

210 Brunswick
Pointe-Claire (Quebec)
Canada H9R 1A6

Web: www.visionxinc.com
Email: info@visionxinc.com
Tel: (514) 694-9290
Fax: (514) 694-9488

VISION_x INC.

Installation and Setup of ProLink's QC-CALC software for VisionGauge® OnLine data collection

April 23, 2019

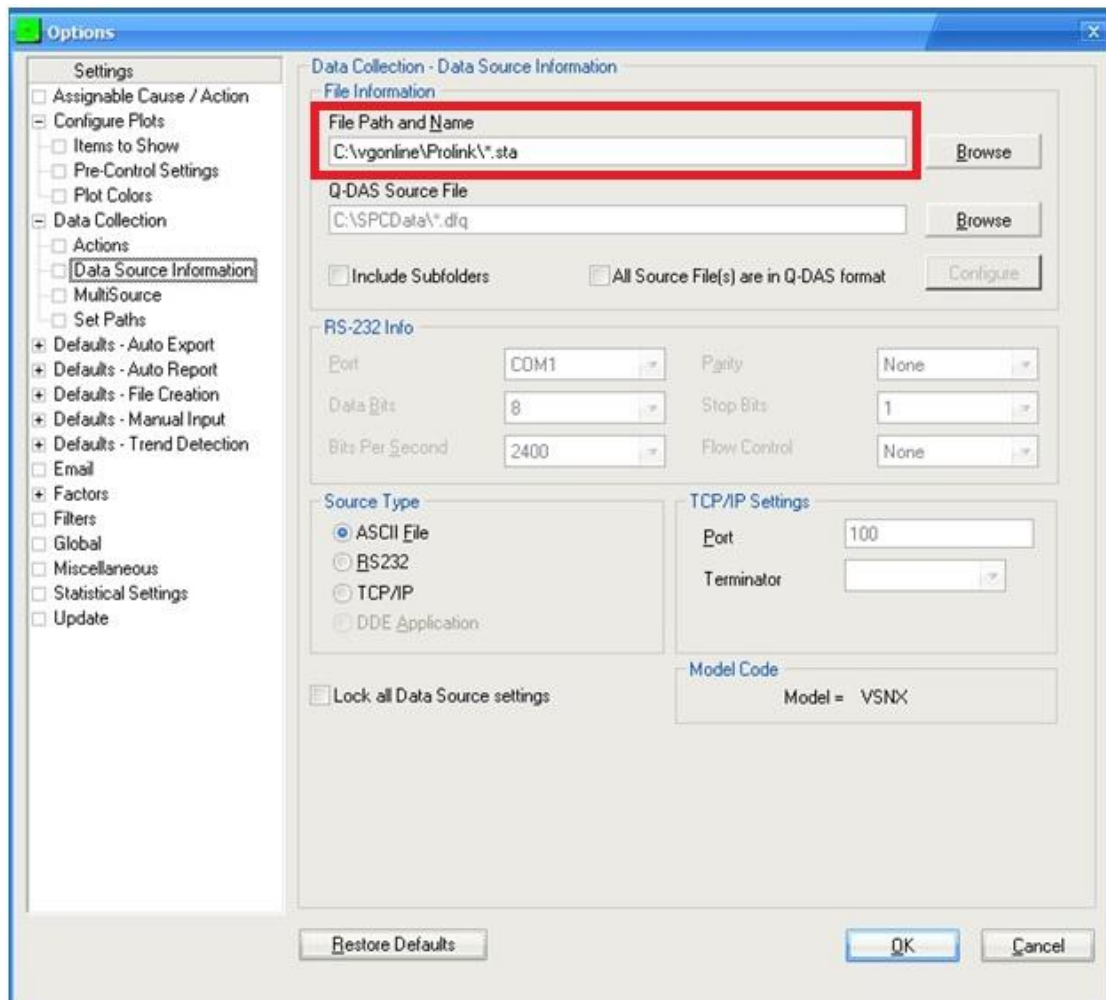
The following document addresses the installation of ProLink's QC-Calc software and how to configure the software for operation with VisionGauge® OnLine.

If you have any questions about this document, please contact VISIONx, Inc. Technical Support (support@visionxinc.com / 514-694-9290 x620).

