

Wireless Video Surveillance Unit - VigilCast User Manual -



Document reference:

MPD-0502161C

Centre Espace Performance
F35769 Saint Grégoire cedex – France
Tél. : +33 (0)2 23 25 26 80
Fax : +33 (0)2 23 25 26 85
web : www.teamcast.com

SA au capital de 153 900 Euros
RCS Rennes 449 279 520
SIRET : 449 279 520 00018
NAF 322A - N° TVA : FR-01449279520



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Information to the user

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

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

RF Exposure Warning

During operation, the user has to keep a minimum separation distance of 20 cm with the RF devices.

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Revision sheet

User manual VigilCast

MPD-0502161B – June 2006

Document Number	Revision	Date	Product covered	Version	Comments
MPD-0502161	A	July. 2005	~TCP-VIG0-1400	From H100-S100	Preliminary Version
MPD-0502161	B	June. 2006	~TCP-VIG0-1400	From H100-S110	Certifications, Coding key, Corrections

Warning

- **Content warning**

This document contains preliminary information about VigilCast. TeamCast keeps the right to make changes at any time without prior notice in order to improve, to design and to supply the best possible product.

- **Copy warning**

This document includes some confidential information. Its usage is limited to the owners of the product that it is relevant for. It cannot be copied, modified, or translated in another language without prior written authorisation from TeamCast.



VigilCast User Manual

About this manual

- **Intended audience**

This user manual has been written to help people who have to use, to integrate, to install the product. Some chapters require some prerequisite knowledge in electronics and especially in broadcast technologies and standards.

- **Product described**

The following product is described in this user manual:

- ~TCM-VIG0-1400

- **Document structure**

The document is organized in 5 chapters:

- **Chapter 1 – Introduction to the VIGIL product family.**
This chapter gives an overview of the VIGIL product family to which the Vigil'Cast unit belongs to.
- **Chapter 2 – Description.**
This chapter describes the product and gives its performances.
- **Chapter 3 – Installation.**
This chapter explains how to install the VigilCast unit.
- **Chapter 4 – Operation.**
This chapter explains how to operate, control and monitor the VigilCast unit.
- **Chapter 5 – Maintenance and checking.**
This chapter gives recommendation on how to maintain the product and how to perform a first level maintenance in case of problems.



VigilCast User Manual

1. Introduction to the VIGIL product family

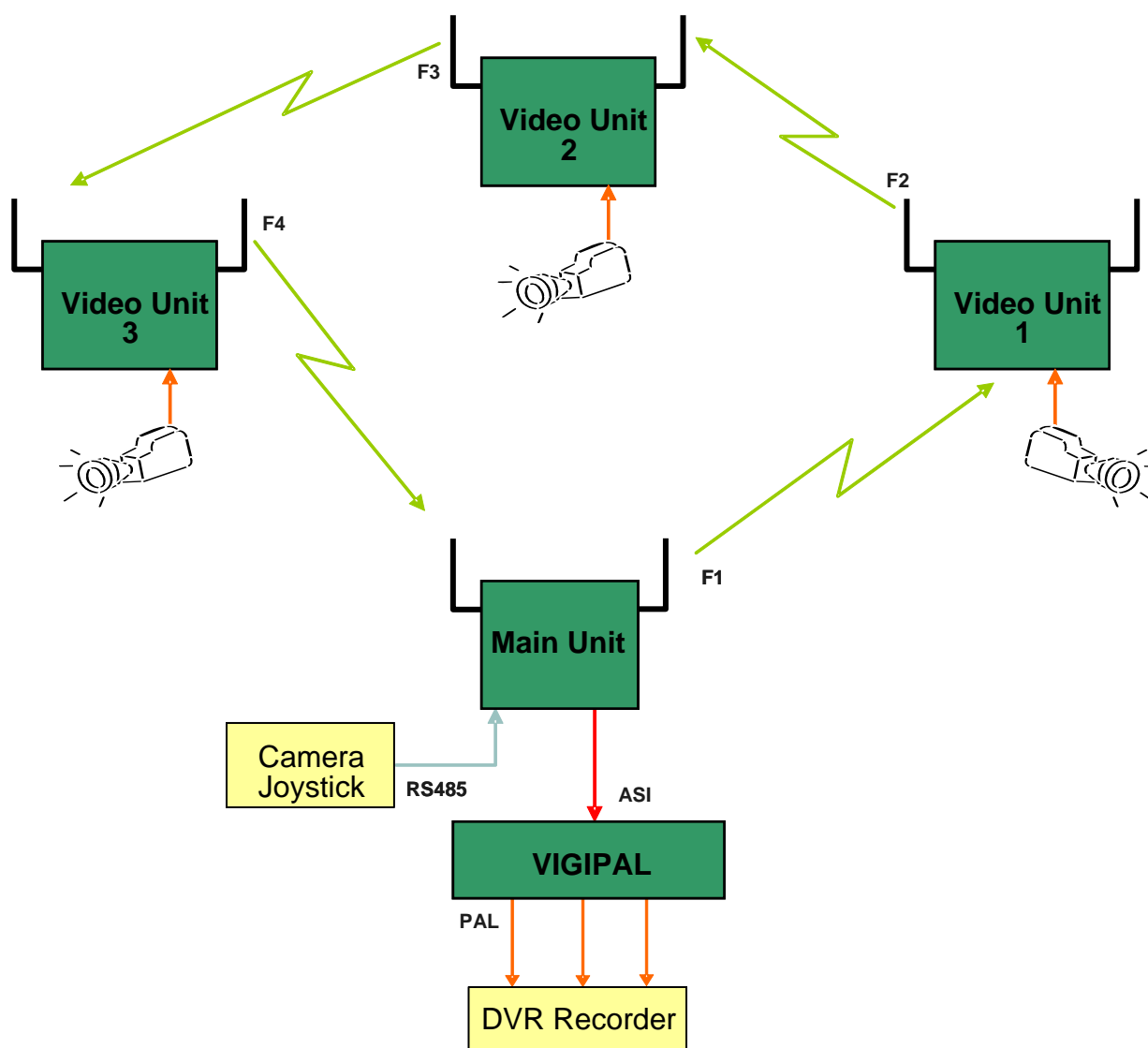
The VIGIL product range makes it possible to implement wireless video surveillance networks with literally dozens of units spaced hundreds of meters apart.

The products take advantage of the innovative technologies of COFDM modulation and MPEG4 video compression, which makes them particularly adapted to application such as the video surveillance of industrial sites, urban areas, road traffic conditions and public events.

The product is designed for fixed point to point use.

The product range is composed primarily of the wireless video surveillance unit VigilCast, and the video decoder equipment VigiPal:

- Video surveillance unit VigilCast: ~TCP-VIG0-1400,
- 8 channels decoder VigiPal: ~TCP-VIG0-1280.



2. Description

2.1 General overview of the VigilCast unit

The VigilCast unit is a unit allowing building wireless video surveillance networks. According to its configuration, the VigilCast unit could be a Video Unit (VU), an Extension Unit (EU) or a Main Unit (MU).

Built in a compact chassis which is proof again the bad weather, the VigilCast unit is equipped with very advanced technologies like:

- The DVB-T demodulation,
- The MPEG4 video compression,

- The ADPCM audio compression¹,
- The DVB-T demodulation,
- The wireless transmission in ISM band (2.4 GHz ... 2.483 GHz).

The ensemble of the VigilCast units is a system of which the start point and the finish point are the Main Unit (MU). Each video unit (VU) (or EU), of which a camera and a microphone could be installed, is linked to the previous link and the following link through a Hertzian link.

The progressive collection principle of the audio and video contributions for each unit is the following:

Each Video Unit (VU) or Extension Unit (EU):

- Receives an uphill signal (from the previous unit or from the Main Unit) which it demodulates,
- Adds its local contribution (video, audio and data) to the demodulated stream,
- Builds a signal by modulating the stream according DVB-T,
- Transmits the DVB-T signal (to the following unit or to the Main Unit).

The Main Unit (MU):

- Receives an uphill signal (which contains the ensemble of the contributions),
- Manages the ensemble of the Video Units,
- Transmits the signal containing the control information (to the Video Units).

¹ Not implemented in VigiPal decoder

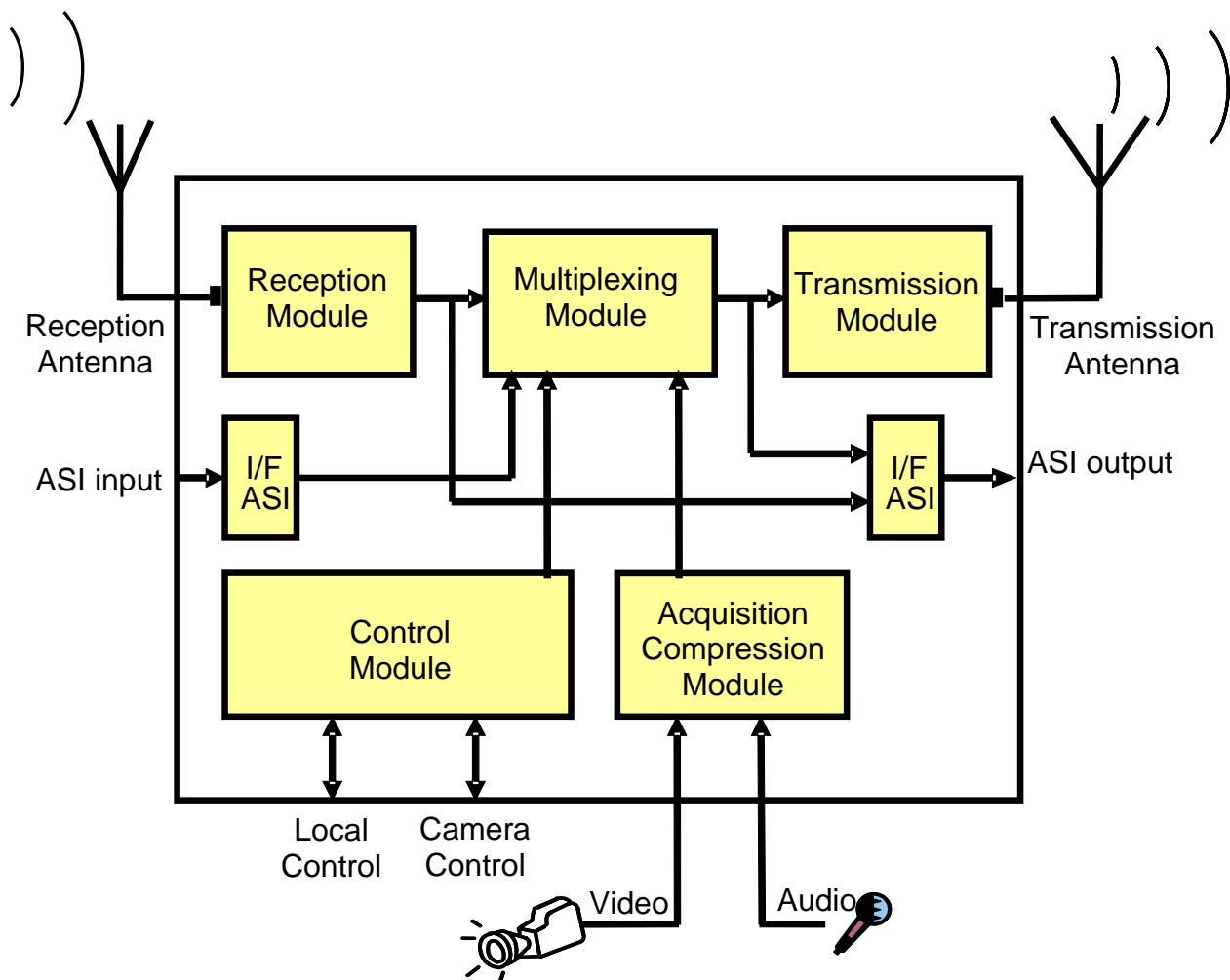
2.2 Block diagram of the VigilCast unit

The VigilCast Unit is made of the following functional entities:

- A reception module,
- An acquisition/compression module,
- A multiplexing module,
- A transmission module,
- A control module.

