

TEMPTEL8-Wheel

8 channel Telemetry System for Thermocouples K or J

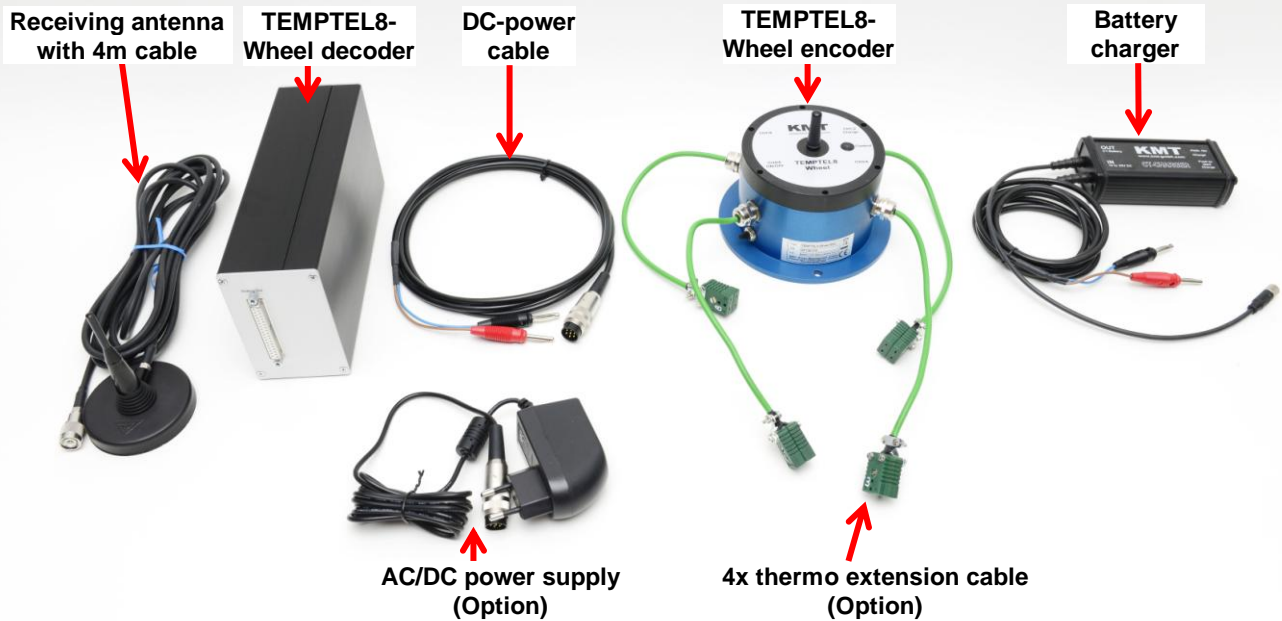
User Manual



- 8x Thermocouple inputs for K or J
- Full galvanic isolated inputs
- Temperature range -50 to 1000°C
- Signal bandwidth 8x 0-30Hz
- 12 bit ADC, simultaneous sampling
- Linearized output for K or J
- Analog output +/- 10V, Opt. CAN-BUS
- 4 different carrier frequencies
- Rechargeable battery
- Water protected Tx-housing (IP65)

INSTRUCTIONS FOR QUALIFIED PERSONNEL ONLY!

General functions:



Picture shows a TEMPEL8-Wheel telemetry system with standard accessories

TEMPEL8-Wheel is an telemetry system designed for easy mounting onto rotating Wheels to provide non-contact transmission of temperature measurement.

Sensors inputs are connected via screw clamp. Measured values are prepared in analog format, digitized (12bit) 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 thermocouples can be connected: Type K -50 to 1000°C (standard) or Type J -50 to 750°C (optional)

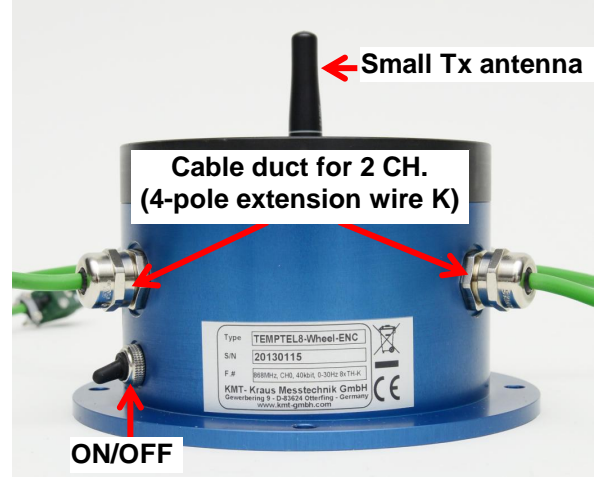
All inputs are full galvanic isolated!

