



Series 9 OPC UA Server

Supplement

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Issue B

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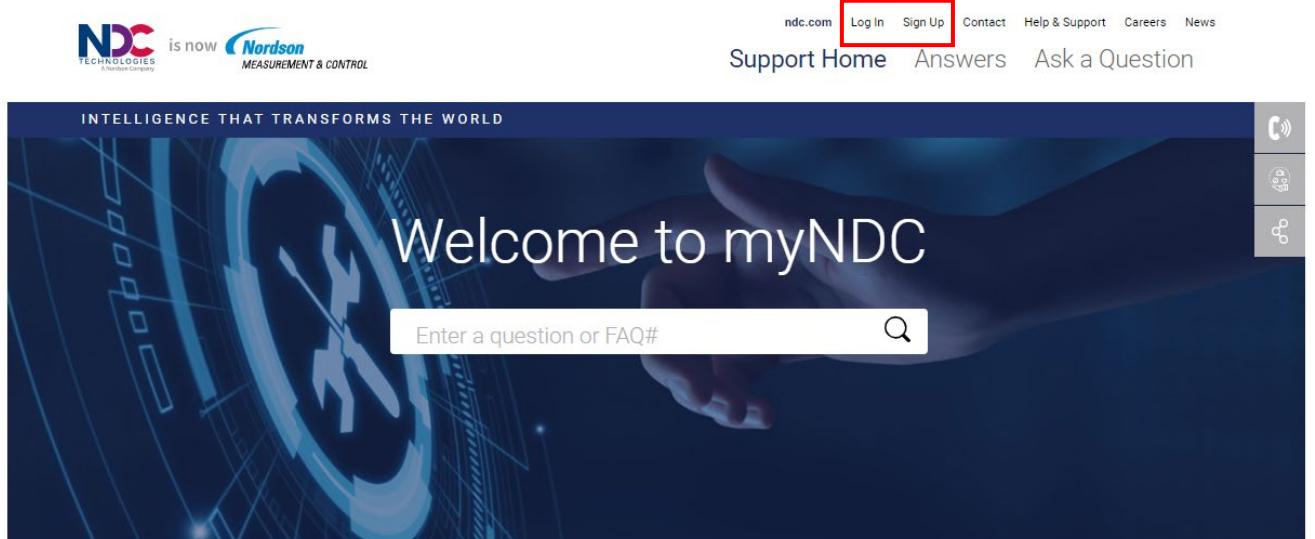
Contact NDC

Online Support

You can access the NDC Customer Support portal, myNDC at <https://ndc.custhelp.com>.

myNDC is a cloud-based portal that allows you to get product support by phone, ask a question, provide feedback, submit an RMA request or access information in our on-line knowledge database. You can browse the myNDC site or create a myNDC account.

- To create a myNDC account, click **Log In** or **Sign Up**. After creating the account, you will be immediately logged in. To log in on subsequent visits to myNDC, click **Log In**, enter your user name and password, and then click **LOG IN**.
- To submit an RMA, click on **RMA Request** and follow the on-screen instructions.



The screenshot shows the homepage of the myNDC portal. At the top, there is a navigation bar with links for 'ndc.com', 'Log In' (which is highlighted with a red box), 'Sign Up', 'Contact', 'Help & Support', 'Careers', and 'News'. Below the navigation bar are links for 'Support Home', 'Answers', and 'Ask a Question'. The main banner features the text 'INTELLIGENCE THAT TRANSFORMS THE WORLD' and 'Welcome to myNDC'. A search bar contains the placeholder 'Enter a question or FAQ#'. To the right of the search bar are three small icons: a magnifying glass, a gear, and a person. Below the banner, the text 'We're here to help' is displayed. A welcome message encourages users to use the search box, options above to access answers, or contact us. At the bottom, there is a row of ten service icons with labels: 'Manuals and Guides' (question mark in a speech bubble), 'Radioactive Materials' (radioactive symbol), 'Support Agreements & Training' (person with a document), 'Technical Support' (person with a computer), 'Preventative Maintenance' (wrench and spanner), 'On-site Support & Spare Parts' (truck), 'Calibration Services' (gear), 'Remote Support' (speaker with signal), 'Search Knowledge Base' (person with a question mark), and 'RMA Request' (document with arrows). The 'RMA Request' icon is also highlighted with a red box.

