

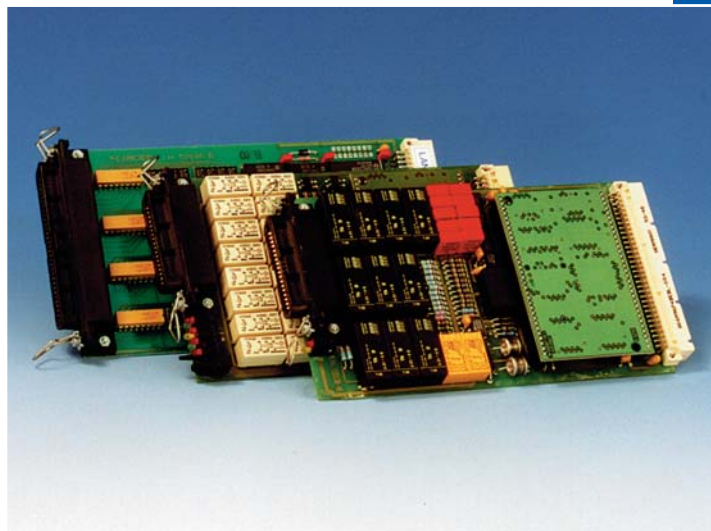
Product Information

Measuring Cards

for monitoring stations RTU and DW 1005E

Measuring cards are the links between the monitoring stations RTU respectively DW 1005E and the measuring points. There are specific measuring cards for several different measuring tasks.

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Common Technical Data

| | |
|-----------------------------|---|
| Operating temperature range | 0 .. +55 °C |
| Storing temperature range | -20 .. +60 °C |
| Admissible humidity | 0 .. 95 % rel. humidity, non condensing |
| Dimensions | approx. 100 x 160 mm, required space 1 slot |

See particular specifications of each measuring card on the following pages.

Ordering Data

| | |
|---|--|
| Measuring Card QE16 for addressable sensors (Tx-bus) Connection cable VK 16 , length 2 m | Order-no. 047996.000 Order-no. 029943.000 |
| Measuring Card R10 for insulation and loop resistance with cable and terminal strip | Order-no. 058493.001 |
| Measuring Card C32 for dry contacts Connection cable VK 32 , length 2 m | Order-no. 029920.000 Order-no. 029946.000 |
| Measuring Card Out12 for dry contact outputs with connection cable VK 12, length 2 m | Order-no. 058518.000 |
| Measuring Card SP4 for addressable Sparton and Microsol sensors (RTU only) | Order-no. 070882.000 |
| Measuring Card T36 for 20/40 step transducers for pressure and flow (RTU only) | Order-no. 069397.000 |

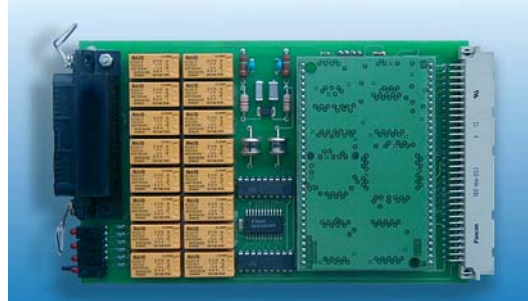
Product Information

Measuring Card QE16

for addressable sensors

The measuring card QE16 is used to connect addressable sensors to the monitoring stations RTU and DW 1005E. It provides 16 channels for the Tx-bus, a free pair which can be allocated with up to 127 addressable sensors.

The large variety of addressable sensors for different physical parameters offers a flexible and economic solution for the surveillance of remote measuring points.



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Technical Data

| | |
|--|---|
| No. of measuring channels | 16 |
| No. of sensors per measuring channel | max. 127 |
| Measuring range | 700 ... 2100 Hz |
| Input sensitivity | ≥35 dBm typ. (600 Ω) |
| Measuring voltage U_{ATX} | adjustable at the power supply of the RTU/DW 1005E 20 .. 120 V DC / current limitation at 27 mA channels not measured are short-cut |
| Protection integrated overload protection | electrically isolated, short-circuit proof inputs 180 V (conductor/conductor) / 90 V (conductor/ground) |
| Order-no. | 047996.000 |
| Connection cable VK 16 | |
| Length | 2 m |
| Order-no. | 029943.000 |

Function of the addressable sensors

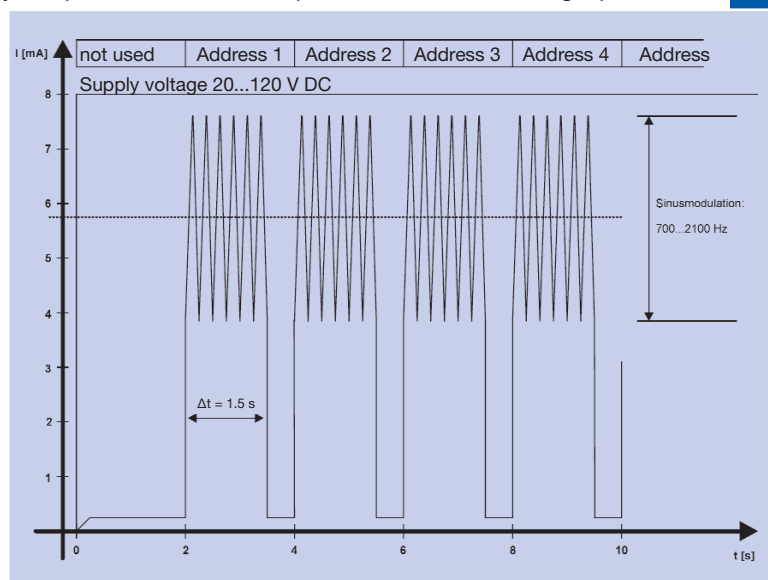
Addressable sensors convert the physical value to be monitored into a frequency. Depending on the assigned address (coding) the frequency is transmitted in one out of 127 available time slots. Each time slot has a length of two seconds.

