ZERA

INFO PAPER

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STM6000 series — Digital measuring system

Beyond our conventional products for metrological meter testing our new digital measuring system of the STM6000 series offer the combined testing of metrology and data communication. The modular architecture and design permit individual tailor-made solutions for modern meter testing. Performing automated test procedures for Smart Meter testing – despite the request of encrypted data handling – is the main goal of our new concept of our STM6000 series.

Metrology and data communication

Modular and individual

The modular design of the **S**tationary **T**est **M**odule STM6000 system offers a wide range of opportunities to connect the various types of devices under test. The system contains six slots which can be used for individual placement order of the interface plug-in modules. These modules are for example interfaces for RS232, RS485, M-Bus or the connecting board of the optical scanning head TK2020-02. The combination of the interface modules for each position is freely selectable, multiple allocation of the interface modules is also possible.

Communication test

Beyond the conventional metrological tests our digital measuring system allows communication tests of compliance with the specified communication requirements. Therefore, the communication protocols will be analysed in details. This will happen in every layer of the ISO-OSI model e.g. HDLC, TLS, DLMS/COSEM and checked down to byte level against the corresponding specification. In this way the detection of deviations inside the communication structure or syntax will be recognized. Moreover, specified requirements concerning the timing can be evaluated. This detailed analysis detects errors inside the communication and indicates them ***before*** the meter under test is used with the productive system.

Backend communication with the meter

Meter information

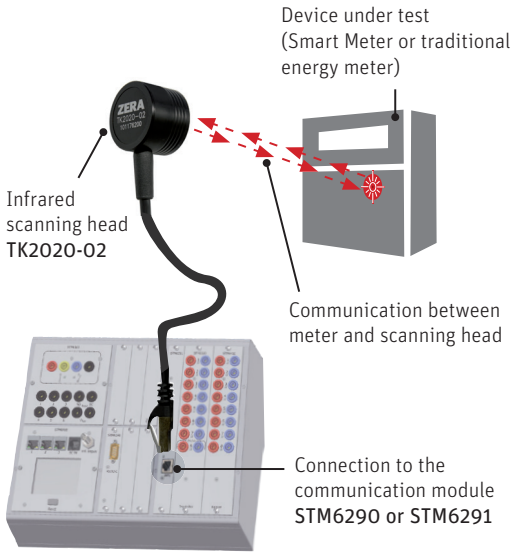
More and more the meaning of the need to import meter data during a test procedure will increase. The required data could be firmware version or pin code ***or*** cryptographic encoding information – as a need of the encoded communication with the meter under test. To avoid the manual input of these data, the STM6000 system establishes a connection to the backend system – the digital database where this information is managed. This is another important milestone in automation for performing automated test procedures.

Interaction with the backend

The STM6000 system cannot only ask the backend for information but also perform specified interactions. Possible actions are operating breaker/load switch or reading and writing of data records directly via the backend system. This feature will be tailor-made for every customer system.

Adjustable light intensity for communication

The scanning head TK2020-02 can adjust light intensity as well as light colour for the communication with the meter. Moreover, the light intensity of the meter is measurable and traceable.



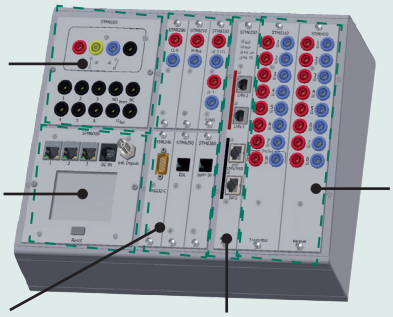
Example of use for one test position

Modular design of the hardware - individual configurations

Basic equipment

Display module plus
test voltage switch module

Full equipment



Summary of all **S**tationary **T**est **M**odules STM6xxx

	Product name	Type [1]	Max. number [2]	Description
Basic	STM6000	M D	1	Display, Ethernet 3x, scanning head input external 2x, scanning head input internal, pulse input BNC, button
Test voltage	STM6100	M	1	Voltage connection 4x, voltage switch-off, relay circuits R1-R6 and NO-NC, auxiliary voltage U_{AUX} 2x
	STM6110	M	1	Voltage connection 4x, voltage switch-off, relay circuits R1-R6 and NO-NC
	STM6120	M	1	Voltage connection 4x, voltage switch-off
	STM6130	M	1	Voltage connection 4x
	STM6140	M	1	Voltage connection 4x, relay circuits R1-R6 and NO-NC
Communication	STM6200	D	6	Communication via interface CL0 resp. 20 mA
	STM6210	D	6	Communication via interface M-Bus
	STM6220	D	6	Communication via infrared interface IR
	STM6230	D	6	Communication via interface RS485
	STM6240	D	6	Communication via interface RS232
	STM6250	D	6	Communication via interface EDL
	STM6260	D	6	Communication via interface Sym²
	STM6290	D	6	Module for Basiszähler (electrical energy meter) acc. to FNN: LMN wired 2x, LMN via IR/TK2020-00, INFO via IR/TK2020-02, 300 up to 921.600 Baud
	STM6291	D	6	Communication via IR interface TK2020-02
Trans-mitter	STM6300	M	1	Connection of the pulse output from the meter 12x
	STM6310	M	1	Connection of the pulse output from the meter 8x
	STM6320	M	1	Connection of the pulse output from the meter 4x
Receiver	STM6400	M	1	Connection of the pulse input from the meter 12x
	STM6410	M	1	Connection of the pulse input from the meter 8x
	STM6420	M	1	Connection of the pulse input from the meter 4x

1 M = metrological interface, D = data communication interface
2 Number of possible modules per test position

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