

## CT4/8-Wheel

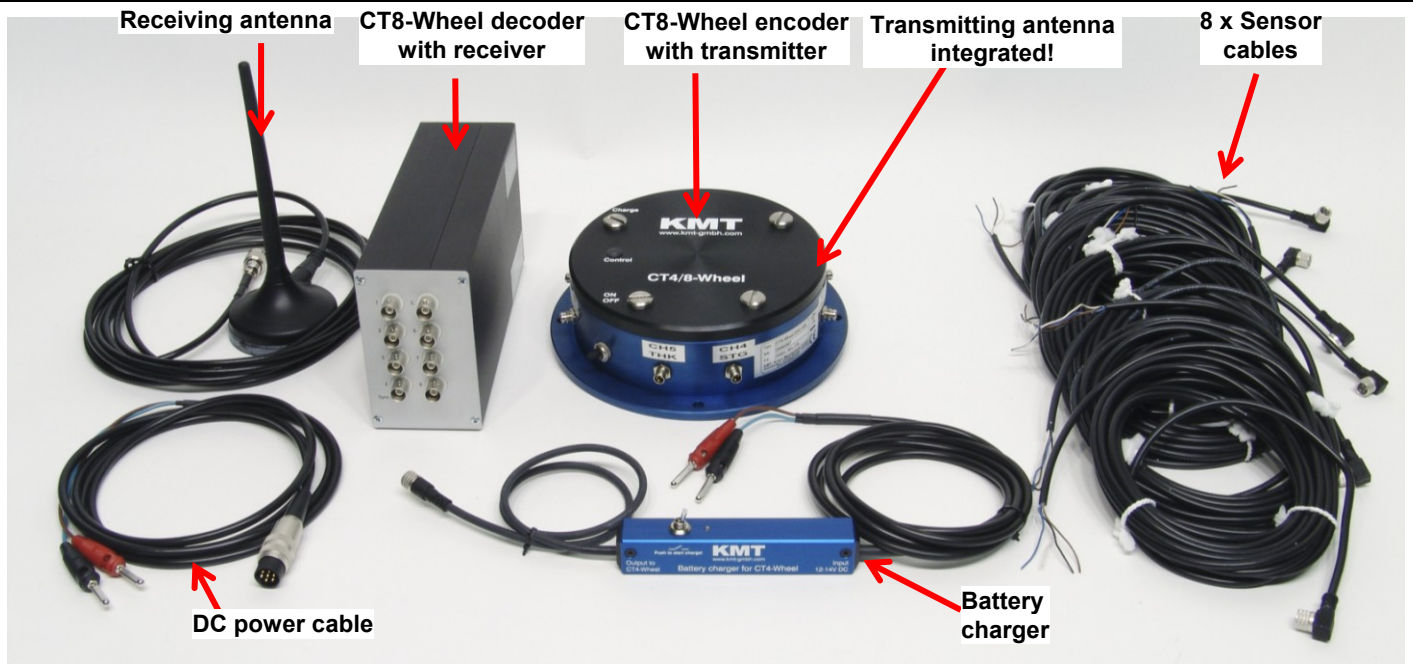
### 4 (8) Channel Wheel Telemetry System

Including signal conditioning for STG, Th K, ICP, POT, Pt100 or high-level inputs



- STG offset via potentiometer or optional Auto Zero calibration
- 12 bit ADC resolution, simultaneous sampling of all channels
- Signal bandwidth:  
4 x 0-190 Hz, 8 x 95 Hz with 40kbit Tx  
4 x 0-1500 Hz, 8 x 750 Hz with 320kbit Tx  
4 x 0-3000 Hz, 8 x 1500 Hz with 640kbit Tx
- Water protected housing (IP65)
- Output analog (+/- 5V) and digital for PC interface at the receiver side
- Universal mounting adapter for fast and exactly montage on the wheel
- 4x different carrier frequencies (only with 40kbit Tx) enable measurements at 4 Wheels for one car
- Accumulator powered (up to 12h)

**General functions:**



**Picture shows a CT8-Wheel telemetry system with standard accessories**

CT4/8-Wheel is an telemetry system designed for easy mounting onto rotating Wheels to provide non-contact transmission of measured parameters such as pressure, force, temperature, acceleration and voltage.

