



Member state  
Czech Republic

OIML Certificate No.  
R117/2007-CZ-16.01

## OIML BASIC CERTIFICATE OF CONFORMITY

### Issuing Authority

Name: Czech Metrology Institute  
Address: Okružní 31,  
638 00 Brno, CZ  
Person responsible: Jan Kalandra

### Applicant

Name: **Wenzhou Bluesky Energy Technology Co., Ltd.**  
Address: **No. 460, Jinhai 1. Road, Binhai ETDZ**  
**Wenzhou, Zhejiang**  
**China**

### Manufacturer of the certified type

Name: **Wenzhou Bluesky Energy Technology Co., Ltd.**  
Address: **No. 460, Jinhai 1. Road, Binhai ETDZ**  
**Wenzhou, Zhejiang**  
**China**

### Identification of the certified type

**AdBlue dispenser**  
**Type: RT-NS**

Further characteristics see page 3-9.

This certificate attests the conformity of above identified type (represented by the sample (s) identified in the OIML Basic Type Evaluation Report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

**OIML R 117-1, Edition 2007**

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This certificate relates only to the metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML Recommendation identified above.

This certificate does not bestow any form of legal international approval.

The conformity was established by the results of tests and examinations provided in the associated OIML Basic Type Evaluation Report(s)  
No. **6015-PT-P3020-15** dated 20<sup>th</sup> June, 2016 that includes 28 pages.

**Certificate history:**

Issue no.	Date	Description of the modification



A handwritten signature in blue ink, appearing to read "Pavel Klenovský".

**The OIML Issuing Authority**  
Pavel Klenovský

12 July 2016

Important note: Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate is issued, partial quotation of the Certificate and of the associated OIML Basic Type Evaluation Report(s) is not permitted, although either may be reproduced in full.

### **1. Measuring device description:**

The RT-NSAdBlue dispensers are designed for measurement of a AdBlue (NO<sub>x</sub> reduction agent AUS 32 - 32.5 % aqueous urea solution according to ISO 22241) volumes as a legal measuring device, and they are used for the filling of a separate storage tanks of heavy-duty vehicles with reduction of NO<sub>x</sub> in exhaust gases of diesel engines SCR-technology (Selective Catalytic Reduction).

The RT-NS measuring systems consist of a non-return valve, filter, measurement transducer consisting of volumetric piston measurement sensor and pulse transmitter, solenoid valve, hose with dispensing nozzle and electronic calculator with indicating device and optional keypad. The system is intended to be used with an external submersible pump placed at the bottom of a storage tank.

Design of the installation has to ensure that there is no risk of air intake or gas release and following requirements must be fulfilled:

- To secure automatically the minimum level in the storage tank, a level detection system shall be installed.
- Each delivery shall be delayed until the submerged pump has been running for at least 3 seconds.
- The pipelines between the pump unit and the dispenser are installed with a positive slope of at least 1 %. There shall be no significant portion without slope.

At least one non-return valve shall be installed in the system upstream of each measurement transducer.

Correction of the measurement accuracy can be done by an adjustment wheel on the measurement sensor that is protected by a seal or in the electronic calculator.

#### **1.1. Measurement transducer**

Manufacturer	Wenzhou Realtech Petroleum Equipment Co., Ltd
Pattern designation	NSF1
Minimum flow rate	5 L/min
Maximum flow rate	30 L/min
Minimum measured quantity	5 L
Liquid temperature range	(-5 to 35) °C
Pressure range	(0.1 to 0.3) MPa
Cyclic volume	0.5 L
Accuracy class	0.5
Applicable liquids	AdBlue (AUS 32 - 32.5 % aqueous urea solution)
Pulse transmitter	CK-10, (2 x 100 pulses / revolution)

NSF1 measurement transducer consists of the positive displacement measurement sensor based on four piston principle and two channel CK-10 pulse transmitters (pulser).

