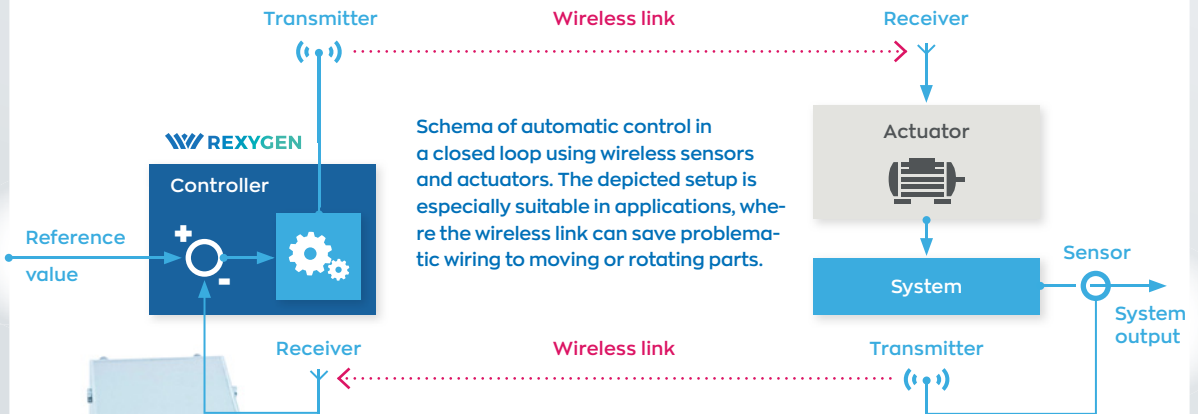




# RETIS

Wireless solution for industrial automation and automatic control of fast processes

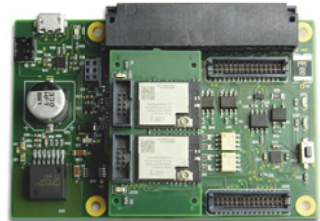


Schema of automatic control in a closed loop using wireless sensors and actuators. The depicted setup is especially suitable in applications, where the wireless link can save problematic wiring to moving or rotating parts.

Unboxed RF node EduR01

with rich set of peripherals

← **AIC** (Advanced Industrial Controller) equipped with RETIS RF plug-in card



# RETIS Specifications

- ▶ MIMO wireless system working simultaneously at multiple frequency channels or even bands
  - ▶ Inspired by LTE, 5G and TSN principles to achieve highest performance but still keeping low hardware complexity
  - ▶ No SIM card or provider infrastructure required
  - ▶ Replacement of wired electrical or electronic feedback with wireless link
  - ▶ TSN interfacing according to IEEE 802.1 under development
  - ▶ Highly deterministic, low latency, low jitter, high sample rate data exchange
  - ▶ Uses TFDM (Time-Frequency Division Multiplexing) techniques to avoid unnecessary packet collisions
  - ▶ Sub- $\mu$ s clock synchronization between all nodes allows synchronous operation at all nodes, which is essential for control of fast dynamic systems
  - ▶ No competition - currently the only choice for integration of wireless sensors/actuators into control loops with control period under 1 ms
  - ▶ High robustness and reliability - optional TX data redundancy, possibility to configure multiple data paths at different RF channels (frequencies)
  - ▶ Compliant with the IEEE 802.15.4 standard
- ▶ Native integration with REXYGEN real time control system, graphical network configuration

## AIC (Advanced Industrial Controller) equipped with RETIS RF plug-in card

- ▶ Serves as RETIS RF network master
- ▶ Preserves complete REXYGEN functionality including connectivity, control & monitoring capabilities, logging, etc.

## Unboxed RF node EduR01 with rich set of peripherals

- ▶ 9-axis IMU unit, 4x AIN 0-10 V / 0-20 mA, range SW selectable, 4x DIN, optocoupler, 4x DO (open collector), 1x QENC, optocoupler, 2x AOUT, 1x RS485

## Typical Applications

- ▶ Fast remote sensing (IRC, accelerometers, strain gauges, generic digital/analog inputs)
- ▶ Vibration monitoring and damping
- ▶ Motion control
- ▶ Remote safety switches

