

3. OPERATING DESCRIPTION

3.1. PACKAGE

CCI05 packaging

- Operating manual
- A 3,5" disk containing the CCM Support Disk.
- An ISDN cable with 2 RJ45 connectors at each end to connect the TA to the ISDN network.

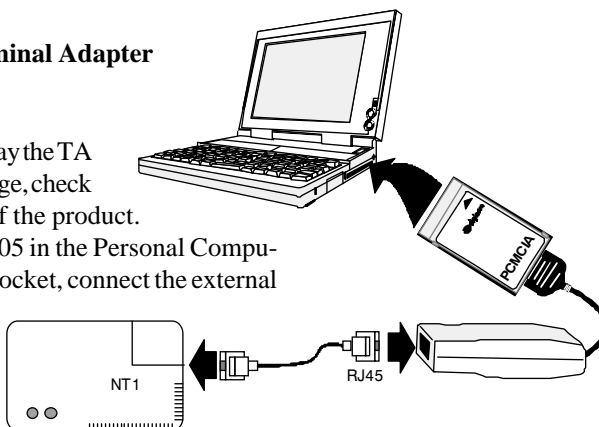
SNT06/xx packaging

- Operating manual
- An ISDN cable with 2 RJ45 connectors at each end to connect the TA to the ISDN network.

3.2. MECHANICAL INSTALLATION

3.2.1. CCI05 Terminal Adapter installation

After taken away the TA from the package, check the integrity of the product. Insert the CCI05 in the Personal Computer PCMCIA socket, connect the external line tail to the CCI05, and power on the PC.



3.2.2. How to use CCM configuration program

If the PC provides the drivers to manage the PCMCIA slots (Socket Services and Card Services), see the Personal Computer operative guide in order to use these drivers with the CCI05.

In the case of the Personal computer doesn't provide the drivers to manage the PCMCIA slots, it is necessary to use the CCM configuration program on the disk of in the package.

The CCM configuration disk contains two files:

README.1ST
CCM.EXE

The README file is a quickly guide explaining how to use the CCM.EXE configuration program.

The CCM.EXE file is the software to configure the TA.

Starting from the DOS prompt press CCM<ENTER>, without parameters, a list of commands, to be used with the program, will display on the video.

Following the list of commands and their description.

COMMAND	DEFAULT	DESCRIPTION
/ON	n/a	Allow to power on the TA.
/OFF	n/a	Allow to power down the TA.
/RST	n/a	TA reset.
/Sn	n=1	If the PC has more sockets, this command allows to change the PCMCIA socket.
		The value of the paramater (n) goes from 0 to 4. It depends on the number of the PCMCIA sockets available in the PC.
/COMn	n=x	Allow to change communication port where the TA is installed. The available communication ports are the following: COM1 (3F8 - IRQ4) COM2 (2F8 - IRQ3) COM3 (3E8 - IRQ4) COM4 (2E8 - IRQ3)
/MEMnnnn HEX	automatic	Allow to change the memory segment in order to access to the attribute memory. Automatically the program looks for the first free 4 Kbyte memory segment. It is possible to force the memory segment inserting, in hexadecimal value, the desired value.

For example if the CCI05 is inserted in the PCMCIA socket 1, it is necessary to power on the PC and to digit:

CCM /ON

If the CCI05 is inserted in the PCMCIA socket 2, it is necessary to specify the installation socket digitizing:

CCM /ON /S2

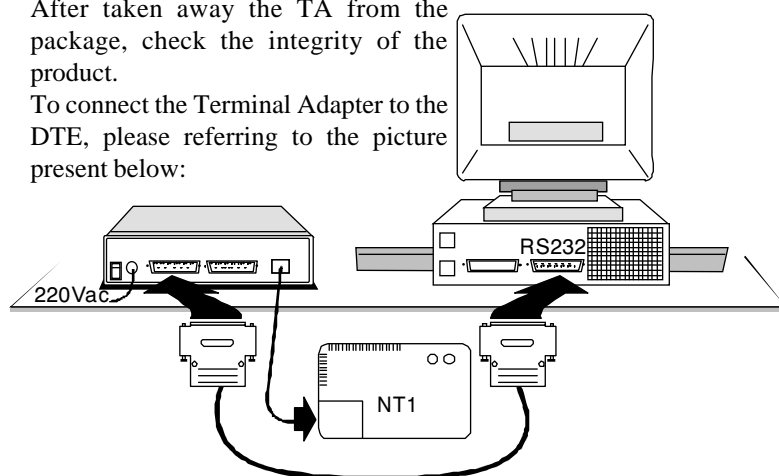
The command to power off the CCI05 is the following:

CCM /OFF

3.2.3. SNT06/xx Terminal Adapter installation

After taken away the TA from the package, check the integrity of the product.

To connect the Terminal Adapter to the DTE, please referring to the picture present below:



3.2.4. SNT06/R Terminal Adapter installation

Regarding the installation of SNT06/R, please refer the RMC27 or RMC28 Digicom rack operating manual.

3.3. SNT06/XX FRONT PANEL

On the front panel of the SNT06/xx family are present LED that indicate the most important interface circuit in use and one push-button for TEST functions.

In the following table, is present the complete description and function of each LED:

NAME	COLOR	STATUS	FUNCTION
PWR	green	on	TA powered ON
C107 (DSR)	red	on	Terminal Adapter ready
C108 (DTR)	red	on	DTE ready
C103 (TD)	red	on	Transmit Data
C106 (CTS)	red	on	Terminal Adapter ready to send data
C104 (RD)	red	on	Receive Data
C109 (DCD)	red	on	Data Carrier Present
TEST	red	on	Terminal Adapter on test
		flashing	Error during the initial Self Test
EC	red	on	Correction enable (with Terminal Adapter in Off-Line status)
		off	Correction disable (Terminal Adapter in Off-Line status)
		on	Correction active (Terminal Adapter in On-Line status)
		off	Correction disactive (Terminal Adapter in On-Line status)
B1	red	on	B1 channel in use
		off	B1 channel active
		flashing	B1 channel busy
B2	red	on	B2 channel in use
		off	B2 channel active
		flashing	B2 channel busy
TEST push-button			Active the Loop 3 test (Local Loop)

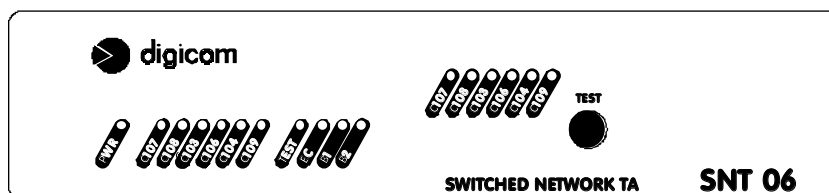


FIG.3.1. SNT06/xx VIEW FRONT

3.4. SNT06/XX BACK PANEL

On the back panel of the SNT06/xx family are present the power switch, the V24 interface connectors and the RJ45 ISDN network connectors.

- JA** First V.24/V.28 female interface connector
- JC** Second V.24/V.28 female interface connector (SNT06 only)
- JD** RJ45 ISDN network connector

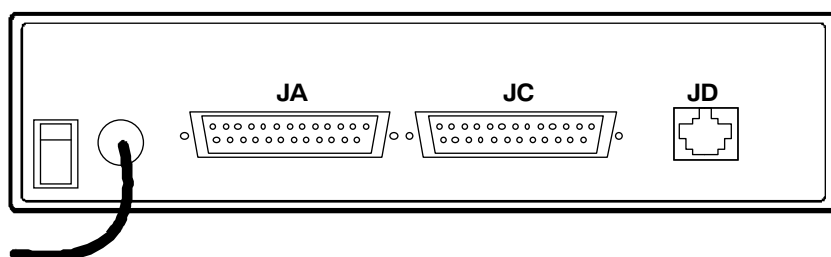


FIG.3.2. SNT06 BACK SIDE VIEW

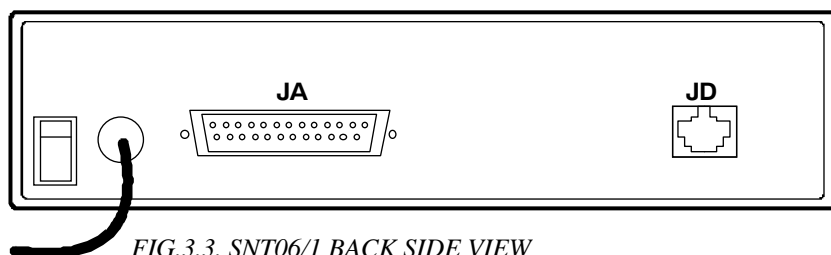


FIG.3.3. SNT06/1 BACK SIDE VIEW

3.5. CCI05 HARDWARE SETUP

Inside the external line interface of the CCI05, are present two jumpers used to configure the impedance of the CCI05 and in particular:

JUMPER	POSITION	DESCRIPTION	DEFAULT
J2	Insert	Receive Termination 100 ohm	
J2	Disconnected	Receive Termination in high impedance	●
J3	Insert	Transmit Termination 100 ohm	
J3	Disconnected	Receive Termination in high impedance	●

Normally it is not necessary modify the default predisposition of the jumpers.

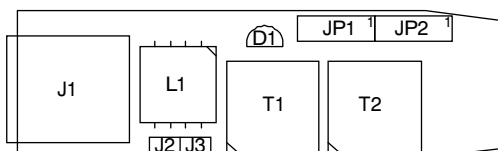


FIG.3.4. CCI05 TOPOGRAPHICAL VIEW

3.6. SNT06/XX HARDWARE SETUP

Inside the SNT06/xx family is present a four position dip switch and some jumper berg for the hardware TA setup.

3.6.1. Dip Switch hardware setup

Loadable configuration at Power On	SW1	SW2	SW3	SW4
Asynchronous V25bis	OFF	OFF	OFF	ON
Synchronous V25bis	OFF	OFF	ON	ON

Factory Configurations

Loadable configuration at Power On	SW1	SW2	SW3	SW4
Factory configuration 3	ON	ON	ON	OFF
Factory configuration 2	OFF	ON	ON	OFF
Factory configuration 1	ON	OFF	ON	OFF
Factory configuration 0	OFF	OFF	ON	OFF

**ATTENTION**

The default setting of the DS1 have all switches at OFF position.

All the single commands present in the 4 factory configurations, are described in the “Factory Configuration” chapter.

3.6.2. Jumper setup

JUMPER	POSITION	DESCRIPTION	DEFAULT
U1	Inserted	Transmit Termination 100 ohm	
U1	Disconnected	The transmission channel is in high impedance	●
U2	Inserted	Receive Termination 100 ohm	
U2	Disconnected	The receive channel is in high impedance	●
from U13 to U19	1-2	V.24/V.28 interface select	●
	2-3	V.35 interface select	

Normally it is not necessary modify the default predisposition of the jumpers.

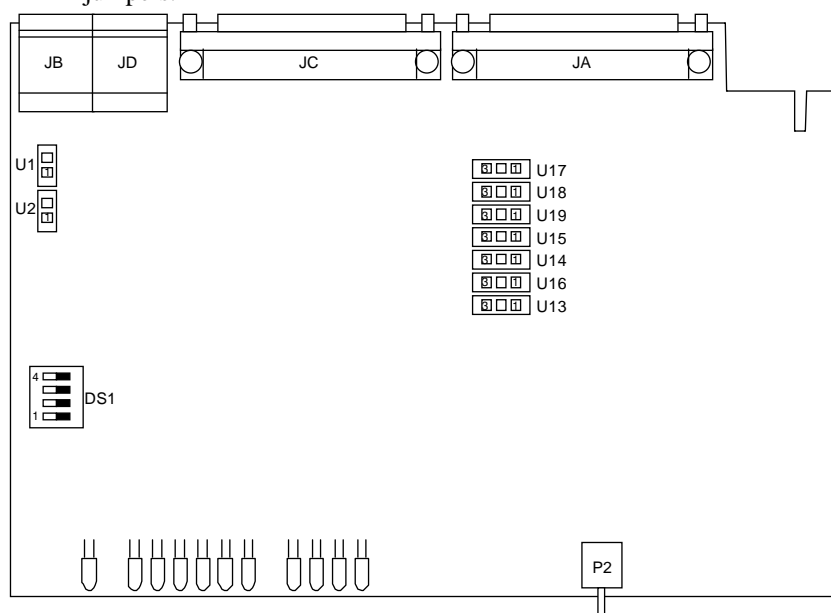


FIG.3.5. MOTHER BOARD TOPOGRAPHICAL VIEW

3.7. AT COMMAND SET

COMMAND	DESCRIPTION
AT	Attention
A/	Repeat last command
A	Answer incoming data call
D	Dial
E	Echo commands ON/OFF
H	Hang up
I	Interrogate product status
N	Select speed connection (V.110 only)
O	Go on-line
P	For compatibility
Q	Return result codes
S	Retrieve and store S-register
T	For compatibility
V	Select the return codes type
X	Select return codes
Z	Load user configuration
W	Protocol result codes
&C	C109 (DCD) control
&D	C108 (DTR) control
&F	Load factory profile
&K	Flow control
&Q	Synchronous/asynchronous communications mode (see &Q command)
&Q	Synchronous/asynchronous communications mode
&R	C105/C106 delay (SNT06/xx only)
&S	C107 (DSR) control
&T	Loop control
&U	V42bis data compression
&V	Display active profile
&W	Store user configuration
&Y	Define the user configuration to be loaded at power on
&Z	Store Phone number
*I	Caller Identification function (CALLER ID)
*M	MultiSubscriber Number function (MSN)
*S	Subaddress function
%A2	CSD call type (V.110 or V.120)
%A3	Select data channel
%C	V42bis data compression

%F	Flash eeprom upgrade facility
%V	Select the command set (AT or V25bis)
%Z1	Global Reset
!N1=	Store Caller Identification number (CALLER ID)
!N2=	Store Multi Subscriber Number (MSN)
!N3=	Store Subaddress number
+++	Escape sequence

3.7.1. AT Command set description

AT Attention

All the characters following the letters 'AT' are commands. In AT command mode the TA automatically detects the DTE speed and parity format. The TA will response using the same speed and parity format of AT command.

Store: n/a

Default= n/a

A/ Repeat last command

Cause the TA to repeat the last AT command. This command is neither preceded by AT nor followed by CR

Store: n/a

Default= n/a

A Answer incoming data call

Cause the TA to go off hook and attempt a handshake in answer mode.

Store: n/a

Default= n/a

D Dial

Instruct to go off-hook and execute the phone number.

D 0-9 Dial the dial string.

DS=0-7 Dial the dial string associated to the memory location (from 0 to 7) stored using &Z command (CCI05 only)

DS=0-19 Dial the dial string associated to the memory location (from 0 to 19) stored using &Z command (SNT06/xx family only)

Store: n/a

Default= n/a

E Echo commands ON/OFF

Enable or disable echo of commands from the DTE to the TA.

E0 Command echo disabled

E1 Command echo enabled

Store: S14 (bit 1)

Default= E1

H Hang up

Hang up the TA from the ISDN network.

H0 Hang up TA from the ISDN network (off-line). This command is accepted only in Escape mode.

Store: n/a

Default= n/a

I Interrogate product status

I0 TA Model.

I1 Checksum calculation, the result is displayed in Hexadecimal digit.

I2 Compare the checksum calculation with the stored value, the response will be OK or ERROR.

I3 Revision level.

I4 Display Central office

Store:= n/a

Default= n/a

N Select the speed connection according to V.110 recommendation and permits to fix the rate adaption in V110 and V120. S37 register permits to fix a line speed connection.

If the selected speed is less then the DTE speed, it is necessary to enable the flow control (AT&K command).

N0 For this command it is very important describe two different status:

- a) Asynchronous operations (&Q0/&M0)
 - If the DTE interface is equal or more than 38400 bit/s. and S37 is 255, the connection is active at 38400 bit/s.
 - If is fixed S37 register with a specific speed, the connection is established at the line speed selected (es. S37=27, the connection is active at 19200 bit/s.).
- b) Synchronous operations (&Q1-&Q2/&M1-&M2)
 - If the DTE interface is equal or more than 115200 bit/s. and S37=255, the connection is active at 64 Kbit/s. in transparent mode.
 - Any DTE interface and S37 fixed at a specific speed (es. 27=19200), the connection is established at the line speed selected with S37.

N1 This option permits to negotiate the speed and the rate adaption using the informations present in the "Bearer Capability" field.

- a) Asynchronous operations (&Q0/&M0)

The line speed connection starts at 19200 bit/s. and depends with the DTE speed:

- DTE interface at 19200 bit/s. = line connection at 19200 bit/s.
- DTE interface at 9600 bit/s. = line connection at 9600 bit/s. and so on.

b) Synchronous operations (&Q1-&Q2/&M1-&M2)

The speed connection starts at 48 Kbit/s. V110 and depends with the DTE speed:

- DTE interface equal or more than 57600 Kbit/s. active a connection at 48 Kbit/s.
- DTE interface at 19200 bit/s., active a connection at 19200 bit/s. and so on.

With this configuration, the asynchronous 38400 bit/s. proprietary speed and the synchronous 64 Kbit/s. speed are disabled.

With ATN1, please configure S37=255.

Store: S24 (bit 4)

Default= N1

O Go On-line from Escape

The TA returns in On-line from the Escape status.

O Go On-line.

Store: n/a

Default= n/a

P This command is present only for compatibility and doesn't enable any TA features

Q Returns code

Enable or disable the return codes from the TA to the DTE.

Q0 Messages transmission enabled

Q1 Messages transmission disabled

Q3 Reserved

Q4 Reserved

Q5 Reserved

Store: S14 (bit 0,2,4) S52 (bit 0)

Default= Q0

Sr= Change the "r" register content

Sr=xxx Store the number xxx, in hexadecimal digit, in the "r" register (from 0 to 255).

Store: n/a

Default= n/a

Sr?	Read the “r” register content	
	<i>Store: n/a</i>	<i>Default=n/a</i>
T	This command is present only for compatibility and doesn't enable any TA features.	
V	Verbose Mode	
	<p>Select the type of the return code from the TA to the DTE. Can be selected the numeric mode to manage the TA by a PC and the verbose mode to manage the TA by an operator.</p> <p>Using the numeric mode the return codes are followed by the <CR> char.</p> <p>Using the verbose mode the return code are preceded and followed by the <CR> and <LF> char.</p> <p>V0 Return codes displayed in numeric mode</p> <p>V1 Return codes displayed in verbose mode</p> <p><i>Store: S14 (bit 3)</i></p> <p><i>Default= V1</i></p>	
X	Select the TA return code types	
	<p>X0 Enable return codes from 0 to 4</p> <p>X1 Enable all return codes</p> <p>X2 For compatibility only</p> <p>X3 For compatibility only</p> <p>X4 For compatibility only</p> <p><i>Store: S24 (bit 3) S22 (bit 4, 5, 6)</i></p> <p><i>Default=X1</i></p> <p>Following the table including all the result messages in numeric and verbose mode.</p>	

NUMERIC	VERBOSE	NUMERIC	VERBOSE
0	OK	50	CARRIER 9600
1	CONNECT	54	CARRIER 19200
2	RING	56	CARRIER 38400
3	NOCARRIER	39	CARRIER 48000
4	ERROR	59	CARRIER 64000
6	NODIALTONE	83	PROTOCOL: V120
7	BUSY	84	PROTOCOL: V110
5	CONNECT 1200	85	PROTOCOL: V120
10	CONNECT 2400		COMPRESSION
11	CONNECT 4800	46 84	CONNECT 1200/V110
12	CONNECT 9600	47 84	CONNECT 2400/V110
14	CONNECT 19200	48 84	CONNECT 4800/V110
28	CONNECT 38400	49 84	CONNECT 7200/V110
32	CONNECT 48000	50 84	CONNECT 9600/V110
18	CONNECT 57600	51 84	CONNECT 12000/V110
19	CONNECT 64000	52 84	CONNECT 14400/V110
20	CONNECT 115200	54 84	CONNECT 19200/V110
46	CARRIER 1200	56 84	CONNECT 38400/V110
47	CARRIER 2400	39 84	CONNECT 48000/V110
48	CARRIER 4800	58 84	CONNECT 64000/V110
49	CARRIER 7200	59 83	CONNECT 64000/V120
		59 85	CONNECT 64000/V120COMP

W Protocol result code

Enable protocol result code (see ATX command)

W0 Partial result code. When the connection is established, the TA send the connection message CONNECT followed the interface speed.

W1 Complete result code. When the connection is established, the TA send these connection messages:

CARRIER xxxx

PROTOCOL xxxx

CONNECT xxxx

W2 Complete result code. When the connection is established, the TA send these connection messages:

CONNECT "Line Speed"/"Protocol"

like

CONNECT 64000/V120

This command is connected with the ATV (Verbose Mode) command.

Store: S24 (bit 5, 6)

Default= W1

Z Load user configuration.

Reset the TA and load a user configuration stored in non volatile memory.

Z0 Load user configuration n. 0

Z1 Load user configuration n. 1

Z2 Load user configuration n. 2

Z3 Load user configuration n. 3

*Store: n/a**Default= n/a***&C C109 Control**

Determine how the state of the C109 relates to the data call status.

&C0 C109 is always ON.

&C1 C109 goes ON only when a call is established.

*Store: S21 (bit 5)**Default=&C0***&D C108 Control**

Determine how the DTR is interpreted by the TA.

&D0 C108 is ignored.

&D1 If DTR drops while the TA is on-line, the effect is the same as if the escape sequence is received, forcing TA into command mode without dropping the connection. When the TA is in off-line status DTR drops are ignored.

&D2 DTR comply with ITU-T C108.2; while DTR is Off the TA will not answer a call. If DTR drops while the TA is on-line, the call is immediately terminated.

In synchronous mode (&Q2/&M2), when the DTR goes ON, the Terminal Adapter call the telephone number present in the 0 location of the internal phonebook (only for SNT06/xx family).

&D3 As for AT&D2 except that the transition of the DTR from ON to OFF loads the user configuration improved with AT&Y command.

*Store: S21 (bit 3, 4)**Default= &D0***&F Load factory profile**

Load as active profile the factory profile.

&F0 Load as active profile the factory profile 0

&F1 Load as active profile the factory profile 1

&F2 Load as active profile the factory profile 2

&F3 Load as active profile the factory profile 3

To have more details regarding the different configurations, please referring to "FACTORY CONFIGURATIONS" chapter.

*Store: n/a**Default= n/a*

&K TA Flow control

 Define the flow control options

&K0 NO flow control.

&K3 Hardware RTS/CTS flow control

&K4 Bi-directional software XON/XOFF (TA → DTE and DTE → TA) flow control. The TA doesn't transmit to the remote the XON/XOFF chars received from the DTE.

&K8 Unidirectional software XON/XOFF (TA → DTE) flow control. The TA doesn't recognize the XON/XOFF chars received from the DTE.

&K12 Bi-directional software XON/XOFF (TA → DTE and DTE → TA) flow control. The TA transmit to the remote the XON/XOFF chars received from the DTE.

&K16 Software XON/XOFF TA ↔ TA flow control. (V.110 only). In this mode there is flow control between local and remote TA. There is no flow control on the DTE interface.

&K20 Software XON/XOFF DTE ↔ TA and TA ↔ TA flow control. (V.110 only).

*Store: S49 (bit 0, 1, 2, 3, 4)**Default= &K3***&M Synchronous/asynchronous communication mode**

&M0 See &Q0 command

&M4 See &Q4 command

*Default= &M0***&Q Synchronous/asynchronous communication mode**

 Select the TA asynchronous operating mode.

&Q0 Asynchronous mode (buffer enable).

&Q1 Synchronous mode 1. With this configuration, the Terminal Adapter make a call in asynchronous mode. When the connection is established, the TA switch in synchronous mode.

&Q2 Synchronous mode 2. The DTR (C108) manage the call, the answer and the end of the session of the Terminal Adapter starts to dial the telephone number present in the number 0 location of the phonebook. When the DTR goes OFF, the TA disconnect the ISDN network. This command, with %V3, permits to switch the Terminal Adapter function in V25bis HDLC mode.

&Q4 "Direct mode" (V.110 only). The DTE ↔ TA interface speed must be the same to the line interface (see ATNx and S37 commands).

*Store: S27 (bit 0, 1, 3)**Default= Q0*

&R RTS/CTS delay (SNT06/xx only)

Select, in synchronous mode only, the control of RTS/CTS interface circuit.

&R0 The interface status of C106 (CTS), follow the interface status of C105 (RTS); the RTS/CTS delay is set with S26 register.

&R1 The C106 is always ON and the status of C105 is ignored.

Store: S26

Default=&R1

&S C107 (DSR) control

Establish how the C107 (DSR) will operate.

&S0 C107 (DSR) is always ON.

&S1 C107 (DSR) function as standard; DSR is ON when the connection is established and will be OFF when the TA hangs-up.

Store: S21

Default=&S0

&T Enable or disable Loop test

Allow to select the of loop test.

&T0 Terminates test modes

&T1 Enable local analog loopback (loop 3).

&T3 Enable on the B1 channel the local digital loopback (V.110 only). To activate this test, follow these steps:

- Make a connection with a remote TA
- Go in Escape mode with “+++” command
- Send the AT&T3 loop test
- All the data transmitted from the remote TA, are resended on the line to the local TA.

Store: n/a

Default= n/a

&U Data compression

Select the data compression mode.

&U0 Disable data compression.

&U1 Enable proprietary V42bis data compression. This command is only meaningful when the TA is set in V.120 mode.

Store: S24 (bit 2)

Default= &U0

&V Display active profile

&V0 Display the active profile, the 0 and 1th user configuration and the first 4 stored phone number.

&V1 Display the second and third user configuration.

&V2 Display every stored phone number.

&V3 Display the supplementary services profile (MSN, Subaddress ecc..)

Store: n/a

Default=n/a

&W Store user configuration

Store the active configuration to the user memory from 0 to 3.

&W0 Store active configuration to user memory 0.

&W1 Store active configuration to user memory 1.

&W2 Store active configuration to user memory 2.

&W3 Store active configuration to user memory 3.

Default= n/a

&Y Define the user configuration to be loaded at power on.

Define what user configuration, stored using the &W command, must be loaded at TA power on.

&Y0 Load the user configuration stored to user memory 0.

&Y1 Load the user configuration stored to user memory 1.

&Y2 Load the user configuration stored to user memory 2.

&Y3 Load the user configuration stored to user memory 3.

Store: yes (NV RAM)

Default= &Y0

&Z Store a phone number

Store a phone number (max lenght 35 chars) into a memory location from 0 to 7 (CCI05 only) or 0 to 19 (SNT06/xx only).

&Zn=xxx Store the phone number "xxx" into the "n" memory location.

&Zn? Display the phone number stored into the "n" memory location.

Store: n/a

Default= n/a

***I Caller Identification function (CALLER ID)**

The CALLER ID function is used to identify the originator of an incoming call. In order for this feature to work, both the originator and the receiver TA must have their CALLER ID feature enable. Enabling the CALLER ID at the originator, allows the transmission of the originator's telephone number. Enabling the CALLER ID at the receiver, allows the caller's telephone number to be displayed on the receiver terminal.

The message CALLER ID appears on the screen as follows:

RING: nnnn where "nnnn" is the caller's telephone number

*I0 CALLER ID function disable

*I1 CALLER ID function enable

To insert the CALLER ID number into the TA, please make reference to the AT!N1 command.

**ATTENTION**

The memorized telephone number in the called TA, is imputed directly by the customer with the !N1 command. Therefore this number can also in various occasion, not match with the true called TA number; examples when the user wants to keep his/her number reserved or if the number has not been memorized correctly.

Store: S68 (bit 0)

*Default= *I0*

***M MultiSubscriber Number function (MSN)**

The MultiSubscriber Number permits the association of maximum 8 consecutive numbers to a BRI access of the national plan number. There's a principal number with the last digit always equal to "0" and associated with it is an auxiliary number that may vary between "1" and "7".

The called TA checks the incoming called party number with the number stored in its memory with the AT!N2 command; if the two numbers matched then it answer the call, otherwise it does not.

In order for this feature to work, the receiver TA must have the MSN feature enable.

*M0 MultiSubscriber number function disable

*M1 MultiSubscriber number function enable

To insert the MultiSubscriber number into the TA, please make reference to the AT!N2 command.

Store: S69 (bit 1)

*Default= *M0*

***S Subaddress function**

The Subaddressing mode allows the identification of the 8 TA connected to the same BRI interface for the multinumber. This feature is managed only by the local and remote TA. The ISDN network only allows for the delivery of the subaddress field.

The called TA send telephone number followed the Subaddress field (ATDnnn+sss where "nnn" is the telephone number and "sss" is the Subaddress field with a maximum of 4 alphanumeric characters); the calling TA compares the received Subaddress to the stored Subaddress. If there's a match then it answer the call, otherwise it does not.

In order for this feature to work, both the originator and the receiver TA must have their Subaddres feature enable.

*S0 Subaddress function disable

*S1 Subaddress function enable

To insert the Subaddress field into the TA, please make reference to the AT!N3 command.

Store: S70

*Default= *S0*

%A3 Select Data Channel

%A3=2 Preferred B1 channel. If busy, the TA try to use the B2 channel

%A3=3 Forced B1 channel. If busy, the TA hangs-up the communication.

%A3=4 Preferred B2 channel. If busy, the TA try to use the B1 channel

%A3=5 Forced B2 channel. If busy, the TA hangs-up the communication

Store: S57

Default=%A3=2

%A3 Select Data Channel

%A3=2	Preferred B1 channel. If busy, the TA try to use the B2 channel
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%A3=3 Forced B1 channel. If busy, the TA hangs-up the communication

%A3=4 Preferred B2 channel. If busy, the TA try to use the B1 channel

%A3=5 Forced B2 channel. If busy, the TA hangs-up the communication

Store: S57

Default=%A3=2

%C Data compression (CCI05, SNT06 and SNT06/1 only)

Select the data compression mode

%C0 See &U0 command

%C1	See &U1 command
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Default=%C0

%V **Select the command set**

Define the AT or V25bis command set

%V0 AT command set

%V1 Asynchronous V25bis command set

% V3 Synchronous V25bis HDLC command set (SNT06/xx family only). Before to switch in HDLC command set, configure the Terminal Adapter in synchronous mode with the AT&Q2 command.

ATTENTION



Switching from the AT commands to the asincronus V25bis commands (%V1), the data format and their speed remain the same defined with the last autobaud sent in Hayes mode and in particular, if the last autobaud in AT mode is sent at 8 data bit no parity, when you switch in asincronus V25bis commands, the format is unchanged. It is important to remember that the CCITT rules for the asincronus V25bis function, provide a format of 7 data bit Even parity.

To return in AT command from V25bis command set (%V1 or %V3), turn ON the Terminal Adapter pushing the TEST push-button for minimum 5 seconds.

Store: S31 (bit 0, 1, 7)

Default= %V0

%Z1 Global reset

Reset the hardware and load the configuration specified by the &Y command.

Default=n/a

!N1= Store Caller Identification number (CALLER ID)

This command enable to store the telephone number for the CALLER ID function.

!N1="nnnn" where "nnnn" is the telephone number without prefix

!N1? show the stored telephone number

To enable the CALLER ID function, please also make reference to the AT*I command.

Store: yes

Default= n/a

!N2= Store MultiSubscriber number (MSN)

This command enable to store the own telephone number for the MultiSubscriber Number function.

!N2="nnnn" where "nnnn" is composed of prefix + number (p.e. 331263122)

!N2? show the stored MultiSubscriber number

To enable the MultiSubscriber Number function, please also make reference to the AT*M command.

Store: yes

Default= n/a

!N3= Store Subaddress number

This command enable to store the Subbaddres field for the Subaddress function.

!N3="ssss" where "ssss" is the Subaddress field with a maximum of 4 alphanumeric characters (0,1,2,3,4,5,6,7,8,9,A,B,C,D,*,#).

!N3? show the stored Subaddres field

To enable the Subaddress function, please also make reference to the AT*S command.

Store: yes

Default= n/a

3.8. V25BIS COMMAND SET

SNT06/xx Terminal Adapter family comply with V25bis asynchronous and synchronous recommendation while CCI05 Terminal Adapter comply with V25bis asynchronous recommendation.

Calls and answers are managed through the command set and the C108/2 interface circuit.

3.8.1. Asynchronous V25bis format

The command format is the following:

MESSAGE <CR> <LF>

The MESSAGE field can contain from 3 to 60, 8 bit characters (7 data bit Even parity).

3.8.2. V25bis HDLC format (SNT06/xx family only)

FLAG **HEX 7E**
ADDRESS **HEX FF**
CONTROL **HEX 13**
MESSAGE **Data**
FCS **CCITT FCS**

3.8.3. V25bis command set and messages

COMMAND	DESCRIPTION
---------	-------------

CIC	Connect incoming call.
CRN	Call request with number.
CRS	Call request with memory address in the phonebook.
DIC	Disregard incoming call.
PRN	Store phone number in a memory address.
RLN	List request of stored numbers.
CNL	Local configuration, V25bis escape sequence.

MESSAGE	DESCRIPTION
---------	-------------

CFI	Call failure indication.
INC	Incoming call
INV	Invalid command.
LSN	List stored phone number
ONL	ON LINE status
OFL	OFF LINE status
VAL	Valid command.

3.8.4. V25bis command set description

CIC Connect incoming call

The TA will go on-line in answer mode, ignoring any DIC command previously issued. If no incoming call is present the TA will responde with the INV message.

CRN Call request with number

It is used to initiate a data call. The command is always followed by the dial string. Following are the valid dial parameters:

0-9 Digit from 0 to 9.
T For compatibility
P For compatibility

CRS Call request with memory address

The TA will go on-line, dial according to the dial string stored in memory address.

0-7 Dial string memory address.

DIC Disregard incoming call

Using this command the TA will disregard the incoming call. DIC disables the auto answer mode.

PRN Store phone number in memory address

This command is used to store a phone number to one of the CCI05's eight memory address.

0-7 Available memory address.
; Separator. Inserted between dial string memory address and dial string ex.: PRN 05;263122.

RLN List request of stored phone number

Used to list all the phone number stored in memory.

CNL Local configuration

Any AT command string may be entered as a parameter of this command.
Ex. (CNLS0=2)

This command is valid also like V25bis escape sequence.

3.8.5. V25bis message description

CFINT Call failure indication

The TA sends this message when a call fails to connect.

CFINS Call failure indication

The TA send this message when is not possible call a stored thelephone number because it is not present in the phonebook.

INC Incoming call

The TA sends this message when incoming ringing is detected on the line.

INV Invalid command

Command entered is invalid.

LSN List of stored numbers

In response to the RLN command the TA displays the list of stored numbers.

ONL ON LINE status

The TA sends this message when the connection is established.

OFL OFF LINE status

The TA sends this message when the connection is lost.

VAL Valid command

The TA successfully executes the entered command.

3.9. S-REGISTERS

S-registers are byte-wide location in TA memory containing information about the TA configuration.

All values are in decimal format.

If the register type is non-storable, the register value has to be written after TA reset or TA power-on.

3.9.1. S-registers list

REG.	DESCRIPTION	STORED	NOT STORED
S0	Number of ring to answer on	●	
S1	Ring count		●
S2	Escape sequence character	●	
S3	Carriage return character		●
S4	Line feed character		●
S5	Back-space character		●
S7	Wait time for connection	●	
S12	Escape prompt delay	●	
S25	DTR control	●	
S26	C105/C106 delay (SNT06/xx family only)	●	
S31	V25bis command mode selector		●
S34	Pointer for Autologon and Call-Back services	●	
S37	DCE speed	●	
S49	DCE-DTE flow control		●

3.9.2. S-registers description

S0 Number of ring to answer on

Value	Unit	Function
0	RING	No auto answer
1-5	RING	Yes auto answer; TA answers after the number of ring selected

Default=0

Type: Storable

S1 RING count

Number of ring in a period of 8 seconds

Value	Unit	Function
0	RING	No ring in a period of 8 seconds
1-5	RING	RING count

Default=0

Type: Non Storable

S2 ESCAPE sequence character

Value	Unit	Function
0-127	ASCII	Contain the ESCAPE sequence character. If the value is greater then 127, escape sequence is disabled

*Default=43**Type: Storable***S3 CARRIAGE RETURN character**

Value	Unit	Function
0-127	ASCII	Contain the CARRIAGE RETURN character

*Default=13**Type: Non-storable***S4 LINE FEED character**

Value	Unit	Function
127	ASCII	Contain the LINE FEED character

*Default=10**Type: Non-storable***S5 BACKSPACE character**

Value	Unit	Function
0-127	ASCII	Contain the BACK SPACE character

*Default=8**Type: Non-storable***S7 Wait time for connection**

Value	Unit	Function
0-255	sec.	In originate maximum amount of time to wait between end of dialing and the connection

*Default=25**Type: Storable***S12 Escape prompt delay**

Value	Unit	Function
0	ms	No escape prompt delay
0-255	20ms	Define escape prompt delay before, during, and after the ESCAPE sequence, so that the escape sequence can be valid

*Default=50**Type: Storable***S25 DTR control**

Value	Unit	Function
0-255	sec/100	Sets the length of time that the modem will ignore DTR for before hanging up.

*Default =5**Type: Storable*

S26 RTS/CTS (C105/C106) delay (SNT06/xx family only)

Value	Unit	Function
0-255	10 msec.	In synchronous mode, defines the RTS/CTS delay (refer also &R command)

*Default =1**Type: Storable***S31 V25bis command mode selector**

Bit-mapped register.

Select either the AT command mode or of the supported V25bis command modes.

All bits = 0 AT command mode

Bit 1-0 = 00 V25bis Async

= 01 Non available

= 10 Non available

= 11 Non available

Bit 7 = 0 V25bis disabled

= 1 V25bis enabled

*Default=0**Type : Non-storable***S34 Pointer for Autologon and Call-Back services**

Establishes selection of the memory location the modem uses to initiate Autologon or Call-Back procedure.

	CCI05	SNT06/xx
0 = 0 phonebook location	●	●
1 = 1 phonebook location	●	●
2 = 2 phonebook location	●	●
3 = 3 phonebook location	●	●
4 = 4 phonebook location	●	●
5 = 5 phonebook location	●	●
6 = 6 phonebook location	●	●
7 = 7 phonebook location	●	●
8 = 8 phonebook location		●
9 = 9 phonebook location		●
10 = 10 phonebook location		●
11 = 11 phonebook location		●
12 = 12 phonebook location		●
13 = 13 phonebook location		●
14 = 14 phonebook location		●
15 = 15 phonebook location		●
16 = 16 phonebook location		●
17 = 17 phonebook location		●
18 = 18 phonebook location		●
19 = 19 phonebook location		●
255 = function disable		

*Default =255**Type: Storable*

S37 DCE speed

Select the speed connection through the selected V.110 rate adaption protocol (see ATN command).

Return OK if desired speed is implemented and ERROR otherwise.

0, 255	Last AT command speed
5	= 1200 bps
6	= 2400 bps
15	= 4800 bps
16	= 7200 bps
17	= 9600 bps
18	= 12000 bps
19	= 14400 bps
27	= 19200 bps
50	= 38400 bps (asynchronous only)
51	= 48000 bps (synchronous only)
53	= 64000 bps (synchronous only)

Default =0

Type: Storable

S49 TA-DTE flow control

Display the value of the &K command, which specifies DTE flow control setting

0	No DTE flow control
3	RTS/CTS flow control enabled
4	Bi-directional XON/XOFF flow control enabled
5	Transparent bi-directional XON/XOFF flow control enabled

Default =n/a

Type: Read only

3.10. FACTORY CONFIGURATIONS

The Digicom ISDN Terminal Adapter, permits to load 4 different configurations factory for having a very quickly T.A. configuration.

3.10.1. CCI05 Factory Configurations Description

CONFIGURATION N° 0 (loadable with AT&F0)

This configuration permits to make a connection using the V110 CCITT protocol.

CONFIGURATION 0	
COMMAND	DESCRIPTION
AT%A2=1	V110 protocol set
ATS0=1	Auto Answer enable at 1 Ring
AT&C1	DCD (C109) interface circuit controlled
AT&D2	DTR (C108) interface circuit controlled
AT&K3	RTS/CTS flow control enable

CONFIGURATION N° 1 (loadable with AT&F1)

This configuration permits to make a connection using the V120 CCITT protocol.

CONFIGURATION 1	
COMMAND	DESCRIPTION
AT%A2=2	V120 protocol set
ATS0=1	Auto Answer enable at 1 Ring
AT&C1	DCD (C109) interface circuit controlled
AT&D2	DTR (C108) interface circuit controlled
AT&K3	RTS/CTS flow control enable
AT&U0	Data compression disable

CONFIGURATION N° 2 (loadable with AT&F2)

This configuration permits to make a connection using the V120 CCITT protocol plus the V42bis data compression.

CONFIGURATION 2	
COMMAND	DESCRIPTION
AT%A2=2	V120 protocol set
ATS0=1	Auto Answer enable at 1 Ring
AT&C1	DCD (C109) interface circuit controlled
AT&D2	DTR (C108) interface circuit controlled
AT&K3	RTS/CTS flow control enable
AT&U1	Data compression enable

CONFIGURATION N° 3 (loadable with AT&F3)

This configuration permits to make a connection using the V110 CCITT protocol and the asynchronous V25bis command set.

CONFIGURATION 3

COMMAND	DESCRIPTION
AT%A2=1	V110 protocol set
ATS0=1	Auto Answer enable at 1 Ring
AT&C1	DCD (C109) interface circuit controlled
AT&D2	DTR (C108) interface circuit controlled
AT&K3	RTS/CTS flow control enable
AT%V1	V25bis command set enable

3.10.2. SNT06/xx Factory Configurations Description**CONFIGURATION N° 0 (loadable with AT&F0)**

This configuration permits to make a connection using the V110 CCITT protocol.

CONFIGURATION 0

COMMAND	DESCRIPTION
AT%A2=1	V110 protocol set
ATS0=1	Auto Answer enable at 1 Ring
AT&C1	DCD (C109) interface circuit controlled
AT&D2	DTR (C108) interface circuit controlled
AT&K3	RTS/CTS flow control enable

CONFIGURATION N° 1 (loadable with AT&F1)

This configuration permits to make a connection using the V120 CCITT protocol.

CONFIGURATION 1

COMMAND	DESCRIPTION
AT%A2=2	V120 protocol set
ATS0=1	Auto Answer enable at 1 Ring
AT&C1	DCD (C109) interface circuit controlled
AT&D2	DTR (C108) interface circuit controlled
AT&K3	RTS/CTS flow control enable
AT&U0	Data compression disable

CONFIGURATION N° 2 (loadable with AT&F2)

This configuration permits to make a connection using the V110 CCITT protocol, 19200 bit/s. line speed and V25bis HDLC synchronous commands.

CONFIGURATION 2

COMMAND	DESCRIPTION
AT%A2=1	V110 protocol set
ATS0=1	Auto Answer enable at 1 Ring
AT&C1	DCD (C109) interface circuit controlled
AT&D2	DTR (C108) interface circuit controlled
AT&S1	DSR (C107) interface circuit controlled
AT&K3	RTS/CTS flow control enable
ATS37=27	DCE speed at 19200 bit/s.
ATN0	Select the DCE speed with S37
AT&Q2	Synchronous communication mode 2
AT%V3	V25bis HDLC

CONFIGURATION N° 3 (loadable with AT&F3)

This configuration permits to make a connection using the V110 CCITT protocol, 64000 bit/s. line speed and V25bis HDLC synchronous command.

CONFIGURATION 3

COMMAND	DESCRIPTION
AT%A2=1	V110 protocol set
ATS0=1	Auto Answer enable at 1 Ring
AT&C1	DCD (C109) interface circuit controlled
AT&D2	DTR (C108) interface circuit controlled
AT&S1	DSR (C107) interface circuit controlled
AT&K3	RTS/CTS flow control enable
ATS37=53	DCE speed at 64 Kbit/s.
ATN0	Select the DCE speed with S37
AT&Q2	Synchronous communication mode 2
AT%V3	V25bis HDLC

**ATTENTION**

To return in AT command from V25bis command set (%V1 or %V3), turn ON the Terminal Adapter pushing the TEST push-button for minimum 5 seconds.

3.11. AUTO-LOGON OPERATION

The auto logon sequence is directly related to the TA phone number stored using &Z command. The auto logon sequence is executed either when the TA is in originate mode or when the TA is in auto answer mode.

The auto logon management is based on the following control fields. Max number of characters is 35.

*The autologon sequence **transmission** is established by ^T command*

*The autologon sequence **reception** is established by ^R command*

*The AT command **execution** is established by ^C command*

To finish the auto-logon sequence press "ENTER" key.

Ex of auto-logon sequence using security password.

STEP	COMMAND	TA RESPONSE
1	AT&Z2=^T	AT&Z2=<CR><LF>(Transmit)
2	Password?^R	Password?<CR><LF>(Receive)
3	MONIQUE<CR>	MONIQUE<CR><LF>OK
DESCRIPTION		
1	Start of the sequence, to be stored in the second memory location, containing the field transmission request.	
2	The field to transmit is "Password?" followed by the receive field check command.	
3	The field to check is "MONIQUE". The sequence is completed by <CR> (Return) command.	

The auto-logon sequence can start either with a transmission field or with a receive field check.

For every receive field is associated a 30 second timer.

When timer elapses, if the TA doesn't receive the expected message, the auto-logon sequence is stopped and the TA goes off-line and displays "AUTO-LOGON FAILED" message.

To know the content of the auto-logon sequence stored in the memory location, digit the AT&Zn? command, ("n" is the number of the memory location).

ATTENTION



*The Digicom Terminal Adapters family are not case sensitive.
During the Autologon configuration it is possible introduce password both lower than upper case mode.*

3.11.1. Auto-Logon control character

The auto-logon sequence can contain some control character in decimal or hexadecimal format.

Following are described the control characters.

CHARACTER	DESCRIPTION
^A	Carriage Return.
^Xnn	To insert an hexadecimal character. “nn” is the hexadecimal value of the character.
^P	Pause.
^C	Select the command field in order to allow the remote TA to execute an AT command sequence. Has to be inserted as last character in the auto-logon sequence.
^T	Select the transmission field.
^R	Select the receive field.

3.12. CALL-BACK OPERATION

The Digicom Terminal Adapters allows to activate the back-up procedure. To execute this operation the procedure is the same as the one described for auto-logon procedure. It is necessary to add the command field, and the control characters to be used are the same as the ones described for auto logon procedure. Following an example.

STEP	COMMAND	TA RENSponse
1	AT&Z2=^T	AT&Z2=<CR><LF>(Transmit)
2	Password?^R	Password?<CR><LF>(Recive)
3	MONIQUE^C	MONIQUE<CR><LF>(Command)
4	HDT263122^A<CR>	ATHDT263122<CR><LF>OK

STEP	DESCRIPTION
1	Start of the sequence, to be stored in the second memory location, containing the field transmission request.
2	The field to transmit is “Password?” followed by the receive field check command.
3	The field to check is “MONIQUE”, followed by a command field request.
4	The command field is transmitted, and auto-logon sequence is completed by <CR> (Return) command. In the command field is ordered to the remote TA to go off-line and to dial, selecting the tone dialling mode, the “263122” phone number.