



LEONARDO CYBER & SECURITY SOLUTIONS

# DTA-NODE

TETRA ADAPTANET®  
RADIO BASE STATION

Adaptanet® DTA-Node is a new step forward in Leonardo TETRA Radio Base Stations.

Designed to ensure compatibility with previous generation Adaptanet® BS-Node systems, it features flexibility and efficiency required by demanding PMR users and ensure the reliability and security required for the challenges of the next years.



## DTA-NODE EVOLUTION IN CONTINUITY

Leonardo **DTA-Node** is the result of an evolution process of company in TETRA technology. Distinguished by an innovative hardware architecture, the Adaptanet® DTA-Node maintains leading features of BS Node and BS Node-C radio base stations, adding a new level of modularity and flexibility and maintains fully interoperability with previous RBS generation that can be used in mixed configurations under the control of Leonardo CSP core network.

### DTA: A NEW FLEXIBLE ARCHITECTURE

DTA is the new family of Leonardo convergent modular multi technology radio base stations, leveraging powerful hardware modules, increased security and high degree of flexibility. Complex TETRA networks can be realized by combining the same building block, called DTA carrier, implementing a complete transceiver in terms of computational power, synchronization capabilities, radio and terrestrial interfaces.

DTA carrier is enchased in 19 inch standard shelf allowing modularity in node construction and provides Ethernet ports for interconnection with the external world.

Each DTA carrier module provides all the TETRA functionality, with two or three-way receiving diversity, and it is constituted by three boards providing:

- Radio Transceiver Base Band functions
- Radio frequency Unit function
- Power Supply Unit function.

Current TETRA DTA Carrier features a 25W RF power after branching and is housed in a rack mountable 2U chassis.

### FROM DTA CARRIER TO DTA-NODE

Several DTA carrier can be stacked to compose a complete base station with the addition of branching elements, Power Distribution Unit (PDU) and I/O expansion unit DTA Nodes are fully compliant with Adaptanet® TETRA networks and can be mixed to our existing BS Nodes in technology homogeneous but mixed architecture infrastructures.

The TETRA DTA-Node normally operates under control of application layers provided by the core element **CSP-CM (CSP Communication Manager)**, but it can also work stand-alone from the rest of the network in so-called "Fall-back" mode (isolated mode).

In this situation the DTA-Node is able to provide some limited telephonic services to the mobile users under its coverage area. A DTA-Node contains:

- DTA Carriers
- Braching unit including combiners, duplexers, VSWR meter, LNA, splitter and filters ensuring the correct matching and handling of DTA carriers and antennas configuration
- Interface modules providing I/O expansion and simplifying LAN and power connections
- Power Distribution Unit (PDU).

The DTA-Node can be configured with hybrid or cavity combiners according to the requirements and can be providing with 2 TRX or 4 TRX version (Bi or Tri-Diversity).

## REDUNDANCY AND RELIABILITY

Availability, maintainability and ease of use are ensured by a combination of hardware characteristics and architectural features that allow to implement effective and robust professional networks solutions.

DTA-Node supports remote firmware upgrade, SNMP management and eased maintenance thanks to modular approach that allows low MTTR.

Branching 6U and DTA Carrier are mounted on sliding guides to facilitate operations maintenance from the front side.

DTA-Node is also characterized by enhanced cyber security with cyber agent and embedded firewall.

The DTA Node is able to detect faults related to external conditions (i.e. data link connection loss or excessive VSWR on active antennas), or failure of internal modules through build-in observation points and periodic diagnostic. Fault tolerance characteristics have been enhanced with:

- Capability of self-reconfiguration in case of failures. In particular, the failure of the radio transceiver will not have any impact on the others.
- Redundancy of link toward other network elements, with autonomous capability of switching to one of them when the other fails.
- Possible of redundancy of major modules, all data routes and main power supply
- Capability of automatically activated fallback mode in the event of an interruption in both the DTA Node links in order to allow the functionality within the coverage area.

## KEY FEATURES

- Direct connection to IP backbone through Ethernet ports
- Powerful Fallback Mode supporting group/individual calls, data transmission and encryption
- TETRA Air-Interface Encryption TEA
- Selection of hybrid or cavity combiners
- 2 or 3 ways diversity
- Multi slot packed data for enhanced TETRA services
- Enhanced security (cyber agent with embedded firewall)

