

Station controller for fuel sales, “Epsilon”

Issued to

Gilbarco Veeder-Root AB

PO Box 11059, SE-161 11 Bromma, Sweden

In respect of (part of instrument)

Station controller, a purely digital self-service device (SSD) intended for use with fuel dispensers for motor vehicles.

Identification

Type: Epsilon station controller, a purely digital self-service device (SSD) intended for use with fuel dispensers for motor vehicles.

In accordance with

- WELMEC Guide 8.8, version 2017 “General and Administrative Aspects of the Voluntary System of Modular Evaluation of Measuring instruments under the MID”,
- WELMEC Guide 10.10, Issue 1 “Guide on evaluation of purely digital parts (PDP)”
- WELMEC Guide 7.2, Issue 5 “Software Guide”
- OIML R117-1:2019, (Software requirements) and
- OIML D31:2019, General requirements for software controlled measuring instrument.

This certificate does not have the meaning of a type approval document as mentioned in the Directive 2014/32/EU Measuring Instruments Directive. RISE Certification Rules SPCR 181 has been applied. The certificate is issued by RISE in its capacity of Notified Body with id. no. 0402.

This Parts Certificate (PC) is the positive result of the applied modular approach under these WELMEC Guides, for a part of a measuring system for the continuous and dynamic measurement of quantities of liquids other than water.

This is not a MID Certificate (EU-type examination certificate according to 2014/32/EU), but the MID requirements have been applied. The complete measuring system shall be subject to a conformity assessment procedure as described in MID. The certificate is issued by RISE in its capacity of Notified Body with id. no. 0402.

This Parts Certificate is free to use by manufacturers of complete measuring instruments.

Characteristics/rated operating conditions

The evaluated part of a measuring system for LOTW (Liquids Other Than Water) is a self-service device for direct sales, interruptible, unattended delayed payment and price pre-setting, including a printer, an integrated pump controller and a memory device.

Accuracy class: 0,5 or higher

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Description and documentation

The tested software is described in this certificate and documented in the documentation folder held by RISE.

Applicable requirements of MID 2014/32/EU

- MID, Annex I Essential requirements
- MID, Annex VII (MI-005) Measuring systems for the continuous and dynamic measurement of quantities of liquids other than water (LOTW)

Harmonised standards and normative documents used

Applicable parts of the following normative documents referred to in the Official Journal of the European Union 2011/C33/01:

- OIML R 117-1 Edition 2007 (E), Dynamic measuring systems for liquids other than water
- OIML R 117-1 Edition 2007 (E), Dynamic measuring systems for liquids other than water
- OIML R 117-1 Edition 2019 (E), Dynamic measuring systems for liquids other than water

Further applied documents

- The Swedish Measuring Instruments Regulation, STAFS 2016:1
- The Swedish Regulations and Guidelines concerning Measuring Systems for the Continuous and Dynamic Measurement of Quantities other than Water, STAFS 2016:6
- RISE Certification Rules SPCR 181

Miscellaneous

This issue of the certificate is the 4th, edition, and replaces earlier issues.

The principal characteristics, approval conditions are set out in the appendix hereto, which forms part of the approval document. All the plans, schematic diagrams and documentations are recorded under reference file PX13580, 6P07461, 191976 and 1137978. The evaluation report PX13580-02 has been issued in accordance with WELMEC Guide 8.8, Voluntary system of Modular Evaluation and WELMEC Guide 10.10 Evaluation of PDP.

The principal characteristics and approval conditions are set out in appendix to this certificate.

Originally issued: 2011-12-11
Expiry date 2027-12-20

The validity of this certificate can be verified at RISE homepage. This certificate replaces earlier issues. This issue 4 is issued due to new software requirements (OIML R117-1 and D31).



Martin Tillander

Specification

0. Conditions

The use of this Part Certificate is limited to:

Combination with “any” fuel dispenser/POS/payment terminal manufactured by Gilbarco Autotank AB/ Gilbarco Veeder-Root AB, or by other manufacturer holding a written permission by Gilbarco Autotank AB/ Gilbarco Veeder-Root AB, under the following conditions:

- The communication protocols defined in this certificate are used
- The fuel dispenser/POS/payment terminal having an EC-type examination certificate covering compatibility with the communication protocol used
- The POS/payment terminal having an Evaluation or Parts Certificate covering compatibility with the communication protocol used
- The fuel dispenser/POS/payment terminal having a National Type approval covering compatibility with the communication protocol used

Other parties are free to use this PC.

