AVIWEST

DMNG PRO180

User Guide

Document version: rev L

Software Version: v2.6.x

01/2017

Table of Contents

How to Read this Document?

This User Guide is intended for reporters operating the product in the field. The document provides instructions to operate the DMNG PRO and to modify some settings from its touchscreen.

To facilitate the navigation through this User Guide, we adopt the following text styles and symbols:

Cross-reference	Cross-references are underlined; click on them to access the referred part.
UI term	Terms highlighted in bold are user interface terms.
Variable	Data that can vary, such as default values, are in italic.
Glossary term	Terms defined in the glossary; click on them to access the glossary.
	References toward other documents.
 **Note**	Important information, reminders, recommendations or tips.
 **Caution**	Precautions to avoid any damage to the equipment or environment.
 **Warning**	Precautions to avoid any physical injury.

Important notice: The content of this guide may be modified without notice. Please login to your Extranet on http://www.aviwest.com/ to make sure that you have the latest version of this guide.

Copyright and Trademarks

This User Guide and its content are the property of AVIWEST. It is forbidden to copy, disclose, or reproduce either the whole document or any part without AVIWEST's prior written agreement.

DMNG® is a trademark of SAS AVIWEST. All other trademarks are the property of their respective owners.

Compliance

Before using the DMNG PRO180 or DMNG PRO180-RA, please inform yourself about laws and regulations in force in the country in which you use it.

The EU, F4G, and F4G-EU versions of the DMNG PRO comply with the R&TTE directive (1999/5/CE).

Please refer to the sticker pasted on the DMNG PRO to know the version of your DMNG PRO.

The declaration of conformity is available upon request; if you need it please contact AVIWEST.

If you have to register the IMEI numbers (modem identifiers) and/or IMSI numbers (SIM identifiers) for legal purposes, please see Checking IMEI/IMSI Numbers.

Overview

DMNG Ecosystem Overview

The DMNG ecosystem, which stands for Digital Mobile News Gathering, is a video contribution system for streaming live video content over bonded IP and satellite networks.

A DMNG ecosystem includes at least two types of components:

- **Field units**: DMNG PRO and DMNG RACK video encoders and transmitters, as well as smartphones using the DMNG APP.
- DMNG receivers (DMNG Studio or DMNG StreamHub) video server applications.

A DMNG ecosystem can also include a DMNG Manager, which is the server application designed to monitor and manage an entire ecosystem.

Based on the use of IP networks, the DMNG system makes the most out of the available connections to stream a video from anywhere in the world to a DMNG receiver. To ensure the transmission reliability and therefore enhance the video quality, the DMNG system combines a proprietary bonding technology and a packet redundancy mechanism. Bonding multiple wireless and wire network connections aims to increase the available bandwidth. In mono-link connections, the bonding stack also aims to secure the link.

DMNG PRO Overview

The DMNG PRO180 is a video encoder and transmitter designed to uplink videos over bonded IP network connections using **Unicast** or **Multicast RTP**, MPEG Transport Stream over UDP, also called **MPEG-TS**, or **TS over IP**. Able to bond Ethernet, WiFi and 3G/4G mobile network connections, the DMNG PRO can also stream via satellite connections using a portable satellite broadband terminal such as Inmarsat BGAN, or other satellite terminals such as GX, THURAYA IP and KA-SAT, or even using a satellite modulator.

Package Content

The DMNG PRO is delivered with:

- 1 x 15V AC/DC adapter and power cord

  Caution – Safety precautions

  Only use the AC/DC adapter and the power cord provided by AVIWEST. Using another AC/DC adapter and power cord can damage the device and makes void the warranty.

- 1 USB key containing technical documents (User Guide, Configuration Guide and QuickStart guide)
- 1 x Quickstart guide

Main Functions

Designed for newsgathering professionals, the DMNG PRO offers the following functions:

- Live streaming and Auto-record

The DMNG PRO allows sending a live video to a DMNG receiver and recording it simultaneously using the **Auto-record** function. Thanks to its dual H.264 encoders, the DMNG PRO can use distinct video resolutions for the live streaming and for the video recording. The DMNG PRO can adapt dynamically the video resolution throughout a live transmission in order to encode the video with the highest possible video resolution according to the networks performance in real-time.

For more details about how to configure the DMNG PRO, please refer to the DMNG PRO Configuration Guide.

- Store & Forward and Progressive Store & Forward

The DMNG PRO allows recording videos into MP4 files and forwarding any type of file to a DMNG receiver.

The Progressive Store & Forward function allows recording a high quality video file and forward it progressively to a DMNG receiver while recording. **Fragmented Store** means that the DMNG PRO records the video by chunks, i.e. in an MP4F file, which enables to simultaneously and automatically forward it to the DMNG receiver using the **Progressive Forward** function.

To ease newsgathering operations, the DMNG PRO also offers an IFB feature, called **Intercom**, and an interface for **Tally Light**.

Via the touchscreen, on field users can also configure basic settings, including configuring network interfaces and profiles to connect to DMNG server (please see Configuring the DMNG PRO). However, to set up the DMNG PRO and configure the advanced settings, **MCR** operators have to access the Web Configurator, the on-line configuration interface.

For more details about configuring the DMNG PRO through the Web Configurator, please refer to the DMNG PRO Configuration Guide.

Supported Video Inputs and Outputs

Supported Video Inputs

The DMNG PRO supports the following video input formats:

- 1080p25[1]
- 1080p30[1]
- 1080i50
- 1080i59.94
- 1080i60
- 720p50
- 720p59.94
- 720p60
- 480i (NTSC)
- 576i (PAL)

The DMNG PRO has three types of audio and video input connectors: HD-SDI, HDMI and composite (composite video and analog audio interfaces). For more details, please see Audio and Video Interfaces.

Video Output Resolutions

The DMNG PRO offers the following video output resolutions[2]:

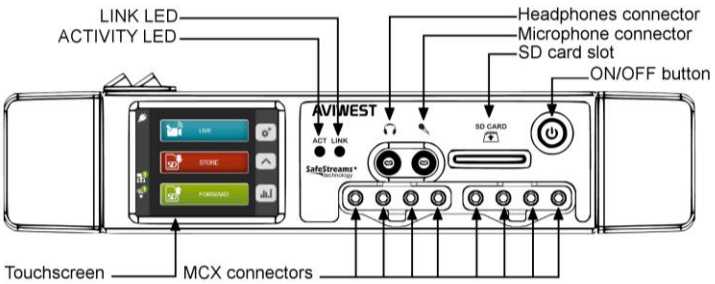
- 1080i HD, 1080i 2/3 and 1080i 3/4
- 1080p HD and 1080p 2/3
- 720p HD and 720p 3/4
- PAL SD, PAL 3/4 and 576p 3/4
- NTSC SD
- QVGA
- CIF
- QVGA
- QHD (540p)
- 480p
- nHD (360p)
- QnHD (180p)

DMNG PRO Interfaces

For more information about the interfaces, please see Hardware Specifications.

Front Panel Interfaces

The front panel of the DMNG PRO180-RA has the following interfaces:



- LEDs

ACTIVITY	Green blinking:	The DMNG PRO is encoding the video signal.
	Red:	The video signal is corrupted.
LINK	Green light:	The DMNG PRO is connected to a DMNG server.
	Green and red blinking:	The DMNG PRO is transmitting video but is disconnected from the DMNG Manager.

[1] 1080p25 and 1080p30 are not supported for Live over TS and for the Auto-record function.

[2] The available video output formats depend on the video source (video input format) as well as on the settings configured in the Live profile used (video resolution and bitrate mode) and on the video type set in the video settings (interlaced or progressive).

- Headphones output jack and microphone input jack (3.5 mini jack), designed to use the Intercom function.
- SD card slot

Notes:

The DMNG PRO only supports SD cards with exFat or Fat32 file system. It does not support SD cards formatted in NTFS. (To format an SD card from the DMNG PRO, please see Formatting an SD Card.)
Use an adapter to insert a Mini SD or Micro SD card.
We recommend using at least class 4 SD cards.

- ON/OFF button

  During the boot, the LED is flashing green. When input voltage is low (empty battery), the LED is flashing red.

- Touchscreen, the user interface of the DMNG PRO
- 8 MCX connectors (only the DMNG PRO180-RA has MCX connectors)

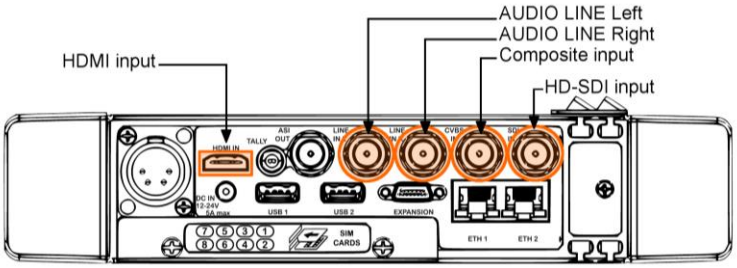
  The MCX connectors are designed to plug two QUAD external cellular antenna arrays. When plugging QUAD external antenna arrays to the MCX connectors, the DMNG PRO180-RA automatically switches from its internal antennas to the QUAD external antenna arrays.

Caution

Only QUAD antennas provided by AVIWEST can be used with the DMNG PRO180-RA.
Never use any other external antenna with the DMNG PRO180-RA.
The combined use (embedded antennas + external QUAD antenna) is forbidden. If one QUAD external antenna array only is available, you have to disable the modems that are not linked to this external antenna, please see Disabling Modems from the Settings Menu.

Audio and Video Interfaces

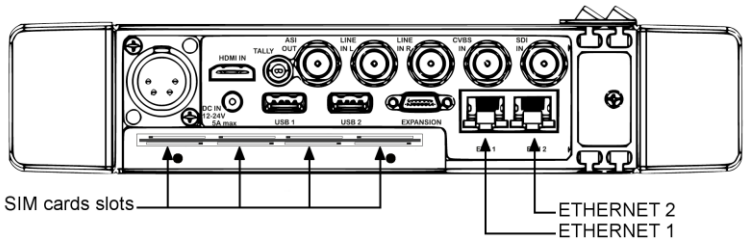
The DMNG PRO has three different types of audio and video inputs connectors located on its rear panel:



- 1 HDMI 1.3 connector
- 1 BNC connector for HD-SDI video input with embedded audio
- 3 BNC connectors for composite video and audio inputs:
    - CVBS: video composite input (yellow)
    - Audio line right (red)
    - Audio line left (white)

Network Interfaces

The DMNG PRO180, or DMNG PRO180-RA, embeds the following network interfaces:



- 8 internal cellular modems (3G or 3G/4G modems)

  The type(s) of cellular modems embedded depend on the modem configuration of your DMNG PRO.

  Please refer to the sticker pasted on the product for the modem assignments table.

  Please contact AVIWEST if you need to know the specifications of the modems embedded into your DMNG PRO.

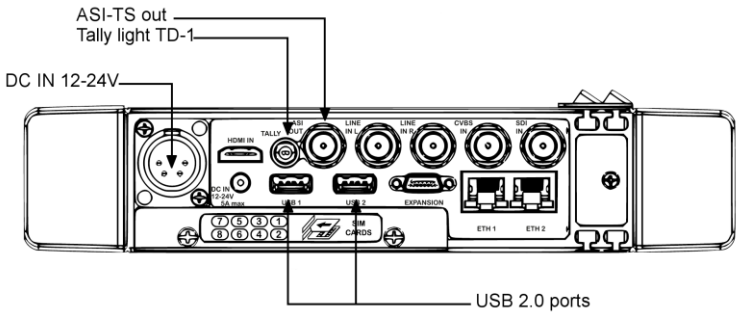
- 8 internal cellular high gain patented antennas
- 8 SIM slots

  Please refer to the cover of the SIM card slots to know which SIM slot corresponds to which internal cellular modem.

- 2 RJ-45 Ethernet interfaces
- 1 built-in WiFi modem (2.4GHz, 802.11 b/g/n, +15dBm max) and an internal WiFi antenna

Other Interfaces

The rear panel of the DMNG PRO also includes the following interfaces:

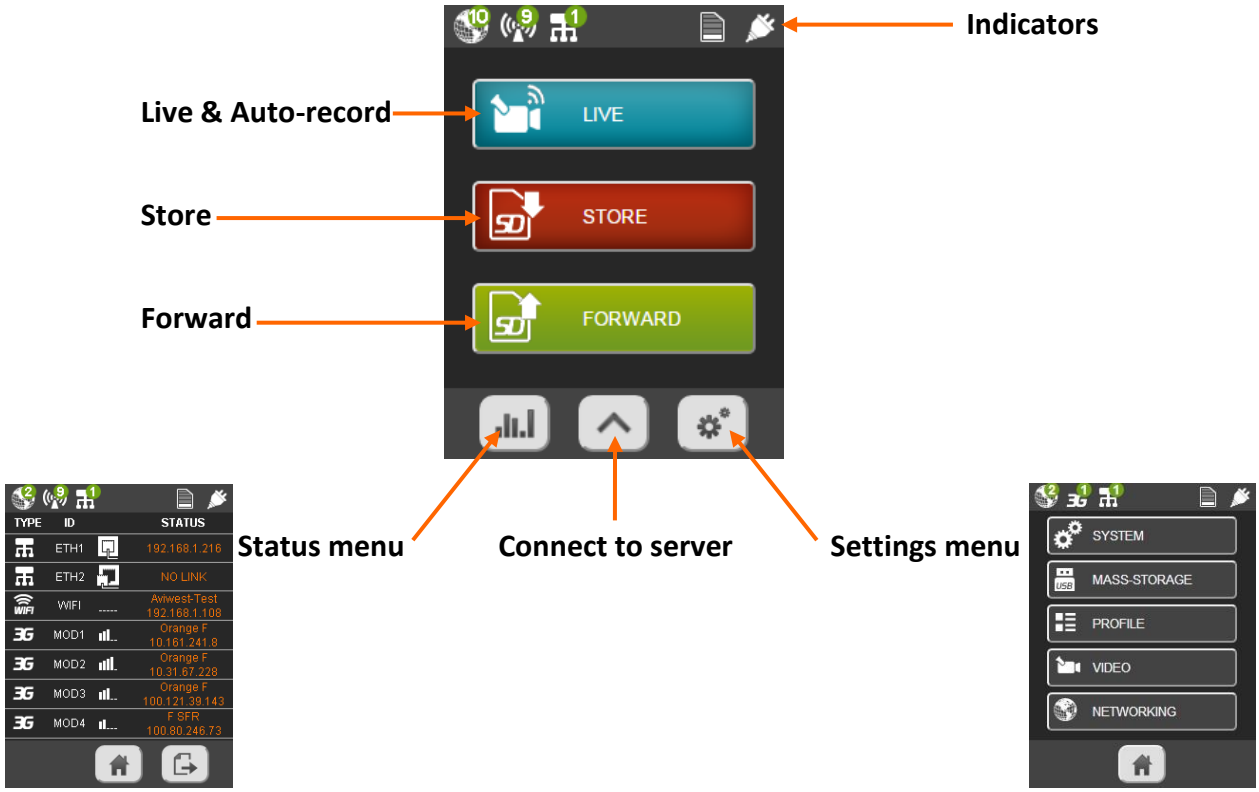


- ASI OUT: video output connector designed to stream live videos with TS transport protocol
- 1 DC IN connector (12-24V)
- 1 mini jack connector to connect a tally light TD-1 device
- 2 USB 2.0 ports

Note: The DMNG PRO does not support USB keys formatted in NTFS file system.

