.08	67DC

1.2.7.13 Logitron interface (Comm Logitron Interface V1)

version	checksum
3.06	C867
3.07	5DF9
3.08	D604
3.09	9E7C
3.10	492D
3.11	9E1E
3.12	3DBF
3.13	FF18
3.14	C0A2

The communication interface software fulfils the part P and L of the Welmec guide 7.2., while the parts U, T, S and D are not applicable.



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The communication interfaces' software version can be visualized with the aid of a remote control device.

1.2.7.14 Hydraulic Option Module (HOM)

version	checksum
2.21	A42C
2.22	48C4

The Hydraulic Option Module software fulfils the part P and L of the Welmec guide 7.2., while the parts U, T, S and D are not applicable. The Hydraulic Option Module software version and belonging checksum can be visualized by means of a (distructable) sticker on the PROM.

1.2.7.15 Hydraulic Controller Module (HCM)

version	checksum
2.23	07BA
2.24	80DF
2.25	7FC6

The Hydraulic Controller Module software fulfils the part P and L of the Welmec guide 7.2., while the parts U, T, S and D are not applicable. The Hydraulic Controller Module software version and belonging checksum can be visualized by means of a (distructable) sticker on the PROM.

Overview of the software changes

module	version	change
Dresser	3.14	<ul style="list-style-type: none"> • CRC check in the protocol now works fine. • A corrupted message no longer leads to incorrect unit-prices. The software changes do not affect the "Essential Characteristics".
Dresser	3.15	Zero delivery handling improvement. The software changes do not affect the "Essential Characteristics".
Dunclare	3.07	Zero delivery handling improvement. The software changes do not affect the "Essential Characteristics".
EIN	3.23	Bug fixes. The software changes do not affect the "Essential Characteristics".
EIN	3.24	Bug fixes. The software changes do not affect the "Essential Characteristics".
EPS	3.07	Zero delivery handling improvement. The software changes do not affect the "Essential Characteristics".



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module	version	change
IFSF LON	3.38	<ul style="list-style-type: none"> • Added country-code Israel (972) comma 2/2/2. • Zero delivery handling improvement. • Added: No French leak-test when delivery < 2 liters. • Added: Setup 69 (130 l/min master/slave + AdBlue master/slave) and setup 78 (130 l/min DIESEL master/slave + 40 l/min DIESEL + 3 extra 40 l/min products. • Added: Display text shows "STOP" when the stop button is activated. The software changes do not affect the "Essential Characteristics".
IFSF LON	3.39 – 3.47	Bug fixes. The software changes do not affect the "Essential Characteristics".
IFSF LON	3.49 and 3.50	Bug fixes. The software changes do not affect the "Essential Characteristics".
IFSF LON	3.51	Bug fixes. The software changes do not affect the "Essential Characteristics".
IFSF LON	3.52	Bug fixes. The software changes do not affect the "Essential Characteristics".
IFSF LON	3.53	Bug fixes. The software changes do not affect the "Essential Characteristics".
IFSF LON	3.54	No changes, only recompiled. The software changes do not affect the "Essential Characteristics".
Kienzle ER3	3.12	After connection of a price-sign to the Lumatic system, the WWC no longer stops every delivery at around 160 liters. The software changes do not affect the "Essential Characteristics".
Kienzle ER3	3.13	<ul style="list-style-type: none"> • Zero delivery handling improvement. • Nozzle no longer juggles with old Helectronics system. • After a cold-start now reports a "0" delivery. • Now increment the transaction number after state: TERMINATED -> delivery is performed. • STOP command immediately after the GRUNDPREIS UND VORWAHL no longer returns the old transaction. • Now default is not to send the ZAPFVENTIL ÄNDERUNG IM GESPERRTEN ZUSTAND. The software changes do not affect the "Essential Characteristics".
Kienzle ER3	3.14	Bug fixes. The software changes do not affect the "Essential Characteristics".
Kienzle ER3	3.15	Bug fixes. The software changes do not affect the "Essential Characteristics".
Logitron	3.12	Zero delivery handling improvement. The software changes do not affect the "Essential Characteristics".
Logitron	3.13	Improved nozzle handling in Self Service- and Prepaid mode. The software changes do not affect the "Essential Characteristics".



