

Digitax
AUTOMOTIVE ELECTRONICS



X-One Plus_{MOT}

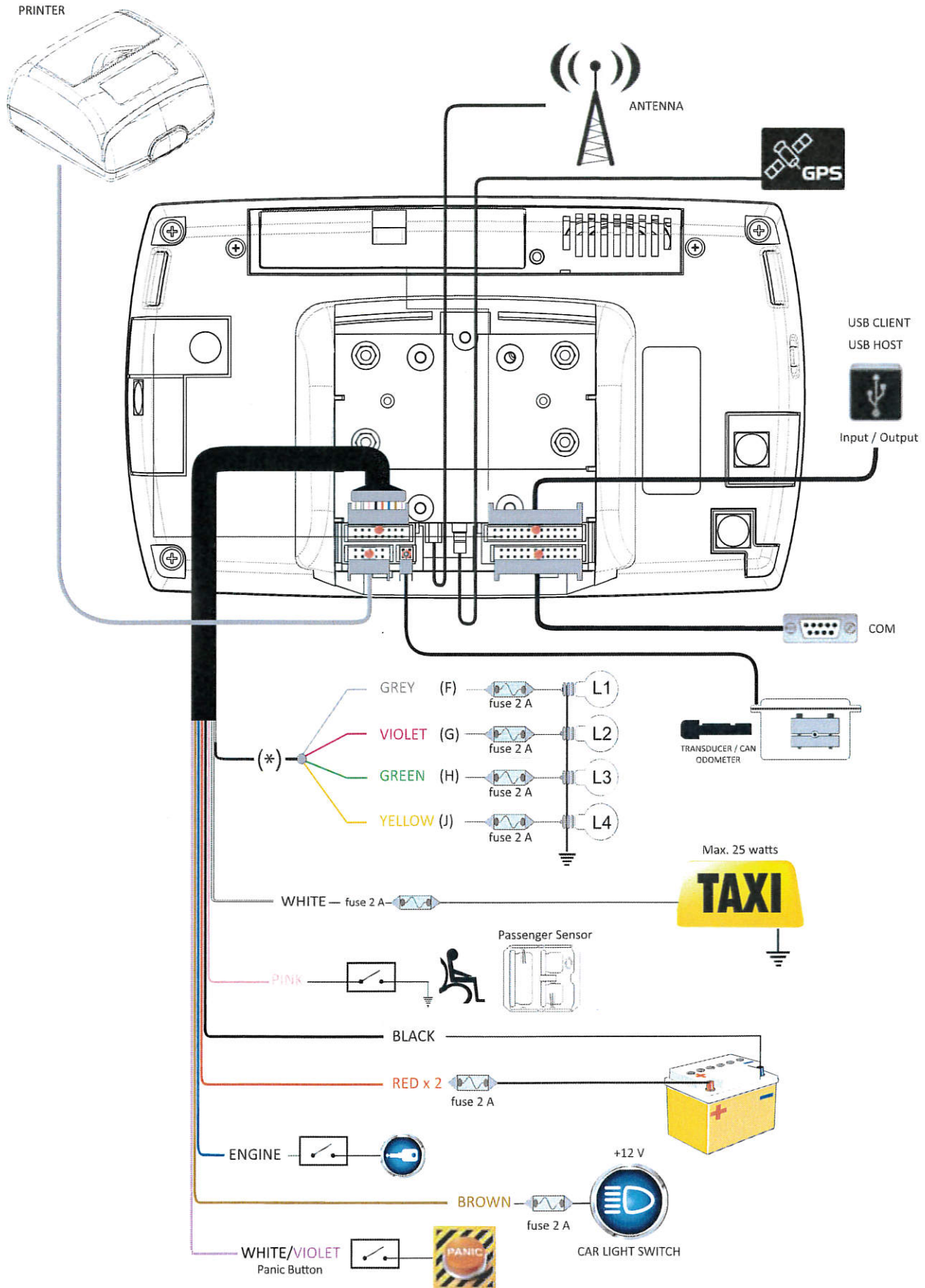
Taximeter & Mobile Data Terminal

Technical Manual Installation and Programming

ver.4

hardware v.2
14/04/2014

Electrical Connection Table



The K-Constant

(Car Transmission Ratio)

The "K Constant" is the number of pulses per Kilometer emitted by a transducer and received by a taximeter.

K Constant = Pulses/Kilometer

The pulses can be emitted by the car's electronic transducer or, if the car is not provide of it, by the Digitax mechanical one or by a third part interface. This constant can be known or be tested on road.

How to program a known K-constant value (autotest)

Take out the taximeter programming cover



Select **For Hire** position.

Insert the **Service Programming Key (1)** in its slot.

Press **F3** and **F4** buttons at the same time.



The ATTEST text appears on main display (3)

The main display (3) shows the programmed K-Constant value.

The extras display (5) shows the meters to be covered for the Autotest

ATTEST		AutoTest	
K constant			pulse/dist.

1000	AutoTest	1000	
K constant			pulse/dist.

Press **F3** button to increase the pulses/km number.

Press **F2** button to decrease the pulses/km number.

By pressing **F2+F3** at the same time the programmed K-Constant becomes 1000

Press **F5** to save the programmed value



100		1000	
-----	--	------	--



900		1000	
-----	--	------	--

Press **F1** button to end the procedure and go back to **For Hire**

position

Take out the **Service Programming Key (1)** from the taximeter.

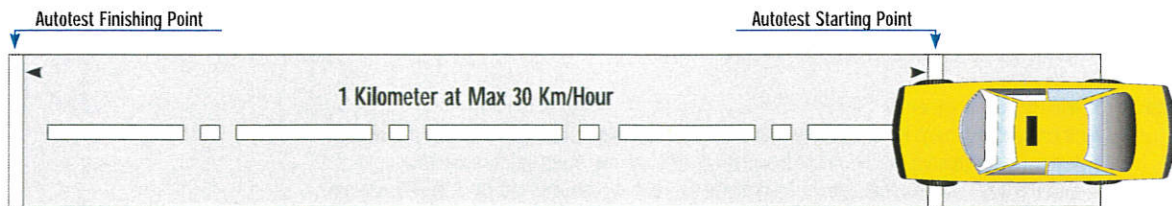


How to find out the K-Constant value (Autotest)

Follow this procedure to find out the car tansmission ratio (K-constant).

For a right procedure it must be done in a road with a carefully marked distance of 1 Kilometer(default).

Align carefully the car's front wheels with the test distance's start line.



Take out the taximeter programming cover

Select **For Hire** position.

Insert the **Service Programming Key (1)** in its slot.

Press **F3** and **F4** buttons at the same time.

The left display shows "Attest" for a few seconds.



ATTEST			
--------	--	--	--

Press **F4** button to reset all meter's counters.

The secondary display (5) will show the value 0.

Start driving at 30 km / hours maximum.

Drive to the Autotest Finishing Point (1 Km).



