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Content for People

Expertise and Innovation | Our broadcast systems are deployed all over the globe, where they make an important contribution to local, national and international communication

Ampegon is the leading designer, manufacturer and integrator of radio broadcast systems worldwide. More than one out of every two high power radio broadcast transmitters comes from Ampegon. Our trademarks are innovation and premium quality systems combined with highest reliability and the best service over the equipment lifetime.

Mission
Seeking to exceed what the market asks for in performance and reliability, Ampegon is intent to supply environmentally sound broadcast solutions that support cost-efficient media implementation. In the past years Ampegon has focused its efforts on developing advanced solutions to meet environmental and technological evolutions.

Global warming, soaring energy prices, scarcity of renewable energy, rapidly developing digital media platforms, advances in compression technology and quickly changing life styles have reshaped the broadcast platform and transformed high power broadcast needs.

Technology is both the challenge and the key to retaining a global position. Radio broadcast technology has undergone many innovations in the course of its existence, many of which have come from the house of Ampegon. Innovations from Ampegon extend the reach, make operation more efficient and convenient, reduce investment and operating costs and optimize the quality of reception. With an eye to the future, Ampegon offers most advanced, efficient and flexible solutions.

Shortwave Broadcast Transmitters
Shortwave broadcasting is the most reliable, cheapest and easiest way to reach innumerable listeners simultaneously from a single transmission site. This outstanding technology gives broadcasters complete independence from gatekeepers and third-party infrastructure like satellite and cable. No other mass communication medium offers such fascinating coverage possibilities as the AM bands – and especially shortwave in combination with the new state of quality and advanced services offered by DRM. Ampegon shortwave transmitters lead the market for more than 30 years. Hundreds of satisfied customers testify to the superior design, performance and maintainability of the Ampegon transmitter product lines.

Mediumwave Broadcast Transmitters
Mediumwave broadcasting is a cost-efficient alternative for local, regional or even national coverage. Recent surveys show that around 1000 LW/MW transmitters have been installed worldwide over the past 25 years. This newly installed power base of more than 200 megawatts testifies to the importance of the role played by these bands in today’s media platform. Ampegon manufactures transmitters for LW/MW broadcasting from 10 kW to 1000 kW and above.

Equipped with the advanced technology and intrinsic flexibility needed for the complex modulation schemes of digital modulation techniques, Ampegon long- and mediumwave transmitters have been proven in DRM field trials worldwide and allow broadcasters to profit directly from the wide range of advantages offered by the new digital AM technology.
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DRM Solutions
Digital AM, known under the brand DRM (digital radio mondiale) is an important platform within the transition to digital media and is a perfect complement to other standards like DAB, DMB, DRM+ in FM etc. Besides offering basic high quality sound broadcast, DRM also provides the possibility to transmit added-value services for use in parallel to the pure audio and/or video programs.

DRM uses the same frequency, spectrum and channel as analog AM and in combination with shortwave, is the most cost-efficient, reliable and independent means to reach millions of listeners with near FM audio and reception quality using only a few transmitters and frequencies. Ampegon pioneered the development of the new DRM technology and offers a complete end-to-end DRM product line for digital AM solutions.

Broadcast Antennas
Behind every great signal-on-air is a well-designed antenna. Ampegon offers the most advanced and efficient antenna systems on the market today and is the only supplier in the world for rotatable curtain antennas (RCA). With more than 60 years of continuous activity and experience in the antenna field, Ampegon antenna systems set standards worldwide and are deployed by satisfied customers on all 5 continents. Whether shortwave, mediumwave or longwave, Ampegon can help you to get the most out of your antenna system.

Broadcast Control Systems
From local monitoring to worldwide networking, the Ampegon «Master Series II» broadcast control systems are designed to monitor, supervise and control the complex processes involved in putting and keeping programs on air. Master Series II systems manage any task, from the simple monitoring of one or more transmitters to the complex job of coordinating and controlling entire broadcast networks.

Engineering
Radio broadcast customers expect to receive reliable, state-of-the-art technology, tailored to meet their specific needs. Ampegon is specialized to fulfill such demands. More than 60 % of our permanent staff consists of specialized, graduated engineers. Our teams have vast expertise in all fields of broadcast-related technologies from signal processing to advanced antenna design. Shaping the industry with technological milestones, our solutions are always one step ahead.

Services
The ability to predict, quickly identify and solve problems in a station infrastructure is the cornerstone to safeguarding reliable operation. Our support centers use the latest connectivity tools to give on-line assistance, offer remote monitoring and troubleshooting services and make regular checks of key parameters. Thanks to the strong global presence of the Ampegon worldwide service and sales network, your next Ampegon office is never more than a stone’s throw away.

