

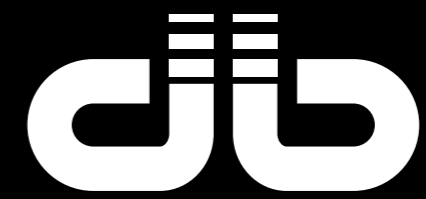


DIGITAL BROADCAST



## Radio Broadcasting Equipment Catalog

*Digital and Analog equipment  
Best Audio Quality with maximum AC Efficiency  
"Tailor-made" customized Turnkey Solutions*



DIGITAL BROADCAST

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One size doesn't fit all

## Radio & TV Broadcasting Equipment

### 40 years of experience



+160 Countries



+ 50,000 Radio & TV Projects



+ 20,000 Transmitters Installed



Millions of People Connected

### Our difference

The unique way we mix together our ingredients in order to offer you the best specific solution for your unique and specific project.

## Radio products and solutions

DB is leader in FM digital and analog broadcasting products. In more than 40 years we design our products to offer to broadcasting operators the best quality of audio signal while providing the maximum AC efficiency, dramatically reducing energy costs.

The GREEN RF™ technology, combined with the new 65:1 devices, is the latest evolution of the world-famous DB patented COLD-FET™ technology, already present in DB's FM transmitters.

PFG and Mozart Series, the new line of FM transmitters and exciters, have been awarded some of the industry's most prestigious technology honors, the Best of Show Award at both NAB Show in Las Vegas and IBC exhibition in Amsterdam.

DB manufactures also analog Studio-to-Transmitter Links (STL), with very low noise, high quality modulation performances and excellent reception signal sensitivity: this assures the best signal to the FM transmitters optimizing the audio quality of broadcasting distribution networks.

Some of the main features of DB FM products are:

- ▶ Extremely low energy consumption
- ▶ Rugged, compact and low weight design
- ▶ Low maintenance costs
- ▶ Smart and intelligent protection system of the units to avoid any TX off-air
- ▶ Complete web control of the units

### Product Range

- **Compact FM Transmitters: Mozart Series From 30W to 3kW**
- **Modular FM Transmitters: PFG Series from 100W to 80kW and PFG-V Series from 5kW to 40kW**
- **FM Amplifiers: KFG series from 100W to 80kW and KFG-V Series from 5kW to 40kW**
- **STL Radio Link Transmitters / Receivers: DTS / DRS Series**
- **FM Broadcasting Antenna Systems**

## Main Benefits

### *The highest AC efficiency*

The outstanding AC efficiency is made possible thanks to the optimized RF design – **Green RF™** - combined with the last generation LDMOS active components, that allows the highest DC to RF efficiency and very low losses **matching circuits and combining systems**.

The new switch-mode power supplies, with over 94% efficiency, contribute reaching top efficiency performance.

Moreover, the top-level AC efficiency is reached over a very wide range of power, thanks to the smart Automatic Level Control system that acts on internal parameters of the amplifier.

### *Rugged and Long lasting Reliability*

Each product has been designed to give broadcasters a very reliable, long-lasting equipment.

We carefully choose the best electronic and mechanical component to grant a superior quality product; then, we carefully perform the assembly and testing procedures using latest generation equipment to guarantee a top quality certified control.

### *Low maintenance Cost*

The easy access to all components, externally accessible cooling air filters, very high MTBF for RF and power supply modules are just some of the characteristics contributing to minimize the maintenance time and costs.

### *High scalability*

Our modular solutions are designed to help your business growing, maintaining same basic modules in all the product series so simplifying network management.

### *Remote control*

We know that is essential to have full instant monitoring and control of your system, especially when you are far away from your site: that's why we designed an advanced remote control system suitable to remotely check and adjust all the main parameters reducing network management costs.

## Technologies

- ▶ **GREEN RF™ technology**, (including the famous Cold Fet™), a special design of matching and combining circuits using latest generation LD-MOS devices to increase DC to RF efficiency up to 85%, with a drastic reduction of energy consumption. Overall AC to RF efficiency reach values over 70%.
- ▶ **Magnetic Sound Enhancer**, a magnetic barrier that protects the VCO, the heart of FM modulator, from electromagnetic disturbances, so increasing sound quality also in RF hard environment.
- ▶ **ARC**, Aluminum Rugged Construction, a special metal treatment procedures using a light anticorrosion alloy, preventing corrosion and reducing weight and logistic costs.



