

## Measurement system for test bench and test driving

Data logger for temperature measurements



The sheer amount of new car designs and the time they spend in development are stunning. But to bring new cars to market at ever-shorter intervals, new and innovative test and measurement philosophies are needed.

Climatic car tests are usually differentiated between climate test-cell measurements and road-based measurements—a distinction which often leads to problems—such as incompatible measurement data produced by different systems and long set-up times between road and facility-based measurements. In addition, mastery of different systems is necessary. These problems have to be solved to boost the efficiency of tests.

## Customer requirements

- high resistance capability of the measurement equipment
- decentralized measurement of temperatures
- internal data storage
- fast integration of predefined measurement parameters

## Demands on mobile data logger systems

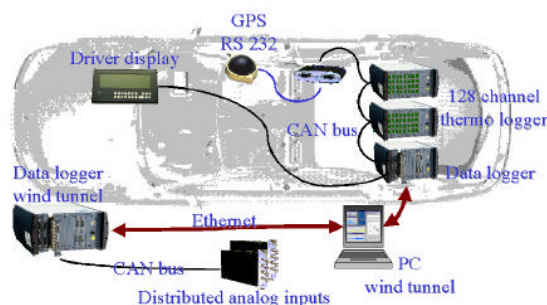
Modern data logger systems must be able to be operated both mobile in the vehicle and stationary via Ethernet (TCP/IP) networked at the test bench.

For mobile use, an extended temperature range is of course necessary, because the measuring system is to be used both at high temperatures and in winter testing. Specially selected components covering the temperature range from - 40° C to + 85° C (IP 65) are used here. Condensation is then generally permitted by coated circuit boards.

## Design of the measurement system

Decentralized measurement modules (imc CANSAS) as well as central data loggers (imc CRONOS-PL) are used to cover the different requirements for the necessary measurement types.

The decentralized measurement modules are used for signal acquisition close to the sensor. Thanks to their compact and robust housing, they can also be easily installed in places that are difficult to access. The digitized signals are sent to the data loggers via CAN bus. In addition to the data sent via CAN bus, up to 128 analog or digital signals can be connected directly to each data logger. The imc CRONOS-PL data logger synchronizes all data and stores them on its internal memory module.



## On the test bench

The key requirement for test bench measurement equipment is that the instrumented vehicle can be integrated unchanged into the test bench environment via Ethernet. This saves time-consuming vehicle retrofitting and optimizes the use of the installed measurement equipment.

All signals recorded in the vehicle and on the test bench can then be visualized and stored directly on the test bench PC. Optionally, the entire system can be parameterized via a Microsoft Excel® list, which saves a great deal of time. For this purpose, an import function for Excel files has been added to the existing setting interface. When you open the Excel file, all necessary parameters are read in and the measurement systems are set accordingly.

AP343216		Measurement List No. 1		C214 200W10 136P8	
Date	Time	Temperature	Location	Temperature	Location
12/02/2018	1	20.1	20		
12/02/2018	2	20.2	20		
12/02/2018	3	20.3	20		
12/02/2018	4	20.4	20		
12/02/2018	5	20.5	20		
12/02/2018	6	20.6	20		
12/02/2018	7	20.7	20		
12/02/2018	8	20.8	20		
12/02/2018	9	20.9	20		
12/02/2018	10	20.10	20		
12/02/2018	11	20.11	20		
12/02/2018	12	20.12	20		
12/02/2018	13	20.13	20		
12/02/2018	14	20.14	20		
12/02/2018	15	20.15	20		
12/02/2018	16	20.16	20		
12/02/2018	17	20.17	20		
12/02/2018	18	20.18	20		
12/02/2018	19	20.19	20		
12/02/2018	20	20.20	20		
12/02/2018	21	20.21	20		
12/02/2018	22	20.22	20		
12/02/2018	23	20.23	20		
12/02/2018	24	20.24	20		
12/02/2018	25	20.25	20		
12/02/2018	26	20.26	20		
12/02/2018	27	20.27	20		
12/02/2018	28	20.28	20		
12/02/2018	29	20.29	20		
12/02/2018	30	20.30	20		
12/02/2018	31	20.31	20		
12/02/2018	32	20.32	20		
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12/02/2018	37	20.37	20		
12/02/2018	38	20.38	20		
12/02/2018	39	20.39	20		
12/02/2018	40	20.40	20		
12/02/2018	41	20.41	20		
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12/02/2018	50	20.50	20		
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12/02/2018	53	20.53	20		
12/02/2018	54	20.54	20		
12/02/2018	55	20.55	20		
12/02/2018	56	20.56	20		
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12/02/2018	58	20.58	20		
12/02/2018	59	20.59	20		
12/02/2018	60	20.60	20		
12/02/2018	61	20.61	20		
12/02/2018	62	20.62	20		
12/02/2018	63	20.63	20		
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12/02/2018	83	20.83	20		
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12/02/2018	85	20.85	20		
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12/02/2018	93	20.93	20		
12/02/2018	94	20.94	20		
12/02/2018	95	20.95	20		
12/02/2018	96	20.96	20		
12/02/2018	97	20.97	20		
12/02/2018	98	20.98	20		
12/02/2018	99	20.99	20		
12/02/2018	100	20.100	20		

## Conclusion

Equip a vehicle once for the test drive, measure it on the test track, and then verify it unchanged on the vehicle test bench!

## Additional information:

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Our customers from the fields of automotive engineering, mechanical engineering, railway, aerospace and energy use imc measurement devices, software solutions and test stands to validate prototypes, optimize products, monitor processes and gain insights from measurement data. As a solution

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