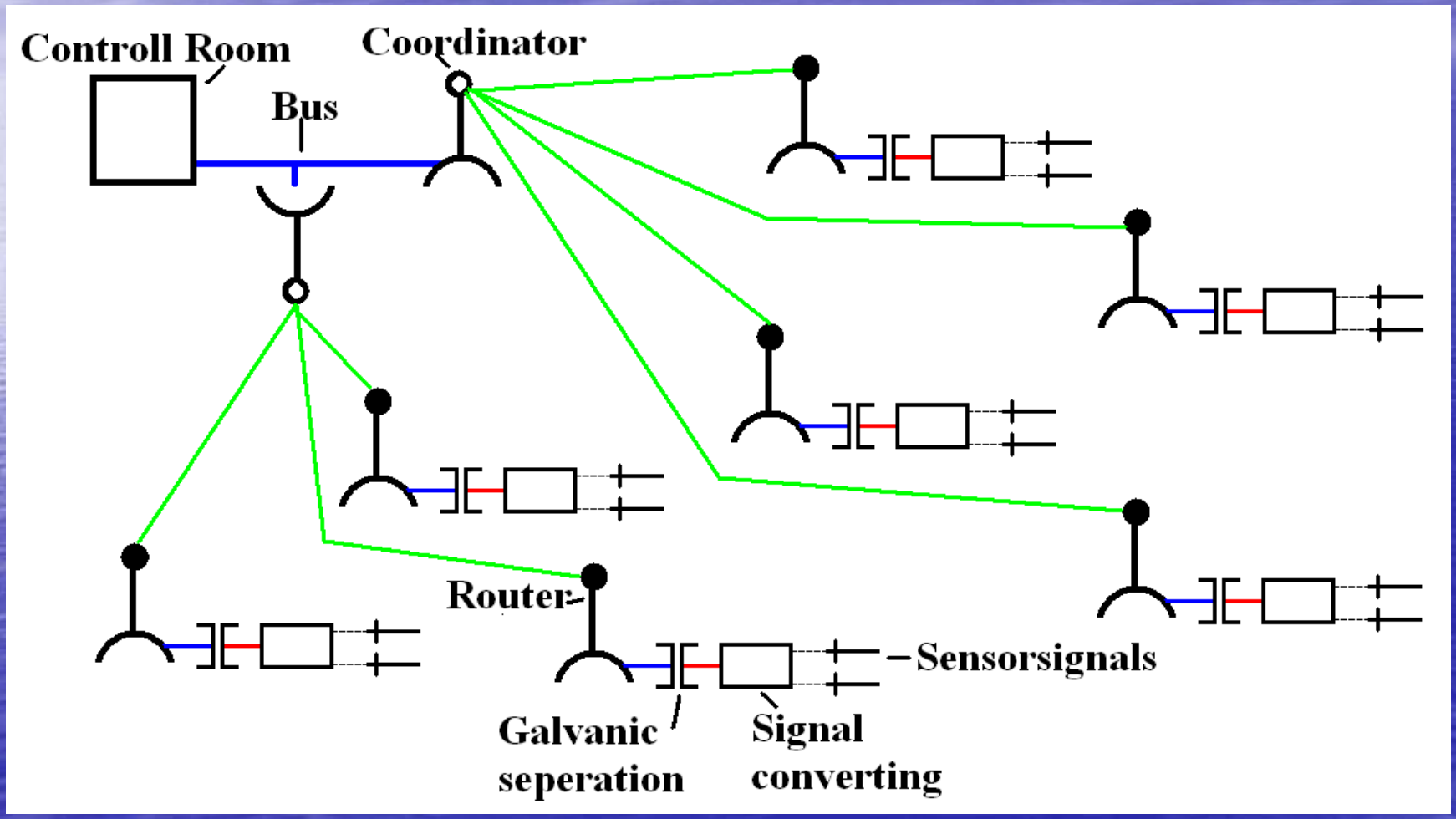
Wireless Sensors for the measurement of dissolved oxygen in aquaculture plants

