

eDbox-100
SmartStack™ Box
for PSTN

User's Guide

TABLE OF CONTENTS

| | | |
|----------|---|-----------|
| 1 | GENERAL INFORMATION | 3 |
| 1.1 | INTRODUCTION..... | 3 |
| 1.2 | TECHNICAL FEATURES | 3 |
| 1.3 | PACKAGE DESCRIPTION..... | 4 |
| 1.4 | CONNECTION TO AN ATTACHED EQUIPMENT..... | 5 |
| 1.5 | CONNECTION TO A PC..... | 5 |
| 1.6 | HYPERTERMINAL - BASIC CONFIGURATION | 6 |
| 1.7 | COMMUNICATION MONITORING | 8 |
| | 1.7.1 LEDs behavior..... | 8 |
| | 1.7.2 Speaker behavior | 8 |
| 2 | QUICKSTART PROCEDURE..... | 9 |
| 3 | DESIGN INFORMATION | 10 |
| 3.1 | POWER CONSUMPTION..... | 10 |
| 3.2 | MOTHERBOARD DESIGN..... | 10 |
| | 3.2.1 Socket Support | 10 |
| | 3.2.2 Serial Connector | 10 |
| | 3.2.3 RJ11 Connector..... | 11 |
| | 3.2.4 Power Supply..... | 11 |
| | 3.2.5 Speaker | 11 |
| 3.3 | EDMOD-100 DESIGN | 11 |
| | 3.3.1 Socket Support | 11 |
| | 3.3.2 Electrical signals | 11 |

For any additional information, please contact eDevice support:

Americas: support-us@edevic.com
Europe, Middle East & Africa: support-eu@edevic.com
Asia – Pacific: support-ap@edevic.com

Information provided by eDevice, Inc. is believed to be accurate and reliable. However, no responsibility is assumed by eDevice, Inc. for its use, nor any infringement of patents or other rights of third parties, which may result from its use. No license is granted by implication or otherwise under any patent, or other intellectual patent rights of eDevice other than that which may be specifically provided for under the terms of a license between eDevice and another party. eDevice reserves the right to modify its specifications at any time without notice. This document is subject to change without notice.

The software described in this document is furnished under a license agreement and may be used or copied only in accordance with the terms of such a license agreement. It is forbidden by law to copy the software on any medium except as specifically allowed in the license agreement. No part of this document may be reproduced or transmitted in any form by any means, electronic or mechanical, including, but not limited to photocopying, recording, transmitting via fax and/or modem devices, scanning, and/or information storage and retrieval systems for any purpose without the express written consent of eDevice.

eDevice and SmartStack are registered trademarks of eDevice, Inc.

Product names or services listed in this publication are for identification purposes only, and may be trademarks or registered trademarks of their respective companies. All other marks mentioned herein are the property of their respective owners.

Copyright © 2003 eDevice, Inc. All rights reserved.

1 GENERAL INFORMATION

Safety instructions:

Make sure that the eDbox-100 is not connected to the PSTN line before connecting the eDbox-100 to the equipment or before operating on the eDbox-100

1.1 Introduction

The eDevice eDbox-100 - SmartStack box for PSTN product range - includes the whole range product:

- The eDbox-101 running the eDsoft-101: SmartStack software with the V.32bis modulation
- The eDbox-102 running the eDsoft-102: SmartStack software with the V.34 modulation
- The eDbox-103 running the eDsoft-103: SmartStack software with the V.90 modulation

The eDevice eDbox-100 (SmartStack Box for PSTN) includes all the hardware and software components required to send/receive e-mail, put/get files via FTP or open TCP sockets over the Internet when connected on PSTN.

Through unique memory optimization techniques, SmartStack integrates a software modem with all of the protocols required to initiate and sustain an Internet connection through the PSTN. Support is also included for the SMTP, POP3, and FTP application layer protocols.

The eDbox-100 hosts a SmartStack eDmod-100. As a consequence it can be used to evaluate and test the SmartStack technology.

This User's Guide is designed for both customers interested in using the eDbox-100 for its own features and designers planning to integrate the SmartStack eDmod-100 into their own devices. In the latter case, the equipment designer should refer to the eDevice document titled, "SmartStack eDmod-100 Designers Guide". However, basic information about cabling is available in this document in Section 3 titled "Design information".

The eDbox-100 is driven using the eDevice AT# Command Set. It is as simple to use as the well-known Hayes command set available on all the standard PC modems. Nevertheless this interface is specific to the SmartStack technology as it deals with parameters from the physical layer to the application layer. These commands are sent to the eDbox-100 through the serial port. A full description of the AT# command set can be found in the eDevice document titled, "AT# Command Set".

Both the eDbox-100 and eDmod-100 use the AT# Command Set.

1.2 Technical Features

The eDevice eDbox-100 integrates the following features:

- ◆ Modem: V.32bis or V.34 or V.90
- ◆ Caller identification feature
- ◆ AT# commands
- ◆ PPP protocol compliant with standard IETF RFC (PPP client and PPP server)
- ◆ Standard TCP protocol support
- ◆ Standard DNS protocol support
- ◆ Standard POP3 protocol support

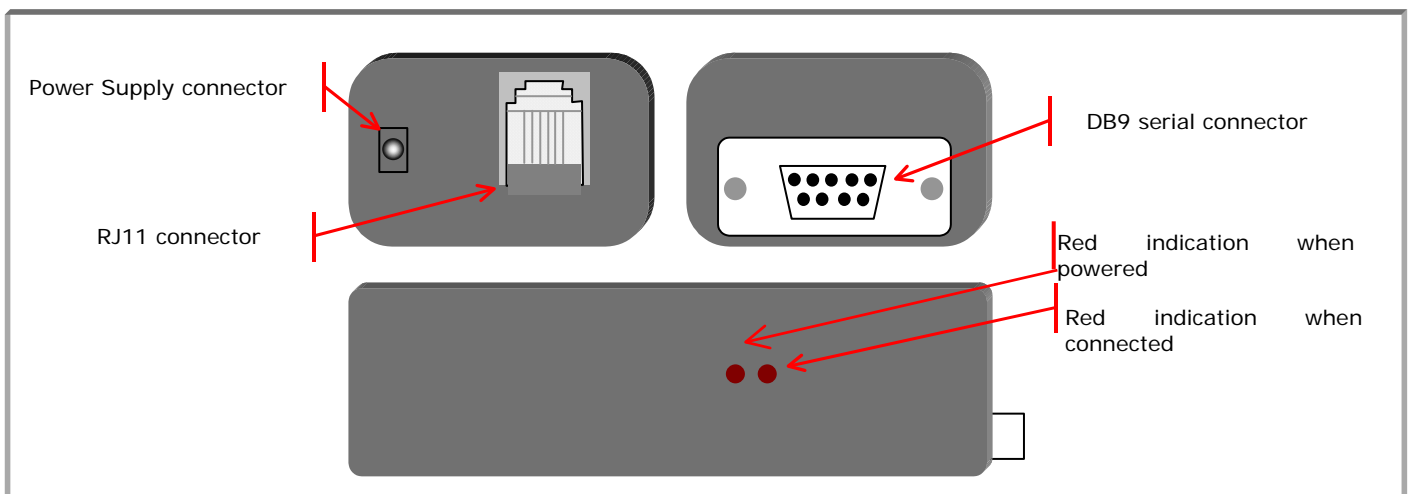
- ◆ Standard SMTP protocol support
- ◆ Standard FTP protocol support
- ◆ Standard NTP protocol support
- ◆ Standard HTTP protocol support

1.3 Package Description

The full package includes the following items:

- ◆ One (1) eDbox-100
- ◆ One (1) Serial cable DB9 male/female
- ◆ One (1) 100-250V 50-60Hz 150mA / 5V DC max. 1A Power Supply
- ◆ One (1) CD including the documentation:
 - AT# commands set
 - AT# parameters set
 - Application notes describing the use of the software

eDbox-100 view



1.4 Connection to an attached equipment

The attached equipment and the eDbox-100 exchange information through an RS-232-like serial port, using only the TxD (from the attached equipment to the eDbox-100), RxD (from the eDbox-100 to the attached equipment), and ground lines.

Regarding the RS-232 serial port pin assignments, the eDbox-100 is configured in the same way as a modem (DCE: Data Communication Equipment, as opposed to a DTE: Data Terminal Equipment, such as a PC).

If the attached equipment serial port is also configured as a DCE, and not as a DTE, the TxD and RxD lines must be crossed (null-modem) in the cable between the equipment and the eDbox-100.

In the standard products, DC signal levels are RS-232 (+/-12V). Under request, they can be in TTL levels.

Serial baud rate is configurable from 300 bits/s to 115200 bits/s [See the software interface into the 'AT# Command set' document]. **Default value is 57600 bits per seconds.**

Data format is: 8 data bits, no parity, 1 stop bit.

Do not forget to configure the flow control.

1.5 Connection to a PC

A PC and the eDbox-100 exchange information through an RS-232-like serial port. The eDbox-100 is configured in the same way as a modem and can be connected to the PC COM port with the supplied DB9 cable.

Serial baud rate is configurable from 300 bits/s to 115200 bits/s [See the software interface into the 'AT# Command set' document]. **Default value is 57600 bits per seconds.**

Data format is: 8 data bits, no parity, 1 stop bit.

Communication is possible through the standard HyperTerminal program included with the Windows OS (see HyperTerminal configuration chapter) or alternatively through a third-party package like MTTY, or Qmodem.

Do not forget to configure the flow control. Some problems of flow control could occur using some software (Qmodem for exemple).

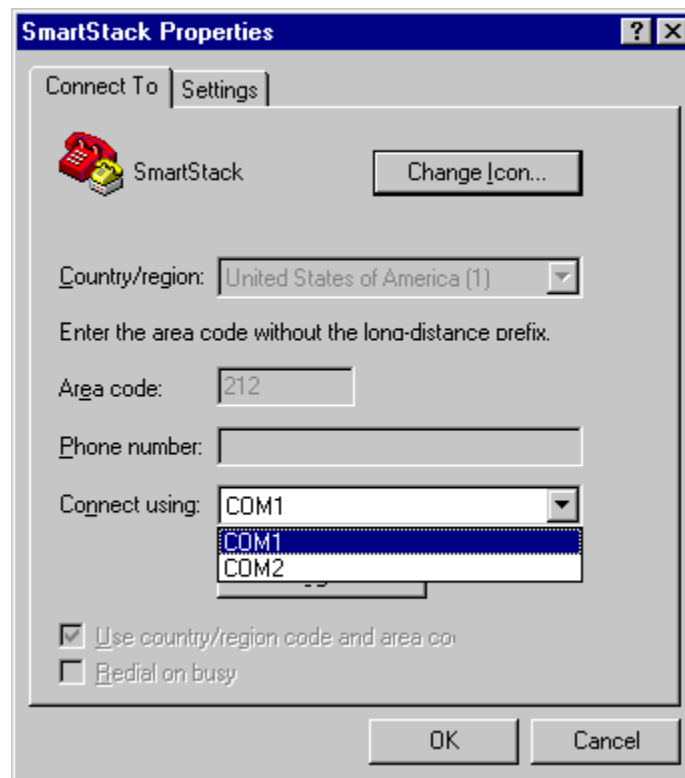
1.6 HyperTerminal - Basic Configuration

HyperTerminal is usually located in the Programs >> Accessories >> Communications menu of the task bar.

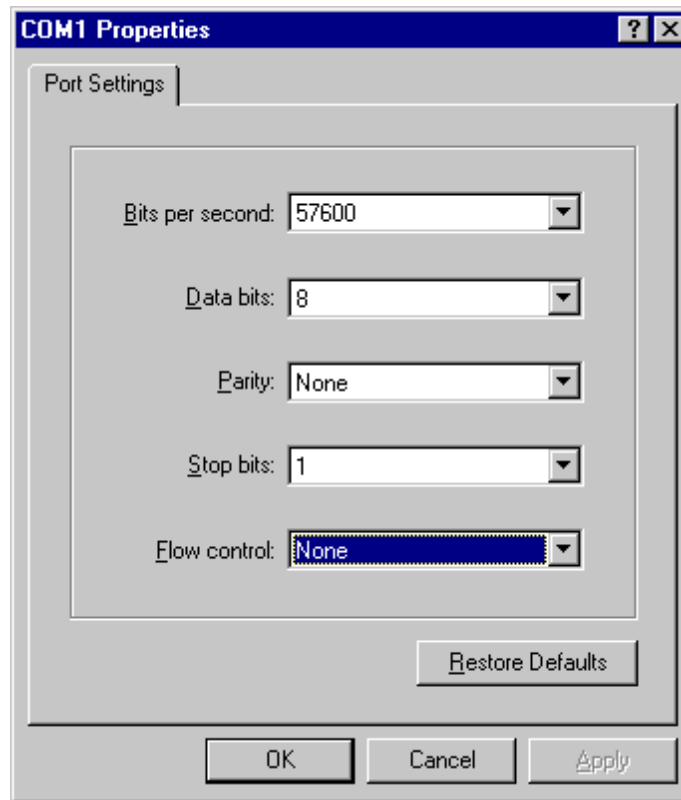
If HyperTerminal is not yet installed, please check it in the Control Panel >> Add/Remove Software >> Windows Installation >> Communications >> HyperTerminal.

When launching HyperTerminal, you are asked to name the connection. You can enter SmartStack for example.

In the following screen, select the used COM port in the Connect Using list box.



Then enter the following parameters in the next dialog box.



Note that the default value for the serial port data rate is 57600 bits per second. It is configurable.

The flow control of the SmartStack software is configurable ('AT#SerialPortSpeed' parameter. See in the "AT# commands set"):

- software flow control Xon/Xoff
- hardware flow control RTS/CTS
- none flow control
- or specific combinations

The Line Feed character used to indicate the end of a mail (sequence CR LF . CR LF) can be typed using its ASCII code (Alt + 10) or by selecting the (CR)(LF) mode in the ASCII configuration of the connection properties. CR is ENTER, CR LF is CTRL+ENTER in a keyboard

The Escape character used to indicate the end of a FTP file or to close a TCP socket can be typed using its ASCII code (Alt + 03) or by typing a Ctrl + C command in a keyboard.