QC-CALC Real-Time Installation and Configuration

During the QC-CALC RealTime installation, you will be asked to choose a machine interface from which ProLink will accept data. If VisionGauge® OnLine has already been installed, it will be presented in the list. Choose "VISIONx" from the list to complete the installation. If you have already installed QC-CALC, you can simply make changes to the "Data Source Information" to configure the software to input values from VisionGauge® OnLine.

When ProLink Data Output is enabled, files for ProLink will be created in the *C:/VgOnLine/ProLink/* directory (assuming you are running VisionGauge® OnLine from the *C:/VgOnLine* directory). If this *ProLink* directory does not presently exist, it will be created during operation. In the event of a non-default installation of VGOL (e.g. *D:/VgOnLine* or *C:/ProgramFiles/VgOnLine*), then in the ProLink software "Options", locate the option under "Data Source Information" to change the "File Path and Name". The user simply needs to input "[VGOL installation directory]/ProLink/*.sta" and press OK:



VisionGauge® OnLine Setup

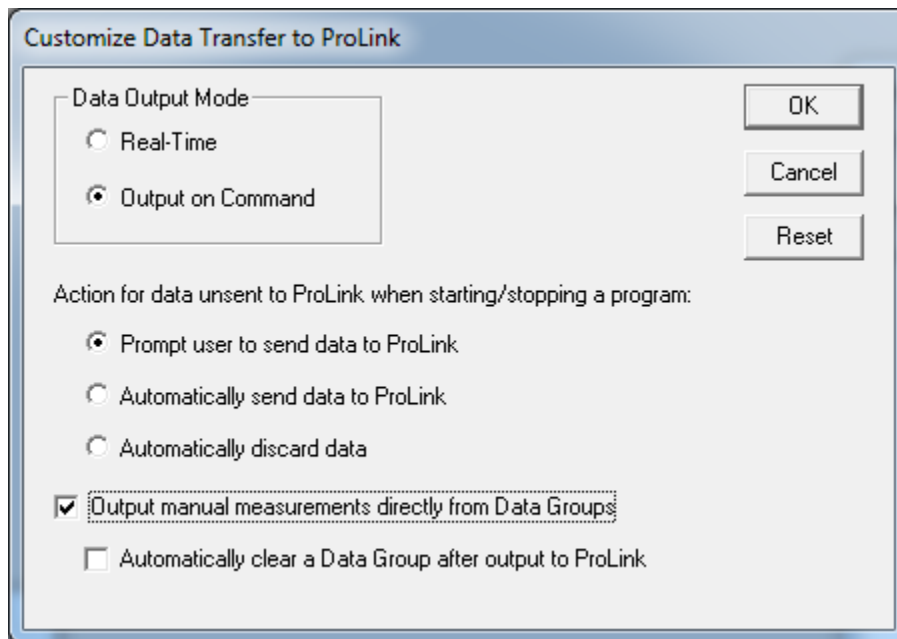
Users can output data to a ProLink database either manually (using manual measurements) or automatically (using a program). In addition, data can be output with two modes: *Real-Time* or *Output on Command*.

Data Output Modes

Real-Time: *Real-Time* data output mode will send results/data to the currently active ProLink database at the moment the data is captured. This mode allows ProLink to handle and display an individual measurement immediately after the measurement is taken.

Output on Command: *Output on Command* data output mode will collect results together and allow the user/program to decide when the set of results should be sent to an open ProLink database.

The Data Output Mode is able to be set in VisionGauge® OnLine's *Customize - Data Transfer - ProLink* menu:



Customize Data Transfer to ProLink window to select the Data Output Mode

If *Output on Command* mode is selected, additional options become available.

- The default action can be set for what happens when starting/stopping a program, in the event that data has been collected but has not yet been output. The default action is

to prompt the user if the data should be sent to the active ProLink database. Other options include automatically sending the data to ProLink or discarding the data.

- The option to output manual measurements directly from Data Groups will enable an *Output* button in all Data Groups when a ProLink database is active. When this option is enabled, manually measurements will accumulate in Data Groups and can be output by selecting this button.
- If the option to output manual measurements directly from Data Groups is enabled, users can decide if all data from the Data Group should be automatically cleared to prepare for new data entries.

