ONE400
Installation Manual

Version A
January 2006

ABOUT THE INSTALLATION MANUAL

This manual is divided into 6 chapters.

Chapter 1 - Safety instructions

This chapter gives the safety instructions.

Chapter 2 - Directives and standards

This chapter mentions standards to which the equipment comply with.

Chapter 3 - Description of the equipment

This chapter presents the equipment (front / rear panels) and gives the technical characteristics.

Chapter 4 - Installation

This chapter presents the equipment subsets, the hardware configuration to be made and the connections to be done.

Chapter 5 - Power-up

This chapter describes the equipment power on, the possible function changes and the progress of selftests.

Appendix A - Connections

This chapter describes the different necessary connection flexes for the equipment operation.

Table des Matières

1   Safety Instruction

This symbol instructs the user to consult the manual before any connection:

1.1 Connections to the Main

The equipment may be connected to a TT or a TN type network, and only in Norway to an IT type with 240V between phases.

:

To connect the power supply, always follow these steps:

- Connect the power supply cable to the power input connector on the rear panel of the router,
- Connect the power supply to an AC electrical outlet (100-240 VAC). Plugging in the power supply turns on the router.

Unplug the AC input before mounting/unmounting any part on the device. The AC input is the part you must disconnect first. For safety reasons, you shall be able to easily access this part.

1.2 Protection Against Overcurrent And Earth Faults

The protection against earth faults is ensured by the building installation.

The protection against overcurrent is implemented inside the power supply module and not serviceable.

The earthing of the power supply box is made by the main plug cord. The output SELV part of the power supply are separated from the primary voltages by a reinforced insulation inside the power supply.

The installation of the ONE400 must imperatively be carried out by a qualified maintenance personnel except in the case in which the interfaces may be considered to be SELV type (see above).

In Norway and Sweden the equipment has to be permanently connected.

A double pole disconnection device, easily accessible, and a 2A protection device against short circuit shall be incorporated to the building installation.

1.3 Safety Level of the Interface Circuits

The add-on accessory modules and daughter boards must be installed only in the products authorized by OneAccess as recommended in the installation manual.

1.3.1 LAN Interface

The Ethernet 10Base-T and 10/100Base-T auto-sense have "SELV" (Safety Extra Low Voltage) interface. They must be used only for indoor applications, connected to 10Base-T or 100Base-T interface which is also designed as "SELV".

1.3.2 Serial Interface (Vxx)

The ONE400 has V.11, V.28, V.35 or V.36 line interfaces which are "SELV". They must be used only for indoor applications and connected to V.11, V.28, V.35 or V.36 interfaces which are also designed as "SELV"

1.3.3 SDSL/G.SHDSL Interface (M4)

The ONE400 has SDSL/G.SHDSL interface (ITU-T G991.2) TRT1 type, destined to be connected directly to a standard telephone line (external).

1.3.4 T2/PRI interfaces (M5)

The PRI401/404 module marked PBX/E1 DATA offers an ISDN primary interface (RJ45 connector). This interface is "SELV" and not destined to be connected to the public network.

In case of indoor not exposed applications, this interface is intended to be connected to a S2/E1/T1 interface which is also designed as "SELV".

In case of network E1/T1 applications, this interface is intended to be connected and protected from the network by a Network Termination which is also designed as "SELV". For Canada / USA applications the E1/T1 modes must be connected to a Certified / Listed Channel Service Unit (CSU).

1.3.5 FXS Interfaces (M5)

The FXS module marked PBX/ ☎ access offers 4 to 8 FXS access (4 or 8 RJ45 connectors). These Interfaces are "TNV 2" (Telecommunications Network Voltage). The FXS module has a protective earth terminal symbolized by located on the back panel. This earth terminal must imperatively be permanently connected to a protective earth.

1.3.6   T0/S0 interfaces

The BRI404-408 module marked PBX/T0 DATA offers up to 8 ISDN basic accesses, interface "Ia" (RJ45 connector). These interfaces are "SELV" and not destined to be connected to the public network, they must be connected only to an ISDN which is also designed as "SELV".

1.3.7   E1-IMA Interfaces

The E1-IMA module offers up to 8 E1/T1 G703/704 interfaces (RJ45 connector). These interfaces are "SELV".

1.4 Lithium Battery

The equipment has a calendar backed by lithium battery. This battery can be replaced only by maintenance personnel.

Incorrect replacement of the battery may cause an explosion.

Replace battery only using battery of the same type or an equivalent type recommended by the manufacturer.

Discard used battery in accordance with the instructions of the manufacturer.

Please, do not try to recharge, short-circuit, throw in water or fire as this may cause an explosion.

2 Directives and Standards

2.1 Declaration of Conformity

Déclaration de conformité suivant les directives R&TTE, DBT et CEM
Declaration of Conformity according to R&TTE, LVD and EMC directives

ONE400

Commutateur et routeur voix-données / *Voice and data switch and router*

Tension d'alimentation
Supply voltage — 100-240 Vac, 0.7-0.3 A, 50-60 Hz

avec les cartes — XDSL board (G.HDSL), Rnis board (BRI), DSP board
with the cards

Nous déclarons que ce produit est présumé conforme aux exigences essentielles applicables des directives suivantes du Parlement Européen et du Conseil :
- la Directive R&TTE 1999/5/CE, du 9 mars 1999, concernant les équipements hertziens et les équipements terminaux de télécommunications et la reconnaissance mutuelle de leur conformité ;
- la Directive Basse Tension 73/23/CEE du 19 février 1973 concernant le rapprochement des législations des Etats Membres relatives au matériel électrique destiné à être employé dans certaines limites de tension ;
- la Directive CEM 89/336/CEE du 3 mai 1989 concernant le rapprochement des législations des États membres relatives à la compatibilité électromagnétique, modifiée par la Directive 92/31/CEE du 28 avril 1992.

We declare that this product has been given a presumption of conformity with the applicable essential requirements of the following directives of the European Parliament and of the Council :
- *R&TTE Directive 1999/5/EC of march 9th 1999, on radio equipment and telecommunication terminal equipment and the mutual recognition of their conformity ;*
- *Low Voltage Directive 73/23/EEC of february 19th 1973, on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits ;*
- *EMC Directive 89/336/EEC of may 3rd 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility, amended by Directive 92/31/EEC of april 28th 1992.*

Nous déclarons que les normes harmonisées suivantes ont été utilisées pour démontrer cette présomption de conformité et ont donné lieu aux rapports de tests suivants, disponibles sur demande.

We declare that the following harmonised standards were used to demonstrate this presumption of conformity and the results are included in the following tests reports, which can be made available on request.

EN60950 : 2000	Rapport / *Report* : 02ME13996-10102002
EN 55022 (98)	Rapport / *Report* : 177001CV-UL
EN 55024 (98)	Rapport / *Report* : 177001CV-UL
EN 61000-4-2 (95) + A1 (98)	Rapport / *Report* : 177001CV-UL
EN 61000-4-3 (96)	Rapport / *Report* : 177001CV-UL
EN 61000-4-4 (95)	Rapport / *Report* : 177001CV-UL
EN 61000-4-5 (95)	Rapport / *Report* : 177001CV-UL
EN 61000-4-6 (96)	Rapport / *Report* : 177001CV-UL
EN 61000-4-11 (94)	Rapport / *Report* : 177001CV-UL

Le produit est marqué du symbole « CE » en application des directives citées ci-dessus.
The product is marked with the « CE » symbol in accordance with the directives mentionned above.

Cette déclaration est applicable aux éléments mentionnés dans le document interne FR 061 0686.
This declaration is applicable to the relevant elements included in the internal document FR 061 0686.

Responsable autorisé / *Authorized signatory* : Directeur Général / *Genaral Chief Officer*

ONEACCESS
26, rue de la Redoute
FONTENAY AUX ROSES
FRANCE
RCS Nanterre B 439 441 999
TVA FR 79 439 441 999

Nom / *Name* : Denis BEHAGHEL

2.2 Standards

The ONE400 is designed in conformity with the standards listed, provided that the basic housing, the modules, the interface boards and the kits are installed as recommended in the corresponding installation manuals.

Sécurity	
EN60950 (2000)	Safety of information technology equipment, including electrical business equipment.

Environment :	
Climatic, physico chemical, mechanic, packing	
ETS 300 019-1 (95)	Environmental conditions and environmental testing for telecommunication equipment
In use : Temperature Controlled	
Test specification : - class T3.1 (normal) - class T3.1 (exceptionnal)	Part 1, Classification of environmental conditions
Storage: partly temperature controlled	
T1.1	Part 2, Specification of environmental test
Transportation: careful Transportation	
T2.3	

Electromagnetic Compatibility, immunity	
EN 55024	Information technology equipment immunity characteristics. Limits and methods of measurement.
EN 55022 class B (98)	Limits and methods of measurement of radio interference characteristics of information technology equipment .
FCC part 15 class B	Federal Communication Commission regulation (USA).
EN 300386 V.1.3.1 (2001)	EMC Requirements

3   Description of the Equipment

3.1 Functional Presentation of the Equipment

The ONE400 is an equipment with box type which perform functions of concentrator, switch and multi-protocols router (WAN, LAN). In association with the transfer of data onto a WAN, LAN or Ethernet network, the ONE400 allows the connection from PABX or Telephonic Terminals with digital or analog interfaces for the voice transfer.

The connection functions of PABX are obtained by adding modules inside the box of the ONE400.The ONE400 is equipped with three slots which can receive extension modules.

The ONE400 in its basic configuration, is equipped with:

- 1 port for configuration and Debug (CONSOLE),
- 1 serial access V.28/V.11/V.35/V.36 type in DTE or DCE mode, with automatic selection according to the type of cable used (VXX),
- 1 LAN access 10Base-T (Ethernet) (10 BT),
- 1 LAN access 100Base-T (Ethernet) (100 BT).

The different configurations which can be obtained in this way are delivered according to the order of the device. The hardware configuration is identified automatically and managed by the device during the initialization phase of the software.

An extension module Fast Ethernet Switch 4 ports (10/100 BT) may be added into the slot (M1).

The addition of an extension module into slot M4 allows the following optional services:

- 1 access G.SHDSL (2 or 4 wires) or SDSL,
- 1 access IMA 4 or 8 E1
- 1 acess STM1

The addition of an extension module into slot M5 allows the following voice services:

- 4 or 8 analog voice FXS
- 4 or 8 digital voice S0/T0 configurable mode TE or NT
- 1 or 4 digital voice S2/T2

3.2 Front Panel of the ONE400

The front panel of the ONE400 is provided with an indicator light which informs about the working status of the equipment.

Zoom on LEDS
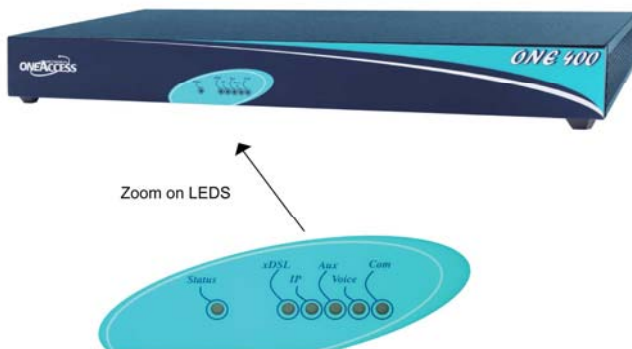
Figure 1.   Front Panel

3.2.1   Meanings of the Indicator lights

Indicator lights	Off	Green	Red	Green Flashing
Status	Switched Off	Switched On operational	Switched On not operational	Reboot in progress
xDSL	Not used	Synchronized	Loss of synchronization	Synchronization in progress on 1 interface
IP	Not used	All the connections on IPoA or PPPoA are activated	Connection failure on an IPoA or PPPoA	-
Aux	Not used	Data Service operational (FRF, CES)	Failure on Data Service	
Voice	Not used	Service operational	Service not operational	
Com	No voice communication in progress	Compression activated one or several channel		

3.3 Rear Panel of the ONE400

The standard configuration of the rear panel is equipped with:

- 1 serial port for configuration and debug (CONSOLE),
- 1 LAN access 10 Mbps (10BT),
- 1 LAN access 100 Mbps (100BT),
- 1 serial access port (MDR36 connectors),
- 1 slot for the extension module Uplink (M4),
- 1 slot for the extension module Ethernet switch (M1),
- 1 slot for the extension modules voice (M5),
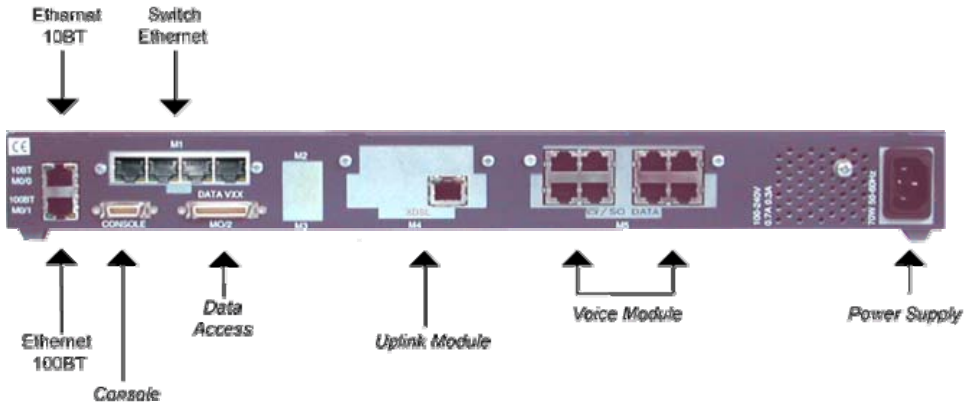
Figure 2.   Rear Panel

3.4 Main Board

The basic version of the ONE400 is composed of a case including a motherboard associated to the power unit.

The motherboard of the ONE400 brings:

- The memory and CPU resources of the equipment:
    - 2 Mbytes of FLASH Boot,
    - 16 Mbytes of NANOFLASH,
    - 64 Mbytes of SDRAM,

- The standard functionalities of the equipment:
    - 1 configuration/debug port,
    - 1 serial access V.28/V.11/V.35/V.36 type in DTE or DCE mode, with automatic selection of the type and the mode according to the cable used,
    - 1 LAN access 10Base-T (Ethernet),
    - 1 LAN access 100Base-T (Ethernet),

- The connectors used to receive the modules and extension boards:
    - 1 connector for "voice" extension module (mark 1),
    - 1 connector for "uplink" extension board (mark 2),
    - 1 connector for Ethernet switch module (mark 3),
    - 2 connectors for the compression - decompression module(s) of the voice channels (DSP) (mark 5),
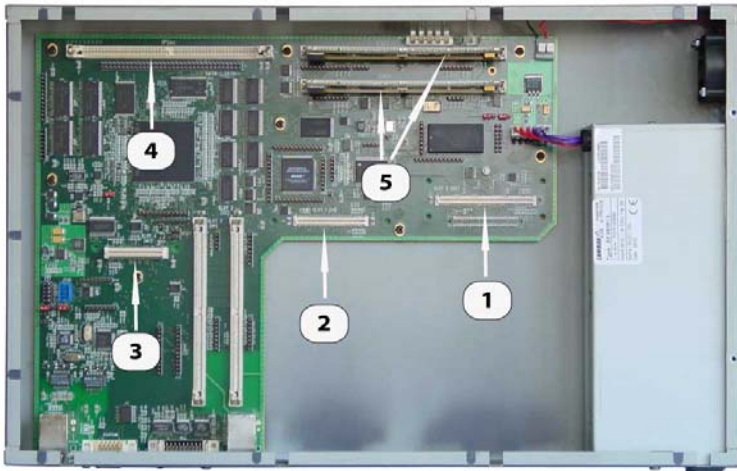
Figure 3.   MotherBoard

4   Interface Description

4.1 LAN interface 10 BT (10BT)

4.1.1   Characteristics

- 10Base-T
- Half or Full Duplex

4.1.2   Meaning of LED Colors

Lit green led	Link active
Blinking yellow led	Traffic in progress

4.1.3   Connector Pinout

RJ45 Connector

	Pin	Signal	Pion	Signal
	1	TD (+)	5	NC
	2	TD (-)	6	RD (-)
	3	RD (+)	7	NC
	4	NC	8	NC

4.1.4   Cables

The cables are shielded, crossover/straight cables with 2 twisted pairs. The switch supports autodetection of crossover/straight cable ('auto-MDI/MDI-X detection');

4.2 LAN interface 10 BT (10BT)

4.2.1   Characteristics

- 100Base-TX
- Half or Full Duplex

4.2.2   Meaning of LED Colors

Lit green led	Link active
Blinking yellow led	Traffic in progress

4.2.3   Connector Pinout

	Pin	Signal	Pin	Signal
	1	TD (+)	5	NC
	2	TD (-)	6	RD (-)
	3	RD (+)	7	NC
	4	NC	8	NC

4.2.4   Cables

The cables are shielded, crossover/straight cables with 2 twisted pairs. The switch supports autodetection of crossover/straight cable ('auto-MDI/MDI-X detection');

4.3 Serial interface

4.3.1   Characteristics

- RS 232, V.36, X.24, V.35, RS 449, EIA530, RIA530-A Interfaces
- DCE and DTE mode,
- Clock mode, contra directionnal and codirectionnal,
- Automatic detection of the interface characteristics thanks to pinout of the connected cable..

4.3.2   Cables

The type of cable used on the serial link must be in conformity with the configuration.

The installation of a cable on the serial link forces the mode of use (DTE or DCE) and the type (V.24 or V.28 or V.36) of the link.

The automatic control of the type of cable used for the serial interface is carried out with the powering of the equipment.

Imperatively to connect the cords at the two ends for the interface series before the powering of the equipment.

All cables are defined in Appendix A

4.4 Console interface

4.4.1 Characteristics

- RS 232,
- 9600 bps
- 8 bits, 1 bit stop, no parity

4.4.2 Connector Pinout

Pin	Signal	Pin	Signal
1	TX	11	NC
2	RX	12	NC
3	GND	13	NC
4	NC	14	NC
5	NC	15	NC
6	NC	16	NC
7	NC	17	NC
8	NC	18	NC
9	NC	19	NC
10	NC	20	NC

- TX: Emission
- RX: Reception
- NC: Not Connected
- GND: Ground

4.4.3 Cable

The cable of connection to the interface Console is defined in Appendix A.

4.5 Interface G.SHDSL, SDSL (M4)

The SDSL/G.SHDSL interface performed by the SDSL402 board allows to connect the ONE400 to a XDSL network.

4.5.1   Characteristics

- 2B1Q or PAM coding, ATM-based
- ETSI TS 101 135, ITU-T G.991.1, ANSI TR-28 for 2B1Q coding (single pair),
- ITU-T G.991.2 for G.SHDSL (Annex A and B), 2 or 4 wires.
- Capacity :
    - SDSL 2B1Q: 144 kbps up to 2,320 kbps
    - SHDSL 2 wires: 192 kbps up to 2,320 kbps
    - SHDSL 4 wires: 384 kbps up to 4,640 kbps

The connection of the SDSL/G.SHDSL interface is made by means of a connector with RJ45 type.

Pin	Signal	Pin	Signal
1	NC	5	RING
2	NC	6	NC
3	NC	7	NC
4	TIP	8	NC

4.5.2   Cables

The cable of connection to the G.SHDSL interface is made with a standard cable with the pinout above.

4.6 IMA on E1 interface (M4)
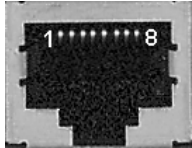
The board realize an IMA (Inverse Multiplexer ATM) function on 4 or 8 E1 depending the board.

The main characteristics are:

- ATM Forum IMA 1.0 and 1.1 compliant,
- IMA 4 voice and 8 voice component,
- Support 7 groups maximum (adresses limitation bus UTOPIA motherboard),
- Fractional E1,
- Support a delay of 110 ms (IMA 8 voice) without external memory.

4.6.1   Connector Pinout

4 or 8 RJ45 conncetors

	Broche	Signal	Broche	Signal
	1	RX (+)	5	TX (-)
	2	RX (-)	6	NC
	3	NC	7	NC
	4	TX (+)	8	NC

4.6.2   Cables

The flex used for the E1 or T2 access is a shielded flex which contains 2 twisted pairs with pairing advised for the transmission pairs (4-5) and receive (1-2) with 2 RJ45 shielded connectors.

4.7 STM1 interface (M4)

4.7.1 Characteristics

- Framer SONET/SDH (ATM),
- An optical module interface is available in many versions:
  - Multimode (diode) 1300nm with interface type MT-RJ (distance <2Kms),
  - Monomode (laser) 1300nm short haul with interface type LC (distance <15Kms),
  - Monomode (laser) 1300nm long haul with interface type LC (distance <40Kms).

4.8 Switch Ethernet interface (Switch)

4.8.1 Characteristics

The Switch Ethernet function offers 4 additional Ethernet ports. Each of them can be switched and/or routed.

- 10/100 Mbits/s,
- Half or full duplex,
- Auto-négociation,
- Auto MDI/MDIX.

4.8.2 Meaning of LED Colors

Lit green led	Link active
Blinking yellow led	Traffic in Progress

4.8.3 Connector Pinout

RJ45 Connector

	Pin	Signal	Pin	Signal
	1	TD (+)	5	NC
	2	TD (-)	6	RD (-)
	3	RD (+)	7	NC
	4	NC	8	NC

4.8.4 Cables

The cables are shielded with 2 twisted pairs and 2 shielded connectors RJ45. The switch supports auto-detection of crossover/straight cable ('auto-MDI/MDI-X detection');

4.9 FXS Analog Interface

The ONE400 equipped with FXS interfaces allows to connect the PABX which have network junctor access, but allow also to connect directly some analog telephones or fax.

Configuration of the FXS interfaces
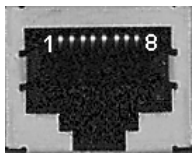
The configuration of the access impedance is made by means of jumpers to set manually on the FXS interface board as indicated in the following table:

4.9.1 Characteristics of the FXS accesses:

- Access impedance : 600 Ω or complex, selection by jumpers,
- THL> 20 dB in the frequency range from 300Hz to 3400Hz,
- Frequency range of the ringing signal: 16Hz to 70 Hz,
- Voltage of the ringing signal: > 35VRMS for a load of 1 REN (6,93K + 8µF @
- 20Hz) in the frequency range,
- Line current : 22mA <I line> 26mA, for a line resistance <1000 Ω,
- Polarity inversion of the TIP and RING pins,
- Line current <2mA in the power down mode,
- Detection threshold of the picked up : 5mA <I line> 12mA,
- Q23 numbering,

4.9.2 Connector Pinout

The connection to the analog voice accesses is made on the rear panel by RJ45 connectors in accordance with the following pinouts:

	Pin	Signal	Pin	Signal
	1	NC	5	RING
	2	NC	6	NC
	3	NC	7	NC
	4	TIP	8	NC

4.9.3   Cables

The cable used for a connection toward a PABX toward a standard analog set in FXS is constituted with a RJ45 plug on one hand and with 8 wires on the other hand, two of which are to be connected to the distributor of the PABX or to a telephonic plug.

⚠ *The FXS modules have a terminal marked located on the rear panel. This terminal must be imperatively connected to the main protective earth in a permanent way (refer to Chapter 1, Safety instructions).*

4.10   T0/S0 Interface (M5)

The BRI404/408 module allows to equip the ONE400 with 4 or 8 interfaces "digital voices" T0/S0 configurable as TE or NT.

The use of this module requires the installation of one DSP module for VoIP or VoDSL applications.

The ONE400 can receive one module BRI404/BRi408 which have 4 or 8 digital interfaces.

The connection of the digital voice interfaces is made on the rear panel by RJ45 connectors (1 connector per interface).

⚠️ *The modules BRI404/BRI408 in factory configuration, are configured in T0 mode. Do not connect the interfaces to a public ISDN access, which can damage the product immediately.*

4.10.1   Configuration of the motherboard (BRI404 – BRI408)

Un emplacement spécifique a été implanté pour ranger les cavaliers non utilisés.

Jumpers X5 (factory option of the BRI404 and BRI 408)

Function	Activates the Life Line function
Configuration	Set : Life Line function inactive
	Removed : Life Line function active
Factory Config.	Set

Jumpers X6 (factory option of the BRI404 and BRI 408)

Function	Activates the watchdog of the Life Line function (activated in normal running)
Configuration	Set : watchdog active
	Removed : watchdog inactive
Factory Config.	Set

Jumpers [X1;X2] [X7;X8] [X11;X12] [X15;X16]

Function	Operating in pairs, activate power feeding for ISDN terminals from line #0 up to #3 (30 volts)
Configuration	Set : Power supply connected (both jumpers set)
	Removed : Power supply disconnected (both jumpers removed)
Factory Config.	Set

Cavaliers [X3;X4] [X9;X10] [X13;X14] [X17;X18]

Function	Operating in pairs, connect a 100Ω impedance adaptation for line #0 up to #3, the first jumper of the pair is associated with the reception, the second one with the transmission
Configuration	Set : Adaptation connected
	Removed : Adaptation disconnected
Factory Config.	Set

4.10.2   Configuration of the board (BRI408)

A specific location is available to leave the unused jumpers.

Cavaliers [X1;X2] [X5;X6] [X9;X10] [X13;X14]
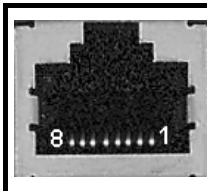
Function	Operating in pairs, activate power feeding for ISDN terminals from line #0 up to #3 (30 volts).
Configuration	Set: Power supply connected (both jumpers set
	Removed: Power supply disconnected (both jumpers removed)
Factory Config.	Set

Cavaliers [X3;X4] [X7;X8] [X11;X12] [X15;X16]

Function	Operating in pairs, connect a 100Ω impedance adaptation for line #0 up to #3, the first jumper of the pair is associated with the reception, the second one with the transmission.
Configuration	Set Adaptation connected
	Removed Adaptation disconnected
Factory Config.	Set

4.10.3   Connector Pinout

The connection to the BRI accesses is made on the rear panel via RJ-45 connectors. The RJ45 connector pinout is:

	Pin	Signal	Pin	Signal
	1	NC	5	TX (-)
	2	NC	6	RX (-)
	3	RX (+)	7	NC
	4	TX (+)	8	NC

4.11　T2 Interface (M5)

The PRI431 module allows to equip the ONE400 with a E1/T2 G703/G704 "digital voice" access.
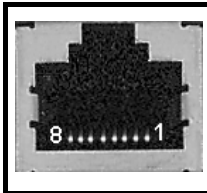
Associated to DSP compression - decompression modules, this interface allows to process until 30 voices channels (2 DSP modules).

The external connection of the E1/T2 interface is made on the rear panel by RJ45 connector.

4.11.1　Connector Pinout

RJ45 connectors

	Pin	Signal	Pin	Signal
	1	RX (+)	5	TX (-)
	2	RX (-)	6	NC
	3	NC	7	NC
	4	TX (+)	8	NC

4.11.2　Cables

The flex used for the E1 or T2 access is a shielded flex which contains 2 twisted pairs with pairing advised for the transmission pairs (4-5) and receive (1-2).

4.12   DSP 400 Module

The DSP400 module(s) are used in association with the BRI434, PRI431 and AVB434 modules.

These modules achieve the processing functions of compression - decompression for the voices channels.

Two types of module are available:

- the DSP401 module, equipped with 1 DSP processor,
- the DSP402 module, equipped with 2 DSP processors.

The NT mode configuration of the BRI434 module allows to provide a power supply Source 1 sufficient for detecting but self-supplied terminals.

The ONE400 supports 1 to 2 DSP module and can process until 30 voices channels.

The DSP modules are secured and connected to the motherboard by a 80 pins SIMM connector.

The below table recalls the number of DSP modules required for the operation of the different modules :

Type of "voice" module	Number of DSP modules required
FXS404	DSP401
FXS408	DSP401
BRI404	DSP401
BRI408	DSP402
PRI401 (8 chanel)	DSP401
PRI401 (16 chanel)	DSP402
PRI401 (24 chanel)	DSP402 + DSP 401
PRI401 (32 chanel)	DSP402 + DSP402

5 Technical Characteristics

5.1 Climatic Environment

Operating conditions:

- Temperature: 0°C ≤ T ≤ 45°C
- Relative humidity (HR): 5% ≤ HR ≤ 80%
- Absolute humidity: ≤ 24g / m3
- Altitude: ≤ 2500 m
- Air pressure: 70 à 80kPa

Storage conditions:

- Temperature: -25°C ≤ T ≤ 55°C
- Relative humidity (HR): 5% ≤ HR ≤ 95%
- Absolute humidity: ≤ 29g / m
- Altitude: ≤ 2500 m
- Air pressure: 70 à 80kPa

5.2 Power Supply Source

- 90-250 VAC / 0.7-0.3 A inserted power supply

5.3 Dimensions

The dimensions of the ONE400 are:

- Width: 440 mm
- Height: 48 mm)
- Depth: 278 mm

6   Installation

This chapter describes installation and removal operations of necessary subsets at the time of retrofitting, modification of configuration or maintenance of the equipment

> ⚠ **Interventions on the ONE400 equipment are made in power off mode and require the removal of the upper protective cover. Remove the power cable before any intervention on the device.**

The ONE400 equipment is equipped with an automatic detection and identification system of each of its subsets and its configuration reducing to the minimum the configuration operations of the equipment.

> ⚠ **ll vacant slots of the rear panel must be obstructed with suitable face-plates in order to guarantee the respect of the CEM standards as defined in Chapter 2, Directives and standards.**

6.1 Removal of the Protective Cover

1 By means of a Posidriv N°1 screwdriver, unscrew and remove the 2 fixing screws of the protective cover.

2 slide the cover in order to free the inserts.

3 remove the protective cover from the top of the equipment.
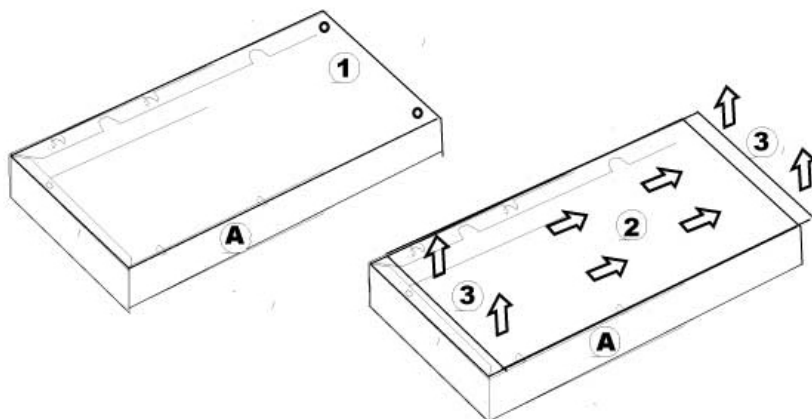
Figure 4.   Removal of the protectivecover

6.2 Voice Extension Module (M5)

The exchange or the installation of extension module requires the removal of the up per protective cover of the equipment.

The extension modules can be installed into the slots marked "M5".The configuration is detected automatically, controlled and taken into account when powering up the equipment.
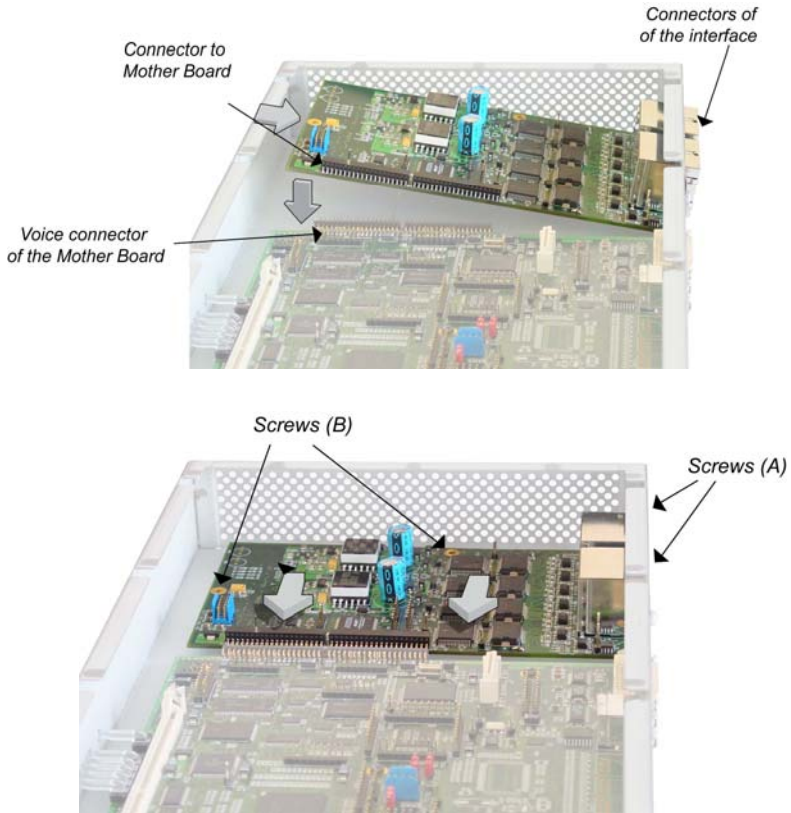
Figure 5.   Installation and Removal of voice extension module

6.2.1 Removal of a Voice Extension Module

- 1 Unlock and remove the fixing screws of the module on the rear panel.
- 2 Unlock the fixing brace of the module on the motherboard.
- 3 Loosen the module from the motherboard connection connector.

6.2.2 Rise up the board as indicated. See Figure 5.

6.2.3 Installation of a Voice Extension Module

- 1 Remove the protective faceplate of the frame, in order to free the slot of the interfaces connection connector(s).
- 2 Present the module while positioning the metallic face in the place liberated by the removal of the faceplate.
- 3 Turn the module round while aligning the connection connector of the SDSL402 board with the motherboard connector.
- 4 Slot the module connector into the motherboard connector.
- 5 Fix the module on the motherboard while using the brace of the module.
- 6 Fix the module on the rear panel of the ONE400 while using the fixing screws of the faceplate.

⚠️ *The FXS modules have a terminal marked located on the rear panel. This terminal must imperatively be connected to the main protective earth in a permanent way.*

6.3 Installation of the DSP Module

Interventions on DSP modules require the removal of the protective cover of the equipment.

The DSP modules can be installed indifferently in the 2 reserved locations (reference marks 7 Figure 3 page 3-5).
The configuration is automatically detected, controlled and taken into account during the powering up of the equipment.

⚠️ *Make sure not to place by mistake a DSP module in the connector destined to the IPSEC module (reference mark 4.*

Connectors provided for receiving the DSP modules are equipped with two clips in their extremity.
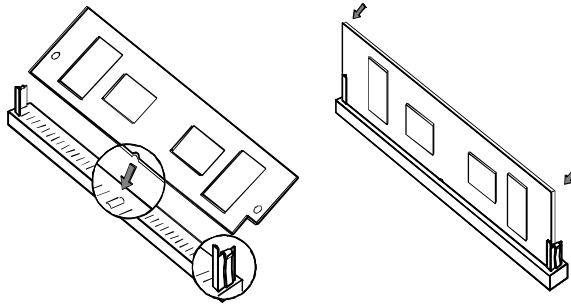
Figure 6.   Installation of the DSP module

To withdraw the headers:

1   Separate slightly and simultaneously the two clips toward the outside. The header must tilt of its own.

2   Loosen the header upwards.

The memory headers have a lateral punching which serves as fool proofing device.

To install the headers:
1   Put, face-to-face, this header punching with the "boss" of the connector located on the motherboard.

2   Slot the memory header, in tilted position, and straighten this one firmly (the lateral clips lock the header in vertical position).

6.4 Uplink Module (M4)

The exchange or the installation of an Uplink module requires the removal of the upper protective cover of the equipment.

The Uplink module is installed in the slot "M4".

The available Uplink modules are:-

- SDSL402 board,-E1
- IMA404/408 board,
- SDH400MM board.

6.4.1 Removal of an Uplink Module

1 Unlock the 2 fixing braces of the Uplink module on the rear panel of the ONE400.
2 Loosen the Uplink module from the connection connector to the motherboard.
3 Rise up and loosen the board from its emplacement.

6.4.2 Installation of an Uplink Module

1 Remove the protective faceplate of the frame, in order to free the slot of the interface connection connector.
2 Present the Uplink module while positioning the metallic face in the place liberated by the removal of the faceplate.
3 Turn the Uplink module round while aligning the connection connector of the Uplink
   module with the motherboard connector.
4 Slot the connector of the Uplink module into the motherboard connector.
5 Fix the Uplink module on the rear panel of the ONE400 while using the fixing screws of the faceplate
.

6.5 Connections

6.5.1   Protective Earth

An earthing device is available on the FXS modules and must imperatively be connected to the main protective earth.

Connection device
to the protection earth
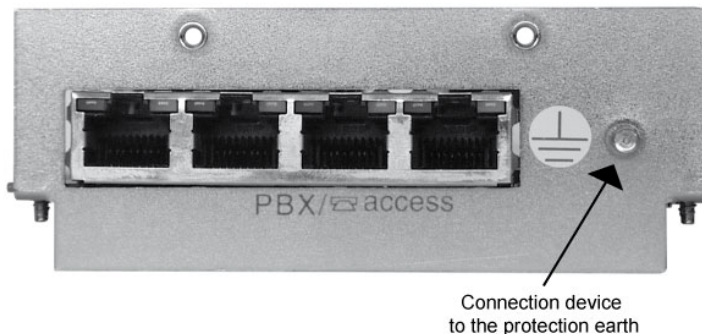
Figure 7.   Main protective earth

6.5.2   Mains Power Supply

The main is connected directly on the rear panel of the ONE400 equipment.

The mains flexes are delivered with the ONE400, in accordance with the mains connection standard of the region of use, specified at the time of the equipment order.

Figure 8.   Main power Supply

6.6 Installing into 19 inches Cabinet

The ONE400 may be installed in a 19 inches cabinet by using a kit with corners.
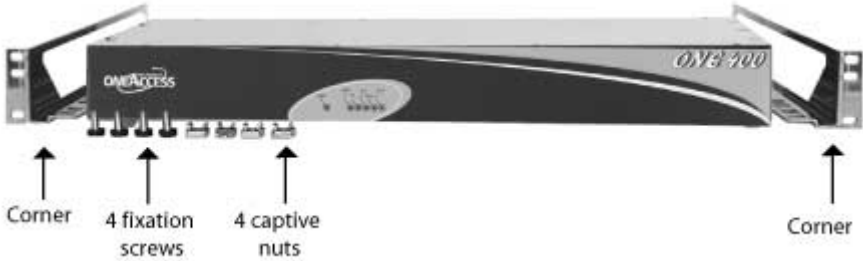
Figure 9.   19 Inches Cabinet Installation Kit

1 Install the 4 captive nuts on the uprights of the cabinet.
2 Screw the corners on the uprights of the cabinet.
3 Install the ONE400 on the corners, the ONE400 supports must be inserted in the corners holes.
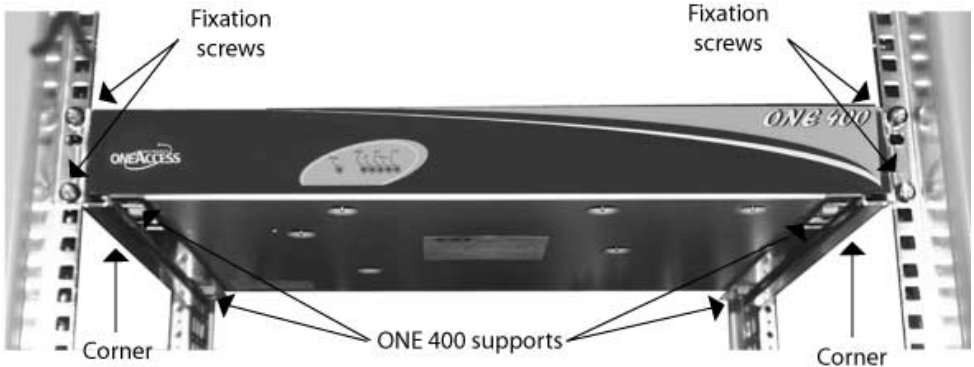
Figure 10.   ONE400 Installed in 19 Inches Cabinet

7   Power Up

7.1 Power-Up

The equipment is powered up by connecting the main cord of the ONE400 to the power supply.

After a delay of a few seconds, the equipment performs a series of self-tests and loads the software into memory (RAM), during which the "STATUS" indicator light flashed.

At the end of the software loading sequence (about 20 seconds):

- the "STATUS" indicator light remains steady green if the initialization took place correctly,
- the "STATUS" indicator light remains flashing in case of software absence or error during the software loading.

Refer to the ONEOS User Guide for more information.

Annex A. Serial Interface (VXX)

A-1. V.24 / V.28 DTE Cord

*Catalog: reference **4 021 863 00 Ed A***
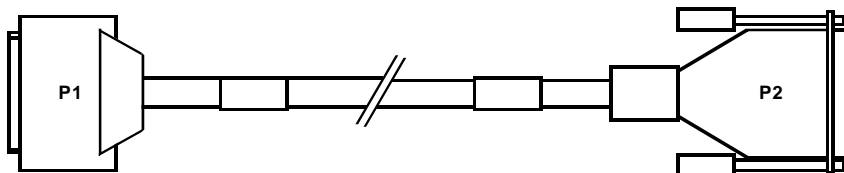
- P1 - MDR 36 Pts	SIGNAL	- P2- SUB-D 25 Pts mâle
Ecran	Blindage	1 + Capot
1	103 (SD)	2
2	113 (TXCE)	24
3	114 (TXC)	15
4	115 (RXC)	17
5	104 (RD)	3
6		
7	105 (RTS)	4
8	108 (DTR)	20
9		
10	109 (CD)	8
11	107 (DSR)	6
12	106 (CTS)	5
13	141 (LL)	18
14	142 (TM)	25
15		
16	102	7
17	Ident0	
18	Ident2*	
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31	125 (IA)	22
32	140 (RL)	21
33		
34	102	
35	Ident1*	
36	Ident3	

* Signal connected to pin 34 at the end of the cable

A-2. V.24 / V.28 DCE Cord

*Catalog: reference : **4 021 864 00 Ed A***
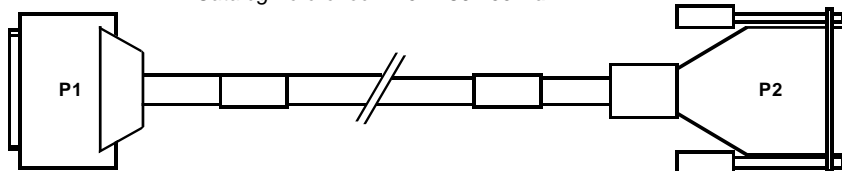
- P1 - MDR 36 Pts	SIGNAL	- P2- SUB-D 25 Pts femelle
Ecran	Blindage	1 + Capot
1	104 (RD)	3
2	115 (RXC)	17
3	114 (TXC)	15
4	113 (RXCE)	24
5	103 (SD)	2
6		
7	106 (CTS)	5
8	107 (DSR)	6
9		
10	109 (CD)	8
11	108 (DTR)	20
12	105 (RTS)	4
13	125 (IA)	22
14	140 (RL)	21
15		
16	102	7
17	Ident0*	
18	Ident2*	
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31	141 (LL)	**18**
32	142 (TM)	**25**
33		
34	102	
35	Ident1	
36	Ident3	

* Signal connected to pin 34 at the end of the cable

A-3. V.36 DTE Cord

Catalog: *reference*: **4 021 865 00 Ed A**
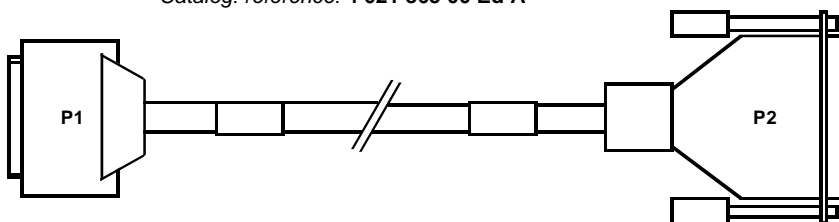
- P1 - **MDR 36 Pts**	SIGNAL	- P2- **SUB-D 37 Pts mâle**
Ecran	Blindage	1 + Capot
1	103A (SD)	4
2	113A (TXCE)	17
3	114A (TXC)	5
4	115A (RXC)	8
5	104A (RD)	6
6		
7	105A (RTS)	7
8	108A (DTR)	12
9		
10	109A (CD)	13
11	107A (DSR)	11
12	106A (CTS)	9
13	141 (LL)	10
14	142 (TM)	18
15	102a	37
16	102	19
17	Ident0	
18	Ident2*	
19	103B (SD)	22
20	113B (TXCE)	35
21	114B (TXC)	23
22	115B (RXC)	26
23	104B (RD)	24
24		
25	105B (RTS)	25
26	108B (DTR)	30
27		
28	109B (CD)	31
29	107B (DSR)	29
30	106B (CTS)	27
31	125 (IA)	15
32	140 (RL)	14
33	102b	20
34	102	
35	Ident1	
36	Ident3	

* Signal connected to pin 34 at the end of the cable

A-4. V.36 DCE Cord

Catalog: *reference* : **4 021 866 00 Ed A**
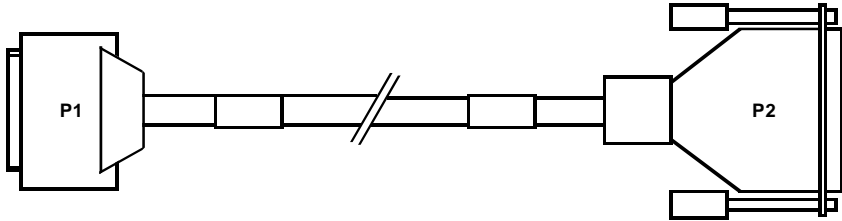
- P1 - MDR 36 Pts	SIGNAL	- P2- SUB-D 37 Pts femelle
Ecran	Blindage	1 + Capot
1	104A (RD)	6
2	115A (RXC)	8
3	114A (TXC)	5
4	113A (TXCE)	17
5	103A (SD)	4
6		
7	106A (CTS)	9
8	107A (DSR)	11
9		
10	109A (CD)	13
11	108A (DTR)	12
12	105A (RTS)	7
13	125 (IA)	15
14	140 (RL)	14
15	102b	20
16	102	19
17	Ident0*	
18	Ident2	
19	104B (RD)	24
20	115B (RXC)	26
21	114B (TXC)	23
22	113B (TXCE)	35
23	103B (SD)	22
24		
25	106B (CTS)	27
26	107B (DSR)	29
27		
28	109B (CD)	31
29	108B (DTR)	30
30	105B (RTS)	25
31	141 (LL)	10
32	142 (TM)	18
33	102a	37
34	102	
35	Ident1*	
36	Ident3	

* Signal connected to pin 34 at the end of the cable

A-5. X.21/V.11 DTE Cord

Catalog: reference : **4 021 867 00 Ed A**
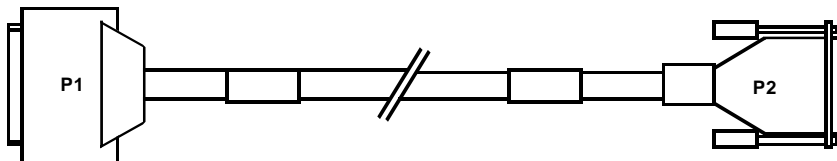
- P1 - MDR 36 Pts	SIGNAL	- P2- SUB-D 15 Pts mâle
Ecran	Blindage	1 + Capot
1	103 (TA)	2
2	113 (XA)	7
3		
4	115 (SA)	6
5	104 (RA)	4
6		
7	105 (CA)	3
8		
9		
10		
11		
12	109 (IA)	5
13		
14		
15		
16	102	8
17	Ident0	
18	Ident2	
19	103 (TB)	9
20	113 (XB)	14
21		
22	115 (SB)	13
23	104 (RB)	11
24		
25	105 (CB)	10
26		
27		
28		
29		
30	109 (IB)	12
31		
32		
33		
34	102	
35	Ident1*	
36	Ident3	

* Signal connected to pin 34 at the end of the cable

A-6. X.21/V.11 DCE Cord

Catalog: *reference :* **4 021 868 00 Ed A**

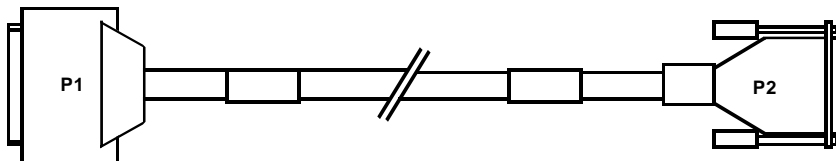

- P1 - MDR 36 Pts	SIGNAL	- P2- SUB-D 15 Pts femelle
Ecran	Blindage	Capot
1	104 (RA)	4
2	115 (SA)	6
3		
4	113 (XA)	7
5	103 (TA)	2
6		
7	109 (IA)	5
8		
9		
10		
11		
12	105 (CA)	3
13		
14		
15		
16	102	8
17	Ident0*	
18	Ident2	
19	104 (RB)	11
20	115 (SB)	13
21		
22	113 (XB)	14
23	103 (TB)	9
24		
25	109 (IB)	12
26		
27		
28		
29		
30	105 (CB)	10
31		
32		
33		
34	102	
35	Ident1	
36	Ident3	

* Signal connected to pin 34 at the end of the cable

A-7. V.35 DTE 1 mm Cord

Catalog: *reference :* **4 022 170 00 Ed A**
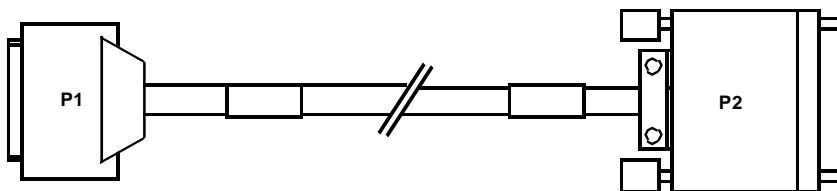
- P1 - MDR 36 Pts	SIGNAL	- P2- connecteur mâle
Ecran	Blindage	A + Capot
1	103A (SD)	P
2	113A (TXCE)	U
3	114A (TXC)	Y
4	115A (RXC)	V
5	104A (RD)	R
6		
7	105A (RTS)	C
8	108A (DTR)	H
9		
10	109A (CD)	F
11	107A (DSR)	E
12	106A (CTS)	D
13	141 (LL)	L
14	142 (TM)	NN
15		
16	102	B
17	Ident0	
18	Ident2*	
19	103B (SD)	S
20	113B (TXCE)	W
21	114B (TXC)	AA
22	115B (RXC)	X
23	104B (RD)	T
24		
25		
26		
27		
28		
29		
30		
31	125 (IA)	J
32	140 (RL)	N
33		
34	102	
35	Ident1	
36	Ident3*	

* Signal connected to pin 34 at the end of the cable

A-8. V.35 DCE   1 mm Cord

Catalog: *reference :* **4 022 171 00 Ed A**
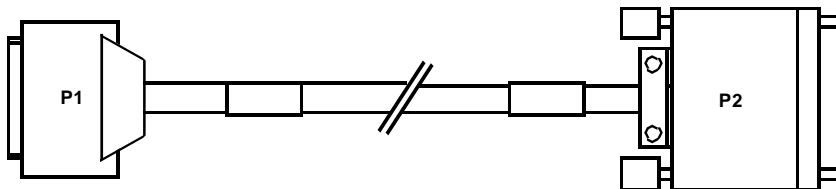

- P1 - MDR 36 Pts	SIGNAL	- P2- connecteur femelle
Ecran	Blindage	A + Capot
1	104A (RD)	R
2	115A (RXC)	V
3	114A (TXC)	Y
4	113A (TXCE)	U
5	103A (SD)	P
6		
7	106A (CTS)	D
8	107A (DSR)	E
9		
10	109A (CD)	F
11	108A (DTR)	H
12	105A (RTS)	C
13	125 (IA)	J
14	140 (RL)	N
15		
16	102	B
17	Ident0*	
18	Ident2	
19	104A (RD)	T
20	115B (RXC)	X
21	114B (TXC)	AA
22	113B (TXCE)	W
23	103B (SD)	S
24		
25		
26		
27		
28		
29		
30		
31	141 (LL)	L
32	142 (TM)	NN
33		
34	102	
35	Ident1*	
36	Ident3*	

* Signal connected to pin 34 at the end of the cable

Annex B. Console Cord

Catalog: *reference* : ***4 021 856 00 Ed A***
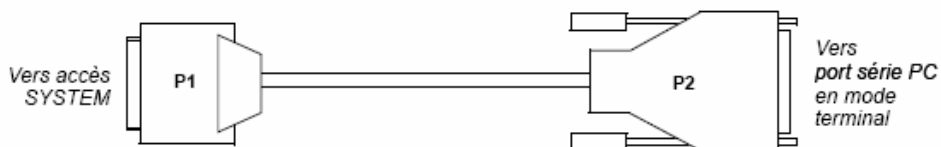
MDR 20 Pts - P1	SIGNAL	SUB-D 9 Pts Femelle - P2
1	TX	2
2	RX	3
3	GND	5
		7
		8