



ProntoNet IP Decoder Reference Manual



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IP Decoder Manual

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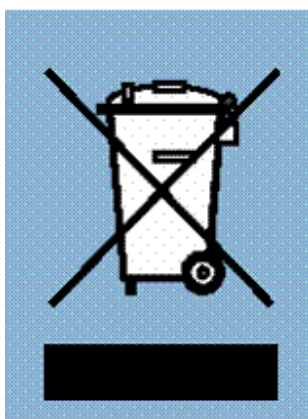
CE Declaration of Compliance

Procesamiento Digital y Sistemas S.L., hereby declares that ProntoNet IP Decoder bearing the CE168X parking are in compliance with Electromagnetic Compatibility Directive (89/336/EEC), and the Low Voltage Directive (72/23/EEC) of the European Union.

A "Declaration of conformity" for ProntoNet IP Decoder is available on file at Prodys offices in Spain. To obtain this information, contact with sales@prodys.net.

CAUTION

ProntoNet IP Decoder uses a Lithium battery.
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturers instructions.



Your product is designed and manufactured with high quality materials and components, which can be recycled and reused.

When this crossed-out wheeled bin symbol with black bar underneath is attached to a product it means that product is covered by the European Directive 2002/96/EC.

Please, inform yourself about the local separate collection system for electrical and electronic products.

Please act according to your local rules and do not dispose of your old products with your normal household waste. The correct disposal of your old product will help prevent potential negative consequences for the environment and human health.

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Chapter I

INTRODUCTION

[ProntoNet IP Decoder](#) expands the PRODYS IP range of audio codecs family. It is based on the features provided in ProntoNet. [ProntoNet IP Decoder](#) is a multi-algorithm stereo audio **decoder over IP & DLL (Digital Leased Lines) links**, supporting many industry standard coding algorithms such as; G722, MPEG1/2 LayerII, MPEG1/2 LayerIII, MPEG2/4 AAC LC, MPEG4 AAC LD, apt-X (enhanced and standard) as well as uncompressed linear audio (PCM).

Each ProntoNet IP Decoder fully supports IP (TCP and UDP), connecting via a 10BaseT/100Base-TX Ethernet port (RJ45 connector). This enables remote monitoring/configuring and data/audio transportation over data communication links (LAN, Wan, Internet...).

I.1 The set of Manuals

The [Prodys IP Family User Manual](#) is applicable to most of the common features provided by the Prodys IP Family of codecs.

For some specific features or restrictions, the user is referred to the proper [Hardware and Reference Manual](#) applicable to the codec in use. Installation requirements, physical and electrical parameters are also included in this document.

Hardware and Reference Manuals are available for:

- ProntoNet
- ProntoNet LC
- ProntoNet IP Decoder
- Nereus
- Nereus One
- PortaNet
- Nomada IP

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If several Prodys IP Family codecs are managed by means of the ProdysControl application please refer to the [ProdysControl Manual](#) as well.

Prodys IP codecs provide the user with a control protocol which allows the user to develop customized management software. The control interface for this protocol is either the RS232 serial port or the Ethernet port. For detailed description please refer to the [Prodys IP Family codec SDK User's Manual](#).

I.2 The Application Notes

For specific subjects, [Applications Notes](#) and release update ([What is new, ChangeLog ...](#)) the user is kindly referred to check our download area at www.prodys.net or contact support@prodys.net

I.3 The Hardware and Reference Manual

The information is arranged as follows:

- **Chapter II – Installation Guide.**
This chapter provides hardware requirements and instructions for installing the ProntoNet IP Decoder unit.
- **Chapter III – The Front Panel.**
This chapter describes the front panel layout.
- **Appendix A – Technical Specifications.**
Technical details are described in this chapter.

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Chapter II

INSTALLATION GUIDE

This chapter describes the ProntoNet IP Decoder hardware and user installation.

The installation and servicing instructions in this manual are for use by qualified personal.

II.1 Initial checks

Before unpacking the unit please check its packaging for any signs of damage or mishandling during transportation. Report any damage to the shipping company immediately. Unpack the unit carefully, if you find any damage or the unit does not work correctly, you should contact Prodys or its distributor as soon as possible.