## Compact FM Transmitters: Mozart Series from 30W to 3kW

### The latest Audio excellence in FM Broadcasting

Mozart FM Transmitter - Exciter Series is the latest audio excellence in the FM Broadcasting industry with revolutionary Audio & RF technology.



#### MAIN BENEFITS

**The highest AC efficiency**, reaching over 70% for power over 1 kW, obtained by GREEN RF™ technology.

**Low maintenance costs**, thanks to the easy access to all components, externally accessible cooling air filters and fans, very high MTBF for RF and power supply modules.

**Reduction of transport costs and simplified logistics** thanks to its compact design and low weight.

**High frequency stability** in short and long terms assured by Digital Phase Locked Loop with low drift VCTCXO.

Complete WEB SERVER, SNMP or SMS Remote Control\*.

**Web app for remote management via WiFi Touch\***.

**Frequency Agile**. Broadband with 10 KHz steps, set by software via LCD front panel display or via remote control without any tuning needing.

**Uninterrupted service** thanks to an intelligent protection system that reduces the output power without on-air interruption, keeping the RF devices always within the safe operating parameters in case of:

- ▶ Load mismatching
- ▶ Environmental over-temperature
- ▶ Cooling failure
- ▶ Amplifier breakdown

#### MAIN FEATURES:

**Magnetic Sound Enhancer - MSE™**, a magnetic barrier that protects the VCO, the heart of FM modulator, from electromagnetic disturbances, so increasing sound quality also in RF hard environment.

**Stereo Generator\***, high performance built-in digital stereo coder provides separation typical > 65dB and Signal/Noise ratio >80dB assuring the highest audio quality.

**AES/EBU\*** digital stereo audio interface.

**Input sensitivity and output deviation** adjustable with very high precision (0,05dB) through front panel display or remotely by web interface.

**Adjustable Level and Phase of the pilot tone**, adjustable through front

Meets or exceeds all international standards for safety and electrical specifications.

## Efficiency Enhancement

Mozart design is optimized to get minimum RF losses and excellent performances of the active elements in order to increase the AC efficiency up to more than 70%.



Latest generation LD-MOS devices increase DC to RF efficiency up to 85%, with a drastic reduction of energy consumption.



Hot-plug fans: 2 minutes maintenance time, no need to open or switch off the unit.



All the main working parameters are shown by LEDs to indicate the transmitter status at the first glance.

panel display or remotely by Web interface, allows optimizing stereo separation and audio quality.

**Powerful modulation limiter**, keeping the maximum frequency deviation within international standards requirements, to avoid over modulations and adjacent channels interferences (easy front panel setting).

**Firmware upgradeable**, locally or remotely by TCP/IP.

**Log file**, with every TX alarm event tracked. The Log file can be saved in the PC in common text format. An email can be sent in case of alarm, with the status of the unit and log file.

**Storing configuration**, with the actual active memory configuration that can be downloaded, stored and uploaded in another unit to set it with the same configuration without any other adjustment.

**Weekly scheduler**, available to manage different output power level scheduled setting up to 4 times a day.

**Switch-mode power supply**, highly efficient and widely over-rated power supply modules ensuring low heating, low AC power consumption and superior reliability. The PFC circuitry meets all international requirements for mains network disturbances.

**High efficiency air cooling system**, with heat-sink temperature rising only max 10°C above ambient temperature. This guarantees perfect functioning even in sites with extreme climate conditions and high temperatures.

**Fast FANS replacement**, with amplifier modules equipped with external easily accessible redundant fans to allow instant cleaning and replacement, without opening or removing any module and without affecting the on-air transmission.

\* optional

#### Mozart FM Transmitters



Over 70% RF Efficiency



High Scalability



Remote Control

## Compact Direct Digital FM Transmitters: Mozart DDS Series from 30W to 3kW

### The incredible pureness of audio modulation in FM Broadcasting thanks to Direct Digital Technology

Mozart DDS FM Transmitter / Exciter Series is the latest audio excellence in the FM Broadcasting industry thanks to latest generation Direct Digital technology.