1000		1000	
------	--	------	--



995		0	
-----	--	---	--

Once the Autotest Finishing Point is reached, press **F5** button to finish the Autotest. Now the taximeter will calculate and record the new **K-Constant**. The main display (5) will show the new K-Constant value. The secondary display (5) will show the number of pulses generated during the Autotest.

Press the **F1** button in order to finish the Autotest procedure and come back to **For Hire** position.

Take out the **Service Programming Key (1)** from the taximeter.



680		680	
-----	--	-----	--

Diagnostic Tariff Test (Check Sum)

With this procedure it is possible to:

- calculate the tariff check sum
- print out the tariff program (if printer is connected and powered on)

How to enter the Self-Test function

Select **For Hire** position.
Press **F2** and **F5** at the same time.



N	000000	SelfCheck	000000
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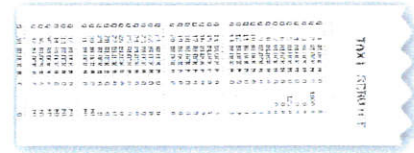
Both displays (3 and 5) will show in sequence the numbers from 0 to 9.

N	999999	SelfCheck	999999
---	--------	-----------	--------

The printer, if connected to the taximeter and powered on, will print out all the tariff setup.

	.	.	.
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After few seconds or when the printing procedure is finished the main display (3) will show **STOP** and then the tariff check sum corresponding to the binary addition of all the programmed parameters will appear, so each tariff will have its own resulting checksum. The secondary (5) display will show the firmware country identifier.



The taximeter will go back in **For Hire** position after few seconds

	Check Sum	For Hire	Firmware Version
	48513		XIG03
	Tariff CRC		Bios Vers

The Check Sum

To test Data Integrity, the Tariff Data is signed with a CRC16 function.

A 16 bit CRC Check Sum is therefore calculated from the Tariff Data, and saved for a future reference. The only two sections that are out from the check sum are the unique vehicle and owner parameters, like: "k" constant and ticket heading.

When the checksum function is activated:

- Tariff Programming through PC or Smart key: if the data buffer is corrupted, due to errors in data transmission, system errors or tampering, the CRC16 Check Sum will be different from that stored for comparison.
- At each Trip the Taximeter recalculate the Checksum of the Tariff and compares with the stored CS. reference; and in case of data corruption it auto locks the meter showing at any tentative of start a trip the message "Error Csum" so it can't work with a wrong tariff until reprogrammed.
- It is possible to recalculate the check sum manually, IE, by Inspectors in every moment but only when the meter is in **FOR HIRE** mode, by pressing together F2 + F5, to verify that the meter is programmed with the Right Tariff.

The CRC16 Check Sum is a number between 0 and 65535, and can be displayed on the Taximeter when wished.

Firmware Version and CRC

The taximeter firmware is identified by a version name and by a CRC16 checksum. The version name is composed by a 3 letters prefix, indicating the firmware type and eventual country version, and by a 2 digits sequential number that indicates the version for that firmware type, for example "FOG15".

The CRC16 is calculated internally by the taximeter on the whole firmware flash area. If a corruption is detected, than the taximeter is blocked. The firmware version can be displayed on the taximeter by pressing at the same time K2+K3+K4 when in For Hire status. Firmware name is shown in the main display, and firmware CRC16 is on the secondary display.

Algorithm Short Description:

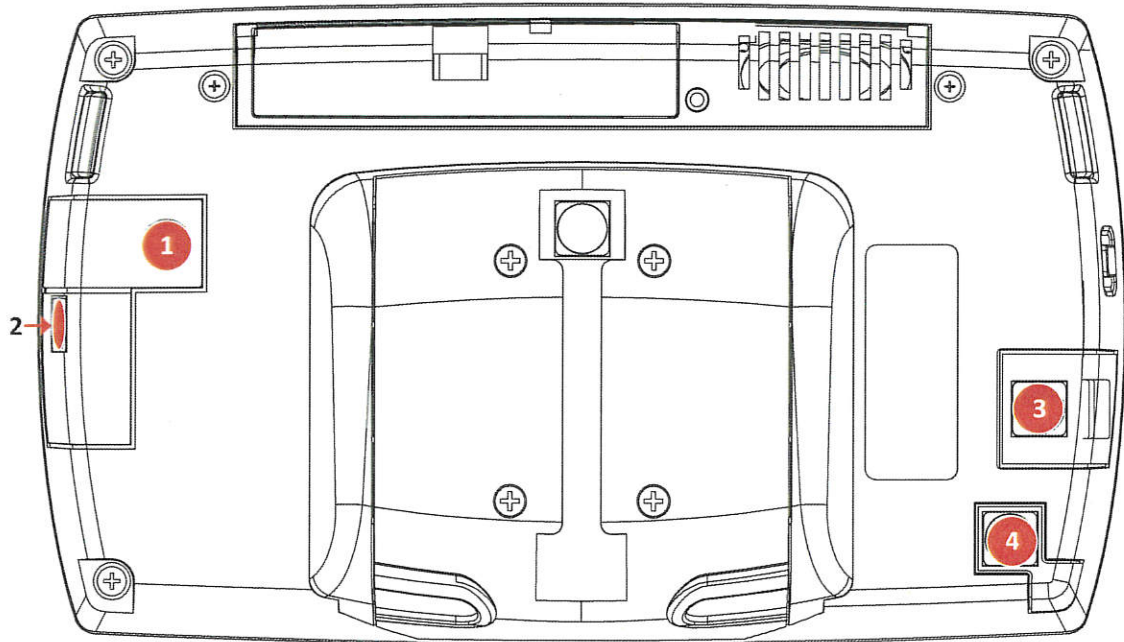
The CRC 16 Check Sum calculation in the Taximeter is the (CCITT CRC16). The polynomial used is:

Hex : 0x1021	Bin : 1000000100001
Register Init is Hex : 0000	CHECK = Hex : 31C3

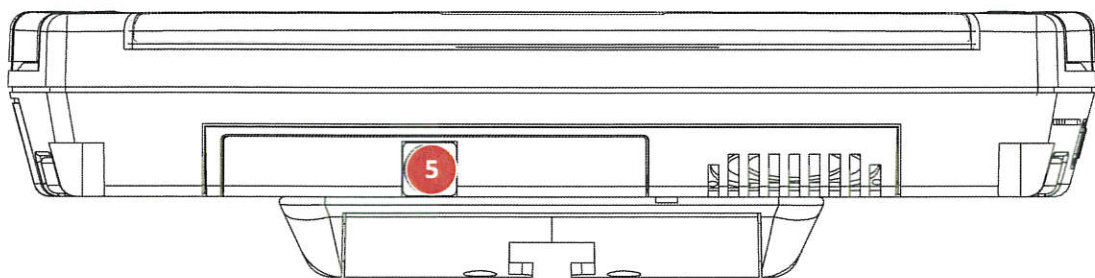
How to Seal the Taximeter

Regular Way of Sealing the Taximeter

Rear View



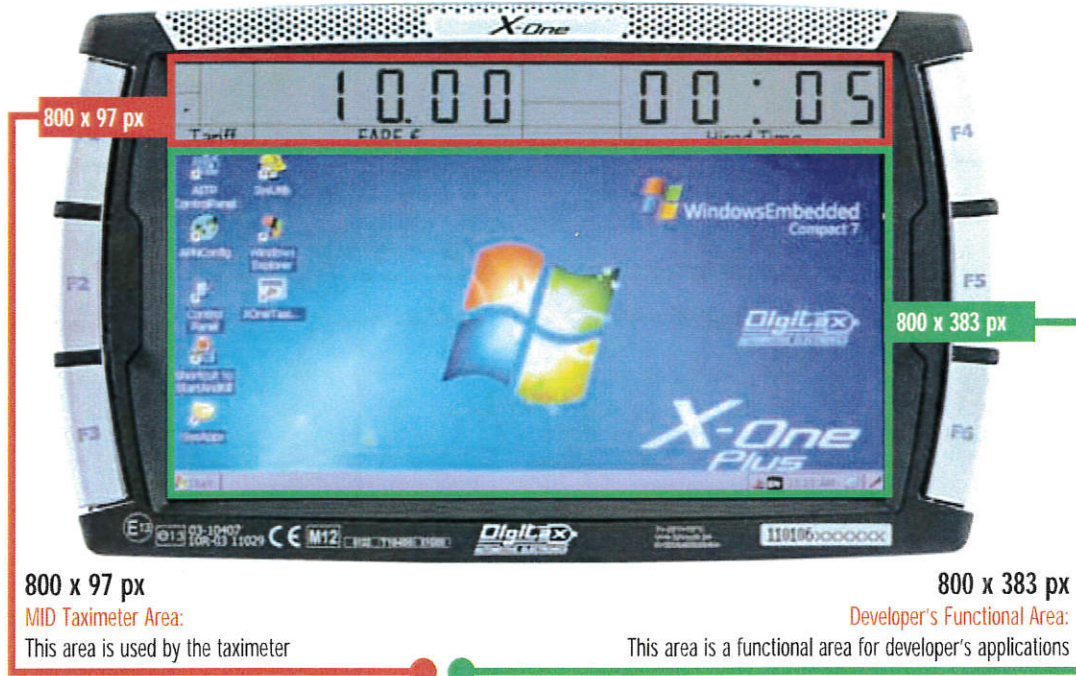
Top View



X-One Taximeter's Seals	
1	USB Seal
2	Special Set Up Programming Cover
3	SD Sealing Cover
4	Taximeter Head Seal
5	Tariff Cover Seal

X-One MID Taximeter Display Area

Functional area for Developer's Applications



Note:
The MID Taximeter Area cannot be overwritten by user's applications

Different Taximeter Window Positions and Color Sets

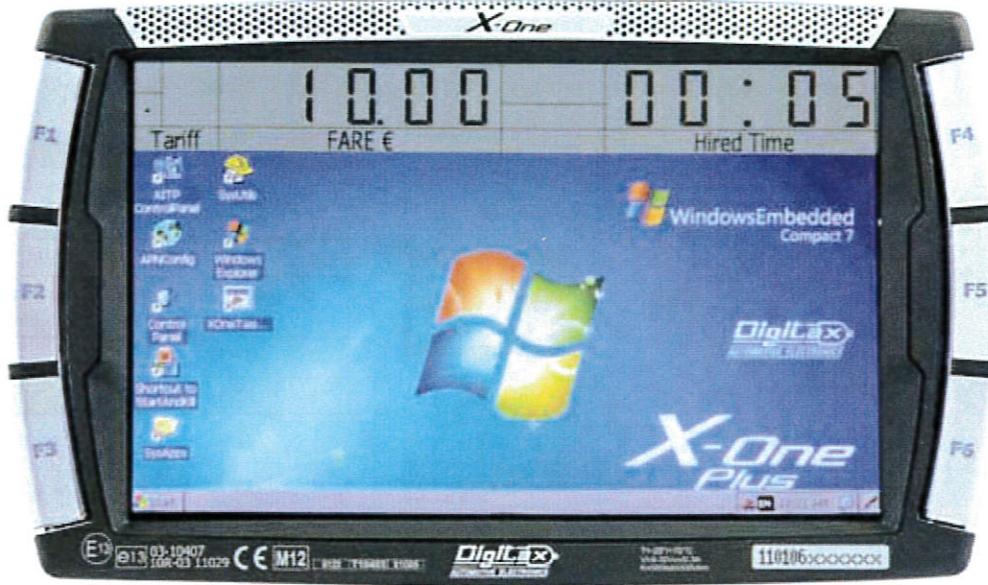
4 Taximeter Window Postions



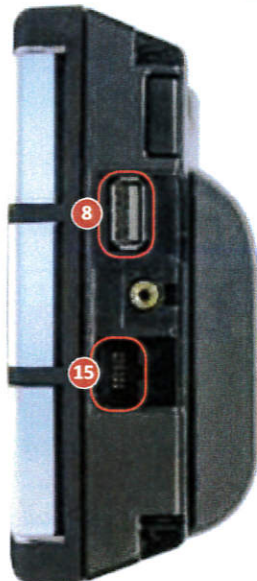
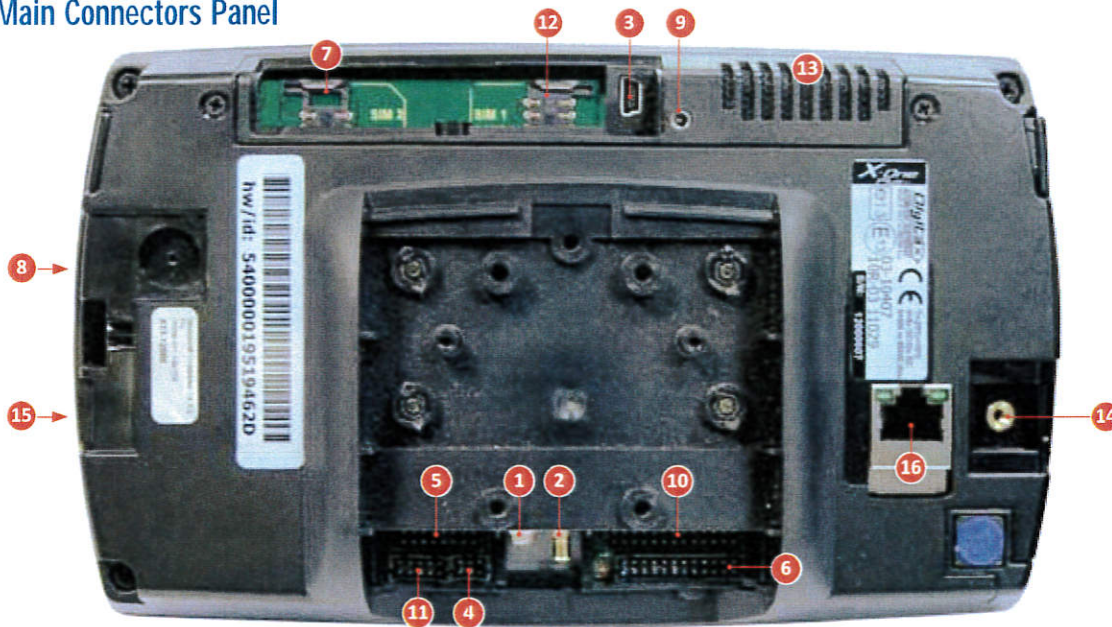
3 Taximeter Window Color Sets