II.2 Installation

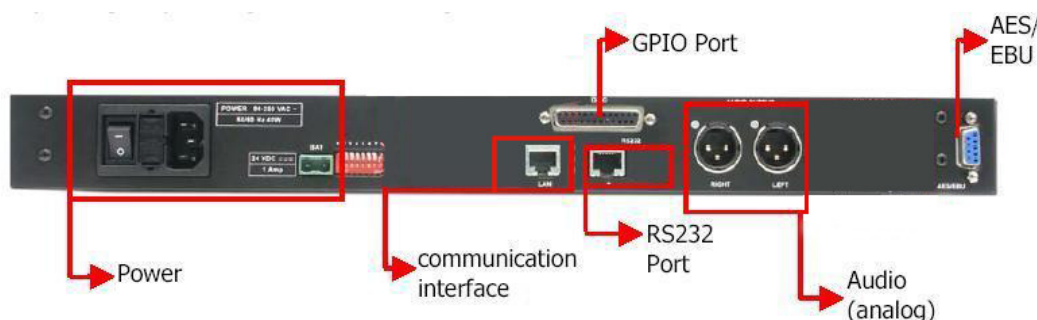
The ProntoNet IP Decoder is designed to be housed in a standard 19" rack. The unit is 44.45mm high (1U, or 1.75 inches). When choosing a suitable place for installation, please bear the following in mind:

- The position must allow for easy connection of cables to the back of the unit.
- The front panel must also be accessible, both for connections and to be able to see the Vu-Meters and LED indicators.
- The air vents must not be obstructed.
- We do not recommended that the unit be mounted directly above other equipment, especially ones that generate a lot of heat.

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II.3 The rear panel

The majority of the connections of the ProntoNet IP Decoder are found on the back panel. They are grouped together according to their function, as below:



II.3.1 Power

On the back panel you will find the main power inlet. You will also find the main power switch and the fuse holder. The ProntoNet IP Decoder unit is designed to take AC universal power, from 100 to 240 VAC with frequency between 50Hz and 60Hz.

You will also find a fuse holder that holds two fuses, one for each phase of input. When it is necessary to replace either fuse, it is important to make sure that it complies with the technical specifications outlined below that will ensure adequate protection.

Fuse requirements:

Fuse type:	Type T
Amps	2A
Power	250V

ATTENTION – CHANGING THE FUSE

Disconnect the power cable BEFORE changing the fuse.

24 OR 48 VDC SECONDARY POWER SOURCE

- THIS IS OPTIONAL AND DOES NOT COME FITTED AS STANDARD.

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- The unit will switch automatically from the primary power source to the back-up power source in the event of a cut in the primary power supply.

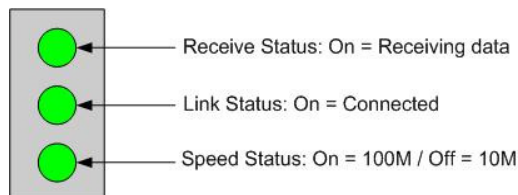
II.3.2 Communication Interfaces

The ProntoNet IP Decoder is equipped with two different communication interfaces – Ethernet and X21. These are all accessed on the rear panel.

II.3.2.1. Ethernet port – the LAN Connector

The LAN socket is an standard 10/100Base-Tx (10/100 Mbps) Ethernet connection that takes the typical RJ45 plug¹. Through this Ethernet port it is possible to transmit and receive audio, as well as manage the equipment. Next to the socket there are three LEDs that indicate different states for the connection and these are very useful in problem-solving situations.

LAN LED's:

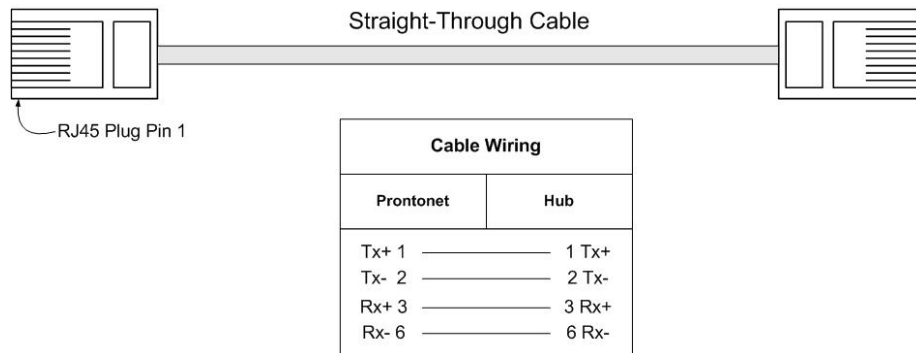


▪ Connection to a Hub or Switch

In the majority of cases you can simply connect the unit's LAN port to your Ethernet network's Hub or Switch using an Ethernet cable (CAT5). In this case you should use a standard 'straight-through' Ethernet cable (not a 'cross-over' cable). This kind of cable can normally be found in any IT shop. In any case, this cable is described in more detail below:

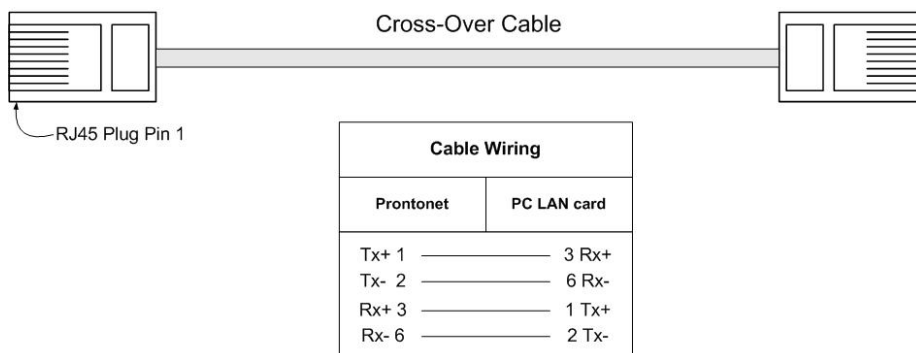
¹ Refer also to the appendix if the codec includes a double Ethernet option.

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▪ Connection to a PC

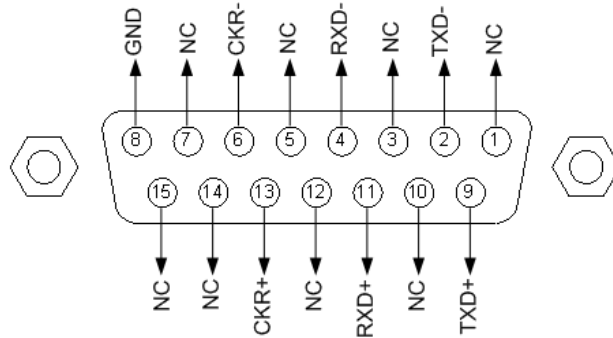
In some cases, such as when you configure the equipment, it is possible that you will want to connect the unit directly to a PC. In this case the PC must have a free Ethernet port to connect to and you must use a 'cross-over' Ethernet cable. Again, any good IT shop will stock these cables. This time the wiring is as follows:



II.3.2.2. X21 Port

The X21 Port allows the transmission and reception of audio via a dedicated digital connection. The socket is the standard DB15 female connector with the following connections:

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Pin	Function	Pin	Function
1	NC	9	Transmit Data TxD+
2	Transmit Data TxD-	10	NC
3	NC	11	Receive Data RxD+
4	Receive Data RxD-	12	NC
5	NC	13	Clock +
6	Clock -	14	NC (Internally used)
7	NC (Internally used)	15	NC
8	GND		

To connect a V35 port one must bear in mind the following correlation between signals:

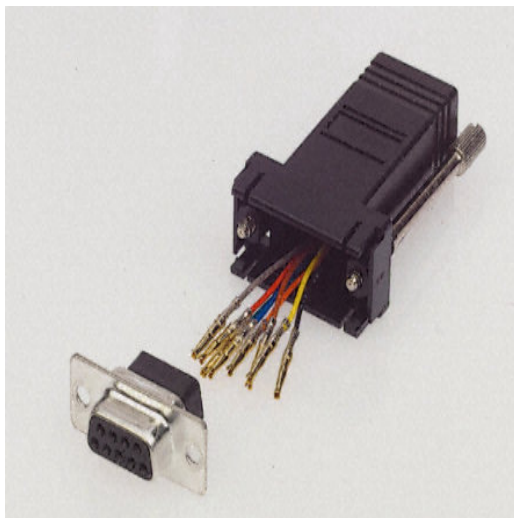
Pin	X21 ProntoNet IP Decoder	V35 Signal
2	Transmit Data TxD-	P
9	Transmit Data TxD+	S
4	Receive Data RxD-	R
11	Receive Data RxD+	T
6	Clock -	V
13	Clock+	X