NDC Contact Numbers

Please have your sales order number at hand before contacting NDC.

Americas	+1 626 939 3855
Asia Pacific	<p>NDC Asia Pacific Customer Service Toll-free contact numbers:</p> <ul style="list-style-type: none">• Thailand: 1800 012 048• Indonesia: 00 1803 016 4969• Korea: 00 7981 420 30749• Malaysia: 1800 81 9290• Taiwan: 00 801 128 027• India: 000 800 0402 514 <p>Singapore non toll-free number: +65 6579 2411</p> <p>Email ID: osc-apac@ndc.com</p>
Japan	+81 (0)3 3255 8157
China	+86 21 61133609
EMEA (Europe, Middle East, Africa)	<p>Germany: 0800 1123194</p> <p>Italy: +39 0331 454 207</p> <p>All other countries (English speaking): +44 1621 852244</p> <p>Please select option 2 to be connected to the service team</p>

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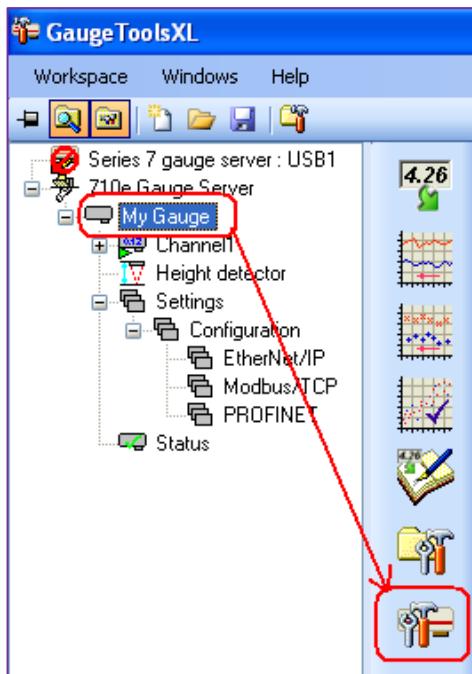
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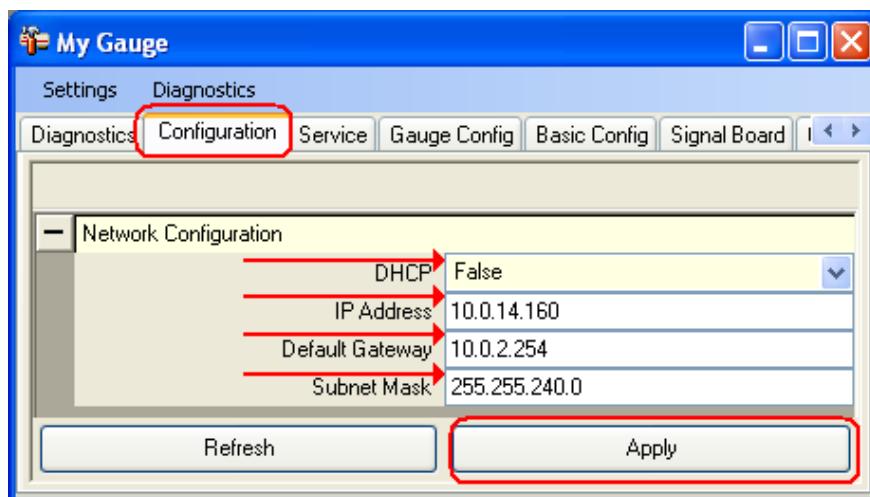
Setting the IP Address on the Series 9

The Series 9 IP address can be confirmed or changed through **GaugeToolsXL** as follows:

1. Start **GaugeToolsXL** and drag the Gauge node to the “Gauge Utility” icon.



2. Select the **Configuration** tab and enter the required values.



3. Click **Apply** to use the new settings.

Overview

The OPC UA communications functionality is a built-in service of the Series 9 gauge.

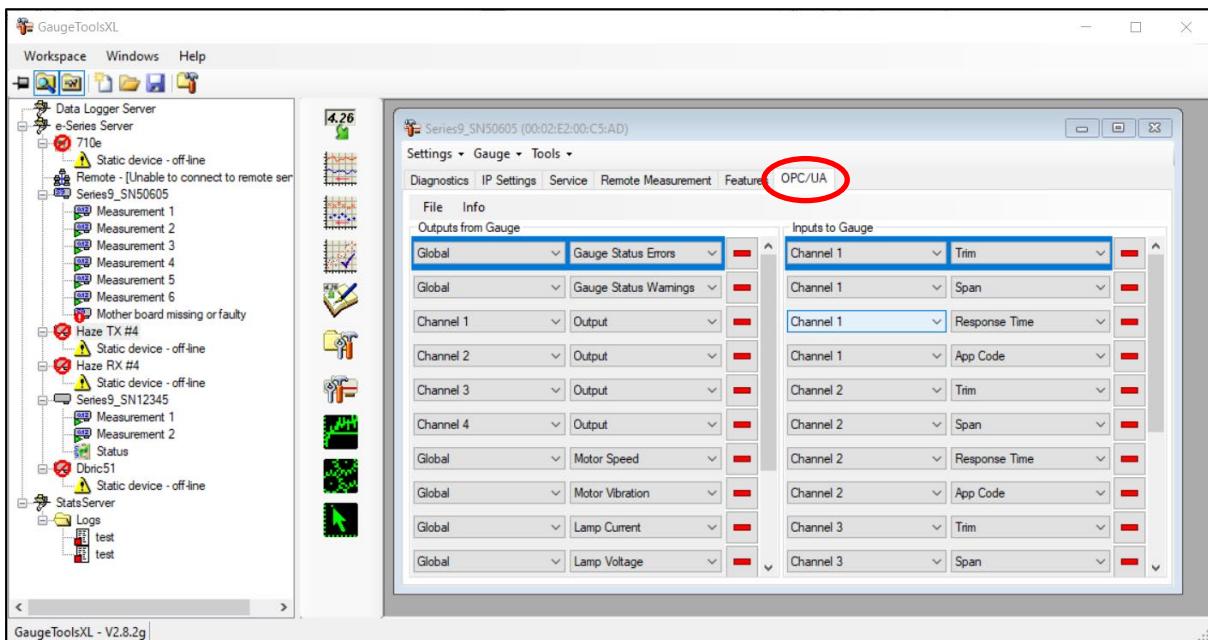
OPC UA utilizes the regular Ethernet network. The OPC UA service is started automatically by a system script.

The Series 9 OPC UA has the following properties:

- Uses the server/client role, and does not implement security
- Nano Embedded Device Server Profile

Configuration in GaugeToolsXL

OPC UA is configurable in GaugeToolsXL via the **OPC/UA** tab of the Utility tool.

