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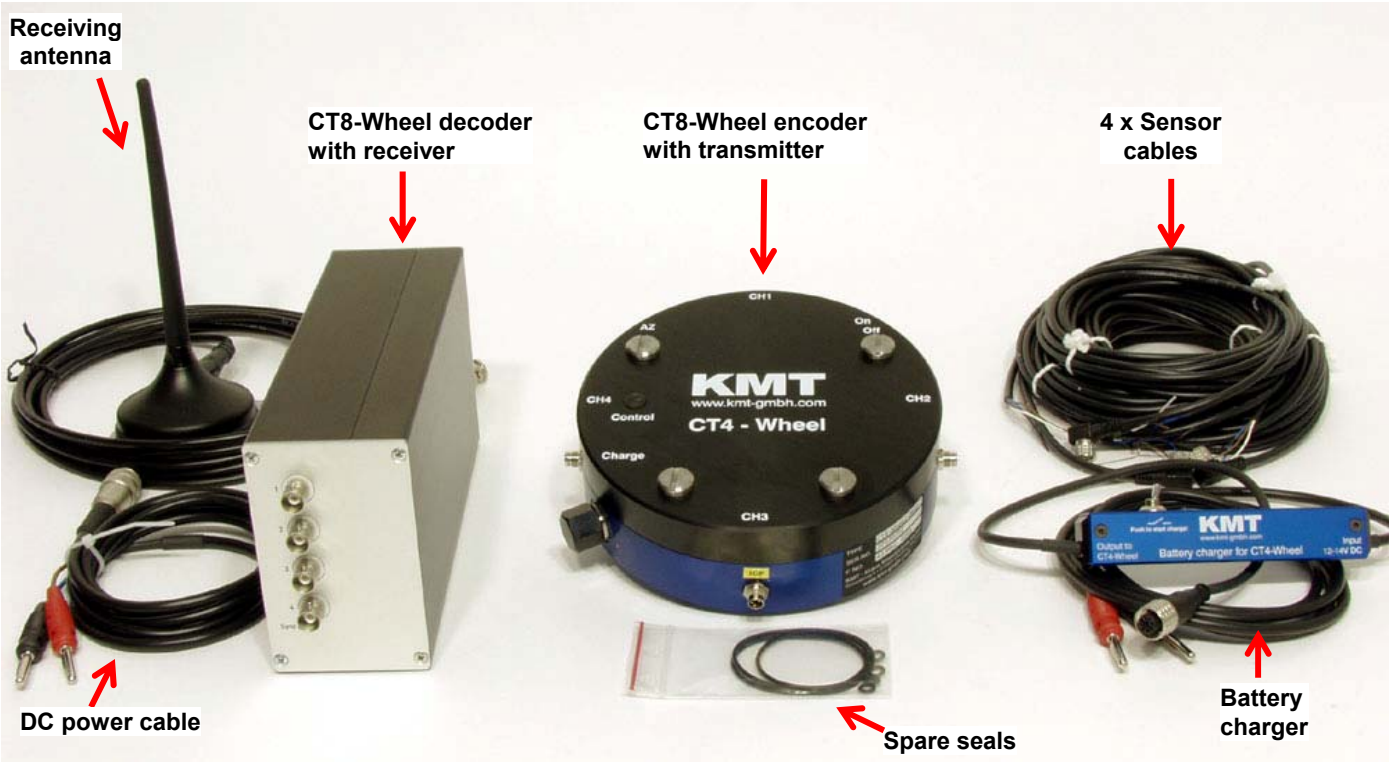
CT4/8-Wheel

4 (8) Channel Wheel Telemetry System

Including signal conditioning for strain gage, thermo 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 –6dB (cut off freq. on anti aliasing filter)
  8 x 0-95 Hz –6dB (cut off freq. on anti aliasing filter)
- Water protected housing (IP65)
- Output analog (+/- 5V) and digital for PC interface at the receiver side
- 4 different carrier frequencies enable measurements at 4 Wheels for one car
- Universal mounting adapter for fast and exactly montage on the wheel
- Accumulator powered (up to 8h)

General functions:



CT4/8-Wheel Telemetry system with standard accessories

CT4/8-Wheel is an 4/8-channel telemetry system designed for easy mounting onto automobile / trucks 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.

