

## CERTIFICAT D'EXAMEN CE DE TYPE

EC TYPE EXAMINATION CERTIFICATE

N° LNE - 28039 rév. 0 du 20 avril 2015

**Délivré par** : Laboratoire national de métrologie et d'essais

*Issued by*

**En application** : Décret n°2006-447 du 12 avril 2006, arrêté du 28 avril 2006, transposant en droit français, la directive 2004/22/CE du 31 mars 2004

*In accordance with*

*Decree nr 2006-447 dated 12 April 2006 and order dated 28 April 2006, transposing into French law, the European directive 2004/22/EC of 31 March 2004*

**Fabricant** : SATAM - avenue de Verdun BP 129  
*Manufacturer* FRANCE - 14700 - FALAISE

**Mandataire** : - - - -

*Authorized representative*

**Concernant** : Ensemble de mesurage SATAM type ZCE11 destiné à mesurer des volumes de liquides autres que l'eau par réception gravitaire.

*In respect of*

*SATAM type ZCE11 measuring system intended for measuring liquids other than water (gravity reception).*

**Caractéristiques** : Les caractéristiques sont détaillées en annexe.

*Characteristics*

*Characteristics are detailed in the appendix.*

**Valable jusqu'au** : 19 avril 2025

*Valid until*

*April 19th, 2025*

Les principales caractéristiques et conditions d'approbation figurent dans l'annexe ci-jointe qui fait partie intégrante du certificat et comprend 16 page(s). Tous les plans, schémas et notices sont déposés au Laboratoire national de métrologie et d'essais sous la référence de dossier P128961.

*The principal characteristics, approval conditions are set out in the appendix hereto, which forms part of the approval documents and consists of 16 page(s). All the plans, schematic diagrams and documentations are recorded by Laboratoire national de métrologie et d'essais under reference file P128961.*

Etabli le 20 avril 2015

*Issued on April 20th, 2015*

Pour le Directeur Général  
*On behalf of the General Director*



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## Annex to EC type examination certificate LNE-28039 rev. 0

### Summary

Date	Revision	Modification
20/04/2015	Revision 0	Document creation

*This annex was originally drawn up in French. In the event of any dispute, the French version only of this document shall be considered to be the authentic text.*

### **1. Designation**

SATAM ZCE11 measuring system is intended for measuring liquids other than water (gravity reception).

SATAM ZCE11 is an interruptible measuring system.

### **2. Description**

SATAM ZCE11 measuring system is equipped with :

- a SATAM ZC 17-80/80 or ZC 17-100 meter covered by evaluation certificate LNE-11052 and fitted with :
  - o either a mechanical calculator-indicator device permitted by evaluation certificate LNE-11052,
  - o or an electronic calculator-indicator device permitted by evaluation certificate LNE-11052 different from MECI CDN12 calculator-indicator device,
- a SATAM EC 35 gas extractor fitted with a sight glass allowing to control the liquid level before and after each reception (transfer point),
- a SATAM XAD 49 control valve,
- a sight glass located above the extractor for controlling only gases are being removed,
- if the measuring system is provided with a mechanical calculator-indicator device, a continuous adjustment device AB 37,
- if appropriate, any accessory described in evaluation certificate LNE-11052 covering SATAM meters ZC 17-80/80 and ZC 17-100.

#### Pumped mode (exposed storage):

- a non-energizing centrifugal pump whose flowrate and pressure characteristics are compatible with the meter,
- a non-return valve at the outlet of the pump,
- a full hose downstream the non-return valve.

#### Gravity mode (underground storage):

- one or several three-way valves,
- one or several empty hoses.

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### 2.1 Metrological functions

SATAM ZCE11 measuring system perform the metrological functions described:

- in the evaluation certificate LNE-11052 covering SATAM meters ZC 17-80/80 and ZC 17-100,
- if relevant, in the evaluation certificate covering the relevant electronic calculator-indicator device.

### 2.2 Non-metrological functions

SATAM ZCE11 measuring system perform the non metrological functions described:

- in the evaluation certificate LNE-11052 covering SATAM meters ZC 17-80/80 and ZC 17-100,
- if relevant, in the evaluation certificate covering the relevant electronic calculator-indicator device.

### 2.3 Software

When SATAM ZCE11 measuring system is fitted with an electronic calculator-indicator device, the software application checksum for the metrological functions is specified in the evaluation certificate of the relevant calculator device.