II.3.3 RS 232 Port

There is one RS232 port for use as auxiliary data port. These port allows the reception of data along with encoded audio. Note that this socket is RJ45 connection, as opposed to the typical DB9 female connector. To make the

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conversion between RJ45 and RS232 there are modular connectors available that should be wired as follows:



S-Cluster RJ45 Connector	9-pin female D-sub Connector
1 (NC)	1
2 (Rx)	3
3 (GND)	5
4 (NC)	4
5 (NC)	6
6 (GND)	7
7 (Tx)	2
8 (NC)	8

1,4,5,8 must be unconnected

The port is always set to 8 DATA bits, NO parity, 1 START bit and 1 STOP bit. The bit rate can be adjusted to between 300 and 9600 bps via software.

The ProntoNet IP Decoder acts as a DCE device, therefore the connection to each of the RS232 ports is wired in the following way:

ProntoNet IP Decoder – Pin 7 connector RJ45.....Pin 2 PC

ProntoNet IP Decoder – Pin 2 connector RJ45.....Pin 3 PC

ProntoNet IP Decoder – Pin 3,6 connector RJ45.....Pin 5 PC

The ProntoNet IP Decoder ignores hardware handshaking signals.

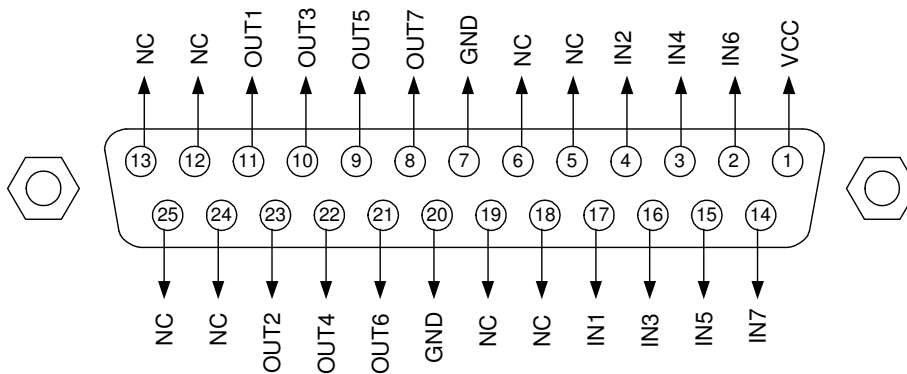
II.3.4 GPIO Port

WARNING

GPIO has been modified in ProntoNet IP Decoder with serial number 8938/00250 or higher. Since this production, the GPIO is provided with 7 inputs and 7 outputs. Please contact sales@prodys.net for legacy information.

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A DB25 female connector provides a general purpose connection with 7 inputs and 7 outputs. The connections must be wired according to the following diagram:



Pin	Function	Pin	Function
1	+5VDC	14	IN 7
2	IN 6	15	IN 5
3	IN 4	16	IN 3
4	IN 2	17	IN 1
5	NC	18	NC
6	NC	19	NC
7	GND	20	GND
8	OUT 7	21	OUT 6
9	OUT 5	22	OUT 4
10	OUT 3	23	OUT 2
11	OUT 1	24	NC
12	NC	25	NC
13	NC		

Pin 1 is connected to +5 volts. If you need it , run this power supply through your device with a resistor in series to limit the maximum current to 300 mA.

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II.3.4.1. Inputs

The inputs are active for grounding (active low).

II.3.4.2. Outputs

The outputs are "open collector". They allow an output of 5VDC on one pin to facilitate interconnection with the outputs. Each output supports up to a maximum of 40VDC / 40 mA and will require a pull-up resistor to function with other logic inputs. An appropriate value is 2.2 Kohms.