The following sensors can be connected to the system: (STG) Strain gages sensors in full-, half- and quarter-bridge configuration (350 ohm or greater), Type K Thermocouples to 900°C, ICP 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 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 -6dB (8 channel mode) when configured as an eight channel unit. The measurement accuracy is +/-0.5 % (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 100 m (300 feet).

CT4/8-Wheel ENC (Encoder)

Side view with sensor inputs and mounting plate

Front view

SC Module STG:

Sensor:	strain gage, ≥ 350 Ohms
Bridge completion:	full, half and quarter-bridge
Excitation:	4 VDC (fixed), short-circuit protection up to 20mA
Gain:	200 or 1000 - selectable by solder jumpers (5mV/V or 1mV/V)
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.

SC Module TH-K:

Sensor:	thermo-couple, type K (with cold junction compensation)
Temperature measuring range:	0°C to +900°C (other on request)

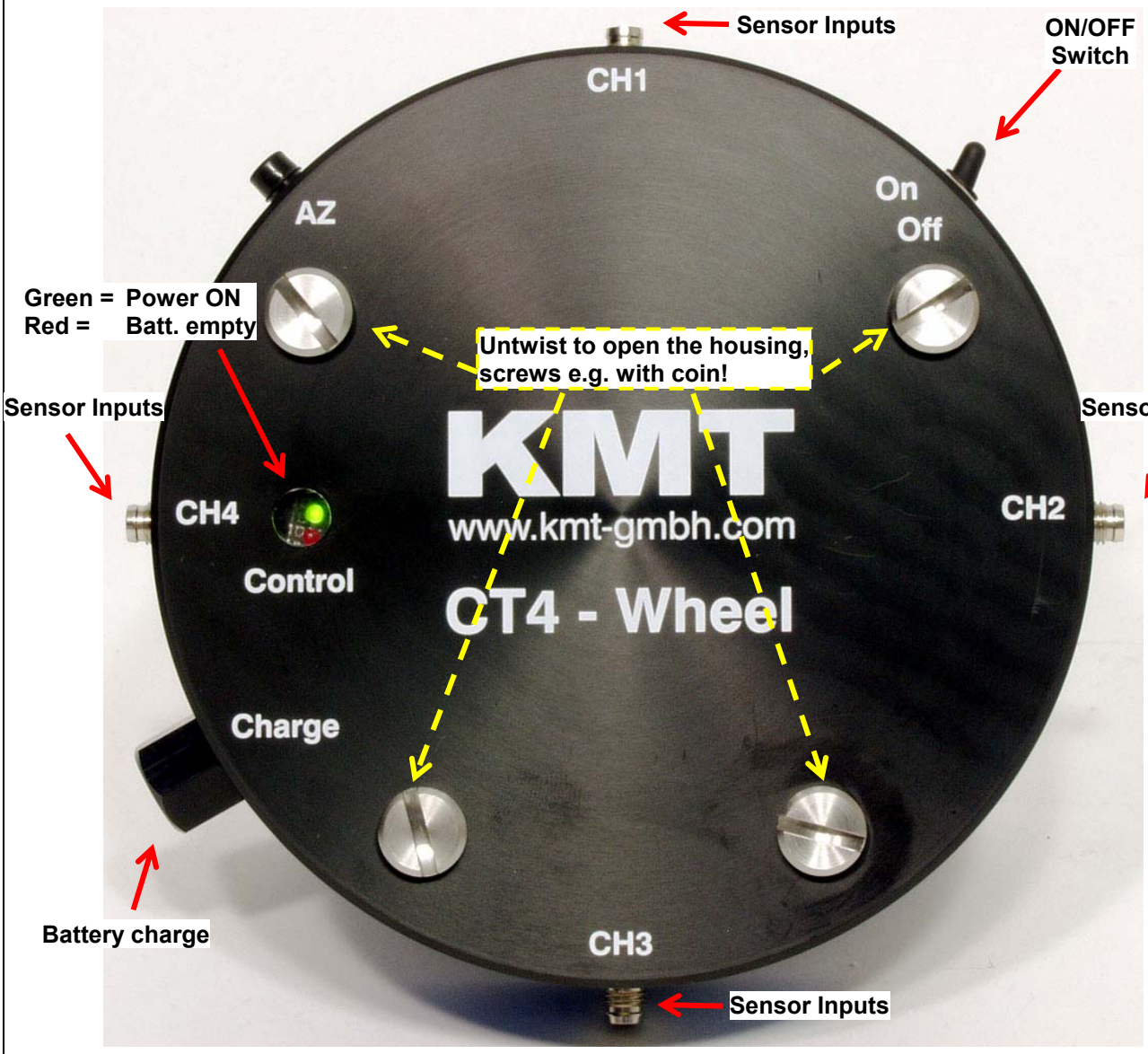
SC Module VOLT:

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

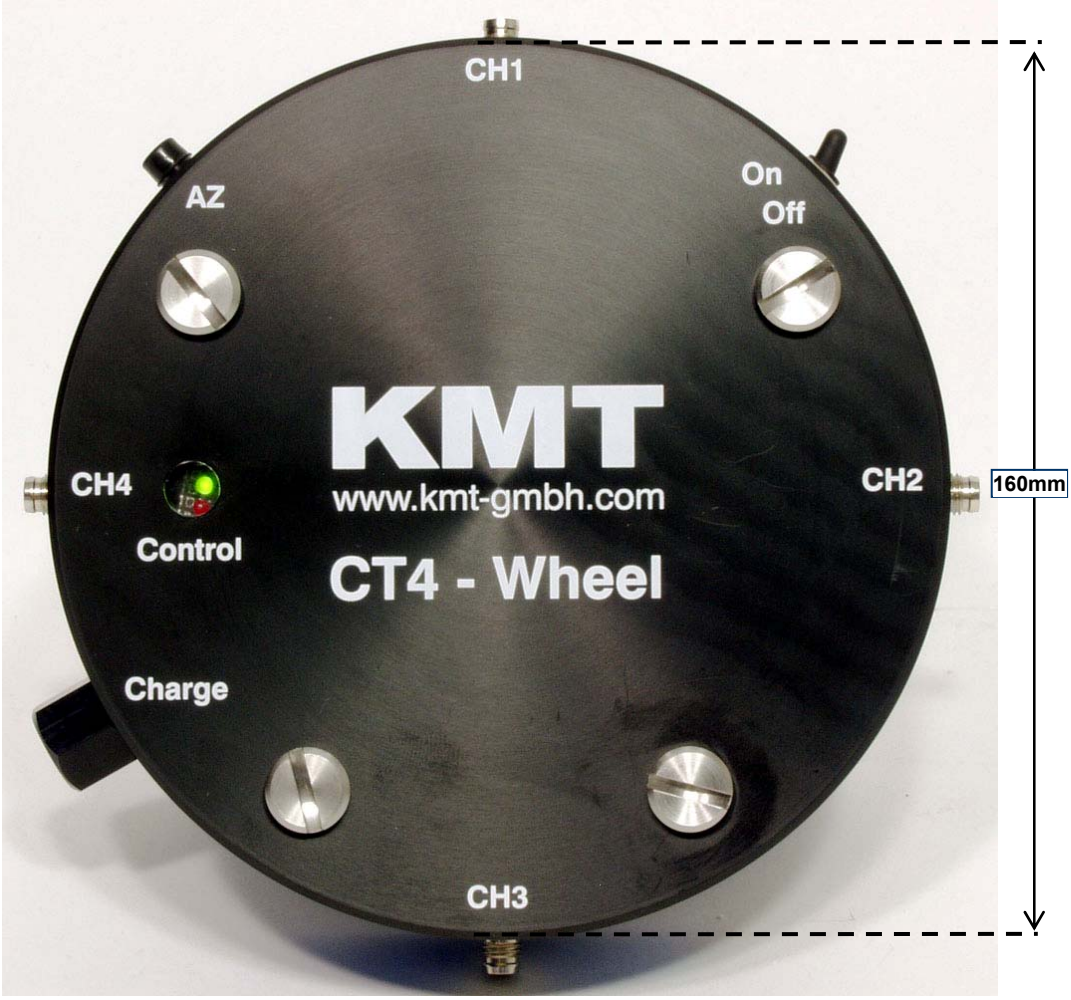
System Parameters:

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 hours 8C. or 8 hours 4Ch.
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 (-6dB) with 40 kbit/s transmitter
8-channel version	8 x 0 … 95Hz (-6dB) with 40 kbit/s transmitter
Transmitter carrier frequency:	433.3, 433.7, 434.1 or 434.5MHz with 40 kbit/s, 10mW
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