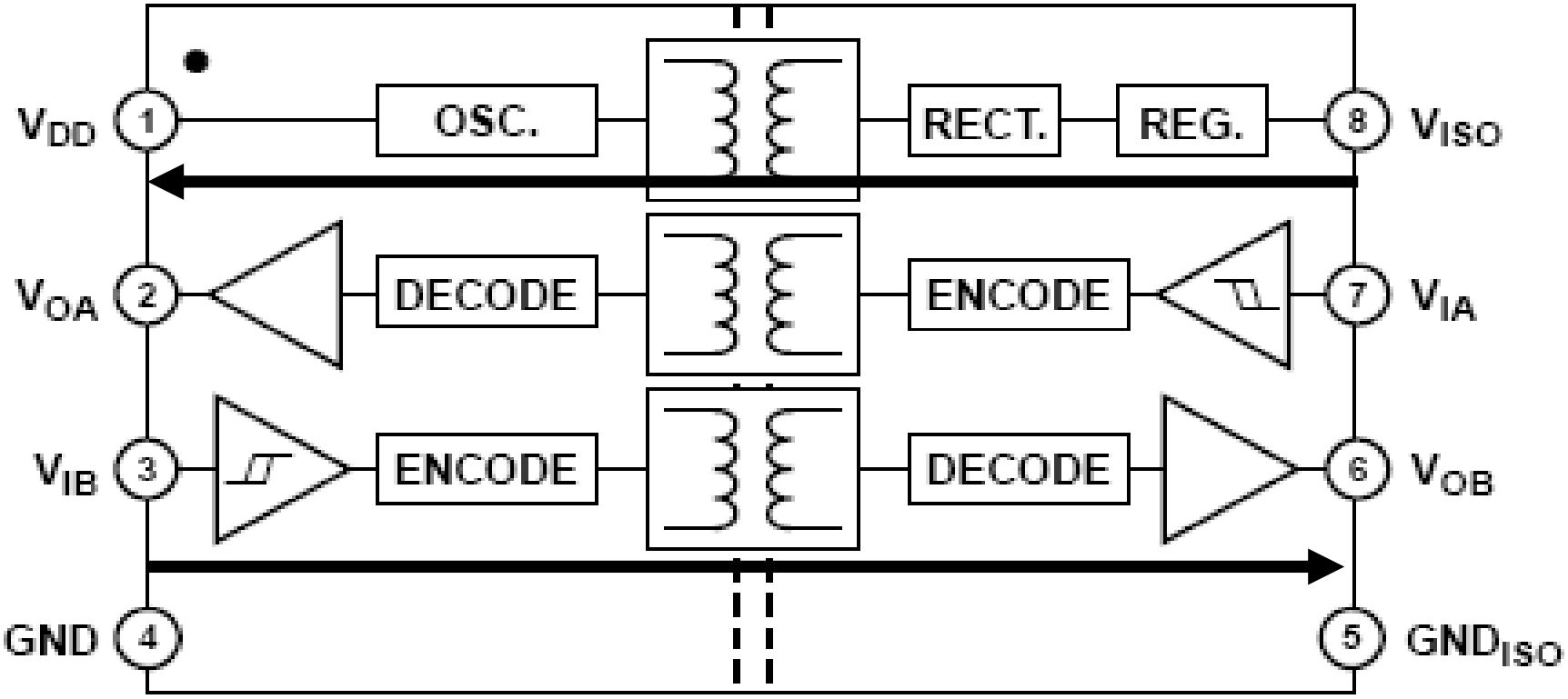
Agenda

- the entire system (block diagram)
- moduls of the system
  - Galvanic seperation
  - Sensorsignlas convertion
  - Transmiting
- typical Aplication
  - Example Aquaculture plant
- questions