## 3. Characteristics

### 3.1 Metrological characteristics

The metrological characteristics of the measuring system SATAM ZCE11 are as follows :

Type of calculator-indicator device	Mechanical	Electronic
Accuracy class	0.5	
Indication scale interval	1 L	1 L, 0.1 L, 0.01 L
Maximum indication level	99 999	999 999
Printing scale interval	1 L	1 L, 0.1 L, 0.01 L
Products metered	Liquid hydrocarbons with kinematic viscosity under 20 mm <sup>2</sup> /s at 20°C at metering conditions (except GPL), industrial oils and fatty acid methyl esters for diesel engines, ethanol	
Temperature range of metered products	- 10 °C à + 90 °C	- 10 °C à + 80 °C
Minimum flowrate	8 m <sup>3</sup> /h (compteur ZC 17 80/80) 10 m <sup>3</sup> /h (compteur ZC 17-100)	
Maximum flowrate	60 m <sup>3</sup> /h	
Relative maximum pressure	10 bar	
Minimum measured quantity	1000 L	
Power supply	Not applicable	24 VDC or 220 VAC

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The metrological characteristics of the calculator-indicator devices equipping SATAM ZCE11 measuring system are specified in :

- LNE-11052 evaluation certificate covering SATAM meters ZC 17-80/80 and ZC 17-100,
- the evaluation certificate covering the relevant electronic calculator-indicator device.

### 3.2 Environment

SATAM type ZCE11 measuring system has the following environmental characteristics :

- Mechanical class : **M2**
- Electromagnetic class : **E3**
- Temperature range :
  - - **40°C à + 55°C** pour un ensemble de mesurage équipé d'un dispositif calculateur-indicateur mécanique,
  - - **25°C à + 55°C** pour un ensemble de mesurage équipé d'un dispositif calculateur-indicateur électronique.

If required, environmental characteristics of the transaction module unit of the calculator are defined in the evaluation certificate of the relevant calculator.

SATAM ZCE11 measuring system is designed to operate in condensing ambience.

### 4. Interfaces and compatibility

If equipped with an electronic calculator-indicator device, SATAM ZCE11 measuring system performs the functions specified in :

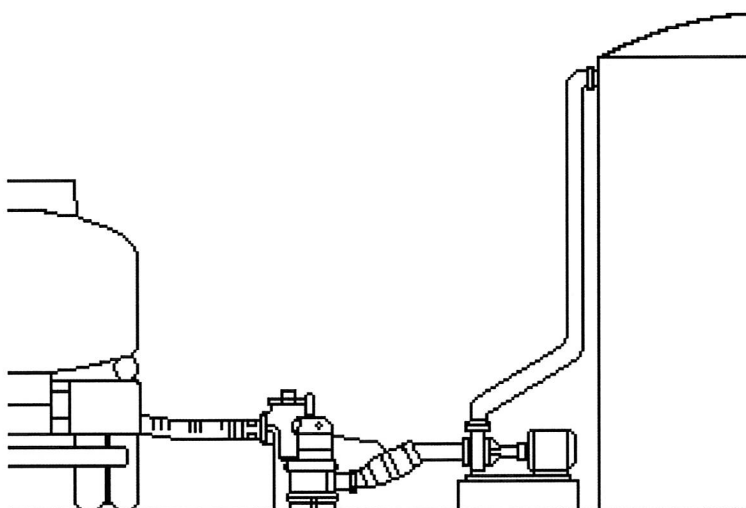
- LNE-11052 evaluation certificate covering SATAM meters ZC 17-80/80 and ZC 17-100,
- the evaluation certificate covering the relevant electronic calculator-indicator device.

### 5. Special installation and using conditions

SATAM ZCE11 measuring system is mounted on fixed installations.

Special installation conditions for the electronic calculator-indicator device equipping SATAM ZCE11 measuring system are described in the calculator's evaluation certificate.

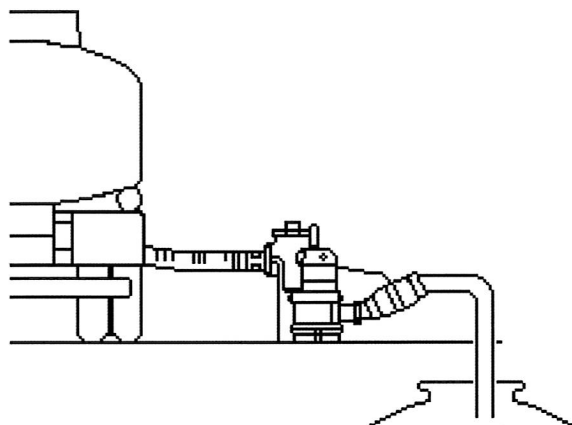
**Pumped mode (exposed storage) :**



The pump is installed downstream SATAM ZC 17 80/80 or ZC 17-100 meter.