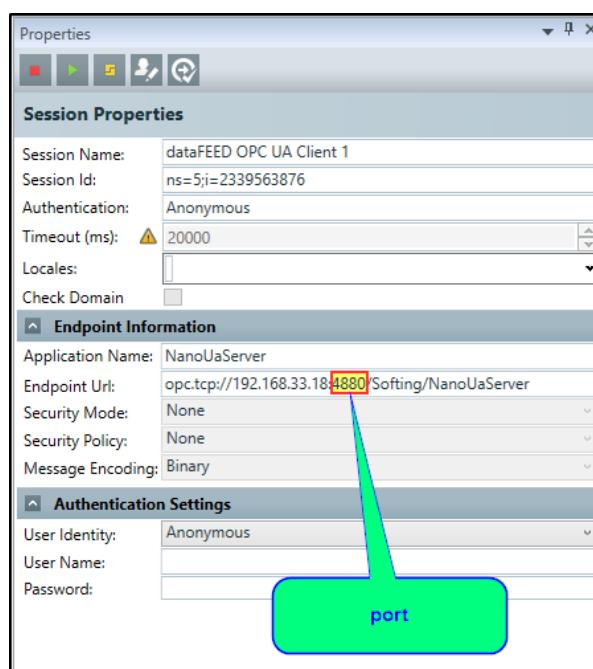
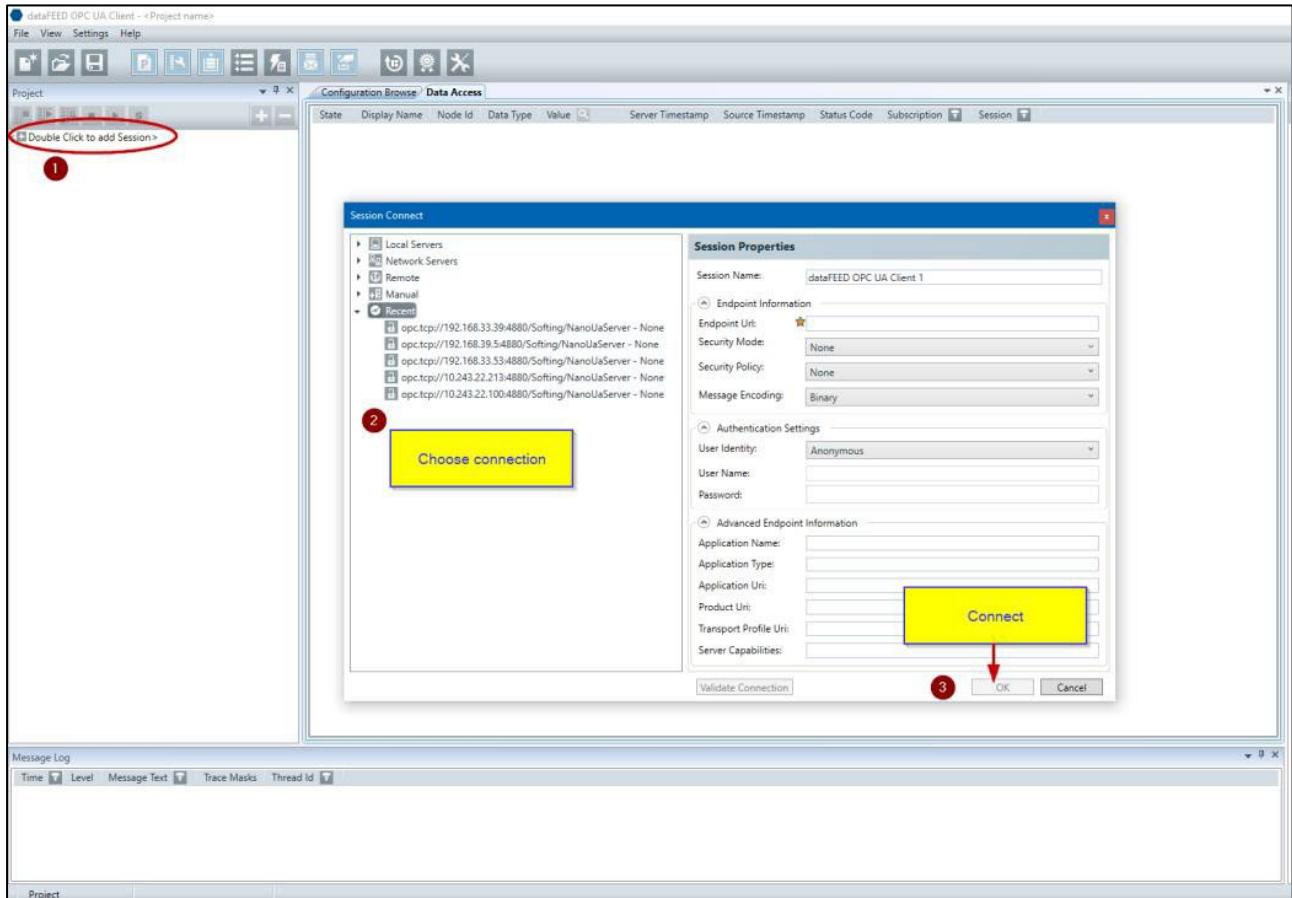


Note: This configuration does not affect the fixed set of parameters exposed by the server (listed in the [OPC UA Parameters](#) section). It only determines which OPC UA Server variables will provide live data.