#### MAIN BENEFITS

**Superior audio quality and sound pureness** thanks to the Direct Digital technology

**Suitable for SFN networks application**, with internal modulation phase adjustment to optimize SFN network setting.

**The highest AC efficiency**, reaching over 70% for power over 1 kW, obtained by GREEN RF™ technology.

**Low maintenance costs**, thanks to the easy access to all components, externally accessible cooling air filters and fans, very high MTBF for RF and power supply modules.

**Reduction of transport costs and simplified logistics** thanks to its compact design and low weight.

**Highest frequency stability** due to Direct Digital technology

Complete WEB SERVER or SNMP Remote Control\*.

**Frequency Agile**. Broadband with 1 KHz step, set by software via LCD front panel display or via remote control without any tuning needing.

**Uninterrupted service** thanks to an intelligent protection system that reduces the output power without on-air interruption, keeping the RF devices always within the safe operating parameters in case of:

- ▶ Load mismatching
- ▶ Environmental over-temperature
- ▶ Cooling failure
- ▶ Amplifier breakdown

#### MAIN FEATURES:

**Stereo Generator**, high performance built-in digital stereo coder provides separation typical > 75dB and Signal/Noise ratio >90dB assuring the highest audio quality.

**Input sensitivity and output deviation** adjustable with very high precision (0,1dB) through front panel display or remotely by web interface.

**AES/EBU**, digital stereo audio interface.

*Meets or exceeds all international standards for safety and electrical specifications*

## Efficiency Enhancement

Mozart design is optimized to get minimum RF losses and excellent performances of the active elements in order to increase the AC efficiency up to more than 70%.



Latest generation LD-MOS devices increase DC to RF efficiency up to 85%, with a drastic reduction of energy consumption.



Hot-plug fans: 2 minutes maintenance time, no need to open or switch off the unit.

#### Mozart FM Transmitters



Over 70% RF Efficiency



High Scalability



Remote Control

**Dynamic RDS\***, built-in dynamic RDS coder.

**Automatic Audio switch**, to select input signals and set the input program priority.

**Powerful modulation limiter**, keeping the maximum frequency deviation within international standards requirements, to avoid over modulations and adjacent channels interferences (the limiter can be soft or hard, threshold easily adjustable via web GUI interface).

**Presence of multiple memory profiles**, to store the main configuration parameters, with easy user recall.

**Storing configuration**, with the actual active memory configuration that can be downloaded, stored and uploaded in another unit to set it with the same configuration without any other adjustment.

**Firmware upgradeable**, locally (by USB) or remotely (by WEB GUI).

**Log file**, with every TX alarm event tracked. The Log file can be saved in the PC in common text format. An email can be sent in case of alarm, with the status of the unit and log file.

**Daily scheduler**, available to manage different output power level scheduled setting during the day.

**Switch-mode power supply**, highly efficient and widely over-rated power supply modules ensuring low heating, low AC power consumption and superior reliability. The PFC circuitry meets all international requirements for mains network disturbances.

**High efficiency air cooling system**, with heat-sink temperature rising only max 10°C above ambient temperature. This guarantees perfect functioning even in sites with extreme climate conditions and high temperatures.

**Fast FANS replacement**, with amplifier modules equipped with external easily accessible redundant fans to allow instant cleaning and replacement, without opening or removing any module and without affecting in any way the on-air transmission.

*\* optional*





## FM Modular Transmitters: PFG Series From 100W to 80kW

### The most efficient modular FM Transmitters

*PFG Series is the DB family of Modular FM transmitters designed to operate in the whole 87.5 – 108 MHz frequency range.*

#### MAIN BENEFITS

**The highest AC efficiency**, reaching over 70% for power over 1 kW, obtained by GREEN RF™ technology.

**Low maintenance costs**, thanks to the easy access to all components, externally accessible fans, cooling air filters, very high MTBF for RF and power supply modules.

**High frequency stability** in short and long terms assured by **Digital DDS exciter\*** or by Digital Phase Locked Loop with low drift VCTCXO in analog excitors.

**Strong reduction of air conditioning** thanks to high efficiency and lower ambient heating.

Complete WEB SERVER, SNMP or SMS **Remote Control\***.