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

Various configurations of different sensor modules are possible like signal conditioning for strain gages (STG), thermocouples type K (Th-K), thermo sensors Pt100, ICP sensors, potentiometer sensors (POT) and also Voltage inputs (+/-5 or +/-10V), mixed configuration 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 located in a vehicle or helicopter cabin.

Resolution of 12 bits is standard; this enables an amplitude dynamic of 72 dB. The analog signal bandwidth is 0-95 Hz (-3dB) when configured as an eight channel unit, other bandwidth on request! The measurement accuracy is +/-0.25 % (without sensor). The CT4/8-Wheel 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 20m (60 feet) - depend of application!



## Transmitter Device (Encoder)



### CT8-Wheel

#### CT-STG V1:

Sensor:	strain gage, $\geq 350$ Ohms
Bridge completion:	full, half and quarter-bridge (optional)
Excitation:	4 VDC (fixed), short-circuit protection up to 20mA
Gain:	200 or 1000 - selectable by solder jumpers <b>Optional Gain: 250-500-1000-2000 with new CT-STG V2 module</b>
Offset	Zero adjustment by potentiometer or <u>optional</u> Auto-zero function (which is not lost by power-off), offset range up to 80% of full scale.

#### CT-TH-K-ISO:

Sensor:	thermo-couple, type K ( with cold junction compensation)
Temperature measuring range:	-50°C to +1000°C (other on request) <b>with galvanic isolation</b>

#### 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 (other ranges on request)
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#### CT-ICP:

Sensor:	For ICP® sensor inputs, Current exc. 1, 4, and 10mA Signal gain x 2, 4, 8, 16, 32 - Signal bandwidth 3 Hz up to 3000Hz ( <b>depend of transmitter</b> )
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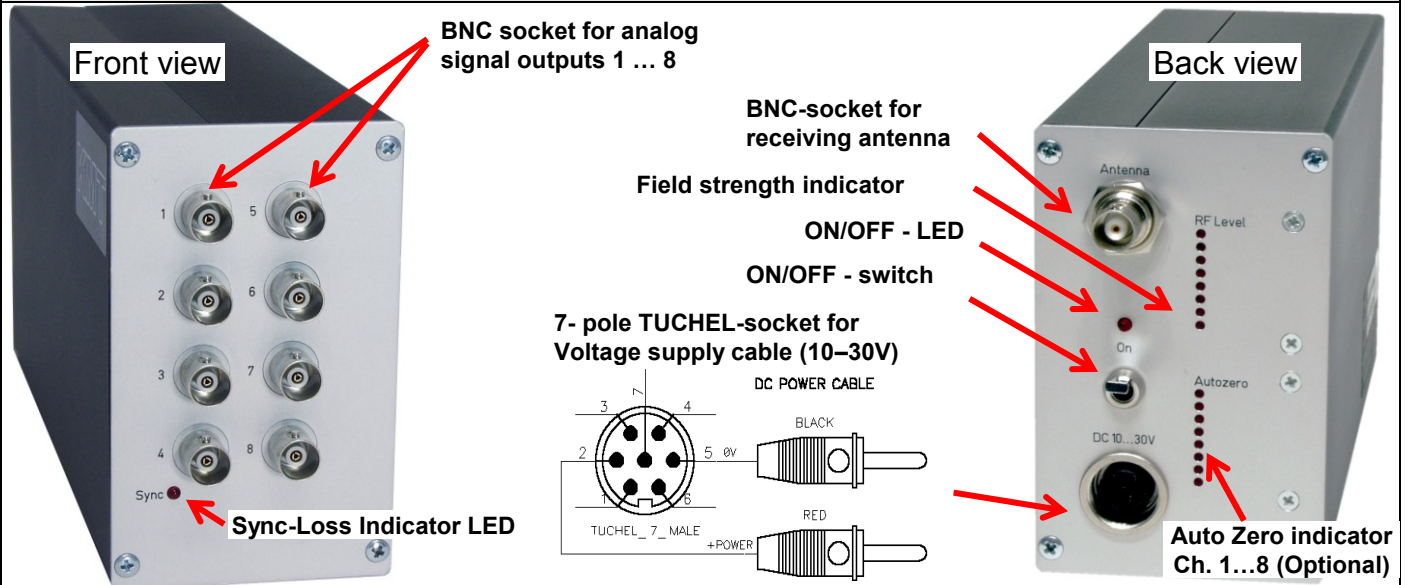
#### CT-POT:

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

#### System Parameters:

Channels:	4 or 8
Resolution:	12 bit A/D converter with anti aliasing filter, simultaneous sampling of all channels
Line-of-sight distance:	20 m with 10mW transmitting power (433MHz Band, FSK modulation)
Powering:	Li Ion Accumulator 7.2V, 1300mA, capacity for 6-12 hours
Power consumption:	100 mA (at 7,2V) using 4 STG sensors at 350 Ohms
Analog signal bandwidth:	(-3dB cut-off frequency)
4-channel version	4 x 0 ... 190Hz with <u>40 kbit/s transmitter</u> (433,3, 433.7, 434.1 and 434,5 MHz)
8-channel version	8 x 0 ... 95Hz with <u>40 kbit/s transmitter</u> (433,3, 433.7, 434.1 and 434,5 MHz)
4-channel version	4 x 0 ... 1500Hz with <u>320 kbit/s transmitter</u> (1x 433,9 MHz)
8-channel version	8 x 0 ... 750Hz with <u>320 kbit/s transmitter</u> (1x 433,9 MHz)
4-channel version	4 x 0 ... 3000Hz with <u>640 kbit/s Short transmitter</u> (1x 40 MHz distance only 0.5m)
8-channel version	8 x 0 ... 1500Hz with <u>640 kbit/s Short transmitter</u> (1x 40 MHz distance only 0.5m)
Dimensions:	Diameter 160mm, bottom plate diameter 190mm, height 60mm
Weight:	1.50 kg without cables
Transmission:	Digital PCM Miller format - FSK
Transmission Power:	10mW
Operating temperature:	- 20 ... +70°C
Housing:	Water resistant (IP65)
Humidity:	20 ... 80% no condensing
Static acceleration:	100g in all directions
Shock:	200g in all directions

**Technical data:**  
Receiving Unit CT4/8-Wheel DEC (Decoder)



**System Parameters:**

Channel:	8 analog outputs via (BNC) +/-5V
Resolution:	12 bit D/A converter, with smoothing filter
Dynamic:	72dB
Power supply input:	10-30 VDC
Current consumption:	300mA at 10V, 100mA at 30V
Analogue signal bandwidth:	(-3dB cut-off frequency)
4-channel version	4 x 0 ... 190Hz with <u>40 kbit/s transmitter</u> (433,3, 433.7, 434.1 and 434,5 MHz)
8-channel version	8 x 0 ... 95Hz with <u>40 kbit/s transmitter</u> (433,3, 433.7, 434.1 and 434,5 MHz)
4-channel version	4 x 0 ... 1500Hz with <u>320 kbit/s transmitter</u> (1x 433,9 MHz)
8-channel version	8 x 0 ... 750Hz with <u>320 kbit/s transmitter</u> (1x 433,9 MHz)
4-channel version	4 x 0 ... 3000Hz with <u>640 kbit/s Short transmitter</u> (1x 40 MHz distance only 0.5m)
8-channel version	8 x 0 ... 1500Hz with <u>640 kbit/s Short transmitter</u> (1x 40 MHz distance only 0.5m)
Dimensions:	205 x 105 x 65mm
Weight:	1.00 kg without cables and antenna
Overall system accuracy between encoder input and decoder output:	+/-0.25% without sensor influences, with CT-TH-K-ISO only +/-1%
<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

*Technical specifications are subject to change without notice!*