The measured values are processed and output as +/-10V analog signals (linearized for K or J) at the BNC sockets (optional digital output for special PCM interface into a PC) on the stationary receiver located in a vehicle.

Resolution of 12 bits is standard; this enables an amplitude dynamic of 72 dB. The analog signal bandwidth is 0-30 Hz (-3dB) when configured as an eight channel. The measurement accuracy is +/-0.5 % (without sensor). The TEMPEL8-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 up to 10m (30 feet) - depend of application!



Transmitter Device (Encoder)



TEMPEL8-Wheel-ENC

SC Module TH-K (J):

Sensor: thermo-couple, type K (with cold junction compensation)

inputs full galvanic isolated!!

Temperature measuring range type K: -50°C to +1000°C (standard)

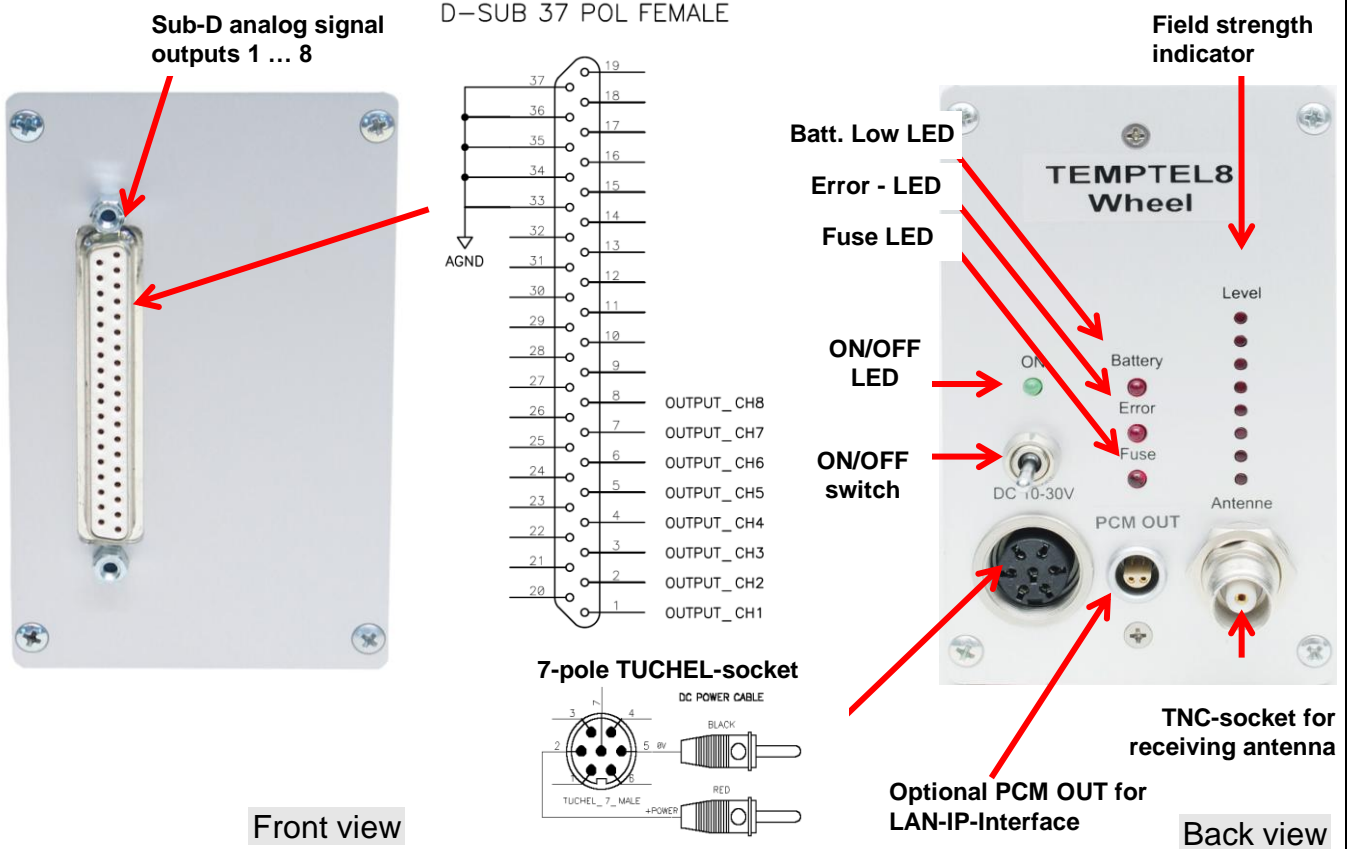
Temperature measuring range type J: -50°C to +750°C (on request)

