EC type Examination Certificate

0402-MID-SC0260-13

Issued to
Digitax, Voltavägen 2-4, 168 69 Bromma, Sweden

In respect of (type of instrument)
Taximeter Digitax F1+

In accordance with
The Measuring Instruments Regulations STAFS 2006:4 and The Regulations and Guidelines concerning Taximeters STAFS 2006:11 dated 2006-07-21, implementing in the NB's country law the Directive 2004/22/EC of 31 March 2004 on measuring instruments (MID).

Harmonised standards and normative documents used
OIML R21 Taximeters Metrological and technical requirements, test procedures and test report format (applied partly)

Further applied documents
WELMEC 7.2, Software Guide (Issue 5)
OIML D 11 Edition 2004 (E), General requirements for electronic measuring instruments
Information regarding applied environmental testing is evident from clause 9 of the appendix.

Rated operating conditions

Measurand:	Time and or distance	Mechanic environment class:	M3
Measurement range:	Maximum 6 digits on the display (corresponding to the fare to be paid)	Electromagnetic environment class:	E3
Accuracy:	- Time elapsed: ± 0,1 % - Distance travelled: ± 0,2 % - Calculation of the fare: ± 0,1 % - Measuring range: 500-65535 pulses/km	Climatic environment:	-25 to +70 °C Condensing Closed (installed in a car)

Miscellaneous
Valid until October 7, 2025.

The principal characteristics, approval conditions are set out in the appendix hereto, which forms part of the approval documents and consists of 9 pages. All the plans, schematic diagrams and documentations are recorded under reference files ELe 3P01594.

2015-10-07

SP Technical Research Institute of Sweden
Certification - Notified Body No. 0402

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The instruments / measuring systems must correspond with the following specifications:

1 Design of the instrument

1.1 Construction

Product names
F1+ consists of
F1+ (Centeral processor unit with display)
Printer Due (Printer) can be connected to the system, but is not a requirement according to directive 2004/22/EC

Measuring system description
The taximeter is designed to measure time and receive information to calculate distance. Time is measured by its internal real time clock and distance is calculated by the number of pulses received from the pulse generator of the car in relation to the given pulse constant. The supply voltage is taken from the battery of the vehicle. For connections see the schematic picture below.

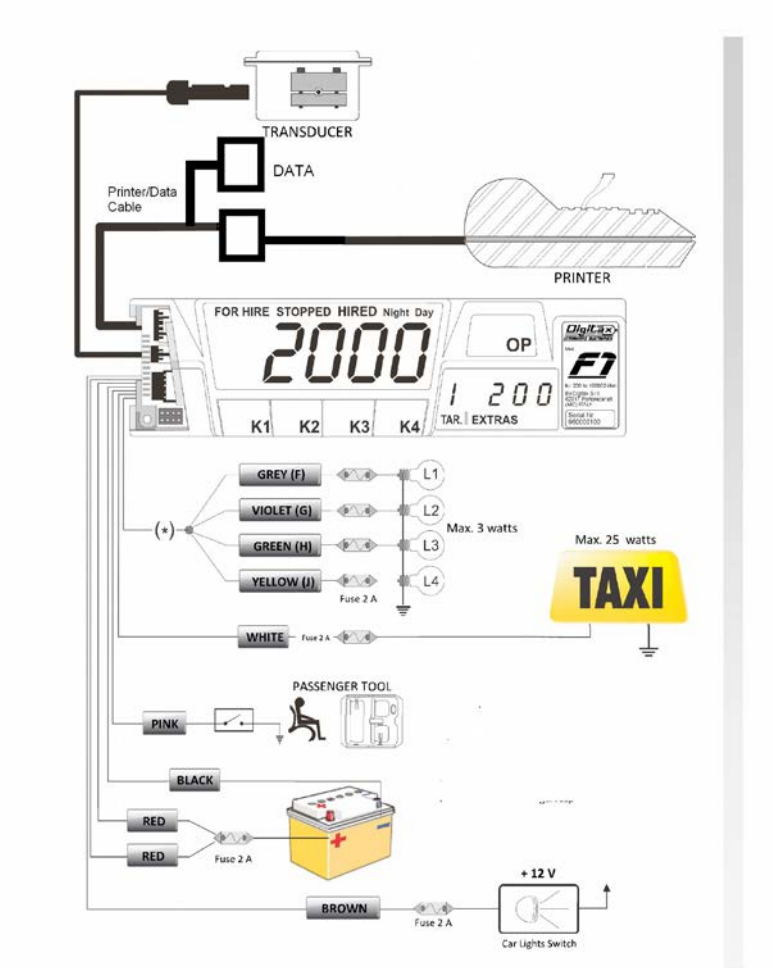

Figure 1: Taximeter connections

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Figure 2: Central Processor Unit (CPU) with display, Digitax F1+