The control module manages the different functions of the unit and interacts with the outside.

The functional entities are defined as follow:

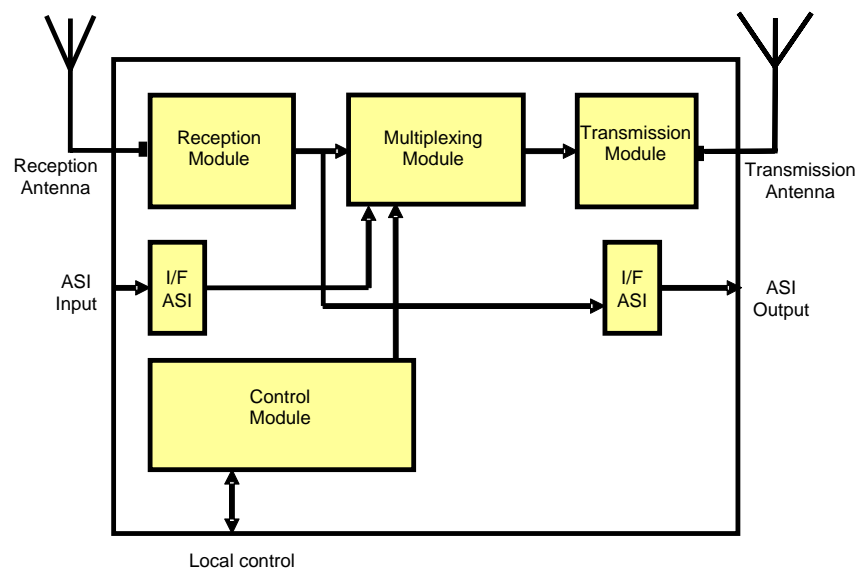


According to its configuration, a VigilCast unit works:

- As a Main Unit,
- As a Video Unit,
- As an Extension Unit².

The following parts give the block diagram for each type of unit.

2.2.1 Main Unit (MU)



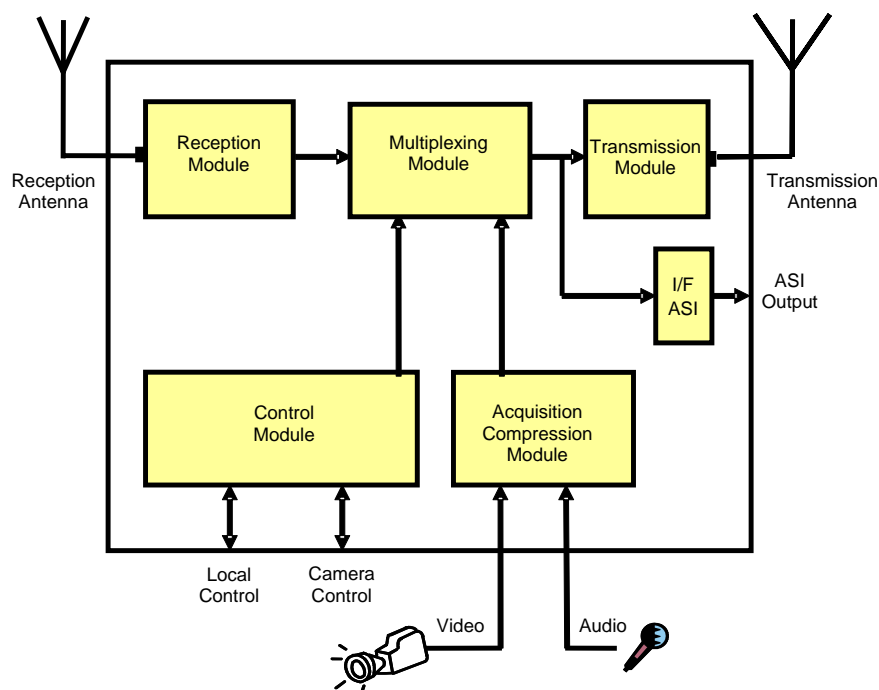
The ASI input is not used.

The ASI output is always activated. This ASI stream is needed by the VigiPal decoder to decode and display the network videos.

Input and output connections of the unit are made through the RF links.

² There are two types of Extension Unit: the Extension Unit with ASI input and the extension Unit with ASI & RF inputs.

2.2.2 Video Unit (VU)



Input connection of the unit is made through the RF link.

Output connection is made through:

- the RF link,
- the ASI link,
- both RF and ASI links.

Note that the ASI output could be used by a VigiPal decoder to decode and display the network videos.

2.2.3 Extension Unit (EU)

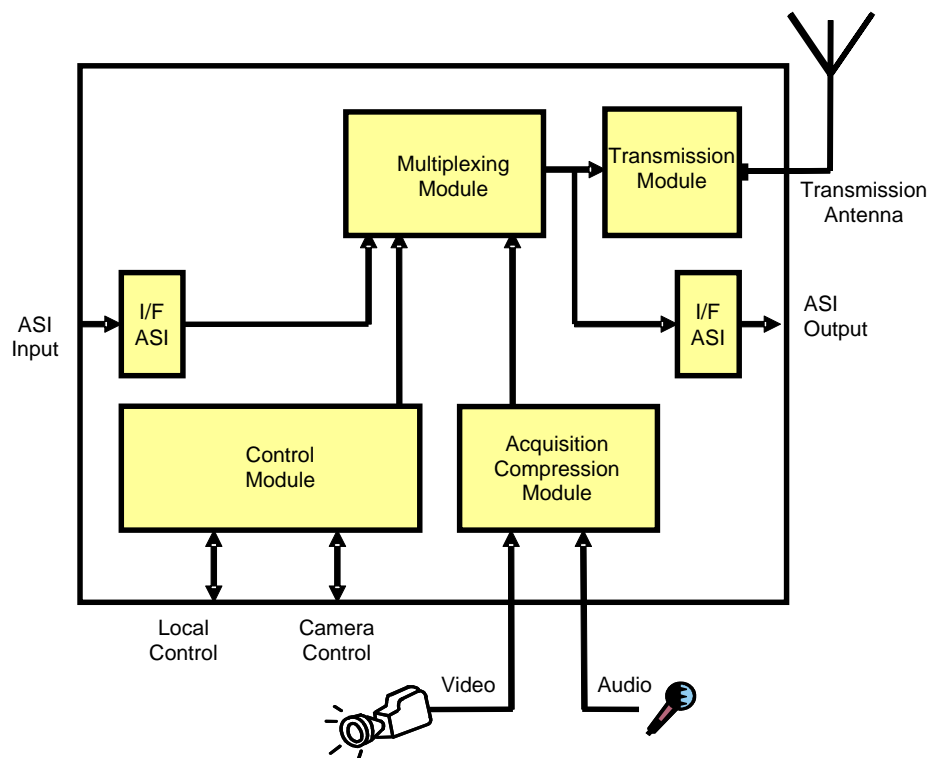
Output connection is made through:

- the RF link,
- the ASI link,
- both RF and ASI links.

Note that the ASI output could be used by a VigiPal decoder to decode and display the network videos.

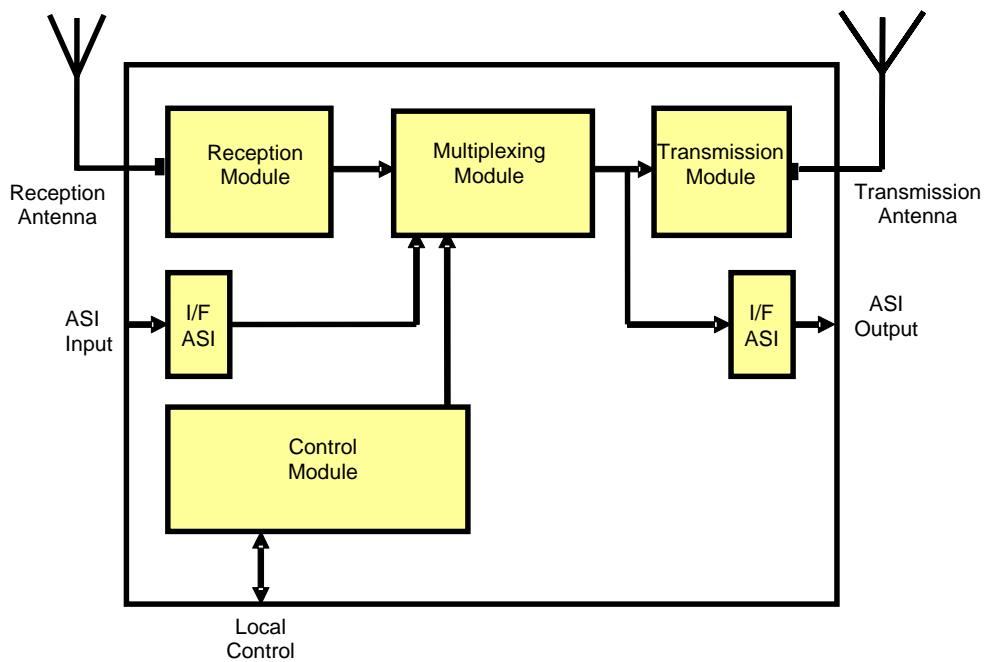
2.2.3.1 Extension Unit with ASI input

Input connection of the unit is made through the ASI link.



2.2.3.2 Extension Unit with RF and ASI inputs

Input connections of the unit are made through the ASI and the RF links.



2.3 Features of the VigilCast unit

2.3.1 RF input/output frequencies

For each unit with a RF output, a channel has to be configured.
For each unit with a RF input, a channel has to be configured.

The selection of the different channels used is done at the network definition phase.

