



ETH2GSM CONVERTER (3G/2G)
ITX 498 04.01

ETH2GSM CONVERTER (4G/3G/2G)
ITX 498 04.02

PRODUCT DOCUMENTATION



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1. Product description

1.1. Primary use

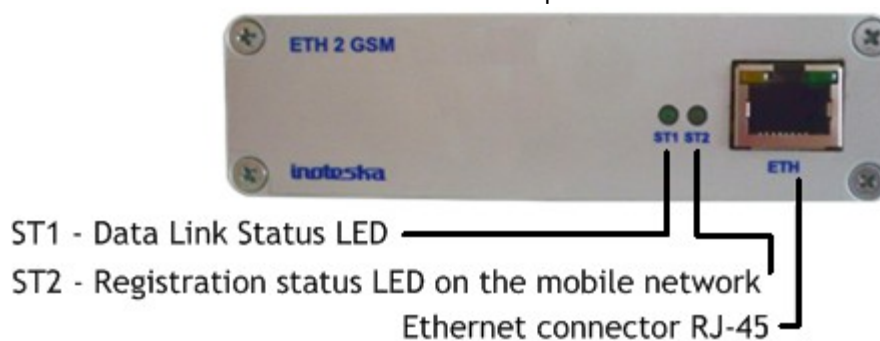
The ETH2GSM CONVERTER is used as data converter from GSM to Ethernet and vice versa, with the specific Bridge feature. It enables the data transmission without the possibility of voice transmission.

1.2. Interfaces

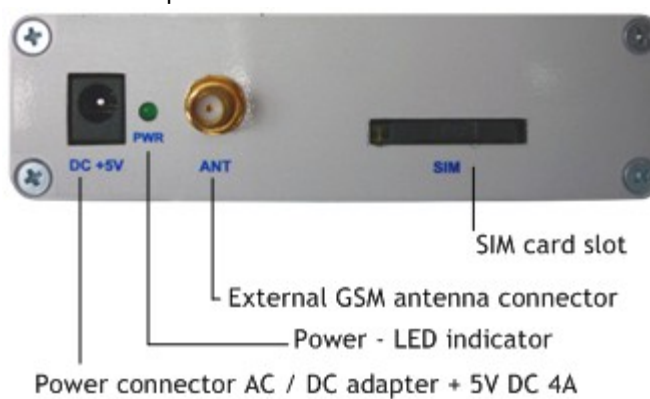
1x **Ethernet** 100 Mbit/s

1x **GSM** Module for 1 SIM card - Mini SIM (2FF) slot (1.8V / 3.0V)