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Gravity mode (underground storage) :



The three-way valve(s) shall be so constructed that during a receipt only one piping is used.

### 6. Special conditions of verification

Verifying the conformity of SATAM ZCE11 measuring system consists of :

- a) examining the instrument to ensure conformity to the present certificate,
- b) checking the installation conditions,
- c) tests and controls of SATAM ZC 17-80/80 or ZC 17-100 meters described in evaluation certificate LNE-11052,
- d) if appropriate, tests and controls of the electronic calculator-indicator device described in the relevant evaluation certificate,
- e) if appropriate, checking the temperature measuring chain accuracy when used for volume conversion (temperature sensor Pt100),
- f) proceeding the following tests and controls on the measuring system :
  - an accuracy test with the intended liquid at the flowrate of use for a volume at least equal to the minimum measured quantity,
  - an accuracy test with a shortage test (this test may be performed with a complete emptying of a compartment or after changing the compartment by an empty one); after this test, there must be no air in the sight glass above the extractor,

#### Pumped mode :

- check that the flow is interrupted when the measuring system's power supply is cut, even if the pump is already moving.

#### Gravity mode :

- check the impossibility to change the delivery way during a measurement,
- determine the residual quantities of the empty hose(s).

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#### **7. Securing and sealing**

Sealings are made with threaded rods with lead seals or beaded wire with crimped seals or any other mean affording the same guarantees.

Sealings systems for meters SATAM ZC 17-80/80 and ZC 17-100 are detailed in LNE-11052 evaluation certificate.

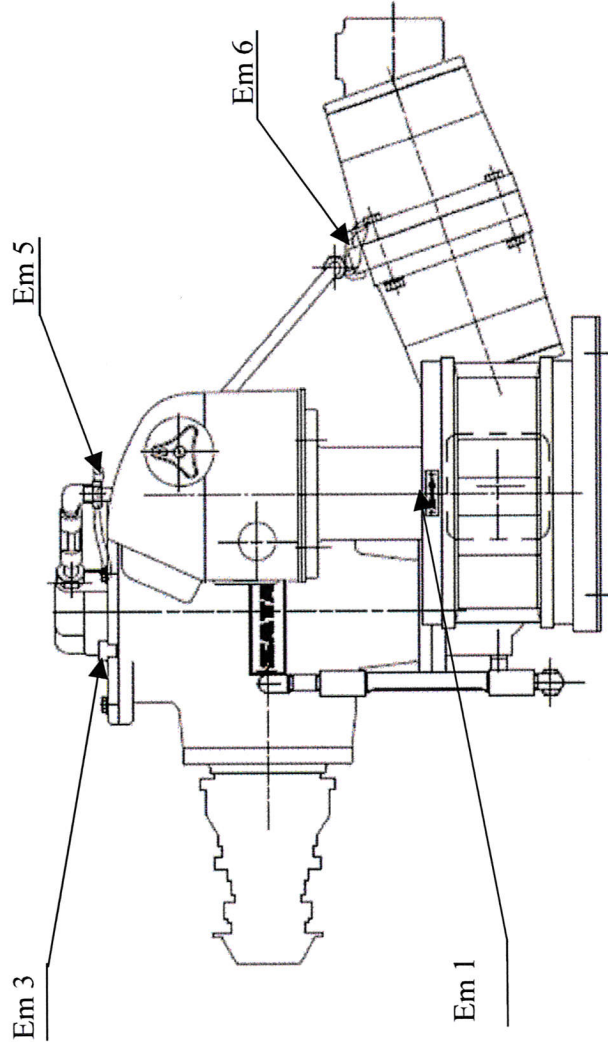
When SATAM ZCE11 measuring system is fitted with an electronic calculator-indicator device, the sealings systems for the calculator are detailed in the evaluation certificate covering the relevant electronic calculator-indicator device.



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## Measuring system SATAM ZCE 11 with mechanical calculator

