TDM central office

TELINDUS OFFERS A FULL RANGE OF CENTRAL OFFICE (CO) ACCESS SOLUTIONS, FOR USE IN A TDM AND BROADBAND ACCESS ENVIRONMENT.

With the Card-nest 4 (CN4), Telindus delivers a modular platform for the deployment of a universal data access solution, integrating different access technologies like voice-band, xDSL and fibre-optic. In order to optimise the interfacing to the backbone network, the platform can also accommodate the functionality of digital cross connect (DXC), multiplexing and interface conversion.

The Telindus 2300 series is ideally adapted for access to network infrastructures based on G.703.

All Telindus Central Office solutions can be controlled by a variety of carrier-grade maintenance and management tools, which are common for all centrally and remotely installed network elements.

CARDNEST CN4

FEATURES & BENEFITS

- > HIGH-DENSITY CARDNEST FAMILY FOR TELINDUS ACCESS EQUIPMENT
- > UP TO 60 MODEMS IN ONE CARDNEST
- > ALL CARDS HOT SWAPPABLE
- > 19" RACK-MOUNTABLE AND DESKTOP VERSIONS AVAILABLE
- > -48VDC OR 230/115VAC POWERING WITH OPTIONAL REDUNDANCY
- > ALL CONNECTIONS (LINES, POWER AND INTERFACES) ON THE REAR FOR OPTIMAL RACK CABLING

> THE CARDNEST CN4 IS A FAMILY OF CONCENTRATION UNITS FOR THE DIFFERENT TYPES OF TELINDUS ACCESS EQUIPMENT.

The family is constituted of one 19" rack-mountable device, and two desktop units. The 19" rack-mountable system (Cardnest CN4) is equipped with 15 card-slots, 30 interface-slots and 2 power-slots. It provides a high-density solution for the Telindus access equipment with densities of up to 30 or 60 modems in one nest (depending on the modem type). Interface plug-in modules (maximum two per card-slot position) are plugged into the available interface-slots on the back of the CN4. A high-speed management bus permits the management of all the equipment installed in the CN4. For this purpose an Orchid controller card can be mounted in the chassis. Since the high-speed management bus can be cascaded over several cardnests, one single controller card can control up to seven cardnests and all the remotely connected equipment. The CN4 cardnest is designed to provide full power redundancy and to generate the required alarms to the management system should one of the power sources fail. The cardnest is also equipped with an output for local alarm generation.

The first desktop system (Desktop CN4/4 slots) offers the same features as the rack-mountable system. However it comes as a compact desktop unit with 4 card-slots, 8 interface-slots and 2 power-slots.

The second desktop system (Desktop CN4/2 slots) is a compact low-cost system with 2 card-slots, 4 interface slots, and an integrated dual power supply.

All CN4 systems are designed to be directly powered at -48 Vdc. In this case no additional power module is required (no CN4 power slots are used). -48 Vdc is directly routed to each card in the system. When the Cardnest CN4 or the Desktop CN4/4 slots is powered at 230/115Vac, one or two 230/115Vac power modules may be inserted in the available power slots. These power modules can work in full power redundancy and allow hot swapping in case of power problems.

CN4 FAMILY OVERVIEW

	CARDNEST CN4	DESKTOP CN4/ 4 SLOTS	DESKTOP CN4/ 2 SLOTS
Height	6U (270 mm)	6U (270 mm)	82 mm
Width	19" (482 mm)	170 mm	353 mm
Depth	350mm	350 mm	325 mm
Weight (empty)	6.1 kg	4.5 kg	3.2 kg
Number of card-slots	15	4	2
Number of interface-slots	30	8	4
Number of line pairs/card-slot	4	4	4
Direct ±48 Vdc powering	yes	yes	yes
230/115 Vac power supply	no	no	yes
230/115 Vac power-slots	2	2	-
48Vdc connector	screw	screw	scew
230/115 Vac connector	IEC	IEC	IEC
Line connectors	screw	screw	screw
Local alarm contacts	2x RJ45	2x RJ45	no
High-speed mgt connectors	2x RJ45	2x RJ45	no
Station clock input	RJ45	RJ45	no

LOCAL ALARM CONTACTS (NOT ON DESKTOP CN4 / 2 SLOTS)

Two RJ45 connectors with tension-less contacts are provided to connect a local alarm device. They may be daisy chained to group the local alarm for more than one cardnest.
The connectors include contacts for:

- > Major alarm
- > Minor alarm
- > Power fail alarm

STATION CLOCK INPUT (NOT ON DESKTOP CN4/ 2 SLOTS)

Some cards in the CN4 can accept a centrally provided station clock .This 2 Mbps clock can be connected using a RJ45 connector and complies to G.703, 120 ohm

HIGH-SPEED MANAGEMENT CONNECTORS (NOT ON DESKTOP CN4 / 2 SLOTS)

Two RJ45 connectors are provided to connect the CN4 with the orchid controller card or to daisy-chain different cardnests when more than one nest is located at the same site. (cable delivered with the CN4)

POWER REQUIREMENTS

- > 230/115Vac Operating Range: 230Vac +/-10% 50-60 Hz
  115Vac +/-10% 50-60 Hz
- > 48Vdc Operating Range: 36Vdc - 72Vdc

SALES CODES CARDNEST

- > 142189 Cardnest CN4
- > 163459 Desktop CN4 / 4 SLOTS
- > 167992 Desktop CN4 / 2 SLOTS
- > 142187 Blanking Modemslot CN4
- > 142188 Blanking PWR Mod CN4
- > 142449 Blanking intf slot CN4

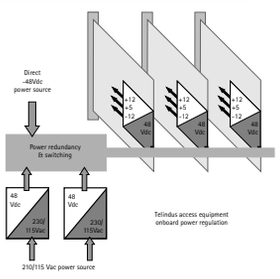
SALES CODES POWER MODULES
(FOR CARDNEST CN4 AND DESKTOP CN4 /4 SLOTS)

- > 142190 PWR Mod 220/110V CN4 80W
- > 143678 PWR Mod 220/110V CN4 300W

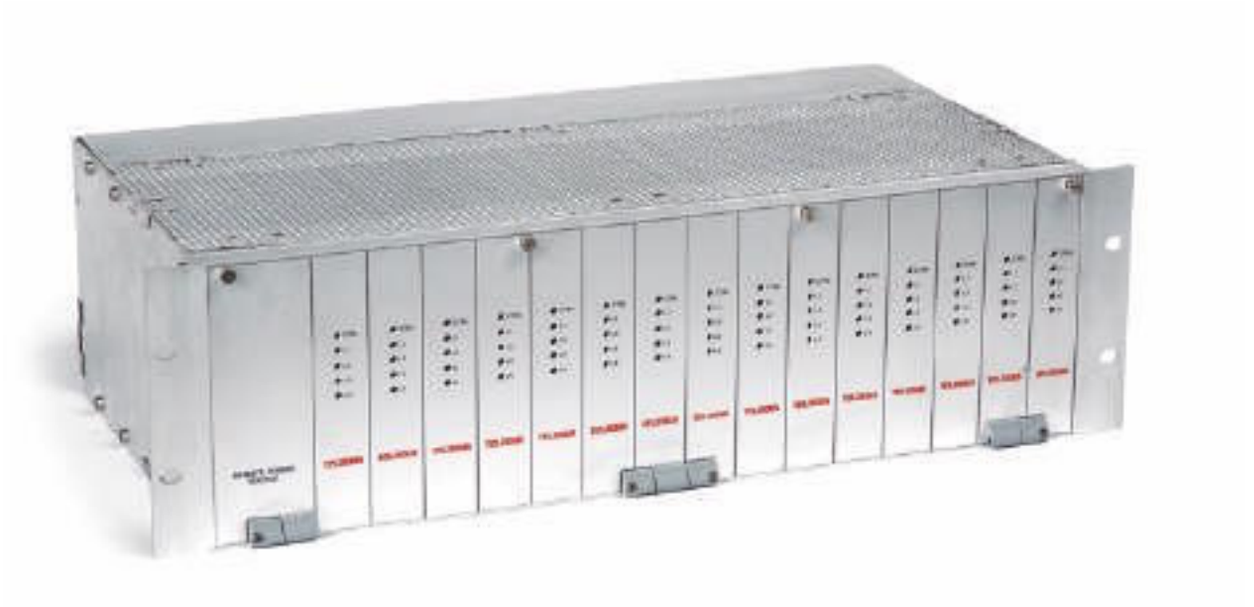
< CARDNEST CN4 4 SLOTS

v CARDNEST CN4 2 SLOTS

v CARDNEST CN4 AND DESKTOP CN4/4 SLOTS POWER MANAGEMENT



REMOTE POWER CHASSIS

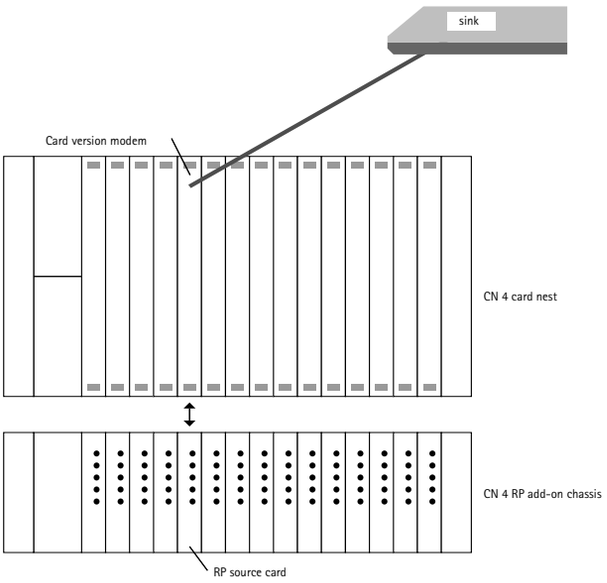


> THE CN4 RP ADD-ON CHASSIS IS DESIGNED TO SUPPLY REMOTE POWER FEEDING FOR HDSL AND SHDSL REPEATERS OR CPE (CUSTOMER PREMISES EQUIPMENT).

The unit can also be using for delivering wetting current for the copper pairs. It is used in combination with the CN4 central office solution. The modular CN4 RP add-on chassis can accept up to 15 remote power source cards with power feeding for up to 4 line pairs.

There is a one to one mapping between a remote power source card and a modem card installed in the CN4 card nest. The CN4 RP add-on chassis is powered at –48Vdc. Optionally Telindus can provide an external 230Vac to –48Vdc power converter.

SALES CODES
> 157056 RP add-on chassis CN4
> 157058 RP source module 4 lines



FEATURES & BENEFITS

> ADDS REMOTE POWER FEEDING CAPABILITY TO THE CN4 CARD NEST
> COMPLIANT TO HIGH REQUIREMENTS CONCERNING SAFETY, ROBUSTNESS, FLEXIBILITY AND EMC
> REMOTE POWER FEEDING FOR UP TO 60 LINE PAIRS
> FITS IN A STANDARD 19 INCH RACK
> INTEGRATED NETWORK MAINTENANCE AND MANAGEMENT CAPABILITIES

CN4 RP ADD-ON CHASSIS

MECHANICAL DATA (H X D X W)
> 135(3U) x 230 x 445 mm Weight: 2.8 kg
> Number of remote power slots: 15

POWER REQUIREMENTS
> 36-72 Vdc, 3A max

REMOTE POWER SOURCE CARDS

ELECTRICAL CHARACTERISTICS
> Maximum remote power voltage: 120 Vdc (100 Vdc for UK units)
> Maximum remote power current: 60 mA
> Wetting current: 10 mA
> Number of power feeds per card: 4

HARDWARE CONFIGURATION:
> Selection between remote powering and wetting current per card
> Activation/deactivation per line pair
> Selection of symmetrical or floating power per line pair

SOFTWARE CONFIGURATION
> Enabling or disabling of remote power feeding or wetting current per line pair

FRONT PANEL INDICATORS
> CTRL: Remote power source card management
> L1..L4: Remote power/wetting current condition per line pair

NETWORK MANAGEMENT ALARMS
> Remote power overcurrent
> No current
> Communication fail
> Manually disabled

MECHANICAL DATA (H X D X W)
100 x 200 x 21 mm Weight: 0.2 kg

2300 SHDSL SERIES

> THE 2300 SHDSL SERIES FAMILY PROVIDES ENTERPRISES OR OPERATORS WITH A VERY HIGH-DENSITY SHDSL TRANSMISSION SOLUTION AT THE CENTRAL OFFICE OR IN CONCENTRATOR SITES.

It is possible to use variable bit rates as well as dual pair operation to extend the reach of the transmission over longer distances. Data is delivered over G.703/G.704 interfaces and both transparent and fractional operation is supported. In case of service delivery at speeds lower than 2 Mbps, grooming (concentration) of different users on a single E1 circuit can be provided. The dedicated 2300 concentrator with remote powering can be used to power repeaters or network termination equipment.

The unit is designed for integration into demanding network environments and can be directly controlled by the complete set of network maintenance and management tools as they are described in the section on network management. For management purposes the concentrator features a direct 10/100Base-T connection for IP, a local console interface, and G.703/G.704 interface.

Typical applications in a carrier environment include the provisioning of high-quality data services like leased lines or Frame-Relay and the concentration of multiple circuits interconnecting base-stations of a mobile operator. Enterprises or organisations with own copper infrastructure can use this type of equipment to meet their own communication requirements without having to invest in a new transmission infrastructure.

FEATURES & BENEFITS

- > SMALL HIGH-DENSITY SHDSL CONCENTRATOR
- > UP TO 24 SHDSL PAIRS IN 1 UNIT-HIGH ENCLOSURE
- > 1 OR 2 PAIR OPERATION
- > UP TO 24 G.703 E1 UP-LINKS WITH POSSIBILITY FOR GROOMING
- > VARIABLE BIT RATE AND MULTIPLE PAIR OPERATION FOR EXTENDED REACH
- > REMOTE POWERING CAN BE PROVIDED AS AN OPTION

LINE INTERFACE

- > Single pair or two pair line access
- > Remote power feeding* under management control
- > Connector: 50 pin telco connector with 8, 16 or 24 line pairs
- > Impedance: 135 ohm
- > Coding: TC PAM, compliant to ITU-T G.991.2 (G.SHDSL) and ETSI TS 101524
- > Line speeds: Single pair: N x 64 kbps (N = 3 ... 32)
  Two pair: N x 128 kbps (N = 3 ... 16)
- > Handshaking: compliant G.994.1 (automatic speed negotiation) or fixed speed
- > Performance monitoring: compliant G.826 (errored seconds, severely errored seconds, unavailability seconds)

IDEAL MAXIMUM DISTANCE (NOISE-FREE)

1 pair Speed (kbps)	2 pair Speed (kbps)	0.4mm 26AWG (km)	0.5mm 24AWG (km)	0.6mm (km)	0.8mm 20AWG (km)	1.0mm 18AWG (km)	1.2mm (km)
256	512	8.2	11.3	16.0	20.3	28.5	31.6
512	1024	7.2	9.9	14.0	17.8	25.0	27.7
1024	2048	5.5	7.6	10.7	13.6	19.1	21.2
1536	3072	4.0	5.5	7.8	9.9	13.9	15.4
2048	4096	4.2	5.8	8.2	10.4	14.6	16.2

REMOTE POWER FEEDING*

- > According to ITU-T K.15
- > Controlled by network management
- > Maximum standard remote power voltage: 120 Vdc
- > Maximum standard remote power current: 60 mA
- > Conform IEC60950-21 Edition 2002-12

APPLICATION INTERFACE

- > 8, 16 or 24 balanced 120 ohm interfaces concentrated on DB25 female (ISO 2110)
- > Electrical: G.703
- > Unframed or framed operation (G.704)
- > User speed: (F)E1 Nx64 kbps (N = 1 ...32)
- > Grooming possibility per set of 8 SHDSL lines

MAINTENANCE AND NETWORK MANAGEMENT INTERFACES

- > Local 9-pin sub-D connector
- > Local RJ45 - Ethernet connector
  - > Compliant with IEEE 802.3 10Mbps HDX/FDX Ethernet
  - > Compliant with IEEE 802.3u 100Mbps HDX/FDX Ethernet
  - >10/100Mbps auto-sense
- > G.703/G.704 RJ45 interface

FRONT PANEL INDICATIONS

- > PWR: Power indication for each power inlet
- > LAN: Lan status
- > STCLK: Station clock status
- > DCD: Data Carrier Detect for each SHDSL line
- > G.703: LOS/AIS/Data for each G.703 interface

CLOCKING

- > Internal
- > External (from G.703)
- > Station clock (with possibility for fallback)

MAINTENANCE AND MANAGEMENT SUPPORT

- > Conform TMA management suite
- > 2 alarm contact outputs (normally open and closed contacts)
- > 7 alarm input contacts with common return (normally closed contacts)

MECHANICAL DATA (H X W X D)

- > 44 x 440 x 240 mm (desktop)
- > Rack-mount kit included
- > Weight: 3.5 kg

POWER REQUIREMENTS

- > -48Vdc, with possibility for connection of redundant power source,
- > Power consumption: 2301 SHDSL concentrator: 15W
  2303 SHDSL concentrator: 50W
  Units with remote powering: 260W max

*Only on specific models

SALES CODES

- > 181299 Telindus 2301 (8 SHDSL modems)
- > 181301 Telindus 2303 (24 SHDSL modems)
- > 185881 Desk-top Power supply module 70W (230/115Vac -> 48Vdc)
- > 182590 CBL Telco M /wires 24*2*0,14 120° 2M

Telindus 2302 (16 SHDSL modems) and units with remote powering on request