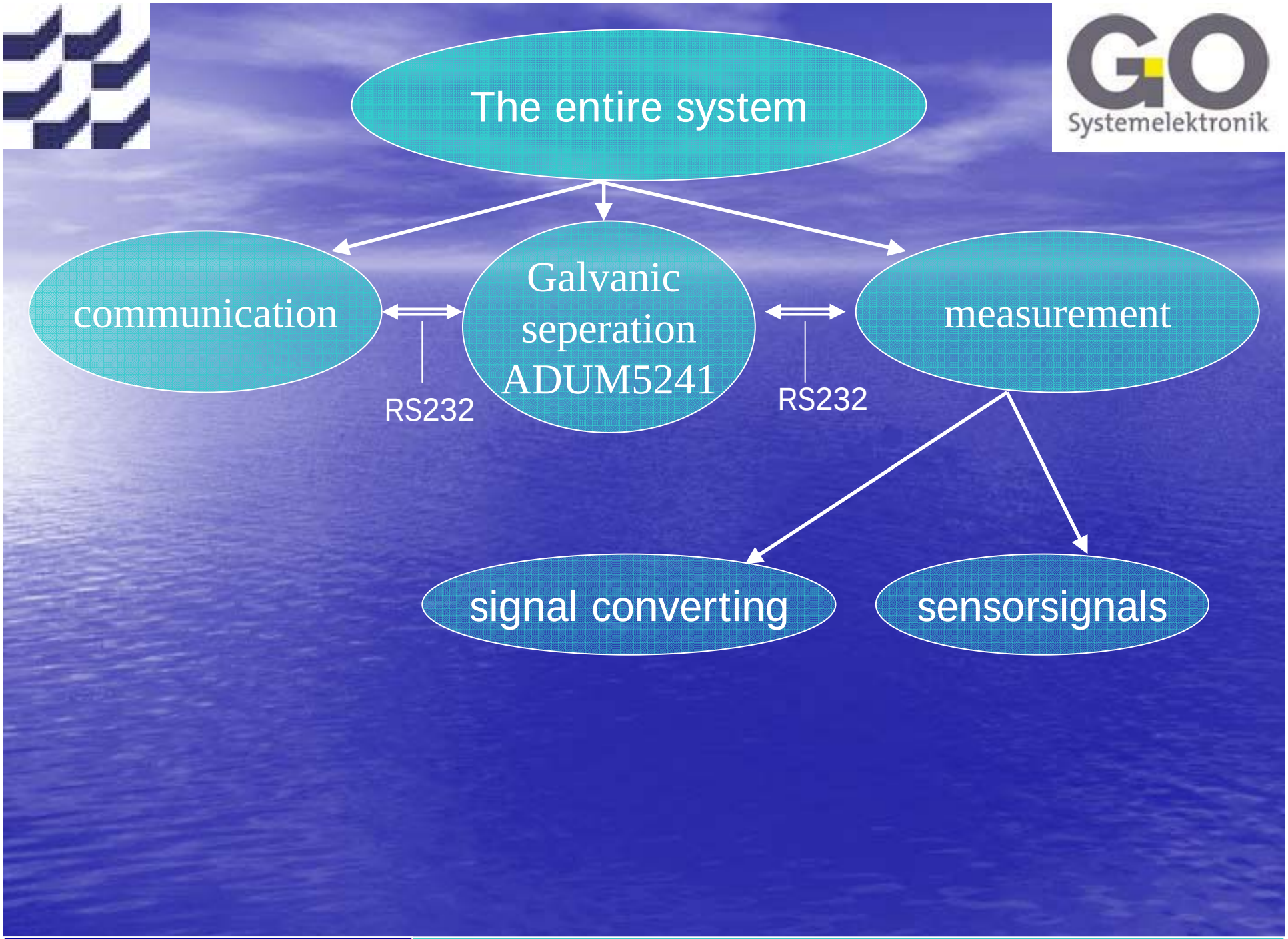
The entire system



The entire system



origin: www.analog.com


The entire system
communication
Galvanic seperation ADUM5241
measurement
RS232
RS232
signal converting
sensorsignals