The pulser is fixed on the top of the sensor. It converts rotational movement of the measuring sensor shaft to the electronic pulses. One revolution corresponds to 2 x 100 pulses.

The transducer is equipped with a mechanical adjustment device. The adjustment by means of the adjustment screw is discontinuous with step approximately 0.04%. Location of the adjustment wheel is protected by a pin.



Picture No. 1: NSF1 measurement transducer

### 1.2. Electronic calculator

Manufacturer	Wenzhou Realtech Petroleum Equipment Co., Ltd
Pattern designation	LT-C
Accuracy class	0.5
Ambient temperature range	(-25 to +55) °C
Environmental classes	M1, E1, H3
Power supply	220 VAC ±20%, 50 Hz
Price and volume display	6 digits
Unit price display	4 digits
Compatible pulser	two-channel
Maximum number of nozzles	8
Approved software versions	Main board software version: MV302_6_1 Key board software version: 17305
W&M checksum (CRC)	A6D5

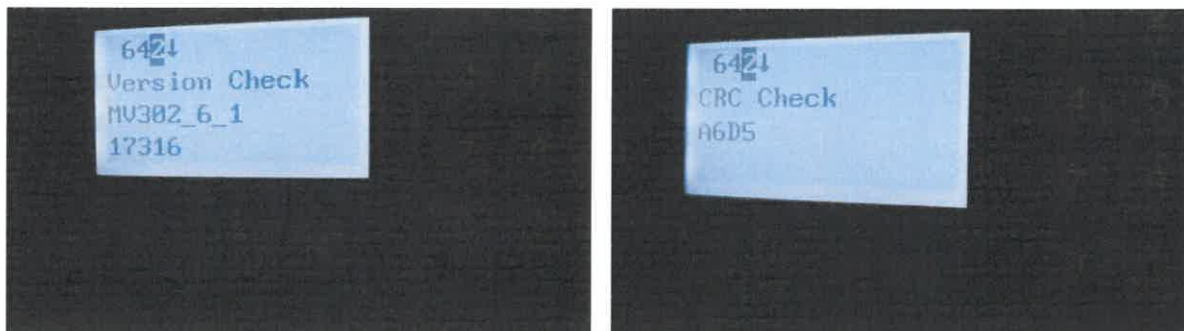
LT-C calculator can control up to eight measuring systems (nozzles). Up to four nozzles can be controlled simultaneously.

The calculator is equipped with an internal keyboard (picture No. 9) that is used to control of the dispenser and for pre-set of volume or price.

It is optionally equipped with totalizing counters for each measuring system (nozzle). Mechanical non-resettable (7 digits) totalizing counters or electronic totalizing counters (9 digits) which are resettable using the sealed switch on the main board.

Software and CRC identification:

The CRC check sum is displayed on the display after the power supply connection. The version of software can be displayed when the "\*" button of the keyboard has been pushed seven times (eight times for CRC) and then "enter".



Picture No. 2: Software version and CRC checksum identification on the keyboard display

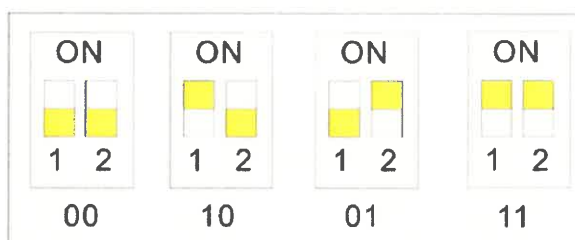
Setting of the calculator:

Setting of the calculator is divided in four levels and secured by passwords. Each level has a different password.

Electronic calibration:

Parameter No. 22 provides an “electronic calibration”. Default setting of this value is 0,0025. This value represents volume of one pulse. Default setting 0,0025 L/pulse means that the calculator displays the received pulse signal without any correction.

In order to set the parameter No. 22, a switch on the main board has to be set to position "11" as shown on the following picture No. 4.