II.3.5 Audio interfaces

II.3.5.1. Analog audio I/O

The analog audio I/O is connected through the XLR connections on the rear panel. The wiring conforms to the following scheme:

Pin	Función
1	Ground
2	Audio+
3	Audio-

II.3.5.2. AES/EBU Interface

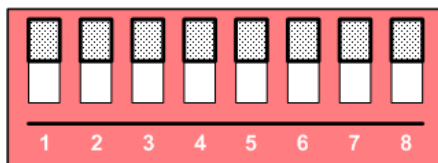
An AES/EBU interface is available via the sub-D 9 ways connector on the rear panel of the unit. This connector provides the option to connect an externally synchronised signal. The user can select via software if the digital output is to synchronise with the audio input or with an external sync signal. The connector is wired in the following way:

Pin	Function	Pin	Function
1	AES/EBU IN -	6	AES/EBU IN +
2	GND	7	SYNC +
3	SYNC -	8	GND
4	GND	9	AES/EBU OUT +
5	AES/EBU OUT -		

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II.3.6 Microswitches

There are 8 microswitches on the back panel which are reserved for special functions. Before turning on the unit the user must check that they are configured according to the following diagram, which is the standard start-up configuration:



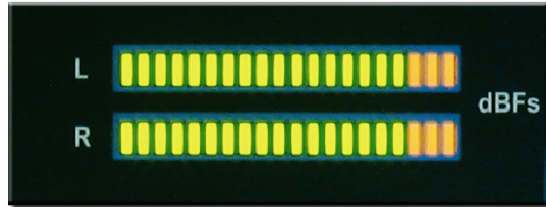
Switch number 7 will restore the default factory configuration. The IP address will be changed to 192.168.100.100 and the netmask to 255.255.255.0.

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Chapter III

AN INTRODUCTION TO THE FRONT PANEL

The front panel of the [ProntoNet IP Decoder](#) has two arrays of VU-meters and LEDs that allow the user to monitor the status of the unit.



There are two VU meters in dBfs, one for each input channel.

The information [LEDS](#) are laid out in the following manner:



CON: When this led is on, It indicates that the unit is connected.

FRM: This led informs about the synchronization status of the decoder.

LAN: LAN physical connection. It goes on when the unit is connected to a LAN.

SYS: System LED. It blinks during the start phase. It will light steady at soon as the unit is ready This LED is bicoloured. A red light means an alarm is active. An



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orange light means alarmed events happened in the past and are pending to be acknowledged by the remote operator.

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Appendix A

TECHNICAL SPECIFICATIONS

IV.1 Audio Interfaces

IV.1.1 Stereo Audio Outputs:

- Balanced Analog Outputs:
Maximum output level: +22 dBu⁵⁷.
Output Impedance: 50 ohm.
- Digital Outputs:
AES/EBU format: EIAJ CP-340 tipo I/IEC-958 Pro
Rate Converter: 1:3 to 3:1.

IV.1.2 Audio properties* :

THD+N < 0.0035%
S/N > 94 dB typical.
Crosstalk > 94 dB.
Phase Difference < 0.3°.
Quantification: 24 bits.

* **With a tone of +22 dBu, Fs=48 Khz, 24 bits**

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IV.2 Communications Ports

IV.2.1 LAN port

- 10/100 Base-Tx Ethernet.
- Connector type: RJ-45

IV.2.2 GPIO Port

- 7 TTL inputs and outputs.
- Inputs: Closure to ground.
- Outputs: Open collector. 40 mA Max o 40 VDC max.

IV.2.3 RS232 Port

- RS232 asynchronous
- Supports data rates up to 38.4 Kbps.
- Connector Type: DB9F

IV.2.4 X21 Port

- Serial Synchronous interface.
- Bit rates: 64, 128, 192, 256, 384 and 576Kbps.

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IV.3 Power Supply

IV.3.1 Main

- Universal power Supply
- Operating Voltage: 94-250 V
- Operating Line frequency: 47-65 Hz.
- Out Power : 25W

IV.3.2 Secondary (Optional)

- Nominal input: 24 or 48 VDC.
- Input range:
 - 18-36 VDC for 24 VDC nominal input.
 - 36-72 VDC for 48 VDC nominal input.
- Power: 25 W.

IV.4 Dimensions and Weight

- 1 U Rack Mount.
- Height: 43.4 mm.
- Width: 19" RACK (482.5 mm).
- Depth: 202.25 mm.
- Weight: 3 Kg.

IV.5 Environment

- Temperature: 0– 50°C.
- Humidity: 10 to 90% non-condensing.

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APPENDIX

V.1 Double LAN option

IP Decoder with a hardware version MK6 or higher could be provided optionally with a second Ethernet interface (LAN2).

