OIML Certificate

OIML Member State
The Netherlands

Number R21/2007-A-NL1-22.02 revision 0
Project number 2629441

Issuing authority	NMi Certin B.V. Person responsible: M.Ph.D. Schmidt
Applicant and Manufacturer	Howen Technologies Co., Ltd. 6th Floor, Block B, Jiada Research & Development Building Songpingshan Road, Nanshan District Shenzhen City, Guangdong Province China
Identification of the certified type	**Taximeter** Type: Hero-MDT-AT5
Characteristics	See following page(s)

This OIML Certificate is issued under scheme A.

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

R 21 (2007) "Taximeters"

This Certificate relates only to the metrological and technical characteristics of the type of taximeter covered by the relevant OIML International Recommendation identified above.
This Certificate does not bestow any form of legal international approval.

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

Issuing Authority

NMi Certin B.V., OIML Issuing Authority NL1
1 July 2022

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The conformity was established by the results of tests and examinations provided in the associated report(s):

- Number NMi-2629441-01 dated 1 July 2022 that includes 36 pages.

Characteristics of the taximeter

Electromagnetic immunity class		E3	
Mechanical environment class		M3	
Climatic environment	temperature range	-25 °C / +55 °C	
	humidity	condensing	
	intended location	closed	
		Range	Resolution
Distance signal generator constant *k* [km^{-1}]		500 to 10000	1
Time tariff [CU/h]		0 to 200	0,01
Distance tariff [CU/km]		0 to 20	0,01
CU = Currency Unit			
Time measuring signal frequency		50 Hz	
Power supply voltage		12 V DC	
Software identification		Version number: 2.0.0 Checksum: 2569609129	

The taximeter is described in the annexes:

- Description Number R21/2007-A-NL1-22.02;
- Documentation folder Number. R21-22.02-1.

Certificate history:

Revision	Date	Description of the modification
Initial	1 July 2022	Initial issue

1 General information about the taximeter

All properties, whether mentioned or not, may not be in conflict with the legislation.

1.1 Essential parts

Number	Pages	Description	Remark
21-22.02/0-01	1	Block Diagram	-
21-22.02/0-02	2	AT5 Board	Layout
21-22.02/0-03	6	AT5 Board	Parts list
21-22.02/0-04	1	Power box	Layout
21-22.02/0-05	1	Power box	Parts list

EMI measures:
- Added ground wires to prevent interference between signals;
- EMC components added to AT5 PCB board to ensure reliability of the system.

Secured interfaces:
- USB;
- NFC.

Distance information:
- Distance sensor pulse input
  - Low voltage : max 0,8 V
  - High Voltage : min 3 V
  - Trigger : Low-High transition

1.2 Essential characteristics

Displaying parameters:

From operation position:	For hire
To display:	Press:
totaliser data	
software checksum	
tariff checksum	
device constant	
non-resettable counter for device constant	
applied tariffs initial fee distance tariff time tariff initial distance initial time monetary step	 Initial Hire Fee Distance tariff Time tariff Initial distance Initial time Fare increment
	Explanation buttons or keys

Legally relevant functions:
- Calculation modes S or D, incorporated in the tariff structure;
- Operating positions "For Hire", "Hired", "Stopped";
- Totaliser data;
- Long term data storage;
- Checking plausibility of distance measurement signal:
  - Speed > 200 km/h;
  - Interruption of distance sensor signal line.
- Test connector:

Number	Pages	Description	Remark
21-22.02/0-06	1	Test Connector	-

1.3 Essential shapes

Number	Pages	Description	Remark
21-22.02/0-07	1	Exploded view taximeter	-
21-22.02/0-08	1	Drawings connector box	-
21-22.02/0-09	1	Exploded view Powerbox	-

Markings:
- fulfil the requirements stated in the legislation;
- the descriptive markings plate is fixed to the front of the taximeter.

1.4 Conditional parts

The taximeter may be equipped with the following peripheral device(s):
- Printer with electromagnetic environment class E3.

1.5 Non-essential parts

The taximeter may be connected to non-essential devices, for example but not limited to mobile data terminal, card readers, seat sensors and roof lights, provided that:
- They do not present primary data not presented by the taximeter;
- They do not lead to an instrument having other essential characteristics than those fixed by this type-examination document.

2 Seals

To secure components that may not be dismantled or adjusted by the user, the taximeter has to be secured in a suitable manner on the locations indicated in the drawing:

Number	Pages	Description	Remark
21-22.02/0-10	3	Sealing	-

A NFC card is needed for the following functions:
- Manual tariff change;
- Changing k-constant;
- Change time.

When a NFC card is used, the event logger and checksums record the changes.

Sealing and separate securing of parameters:
- The general settings (including settings depending on national regulations) are protected by identifier and checksum;
- The tariffs are protected by identifier (date) and checksum and secured by NFC card;
- The adjustments to the taximeter are protected by mechanical seal and event counter;
- Depending on national regulations the identifiers and/or checksums and/or event counter value(s) are marked on the prescribed provision.

3 Conditions for conformity assessment

The marks, facilities for the marks and the inscriptions on the taximeter fulfil the requirements of OIML R 21.