

Electrode Quality Certificate

Electrode:
HI7698194-1

Parameter:
pH/ORP

SN:
K75470

Recommended for:
HI98194

Description: pH/ORP sensor with screw type connector

Hanna Instruments certifies that this electrode has been produced, calibrated and tested to meet all applicable Hanna Instruments Procedures, using standards and reference instruments, the accuracy of which is traceable to the National Institute of Standards (NIST) in the USA or to internationally acceptable national physical standards. The standards and reference instruments used in calibration and testing are supported by a calibration system which meets requirements of ISO 9001.

| | | |
|---------------------------------------|--------|---------------------------------|
| Standard Reference Materials: | pH: | 185i, 186g, 191d [NIST] |
| | ORP: | Certified ORP Standard Solution |
| External/Internal Reference Devices*: | KΩ/MΩ: | SN#148047ADH [Megohmmeter] |

Tests performed using reference devices:

| | | | |
|--------------------------------|-------------------------|---------------|--------|
| mV pH (@ 25 °C): | Offset (7.01 pH) [mV]: | 0.0 | |
| | Tolerance [mV]: | ±10 | |
| | Reading [mV]: | 2.7 | Passed |
| | Slope (4.01 pH) [mV]: | 177.5 | |
| | Tolerance [mV]: | 170.4 - 177.5 | |
| | Reading [mV]**: | 172.8 | Passed |
| ORP (@ 25 °C): | Standard value [mV]***: | 234 | |
| | Tolerance [mV]: | ±10 | |
| | Reading [mV]: | 237 | Passed |
| mV pH response time | Standard time [s]: | <1 | Passed |
| (4.01 pH → 7.01 pH)****: | Tolerance [s]: | 1 | |
| Glass impedance (@ 25 °C): | Tolerance [MΩ]: | 50 - 150 | Passed |
| Reference impedance (@ 25 °C): | Maximum value [KΩ]: | 10 | Passed |

*) All references are periodically checked and are used only if are inside certification interval; NP = not performed.

**) Offset compensated.

***) Value taken from certificate.

****) Evaluated for 90 % of step.

Quality control and testing criteria have been met.

Date: 2022.06.20

QC Inspector: Coman Andrei/Engineer

[Name / Title of Signatory]

Signature:

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Electrode Quality Certificate

Electrode:
HI7698194-2

Parameter:
DO

SN:
K76168

Recommended for:
HI98194

Description: DO sensor with screw type connector

Hanna Instruments certifies that this electrode has been produced, calibrated and tested to meet all applicable Hanna Instruments Procedures, using standards and reference instruments, the accuracy of which is traceable to the National Institute of Standards (NIST) in the USA or to internationally acceptable national physical standards. The standards and reference instruments used in calibration and testing are supported by a calibration system which meets requirements of ISO 9001.

Standard Reference Materials: DO: Certified Zero Oxygen Solution

Tests results listed below:

| | | | |
|---------------|--|--------------|--------|
| DO (@ 25 °C): | 100% saturation (air) [%]: | 100.0 | |
| | Tolerance [%]: | 90.0 - 120.0 | |
| | Reading [%]: | 103.0 | Passed |
| | 0% saturation (Zero oxygen solution)[%]: | 0.0 | |
| | Tolerance [%]: | ≤ 10.0 | |
| | Reading (after 1 minute) [%]: | 2.0 | Passed |
| | Slope tolerance [%]: | 85.0 - 120.0 | |
| | Slope calculated [%]: | 101.0 | Passed |

NP = not performed

Quality control and testing criteria have been met.

Date: 2022.06.16

QC Inspector: Sziqyarto N./ Engineer

[Name / Title of Signatory]

Signature:

EOC HI7698194-2 rev.0.1 December 2018