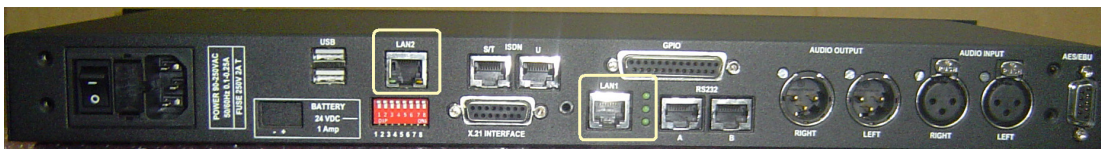


Figure 1 IP Decoder (hardware version MK6) rear.

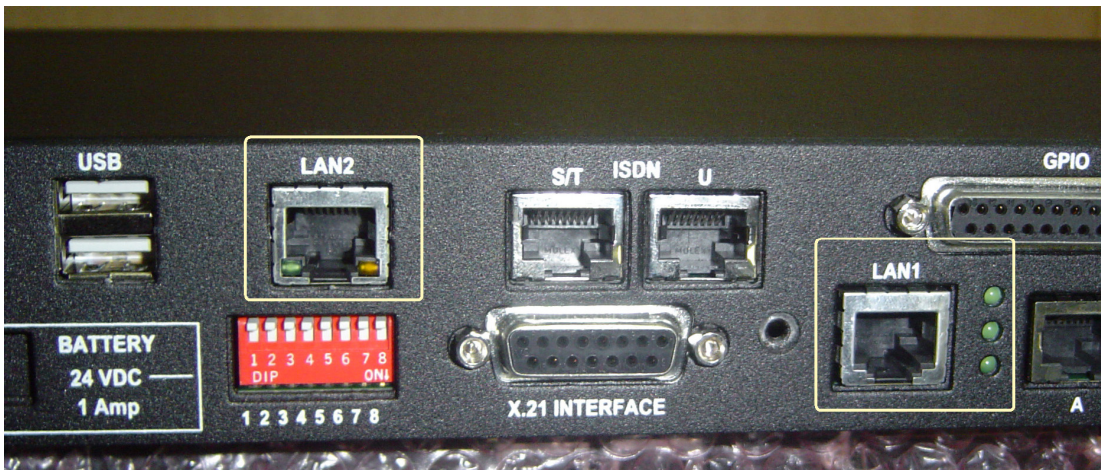


Figure 2 Rear view of IP Decoder (hardware version MK6).

Please note that hardware versions prior to MK6 does not support the second LAN interface, and the firmware version must be 6.1.0 or higher.

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V.1.1 Splitting the IP communication by management and audio streaming

The primary Ethernet interface (LAN1) remains exclusively for the ingress and egress audio streaming.

The second Ethernet interface (LAN2) is assigned exclusively to be the management port. This is; the Microsoft Internet Explorer addresses this port for displaying the Web Remote Control. Any management function is supported thru LAN2.

At the codec boot time, the software detects automatically the additional interface LAN interface and sets the codec for **out-of-band management**.²

The management information includes all data corresponding to:

- Web Control Page.**
- ProdysControl management software.**
- HeraFlashPlus (application to upgrade the firmware).**
- Test Streaming Protocol.**
- External Protocol (SDK Protocol).**
- SNMP data.**

The management information does NOT include:

- The control protocol data for all supported streaming protocols.
- The audio data for all supported streaming protocols, both for unicast and multicast operations.
- All auxiliary data, comprising GPIO, serial data and AES/EBU U-bit information, when applicable.

² In-band Management, this is, a combined communication of management traffic and audio stream is not possible if the double Ethernet option is available.

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In Appendix C of the Prodys IP Family User Manual there is a complete description of all data managed by Prodys IP devices, divided into management and audio data.

V.1.2 Double Ethernet configuration

At factory the double Ethernet version is enabled by default for dynamic IP address allocation (DHCP protocol). From the network planning perspective it would not make to much sense connecting both interfaces to the same DHCP server.

Care is recommended if the DHCP server is not place, since both LAN interfaces got the same factory default IP address 192.168.100.100. In this case it is mandatory not to connect LAN1 to the network before changing the IP parameters of LAN1 or LAN2 to a different address.

The Factory Default IP configuration sets to any DHCP values if this service is available on the local area network for LAN1 or LAN2. In other case the default address 192.168.100.100 /24 is provided.