System Parameters:

Channels:	8
Resolution:	12 bit A/D
Line-of-sight distance:	10 m with 10mW transmitting power (433MHz or 868MHz Band, FSK modulation)
Powering:	Li Ion battery 7.2V, 2200mA, capacity for ~16 hours operation <i>(Li Ion battery 7.2V, 8000mA for ~50h operation as option!!)</i>
Power consumption:	130 mA
Analog signal bandwidth:	8x 0-30Hz (scanning range 312.5Hz/CH)
Dimensions:	Diameter 110mm, bottom plate diameter 140mm, height 78mm
Weight:	1.10 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:	200g in all directions, max. RPM 3000
Shock:	500g in all directions



Technical data:
Receiving Unit TEMPTTEL8-Wheel DEC (Decoder)



System Parameters:

Channel:	8 analog outputs via 37-pole Sub-D +/-10V
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
Analog signal bandwidth:	8 x 0 ... 30Hz
Dimensions:	205 x 105 x 65mm
Weight:	1.00 kg without cables and antenna
Overall system accuracy between encoder input and decoder output:	+/-0.5% without sensor influences

Environmental

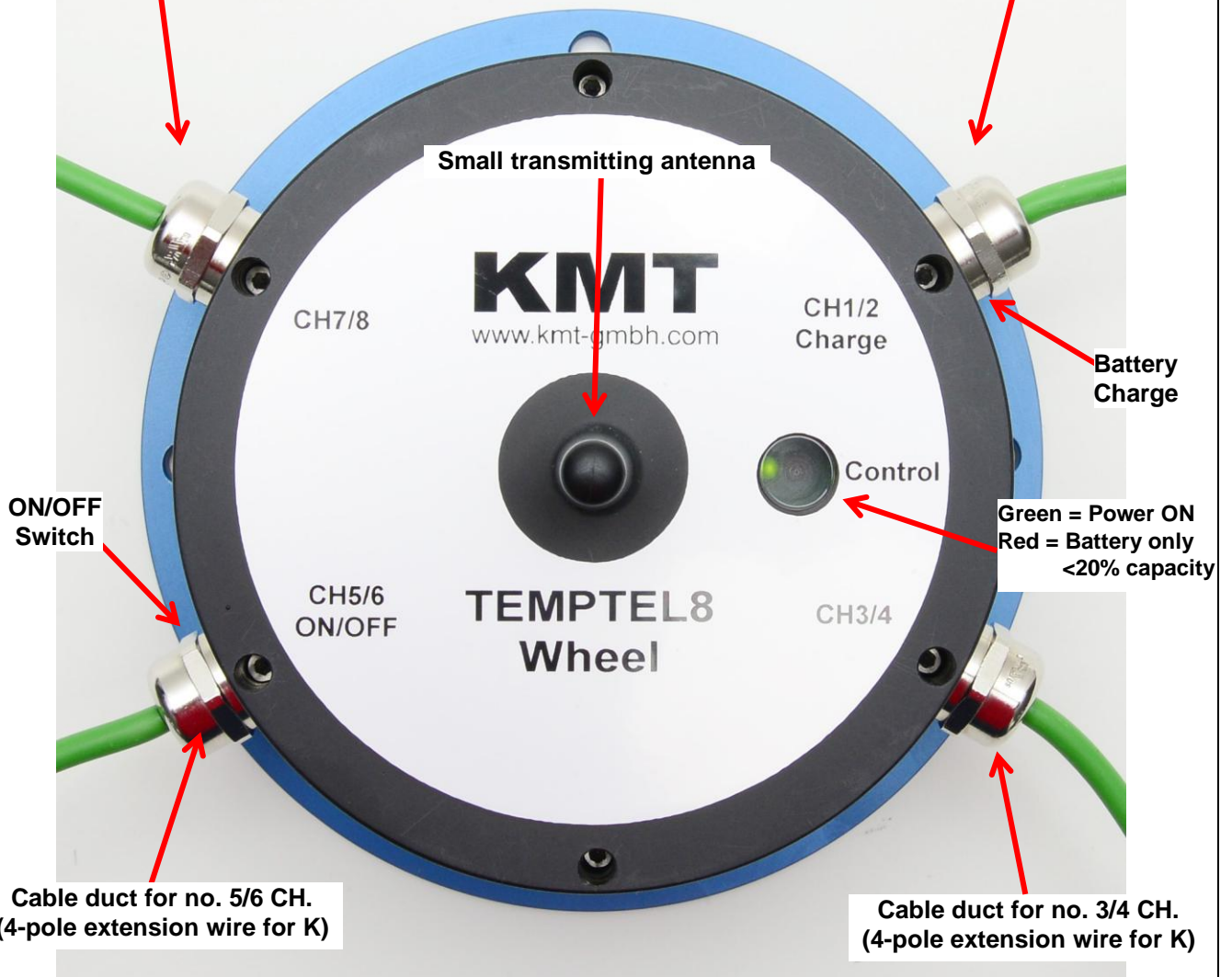
Operating:	-20 ... +70°C
Humidity:	20 ... 80% not condensing
Vibration:	5g Mil Standard 810C, Curve C
Static acceleration:	10g in all directions
Shock:	100g in all directions



