encodedmedia

Installer Guide

Encoded Media IPTV Receiver 250 and IPTV400

IP Controllable Set-Top Box

INCLUDES IPTV REMOTE CONTROL SPECIFICATION

Encoded Media www.encodedmedia.com
Ongar Business Centre, The Gables, ONGAR CM5 0GA, United Kingdom

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Table of Contents

Introduction

Encoded Media's IPTV Receiver 250 and IPTV400 are IP controllable set-top boxes.

These devices also support an optional RS-232C port capable of sending commands and receiving status information.

The IP and serial control commands cover changing channel, simulating IR remote control presses, modifications to the overlay interface, status request, and so on.

Status request response includes play state, the currently active stream URL, channel name, hardware uptime, and more.

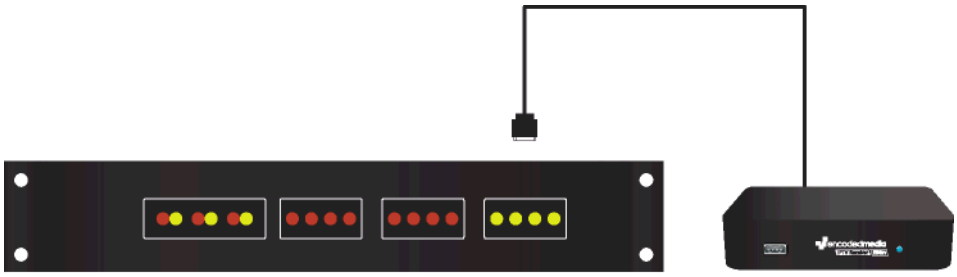
ABOUT ENCODED MEDIA

For more than a decade, Encoded Media has developed market leading solutions for delivering video across networks.

Overview

RECEIVER CONTROL

***Example**: where the Encoded Media IPTV Receiver is installed in a meeting room along with other AV equipment.*



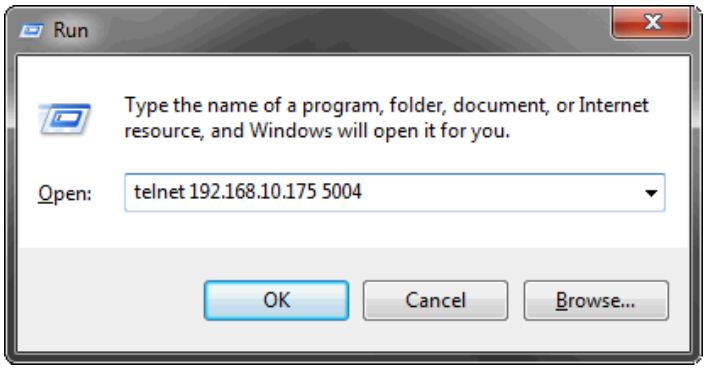
Control System **IPTV Receiver 250**

The RS-232 port is connected to the room control such as a Crestron® or AMX®.

In this configuration, the Receiver can be sent commands such as “channel up”, “play *channel*”, “volume down”, and so on. The Receiver can also be asked to return its status, allowing the control system to check that it is behaving as intended.

SCREEN CONTROL

***Example**: where the IPTV Receiver is installed behind a standalone television screen.*



The RS-232 port is connected directly to the screen via the RS-232 port on the LCD, Plasma or Projector. In this configuration, the Receiver acts as an IP to RS-232 converter, allowing other authorised network devices to control and query the screen via an IP port.

Receiver Control

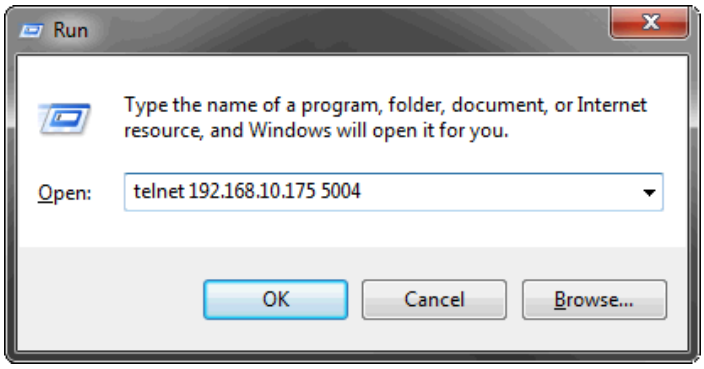
COMMUNICATION SETTINGS

To gain access to the Receiver, you can connect to it over an RS-232 connection using the following comms settings:

Baud Rate	9600
Data Bits	8
Parity	None
Stop Bit	1
Flow Control	None
Device Type	DTE

***Note**: null modem cable required*

You can also connect over IP to port 5004 on your Receiver:



Once connected, you will be challenged to provide a username and password which by default are as follows:

Username	**engineer**
Password	**iptv250**

PLEASE NOTE!

You are limited to a maximum of five concurrent telnet sessions. Once a sixth connection is made, the first connection will be terminated.

COMMAND STRUCTURE

Each command is followed by a single space; each parameter provided thereafter should be separated by a **,** comma (0x2c).

Both commands and parameters are of variable rather than fixed length. All commands must be terminated by a ↵ carriage return (0x0d).

Command								**Parameters**				**CR**
S	T	B	M	U	T	E		t	r	u	e	⏎
53	54	42	4d	55	54	45	20	74	72	75	65	0d

Some examples:

The Receiver is asked to play channel 4:

```
STBPLAYCH 4↵
```

The Receiver is asked to set the volume level at 50%:

```
STBVOLUME 50↵
```

COMMAND SEQUENCE

Commands are executed in the order they are received. The host *must* wait for a response from the Receiver before sending the next command.

Should the Receiver be sent a new command before completing execution of the previous command, it may discard the previous command.

Should the host not receive a response from the Receiver within 2 seconds of the command being issued, the host may consider the command or the response lost during transmission, and should retransmit it.

Receiver Control Commands

The Boolean parameter TRUE may be substitutable with *true*, *yes*, *on* or *1*. The parameter FALSE may be substituted with *false*, *no*, *off* or *0*.

Optional parameters, for example where you are calling the function to get a value or state rather than set it, are shown in square brackets.

Default parameters are denoted by an asterisk alongside them (*). Lists of available parameters are shown with the list elements separated by a pipe character (|).

STBPLAYCH

Set live channel number to be played.

Parameters 0..9999

Response OK

Example:

```
STBPLAYCH 4
```

STBKEYPRESS

Simulate one or more IR remote button presses

Parameters Key code, or comma separated list of key codes.
(See the Glossary for predefined key codes.)

Response OK

Example:

```
STBKEYPRESS MENU,DOWN,DOWN,OK
```

STBVOLUME

Get or set the volume level of the Receiver

Parameters [0..100]

Response Volume level+OK

Example:

```
STBVOLUME 15
```

STBMUTE

Get or set whether the Receiver is muted.

Parameters [true|false]

Response Mute state+OK

Example:

```
STBMUTE true
```

STBSHOWCHANNELLIST

Show or hide the on-screen channel listing.

Parameters [true|false]

Response OK

Example:

```
STBSHOWCHANNELLIST true
```

STBPLAY

Set STB channel to specified channel.

Parameters <channel name> (string)

Response OK

Example:

```
STBPLAY BBC NEWS HD
```

STBSHOWVIDEOWALL

Display the on-screen video wall (i.e. live thumbnails).

Parameters [true|false]

Response OK

Example:

```
STBSHOWVIDEOWALL true
```

STBSUBTITLES

Get or set the visibility of subtitles.

Parameters [true|false]

Response OK

Example

```
STBSUBTITLES true
```

STBREFRESH

Performs a reload refresh.

Response OK

STBIPADDRESS

Get or set the device IP address.

Parameters [dhcp|[static] <ip>[/<mask>] [gw <ip>]]

Response [DHCP|Static] IP/mask gw IP

Example:

```
STBIPADDRESS 192.168.11.29/255.255.252.0 gw 192.168.10.1

STBIPADDRESS dhcp
```

STBSTATUS

Request current status information from the Receiver. The order of information returned may vary from that shown.

