

Hybrid networks

Radio and Cellular together

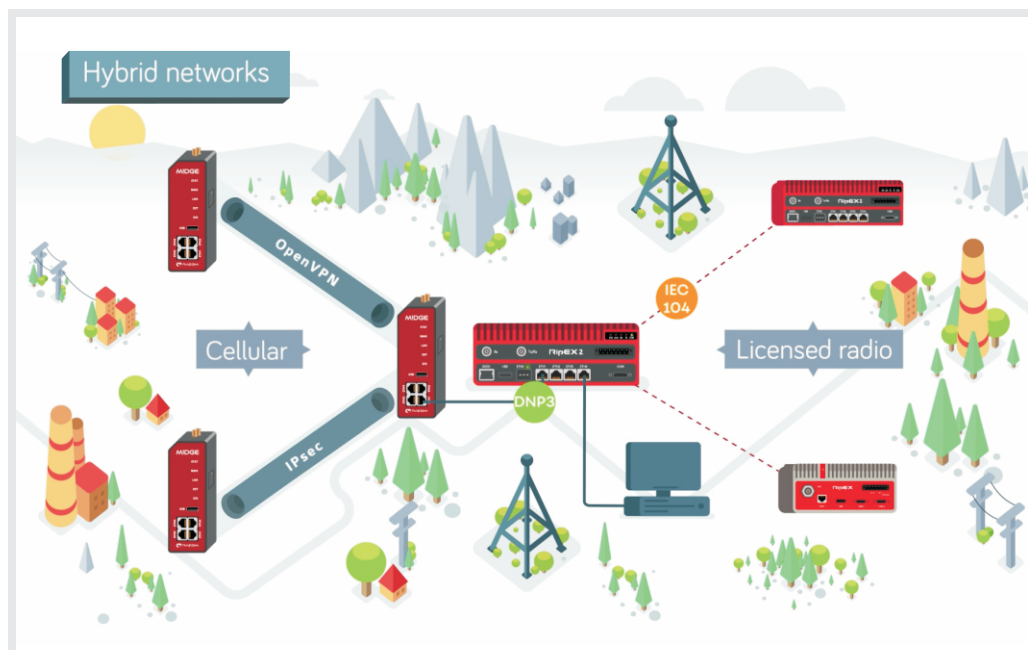
Info sheet



RACOM equipment was originally used in either **private radio** or **public cellular networks**. Over time, more and more situations have arisen that require communications networks to offer a **combination of both**.

We have customers that transmit **critical data** requiring **guaranteed quality of service** which is provided by **private radio** that also have **larger data** or **not so important sites** where it is better to use a **cellular network**. Other customers are happy to rely on a cellular network for data communications but need to have a backup service for key data when the public service is down.

RACOM networks are a **perfect solution** for anyone who requires a **hybrid network** thanks to the versatility of our equipment. RACOM offers a one stop shop for hardware. Both **MIDGE** (cellular router) and **RipEX** (radio modem) use **the same SW drivers** for SCADA protocols and logic offering a **smooth transition of routing** to cellular or radio channels and high levels of stability within the network. RipEX has a unique **Backup routes feature**, used to automatically switch transmissions to other radio or cellular links in case of failure or if configured to do so. **No additional hardware** is required within the network.



Radio	Cellular
Private network - completely under user's control	Public network – 3rd party dependency Make use of existing infrastructure
Single user - guaranteed capacity and behaviour	Multi users can affect capacity and behaviour
Licensed frequency - guaranteed quality of service	Public networks - quality of service not guaranteed
Higher investment, guaranteed running fees paid to government	Lower investment, unpredictable running fees paid to private company
Mission critical real-time applications	Non-mission critical applications

RACOM Networks

- Exceptional Data throughput
- High level of flexibility
- Advanced Security
- Future proofed
- Excellent network stability
- Low maintenance
- Remote management



RipEX2

- 1.1 Mbps - 256QAM
- 6.25-200 kHz
- 4×ETH, 1×SFP, 1×COM, 1×USB



RipEX

- 166 kbps - 16DEQAM
- 6.25-50 kHz
- 1×ETH, 2×COM, 1×USB



MIDGE

- 4G / 3G / 2G
- 2 x SIM
- 4×ETH, 1×COM, 1×USB



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Customer Benefits

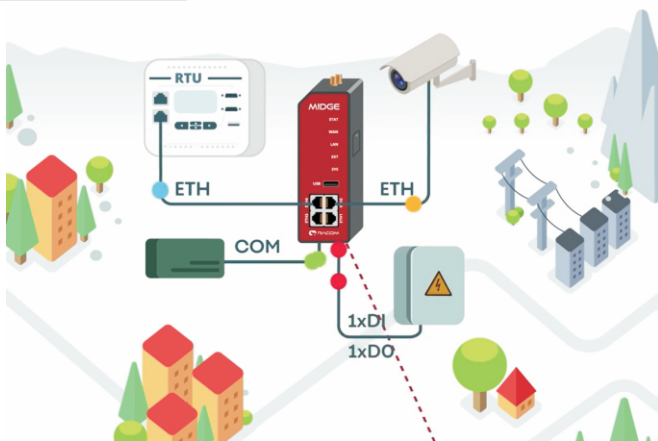
Standard units

The RipEX Routing feature automatically manages network selection for data transmissions. Within a RACOM hybrid network, the user can configure this feature within the **central RipEX** to **manage which data** is sent on the **cellular network** and which on the **radio network**. **No additional hardware required!**

Industrial grade

Both RipEX and MIDGE come with a **rugged metal case**, **industrial hardened design** and the option of **DIN rail mounting**, using only **heavy-duty industrial components** sourced directly from manufactures or authorized distributors. All units are tested to operate comfortably between **-40 and +70 °C**. Both products are well proven in extreme climatic conditions around the world.

Flexibility



RipEX and **MIDGE** have **many different interfaces** that can handle independent applications in parallel. Proprietary and standard **mPCI** slots allow a high number of hardware **expansions**. With RipEX different modes of operation and different protocols on Radio channel allow users to **customize** their **network** to **match** their exact **needs**, supporting both legacy and the newest RTU's within the same network. This enables **the best possible data throughput and stability for any application**.

Security



All RACOM products come with **advanced, future-ready** Physical, Management, Access control and Data security mechanisms maintaining **network integrity** in line with the robust demands of **cyber security**. Management access options are available allowing **different levels of secure access** to be set. **Cryptographic end-to-end tunnelling** secures data transmissions and **data integrity control**. **Origin authentication** provides additional security and the **firewall** blocks all unwanted traffic at the network boundary.

Management and diagnostics

MIDGE and RipEX are designed with the **user in mind**. Basic IP knowledge is sufficient to configure the devices which come with an **intuitive web interface**. **Remote management** over the air and **automatic Firmware upgrade** from **USB flash disc** are possible for **both**. **SMS management** of **MIDGE** is also available. Every part of the network can be remotely monitored and analysed using **SNMP** industry leading software. The units have the capability of **real time and save to file monitoring** analysis. **Alarms** can be set where appropriate with **SNMP traps** and/or **SMS** notifications generated.

Compatibility

By having our own R&D team, there are high levels of compatibility within RACOM products. This applies equally between hardware and software. **RipEX** and **MIDGE** share the **same SW protocol drivers and logic** in every device. This not only makes a RACOM **hybrid network** very **robust** and **stable**, but **easy to configure** and manage by engineers.