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module	version	change
Logitron	3.14	CCR 12392: Preset volume not supported in Logitron protocol Despite of what has been mentioned in earlier versions, this version does not support fractional volume presets!
M3000	3.15	Zero delivery handling improvement. The software changes do not affect the "Essential Characteristics".
M3000	3.16	Local preset is no longer ignored when the Fuelpos sends a preset. The software changes do not affect the "Essential Characteristics".
Nuovo Pignone	3.04	Satellite is now working. The software changes do not affect the "Essential Characteristics".
Nuovo Pignone	3.05	<ul style="list-style-type: none"> • The node addresses will have a range 1 to 31 (to be filled in at the Tech. Menu). Every connected dispenser should have a unique address, where the WWC contains two dispensers. The addresses in one WWC differ only 1 and the right node address is the lowest value. E.g. If the node address of the right side is '00' then the left side must be configured as '01'. • Country code must be set to 39 (Italy). • Tank level inputs on the main board: GPI4 is for the right side, GPI3 is for the left side. The level switches of one side must be serially connected. • Manual input is on GPI1: Not connected <input type="checkbox"/> remote, connected HIGH <input type="checkbox"/> manual or remote (determined by menu) • High speed is supported. The high speed button should be pressed any moment after taking the nozzle. • Satellite (master and slave nozzle) is supported. Pressing the satellite button during filling (only for super high speed). • When using a satellite, the product number is reported instead of a nozzle number. The software changes do not affect the "Essential Characteristics".
Nuovo Pignone	3.06	Error in setup 58 repaired. The software changes do not affect the "Essential Characteristics".
Nuovo Pignone	3.08	Bug fixes. The software changes do not affect the "Essential Characteristics".
Tokheim	3.35	Power down delay increased from 3 to 30 seconds. The software changes do not affect the "Essential Characteristics".
Tokheim	3.36 – 3.39	No changes. Recompiled only.
Tokheim	3.41	Bug fixes. The software changes do not affect the "Essential Characteristics".



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module	version	change
Tokheim	3.42	Bug fixes. The software changes do not affect the "Essential Characteristics".
ZSR	3.11	Zero delivery handling improvement. The software changes do not affect the "Essential Characteristics".
ZSR	3.12	Bug fixes. The software changes do not affect the "Essential Characteristics".

1.2.8 Legal parameters and settings for the MPE impulse encoder

The following parameters are or shall be set as following, using a hand terminal or another external source. The switch settings can be changed only after breaking the seal of the impulse encoder's enclosure.

Parameter number	Setting								
2.4 = Set TC	See the following line. ON or OFF. When temperature compensation is applied this shall be ON. Also the product is set with "Fuel:."; either "90" or "95" or "98" or "Diesel" or "LPG"; the reference density value for the chosen product shall manually be input as well after "Density:". For LPG the reference density shall be 537 kg/m ³ . For Bio products and petrol – ethanol mixtures the value of k can be set with "TC:"								
<table border="1"> <thead> <tr> <th>Products and mixtures</th> <th>Value of k</th> </tr> </thead> <tbody> <tr> <td>Bio Diesel, heating oil, RME, SME, PME, CME</td> <td>0,84E-3</td> </tr> <tr> <td>Petrol - Ethanol E0 ... E40</td> <td>1,27E-3</td> </tr> <tr> <td>Petrol - Ethanol E60 ... E100</td> <td>1,14E-3</td> </tr> </tbody> </table>		Products and mixtures	Value of k	Bio Diesel, heating oil, RME, SME, PME, CME	0,84E-3	Petrol - Ethanol E0 ... E40	1,27E-3	Petrol - Ethanol E60 ... E100	1,14E-3
Products and mixtures	Value of k								
Bio Diesel, heating oil, RME, SME, PME, CME	0,84E-3								
Petrol - Ethanol E0 ... E40	1,27E-3								
Petrol - Ethanol E60 ... E100	1,14E-3								
During a delivery the chosen density value or k value can be seen on the connected hand terminal.									
2.5 = Hose expansion	ON or OFF. Depends on the application.								
5.2 = Temperature coefficient parameters.	Correct value. Can only be downloaded from an external source.								
5.3 = Input impulse and output impulse factors.	Correct value. Can only be downloaded from an external source.								

