



P3 Field Deployable Tactical Data Links Communications System

- 8Mbs over 8Kms using copper cables WD1/TT or DON10 type
- Portable field deployable comms system for rapid data & voice links
- simple and effective alternative to fibre-optic based links, especially in rough terrain or without a clear line of sight
- For Defence, Emergency, Disaster Recovery and underground mining applications
- Pioneered and operationally proven by the Australian Army
- over 600 systems in use incl. UK, NZ, Canada

P3 – Field Deployable Communications System

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for ad hoc data and voice links – simple & effective alternative to fibre optics

Main Features Overview

- automatic Rate Adaptation for any cable distance, type and quality (plug and forget)
- integrated Field Telephony over the same copper cable as data (including VoIP mode for transparent secure links)
- integrated HUB functionality supporting up to 6 Ethernet connections without external devices
- stand alone device, including battery (up to 8 Hrs of full load operations) and micro-processor management, requiring no additional computers for setting up or management.
- mil. spec. portable carry case, including air valve for pressure equalisation
- low power, high noise immunity transmission enabling continual operation in adverse conditions with high level data scrambling: ideal for use in defence, industrial applications
- flexible local and remote management via TELNET
- firmware upgrades and modular electronics replacement
- ruggedised design with increased operational tolerances
- military operationally proven NSN 5895-66-150-8767



Introduction

Whenever a computer network (LAN) requires a rapid field deployment or a flexible link extension – *anywhere rapid deployment of high speed data over a sturdy infrastructure is essential* – Defence Communications Industry has a product to meet and exceed these requirements.

A breakthrough product that uses twisted pair cabling (*plain or reinforced cables*) as its infrastructure, is capable of high data throughput of 8 Mbit/s (*over 5 km distance*) with a range of additional integrated features and requires no additional equipment to configure or manage its operation.

The product, P3 (*P for Portable and 3 for the number of RADSL comms channels*) is ideally suited for defence and industrial application where a LAN network may require a flexible field deployment or an extension.

Traditional, fibre-optic based LAN systems while offering faster transmission speeds are susceptible to physical damage of the fibre, are slower and significantly more expensive to deploy and practically impossible to repair in the field. Copper on the other hand is much stronger (esp. steel reinforced cables) and significantly cheaper to deploy and retrieve after operations. Importantly too, copper is extremely easy to repair in the field.

P3 allows unprecedented extensions flexibility in military and industrial LAN deployments at a fraction of the cost of fibre optics. Its additional integrated features, stand alone functionality and portability make it a wise choice in field deployed communications today.

"P3 Resurrects (DON10) Copper"



A self contained data system

P3 features integrated power source (battery cells), capable of up to 8 hrs operation under full load. It also operates from a variety of power sources such as AC mains, DC generators, solar panels, etc.

P3's diverse modes of operation provide several possibilities in the way the system can be deployed; from a simple point to point transparent LAN link to a complex web of P3s, including a data repeater mode, effectively extending the reach of P3 from 5 to 10 km to 15 km, etc. (these configuration options are illustrated on the opposite page).

P3 utilises the DMT Rate Adaptive Digital Subscriber Line (RADSL) technology for its transparent LAN extensions. This is ideally suited to networks requiring increased noise immunity and tolerance. P3's components withstand extreme environmental conditions.

The unit features six 10/100 Base-T Ethernet interfaces allowing a wide range of additional applications i.e. video monitoring and surveillance, remote instrumentation and unattended sensors control, encryption and many others. Each P3 unit features integrated telephone handset for voice communications over the same copper cable as used for data (independently of LAN traffic, functioning even if the LAN fails). In addition, VoIP telephony allows transparent – across the WAN – secure telephony. Large scale P3 deployments are possible with highly featured local and remote management functionality as standard with each unit.

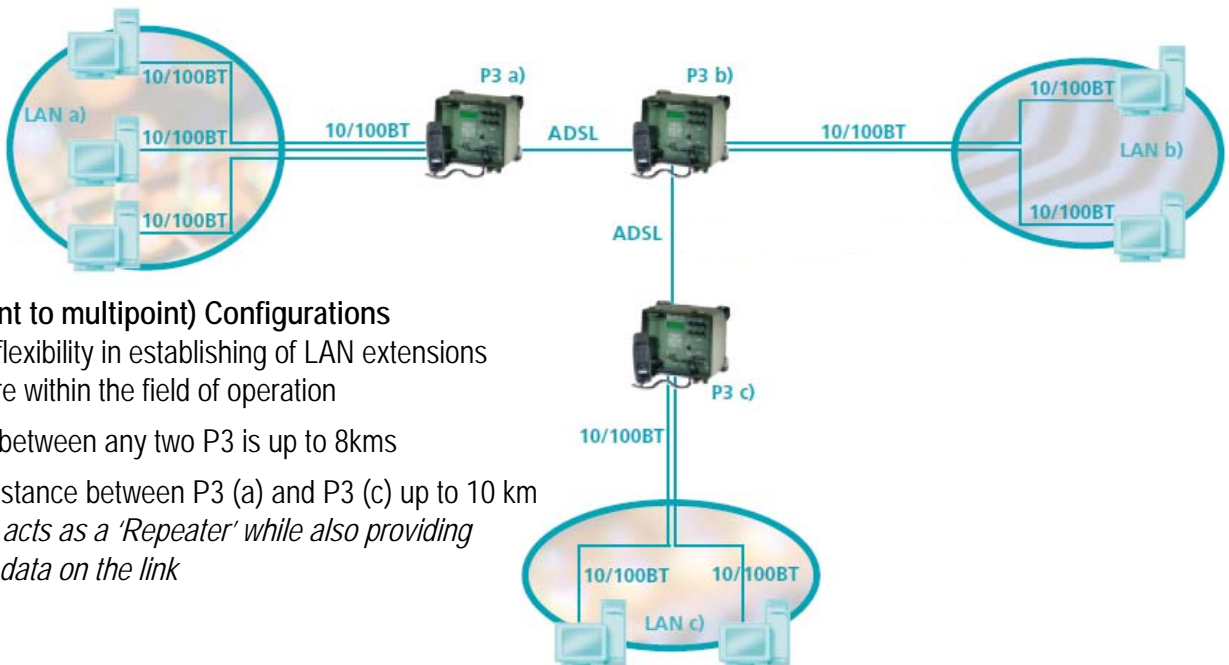
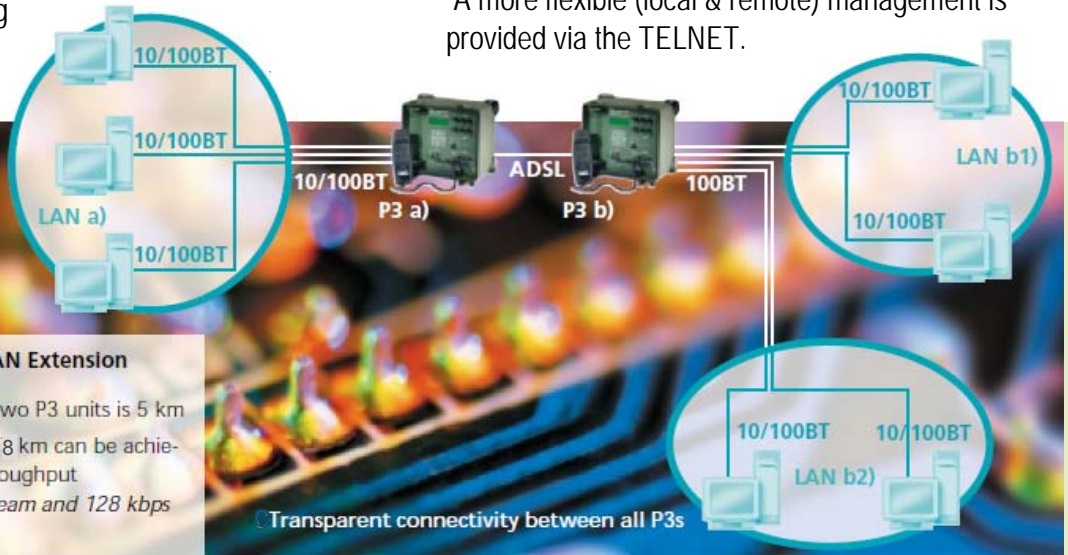
P3 – P1 Compatibility

P3 is fully compatible with the P1 (single RADSL channel LAN extension) system, increasing data links configuration options.



P3 Major Features

- P3 has Integrated Bridging and Spanning Tree capability, advanced noise immunity, 'plug and forget' modes of operation and fully ruggedised design
- **RADSL (Rate Adaptive ADSL) interface** is in accordance with ITU-T G.992.1/ANSI T1.413 and capable of up to 8 Mbit/sec in the Highstream direction and up to 1 MBit/sec in the Lowstream direction (selectable configuration option)
- Apart from the integrated battery capable of up to 8Hrs full load operation, P3's power supply accepts numerous external power options (e.g. solar panels, generator, etc.) including a wide operating mains voltage range (from 90 to 260 VAC)
- Configuration options available range from simple point to point transparent LAN links to a complex web of P3s, including a data repeater mode of operation, effectively extending the reach between P3s from 5 to 10kms to 15kms and beyond (see diagrams)
- Six Ethernet (10Base-T and 100Base-TX) interfaces provide direct connectivity for several computers or auxiliary units (e.g. video cameras) without the need for external hub or switch devices
- RS232 Interface provides access to the management and configuration functions of the device. A more flexible (local & remote) management is provided via the TELNET.



Hybrid (point to multipoint) Configurations

- P3s allow flexibility in establishing of LAN extensions to anywhere within the field of operation
- Distances between any two P3 is up to 8kms
- effective distance between P3 (a) and P3 (c) up to 10 km *i.e. P3 (b) acts as a 'Repeater' while also providing access to data on the link*

Hardware Features

Ethernet Interface

- Interface Type: 10Base-T (IEEE802.3) / 100Base-TX (IEEE802.3u), half duplex
- Data Rate Auto-Negotiation Function
- RJ45 connector
- One MDI and five MDI-X wired interfaces
- Distance max. 100 m

ADSL Interfaces

- Three ADSL interfaces which can operate in TxHigh or TxLow modes independently of each other
- DMT ADSL according to ITU-T G.992.1 & ANSI T1.413 Issue 2 (Full rate over analogue telephone lines)
- Up to 8 Mbps in highstream direction and 1 Mbps in opposite direction (in 32 kbps increments)
- Maximum reach up to 5 km with AWG26 cabling (longer with thicker gauge copper)
- Connector type: WD-1A/TT (spring loaded binding posts)
- Copper Cable Types:
 - symmetrical twisted pair (shielded or unshielded)
 - military or Industrial Grade (steel reinforced copper cable)

POTS Interfaces

- Three interfaces corresponding to ADSL interfaces for simultaneous transmission of voiceband services via twisted pair copper line
- Transparent Tip/Ring interface
- Connector: RJ45
- Reference impedance: 600 Ω

Handset Interface

- For VoIP based network telephony or 'Order Wire' applications
- Reference impedance: 600 Ω
- Ringing Frequency: 25 Hz

Integrated Ruggedised Telephone Handset

- Multi-frequency Dialling Mode Support
- Memory for 10 phone numbers
- Dialling repetition function

Local Serial Interface

- RS232
- Sub D, 9 pin connector
- Data Rates: 38.4 kbps
- Distance max. 15 m

Power Supply

- DC power input 10 V ... 45 V
- Power consumption for operation below 15 W
- External AC adapter with universal input voltage range 90..260V and 47..63 Hz input frequency
- Internal backup batteries for 6 ... 8 hours sustained operation

Visual and Audio Indicators (Alarms)

- Front panel LEDs indicate unit power/battery charging status, DC polarity mismatch, network connection and activity for Ethernet and ADSL interfaces
- Optional acoustic alarm notifies critical system states (battery critical low)

Software Features

ADSL

- Automatic Bitrate Adjustment (RADSL) *Bridging*
- IEEE802.1d transparent, learning bridge
- Dynamic learning of MAC addresses
- Spanning Tree Algorithm
- HDLC Encapsulation of MAC-Frames with minimum overhead
- *Management*
 - Manage all functions through an integrated LCD display/keypad interface
 - Local management console for extended service and diagnostics via RS232 interface
 - Remote management support via TELNET console from an arbitrary point in the network
 - Trivial File Transfer Protocol (TFTP) support for software updates

Voice over IP Software (option)

- Compliant with ITU-T H.323 Protocol Stack family
- Speech compression according to ITU-T G.723.1 (6,3/5,3 kbps) and G.711 (64 kbps A-law/ μ -law)

Additional Features

Mechanical Characteristics

- Mil. Spec. shock absorbent ruggedised casing (including air-pressure valve for air transport)
- In-built carry handle
- Dimensions: 326 mm x 300 mm x 226 mm (L x W x H)
- Weight approx. 10 kg/24 lb
- Storage space for supplementary parts

Environmental Conditions

Safety CENELEC EN 60 950

EMC Immunity CENELEC EN 55 024

EMC Emission CENELEC EN 55 022

Climatic Conditions

Operation -25°C/-13°F ... 55°C/131°F

(ETSI ETS 300 019-1-3: Class 3.3)

Transport -40°C/-40°F ... 70°C/158°F

(ETSI ETS 300 019-1-2: Class 2.3)

Storage -25°C/-13°F ... 55°C/131°F

(ETSI ETS 300 019-1-1: Class 1.2)

Mechanical Protection Class (IEC529)

Closed Lid IP52

Opened Lid IP41



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