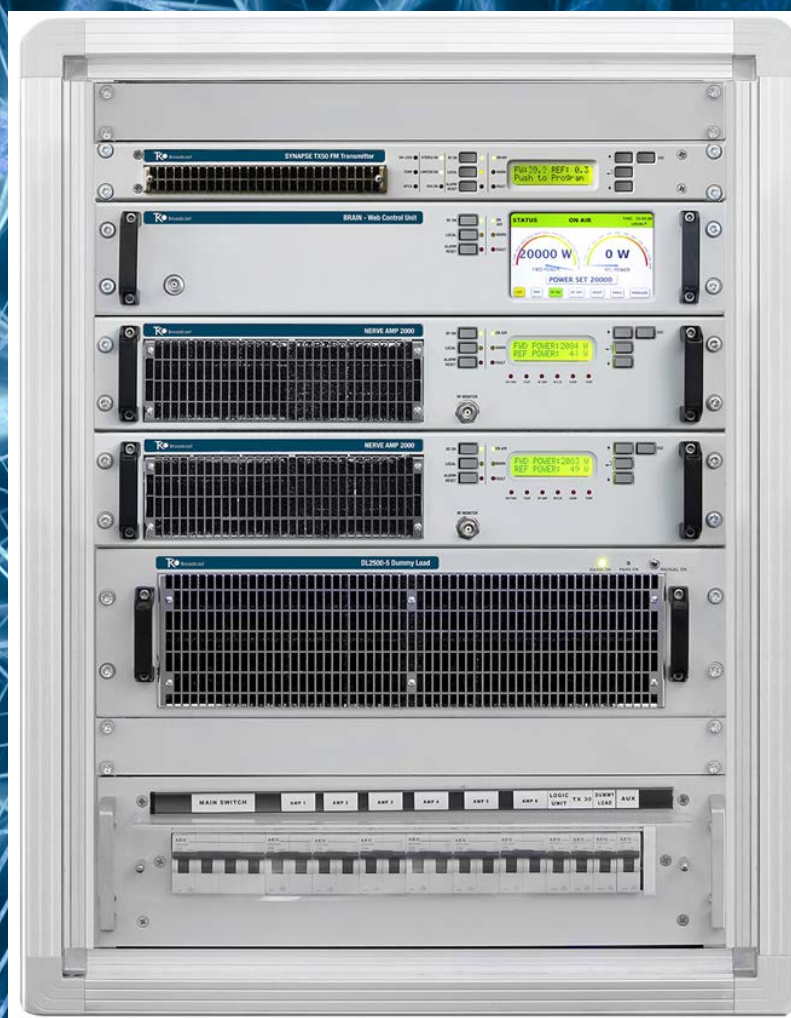


# CORTEX 5/2 5kW FM Transmitter





# MISSION

**TO HAVE IN THE MIND THE FUTURE LIFE OF OUR PRODUCTS  
TO IMPROVE CONTINUOUSLY QUALITY, DURABILITY AND  
RELIABILITY**

## **A TRANSMITTER AND ITS FUTURE**

The following concept is always present among the TEKO employees:

**We work in a comfortable place but the sites where the transmitter is installed will not be the same.**

At the moment we are working on a transmitter or a part of him, or preparing the transport documents or the packaging, we have the necessary tools, the spectrum or network or modulation analyser and the spare parts, in an comfortable office, clean and welcoming.

**The future life of the Transmitter will be not so easy.**

This product will soon be shipped and will have to face a long journey where it will be hit, it will be thrown to the ground at heights of two or three meters, it will travel in wet ships, frozen airplanes and trucks for kilometres of rough roads, subject to vibrations and shocks. It will pass through customs, will be inspected by inexperienced personnel and with very different strict rules in each country, which is why, due to a small error in the packaging or in the transport documents, the shipment may be blocked or receive fines greater than the value of the same transmitter.

Only then will it be installed in a place very far from the city, so that to reach it you will need an off-road vehicle or, in extreme cases, a helicopter or a donkey.

It will be installed in a location where there is often dust, temperatures above 50 degrees or below -20, humidity close to 100% and rain coming in from the walls and roof flooding the floor, other times the air is like this dry that you breathe sand or, if near the sea, salt, moreover there are insects, rodents and parasites.

**In case the transmitter doesn't works properly?**

If this transmitter is to be repaired, the technician will get up early to get there or he will not sleep at all to face a long journey, risking to find military or rebel opponents blocking the roads. Once he will reach the location, he will have to work in an uncomfortable environment, without the necessary equipment and spare parts (when you are there, something is always missing), endure the inclemency of time and often suffer hunger and thirst.

Some of us have run the big risk to reach a location and, for this reason, we know what it means.

**TO HAVE ALWAYS IN MIND THE FUTURE LIFE OF OUR PRODUCTS pushes us to do  
all the best so that THE TRANSMITTER ARRIVE IN PERFECT CONDITIONS ON THE  
SITE AND FUNCTIONS PERFECTLY FOR LONG, LONG TIME.**

**And in case of difficulty?**

In this case (problems with shipping, customs or operation) we will do everything to solve the situation. These occasions become for us an opportunity to create alliance relationships, provide the best technical support available on the market and improve our equipment and our service every day.

**THE TRANSMITTER WILL SPEND HIS LIFE IN A TRANSMISSION SITE, NOT IN LABO-  
RATORY, NOT IN A LIVIN ROOM....**

# TOP PERFORMANCES AND RELIABILITY

To combine both, our mission of give maximum reliability to our products and even supply modern products with maximum performance we have adopted unique solutions in the broadcast.

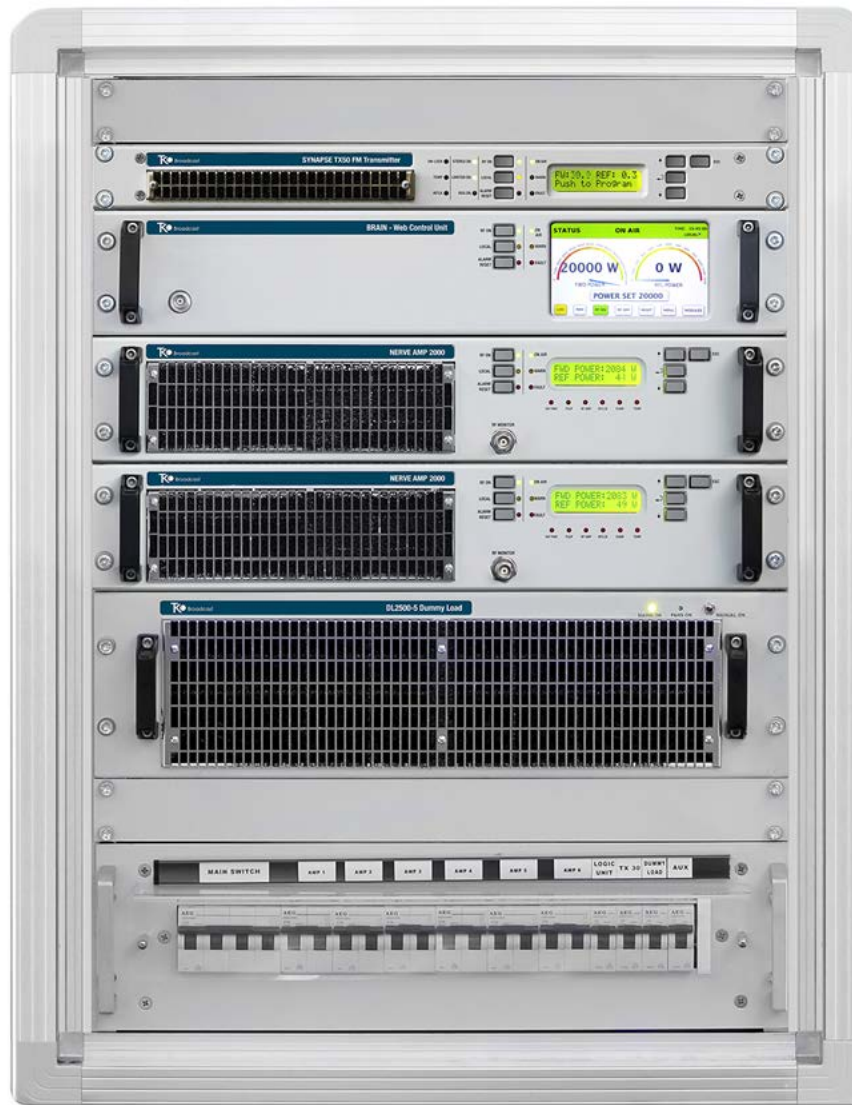
- AIR FILTER: it gives high protection to the internal components.
- All the WIRED LINE shares the same spare parts
- OVERDIMENSIONED ALL THE COMPONENTS THAT DETERMINE THE RELIABILITY: HEATSINKS, FANS, DUMMY LOADS, LDMOS and POWER SUPPLY
- COPPER CARRIER: active power components such as LDMOS or unbalanced power resistors are mounted on a copper carrier to improve heat dissipation and greatly facilitate maintenance, in fact in cases where LDMOS is mounted directly on the heat sink, it causes high heat sink dissipation and it becomes almost impossible to heat the weld.
- HIGH EFFICIENCY LAST GENERATION LDMOS TECHNOLOGY UP TO 85%
- PLANAR ARCHITECTURE
- 65:1 VSWR TOLLERANT
- HIGHEST RF SIGNAL QUALITY, TOTAL SPECTRAL PURITY: > -100 DBC SPURIOUS, > -84 DBC HARMONICS
- CELL AMPLIFIERS NATURAL OUTCLASS GREEN TECHNOLOGIES UP TO 88% RF EFFICIENCY and UP to 79% OVERALL EFFICIENCY
- HOT PLUG-IN POWER STANDARD MARKET AVAILABLE POWER SUPPLY
- SMP: Superior Modular Philosophy
- FULLY RF AND POWER SUPPLY REDUNDANT
- MODULARITY with very light amplifier modules (less than 17kg/34lbs each)
- DIRECT INTERNET CONNECTION: all the WIRED Line components have direct connection to internet without the help of any external box or accessories.
- LOWEST LOSS OF POWER OF THE MARKET IN CASE OF FAILURE OF ONE MODULE.
- TOTALLY MADE IN ALUMINUM: for minimum weight and robustness
- AIR PROTECTION: all the internal components are designed to avoid the direct contact with the air, mainly the air coming in from the fans, this avoid all the failures produced by the air corrosion.
- MIRROR Network Mirror System:
- DIRECT ACCESS KEYS TO MAIN COMMANDS
- OVERALL STATUS SHOWING BY LED
- FULL RANGE POWER SUPPLY: 90-260 VAC MAINS VOLTAGE
- TOUCH SCREEN BRAIN CONTROL UNIT.
- SMART BROWSING of all the transmitter parameters
- SMART NAVIGATION KEYS WITH ESC COMMAND
- ANALOG AND DIGITAL READY FM AMPLIFIERS HD RADIO AND DRM COMPATIBILITY
- REMOTE CONTROL BY TCP/IP: WEB + SNMP OF ALL SIGNAL PARAMETERS

