

APLICOM A9 IPEX

Installation guide rev. 3.0.6

This guide supports following device
A9 IPEX



Document code K520010

Important:

Please read this installation guide before the installation.



ISO 9001

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This crossed-out wheellie bin means that within the European Union the product must be taken to separate collection points at the product's end-of life. This applies to your device but also to any enhancements marked with this symbol. Do not dispose of any part of these products as unsorted municipal waste.



Package content



Figure 1.

Includes

- A9 IPEX Unit
- 7 pcs solder joint connectors
- 4 pcs TORX screws for cover assembly
- 2 pcs self drilling screws for unit assembly

SIM card is also needed. Order card from teleoperator or from Aplicom.

Preparation and installing of the A9 IPEX unit

The following steps must be made in right order to start the unit immediately for full operation.

1. Remove the cover of the unit
2. Install SIM card. Figure 2.
3. Connect internal battery connection. Figure 3.
4. Connect unit to external power source by using A9 IPEX cable or A9 NEX/TRIX power and IO cable (D337050).
5. Download your configuration to the unit by using A9 NEX/TRIX data cable D337055. Figure 4.
6. Close the unit and tight up four cover screws. Avoid extreme torque. (0,8 – 1,0 Nm). Refer to Figure 5 on how to install the top cover correctly. Please follow this instruction because otherwise there is risk that the antenna connector will broke.
7. Connect external power cabling and other needed connections.
8. Mechanically install the unit to carefully selected place.
9. Connect the vehicle power supply to A9 IPEX wiring power leads with fuse protection. Please check the connection according to configuration of the unit, if only PWR and GND is connected, or is there also IGN connected.

Note 1. The SIM card must be installed before the internal battery is connected.

Note 2. SW download is done using connector shown Figure 4.

Install top cover (use torx bit size TX15).



Figure 2

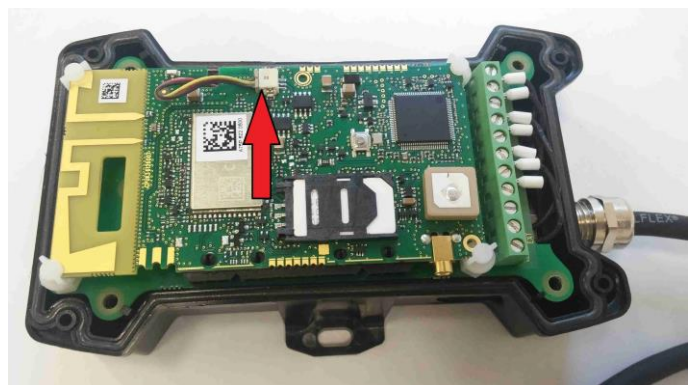


Figure 3



Figure 4



Figure 5



Figure 6

Tighten opposite corner (Figure 6) and continue similarly with remaining two corners.

Mechanical Installation



Note that the unit includes internal GPRS and GPS antennas and shouldn't be installed in metal cage!!!

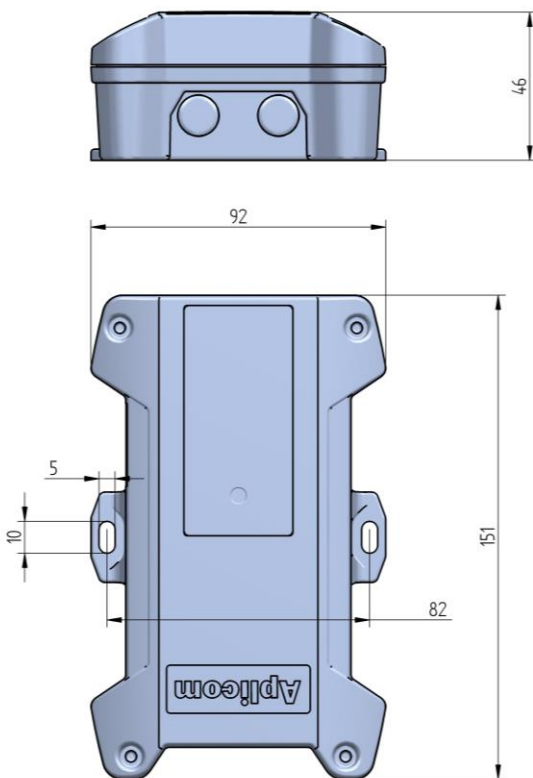
Because of the internal GPS/GLONASS antenna, install unit to place where unit's top cover has the best possible open sky view.

Cable installation



The cable is not allowed to bend too tight when installed, see picture above.

Mechanical dimensions are shown below.



Note! Install the A9 IPEX unit as far away as possible (minimum 1 metres recommended) from the car radio and its antenna or other electrical devices to avoid any interference.

Note! If the ACC option is used, make sure that mechanical installation is proper. Otherwise ACC results are not reliable.

Note! Avoid extreme torque when installing the unit. Max 2 Nm.

Note! Install only on flat surface or cover could damage and IP67 protection could break down.