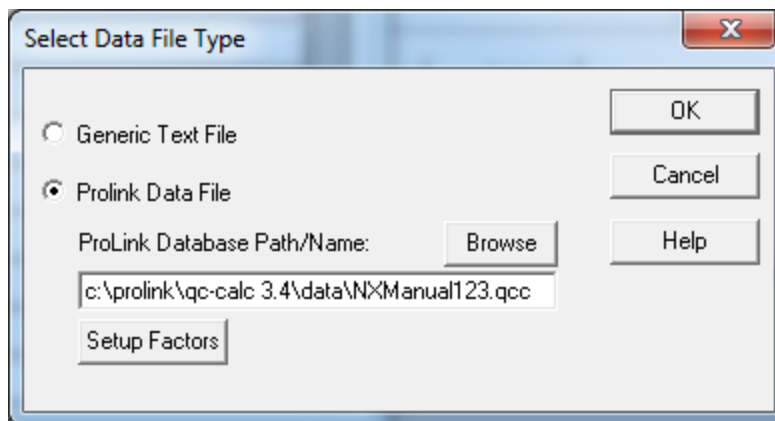
Choosing the right Data Output Mode depends on how inspections will be carried out. For most all automated programs, the best option to select is *Output on Command*, which will require deliberately opening and closing the ProLink database and instructing the software at what point output should take place during the program. Most manual measurement inspections will benefit from the *Output on Command* mode, with the "Output manual measurements directly from Data Groups" option selected.

Sending Data to ProLink with Manual Measurements

Activating a ProLink Database

Before results can be sent to ProLink, a ProLink database must be set as active. For the purpose of manual measurements, this can be accomplished in VisionGauge® OnLine's *File - Data File - Open* menu.

Select "ProLink Data File", and either browse for the database or enter the database name directly. ProLink's default 'data' directory will be used for filenames that do not have a filepath.



Selecting the ProLink database to set as 'active'.

Text and Numeric Factors can also be set-up for this database using the *Setup Factors* button. Factors are discussed later in this document.

Once the ProLink Database has been set as active, data will be output to ProLink according to the Data Output Mode selected.

Stopping Output to an Active ProLink Database

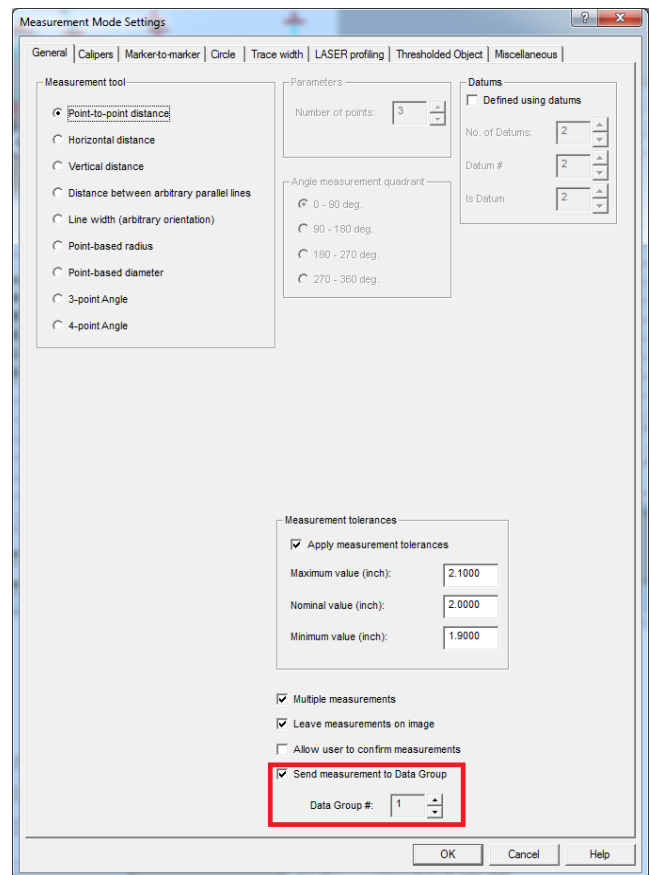
Use the *File - Data File - Close* option to stop collecting data to the last manually activated ProLink database. This can be useful if other manual measurements are required that should not be sent to ProLink.

Once a ProLink database is set as inactive, no data will be collected for ProLink output when measurements enter a Data Group. It is required to set the ProLink database as active again before sending additional data to ProLink.