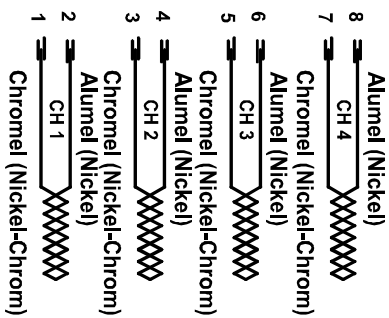
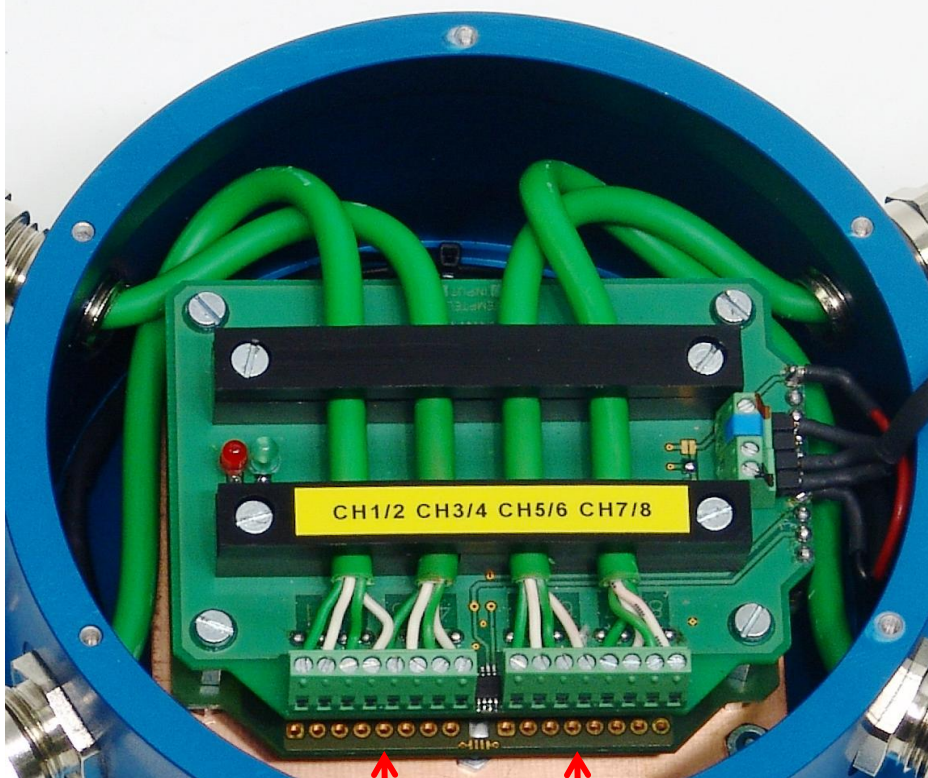
Functions:
 TEMPTTEL8-Wheel ENC (encoder/transmitter)

Cable duct for no. 7/8 CH.
 (4-pole extension wire for K)

