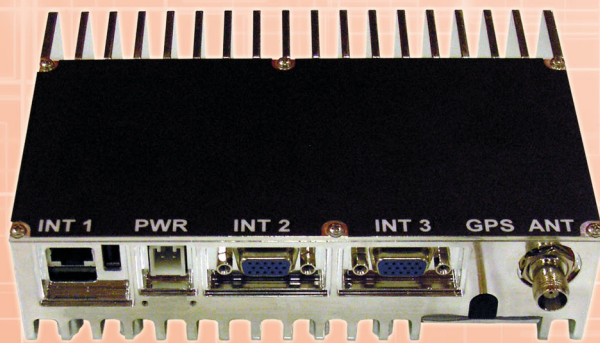


Vehicular radio for Transportation



The **MATRICES VS4000-T** is the combination of a powerful and field proven VS4000 TETRA radio unit, a DC/DC converter suitable for Railways power feed requirements and related cabling. An optional mounting bracket ease the installation of the equipment in Railways configuration.

VS4000-T works in conjunction with a full featured operator display providing man machine interface functions.

POWERFUL TETRA RADIO

The VS 4000-T supports TETRA voice and data communications together with other interfaces (LAN, USB, CAN BUS) for flexibility and ease of installation and maintenance. VS4000-T provides DMO (Direct Mode Operation) Repeater/Gateway, Air Interface and End-to-End Encryption features and integrated GPS receiver that allow VS 4000-T to fulfil the most demanding mobile communications requirements of mission critical users.

RAILWAYS POWER SUPPLY COMPATIBILITY

VS4000-T power supply is based on a reliable component designed for railways and transportation system providing conversion to 24VDC (110 VDC as option) to 12 VDC required by the TETRA radio.

FLEXIBLE OPERATOR'S DISPLAY

Two solutions are available for the management interface between user and the VS4000 radio:

- › A Front Panel named **FPG3 Plus** providing all TETRA functionalities of the radio, through use of a 2.7" display and functional and dedicated keys with a simple and intuitive navigation menu. This flexible front panel provide a built-in Wi-Fi hot spot capability, an integrated Micro SD Card, LAN and CAN BUS interface and allow controlling multiple radio units or alternatively multiple front panels may control a single radio unit.
- › A wide touch screen display named **NG-OP-AVM** that guarantees an excellent view in all light conditions and additional external push button helping driver to perform operations in a simple and fast way. Optionally it can be equipped with Wi-Fi, LTE and GPS connections. Operator display is connected via LAN using TETRA PEI interface to VS4000-T radio unit seen as a VoIP terminal.

KEY FEATURES

- › DMO Repeater/Gateway feature makes it possible to facilitate communications even outside the network coverage
- › Air-Interface and End-to-End encryption
- › Embedded GPS positioning and TETRA standard LIP protocol support
- › Richness of interfaces (LAN, USB, CAN bus)
- › SD and SIM card support.

