

Broadcast Transmitter Installation, Service and Support in North America

Supporting Your Investment
Over The Long Term


ROHDE & SCHWARZ



Contents

Forward

R&S Corporate Overview

Worldwide Support Footprint

USA/Canada Service

Technical Support

Transmitter Project Team

3rd Party Partners

Factory Support



Dear Customers,

I am often asked what has made Rohde & Schwarz so successful over so many decades, and enabled the company to drive technological progress in the market.

One aspect is the passion with which we work every day in our R&D labs to push the limits of what is physically feasible. Another is our desire to create winning products that exceed the expectations of our customers in terms of technology, functionality and quality.

Our service and support philosophy is another key factor in our success. For us, it goes without saying that we offer our customers the best possible support in every phase of the product lifecycle.

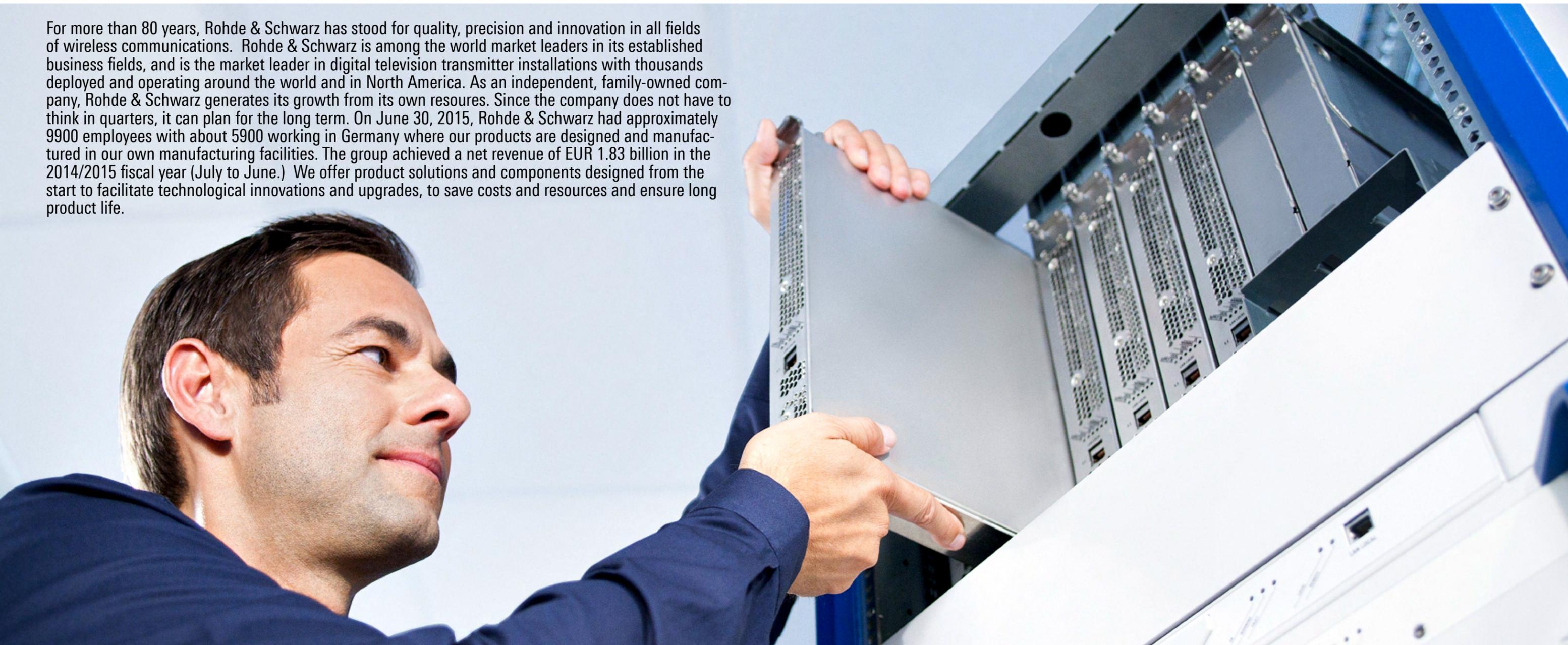
We provide a wide variety of customized service offerings, which we plan in close dialog with our customers and our support specialists very early in the product development phase. This lets us identify needs early on in order to minimize your operating costs and maximize uptime.

Our comprehensive and continuously growing range of services is designed to ensure that you are satisfied with every aspect of your R&S product. I am convinced that this commitment, implemented by our worldwide network of expert service and support personnel, is one of the major factors behind the success of our company.