Functions:
4 (8) Channel CT4/8-Wheel ENC (encoder with transmitter)

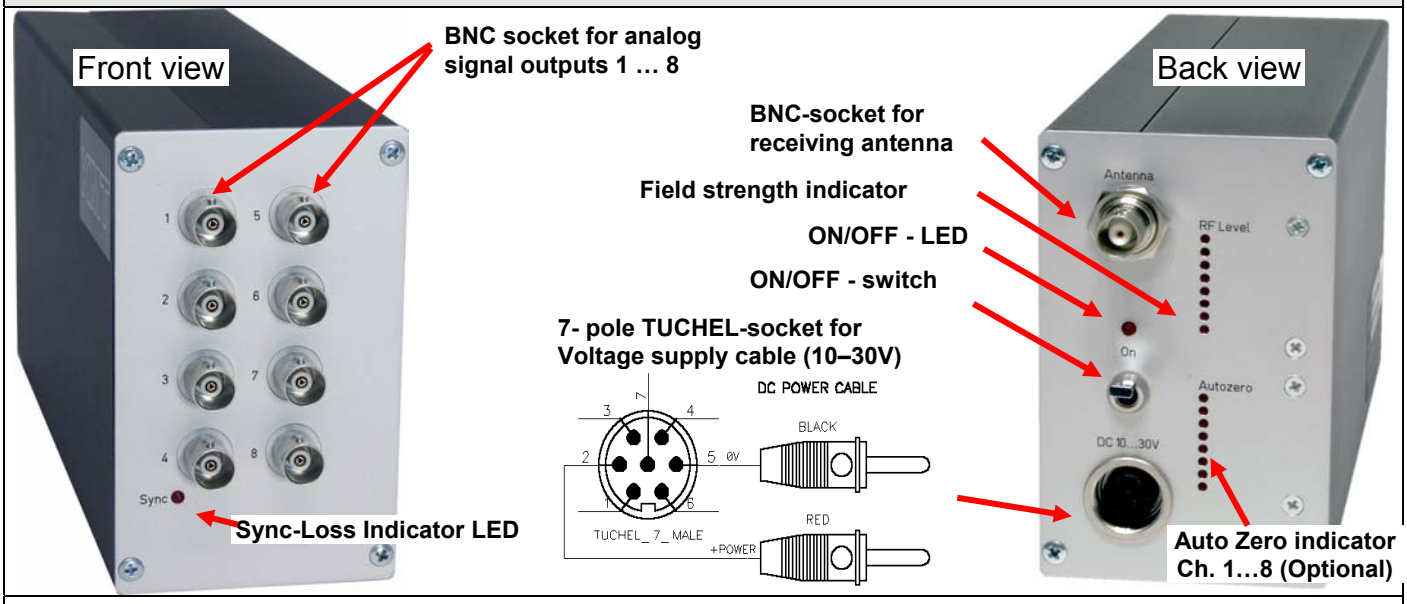


Dimensions:



Total weight: 1.5kg
High: 55 mm

Technical data:
Receiving Unit CT8-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
Carrier frequencies:	433.3, 433.7, 434.1 and 434.5 MHz with 40 kbit/s transmitting rate FSK modulation
Dimensions:	205 x 105 x 65mm
Weight:	1.25 kg without cables and antenna
Overall system accuracy between encoder input and decoder output:	+/-0.5% without sensor influences
Environmental	
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!

Receiver Device 4x4 (Decoder)

Front view with 4x4 BNC outputs and RF-levels

System-view with antennas

System Parameters:

Channels:	4 x 4 analog outputs (BNC) with ±5V range, (optional digital PCM output for PC interface)
Resolution:	12 bit D/A converter with smoothing filter
Dynamic range:	72dB
Power input:	10-30 VDC
Power consumption:	300mA at 10V, 100mA at 30V
Receiver carrier frequency:	433,3, 433.7, 434.1 and 434,5 MHz with 40 kbit/s transmitter - FSK modulation
Dimensions:	240 x 130 x 300mm
Weight:	1,25 kg without receiving antenna
Operating Temperature:	-20 … +60°C
Humidity	20 ... 80% no condensing
Static acceleration:	10g in all directions
Shock:	100g in all directions
Overall system accuracy between encoder input and decoder output:	+/-0,5% without sensor influences

Technical specifications are subject to change without notice