DMNG PRO User Interface Overview

The Home screen gives access to the main functions of the DMNG PRO (Live, Store and Forward), to the Status menu as well as to the Settings menu. It also includes a button to connect the DMNG PRO to the server.



For more information about the Settings menu, please see Configuring the DMNG PRO.

For more information about the Status menu, please see Configuring Network Interfaces.

Navigation


Click the Home button to go back to the Home screen at any moment.


Click the Settings button to access the Settings menu.


Click the Status button to access the Status menu.


Use the arrow buttons to navigate between pages.

On the touchscreen, you can click on the text highlighted in orange to edit it or to change the parameter currently selected.

Indicators

On every page, the top part of the touchscreen includes indicators showing: the status of the connection to the server, the active network connections, the power supply (battery level), the mass storage devices and the Intercom status. For more details, please see Indicators.

Getting Started

Operating the DMNG PRO

In order to operate the DMNG PRO properly, please read this section.

Safety and Health Precautions

When connected to wireless networks (3G/4G or WiFi), the DMNG PRO emits microwaves that can interfere with other electronic devices.

Warning - Safety precautions

Do not use the DMNG PRO in any place where the use of mobile phones is usually banned: airplanes, hospitals, and areas with a potentially explosive atmosphere (e.g. gas stations, repair shops, fuel or chemical storage areas).

Warning - Health precautions

Operating the DMNG PRO is not recommended for:

- people with electronic implants (e.g. pacemakers, insulin pumps, implanted pulse generators, hearing aids),
- Pregnant women, old people, children, teenagers and people suffering from epilepsy.

Caution – Safety precautions

To avoid interferences with electronic devices contained in vehicles, keep the DMNG PRO away from the vehicle's dashboard.

Operating Environment

Before operating the DMNG PRO, make sure that the environment corresponds to the conditions mentioned below:

- Ambient operating temperature: -10 °C to 50 °C
- Ambient operating humidity: 10 % to 85 % (no condensation)
- Protect the DMNG PRO against rain, dust and shocks.
- Avoid long exposure to direct sunlight.
- Do not obstruct the air inlets and outlets.
- You can operate the DMNG PRO mounted into the AVIWEST's backpack. However, don't use the rain cover of the backpack when the DMNG PRO is operating.

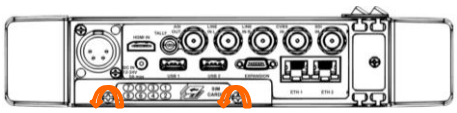
Caution – Safety precautions

Do not operate the DMNG PRO in ambient temperature or humidity out of the above-mentioned ranges. Doing so may cause damage the DMNG PRO and makes void the warranty.
Never operate the DMNG PRO in any other backpack than the one provided by AVIWEST. Insufficient air flow may damage the DMNG PRO and makes void the warranty.

Inserting SIM Cards

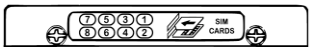
Insert the SIM cards before powering on the DMNG PRO. To insert the SIM cards:

① Unscrew the cover of the SIM card slots located on the rear panel.



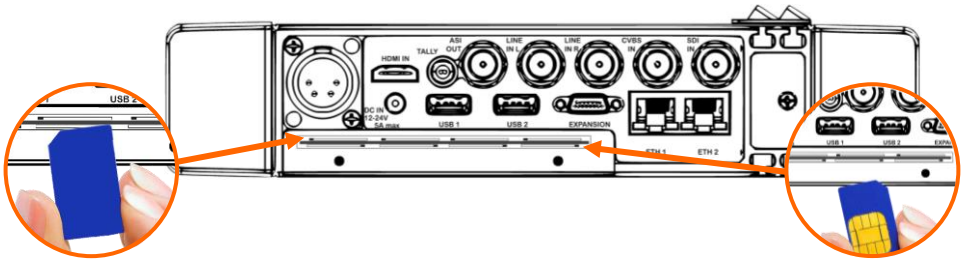
② Refer to:

- the cover of the SIM card slots to know which SIM slot corresponds to which internal cellular modem:



- the sticker pasted on the product for the modem assignments table indicating which slots support 3G SIM cards only, and which slots support both 3G and 4G SIM cards.

③ Insert each SIM card into a slot.
Make sure to insert each SIM card properly, as shown below:



Top slots (1, 3, 5, 7) Bottom slots (2, 4, 6, 8)

▷ If the SIM cards have already been configured on the DMNG PRO, they automatically connect to the cellular networks after powering on the DMNG PRO.

Notes:

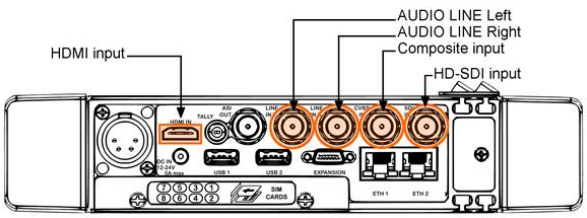
- If you insert SIM cards while the DMNG PRO is turned on, you have to follow the steps in Managing Cellular Modems or to reboot the DMNG PRO.
- Before using SIM cards with the DMNG PRO, you have to unlock them, i.e. to disable the PIN code, see Unlocking PIN Code.
- If it is the first time you use these SIM cards with the DMNG PRO, you have then to configure them, please see Configuring 3G/4G SIM Cards.

Connecting the DMNG PRO to the Video Camera

To connect the DMNG PRO to the video camera:

① If the DMNG PRO includes a female V-mount, gold-mount or PAGlok plate, attach it to your shoulder video camera or install it into an AVIWEST backpack.

② Connect the video cables to the camera's audio and video output(s) and to the DMNG PRO's video input connectors: HDMI, SDI or composite video and analogue audio input.



Note on Video Cables:

- Use as short as possible video cables. The maximal length depends on the video cable type: HDMI 5 meters max and SDI 50 meters max.
- The modems emit microwaves that can interfere with the video connectors. To avoid signal loss, use a fully shielded HDMI or SDI cable. For more details, please see Note on Cables.
- Do not wrap any cable around the upper or lower cover of the DMNG PRO in order to avoid any interference with the antennas.

Powering the DMNG PRO

Caution: The battery or the external power supply (through DC IN) must be limited power source.

To power the DMNG PRO, you have the following possibilities:

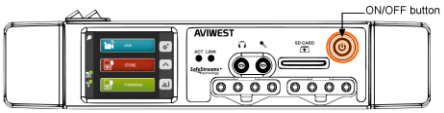
- Attach an external V-mount, Gold-mount or PAGlok battery to the DMNG PRO's male mounting plate.
  The DMNG PRO is compatible with 14.8V broadcast batteries. High current batteries are recommended for powering both camera and DMNG PRO (when the camera is attached to the female mounting plate of the DMNG PRO).

Caution: With the DMNG PRO, you must use external batteries with a non-dangerous energy level.

- Connect the DC adapter and power cord provided by AVIWEST to the 4-pin XLR DC IN connector of the DMNG PRO (for more details, please see Package Content and Hardware Specifications).

▷ You can now turn on the DMNG PRO.

Turning on the DMNG PRO



① Press the ON/OFF button of the DMNG PRO.

▷ The ON/OFF button blinks green until the start-up screen appears. If the ON/OFF button is red blinking, the input voltage is low.

After about 40 seconds, the Home screen appears and the active network interfaces of the DMNG PRO automatically connect to the Internet, if you have previously configured them.

Notes: Before using the DMNG PRO for the first time, you have to you configure:

- network interfaces, please see Configuring Network Interfaces;
- a profile to connect to a DMNG receiver (DMNG Studio or DMNG StreamHub) or to a DMNG Manager, please see Configuring Profiles to Connect to DMNG Servers;
- some audio and video settings (according to the video camera's output), please see Configuring Video Settings.

Checking the Network Connections

To use the Live function or the Forward function of the DMNG PRO, you should have at least one active network connection. Perform the following actions, according to the network connections you will use:

- Check the active network connections (go to the status menu, please see Checking the Network Connection Status);
- Check the configuration of the Ethernet interface(s) before connecting Ethernet cable(s), please see Configuring an Ethernet Interface.

Connecting to a DMNG Server

To use the Live function, the Forward function or the Store function with the Progressive Forward activated, you have first to connect the DMNG PRO to a DMNG server.

To connect the DMNG PRO to a DMNG server already configured[3]:

① Click on .

② Click on **SafeStreams Connect**.

▷ The DMNG PRO connects to the DMNG server, the LINK LED turns green and the following icon appears in the top left corner of the screen: . This icon also indicates the number of network connections used for connecting to the DMNG server.

If the connection to the server failed, the appears in the top left corner of the screen and the DMNG PRO displays an error message, please see Checks Failed.

[3] If there is no profile configured to connect to a DMNG receiver, please see Configuring Profiles to Connect to DMNG Servers.

Streaming Live Videos

What is a Live Profile?

A live profile is a set of parameters including transmission settings, such as transport protocol (RTP or TS) and bonding mode, as well as audio and video encoding settings, such as the output video resolution[4]. The quality of a live transmission mostly depends on the convenience between the network conditions on the shooting location and the selected Live profile. Thus, selecting a proper Live profile is crucial. The output video resolution can be static, e.g. HD, or dynamic throughout the live transmission.

- If you use a live profile configured with dynamic video resolution, the video resolution is dynamically set according to the network performance in real-time. Thus, the DMNG PRO adopts the highest video resolution possible within the current network conditions. Then, the video resolution may vary during the Live.
- If you use a live profile configured with a static video resolution, make sure that the upload speed is sufficient for the video resolution. For instance, for HD video resolution with redundancy percent set to 20% and audio bitrate set to 256kbps, you need at least 12Mbps upload speed.

Preparing the DMNG PRO for Live Transmission

① Connect the video cable(s) from the camera to the DMNG PRO's video interface.

② If you want to use the Auto-record function during the live transmission, insert an SD card into the DMNG PRO.

③ Turn on the DMNG PRO.

④ Go to the Status menu and make sure that the DMNG PRO has at least one network connection. For more information, please see Checking the Network Connection Status.

▷ You can now start transmitting a live video.

Transmitting a Live Video

① Click the **Live** button.

② Select a **Live** profile according to the current network conditions.

③ If you have not to connect to a DMNG Manager, select a DMNG **Receiver**.

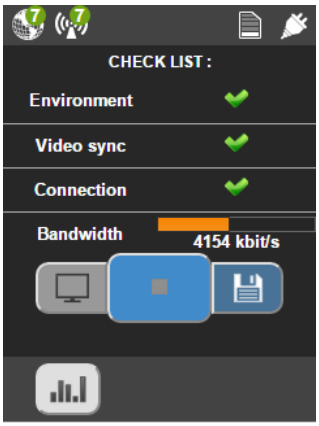
④ Select a **Store** profile (used for the Auto-record function).

[4] For more details about Live profiles, please refer to the DMNG PRO Configuration Guide.

⑤ If needed, click on  to activate the Auto-record function. (Activating and deactivating the Auto-record is also possible during the live transmission.)

⑥ Click on  to start the live transmission.

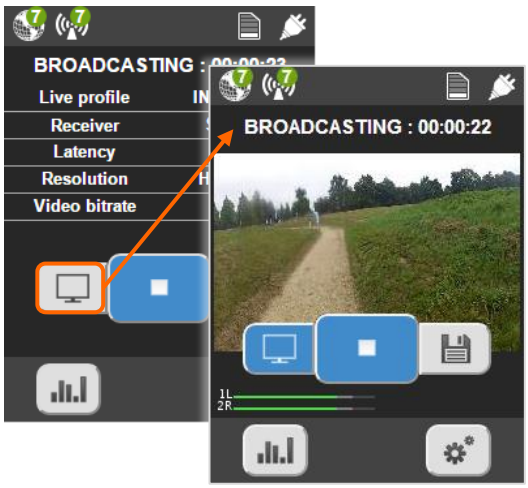
▷ Before starting the live transmission, the DMNG PRO checks:



- the device's **Environment**: network connection, SD card presence and format validity, receiver,
- the **Video sync**: the video input signal validity (checks that the video source and frequency configured on the DMNG PRO correspond to the video input signal),
- the **Connection** to the receiver,
- the available **Bandwidth** (10-second upload speed test).

▷ The live transmission automatically starts after these checks. If one of these checks failed, please see Checks Failed.

▷ During a live transmission you can:



-  activate or  deactivate the Auto-record function;
-  preview the video being transmitted;

-  monitor the video transmission thanks to the data displayed on the user interface: Elapsed time since the beginning of the transmission, **Live profile, Receiver, Latency, Video resolution** and **Video bitrate** (if the video bitrate mode is VBR, the video bitrate may fluctuate throughout the transmission, as well as the video resolution);
-  change the **Store** profile used for the Auto-record (only when the Auto-record is deactivated);
-  check the performance of each network interface

(upload speed).

⑦ When you want to stop the live transmission, click on  .

⑧ Click on **Yes** to confirm that you want to stop the live transmission.

▷ You can now turn off your video camera.

Note on Auto-record:

The videos recorded using the Auto-record are not automatically forwarded to the DMNG receiver during a Live transmission, even though you have selected a fragmented Store profile. To send the video file recorded using the Auto-record to a DMNG receiver, use the Forward function after stopping the Live, please see Forwarding Files.

Recording Videos

Store Function Overview

The Store function allows recording videos onto the SD card inserted into the DMNG PRO.

Fragmented Store means that the DMNG PRO records the video by chunks, i.e. in an MP4F file, which enables to simultaneously and automatically forward it to the DMNG receiver using the Progressive Forward function.

Preparing the DMNG PRO to Record

Before using the Store function, you have to:

① Connect the video cable(s) from the camera to the DMNG PRO's video interfaces.