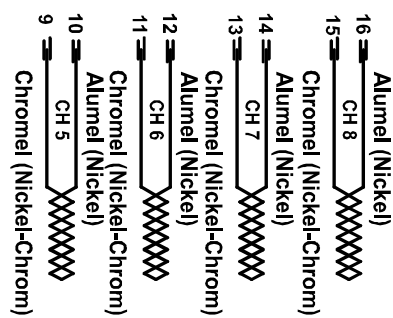
Cable duct for no. 1/2 CH.
 (4-pole extension wire for K)



Connection Th K-ISO



Channel 1-2-3-4



Channel 5-6-7-8

Sensor TH-K:

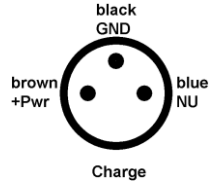
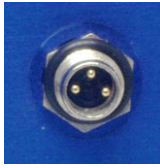
thermo-couple, type K (with cold junction compensation)
inputs full galvanic isolated!!

Temperature measuring range type K: -50°C to +500°C			
Temperature [°C]	Output [V]	Temperature [°C]	Output [V]
-50	-1.00	250	5.00
0	0.00	300	6.00
50	1.00	350	7.00
100	2.00	400	8.00
150	3.00	450	9.00
200	4.00	500	10.00

Temperature measuring range type K: -50°C to +1000°C							
Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]
-50	-0.50	250	2.50	550	5.50	850	8.50
0	0.00	300	3.00	600	6.00	900	9.00
50	0.50	350	3.50	650	6.50	950	9.50
100	1.00	400	4.00	700	7.00	1000	10.00
150	1.50	450	4.50	750	7.50		
200	2.00	500	5.00	800	8.00		

Li-ion Re-Chargeable Battery with Charger Unit for TEMPTTEL8-Wheel

Pin connection



Charge plug at TEMPTTEL8-ENC

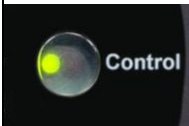


Press to start 1s Charge Batt. LED Full status LED



Battery charger CT-Wheel/TEMPTTEL

1. Plug the 3-pole socket (charger) in to the TEMPTTEL8-Wheel encoder.
2. Plug banana plugs on to a battery or AC/DC power supply with a voltage range of 10-30V (min. 2A)
3. Press and hold the switch for 1 second to begin charging. The battery will now charge. Charge time 12h hours at 8000mA Li-ion battery, 3-4h at 2.200mA Li-ion Battery.