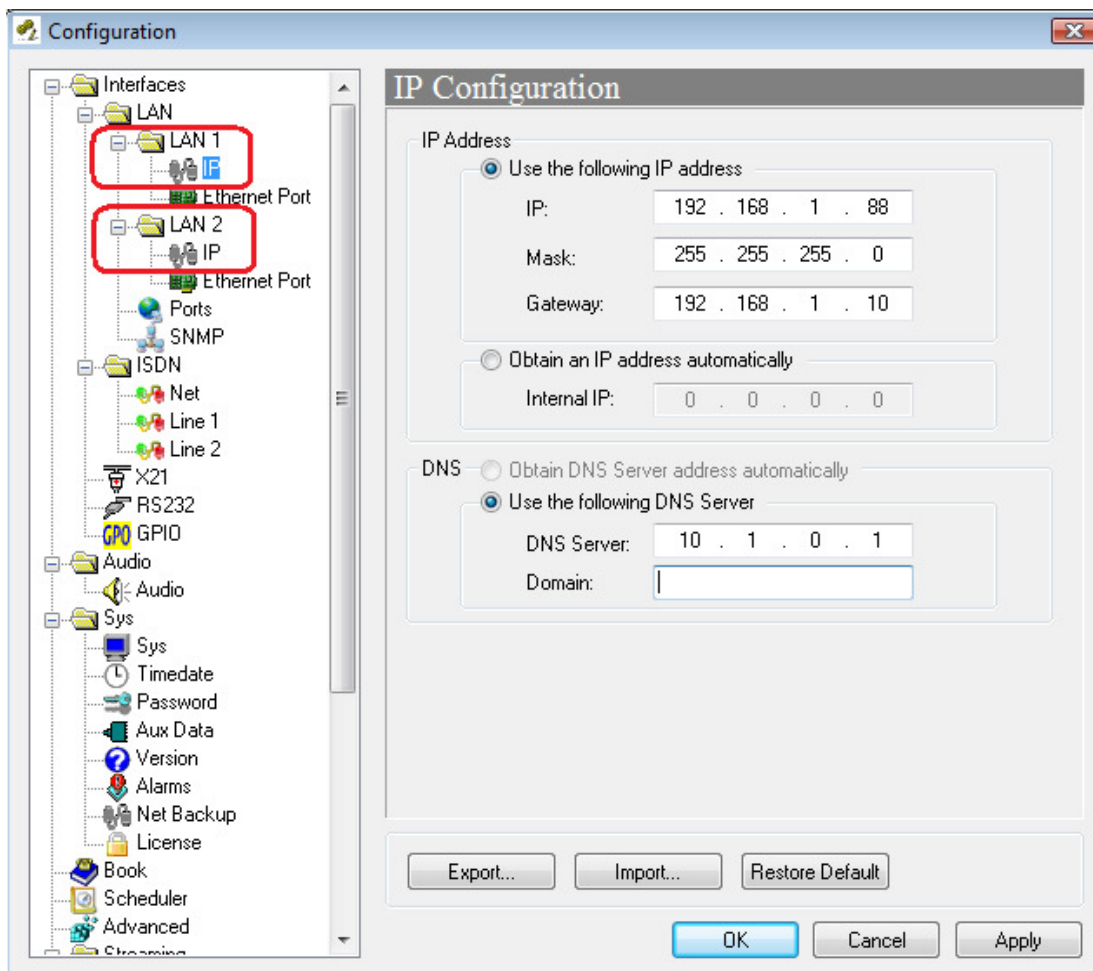
It is mandatory that LAN1 and LAN2 do not match the IP address although both interfaces are physically on different local areas.

Either of two procedures is possible. One procedure is to change at least one of the default IP address by means of the front panel menu. <ADR1> corresponds to LAN1, while <ADR2> corresponds to LAN2.

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An alternative procedure is to log into the IP Decoder via the Web Control menu using the path provided by LAN2. LAN1 has to remain not connected at all until the re-configuration is completed.

Once the Second LAN Interface is detected by the software, a new option to configure it appears both on the front panel menu and on the web control page.



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The configuration for this second interface comprises the same parameters as the main interface (LAN 1), and the only restriction in its configuration is that the IP addresses of the two LAN interfaces must be different.

A new option on the front panel menu will allow the user to configure the 2nd LAN interface (LAN 2):

CONF – PORTS – LAN