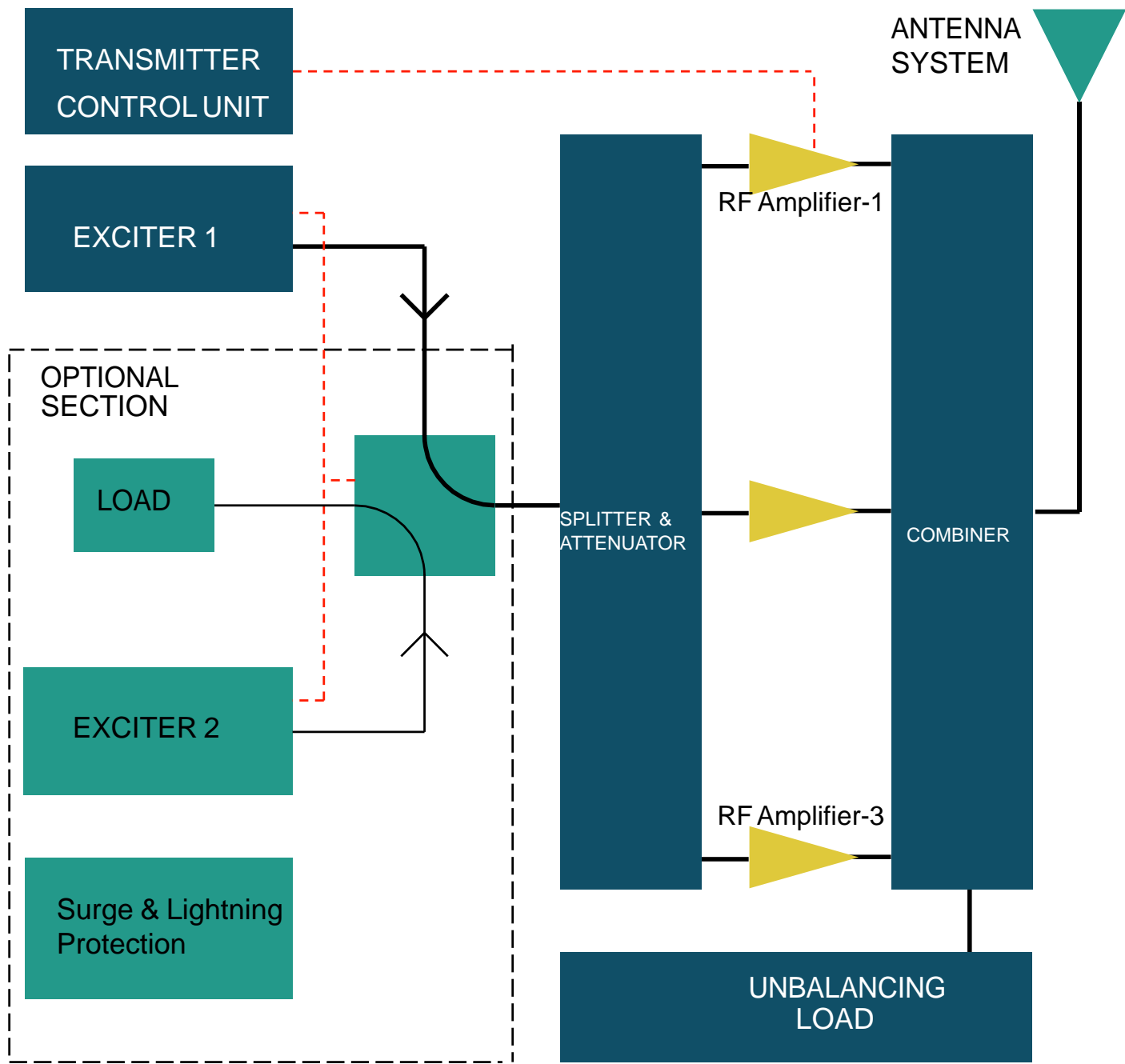
# CORTEX FM Transmitters

- Up to 75% Overall Efficiency
- Analog and Digital Ready for HD Radio and DRM
- Based on CELL Series High Efficiency FM Amplifiers Modules
- LDMOS Amplifiers 1,1kW or 2,2kW
- Hot Plug-in Power Supply
- PLANAR LDMOS
- 65:1 VSWR Tollerant
- Fully RF and Power Supply Redundant
- Autonomous Power Supply Modules
- HOT SWAP MODULES (Option)
- UPGRADABLE POWER
- Touch Screen Control

# CORTEX 5/2

5kW WIRED Technology, Superior Modular Philosophy





# HOT PLUG-IN POWER SUPPLY

Replace the power supply in 2 minutes

Remove the front pannel, operating only  
fourscrews

Pull Off the sliding power supply





## WCU - WEB CONTROL UNIT

Fully WEB Based controls and remote all the transmitter's parameters





# REVOLUTIONARY MODULAR COMBINER

## BROKEN THE PORT NUMBER LIMITS.

- Ultra Compact Design.
- Low power to high power direct stepping.
- Low loss.
- Non Hierarchy Arbitrary odd and even port number.
- Ground referred balancing loads.
- Extremely high isolation value: more than 26dB.
- Up to 10 input way for 20 kW Output Power.
- Ultra-wideband, exceeds more stringent specifications.
- Phase stable.
- Best in class low loss performance: less than 0.1dB
- More than 12 dB of additive harmonic filtering.
- Low Cost vs Power ratio.

The Combining system is composed by the COMBINER itself, the ISO-LATED SPLITTER 2-10 way and the UNBALANCED POWER LOAD 2-10 way

# TXM SMP

## Superior Modular Philosophy

When developing SMP Technology, Superior Modular Philosophy, the main target was: Always on Air, Less than 15 kg (35 lbs) of modules-weight, Easy maintenance, Low consumption and High Efficiency

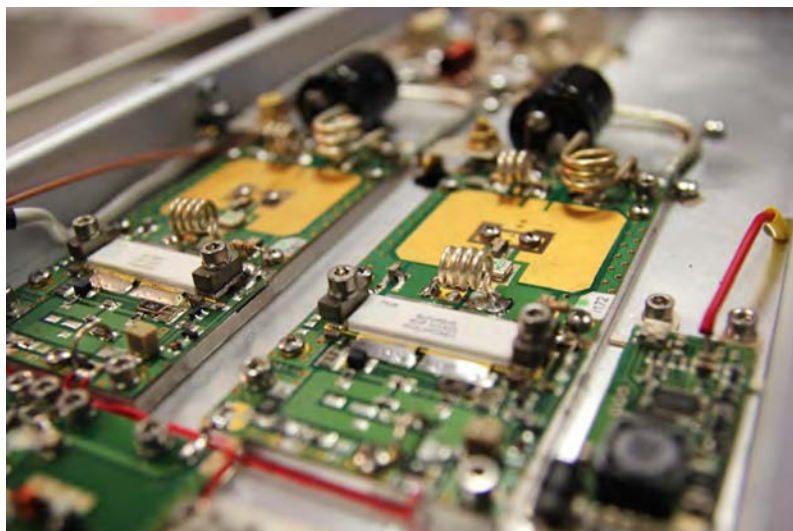
The only way to reach this goal consists in the creation of a modular structure where each block of the system has been obsessively optimized for best results.

When each Brick is perfectly realized the overall structure benefits of this optimization obtaining the a global high optimization of the Transmitter. Superior Modular Philosophy, means create big broadcast systems made by small highly optimized bricks. The Bricks are the small VL Series Amplifiers.

Superior Modular Philosophy is the synthesis of extreme reliability and flexibility.



# FULLY REDUNDANT RF AMPLIFIER IN PLANAR TECHNOLOGY



## WIRED TECHNOLOGY

**The perfection of each single module brings to the perfection of the overall Transmitter.**

PERFECTION: The only way to reach this goal consists in the creation of a modular structure where each block of the system has been obsessively optimized for best results.