Real-Time mode manual data output

In *Real-Time* data output mode, manual measurements will be sent to ProLink at the moment they enter a Data Group, when a ProLink database is active. Therefore, users need to ensure the measurement mode includes a target Data Group. The Measurement Toolbox can be configured to hold several types of measurements each with different settings, tolerances, and target Data Groups.

Also, users must be certain that Data Groups have been defined (using the *Data Groups - Setup Data Groups* menu) for measurements to operate properly. The current Data Group configuration may be carried over from session to session of VisionGauge® OnLine without having to re-configure them each time the software is configured.



Setting a target Data Group in manual measurement mode

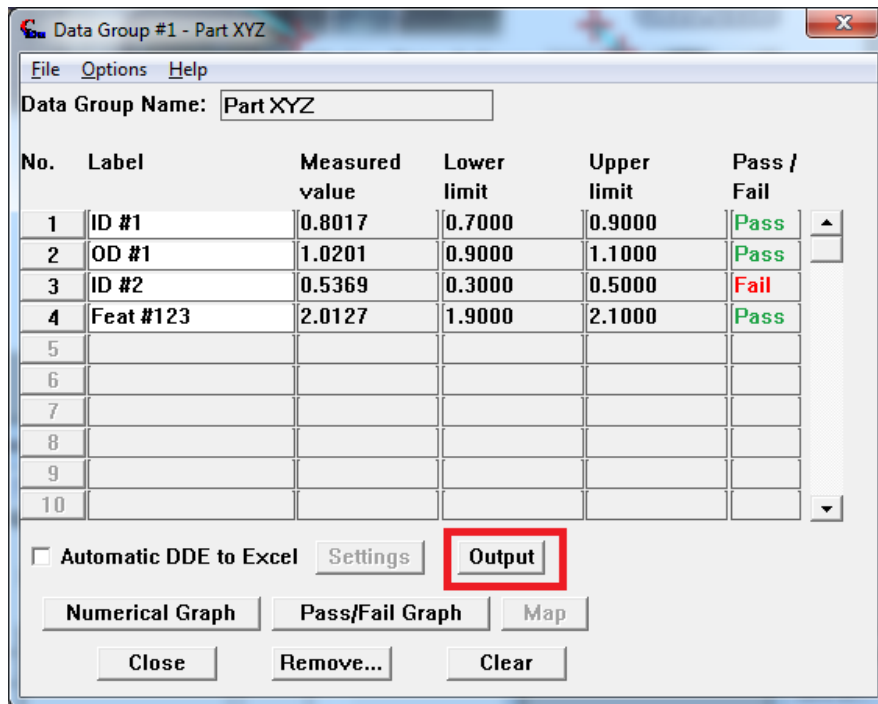
Output on Command mode manual data output

In *Output on Command* data output mode, manual measurements will be collected until the user specifically instructs the software to output them to the active ProLink database. As in Real-Time mode, the Measurement Toolbox can be used to organize the measurement modes, target Data Groups, and labels.

All measurements that are sent to a Data Group while a ProLink database is active will be collected. When a set of measurements for a part have been completed, those collected measurements can be output using the *File - Data File - Output* menu option.

Output directly from Data Groups

If the option to output directly from Data Groups is enabled, then an *Output* button will be enabled in each Data Group, when a ProLink database is active. Labels may be edited before the output is completed.



A Data Group with the Output to ProLink button enabled

Note that normally Data Groups display Statistics on all measurements, but if a single Data Group is being used simply to collect different types of measurements, it may make more sense to disable Statistics from the Data Group Options.