Christian Leicher
President and CEO

We're all about leading edge products and life-time support.

For more than 80 years, Rohde & Schwarz has stood for quality, precision and innovation in all fields of wireless communications. Rohde & Schwarz is among the world market leaders in its established business fields, and is the market leader in digital television transmitter installations with thousands deployed and operating around the world and in North America. As an independent, family-owned company, Rohde & Schwarz generates its growth from its own resources. Since the company does not have to think in quarters, it can plan for the long term. On June 30, 2015, Rohde & Schwarz had approximately 9900 employees with about 5900 working in Germany where our products are designed and manufactured in our own manufacturing facilities. The group achieved a net revenue of EUR 1.83 billion in the 2014/2015 fiscal year (July to June.) We offer product solutions and components designed from the start to facilitate technological innovations and upgrades, to save costs and resources and ensure long product life.



Service and support by R&S. Worldwide.



Service nearby.

The Rohde & Schwarz service organizations are able to perform maintenance and support for R&S® equipment throughout their life cycle. For the USA and Canada, Rohde & Schwarz has a state-of-the-art Service Center facility located in Columbia, Maryland. This facility allows our customers to maximize uptime with reliable, consistent and quality service. The Service Center supports:

- ISO 17025, ANSI Z540.1 and Z540.3 accredited
- ISO-9001 2008 certification
- Rapid and efficient service made possible by a staff of over 50 employees working two shifts and a significant local spare parts inventory
- Experienced Service organization averaging 15 years technical work experience per service engineer
- Free technical support available via email and phone during business hours

Rohde & Schwarz has a commitment to providing flexible services designed to bring you sustained benefits and long-term satisfaction. The Service Center in Columbia, MD helps support this commitment to long-term satisfaction through:

- Transmitter Service Level Agreements available for guaranteed uptime (see separate brochure.)
- No surprise, Fixed Price Repair, eliminate any service cost uncertainties
- Accredited and Manufacturer Calibration availability
- Guaranteed satisfaction with 1 year warranty on any Fixed Price Repair Service on R&S Hardware components
- A wide range of customized service contracts and agreements catered to individual needs minimize costs, while maximizing product availability and autonomy



Help anytime.

Long product life is a fundamental quality criterion at Rohde & Schwarz. This is why Rohde & Schwarz supports its customers in all phases of the product lifecycle. Rohde & Schwarz offers a worldwide service network with 24-hour support.

In North America, our Technical Customer Support Center operates from 8AM Eastern time to 5 PM Western time and can be contacted for technical support or to arrange a transmitter expert to get in touch with the customer.

Our Columbia Maryland headquarters features fully functional digital broadcast transmitters for training and problem simulation. Other support resources for North American customers:

Transmitter.Support@rsa.rohde-schwarz.com
FOR GENERAL SERVICE AND SUPPORT

Service.rsa@rsa.Rohde-Schwarz.com
For RMA's, Part Prices, and Loaners

Customer.Support@rsa.Rohde-Schwarz.com
For manuals, SW releases, and test equipment setup and configuration.

1-800-894-6220
FOR EMERGENCY 24 / 7 / 365 SERVICE



Dedicated resources.

To best serve the needs of our North American customers, we maintain a team of dedicated Broadcast Transmitter installation, service, maintenance and support experts. This team is available for consultation on new installations or upgrades. Specifically, the team focuses on:

Project Management

- Site surveys
- Proposal and quotation engineering review
- Design of electrical, RF, and coolant systems.
- Acquisition of equipment/parts needed to interface the transmitter with the customer's site
- Ensure timely delivery of ordered equipment and parts

Training

- In depth training on transmitters in our Columbia MD Transmitter training facility
- On-site for new installs
- On-site for previously installed transmitters
- Remotely
- Sales and Service personnel
- Curriculum and course material

Installations



- Direct support of new high power TV and FM transmitter installations
- Factory conversions from FLO to ATSC
- LPTV Transmitter telephone support
- Support of trial installations
- Multiplexer support
- Provide drawings of the installation site
- Attend factory acceptance meetings

Service

- Support of the approximately 650 installed FM and TV transmitters in North America
- 24/7 phone, email, remote-assist, and text support
- Provide part numbers, manuals, software release updates to installed base, ensure spares are ordered and in-stock
- Provide instructions on any undocumented procedures for repair of transmitters
- Interface between customers and 3rd party qualified contractors for repair
- Provide 3rd party contractor support
- Interface between customers and Service for RMA's and warranty issues
- Interface with R&D teams on any quality or service issues.



Project management.