The device must correspond with the following specifications:

1. Design of the device

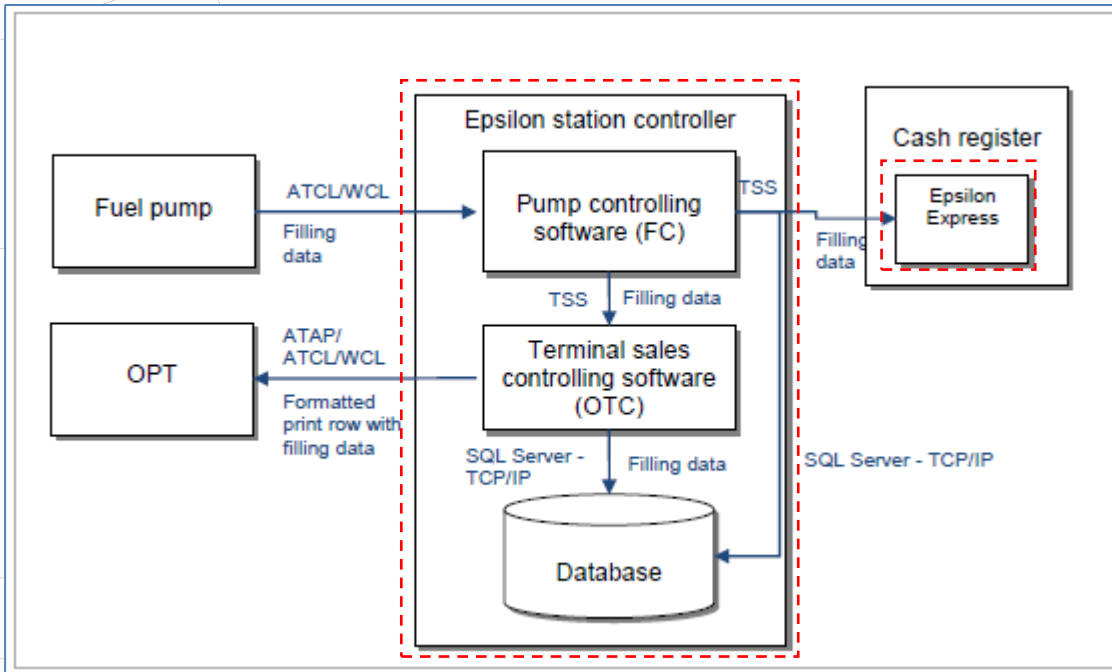
1.1. Construction

Epsilon station controller description

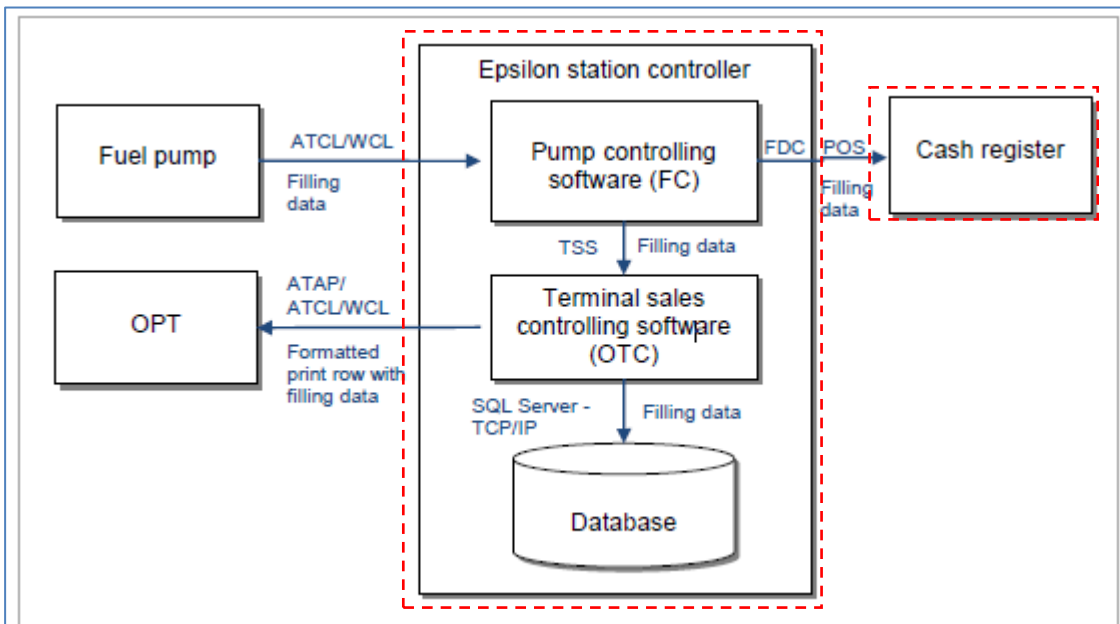
Epsilon station controller is an application for a filling station for control of devices and services like fuel pumps, payment terminals, price signs and tank gauge equipment.

