Sportster ISDN TA Ext.®

External ISDN Terminal Adapter

User's manual

Table of contents

Appendix

1. Introduction

Congratulations! You have just purchased the Sportster ISDN TA Ext.. Since 1976, U.S. Robotics has grown to become a key manufacturer and developer of information access technology. U.S. Robotics' advanced technology allows you to use your faxmodem to open up a new world of information access.

As an innovator in the data communications field, U.S. Robotics has a history of bringing the latest technology to market at an affordable price.

For more information on U.S. Robotics, visit the U.S. Robotics World Wide Web home page at: **http://www.usr.co.uk. for the UK, http://www.usr.it for Italy and http://www.usr.com for other European countries.**

1.1. Product description

Sportster ISDN TA Ext. is an ISDN terminal adapter allowing ISDN access directly from your PC. It allows access to Internet and online services and is suitable for remote LAN access. The Sportster ISDN TA Ext. is like the digital equivalent of an analogue modem.

You need:

- an ISDN Basic Rate Interface (BRI)
- a PC with online software for a modem

The serial port of the PC should be capable of a data rate of up to 115.2kbps. This might require an additional high speed serial card.

1.2. Internet Access

There are two ways to access the Internet via ISDN:

- by synchronous PPP
- by bit rate adaption V.120
- by using X.75

It depends on the access facilities of your Internet service provider (ISP) or Point-of-presence (POP) which one you may use.

1.3. Remote LAN Access

To access a LAN remotely via ISDN you have to choose the appropriate protocol that is used by the ISDN router on the LAN.

1.4. CE Mark

1.4.1. Approval

The Sportster ISDN TA Ext. has Pan-European approval.

The approval number is CE 0188 X.

1.4.2. Electromagnetic Compatibility

This device complies with the following standards in accordance with the European Directives 91/263/EEC and 89/336/EEC, when mounted inside a host computer with it's bracket screwed to the computer chassis.

- Immunity EN 50082-1 06/92
- Emission EN 55022 class B 08/87

1.4.3. Safety

This device complies with the following standard in accordance with the European Directives 91/263/EEC and 73/23/EEC:

- EN 60950/A3 10/95

2. Installation

2.1. Contents

This packet contains the following items:

- Sportster ISDN Terminal Adapter External
- Power Supply Unit (PSU)
- RJ45/RJ45 ISDN cable
- V.24 DTE interface Serial cable
- User manual
- Installation software

2.2. Installation procedure

- Connect the serial port of the Sportster ISDN TA Ext. to the serial port (COM Port) of the PC.
- Connect the ISDN port of the Sportster ISDN TA Ext. to the basic rate interface (BRI) of the ISDN.
- Connect the power supply to the Sportster ISDN TA Ext. and plug it into the AC mains socket.

Refer to chapter 2.3 for the correct display during the power-up sequence.

The Sportster ISDN TA Ext. is now ready for use, please refer to the next chapter about using Applications Software on your PC.

2.3. Displays and control elements

At the back of the Sportster ISDN TA Ext. you will find the sockets for the external power supply and the ISDN cable.

Fig. 1: Back view of the Sportster ISDN TA External

ISDN : ISDN cable interface
PWR : **E**xternal power supply

6 LED lights on the front panel let you monitor the status of your Sportster ISDN TA Ext..

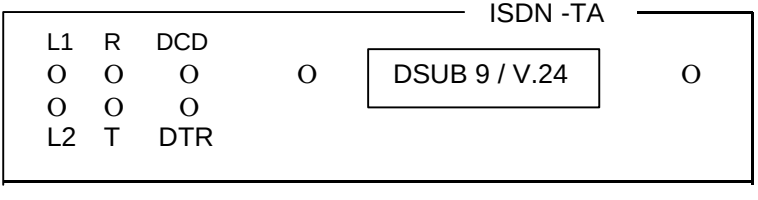

Fig. 2: Front view of the Sportster ISDN TA External

The 4 LEDs on the right show the status of the lines to and from the PC:

T : shows activity of transmitted data from the PC
R : shows activity of receiving data from the ISDN line
DTR : shows the status of the DTR line
DCD : typically shows the connection to an access server.

LEDs labelled **L1** and **L2** show the overall status of the Sportster ISDN TA Ext. in coded form. The following list describes the status of L1 and L2 during an error free power-on sequence.
A complete list can be found in the appendix "LED displays".

		Status	L2	L1
1.	Power-On-Phase	wait	•	• (about 2sec)
2.	Active phase ISDN	OK	O	⊗
3.	Connected	ISDN connection estabL.	⊗	⊗

LED Legend:

O	On
•	Continuously blinking
⊗	Off

2.4. Installating with Windows 3.x and Windows 95

2.4.1. Windows 95

1. Insert the disk labelled '*Sportster ISDN TA ext. - Installation Windows95'* "
2. Click Start | Run from the main Windows 95 task bar.
3. Type A:\SETUP and click OK
3. To install follow the on-screen prompts.

2.4.2. Windows 3.x

The Sportster ISDN TA External will operate in Terminal mode without the need to load the Installtion Program.

It is advised that you obtain better COM drivers to replace the standard Windows 3.x files from Mircosoft. High Speed drivers can be installed with RVS-COM. During installation you will be prompted to install drivers for your operating system, select YES for Windows 3.x.

3. Using the Sportster ISDN TA Ext. with Application Software

To use the Sportster ISDN TA Ext. with different application software and access points you have to look for the following items:

- Usually you will have a contract with your ISDN service provider.
- From your provider you should have an ISDN access number to call (required when using application program)
- The Sportster ISDN TA Ext. recommended settings appropriate to your ISDN access point are described in the next few chapters.

3.1. Configuration for Internet

To access the Internet via ISDN you must have a contract with an Internet service provider (ISP) providing direct ISDN access. The following information is required, from your ISP, to configure the Sportster ISDN TA Ext..

- ISDN access number (required for the PC application sofware)
- Layer two protocol, usually the protocol-type PPP (to be configured in the Sportster ISDN TA Ext., AT command : “ATB3”; factory default)
- ISDN Access protocol (required for use with the PC system software or Internet access software)

To configure the Internet access software on the PC, you may need the TCP/IP address, user name, password etc. Please refer to the software manual.

3.2. Configuration

The configuration of the Sportster ISDN TA Ext. can be dependent of the type of access the Internet provider is supporting. The following types of access are mostly used for public ISDN access.

- HDLC async to sync conversion
  This protocol has to be setup, if the service provider uses a access point where the protocol PPP is running.
- V.120
- X.75

Please get more information from your Internet provider if necessary.

4. Configuring the Sportster ISDN TA Ext.

The Sportster ISDN TA Ext. is delivered with a set of preset values. In the following section it will be shown how, by using the configuration commands, you can examine the configuration of the Sportster ISDN TA Ext. and if necessary change it. The values can be stored in non-volatile RAM; this means they'll remain unchanged even if the power supply is disconnected.

You can configure the Sportster ISDN TA Ext. in the following three ways:

- by using the AT command set, entered locally using a connected PC.
- by using Sportster ISDN TA Ext. configuration commands entered by the locally connected PC.
- by using Sportster ISDN TA Ext. configuration commands entered via the ISDN access (remote configuration).

Normally the configuration via AT commands is sufficient.

4.1. Configuration using AT commands

All parameters can be changed by using an extended AT command set described at the beginning of page 10.
The factory setting is described (highlighted) in the parameter list shown in the chapter "AT command set".

If you want to change the factory default setting, please do the following steps:

- Connect the Sportster ISDN TA Ext. to the ISDN interface
- Using the Serial cable, connect the PC´s COM Port to the DTE interface of the Sportster ISDN TA Ext..
- Connect the power supply to the mains socket.
- Start a terminal emulation program (e.g . Windows - Terminal/HyperTerminal) on your PC.

- Set-up the parameter(s) of the Sportster ISDN TA Ext. from the terminal emulation program and save the parameter(s) using the AT command set.

Example:
To use X.75, enter the following commands:

ATB10<↵>	(set protocol to X.75)
AT&W<↵>	(save the new configuration)

- Leave your terminal emulation program and start your application program.

4.2. AT command set

With the exception of the command **A/** (Repeat command) all commands begin with the prefix **AT** and are terminated with <↵>. Corrections in a command line are done with <←BACKSPACE>. A command line has a maximum of 80 characters, the command line is automatically cancelled by longer input. Blanks are ignored, capital/small letters are not significant.

Autobauding is carried out according to the profile configuration during the input of a "AT" sequence. The baudrate, databits and parity are recognised and adjusted automatically by the Sportster ISDN TA Ext.. The baudrate value is not adopted by the terminal profile. The commands **&Dx** and **&Kx** (see below) change the appropriate profile values.

The parameter settings of the Sportster ISDN TA Ext. obtained when using the AT commands, can be permanently stored using AT&W <Enter> and are not lost by a reset, or by leaving the AT command mode.

To enter the AT command mode during an active data connection you must use the following sequence ("Escape sequence"):

at least 1 sec pause **<+><+><+>** 1 sec pause

The time gap between all three plus signs must not exceed 1 sec. The escape sequence is transmitted transparent to the remote device.

Supported commands:

A/ Repeat last command line

ATA Answer a call (call accept through DTE) by S0 = 0
Must be the last command in an AT command line.

AT&A Show all security entries for incoming call determination

ATB*x* Select B channel protocol *x* (see command port) with *x* is

- 3 = HDLC asy (i.e. for Internet / RAS access)
- 10 = X.75 (i.e. for BBS access)
- 13 = V.120 (for CompuServe access)
- 22 = T.70-NL (for T-Online access)

AT%B*x* Set-up the local Baudrate to *x* bit/sec with *x* :

0: automatic local baudrate detection enabled (autobauding)
1: 1200 bit/s
2: 2400 bit/s
3: 4800 bit/s
4: 9600 bit/s
5: 19200 bit/s
6: 38400 bit/s
7: 57600 bit/s
8: 115200 bit/s

Must be the last command in an AT command line.

AT&C[0] **&C1** Sportster ISDN TA Ext. control line DCD is always ON DCD ON indicates ISDN connection is established and synchronised

ATD*nn* Dial the call number *nn* (D for Dial). The dial modifier "W", ">", "P", "T", ",", ";", "@" can be freely inserted in the dial string; they have no influence on the dial procedure of the Sportster ISDN TA Ext..

Must be the last command in AT command line.
(Adding an “e” to the call number indicates that a

connection to the internal remote access of a Sportster ISDN TA Ext. shall be set-up.)

ATDS=*n* Dial number *n* from stored telephone number list (*n* = 0..9)

ATDL Recall last dialled number

AT&D[0] DTE control line DTR setting is ignored

&D2 DTE control line DTR is evaluated: dropping the DTR line by the DTE will disconnect an existing ISDN connection (default)

ATE[0] No local echo

E1 Local echo on in command phase (default)

AT&F Factory default will be loaded (for storing non volatile please use the command AT&W).

ATH Disconnect ISDN data link.

AT#H Show own MSN (multiple subscriber number) for data port

ATI[0] Returns the "Modem"-type; name of the terminal adapter

ATI1 Returns the EPROM checksum

I2 Returns “OK”

I3 Returns version string: “SP5.10.00"

I4 Returns product name: "Sportster ISDN TA Ext."

I5 Returns ISDN selected protocol: “0 - DSS1”

I6 Returns copyright string: “Copyright U.S. Robotics Access Corp.”

AT&K[0] No local flowcontrol between the DTE and Sportster ISDN TA Ext. is used

&K3 Local flow control is set to hardware handshake RTS/CTS (default)

&K4 Local flow control is set to software handshake XON/XOFF

ATO Return to online data mode

ATQ[0] Returns status - codes after command input (default)

Q1 No status codes are returned

AT&R[0] Sportster ISDN TA Ext. control line CTS is following all changes of RTS

&R1 CTS is always ON (default)

AT#R Reject an incoming call by issuing this command (S0 register is 0)

AT#R0 Disable rejecting all incoming calls automatically

AT#R1 Enable rejecting all incoming calls automatically

ATS*nn*? Shows actual values (decimal) of selected register *nn*

ATSnn=*xx* Adjusts selected register *nn* to the decimal value *xx*.

AT&S[0] Sportster ISDN TA Ext. control line DSR is always ON

&S1 DSR ON indicates ISDN connection is established and synchronised

ATV[0] Messages are presented as numbers (followed by <CR>)

V1 Messages are presented as text (verbose)

V2 Messages are presented as text including enhanced error causes

AT&V[0] Displays the actual configuration of AT command setting including stored ISDN numbers

&V1 Displays the actual configuration of extended AT command setting

ATW[0] Show the result code form (RING, CONNECT) without additional info

ATW1 Show the result code form (RING, CONNECT) with address/subaddress

AT&W The active configuration will be stored non volatile

ATX Select CONNECT result message format:

X0 "CONNECT" only

X1 "CONNECT" with line speed, "BUSY" and "NO DIALTONE" not used

X2 "CONNECT" with line speed, "BUSY" not used

X3 "CONNECT" with line speed, "NO DIALTONE" not used

X4 "CONNECT" with line speed, all messages used

ATZ The active configuration will be reset to the stored configuration
Must be the last command in an AT command line

AT&Z*x=nn[/ss]* Store dialling number *nn* with subaddress *ss* as entry number *x* into the telephone list (*x* = 0..9)

AT#Z*nn* Set own msn *nn* for data port
nn = "*" : all incoming calls are acceptable

Setting up a special ISDN parameter:

(Only one command is allowed per AT command)

ATCF.ISDN=*x***	Select ISDN D channel protocol 0: DSS1 (Euro-ISDN) *Note: after changing and storing the ISDN protocol the TA has to be reset by powering off and on*
ATCF.LLC=*hh***	Low layer compatibility *hh* for outgoing calls An empty parameter has to be entered by "-".
Example:	Deleting of LLC-value: LLC -<CR> Entering a new LLC: LLC 8890<CR> Note: LLC MUST BE "-" FOR CORRECT OPERATION IN THE UK
ATBSIZE=*x***	Maximum length *x* of a data frame
ATDTE=*x***	HDLC Link-address *x* Layer 2 1: TA reacts as DTE (own adr = 01) 3: TA reacts as DCE (own adr = 03)
ATK=*x***	Layer-2 protocol windowsize *x*
ATDBITS=*x***	Number of data bits *x* asynchronous chars (7,**8**)
ATPRTY=x**	Parity *x* of async chars **0**: no parity; 1: even parity; 2: odd parity
AT**cmd***	Execute one configuration command,
AT%Q	Enter directly into the Configurator, the configuration prompt "#" will be displayed. Leave the configurator with the command "go".

Utilised S register and their meaning:

S0 0: No automatic call acceptance, acceptance of an incoming call is controlled by the data terminal(command ATA after RING)
1: (Default) Instant call acceptance by the terminal adapter
n: Call acceptance through the terminal adapter after ((*n* 1)*5) sec; the value *n* has a max. of 24 (Alert-supervision).

S1 Ring Counter

S2 Escape Character

S3 Carriage Return Character

S4 Line Feed Character

S5 Backspace Character

S7 Wait time for Carrier (sec)

S16 The last occurred CAPI/ISDN error cause is displayed

Result codes (numerical and verbose) :

Code	Text	Meaning
0	OK	Command completed
1	CONNECT <*rn*>	Connection established (*rn* = call number of remote site)
2	RING <*rn*>	Indicates an incoming call (Set-up received)
3	NO CARRIER <*xx*>	No synchronisation (*xx* = ISDN error cause)
4	ERROR	Illegal command or error that can not be indicated otherwise
6	NO DIALTONE <*xx*>	No access to ISDN network (*xx* = ISDN error cause)
7	BUSY <*xx*>	Number engaged (*xx* = ISDN error cause)
8	NO ANSWER <*xx*>	No connection; called number cannot be reached (*xx* = ISDN error cause)
19	CONNECT 64000 <*rn*>	Connection, line speed 64 kBit/s

Call number display:
<*rn*> = call number of remote site

In AT command mode call number display which does not belong to the AT command standard can be turned on by issuing the command ATW1. If turned on, the call number (and subaddress) of the caller is shown with the Connect- or Ring-message (in pointed brackets), depending on the signalling in D-channel.

If the Sportster ISDN TA Ext. is used on the public network then the calling number of the remote site (including area code) is displayed.
Example: CONNECT 19200 <01189692200>

Error cause display:
<*xx*> = ISDN release (error) cause, hexadecimal i.e. 34F0H

In AT command mode error cause display which does not belong to the AT command standard can be turned on by issuing the command ATV2. The shown error cause uses the coding defined by the CAPI definition. ISDN error causes from the ISDN network are always coded as 34xxH, where xx represents the hexadecimal version of the ISDN error cause. An error list can be found in the section ISDN error causes.

5. ISDN TA Configuration command set

Usually the configuration can be changed by only using the AT command set. If you have more extended requirements or want to configure a Sportster ISDN TA Ext. through the ISDN line you have to use the Configuration command set.

The configurator can be entered in the following ways:

- Locally entered during power-on sequence
- Remote via ISDN (see page 20).
- By using the special AT command AT%Q<↵>.

5.1. Local Configuration using ISDN TA configuration commands

To configure the Sportster ISDN TA Ext. locally by configuration commands:

- Connect the Sportster ISDN TA Ext. to ISDN interface
- Using the Serial cable, connect the PC´s COM Port to the serial interface of the Sportster ISDN TA Ext..
- Start a terminal emulation program (e.g. Windows - Terminal/HyperTerminal) with the following settings: 9600 Baud, 8 databits, No Parity **(8N1**), 1 Stop Bit, Hardware Flow Control.
- Connect the Sportster ISDN TA Ext. to the mains using the mains plug adapter and
  1. wait until LED 1 and 2 start blinking (after about 2 sec, see config cmd “start”) and
  2. type in quickly the sequence <ESC> <ESC>, to call up the configurator.

  The configurator acknowledges by giving a welcome string followed by a “#” as the prompt character. Now you can work with the configurator by using the configuration commands.
- Set-up the parameter for the Sportster ISDN TA Ext. from your terminal program and store them. (see page 16).

Example:
To use X.75, enter the following commands:

prot 10<↵>	(set protocol to X.75)
save<↵>	(save the new configuration)
go<↵>	(leave the configurator and activate the new value settings)

Note: The active set of parameters can be displayed on screen by the configurator with the command **"show**<↵>**"**.

- Leave the terminal program and start your application.

Now you can use the Sportster ISDN TA Ext. with the new set of parameters by running the software application.

5.2. Remote Configuration using ISDN TA Configuration commands

The Sportster ISDN TA Ext. requiring configuration is referred to here as the *REMOTE* Sportster ISDN TA Ext..
The Sportster ISDN TA Ext. being used to configure is referred to as the *LOCAL* Sportster ISDN TA Ext..

Ensure that the *remote* Sportster ISDN TA Ext. to be configured at the other end is connected to the ISDN line and powered up.

- Connect the *local* Sportster ISDN TA Ext. to the ISDN interface
- Using the Serial cable, connect the PC´s COM Port to the serial interface of the *local* Sportster ISDN TA Ext..
- Connect the power supply to the mains socket.
- Start a terminal emulation program (i.e. Windows-Terminal/HyperTerminal)
- Configure the *local* Sportster ISDN TA Ext. with the B channel protocol X.75 and block size 2048.
- Set-up an ISDN connection to the *remote* Sportster ISDN TA Ext. to be configured by using the command: ATD<*ISDN-No*>e<↵>. The extension “e” at the end of the calling number gives a connection to the internal remote access of the *remote* Sportster ISDN TA Ext..

  The called Sportster ISDN TA Ext. configurator acknowledges by giving a welcome string followed by a “#” as the prompt character. Now you can work with the configurator by using the

ISDN TA Configuration commands (see Chapter 5).

- Set-up the parameter for the *remote* Sportster ISDN TA Ext. from your terminal program and store them (if wanted).

  Example:
  To change the used B channel protocol to X.75 please enter the following commands:

prot 10<↵>	(set protocol to X.75)
bsize 2048<↵>	(set blocksize to 2048 Bytes)
save<↵>	(save the new configuration)
go<↵>	(leave the configurator and activate the new values)

  Hint: The active set of parameters can be displayed on screen by the configurator with the command **"show**<↵>**"**.

- Hang up the ISDN connection and leave your terminal program.

The configured *remote* Sportster ISDN TA Ext. with the new set of parameters can be used by running the software application.

5.3. Table of adjustable configuration-values and default-values

The configuration commands typed in must have the correct syntax and be complete, including all blanks. Capital/small letter use is not important. The entry is not case sensitive.

CMD	Parameter	def.	sel.	Meaning
mode ***(#1)***	command set	0	0	Command set for connection control 0: AT command set
prot	data protocol	3	3, 10, 13, 22	transmission protocol for data transfer 3: HDLC async to sync (PPP) 10: X.75 SLP 13: V.120 22: T.70-NL
isdn	ISDN protocol	0	0	select ISDN D channel protocol 0: DSS1 (Euro-ISDN) 1: 1TR6
defa	default	-	-	set-up factory default parameter
save	save parameters	-	-	save the actual set of parameters in the non-volatile memory
load	-	-	-	load settings for non-volatile configuration
reset	reset Sportster ISDN TA Ext.	-	-	reset the whole functionality of the Sportster ISDN TA Ext. (like Power off / on)
go	activate parameters	-	-	Start the Sportster ISDN TA Ext. with the stored values.
Start	start timer	40	10-199	Command-phase after reset decimal in 10msec.
Show	show parameters			Display the actual set of parameters
?[cmd]	Help			show helptext for one selected command
??	Help			shows helptext for all commands

CMD	Parameter	def.	sel.	Meaning
msn	Multiple Subscriber Number	*		Own MSN (Multiple Subscriber Number) *: no specific MSN, all incoming calls accepted
llc	low layer compatibility	-	hex bytes	Low layer compatibility for outgoing calls ***(#2)***
bc	bearer capability	8890	hex bytes	Bearer capability for outgoing data calls ***(#2)***
sin	Service Indicator	7,0	hex bytes	Service Indicator for outgoing data calls (1TR6 only)
bsize ***(#1)***	frame size	204 8	128.. 2048	maximum length of a data frame
dte	DTE Address	0	0,1	HDLC Link-address Layer 2 0: TA reacts as DCE (own adr = 01) 1: TA reacts as DTE (own adr = 00)
k ***(#1)***	windowsize	7	1..7	Layer-2 protocol: windowsize
br	baudrate async	0	0-8	baudrate selection for DTE interface 0: autobauding, (automatic local bit rate adaption) 1: 1200 bit/s 2: 2400 bit/s 3: 4800 bit/s 4: 9600 bit/s 5: 19200 bit/s 6: 38400 bit/s 7: 57600 bit/s 8: 115200 bit/s
dbits	async databits	8	7,8	number of data bits asynchronous chars
prty	async parity	0	0-2	parity of async chars 0: no parity; 1: even parity; 2: odd parity
flc	flowcontrol	3	0,3,4	flowcontrol to DTE 0: no flowcontrol 3: hardware flowcontrol RTS/CTS 4: software flowcontrol XON/XOFF

CMD	Parameter	def.	sel.	Meaning
cdtr	DTR control	2	0,2	usage of DTR to control ISDN connection 0: no control 2: DTR off disconnects
cdsr	DSR control	0	0,1	0: DSR always ON 1: DSR indicates a connection
ccts	CTS control	1	0,2	0 : CTS follows RTS 1 : CTS always ON 2 : CTS follows DTR
cdcd	DCD control	1	0,1	0 : DCD always ON 1 : DCD indicates a connection 2 : DCD follows DTR

Notes:

(#1) After issuing one of these parameter you have to run the "go" command to activate the new settings. Please don't forget to execute the "save" command to make the configuration non volatile.

(#2) An empty parameter has to be entered by "-".

Example: Deleting of LLC-value: LLC -<CR>
Entering a new LLC: LLC 8890<CR>

6. Diagnostic and error messages

6.1. Error messages from AT command set

6.1.1. ISDN- and internal Error messages

When the extended result messages are selected using the command ATV2 ISDN error codes are displayed in addition to the standard AT result messages.

ISDN error causes from the ISDN network are always coded as *34xxH*, where the last two digits *xx* represent the ISDN cause in hexadecimal coding. The meaning can be taken from the following tables ISDN causes.

6.1.2. Table of ISDN causes and their explanation (EURO ISDN)

Cause decimal / hexadecimal	**Meaning**
1 / 0x81	unassigned number
3 / 0x83	no route to destination
6 / 0x86	channel unacceptable
16 / 0x90	normal clearing
17 / 0x91	user busy
18 / 0x92 19 / 0x93	no user responding (i. e. DTR not ON)
21 / 0x95	call rejected
22 / 0x96	number changed
26 / 0x9A	non selected user clearing
27 / 0x9B	destination out of service
29 / 0x9D	facility rejected
31 / 0x9F	normal disconnect, unspecified
34 / 0xA2	no B channel available
38 / 0xA6	ISDN network out of order
41 / 0xA9	temporarily failure of the ISDN network
42 / 0xAA	ISDN network congestion
47 / 0xAF	ISDN network congestion
50 / 0xB2	requested facility not subscribed
57 / 0xB9	bearer capability not authorised

Cause decimal / hexadecimal	Meaning
58 / 0xBA	bearer capability not available
63 / 0xBF	service/option not available
65 / 0xC1	bearer capability not implemented
70 / 0xC6	only restricted digital bearer capability (BC) available
79 / 0xCF	service/option not implemented
88 / 0xD8	incompatible destination
111 / 0xEF	protocol error, unspecified
127 / 0xFF	network interworking error, unspecified

6.1.3. Table of ISDN causes and their explanation (1TR6)

Cause decimal / hexadecimal	**Meaning**
3 / 0x83	unknown service indicator or service not applied for
10 / 0x8A	no free user channel available
17 / 0x91	requesting service is rejected, because the initiative party has no authorisation
32 / 0xA0	outgoing connection not possible
33 / 0xA1	locally busy; is the total sum of the free B-channels, the busy B-channels, the attached B-channels and number of call procedures without B-channel specification equal four, so are incoming calls from the network not accepted. The calling party receives a DISC with cause "user access busy" and the Busy tone.
34 / 0xA2	connection not possible due to membership of a closed user group
37 / 0xA5	"vorbestellte Dauerwählverbindung" (SPV) not installed at PTT side
51 / 0xB3	B party is incompatible
53 / 0xB5	connection in network not able to be set up due to wrong destination address, service or service attribute
56 / 0xB8	call number of B party has changed
57 / 0xB9	Remote terminal is not ready
58 / 0xBA	no terminal has responded to the incoming SETUP-message, or ringing broken off, absence assumed (expiration of call time-out T3AA).
59 / 0xBB	B party busy

Cause decimal / hexadecimal	Meaning
61 / 0xBD	B party has a lock of incoming connections (for instance "do not disturb" service feature), or the requested service is not applied for by B party.
62 / 0xBE	By A party: the wished for connection is actively rejected by B party (through sending a DISC as response to an incoming SETUP-message. On a terminal during the set-up phase of an incoming call: the connection is already taken up by another terminal at the bus.
80 / 0xD0	ISDN transit network out of order
88 / 0xD8	B party incompatible
89 / 0xD9	network congestion
90 / 0xDA	rejected or disconnected by remote side (party or exchange)
112 / 0xF0	sent in a REL-message: disconnected due to local error
113 / 0xF1	disconnected due to error in remote end
114 / 0xF2	at the remote side the connection is in "Hold" or "Suspend" state.
115 / 0xF3	at the remote side the connection is no longer in "Hold", "Suspend"- or conference state.

6.2. Error analysis under Windows NT

To set-up a protocol log of the connection in the B channel using PPP protocol can be done in the following way:

- enable logging information in the registry:

```
HKEY_LOCAL_MACHINE\SYSTEM
    CurrentControlSet\Services
        RASMAN\Parameters
            logging = 1
        PPP
            logging = 1
```

- you can find the log files in the following directory:

```
%SystemRoot%\System32\RAS\PPP.LOG
and %SystemRoot%\System32\RAS\Device.log
```

To get a detailed error analysis please contact your supplier of the Sportster ISDN TA Ext..

7. Are you still having problems ?

- **FOR THE UNITED KINGDOM**

Should you encounter any difficulties with your Sportster ISDN TA Ext., refer to the manual first.

Call or visit your dealer, if they are unable to assist you, contact the U.S. Robotics Technical Support Department from Monday through to Friday, between 9:30am - 5:00pm on;

E-mail address:	uksupport@usr.com
CompuServe:	GO UKVENA
BBS:	0118 969 2200
FOD*:	0118 922 8299
Fax:	0118 969 4222
Tel:	0118 944 1000
Web page:	http://www.usr.co.uk

*FOD = Fax on Demand

Upon contacting U.S. Robotics you will be issued with a Call Reference Number (CRN). This should be quoted when contacting the Technical Support Department in relation to your query.

Should you be advised to return your product, U.S. Robotics will repair and return the unit to you.

Please note that products can not be returned without prior approval by the U.S. Robotics Technical Support Department.

If you would like further information or the name of your nearest U.S. Robotics dealer, call us FREE on:
0800 22 52 52

or look at,
http://www.usr.co.uk.

- **FOR ITALY**

Should you encounter any difficulties with your Sportster ISDN TA Ext., refer to the manual first.

Call or visit your dealer, if they are unable to assist you, contact the U.S. Robotics Customer Support. When you call, specify your modem Sportster ISDN TA Ext. serial number (found on the modem Sportster ISDN TA Ext. and on the outside of the box), the software being used, and, if possible, the contents of your ATI7 screen.

Hotline:	02 26.296.250
Fax :	02 26 268 334
USR BBS:	+33 (0) 3 20 91 03 08
CompuServe:	GO USROBOTICS
Internet:	eurosupport@usr.com

Should you be advised to return your product, U.S. Robotics will repair and return the unit to you. Contact U.S. Robotics European Center Department to obtain a Return Materials Authorisation (RMA) number. YOU MUST HAVE AN RMA NUMBER BEFORE RETURNING THE MODEM TO US.

Phone :	+33 (0) 3 20 91 04 97
Fax :	+33 (0) 3 20 19 06 94

Ship the unit, postage paid, in a strong box made of corrugated cardboard with plenty of packing material (preferably the original container).

Include your RMA number, name, and address on the shipping label as well as inside the package.

Ship to the following address :

U.S. Robotics Logistics sarl
European Center Department
RMA#
Rue Jules Verne
Centre de Gros N°2
F-59818 Lesquin Cedex
France

- **FOR THE OTHER EUROPEAN COUNTRIES**

Should you encounter any difficulties with your Sportster ISDN TA Ext., refer to the manual first.

Call or visit your dealer, if they are unable to assist you, contact the U.S. Robotics Customer Support. When you call, specify your modem Sportster ISDN TA Ext. serial number (found on the modem Sportster ISDN TA Ext. and on the outside of the box), the software being used, and, if possible, the contents of your ATI7 screen.

Hotline:	+33 (0) 3 20 19 24 24
Fax:	+33 (0) 3 20 19 24 34
USR BBS:	+33 (0) 3 20 91 03 08
CompuServe:	GO USROBOTICS
Internet:	eurosupport@usr.com

Should you be advised to return your product, U.S. Robotics will repair and return the unit to you. Contact U.S. Robotics European Center Department to obtain a Return Materials Authorisation (RMA) number. YOU MUST HAVE AN RMA NUMBER BEFORE RETURNING THE MODEM TO US.

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U.S. Robotics Logistics sarl
European Center Department
RMA#
Rue Jules Verne
Centre de Gros N°2
F-59818 Lesquin Cedex
France

A1: Technical data:

One V.24 channel:

functional:	V.24
electrical:	V.28
mechanical:	9 pin -Type connector (female)

Transmission speeds:

DTE:	1200 - 115200 bit/s (asynchronous)
B channel:	64.000 bit/s (synchronous)
Character representation:	8Bit no Parity, 1 stop bit 7Bit even/odd Parity, 1 stop bit
Character synchronisation:	asynchronous
Operating mode:	half duplex or full duplex
ISDN interface:	S_0-interface according to CCITT I.430 (1TR3)
Physical dimensions:	desk top house: 71 x 22 x 123 mm (WxHxD)

A2: LED displays

Active states:

L1	L2	Status	
• (2sec)	•	Power-On-Phase ;	wait
• (1x1s)	O	ISDN not OK ;	Check ISDN interface/ - connector
⊗		Active phase ;	ISDN OK, no ISDN connection established
⊗	•	call active ;	ISDN Connection will be established
⊗	⊗	synch active ;	B channel synchronisation will be established
⊗	⊗	Connected ;	Data connection is established

Error states:

L1	L2	Status	
O	O	Sportster ISDN TA not OK	Hardware error, Sportster ISDN TA repair necessary
•	O	ISDN not OK ;	Check ISDN interface/ - connector
O	• (nx1s)	Sportster ISDN TA not OK ;	Hardware error, Sportster ISDN TA Ext. repair necessary

LED Legend:

⊗	On	
• occ	short on, long off	Cycle 1 sec
⊗ fl	long an, short off	Cycle 1 sec

• (***n***x***m***s) continuous blinking: ***n*** times every ***m*** seconds

O Off

A3: Pin-out of the ISDN connector

Pin-out of the 8 pin ISDN S-interface connector (RJ45) (CCITT I.430/ISO 8877)

Pin	Signal (S_0)
1	not connected
2	not connected
3	STA (Transmit A)
4	SRA (Receive A)
5	SRB (Receive B)
6	STB (Transmit B)
7	not connected
8	not connected

A4: Pin assignment of the V.24/V.28 interface Sportster ISDN TA Ext. (D-TYPE, 9 WAY)

Pin	V.24/V.28			I/O	TEXT
	CCITT	DIN	EIA		
1	109	M5	DCD	O	Data carrier detect
2	104	D2	R D	O	Receive data
3	103	D1	T D	I	Transmit data
4	108/1 108/2	S1.1 S1.2	DTR	I	Data terminal ready
5	102	E2	GND	---	Signal ground
6	107	M1	DSR	O	Data set ready
7	105	S2	RTS	I	Request to send
8	106	M2	CTS	O	Clear to send
9	125	M3	RI	O	Ring indictor

A5: Cable layout for connection of terminals with 25 pin connectors (male or female) to a Sportster ISDN TA Ext.

Only the cable with a male plug at the terminal side is shown. The pin configuration for the female plug is the same.

V.24 device		**Sportster ISDN TA Ext.**	
1	shield *		
7	SGND	102	5
2	TD	103	3
3	RD	104	2
4	RTS	105	7
5	CTS	106	8
6	DSR	107	6
20	DTR	108	4
8	DCD	109	1
22	RI	125	9

25 pin jack **9 pin jack**

Attention: allowed cable length < 15m.
for transmission speeds > 19.200 bit/s < 2m.
* necessary for cable length > 2m

⊃——— female connector on cable

=——— male connector on cable

A6: Cable layout to connect a PC with 9-pin male plug through a serial COM Port to a Sportster ISDN TA Ext.

PC			**Sportster ISDN TA Ext.**
	shield *		
5	SGND	102	5
3	TD	103	3
2	RD	104	2
7	RTS	105	7
8	CTS	106	8
6	DSR	107	6
4	DTR	108	4
1	DCD	109	1
9	RI	125	9

9 pin jack **9 pin jack**

Attention: allowed cable length < 15m.
for transmission speeds > 19.200 bit/s < 2m.
* necessary for cable length > 2m

⊃——— female connector on cable
=——— male connector on cable

8. Limited Warranty

U.S. Robotics Limited warrants to the original consumer or other end user that this product is free from defects in materials or workmanship for a period of five years from the date of purchase. During the warranty period, and upon proof of purchase, the product will be repaired or replaced (with the same or similar model) at our option, without charge for either parts or labour. This warranty shall not apply if the product is modified, tampered with, misused or subjected to abnormal working conditions.

To obtain service under this limited warranty, contact the U.S. Robotics Support (**see Chapter 7**).

For the United Kingdom :
U.S. Robotics Limited
220 Wharfdale Road
Winnersh, Wokingham
Berkshire
England
Tel : 0118.922.8200
Fax: 0118.969.5555

For Italy :
U.S. Robotics Italia Srl
Piazza Don E. Mapelli, 75
20099 Sesto San Giovanni
Italia
Tel : 02.2629.6250
Fax : 02.2626.8334

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Fax : 03.20.19.24.34