10 channels are available among the following list:

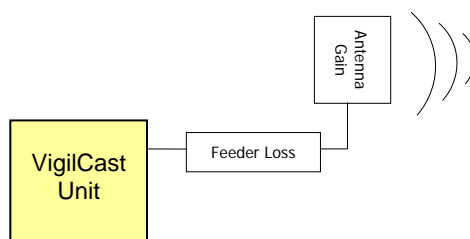
Channel	Center Frequency	Frequency Range
1	2.404 GHz	2.400 GHz to 2.408 GHz
2	2.412 GHz	2.408 GHz to 2.416 GHz
3	2.420 GHz	2.416 GHz to 2.424 GHz
4	2.428 GHz	2.424 GHz to 2.432 GHz
5	2.436 GHz	2.432 GHz to 2.440 GHz
6	2.444 GHz	2.440 GHz to 2.448 GHz
7	2.452 GHz	2.448 GHz to 2.456 GHz
8	2.460 GHz	2.456 GHz to 2.464 GHz
9	2.468 GHz	2.464 GHz to 2.472 GHz
10	2.476 GHz	2.472 GHz to 2.480 GHz

2.3.2 RF output

Configuration	Power
Pmax	200 mW PIRE*
Pmid	50 mW PIRE
Pmin	20 mW PIRE

* Measurement: 197,3 mW.

The 3 power configurations are allowed for all the channels.



Description of the PIRE conditions

The antenna has to be chosen so that the value "Antenna Gain - Feeder Loss" does not exceed 11 dB (at ambient temperature of 25°C). For instance, if the attenuation the cable used between the VigilCast Unit and the antenna is 2dB, the gain of the antenna must be less than 13 dB.

2.3.3 Video bit rate

Each unit manages with video (video unit or extension unit with ASI input) could be configured according to the following list:

Configuration	Bit rate
Qa	2 000 Kbps
Qb	1 000 Kbps
Qc	500 Kbps
Qd	200 Kbps
Video Off	-

2.3.4 DVB-T modulation

The DVB-T modulation of the RF output could be configured with on the six modes defined in the Vigil system.

Mode 1 is the more robust, but allows the smaller bit rate.

Mode 6 allows the higher bit rate, but is the less robust.

Mode	Settings	Bit rate	C/N
1	2K, QPSK, 1/2, 1/32	6.03 Mbps	5.4 dB
2	2K, QPSK, 2/3, 1/32	8.04 Mbps	8.4 dB
3	2K, 16-QAM, 1/2, 1/32	12.09 Mbps	11.2 dB
4	2K, 16-QAM, 2/3, 1/32	16.09 Mbps	14.2 dB
5	2K, 64-QAM, 2/3, 1/32	24.13 Mbps	16 dB
6	2K, 64-QAM, 5/6, 1/32	30.16 Mbps	21.7 dB

2.3.5 Scrambling of the RF link

- To avoid any interference between 2 Vigil networks or more simply the "hacking" of the network, the RF link is coded.

Datas on the RF output are coded by a key with a length from 1 to 512 bits.

Whatever the key length is, an internal algorithm generates a key with a length of 512 bits.

Datas on the ASI output are not coded, because of 2 reasons:

- ASI output could be deactivated,

- A physical access to the unit is needed to get the ASI datas.

The coding key must be the same for all the Vigil network units.

- The coding key can be setted only in FACTORY configuration.
Once a key has been validated on a unit, it is impossible to cancel or modify it.
Once the key configured, it is IMPOSSIBLE to retrieve this key.
The installer has to store the network key in order to be able to configure a new unit to insert it in the network.

In the case where the key is lost, there are 2 solutions :

- Sendind back the unit to factory.
By special process, it is possible to retrieve the key.
This action will be invoiced at an inclusive price.
- Activating of the FACTORY configuration of all the network units and configuration of a new key.

2.3.6 Control of the VigilCast unit

The module could be externally controlled through a RS232 control port or a RS485 control port.

Both interfaces are set with:

- 57600 bauds,
- 8 data bits,
- 1 STOP bit,
- No parity bit.

There is no need to select one or the other port. The module monitors both control ports. Nevertheless only one control port (RS232 or RS485) should be used at a time.

The control port could be used by an external CPU:

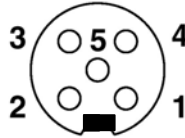
- To set the mode of operation of the module and the associated parameters. All these parameters are stored in an EEPROM memory, so that there is no need to initialize the module each time it is powered on, but only when a change of parameter is required.
- To monitor some information from the module and especially status information...
- To download new software versions.

The protocol and the list of command are fully described in the "chapter 4 – Operation".

- Control/Data (4):
 - Connector: M12, 5 female points,
 - Cabling:

RS232:

4 = RX
3 = TX
5 = GND



RS485 (Half Duplex):

1 = Rx-/Tx-
2 = Rx+/Tx+

2.4 Performances and technical characteristics

Characteristics	Value
Reception/Transmission	
ISM frequency band	2.400 to 2.483 GHz
Channels number	10
Bandwidth	8 MHz (7.62 MHz at 1 dB)
Maximum Output RMS Power on 50 Ω Load	200 mW
Programmable level adjustment	20, 50 or 200 mW
ROS	< 1.8
Spurious	< - 60 dBc
Input sensivity	See 2.4.2
Maximum RF input level	-20 dBm
Noise factor	< 10 dB
RF connectors	N Female / 50 Ω
Modulation	
Type and standard	COFDM / DVB-T in 2K
MEPG-TS stream	Private Encoding
Modes	See 2.4.2
Bit rates	See 2.4.5
Video coding	MEPG4 4.2.0 frames Simple Profile
Broadcast bit rate after compression	200Kbps, 500Kbps, 1000Kbps, 2000Kbps
Video format	CIF (352x288)
Audio coding	ADPCM / 22Kbps
Audio Input³	
Bandwidth	100Hz at 7KHz
Level	700mV / 600 Ω Symétrique
Connector	3 pins / IP66
Video Input	
Bandwidth	6 MHz
Level	1 Vp-p
Connector	BNC / 75 Ω
Other input and output	
RS485 and RS232	19.2 Kbps – 5 pins female connector
ASI input	DVB-ASI (from 0 to 32 Mbps) BNC / 75 Ω
ASI output	DVB-ASI (from 0 to 32 Mbps) BNC / 75 Ω
Environment	
Power supply AC	24VAC nominal / 20 to 28 VAC
Consumption	< 60 W
Operating temperature	-10° to 50°C
Storage temperature	-20° to 70 °C
Connector	5 pins male
Standards	EN60950 / CE EN 50022 / EN60945

³ Not implemented



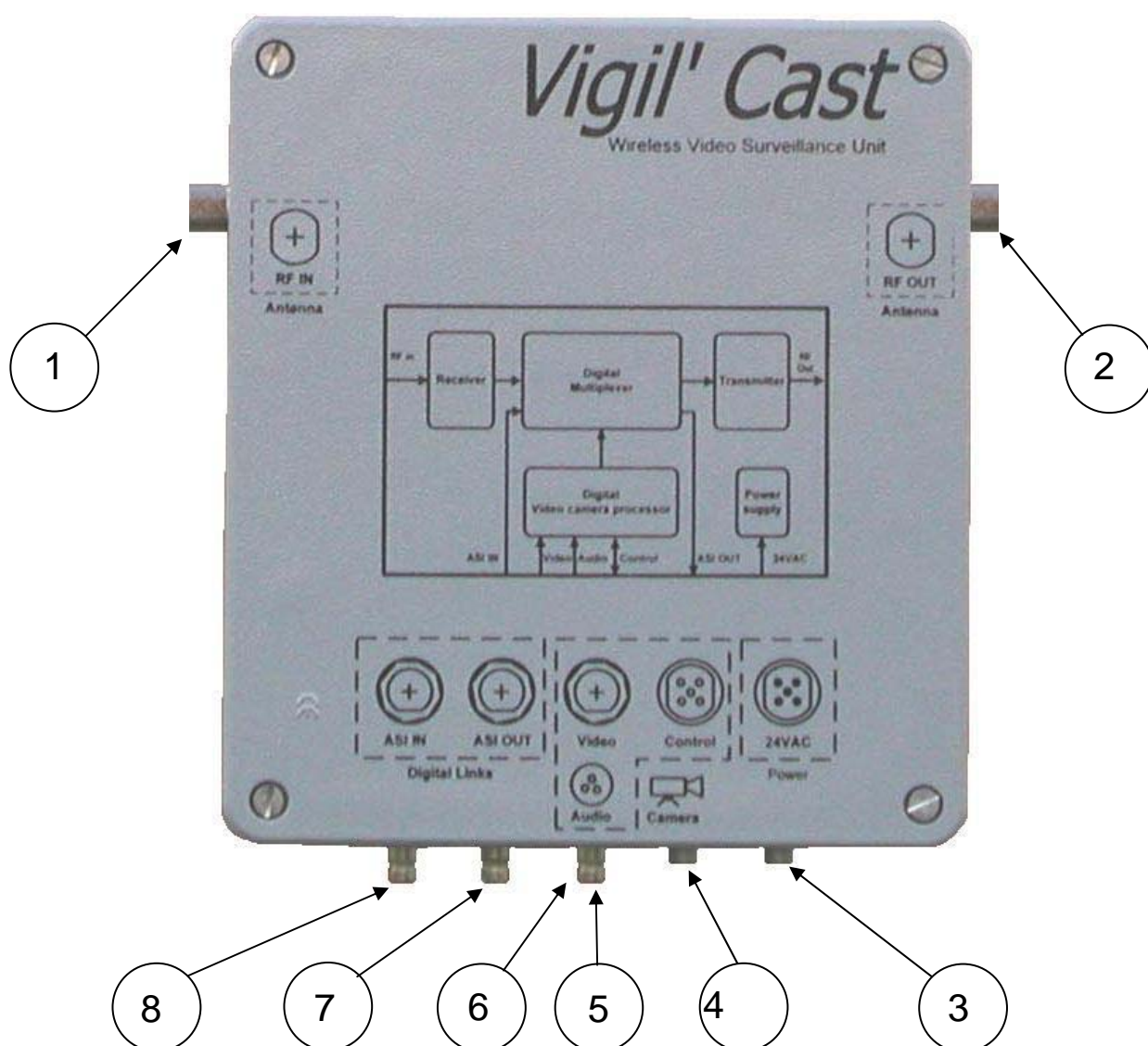
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IP protection	IP55
Weight	About 3,6Kgs
Dimensions	270x271x92 mm

2.4.1 RF input sensitivity

Received Mode	Sensitivity
Mode 1	- 90 dBm
Mode 2	- 87 dBm
Mode 3	- 84 dBm
Mode 4	- 81 dBm
Mode 5	- 76 dBm
Mode 6	- 70 dBm

2.5 Input / Output interfaces



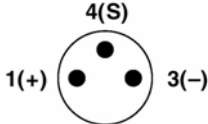
- RF input (1):
 - Connector: Female N,
 - Impedance: 50 Ohms,
 - Input level: -20 dBm...-90dBm.
- RF output (2):
 - Connector: Female N,
 - Impedance: 50 Ohms,



VigilCast User Manual

- Output level: 0 dBm (Pmin), 5 dBm (Pmid) or 10 dBm (Pmax).