From the initial project planning, construction and install, final delivery, and support phases of your project, the R&S project management team provides a single point contact for customers for all aspects of transmitter installation and support. The project management team ensures that all aspects of the installation project are planned, tracked to completion, and successfully delivered to our customers.

Pre-Sale

- Meet with customers to discuss responsibilities for equipment purchase, installation, and support to define project scope
- Support development of a proposal for the project

Initiating

- Finalize the sales order defining project scope
- Host initial customer introductory discussions
- Set up project communication plan
- Finalize project timeline and resource definition
- Allocate resources and form the R&S implementation team

Planning

- Develop project implementation plan and schedule
- Provide project documentation to the customer
- Conduct project kick-off with the R&S and customer implementation team
- Finalize the project scope
- Review project scope and system configuration
- Distribute site acceptance approvals
- Review customer and R&S roles and responsibilities
- Review actions, tasks, and ownership
- Identify contractor and third party vendor roles, responsibilities, and contacts, if applicable
- Publish project implementation plan and schedule
- Plan site survey
- Plan training and support activities

Execution

- Coordinate Site Surveys
- Coordinate R&S Production and Equipment Delivery
- Develop necessary subcontract documentation for Contractors
- Turn on Contractor effort and Third Party material procurement
- Finalize post installation support plan
- Initiate and deliver training material

Monitoring and Controlling

- Track site survey completion and actions
- Monitor R&S, contractor, and third party implementation activity and completion
- Monitor system test and checkout and follow-up actions
- Monitor support and training activities and completion

Closing

- Review system performance, project commitments and post-install support
- Review open issues and establish follow up plan
- Complete sales order closeout
- Set up 24/7 phone, email, remote-assist, and text support



Installation services.

Installation and Commission

- Perform site surveys and pre-inspection
- Terminate coolant hoses, internal system power, and communications cables
- Commission cooling system
- Install RF interconnect and cables
- Verify all electrical and RF connections
- Calibrate transmitter to proper output power
- Perform linear and non-linear pre-corrections
- Test interlocks and internet connectivity
- Ensure proper grounding

FCC Proof and Site Acceptance

- Prepare Proof-of-Performance report and supply electronic copy
- Perform Site Acceptance Testing
- Verify Transmitter efficiency
- Optimize transmitter efficiency performance
- Provide thermal imagery of transmitter
- Provide electronic versions of factory and site testing

Turnkey Solutions

- Full turnkey solutions available upon request.
- End to end technical installation management
- Contractor Coordination and Scheduling



Capacity assured.

In order to ensure optimal capacity and project schedule conformance during new transmitter installations, the company utilizes an authorized 3rd party network of leading companies specialized in the installation and commissioning of broadcast transmitters.

Steven J. Ramer
 SJ Ramer Associates
 170 Acorn Drive
 Warminster, PA 18974
 215.957.1534 Main
 215.512.8348 Mobile
 267.803.0433 Fax
 Email: sjraser@comcast.net

Todd Loney
 Electron Dynamics, Inc
 Galiano Island, BC V0N 1P0
 Canada
 +1.206.979.1577
tloney@ieee.org

Stuart Goettsch
 520-906-6375
 Wallen Communications, LLC
sunrayservices@cox.net

Matthew A. Sanderford, Jr. P.E.
 David Sanderford EIT
 Marsand, Inc.
 P.O. Box 485
 Alvarado, TX 76009
 817.783.5566 Main
 817.946.8955 Mobile – Matt
 817.239.0385 Mobile – David
tvcowboy@marsand.com
david@marsand.com
www.marsand.com



Factory experts on call.

Our transmitter manufacturing facility is located in Teisnach Germany. R&S has a corporate philosophy of ensuring R&D and Production staff are within a close physical distance to allow for constant interaction. R&S manufactures over 90% of the components used in our transmitters at the company's own production facilities, and this provides R&S tremendous control over quality and long-term support of our products. The Teisnach facility employs a number of project managers and technical experts that are commonly involved in the early stages of transmitter installation and commissioning together with our North American team, and can be brought in any time the situation calls for the top-level expertise available.



About Rohde & Schwarz

Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications.

Established more than 80 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Customer Support

| North America | 1 888 837 8772

customer.support@rsa.rohde-schwarz.com

| Europe, Africa, Middle East | +49 89 4129 123 45

customersupport.asia@rohde-schwarz.com

| Latin America | +1 410 910 7988

customersupport.la@rohde-schwarz.com

| Asia/Pacific | +65 65 13 04 88

customersupport.asia@rohde-schwarz.com

www.rohde-schwarz.us

www.rohde-schwarz-scopes.com