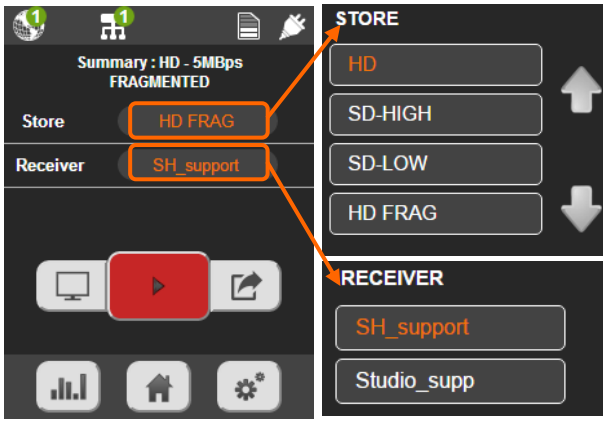
② Insert an SD card into the DMNG PRO.

③ Turn on the DMNG PRO.

④ If you use the Progressive Forward function, go to the Status menu and make sure that the DMNG PRO has at least one active network connection. For more information, please see Checking the Network Connection Status.

▷ You can now start recording.

Recording a Video File



① Click the **Record** button.

② Select a **Store** profile.

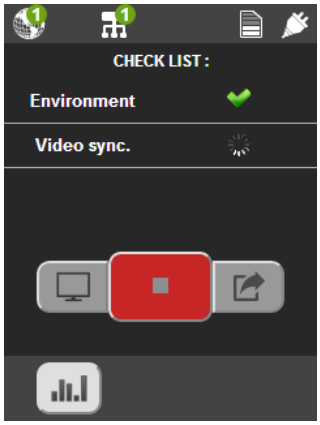
③ If the selected Store profile is configured with a fragmented mode:

- if you have not to connect to a DMNG Manager, select a **Receiver**.
- if you have to forward the video while recording it, click on  to activate the Progressive Forward. (Activating and deactivating the Progressive Forward is also possible during the recording.)

④ Click on  to start recording.

▷ Before starting the recording, the DMNG PRO checks:

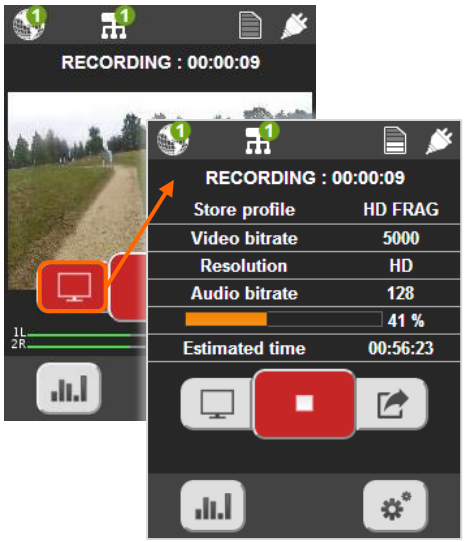
- the device's **Environment**: network connection (if the Progressive Forward is activated), SD card presence and format validity, receiver…
- the **Video sync**: the video input signal validity (checks that the video source and frequency configured on the DMNG PRO correspond to the video input signal)



- the **Connection** to the receiver (only if the Progressive Forward is activated),

▷ The DMNG PRO starts recording the video into an MP4 or MP4F file.
If one of these checks failed, please see Checks Failed.

▷ During the recording, you can:



- preview the video being recoded;
- monitor the video transmission thanks to the data displayed on the user interface: Elapsed time since the beginning of the recording, **Store profile, Video bitrate**, **Video resolution**, **Audio bitrate**, remaining memory on the SD card and **Estimated time** (which is the remaining time of video that can be recorded on the SD card according to the selected profile);
- activate or deactivate the Progressive Forward function during the recording;
- change the **Receiver** (only when the Progressive Forward is deactivated),
- check the performance of each network interface (upload speed).

⑤ When you want to stop recording, click on .

⑥ Click on **Yes** to confirm that you want to stop the video recording.

▷ The video file is recorded onto the SD card.
For more details about the video file specifications, please see Video File Specifications.
If you have activated the Progressive Forward function: after stopping the recording the Forward automatically starts, please wait after stopping the recording up to see the **Validating** and **Success** messages before turning off the DMNG PRO.

Forwarding Files

Forward Function Overview

The DMNG PRO allows forwarding any type of file to a DMNG receiver.

The Forward function offers three possibilities:

- forwarding one file saved onto a mass-storage device,
- forwarding all the files saved onto a mass-storage device,
- forwarding the last video file recorded using the Store function or the Auto-record function.

Forwarding One or Several Files

① Connect the mass-storage device on which is saved the file(s) to forward to the DMNG PRO (SD card or USB key).

② Turn on the DMNG PRO.

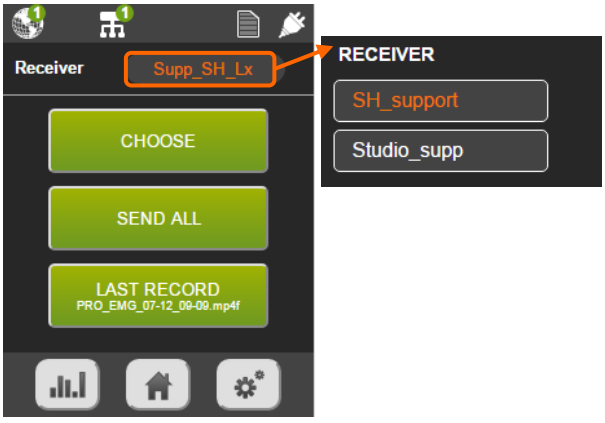
③ Go to the Status menu and make sure that the DMNG PRO has at least one network connection. For more information, please see Checking the Network Connection Status.

④ Go back to the home screen and click on **Forward**.

⑤ If you have not to connect to a DMNG Manager, select a **Receiver**.

⑥ According to your need, click on:

- **CHOOSE** to browse the mass-storage devices inserted into the DMNG PRO and select one file.
- **SEND ALL** to forward all the files saved onto the mass-storage devices inserted into the DMNG PRO.
- **LAST RECORD** to forward the last video file recorded by the DMNG PRO.



▷ If you have clicked on **CHOSSE**, please perform the below steps 7 to 9.

⑦ If you have clicked on **CHOOSE**, click the **SDCARD** or the **USB KEY**[5] button according to the mass-storage device on which is saved the file to forward.

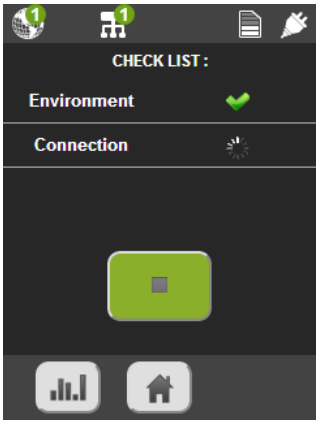
⑧ Browse the mass-storage device (using the arrows located on the right of the screen) and click on the file name to choose the file to forward. The file name is then highlighted in orange.

[5] Reminder: The DMNG PRO does not support USB keys formatted in NTFS file system.

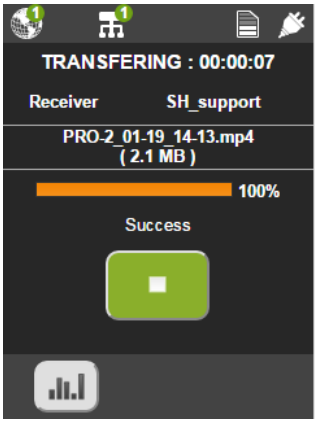
⑨ Click on  .

▷ Before starting the file forward, the DMNG PRO checks:

- the device's **Environment**: network connection, SD card presence and format validity, receiver…
- the **Connection** to the receiver.



▷ The DMNG PRO automatically starts forwarding the selected file(s).
If one of these checks failed, please see Checks Failed.



▷ The DMNG PRO automatically stops the file forward when the receiver has received the file(s), after receiving the **Validating** and **Success** messages from the DMNG receiver.

Notes:

- If needed, you can stop the file forward at any moment by clicking on  .
  The file forward then stops. You will be able to restart the Forward exactly where it stopped.
- When you forward a file recorded with a fragmented profile, the DMNG PRO starts forwarding the MP4F file to the receiver although the transfer has been stopped before its end.
- The DMNG PRO can forward any type of file, except if the file name includes the * character.
- When you select "**SEND ALL**", the DMNG PRO forwards in queue all the files saved onto the mass-storage devices connected to it.
- The Auto-Forward is a configuration option which can be activated from the Web Configurator in order to automatically send all the read-only files saved onto an SD card or an USB key to the DMNG receiver.
  The Auto-erasing is a configuration option which can be activated from the Web Configurator in order to automatically erase the file from the SD card or USB key after its successful forward (except read-only files).
  For more details about those configuration options, refer to the DMNG PRO Configuration Guide.

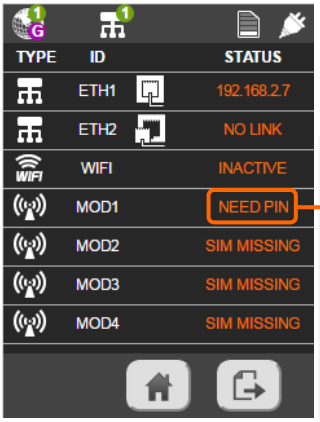
Unlocking PIN Code

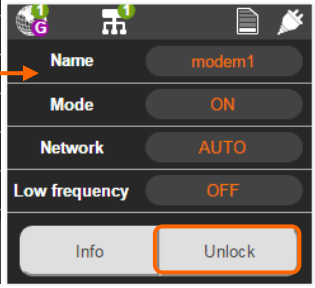
Before configuring a 3G/4G SIM card inserted into a modem of the DMNG PRO, you have to unlock its PIN code[6].

① Click on  .

② Click the **NEED PIN** message displayed in front of the modem in which is inserted the SIM card to unlock.

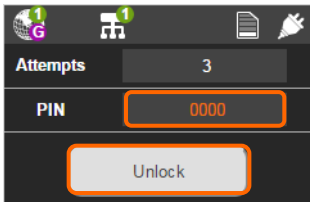
③ Click the **Unlock** button.





④ Enter the PIN code to unlock the SIM card. You have three attempts.

⑤ Click the **Unlock** button.



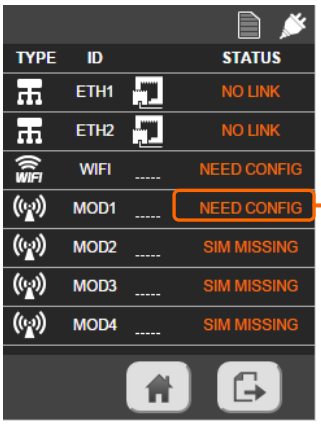
▷ The status of the SIM card is now **NEED CONF**, you can configure it.

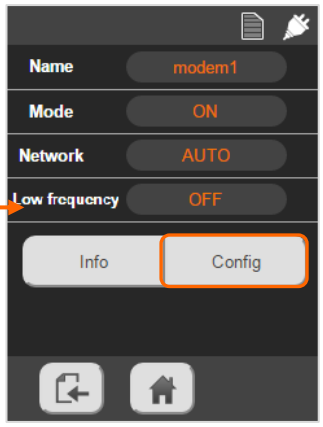
[6] Unlocking PIN code is not available for SIM cards inserted into ZTE ME3760 modems ("4G-CN" version of the DMNG PRO).

Configuring 3G/4G SIM Cards

① Click on  .

▷ If the status of the modem that you want to configure is not **NEED CONFIG**, please see Network Connection Errors.

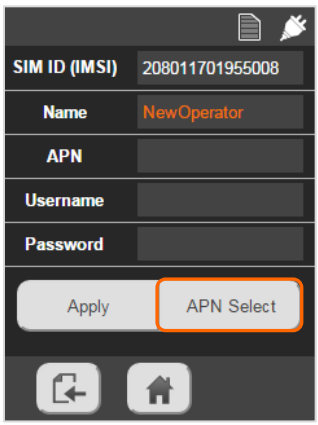




② Click on **NEED CONFIG**.

③ Click the **Config** button.

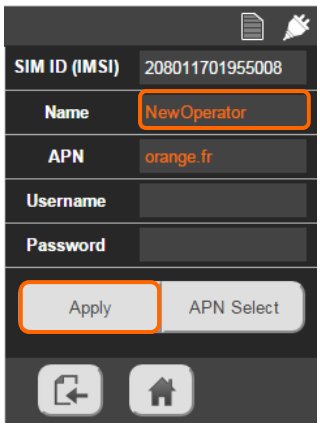
▷ The modem configuring page appears. The DMNG PRO detects the SIM ID (IMSI).



④ Click the **APN Select** button.

▷ If the operator (cellular carrier) of the SIM card is registered in the DMNG PRO's APN database, the DMNG PRO automatically fills in the **Name** field. Moreover, if there is only one APN corresponding to your SIM card in the DMNG PRO's APN database, the DMNG PRO automatically fills in the **APN** field, but this is not necessarily the offer corresponding to your data plan.

⑤ Click in the **Name** field to display the available offers and select the offer corresponding to your SIM card.
If your offer does not appear in the list, please return to the modem configuring page and enter the **Name** (12 characters maximum), **APN**, **username** and **password**[7] provided by your operator, and go to step 7.



⑥ Click the **Apply** button.

⑦ Click the **Apply** button.

▷ Go to the status menu to check the status of the modem: it should be **Connecting** and then the DMNG PRO should show the operator name and IP address of the modem. If you see any other message, please see Network Connection Errors.
You may need to perform further configuration:
If you use the DMNG PRO while moving from outdoor to indoor or if you want that the modem connect to 3G only or 4G only, please see Configuring Advanced Settings on a Cellular Modem.
If you use the DMNG PRO abroad with your local SIM cards, please see Selecting a Network Operator (Roaming).

[7] The username and password are not always required.

Configuring Advanced Settings on a Cellular Modem

For specific use cases, you may need to configure advanced settings on cellular modems. The configuration options mentioned in this section restrain the connection capabilities of the modem.

Note: Other advanced configuration settings can be set on a modem from the Web Configurator in order to select specific frequency bands to which a modem can connect. If so, the **Low frequency** field and the **Network** field show "CUSTOM" and modifying the settings mentioned in this section results in resetting the modem to its default configuration (i.e. it erases the specific configuration performed from the Web Configurator).

For more details about configuring advanced settings on a cellular modem, please refer to the DMNG PRO Configuration Guide.