Appearance



Main Connectors Panel

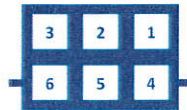
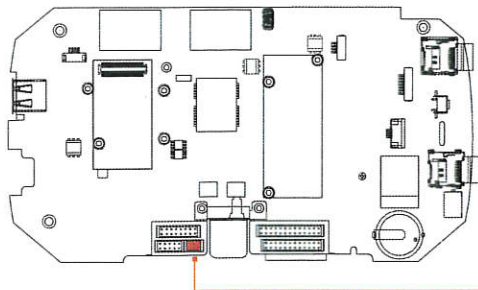


Main Connectors Panel			
1	GPRS Antenna MMCX jack	9	Headphone/Mic Jack
2	GPS Antenna SMB plug	10	Digital I/O - USB
3	Mini Client USB port for ActiveSync Connection	11	Taximeter Connector
4	Mov Sensors Connector/Can	12	Sim Card 1 Holder
5	Power Connector	13	Speaker
6	Serial COM	14	Micro SD Slot
7	Sim Card 2 Holder	15	Test Connector
8	Host USB Port	16	Lan Ethernet



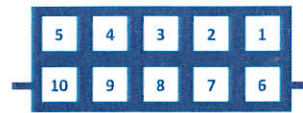
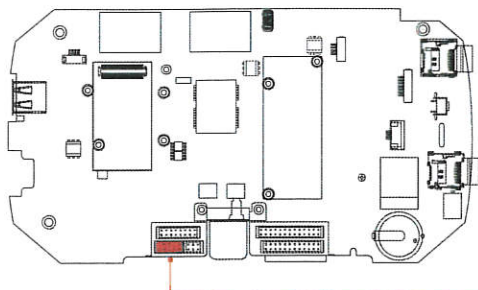
Connectors and Cables

ODOMETER / CAN



PIN	FUNCTION	
1	SENS.MOV2/CAN2 H	
2	GND	BLACK
3	CAN H	WHITE
4	ODOMETER/CAN2L	WHITE (Shielded)
5	+8/32V	
6	CAN L	

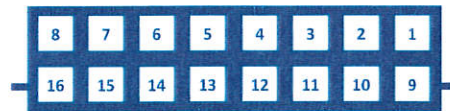
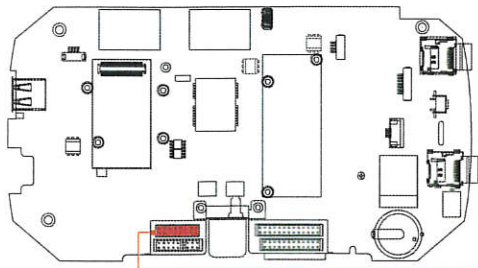
PRINTER, I/O



PIN	FUNCTION		PIN	FUNCTION	
1	GND	BLACK	6	Taximeter COM1 TXD	
2	Taximeter Printer / COM2 TXD	YELLOW	7	Taximeter COM1 RXD	
3	Taximeter Printer / COM2 RXD	ORANGE	8	Taximeter PIO ϕ , Dallas 1 Wire Net	
4	Taximeter Aux2 Input, active low		9	+8/32V OUTPUT	RED
5	Taximeter Aux1 Input, active low		10	Taximeter PIO 1 Input	

⚠ ATTENTION: Printer Tre requires ONLY max 16V input. Otherwise the Printer Tre will be damaged.

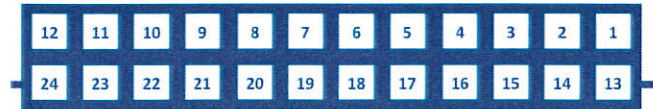
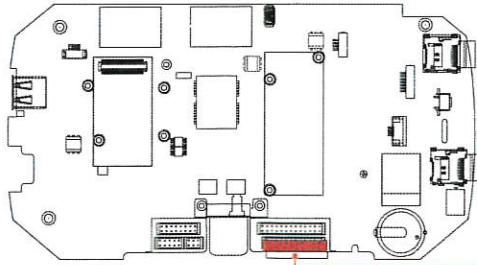
POWER



PIN	FUNCTION	CABLE COLOUR	PIN	FUNCTION	CABLE COLOUR
1	POWER 4 Taximeter	YELLOW	9	POWER 5 Taximeter	WHITE
2	POWER 3 Taximeter	GREEN	10	POWER 5 Taximeter	WHITE
3	POWER 2 Taximeter	VIOLET	11	PASSENGER Sensor Active Low	PINK
4	POWER 1 Taximeter	GREY	12	+ Light Active High	BROWN
5	PANIC BUTTON Active Low	WHITE	13	GND	BLACK
6	ENGINE Active High	BLUE	14	GND	BLACK
7	+8/32V	RED	15	+8/32V	RED
8	+8/32V	RED	16	+8/32V	RED

WINDOWS

RS232



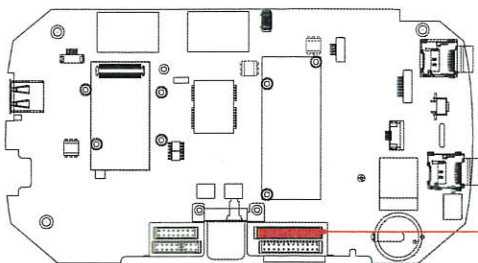
PIN	FUNCTION
1	COM 5 - DSR
2	COM 5 - RI
3	COM 5 - DTR
4	COM 8 - TXD (VGA - BLUE)
5	COM 8 - RXD (VGA - GREEN)
6	GND (VIDEO IN 2)
7	COM 10 - TXD (VGA - RED)
8	COM 10 - RXD (VGA - GND)
9	GND
10	COM 11 - TXD (VIDEO IN 1)
11	COM 11 - RXD (VGA Hsync)
12	GND (VGA Vsync)

PIN	FUNCTION
13	COM 5 - TXD
14	COM 5 - RXD
15	COM 5 - RTS
16	COM 5 - CTS
17	COM 5 - DCD
18	GND
19	COM 6 - TXD (485 Version Data -)
20	COM 6 - RXD (485 Version Data +)
21	GND
22	COM 7 - TXD (485 Version Data -)
23	COM 7 - RXD (485 Version Data +)
24	GND

Mod.