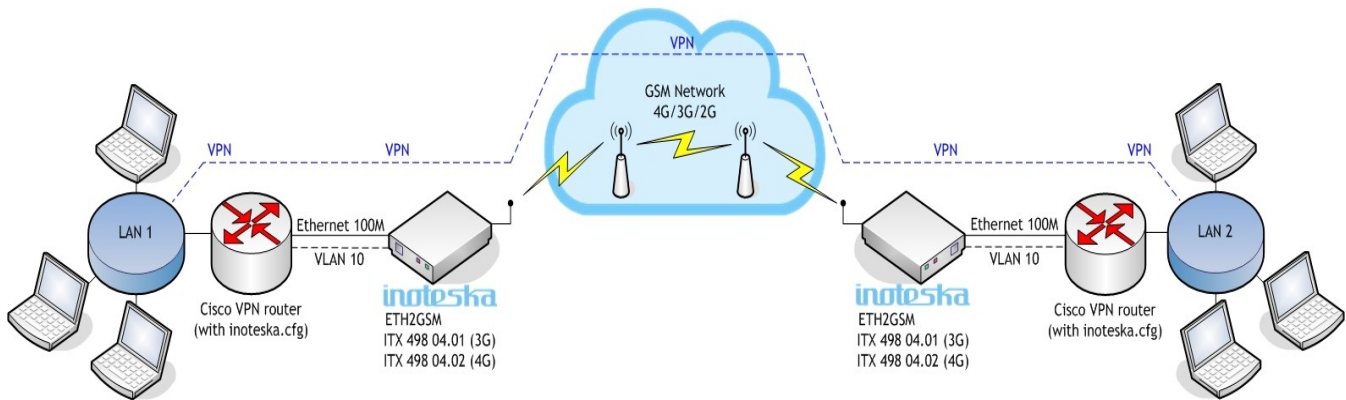
Pic.1 - Front panel



Pic.2 - Rear panel



1.3. Application



2. Technical information

2.1. Dimensions, power and operation

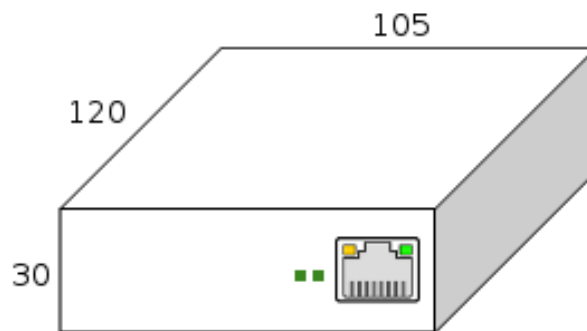
To power the device, AC/DC adapter with output 5V DC 4A output is required. Using the different adapter may cause the device damage. The device is standardly supplied along with AC/DC adapter and external GSM antenna.

Operating conditions:

Temperature range 0°C - 70°C

Humidity up to 80%

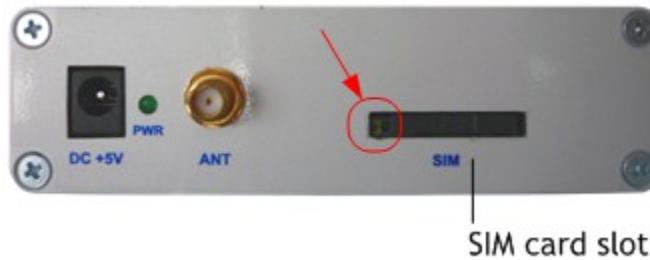
Dimensions: 105 x 120 x 30 mm



2.2. Installation/SIM card replacement

With a long thin object (e.g. a small thin screwdriver), push the knob on the left side of the SIM card slot (Pic. 3) and then pull out the plastic frame. Insert the SIM card into the frame, and slide the SIM card into the slot for the SIM card.

Pic.3 - Rear panel - eject the SIM card frame



2.3. LED indicators

The device has two LED indicators on the front panel marked ST1 and ST2.

ST1 indicates the status of the data connection.

ST2 indicates the registration status to the mobile network.

ST1	Indicated device status
Off	GSM module in reset / undetected
Blinking - long pause (100ms ON / 1s OFF)	Initialization
Blinking - short pause (1s ON / 100ms OFF)	Data Link Building
Lights	Active Data Link
Blinking - evenly (200ms ON / 200ms OFF)	Error

ST2	Indicated device status
Off	The device is not registered to the GSM network
Lights	The device is successfully registered to the GSM network

2.4. Supported GSM modules

HUAWEI ME909s-120 Mini PCIe

Bandwidth:

- LTE (FDD) B1/B2/B3/B5/B7/B8/B20, all bands with diversity
- DC-HSPA+/HSPA+/HSPA/WCDMA B1/B2/B5/B8, all bands with diversity
- EDGE/GPRS/GSM 1900/1800/900/850 MHz

Transmitting power:

- LTE: +23dBm (3GPP TS 36.101 R8 Class 3)
- WCDMA/HSPA+: +24dBm (Performance Class 3)
- EDGE 1900/1800MHz: +26dBm (Performance Class E2)
- EDGE 900/850MHz: +27dBm (Performance Class E2)
- GSM/GPRS 1900/1800MHz: +30dBm (Performance Class 1)
- GSM/GPRS 900/850MHz: +33dBm (Performance Class 4)

Data:

- GPRS: DL 85.6 kbps/UL 85.6 kbps
- EDGE: DL 236.8 kbps/UL 236.8 kbps
- WCDMA CS: DL 64 kbps/UL 64 kbps
- WCDMA PS: DL 384 kbps/UL 384 kbps
- HSPA+: DL 21.6 Mbps/UL 5.76 Mbps
- DC-HSPA+: DL 43.2 Mbps/UL 5.76 Mbps
- LTE FDD: DL 150 Mbps/UL 50 Mbps @20M BW kat.4

HUAWEI MU609 Mini PCIe**Bandwidth:**

- UMTS/HSPA: 850 / 900 / 1900 / 2100 MHz
- GSM/GPRS/EDGE: 850 / 900 / 1800 / 1900 MHz

Transmitting power:

- UMTS: +24dBm (Class 3)
- GSM 850 Class 4 (2 W)
- GSM 900 Class 4 (2 W)
- GSM 1800 Class 1 (1 W)
- GSM 1900 Class 1 (1 W)

Sensitivity:

- GSM 850/900 MHz: -109 dBm
- GSM 1800/1900 MHz: -107 dBm
- WCDMA 850/900 MHz: -110 dBm
- WCDMA 1900 MHz: -108 dBm
- WCDMA 2100 MHz: -109 dBm

Data:

- HSPA: UL 5.76 (Mbps)/ DL (14.4 Mbps)
- WCDMA PS: UL (384 kbps)/ DL (384 kbps)
- EDGE: UL (236.8 kbps)/ DL (236.8 kbps)
- GPRS: UL (85.6 kbps)/ DL (85.6 kbps)

HUAWEI MU709s-2 Mini PCIe**Bandwidth:**

- UMTS/HSPA: 900/2100MHz
- GSM/GPRS/EDGE: 850/ 900/ 1800/ 1900 MHz

Transmitting power:

- UMTS: +24dBm (Performance Class 3)
- GSM850 Class 4 (2 W)
- GSM900 Class 4 (2 W)
- GSM1800 Class 1 (1 W)
- GSM1900 Class 1 (1 W)

Sensitivity:

- GSM 850/900 MHz: -110 dBm
- GSM 1800/1900 MHz: -109 dBm
- WCDMA 900 MHz: -112 dBm
- WCDMA 2100 MHz: -111 dBm

Data:

- HSPA: UL 5.76 (Mbps)/ DL (21.6 Mbps)
- WCDMA PS: UL (384 kbps)/ DL (384 kbps)
- EDGE: UL (236.8 kbps)/ DL (236.8 kbps)
- GPRS: UL (85.6 kbps)/ DL (85.6 kbps)

3. Settings

In the basic configuration, VLAN tag 10 with IP address 10.10.10.1 is created on the Ethernet interface. The device needs a configuration file that contains the data needed to build a data connection. The file is automatically downloaded by the TFTP protocol from the router. The address of the router is 10.10.10.2 and the configuration file name is **inoteska.cfg**.

3.1. Configuration file

The configuration file is a text file with lines in the format = value. The file may contain comments starting with a grid with #. The configuration file can contain the following parameters:

pin SIM card PIN code. If the SIM card is unlocked, it may be empty.
apn APN string
user user name
passwd user password
mode type of data network (2G/3G/4G)
 The parameter value can be:
auto - for automatic network selection according to available signal,
gsm or **2g** for a 2G network,
umts or **3g** for 3G network,
lte or **4g** for 4G network.
operator network operator selection
auto - automatic carrier selection
<name> - operator name for manual selection

Example of configuration file::

```
pin = 9839
apn = stl2tp
user = sim1@nieco.sk
passwd = abcdefgh
mode = umts
operator = Telekom SK
```

3.2. Telnet interface

The device supports a simple terminal interface (command line) on TCP port 23 (telnet protocol). Each command is ended by pressing **ENTER**. The terminal does not distinguish between upper and lower case letters. The list of supported commands is displayed after entering a question mark (?) or a **HELP** command.

ETH2GSM CONVERTOR > ?

CHANGE PIN	Change SIM card PIN code
CONFIGURE	Switch to configuration mode
HELP	Display this help
REBOOT	Reboot ETH2GSM CONVERTOR device
RELOAD CONFIG	Reload ETH2GSM CONVERTOR configuration from Cisco router
RESET CONFIG	Reset/clear ETH2GSM CONVERTOR configuration
RESTART GSM	Restart GSM module
RESTART SERVICE	Restart ETH2GSM CONVERTOR service
QUIT	Exit terminal
SHOW IDENTIFICATION	Display identification
SHOW CONFIG	Display ETH2GSM CONVERTOR configuration
SHOW NETWORK	Display network interfaces
SHOW STATUS	Display ETH2GSM CONVERTOR status
SIM LOCK	Lock SIM card
SIM UNLOCK	Unlock SIM card

Some commands can be entered in shortened form. For example, the command **SHOW STATUS** can be replaced with an **SS** shortcut.