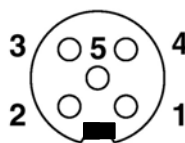
- Video (5):
 - Connector: Female BNC,
 - Impedance: 75 Ohms,
 - Signal format: Composite video according to the PAL standard,
 - Maximal level: 1 Volts p-p.

 - Audio (6):⁴
 - Connector: M8, 3 female points,
 - Impedance: 600 Ohms,
 - Signal format: symmetrical mono audio,
 - Maximal level: 700 mV (0 dBu),
 - Cabling:
 - 1 = Audio_IN+
 - 3 = Audio_IN-
 - 4 = GND
- 
- ASI out (7):
 - Connector: Female BNC,
 - Impedance: 75 Ohms,
 - Signal format: MPEG-TS, 188 bytes per packet, burst mode.

 - ASI in (8):
 - Connector: Female BNC,
 - Impedance: 75 Ohms,
 - Signal format: MPEG-TS, 188 bytes per packet.

2.6 Power requirements

- Power supply (3):
 - Connector: M12, 5 male points,
 - Voltage:
 - 24 VAC (20 to 28 VAC),
 - Frequency: 47-63 Hz,
 - Max. current: 3A,
 - Cabling:
 - 1 = 4 = 24 VAC / DC
 - 2 = 3 = 0 VAC /DC
 - 5 = ground



⁴ Not implemented

2.7 Safety requirements

The Vigil'Cast product complies with the European Directives for Electromagnetic Low Voltage Directive (75/23/CEE).

The module complies with the EN60950:2001 standard applied for information technology equipment.

2.8 EMC requirements

The Vigil'Cast product complies with the European Directives for Electromagnetic Compatibility (EMC 89/336/EEC and 1999/5/EC).

The module complies with the EN 300 328 V1.6.1 (2004), the EN 50130-4 (1995) A1 (1998) and the EN 301 489-17 V1.2.1 (2002) standards.

EMC characteristics can be guaranteed only:

- If installation of the module is performed according to recommendations of chapter 3,
- If appropriate shielded cables are used to connect the module inside the equipment.

3. Installation

3.1 Unpacking the VigilCast unit

The usual packing of the Vigil'Cast unit is a transport box which weight and dimensions are:

- Weight: 3.8 Kg,
- Dimensions : 355 x 335 x 145 mm

Please check the transport box against any transport damage at the reception. If there is damage please contact the carrier immediately.

Unpack carefully the unit from the transport box.
Check the unit against transport damage.

Please check that the packing content matches the following list:

- Vigil'Cast unit,
- a power cable,
- a control cable.

Except if ordered separately, the documentation is not included in the pack.
It is downloadable from the web site (www.teamcast.com) as a pdf file.

3.2 Mechanical mounting

- Mechanical description

The module is made of an electronic board mounted in an aluminium box.

The dimensions of the box excluding connectors are:

- 218 x 255 x 92 mm

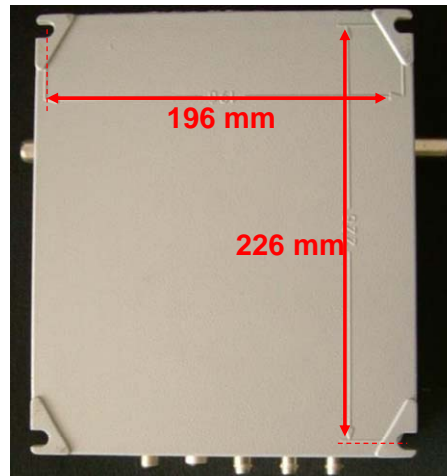
The dimensions including connectors are:

- 270 x 271 x 92 mm

The weight of the module is 3,600 Kg.

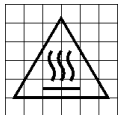
The unit has to be fixed with 8mm in diameter screws that allow supporting a 40 Kg weight.

The module has to be screwed on the the rear side using the fixing holes. The drawings below show the position of the fixing holes:



3.3 Thermal considerations

- Temperature warning



The unit external temperature could reach 64°C in normal use. So the installer must take all the precaution required in such case.

3.4 Connections of the unit

The connection of the RF input and output signals are the more critical one, and the cable used, the length of the cable as well as the quality of the connector has to be chosen to avoid any degradation of the signal.

The power supply connection should use wires with a gauge compatible with the consumption of the module (0.5 mm² minimum). A protection is made by a fuse⁵ with a 5A temporization.

⁵ A device of cutting and a safety device against the overcurrents and the defects of ground will have to be provided at the time of the final installation

The connection of the RS485 requires twisted pair cable.

Special cares should be taken in the wiring of the module to comply with EMC constraints.

3.5 Getting started

Once the Vigil'Cast unit is powered on, it starts immediately within a short time (~3 seconds).

The will immediately generates the output signals (RF and ASI) and the video stream if needed.

The configuration parameters are stored in an EEPROM memory of the unit, so that there is no need to restore the parameter after a switch off / switch on.

3.6 Initial configuration

The VigilCast unit is delivered with a basic configuration as described hereafter.

Any change in this basic configuration requires the use of the control interface as explained in chapter 4.

Parameter	Value
Unit Type	Video
Network Type	Loop/Linear
Coding Key	TEAMCAST, YOUR TEAM FOR BROADCAST
Input Type	RF
Output Type	RF
Mode	3
RF Input Channel	1
RF Output Channel	5
Output Power	Pmax
Video Configuration	Qb
Audio Insertion	Off
Camera Control	Off
RS485 Bit Rate	19200 bps

4. Operation

4.1 Control interface

4.2 Generalities

A VigilCast unit is managed by sending character string (see 5.2.2) on a RS232 control link through hyper terminal (inherent in all the computers) or by using the supplied utilities.

The settings of the RS232 link are the following:

- Bit rate: 57600 bps
- Data bits: 8
- Parity: none
- Stop bit: 1
- No stream control

4.3 Configuration through software

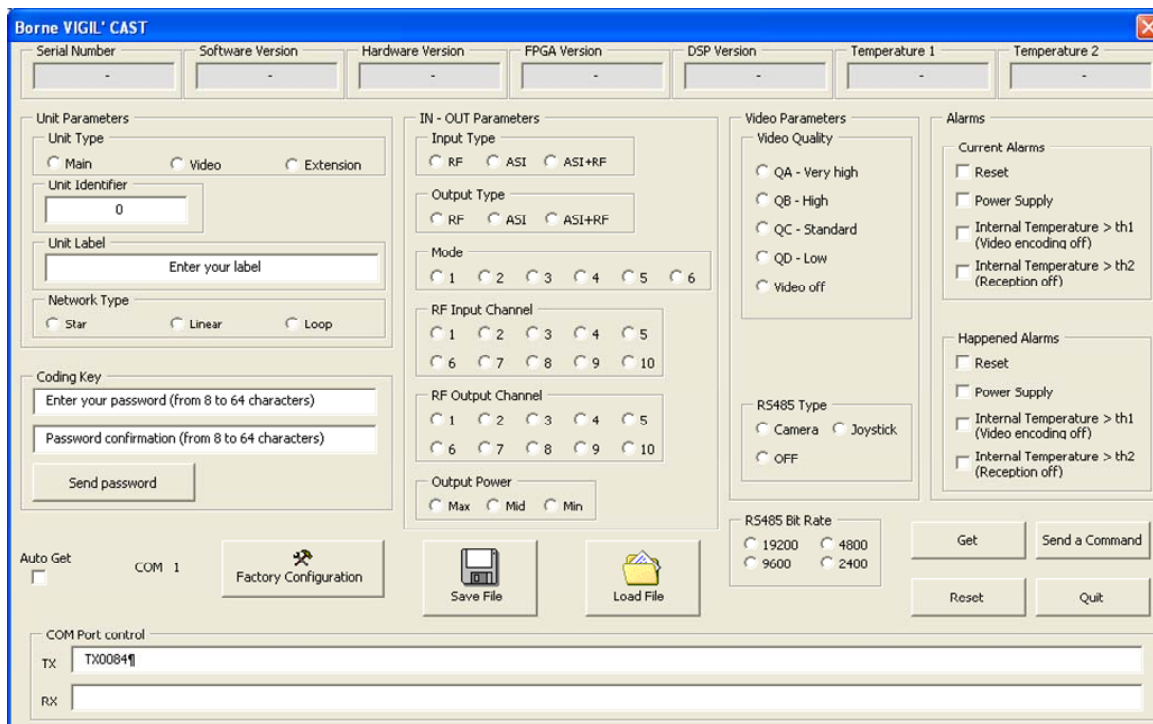
Two utilities based on Microsoft Excel will be available:

- VigilCast Unit Installation,
- Vigil Network Management.

These utilities give you an example: the user could develop his applications.

4.3.1 VigilCast Unit Installation

This utility allows setup a VigilCast Unit before installing the Vigil Network.

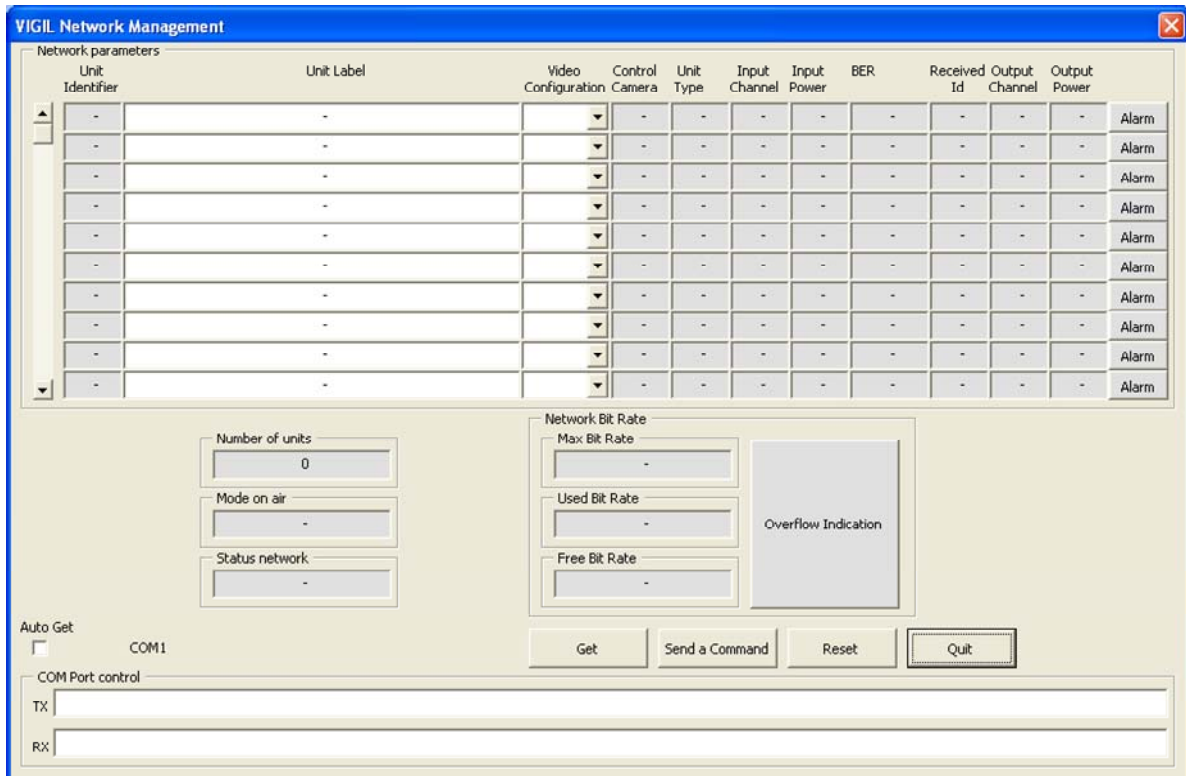


The screenshot shows the "Borne VIGIL CAST" configuration utility window. It features several sections for configuring the unit:

- Serial Number, Software Version, Hardware Version, FPGA Version, DSP Version, Temperature 1, Temperature 2:** Fields for reading unit information.
- Unit Parameters:** Includes Unit Type (Main, Video, Extension), Unit Identifier (0), Unit Label (Enter your label), Network Type (Star, Linear, Loop), and Coding Key (password fields and Send password button).
- IN - OUT Parameters:** Includes Input Type (RF, ASI, ASI+RF), Output Type (RF, ASI, ASI+RF), Mode (1-6), RF Input Channel (1-10), RF Output Channel (1-10), and Output Power (Max, Mid, Min).
- Video Parameters:** Includes Video Quality (QA - Very high, Q8 - High, QC - Standard, QD - Low, Video off) and RS485 Type (Camera, Joystick, OFF).
- Alarms:** Includes Current Alarms (Reset, Power Supply, Internal Temperature > th1, Internal Temperature > th2) and Happened Alarms (Reset, Power Supply, Internal Temperature > th1, Internal Temperature > th2).
- RS485 Bit Rate:** Includes 19200, 4800, 9600, and 2400.
- Buttons:** Auto Get, COM 1, Factory Configuration, Save File, Load File, Get, Send a Command, Reset, and Quit.
- COM Port control:** Includes TX (TX0084) and RX fields.

4.3.2 Vigil Network Management

This utility allows managing the Vigil Network.



VIGIL Network Management

Unit Identifier	Unit Label	Video Configuration	Control Camera	Unit Type	Input Channel	Input Power	BER	Received Id	Output Channel	Output Power	
-	-	-	-	-	-	-	-	-	-	-	Alarm
-	-	-	-	-	-	-	-	-	-	-	Alarm
-	-	-	-	-	-	-	-	-	-	-	Alarm
-	-	-	-	-	-	-	-	-	-	-	Alarm
-	-	-	-	-	-	-	-	-	-	-	Alarm
-	-	-	-	-	-	-	-	-	-	-	Alarm
-	-	-	-	-	-	-	-	-	-	-	Alarm
-	-	-	-	-	-	-	-	-	-	-	Alarm
-	-	-	-	-	-	-	-	-	-	-	Alarm
-	-	-	-	-	-	-	-	-	-	-	Alarm

Number of units:
 Mode on air:
 Status network:

Network Bit Rate:
 Max Bit Rate:
 Used Bit Rate:
 Free Bit Rate:

Auto Get: ☐ COM1
 COM Port control:
 TX:
 RX:

Get Send a Command Reset Quit

Overflow Indication

4.4 Protocol of the control interface

4.4.1 Message structure

This protocol has been inspired by the famous Hayes commands used for modem. The unit is usually placed under the control of a Host CPU or a terminal. The unit itself is slave to the host CPU meaning that it never takes the initiative of a communication and only answers to request from the host CPU. The host CPU or the terminal always operates as the master. The message sent from the host to the unit is called the **Request Message** and the answer of the unit to the host is called the **Answer Message**.

A message has always the following structure:

<Message> = <AD> <ID> <DATA>

Where:

- **<AD>** is the unit address (1 byte)
- **<ID>** is a one byte message identifier (1 byte),
- **<DATA>** is the byte or multi bytes data field of the message. If multi-bytes numeric values are given in the DATA field, most significant byte is sent first.

The number of Data bytes is not indicated in the message itself. It is defined according to the message <ID>.

4.4.2 ASCII encoding

The protocol is ASCII oriented.

For the transmission of a message, each byte is ASCII coded, meaning that two ASCII characters are used to transmit one useful byte. For example the message byte 0xF3 will be transmitted as 0x46 ('F' ASCII code) plus 0x33 ('3' ASCII code).

"Space" characters (ASCII code 0x20) can be inserted before, between and after useful bytes but are ignored by the module and should be ignored too by the host CPU. "Space" characters are not processed in the CRC computation (see 4.3.4).

These space characters facilitate the reading of command files when displayed on a terminal. Especially, the slave answer starts with some "space" characters so that the request and the answer messages can easily be distinguished on a terminal screen.

4.4.3 Message encapsulation

A message is always encapsulated between a prefix and a suffix:

- The prefix could take the value "TX" (ASCII codes 0x54 and 0x58) for normal operation, or "TS" for secured operation (See here under 5.2.2.4 Optional CRC)

- The suffix includes a Carriage Return character (ASCII code 0x0D) followed by a Line Feed character (ASCII code 0x0A).

4.4.4 Optional CRC

If the Prefix sent is "TS" (ASCII codes 0x54 and 0x53) instead of "TX", this means that a CRC is added to the message. This CRC is computed by XOR between all bytes of the ASCII codes of the useful message [<AD>, <ID> and <DATA> fields] except "space" characters, and inserted at the end of this message before the suffix. It is then transported as two ASCII characters like all other bytes of the message.

In this mode the CRC is inserted by the sender of a message and checked by the receiver.

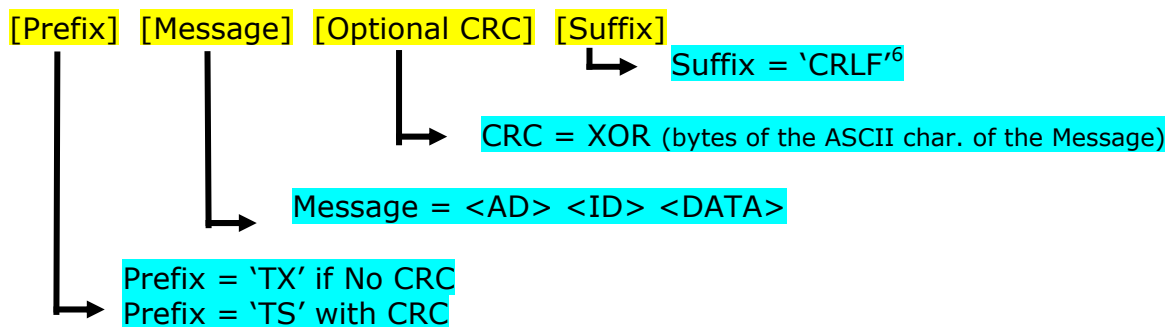
If a CRC check is wrong on the unit, it will answer to the host CPU with an error message.

If a CRC check is wrong on the Host CPU, the host CPU should resend the message to the unit.

If multiple CRC errors happened then the link between host CPU and the unit should be verified.

4.4.5 Global Message Structure

Here is given the global structure of the messages.



⁶ 'CR LF' are the 2 ASCII characters Carriage Return (0x0D) for CR and Line Feed (0x0A) for LF.

4.4.6 Example

- **The Reset Command⁷**

Reset command identifier is: **Id = 0 = 0x00**

In this example the host CPU sends a reset command to the VigilCast Unit which address is the default address.

- If CRC checking is required, the following string of characters (ASCII codes) is sent by the host CPU to the module:
Character string: **TS 00 00 00 CRLF⁸**
ASCII code: **0x54 0x53 0x30 0x30 0x30 0x30 0x30 0x30 0x0D 0x0A**
("Space" characters 0x20 could be inserted between any characters)
- If no CRC checking is required, the following string of characters (ASCII codes) is sent by the host CPU to the module:
Character string: **TX 00 00 CRLF**
ASCII code: **0x54 0x58 0x30 0x30 0x30 0x30 0x30 0x0D 0x0A**
(Blank characters 0x20 could be inserted between any characters)

⁷ Please note that a Reset Command is performed only by sending a *Request Message*. There is not *Answer Message* from the module.

⁸ This is the line of characters that has to be typed on the PC in the hyper terminal mode. The CRC is computed on ASCII characters so = XOR [31, 31, 30, 30] = 0x00

4.5 Description of the different Messages

4.5.1 Different types of messages

A communication is always initiated by the host CPU by a message called the *Request Message*. The unit answers this request with an *Answer Message*.

An error message is a special *Answer Message* sent by the unit if:

- An unknown message identifier <ID> is received in a *Request Message*,
- An invalid command is received,
- The CRC check performed by the unit in the "TS" mode, failed,
- The number of received bytes in the Data Field is not the one expected according to the message identifier <ID>
- A parameter of the <DATA> section has not a valid value

For most Control Commands, the *Request Message* and *Answer message* have the following format:

- <Request Message> = <AD> <ID> <DATA>
- <Answer Message> = <AD> <ID>

Nevertheless it may happen that a control message needs an *Answer Message* with a DATA field from the module

For most Monitoring Commands, the *Request* and *Answer messages* has the following format:

- <Request Message> = <AD> <ID>
- <Answer Message> = <AD> <ID> <DATA>

Nevertheless it may happen that a Monitoring message may include a DATA field in the *Request Message* to the module.