The filling data is created by the pump and sent to the pump controlling software FC (Forecourt Controller) in the Epsilon computer. The low level pump communication is done with the protocols ATCL and WCL. Payment terminal receipts are formatted by the Outdoor Terminal Controller (OTC), a row with “secured” legally relevant data starts with a §-character.

Filling data flow for using either TSS protocol or IFSF FDS POS protocol communicating with external Cash registers.



System overview for filling data flow, with TSS protocol. Marked in red are the parts included in the certificate



System overview for filling data flow, with IFSF FDC POS. Marked in red are the parts included in the certificate

The Epsilon application is executed on a standard PC, an Epsilon Station Controller.

The Epsilon application uses the computer's hard drive for storing all software components and persistent data.

For user interaction there is a graphical user interface application abbreviated as ESS (Epsilon Setup and Supervision). This is the only part of the Epsilon software that is visible for the normal users. With ESS it is possible to see the current status for connected pumps and terminals, to see the system journal (memory device for long term storage) where significant system events and business transactions are written, to read and change different system parameters such as device configurations, fuel prices etc.

When a cash register application executes in another computer than Epsilon, using TSS protocol, a software component, Epsilon Express, is used in the cash register computer to access and retrieve filling data from the Epsilon computer. This component communicates with FC (in the Epsilon computer) and with the cash registers application. Epsilon Express only displays the filling data for the cashier, not for the customer. Epsilon Express provides most functionality and a user interface that the cashier needs for daily operations of the pumps and terminals. The Epsilon Express graphical interface can either be embedded in the user interface of the cash register application, or run as a standalone window in parallel with the cash register application.

An operator interacts with the system either through ESS in the station controller or through the cash register by using the Epsilon Express interface.

If cash register application uses the FDC POS protocol to communicate with Epsilon, the user interface for filling data handling is native to that POS application.

	ESS (Epsilon Setup and Supervision)	Epsilon Express
Read fuel prices	X	X
Change fuel prices	X	X
Set the operation mode (Day/Night/Closed) for the station controller	X	X
Presentation of current status for pumps	X	X
Presentation of current status for terminals	X	X
Presentation of available filling data for each pump	X	X
Open, close, block, unblock and reset of a pump or all pumps	X	X
Open, close, reset of a terminal or all terminals	X	X
Release of a pump		X
Release of a pump with preset max volume or value		X
Fuel data reservation and registration to a sale		X
Fuel sale and finalization (i.e. the filling data is regarded as sold by the station controller)		X
Reserved fuel data cancellation		X
Registration of a fuel sale as drive off		X
Reactivation of a finalized fuel sale (for corrections of erroneous fuel sales and revoke of drive off registrations)		X
Connect and disconnect of a pump or all pumps	X	
Connect and disconnect of a terminal or all terminals	X	
Pump reset of filling data memory (rare error situations)	X	
Configuration of all settings for pumps and terminals	X	

Epsilon is a part of a self service arrangement. It supports the following service modes and types of payment:

	Attended post-payment	Attended pre-payment	Unattended delayed-payment	Unattended pre-payment
Epsilon	Yes	Yes	Yes	Yes

1.2. Components included

The hardware of the self-service device should comply with the EMC-directive and other applicable directives as specified in the Declaration of Conformity of the self-service device.