Figure 3: Printer Due

Supply voltage
Taximeter and printer 11-16V

Connection to pulse generator of the vehicle
The pulse from the pulse generator of the car is to fulfil the following the requirements according to the manufacturer:

Odometer Transducer Input

Input range:	0 to 16V
Level for LOW voltage:	0-0.3V
Level for HIGH input:	12-VCC
Maximum frequency:	1 kHz
High voltage trigger:	high – low transition

1.2 Software

The validation of software was based on the essential requirements given in MID and WELMEC Guide 7.2. A report with number 3P01594-01, dated 2015-08-25 was issued and is held by SP.

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Software version

The following program versions are approved:

Type of program	Program version	Checksum
Taximeter program F1+	SVM04	47966

Table 1: Software versions

The software identification number and the checksum can be seen in the following way:

Example:
SVM04 (47966)

SVM is the country specific version
04 is the part version
(47966) is the checksum

The program version and checksum can be seen by the following way, press down “K2”, “K3” and “K4” keys at the same time. The program version will be shown in the small display and the checksum in the large display.

Alternatively if a printer is connected the program version and checksum can be read by making a “Taxameterkontroll”* (Taximeter) by pressing “K1” and “K3” at the same time.

* The mode “Taxameterkontroll” is a print-out intended for the police or other authority in order to check e.g. the totalisers, the date of securing and the tariff values.

1.3 Components included for electronic function

According to documentation “Annex to application for conformity assessment of Taximeters in according to MID”, dated 140509.

1.4 Optional equipment and functions subject to MID requirements

None identified

1.5 Technical documentation

For market surveillance the construction, software and included components are described in 1.1, 1.2 and 1.3.

1.6 Integrated equipment and functions not subject to MID

Software to fulfil national requirements or to communicate with booking central etc. must not influence the accuracy of measurements such that the maximum permissible error is exceeded or the required functions are changed.

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2 Technical data

2.1 Rated operating conditions

Measurand
Time and or distance.

Measurement range
Maximum levels for the taximeter:
Total distance: 4 294 967 295 km
Total distance in taxi traffic (driver logged in): 4 294 967 295 km
Total number of hirings: 4 294 967 295 pcs.
Total amount: 4 294 967 295 monetary units
Total amount supplements: 4 294 967 295 monetary units

Accuracy
- Time elapsed: ± 0,1 %
- Distance travelled: ± 0,2 %
- Calculation of the fare: ± 0,1 %
- Pulse range: 500-65535 pulses/km

Environments classes / influence quantities

Mechanic:	class M3
Electromagnetic:	class E3
Ambient temperature limits:	-25°C to +70°C
Humidity:	condensing
Location:	closed (inside a car)

2.2 Other operating conditions

Not applicable.

3 Interfaces and compatibility conditions

See clause 1.1

4 Requirements on production, putting into use and utilisation

The requirements of the installation manual are to be followed when installed in a car and put into use.

4.1 Requirements on production

No special requirements identified.

4.2 Requirements on putting into use

The taximeter must be adapted to the vehicle.

4.3 Requirements for consistent utilisations

No special requirements identified.

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5 Control of the measuring tasks of the instrument in use

5.1 Documentation of the procedure

The procedure to control the accuracy after installation in a car is described in the user's manual.

5.2 Special equipment or software, if applicable

A calibrated stop watch or other time measure equipment is needed.

5.3 Calibration-/adjustment procedure

The taximeter can be controlled after installation in a car in the following way.

Accuracy of distance measurement
To check the accuracy of distance measurement the following procedure is to be followed:

Press the keys "K2" and "K3" at the same time, the large display will show "AnPctl" (Adaptation control). Press "K2" when the verified distance starts and press "K2" again when 1000m is passed. The taximeter is showing the number of pulses received when driving the distance in the small display. If a printer is connected a print-out will be given.