Parameters none

Response Playstate:
<blank>|WAITING_FOR_SERVER|IN_SETTINGS|
PAUSED|PLAYING|FFWD <n>X|RWND <n>X
URL: stream address
Channel: channel name, where applicable
Uptime: device uptime in milliseconds
LAN info: device network hardware details
MAC Address: device MAC
Volume: device volume level 0..100
Platform: device platform version
IP Address: device IP address
Location: location or description
Channel Number: channel number, where applicable
Serial: device serial number
EM Release: device middleware version
Resolution: output resolution

STBREPORTING

Get or set single UDP broadcast of current status.

Parameters [<ip>:<port>]

Response Reporting to <ip>

Example:

```
STBREPORTING 10.182.225.254:12000
```

STBLOCATION

Function Sets the location string.

Parameters Location (string)

Response OK

Example

```
STBLOCATION Reception
```

STBLOGOUT

Log out of the IPTV Receiver and end remote session.

Response none

STBREBOOT

Restart the IPTV Receiver.

Response none

STBLOGLEVEL

Get or set the verbosity of on-device logging.

Parameters OFF|WARNING|INFO|DEBUG

Response Log level (get) OK (set)

Example:

```
STBLOGLEVEL OFF
```

STBTVSERVER

Get or set the source TV Servers.

Parameters [<IP1> <IP2> <IP3>]

Response TV Server <x>: <ip> …

Example:

```
STBTVSERVER 10.182.225.194 10.182.225.195
```

STBDNSSERVER

Get or set one or more DNS servers.

Parameters [<IP1> [<IP2> …]]

Response DNS Server <x>: <ip> …

Example

```
STBDNSSERVER 8.8.8.8 158.43.128.1
```

Getting TV Server Channel Information

You can retrieve a simplified list of channel number and channel name information from a source TV Server appliance by using the following URL.

http://<tv-server-ip>/admin/login-simple.php

Example response:

```
1,Al Jazeera Eng HD

2,BBC NEWS HD

3,BBC ONE HD

4,BBC TWO HD

5,Channel 4 HD

6,Channel 5

7,E4

8,Film4

9,ITV

10,ITV2

11,ITV HD

12,More 4

13,Sky News
```

Remote Control Errors

Should an error occur during command execution, the Receiver will return an error.

ERROR CODES

The message indicates that an error has occurred as well as the error type. Error codes are presented in the form of:

ERRORxx: text

where <xx> is a two digit decimal error ID code, and <text> is a plain text description of the error.

Current error codes:

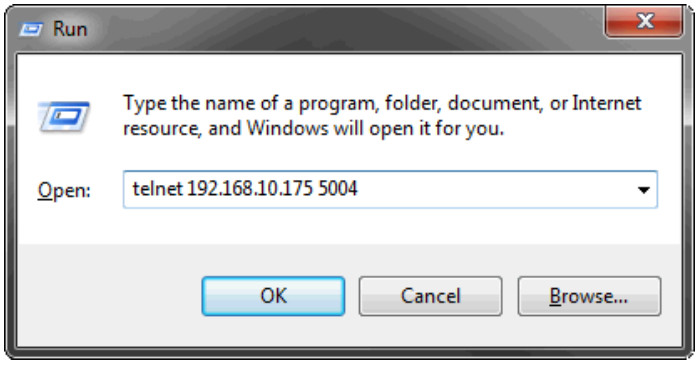
```
ERROR01: Unknown command↵

ERROR02: Unknown key code↵

ERROR03: Invalid parameter↵

ERROR04: Channel name not found↵

ERROR05: Invalid state↵

ERROR99: Unspecified error↵
```

Screen Control

The IPTV Receiver can be used to IP-enable any RS-232 device such as the television screen it is attached to. This allows central monitoring, control and maintenance of all screens, projectors, and so on.

CONNECTION SETTINGS

To gain access to RS-232 communications, Telnet to port 5004 on your Receiver.



Once connected, you will be challenged to provide a username and password which by default are as follows:

Username **engineer**
Password **iptv250**

After logging in, run the STBSERIAL command to begin serial communications.