Computer	Dell, DC8M or equivalent with CE-marking suitable climate specification, Dual core processor, 2 GB system memory and 2x80 GB raid hard disk drive or better performance
Operating system	Microsoft Windows XP Professional Version 2002 Service Pack 3 or higher, or Microsoft Windows 7 Professional Service Pack 1 or higher
Application software	Epsilon version 1.635.488.0 or higher
Legally relevant software	MIDControl.dll, version 1.0.0.3, checksum 64FAFD3F67C480F0908F80B0ACE2689B
Communication interface	ATCL-box, Autotank 111575-04
Display	Dell, E193FPp or equivalent with CE-marking
Keyboard	Dell, RT7D50 or equivalent with CE-marking
Mouse	Dell, 0X7636 or equivalent with CE-marking

Software specification according to Welmec Guide 7.2:

Software type U
 Risk class C
 Extension L, T, S, D

1.3. Optional equipment and functions subject to MID requirements

Not applicable

1.4. Technical documentation

For market surveillance the construction and included components are described in 1.1 and 1.2. The metrological parts of the software are identified by the "MIDControl.dll" checksum, which can be accessed according to 5.3.

1.5. Integrated equipment and functions not subject to MID

The following equipment may be connected to Epsilon (without change of this certificate):

- price signs
- tank gauge equipment

2. Technical data

2.1. Rated operating conditions

Station controller intended for an interruptible measuring system for liquids other than water for direct sales to the public. The device includes indication for the seller and a memory device for unattended service mode. It handles price presetting, unattended pre-payment and unattended delayed payment.

Measurement range

Scale interval, volume (memory, receipt*)

same as dispenser, but not smaller than 0,01 l

Scale interval, price (memory, receipt*)

same as dispenser, but not smaller than 0,01 "PRICE"

**receipt information is formatted by Epsilon, no printer included*

Accuracy class of measuring system

0,5 or higher

2.2. Other operating conditions

Not applicable.

3. Interfaces and compatibility conditions

The SSD with the following interface boards and protocols as stated in the table below was tested and found in compliance with WGs 8.8, 10.10 and 7.2. (Communication with other parts of a measuring system, e.g. fuel dispensers, POS-systems, payment terminals, or for TSS internally in Epsilon station controller.)

The pump controlling software (FC) in Epsilon calculates a checksum (a MID control value) over the filling data immediately when filling data is received from a pump. The MID checksum follows the filling data through the system, and can always be used to verify the authenticity of the filling data.

The filling data is sent to the terminal sales controlling SW (OTC) or to a connected cash register depending on the sales sequence. OTC and the cash register use the checksum to verify the authenticity of the data before displaying it to the customer and finalizing the payment, and signs the printer rows before sending them to the terminal.

As for the terminal handler, it also signs printer rows with legally relevant data using the corresponding external signature key as in the OPT "SecureMIDModule.dll" and sends the rows attached by the generated checksum to NC3/NP3. NC3/NP3 "SecureMIDModule.dll" checks the checksum and the printer will only print legally relevant data, if the checksum is correct. The printed row with legally relevant data will start with a §-character.

The actual implementation of the MID protection measures in the cash register is described in the MID certificate/EC/PC for each cash register type

Data protocol	Physical interface
ATAP	Ethernet (computer port)
ATCL	ATCL-box
WCL	ATCL-box
TSS	Ethernet (computer port)
IFSF FDC POS	TCP/IP based protocol defined by IFSF1. Defines communication between a POS (<i>Point of Sale</i> , like a cash register) and the FDC (<i>Forecourt Device Controller</i>)

The device may only be used in a measuring system with:

- all volume indications having the same scale interval as Epsilon (but not smaller than 0,01 l)
- all price indications having the same scale interval as Epsilon (but not smaller than 0,01 "PRICE")

4. Requirements on production, putting into use and utilisation

4.1. Requirements on production

No special requirements identified.

4.2. Requirements on putting into use

Functional test performed after each Epsilon installation on site.

- Test filling from Outdoor payment terminal
 1. Test Chip Bankcard for authorization and release of pump
Print receipt and check that data is correct and same as on the pump display
 2. Test Magnetic stripe Oil company card for authorization and release of pump
Print receipt and check that data is correct and same as on the pump display
- Test filling with release from Cash register on attended station
 1. Lift nozzle or if applicable Press Cash button to release pump from POS
 2. Test payment with chip Bankcard on Indoor Card reader
Print receipt from Cash register and check that data is correct and same as on the pump display

Test payment with Magnetic stripe Oil company card on Indoor card reader

Print receipt from Cash register and check that data is correct and same as on the pump display

4.3. Requirements for consistent utilisations

No special requirements identified.