WINDOWS

I/O - USB



PIN	FUNCTION
1	INPUT 1 <i>ALARM / Forderung</i>
2	INPUT 2
3	INPUT 3
4	GND
5	NO CONNECTION
6	NO CONNECTION
7	COM 12 - RXD
8	COM 12 - TXD
9	GND
10	USB 4 - POWER 5V
11	USB 4 - M
12	USB 4 - P
13	USB 4 - GND

PIN	FUNCTION
14	POWER OUT 1 <i>Power EMW</i>
15	POWER OUT 2
16	POWER OUT 3
17	ANALOGIC INPUT 1
18	ANALOG INPUT 2
19	EXT. MICROPHONE GND
20	EXT. MICROPHONE INPUT
21	EXT. SPEAKER -
22	EXT. SPEAKER +
23	USB 3 - POWER 5V
24	USB 3 - M
25	USB 3 - P
26	USB 3 - GND

Mini USB Connector

Used to connect the X-One to a PC via Microsoft ActiveSync. You can use a standard USB "A" -> mini USB "B" cable.

Active Sync

Go to page 30 for details to activate or deactivate it.

Ports mapping

Serial COM

PORT	FUNCTION	DEFAULT BAUD RATE
COM1	Modem H24 Mux COM Modem MC55i Ras COM	57600 bps
COM2	GPS	9600 bps
COM3	AITP / MDT	38400 bps
COM4	Modem MC55i Mux COM	57600 bps
COM5	External Serial Full Modem COM port	User configurable
COM6	External Serial COM port TX/RX / RS485	User configurable
COM7	External Serial COM port TX/RX / CAN BUS 1	User configurable
COM8	External Serial COM port TX/RX (option) / CAN BUS 1	User configurable (option)
COM10	External Serial COM port TX/RX (option) / CAN BUS 2	User configurable (option)
COM11	External Serial COM port TX/RX (option) / VGA Out	User configurable (option)
COM12	External Serial COM port TX/RX (option)	User configurable (option)
TLT6	Modem H24 RAS COM	

Outputs

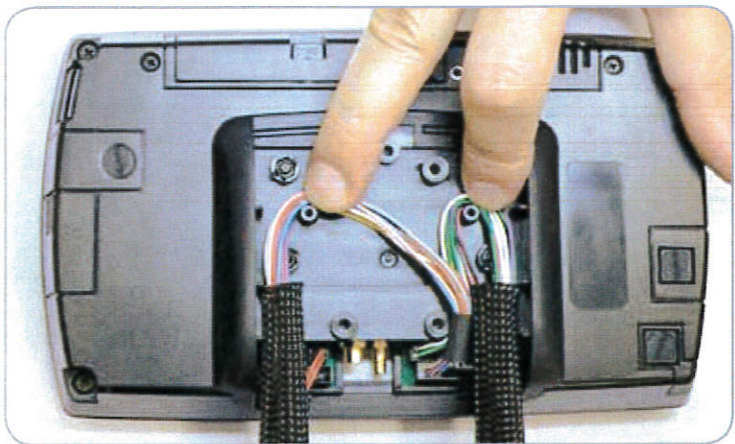
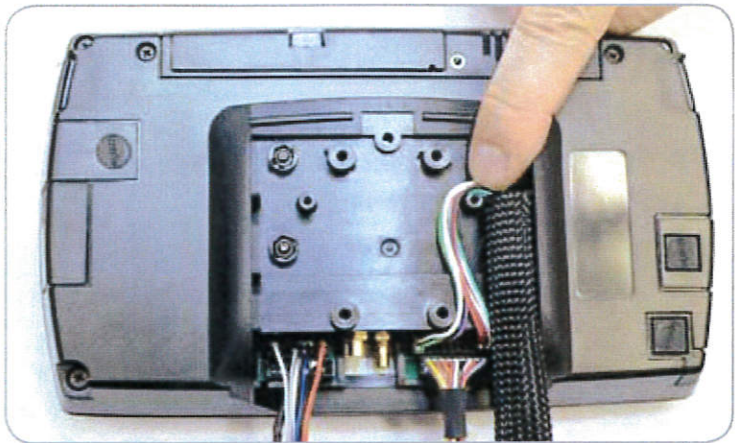
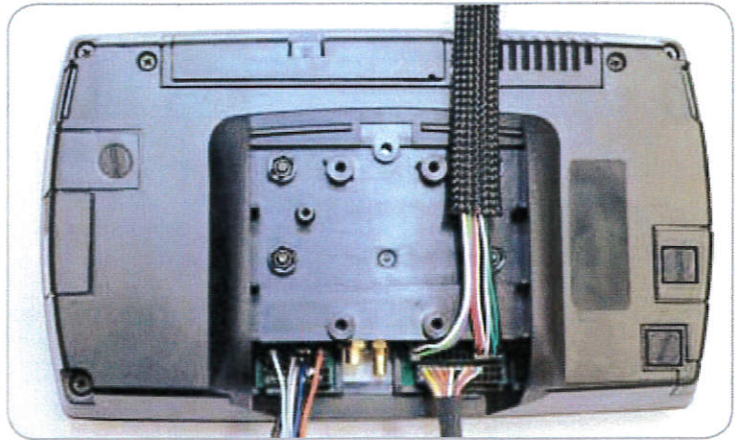
NAME	DESCRIPTION
OPOWGPS	Enables/Disables GPS power
OGSMING	GSM ignition pulse (Modem MC55i)
OGSMPD	GSM power down pulse (Modem MC55i)
OGP1	General purpose output 1 (external, refer to pin out/cable chapter)
OGP2	General purpose output 2 (external, refer to pin out/cable chapter)
OGP3	General purpose output 3 (external, refer to pin out/cable chapter)

Inputs

NAME	DESCRIPTION
IPRESHUT	Goes high when Windows is shutting down. After the low to high status change, the application has eight seconds to properly start the closing procedures, before Windows powers down
IRING	Ring indicator from the modem. When in the case of an incoming call, this pin will go low
IGP1	General purpose input 1 (external, refer to pin out/cable chapter)
IGP2	General purpose input 2 (external, refer to pin out/cable chapter)
IGP3	General purpose input 3 (external, refer to pin out/cable chapter)
PANIC INPUT	Digital Input for Panic Button. Drive to ground.
ENGINE INPUT	Digital Input for engine/ignition signal, active high
PASSENGER SENSOR	Digital Input for Passenger Sensor
ANALOG INPUT 1	Generic Analog Input 1, 10 bits ADC
ANALOG INPUT 2	Generic Analog Input 2, 10 bits ADC

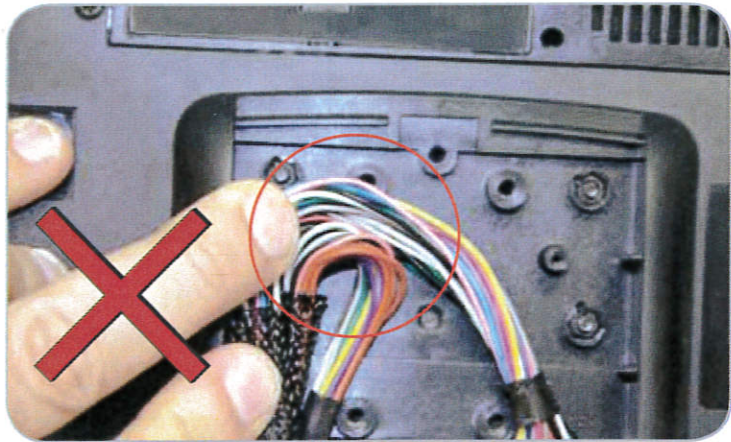
Blocking Wires

Place the connector's wires as indicated in the following images.