PLEASE NOTE!

You are limited to a maximum of five concurrent telnet sessions. Once a sixth connection is made, the first connection will be terminated.

STBSERIAL

Function Enter serial communications mode

Parameters <speed>-<bits>{5|6|7|8}-<parity>{O,E,N,M,S}-<stopbits>{0|1|1.5|2} [echo|hex|raw] [hw|sw|none] [cr|lf|crlf] [^escchar]

Response *none*

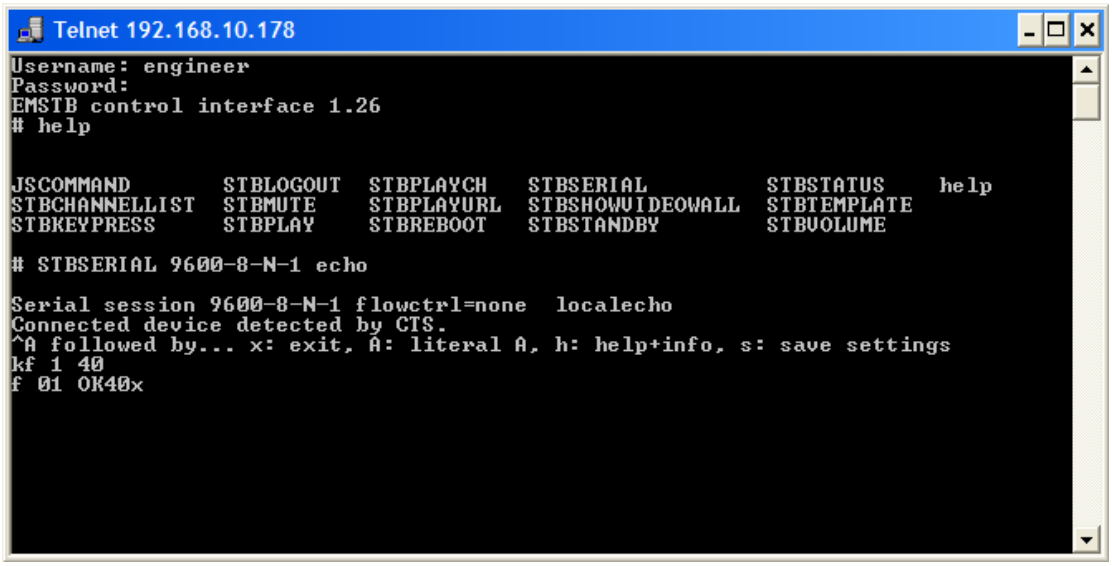
```
STBSERIAL 9600-8-N-1 echo↵

STBSERIAL 9600-8-O-1 hex↵
```

PLEASE NOTE!

When entering serial communications mode, any existing session in serial communications mode will immediately be dropped (see also: Screen Control Responses and Errors) but the IP connection to the device will remain open.

TELNET SESSION EXAMPLE

An example Telnet session is shown below, where the Receiver is connected to an LG 22LG30 LCD screen.



Here, power has been turned on, and the volume level on the connected LG screen has been set to 40.

***Note**: you can type help to see all available commands.*

Screen Control Responses and Errors

Should an error occur during command execution, the Receiver will return an error.

RESPONSES

In the event another request is made to enter serial communications mode, your serial connection will be dropped immediately.

You will receive the response as follows:

```
Kicked↵
```

Although this indicates you have been dropped from serial communications, be aware that your IP connection is not disconnected and will remain open.

ERROR CODES

The message indicates that an error has occurred as well as the error type. Error codes are presented in the form of:

ERRORxx: text

where <xx> is a two digit decimal error ID code, and <text> is a plain text description of the error.

Current error codes:

```
ERROR99: Unspecified Error↵
Error opening serial port:
No serial device found (matching /dev/ttyUSB*)
```

PLEASE NOTE!