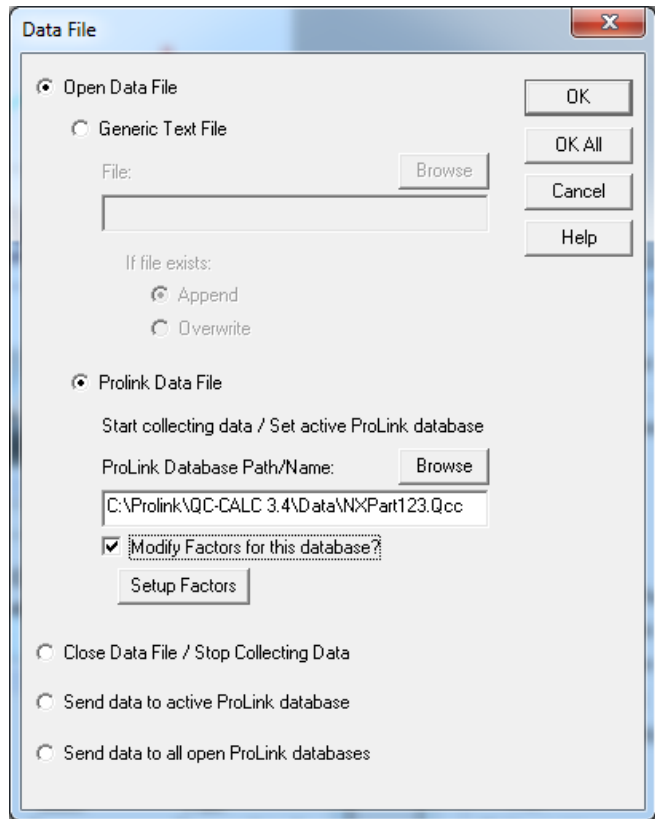
Sending Data to ProLink with Automated Measurements

Activating a ProLink Database

For results in an automated program to be sent to ProLink, a ProLink database must be set as active. A ProLink database may be selected in the Program Toolbox *Data File* step settings. Select "ProLink Data File" then browse for the database or enter the database named directly. ProLink's default 'data' directory will be used for filenames that do not have a filepath specified.

Text and Numeric Factors can also be set-up for this database using the *Setup Factors* button. Factors are discussed later in this document.

Please note that you must specifically open a ProLink database file for output during a program for data to be output. If a ProLink database file has already been opened manually from the *File - Data File - Open* menu, it will be closed for the duration of the program and re-opened when the program stops.



Selecting a ProLink database as active in a program

Stopping Output to ProLink During a Program

Use the Program Toolbox *Data File* step settings' "Close Data File / Stop Collecting Data" option to stop collecting data to the last activated ProLink database. This can be useful if the program performs certain measurements or steps to send data to other Data Groups (to collect averages or min/max values) that should not be sent to ProLink.

Once a ProLink database is set as inactive by selecting the "Close Data File" option, no data will be collected for ProLink output. It is required to set the ProLink database as active again before accumulating more data for ProLink.

It is also possible to configure a specific program step not to output its result to ProLink using the *Output Settings - Configure ProLink Data Output* options (this is discussed later in this document).

Real-Time mode automated data output

In *Real-Time* data output mode, automated measurements and results will be sent to ProLink at the moment they enter a Data Group, when a ProLink database is active.

Output on Command mode automated data output

In *Output on Command* data output mode, automated measurements and results that are sent to Data Groups will be accumulated when a ProLink database is active. Note that data is accumulated only for the database that is currently active. Therefore, it is possible to have multiple databases accumulating data for output simultaneously.

For example, a program may select one database as active and accumulate certain measurements to it. Then the program can set a different database as active and accumulate other measurements to it. To actually output the accumulated data to the ProLink database, a command to send the data must be issued.

Send data to active ProLink database option

This option will output all accumulated data for the currently active database. The data file will be time-stamped, closed, and made available for ProLink to pick up (It usually takes ProLink up to 3 seconds to pick up a data file). Following this action, the database will be ready to accumulate new data.

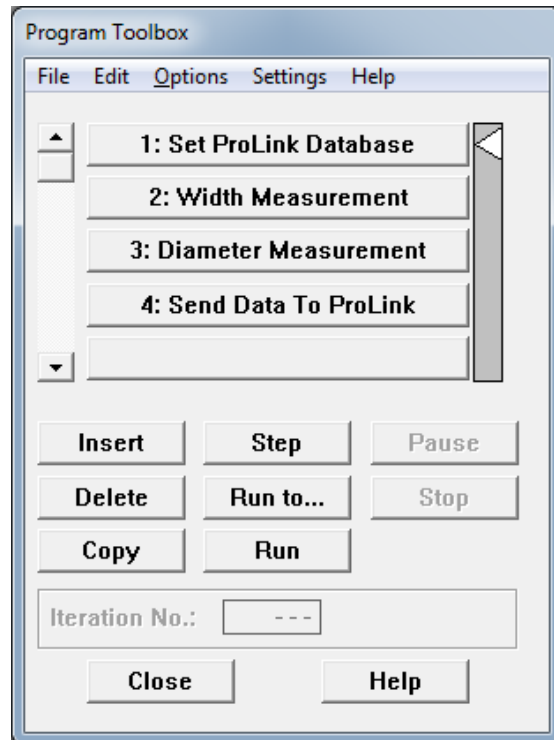
Send data to all ProLink database option

This option will search through all databases that have been set as active during a program and output the data to ProLink, if they have accumulated any data. Each data file will be time-stamped, closed, and made available for ProLink to pick up. Following this action, each of these databases will be ready to accumulate new data.

