



NMO



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

OIML Certificate No
R21/2007-GB1-16.02

OIML CERTIFICATE OF CONFORMITY

Issuing authority: **NMO**
Person responsible: **Max Linnemann – Head of Certification Body**
Applicant: **ITALTAX SRL**
Via dell'Industria, 16
62017 Porto Recanati (MC)
Italy
Manufacturer: **The applicant**
Identification of the certified pattern: **M1 PLUS**

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 R 21 - 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.

Issue Date: 29 July 2016
Reference No: TS16/0015

Grégory Glas
Technical Manager
For and on behalf of the Head of Certification Body



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The conformity was established by testing and examinations described in the associated Evaluation Report P01867 which includes 15 pages.

Characteristics of the instrument:

Characteristics:

The pattern is a taximeter designated the M1 PLUS, 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 is incorporated in a vehicle rear-view mirror and comprises a PCB housed within a plastic enclosure, five push buttons, two LED displays, a mirror, a tariff LED and a status LED behind the mirror.

The plastic enclosure consists of front and rear parts held together with screws, with removable parts preventing access to the PCB, communication ports and test connector.

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)
- Display of distance and time for the journey
- Loading of tariffs and software (via sealed interface)
- Real time clock
- Long-term totalisers (non-resettable)
- Display of parameters, software and tariff information (read-only)
- Remote download of Tariff ("Over the Air")
- Test connector

Interfaces:

- 2 x RS232
- Passenger Sensor
- External Lights Input
- External Lights power output
- Odometer Input
- Optional CAN Bus input
- Optional Bluetooth serial port module (SPP)
- Test Connector
- Service/Programming Keys

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	-25°C to +70 °C
	Non-condensing (closed)

Firmware:

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
M1C01	57580	Generic / Programmable

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 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 sealing points preventing access to the metrological components and sealing the instrument to the car.

CERTIFICATE HISTORY

ISSUE NO.	DATE	DESCRIPTION
R21/2007-GB1-16.02	29 July 2016	Certificate first issued.
-	-	No revisions have been issued.