Electrical Installation

- Read warnings chapter on page 7 on this document.
- Protect power supply lines (6.8...32Vdc) with 3A fuse at power supply end of line.
- Install the A9 IPEX unit as far away as possible (minimum 1 metres recommended) from the car radio and its antenna or other electrical devices to avoid any interference.
- Additional information: Application note *K505002 Cabling of Aplicom Products*.
- Avoid ground loops! It is highly recommended to connect all A9 IPEX and peripherals ground connections to a single point.
- Disconnecting ground lines shall not be done while the unit is connected to power supply of the vehicle. This will cause voltage leak between IO connections causing possible problems in external devices connected to them.

- Install the A9 IPEX unit to a place where unit's internal antennas have the best possible sky view for GPS/GLONASS satellites and the best possible visibility to GSM/GPRS/3G network base stations.
- If the IGN –line is used ensure that it is connected to power line, in modern cars for example the lights etc. are pulse controlled.
- A9 IPEX unit with CAN bus functionality * do not include internal bus terminator resistor (120Ω).
* CAN bus is available as option.

Connection

A9 IPEX unit includes an internal terminal block connector (Figure 8). Wires inside the device cable are numbered and wire nr 1 is connected to screw connector position 1 as default and wire 2 is connected to position 2 and so on. The used cable has seven wires.

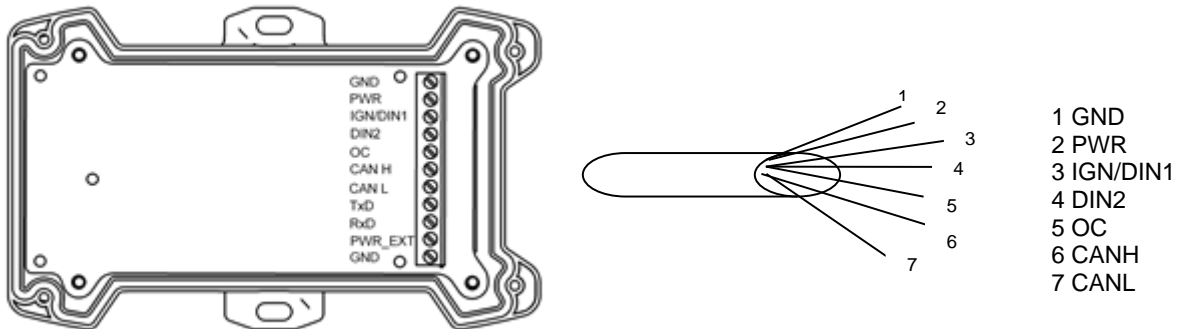
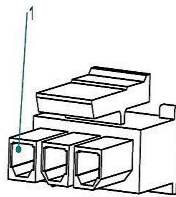


Figure 8

Serial data connector

Pin 1, TXD
Pin 2, RXD
Pin 3, GND



Used to SW configuration, COM1 port (sw option) and SW debug.

Note! Use only Aplicom specific cable.

Note! When using this cable, the unit has to be open (top cover removed).

Testing installation

If the unit has a default configuration

1. Connect the power on.
2. Status led is red when the software is started (this takes about 30s).
3. Status led is green when GPS fix is received (this takes about another 30s). Now the unit is working correctly.

Note! The led is visible only when the unit's top cover is removed.

TECHNICAL DATA

Supply voltage	6,8...32Vdc (nominal +12Vdc)	Dimensions	92mm (W) x 151mm (L) x 46mm (H)
Current consumption	Typical: < 100mA Max (peak): 1A / < 1s	Weight	250g + cable 150g
GPS antenna power supply	3Vdc	Housing / material	IP67, PC + 10%GF
Fuse	External fuse on power cable: 3A Internal fuse: 3A/slow	User interface	SIM card slot (inside the unit) Indicators (LED): Led - JAVA appl.(inside the unit)
Operating temperature	-30°C...+70°C (see Note 1) -5°C...+60°C With internal battery 0°C...+45°C internal battery charge	Options	CAN option
Storage temperature	-40°C...+80°C	Warranty	1 year
Relative humidity	+95% max		
Power switch	None, IGN and SW controlled	CE marking/Approvals	according to directives: 2004/108/EC 1999/05/EC ECE r.10.05 E-type approval
Common connections	Internal GSM /GPRS antenna Internal GPS/GLONASS antenna		

Note 1: Ensure SIM cards operating temperature range from telecom service provider.

WARNINGS

- Warranty is voided if case is damaged.
- A9 IPEX device and all peripherals must be powerless during the installation. Turn off ignition and disconnect power.
- GPRS may interfere sensitive electronics.
- All devices connected to A9 IPEX device must have a fuse protection.
- All signal inputs connected to A9 IPEX must be fuse protected, max 3A.
- As a rule, when pulling Aplicom cables through inlets or tubes during installation, it is not allowed to pull directly from connectors. Instead the pull must be directed to cable itself.
- Do not install unit in places where safety may be compromised.
- Ensure CAN connection and limitations from vehicle manufacturer or dealer.
- For replacing the internal battery see document *K520016 A9 IPEX battery replacement guide* available on Aplicom extranet. DO NOT USE OTHER BATTERIES THAN APLICOM DELIVERED. RISK OF EXPLOSION.
- DISCONNECT ALL CABLES FROM A9 IPEX connectors before changing internal battery.