Activating the Low Frequency Mode

This modem configuration option, only available for internal modems, aims at avoiding cellular signal loss when performing a live transmission while moving from the outside to the inside of buildings and vice versa. As a rule of thumb, low frequency bands (i.e. inferior to 1GHz) penetrate better inside buildings than high frequency bands. In order to take advantage of this option, please follow the below guidelines:

- Activate this option for one modem out of 2 maximum.

  Never activate the Low frequency mode for all the modems.
- If a modem cannot connect to the cellular network after activating the Low frequency mode, it may mean that the cellular network operator of the SIM card inserted into the modem does not make use of low frequency bands on your location. If so, do not activate this option for the modem.
- If you need to use the DMNG PRO inside buildings only, we strongly suggest that you perform in situ tests before the event in order to check the connection stability. If you notice that a cellular connection is very unstable inside buildings (numerous disconnections), you may have to activate the low frequency mode for the modem showing the instability.

To activate this configuration option on a modem[8]:

① Click on .

② Click on the status of the modem for which you want to activate the Low frequency mode.

③ Click in the **Low frequency** field.

④ Click on **ON** to activate the Low frequency mode for this modem.

▷ The modem is now able to connect to low frequency bands only.

In the status menu, the * character is displayed aside the modem to indicate that the configuration of the modem is specific.

[8] This configuration option is not available for ZTE ME3760 modems ("4G-CN" version of the DMNG PRO) and CDMA EM660 modems.

Selecting a Cellular Network Mode

By default, the embedded 3G/4G modems can connect to 3G and 4G networks according to the network coverage on location. Sometimes, depending on the operator and location, the performance of 4G networks is lower than the performance of 3G networks. If needed, you can force internal 3G/4G modems to connect to 3G network only or to connect to 4G network only:

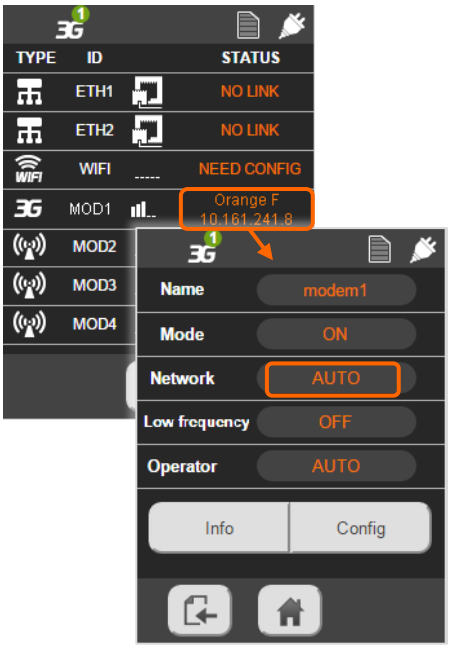
① Click on  .

② Click on the status of the modem for which you want to select a cellular network mode.

③ Click in the **Network** field.

④ Select a cellular network mode:

- **AUTO**: to enable the modem to connect to 3G and 4G networks;
- **3G only**: to force the modem to connect to 3G network only;
- **4G only**: to force the modem to connect to 4G network only.



▷ First the modem disconnects, and then it reconnects to the selected network.

In the status menu, the * character is displayed aside the modem to indicate that the configuration of the modem is specific.

Selecting a Network Operator (Roaming)

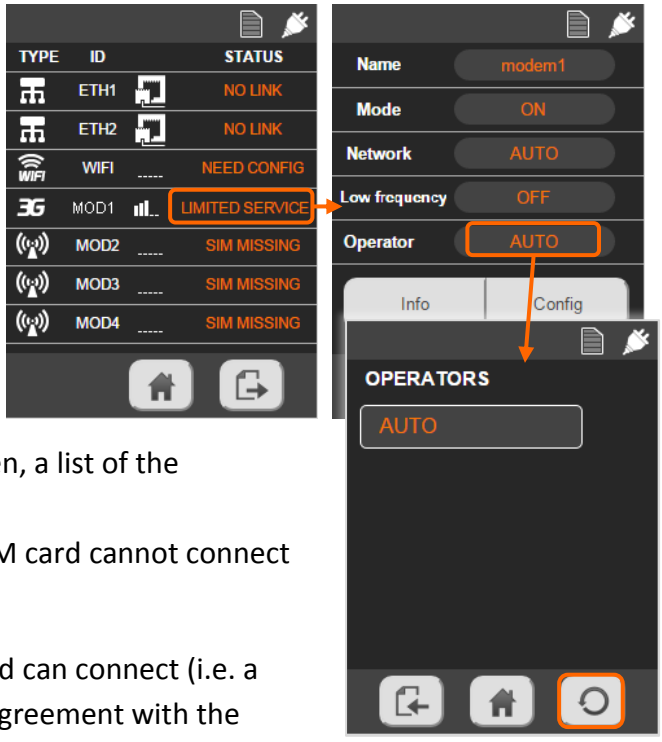
This section explains how to select a network operator to connect SIM cards to a specific mobile network. This option allows you to use the DMNG PRO abroad with your local SIM cards, i.e. SIM cards bought in a different country than where you are using them. This configuration option also allows you to select the network operator for SIM cards that can connect to different mobile networks.

Prerequisites

- Configure each SIM card from the DMNG PRO with the right APN (i.e. the APN provided with the SIM card by the mobile network operator).
- You have to be on location (i.e. in the country where you are going to use the DMNG PRO).
- You have to know which foreign service provider has a roaming agreement with your SIM card operator.

Scanning the Available Networks

If the status of the modem into which you inserted the SIM card remains **NO NETWORK**, **CONNECT FAILED** or **LIMITED SERVICE**, you have to select a cellular network to which the SIM card can connect:



① Click on .

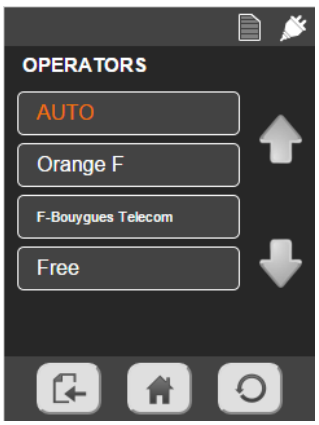
② Click on the status of the modem for which you want to select a network operator.

③ Click in the **Operator** field.

④ Click on to scan the available networks.

▷ The scan can last up to 45 seconds. Then, a list of the available networks appears.
The network operators to which the SIM card cannot connect appear in light grey boxes.

⑤ Select a network to which your SIM card can connect (i.e. a network operator that has a roaming agreement with the network operator of the SIM card).



▷ The status becomes **CONNECTED** and the Status menu shows the operator name and the IP address assigned to the cellular modem.
If the status of the modem is **NO NETWORK**, **CONNECT FAILED** or **LIMITED SERVICE**, you have to select another network operator.

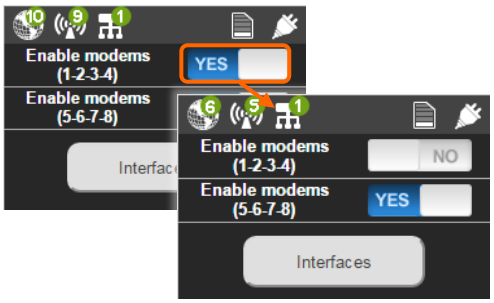
Managing Cellular Modems

If you insert SIM cards while the DMNG PRO is turned on, you have to deactivate and then reactivate the modems. To do so you have two possibilities: you can turn on and off each modem independently from the Status menu, or enable and disable 4 modems at the same time from the Settings menu.

Please note that there is a difference between these two methods. Disabling the modems by group of 4, i.e. from the Settings menu, turns off all the radiofrequencies that the modems emit, but it is not the case when deactivating each modem from the Status menu.

If you do not use some cellular modems, you have to disable the modems not used from the Settings menu.

Disabling Modems from the Settings Menu



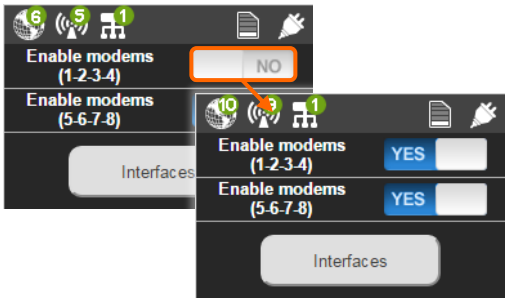
① Click on ⚙.

② Click on **NETWORKING**.

③ Click the switch in front of the 4 modems you want to deactivate to turn it to the **NO** position.

▷ The modems are deactivated.

Enabling Modems from the Settings Menu



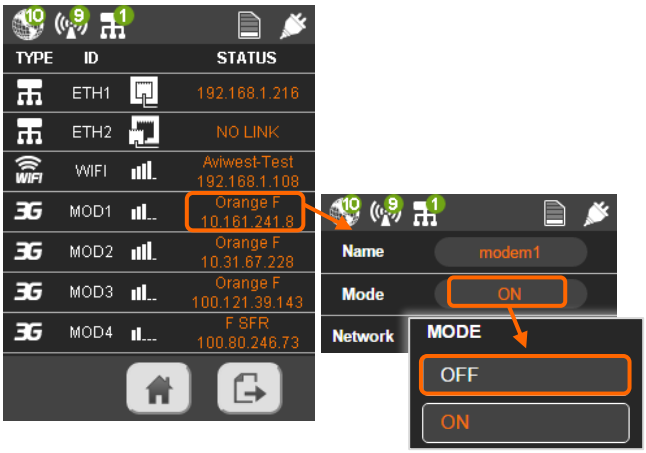
① Click on ⚙.

② Click on **NETWORKING**.

③ Click the switch to turn it to the **YES** position to enable the modems.

▷ The modems are enabled and the DMNG PRO detects the SIM cards inserted. Go to the status menu to check the modems status.

Turning off a Cellular Mode from the Status Menu



① Click on 📶.

② Click on the status in front of the modem name.

③ Click in the **Mode** field.

④ Select **OFF** to turn off the modem.

▷ Please wait a few seconds.

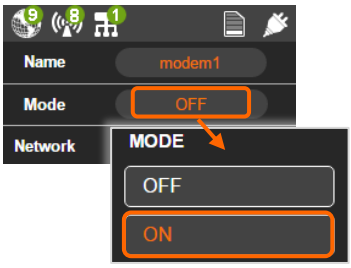
Turning on a Cellular Mode from the Status Menu

① Click on 📶.

② Click on the status in front of the modem name.

③ Click in the **Mode** field.

④ Select **ON**.



Configuring an Ethernet Interface

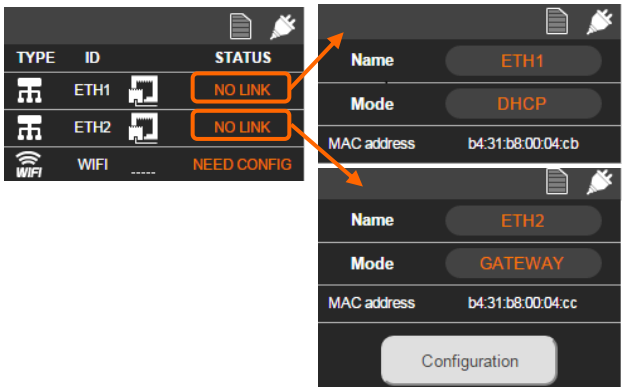
The DMNG PRO offers different configuration modes for its Ethernet interfaces to suit different needs:

- **DHCP**: To connect the DMNG PRO to a broadcast domain that has a DHCP server, i.e. a router or an ADSL box, to a BGAN terminal or to a KA-SAT antenna. In DHCP mode, the settings of the Ethernet interface (IP address, subnet mask and gateway) are assigned by the equipment to which it is connected. This is the default configuration mode of Ethernet 1.
- **STATIC**: To connect the DMNG PRO to a broadcast domain without DHCP server or to a KA-SAT antenna. Configuring in static mode requires that you are administrator of the network.
  This mode allows you to set the network settings of the Ethernet interface (IP address, netmask and gateway).
- **GATEWAY**: To connect a host to the DMNG PRO (for instance a laptop to perform advanced configuration[9]). The DMNG PRO acts as a DHCP server and assigns an IP address to the connected host. The DMNG PRO automatically detects from the netmask the range of IP addresses that it can use for assigning an IP address to the connected host. This is the default configuration mode of Ethernet 2.

Before connecting a device to an Ethernet interface, make sure that its configuration suits your need. To change the configuration of an Ethernet interface:

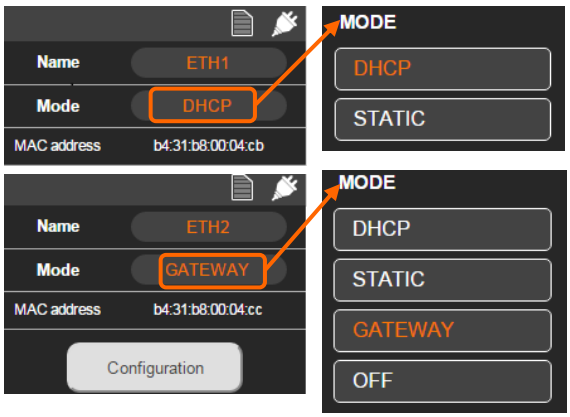
① Click on .

② Click on the status of the Ethernet interface for which you want to change the configuration.



③ Click in the **Mode** field to select another configuration mode. The available configuration modes depend on the Ethernet interface:

- Ethernet 1: **DHCP** or **STATIC**
- Ethernet 2: **GATEWAY**, **STATIC** or **DHCP**
  You can also turn off this Ethernet interface.

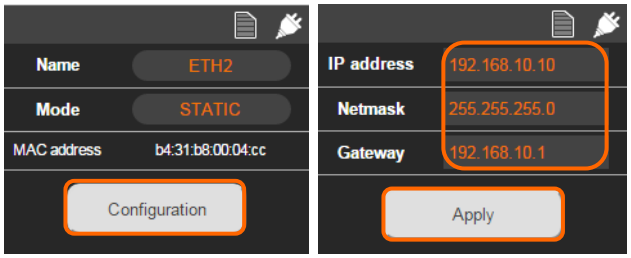


[9] For more details about configuring advanced settings, please refer to the DMNG PRO Configuration Guide.

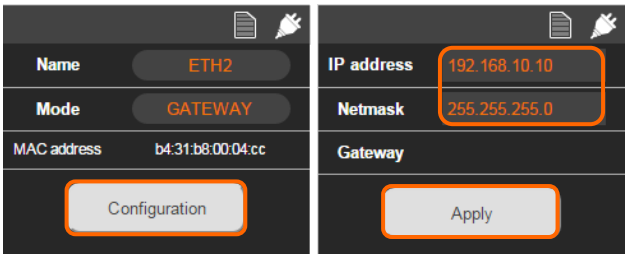
▷ If you have selected **DHCP**, no configuration is required since the DMNG PRO automatically receives its parameters from the equipment to which it is connected. If you have selected any other mode, please perform the following steps.