When each part of the module is perfectly realized the overall structure benefits of this optimization obtaining the WIRED Family.

Model	Description
CORTEX 3/2	3000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.2 SENSE 2000 Amplifier
CORTEX 5/2	5000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.2 SENSE 2500 Amplifier
CORTEX 8/4	8000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.4 SENSE 2000 Amplifier
CORTEX 10/4	10000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.5 SENSE 2500 Amplifier
CORTEX 12/6	12000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.6 SENSE 2000 Amplifier
CORTEX 15/6	14000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.7 SENSE 2500 Amplifier
CORTEX 16/8	16000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.8 SENSE 2000 Amplifier
CORTEX 20/8	20000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.10 SENSE 2500 Amplifier
CORTEX 24/12	24000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.12 SENSE 2000 Amplifier
CORTEX 32/16	32000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.16 SENSE 2000 Amplifier
CORTEX 40/16	40000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.20 SENSE 2500 Amplifier
CORTEX 80/40	80000W modular high efficiency, Redundant Active Reserve, FM Transmitter composed by: SYNAPHSE 30 Exciter, Nr.40 SENSE 2000 Amplifier



Model	Output Power	REDUN- DANT AM- PLIFIERS	POWER CON- SUMPTION	OUTPUT CONNECTOR	DIMENSIONS (19")
TXM 1k/1	1kW	1	1350VA	DIN-7/16	1U Driver + 2U Amplifier
TXM 2k/1	2kW	1	2700VA	7/16	1U Driver + 2U Amplifier
TXM 3k/2	3kW	2	4166VA	7/8	Rack 20U
TXM 5k/2	5kW	4	6950VA	7/8 or 1 5/8	Rack 30U
TXM 8k/4	8kW	4	10800VA	1 5/8	Rack 30U
TXM 10k/5	10kW	5	13500VA	1 5/8	Rack 30U
TXM 12k/6	12kW	6	16200VA	1 5/8	Rack 30U
TXM 14k/7	14kW	7	18900VA	3 1/8	Rack 40U
TXM 16k/8	16kW	8	21600VA	3 1/8	Rack 40U
TXM 20k/10	20kW	10	27000VA	3 1/8	Rack 40U
TXM 24k/12	24kW	12	32400VA	3 1/8	Rack 40U
TXM 32k/16	32kW	16	43200VA	4'	2 x Rack 40U
TXM 40k/20	40kW	20	54100VA	4'	2 x Rack 40U
TXM 48k/24	48kW	24	64900VA	4'	2 x Rack 40U
TXM 96k/48	96kW	48	130000VA	6'	4 x Rack 40U

# OVERALL CHARACTERISTICS

## **TXM SMP® Superior Modular Philosophy allows relevant advantages:**

- The entire system benefit of the optimum characteristics of the base module VL Amplifier.
- The VL Amplifier are each of them a complete functioning module with its own power supply ventilation, control logic and output filter, so, as the opposite of the standard plug-in transmitters bricks live by themselves with facilities the maintenance and the test: no need of special tools, each module can be connected and installed or tested as a single amplifier.
- Developing the VL Amplifier our engineers concentrate all the effort on: minimize weight, cost, power consumption and heat produced, and maximize: efficiency, reliability, electrical performance, connectivity and easy maintenance.
- A single VL Amplifier can be put on air as back-up of a bigger transmitter.
- Shock and vibration during the transportation process can compromise the result of an installation, optimizing the VL Amplifier package allow our engineers to meet the most demanding transport conditions for hermetic, temperature control and vibration and Shock Isolation. During installation and maintenance, handled light packs help the health to operators.

## **The TXM SMP® Superior Modular Philosophy**

Is a family based on a very compact Amplifier and its various combinations. Thanks to a careful choice of size, 2 HE, power levels of the building blocks 2 kW FM, it can be considered as the New Reference for the modular transmitters.

The modularity is completed with special combiners, FM exciters and control logics.

FM exciter can be Analog or DDS both with integrated AES/EBU interface.

## **KEY FACTS**

Combining System

- Compact and well isolated up to twelve way 20 kW PC Power Combiner, ultra-broadband, phase stable, low loss and showing more than 20 dB of additive harmonic filtering.
- Soft controlled sequential start-up reduce inrush current during OFF to ON transition.
- FM transmitters featuring only 800 mm rack depth and up to 40 kW FM in a single 19" rack.
- Digital TV Transmitters up to 8 kW Wide Band Doherty (WBD) output power in a single 19" rack.

## **Hardware and Software Protections**

- Over and Under Voltage DC, Over and Under Voltage AC, RF and Power Supply Temperature, RF Coaxial Output Open or Short Circuit
- Capability of a long working time on Short/Open loads

at all phase angles without any damage.

- Last generation 1400 W LDMOS, VSWR > 65:1 @ all Phase Angles, designed for enhanced ruggedness ISM applications and plasma generators.
- Integrated AC Mains filtering.
- Integrated lightning protection.
- Delayed energized of the system after Mains Power Blackout prevents against peaks and high variation voltages typical of this events.
- Soft controlled sequential start-up so to reduce the Inrush current during OFF to ON transition.

## **WEB/SNMP Telemetry and Remote Control**

- Full Local or Remote control by login username and password.
- Remote control with Smartphones or Tablet.
- Host Logic and tele-measurement (TM, TC & TA).
- Remote control and monitoring via SNMP and/or WEB interface.
- With logbook or log file to record error or alarm message.
- Display of forward/reflection power value and reflection high alarm.

## **Human Interface**

- Each module is equipped with a logic controller that allows full control by a local operator.
- All transmitter and amplifier parameters required for diagnostics can be retrieved locally or remotely via standard (IP) protocol and standard software (web browser, SNMP).
- Multilingual user guidance.
- High Definition, high contrast Color Oled display.
- Quick set of thresholds for protections level. This set is based on assignment of three "flavors" or PERSONALITIES: Conservative (primary target = protect itself), Standard (balanced), Aggressive (primary target = transmission without interruptions).

## **N+1 and Backups systems**

- Conventional standby systems such as: exciter standby, (n+1) Transmitter standby, passive standby and active output stage standby can be implemented.
- No additional control units are needed for the exciter standby and the active amplifier standby.

## **CORTEX HIGH Efficiency**

- Very high efficiency (more than 75% for a complete 5 kW amplifier).
- Last LDMOS technology for power modules.
- Ultra High RF efficiency (>80 % typ.) software optimized for each power level.
- Lowest weight and dimensions in the industry.
- Lower device heating.
- Lower room heating.
- Lower space occupied.
- Lower maintenance needed.
- Small dimensions and low weight, reduce transportation costs and simplifying the logistic.
- Longer Component Lifespan.
- Reduced Electricity Costs.
- Lower Maintenance Costs.
- Reduced Cooling Costs.
- Fewer Fans.

## **Driver included on the VL Amplifier**

- Maximum redundancy with virtual bottleneck elimination due to presence of a driver stage (LDMOS) on each plug.
- Low power exciter due to presence of a driver stage (LDMOS) on each plug.
- Low power splitters.
- No PA changeover required.

## **Power Supply Redundancy**

- Maximum redundancy due to presence of a compact reliable power supply on each plug
- Highest reliability supply configuration.
- The SMP Module includes a very efficient AC-DC (typ > 95%) SMPS (Switch Mode Power Supply).

## **Electrical Characteristics**

- Very high harmonics suppression (-90dB).
- Independent, individual APC (Automatic Power Control) circuit maintain a constant output power set.
- Frequency-response-compensated directional couplers and precision internal indicators.
- Distributed less binding Low Pass filter.

## **Maintenance Facility**

- Power Unit and Amplifier Hot swapping: plugs can be extracted/inserted without switch-off the equipment.
- Zero-Current and Zero-RF Plug-in insertion/extraction system.
- Universal spare parts: each plug is phase and amplitude characterized.
- Worldwide available spare part for power Supply (GE-General Electric).
- Any VL amplifier can be interchanged with any other in the same TXM transmitter or with a spare. No adjustment or program of any kind are needed.
- Smart Air filter included easy to clean or replace.
- Zero-Current and Zero-RF Plug-in insertion/extraction system.
- 90% of spare parts shared between FM transmitters.
  - Optimized Air Flow Paths avoid damages on the electronic boards.
  - The path of the air inside the transmitter to avoid contact with the electronic boards.
  - Tropicalization of all the components against dust, humidity and pollution.
  - Exhaustive final quality test.



# TECHNICAL CHARACTERISTICS

## TRANSMITTER

Power Output: Adjustable from 2kW to 40kW build with 2kW Amplifier Module up to 10 Modules in one Rack: 2kW 1 Module, 3kW 2 Modules, 5kW 2 Modules, 8kW 4 Modules, 10kW 4 Modules, 12 kW 6 Modules, 16kW 8 Modules, 20kW 8 Modules

Power higher than 20kW are build combining more racks amplifiers:

24kW = 2 Racks 6 Modules each rack, 32kW = 2 Racks 8 Modules, 40kW = 2 Racks 10 Modules.

Output power on/off and adjustable from front panel and remotely.

Overall Efficiency (Typical):  $\geq 75\%$  for transmitter.

RF Output Impedance: 50 ohm.

