CM2-4G-GPS Quick Guide

CM2-4G-GPS plug-in module is a 2G/3G/4G cellular modem in combination with a GPS/GLONASS receiver. The cellular modem can work in two modes of operation based on the settings in the setpoint Internet Connection.

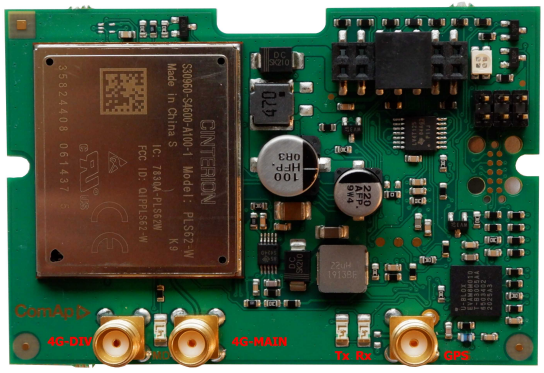


Image 1.1 CM2-4G-GPS module

IMPORTANT: Any manipulation with plug-in module shall be done with disconnected power supply to controller.

CM2-4G-GPS module setup

1. You will need a controller, CM2-4G-GPS module, antenna and SIM card with SMS and packet data service.

   Note: *Make sure that your SIM supports the packet data network type you want to use. – i.e. if you want to use the module in LTE (4G) network you have to confirm with the operator that the particular SIM card supports 4G network.*

2. Contact your mobile operator for getting packet data APN (APN = Access Point Name).

   Note: *Typical APN name is "internet".*

3. Make sure SIM card does not require PIN code. Use any mobile phone to switch the SIM PIN security off.
4. Place the SIM card into slot on CM2-4G-GPS card.
5. Connect the antenna to Cellular module antenna connector. Use secondary "diversity" antenna if you have troubles with signal/connection quality.
6. If you want to use the built-in GPS receiver connect also an active GPS antenna to the GPS antenna connector.
7. Switch off the controller. Insert CM2-4G-GPS module into controller.
8. Power up the controller.
9. Select the required operation mode of CM2-4G-GPS module by adjusting setpoint Internet Connection.
10. Enter correct APN Name into the setpoint Access Point Name.
11. Adjust AirGate key in InteliConfig.
12. Wait for approx 2 – 4 minutes for first connection of the system to AirGate. AirGate will generate automatically the AirGate ID value. Then navigate to measurement screens where you will find signal strength bar and AirGate ID identifier.

Modem Status

Code	Description
OK	Module successfully initialized and connected to the cellular network
E01	Unsuccessful restore to the factory settings
E02	Modem configuration error
E SIM	SIM not inserted or locked by PIN. › Use another device (e.g. mobile phone) to disable the option for SIM to be locked by PIN
E04	It is not possible to set manually chosen network mode 2G/3G/4G/Automatic
E registration	It is not possible to register into cellular network. Possible reasons: › No signal (no coverage, broken or unconnected antenna) › Manually chosen network mode 2G/3G/4G is not available
E context	It is not possible to set PDP (Packet Data Protocol) context for defined APN (Access Point Name). Possible reasons: › Setpoint Access Point Name is not correctly set (format) › Wrong PDP context number
E connect	It is not possible to connect to cellular network (ATD*99***context) Possible reasons: › Setpoint Access Point Name is not correctly set (wrong text)
E08	Modem configuration error
E09	It is not possible to get signal strength
E10	It is not possible to get operator name
E11	Loss of registration into cellular network was detected
E12	Data error
E13	Data error
E14	Modem was restarted
E SMS send	It is not possible to send SMS. Possible reasons: › Wrong number › SIM doesn’t support SMS
E18	Modem hardware configuration error
E conn lost	Loss of connection with cellular network
E19	Modem configuration error
Restart-config	Modem was restarted due to the change of controller setpoint
Restart-app	Modem was restarted due to the performed cellular connection check

Getting started with AirGate

1. Make sure controller has link to Internet
   a. CM3-Ethernet is connected to LAN infrastructure, has an IP address and access to Internet
   b. CM2-4G-GPS is connected to a mobile operator (preferably to 3G/4G network) and has an IP address
2. Connect with InteliConfig e.g. via USB and check setpoints as follows:
   a. *AirGate connection* = ENABLED
   b. *AirGate port* = 54440
   c. *AirGate address* = global.airgate.link
3. Adjust *AirGate key* in InteliConfig – this is your "secret key" that you have to provide always when you want to connect to the controller via AirGate.