Switch settings		
Switch	OFF	ON
1	Watchdog enabled	Watchdog disabled
2	Temperature compensation off	Temperature compensation on
3	Electronic calibration off	Electronic Calibration on
4	Rotation CCW	Rotation CW



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W&M Calculator parameters

Parameter	Setting
Maximum Pulse Sequence Error	The pulse handling module allows for a number of pulse sequence errors. The error normally indicates an impulser problem, for example, inconsistency in the pulse count of both impulser channels. The value of this parameter is not configurable via any menu. It is defined within the country code or application.
Rounding type	Type 1: no rounding; automatically chosen when Euro is selected as currency.
Parameter	Setting
Hose expansion time and Value	These parameters are used to compensate the volume of fuel which is counted during the pressurizing stage of the hose at the beginning of a delivery. The time factor is in multiples of 10 milliseconds (ms) and the volume in centiliters (cl). The hose expansion functionality is only executed when the dispenser has been idle for more than an hour. All countries, except France, have a fixed value of 30/8 for hose expansion. i.e. volumes less than 8 cl during the first 300 ms are not counted. In France, different values apply and it is possible to switch off the hose expansion functionality by setting the values to 0. The default values for France are 200/3 i.e. volumes less than 3 cl during 2 seconds will not be taken into account.
Pulse Hide	<p>This parameter defines the number of pulses hidden at the start of a delivery. The pulses are counted but not shown on the calculator display. This parameter will vary according to the set up and number of meters involved.</p> <p>In all countries, except France, the parameters are set to 2 i.e. the first two pulses are counted but not displayed.</p>
Euro	<p>When activated, this function will overrule the display layout previously selected by the country code. Rounding method will be set to Type 1 (1 by 1).</p> <p>The Euro functionality can only be selected with European country codes when running a cold start or via the Maintenance menu. Once activated, it can only be reset by performing a cold start. <i>Note: For European Community countries, selection of the Euro is only possible up to kernel software version 03.12. In later kernel versions, the Euro selection is fixed.</i></p>
Heavy Lei	<p>This function is designed to enable the conversion to Heavy Lei currency in Romania by simple (software) switch. Once Heavy Lei is selected, it cannot be changed back without a Cold Start. <i>Note: This menu is only available with country code 40 (Romania).</i></p>
Volume unit	liters
Unit price display scaling	Depending on the application, but when selecting the EURO as currency normally presented in Euro with three decimals or in Eurocents with one decimal.



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1.3 Essential shapes

1.3.1 Inscriptions

- 1.3.1.1 An inscription plate shall contain at least the inscription "TC7138" and the instrument's serial number.
- 1.3.1.2 When the calculating and indicating device indicates a converted volume, the reference conditions for that converted volume shall be clearly visible in the near vicinity of the volume indication.

1.3.2 Sealing

When this electronic calculating and indicating device is part of a petrol dispenser or an LPG-measuring device the following seals shall be present:

- 1.3.2.1 sealing of the impulse encoder's enclosure, against unauthorized opening;
- 1.3.2.2 sealing of the impulse encoder's enclosure mounting to the meter;
sealing of the entrance to the connector board in the calculating and indicating that is intended for connecting both the impulse encoders and the hand terminal or remote computer, thus preventing unauthorized access to the impulse encoders;
- 1.3.2.3 sealing as indicated on the documentation pages 49 and 50.