**Web app for remote management** via WiFi Touch\*.

**Frequency Agile Broadband** with 10 KHz steps, set by software via LCD front panel display or via remote control without any tuning needing.

**Uninterrupted service** thanks to an intelligent protection system that reduces the output power without on-air interruption, keeping the RF devices always within the safe operating parameters in case of:

- ▶ Load mismatching
- ▶ Environmental over-temperature
- ▶ Cooling failure
- ▶ Amplifier breakdown

#### MAIN FEATURES

Each FM Transmitter of the PFG Series includes:

- ▶ Mozart series excitors, the latest audio excellence of FM Transmitters. (see above for main benefits and features)
- ▶ Amplifier
- ▶ Control logic unit, built-in or stand alone
- ▶ Air cooling or liquid cooling\* system available
- ▶ External heat exchanger unit and pump system, in case of liquid cooling option



*Meets or exceeds all international standards for safety and electrical specifications.*

#### Hot-Plug Solution\*

PFG Transmitters over 5kW can be equipped with the hot-plug system to instantly extract the amplifier modules one by one even when the transmitter is operating on air.

The amplifier modules slide on telescopic rails, then they can be extracted and removed for easy maintenance or replacement without disconnecting any cable and without interrupting the FM on-air transmission.

#### High efficiency air cooling system

Thanks to a powerful air cooling system with special design heatsink, the active components operating temperature can rise only 10°C above ambient temperature.

This guarantees the proper functioning even in sites with extreme climate conditions and high temperatures.

#### Air cooling system characteristics

The amplifier modules are equipped with external easily accessible redundant fans to allow:

- ▶ Instant cleaning and replacement, without opening or removing any module and interrupting the FM transmission.
- ▶ Easy maintainability: lower costs of maintenance
- ▶ Extended transistor life thanks to the oversized air cooling system that make the components, active and passive, operating constantly at very low temperatures (COLD-FET™ operation).

#### High Efficiency Liquid Cooling System\*

The liquid cooling system assures high reliability, greater cooling efficiency and easy installation, thanks also to the smart system design with very low pressure liquid distribution and low pressure loss into the special design internal heatsinks.

This system is designed to successfully face extremely hard climate conditions.

Maximum redundancy is guaranteed by DB powerful liquid cooling system, designed with an oversized heat exchanger, single or double\*, suitable for outdoor or indoor installation, and equipped with a single or double\* pump system.

#### Advantages of liquid cooling

Main advantages of our liquid cooling system compared to the correspondent air cooling system are:

- ▶ Higher cooling efficiency: more efficient cooling capacity, allowing properly working even with extremely hard climate conditions.
- ▶ No air moving: proper working in dusty, humid and salty environment, due to the absence of air moving.
- ▶ Silent: ultra quiet working, suitable where silence is essential.
- ▶ Low Heat Dissipation into the environment, reducing AIR conditioning needing
- ▶ Lower Air Conditioning costs.
- ▶ Long-lasting life: extended life of transistors and active elements due to running at extremely low temperatures.

#### Extended equipment life

Extended equipment life guaranteed by special treatments. Corrosion from air moisture is prevented by ADD technology:

- ▶ Components are made in light anticorrosive aluminum
- ▶ Air is properly ducted to avoid contact with electronic parts
- ▶ All printed circuit boards and cabling are subject to conformal coating to protect them against moisture, liquids and corrosion

## FM Modular Amplifiers: KFG series From 100W to 80kW



*\*optional*

*The above PFG Series transmitters are available also as amplifiers, without the internal excitors, with the name of KFG Series*

KFG Series is the DB family of modular FM amplifiers designed to operate in the whole 87.5 – 108 MHz frequency range.