Control

Temptel8-Wheel
ENC- Control

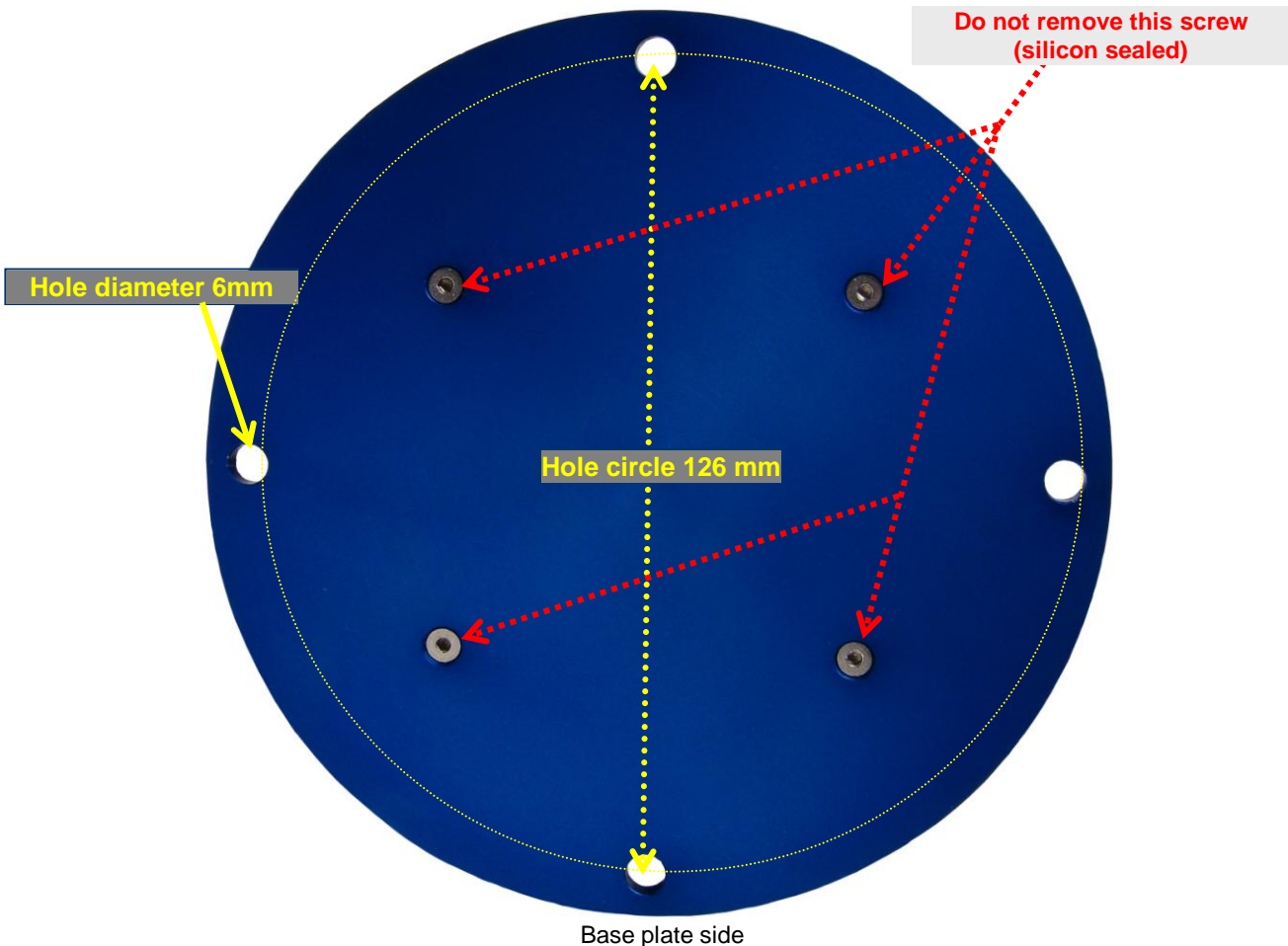
Li Ion battery 7.2V, 2200mA, capacity for 16h (Standard)

Li Ion battery 7.2V, 8000mA, capacity for 50h (Option)