1.4 Conditional parts

- 1.4.1 The ECVR is an independent module, which communicates with the calculator module to be initialised at each delivery start. It then performs the open or closed loop vapour recovery process by controlling the own motors and valves.

1.5 Conditional characteristics

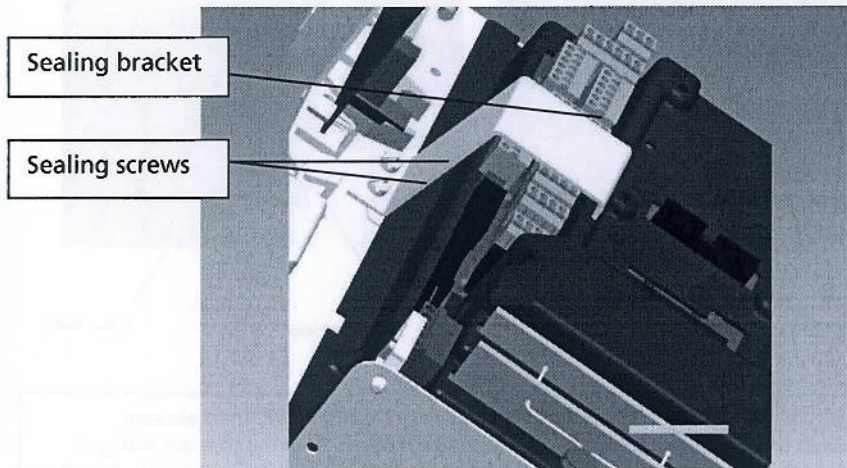
1.5.1 Electronic totalizers

The totals of amount, volume and number of fillings per nozzle are stored in the calculator for single, blended and high speed configurations. Totals and subtotals are also available per delivery mode (two modes). This information is permanent and cannot be erased or changed unless a "cold start" or "service start" is performed which would erase all the data in order to prevent data corruption.

1.5.2 It is possible to see the software versions of all connected peripherals.

1.5.3 Electronic calibration

This is possible only after breaking the Weights & Measures seal of the bracket over the connector on the main board, and connecting a service tool to this connector. Refer to the following picture for information.



2 Conditions for Conformity Assessment

Third parties are not allowed to use this document and the companion documentation folder without written permission of the owner of this document.

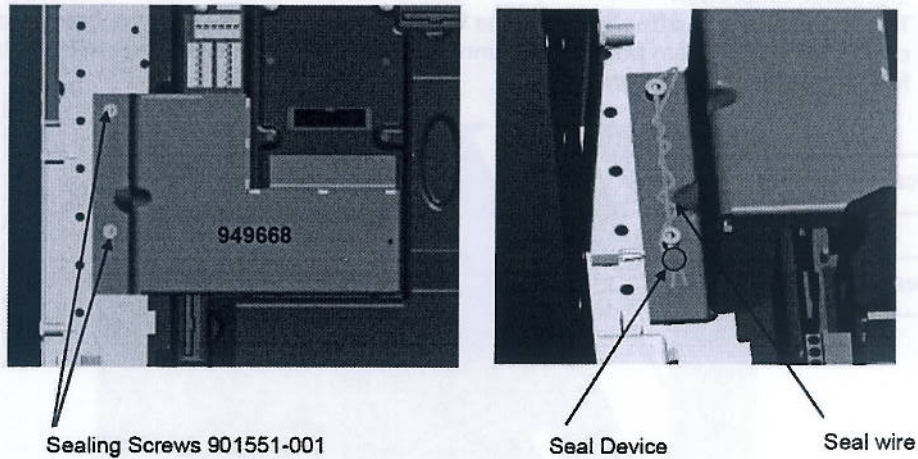


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3 Seals

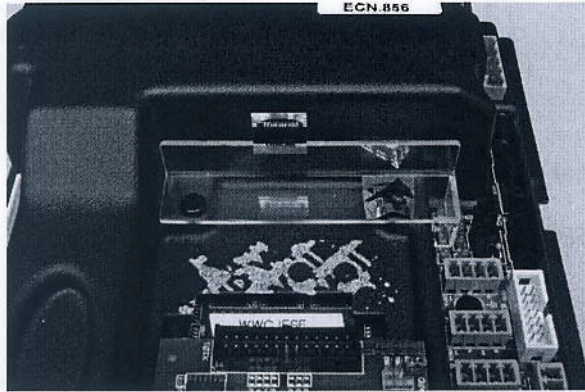
See to the paragraph 1.3.2, the documentation folder and the following pictures.



The sealing bracket 949668 is secured in place using 2 x 901551-001 seal screws. A seal wire is then threaded through one seal screw, both ends of the wire are brought together and twisted until one end can be passed through the second seal screw. A knot is then tied in the wire close to the 2nd seal screw. Both ends of the seal wire are then passed through a sealing device ready to be crimped.

The following seal is to seal the jumper and is only applicable for LPG dispensers to prevent unauthorised changes to the volume multiplier factor which is only present in the LPG setups:

Section	Software identification	Applicable SW versions
1.2.7.6	WWC IFSF LON communication interface v1 (COM-LON1)	version 3.47 and older
1.2.7.10	Nuovo Pignone communication interface version_1 (WWC_COM_NUP1)	version 3.06 and older
1.2.7.11	Tokheim communication interface version_2 (WWC_COM_TOK2)	version 3.39 and older



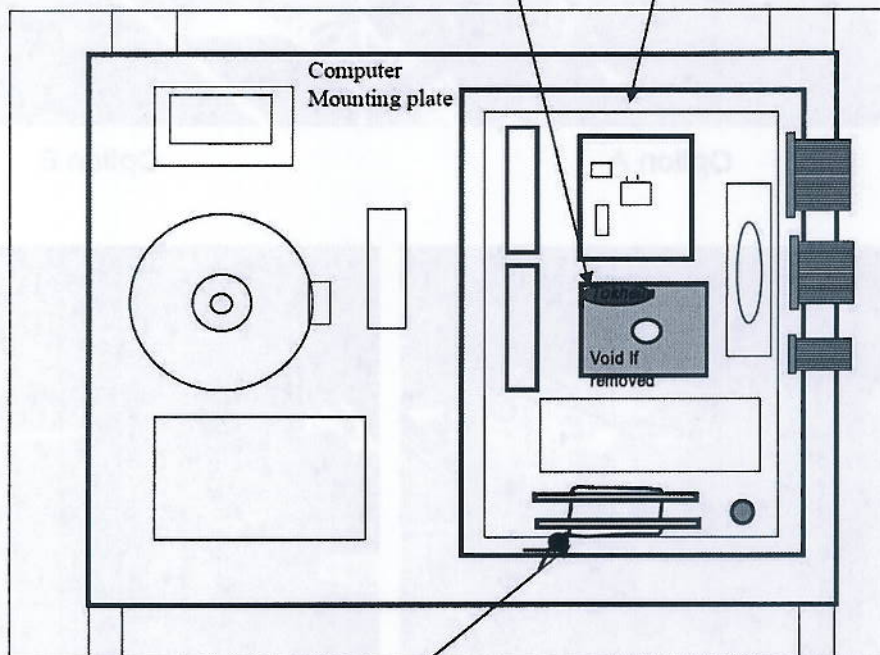
Note: Only setup number 60 and 61 are LPG setups. This can be verified with the remote controle by following the next steps:

- ["ON"] → conf
- [5] → tech
- [7] → tech pincd
- [7] → enter pincd
- (pin) → dialog
- [7] repeat until "disp setup" is shown

The unit price display shows the setup number.

