

Member State of OIML  
United Kingdom of Great Britain  
and Northern Ireland

OIML Certificate No  
R21/2007-GB1-14.01

## OIML CERTIFICATE OF CONFORMITY

Issuing authority: **National Measurement Office**

Person responsible: **Paul Dixon – Certification Services Director**

Applicant: **ITALTAX SRL**  
**Via dell'Industria, 16**  
**62017 Porto Recanati (MC)**  
**Italy**

Manufacturer: **The applicant**

Identification of the  
certified pattern: **F1+**

This certificate attests the conformity of the above-mentioned pattern (represented by the samples identified in the associated test report) with the requirements of the following Recommendation of the International Organisation of Legal Metrology (OIML):

### OIML R21 - Edition 2007(E)

This certificate relates only to the metrological and technical characteristics of the pattern of the instrument concerned, as covered by the relevant OIML International Recommendation.

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

Important note: Apart from the mention of the certificates reference number and the name of the OIML Member State in which the certificate was issued, partial quotation of the certificate or of the associated test report is not permitted, though they may be reproduced in full.

The conformity was established by tests described in the associated pattern evaluation report P01284 which includes 14 pages.

**Issue Date: 11 December 2014**  
**Reference No: TS16/0007**



**Signatory: P R Dixon**

## **Characteristics of the instrument:**

### Characteristics:

The pattern is a taximeter designated the F1+, designed to be installed in a road vehicle for the calculation of fares. The fares are calculated based on measurement of distance and time; the instrument operates in calculation modes S (single application of tariff) or D (double application of tariff). The instrument is powered via the vehicle battery.

The distance measuring device (transducer) is not covered by this certificate.

### Main features:

The instrument comprises a PCB housed within a plastic enclosure, two LED displays, five push buttons and a tariff LED.

The plastic enclosure consists of front and rear parts held together with screws, with a removable part on the left-hand side allowing access to the communication ports and test connector. An additional back plate is fitted at the rear of the instrument to prevent access to the screws sealing the front and rear parts. The side part and rear plate are held together via a screw, which is used to seal the instrument in the vehicle.

The PCB holds all the electronics, including the components associated to the remote download of tariff (GPRS modem, GSM Simcard, GSM antenna). The tariff LED is used to identify the current tariff by a colour.

### Devices:

- Display check
- Calculation modes S or D
- Fare calculation (initial fare, fare increments, extras)
- Display of rate, mode (For Hire, Hired, Stopped) and fare (actual fare and total fare with extras)
- Loading of tariffs and software
- Remote download of tariff ("Over The Air")
- Real time clock
- Long-term totalisers (non-resettable)
- Display of parameters and software information (read-only)
- Test connector

### Interfaces:

- 2 x RS232
- Passenger Sensor
- External Lights Input
- Odometer Input
- Magnetic Card reader
- Dallas 1-Wire Net
- Digitax Printers
- Optional CAN Bus input
- Optional Bluetooth serial port module (SPP)

Technical data:

Power supply	9 to 16 VDC (12 V nominal)
Taximeter constant k	500 to 65,535 pulses/km
Maximum speed	200 km/h
Pulse voltage amplitude (low/high)	0 - 0.3 VDC / 5 -12 V DC
Pulse frequency	≤ 1 kHz
Minimum pulse width	50 μs
Electromagnetic environment	E3
Mechanical environment	M3
Climatic environment	-20°C to +70 °C
	Non-condensing (closed)

Software:

The legally relevant software is held in the firmware and is unambiguously identified by its release name and CRC-16 checksum value.

The firmware release name and CRC versions programmed in the taximeter can be displayed as follows:

- From For Hire Position press at the same time K2+K3+K4
- Wait few seconds
- In the left display will be shown the CRC Firmware number
- In the right display will be shown the Country identification with 3 letters and 2 numbers.

The software identification shall be as follows:

Software release name	CRC (checksum value)	Country / Language
F1C10	49860	Generic / Programmable

Software download is only possible via the Service programming key, which is protected by the mechanical seal described in the Sealing measures section.

Remote download of tariff:

The instrument allows the remote download of tariff (“Over The Air”, OTA), without breaking the mechanical seal.

In order to be able to download the tariff and the firmware OTA, the taximeter has to be enrolled to the OTA Server. This is a manual procedure that is started from the taximeter, using a dedicated ID memory key, and then confirmed from the OTA Server.

Taximeter communication with the OTA server is protected using SSL and uses both client and server certificates for authentication. Access to the OTA Server Web Interface is only allowed using HTTPS and registered security tokens for client and user identification and authentication.

Using the OTA Server Web Interface, it is possible to load a new tariff or firmware into the server, and then download them to all the registered taximeters or only to a group of them. Each taximeter periodically polls the OTA server, and if a new tariff or firmware is found then it

## OIML Certificate No R21/2007-GB1-14.01

is automatically downloaded, authenticated and programmed into the taximeter itself, without the need for breaking the mechanical seal.

The tariff is protected by a CRC-16 checksum, the checksum value can be displayed on the taximeter by pressing K1+K4 keys in For Hire status: the taximeter will start the display self-check procedure and at the end will show the tariff CRC in its main display and the firmware name in the secondary display.

### Sealing measures:

The taximeter is fitted with a sealing point preventing access to the metrological components and sealing the instrument to the car.

### **Certificate History**

<b>ISSUE NO.</b>	<b>DATE</b>	<b>DESCRIPTION</b>
R21/2007-GB1-14.01	11 December 2014	Certificate first issued
-	-	No revisions have been issued.