Sealing plan

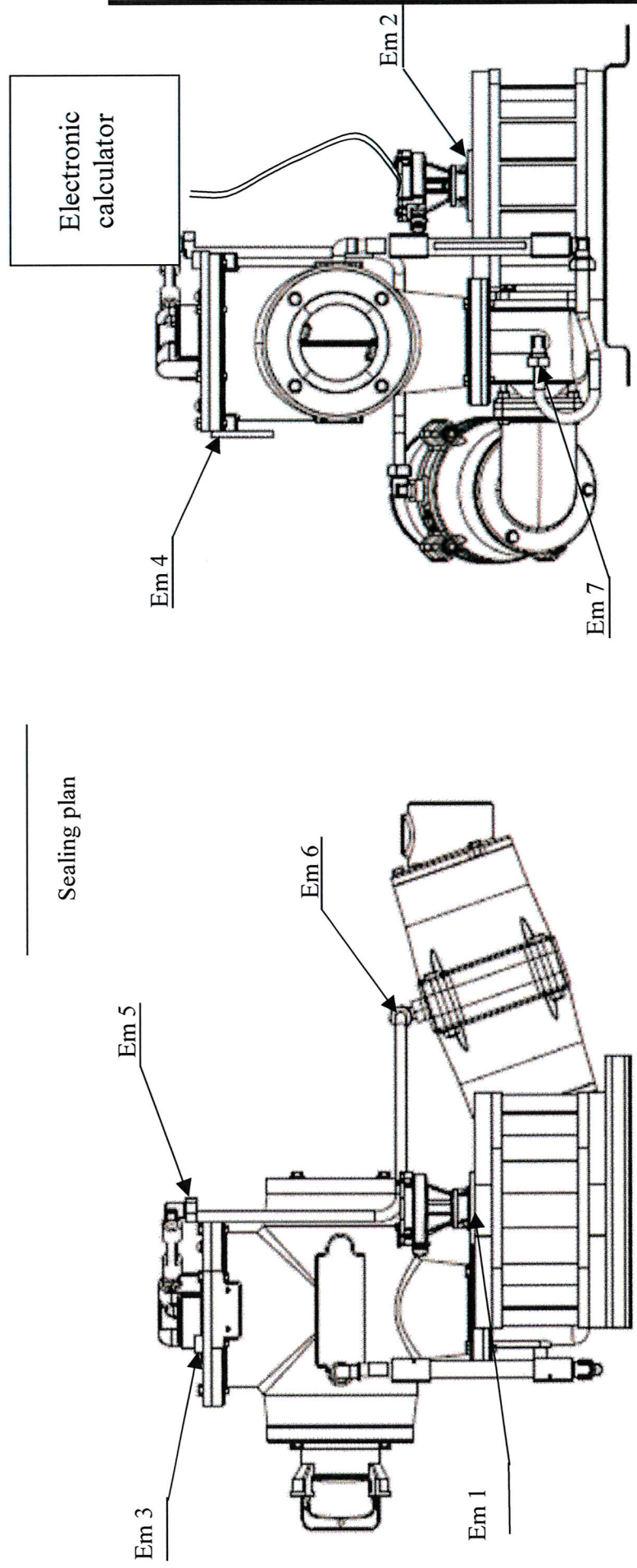


- Em 1 : Protects measuring device
- Em 2 : Protects indicator
- Em 3 : Protects gas elimination head
- Em 4 : Prevents removal of measuring system data plate
- Em 5 : Protects link between extractor and control valve
- Em 6 : Protects control valve and its adjustment, protects link between extractor and control valve
- Em 7 : Protects sight glass link

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## Measuring system SATAM ZCE 11 with electronic calculator

Sealing plan



- Em 1 : Protects measuring device
- Em 2 : Protects pulse generator
- Em 3 : Protects gas elimination head
- Em 4 : Prevents removal of measuring system data plate
- Em 5 : Protects link between extractor and control valve
- Em 6 : Protects control valve and its adjustment, protects link between extractor and control valve
- Em 7 : Protects sight glass link



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## **8. Marking and inscriptions**

SATAM ZCE11 measuring system is fitted with a data plate on which the statutory marking is displayed.

<b>ENSEMBLE DE MESURAGE</b>		<b>SATAM</b>		
<b>METERING UNIT</b>				
Modèle / Model : ZCE 11				
N° DE SÉRIE : <input type="text"/>		Année 20 <input type="text"/>		
Serial number		Year		
Certificat LNE - XXXXX				
Certificate number				
CE	M <input type="text"/>	<input type="text"/>	II 2 G cT4	
Classe exactitude: 0.5 Exactness class Classe environnement mécanique : M2 Environmental class mechanical Classe environnement électromagnétique : E3 Environmental class electromagnetic				
Débit Max : <input type="text"/> m³/h		Pression Max : 10 bar		
max. flow rate		max. working pressure		
Débit Min : <input type="text"/> m³/h				
min. flow rate				
Quantité mesurée maximale : 1000 Litres				
Maximum delivery liters				
Liquide mesuré/Liquid measured : <input type="text"/>				
Marque/Mark : <input type="text"/>				
Avenue de Verdun 14700 Paimbœuf FRANCE				

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