

## iDirect® Series 12200 Universal Hub (Industrial 4-Slot)

### The ideal sized hub for deploying multiple high performance IP broadband networks in harsh environments

At 17.5 inches wide by 10.5 inches high, the iDirect Series 12200 Universal Hub (Industrial 4-slot) chassis is a cost-effective, compact, and durable solution for military, comms-on-the-pause, first responders, disaster recovery, or other field operations, who will benefit from the flexibility, efficiency, and reliability of an iDirect hub solution. The hub consists of 4+1 slots and up to 4 IF interfaces, enabling multiple in- and outbound networks on four satellites.

### Industrial Design

The industrial, compact hub chassis' design is based on guidelines of MIL-STD 810F for operation and storage in the field. Created by the U.S. government, the MIL-STD 810F standard specifies test procedures to measure levels of operational and storage durability under harsh environmental conditions. The Series 12200 Universal 4-Slot Hub is tested in accordance of the standard for temperature, altitude, humidity, shock and vibration performance.

### Scalability and Maximum Flexibility

Service providers are able to start with a smart and feature-rich solution while offering the same functionality as iDirect's larger hubs, including: integrated IP routing, TCP/IP acceleration, advanced Group QoS, and military-grade encryption. Scalability is furthermore achieved through a hub daisy-chaining capability. The hub is highly flexible, supporting star and mesh topologies and bandwidth can be increased on the fly up to 20 Mbps on the outbound and 64 kbps to 10 Mbps on the inbound.

### Greater Control and Manageability

Convenient plug-in modules, with an extensive LED array, offers even more control and manageability. The management control module includes power and fan status module reset switches, audible alarm on/off, and over temperature sensor switches. The LED array provides instant status checks on IF modules, line cards, power supplies, fans, RCM and chassis conditions. Simple and intuitive, the iVantage™ network management system is a complete suite of software-based tools for configuring, monitoring, and controlling an entire satellite network from a single or multiple locations.

### Ease of Mind with Built-in Redundancy

Reliability is achieved through redundant components: power, fan, RCM, as well as optional outdoor power modules, and future line card redundancy.



### Features

- ◆ MIL-STD 810F certified for temperature, altitude, humidity, and shock/vibration
- ◆ Compact design with four line card slots and fifth slot for configuration or redundancy
- ◆ Interface with up to four satellites from one hub
- ◆ Supports iINFINITI TDM rates up to 20 Mbps on the outbound
- ◆ Supports star and mesh topologies
- ◆ High level of redundancy with integrated, convenient plug-in modules

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### Network Configuration

|                            |  |
|----------------------------|--|
| <b>IFM</b>                 | 4IF  |
| <b>SatCom Interfaces</b>   | TxIF: Type – F, 950 – 1700 MHz<br>RxIF: Type – F, 950 – 1700 MHz |
| <b>Line Cards Slots</b>    | 4 plus 1 (can be used for configuration or redundancy*)          |
| <b>Remote Requirements</b> | Works with any iNFINITI® Series remote                           |

### Line Card Specifications

|   |  |
|---|--|
| <b>Model</b>                            | Designed for use with iNFINITI line cards: M1D1-IND, M1D1-T-IND<br>Compatible with iNFINITI line card M1D1-TSS** |
| <b>Max. IP Data Rates Per Line Card</b> | Downstream: up to 20 Mbps<br>Upstream: up to 10 Mbps***  |
| <b>Network Access Scheme</b>            | iNFINITI TDM on the outbound, deterministic MF-TDMA on the inbound   |
| <b>Topologies</b>                       | Star, mesh   |
| <b>LAN Interface</b>                    | RJ-45, Cat 5e, 10/100/1000 Mbps Ethernet   |

### Power Specifications

|  |   |
|--|---|
| <b>Input Voltage Range</b>                   | 100 – 240 VAC, single Phase, 50-60 Hz, 6A max at 90 VAC, 3A max at 240 VAC                                |
| <b>Frequency</b>                             | 47 – 63 Hz  |
| <b>Outdoor Power Module (OPM) — Optional</b> | BUC - 24 VDC or 48 VDC, 1+1 redundancy, hot-swappable (BUC up to 20W C-Band, 16W Ku-Band)<br>LNB - 19 VDC |
| <b>Main Power Module</b>                     | 525 Watt, 1+1 redundancy, hot-swappable   |
| <b>BTU</b>                                   | 1793 BTU/hr.  |

### Mechanical and Environmental

|                                  |  |
|----------------------------------|--|
| <b>LED Display Module</b>        | Line Card Status, IF module status, Fan status module (FSM), RCM A and B alarm, BUC power supply A and B alarm, main power supplies, A and B over temperature status and A and B power good, control module status, chassis over temp status |
| <b>Size</b>                      | W 17.5 in (44.45 cm) x D 19 in (48.26 cm) x H 10.5 in (26.67 cm) (6U)  |
| <b>Weight Empty</b>              | 60 lbs (27.2 kg)   |
| <b>Temperature</b>               | Operational: -22° to 140°F (-30° to 60°C), tested in accordance with MIL-STD 810F<br>Storage: -40° to 176°F (-40° to 80°C), tested in accordance with MIL-STD 810F   |
| <b>Humidity</b>                  | Operational over range of 5 to 95% non-condensing, tested in accordance with MIL-STD 810F  |
| <b>Altitude</b>                  | Operational: Up to 10,000 feet (< 3,048 meters), tested in accordance with MIL-STD 810F<br>Storage: Up to 35,000 feet (< 9,144 meters), tested in accordance with MIL-STD 810F   |
| <b>Vibration and Shock</b>       | Operational and storage profile tested in accordance with MIL-STD 810F   |
| <b>Fans</b>                      | One fan status module, 2 fans 1+1 redundant, hot-swappable   |
| <b>Management Control Module</b> | Power reset switch, audible alarm on/off switch, over temperature sensor, fan status module, reset switch  |
| <b>Start of Frame (SOF)</b>      | Start of Frame toggle switches (on front panel) for timing group configuration   |
| <b>Reference Clock Module</b>    | 10 MHz, 1+1 redundant, with auto fail-over, hot-swappable, external GPS Ref. capable<br>Hub daisy chain capable — 4-slot to 4-slot (2 maximum)   |
| <b>Radio Standards</b>           | EN 301-428 v1.3.1 — Ku-Band System Level Specification<br>EN 301-443 v1.3.1 — C-Band System Level Specification  |
| <b>Safety Standards</b>          | Complies with IEC 60950, EN 60950-1, UL 60950-1, CSA C22.2 No.60950-1-03   |
| <b>Emission Standard</b>         | Complies with EN 61000-3-2, EN 61000-3-3, EN 55022 Class A, FCC Part 15 Class A, CISPR 22 Class A  |
| <b>Immunity Standard</b>         | Complies with EN 55024, EN 301-489-1, EN 301-489-12, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11   |
| <b>Certification</b>             | FCC, CE & RoHS compliant   |

\* planned

\*\* M1D1-TSS line card does not meet industrial-grade standards as specified in MIL-STD 810F \*\*\* when operating with QPSK rate 0.793 in receive only mode