The characteristics, features and benefits are the same of PFG Series detailed above, just excluding the ones connected to the internal excitors. Same benefits in term of **highest AC efficiency, Low maintenance costs, Strong reduction of air conditioning, Remote Control, Uninterrupted service.**

Same features in term of **Hot-Plug Solution\*, High efficiency air cooling system, High Efficiency Liquid Cooling System\*, Extended equipment life.**

## FM Modular Transmitters: PFG-V Series From 5 kW to 40kW



### The highest level FM Transmitters

*PFG-V Series is the DB family of Modular Vertical Air Cooling FM transmitters designed to operate in the whole 87.5 – 108 MHz frequency range.*

#### MAIN BENEFITS

- ▶ **The highest AC efficiency**, reaching over 70%, obtained by GREEN RF™ technology.
- ▶ **Low maintenance costs**, thanks to the easy access to all components, externally accessible cooling air filters, very high MTBF for RF and power supply modules.
- ▶ **High frequency stability** in short and long terms assured by **Digital DDS exciter\*** or by Digital Phase Locked Loop with low drift VCTCXO in analog exciters.
- ▶ **Strong reduction of air conditioning** thanks to high efficiency and lower ambient heating.
- ▶ Complete WEB SERVER, SNMP or SMS **Remote Control\***.
- ▶ **Frequency Agile Broadband** with 10 KHz steps, set by software via LCD front panel display or via remote control without any tuning needing.
- ▶ **Uninterrupted service** thanks to an intelligent protection system that reduces the output power without on-air interruption, keeping the RF devices always within the safe operating parameters in case of:
  - ▶ Load mismatching
  - ▶ Environmental over-temperature
  - ▶ Cooling failure
  - ▶ Amplifier breakdown

#### MAIN BENEFITS

Each FM Transmitter of the PFG-V Series includes:

- ▶ Mozart series exciters, the latest audio excellence of FM Transmitters. (see above for main benefits and features)
- ▶ Amplifier
- ▶ Control logic unit, built-in or stand alone
- ▶ Air cooling system

*Meets or exceeds all international standards for safety and electrical specifications.*

### Hot-Plug Solution

PFG-V Transmitters are standardly equipped with the hot-plug system to instantly extract the amplifier modules one by one even when the transmitter is operating on air.

The amplifier modules slide on telescopic rails, then they can be extracted and removed for easy maintenance or replacement without disconnecting any cable and without interrupting the FM on-air transmission.

### High efficiency air cooling system

Thanks to the powerful air cooling system with vertical air flow and with special design heatsink, the active components operating temperature

are significantly reduced respect to standard PFG version.

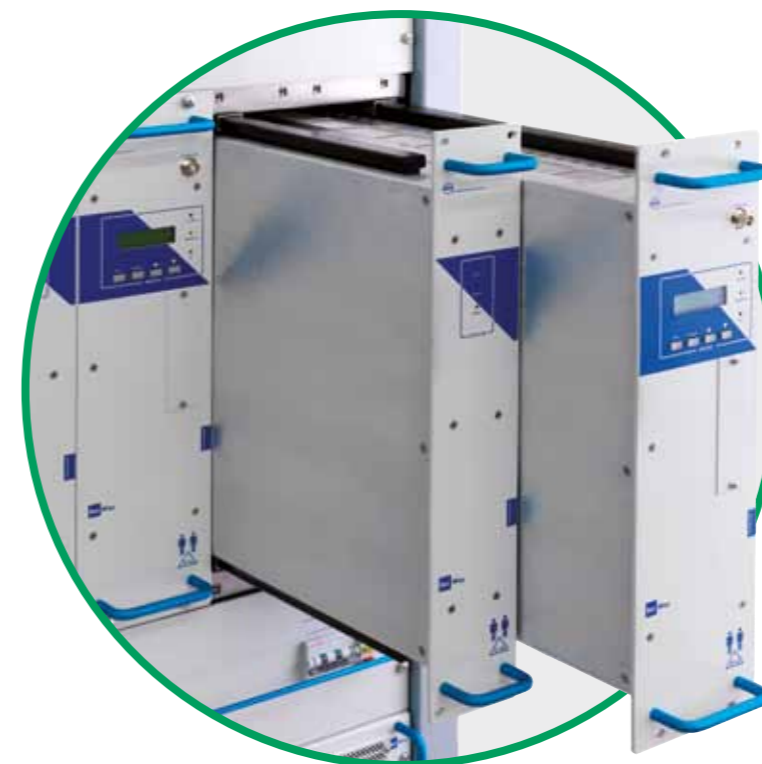
This guarantees the proper functioning even in sites with extreme climate conditions and higher temperatures.