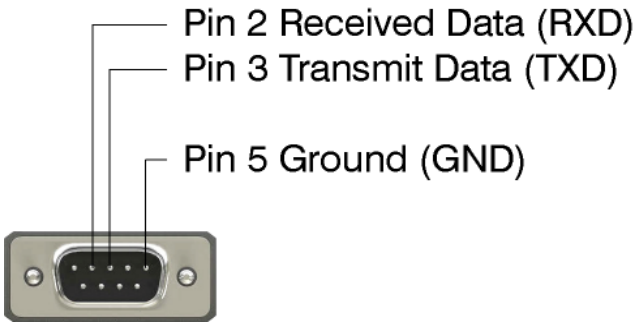
Confirm that the cable is correctly inserted and that you are communicating with the correct Receiver unit. Failing this, test again with a different cable.

Glossary

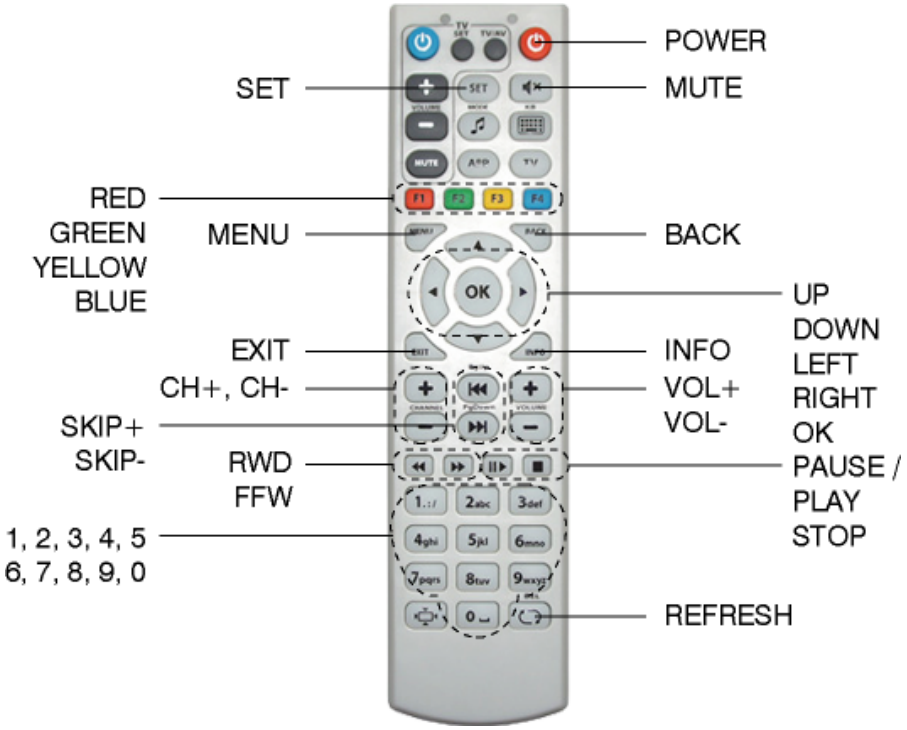
PIN CODE

The PIN code for accessing the management settings is **0000** or **0312**, depending on platform version.

RS-232 INTERFACE



REMOTE CONTROL AND BUTTON CODES



USB TO RS-232 CABLE

Connect your IPTV Receiver devices to RS-232 devices.

Ordering Information

Part codes IPTVA-002-45 (Length: 45cm)

NULL MODEM ADAPTERS

These cross over the transmit, receive, and control lines to allow the RS-232 ports of two DTE devices to communicate with one other.

Ordering Information

Part code IPTVA-003-FF (Female to Female)

Ordering Information

Part code IPTVA-003-FM (Female to Male)

HDMI TO HDMI CABLE

For the transfer of High Definition video and audio.

Ordering Information

Part code IPTVA-006-50 (0.5m length)
IPTVA-006-100 (1.0m length)
IPTVA-006-200 (2.0m length)

HDMI TO DVI-D CABLE

For the transfer of High Definition video (*Note: no audio*).

Ordering Information

Part code IPTVA-007-180 (1.8m length)
IPTVA-007-100 (1.0m length)

IR EXTENDER

To extend the infra-red receiver, leaving the set-top box out of sight.

Ordering Information

Part code IPTVA-011 (1.5m length) connects via 2.5mm jack