Subject: [Foreign Sender] 答复: Re: pH calibration parameters?
Date: Wednesday, September 9, 2020 at 8:53:11 PM Central Daylight Time
From: zoe gao
To: mike@yosemitech.com, Anthony Aufdenkampe
CC: '孙贤'
Attachments: image003.jpg, ph Nernst equation.xlsx

Hi Anthony:
Our pH calculation uses Nernst equation :E=E0+S*(7-pH),where S = 54.2+0.1984*t(℃) +S0. E0 = 0 ,S0 = 0 by default.
For example: a sensor reading of 120 mV at 18° C. then pH =7- E/S = 7-120/57.7712 = 4.9 by default。
But in reality ,E0 and S0 are not zero. Our calibrate procedure is to calculate the actual E0 and S0 .
See attachment in detail,
I hope it will help you.

Best Regards,
Zoe

From: Anthony Aufdenkampe
Date: 2020-09-09 04:32
To: mike@yosemitech.com
Subject: Re: pH calibration parameters?
Hi Mike,

I'm resuming my interest in understanding your pH calibration parameters.
My clients at Clean Water Services have had some challenges with calibrating their Y532 pH sensors. They are very interested in figuring out how to independently calibrate the pH sensors in Excel.

I have studied the spreadsheet that your engineers prepared for me last summer (attached), but I still have questions.

What is the equation for using the six parameter to predict pH?
As an example, could your engineers create an equation to calculate the pH for a sensor reading of 120 mV at 18°C?

Cell A4 your spreadsheet has a corrupted reference. Perhaps this cell was used for such an equation.

Thank you!
Anthony

Anthony K. Aufdenkampe, Ph.D.
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From: Mike Tung <mike@yosemitech.com>
Date: Saturday, June 1, 2019 at 2:13 AM
To: Anthony Aufdenkampe <aaufdenkampe@limno.com>
Subject: Re: Re: pH calibration parameters?

Hi Anthony:

Sorry for for my late replay, here is an simply excell sheet which has some formula for the calculation of k1-k6.
Please note that, A6-A8, these three points are factory calibration points at pH 4, 6.86, and 9.18, and its related measured mV from electrode is recorded on B6-B8, for example, 240, 70, and -60 marked in yellow. There are some embeded formula at B10-B15 for k1-k6. The rest are some constants.

Hope that is helpful. If you have further questions, please do not hesitate to constct me.

Thanks,

Mike

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From: Anthony Aufdenkampe
Date: 2019-05-24 20:48
To: mike@yosemitech.com
Subject: Re: Re: pH calibration parameters?

Thanks! I really appreciate it.

Anthony K. Aufdenkampe, Ph.D.
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From: mike@yosemitech.com <mike@yosemitech.com>
Sent: Thursday, May 23, 2019 11:08 PM
To: Anthony Aufdenkampe
Subject: Re: Re: pH calibration parameters?

Hi Anthony:

I will get back with you Monday. Our support engineers are out of office for field support.

Regards,

Mike

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From: Anthony Aufdenkampe
Date: 2019-05-23 03:23
To: Mike Tung
CC: 李文
Subject: Re: pH calibration parameters?

Hi Mike,

Would you or your staff be able to help me better understand your pH calibration coefficients, and the underlying calibration equation?

See my email below for my detailed questions.

The Winona State University team is having issues with a few pH sensors not holding their calibrations, and I would like a quick way to confirm that the calibration coefficients are reasonable by calculating them independently in Excel.

I would very much appreciate any help or documentation that you might be able to provide.

Thanks,
Anthony

From: Anthony Aufdenkampe
Sent: Wednesday, April 10, 2019 10:33 AM
To: Mike Tung
Cc: 李文
Subject: pH calibration parameters?

Hi Mike,

I'm having challenging figuring out how to calibrate the pH sensor using ModbusRunner software.

My first request is whether you could send to me the equation for the pH calibration coefficients, which are given in the Modbus Manual as K1=6.86, K2=-6.72, K3=0.04, K4=6.86, K5=-6.56, K6=-1.04 by default. I would like to understand how these coefficients are related to calculated pH as a function of measured mV and temperature.

Second, when I GET the pH calibration coefficients using ModbusRunner, I get numbers that are very different from the stated factory defaults listed in the manual. See the following:

60.60979 52.39543 -0.48604
60.60979 52.52147 -1.38632

Are these parameters normal?

Can you explain the procedure for calculating the six pH calibration parameters from direct measurements of mV and temperature on pH calibration buffers?

Thank you,
Anthony

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