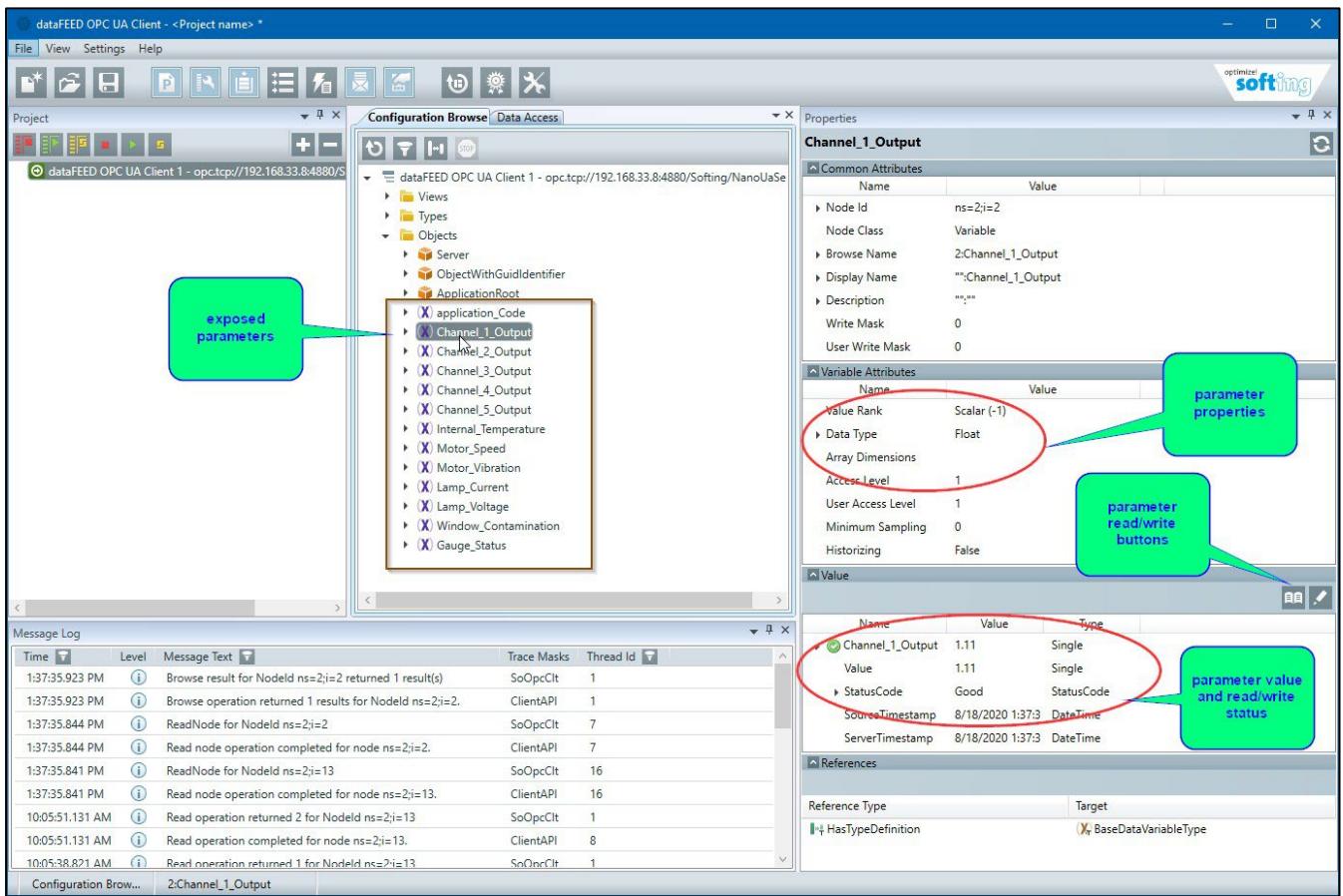
For example, if the Motor Speed parameter is not configured in GaugeToolsXL, then an OPC UA client only receives 0 for the fixed Motor Speed variable.

Connecting Via Softing OPC UA Client

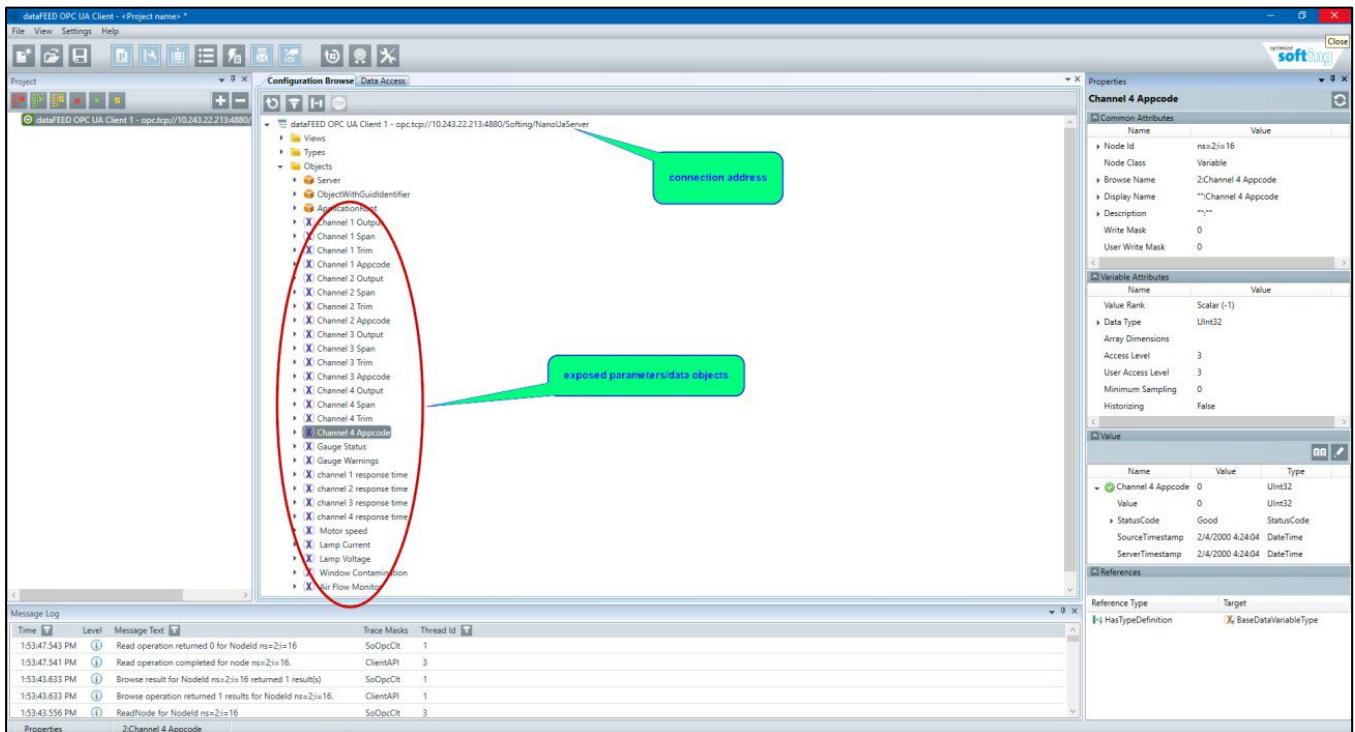
The Series 9 OPC UA Server was tested using Softing's dataFEED OPC UA client
<https://industrial.softing.com/products/opc-ua-and-opc-classic-sdks/opc-ua-demo-client.html>