The RCA 2/2 is the newest model in the family of rotatable curtain antennas. This antenna is an economic solution for most flexible high power shortwave broadcasting in the frequency band from 6 MHz up to 26 MHz.
Whether digital or analog, the best signal on air depends on optimal interconnection of all broadcast system components. One of the key components is without doubt the broadcast antenna. Ampegon high profile engineers are specialized in designing, building, servicing and optimizing high-performance antenna broadcast systems which lead the market for more than 60 years. The teams are not only equipped with special knowledge and expertise, but also have the latest computer tools at their command to facilitate design and performance. The Ampegon antenna portfolio is the most comprehensive in the world today and includes antenna systems for:

- Shortwave broadcasting (100 - 500 kW)
- Longwave and mediumwave broadcasting (50 - 2000 kW)
- VLF (very low frequency) applications as well as towers and masts for specific communication needs (TV, FM, etc.)

We also offer an extensive service range, including:
- Antenna installation and maintenance
- Commissioning of antennas and antenna systems
- Electro-magnetic compatibility (EMC) investigations including near-field analysis
- Propagation studies to clarify broadcaster requirements and antenna needs
- Technical customer after-sales service over the entire system lifetime

Our shortwave broadcast transmitting antenna solutions include non-directional antennas and directional antennas in a fixed and a rotating performance.

Unrivalled Performance of Rotatable Antennas

Mastering structural, mechanical and electrical aspects of antenna engineering, Ampegon is the only company in the world offering rotatable curtain antennas for enhanced shortwave broadcasting.

Based on the Ampegon rigid dipole technology, the HP-RCA 4/4 (high performance rotatable curtain antenna) is an example of leading antenna technology specifically designed to meet high demands on reliability, maintainability and cost-efficient operation.

Enabling the shortest lead time to start off worldwide coverage, the RCA does not only offer a high flexibility of operation, but with a survival wind speed at the antenna top of 200 km/h, it is also robust enough to withstand heavy weather conditions.

A back-to-back arrangement of a low band and a high band curtain antenna, each equipped with its own reflector screen, the Ampegon RCA offers a 360 degree azimuth at the touch of a finger-tip and is optimized for digital DRM broadcasting. Therefore the HP-RCA is the most flexible antenna system on the market with respect to choice of coverage area and frequency.

With a high rotation speed of 1 degree per second and a high positioning accuracy of smaller than one degree, the RCA is equipped with electric control logic to operate the entire network and to assure that the antenna is tuned in the direction of the respective coverage area over the shortest possible path.

HP-RCA Type AHR 4/4 | The system is designed to cover all shortwave frequency bands from 6 to 26 MHz and enables the coverage of far distant areas and near to far distant areas on request.

Dipole Feed Point | The number of insulators (spacer, hangers and supports) has been minimized throughout the total run of all balanced transmission lines for dipole feeding, including current phase control lines and lines for power distribution, as shown at the dipole feeding point.

“My devotion to antenna technology goes back more than 20 years. I am proud of our in-house capacity to offer the highest possible level of overall system integration available on the market today.” Norbert Stangl, Head of Antenna R&D
Details of an AHRS 4/4 curtain antenna showing the mechanical complexity. Accuracy in production and installation of the components is the key for a perfectly working antenna system.

200 tons of steel shaped for worldwide shortwave transmissions.
As a complement to the RCA 4/4, a new 2/2 rotatable curtain antenna was designed based on the long term experience with the many installations of the 4/4 type.

The new RCA type AHR 2/2, is dedicated to serve a 360 degree of azimuth for the coverage of near distant to medium distant areas (100 km to 4000 km). Compared to a classical log periodic dipole antenna (LPD), which can be used to service similar coverage areas, the RCA enables a highly efficient solution for enhanced short wave coverage. The results of an investigation of the efficiency of the two different systems shows that the RCA 2/2 has up to 45 % higher efficiency into a defined target area.

Rigid Dipole Antennas

Shortwave broadcasters with near distant coverage areas can now profit from a space-saving antenna innovation from Ampegon based on our well-proven rigid folded dipole technology. An obvious disadvantage of classical open wire design, i.e. the need of antenna suspension towers with all their guy ropes, is reduced to a single self-supporting central tower. Consequently ground space, material, assembly and maintenance works are minimized to a cost-efficient solution. With robust, easy-to-maintain and highly reliable RF components, the system has a very high availability with extraordinarily long MTBF (Mean Time Between Failure) and very short MTTR (Mean Time To Repair). The rigid dipole antenna has a remarkably small footprint and allows installation on even smallest estates. There is no need of extensive and complex guy ropes including insulations and foundations. The antenna radiation characteristics are optimized for DRM.