The simplest example of output to ProLink from the Program Toolbox using a step-and-repeat program in *Output on Command* data output mode has at least 3 steps:

- 1) A step to Open / Set Active a ProLink Database
- 2) A measurement step or other similar step that outputs results to a Data Group
- 3) A step to Send all collected data for this iteration of the program to ProLink.

This program example will set the target ProLink database active in the first step. The next two steps will execute measurements required for the part that need to be saved to ProLink's database. The final step will actually send the measurement record to ProLink.



A simple program to output measurements to ProLink

Outputting Data when Stopping / Starting a Program

When a program is stopped - whether it stopped on an error, manually by a user, or completed - if there is any accumulated data in *Output on Command* mode that has not yet been output, VisionGauge® OnLine will refer to the settings in the *Customize - Data Transfer - ProLink* menu to determine how to act. The options are to prompt the user for what happens to the output, automatically send output to ProLink, or automatically discard the output.

When starting a program, if *Output on Command* mode is enabled (without the option to Output directly from Data Groups) and data has been collected for an active database but not yet output, VisionGauge OnLine will also refer to the settings in the *Customize - Data Transfer - ProLink* menu to determine how to act.

Sending Additional Data to ProLink

In addition to sending the actual measurement value, nominal value, maximum value and minimum value to a ProLink database, VisionGauge® OnLine also allows customization of other values to help with the classification of data.

Measurement Toolbox Labels (Manual Measurements)

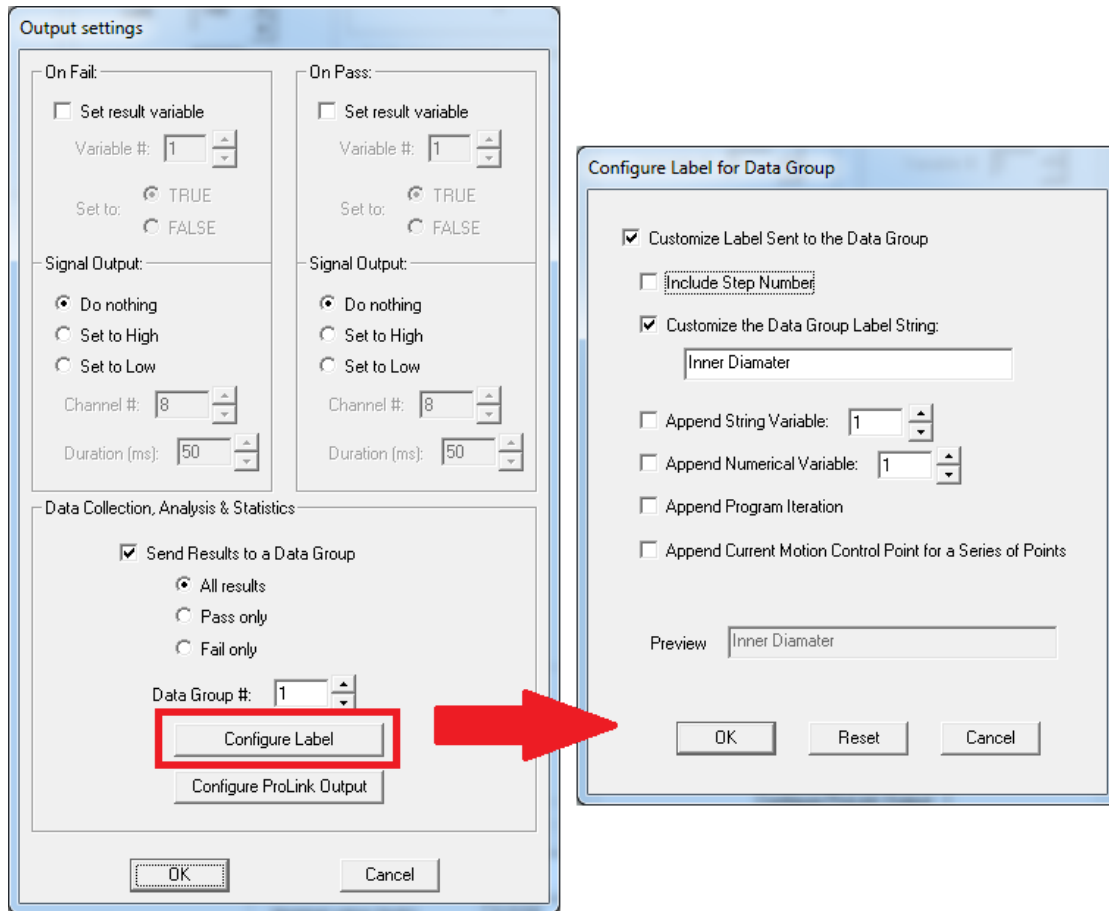
When sending manual measurements to ProLink, either in *Real-Time* or *Output on Command* data output modes, the default label is the name of the target Data Group. However, if a button is selected from the Measurement Toolbox before executing the measurement, then that button's label will be used for the label sent to the Data Group and to ProLink.

