

## TEL1-PCM-HS-BATT

Digital High Data Rate Telemetry System for Strain Gage and ICP Applications on Rotating Shafts

*"Gain and Auto Zero setting direct from Receiver Side!"*



- Easy to assemble and operate
- For strain gages or IPC sensors
- Strain gage sensors (>350 Ohm)
- Full- and half bridge configuration
- Excitation fixed 4 Volt DC
- Auto-Zero adjustment - Setting receiver side
- Gain: 250-8000 - Setting receiver side
- External shunt calibration
- ICP current 4mA, Gain selectable to: 2-4-8-16
- Digital transmission realized inductively
- Distance up to 50mm
- No influence through radio frequency
- Many systems can operated at the same time
- Signal bandwidth 0...50kHz (Scanning rate 104kHz)
- Output +/-10V and digital for interface (Option)
- System accuracy <0.2%

## General Description

The TEL1-PCM-HS-BATT single-channel high data rate telemetry system offers the easiest handling for the wireless transmission of strain gage signals from rotating shafts. The encoder 62x27x13mm with a weight of 30g. The transmitter (encoder) part is simply mounted on the rotating shaft with a special fiber reinforced tape.

Powering of the transmission part is via battery 6-9V or optional inductive power supply. The digital data transfer between transmitter and receiver is realized inductively.

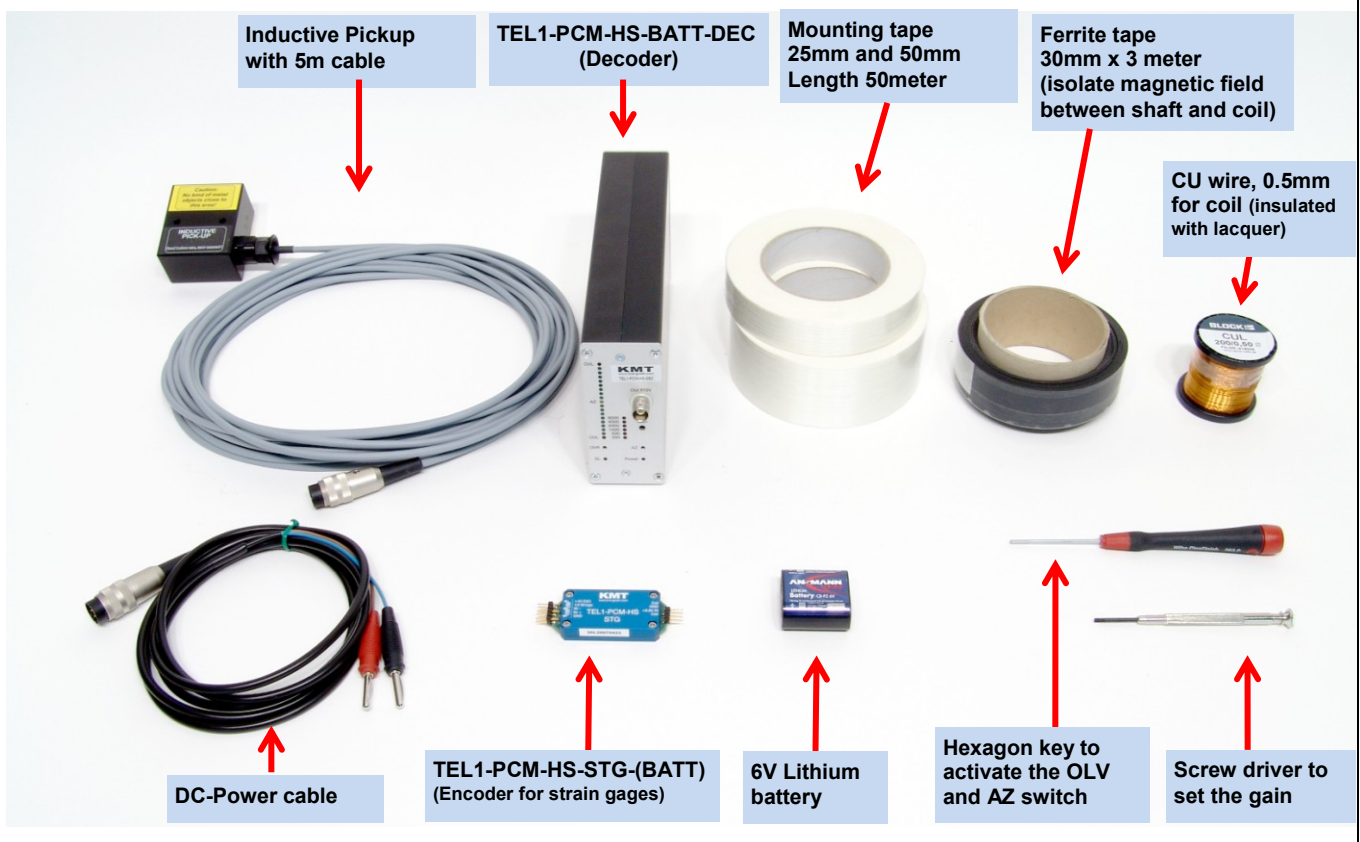
## Functional Description

The TEL1-PCM-HS-BATT transmitter provides a pulse code modulated signal (PCM) to an induction winding around the *shaft* (*max. diameter 500mm, other on request!*). The magnetic field of this winding enables the inductive transmission of the signal to the pickup coil. From there the signal is transferred by cable (5 m) to the receiver. The maximum distance between the transmitter coil and the pickup is 50mm. (with standard head)

The receiver unit offers a BNC connector at the front panel with analog outputs  $\pm 10$  V and a optional a digital output for PCM interface ECIA100 (for notebooks) or IF16 (PCI Desktop). An LED bar indicator shows the actual level and a successful Auto Zero calibration. Overload is indicated by the last LED's in pos. or neg. direction of the bar graph. These OVL-LED's operate in peak-hold mode and are reset by pressing the overload switch.

