

# CT2-Mini

## 2 Channel Telemetry System



- STG offset via potentiometer or optional Auto Zero calibration
- 12 bit ADC resolution, simultaneous sampling of all channels
- Signal bandwidth: 375 Hz to 12000Hz
- Output analog (+/- 5V) and digital for PC interface at the receiver side
- 4 different carrier frequencies enable measurements with 4 telemetry systems at the same time
- Water protected encoder housing (IP65)

## General functions:



### CT2-Mini Telemetry system with accessories

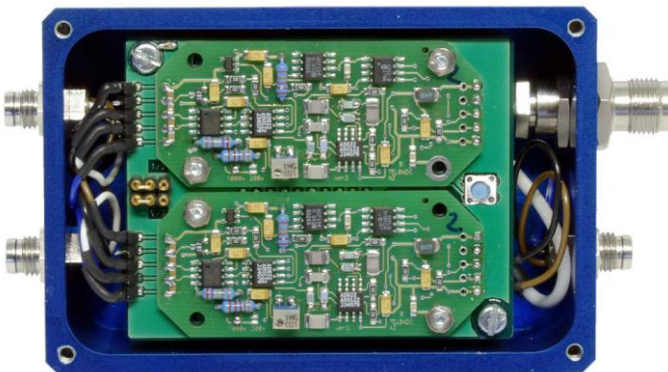
CT2-Mini is a 2-channel telemetry system designed for easy mounting onto rotating and moving parts to provide non-contact transmission of measured parameters such as pressure, force, temperature, acceleration and voltage. Also for point to point application like bridge or buildings testing, you can install CT2 Mini instead long cables from the sensor to the Computer.

Sensors inputs are connected via screw on, waterproof connectors. Measured values are prepared in analog format, digitized and transmitted via radio frequencies. Different carrier frequencies are provided, this allows up to four systems to operate in parallel. The complete transmitter assembly is waterproofed to IP65 specifications.

The following sensors can be connected to the system: (STG) Strain gages sensors in full-, and half- bridge configuration (350 ohm or greater), Type K Thermocouples to 1000°C, ICP, potentiometers sensors and capacitive sensors. Voltage inputs of +/-5V and +/-10V are available.

The measured values are processed and output as +/-5V analog signals at the BNC sockets (optional digital output for special PCM interface into a PC) on the stationary receiver.

Resolution of 12 bits is standard; this enables an amplitude dynamic of 72 dB. The analog signal bandwidth is up to 12000Hz (see table). The measurement accuracy is +/-0.25 % (without sensor). The CT2-Mini is suited for operation at ambient temperatures of -20 to +70°C. The transmission distance between transmitter and receiving antenna is of the order of 250\* m (\*40kbit with 10mW transmitting power – non diversity)  
With diversity only 100m range



Cut off frequency from anti-aliasing filter scanning rate (see red)	
Bit rate	per channel
40 kbit/s	375 Hz (-3dB) <b>(1428 Hz)</b>
320 kbit/s	3000 Hz (-3dB) <b>(11428 Hz)</b>
640 kbit/s	6000 Hz (-3dB) <b>(22857 Hz)</b>
1280 kbit/s	12000 Hz (-3dB) <b>(45714 Hz)</b>

## CT2 Mini Transmitting Unit Technical Data (Encoder)



### CT-STG-V2:

Sensor: strain gage, > 350 Ohms  
 Bridge completion: full and half bridge  
 Excitation: 4 VDC (fixed), short-circuit protection  
 Gain: **250-500-1000-2000** selectable by solder jumpers (**CT-STG-V1 only with Gain 200-1000**)  
 Offset: Zero adjustment by potentiometer or **optional Auto-zero** function (which is not lost by power-off), offset range up to 80% of full scale.

### CT-ICP-V2:

Constant current: 4mA (fixed)  
 Gain: 2x, 4x, 8x, 16x or 32x  
 Signal bandwidth: 3 Hz to 12000Hz (depended of transmitter!)

### CT-POT:

Sensor: Potentiometer Sensor >350 Ohms to 10kOhms  
 Excitation: 4 VDC (fixed)

### CT-TH-K-ISO:

Sensor: thermo-couple, type K ( with cold junction compensation)  
 Temperature measuring range: -50°C to +1000°C (other on request) **with galvanic isolation, Accuracy 1%**  
 Signal bandwidth: 0...10 Hz -3dB

### CT-PT100:

Sensor: resistance temperature detectors (RTDs) with resistance of 100 ohm  
 Temperature measuring range: -100°C to +500°C

### CT-VOLT:

High-level inputs: +/- 5 Volt or +/- 10 Volt

### System Parameters:

Channels: 2  
 Resolution: 12 bit A/D converter with anti aliasing filter, simultaneous sampling of all channels  
 Line-of-sight distance with diversity telemetry: 200m with 40kbit, 150m with 320/kbit, 100m with 640kbit, 50m with 1280kbit (free view)  
 Line-of-sight distance with **non-diversity** telemetry: 500m with 40kbit (free view)  
 Powering: 6-30 V DC  
 Power consumption: 100 mA at 12V using 2 STG sensors at 350 Ohms