Note that labels can be made visible in a Data Group by selecting the Data Group's *Options* menu and selecting "Include Labels".

Also, if the *Output on Command* mode is enabled, and the "Output directly from Data Groups" option is also enabled, users have a chance to customize the label in the Data Group before sending the output to ProLink.

Configure Label For Data Group (Automated Programs)

When setting up a program in the Program Toolbox, the "Output Settings" for a particular program step give access to an option to configure the label for the output to a Data Group (which is also used for output to ProLink).



Configure Label for Data Group (for Automated Programs)

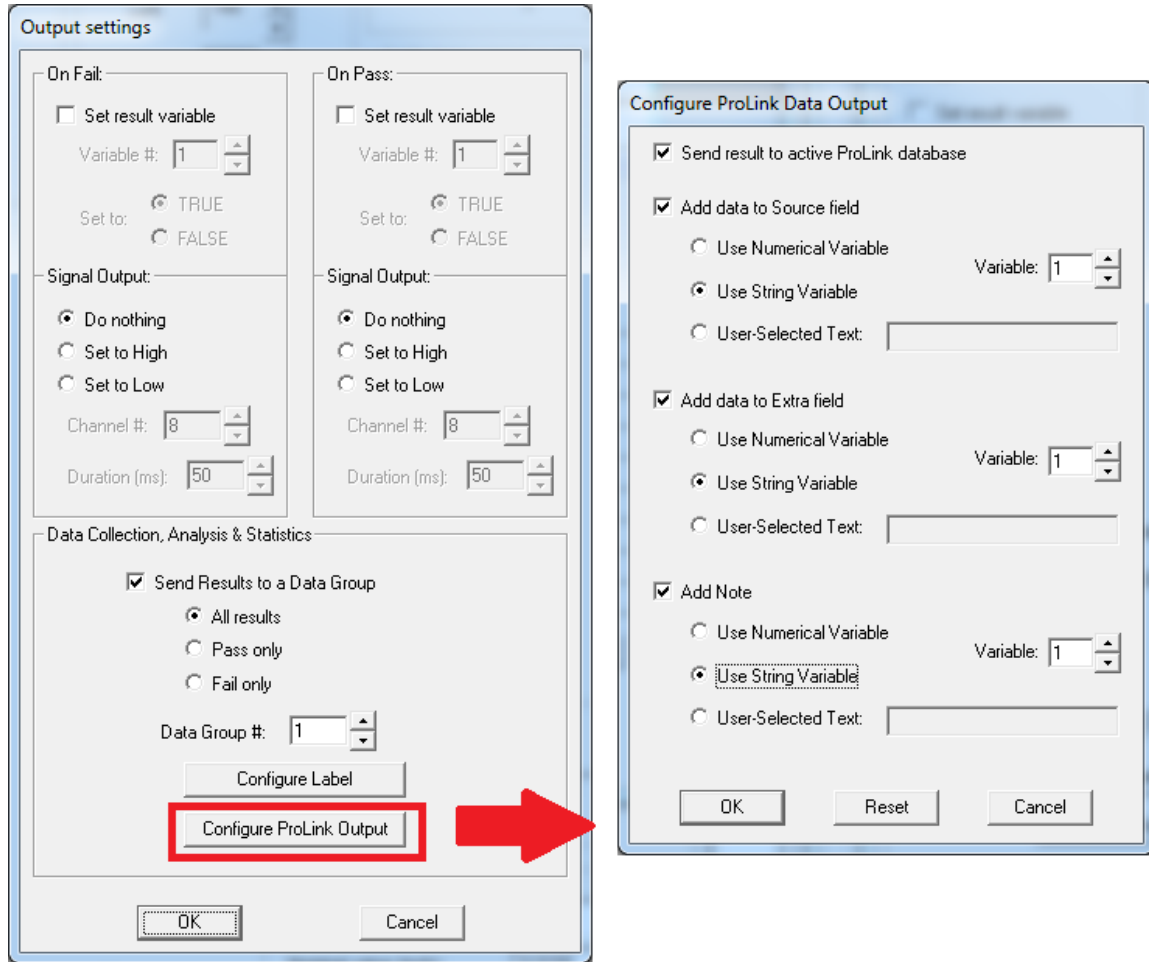
The program step's current label is used by default, but it can be customized to include the program step number or user-entered text. Also, the text can be customized further by indicating that a string/numerical variable, program iteration number, and current motion control point in a series of points should be appended to the existing text string. A preview of the string is available at the bottom of the configuration window.

