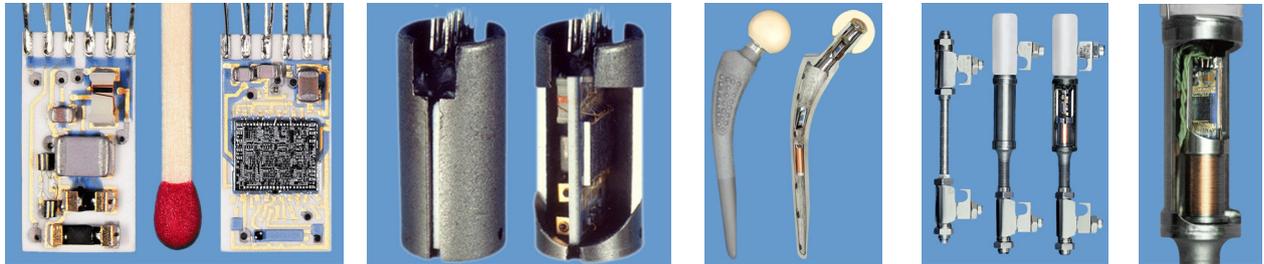


8-Channel Telemetry Transmitter



The 8-channel telemetry transmitter was developed for measuring forces, moments, temperatures and the applied voltage. All functions are integrated on a single chip.

For different applications, it is possible to split up the first seven channels into three groups (Ch1...Ch4, Ch5...Ch6, Ch7) with different sensor combinations of NTC-thermistors and strain gauges. Further options (variation of sensor range, pulse duration, transmitter frequency) are available by connecting different bond pads. A metal cylinder protects the hybrid circuit.

Technical data

Channel 1 - 6:

- Mode 1: connection of 6 semiconductor strain gauges (SG, $R = 350 \text{ Ohm}$)
- Mode 2: connection of 4 SG ($R = 350 \text{ Ohm}$) and 2 NTC thermistors ($R = 1000 \text{ Ohm}$)
- Mode 3: connection of 6 NTC thermistors ($R = 1000 \text{ Ohm}$)

Channel 7: hybrid temperature measurement (NTC, $R = 1000 \text{ Ohm}$)

Channel 8: supplied power (DC voltage) and synchronisation ($t < 400 \mu\text{s}$)

Power supply: AC inductive

Magnetic field frequency: 4 kHz

Modulation: puls-interval-modulation (PIM)

Pulse duration: 5 μs or 10 μs

Mean pulse interval: 1000 μs

Transfer behaviour: non-linear

Radio frequency transmitter: 120 MHz - 170 MHz (ASK)

Power consumption: 10 mW

Technology: thick-film hybrid technology, chip and wire, double-sided

Active components: 1 bipolar-transistor-array (AEG, B1000A) 4,2 mm x 5,0 mm, 1 RF-transistor

Passive components: 17 SMD, thin film resistors

Connections (solder points): 6 x SG / NTC, 2 x ground, 2 x energy coil, 2 x RF-antenna

Hybrid size: 14 mm x 7 mm

Case: 17 mm x 8 mm in diameter (metal cylinder)

Case: 27 mm x 8 mm in diameter (metal cylinder with energy coil)

Manufactured since 1991 for instrumented hip endoprotheses (neck and shaft) and instrumented spinal fixation devices