Radio modems

Power distribution, Meralco, Phillipines

Reliable and rugged MORSE system radio modems are utilized by Meralco, the Philippines' electrical power distributor, to connect-up a SCADA system, monitoring sub-station switching, voltages and operational status. There are about 40 sub-regions that are connected with the centre (MOC) via their SDH network. Each sub-region consists of a central radio modem and from ten to twenty remote radio modems, which are connected to the Remote Terminal Units. The DNP3 protocol and bespoke features of the MORSE system allow not just communication between the MOC and individual RTUs, but also between RTUs. Remote Terminal Units can communicate within the same sub-region, as well as between different sub-regions. The RANEC network management system monitors the entire radio network.

- More than 400 remote sites
- 350 MHz
- One 25 kHz simplex channel

GPRS/EDGE/UMTS

Oil & Gas distribution, RWE, Czech Republic

MG102 wireless routers are used for controlling the natural gas distribution network across the entire Czech Republic.

The requirement was for high reliability, so 2 SIM cards using 2 independent operators are used on the majority of sites. Each unit is configured for possible usage of 2 APN's (Private and Internet). In case of a problem, MG102 automatically switches to the second APN or operator.

The centre is also fully redundant. There are 2 routers, where communication from MG102's is terminated and 2 central SCADA computers. The connection from SCADA centre to operators is redundant, too. There are dedicated lines to both operators + Internet in case of drop-out. When any device fails, communication is automatically re-directed to functioning equipment or link.

- 800 remote sites
- Nation wide - 79 000 km^2
- IEC104
- Master-slave & Report-by-exception
- Fully redundant centre
- 2 independent operators

Microwave links

High speed backbone, UPC, Czech Republic

UPC Czech Republic is the largest provider of television services and broadband high-speed internet. The UPC network is using RACOM RAy microwave links for primary B2B services. Those services are provided to customers demanding network connection quality and reliability and/or optical fibre extension. RACOM RAy is the optimal solution for those application demanding guaranteed nominal capacity and operational reliability.

- Backbone
- High speed last mile
- Television services
- Internet connection
- More than 20 RAy links installed

RACOM
www.racom.eu

Radio modems

3G routers

Microwave links

Company profile

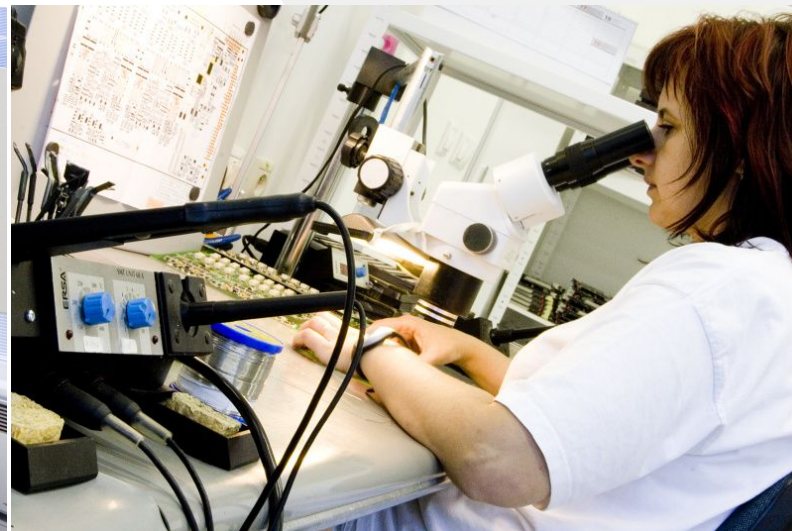## In Brief

- **Private company established in 1989**
- Shareholders actively working in the company
- Started with radio-ham products
- Since 1991 specializing in wireless data communication

- **Own development, production and implementation**
- **ISO 9001:2008**
- **Employees** - approx. 100 (30% R&D)
- **Installations** - approx. 70 countries

History

RACOM's foundations were laid in 1989, shortly before the fall of communism in the former Czechoslovakia. The company started out producing equipment for radio amateurs in a small workshop. The local radio amateur market soon became too small for us, so in 1990 we made a conscious decision to enter the wireless data transmission market and began manufacturing radio modems. In 2005 we responded to the significant development of GSM networking and entered the market with a new product line for GSM data transfer. The first product was GPRS modem MG100. Another landmark year for RACOM was 2009. We entered the growing but very competitive microwave links market with a product called RAy.

Radio modems

Suitable for onerous mission-critical applications, ideal for frequent transmission of short messages. Typically used in SCADA & Telemetry applications and fleet management with high demands on safety and reliability.

- **Licensed frequency**
  => guaranteed quality of service
- **Own private network**
  => constantly under the user's control
- **Single user**
  => guaranteed capacity and behaviour

3G routers

Suitable for non-mission-critical applications, infrequent transmission of longer messages. Typically used in SCADA & Telemetry, security and surveillance applications, also in networks for fleet management as well as in transaction wireless networks.

- **Existing infrastructure**
- **Low investment cost**
- **Public networks**
  => Quality of service not guaranteed

Microwave links

Point-to-Point IP bridges with exceptional system gain and resistance to disturbance are a great solution for backbones, long-distance and high speed last-mile connections. All units are ruggedly outdoor-designed, and operate in full duplex mode.

- **Alternative of fiber and copper lines**
- **Wireless**
  => simple installation
- **Private**
  => constantly under the user's control

Research & Development

RACOM is a primary producer, i.e. we do our own research & development of both Hardware and Software for all our product lines: Radio modems, GPRS/EDGE/UMTS routers and Microwave links.

Whenever the need arises, one can always find the responsible person for the respective part of a product directly at RACOM.

All products are designed with attention to detail, performance and quality. All relevant state-of-the-art concepts are always carefully implemented, using best quality, heavy-duty industrial components.

Production

RACOM's philosophy is to do the maximum in-house, as is amply demonstrated by our own technological centre for SMT and hybrid assembly with state-of-the-art machinery and by our very well equipped mechanical manufacturing facility.

We put the maximum possible emphasis and focus on quality. All elements of a product undergo several levels of inspection and testing and every assembled unit passes a full-scale functionality test in a climatic chamber before undergoing detailed Output Quality Checking.

References

- Oil & Gas
- POS & ATM
- Telco
- Water
- Lottery
- ISP
- Electricity
- Weather
- P-t-P link
- Smart grid
- Security
- Backbones
- Windmills
- Fleet management
- High speed last mile

Tens of thousands of units from all RACOM product lines cover the whole world, from the Poles to the Equator. Thousands of installations operate in scores of countries. Dozens of distributors roll out numerous RACOM products daily. Our customers are to be found anywhere from governments through big global companies like RWE, Telenor, ABB, Siemens etc. to local corporates and utility distributors.