RF Output Connector: 1+5/8 and 3+1/8 type. (other on request)

Monitor RF: -53 dBc, 50Ω post harmonic filter

VSWR: 1.5:1 Maximum with automatic fold-back at higher VSWR

DOUBLE EXCITER WITH AUTOMATIC CHANGE OVER SYSTEM

SNMP TELEMETRY INTERFACE

GSM AND PSTN TELEMETRY

TCP/IP TELEMETRY INTERFACE

SINCH-MODULE FOR SFN APPLICATION

OIRT & JPN VERSION

DIGITAL AUDIO INPUTS

LPFM CODE STATION:FCC IDENTIFICATION CODE

RDS CODER : EASY PROGRAMMABLE BY PC

SCA Encoder

Digital Composite 192kHz Input

## ELECTRICAL (for 10kW to 40kW Transmitter)

AC Input Power: 90/260/400 VAC  $\pm 15\%$ , 50/60 HZ(+/- 3HZ)

single phase or 3-phase+N Power factor  $> 0.98$  Cooling: Forced air

MTBF>20.000Hours

## ENVIRONMENTAL

Operating temperature: -10°C to +50°C.

Max Operating Altitude: 4000 mt.

Relative Humidity Range: 0 to 95% non condensing.

Protection against Lightning, Dust and Corrosion

## PHYSICAL DIMENSIONS (For typocal 10kW Transmitter)

Mounting: 40 unit cabinet (Other size Rack on request) Size: 570mm. (W) x 1000mm. D) x 1800 mm. (H)

Weight: ~ 220 Kg.

## Wi-Fi Remote Control with any Tablet or Smart Phone. WIRED WEB TCP/IP and SNMP

Works with any Browser, runs under any operating system, IOS, Android, Windows, OSX and in any kind of devices PC, Tablet or Smartphone.

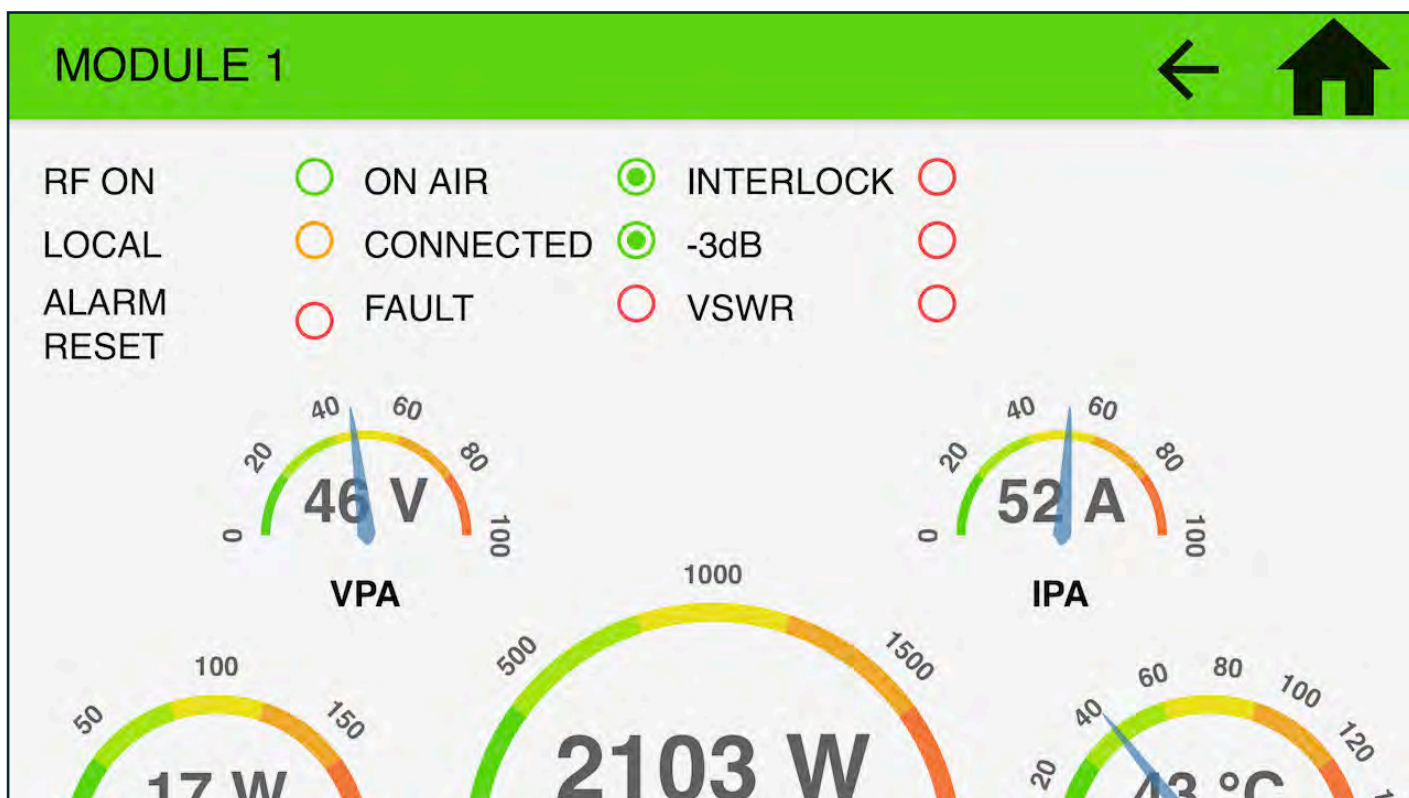
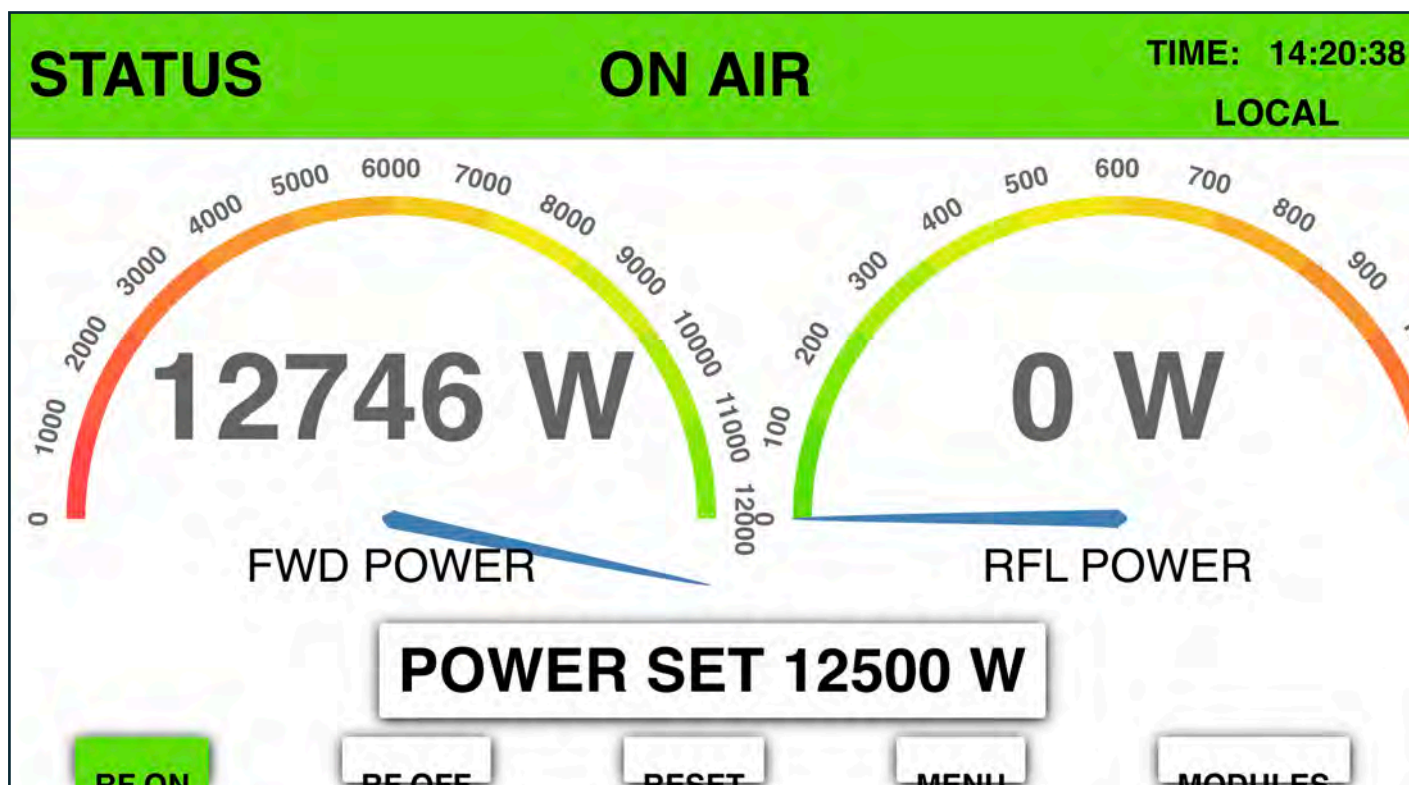
Thanks to the WCU it's possible to see all the transmitter parameter and the ones related to the amplifiers modules and fully control the transmitter.