Strain gage sensors (>350 Ohm) in full- and half- bridge configuration can be directly connected to the transmitter. The excitation is fixed to 4 Volt DC and the gain is set by the gain switch on the receiver side. An auto-zero (AZ) adjustment is executed by pressing the AZ button on the front side of the receiver. The successful AZ operation is indicated by a yellow LED in the middle of the LED bar indicator. When the AZ completes the LED continuously illuminates. A continued flashing of the yellow LED indicates some error in the AZ electronics. In this case please contact the support of KMT. Additional to the AZ you have the possibility to calibrate the bridge by external shunt. (+ and -). The AZ setting is stored in a Flash-RAM and thus is not lost during power-off. Use only shielded sensor cable.

## TEL1-PCM-HS-BATT set contains:



## Technical Data - rotating part



### TEL1-PCM-HS-BATT-STG

Strain gage: Full and 1/2 bridge >350 Ohm,

Excitation: 4 VDC (fixed)

Gain: 250; 500; 1000; 2000; 4000; 8000 (selectable from receiver side)

#### Gain and STG-Sensitivity (output +/-5V at decoder)

Gain 250 = +/-5mV/V	Gain 2000 = +/-0.650mV/V
Gain 500 = +/-2.5mV/V	Gain 4000 = +/-0.3125mV/V
Gain 1000 = +/-1.250mV/V	Gain 8000 = +/-0.15625 mV/V

Shunt Cal: Via external resistor for positive and negative calibration

AZ: Auto Zero calibration (selectable from receiver side)

**Analog signal bandwidth: 0 - 50 kHz (-3 dB)**

Scanning rate 104 kHz

Operating temperature: - 10 to + 80 °C

Dimensions: 62 x 27 x 13mm (without connectors)

Weight: each module 30 grams

**Static acceleration: up to 3000g**

Powering: Battery 6-9V, Power consumption 70mA at 6V

*Optional additional inductive powering*



### TEL1-PCM-HS-BATT-ICP

For all ICP sensors

Current: 4mA (fixed)

Gain: 1; 2; 4; 8; 16; 32 (selectable from receiver side)

Gain	Resolution
250 = 1 at ICP	12 bit
500 = 2 at ICP	12 bit
1000 = 4 at ICP	12 bit
2000 = 8 at ICP	12 bit
4000 = 16 at ICP	12 bit
8000 = 32 at ICP	11 bit

**Analog signal bandwidth: 3 - 50000 (-3 dB)**

Scanning rate 104 kHz

Operating temperature: - 10 to + 80 °C

Dimensions: 62 x 27 x 13mm (without connectors)

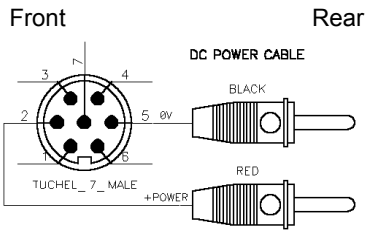
Weight: each module 30 grams

**Static acceleration: up to 3000g**

Powering: Battery 6-9V, current consumption 80mA at 6V

*Optional additional inductive powering*

# Technical Data - static part



## TEL1-PCM-HS-BATT-DEC

### Front side:

- Analogue output: +/-10V via BNC
- Digital output for PCM Interface IF16 (ECIA100) OPTION
- Gain setting : via screw switch
- Auto Zero setting: via micro switch
- Overload LED's (Red ON) reset: via micro switch
- Green LED's: Bargraph +/-
- Autozero LED:
  - Yellow ON- successful AZ
  - Yellow OFF- not successful AZ
- if flashing, call support of KMT, error in EPROM*
- Green LED's: Bargraph +/-
- SL LED: Red ON = if error of data transmitting
- SL LED: Red Flashing = if distance to far
- Power ON LED: Red ON = if power switch on

### Rear side:

- Output to Powerhead: via 5pol. Tuchel
- Fuse LED: Flashing if fuse is defect
- Powering: 10-30V DC, Input via 7pol. Tuchel
- Switch: ON/OFF
- Operating temperature: - 10 to +70 °C
- Dimensions: 200 x 105 x 44 (without connectors!)
- Weight 950 grams
- Static acceleration: up to 200g
- System accuracy (without sensor): +/- 0.2 %



## TEL1-PCM-HS-Pickup

- Function: Receiving inductive magnetic field in PCM modulated code
- Distance between the transmitter coil and the pickup is 50mm
- Output to TEL1-PCM-HS-BATT Decoder via 5pol. Tuchel plug incl. 5m cable. Cable length standard 5m, optional 20m
- Operating temperature: - 10 to +80 °C
- Dimensions: 45x60x25mm (without cable)
- Weight: 400 grams (with 5m cable!)
- Housing: splash-water resistant IP65 (except connector).

## Block diagram:

