



t-Series®

*The Intelligent Solution for Wireless
Coverage and Capacity*

All-Digital t-Series - Going Beyond DAS

With the increasing popularity of mobile devices, users expect to have seamless data services anywhere, at anytime. The advanced all-digital t-Series® is purpose-built to address today's challenges of managing wireless data traffic, both indoors and outdoors. t-Series is based on the award-winning RF ROUTER® platform which enables coverage and capacity to be routed to where and when needed.

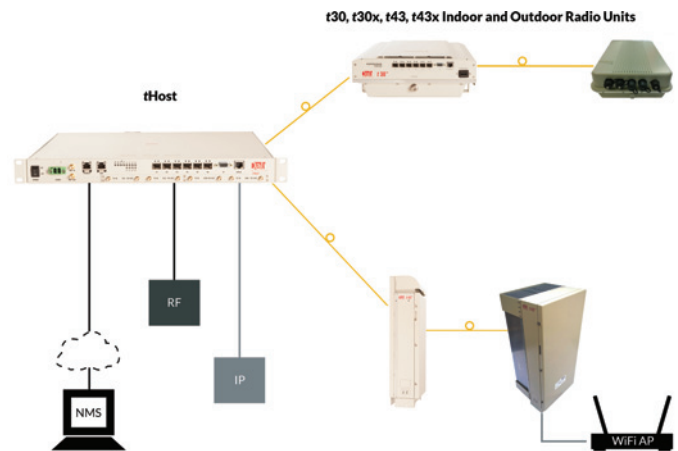
As a software-configurable solution, t-Series is helping mobile operators minimize Total Cost of Ownership of their network infrastructures. t-Series delivers the high capacity of a macro cell, the flexible coverage of distributed antenna systems (DAS) with the footprint of a pico cell, and without traditional interference challenges.

It supports all global frequency bands, and is technology-, and vendor-agnostic, making it a future-proof solution with applications across virtually all environments including stadiums, arenas, campuses, airports, and tunnels as well as public safety scenarios. This gives unmatched flexibility and scalability to mobile operators, system integrators, and enterprise.

Overview

Dali Wireless t-Series RF Router is an all-digital platform that's scalable in both capacity and coverage simultaneously and independently. With an all-digital solution, key benefits include:

- **More data throughput** – With Dali's patented signal processing algorithms, it transcends the capabilities typically associated with traditional DAS. The RF noise floor is unaffected by fiber length, allowing greater reach without signal degradation and better users' experience.
- **Simplified Architecture** – It supports both indoor and outdoor environments with a suite of remote units that connects to the same headend. This makes design, installation and maintenance much easier. In addition, it provides a transparent Ethernet channel of 1 Gb/s or higher on each fiber link. This can be used to backhaul traffic of Wi-Fi Access Points of any other IP devices.
- **Guaranteed Power Allocation** – With Dali's patented guaranteed power allocation technology, it enables power assignment on a per operator basis. This ensures desired distribution of available power amongst the operators.
- **Flexible Topology** - It enables multiple network topologies that cater to different deployment scenarios: star, chain and hybrid.
- **Maximized utilization of capacity** - With Dali's patented dynamic capacity re-allocation capability, one can allocate capacity among buildings or hotspots here and when it is required. This results in maximized utilization of resources and decreased capital and operational cost.



tHost® - Headend

tHost® is a digital and software configurable unit that forms the headend of the t-Series network.

On the downlink (DL) path, tHost receives RF signals from the base stations (BTS). The RF signals are then converted to digital data packets. Third party IP appliances data can also be transported, and the aggregated digital data stream is then distributed via fiber optic link at a data rate of 6 Gb/s to the radio units.

On the uplink (UL) path, tHost performs the reverse functions and delivers the signals back to the corresponding base stations as RF, and the IP data to the internet network.

The tHost connects with the low and high power radio units in a “plug-and-play” manner. When a radio unit is added to the network, it is automatically identified and configuration is performed at the user interface. To serve additional mobile operators, tHost units can be cascaded and their signals are digitally processed and combined. The aggregated content are sent over optical fiber to the radio units. Also with Dali’s patented power allocation technology, it controls and enforces power levels at the dedicated remote on a per operator basis.

Monitoring and control can be performed locally and remotely via the Element Management System (EMS) or the Network Management System (NMS).



tHost headend unit



tHost units can be cascaded and their signals are digitally processed and combined

t30™ and t30x™ - Low Power Remote Units

t30™ is a low power indoor radio unit. t30x™ is a low power outdoor radio unit. They can each process 4 RF frequency bands simultaneously over a single optical fiber at a data rate of 6 Gb/s. t30 and t30x each have an optical link budget of 15 dBo to 30 dBo and can accommodate a 1 Gb/s or higher Ethernet backhaul.