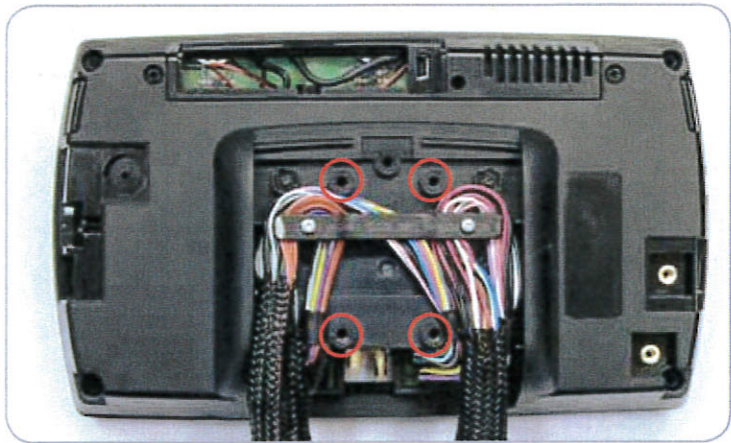


Blocking Wires

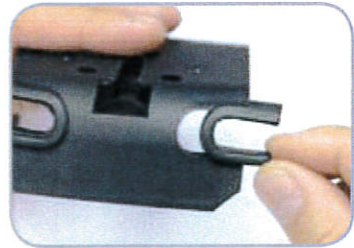
Be sure to not cover with the wires the screw holes



Fix them with the cable blocking plate



Cut the rubber cover and place both in the back cover.



Close the back connectors cover fixing the screws.



Dashboard Fitting



Clean the dashboard surface that the bracket is to be fixed to with a clean cloth with alcohol or a suitable cleaning (de-grasing) solution



Make sure the surface is grease and polish free.



Place the bracket in position without removing the protective film.



Press the bracket wings down into position on the dashboard.



Carefully model the bracket wings to fit the dashboard.



Remove the protective film from the glue pad on the base of the bracket.

Dashboard Fitting



7

Gently warm the dashboard where the bracket is to be fitted.



8

Gently warm the adhesive pad on the bracket in the same way.



9

Firmly press the bracket into position to obtain the best adhesion pressure.



10

Adjust the ball bracket so the face plate is in the best position to allow the X-One to be fitted to it.



11

Fix the X-One to the bracket using the screws provided.



12

Adjust the bracket so the taximeter screen is in the best position for the driver.

Windscreen Fitting



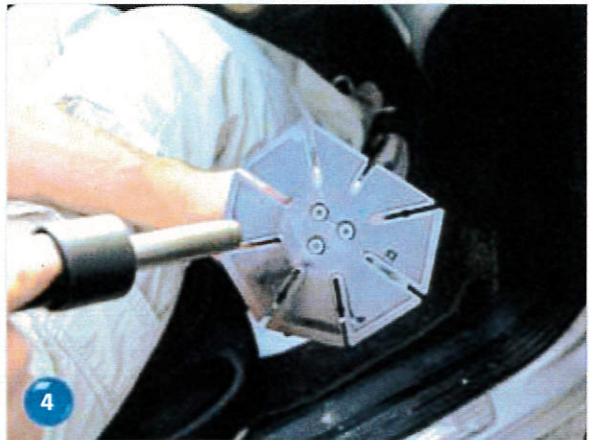
Make sure the required area is clean, grease and polish free.



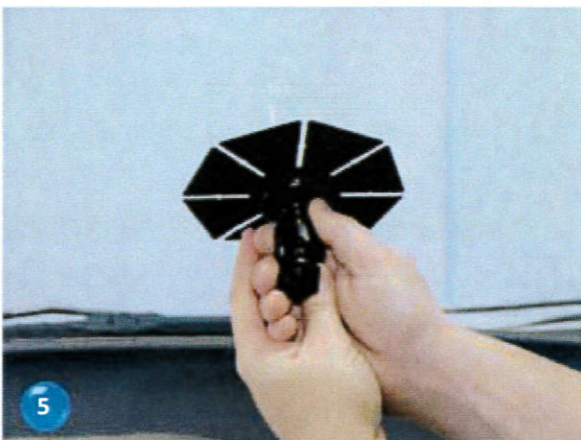
Make sure the required area is clean, grease and polish free.



Warm the glass where the bracket is to be fitted.



Remove the protective film from the adhesive pad on the base of the bracket.



Firmly press the bracket onto the glass to obtain the best adhesion possible.



Using the screws provided fix the taximeter to the bracket.

Combo Antenna Installation



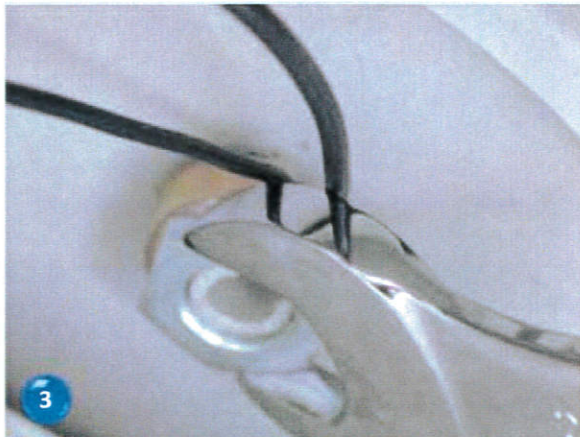
1

Apply sealing silicone to the base of the antenna.



2

Place the antenna into position.



3

Secure the antenna tightly into position with the 22mm nut.



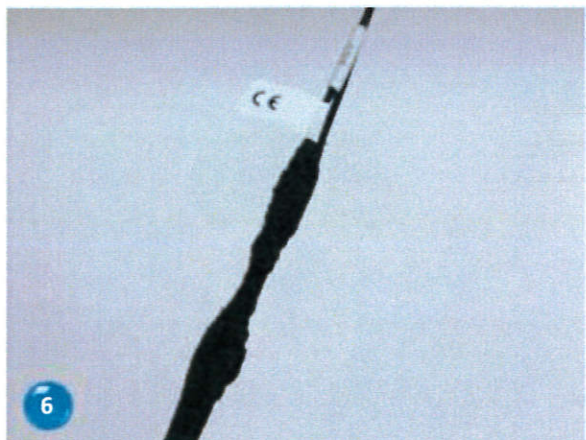
4

Connect the antenna cables to the antenna.



5

Tape up the antenna connection.



6

Tape up the antenna cables each 40-50 cm.