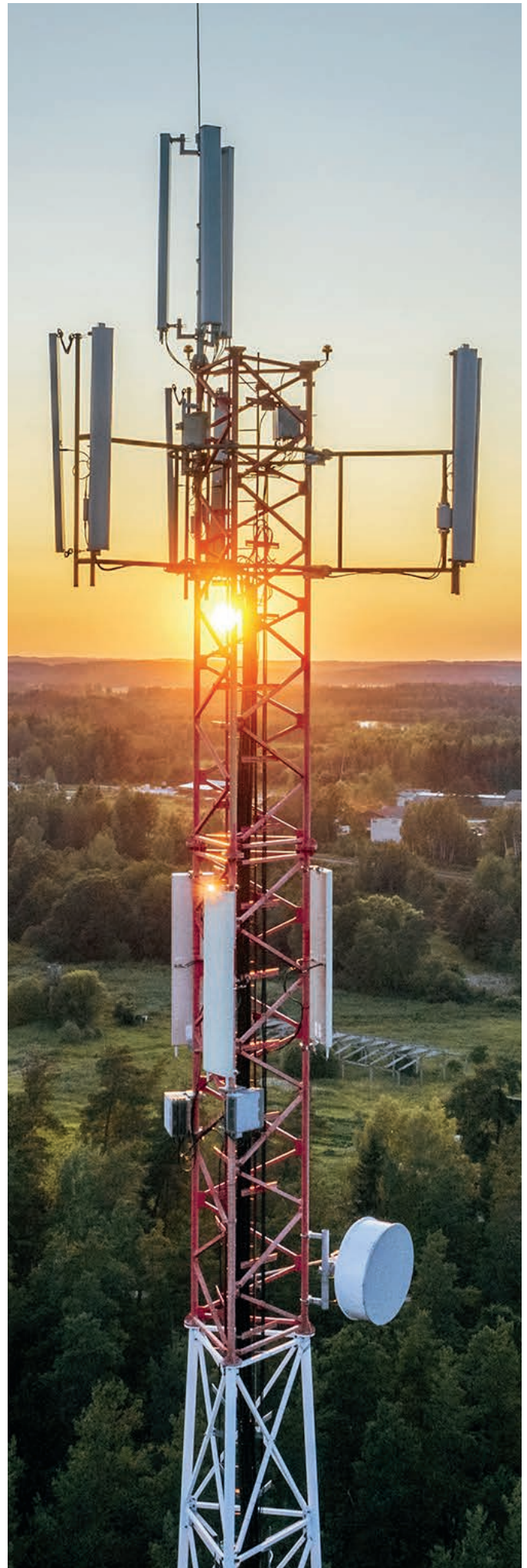
## DTA CARRIER VARIANTS

Thanks to the flexibility of the architecture, the following variant of DTA carrier are provided and certified:

- 380-470 MHz (UHF), High Power



Particular of the DTA carriers



## TECHNICAL SPECIFICATIONS

DTA carrier	
Frequency bands	380-470 MHz
Output power	70W
Power supply	48 Vdc isolated (44 to 60Vdc)
Consumption	Typical 235W (@48 Vdc)
Clock	Synchronization by internal GPS receiver
Channel spacing	25 kHz
Duplex spacing	10 MHz
Modulation type	P/4 DQPSK
Operation	Full duplex
Dimensions	(HxWxD, external) 87.2 x 482.5 x 339 mm [3,44 x 19" x 13,35 in]
Weight	About 15 kg [33,07 lb]
Cooling system	Internal fans
External interfaces	<ul style="list-style-type: none"> <li>• no. 2 RJ-45 LAN connections</li> <li>• no. 1 DB15 (6+6 IO)</li> <li>• no. 1 N female RF connector</li> <li>• 2 (+1) female SMA RF connector</li> <li>• Mini USB RS232 terminal</li> <li>• no. 2 4W E&amp;M</li> <li>• no. 1 (+1) female SMA GPS antenna connector</li> </ul>

DTA Node	
Frequency bands	380-400 MHz / 410-430 MHz / 450-470 MHz
TETRA power class	2 (+44 dBm) (@antenna connector according to ETSI EN 300-392-2)
Power supply	48 Vdc isolated (44 to 60Vdc)
Receiver type	Class A, 2 ways diversity (3 ways diversity as option)
Rx sensitivity	-119 dBm @BER 4%
Clock	Synchronization by internal GPS receiver
DTA Node 2-TRX	<ul style="list-style-type: none"> <li>• Consumption: typical 520W (@48 Vdc) / with hybrid combiner, power class 2</li> <li>• Dimensions: (HxWxD, external) 14U x 600 x 600 mm [14U x 23,66 x 23,66 in]</li> <li>• Weight: ~135 kg (max. configuration) [297,6 lb]</li> </ul>
DTA Node 4-TRX	<ul style="list-style-type: none"> <li>• Consumption: typical 990W (@48 Vdc) / with hybrid combiner, power class 2</li> <li>• Dimensions: (HxWxD, external) 20U x 600 x 600 mm [20U x 23,66 x 23,66 in]</li> <li>• Weight: ~180 kg (max. configuration) [396,8 lb]</li> </ul>
Protection degree	IP20 according to ETSI EN 60529
Cooling system	Internal fans
External interfaces	<ul style="list-style-type: none"> <li>• no. 3 N female RF connector</li> <li>• no. 2 female SMA RF connector (for external GPS antenna)</li> <li>• no. 2 RJ-45 LAN connections</li> <li>• no. 2 48Vdc isolated power line</li> <li>• no. 24 input</li> <li>• no. 8 output</li> </ul>

Environmental Conditions	
Operation	ETSI EN 300 019-2-3 class T3.1E with extended temp. -30°C to +60°C [-22°F to 140°F]
Storage	ETSI EN 300 019-2-1 class T1.2 (-40°C to +85°C) [-40°F to 121°F]
Transportation	ETSI EN 300 019-2-2 class T2.2 (-40°C to +85°C) [-40°F to 121°F]

DTA Node compliances	
CE Mark	Compliance to RED Directive 2014/53/EU, RoHS Directive 2011/65/EU
Standards	<ul style="list-style-type: none"> <li>• RADIO: ETSI EN 302 561, ETSI EN 300 394-1 and ETSI EN 303 413</li> <li>• EMC: ETSI EN 301 489-1, ETSI EN 301 489-5 and ETSI EN 301 489-19</li> <li>• SAFETY: CENELEC EN 62368-1 and CENELEC EN 50385</li> </ul>



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