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Instruction to Test Resistor USP <645>

A-85.134.010 Test Resistor Kit for AMI Rescon
and FAM Rescon

swan
Analytical Instruments

*SWAN ANALYTISCHE INSTRUMENTE AG, CH-8340 Hinwil
TEL. +41 44 943 63 00, FAX +41 44 943 63 01 e-mail swan@swan.ch*



Test Resistor for AMI and FAM Rescon

Introduction

Conductivity QC-Kit Test Plug (USP: United States Pharmacopeia)

The test plug consists of 2 high precision resistors for conductivity and temperature.

The plug has a resistor of

- 5'000 Ω (\pm 0.1%) for temperature
- 181'800 Ω (\pm 0.01%) for conductivity.

Note: *Keep test kit absolutely dry!*

Several variables enter into the calculation of specific conductivity. Values like the:

- cell constant
- temperature compensation algorithm
- cable-length
- temperature correction

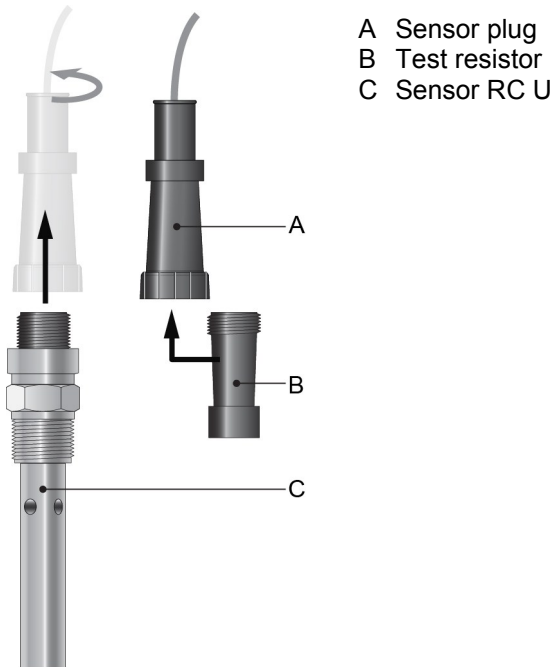
of the sensor are stored in the memory of the conductivity instrument.

Test Mode AMI Rescon

For a quick and easy test, the AMI Rescon transmitter has the test mode <Transmitter check> that enables testing without changing any of the above mentioned values. When leaving the test mode, all parameters will be set back to their original value.

Perform a Transmitter Check

Connect the Test Resistor



- 1 Unscrew and remove the sensor plug [A] from the sensor [C].
- 2 Screw the sensor plug onto the test resistor [B].

Start the Transmitter Check

Note: If Transmitter Check is switched on, the main menus <Operation> and <Installation> are not accessible.

- 1 Navigate to menu <Maintenance> <Transmitter check>.
- 2 Press [Enter], select <on> and confirm with [Enter].
- 3 The Transmitter check is now active.

The test mode sets the variables of the AMI Rescon to the following values:

- Cell constant $k = 0.01000 \text{ cm}^{-1}$
- Temperature compensation = 0 (no compensation)
- Length of sensor cable = 0 Meter
- Temperature correction of sensor = 0.00°C

- 4 Abandon the menu by pressing the [Exit] key twice.
- 5 Compare the displayed resistivity or conductivity value and the temperature value with the value printed on the test resistor.

After connection of the test resistor, the instrument will display the following values:

- Conductivity / Resistivity
0.055 $\mu\text{S}/\text{cm}$ or 18.18 $\text{M}\Omega/\text{cm}$
- Temperature
25 $^{\circ}\text{C}$

Max. allowed deviation:

Conductivity:

The USP 645 allows a deviation of $\pm 0.1 \mu\text{S}/\text{cm}$.

Temperature:

Limits: 24.8 $^{\circ}\text{C}$ to 25.2 $^{\circ}\text{C}$

If the limits are out of range check the test setup and the sensor cable. If no fault can be found send the instrument and the test set back to the manufacturer.

Return to normal operation

- 1 Navigate to menu <Maintenance> <Transmitter check>.
- 2 Press [Enter], select <off> and confirm with [Enter].
- 3 The Transmitter check is now inactive.
- 4 Unscrew and remove the sensor plug from the test resistor.
- 5 Screw the sensor plug onto the sensor.
- 6 Install the Sensor into the flow cell.

Test mode FAM Rescon

For a quick and easy test, SWAN instruments have a test mode (P0.9) that enables testing without changing any of these values. When leaving the test mode, all parameters will be set back to their original value.

During test mode the signal outputs are not frozen. They track the measuring value.

The test mode sets the variable to the following values:

For FAM Rescon UP (sensor with cell constant 0.04 cm⁻¹):

- Cell-constant k = 0.04150 cm⁻¹
- Temperature compensation = 0 (no compensation)
- Length of sensor cable = 0 Meter
- Temperature correction of sensor = 0.00°C

For FAM Rescon U (sensor with cell constant 0.01 cm⁻¹):

- Cell-constant k = 0.01000 cm⁻¹
- Temperature compensation = 0 (no compensation)
- Length of sensor cable = 0 Meter
- Temperature correction of sensor = 0.00°C

After connection of the test kit, the instrument will display a value:

- **FAM Rescon UP:** **0.2283 μS/cm** or **4.381 MΩ-cm**
- **FAM Rescon U:** **0.055 μS/cm** or **18.18 MΩ-cm**

According to USP 645: If the deviation of the displayed value is greater than ± 0.1 μS, please correct the value in:

- FAM Rescon UP: P3.8 respectively P4.8
- FAM Rescon U: P8.8

Mounting of the test kit

The instrument must have been on-line for at least 30 minutes before performing the test.

Disconnect the cable from the sensor.

Connect the test kit to the cable.

Performing the test

Go into test mode (set parameter P0.9 to 1). Confirm.
The displayed value at the left bottom is blinking.
Wait 3 minutes and read the test result.

Conductivity:

The USP 645 allows a deviation of $\pm 0.1 \mu\text{S}/\text{cm}$.

We recommend to correct the value, if the deviation is bigger than $\pm 2\%$ (of defined value).

Temperature:

Limits: 24.8°C to 25.2°C .

FAM Rescon UP:

To check the temperature switch the main display to $^\circ\text{C}$ with the arrow key.

The second channel can be tested by mounting the test kit on the second sensor cable.

Return to normal operation

Return to normal operation: Set parameter P0.9 to 0. Confirm.

In the absence of any manipulation, the instrument will automatically return to normal operation after 15 minutes.

Disconnect the test kit again

Connect the sensor again.