Green = Power ON

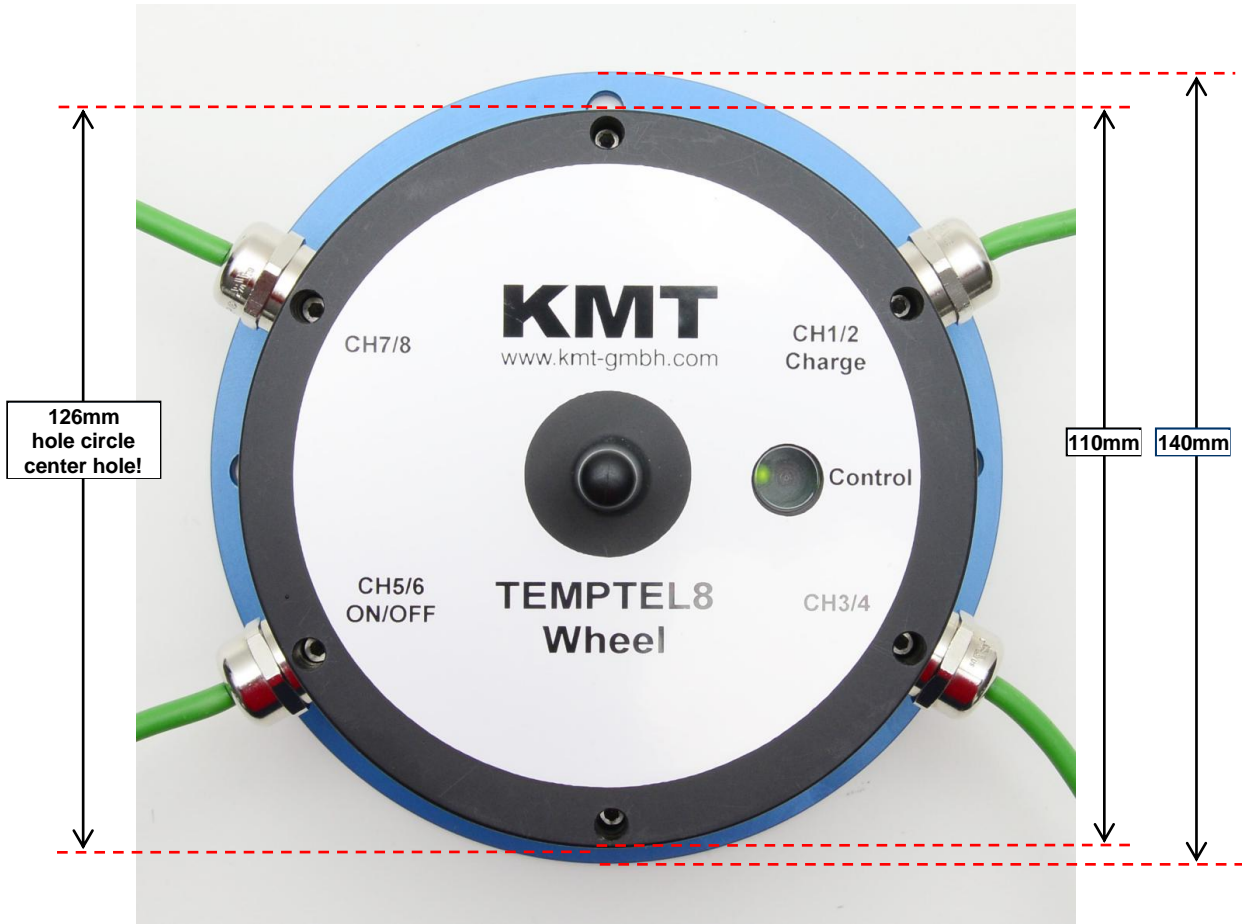
Red = Battery only 20% capacity

Mounting hole dimensions:



Dimensions standard housing

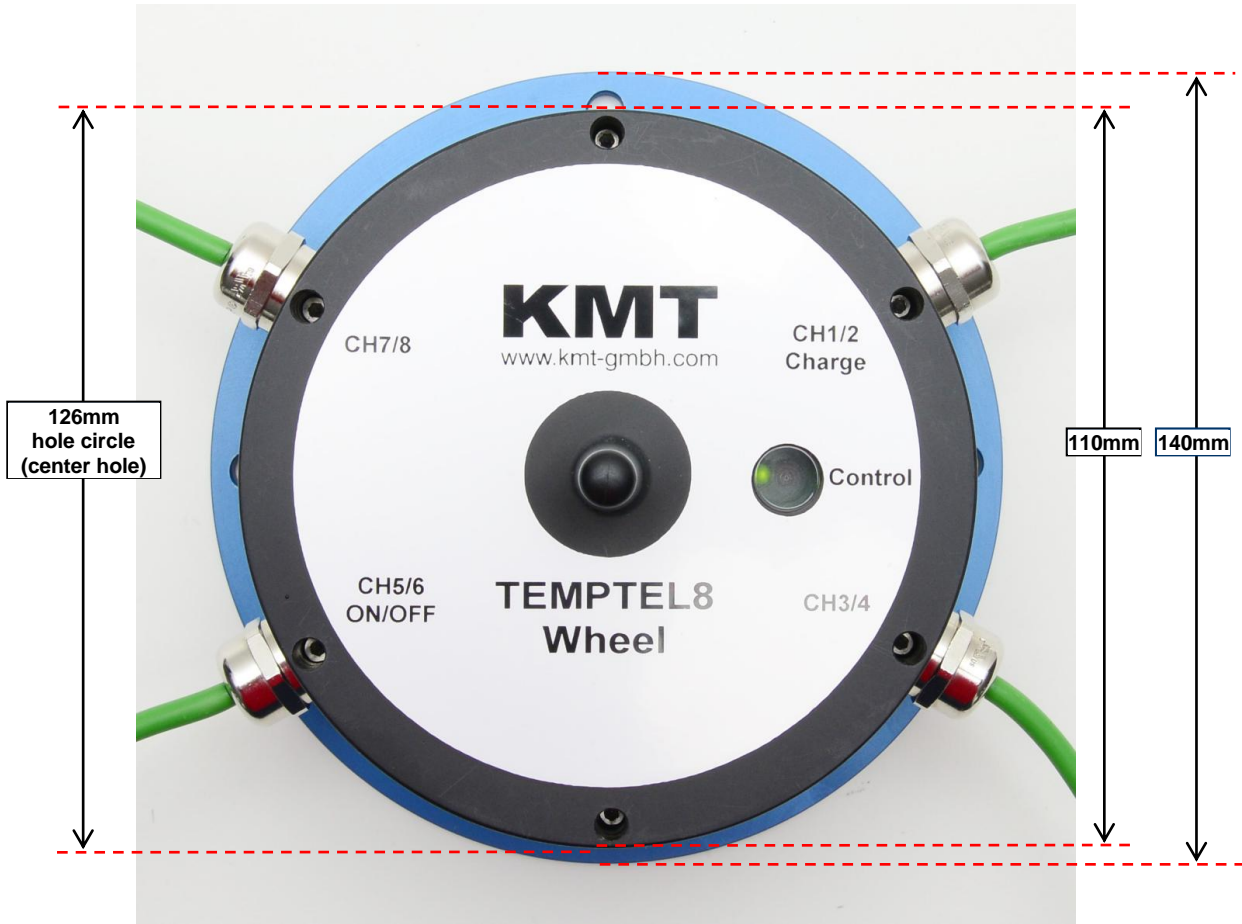
With Li Ion battery 7.2V, 2200mA, capacity for 16 hours:



Total weight 1.10kg

Dimensions optional with large battery:

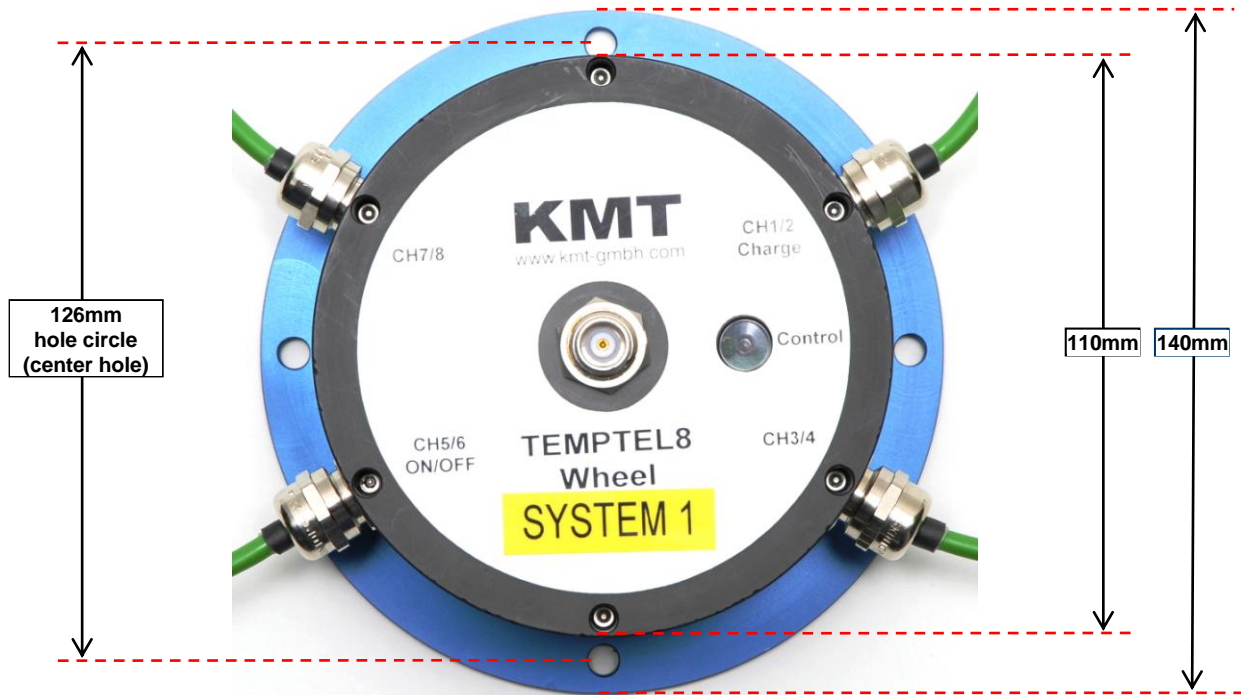
With Li Ion battery 7.2V, 8000mA, capacity for 50 hours:



Total weight 1.30kg

Dimensions housing with external large antenna, recommend for trucks!

With Li Ion battery 7.2V, 2200mA, capacity for 16 hours:



Total weight 1.15kg without cables

Recommended placing of receiving antenna for rear wheel



Antenna cable between Rx-antenna and receiver max. length 25m!