

Instrumentation

for noise and vibration measurements



Telemetry

Pass-by systems

Signal conditioning

Measurement of engine and vehicle speed

Quality assurance

Engineering

TESCON



Equipment for the wireless transmission of measurement data. Telemetry 4600 designed for vehicle testing, i.e. for engine, rpm, vehicle speed and auxiliary signals using the 433MHz-band. Telemetry 5600 for general applications for the digital transmission of high-speed analog and digital data in the 2.4GHz-band. Modular construction of all instruments. Direct connection of all sensors. Simple operation. Transmission of data in real-time. Optional programming by computer. The equipment is independent of the type of data acquisition and analysis software used due to the availability of time-domain data.

4600 TELEMETRY

Proven telemetry for engine and vehicle speed and other analog and digital signals. Simple handling and reliable operation with various self-test functions. Operates in the frequency range of 433MHz; 450MHz optional. Interference from other users of the band is prevented by the availability of 63 switchable rf-channels. Optimum use of the bandwidth by variable data rate. Sturdy and compact transmitter unit for on-board use with all connectors and displays on the front panel. Possibility of using several wireless links with channel selection by software.



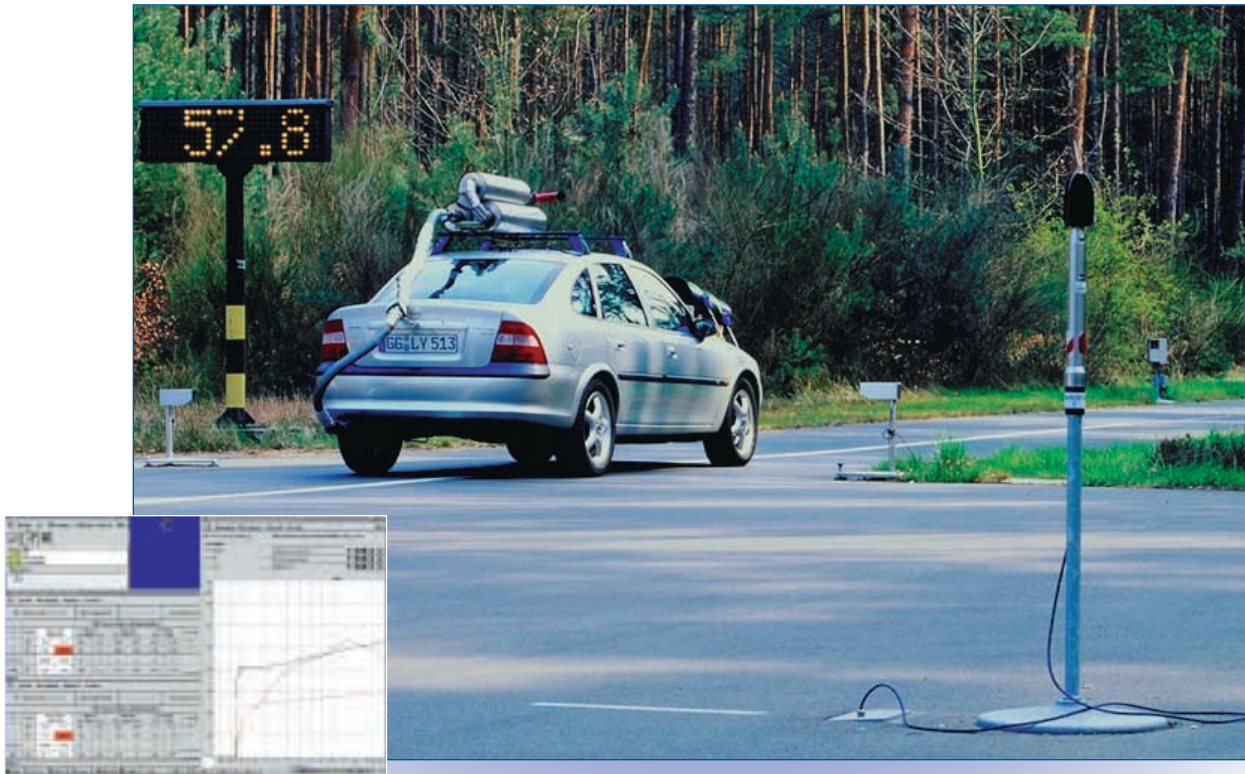
Transmitter and receiver of the 4600 Telemetry



5600 Digital Telemetry

5600 TELEMETRY

Digital high speed telemetry for the transmission of analog and digital data by a wireless link in the 2.4GHz range. 1...32 analog channels with 16 bit of resolution. Four pulse channels for high resolution rpm signals, speed data, etc. Modular signal conditioning for a variety of transducer signals (speed signal, vibration signals, microphones, pressure, temperature). Possibility for simultaneous operation of several instruments close to each other. Very compact and robust transmitter unit for on-board use. Receiver modules fit into 19" mainframe. Digital or analog output of data. Additional 16 bit parallel port in place of one analog channel.



Systems for the measurement of the pass-by noise of vehicles according to ISO 362. The modular configuration and open architecture enable the equipment to be tailored to the needs of the user. Comprehensive engineering services from the planning through installation and maintenance.

LASER LIGHT BARRIERS

■ Laser reflex light barriers for the precise detection of vehicle passage. Large operating distance. Simple set-up. Instruments for stationary and mobile use. Multiple lightbarriers for the detection of the vehicle independent of its shape. Wireless lightbarriers with built-in telemetry transmitter.

3201 WEATHER STATION

■ Compact unit for the acquisition of weather data with serial computer interface. Additional sensors (e.g. surface temperature) optionally available.



Mobile system for pass-by measurements

3210 RADAR

■ Doppler radar for the acquisition of speed and distance. Built-in readout. High precision and stability.



5601 Noise Telemetry

5601 NOISE TELEMETRY

■ Wide-band telemetry for the digital transmission of noise and vibration signals.

3250 OUTDOOR MICROPHONE

■ Measurement microphone class 1 for permanent outdoor use. Remote calibration by electrostatic actuator. Simple low-voltage power supply.

MICROPHONE AND PLAYBACK AMPLIFIER

■ Programmable amplifier with externally controlled maximum hold function. Playback amplifier for the assessment of the noise in on-line and off-line mode.



Modular, programmable instrumentation for the conditioning of vibration and noise signals. Conditioning amplifiers for microphone, charge, ICP and direct signals. Multiplexers for signal switching. Components for the transmission of analog signals in the presence of high electrical interference. Control of programming parameters via computer port. Flexible configuration. High reliability and simple maintenance.

4220A/4224 MICROPHONE AND CHARGE AMPLIFIER

■ Programmable amplifier for microphone, charge, ICP and voltage signals. Programmable high and low pass filter and weighting networks. Very selective low-pass filters for anti-alias applications included in type 4224. Linear and logarithmic DC output with standardized time constant. Two independent outputs for the processing of various signals.

4710 RELAIS MULTIPLEXER/4720 FET MULTIPLEXER

■ Programmable multiplexers for the application in scanners and matrix switches. Basic building block with 16 differential inputs and 1 output. Type 4710 using low-level relays and isolation between switching and control circuits. Type 4720 using semiconductor switches. Switching circuits with up to 255 channels may be realised.

4240 MICROPHONE AMPLIFIER

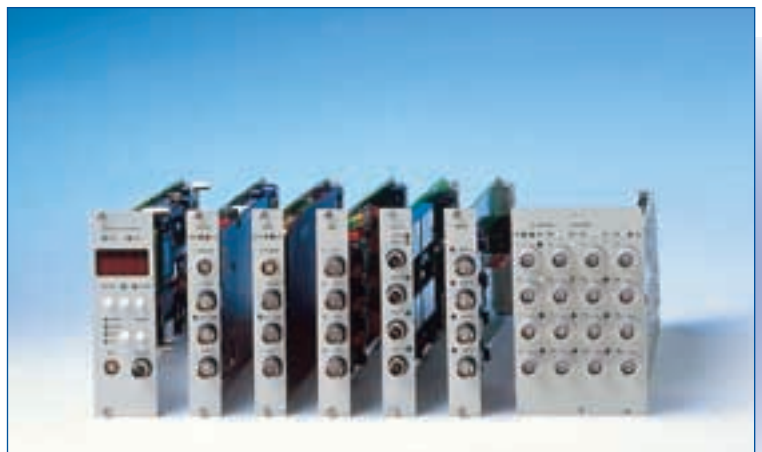
■ Amplifier and level readout for measuring microphones. Optional hold of maximum level under the control of a light barrier signal. Remote control of all function including calibration of 3250 OUTDOOR MICROPHONE.

4830C/4830D OUTPUT MODULES

■ Four-channels with differential input for the amplification, buffering and splitting of analog signals. Type 4830C with galvanic isolation between input and output. Wide bandwidth and excellent transient response.

4330 ICP AMPLIFIER

■ Four channel, programmable amplifier for ICP signals with differential input for the elimination of ground loops. Defeatable ICP supply and programmable low pass filters.



Modules series TESCO 4000



Compact signal conditioning for vibration and noise signals. Amplifiers for the conditioning of vibration signals in test stands. Microphone input modules for use in the PC. Compact modules with manual adjustment for the conditioning of a variety of transducer signals. Level displays for the monitoring of signals.

9050A CHARGE AMPLIFIER

■ Heavy duty charge amplifier with 8 channels equipped with charge, direct and ICP inputs. Used in harsh environments. Complete isolation between input and output. Length of connecting cable up to 100m. Manual operation.

9051 TRANSDUCER AMPLIFIER

■ Robust programmable amplifier for charge, direct and ICP signals with 8 channels. Suitable for harsh environments. Software programming over considerable distances. Full isolation of individual channels. Large dynamic range and good transient response.

9720 LEVEL DISPLAY

■ Visual monitor for the level of up to 16 AC signals. Display range -60...0dB in increments of 10dB. Selectable readout of peak or average level. Inputs for analog signals.

9727 POWER SUPPLY

■ Detached instrument for the operation of the 9050A CHARGE AMPLIFIER and similar instrumentation. Contains power supply for 16 channels and optional control interface. Output signals available on front and rear panel.

3712 MICROPHONE INPUT MODULE

■ Dual channel power supply and amplifier for measuring microphones. ISA-plug-in card for PC's. Outputs of "A"-weighted and unweighted output signals. No programming required.

56XX SIGNAL CONDITIONING MODULES

■ 5631 DC INPUT MODULE, dual bridge amplifier with automatic zero compensation. ■ 5632 ICP INPUT MODULE, dual channel conditioner for ICP and direct signals with differential inputs. ■ 5633 TACH CONDITIONER, dual channel conditioner for rpm and speed signals. ■ 5635 TEMPERATURE AND ICP MODULE, combination module for thermocouples and ICP transducers. ■ 5638 MICROPHONE AMPLIFIER, dual channel amplifier for measuring microphones.



Compact signal conditioning modules TESCON 56XX



Instrumentation and sensors for the conditioning, measurement and display of rpm and speed signals. Versatile applications in stationary and mobile operation. Reliable acquisition of unstable and noisy signals. Used with any type of transducer. Non-linear filter for the suppression of interference. Automatic tracking of the trigger level. Increased reliability of the test data due to the reduction of signal dropouts.

9009/9019 TACHOMETER

■ Universal instruments for the measurement of engine and vehicle speed in stationary or mobile applications. Reliable conditioning of the input signal. Selectable frequency divider and multiplier. Fast time-interval measurement. Outputs pulse, DC and digital. Compact instrument type 9019. Variety of options.

4610/9010/9010D READOUT

■ Analog and digital readout for rpm and speed. Excellent trend readout with analog instruments; good accuracy and small dimensions with digital readout. Input conditioned pulse. Used with all signal conditioners and telemetry instruments.

4614 MODULATOR

■ Plug-in for the conditioning and display of rpm and speed signals. Modular design for the application with telemetry or multi-channel equipment. Programmable frequency divider and multiplier. Output pulse and telemetry signal.

5410 TACH CONDITIONER

■ Software-programmable module for the conditioning of any periodic signal. Input for active and passive transducers. Pulse output. Simple operation.

5633 TACH CONDITIONER

■ Dual channel conditioner for engine and speed signals. Manually programmable frequency divider and multiplier. Input with supply voltage for active and passive transducers. Pulse output. Simple operation without software.



Modular rpm signal conditioners

TRANSDUCERS FOR ENGINE RPM, SPEED AND OTHER DATA

■ Reflex light barriers with glass fibre probe for rpm measurement and status sensing. High upper frequency limit. Immune to other light sources. Simple installation and wide variety of accessories. ■ Eddy-current transducer for sensing rotational parts with increased temperature range. ■ Inductive clamp and toroidal coil for sensing the ignition signal. Robust design for the use on primary or secondary side. ■ Laser reflex sensors for the acquisition of distance or position markers and speed. Short switching delay and wide operating distance. Large variety of accessories. ■ Sensors for speed and distance based on correlation. Microwave speed sensor for on-board use. ■ Sensors for the acquisition of the pedal pressure or the position of the pedal.



Sensors for rpm, speed and other data



Design and construction of custom instrumentation for application in quality assurance. Comprehensive engineering services in the design of custom instrumentation. Construction of turn-key equipment with installation and support in cooperation with partner companies.

FINAL TESTING OF POWER SEATS

Test stand for the operation and comprehensive testing of electric power seats. Analysis of motor currents and the structural vibrations for the diagnosis of assembly problems. Test of end stops. Automatic test sequence with numerous safety features. Complete documentation of the results with printout of a test certificate.

TEST SYSTEM FOR TRANSDUCERS

Computer-based test system for the verification of measurement microphones and force and vibration transducers. Measurement of the transducer sensitivity and the frequency response. Comparison of initial data with actual results. Screening of transducers against defects and damages. Complete documentation of the results with storage in data base.



Computer-controlled transducer test system

VERIFICATION OF THE INTERIOR NOISE OF CARS

Simultaneous transmission of a microphone signal, keyboard signals and the engine rpm information over a broad-band telemetry link. Simple operation with control of the test sequence and the test stand equipment by means of the keyboard on the transmitter. Self-contained with rechargeable battery. Simultaneous operation of several systems in the same room.



Hand-held wideband transmitter for quality assurance



Design of custom instrumentation for measuring applications. Cost-effective re-engineering of existing equipment for specific requirements. Design, installation, training and maintenance for noise and vibration measuring equipment. Complete handling of complex projects involving third parties.

TEST STAND EQUIPMENT

■ Realization of test stand equipment eg instruments for rpm and speed measurement, custom equipment, communication equipment, signal distributions, etc according to customer requirements. Handling of entire projects from the specification phase through planning and the installation.



Module with calibration certificate



Custom specific instrumentation

CALIBRATION

■ Calibration of the supplied equipment according to ISO 9000. Use of reference instruments with traceable accuracy. Extensive application of computer based test systems. Documentation of the calibration by calibration certificate. On-site calibration based on maintenance contracts.

TESCON

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