Key Features

- DRM capability within the full frequency range
- Optimized gain in accordance with specific broadcaster needs
- Rigid antenna dipole technology for increased mechanical stability
- Highest radiation pattern efficiency
- Highest system efficiency
- Fast installation and lowest maintenance works

Rotatable curtain antennas

- Quickest start-up of worldwide coverage
- Adaptation of transmission parameters at a finger-tip by remote control
- Rotates to cover a 360° coverage angle
- High front-to-back ratio
- Small footprint

SW Broadcast Antennas

The flagship product in Ampegon’s shortwave antenna portfolio is the legendary RCA 4/4. Many systems all over the world are proving highest flexibility and reliability under roughest environmental conditions.
With the introduction of DRM, mediumwave offers broadcasters a highly cost efficient approach for local, regional and national program services in near FM quality. However, the technical and economical performance of a DRM broadcast system depends greatly on the choice and design of the antenna.

Ampegon offers a full range of LW and MW antenna masts and towers including monopoles and dipole antennas. The selection of the right antenna type and design depends on a variety of parameters, like:

- Given frequency of operation and transmitter power
- Required coverage area, interference
- RF performance data
- Site specific conditions
- Performance cost efficiency (dimensions, safety margin, VSWR, bandwidth)
- Reliability
- EMC requirements

Ampegon antenna engineers are experienced system integrators – well known around the globe for advanced turnkey implementations – and are your best partner for designing a new antenna or upgrading an existing system. Ampegon LW and MW line includes:

- Directional and omnidirectional systems (up to 2 Megawatts)
- RF matching units, RF power distribution networks and open wire RF feed lines (up to 2 Megawatts)
- Multiplexing devices
- Filter units
- Wide range of accessories like RF switches, low-loss insulators, antenna control systems, aviation obstruction lights, safety devices, etc

Our teams offer professional guidance in engineering, site logistics, system commissioning, installation methodology, worldwide purchasing network and customer service facilities.
Key Features

- DRM capability within the full frequency range
- Optimized gain – best coverage
- Highest radiated energy to target
- Perfect matching with transmitter and feed line
- Maximum reliability
- Simplified maintenance
- Perfect functioning even in most severe environments
- Omnidirectional and directional antenna solutions
- Minimum need on insulators
- Supporting structures are grounded (standard)
- Customized solutions to meet any needs

LW/MW Broadcast Antennas

Ampegon Longwave (LW) Antennas

- Broadcasting (148.50 kHz-283.50 kHz; 1060 m-2020 m)
- Navigation LORAN-C (100 kHz, 3000 m)
- Time signal DCF77 (77.5 kHz, 3870 m)

Ampegon Mediumwave (MW) Antennas

- Broadcasting (526.50 kHz-1606.50 kHz; 187 m-570 m)

Site Specific Solutions

Nothing better demonstrates the importance of professional system integration than LM/MW radio broadcasting installations. This is particularly true when transmitting antennas are involved. Antennas interact with their surroundings. Antenna characteristics, like pattern, gain, impedance, matching and bandwidth, are affected by nearby installations. Vice versa, antennas can affect nearby installations of any kind, provided these installations are «conductive» and show respective structural dimensions. LW/MW broadcast antennas are highly individual, sophisticated systems. No other component of a broadcast system offers as many options in terms of performance and costs as the antenna system. A perfect site specific design calls for consideration of various aspects, like interaction with other installations on the same or neighboring sites and with environmental conditions.

If more than one LM/MW broadcast system is operated on the same site, the question of system integration becomes a matter of utmost importance. A well-designed and calculated system approach pays off. Benefits include not only a highly efficient antenna system, but also best technical performance and reliability.

800 kW Tuning Unit

Careful consideration of the tuning network and its components can optimize the efficiency of your system. Poorly designed coils may lead to extensive heat losses. The above unit handles very high currents and voltages while keeping losses to a minimum.

Wall Bushing

This feed-through insulation is the interface between indoor and outdoor equipment. The wall bushing seen above can handle very high RF voltages and RF currents of 50 kV and 250 A.
Enhanced Antenna Design | We craft flexible systems that can be adapted to most evolving requirements like size, proximity to urban areas, severe weather conditions, special ground conditions and service requirements. Our customers esteem our wide expertise and experience.