TECHNICAL DATA

VS4000-T RADIO UNIT	
Frequency bands	380-470 MHz
Operational modes	Trunked, direct, repeater, Gateway (TETRA)
Channel bandwidths	25 kHz
Modulation schemes	II/4 D-QPSK
RF power	ETSI EN 300 392-2/EN 300 396-2 class 2 (10W)
Receiver	ETSI EN 300 392-2 classes A+B compliant
Sensitivity	<ul style="list-style-type: none"> › Static: < -112 dBm › Dynamic: < -103 dBm
Power supply	Nominal +12Vdc (range +10.8 to 15.6Vdc)
Power consumption	Up to 65W with terminal active in multi-slot TX condition
AF power	8W @1 kHz into a 4 Ohm load
Dimensions (HxWxD)	45 x 170 x 115 mm [1,77x6,69x4,53 in]
Weight	<ul style="list-style-type: none"> › 1.150 g (avg) [2,54 lb] › 1.300 g [2,87 lb] depending on equipment configuration
GPS	
Antenna	Integrated in TETRA antenna
Channels	20
Acquisition sensitivity	-155 dBm
Tracking sensitivity	-159 dBm
Position accuracy	5 m
Security	
Algorithms supported	<ul style="list-style-type: none"> › Air-Interface encryption › End-to-End encryption (AES 56/128-bit). Customized on demand › IDEA 128-bit, 128-256 bit
Tamper Proof	Integrated
OPERATOR UNIT (NG-OP-AVM)	
Display	<ul style="list-style-type: none"> › Size: 7" › Resolution: 800 x 600 dpi › Features: touchscreen, 16 push-buttons
Case material	ABS plastic chassis
Power supply	9-36V DC
Processor/Memory	
CPU	IMX6 solo or dual-lite
RAM	1 GB
Flash Disk	8 GB
SD	Up to 1 GB
Operating System	Linux 4.1
Interfaces I/O	
Wi-Fi	802.11n (optional)
3G/4G	LTE with integrated GPS
Ethernet	1 interface 10/100 Mb/s 802.3
Satellite	Integrated GPS
Ports I/O	<ul style="list-style-type: none"> › 1x RS485 port › 1x CAM port (optional) › 1x odometer input › 2x digital input › 2x relays digital output › RFID ISO14443 Type A Interface (optional)
Audio	<ul style="list-style-type: none"> › 2x microphone inputs (optional) › 1x analog preamplified output (optional) › 1x 1,5W audio output (optional) › Audio Matrix
FPG3 PLUS FRONT PANEL	
Power supply	+13,2 Vdc (range +10.8 to 15.6 Vdc) (from radio unit)

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Display	Backlighting - 2.7" to 262.000 RGB colour (640x480 dpi max. resolution)
Dimensions (HxWxD)	57 x 185 x 50mm (incl. rotary knob and rear connectors) [2,24 x 7,28 x 1,97 in]
Weight	About 370 g [0,2 lb]
OS	Linux® 2.6 based (ready to Android® 2.2 OS)
Bluetooth and Wi-Fi	As option both devices. Available and demand
ENVIRONMENTAL-OPERATING CONDITIONS	
Operating	<ul style="list-style-type: none"> › Temperature: -20°C to +55°C [-4°F to +131°F] CENELEC EN 50125-1 class T1 › Humidity: up to 95% not condensing at +55°C [+167°F]
Storage	-40° to +75°C [-40°F to +167°F]
Vibrations	Compliant to technical rules CEI EN 60068-2-6 (2g value) as defined by CENELEC EN 61373 Cat 1-Class B CEI EN 60068-2-64 (0.1g²/Hz value)
Shock	Compliant to technical rule CEI EN 60068-2-27 (3g value) as defined by CENELEC EN 61373 Cat 1-Class B
Protection degree	IEC 60529 IP54 class
CERTIFICATIONS COMPLIANCE	
EC marking	Compliant to Directive 2014/53/UE (RED) (Radio Equipment)
ROHS Directive	Compliant
REACH Directive	Compliant
EMC	<ul style="list-style-type: none"> › Compliant to EN 50121-3-2 (railways applications) › Compliant to EN 61000 standards: <ul style="list-style-type: none"> - EN 61000-4-2 Electrostatic discharges immunity test: performance criterion B - EN 61000-4-3 (EMC) Part 4-3: Radiated, radio-frequency, electromagnetic field immunity test. - EN 61000-4-4 (EMC) Part 4-4: Electrical fast transient/burst immunity test - EN 61000-4-5 (EMC) Part 4-5: Surge immunity test - EN 61000-4-6 (EMC) Part 4-6: Immunity to conducted disturbances, induced by radio frequency field.
Other standards	<ul style="list-style-type: none"> › Compliant to EN 50153, EN 50155 (Electronic equipment for railways applications) › Compliant to EN 45545 Directive (Fire Protection)

Specifications are subject to change without notice and shall not form part of any contract. They are issued for guidance purposes only. All specifications shown are typical.



< NG-OP-AVM - Cockpit train driver interface unit



Power supplies for radio unit >



< FPG3 Plus - Cockpit train VS4000-T front panel

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