The adaptation control can only be performed in the operation position "Ledig" (For hired) and "Avstängd" (Off).

Use a verified distance of 1000m to carry out the control.

To change the taximeter constant the sealing must be broken and a black key is used. Press "K2" and "K3" buttons at the same time, the large display will show "Anpctl". After some second the large display will show the taximeter constant. The vehicle must have a minimum speed of 20km/h, start the measurement by pressing "K3" button, drive one kilometre and stop the measurement by pressing "K4" button. The new taximeter constant is shown in the large display. Press the "OP" button to close the menu and reseal the taximeter according to the installation manual.

Accuracy of time measurement
To check the accuracy of time measurement the following procedure is to be followed:

Start by pressing "K1" and start a calibrated stop watch at the same time. Wait at least 10 min. Stop both stop watch and taximeter counting "K2" at the same time. During the measurement the counted time is shown in the small display.
Use a calibrated stop watch to carry out the control.

The calculation of fare is done by the software and hence will be done in the same way if the same software is used as for the type examined taximeter.

To change the taximeter constant the sealing must be broken and a service program from the manufacturer must be used.

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6 Security measures

6.1 Sealing

There are two options to seal the taximeter into the vehicle:

First option: F1+ (CPU and display) is to be fastened to the vehicle by a sealing wire and a sealing screw, the sealing screw must be screwed through the taximeter.

Second option: A fixation plate is screwed in to the dashboard with 5 screws, the F1+ (CPU and display) is fixed to the fixation plate with one sealing screw and a sealing wire, the sealing screw must be screwed through the taximeter

The Cables for supply voltage, pulses and communication are connected inside the F1+ (CPU and display). The lid for the cables is sealed together with the sealing screw for fastening the F1+ (CPU and display) and a sealing wire through the screw.

Figure 4: Figurer of the taximeter F1+ (CPU and display) with the lid (removed from the taximeter) for sealing the power supply, printer and communication cable, and also the connection for the black key.

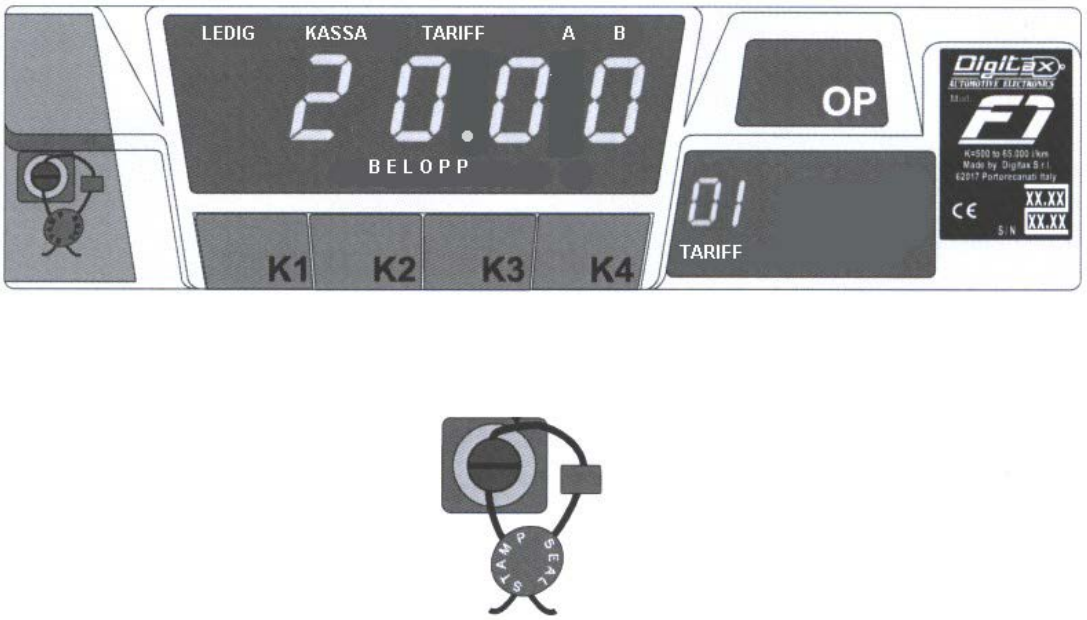

Figure 5: Figurer of the taximeter F1+ (CPU and display) with the lid and the physical sealing.