5. Control of the measuring tasks of the device in use

5.1. Documentation of the procedure

No special requirements identified.

5.2. Special equipment or software, if applicable

No special requirements identified.

5.3. Identification of

Hardware

The construction and included components are described in 1.1 and 1.2.

Software

The legally relevant software module is identified by the "MIDControl.dll" checksum (see 1.2). To identify the software used in Epsilon and connected cash registers, use the following utility:

MIDInspector.exe is an inspection utility for reading the installation date and time, installed name, version and checksum for the current and any previous version of the legal software for Epsilon. This console application is executed from a command prompt and will read the encrypted history from the registry. The complete history for the Epsilon legal software will then be printed in the console window. To execute the application, open a command window and enter the following commands:

```
cd %ProgramFiles%\Autotank\MID
MIDInspector.exe
```

The history will now be printed. If a permanent result is desired, the output may be redirected to a text file, just as with any console command.

EPSILON MID INSPECTION REPORT

[Date] [Time]

```
-----
Module name: [Module name]
Current version:
MID Version: [Version of the current secure MID module]
MID Checksum: [CRC of the current secure MID module]
Installation date: [YYYY-MM-DD hh:mm:ss]
Version History:
MID Version: [Version of the previous secure MID module]
MID Checksum: [CRC of the previous secure MID module]
Installation date: [YYYY-MM-DD hh:mm:ss]
Installation result: [Success or Failure]
MID Version: [...]
MID Checksum: [...]
Installation date: [YYYY-MM-DD hh:mm:ss]
Installation result: [Success or Failure]
End of report
```

5.4. Calibration-/adjustment procedure

Not applicable.

6. Security measures**6.1. Sealing**

The Epsilon station controller is not sealed.

6.2. Data logger

Da Data base in station controller acts as memory device for unattended delayed payment with cards.

7. Labelling and inscriptions**7.1. Information to be borne by and to accompany the device**

The marking plate/label mounted on the Epsilon PC shall contain the following information:

- the name and address of the manufacturer
- the serial number of the Epsilon PC and year of manufacture
- the designation or type name
- the Evaluation Certificate number, **127613**
- place for identification of the connected fuel dispenser (s)
- place for the verification sticker

7.2. Conformity marking (ref: MID 2014/32/EU article 19)

This Parts Certificate is not an EU-type examination Certificate. Therefore, the station controller must **not** be marked with the supplementary metrology marking "M xx", following the CE marking.

7.3. Further inscriptions, if necessary

No special requirements identified.

7.4. Evaluations carried out for this Evaluation Certificate

The evaluation under this certificate is recorded in Evaluation Report PX13580-02 (referring to test and examinations in reports PX13580, PX13580-01, 6P07461-01 and P114882).

A summary of the evaluation under this certificate is given below.

Description	+	-	Remarks / RISE reports
Relevant parts of the checklist R117-1	*		PX13580, 6P07461-01

Welmec guide 7.2 ¹⁾				
Extension	Description	+	-	Remarks
Type P	Requirements on basic configuration	/	/	---
Type U	Requirements on basic configuration	*		PX13580-01, 6P07461-01
Extension L	Requirements on data storage	*		PX13580-01, 6P07461-01
Extension T	Requirements on interfaces	*		PX13580-01, 6P07461-01
Extension S	Requirements on software separation	*		PX13580-01, 6P07461-01
Extension D	Requirements on software download	*		PX13580-01, 6P07461-01
Extension I	Specific software requirements	/	/	---

¹⁾ Requirement/type according to Welmec Guide 7.2

* Fulfils requirements / = Not applicable

Description	+	-	Remarks / RISE reports
Software requirements relevant parts of OIML R117-1:2019 and OIML D31:2019	*		P114882

Certificate History		
Issue 1	2011-12-11	Certification of station controller Epsilon
Issue 2	2016-12-16	Updated the certificate after a new software evaluation
Issue 3	2021-12-20	Renewal for 1 year.
Issue 4	2022-09-14	Renewal of the certificate and evaluated the software for the requirements of OIML R117-1 and OIML D31.