4.5.2 List of commands

VigilCast Command set		Request Message			Answer Message		
		Identifier <Id> Decimal	Hexa	Data field size (in bytes)	Identifier <Id> Decimal	Hexa	Data field size (in bytes)
Control Commands							
U	Reset	0	0x00	0			
Special	Set Unit Type	10	0x0A	1	10	0x0A	1
	Set Unit Label	11	0x0B	50	11	0x0B	50
	Set Unit Identifier	12	0x0C	2	12	0x0C	2
	Set Input Type	13	0x0D	1	13	0x0D	1
	Set RF Input Channel	14	0x0E	1	14	0x0E	1
	Set Output Type	15	0x0F	1	15	0x0F	1
	Set RF Output Channel	16	0x10	1	16	0x10	1
	Set Mode	17	0x11	1	17	0x11	1
	Set Camera Control	18	0x12	1	18	0x12	1
	Set Audio Insertion	19	0x13	1	19	0x13	1
	Set Video Insertion	20	0x14	1	20	0x14	1
	Set Video Configuration	21	0x15	1	21	0x15	1
	Set Output Power	22	0x16	1	22	0x16	1
	Set Coding Key	27	0x1B	64	27	0x1B	64
	Set Default Configuration	28	0x1C	0	28	0x1C	0
	Set Received Identifier (ASI)	29	0x1D	2	29	0x1D	2
	Set Network Type	30	0x1E	1	30	0x1E	1
	Set RS485 Bit Rate	33	0x21	1	33	0x21	1

VigilCast Command Get		Request Message			Answer Message		
		Identifier <Id> Decimal	Hexa	Data field size (in bytes)	Identifier <Id> Decimal	Hexa	Data field size (in bytes)
Monitoring Commands							
C	Get Type & Version	131	0x83	0	131	0x83	8
	Get Serial Number	132	0x84	0	132	0x84	2
	Get General Status	133	0x85	0	133	0x85	2
Special	Get Received Identifier (RF)	120	0x78	0	120	0x78	2
	Get Input Power	128	0x80	0	128	0xA0	1
	Get BER	126	0x7E	0	126	0xA1	3
	Get Status code	125	0x7D	0	125	0xA2	1
	Get Temperature	119	0x77	0	119	0x77	2
	Get Unit Type	200	0xC8	0	200	0xC8	1
	Get Unit Label	201	0xC9	0	201	0xC9	50
	Get Unit Identifier	202	0xCA	0	202	0xCA	2
	Get Input Type	203	0xCB	0	203	0xCB	1
	Get Input Channel	204	0xCC	0	204	0xCC	1
	Get Output Type	205	0xCD	0	205	0xCD	1
	Get Output Channel	206	0xCE	0	206	0xCE	1
	Get Mode	207	0xCF	0	207	0xCF	1
	Get Camera Control	208	0xD0	0	208	0xD0	1
	Get Audio Insertion	209	0xD1	0	209	0xD1	1
	Get Video Insertion	210	0xD2	0	210	0xD2	1
	Get Video Configuration	211	0xD3	0	211	0xD3	1
	Get Output Power	212	0xD4	0	212	0xD4	1
	Get Video Format	213	0xD5	0	213	0xD5	1
	Get Video Channel Bit Rate	216	0xD8	1	216	0xD8	3
	Get Coding Key	217	0xD9	64	217	0xD9	64
	Get Received Identifier (ASI)	218	0xDA	0	218	0xDA	2
	Get Network Type	219	0xDB	0	219	0xDB	1
	Get RS485 Bit Rate	222	0xDE	0	222	0xDE	36
	Get FPGA & DSP Version	223	0xDF	0	223	0xDF	4
Monitoring Commands							
Common	Download packets	253	0xFD	134	253	0xFD	6
	Attention command	No Id and no data field			Special format		
	Get type	255	0xFF	0	Special format		

Command Label:		Reset	
Command Type:	Control Command	Identifier =	0 0x00
Command description:			
This command performs a total software reset of the module.			
Data Field Description:		Request message	Data Field size: 0 byte
Restriction of use			
	After a Reset command the module needs about 1 second before becoming operational again. The module does not answer to a reset command.		

Command Label:		Set Unit Type	
Command Type:		Configuration	Identifier = 10 0x0A
Command description: Set the type of the unit			
Data Field Description:		Request message	Data Field size: 1 byte
Byte 1:	0x00 0x01 0x02	Main Unit (MU) Video Unit (VU) Extension Unit (EU)	
Additional information			
	<u>Main Unit:</u> <ul style="list-style-type: none">- RF input- RF output- No audio and video contribution <u>Video Unit:</u> <ul style="list-style-type: none">- RF input- RF input- Audio and video contribution <u>Extension Unit:</u> <ul style="list-style-type: none">- ASI input- RF output- Audio and video contribution or <ul style="list-style-type: none">- RF and ASI input- RF output- No audio and video contribution <u>Example:</u> Unit type = Main Unit Command = TX 00 0A 00		

Command Label:		Set Unit Label	
Command Type:	Configuration	Identifier =	11 0x0B
Command description: Set the label of the unit			
Data Field Description:		Request	Data Field size: 50 bytes max
message			
Byte 1..50 :		ASCII code	
Additional information			
	<u>Example:</u> Label = TEAMCAST Command = TX 00 0B 54 45 41 4D 43 41 53 54		

Command Label:		Set Unit Identifier	
Command Type:	Configuration	Identifier =	12 0x0C
Command description: Set the identifier of the unit			
Data Field Description:		Request message	Data Field size: 2 bytes
Byte 1:	From 0x00 to 0x07		
Byte 2:	From 0x00 to 0xFF		
Additional information			
	0 < Identifier < 2048 <u>Example:</u> Identifier = 520 Command = TX 00 0C 02 08		

Command Label:		Set Input Type		
Command Type:	Configuration	Identifier =	13	0x0D
Command description:				
Set the input type of the unit				
Data Field Description:		Request	Data Field size:	1 byte
message				
Byte 1:	0x00	RF Input		
	0x01	ASI Input		
	0x02	ASI and RF Input		
Additional information				
<p>The RF input is possible only on the Main Unit and Video Unit.</p> <p>The ASI input and the ASI & RF input are possible only on the Extension Unit.</p> <p><u>Example:</u></p> <p>Unit Type = Main Unit</p> <p>Command = TX 00 0D 01 (or 02) → rejected</p> <p>Unit Type = Extension Unit</p> <p>Command = TX 00 0D 01 (or 02) → OK</p>				

Command Label:		Set Input Channel		
Command Type:	Configuration	Identifier =	14	0x0E
Command description:				
Set the RF input channel of the unit				
Data Field Description:		Request message	Data Field size:	1 byte
Byte 1	From 0x01 to 0x0A	RF input channel number		
Additional information				
<div>Channel 1: 2.4 GHz...2.408 GHz</div> <div>Channel 2: 2.408 GHz...2.416 GHz</div> <div>Channel 3: 2.416 GHz...2.424 GHz</div> <div>Channel 4: 2.424 GHz...2.432 GHz</div> <div>Channel 5: 2.432 GHz...2.440 GHz</div> <div>Channel 6: 2.440 GHz...2.448 GHz</div> <div>Channel 7: 2.448 GHz...2.456 GHz</div> <div>Channel 8: 2.456 GHz...2.464 GHz</div> <div>Channel 9: 2.464 GHz...2.472 GHz</div> <div>Channel 10: 2.472 GHz...2.480 GHz</div> <div><u>Example:</u></div> <div>RF Input Channel = 5</div> <div>Command = TX 00 0E 05</div>				

Command Label:		Set Output Type	
Command Type:	Configuration	Identifier =	15 0x0F
Command description: Set the output type of the unit			
Data Field Description:		Request message	Data Field size: 1 byte
Byte 1:	0x00 0x01 0x02	RF Output ASI Output RF+ASI Output	
Additional information			
	<p>The ASI output type is not possible on a Main Unit.</p> <p>When the ASI output is chosen, the RF output is muted.</p> <p><u>Example:</u> Unit Type = Main Unit Command = TX 00 0F 01 → rejected</p> <p>Unit Type = Video Unit (or Extension Unit) Command = TX 00 0F 00 (or 01)</p>		

Command Label:		Set Output Channel	
Command Type:	Configuration	Identifier =	160x10
Command description: Set the RF output channel of the unit			
Data Field Description:		Request message	Data Field size: 1 byte
Byte 1	From 0x01 to 0x0A	RF output channel number	
Additional information			
	<div>Channel 1: 2.4 GHz...2.408 GHz</div> <div>Channel 2: 2.408 GHz...2.416 GHz</div> <div>Channel 3: 2.416 GHz...2.424 GHz</div> <div>Channel 4: 2.424 GHz...2.432 GHz</div> <div>Channel 5: 2.432 GHz...2.440 GHz</div> <div>Channel 6: 2.440 GHz...2.448 GHz</div> <div>Channel 7: 2.448 GHz...2.456 GHz</div> <div>Channel 8: 2.456 GHz...2.464 GHz</div> <div>Channel 9: 2.464 GHz...2.472 GHz</div> <div>Channel 10: 2.472 GHz...2.480 GHz</div> <div><div>NB:</div> The Input Channel must be different than the Output Channel.</div> <div><div>Example:</div><div>RF input channel = 5 (already used)</div><div>Output channel = 5 (user request)</div><div>Command = TX 00 10 05 → not accepted</div><div>Command = TX 00 0E 04 (change the input channel)</div><div>Command = TX 00 10 05 → accepted</div></div>		

Command Label:		Set Mode		
Command Type:	Configuration	Identifier =	17	0x11
Command description:				
Set the modulation number used by the unit				
Data Field Description:		Request message	Data Field size:	1 byte
Byte 1	From 0x01 to 0x06	Mode number		
Additional information				
	<p><u>By default:</u></p> <p>Mode 1: 2K + 4QAM + 1/2 + 1/16</p> <p>Mode 2: 2K + 4QAM + 2/3 + 1/16</p> <p>Mode 3: 2K + 16QAM + 1/2 + 1/16</p> <p>Mode 4: 2K + 16QAM + 2/3 + 1/32</p> <p>Mode 5: 2K + 64QAM + 2/3 + 1/32</p> <p>Mode 6: 2K + 64QAM + 5/6 + 1/32</p> <p><u>Remark:</u> This mode defined locally in the unit, is a spare mode for a unit with RF input. Indeed, a unit with RF input uses the received mode.</p> <p><u>Example:</u></p> <p>Output mode = 3</p> <p>Command = TX 00 11 03</p>			

Command Label:		Set Camera Control			
Command Type:		Configuration	Identifier =	18	0x12
Command description:					
Set the authorization of the camera control					
Data Field Description:		Request message	Data Field size:		1 byte
Byte 1	0x00	Camera control inhibited			
	0x01	Camera control permitted			
Additional information					
	On a Main Unit or an Extension Unit with RF and ASI input, the camera control is not authorized.				
	<u>Example:</u> Video Unit (or Extension Unit with ASI input) Camera control = ON - Command = TX 00 12 01				

Command Label:		Set Audio Insertion			
Command Type:		Configuration	Identifier =	19	0x13
Command description:					
Set the authorization of the audio contribution					
Data Field Description:		Request message	Data Field size:		1 byte
Byte 1	0x00	Audio insertion inhibited			
	0x01	Audio insertion permitted			
Additional information					
<p>On a Main Unit or an Extension Unit with RF and ASI input, the audio insertion is not authorized.</p> <p><u>Example:</u> Video Unit (or Extension Unit with ASI input) Audio insertion = ON Command = TX 00 13 01</p>					

Command Label:		Set Video Insertion	
Command Type:	Configuration	Identifier =	20 0x14
Command description: Set the authorization of the video contribution			
Data Field Description:		Request message	Data Field size: 1 byte
Byte 1	0x00 0x01	Video contribution inhibited Video contribution permitted	
Additional information			
	On a Main Unit or an Extension Unit with RF and ASI input, the video insertion is not authorized. Example: Video Unit (or Extension Unit with ASI input) Video Insertion = ON Command = TX 00 14 01		