XOnePlus - montering - plombering - tips

Utdrag fra Technical Manual

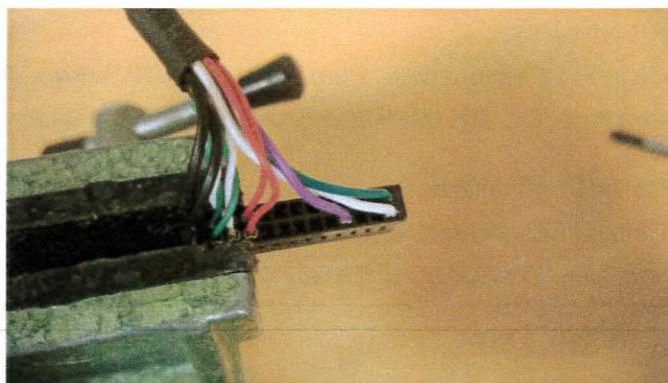
- Henviser i hele beskrivelsen her til Digitax' XOne Plus Taximeter Technical Manual – Utdrag.
 - (Utdrag henger på her i samme pdf-fil)

Før montering

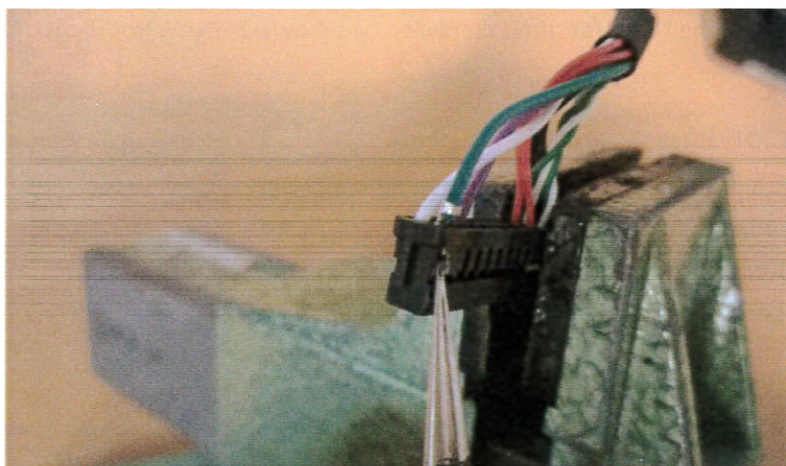
Må flytte ledning for BEEPER (dersom skal brukes)

- **Beeperledningen** skal stå på plass **OP3**, posisjon#16 på den største «Windows»-pluggen (28 pins). **Utgang OP3 er IKKE påsatt fra fabrikken.**

- For å utnytte de ledningene som allerede finnes inne i kabelstrømpen, flytter vi **GRØNN** ledning som står på pinne 1 som vist her:

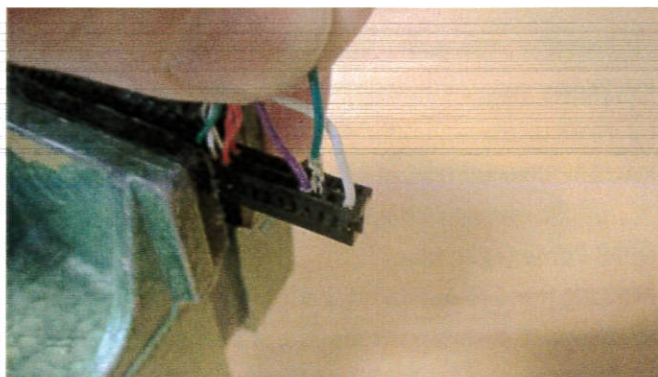


- Ta ut ledningen ved å løfte forsiktig på den svarte mothaken i plastikk som vist her:



- Sett til slutt den grønne ledningen inn på posisjon #16, naboen til den lille på #17. Den hvite står på posisjon#14, og #15 skal stå tom.

- Fra høyre:
HVIT–<tom>–GRØNN–LILLA



- Den **HVITE** ledningen (#14) er forøvrig **OP1**, pluss'en til EMV-terminalen.



Kabelfesting

- Se bilder i Technical Manual – kablene strekkavlastes som anvist inni dekselet.

EMV terminal tilkopling

- **DSUB** til/fra EMV-terminalen skal på **COM5** på kabelen.
 - Kabelpluggene MÅ enten **skrus eller stripses** sammen! Press-pasning er IKKE nok.
- **POWER (+)** til EMV-terminalen er **OP1** (hvit ledning fra forrige side)
- **GND (-)** til EMV-terminalen (dvs. på den svarte EMV-POWER-ledningen) skal jordes i bilens chassis.

Samsvarserklæringen

- Pass endelig på, at **SAMSVARSERKLÆRINGEN** til enheten ligger med korrekt serienummer i bilen.

Teste BEEPER

- Gå inn i Servicemeny-System, og velg «**AITP Setup**». Da åpnes «**AITP Control Panel**».
- Velg fane “**Ext.I/O**” (gå til høyre), og slå **av/på** “**Digital Power Out 3**”. Det er BEEPER.

Teste EMV POWER

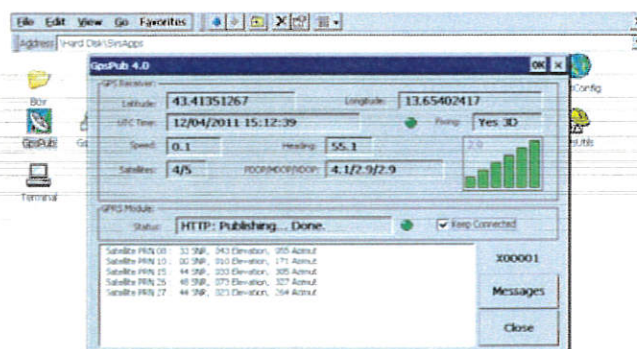
- Gå inn i Servicemeny-System, og velg «**AITP Setup**». Da åpnes «**AITP Control Panel**».
- Velg fane “**Ext.I/O**” (gå til høyre), og slå **av/på** “**Digital Power Out 1**”. Det er POWER til EMV.

Teste TAKLAMPE

- Gå inn i Servicemeny-System, og velg «**AITP Setup**». Da åpnes «**AITP Control Panel**».
- Velg fane “**Tax.I/O**” (helt til høyre), og slå **av/på** “**Out5/Rooflight**”. Det er TAKLAMPE.

Teste GPS

- Gå inn i Servicemeny-System, og velg «**GpsPub**». Da kan du se hvorvidt XOne har kontakt med GPS-kortet, og hvorvidt man får FIX.
- *På bil med NAVI, kan selvsagt den brukes til å teste GPS-fix istedenfor!*



Husk inndateringer i Servicemenyen

- **EKSTERNT TASTATUR ANBEFALES**. USBx2 på kabelen der (EMV-)COM-port ligger, samt **USB** oppe til høyre på displayet, under **deksel Nr. 1**. OBS Selvgjengende dekselskrue på tåler IKKE mange skruinger.
- **KALIBRERING** tar IKKE effekt fra Servicemeny, men må gjøres i **ATTEST** med **F-knappene** direkte!
 - Se avsnitt **Oppkjøring/kalibrering** og **Kontroll av bilens kalibrering** neste side!
- **GPRS Setup** (egen fane)
- **FTP URL** (for å få oppdateringer F1Takst/Program/Logo/Soneliste/Logger)
- **WebService** sin internettadresse, starter med **http://** (tilkopling til sentralens Webservice)
- **SERIENR.** skrives inn fra displayramme NEDE til HØYRE. IKKE ta med «**53-**» men resten «**150209006251**».
- **HORDALAND** skriver inn **TT fylke nr 12** for å aktivere **auto beregning av egenandel til Xponcard** på EMV.