### Extended equipment life

Extended equipment life guaranteed by special treatments. Corrosion from air moisture is prevented by ADD technology:

- ▶ Components are made in light anticorrosive aluminum
- ▶ Air is properly ducted to avoid contact with electronic parts
- ▶ All printed circuit boards and cabling are subject to conformal coating to protect them against moisture, liquids and corrosion

## FM Modular Vertical Air Cooling Amplifiers: KFG-V series From 5 kW to 40kW



*The above PFG-V Series transmitters are available also as amplifiers, without the internal exciters, with the name of KFG-V Series*

KFG-V Series is the DB family of Modular Vertical Air Cooling FM amplifiers designed to operate in the whole 87.5 – 108 MHz frequency range.

The characteristics, features and benefits are the same of PFG-V Series detailed above, just excluding the ones connected to the internal exciters. Same benefits in term of **highest AC efficiency, Low maintenance costs, Strong reduction of air conditioning, Remote Control, Uninterrupted service.**

Same features in term of **Hot-Plug Solution, High efficiency air cooling system, Extended equipment life.**

*\*optional*

## STL Radio Link Transmitters / Receivers: DTS / DRS Series



### The most efficient modular FM Transmitters

*The DTS and DRS Series are the state of the art DB solution for Studio to Transmitter links for audio broadcasting networks, matching the networking needs of all international broadcasters. These products are designed to be frequency agile and reach top quality audio modulation performances with a very intuitive and complete front panel LCD display control system. Their excellent characteristics make the DTS/DRS Series one of the highest quality STL on the market.*

#### MAIN BENEFITS

**Synthesized Agility.** From 210 to 970 MHz - /3B, /4B, /GHz models- and from 1.35 to 2.5 GHz - /2G models: the transmitted and received frequencies can be easily set by the front panel LCD display.

**Compact, simple, stable** thanks to the small size of the units; the smart internal design that simplifies the maintenance; high frequency precision and stability thanks to the temperature compensated crystal.

**Excellent stereo separation.** The built-in group delay and amplitude precorrector guarantee a very low linear distortion and a great stereo separation in the whole audio band.

**Low noise.** The excellent signal to noise ratio - mono or stereo- assures the perfect use of this STL in multi-hops networks without decreasing the audio quality.

**High receiving sensitivity** thanks to the use of ultra low noise receiving input amplifiers, selective filters and a powerful demodulation circuit. This system allows reaching longer link distances even in high noise RF environments, reducing the investments on antenna.

**Great RF immunity** allows operating in the most hostile RF environments.

**High adjacent channel rejection,** obtained thanks to the excellent mechanical shielding and the RF selective filtering.

**Complete diagnostic** and measure of all the main parameters are available through LCD front panel. Full remote control available through WEB server and/or SNMP as option.





## STL antennas for FM networks

We provide a wide variety of STL antennas suitable for all requirements for FM broadcasting contribution and distribution networks.

Logarithmic antennas from 45 MHz to 2.5 GHz (LOG Series): very light and cost saving solution, perfect for short distances link's hops (less than 15 km)

Parabolic dishes antennas from 0.8 GHz up to 24 GHz (PAR Series): high gain directive antennas with precision pointing system suitable for medium and long distances link's hops (10 to 100 km)

## FM Broadcasting Antenna Systems

We provide a wide variety of FM broadcasting Antenna Systems suitable for all FM broadcasting network applications. We use a powerful solid CAD model system design software with international orographic maps converted from satellite surveys to optimize the antenna system based on the FM Network specification. Antenna systems can be Omnidirectional or Directive, depending on the requested coverage area.

### Available DB FM antennas are:

#### ● P1 Series

FM Dipole antenna, available in aluminum or stainless steel, suitable for Omnidirectional FM coverage antenna systems

#### ● P3 Series

FM YAGI antenna, available in galvanized or stainless steel, suitable for Directional FM coverage antenna systems

#### ● OCS Series

FM Circular Polarization antenna, available in stainless steel only, suitable for Omnidirectional FM coverage antenna systems, perfect to cover high density populated towns thanks to its double polarization

#### ● APFM

FM Panels antenna, suitable for Directional FM coverage antenna systems, with high gain and very high performances.