Configure ProLink Data Output (Automated Programs)

During the set-up of programs, the "Output Settings" for a particular program step give access to an option to configure additional data that may be sent to ProLink.

The first option in the "Configure ProLink Data Output" window determines whether this particular result will be sent to ProLink or not. Some program steps might require using Data Groups for temporary min/max or averaging operations, but output to these Data Groups would not require output to ProLink. In these cases, the "Send result to active ProLink database" could

be unchecked to prevent output to ProLink of this step. Alternatively, the ProLink database could be deactivated for the duration of these steps and then reactivated.



Configure ProLink Data Output for Automated Programs

The remaining options in the "Configure ProLink Data Output" window allow a program step to include a Source field, an Extra field, and a Note to the data that will be output. Each of these fields can be set to a Numerical or String Variable or a user-entered string of text.

The Source, Extra, and Note fields may contain additional information about the measurement/dimension data itself (e.g. inspection numbers, machine source ids, etc.). In the case of the Source and Extra fields, these are a single value across the entire dimension, and if the value changes, it is changed for all records within the database.

Text and Numeric Factors

Factors are either text or numeric values for an entire record of measurements that contain additional information for the database. These Factors may be set-up directly in the ProLink database, or they may be output with a record from VisionGauge® OnLine.

VisionGauge® OnLine allows 15 Numeric Factors and 15 Text Factors to be set-up per database. Factors may be configured at the time the ProLink database is opened or set as active (for manual measurements, this is from the menu, and for automated programs, this is in the "Data File" program step when opening a ProLink Data File).

Each Factor may be configured with a label. The value for a Factor may be set as a Numerical/String Variable or User-Selected Text/Number.

The screenshot shows the 'Configure ProLink Factors' dialog box. It has two main sections: 'Text Factors' and 'Numeric Factors'.
In the 'Text Factors' section:
- 'Configure Text Factors' is checked.
- 'Text Factor # (1-15)' is set to 1.
- 'Label' is 'Operator'.
- 'Use String Variable' is selected, with 'Variable #' set to 1.
In the 'Numeric Factors' section:
- 'Configure Numeric Factors' is checked.
- 'Numeric Factor # (1-15)' is set to 1.
- 'Label' is 'Part ID'.
- 'Use Numerical Variable' is selected, with 'Variable #' set to 1.
At the bottom are 'OK', 'Reset', and 'Cancel' buttons.

Configuring Factors for ProLink

Troubleshooting

When ProLink data output is enabled, all data that is sent to VisionGauge® Online Data Groups will be saved to files for ProLink to read from the VisionGauge® OnLine's ProLink directory (normally located at *C:\VgOnLine\ProLink*). When ProLink software is running, these files will be removed after ProLink has processed them (approximately every 3 seconds). If the files begin to accumulate, you may receive a warning from VisionGauge® OnLine that ProLink is not running or is improperly configured. Check if the ProLink software is running and if it is actively picking up files or is paused. Also check in the ProLink software settings that the proper directory is selected to read files (see the *QC-CALC Real-Time Installation and Configuration* section earlier in this document).