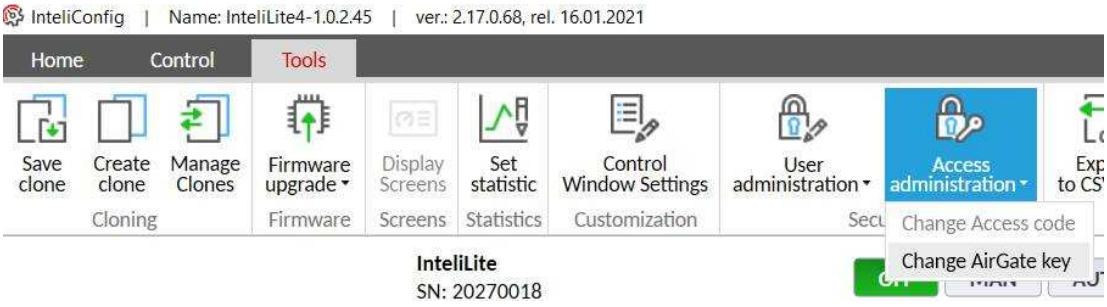
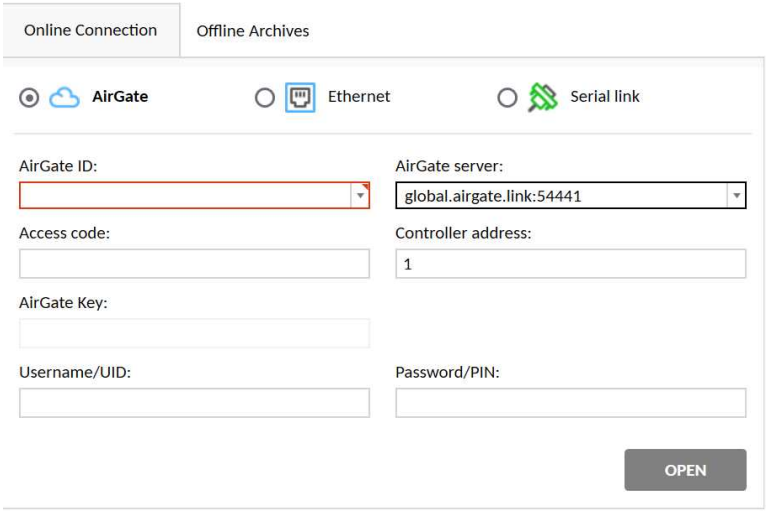


Image 1.2 Changing AirGate key

4. Wait for approx 2 – 4 minutes until the controller connects to AirGate. You can see the progress by observing the value *AirGate status* in InteliConfig
5. When the controller is connected to AirGate it will generate *AirGate ID* for the controller. This AirGate ID is the "phone number" of the controller.

Note: *If CM3-Ethernet and CM2-4G-GPS are used simultaneously the assigned AirGate ID will be different for each module, so the controller will be accessible via two different AirGate ID.*

Connecting from InteliConfig via AirGate 2.0



AirGate ID	controller addressing ID (see above)
Access Code	leave empty
AirGate Key	AirGate Key adjusted in controller as per description above
AirGate Server	"global.airgate.link:54441"
Username, Password	use your credentials

AirGate operational and diagnostic information

Object	Description
Not defined	Indicated while the controller is actually not trying to connect to AirGate. This is initial value of the status.
Wait to connect	Indicated while the controller is waiting the "repetition period" before next attempt to connect to a node is performed.
Resolving	Indicated while the controller is resolving domain name of the node to which it is attempting to connect.
Connecting	Indicated while the controller is attempting to establish TCP link to the node.
Creat sec chan	Indicated while CCS encrypted channel is being negotiated.
Registering	Indicated when the CCS channel has been established until AirGate sends message "setRuntimeParams" (with any registration status).
Conn inoperable	Indicated when AirGate sent registration status other than "Authorized" until the status changed to "Authorized".
Conn operable	Indicated when AirGate sent registration status "Authorized" until the status changed to any other one.
Susp AGkeyEmpty	Indicated when the service is enabled but suspended due to empty AirGate key. ***Note:*** *If you see this status message you have to adjust AirGate Key as per instructions above.*

Getting started with active e-mails

The built-in e-mail client is **capable to operate with most SMTP servers**, including those requiring secure sockets and/or user login.

