

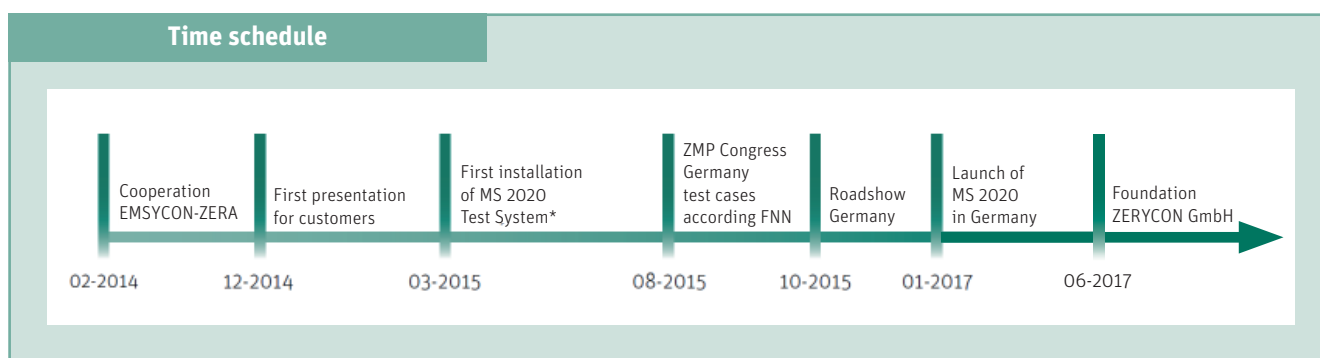
Info Paper

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MeasuringSystem 2020 (*Base Meter – Smart Meter Gateway*)

Metrology and Data Communication

ZERA and EMSYCON changed their long-standing cooperation to an independent company: ZERYCON GmbH. From now on metrology and data communication will be provided from one source. ZERYCON has created a sustainable test environment for intelligent measuring systems. This solution serves for the technical specifications of the FNN* project in any way. Hard- and software which are required for data communication are integrated into a metrological system. This allows metrological testing as well as guarantee of interoperability of MS2020 Base Meters.



Launch of MS 2020

After the pilot phase in the German market had been performed in 2014, the roll-out of MS 2020 Base Meters now started at the beginning of 2017.

Technical requirements for the most parts have already been in place. Because of the energy revolution and decentralized energy supply by renewable energies it is important to record more data than just the current energy consumption. Besides metrological testing also the interoperability has to be guaranteed in the future. Therefore MS 2020 Base Meters as well as interconnected Gateways are used for the intelligent measuring system. The interconnected Gateways serves for the required communication between meter and network operator.

Principle of Realisation

ZERA, experienced in producing meter test equipment, supplies all required components for metrological testing of MS2020 Base Meters. The test system consists of a source for generating the required test values, a test bench including all suspensions, contacting elements, error calculators etc. as well as control- and test software *WinSAM*. EMSYCON, specialist for data communication has developed as well the RS485 interface 1MBit (CR2020) as the software *KoaLa*.

The CR2020 is integrated into the existing ZERA Test System. The *KoaLa* test-case-driver is implemented into the *WinSAM*-surface for simulation of the test cases defined by FNN.

Designs

Generally there are two types of connecting designs:

1. Design for **3-point-technology**. This type of meter is connected with the test system via electrical interface RS485 (LMN IN/OUT).
2. Design for **plug-in-technology** (known as eHZ). This type of meter is connected with the test system via optical interface (LMN) via OKK adapter.

* FNN = Forum network technology / network operation

Get further information:



- Smart Meter
- MS 2020
- ZERYCON
- Data communication
- Editorials

IT knowledge and metrology becomes one

There is a tight cooperation between ZERA and EMSYCON for a few years now. Especially in the field of Smart Meter technology the progress in development and challenges is quite fast. ZERA and EMSYCON founded the company ZERYCON GmbH, in order to accomplish future demands and to set new standard on the market.

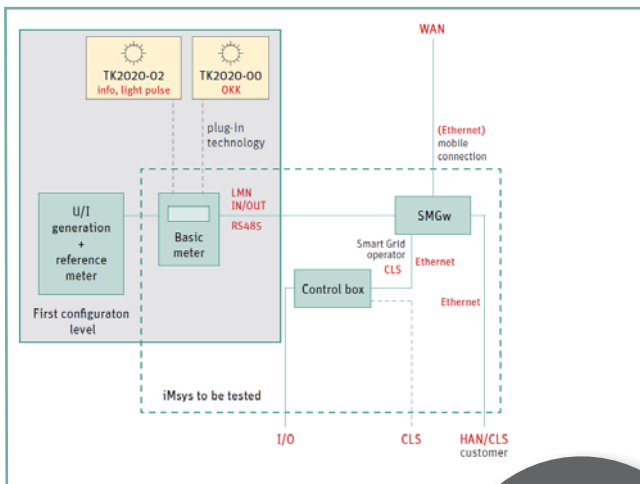
The company is located in Königswinter. The focus of ZERYCON will be on the integration and testing of the different measuring problems of test systems. Also the common knowledge will be documented and bundled up.

History

For realisations of interoperability EMSYCON provides the *KoaLa*-test-case-driver as well as the CR2020. The software provides execution of the test cases (acc. to FNN) within the *WinSAM* surface. The CR2020 is integrated into the ZERA test bench and provides the realisation of data communication (RS485, HDLC, TLS, SML, COSEM), all electrical connections, recording and logging of serial data stream, supply of LMN-members and burden measurement of LMN low voltage sources.

The classical line of Meter Test Systems - the MTS series - consists of a source system for generating the test values, a test bench including error calculators, control unit, isolated current transformers*, scanning heads, the corresponding connectors and a control PC with control and test software *WinSAM*.

* option



Data communication

MS2020 Base meter

MP2020 - interface between CR2020 and base meter

CR2020 - RS485 interface 1 MBit:

- Origin/sink for data telegram
- Recording for analysis of data streams
- Correct measurement of all sent/received bytes
- Time resolution per byte 1 µs
- Safe time base of measurements < 500 ns

KoaLa-test-case-driver:

- Free programmable test cases
- Using the open source language *Python*
- Test case configuration via free definable variables

Metrology

Power Source for generating the metrological test values (current and voltage) consisting of:

- Frequency generator
- Electronic Reference Meter
- Voltage amplifier
- Current amplifier

Test bench:

- E.g. equipped with 5 test positions
- Incl. error calculator, interfaces LMN (In/Out)
- Isolated current transformers ICT123
- Photoelectric scanning head TK325