All the parameters of the transmitter

**All the Transmitters of the line WIRED shares the full HTML5 Responsive Graphic Interface and implement a set of SNMP oids than cover the total remote control of the equipment.**



**Touch Screen control logic with full WEBSNMP, Web page, no use JAVA, able to work in any Browser: Iphone, Android or any Tablet.  
Fully remote controlled without any additional option required.**

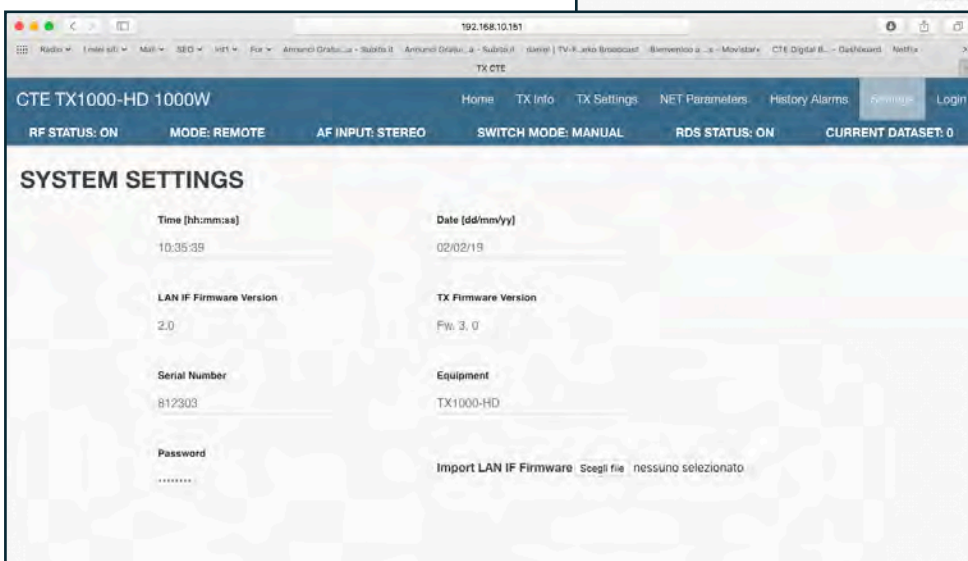
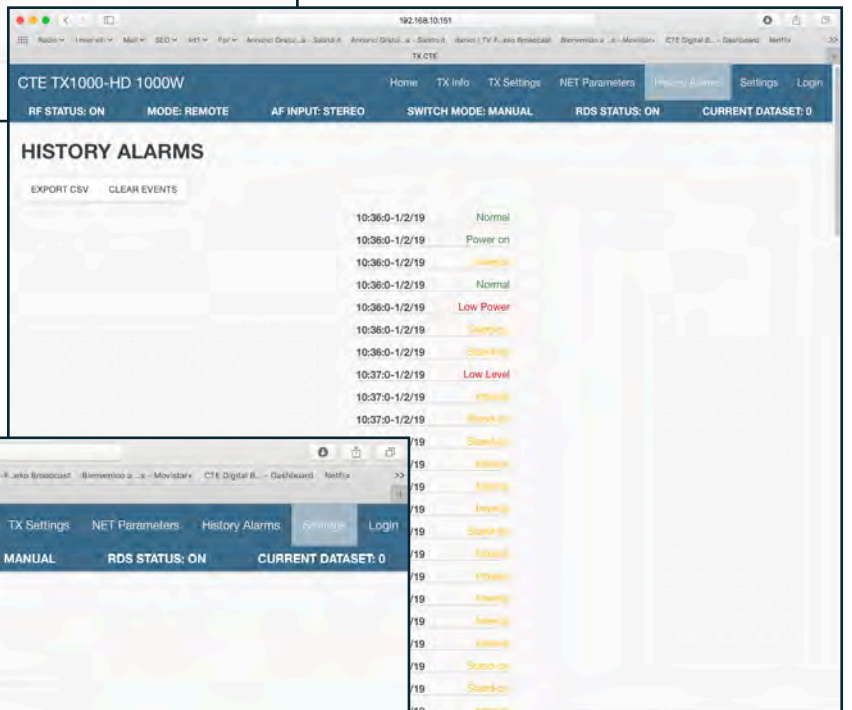
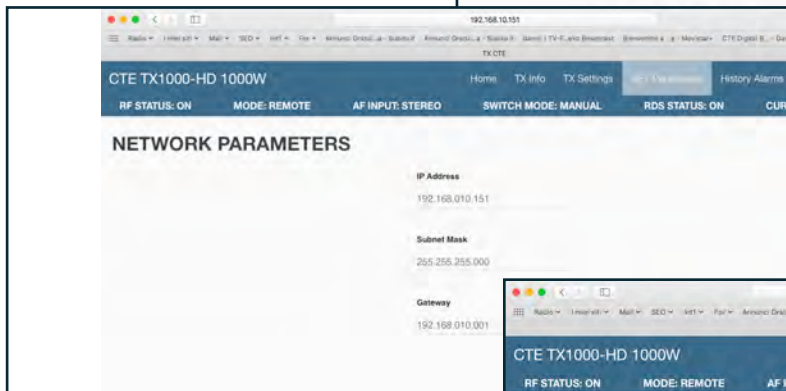
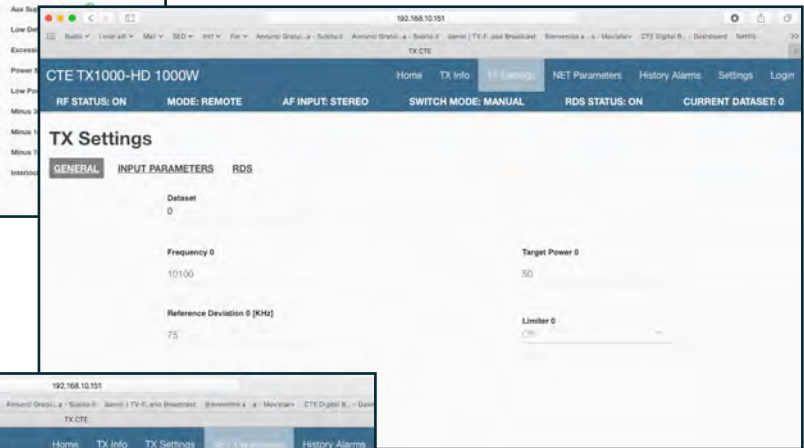
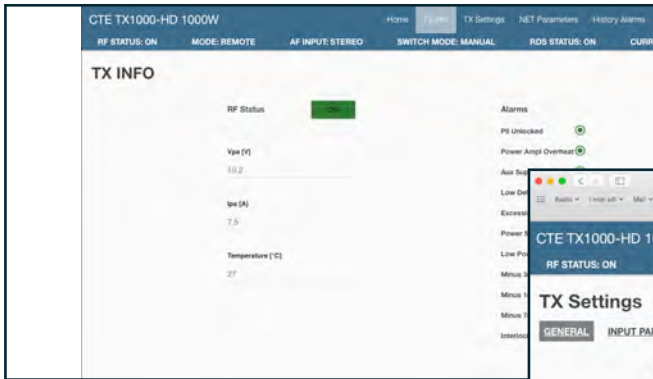




# EXCITER WEB INTERFACE

Main page of Web interface on Exciter/Modulator





## COMBINERS, SPLITTERS and DUMMY LOADS

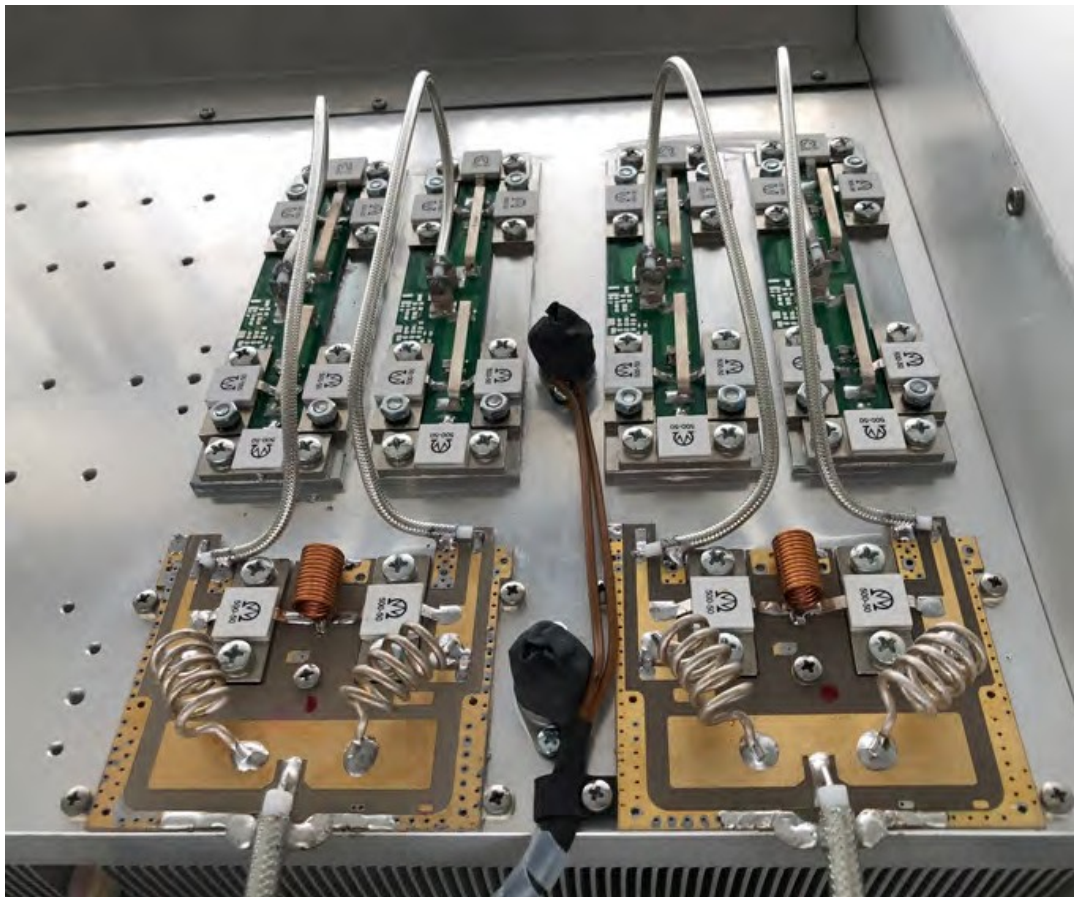
### Modular Passive components





## 2 to 10 Ways Input Splitter 3kW 2 to 10 Ways Dummy Load

WIRED Technology, Superior Modular Philosophy



# OUTPUT COMBINER 2 to 8 Ways up to 12kW

Hyper modular Wilkinson Gysel





## CELL Series

High Efficiency FM Amplifier  
Output Power Ranges 600W, 1300W, 2500W



When developing CELL Series, the main target was: Always on Air, Less than 7 kg (15 lbs) of modules-weight, Easy maintenance, Low consumption and High Efficiency