Picture No. 3: Switch on the main board

- Position 00: Totalizing counters nor parameter No. 22 can not be changed.
- Position 10 and 01: Totalizing counters can be zeroed and par. No. 22 can not be changed.
- Position 11: Totalizing counters can be zeroed and par. No. 22 can be changed.

Complete list of all commands of user interfaces and other information concerning the calculator and its controlling is given in a document “Operation manual of LT-C electronic controller”.

### 1.3. Hose

DEF Dispenser hose ID 19mm, 16 bar, max. length 5 m.

## 2. Basic technical and metrological data

Max. flow rate $Q_{max}$ [L/min]	30
Min. flow rate $Q_{min}$ [L/min]	5
Min. measured quantity MMQ [L]	5
Accuracy class	0.5
Liquids	AdBlue (AUS 32 - 32.5 % aqueous urea solution)
Liquid temperature range [°C]	-5 to 35
Ambient temperature range [°C]	-25 to +55

Maximum pressure [MPa]	0.30
Minimum pressure [Mpa]	0.10
Environmental classes	M1, E1, H3
Measurement unit	Volume [L]
Type of display:	electronic
Scale interval of the indication [L]	0.01
Approved software versions	See the chapter 1.2

### 3. The measuring device data

The measuring transducer and electronic calculator shall bear a permanent, non-transferable, and easily readable identification plate or label giving at least the following information:

- Manufacturer's name, mark or trademark
- Type designation
- Serial number

The measuring system shall bear a permanent, non-transferable, and easily readable identification plate or label giving the following information:

- Number of EC-type examination certificate
- Manufacturer's name, mark or trademark
- Type designation
- Serial number and year of manufacture
- Accuracy class 0.5
- Minimum measured quantity
- Maximum flowrate ( $Q_{max}$ )
- Minimum flowrate ( $Q_{min}$ )
- Maximum pressure ( $p_{max}$ )
- Liquids to be measured
- Liquid temperature range
- Ambient temperature range
- Mechanical class
- Electromagnetic class

Each face indicating device shall bear by the following information:

- Unit of national currency (e.g. €) is indicated next to price display,
- Unit of volume (ℓ or L or word Litre) is indicated next to volume display,
- Unit price per litre (e.g. €/L or €/Litre) is indicated next to unit price display,
- Information regarding the minimum measured quantity (MMQ),

### 4. Conditions for approval and sealing

- Before putting into use it has to be verified that the AdBlue dispenser is in conformity with requirements of this certificate.
- Accuracy test within verification shall be performed using AdBlue within given flow rate range and pressure range of the measuring system and in normal conditions of operation.

All measured errors have to be in range of tolerance +/- 0.5%.

Minimum quantity for the accuracy test is the quantity that corresponds to delivery at given flow rate for one minute, however always at least 10 L.

- The switch on the calculator has to be set and sealed in position “00” according to picture No. 3.
- Each measuring system has to be sealed after the tests and conformity assessment with a positive result according to following description and pictures No. 4 to 5.

Seals:

On the measuring transducer:

- Location of the adjustment device pin
- Connection of all four piston covers with sensor body
- Connection of upper cover with sensor body
- Connection of the pulser with the upper cover
- Type plate of the transducer (if removable)

On the electronic calculator:

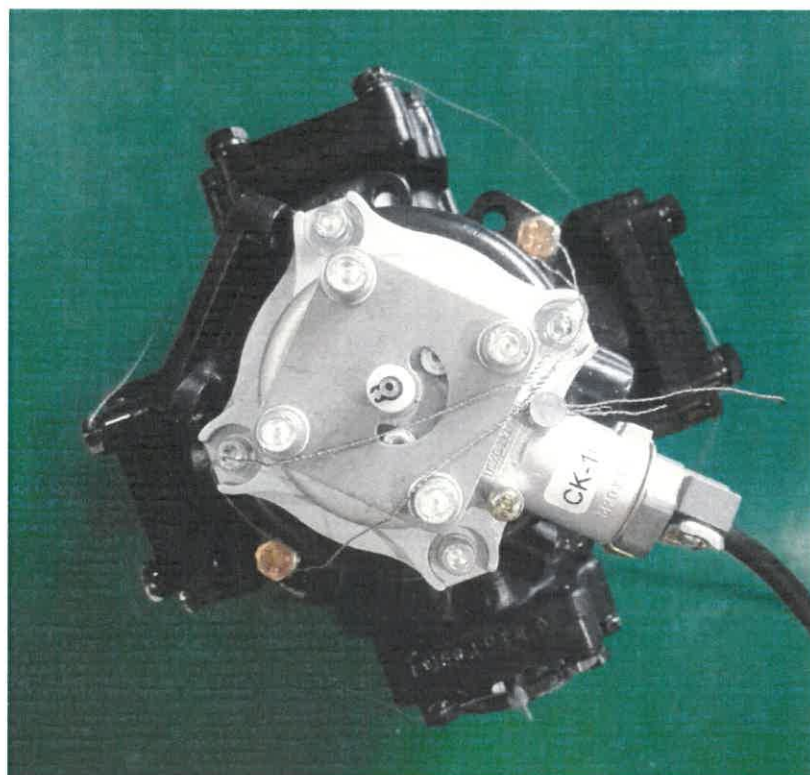
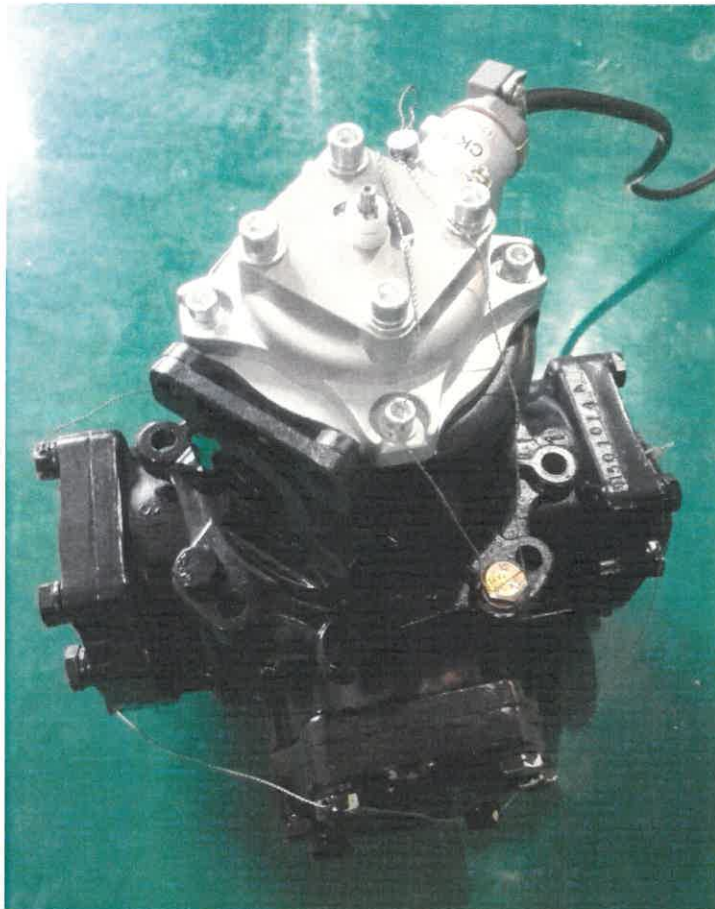
- Cover of the main board
- Type plate of the calculator (if removable)

On the dispenser:

- Name plate of the dispenser against removal



Picture No. 4: Sealing of the measurement transducer





Picture No. 5: Sealing of the electronic calculator