CHANGE PIN (shortcut CP)

Change of SIM card PIN code.

CONFIGURE (shortcut C)

Activation of configuration mode that allows to edit the device configuration file.

HELP (shortcut H, ?)

Display of list of commands.

REBOOT

Activation of complete device restart.

RELOAD CONFIG (shortcut LC)

Configuration update. The device downloads the current configuration file from the Cisco router and uses it to build the connection.

RESET CONFIG (shortcut RC)

Configuration delete. The command cancels the existing configuration.

RESTART GSM (shortcut RG)

GSM module reset.

RESTART SERVICE (shortcut RS)

Control application restart.

QUIT (shortcut Q)

Terminal end.

SHOW IDENTIFICATION (shortcut SI)

Identity display (type designation, serial number, etc.)


```
ETH2GSM CONVERTOR > show identification
```

```
[BASIC]
TYPE=ITX4980401
SN=498040160001
ID=8229
DATE=21.3.2016
SERVP=F3DE1AF32994DA01EA9299293C6157B0
MAN=102,104
TEST=
DPS=ITB 337 01
GSMTYPE=3G,2G
SERIALCPU=0000000054e3f19f
GSM=1
ETH=1
```

SHOW CONFIG (shortcut SC)

Display of current configuration.

```
ETH2GSM CONVERTOR > show config
```

```
pin = 9839
apn = stl2tp
user = sim1@nieco.sk
passwd = abcdefgh
mode = umts
operator = auto
```

SHOW NETWORK (shortcut SN)

Display of status of network interfaces.

SHOW STATUS (shortcut SS)

Display of status of GSM connection.

```
ETH2GSM CONVERTOR > show status
```

```
State: CONNECTED
Cause:
Module: Huawei MU609 (rev: 12.107.08.01.00)
Network: Telekom SK
Mode: WCDMA
Submode: WCDMA
Signal: -105 dBm
```

SIM LOCK (shortcut SL)

SIM card lock.

SIM UNLOCK (shortcut SU)

SIM card unlock.

3.3. Configuration mode commands

Using the **CONFIGURE** command, the terminal switches to the configuration mode that allows to modify or create a new configuration file.

The Configuration Mode Command List appears after entering the question mark (?) or the **HELP** command.

```
ETH2GSM CONVERTOR/config> ?
```

```
APPLY                Apply changes and exit configuration mode
EXIT                Exit configuration mode without changes
HELP                Display this help
SET APN <value>     Set APN
SET MODE <value>    Set network mode (auto|gsm|umts|lte)
SET OPERATOR <value> Set network operator (auto|<name>)
SET PASSWD <value>  Set user password
SET PIN <value>     Set SIM card PIN code
SET USER <value>    Set user name
SHOW                Display actual configuration
```

APPLY (shortcut A)

All modifications made will be saved to the configuration file and the new configuration will be used to build the data link. The terminal returns back to the basic mode.

EXIT (shortcut E)

Exit of configuration mode without saving the configuration changes. All modifications will be discarded, the original configuration file remains valid.

HELP (shortcut H, ?)

Display of list of commands.

SET APN

APN string setting.

SET MODE

Data network type setting.

SET OPERATOR

Network operator selection setting.

SET PASSWD

User password setting.

SET PIN

SIM card PIN code setting.

SET USER

User name setting.

SHOW (shortcut S)

Display of current configuration (with all modifications).

3.4. SSH interface

The device supports SSH protocol that allows access to the operating system console. Device login data:

User: root
Password: inoteska

SSH protocol supports Secure Copy (SCP) which allows to copy a configuration file from the device to the router. This way it is possible to save the configuration changed via the terminal interface into the router's flash memory to have it available again for download via TFTP protocol.

4. Terms and conditions

Warranty:

The warranty period is 24 months from the date of delivery or installation of the device. The warranty does not cover damage of equipment after improper handling, misuse, or damage due to natural disasters.

Delivery date:

Delivery time is max. 6 weeks from receipt of the order or signature of the contract. The delivery time is always specified after receiving a binding order.

Service:

Warranty service is usually performed within 24 hours (depending on the difficulty of the fault) from the notification of the failure in written form. Post-warranty service is performed within a specified time interval after receiving the device for repair together with a written detailed description of the device malfunction.

If you have any questions, please contact us.

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