- DIRECT ACCESS KEY TO MAIN COMMANDS
- SMART NAVIGATION KEYS WITH ESC COMMAND
- OVERALL STATUS SHOW BY LEDS
- AIR FILTER STANDARD
- ANALOG AND DIGITAL READY FM AMPLIFIERS
- HD RADIO AND DRM COMPATIBILITY
- UP TO 80% OVERALL EFFICIENCY
- PLANAR ARCHITECTURE
- 65:1 VSWR TOLLERANT
- FULLY RF AND POWER SUPPLY REDUNDANT
- PLUG-IN POWER SUPPLY REPLACEABLE
- SENSE AMPLIFIERS NATURAL OUTCLASS GREEN TECHNOLOGIES
- HIGH EFFICIENCY LAST GENERATION LDMOS TECHNOLOGY UP TO 85%
- TOTAL SPECTRAL PURITY: > -100 DBC SPURIOUS, > -84 DBC HARMONICS
- FULL RANGE POWER SUPPLY: 90-260 VAC MAINS VOLTAGE
- HIGHEST RF SIGNAL QUALITY
- REMOTE CONTROL BY TCP/IP: WEB + SNMP OF ALL SIGNAL PARAMETERS

Output power 1300W or 2500W using High Efficiency last LDMOS technology housed into an ultra-compact cabinet of only 2U height.

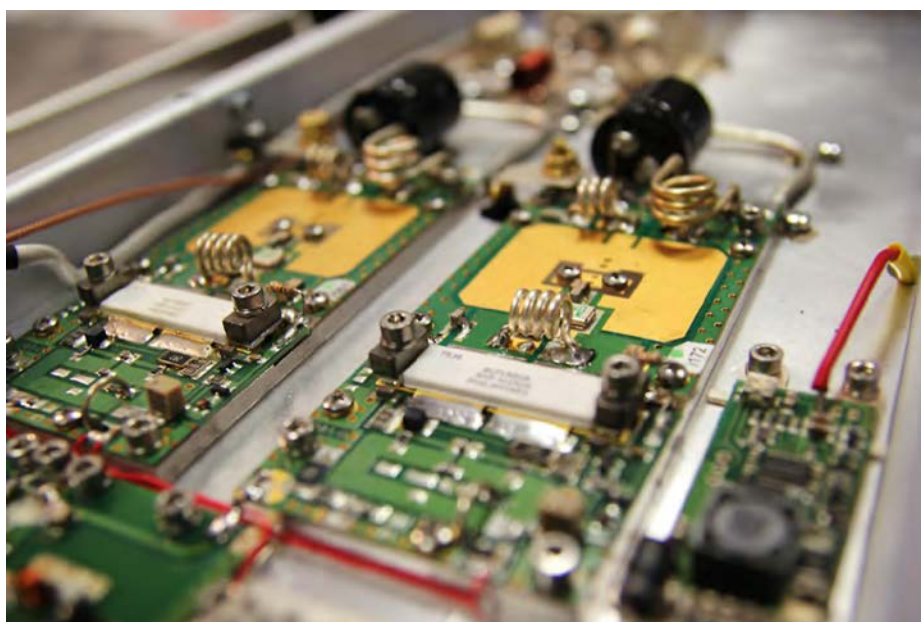
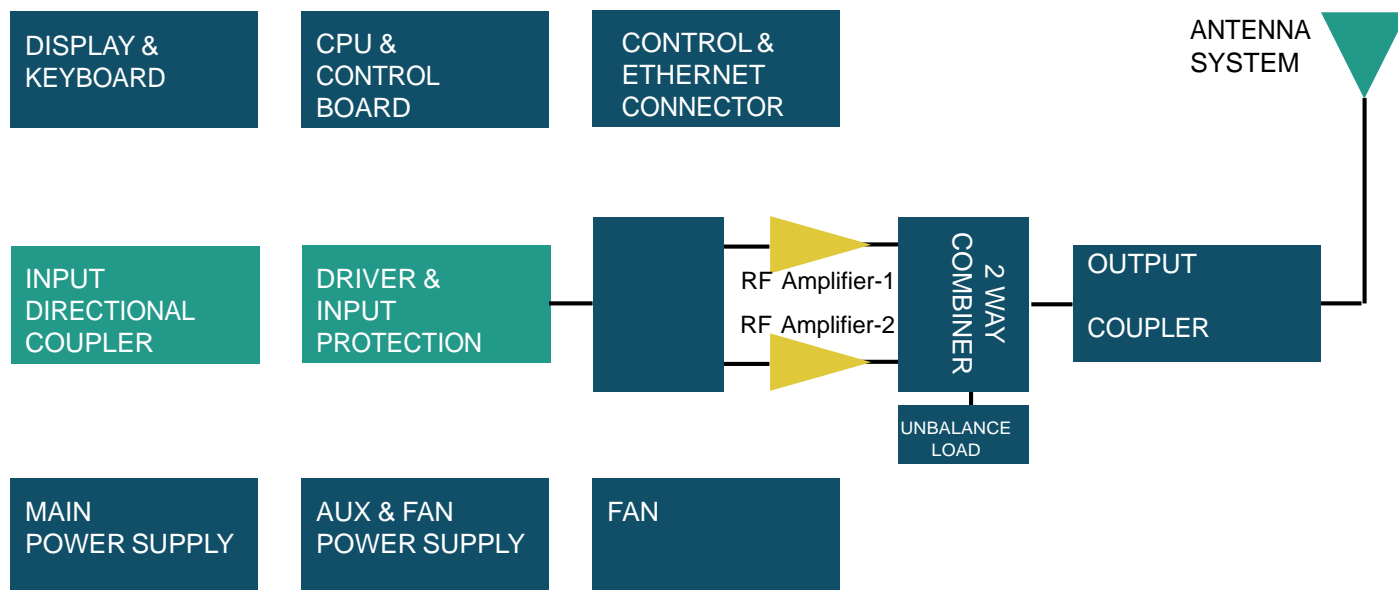
For any application SENSE Series is the ultimate solution that meets most demanding customer requirements and guarantees professional features at affordable price.

### HOT PLUG-IN POWER SUPPLY

Replace the power supply in ONE MINUTE 4 Steps

- Remove the front panel
- Pull Off the sliding power supply
- Insert the new Power Supply
- Install the front panel







## OVERALL CHARACTERISTICS

### Hardware and Software Protections

- Over and Under Voltage DC, Over and Under Voltage AC, RF and Power Supply Temperature, RF Coaxial Output Open or Short Circuit
- Capability of a long working time on Short/Open loads at all phase angles without any damage.
- Last generation 1400 W LDMOS, VSWR > 65:1 @ all Phase Angles, designed for enhanced ruggedness ISM applications and plasma generators.
- Integrated AC Mains filtering.
- Integrated lightning protection.
- Delayed energized of the system after Mains Power Blackout prevents against peaks and high variation voltages typical of this events.
- Soft controlled sequential start-up so to reduce the Inrush current during OFF to ON transition.

## WEB/SNMP Telemetry and Remote Control

- Full Local or Remote control by by logon username and password.
- Remote control with Smartphones or Tablet.
- Host Logic and tele-measurement (TM, TC & TA).
- Remote control and monitoring via SNMP and/or WEB interface.
- With logbook or log file to record error or alarm message.
- Display of forward/reflection power value and reflection high alarm.
- TCP/IP, SNMP, GSM and PSTN TELEMETRY

## Human Interface

- Each module is equipped with a logic controller that allows full control by a local operator.
- All transmitter and amplifier parameters required for diagnostics can be retrieved locally or remotely via standard (IP) protocol and standard software (web browser, SNMP).
- Multilingual user guidance.
- High Definition, high contrast Color Oled display.
- Quick set of thresholds for protections level. This set is based on assignment of three "flavors" or PERSONALITIES: Conservative (primary target = protect itself), Standard (balanced), Aggressive (primary target = transmission without interruptions).

## TECHNICAL CHARACTERISTICS

### SENSE Tech HIGH Efficiency.

- Output power on/off and adjustable from front panel and remotely.
- Overall Efficiency up to 80%.
- RF Input Connector: N Type.
- RF Output Impedance: 50 ohm.