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6.2 Data logger

The totalisers are stored in FRAM (non-volatile) memory.

Change of program version will be stored in "E-seal" (Press "K2" until the text "Enh-Sh" is shown in the large display, press "K2" and the text "E-SEAL" is shown in the large display. Press "K4" to enter the E-seal menu). There are two different lists in the E-seal menu, one list for the event (with information regarding date, time and what has been changed. The other list is a list with the number of times the changes have occurred.

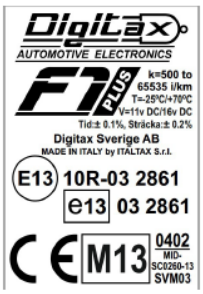
Name	Meaning
ATTEST	K-constant has been change
SEAL D	Taximeter is defaulted
TARIFF	Tariff setup is changed
CLOCK	Clock time is changed
MES	Ticket Header is changed
RESMEN	Memory block cleared
GDEFLT	Data Flash is changed
BIOS	Firmware is changed
LIGHTS	External lights are damaged
AVAILA	Not in use

Table 2:The registers in E-seal

7 Labelling and inscriptions

7.1 Information to be borne by the instrument

The marking on the instrument shall contain the following information:
the name of the manufacturer
the serial number
the designation or type name (according to "**Product names**" Appendix page 1)
the EC-type examination certificate number, MID SC
the accuracy class



Picture 6: Placement of marking on F1+

Picture 7: information to be given on the marking.

7.2 Conformity marking in accordance to MID article 17

The instrument shall be marked in accordance to MID article 17 which e.g. describes the CE-marking together with M, year of marking and the notified body number.

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7.3 Further inscriptions, if necessary

Further inscriptions e.g. e- or E-marking and national markings are necessary, but are not connected to this directive.

8 Manuals

The following manuals are to accompany the different systems in the official language of the country of use (the manufacturer is responsible for the translation of approved documents).

Program version	*Title of manual*	*Product*	*Documen t version*	*Date*	*Language of examined version*
SVM04 (47966)	Användarmanual SWE F1+MS V1.1	F1+	1.1	2015-10-07	Swedish

For installation purposes the manual “Monteringsmanual SWE F1+MS V1.0” revision 1.0 dated 2015-09-24 (examined in Swedish version) is to be followed for program version SVM04.

9 Applied environmental testing

Vibration
IEC 60068-2-64 revision 1, test Fh (this is a higher severity than Class M3 in accordance with OIML D11):
10-20 Hz: 0.05 g^2/Hz
20-500Hz: -3 dB/octave

Testing was carried out in three mutually perpendicular axes for 0.5 hours in each direction and the taximeter was connected to power during testing.

Dry Heat
OIML D11 with testing according at IEC 60068-2-2 test Bd, but with the duration 16h and the highest temperature +70°C.

The test object was connected to power during the test.

Cyclic damp heat/Cold
Testing of cold and damp heat was carried out in according with the climate sequence of IEC 60068-2-61.

First one cycle damp heat was carried out according to IEC 60068-2-30 edition 2 revision 1. test Db. temperature: +55 °C. The taximeter was not connected to power during testing.

After recovery in controlled atmosphere during 1 h ±5 min cold test according to IEC 60068-2-2 edition 5 revision 2 test Ab at -40 °C during 16 h was carried out. Functional testing was carried out at -25°C.

After finalisation of the cold test 5 cycles of damp heat was carried out according to IEC 60068-2-30. edition 2. revision 1. test Db. +55 °C. The taximeter was not powered during testing.

Emission

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EN 55022:2006, /A1:2007 class B

Immunity
OIML D11 12.2 Electrostatic discharged according to IEC61000-4-2, level 3
OIML R21 A.5.4.5.1 Radiated RF immunity according to IEC61000-4-3, 24 V/m
OIML R21 A.5.4.5.2 Injected RF immunity according to IEC61000-4-6, 204V
OIML D11 14.2.2 Automotive voltage transient immunity according to ISO 7637-2, level 4, pulses 1, 2a, 2b, 3a, 3b, 4 and 5
OIML D11 14.2.3 Automotive voltage transient immunity ISO 7637-3, level 4, pulses 3a and 3b

Certificate issue 1, dated 2015-10-07

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