Command Label:		Set Video Configuration	
Command Type:	Configuration	Identifier =	21 0x15
Command description: Set video contribution quality			
Data Field Description:		Request message	Data Field size: 1 byte
Byte 1:	0x00 0x01 0x02 0x03 0x04	Quality A (Qa) Quality B (Qb) Quality C (Qc) Quality D (Qd) High quality (HQ)	
Additional information			
	<u>By default:</u> Quality A (Qa): 2.4 Mbps. CIF Quality B (Qb): 1.2 Mbps. CIF Quality C (Qc): 600 Kbps. CIF Quality D (Qd): 300 Kbps. QCIF High Quality (HQ): 4 Mbps. D1 <u>Example:</u> Video Quality B = Qb Command = TX 00 15 01		

Command Label:		Set Output Power	
Command Type:		Configuration	Identifier = 22 0x16
Command description: Set the RF output power of the unit			
Data Field Description:		Request message	Data Field size: 1 byte
Byte 1	0x01 0x02 0x03	Maximal power (Pmax) Intermediate power (Pmid) Minimal power (Pmin)	
Additional information			
	Example: Intermediate power (Pmid)		

Command Label:		Set Received Identifier (ASI)	
Command Type:	Configuration	Identifier =	29 0x1D
Command description: Set the identifier of the received unit with ASI input			
Data Field Description:		Request message	Data Field size: 2 bytes
Byte 1		MSB identifier of the received unit	
Byte 2		LSB identifier of the received unit	
Additional information			
	Example: (identifier of the received unit = 581) Command = TX 00 1D 02 45		

Command Label:		Set Network Type	
Command Type:	Configuration	Identifier =	30 0x1E
Command description: Set the network type where the Main Unit is installed			
Data Field Description:		Request message	Data Field size: 1 byte
Byte 1	0x00 0x01	Star network Loop/Linear network	
Additional information			
	Example: (Star network) Command = TX 00 1E 00		

Command Label:		Set RS485 Bit Rate	
Command Type:	Configuration	Identifier =	33 0x21
Command description: Set the bit rate of the RS485 link			
Data Field Description:		Request message	Data Field size: 1 byte
Byte1	0x11 0x23 0x8F	19 200 bits/s 9 600 bits/s 2 400 bits/s	
Additional information			
	Example: (9 600 bps) Command = TX 00 21 23		

Command Label:		Get Type & Version	
Command Type:	Monitoring	Identifier =	131 0x83
Command description: Reading the type and version of the unit			
Data Field Description:		Answer message	Data Field size: 4 bytes
Byte 1	From 0x00 to 0x09	Hardware release (before dot)	
Byte 2	From 0x00 to 0x99	Hardware release (after dot)	
Byte 3	From 0x00 to 0x09	Software release (before dot)	
Byte 4	From 0x00 to 0x99	Software release (after dot)	
Additional information			
	<u>Example:</u> Command = TX 00 83 TX 00 83 01 20 02 12 - (hardware = V1.20 and software = V2.12)		

Command Label:		Get Serial Number	
Command Type:	Monitoring	Identifier =	132 0x84
Command description: <i>Reading the serial number of the unit</i>			
Data Field Description:		Answer message	Data Field size: 2 bytes
Byte 1	From 0x00 to 0x99	0 < Serial number < 9 999	
Byte 2	From 0x00 to 0x99		
Additional information			
	<u>Example:</u> Command = TX 00 84 - TX 00 84 45 87 (serial number = 4 587)		

Command Label:		Get General status	
Command Type:	Monitoring	Identifier =	133 0x85
Command description: <i>Reading the alarms of the unit</i>			
Data Field Description:		Answer message	Data Field size: 2 byte
Byte 1	From 0x00 to 0xFF	Current alarm binary field b0: Power supply problem b1: Xilinx problem b2: Internal temperature > th1 b3: Internal temperature > th2 b4: Internal temperature > th3	
Byte 2	From 0x00 to 0xFF		
Additional information			
	<u>Example:</u> Command = TX 00 85		



	TX 00 85 04 (b2 = 1 → b2: internal temperature > th1)
--	---

Command Label:		Get Received Identifier (RF)	
Command Type:	Monitoring	Identifier =	120 0x78
Command description: <i>Reading the identifier of the uphill unit</i>			
Data Field Description:		Answer message	Data Field size: 2 bytes
Byte 1 & Byte 2	From 0x0000 to 0xFFFF	0 < received identifier < 65536	
Additional information			
	<u>Example:</u> TX 00 78 - TX 00 78 CA 02 → (uphill unit identifier = 51 714)		

Command Label:		Get Input Power	
Command Type: Monitoring		Identifier = 128	0x80
Command description: Reading the RF input power received by the unit			
Data Field Description: Answer message		Data Field size:	1 byte
Byte 1	From 0x00 to 0x0F	-10 - (value x 5) (in dBm)	
Additional information			
	<u>Example:</u> TX 00 80 - TX 00 80 0A → (-60 dBm)		

Command Label:		Get BER	
Command Type: Monitoring		Identifier = 126	0x7E
Command description: Reading the bit error rate of the RF signal received by the unit			
Data Field Description: Answer message		Data Field size:	3 byte
Byte 1	From 0x00 to 0xFF	Information on 24 bits * 10 ⁻⁸	
Byte 2	From 0x00 to 0xFF		
Byte 3	From 0x00 to 0xFF		
Additional information			
	<u>Example:</u> TX 00 7E TX 00 7E 0A 0C 16 → (6.58*10 ⁻³)		

Command Label:		Get Status Code	
Command Type:	Monitoring	Identifier =	125 0x7D
Command description: <i>Reading the status of the unit</i>			
Data Field Description:		Answer message	Data Field size: 1 byte
Byte 1	From 0x00 to 0xFF		
Additional information			
	<u>Example:</u> TX 00 7D - TX 00 7D 00→ (operational unit)		

Command Label:		Get Temperature	
Command Type: Monitoring		Identifier = 119	0x77
Command description: Reading the temperature inside the unit in °C			
Data Field Description: Answer message		Data Field size:	2 byte
Byte 1	From 0x00 to 0xFF	Probe temperature 1	
Byte 2	From 0x00 to 0xFF	Probe temperature 2	
Additional information			
	<u>Example:</u> TX 00 77 - TX 00 77 32 35 → (t1=50°C, t2=53°C)		

Command Label:		Get Unit Type	
Command Type: Monitoring		Identifier = 200	0xC8
Command description: Reading the unit type			
Data Field Description: Answer message		Data Field size:	1 byte
Byte 1	0x00 0x01 0x02	Main unit Video unit Extension unit	
Additional information			
	<u>Example:</u> TX 00 C8 - TX 00 C8 00→ (main unit)		

Command Label:		Get Unit Label	
Command Type: Monitoring		Identifier = 201	0xC9
Command description: Reading the unit label			
Data Field Description: Answer message		Data Field size: 50 bytes	
Byte 1 to Byte 50		Unit label in hexadecimal	
Additional information			
	<u>Example:</u> TX 00 C9 - TX 00 C9 54 45 41 4D 43 41 53 54 (→ TEAMCAST)		

Command Label:		Get Unit Identifier	
Command Type:	Monitoring	Identifier =	202 0xCA
Command description: Lecture de l'identifiant de la borne			
Data Field Description:		Answer message	Data Field size: 2 bytes
Byte 1 & Byte 2		Unit identifier in hexadecimal	
Additional information			
	<u>Example:</u> TX 00 CA - TX 00 CA 03 56 (→ identifier = 854)		

Command Label:		Get Input Type	
Command Type: Monitoring		Identifier = 203	0xCB
Command description: Reading the input type of the unit			
Data Field Description: Answer message		Data Field size:	1 byte
Byte 1	0x00 0x01 0x02	RF input ASI input ASI and RF input	
Additional information			
	Example: - TX 00 CB - TX 00 CB 01 (→ entrée = ASI)		

Command Label:		Get Input Channel	
Command Type: Monitoring		Identifier = 204	0xCC
Command description: Reading the input channel number of the unit			
Data Field Description: Answer message		Data Field size:	1 byte
Byte 1	0x00 From 0x01 to 0x0A	RF input not used RF input channel number	
Additional information			
	Example: TX 00 CC - TX 00 CC 0A (→ input channel number = 10)		

Command Label:		Get Output Type	
Command Type: Monitoring		Identifier = 205	0xCD
Command description: Reading the output type of the unit			
Data Field Description: Answer message		Data Field size:	1 byte
Byte 1:	0x00 0x01 0x02	RF output ASI output RF + ASI output	
Additional information			
	<u>Example:</u> TX 00 CD - TX 00 CD 00 (→ output = RF)		

Command Label:		Get Output Channel	
Command Type: Monitoring		Identifier = 206	0xCE
Command description: Reading the output channel number of the unit			
Data Field Description: Answer message		Data Field size:	1 byte
Byte 1	0x00 From 0x01 to 0x0A	RF output not used RF output channel number	
Additional information			
	<u>Example:</u> TX 00 CE - TX 00 CE 08 (→ output channel number = 8)		

Command Label:		Get Mode	
Command Type:	Monitoring	Identifier =	207 0xCF
Command description: Reading the mode number programmed locally in the unit			
Data Field Description:		Answer message	Data Field size: 1 byte
Byte 1	From 0x01 to 0x06	Mode number	
Additional information			
	<u>Example:</u> TX 00 CF - TX 00 CF 02 (→ mode number 2)		

Command Label:		Get Camera Control	
Command Type:	Monitoring	Identifier =	208 0xD0
Command description: Reading the status of the camera control			
Data Field Description:		Answer message	Data Field size: 1 byte
Byte 1	0x00 0x01	Camera control inhibited Camera control permitted	
Additional information			
	<u>Example:</u> TX 00 D0 - TX 00 D0 00 (→ inhibited)		

Command Label:		Get Audio Insertion	
Command Type:		Monitoring	Identifier = 209 0xD1
Command description: Reading the status of the audio contribution			
Data Field Description:		Answer message	Data Field size: 1 byte
Byte 1	0x00	Insertion of the audio contribution inhibited	
	0x01	Insertion of the audio contribution permitted	
Additional information			
	<u>Example:</u> TX 00 D1 - TX 00 D1 00 (→ inhibited)		

Command Label:		Get Video Insertion	
Command Type: Monitoring		Identifier = 210	0xD2
Command description: Reading the status of the video contribution			
Data Field Description: Answer message		Data Field size: 1 byte	
Byte 1:	0x00	Insertion of the video contribution inhibited	
	0x01	Insertion of the video contribution permitted	
Additional information			
	<u>Example:</u> TX 00 D2 - TX 00 D2 01 (→ permitted)		