- RF Output Connector: 7/16 Type. (other on request).
- Monitor RF: -53 dBc, 50Ω post harmonic filter
- VSWR: 1.5:1 Maximum with automatic fold-back at higher VSWR.
- Very high efficiency (more than 75%).
- Last LDMOS technology for power modules.
- Ultra High RF efficiency (>80 % typ.) software optimized for each power level.
- Lowest weight and dimensions in the industry.
- Lower device heating.
- Lower room heating.
- Lower space occupied.
- Lower maintenance needed.
- Small dimensions and low weight, reduce transportation costs and simplifying the logistic.
- Longer Component Lifespan.
- Reduced Electricity Costs.
- Lower Maintenance Costs.
- Reduced Cooling Costs.
- Fewer Fans.

## Electrical Characteristics

- Very high harmonics suppression (-90dB).
  - Independent, individual APC (Automatic Power Control) circuit maintain a constant output power set.
  - Frequency-response-compensated directional couplers and precision internal indicators.
  - Distributed less binding Low Pass filter.
- AC Input Power: 90/260/400 VAC  $\pm 15\%$ , 50/60 HZ single phase  
Power factor > 0.98.  
Cooling: Forced air

## ENVIRONMENTAL

Operating temperature: -10°C to +50°C.  
Max Operating Altitude: 4000 mt.  
Relative Humidity Range: 0 to 95% non condensing.

## PHYSICAL DIMENSIONS:

Mounting: Standard 19" chassis 2 U rack.  
Size: 485 mm. W x 550 mm. D x 88 mm. H.  
Weight: ~ 17 Kg.



# COMPANY PROFILE



## RF DESIGN

Telecommunication  
Radio  
Television  
Science  
Industrial

## IoT DESIGN

WEB remote control and monitoring  
Microprocessor & microcomputer systems design

## WHERE WE ARE

**TEKO Broadcast s.r.l.** has its headquarter and factory located in Altedo (**Malalbergo, BOLOGNA-ITALY**) in 600 square meters 2 buildings on a 500.000 square meters poly-technological industrial area.

It concentrates in its experience more than thirty years in the broadcast industry.

Products are developed by using the most advanced technologies, last generation components, innovative design to achieve higher efficiency, excellent quality and unique cost/performance ratio.

The FM product line includes a complete portfolio of professional analog and DDS Exciters, compact Transmitters, Modular Amplifiers and High Power Transmitters of a power range up to 60 kW, available with air or liquid cooling, in order to guarantee safe operation and higher MTBF in all environmental conditions. Besides all the critical components are treated against dust, humidity and pollution to provide a safe and stable operation and to optimize and guarantee a maximum MTBF and to minimize the reparation time.

## WHO WE ARE

**TEKO Broadcast s.r.l.** is an Italian company that designs and manufactures RF modules for FM and TV equipment, complete FM transmitters and accessories for Broadcast market as well as amplifiers for medical, military and special applications.

**TEKO Broadcast s.r.l.** was founded in 2017 by a team of engineers with more than 30 years of experience. The object was to create equipment and RF parts focus on reliability, innovation and creativity mixing the very well known RF technologies with the most advanced modern technologies based on WEB controls, Micropossesors and DSP (Digital Signal Processors) and FPGA (Fiel Programmable Gate Array).

**Today TEK Broadcast s.r.l.** employs 10 people who bring their own diligence and expertise to meet the needs of customers. Being inserted in a technological area with a high concentration of companies operating in the electronic construction, mechanical, wiring, etc. Teko's staff are concentrating their efforts on coordinating operations with a large number of companies working with us to generate a large production capacity in an efficient and flexible manner.







**TEKO Broadcast**, as leading provider of high-quality products offers:

- RF Transmission and Amplifier systems, power between 1W and 200kW and frequencies from 0.5MHz to 2.5GHz;
- RF Exciter systems for particle accelerator;
- FM & TV Broadcast;
- ISM RF Equipment

**TEKO Broadcast** designs and produces OEM components, modules and complete systems for several well established manufacturers of Radio and TV transmitters all over the world. Its activity as a high-technology supplier, is completed with its complete Product Portfolio of professional Equipment for Broadcasting marked InnovAction.

### **LAB/PRODUCTION EQUIPMENT**

Any professional standard instruments for RF test and development:

Rohde & Schwarz: FMAB Modulation Analyzer, ESL Spectrum Analyzer, ZVBT Vector Network Analyzer, UPV Audio Analyzer, FSP Spectrum Analyzer, EFA TV Test Receiver, NRT Power Meter, AM Dual Arbitrary Generator, V-LINS Line Impedance Network, SML03 Signal Generator, SM3000 Signal Generator, GMG Signal Generator.

Agilent Technologies: E5070B Network Analyzer, E5061A Network Analyzer, N3300A DC Electronic Load, DS06032 Oscilloscope, E4418B Power meter, 53131A Counter.

Wayne Kerr: 3260B Precision Magnetic Analyzer, 3265B25A DC Bias Unit.

Schaffer: CBA9423 Power Amplifier, 6150 Line Test.

Fluke: 434 Power Quality Analyzer.

Bird: Dummy Load 1kW â€“ 50kW.

Lecroy: 424 Oscilloscope

ASSCON: VP1000-53 vapor Phase Soldering Machine.

YAMAHA: I-Pulsed M4 Pick & Place.

SPEED PRINT SP700: Stencil Printing.

SMT: SL2220 Stencil Printing.

MARANTZ: Automatic Image Inspector

Rohde & Schwarz: ELS Spectrum Analyzer, ZBVT Vector Network Analyzer, FMAB Modulation Analyzer, APN62 Signal Generator, NRT Power Meter.

SCHLEUNIGER: COAXSTRIP 5300 Precision Coax Cable Stripping Machine.

### **CERTIFICATIONS**

- ISO 9001

### **CAPABILITY**

Project, development and production of RF SYSTEMS;concentrating their efforts on coordinating operations with a large number of companies working with us to generate a large production capacity in an efficient and flexible manner.

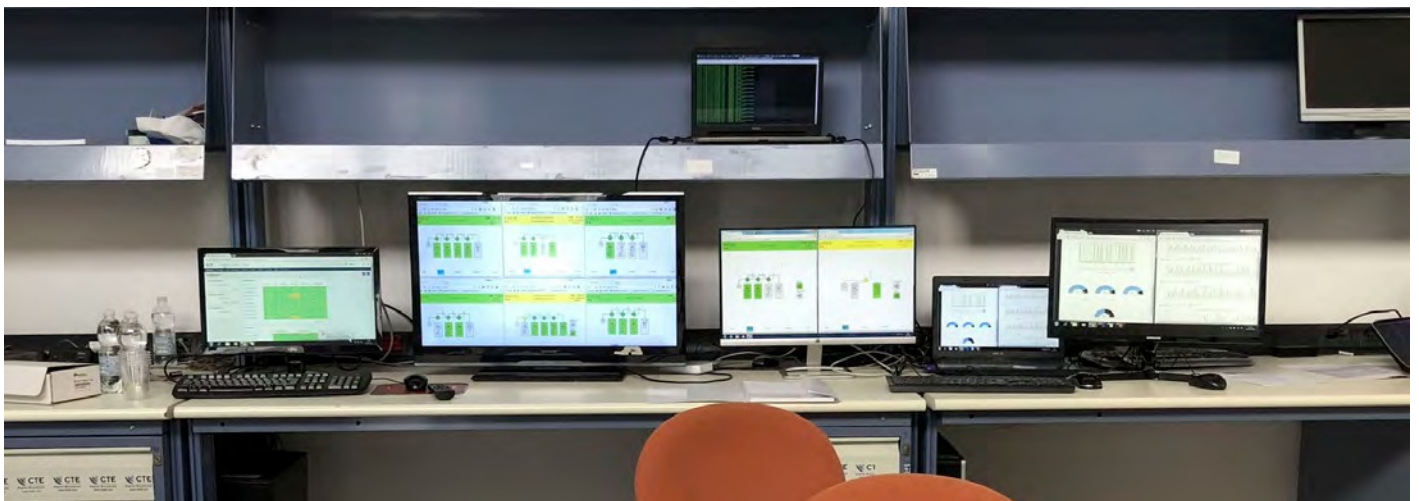


**TEKO**

**Broadcast on**

**IMAGES**

## RESEARCH AND DEVELOPMENT AREA



## CUSTOMERS TRAINING COURSES



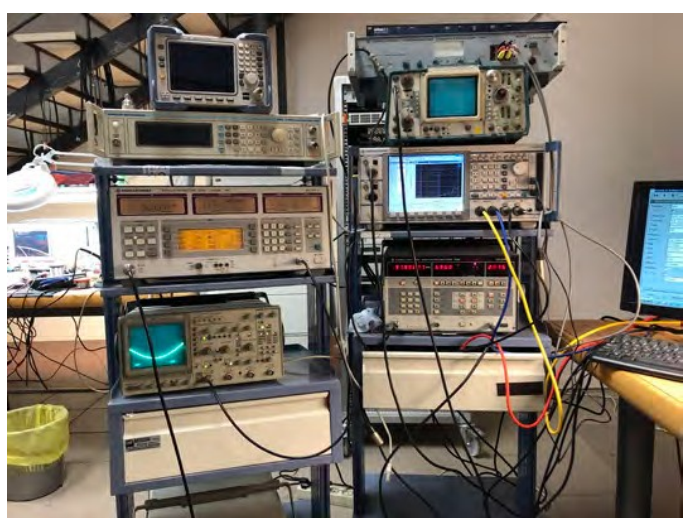
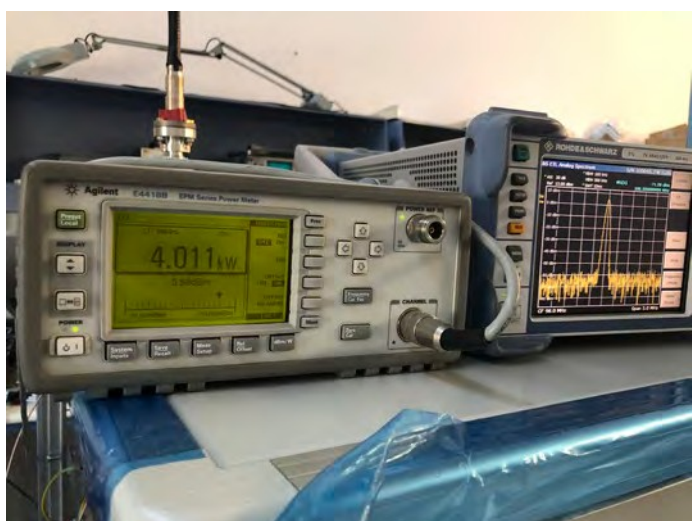