④ Click the **CONFIGURATION** button to configure the network parameters of the Ethernet interface according to the selected mode:

- **STATIC**: **IP address**, **Netmask** and **Gateway** (in accordance with the network settings of the device to which you connect the DMNG PRO).



- **GATEWAY**: **IP address** (its default IP address is *192.168.10.10*) and **Netmask**.



⑤ Click the **Apply** button.

Notes:

- Never connect the DMNG PRO to a LAN through an Ethernet interface configured in gateway mode.
- If you connect the DMNG PRO to a LAN on which there is a firewall, please see Checking the network Configuration.

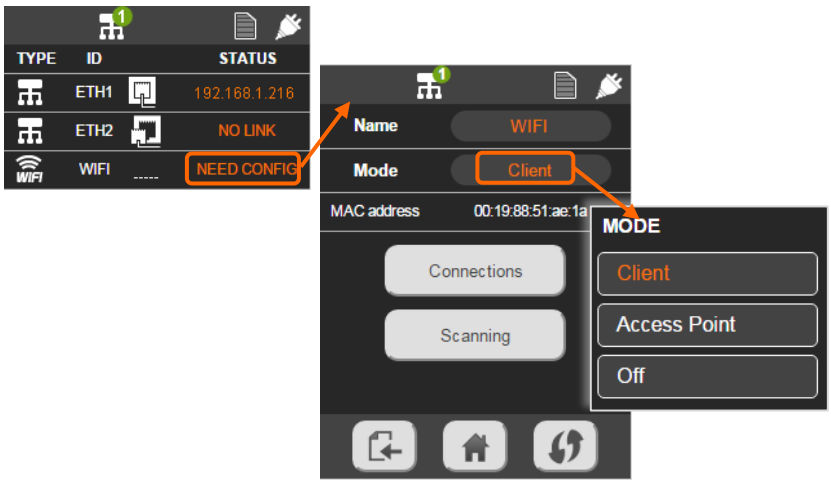
Connecting the DMNG PRO to a WiFi Access Point

This section explains how to connect the DMNG PRO to a WiFi access point.

① Click on  .

② Click on the status of the WiFi modem.

③ Make sure that the selected mode is **Client**.



▷ You then have four possibilities to connect the DMNG PRO to a WiFi access point: using WPS, scanning the available WiFi access points, connecting to a preset WiFi access point or configuring a WiFi access point.

Connecting to a WiFi Access Point using WPS

① Click on  .

▷ The DMNG PRO scans the WiFi access points allowing WPS connection and connects to one of them.

Scanning the Available WiFi Access Points

① Click the **Scanning** button.

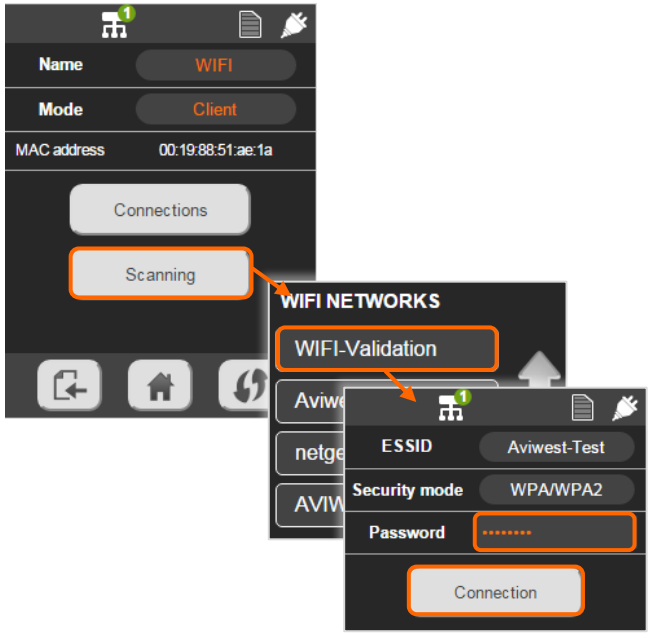
▷ Please wait during the scanning process.
The DMNG PRO then displays the list of the available WiFi access points.

② Select a WiFi access point from the list.

③ Enter the **Password** to connect to the WiFi access point.

④ Click the **Connection** button.

▷ The DMNG PRO connects to the selected WiFi access point.
You can now check the connection status of the WiFi interface from the Status menu.



Connecting to a Preset WiFi Access Point

A preset WiFi access point is an access point that has already been configured on the DMNG PRO, either from the touchscreen or from the Web Configurator.

① Click the **Connections** button.

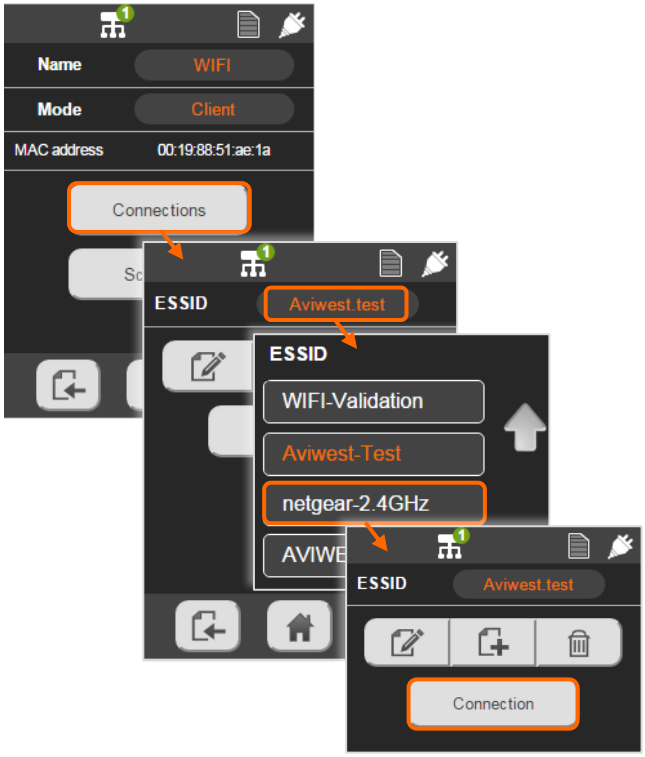
② Click in the **ESSID** field to display all the configured WiFi access points.

▷ The preset WiFi access points appear. If there is no WiFi access point, please see Configuring a WiFi Access Point.

③ Select a WiFi access point from the list.

④ Click the **Connection** button.

▷ Please wait during the connection process. The DMNG PRO then connects to the selected WiFi network.
You can now check the connection status of the WiFi interface from the Status menu.



Configuring a WiFi Access Point

To connect the DMNG PRO to a WiFi access point it has never connected to before, you have to configure it:

① Click the **Connections** button.

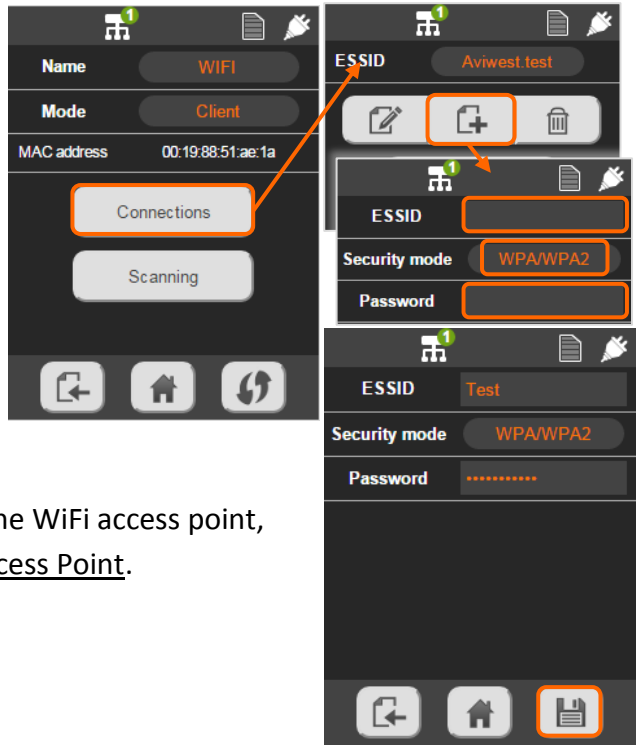
② Click on  .

③ Enter the **ESSID** of the WiFi access point you want to configure.

④ Select a **security mode**.

⑤ Enter the **password**.

⑥ Click on  to save the WiFi access point.



▷ You can now connect the DMNG PRO to the WiFi access point, please see Connecting to a Preset WiFi Access Point.

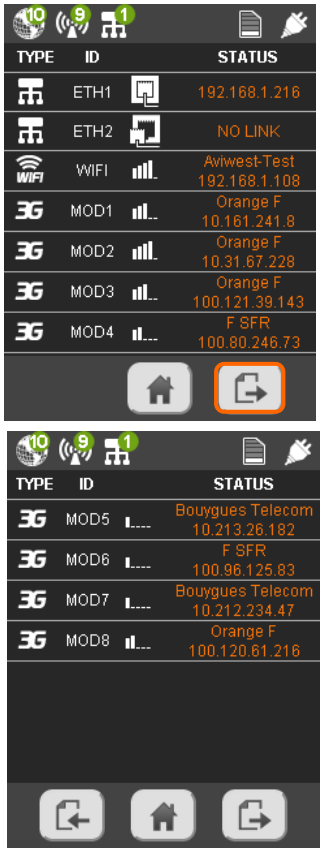
Checking the Network Connection Status

As soon as the DMNG PRO turns on, the active network interfaces which have been previously configured automatically connect to the Internet.

- To check the status of each network connection, click on  to access the status menu.

▷ For each active network connection, the status menu shows the IP address assigned to the network interface.
For wireless connections, the DMNG PRO also shows the signal strength.

On the below example, the DMNG PRO is connected to the Internet through several network interfaces:



- Ethernet 1 interface configured in DHCP mode.
  Its IP address, assigned by the router to which this interface is connected, is shown on the right.
- WiFi interface configured in client mode.
  On the right, the signal strength of the WiFi connection is shown as well as its name and IP address.
- 8 SIM cards are inserted into the cellular modems. The signal strength, the operator name and the IP address are shown on the right.

The* character aside the modem means that the configuration of the modem is specific and restrains its connection capabilities, i.e. configured to connect to 3G network only, to 4G network only, to low frequency bands only or to some specific frequency band(s) only).

Configuring the DMNG PRO

This section explains how to configure the DMNG PRO from its user interface. Please note that advanced settings are only available from the DMNG PRO's Web Configurator.

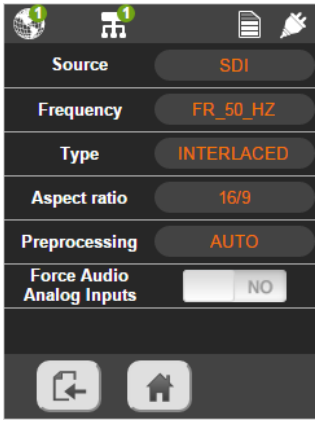
For more details please refer to the DMNG PRO Configuration Guide.

Configuring Video Settings

Before using the DMNG PRO, you have to configure its audio and video settings.

① Click on .

② Click on **VIDEO**.



③ Set the video **Source** according to the video source: **SDI**, **HDMI**, **Analog**: composite video and analog audio or **Pattern**[10].

④ Set the **Frequency** according to the video source: **FR_50_HZ**, **FR_59_94_HZ** or **FR_60_HZ**

⑤ Set the video **Type** according to the video source and to your needs:

- **Interlaced**: If the video source is interlaced and that the video is not designed to be webcasted.
- **Progressive**:
  - if the video source is progressive;
  - if the video is designed to be webcasted from the DMNG receiver.

Notes:

If the video source is progressive (e.g. 720p) and that you select the interlaced video type, the DMNG PRO encodes the video in progressive.

When the video source is interlaced and that you select the progressive video type, the DMNG PRO does not de-interlace the video, thus this may affect the video quality (aliasing).

If the video resolution mode set in the Live profile is webcast, the DMNG PRO always encodes the video in progressive, whatever the video type set in the video settings of the DMNG PRO.

⑥ Set the **Aspect ratio**: **4:3** or **16:9** according to the input video resolution.

▷ You can now connect your video camera to the DMNG PRO.

[10] Pattern is a color test pattern with a 1kHz audio frequency on the right line and the left line.

Activating the Preprocessing

① Click on .

② Click on **VIDEO**.

③ In the **Preprocessing** field, select **AUTO** to activate the preprocessing.

▷ The DMNG PRO automatically activates the preprocessing when the ratio of image complexity to encoding bit rate is high. The DMNG PRO then filters the video base-band signal in order to reduce the image noise, thus facilitating video encoding.

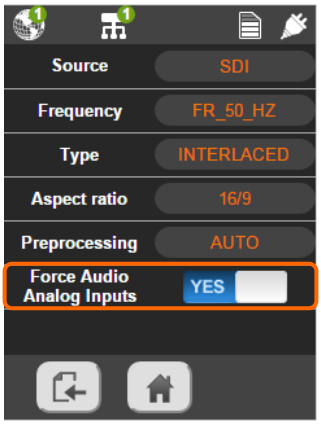
Configuring the Audio Settings

By default, the DMNG PRO automatically sets the audio input according to the selected video source. However, you can configure audio settings to:

- use analog audio inputs and an SDI or HDMI video source or encode the video without audio, see Forcing Analog Audio Inputs,
- encode the audio without video, Encoding Audio Only.

Forcing Analog Audio Inputs

If you need to use an SDI or HDMI video source and analog audio sources, or even no audio source at all:



① Click on .

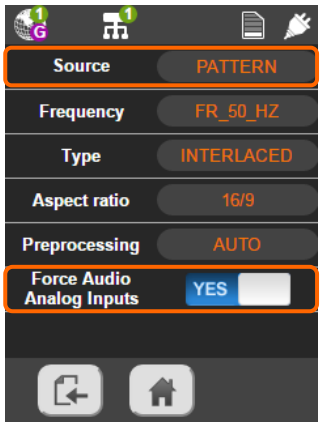
② Click on **VIDEO**.

③ Set the switch located aside **Force Analog Line Inputs** to the **Yes** position.

▷ You can now use an SDI or HDMI video source without embedded audio.

Encoding Audio Only

If you need to encode analog audio inputs without video source:



① Click on .

② Click on **VIDEO**.

③ Select the **PATTERN** video source.

④ Set the switch located aside **Force Analog Line Inputs** to the **Yes** position.

▷ You can now use analog audio inputs without video source. For Live transmissions of audio only, we recommend using a specific Live profile.

For more details about configuring a Live profile for streaming audio only, please refer to the DMNG PRO Configuration Guide.

Configuring Profiles to Connect to DMNG Servers

Before using the Live or the Forward functions of the DMNG PRO, you have to configure a receiver profile or a DMNG Manager profile.

Note: In order to prevent changes of server profile performed from the touchscreen, the administrator of the system may lock these server configuration pages from the DMNG Manager. If so, you are not able to add, edit or delete server profiles.

Configuring a Receiver Profile

A receiver profile is a set of parameters allowing the DMNG PRO to connect to a DMNG Studio or DMNG StreamHub. To configure a receiver profile:

① Click on .

② Click on **Profiles**.

③ Click on **Receiver**.

④ Click on to configure a new receiver profile.

⑤ Enter a **Name** for this new receiver profile, 12-character long maximum.

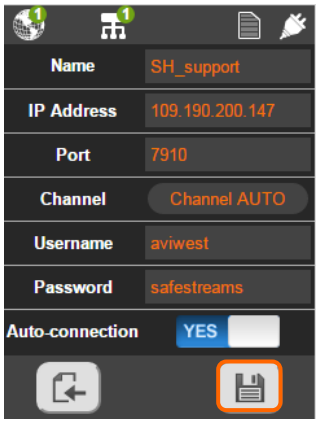
⑥ Enter the **IP address** or **Hostname** of the receiver.
If the DMNG PRO and the receiver are not on the same LAN, enter the public IP address of the receiver.

⑦ Enter the base **Port** (*7900* is the default base port)[11].

⑧ Select the **Channel** (**AUTO** or from 1 to 16).

⑨ Enter the **Username** (the default value is *aviwest*) and the **Password** (the default value is *safestreams*)[12].

⑩ If you want that the DMNG PRO automatically connects to this receiver on boot up, turn the **Auto-connection** switch to the **YES** position[13].



⑪ Click on to save the receiver profile.

▷ This receiver profile now appears in the list, you can connect to it,

[11] The base port configured in the connection settings of the DMNG receiver.
[12] The username and password configured in the connection settings of the DMNG receiver.
[13] The DMNG PRO performs 2 connection attempts on boot up. In case of connection lost, the DMNG PRO automatically reconnects to the receiver.

please see Connecting to a DMNG Server.

 **Note**: If needed, you can edit () or delete () a receiver profile.

Configuring the DMNG Manager Profile

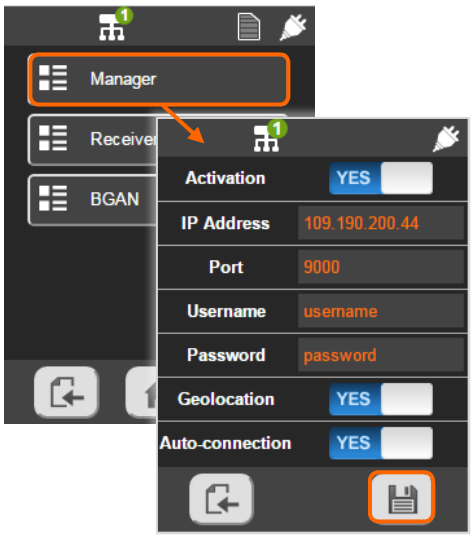
If your DMNG ecosystem includes a DMNG Manager, you have to configure a profile for the DMNG Manager so that the DMNG PRO can connect to it.

① Click on  .

② Click on **Profiles**.

③ Click on **Manager**.

④ Click the **Activation** switch to turn it to the **Yes** position to allow the DMNG PRO to connect to the DMNG Manager (through the connection button on the home screen).



⑤ Enter the public **IP address** of the DMNG Manager.

⑥ Enter the base **Port** as it is configured in the DMNG Manager's Connection Settings (the default base port is *9000*).

⑦ Enter the **username** and **password** in accordance with the connection data of the group to which you want to add the DMNG PRO.

⑧ If needed, you can activate:

- the **Geolocation** to enable the geolocation of the DMNG PRO on the map of the DMNG Manager using the GPS coordinates set in the configuration, through an internal[14] or external GPS antenna, or through its cellular connections.
- the **Auto-connection** to automatically connect the field unit to the DMNG Manager on boot up.

⑨ Click on  to save the Manager profile.

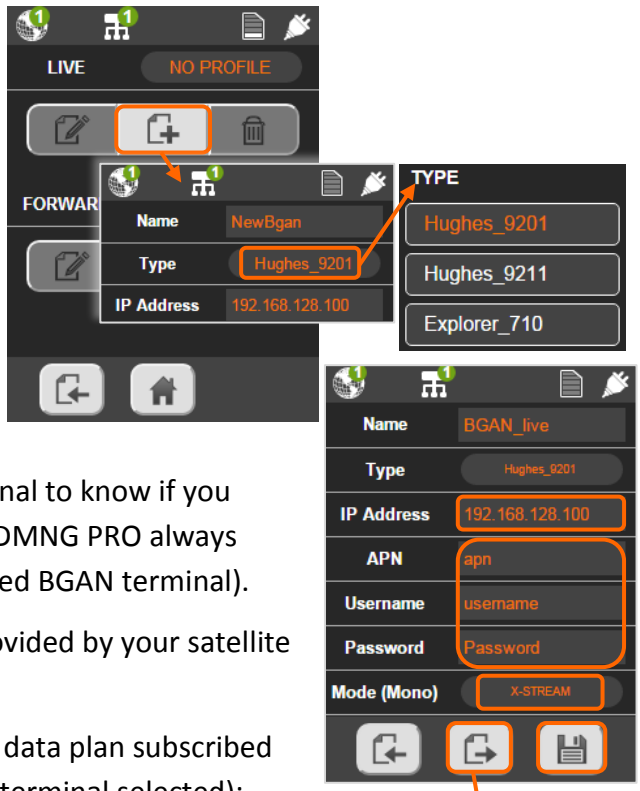
▷ You can now connect to the DMNG Manager, please see Connecting to a DMNG Server.

[14] Some DMNG PROs have an internal GPS antenna. In that case, the GPS antenna uses the cellular modem #1, so do not deactivate this modem in order to be geolocated using the internal GPS antenna.

Configuring BGAN Terminal Profiles

If you use a BGAN terminal for the first time, you have to perform its setup before using it with the DMNG PRO. You can set up Hughes 9201, Hughes 9211 and EXPLORER 710[15] BGAN terminals directly from the DMNG PRO. For any other BGAN terminal, you have to use a laptop to perform its setup. The DMNG PRO allows configuring mono or dual BGAN profiles, i.e. profiles to connect a single BGAN terminal and profiles to connect two BGAN terminals simultaneously. With a dual BGAN profile, you can use simultaneously two BGAN terminals (e.g. an Explorer 710 and a Hughes 9211), provided that they use the same mode.

To set up Hughes 9201, Hughes 9211 or EXPLORER 710 BGAN terminals directly from the DMNG PRO:



① Click on ⚙.

② Click on **Profiles**.

③ Click on **BGAN**.

④ Click on ⊞ in the **Live** or in the **Forward** section to configure a new BGAN profile.

⑤ Enter a **name** for the new profile.

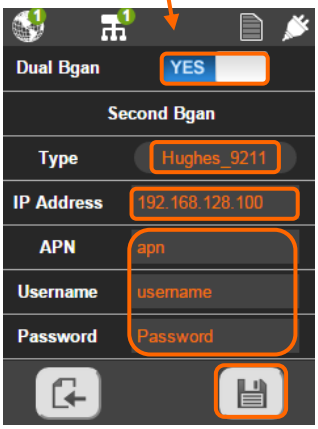
⑥ Select the **type** of BGAN terminal.

⑦ Check the configuration of your BGAN terminal to know if you need to modify the preset **IP address**. (The DMNG PRO always suggests the default IP address of the selected BGAN terminal).

⑧ Enter the **APN**, **username** and **password** provided by your satellite telecommunication provider.

⑨ Select a **mode** from the list according to the data plan subscribed to (the BGAN modes depend on the type of terminal selected): **X-STREAM** (for Live), **BACKGROUND** (for forward), **HDR_HALF_ASYMMETRIC**, **HDR_HALF_SYMMETRIC**, **HDR_FULL_ASYMMETRIC** or **HDR_FULL_SYMMETRIC**.

⑩ If you want to configure a dual BGAN profile, click on ⊞, turn the **Dual Bgan** switch to the **Yes** position and repeat steps 6, 7 and 8 to configure the second BGAN terminal.



⑪ Click on 💾 to save the profile.

▷ You can now connect the BGAN terminal(s) to the Ethernet interface(s) of the DMNG PRO configured in DHCP, please see Configuring an Ethernet Interface.

If you use a dual BGAN profile and two different types of BGAN

[15] Explorer 710 with 1.04 or later software version, please refer to the document Configuring an Explorer 710 available on our Extranet.

terminal, make sure to connect the BGAN terminals in the same order than they are configured in the BGAN profile, i.e. connect the first terminal listed in the profile to Ethernet interface 1 and connect the second terminal listed in the profile to Ethernet interface 2.

Note: You can edit ( ) or delete ( ) a BGAN profile.

Controlling the DMNG PRO Remotely

This section explains how to remote control the DMNG PRO through a smartphone or laptop thanks to the access point mode of the embedded WiFi modem.

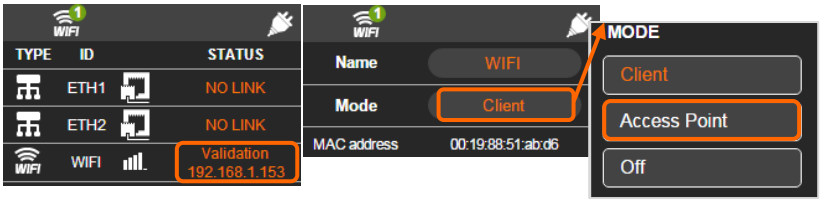
Please note that users of DMNG servers (DMNG Manager, DMNG Studio or DMNG StreamHub) can also control and configure the DMNG PRO remotely. If so, the touchscreen displays a message and the **UNLOCK** button.

To remote control the DMNG PRO through a smartphone or a laptop, you first have to configure the WiFi modem of the DMNG PRO in Access Point mode:

① Click on  .

② Click in the **WIFI** field.

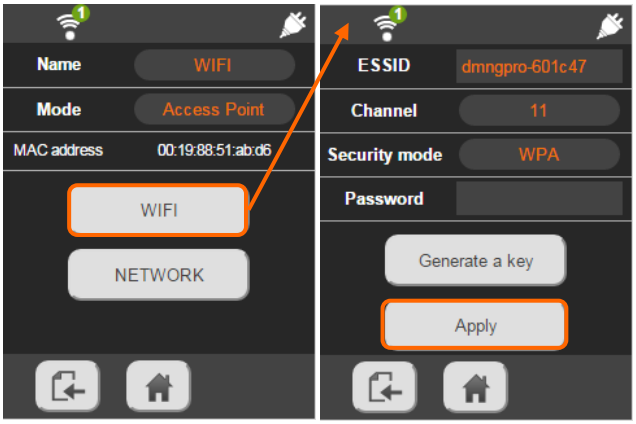
③ Set the mode to **Access Point**.



④ Click the **WIFI** button.

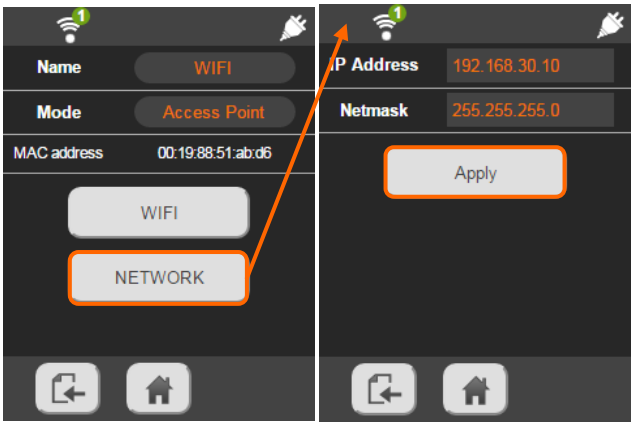
⑤ Enter the following data:

- **ESSID** (32 characters maximum) or let its default ESSID[16],
- **Channel**: automatically set
- **Security**: **NONE**, **WEP**, **WPA**, **WPA2, WPA/WPA2**
- **Password**[17] or click the **Generate a key** button



⑥ Click the **Apply** button.

⑦ You can use the default **IP address** and **Netmask** assigned to the WiFi interface in access point mode (default IP address: *192.168.30.10* and Netmask: *255.255.255.0*). If needed, click the **NETWORK** button to edit the network settings of the WiFi access point. Click the **Apply** button to save the changes.



▷ Go to the Status menu to check the connection status of the WiFi access point of the DMNG PRO.
You can now connect your device (laptop or smartphone) to the DMNG PRO's WiFi access point.

[16] By default, the ESSID is *dmngpro-* followed by the first 6 characters of the hardware identifier of the DMNG PRO.
[17] The syntax required for the password depends on the security mode, please see WiFi Password.

⑧ On your smartphone, or laptop, scan the available WiFi networks.

⑨ Select the ESSID of the DMNG PRO's WiFi access point and enter the password.

⑩ Open a web browser on you smartphone and type the IP address assigned to the WiFi interface followed by :8888/ in the search bar. (For instance if your IP address is *192.168.30.10*, you have to enter 192.168.30.10:8888/).

⑪ Enter the login “aviwest” and the password “dmngpro” to access the user interface of the DMNG PRO.

▷ The user interface appears on your device.

⑫ Tap the **TAKE CONTROL** button.

▷ You can now control the DMNG PRO from your device.

Maintaining the DMNG PRO

This section explains how to perform software maintenance operations on the DMNG PRO, such as updating the DMNG PRO firmware, loading a configuration file, deleting a file from the SD card and formatting the SD card. It also provides guidelines on how to store and transport the DMNG PRO.

Updating the DMNG PRO

To update the DMNG PRO, there are several possibilities: updating directly from the DMNG PRO, or remotely updating the DMNG PRO from the Web Configurator (through a direct connection, through the DMNG receiver or through the DMNG Manager), or remotely updating the DMNG PRO from the DMNG Manager. For the latter possibilities, please see Remote Update.

To update the firmware from your DMNG PRO:

① Download the .fw file corresponding to the firmware version and save it on the root of a USB key or SD card.

② Insert the SD card or USB key in the DMNG PRO.

③ Click on  .

④ Click on **SYSTEM**.

⑤ Click on **FW update**.

▷ The DMNG PRO detects the latest fw file, based on the file name, saved to the root of the mass storage device and a message prompts you to confirm.

⑥ Click on **Yes** to confirm the update.

▷ Please wait during the update. A success message appears once the update is successful.

⑦ Click on **OK** to reboot the DMNG PRO after the update.

Remote Update

If your DMNG PRO is connected to a DMNG Manager, the administrator of the DMNG ecosystem may remotely request a firmware update. On the DMNG PRO, you can accept the update or postpone it.

① A **FIRMWARE UPDATE** message appears on the DMNG PRO.

② Click on **Yes** to accept and proceed with the update.

▷ Please wait during the firmware download and update.
You can suspend the remote update only during the download.
A success message appears once the update is successful.

③ Click on **OK** to reboot the DMNG PRO after the update.

Notes:

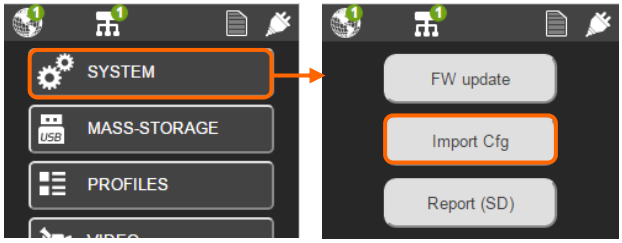
If you cannot proceed to the update right on receiving the update request from the DMNG Manager, click on **No** to postpone the update. In that case, the DMNG PRO automatically prompts you to proceed to the firmware update on boot up and on its next connections to the DMNG Manager.

If the update is performed through the Web Configurator (whether it be using a direct connection between the computer running the Web Configurator and the DMNG PRO, or through a DMNG receiver or DMNG Manager) you are not prompted to accept the update and it automatically starts, however you can suspend the firmware update during the upload.

Importing a Configuration File

To import a configuration file from a mass-storage device to the DMNG PRO:

① Connect the mass-storage device on which is saved the configuration file to the DMNG PRO.



② Click on ⚙.

③ Click on **SYSTEM**.

④ Click the **Import Cfg** button.

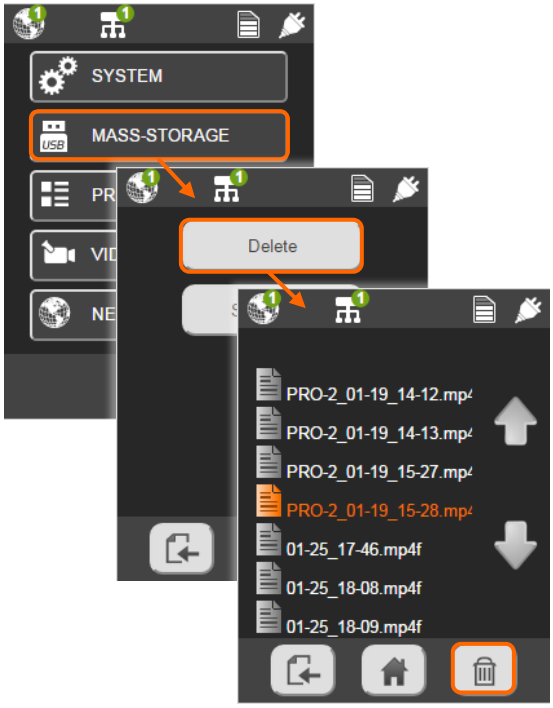
▷ The DMNG PRO displays the name of the configuration file that it suggests loading.

⑤ Click on **Yes** to confirm.

▷ The configuration file is imported from the mass-storage device to the DMNG PRO.

Deleting File from the SD Card

① Insert the SD card into the DMNG PRO.



② Click on ⚙.

③ Click on **MASS-STORAGE**.

④ Click the **Delete** button.

⑤ Click on the file you want to delete.

▷ The selected file is highlighted in orange.
Note: You cannot select multiple files.

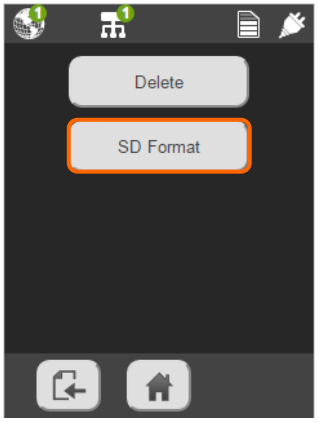
⑥ Click on 🗑.

⑦ Click **YES** to confirm.

Note: You cannot delete read-only files.

Formatting an SD Card

The DMNG PRO only supports SD cards with exFat or FAT32 file system; nevertheless the DMNG PRO can format any SD card to FAT32 format. Formatting an SD card deletes all the files stored on it. To format an SD card to FAT32 format:



① Insert the SD card to format into the DMNG PRO.

② Click on  .

③ Click on **MASS-STORAGE**.

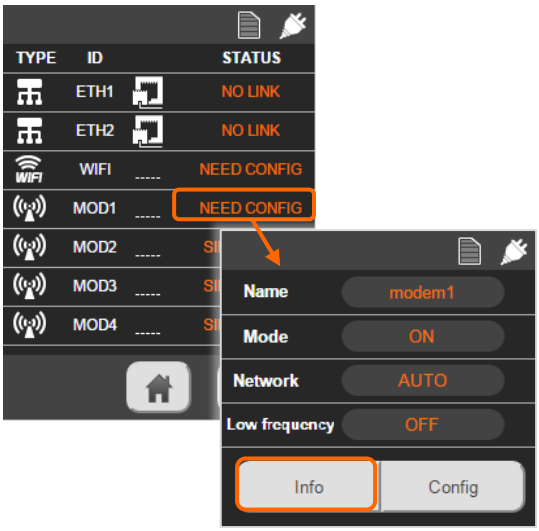
④ Click the **SD Format** button.

▷ A message prompts you to confirm.

⑤ Click on **YES** to confirm.

▷ The DMNG PRO formats the SD card to FAT32.

Checking IMEI/IMSI Numbers



① Click on  .

② Click on the status displayed in front of the modem for which you want to check the EMEI, or corresponding to the SIM slot into which is inserted the SIM card for which you want to check the IMSI.

③ Click the **Info** button.

▷ The DMNG PRO displays the IMEI, as well as the IMSI if a SIM card is inserted into the modem.

Storage and Transportation Guidelines

To optimize the life span of your DMNG PRO, we strongly recommend that you:

- Power on the DMNG PRO using the AC/DC adapter and power cord provided with the product while the DMNG PRO is turned on at least for 2 hours twice a month to charge the real time clock battery.
- Store the DMNG PRO in a safe and weather-protected location, in a dust-free environment and on a flat surface. (Please see the ambient operating temperature and humidity mentioned in Operating Environment.)
- Use a pelicase to transport the DMNG PRO over a long distance.

References

General Information

The last page of the **Status** menu shows:

- the **input voltage**,
- the **identifier**, which is the name given to the DMNG PRO,
- the **hardware identifier**,
- the **product version** is the firmware version number.

Indicators

Network Connections	
	Ethernet
	3G
	4G
	Wi-Fi in client mode
	Wi-Fi in Access point mode
	Multiple wireless connections

Server	
	Connecting to server
	Connected to server*
	Connection error

Intercom	
	Intercom enabled
	Audio output disabled
	Audio input disabled
	Intercom error

Mass Storage Devices	
	SD card: empty
	SD card: 20%
	SD card: 40%
	SD card: 60%
	SD card: 80%
	SD card: Full
	SD card: Invalid format
	USB key

Power Supply	
	Battery: empty
	Low battery
	Battery: Half charged
	Full battery
	Charging from socket

* Other indicators may be displayed on the connection icon:

- If the geolocation is activated, “G” indicates that the DMNG PRO might be geolocated through GPS (either through the GPS coordinates set on the Web Configurator, if any, or through a GPS antenna);
- If the geolocation is activated, “C” indicates that the DMNG PRO might be geolocated through its cellular connections;

WiFi Password

Here are the length constraints to comply with on setting the password for the WiFi access point of the DMNG PRO:

Security Mode	ASCII	Hexa
WEP	5 or 13 characters	10 or 26 characters
WPA and WPA2	8 to 63 characters	8 to 64 characters

Video File Specifications

File Format

With the Store and the Auto-record function, the DMNG PRO records MP4 video files with embedded audio.

If the Store profile used is configured with the fragmented recorder mode, the DMNG PRO generates MP4F video files and the DMNG receiver automatically transcodes the MP4F files into MP4 files when the Forward is complete.

File Size

The maximal file size of the videos recorded using the Store function of the DMN PRO depends on the SD card file system:

File System	Max File Size
FAt32	4GB
ExFAt	10GB

File Name

The DMNG PRO names the files recorded using the Store function following the pattern: [*DMNG IDENTIFIER*]_[*MONTH*]-[*DAY*]_[*HOUR*]-[*MIN*].mp4

To modify the device identifier, please refer to DMNG PRO Configuration Guide.

Live Profile Video Bitrate

There is a minimum and a maximum video bitrate for each video resolution. Please refer to the below table to set the video bitrate in kbps, or the capped bitrate for VBR, according to the video resolution:

Video Resolution	Min Video Bitrate	Max Video Bitrate	Max Video Bitrate W Auto-record[18] OR W Intercom	Max Video Bitrate W Auto-record AND Intercom[19]
HD VBR 1080p/720p/540p	1,500	15,000	10,000	6,000
HD CBR	1,500	10,000	10,000	6,000
480p	1,500	10,000	10,000	6,000
SD CBR	800	10,000	10,000	6,000
SD VBR	600	10,000	10,000	6,000
360p	600	4,000	4,000	4,000
HHR	300	4,000	4,000	4,000
CIF	200	2,000	2,000	2,000

[18] The maximum video bitrate for the Auto-record is 6,000kbps.

[19] If you use a high video resolution (HD, 7080p, 720p, 540p, 480p or SD), the Intercom and the Auto-record, we strongly advise using the “Low” Intercom profile.

For more details about Intercom profiles, please refer to the DMNG StreamHub User Guide.

QVGA/180p	100	1,000	1,000	1,000

When the capped bitrate set is higher than the max video bitrate mentioned in this table, the video bitrate is automatically capped at its maximum value (except for HD CBR and for the Max Video Bitrates W Auto-record AND/OR W Intercom).

For webcast video resolutions: please note that many CDNs and streaming platforms recommend a video bitrate inferior to 4000kbps, please refer to the guidelines provided by the streaming platform or CDN you use.

Hardware Specifications

Trademark	DMNG®
Product Name	DMNG PRO180 and DMNG PRO180-RA
Ambient operating temperature	-10°C to +50°C
Ambient operating humidity	10% to 85% (no condensation)
Weight	1.15kg (2.55Lb)
Dimensions (W x H x D)	245x128x55mm
Multimedia Interfaces	
Supported Video Input Formats	See Supported Video Inputs
SDI input	BNC Connector Input impedance: 75 Ohms Complies with SMPTE 259M, SMPTE 292M and ITU-R BT.656-4 Supported Embedded Audio at 48kHz
Analog Composite input	BNC Connector Input impedance: 200 kOhms Input Voltage Range: 0.75 Vpp (Max 2 Volts)
Analog Stereo Audio input	Two BNC Connectors, Left and Right Left Channel connects to White RCA Connector Right Channel connects to Red RCA Connector Sampling Frequency: 48 kHz Input impedance: 20 kOhms Full-scale input voltage: 2.83 Volts Typical Dynamic range: 90 Db Auto Gain controlled
HDMI input	Type A receptacle Complies with HDMI 1.3 Fully Shielded HDMI cable is mandatory, see Note on Cables.
DVB-ASI TS output	BNC Connector Complies with ISO/IEC 13818-1 and EN 50083-9 188 bytes data packets
Return IFB channel	
Headphone output jack	3.5 mm stereo mini jack Stereo headphone output load impedance: 16 Ohms Max Voltage:1.5 Vpp
Microphone input jack	3.5 mm mono mini jack input load impedance: 20kOhms
LAN/WAN Interfaces	
Ethernet Data	10/100/1000 BT Dual RJ-45 connector Green LED indicates link Orange LED indicates speed (on:1000BT, off:10/100BT)
WIFI	2.4GHz, 802.11 b/g/n, +15dBm max Internal WiFi antenna
Cellular Communication Interfaces	
Embedded Modems	8 cellular modems, see Network Interfac
SIM Slots	8 SIM slots numbered 1 to 8, see Network Interfac
Antennas	8 internal cellular high gain patented antennas, see Network Interfac
Connectors for External Antennas	8 MCX connectors, see Front Panel
Local User Interface	
LCD Touchscreen	Wide View TFT 2.4" - QVGA 320x240, 262,144 colors Resistive Touchscreen Automatic rotating display with the inclination (portrait/landscape)
Front Panel LEDs	2 LEDs (ACT LED and LINK LED), see Front Panel
On/Off Push Button	Press the button to switch on the system. Press two seconds to switch off. See Front Panel

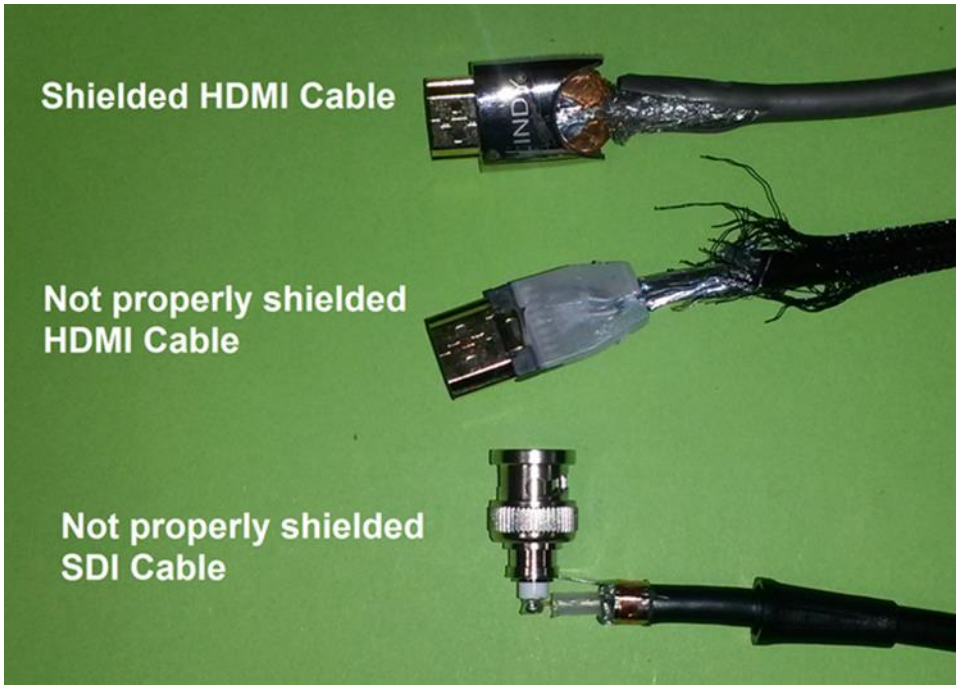
Storage	
SD Card Slot	Standard SDXC tested up to 64 GB, see Front Panel.
USB ports	2 USB 2.0 Type A connectors USB 2.0 Full/High Speed
Power Paths	
DC Input	Input receptacle : Neutrik NC4MD-L-B-1 Voltage Range: +12V to +24 V DC (Contact AVIWEST for specific request) Automatic under-voltage protection at 11.8 Volts Automatic over-voltage protection at 25 Volts Typical Power (modems not attached): 13 Watts Maximum Power (all modems attached to network at 24dBm): 45 Watts 7 Amps Fuse protected Pin 1: Ground, Pin 4: +Vcc
External Battery	V-Mount, Gold Mount or PAGlok male plate compatible for 14,8V Broadcast batteries (See Powering the DMNG PRO).
External AC/DC Adapter	Manufacturer: ICCNEXERGY Model: FWA065015A-11B Available power cord: USA, UK or EU version, contact AVIWEST for specific request
Real Time Clock Battery	Rechargeable Lithium metal 1 cell 3V 7mAh (Autonomy: 3 weeks)

This product was developed and made in France.