During the transmission the sensor modulates the current at a frequency that corresponds to the measured value at 3.7 mA_{pp} (= 0 dBm/600 Ω) onto the DC supply current.

Therefore the used pair is power supply (direct current) and transmission media (alternate current) at the same time. With this technology it is possible to connect up to 127 sensors to a single pair (Tx-bus) and to transmit all values within a maximum of 256 seconds. An additional power supply of the sensors is not necessary.

The current and voltage on the Tx-bus are shown in the figure on the right.

The mounting of addressable sensors must be planned in regard to the allocation to the measuring pairs and the assignment of the time slots (addresses).



Product Information

Measuring Card R10

for Insulation and Loop Resistance Monitoring

The measuring card R10 is used to measure insulation and loop resistance of copper cables, district heating pipes with sensing wires and fiber optic cables with a copper pair.

The measurements are executed by the permanent scanning of the 10 measurement channels to detect penetration of moisture, squeezing or damage as well as theft.

Contactors combined with defined resistors allow for further application beyond simple cable network monitoring.



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Technical Data

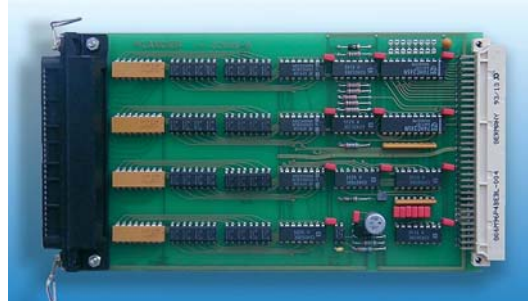
| | | |
|----------------------------|---|---|
| No. of measuring channels | 10 for insulation and loop resistance | |
| Measuring range | Insulation resistance 0.01 ... 500 M Ω | Loop resistance 50 ... 20,000 Ω |
| Resolution | 0.01 ... 9.99 M Ω = 0.01 M Ω 10 ... 99.9 M Ω = 0.10 M Ω 100 ... 500 M Ω = 1.00 M Ω | 50 ... 9,999 Ω = 1 Ω 10 ... 20 k Ω = 100 Ω |
| Max. measurement error | 10% of measured value \pm 50 k Ω | \pm 3% of measured value |
| Test voltage/ test current | 90 V DC / 100 μ A | |
| Protection | The measurement processes is insensible to noise voltage with frequencies $f \geq 16$ Hz. Overvoltage higher than 90 V (a, b to ground) is diverted in order to protect the measuring card. | |
| Order-no. | 058493.001 with cable and terminal strip | |

Product Information

Measuring Card C32

for the state-reading of dry contacts

The measuring card C32 is used to monitor up to 32 dry contacts.



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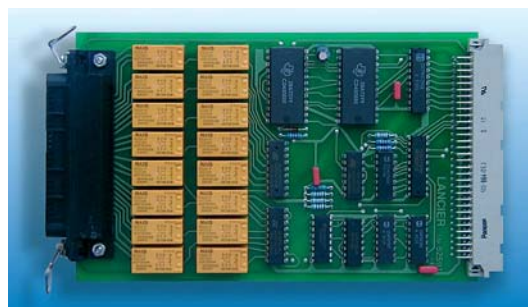
Technical Data

| | |
|-----------------------------------|-------------------|
| No. of monitored on-/off-contacts | 32 (floating) |
| Loop resistance per contact | 1 K Ω max. |
| Order-no. | 029920.000 |
| Connection cable VK 32 | |
| Length | 2 m |
| Order-no. | 029946.000 |

Measuring Card Out12

for floating contact output

The measuring card Out12 is needed for the floating contact output. Sensor or system alarms can be assigned to its relays.



Technical Data

| | |
|--------------------------------------|---|
| No. of contact outputs (change-over) | 12 |
| Maximum voltage | 100 V DC |
| Maximum current | 0.1 A DC |
| Order-no. | 058518.000 with connection cable VK 12, 2 m long |

Product Information

Measuring Card SP4 (for RTU only)

for addressable Sparton and Microsol sensors

The measuring card SP4 is used to connect addressable Sparton and Microsol sensors to an RTU monitoring station.



Technical Data

| | |
|--------------------------------------|---|
| No. of measuring channels | 4 |
| No. of sensors per measuring channel | 128 |
| Sensor's supply voltage | 20 ... 40 V DC |
| Measuring range | 20 ... 40 Hz |
| Tx | Data telegram by switching of supply voltage 3 Bit/s, Address = 8 Bit |
| Rx | Frequency measurement of modulated current 0.2 .. 2 mA (I _{ss}) |
| Order-no. | 070882.000 |

Measuring Card T36 (for RTU only)

for 20/40 step pressure and flow transducers

The measuring card T36 is used to monitor 20/40 step pressure and flow transducers.



Technical Data

| | |
|---------------------------|--|
| No. of measuring channels | 36 |
| Measuring range | 100 k Ω ... 3.82 M Ω is equivalent to 0 ... 655 hPa is equivalent to 0 ... 9.5 psi |
| Order-no. | 069397.000 |