## PRODUCTION AREA

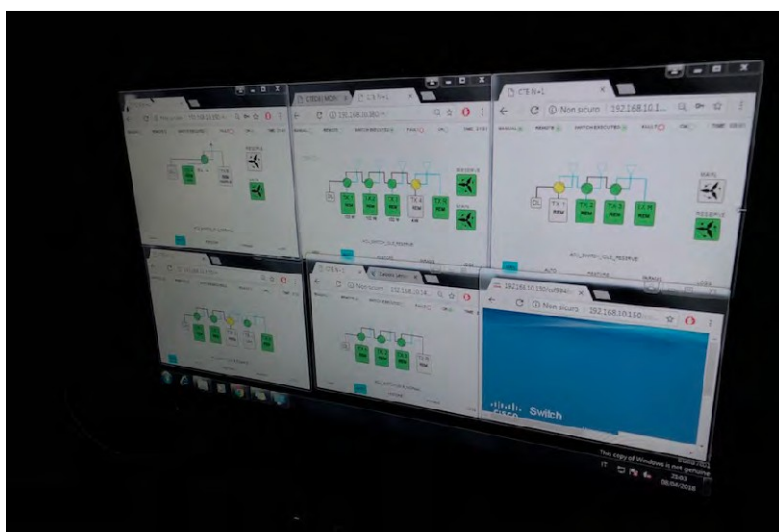
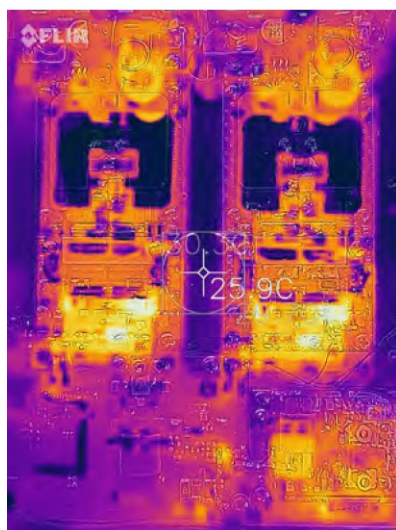




## FINAL TEST AREA







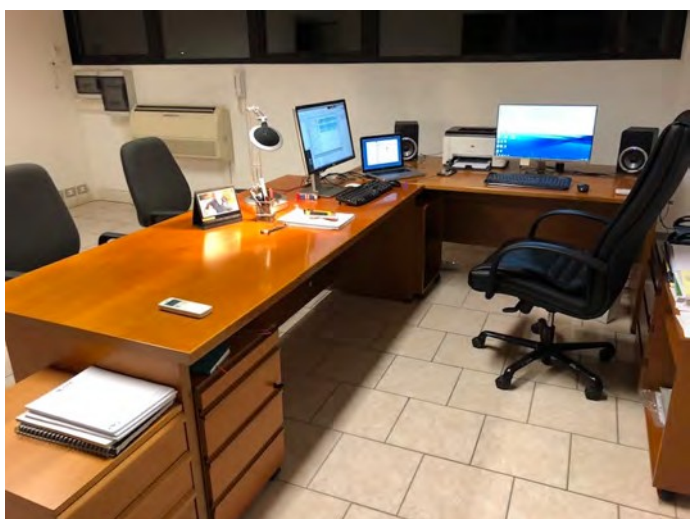


## WORLD WIDE PRESENCE ON EXHIBITIONS





## OPERATIONAL OFFICES





## COMPANY SOCIAL EVENTS







To be...  
**CONNECTED**

To have  
**CONTROL...**

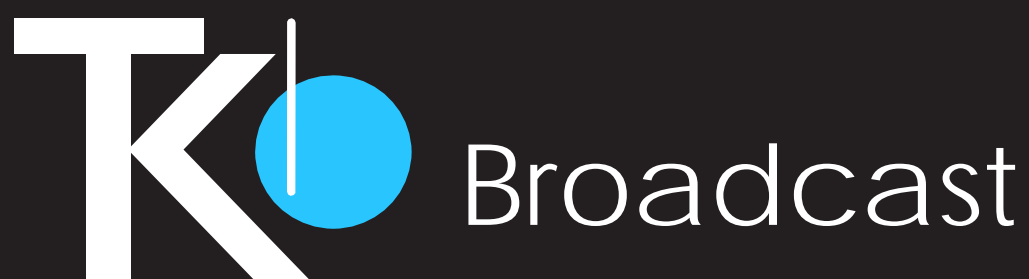
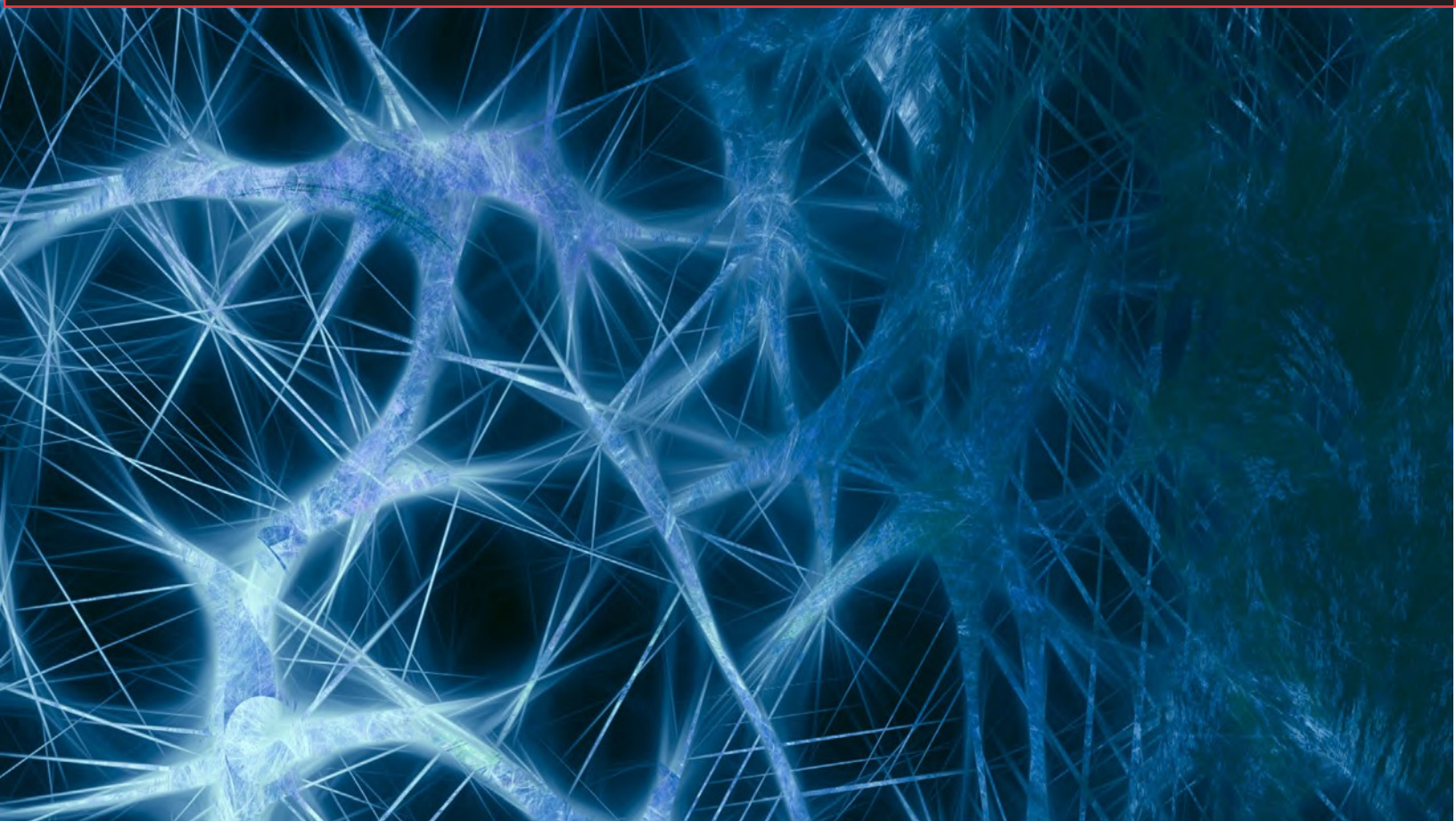
To be  
**ON AIR....**

To be...  
**WIRED**

# A Neural Network of Telecommunication Technologies







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