

Resistor measuring 0,01Ω...100,1MΩ

Accuracy 0,01%

Precision 0,005% (max.)

Independend

Dynamic 20/s

RAPID is a fully electronic, galvanically isolated, autonomous front-end measuring system for the serial production of resistors and resistor networks. It can measure resistors at high speed in the production line with high precision.

The results are provided via a galvanically isolated serial SPI interface at a rate of approximately 4Mbits/s.

Two V24 interfaces for system control via a console or the host computer are also available.

The system measures resistors in the range of 10Ω to 10MΩ with high precision (typical 0.01%).

The overall measurement range ranges from 0.01Ω to 100MΩ/5GΩ.

The measurement is performed as a 4-pin measurement, when the test needles are attached to the end contacts of the resistor (DUT).

A contact test is automatically performed before each measurement. Doing so makes sure that all four needles have low resistance electrical contacts.

For serial measurements in a production cycle, a measurement range is selected once only depending on the nominal value of the measurement object (device under test, DUT).

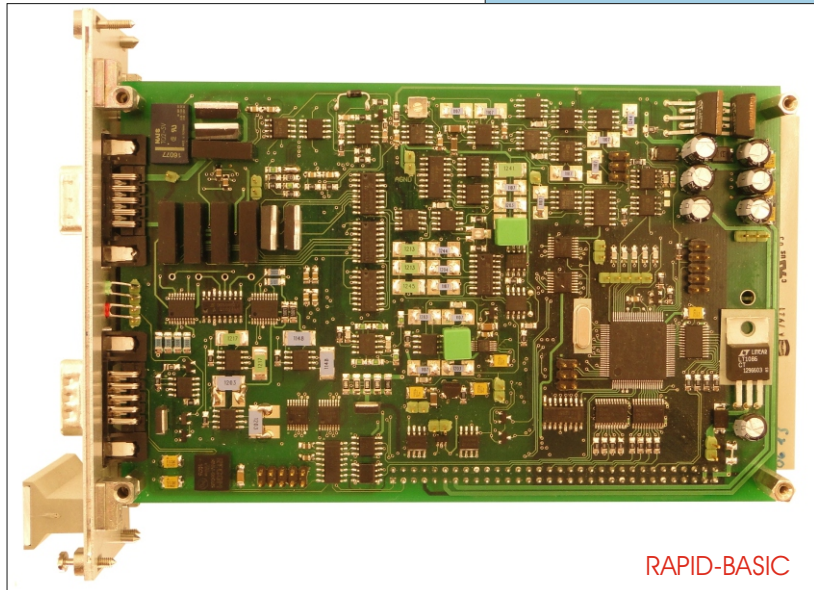
RAPID's high precision is achieved by assigning internal reference resistors of Tk 0.05 for all measurements.

The results of the internal calibration will be compared with the value of the reference resistors, which are stored in the Eprom of the system.

A possible deviation shall be taken into account as a corrective factor for the serial measurement.

Up to 8 resistance values from various measurement ranges can be configured, which can be switched for the measurement of resistor networks in time with production speed.

The factory calibration of the system reference a certified "Agilent 3458A" and certified reference resistors.



RAPID-BASIC

RAPID



DIE ENTWICKLER

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RAPID essentially encompasses two components:

1. RAPID-BASIC

Intelligent measurement system with precision current sources, reference resistors, processor, operating system and interfaces 3HE 10TE insert, Schroff system, with DIN 41612 C96 base headers as system interface, Sub D 25 pol./9pol. front plug as connection to "High Ohm Box" (HOB).

2. RAPID-HOB, High Ohm Box

Remote component isolated from measuring system.

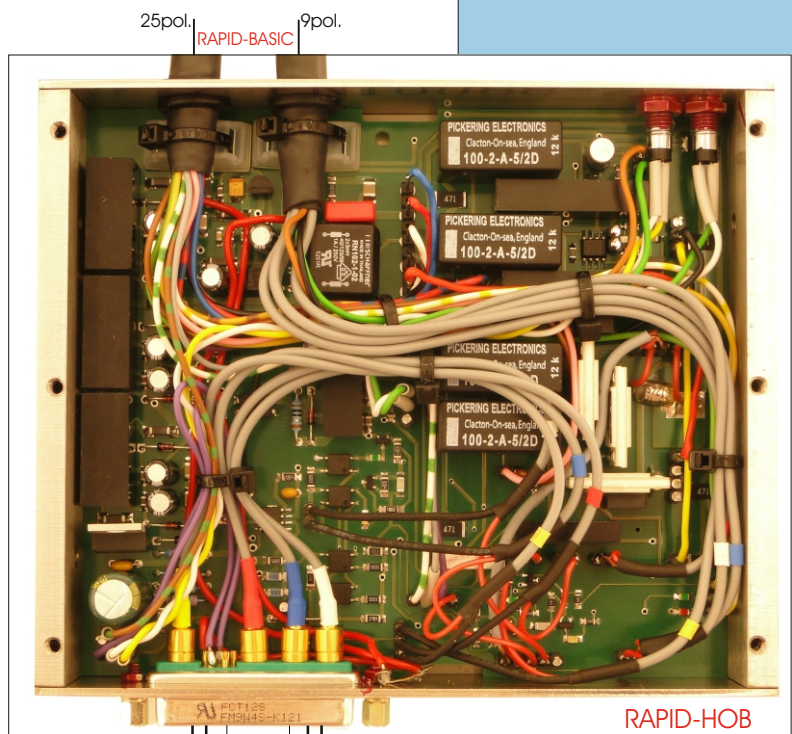
Functions: Signal conditioning / impedance conversion and measurement range extension for $R_x > 100.1 \text{ k}\Omega$

Measurement voltage generation 60 VDC for measuring the isolation resistance. e.g. in resistor networks.

Measuring range 11: $5 \text{ G}\Omega$; 1%

The High Ohm Box needs to be installed near the contact unit of R_x , to prevent parasitic influences on the double shielded measurement lines.

The HOB is kept at constant temperature of $+32^\circ\text{C}$ by an internal proportional heating.



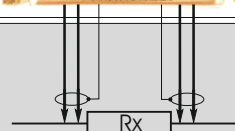
Technical data:

RAPID-BASIC

Size	: 19" 3HE insert, 10TE = 50mm
Measuring ranges	: MR1 0,0...0,08 Ω ; MR2 0,08...0,8 Ω ; MR3 0,8...9,7 Ω ; MR4 9,7...100 Ω ; MR5 100...900 Ω ; MR6 900 Ω ...9k Ω ; MR7 9k Ω ...100,1k Ω ; MR8 100,1k Ω ...1M Ω ; with HOB: MR9 1M Ω ...10M Ω ; MR10 10M Ω ...100,1M Ω
Accuracy	: MR1 1%; MR2 0,1%; MR3 0,05%; MR4 to MR9 0,01%; MR10 0,2%
Measuring rate	: 20R/s with averaging and power line suppression

RAPID-HOB

Size	: hermetically closed box, VA-steel, approx. 110x140x30mm
Interface	: 1,6m special shielded cable to Rapid basic (opt. longer cable) with Sub D4 connector, double shielded coax to R_x (~50cm)
Measuring range	: MR8 100,1k Ω ...1M Ω ; MR9 1M Ω ...10M Ω ; MR10 1M Ω ...100,1M Ω ; MR11 isolation 5G Ω
Accuracy	: MR8 0,01%; MR9 0,01%; MR10 0,2%; MR11 isolation 1%
Ambient temperature	: for specified accuracy $< 32^\circ\text{C}$
Power supply	: 12VDC $\pm 5\%$, max. 1A



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