Bit rate	2 Channels
1280 kbit/s	12000 Hz (45714 Hz)
640 kbit/s	6000 Hz (22857Hz)
320 kbit/s	3000 Hz (11428 Hz)
40 kbit/s	375 Hz (1428 Hz)

Analog signal bandwidth:

Transmission: Digital PCM Miller Format

Transmission Power: 10mW

Dimensions: 102 x 68 x 41 mm (without connectors)

Weight: 0.45 kg without cables

Operating temperature: - 20 ... +70°C

Housing: Aluminum anodized, waterproofed (IP65)

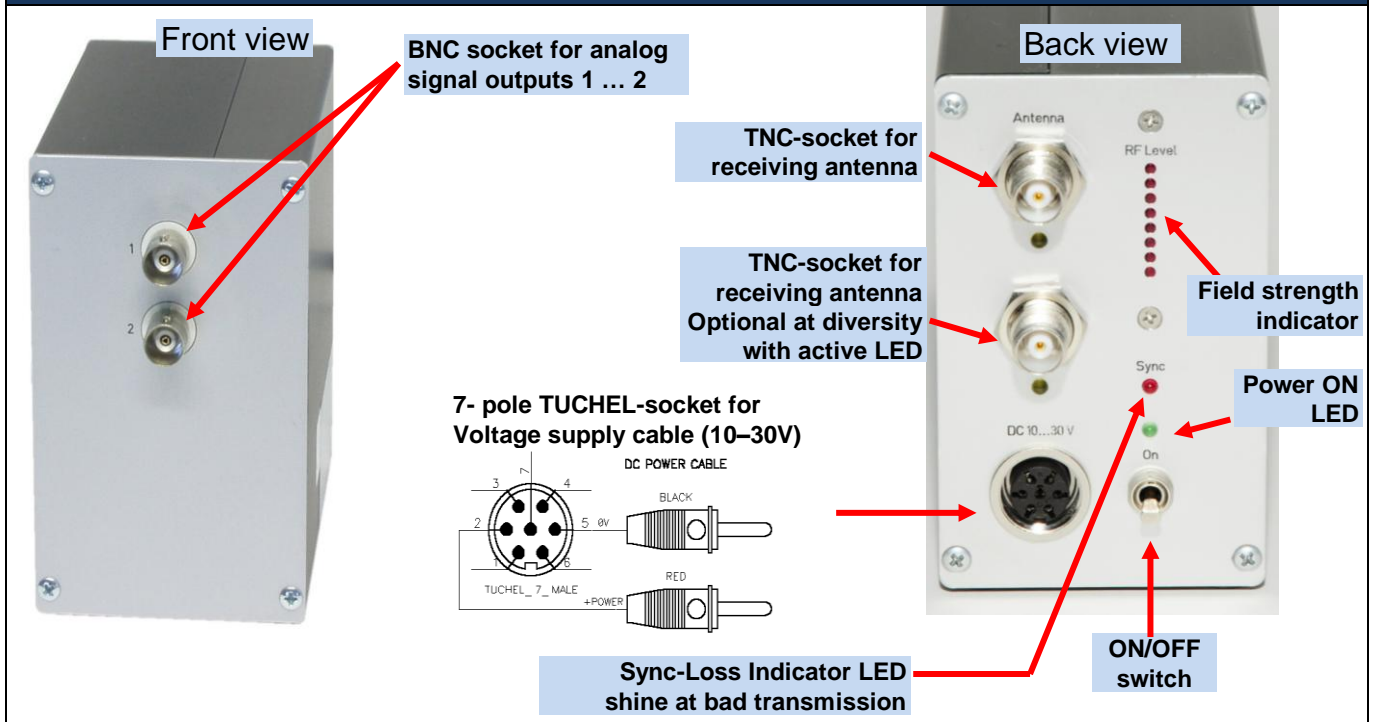
Humidity: 20 ... 80% no condensing

Vibration: 5g Mil Standard 810C, Curve C

Static acceleration: 100g in all directions

Shock: 200g in all directions

## Technical data: Receiving Unit CT2-Mini DEC (Decoder)



### System Parameters:

Channel:	2 analog outputs via (BNC) +/-5V
Resolution:	12 bit D/A converter, with smoothing filter
Dynamic:	72dB
Receiver	40kbit standard with not diversity receiver 40kbit, 320kbit, 640kbit and 1280kbit with diversity receiver incl. two receiving antennas!
Power supply input:	10-30 VDC
Current consumption:	300mA at 10V, 100mA at 30V
Frequencies:	up to 4 different carrier frequencies available
Dimensions:	105 x 105 x 65mm
Weight:	0.60 kg without cables and antenna
Overall system accuracy between encoder input and decoder output:	+/-0.25% without sensor influences
<u>Environmental</u>	
Operating:	-20 ... +70°C
Humidity:	20 ... 80% not condensing
Vibration:	5g Mil Standard 810C, Curve C
Static acceleration:	10g in all directions
Shock:	100g in all directions