Tamperproof sticker covering the EPROM device secures. For programme version verification a small hole in the sticker is provided.

Computer main board & I/O board cover



A seal wire is passed through holes in alloy plates projecting through the computer board cover and a lead seal attached.



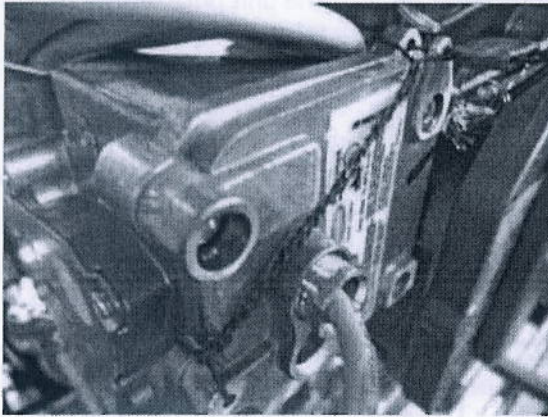
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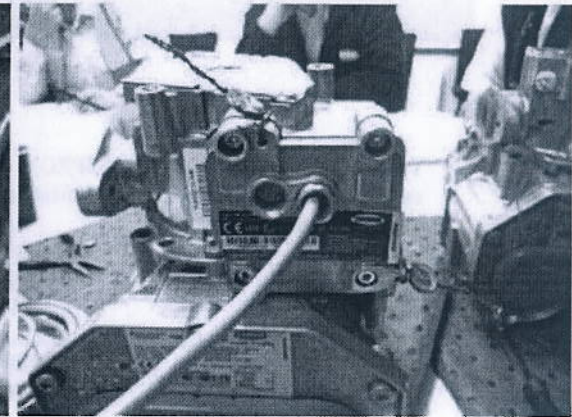
The housing of the impulse encoder MPE is sealed against opening.

The housing of the impulse encoder MPT1-4 is sealed against opening.

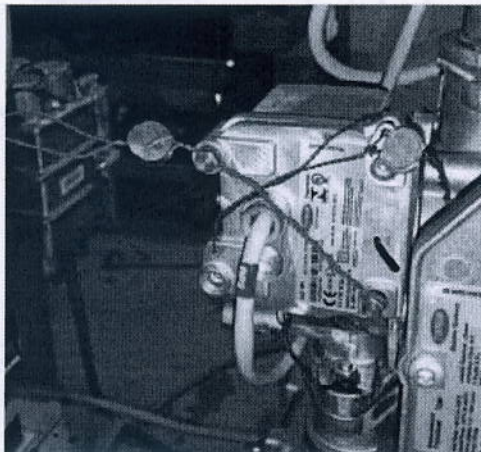
Impulse encoder sealing methods:



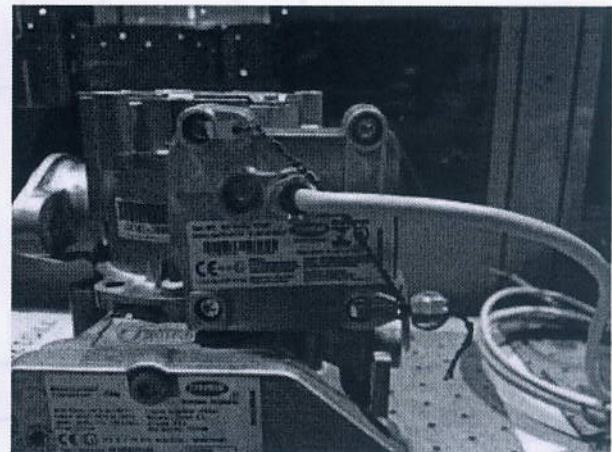
Option A



Option B



Option C



Option D



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4 Test reports

An overview of the performed tests is given in the following test reports, issued by NMI Certin B.V.:

- CPC/507848
- CPC/608514
- CPC/705081
- NMI-14200183
- NMI-15200333-01