1.7 Communication Monitoring

1.7.1 LEDs BEHAVIOR

The first LED lights when the power supply is plugged-in correctly.
The second LED lights when the DCD signal is high (modem negotiation was successful).

1.7.2 SPEAKER BEHAVIOR

The speaker allows the user to hear the negotiation of the speed to be used during the communication. Level is adjustable with the 'AT#SpeakerLevel' parameter.

2 QUICKSTART PROCEDURE

Safety instructions:

Make sure that the eDbox-100 is not connected to the PSTN line before connecting the eDbox-100 to the equipment or before operating on the eDbox-100

Once power is supplied to the eDbox-100 and it is connected to the PSTN and to your computer, you can start configuring and testing the eDbox-100.

For the first configuration, it is highly recommended that the user browse all the parameters with the command `AT#Show par.all`

Please refer to software documentation:

- the **AT# commands set** describing all commands available in SmartStack for launching actions
- the **AT# parameters set** describing all the parameters configuring SmartStack
- the **Application Notes** which describe how to use the software.
-

Commands sent to the SmartStack software through the serial port shall follow the format:

AT#<Mnemonic>=<Value>(CR)

The <Value> shall be between quotes, "", if it is a string.

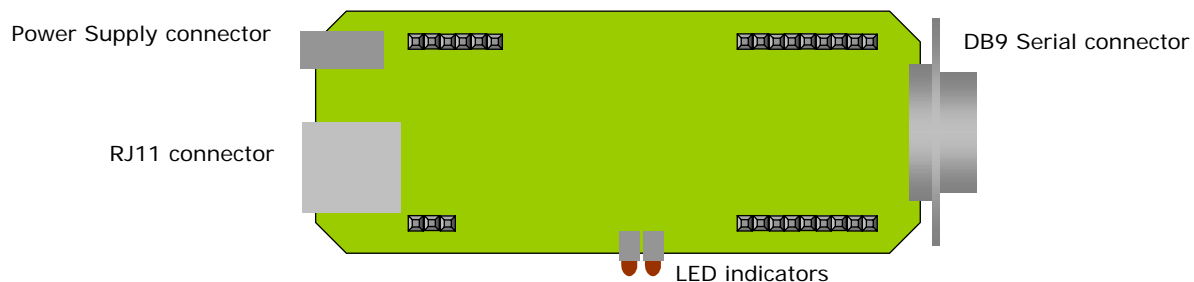
3 DESIGN INFORMATION

The eDbox-100 includes a SmartStack Modem (eDmod-100) plugged into a motherboard with its own power supply, an RJ11 connectivity for land line interface, a DB9 connectivity for serial interface, a sounducer and LEDs for monitoring. As a consequence, it can be considered as a basic example of how to plug the eDevice SmartStack eDmod-100 into a motherboard.

3.1 Power consumption

The power consumption is <120mA in communication

3.2 Motherboard Design



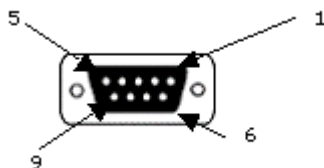
3.2.1 SOCKET SUPPORT

- 2 HARWIN Female M22-6110922 (9 pins)
- 1 HARWIN Female M22-6110622 (6 pins)
- 1 HARWIN Female M22-6110322 (3 pins)

Connector size is 2 mm.

3.2.2 SERIAL CONNECTOR

DB9 female connector

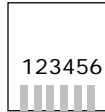


Pins assignment:

| | | | | | |
|---|-----|---|-----|---|-----|
| 1 | DCD | 2 | RXD | 3 | TXD |
| 4 | DTR | 5 | GND | 6 | DSR |
| 7 | RTS | 8 | CTS | 9 | RI |

3.2.3 RJ11 CONNECTOR

Pins 1-2: Not connected
Pins 3: RING
Pins 4: TIP
Pins 5-6: Not Connected



3.2.4 POWER SUPPLY

Jack connector: Ø 1,3 mm

4 to 6 VDC



3.2.5 SPEAKER

PKMC16E – 4000 – TY

3.3 eDmod-100 design

3.3.1 SOCKET SUPPORT

2 HARWIN Male M22-6110922 (9 pins)
1 HARWIN Male M22-6110622 (6 pins)
1 HARWIN Male M22-6110322 (3 pins)

Connector size is 2 mm.

3.3.2 ELECTRICAL SIGNALS

Information is available in the “eDmod-100 Designers Guide”. This document can be requested to eDevice or the eDevice’s distributors.