**P1 SERIES**

The **P1 Vertical Polarization Dipole Antenna** series is designed for FM Broadcast Band (87,5 –108 MHz). Each antenna is composed of one balun feed vertical dipole and is made of stainless steel (PX1 models) or resistant aluminum alloy (P1 models).

**Omni-Directional.** The radiation pattern is omnidirectional.

**Antenna systems.** By stacking more antennas it is possible to obtain customized patterns, to increase the gain and the power handling capacity according to user's requirements. Custom patterns, electrical beam tilt and null fill designs are available upon request.

**Broadband.** Suitable for single channel or broadband operations with multi-channel combiners.

**Easy installation.** The standard mounting brackets are designed for instant installation on poles with diameters from 32 mm to 90 mm. Special brackets are available upon request.

**Water, icing, moisture protection.** The input connector is protected against rain and icing by a special housing. The internal balun is also protected against water, icing and moisture by a sealed housing.

**State of the art mechanical design.** By employing the finest materials (stainless steel, non-corrosive aluminum alloy, marine brass, virgin PTFE) it is assured a longer life service.

**OCS SERIES**

The **OCS Circularly Polarized Antenna** series is designed for FM Broadcast Band (87,5 -108 MHz). Each antenna is entirely made of stainless steel and composed of two folded dipoles.

**Omni-Directional.** The radiation pattern is omnidirectional.

**Antenna systems.** By stacking more antennas it is possible to obtain customized patterns, to increase the gain and the power handling capacity according to user's requirements. Custom patterns, electrical beam tilt and null fill designs are available upon request.

**Broadband.** Suitable for single channel or broadband operations with multi-channel combiners.

**Disassemblable.** These antennas are disassemblable in order to reduce the shipment and stocking volumes and costs.

**Easy installation.** The standard mounting brackets are designed for instant installation on poles with diameters from 32 mm to 90 mm. Special brackets are available upon request.

**Water, icing, moisture protection.** The input connector is protected against rain and icing by a special housing. The internal balun is also protected against water, icing and moisture by a sealed housing.

**State of the art mechanical design.** By employing the finest materials (stainless steel, non-corrosive aluminum alloy, marine brass, virgin PTFE) it is assured a longer life service.

**P3 SERIES**

The **P3 Vertical Polarization Directional Antenna** series is designed for FM Broadcast Band (87,5 -108 MHz). Each antenna is made of stainless steel (PX3 models) or galvanized steel (P3 models).

**Directional.** The radiation pattern is directional narrow lobe.

**Antenna systems.** By stacking more antennas, it is possible to obtain customized patterns, to increase the gain and the power handling capacity according to user's requirements. Custom patterns, electrical beam tilt and null fill designs are available upon request.

**Broadband.** Suitable for single channel or broadband operations with multi-channel combiners.

**Easy installation.** The standard mounting brackets are designed for instant installation on poles with diameters from 32 mm to 90 mm. Special brackets are available upon request.

**Water, icing, moisture protection.** The input connector is protected against rain and icing by a special housing. The internal balun is also protected against water, icing and moisture by a sealed housing.

**State of the art mechanical design.** By employing the finest materials (stainless steel, non-corrosive aluminum alloy, marine brass, virgin PTFE) it is assured a longer life service.

**APFM SERIES**

The **APFM Panel Antenna** series is designed for FM Broadcast Band (87,5 -108 MHz). Each antenna is entirely made of galvanized and stainless steel and can be composed by 1 single dipole (APFM/SD) or two folded dipoles (APFM/DD).

**Directional.** The radiation pattern is directional.

**Antenna systems.** By stacking more antennas it is possible to obtain customized patterns, to increase the gain and the power handling capacity according to user's requirements. Custom patterns, electrical beam tilt and null fill designs are available upon request.

**Broadband.** Suitable for single channel or broadband operations with multi-channel combiners.

**Disassemblable.** These antennas are disassemblable in order to reduce the shipment and stocking volumes and costs.

**State of the art mechanical design.** By employing the finest materials (stainless steel, non-corrosive aluminum alloy, marine brass, virgin PTFE) it is assured a longer life service.

Every project and every customer is unique, that's why one size doesn't fit all, and that's why we strive to offer unique solutions for unique projects.





**DIGITAL BROADCAST**

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