On the DL path, t30 and t30x each receives the digital data stream from the tHost and converts the signal back into RF for transmission over the antenna. On the UL path, t30 and t30x each converts the RF signal into digital data packets and transports the signal over a single optical fiber. t30 and t30x can aggregate instantaneous bandwidth of up to 164 MHz uplink and up to 164 MHz downlink, per fiber.

t30 and t30x can be connected to the tHost in a star, daisy-chain, or hybrid star/daisy chain configuration. Dali's ability to support multiple topologies enables greater design flexibility, and reduces fiber requirements and installation costs.

During installation, t30 and t30x can be mounted side by side. Therefore, an eight-band installation can be achieved with two quad-band t30 / t30x.



t30



t30x

t43™ and t43x™ - High Power Remote Units

t43™ is a high power radio unit. t43x™ is a fanless high power radio unit. They can each process 2 RF frequency bands simultaneously over a single optical fiber at a data rate of 6 Gb/s. t43 and t43x each have an optical link budget of 15 dBo to 30 dBo and can accommodate a 1 Gb/s or higher Ethernet backhaul.

On the DL path, t43 and t43x each receives the digital data stream from the tHost and converts the signal back into RF for transmission over the antenna. On the UL path, t43 and t43x each converts the RF signal into digital data packets and transports the signal over a single optical fiber. t43 and t43x can aggregate instantaneous bandwidth of up to 164 MHz uplink and up to 164 MHz downlink, per fiber.

t43 and t43x can be connected to the tHost in a star, daisy-chain, or hybrid star/daisy chain configuration. Dali's ability to support multiple topologies enables greater design flexibility, and reduces fiber requirements and installation costs.

During installation, t43 and t43x can be mounted side by side. Therefore, a four-band installation can be achieved with two dual-band t43 / t43x



t43



t43x

Specifications

Radio Frequency (RF)

Air Interfaces Supported	GSM/GPRS/EDGE UMTS/WCDMA/HSPA+ CDMA2000/1Xev-DO LTE
Frequency Bands Supported	NA: 700, 800, 850, 1900, AWS, 2300 MHz EMEA: 900, 1800, 2100, 2600 MHz
Aggregated Bandwidth	Up to 164 MHz per wavelength
System Delay	UBiT: ≤ 4 us t30/t30x/t43/t43x: ≤ 4 us
Delay Adjustment (Automatic)	≤ 160 us 35 ns or less (band dependent) - compliant with 3GPP MIMO requirements

Optical

Optical Budget	15 to 30 dBo (SFP dependent)
Optical Transport Rate	5.856 Gb/s

tHost®

Radio Frequency (RF)

DL Maximum Input Power	≤ -17 dbm ≤ -10dBm with 7 dB attenuation at tHost
UL Output Power	≤ 0dBm

Environmental

Operating Temperature	0 to +40 °C
Relative Humidity	≤ 85 %

t30™

Radio Frequency (RF)

Number of Supported RF Band Modules	4
DL Maximum Output Power	30 dBm per band

Environmental

Operating Temperature	0 to +40 °C
Relative Humidity	≤ 85 %

t30x™

Radio Frequency (RF)

Number of Supported RF Band Modules	4
DL Maximum Output Power	30 dBm per band

Environmental

Operating Temperature	-40 to +50 °C
Relative Humidity	< 95 %

Others

Operating Power	-48 VDC
Form Factor	19" Rack Mount, 1 RU

Size (W x H x D)	19" x 1.8" x 15" 482 x 45 x 380 mm
Weight (Fully loaded)	17.6 lbs / 8 kg

Others

Operating Power	-48 VDC 110/220 VAC with external AC to 48 VDC adapter
Size (W x H x D)	12.9" x 18.9" x 4.6" 328 x 480 x 118 mm

Weight (Fully loaded)	30.8 lbs / 14 kg
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Others

Operating Power	110/220 VAC with built-in AC to -48 VDC adapter
Size (W x H x D)	13" x 20.3" x 4.7" 330 x 515 x 135 mm

Weight (Fully loaded)	34 lbs / 15.5 kg
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t43™

Radio Frequency (RF)

Number of Supported RF Band Modules	2
DL Maximum Output Power	43 dBm per band

Environmental

Standards	IP65 NEMA 4/4X
Operating Temperature	-40 to +50 °C outdoor
Relative Humidity	≤ 95 %

Others

Operating Power	100 - 240 VAC, 50/60 Hz
Size (W x H x D)	10.8" x 26" x 6.5" 273 x 710 x 166 mm
Weight (Fully loaded)	49.9 lbs / 22.kg

t43x™

Radio Frequency (RF)

Number of Supported RF Band Modules	2
DL Maximum Output Power	43 dBm per band

Environmental

Operating Temperature	-40 to +55 °C
Relative Humidity	≤ 95 %

Others

Operating Power	100 - 240 VAC, 50/60 Hz -48 VDC
Size (W x H x D)	12.2" x 27.6" x 10.9" 310 x 700 x 277 mm
Weight (Fully loaded)	66 lbs / 30 kg

tSeries - The Intelligent Solution for Wireless Coverage and Capacity

The all-digital t-series platform provides mobile operators and enterprises a cost effective way to rapidly increase wireless coverage and capacity where and when needed.

Learn more at www.daliwireless.com/Products



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