Teste GPRS / GPRS-forbindelsen første gang

- DERSOM GPRS-forbindelsen ikke oppnås selv om oppsettet er tastet inn i Servicemeny, prøv:
 - Gå inn i Servicemeny-System, og velg «**Windows Explorer**». Finn og velg «**Hard Disk**» - «**SysApps**» - «**APNConfig**». Programmet **APNConfig** skal da starte, og viser gjerne

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endre til riktig mda-navn f.eks. **mdatds**

- Klikk på «**Save Settings**» og bekreft. Nå skal forbindelse oppnås.



Oppkjøring/kalibrering

- Gå inn i Servicemeny-System, og velg "Åpne F1 knapper". Da skifter hardkeys (**F1-F6**) funksjon.
- Nå fungerer F1-F6-knappene i henhold til Technical Manual, og styrer taksameteret direkte.
- Gå inn i AUTOTEST («**ATTEST**»)-modus ved FØRST å sette inn **svart pinne** i siden fra høyre, og så velge **F3+F4** samtidig (dette er HELT tilsvarende **K2+K3** på F1/M1).
 - **Prisdisplay** (øverst) viser **nåværende pulstall** over måledistansen (normalt 1000m)
 - **Ekstradisplay** (nedenfor) viser **antall meter som skal kjøres** (normalt 1000).
- Akkurat som på F1/M1, har vi nå:
 - **F2 minsker** pulstallet manuelt (dersom K-faktor på bilen er kjent) (som **K1** på F1/M1)
 - **F3 øker** pulstallet manuelt (som **K2** fra før)
 - **F4 nullstiller** telleren for kjøring (som **K3** fra før)
 - **F5 LAGRER** nytt pulstall (som **K4** fra før)
 - HUSK med **F1** («**OP**») å gå **UT** av AUTOTEST-modus FØR går ut av servicemeny.

Kontroll av bilens kalibrering (samme som Justervesenet utfører)

- For å KONTROLLERE pulstallet **TA UT svart pinne** og trykk igjen **F3+F4** samtidig («**K2+K3**»)
 - Nå står igjen **nåværende pulstall** pr. måledistanse i **prisdisplay**.
 - **Ekstradisplay** (nedenfor) viser **antall meter** som er måledistansen (normalt 1000m).
 - Når **begynner å kjøre**, viser nå Ekstradisplay **ANTALL METER KJØRT** (ikke antall pulser).
 - **F4** (som **K3** fra før) nullstiller denne metertelleren under kjøring
 - HUSK med **F1** (som **OP**) å gå **UT** av AUTOTEST-modus FØR går ut av servicemeny.



Plombering

- **Plombering er tillatt KUN med serienummerert plombering**, ENTEN klistremerke med unikt nummer, eller trådplombe med unikt nummer. TRÅDPLOMBE anbefales.

- Referer til tegning i Technical Manual over «**How to Seal the Taximeter**»,
 - **“X-One Taximeter’s Seals”**.
 1. *USB Seal – deksel over USB – festet med selvgjengende skrue*
 2. **Special Set Up Programming Cover – deksel over SVART PINNE – M3 maskinskrue, evt. Plombeskrue f.eks. DIN404 M3x10.**
 3. *SD Sealing Cover – deksel over SD-kortet – festet med kort M3 maskinskrue.*
 4. *Taximeter Head Seal – plombert fra fabrikken med “ITALTAX O.N.0122”*
 5. *Tariff Cover Seal – SIM-kortdeksel på toppen – LENGRE M3 maskinskrue.*
 - **I TILLEGG – M3 maskinskrue på toppen av KABELDEKSEL SKAL plomberes ihht Justervesenet, for å sikre taksameterets forbindelse til kjøretøyet.**

- **KUN deksel Nr.2 (til svart pinne) samt det store dekselet trenger å plomberes.**
- PASS PÅ at ALLE plombenummer er LETT SYNLIG for kontrollør!
- Det ANBEFALES trådplombe som vist, enten plastikktypen (her: oransje) med integrert tråd, eller metall-plombetråd trukket gjennom plombe med hull, der begge trådendene festes.

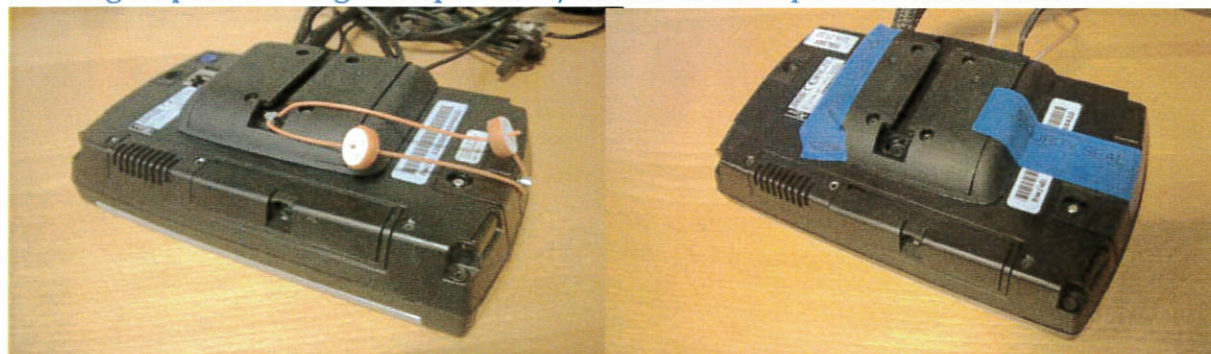
- **Justervesenet FRARÅDER klistreplombe**, da erfaring viser at de kan falle av fra sollys+kulde.
 - Plombe som er falt av vil si ny kontroll.



VIKTIG!!!! «MID-Taksameteret» vs. «PC»

- MID-taksameteret inne i XOne er en separat enhet der inne, HELT likt som F1/M1.
 - **KUN DEKSEL 2** og **KABELDEKSEL** vedrører selve taksameteret.
- **Deksel 4** er fabrikksklistremerke («ITALTAX») og den må forbli der.
- **Deksler 1, 3, 5** vedrører PC, og trenger IKKE plomberes.

Forslag til plombering: trådplombe / klistremerke på MID-taksameter



DERSOM 2 plomber seriekoples som vist her, må BEGGE plombenumre innrapporteres!
PASS PÅ at plombenummer er LETT synlig for kontrollør!

Flere eksempler på plombering



For å bruke plombeskruer, kan (som vist her) disse firkantene fra fabrikkens SNUS, slik at plombehodet stikker utenfor, istedenfor å havne nedi.

Her er vist plombeskruer:

DIN404 M3x10.