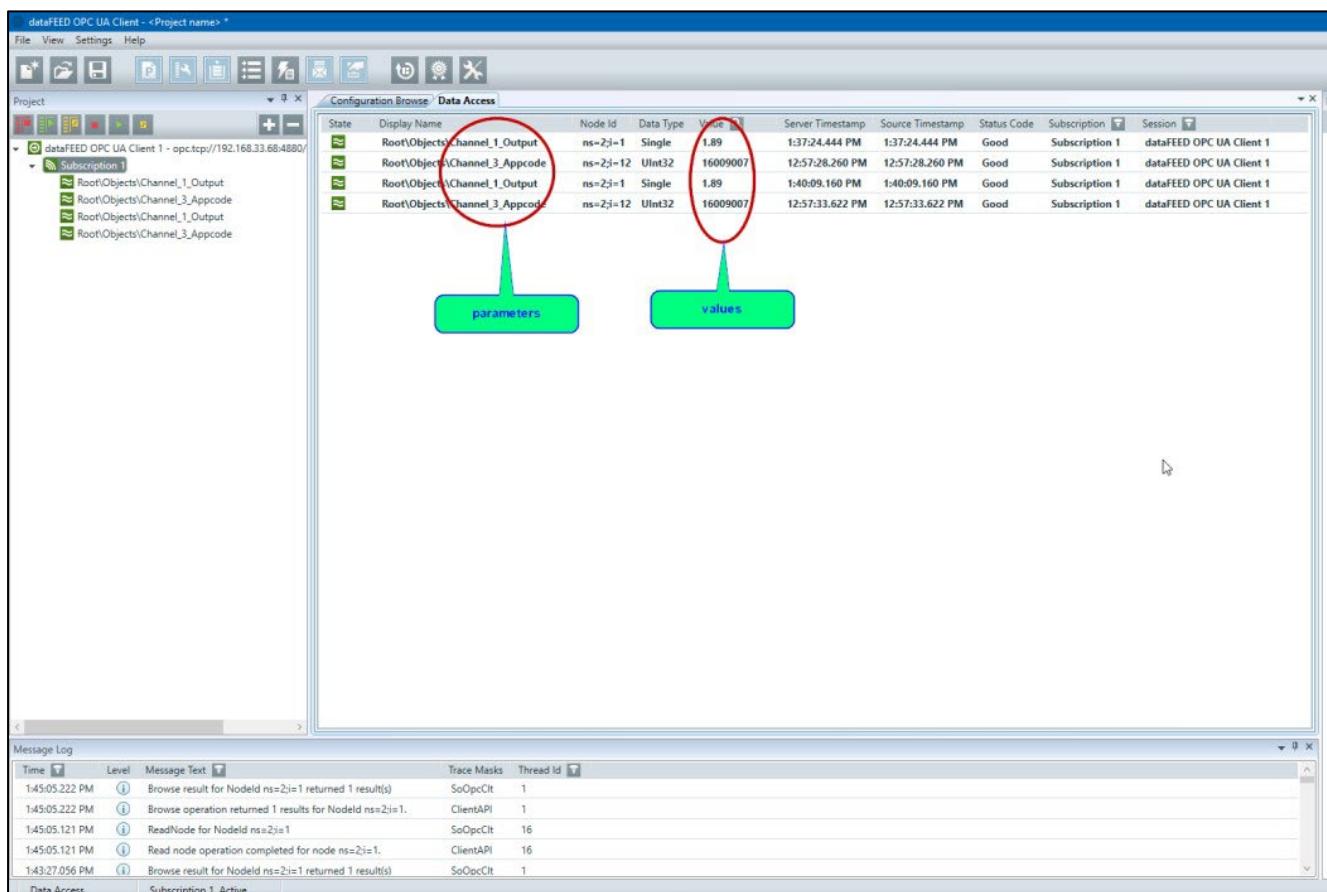
Below is a screenshot of a sample session.



