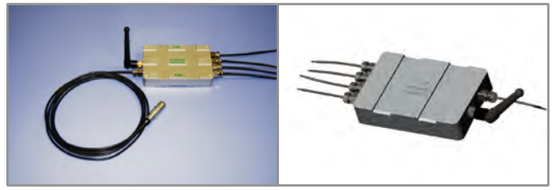
DATA SHEET

PJM 4-channel telemetry	System data
Accuracy of measurement	0,05 % of full scale
Resolution	12 bit
Sample rate	2 kHz
Transmission rate	2,4 GHz
Range of trasmission	up to 20 m
Interfaces	RS232
Acceleration resistance	> 100g
Housing of transmitter	Dimensions: 100x65x19 lxbxh Weight: 350 g Type: IP67
Housing of receiver	Dimensions: 120x95x37 lxbxh Weight: 360 g
Application options	Strain gauges with quater, half and full bridge devices
Temperatur range	-30 °C to +75 °C
Power supply of transmitter	storrage battery 3.7 to 6 V
Battery configuration	4000 - 60000 mAh
Measuring time	up to 500 h
Configuration options	• Zero adjustment • Amplification • Standby of transmitter • Transmission power of transmitter and receiver



HOW TO CONTACT US

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Legal information

Court of jurisdiction: Graz-Stadt
VAT-ID-Nr: ATU62580255
Commercial register: FN 278800 a
Tax number: 68 272/5270

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ABOUT US

PJM is an experienced, worldwide company that offers measurements, data analysis, calculations and design all from under one roof. Our company is not only acknowledged by the Eisenbahn Bundesamt (EBA, Federal Railway Authority) but currently also Austria's only testing laboratory for rail vehicles accredited according to DIN EN ISO/IEC 17025.

Our team of enthusiastic engineers and scientists has proven its capabilities in various metrological projects all over the globe in collaboration with a number of renowned national and international companies.

A main focus of PJM is rail vehicle technology.

We develop and produce a number of metrological products which are continuously used at our own measurement projects. The permanent gain of experience contributes to our product development and enhancement. This way we are able to offer high-quality products that are built to withstand harshest conditions.

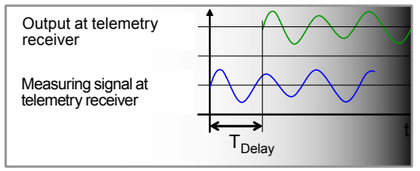
DESCRIPTION

The 4-channel-telemetry of PJM is used for non-contact measurements at moving objects.

The telemetry consists of transmitter, receiver and corresponding software. The transmitter unit is powered by an external battery. Transmitter and receiver are connected via WLAN which waives the need for wiring.

Particular attention during the development of the telemetry was paid on synchronisation of sampling rates, which guarantees time synchronisation of all of the 4 channels measured data.

Through a constant time-delay, accurate to microseconds, measuring data of the telemetry can be recorded with exact time correlation to other measured data in the overall system.

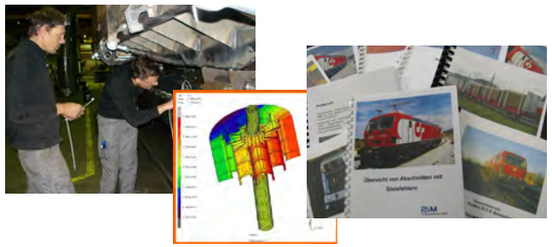


This telemetry with its 4 channels is optimised for small and medium applications.

SERVICE

PJM offers comprehensive support starting from the selection of strain gauges up to entire planning and conduction of measurement projects.

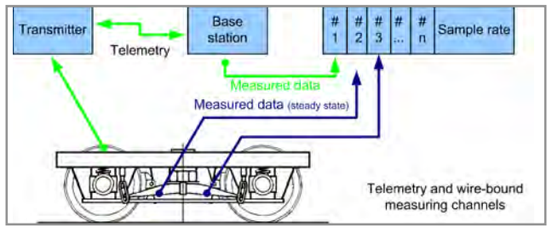
- Technical advice, planning and conduction of measurement projects
- Selection and application of suitable strain gauges
- Planning and production of customized telemetries
- Training on the 4-channel telemetry
- Analysis of measurement results
- Compiling of metrological expert reports



OPERATING MODE

Data is transmitted bi-directional over the public 2.4 GHz ISM-band.

Both, transmitter unit and receiver unit are equipped with a powerful antenna. Depending on environmental conditions a range of up to 20 m can be reached.



Strain gauges with quarter, half and full bridge devices preferable with 350 Ohm are applicable at the transmitter unit.

The average power consumption is 100 mA.

Measurable parameters:

- Forces
- Torques
- Accelerations
- Strains
- Pressures

The 4-channel telemetry was already used successfully for measurements at wheel sets at speeds of up to 350 km/h.

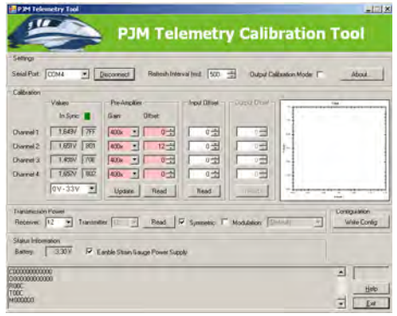
CONFIGURATION

Connection to the configuration tool takes place via serial interface RS232.

The transmitter unit can be configured wireless from the basestation.

Following settings are adjustable with the Software:

- Transmission power
- Adjustment of amplifier
- Stand-by
- Offset / zero adjustment



Configurations can be saved permanent and non-permanent. This saves you from reconfiguring settings for similar measurements.

The analogue output of the 4 measuring signals takes place in a voltage range of +/- 10. Due to this standardized interface the signals can be processed by a multitude of measuring instruments.

FIELDS OF APPLICATION

The 4-channel telemetry is designed for measurements at moving objects and offers a wide range of possible applications:

- Measurements at various components of drive trains, axles, cardan shafts, gear shafts
- Measurements at wheel sets on rails
- Measurements at (energised) pantographs
- Measurements at construction machines
- Measurements at rotating components (turbines, pumps)

The telemetry is highly suitable for areas where cables are difficult or impossible to pass.

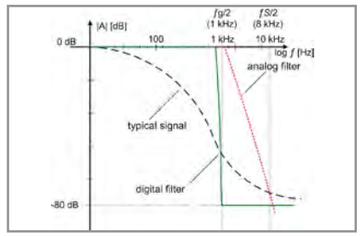
Due to a power supply via batteries the 4-channel telemetry is independent of the availability of a local power supply.

Furthermore, the telemetry is characterised by its easy installation and handling.

MEASURING ACCURACY

The zero adjustment of the amplifiers offers an expanded calibration range to correct deviations of the applied strain gauges.

The optimised calibration of zero point and amplification factor ensure that the amplifiers run within their optimum working range. Thereby a high dynamic range at high accuracy is given.



Oversampling of measuring signals followed by dual filtering ensure a radio transmission without data loss.

RELIABILITY

Compared to other radio networks like Bluetooth, our system is largely immune.

Depending on the required program function, LED indications provide information on:

- Status of radio communication
- Status of data transfer
- Battery charge condition

The Transmission protocol as an additional possibility of monitoring displays possible transmission errors.