Command Label:		Get Video Configuration	
Command Type: Monitoring		Identifier = 211	0xD3
Command description: Reading the configuration of the video contribution			
Data Field Description: Answer message		Data Field size:	1 byte
Byte 1	0x00 0x01 0x02 0x03 0x04	Quality A for the video contribution (Qa) Quality B for the video contribution (Qb) Quality C for the video contribution (Qc) Quality D for the video contribution (Qd) Quality HQ for the video contribution (HQ)	
Additional information			
	Example: TX 00 D3 - TX 00 D3 02 (→ Qc)		

Command Label:		Get Output Power	
Command Type:	Monitoring	Identifier =	212 0xD4
Command description: Reading the RF output power			
Data Field Description:		Answer message	Data Field size: 1 byte
Byte 1	0x00 0x01 0x02 0x03	Output muted Maximal power (Pmax) Intermediate power (Pmid) Minimal power (Pmin)	
Additional information			
	<u>Example:</u> TX 00 D4 - TX 00 D4 02 (→ Pmid)		

Command Label:		Get Video Format			
Command Type:		Monitoring	Identifier =	213	0xD5
Command description:					
Reading the video contribution format					
Data Field Description:			Answer message	Data Field size:	1 byte
Byte 2:	0x00	Quality A (Qa)			
	0x01	Quality B (Qb)			
	0x02	Quality C (Qc)			
	0x03	Quality D (Qd)			
	0x04	High quality (HQ)			
Byte 1:	0x00	CIF format (352*288)			
	0x01	Full D1 format (720*576)			
	0x02	QCIF format (176*144)			
Additional information					
	Example: - TX 00 D5 - TX 00 D5 00 00(→ Qa-CIF)				

Command Label:		Get Video Channel Bit Rate	
Command Type: Monitoring		Identifier = 216	0xD8
Command description: Reading the video bit rate for a configuration			
Data Field Description: Answer message		Data Field size:	3 bytes
Byte 1:	From 0x00 to 0x04	Video configuration number	
Byte 2	From 0x0000 to	Video bit rate for the configuration (in kbps).	
+ Byte 3	0xFFFF		
Additional information			
	Example: - TX 00 D8 03		



	-	TX 00 D8 03 01 FF (→ Qd = 511 kbps)
--	---	--------------------------------------

Command Label:		Get Coding Key	
Command Type:	Monitoring	Identifier =	217 0xD9
Command description: Reading the RF coding key			
Data Field Description: Answer message		Data Field size:	64 bytes
Byte 1 to Byte 64	Coding Key in hexadecimal		

Command Label:		Get Received ID (ASI)	
Command Type: Monitoring		Identifier = 218	0xDA
Command description: Reading the received identifier for the unit with ASI input			
Data Field Description: Answer message		Data Field size:	2 bytes
Byte 1 & Byte 2	From 0x0000 to 0x07FF		
Additional information			
	<u>Example:</u> TX 00 DA TX 00 DA 02 45 (→ Received ID = 581)		

Command Label:		Get Network Type	
Command Type: Monitoring		Identifier = 219	0xDB
Command description: Reading the network type			
Data Field Description: Answer message		Data Field size:	1 byte
Byte 1	0x00	Star network	
	0x01	Loop/Linear network	
Additional information			
	<u>Example:</u> TX 00 DB		



	TX 00 DA 01 (→ star network)
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Command Label:		Get debit data RS485	
Command Type: Monitoring		Identifier = 222	0xDE
Command description: Reading the RS485 bit rate			
Data Field Description: Answer message		Data Field size:	1 byte
Byte 1	0x11 0x23 0x8F	19 200 bps 9 600 bps 2 400 bps	
Additional information			
	Example: TX 00 DE TX 00 DE 8F (RS485 bit rate = 2 400 bps)		

Command Label:		Get FPGA & DSP Version	
Command Type:		Monitoring	Identifier = 223 0xDF
Command description: Reading the version of the FPGA and of the DSP			
Data Field Description:		Answer message	Data Field size: 4 bytes
Byte 1	0x00..0x09	FPGA Version (before dot)	
Byte 2	0x00..0x99	FPGA Version (after dot)	
Byte 3	0x00..0x09	DSP Version (before dot)	
Byte 4	0x00..0x99	DSP Version (after dot)	
Additional information			
	<u>Example:</u> - Command = TX 00 DF - TX 00 DF 01 20 02 12 (FPGA = V1.20 and DSP = V2.12)		

Command Label:		Get Type	
Message Type:	Manual command	Identifier =	255 0xFF
Command description: <i>This command is used to check the type of module.</i> <i>When receiving this command the module will answer the following string of ASCII characters:</i> "Module type = ~TCM-MOD0-1340" or "Module type = ~TCM-MOD0-1070" or "Module type = ~TCM-MOD0-1200" or <i>According to the type of modules.</i>			
Data Field Description:		No data field	Data Field size: 0 byte
Restriction of use			
The received bytes are true ASCII characters that cannot be converted to binary as it has to be done for other commands. This command is not available with CRC control but only with the TX prefix.			

Command Label:		Download Packets	
Message Type:	Download command	Identifier =	253 0xFD
Command description: <i>This command performs the transfer of new software release. It works on a line basis, and so performs the transfer of a packet of 134 bytes. The total transfer is done by repeating this command for each line of data to be transmitted.</i> <i>The host CPU should wait for the answer message before sending the next download command.</i>			
Data Field Description:		Data Field size:	134 bytes
This data field is the copy of the 134 useful ASCII bytes extracted from the .fir file.			
Restriction of use			
	This command cannot be used without CRC, so TX prefix is not allowed. Once a transfer has started, it should be completed before any other command could be sent.		

Command Label:		Download Packets	
Message Type:	Answer message	Identifier =	253 0xFD
Command description: This message is the answer from the module to a "download packet" command.			
Data Field Description:		Data Field size:	6 bytes
<p>The 6 bytes data returned in this field, are generally the received line number + 1, meaning that the module has well received the current packet of data, and that the host CPU could send the next packet of data.</p> <p>If a CRC error has been detected, then the module will return an Error message, so that the host CPU could repeat the previous line.</p> <p>When the module has received the last data packet, it returns the code 0xFFFFFFFF in the 6 bytes data field.</p> <p>After receiving the first line (first data packet) the module performs a cross checking on the type of modules and the hardware version required. The module returns an error code if this cross checking has failed:</p> <ul style="list-style-type: none"> ▪ 0xFFFFF8 if the download is not possible because of hardware problem, ▪ 0xFFFFF9 if the download is not possible because of hardware problem, ▪ 0xFFFFFA if the download is not possible because of hardware problem, ▪ 0xFFFFFB if the download is not possible because of hardware problem, ▪ 0xFFFFFC if the download is not possible because of hardware problem, ▪ 0xFFFFFD if the module type is not the one expected, ▪ 0xFFFFFE if the hardware version of the module is not compatible with the new software version. 			



VigilCast User Manual

5. Maintenance & Checking

5.1 Version management

VigilCast is totally defined by its commercial reference and its version numbers. Versions are managed using 2 separate and independent 3 digits numbers:

- The hardware version,
- The software version.

The version of the product is defined for example as: **H122-S115**

This means that the hardware of the module is in version 1.22 and the software is in version 1.15.

These numbers could be read from VigilCast by using the command "Get Type & Version" described in chapter 4.4.3.

A reduced version number is written on the serial number sticker, usually stuck on the rear panel of VigilCast. This version number is the version of the equipment at the delivery time.

It includes only the first 2 digits of the version numbers: **H12-S11**

Hardware update and software update of VigilCast generally requires it to be returned to the factory.

5.2 Return the module to factory

Please never return the equipment to the factory before having a contact with the TeamCast technical support group.

You could contact the TeamCast technical support group:

- By phone: +33 2 23 25 26 80,
- By mail: support@teamcast.com.

The technical support group will help you to locate the problem and to get your module operational as soon as possible.

If together you do not succeed to fix and solve the problem, the technical support group will give you a Return Number and help you to fill up the return form.

Once you get the return number, please return your module to the factory according to the following procedure:

- Fill the return form with a precise description of the problem,
- Write down the Return number on the return form, the box and the delivery bill,
- Package the module in its original package or a similar one,
- Send it back to TeamCast with a prepaid shipment at the following address:

TeamCast – Technical Support Group
Centre Espace Performance
35769 Saint-Grégoire Cedex
France

Tel: +33 2 23 25 26 80
Fax: +33 2 23 25 26 85



Appendix A – EC certificate



VigilCast User Manual

CERTIFICAT CEM

Déclaration

(Directive 89/336/CEE and 1999/5/CE)

Nom du fabricant : **TEAMCAST**

Adresse : **Centre Espace Performance
35769 SAINT GREGOIRE CEDEX**

Nom de l'équipement : Borne de videosurveillance sans fil
VIGILCAST référence ~TCP-VIGO-1400

M. Jean-Luc PAVY, Président Directeur Général,

**Déclare avoir acquis la présomption de conformité du matériel ci-dessus
référéncé, utilisé et installé conformément à la notice, aux exigences
essentiellles de la Directive 89/336/CEE et 1999/5/CE, par l'application
des normes suivantes :**

**EN 300 328 V1.6.1 (2004)
EN 50130-4 (1995) A1 (1998)
EN 301 489-17 V1.2.1 (2002)**

**Le produit est déclaré confirme aux notifications de l'ARCEP
Selon ART, Décision N° 02-1088 du 28.11.2002**



Saint Grégoire, le 14 Février 2006



VigilCast User Manual

CERTIFICAT DE SECURITE BASSE TENSION

Déclaration

(EEC directive 73/23/CEE)

Nom du fabricant : **TEAMCAST**

Adresse : **Centre Espace Performance
35769 SAINT GREGOIRE CEDEX**

Nom de l'équipement : Borne de videosurveillance sans fil
VIGILCAST référence ~TCP-VIGO-1400

M. Jean-Luc PAVY, Président Directeur Général,

**Déclare avoir acquis la présomption de conformité du matériel ci-dessus
référéncé, utilisé et installé conformément à la notice, aux exigences
essentiels de la Directive 73/23/CEE, par l'application des normes
suivantes :**

EN 60950-1:2001, premiere Edition

A handwritten signature in black ink, consisting of a large, stylized 'P' followed by a horizontal line and a small flourish.

Saint Grégoire, le 14 Février 2006



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Appendix B – Return form



VigilCast User Manual



Return Form

Return N:	
Given by:	Date:

Your coordinates	
Company:	Your name:
Telephone:	E.mail:

The product that you are returning	
Name:	Sales reference:
Serial number:	Version:
The equipment is under : <input type="checkbox"/> Guarantee <input type="checkbox"/> Maintenance contract <input type="checkbox"/> Other (a quote will be sent)	Comment about the product:

Reason for return	
<input type="checkbox"/> Software / Hardware update <input type="checkbox"/> Maintenance <input type="checkbox"/> Other	Description of the problem: