DPX-400-SxD SCATS® modem

VDSL/ADSL LAN Router

(TfNSW Type Approval certificate number: ITS-TAN000120 spec TSI-SP-018 Rev 4.0)
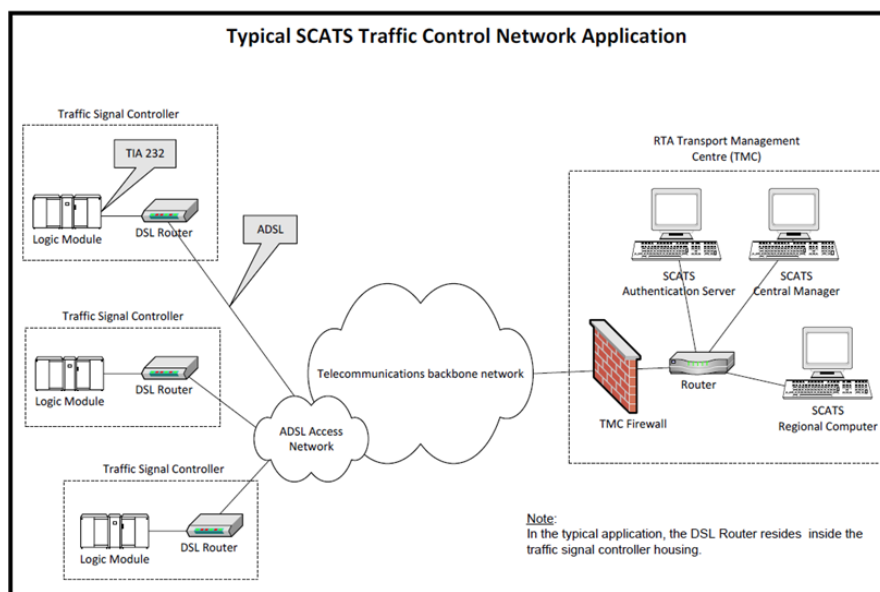
DRAFT – Rev 1.3

DPX-400-SxD SCATS• functional/operational Overview

General

The DPX-400-SxD xDSL Router is used by traffic signal controllers (TSC) for communication between SCATS® Regional Computer and the serial port of the TSC via a copper-wire pair using digital subscriber lines. The DPX-400-SxD is designed to be in accordance with RMS Specification: TSI-SP-018 Rev 4.0.

The DPX-400-SxD receives SCATS® serial messages from the TSC, encapsulates the messages in SCATS® TCP/IP format and transmits them onto the telecommunications provider's ADSL line to the central site it also decodes the received responses.

The DPX-400-SxD system comprises a DPX-400-SxD device server and xDSL router with a command line (CLI) control interface and Ethernet interconnection between them.

Backup of the two configuration files will initially be possible locally via the USB port or using Serial over Ethernet. The router section can be entirely controlled remotely via IP protocols and the DPX-400-SxD section using Serial over Ethernet.

Automatic switch over to 4G connections are not defined by RMS and only a manual backup configuration can be implemented via the 4G LTE interface should the xDSL link be inoperable for an extended period.

DPX-400-SxD Overview

- The DPX-400-SxD is designed to be in accordance with TfNSW Specification: TSI-SP-018 Rev 4.0 with TfNSW
- Type Approval TfNSW **TSI-SP-018 Rev 4.0** (ref ITS-TAN000120)
- Dual SIM Mobile Broadband (two network provider 4G back-up and restoral) – used if ADSL2+/VDSL2 lines go down
- Bluetooth MAC address collection for AddInsight applications
- I/O blocks 2 x 12V source plus 3 Input's and 3 Relay Outputs
- Supporting VC4/VC5/ VC6 TSC's regardless of firmware age.
- ADSL2+/VDSL2 module tested (and passed) by Telstra-Lab NBN (Melbourne) in 2019 before inclusion

Future Plans

- HHT over Bluetooth
- SFP fibre connectivity – prototype complete
- SPaT

Power Protection

- Input power filtering covering noise, transient suppression and pulses coming down the line.
- 240VAC protection short circuit and failure 2A fused.
- Common mode and differential mode protection
- Transient protection 8/20uS pulse.
- Max input protection current 6KA (1pulse) 1KA (50pulses)
- This value is the aging of the varister Clamp voltage 800V.
- Both X & Y safety capacitors are fitted.
- Mains pulse testing can be performed without the system on as the mains protection is an independent circuit

Lightning Protection

- Two levels of internal lightning protection - **field replaceable 1st level GDA**
- (Gas Discharge Arrestor) for common & differential protection and varistor across line to ground
- Integrated router has 2
- nd level DC blocking caps, TVS and GDA
- DPX-400-SxD unit has excellent surge/lightning protection (Surge/flicker/transient), this protection ensures connection speeds remain high.

Visual Indicators (LEDs)

- The Front panel is designed to have a simplified section of indicators that provide sufficient information for fault diagnosis and operational qualification.
- Critical functions use Variable intensity Coloured (Red/Green/Amber) LEDs which provide unambiguous and good visibility in direct sunlight.

Coloured LED type indicators:

Red   ON   Fail

Green   ON   Good Flash-trying

Amber   OK   or performance low

Enclosure

- Front access /visibility.
- Bonded to ground - ground strap/spike on enclosure
- Tall and thin – cable management on front/right side
- Ventilated
- Black powder coated aluminium for reduced weight and durability
- Standalone with stabilisers or fastened to Controller shelf with clip system or tie wraps

![Dataplex - SECURE ACCESS NETWORKS]

Common Features	DPX-400-SxD
Power Plug Connector	IEC power inlet fused snap fit with "On"/"Off" integrated rocker switch 10A with T1A time delay 250V fuse 20x5mm
Remote Control Access	DPX-400 has a configuration program and the ADSL2+/VDSL2 Router has a web-based configuration that provides Port configuration, status, statistics, monitoring diagnostics & security. **Device Manager – pending.**
LED Indicators (SCATS® version)	For device status
Enclosure Dimensions (W×D×H)	200 mm × 300 mm × 70mm NB: extension to base has adds extra 130 mm to width for enclosure lateral stability (DIN Rail optional)
Power Requirements	Nominal 240VAC
Environmental	Commercial (-10°C to 70°C) operating temperature (fan-less) 95% humidity non-condensing
Power backup	UPS storage (Super capacitors) for 5 to 10 seconds backup (depends on activity)
Reset button	SPST Rocker Switch
Certification	Safety: AS/NZS 60950.1:2015 EMC: AS/NZS CISPR 32 and AS/NZS CISPR 24 Environmental test doc: 20V-20-0008-TRP-12150100-0 Certificate of Suitability: CS10944N
Warranty	Two-year limited warranty to the original owner
Interfaces and sockets	
Ethernet	3 x Connection to an Ethernet cable
USB-C	PC management Connection (console port) via a USB Interface.
GPI0	I/O blocks 2 x 12V source plus 3 Input's and 3 Relay Outputs
2 x EIA-232 (DB9) Connector(s)	Connection to TSC (Traffic Signal Controller) and HHT (Hand Held Terminal) port.
Power Input	Connects to a 240VAC mains power source
Mobile Broadband SMA Antenna	Allows Wireless connection between the server and sites
Bluetooth SMA Antenna	
LED Indicators	Displays certain status conditions
Dual SIM Card	Allows user to insert a standard size SIM Card
SD Card	To store information and configuration
RJ11 Connector	6P6C socket with centre two pins connecting to ADS2+L/VDSL2
Reset	Reboots or puts unit back to factory default

END