Note on Cables

Interconnecting video devices requires using good quality cables in order to avoid any attenuation and perturbation due to radiations.

The following photo shows the difference between several HDMI and coaxial cables.



The first cable is a fully shielded HDMI cable: a braided shield protects the wires and the connectors are shielded with copper. This is the only type of cable suitable for use with the DMNG PRO.

The second and third cables are not properly shielded: a braided shield protects the wires but it does protect the connectors. Do not use these kinds of cable with the DMNG PRO.

Device Disposal

Dispose of this product in a separate waste collection facility according to the requirements in force in your country. Please check the regulation in force in your country. In the European Union, please refer to the WEEE Directive.

Glossary

Terms	Definition
Field units	Products and solutions used by journalists to transmit video content in a DMNG ecosystem, which includes DMNG PRO, DMNG RACK or smartphone using the DMNG APP.
Unicast	Routing protocol to send data to a single recipient
Multicast	Routing protocol to send data to a group of receivers in a single transmission
RTP	Stands for Real Time Protocol End-to-end real-time delivery services including payload type identification, sequence numbering, time-stamping and delivery monitoring
MPEG-TS	MPEG Transport Stream over UDP, also called TS Multiplex delivery service compliant with DVB standards
TS over IP	Transport Stream over IP Standard container format used in various broadcast systems, it allows streaming video and audio content to an IRD.
Auto-record	Function designed to record a video while streaming a live video
Fragmented Store	Recording mode: the video is recorded by chunks in a single MP4F file. On the DMNG receiver, the MP4F file is automatically converted into an MP4 file once it is completely forwarded.
Progressive Forward	Forward mode: the video file is automatically forwarded during the recording. This Forward mode is only available when the profile used for the Store function is a fragmented profile.
Intercom	Optional function allowing the communication with the operator at the DMNG receiver side To operate, headphones and a microphone must be connected to the DMNG PRO.
Tally Light	Optional feature designed to indicate the on-air status of video signals. To operate, a light indicator device must be connected to the DMNG PRO and a GPIO device must be connected to the DMNG receiver.
MCR	Stands for Master Control Room, defines TV stations or broadcast facilities where DMNG StreamHub receivers are installed and/or used.
Hostname	Text string which consists of the machine name and the domain name.
Channel	DMNG receiver’s input

Troubleshooting

If you experience troubles with the DMNG PRO, this section may help you solve some issues.

Warning – Servicing

Do not disassemble the DMNG PRO. Opening the enclosure makes void the warranty and may result in exposure to electrical and mechanical hazards.

Getting a Report File

AVIWEST's support team often asks for a report file. To generate a report file from the DMNG PRO:

① Insert an SD card into the SD card slot located on the front panel of the DMNG PRO.

② Click on  to access the settings menu.

③ Click on **SYSTEM**.

④ Click the **Report (SD)** button.

▷ A green tick indicates that the report is saved on the SD card.

⑤ Attach the generated report to an email in which you explain the issue you are facing and send it to support@aviwest.com (or to your local support office, please see Contact Us).

Note: The report is a binary file that you cannot read.

Checks Failed

Message	Solutions
Environment	
No network interface connected	Connect at least one network interface.
No SD card detected	Insert an SD card into the SD card slot of the DMNG PRO.
Read-only SD card	Unlock the SD card inserted into the DMNG PRO.
[Link LED turns red]	Please see Connection to DMNG Receiver or DMNG Manager.
Receiver not defined	Please see Configuring a Receiver Profile.
Video sync (ACT LED turns red)	
Video input is not HD or Video input is not HD 1080	The video source is not HD, however the video resolution set in the selected Live profile and/or in the Store profile is HD, 1080p, 720p, 540p or 480p. Two possibilities: - Select another Live and/or Store profile with a lower video resolution, - Use an HD video source
Bad Video synchronization	Check that the video cable(s) are properly connected to the camera and to the DMNG PRO. Check the video input on the DMNG PRO: Click the Live or Store button. Click the Preview button to check that the DMNG PRO's video settings suit the video source. The Preview page shows: - the video source configured on the DMNG PRO - the video output format including the video output resolution (depends on the selected Live profile and on the video source) - the video output type and frequency (according to the video source and to the video settings configured on the DMNG PRO) - the video input preview and audio vu-meters. Check the video settings of the DMNG PRO to make sure that the video source and frequency correspond to the video source (i.e. to the video output of the camera), please see Configuring Video Settings.
Missing signal on SDI/HDMI/ analog input	Check that the video source set in the video settings of the DMNG PRO corresponds to the video output of the camera (see Configuring Video Settings).
Video input frequency mismatch	Check that the video frequency configured in the Video settings of the DMNG PRO corresponds to the frequency of the video source (see Configuring Video Settings).
Missing audio signal on HDMI	Two possibilities: - -If you want to encode an SDI or HDMI video source without embed audio, please see Configuring the Audio Settings. - If the source should embed audio signals, please check the camera settings.
Connection to DMNG Receiver or DMNG Manager	
Connection to receiver Failed (Channel Busy)	Edit the profile to connect to the receiver in the settings of the DMNG PRO: select another channel (see Configuring a Receiver Profile).
Channel not available	The DMNG PRO is connected to the DMNG Manager, but this latter cannot connect the DMNG PRO to a receiver's channel.
Connection to receiver failed (Channel not supported)	Edit the profile to connect to the receiver in the settings of the DMNG PRO: select another channel (see Configuring a Receiver Profile).
Receiver not available	Call the MCR: the DMNG receiver or Manager must be turned on.
[LINK LED is green and red blinking and ACT LED is	Disconnected from the DMNG Manager but transmitting Live video to the receiver.

green]	
Receiver/Manager IP address not defined	Edit the profile to connect to the DMNG receiver or Manager in the settings of the DMNG PRO: enter the IP address of the server (see Configuring a Receiver Profile or Configuring the DMNG Manager Profile).
Failed to connect to the server	The network interfaces of the DMNG PRO are turned off or the bandwidth is not sufficient to connect to the server. Turn on one or several network interfaces (see Configuring Network Interfaces).
	Wrong IP address or port set for the DMNG receiver or Manager. Edit the profile to connect to the receiver or Manager in the settings menu of the DMNG PRO: set the public IP address and the port to connect to the DMNG receiver or DMNG Manager (see Configuring a Receiver Profile or Configuring the DMNG Manager Profile).
Connection to server failed (Authentication error)	Edit the profile to connect to the server in the settings of the DMNG PRO: enter the username and password to connect to the receiver or Manager (see Configuring a Receiver Profile or Configuring the DMNG Manager Profile). If the AES is activated on the DMNG PRO and on the DMNG receiver, check that the passphrase set on the DMNG PRO is correct ( please refer to the dedicated guide).
Connection to server failed (max devices reached)	There is no more available channel on the server to connect a DMNG PRO. Select another receiver (see Configuring a Receiver Profile).
Connection to server failed (Invalid license) / (Expired license) / (No license found)	The license applied on the server is invalid, expired or there is no license applied on the server. You cannot connect the DMNG PRO to this server until a valid license is applied on the server.
Connection to channel closed by server	The DMNG PRO has been disconnected from the server by the user of the DMNG receiver or Manager.
Connection to receiver Lost	The DMNG PRO has been disconnected from the Internet. Check your Internet connection (see Checking the Network Connection Status).
Connection to channel not authorized for this product	The DMNG PRO tries to connect to a receiver's channel not available for this type of product. Edit the profile to connect to the receiver in the settings of the DMNG PRO: select another channel (see Configuring a Receiver Profile).
Error: check server profile	The server profile is not configured properly, 2 possibilities: - The DMNG Manager to which you try to connect is configured in a Receiver profile, - The receiver to which you try to connect is configured in the Manager profile. See Configuring a Receiver Profile or Configuring the DMNG Manager Profile.
BGAN Errors	
Failed to connect to BGAN!	Check that the BGAN is powered on. Check that the Ethernet interface to which is connected the BGAN terminal is well configured (see Configuring an Ethernet Interface). Check that the DMNG PRO and the BGAN terminal are properly connected via Ethernet cable.
GPS fix of BGAN failed!	The BGAN terminal failed to obtain its GPS position (timeout). Please wait, if the problem persists please refer to the BGAN user interface (or LEDs) to make sure that the BGAN terminal gets a GPS fix.
Registration on BGAN network failed!	Please refer to the BGAN terminal user interface (or LEDs) for more details. This error could be due to: data expired on SIM card, wrong username/password configured in the BGAN profile, congestion… Make sure that the username and password set in the BGAN profile of the DMNG PRO are the right to use with the SIM card inserted into the BGAN terminal (see Configuring BGAN Terminal Profiles). See Testing the connection to BGAN network.
Inconsistent BGAN type found regarding configuration!	Check that the selected BGAN profile is correct (dual/mono). Check that the type of BGAN terminal configured in the selected BGAN profile corresponds to the BGAN terminal connected to the DMNG PRO (see Configuring BGAN Terminal Profiles). If you use a dual BGAN profile, make sure that the first BGAN terminal configured in the profile is connected to Ethernet 1 and the second to Ethernet 2.

BGAN pointing process failed!	Relocate the antenna (please refer to the documentation provided with the BGAN terminal). If the problem persists, please refer to the BGAN user interface (or LEDs) to check the signal strength. See Testing the connection to BGAN network.
Failed to activate PDP context on BGAN!	See Testing the connection to BGAN network.
Failed to obtain selected QoS on BGAN!	Check that the selected BGAN profile, and especially the BGAN mode configured in it, is correct (see Configuring BGAN Terminal Profiles).
BGAN connection failed!	If you use a dual BGAN profile, please retry. If the problem persists, or if you use a mono BGAN profile, please refer to the BGAN terminal user interface (or LEDs) for more details. See Testing the connection to BGAN network.
Testing the connection to BGAN network	Try to connect the BGAN terminal directly to the network (i.e. without using the DMNG PRO). If the BGAN terminal succeeds to connect without the DMNG PRO but not with the DMNG PRO, please contact AVIWEST support team.

Network Connection Errors

Status	Meaning	Solutions
Cellular Connection		
SIM MISSING	No SIM card found.	Make sure that the SIM card is properly inserted into the modem. Check the compatibility between the modem and the SIM card inserted into it.
DISCONNECTED	The modem is turned off.	Turn on the modem.
NEED PIN	The PIN code is not unlocked.	Unlock the PIN code of the SIM card, see Unlocking PIN Code.
NEED CONFIG	A SIM card is inserted into the modem but it is not configured.	Configure the SIM card, see Configuring 3G/4G SIM Cards.
LIMITED SERVICE	The selected mobile network has limited service.	Wrong network operator selected, see Selecting a Network Operator (Roaming).
NO NETWORK	No mobile network detected.	Move around to see whether you can reach wireless connections within the area. Check that your subscription to the mobile network is still valid.
CONNECT FAILED	The modem cannot connect to the network (after 5 attempts)	Make sure that you entered the APN corresponding to your offer. Check that your subscription to the mobile network is still valid.
WiFi Connection		
INACTIVE	The WiFi modem is turned off.	Turn on the WiFi modem.
NEED CONFIG	The WiFi modem is not configured.	Configure the WiFi modem, see Configuring a WiFi Access Point.
INVALID KEY	The password configured to connect to the WiFi access point is invalid.	Edit the configuration of the WiFi access point with the valid password, see Configuring a WiFi Access Point.
Ethernet Connection		
NO LINK	No network connection	Connect an Ethernet cable to the Ethernet interface of the DMNG PRO and check its configuration. (See Configuring an Ethernet Interface.)
INACTIVE	The Ethernet interface is turned off.	Turn on the Ethernet interface.

Checking the network Configuration

If there is a firewall on the LAN to which is connected the DMNG PRO, you have to make sure that it allows traffic on some UDP and TCP ports:

- UDP *7900* to *7904* or *7916* (or the base port as configured in the DMNG server profile, manager or receiver, and the 4 or 16 following ports, according to the number of channels of the receiver the DMNG PRO has to connect to);
- TCP 8888 (to access the web Configurator).

Contact Us

Before contacting support, please try to find out the error message that you have seen on the DMNG PRO user interface in the Troubleshooting section of this document. It gives you possible solutions to solve the problem you are facing.

To help you, AVIWEST support often needs to know:

- the current firmware version of the DMNG PRO (please see General Information),
- the serial number of the DMNG PRO (on the sticker pasted on the DMNG PRO),
- the type of network connections used,
- the Live profile or Store profile used.

Should you have any question or require complementary information, feel free to visit www.aviwest.com or contact AVIWEST's technical support team:

Global Support Headquarters
support@aviwest.com
+33 (0) 2 56 56 50 18
Espace Performance, Bat. O
35769 SAINT-GREGOIRE Cedex
FRANCE

APAC Support Office
supportasia@aviwest.com
+852 3580 8964
Unit 401B, 4/F, Block A
Sea View Estate
2-8 Watson Road, North Point, HONG KONG

LatAm Support Office
supportlatam@aviwest.com
+56 (9) 67 55 11 23

Russia Support Office
supportrussia@aviwest.com
+7 (963) 658 42 18