The entire system

temperatur sensor

O2-sensor includes a NTC for temperatur measurement

O2-sensor

Analog voltage from 0 mV to 20 mV

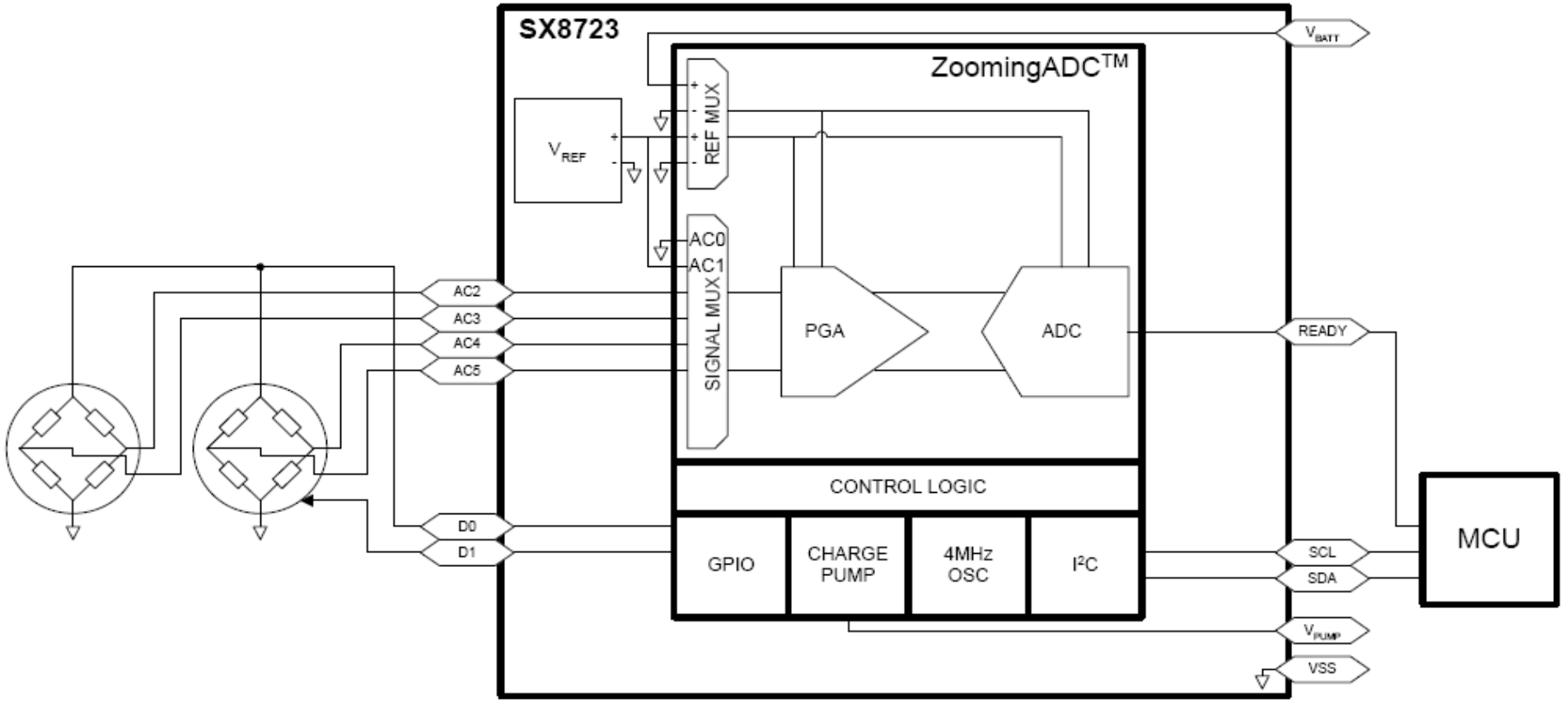
signal converting

sensorsignals

O2-sensor

Temperatur sensor

The entire system



origin: www.semtech.com

Temperatur sensor

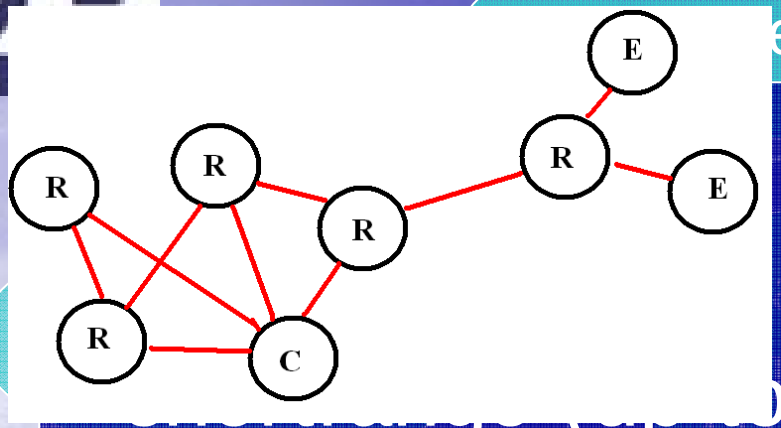
ATtiny2313 (Atmel)

- consumption 23(
- internal Calibrated
- full Duplex USART
- I²C-Intervace

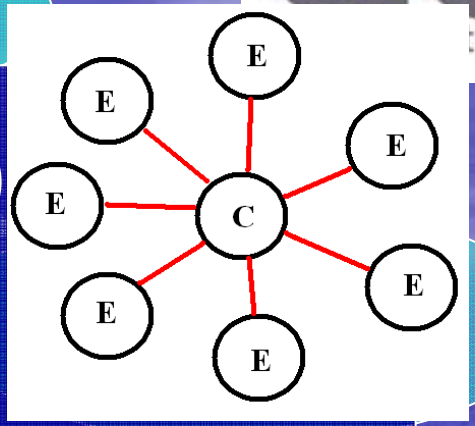
I²C

- only two wires required
  - SDA (data)
  - SCL (clock)
- I²C speed up to 400kHz

entire system



(Meshnetics)

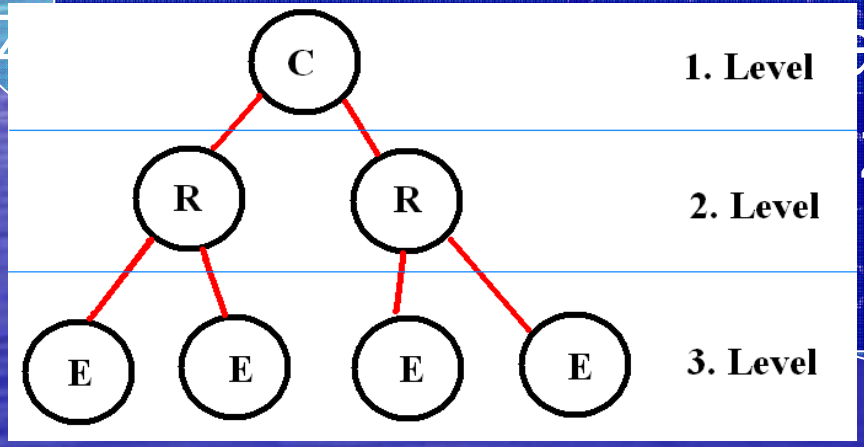


100 m)

- low-power consumpation (20 mA TX/RX)
- tree, star, mesh network
- High sensitivity (104 dB Link Budget)

ata Rate

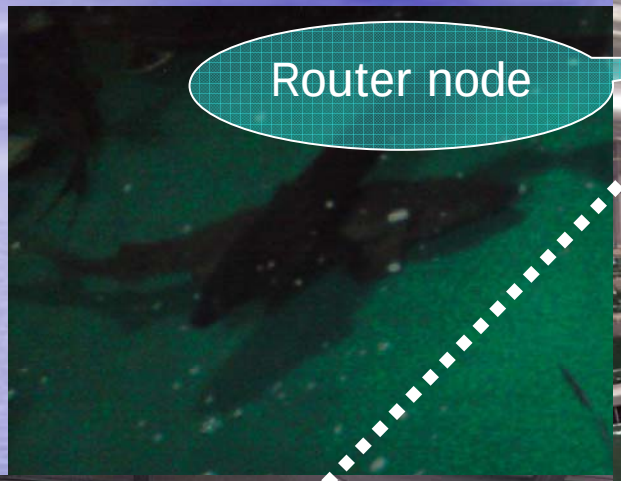
z Channel Spacing)



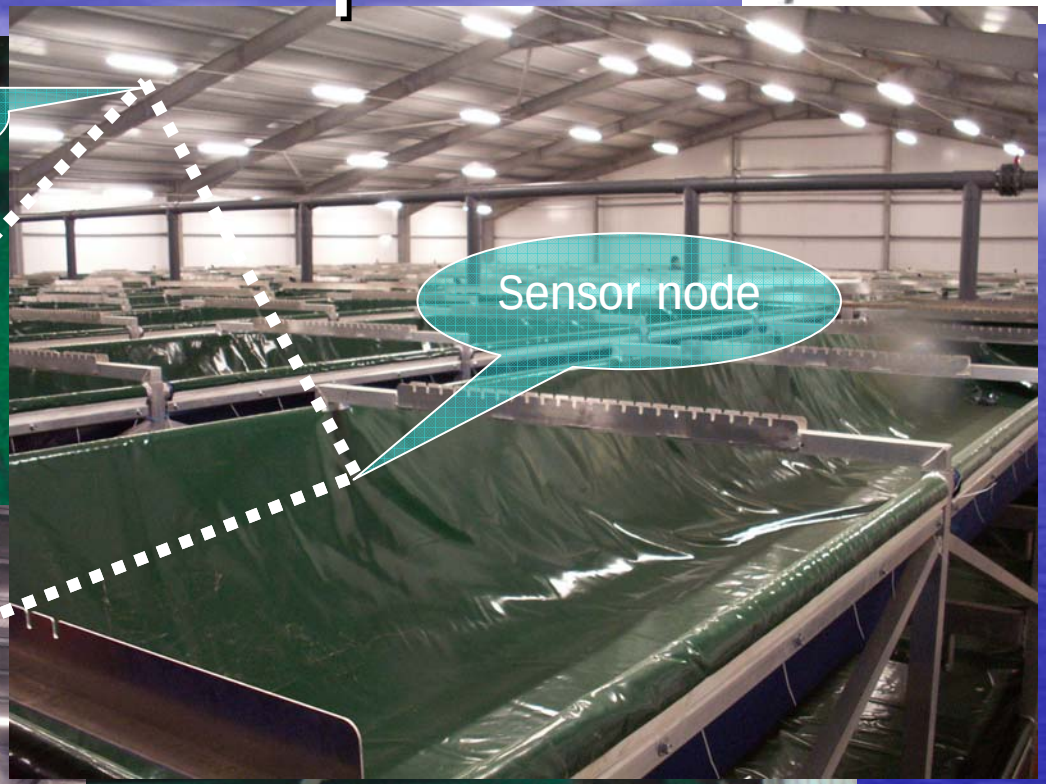
O2-sensor

Temperatur sensor

Aquaculture plant

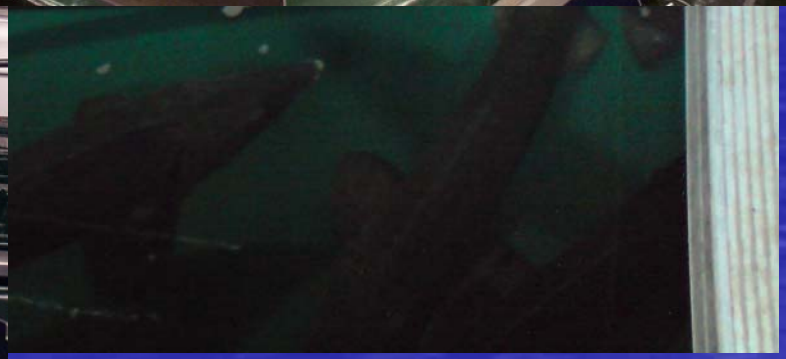


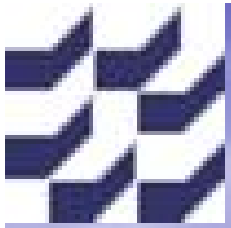
Router node



Sensor node

Coordinator
(Control Room)





Are there any questions you want to ask?

Thanks to:

- Dr. H. Dispert
- Dr. T. Knutz
- degreed engineer C. Witthandt

Thank you for your attention