Below is a screenshot of the parameters that are exposed via the OPC UA connection.



Below is a screenshot of another sample session.



OPC UA Parameters

The following is a description of parameters that are exposed by the OPC UA Server.

❖ **Output** (read only)

Measurement value of the specified channel.

The Units of the measured value depend on the target material and the application (e.g. moisture [%]).

❖ **Span**

Multiplier factor for the output: **Output = (Span * X) + Trim**

(where **X** is the raw measurement value).

This parameter is available for all measurements, including temperature.

❖ **Trim**

Offset for the output: **Output = (Span * X) + Trim**

(where **X** is the raw measurement value).

This parameter is available for all measurements, including temperature.

❖ **Application Code**

This 32-bit integer code is used to select the appropriate algorithm in the gauge for the intended measurement – consult NDC for list of codes that can be used with the specific gauge.

Note: An application code of zero will disable the channel measurements.

❖ **Response Time**

Output smoothing using an exponential factor [0...3600].

❖ **Lamp Current [A]** (read only)

Current through the lamp.

❖ **Lamp Voltage [V]** (read only)

Voltage across the lamp.

❖ **Motor Speed [rpm]** (read only)

The current speed of the Filter Wheel (motor) in the gauge.

❖ **Motor vibration** (read only)

Vibration near the Filter Wheel (motor) in raw units.

❖ **Window Contamination** (read only)

The Window Contamination level as seen by the user.

(A clean window will be close to zero and a dirty window > 0.5.)

❖ **Air flow monitor** (if option fitted)

The air flow to the Air Purge Window in Liters per minute.

❖ **Internal Temperature [degC]** (read only)

The internal temperature of the gauge.

❖ **Gauge Status¹** (read only)

Bit encoded 32-bit word of status condition. See bit definitions below.

❖ **Gauge Warnings²** (read only)

Bit encoded 32-bit word of warning condition. See bit definitions below.

¹**Note: Status Output** is a bit-encoded word

Bit 0: STATUS_BIT_MOTOR: Fault with main filter wheel motor

Bit 1: STATUS_BIT_LAMP: Lamp error

Bit 2: STATUS_BIT_SIGNAL_LOW: Light signals received by gauge are too low to make a good reading

Bit 3: STATUS_BIT_SIGNAL_HIGH: Light signals received by gauge are too high to make a good reading

Bit 4: STATUS_BIT_WINDOW: Window is contaminated, error threshold of 1.0 reached

Bit 5: STATUS_BIT_TEMPERATURE: The internal temperature of the gauge has exceeded the error level. Can also be triggered for a low temperature error (i.e. gauge is too cold to operate correctly)

Bit 6: STATUS_BIT_INTERNALREF: The internal reference system has failed

Bit 7: STATUS_BIT_VOLTAGE: A bad voltage has been detected on one of the PCBs

Bit 8: STATUS_BIT_SLAVEHEAD: Unable to access slave head (only applies to double headed gauges like the Haze gauge)

Bit 9: STATUS_BIT_AIRFLOW: The air pressure is out of range, suggesting air flow to the air purge is incorrect

Bit 10: STATUS_BIT_SYNC PULSE: Unable to detect the synchronisation pulse (only applies to double headed gauges like the Haze gauge)

Bit 11: STATUS_BIT_AUTOSAMPLER: Auto sampler system has failed (only applies to gauges with PowderVision sampling enabled)

Bit 16: STATUS_BIT_SELF_TEST: General hardware error detected at start up

²**Note:** Status Warnings is a bit-encoded word

Bit 4: STATUS_BIT_WINDOW: Window is contaminated, warning threshold of 0.60 reached

Bit 5: STATUS_BIT_TEMPERATURE: The internal temperature of the gauge has exceeded the warning level. Can also be triggered for a low temperature warning (i.e. gauge is too cold to operate correctly)