

## Electrode Quality Certificate

Electrode: HI7698194-3      Parameter: EC      SN: K81.139      Recommended for: HI98194

Description: EC 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:      EC:      SRM 999 [NIST]

Tests performed using reference devices:

EC (@ 25 °C):	Offset (air) [ $\mu\text{S}/\text{cm}$ ]:	0	
	Tolerance [ $\mu\text{S}/\text{cm}$ ]:	+1	
	Reading [ $\mu\text{S}/\text{cm}$ ]:	0	Passed
	EC (standard) [mS/cm]:	12.88	
	Tolerance [mS/cm]:	10.30 - 15.46	
EC response time (12.88 mS/cm - 5.00 mS/cm)*:	Reading [mS/cm]:	13.95	Passed
	Standard time [s]:	<5	Passed
	Tolerance [s]:	+1	

\*) Evaluated for 90 % of step. NP = not performed.

Quality control and testing criteria have been met.

Date: 2022.06.21      QC Inspector: Szigyarto N. / Engineer

(Name / Title of Signatory)

Signature: 

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## Probe Quality Certificate

Probe: HI7698194      SN: K3594590      Software version: 1.01

Description: Digital probe with three connections for pH (ORP), EC and DO sensors and integral temperature sensor

Hanna Instruments certifies that this instrument 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. The following tests have been performed according to the test instruction WP7698194, Rev. 0.6.

The results are listed below:

External references devices\*: mV: SN US36095802 [HP, 34401A]  
Q: SN 06111204 [resistors box, IET]

Factory calibration: mV (pH): 2022.06.06      mV (ORP): 2022.06.06  
EC: 2022.06.06      DO: 2022.06.06  
°C: 2022.06.07

Tests performed using reference devices:

Temperature:	RES [Ω, 0.1%]:	32650	10000	3603	
	Tolerance [°C]:	0.00 ± 0.10	25.00 ± 0.10	50.00 ± 0.10	
	Reading [°C]:	0.00	25.00	50.00	Passed
mV [pH input]:	Ref. mV*:	-500.0	-177.5	0.0	177.5      500.0
	Tolerance [mV]:	± 0.2	± 0.1	± 0.1	± 0.1      ± 0.2
	Reading [mV]:	-500.0	-177.5	-0.0	177.5      500.0
mV [ORP input]:	Ref. mV*:	-1900.0	1900.0		
	Tolerance [mV]:	± 1.0	± 1.0		
	Reading [mV]:	-1900.2	1900.0		Passed
EC [with simulator]:	EC [ $\mu\text{S}/\text{cm}$ ]:	1403	2000	x	
	EC [mS/cm]:	x	x	12.80	
	Tolerance [ $\mu\text{S}/\text{cm}$ ]:	± 4	± 4	x	
	Tolerance [mS/cm]:	x	x	± 0.04	
	Reading [ $\mu\text{S}/\text{cm}$ ]:	1405	2000	x	Passed
	Reading [mS/cm]:	x	x	12.81	Passed
DO (@ 20 °C) [with simulator]:	DO [mV]:	0	45		
	Tolerance [%]:	0.0	100.0 ± 1.0		
	Reading [%]:	0.0	100.0		Passed

\*) All external references are periodically checked and are used only if are inside certification interval; NP = not performed; RES = Resistance value

Calibration and testing criteria have been met.

Date: 2022.06.07      QC Inspector: Coman Andrei / Engineer

(Name / Title of Signatory)

Signature: 

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