Preferred procedure

1. Obtain a suitable SMTP server. There are following options:
   a. Use a SMTP server located inside the infrastructure where the module is to be used and ask IT personal for the information about it and about appropriate settings.
   b. Create an account in some public e-mail service like smtp2go.com
2. Adjust the setpoints as follows:
   a. SMTP Server Address = < selected smtp server>:<port> (ilustration example: *smtp.company.net:465*)
   b. SMTP Sender Address = adjust a sender address here, which **must** match the selected server policy (illustration example: controller001@company.net)
   c. SMTP User Name = <account name> or blank if authentication is not required by the server
   d. SMTP Password = <account password> or blank if authentication is not required by the server
   e. SMTP Encryption = <according to the server requirements>

Optional procedure

If your controller and module are connected to AirGate you may also use AirGate SMTP service. Using this option is possible only if the controller and module are connected to AirGate.

Note: *It may take up to 10 minutes after the controller/module have connected to AirGate till the service becomes available.*

1. Adjust the setpoints as follows:
   a. SMTP Server Address = mail.airgate.link
   b. SMTP Sender Address = adjust some e-mail address here, it **must** be from an **existing domain** and the domain must allow sending e-mails from 3rd party SMTP servers.
   c. SMTP User Name = blank
   d. SMTP Password = blank
   e. SMTP Encryption = NONE

Firmware upgrade

- Download the newest FW of module from ComAp website (in form of PSI file or installation package)
- Instal package to computer or open PSI to instal it into InteliConfig
- Plug the module into the controller and power the controller on.
- Open a connection with controller via InteliConfig
- Go the menu Tools -> Firmware upgrade, select the Plug-in modules tab and select the appropriate firmware you want to program into the module (in InteliConfig).
- Press the OK button to start upgrade of firmware.

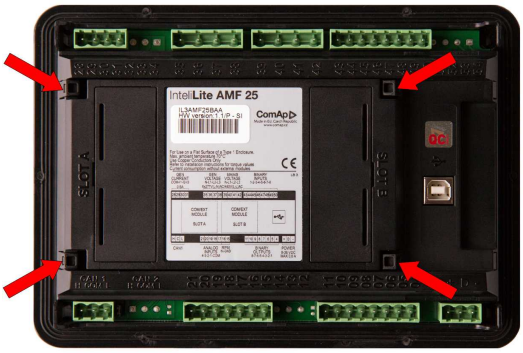
The firmware update process may be performed via any kind of connection including connection via the same module in which the firmware is to be updated. The connection is reestablished again automatically when the update process is finished.

Note: *For more information see InteliLite 4 Global Guide on www.comap-control.com.*

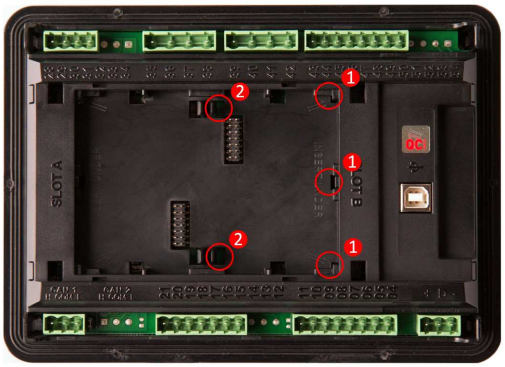
Plug-in module installation

> **IMPORTANT: Any manipulation with plug-in module shall be done with disconnected power supply to controller.**

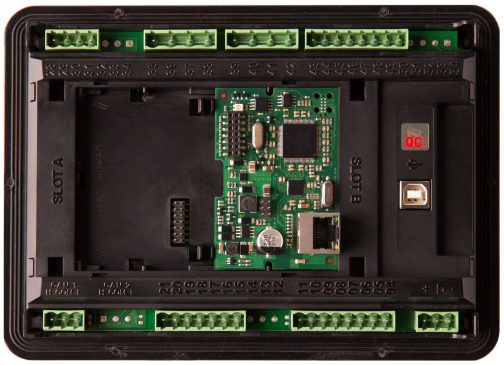
Remove the back cover. To do this, press four holders which are located in corners.



After removing back cover insert the plug-in module. Plug-in module has to be inserted under holders. Start with holders marked by symbol 1. On the controller are also arrows for better navigation. After inserting plug-in module under holders (1) press it down to holders marked by symbol 2 which lock the module.



Insert the plug-in module under holders marked by symbol 1. Then insert the plug-in module under holders marked by symbol 2.



After locking the plug-in module into holders, place back the back cover (small cover for connectors has to be removed from back cover). Finally insert the small cover for connectors. Small covers are unique for each plug-in module.