FCC compliance information

For products using SDoCa compliance information statement shall be supplied with the product at the time of marketing or importation, containing the following information:

- a) Identification of the product, e.g., name and model number;
- b) A statement that the product complies with the rules; and
- c) The identification, by name, address, and telephone number, or internet contact information, of the responsible part.

§2.1077 (a)(3) The identification, by name, address and telephone number or Internet contact information, of the responsible party, as defined in §2.909. The responsible party for Supplier's Declaration of Conformity must be located within the United States.

For FCC Part 15 devices §15.19(a)(3):

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The End user must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.Changes

or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Part §15.105(b) Class B device:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

For Canada ICES/RSS:

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For Canada ICES/RSS:

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- 1) L'appareil ne doit pas produire de brouillage;
- 2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Tout changement ou toute modification effectués par l'utilisateur et dont la conformité n'est pas expressément approuvée par l'organisme responsable de sa conformité peut entraîner l'annulation de droit de cet utilisateur de se servir de l'équipement.

IC Radiation Exposure Statement:

This EUT is compliance with SAR for general population/uncontrolled exposure limits in IC RSS-102 and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528.

REMARQUE IMPORTANTE

Déclaration IC d'exposition aux radiations Ce EUT est conforme avec SAR pour la population générale / limites d'exposition non contrôlée à IC RSS-102 et a été testé en conformité avec les méthodes de mesure et procédures spécifiées dans la norme IEEE 1528

INSTALLATION CHECKLIST

	Action/Functionality	OK
DEVICE INSTALLATION	The place of installation is safe from accidental knocks. Device is fastened tightly.	
CABLES	Cables are led carefully along a well-protected route to the device and the peripherals. All cables are correctly connected and secured with fuses. Cables are fastened or supported in such a way that during use they exert no torsion on the cable glands.	
ANTENNAS	A9 IPEX unit is fitted in such a way that its visibility to base stations is as unobstructed as possible (vehicle roof; as far as possible away from other antennas, flashing lights etc.). A9 IPEX unit is fitted in such a way that its satellite visibility is as unobstructed as possible (vehicle roof; as far as possible away from other antennas, flashing lights etc.). Check the A9 IPEX right orientation towards the GPS/GLONASS satellites and correct fixing place and surface.	
POWER ON DEVICE	Connect PWR and if IGN is used, turn it on.	
FINAL CHECK	Before completing the installation work, rigorous checking of any disturbances to vehicle or machine, where the unit is installed, must be made. Special attention is needed to check the vehicle safety systems and radio and multimedia equipment functions. This is to avoid recalls to service because of un-noticed problems.	

TROUBLE SHOOTING

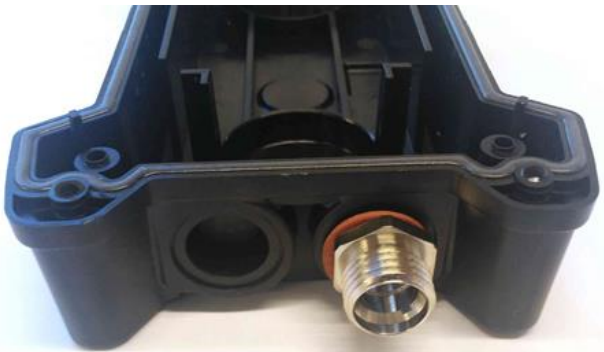
Problem	Solution
No power	Check that all the cables and fuses are connected. PWR is connected and IGN is on (if used).
No GPRS connection	Check that SIM card is inserted. Check PIN CODE requirements.
No GPS position	Ensure that the top cover of the A9 IPEX has open sky view. Check interferences from other structures to GPS antenna. NOTE! Electronic heated or UV-protected windshield may disturb GPS antenna sky view.
	If none of the above helps, please contact your equipment dealer for further assistance.

APPENDIX: INSTALLATION GUIDE OF THE IPEX CABLE

Cable installation

At first, install cable glands body and seal to the housing. Seal is placed outside of the housing. Tighten the nut taking care that seal is firmly located under the gland.

Note! All metal grit has to be removed from the housing using compressed air after the installation!



Mount the cable to the gland so, that outer jacket of the cable can be seen inside the housing (refer to the picture left).



Install remaining parts of the cable gland assembly to the cable (refer to the picture left).

Slide cable gland parts toward the gland with the help of the metal nut. Note, that the plastic tightening part has assembly direction tabs to fit correctly to the metal body. Tabs are shown with the red arrow in the picture below.



Prior to the tightening of the nut, use the threadlocker in the thread of the cable gland to secure the assembly. Suitable threadlocker type is medium strength type, like Würth 0893243050 or equivalent.

Tighten the nut with the help of the suitable feeler gauge, which thickness depends on used interface cable. For standard IPEX cable the thickness of the feeler gauge is 2mm. Make sure, that feeler gauge is removable after tightening the nut. **Note!** It is not allowed to loose the nut at all after tightening it!