QualityWindow

The continuous improvement software

QW RS232 Admin Guide

Subject

August 14, 2025

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Overview

QW6RS232 is designed to streamline RS-232 device integration into Quality Window 6 by providing both configuration and runtime tools. RS-232 is a long-standing serial communication standard that transmits data one bit at a time over defined signal lines, typically using DB9 or DB25 connectors. Many instruments in manufacturing, laboratory, and quality control environments use RS-232 for reliable point-to-point data transfer. Examples include weight scales, torque testers, calipers, and specialized measurement gauges. This guide covers setup, testing, parsing, and optional scripting to capture data reliably from these supported devices.

What is QW RS232?

QW RS232 lets Quality Window communicate with devices over RS-232 and capture their output into variables (e.g., weight scales, torque gauges, barcode scanners, titrators, calipers). It includes two main components:

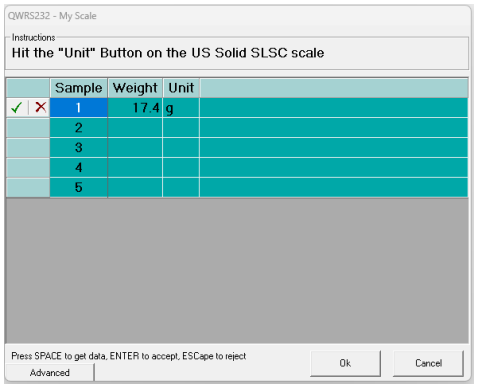
RS232 Administrator

Accessible via QW Admin in the Tools and Utilities section, the RS232 Administrator is used to configure RS-232 connections to devices and how values are captured for use with automated data collection in Quality Window.

QW RS-232 Administrator Icon

QW6RS232.exe Utility

This component is used to trigger data collection in QW Applications using configurations created in RS232 Administrator. This utility can be found in the QW install folder typically C:\program files(x86)\Busitech\QW6 folder.



Example RS-232 Data Collection Interface

Configuring Quality Window to Read RS-232 data

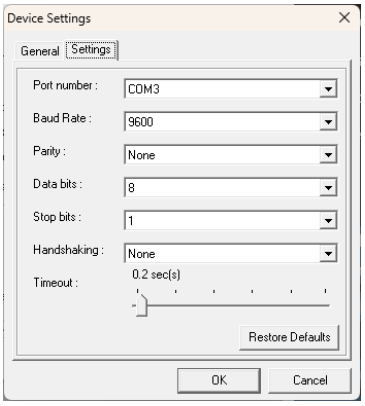
The first step in configuring QW for RS-232 data collection, Busitech recommends that you first gather the manual for your device. The manual will be key in properly configuring your RS-232 connection.

RS232 Administrator – Device Settings

When opening the RS-232 Administrator, you will be first presented with the Device Settings dialog. This dialog has two tabs, the general tab that enables the configuration of data collection properties and the Settings tab that manages the communication settings to your device. To start, select the Settings tab. If you want to edit an existing configuration (INI file) click cancel on the device settings dialogue to go straight to the administration console.

Device Settings – Settings Tab

On the Settings tab, start by selecting COM port and set communication settings based on the settings provided in your device manual. If you don't have the manual you can contact the device manufacturer for further details. Busitech is unable to provide the settings for your specific device.



Example of the Device Settings – Settings dialogue

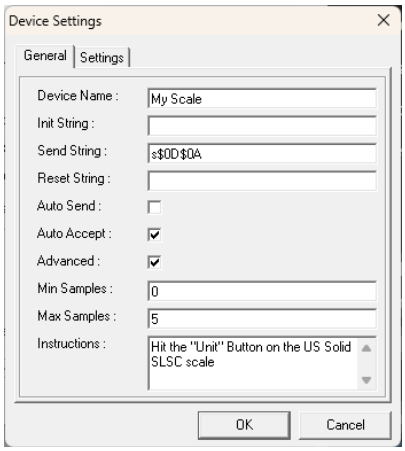
The following standard RS-232 communication settings are available:

Connection Setting	Description
Port Number	Your computer's COM port that is connected to the device
Baud Rate	The device Baud Rate (from 75 to 128000)
Parity	Odd, Even, None, Mark, or Space
Data Bits	The number of data bits used (4 - 8)
Stop Bits	The number of stop bits used (1, 1.5, or 2)
Handshaking	Handshaking used (None, XonXoff, RTS, RTSXonXoff)
Timeout	The number of seconds of idle time to wait for a stream to complete

Click **General** when done setting you initial settings.

RS232 Administrator – General Tab

The General Tab provides the ability to set data collection settings such as sample count, send strings and device details.

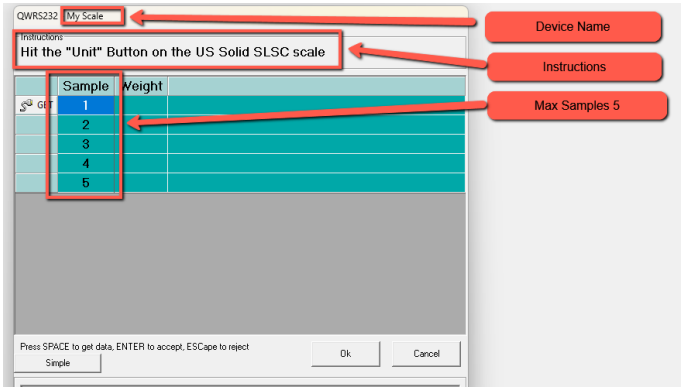


Example of the Device Settings – General dialogue

On the **General** tab, enter the following information:

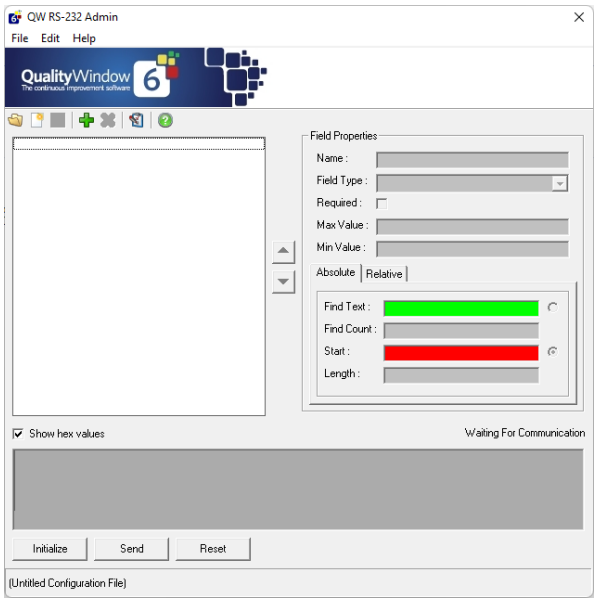
General Property	Description
Device Name	Give your device a descriptive name. This value will appear in the RS 232 Input Title bar
Init String	Some devices require an initialization string to be sent to it when opening the port. Leave blank if not needed by your device. Supports mixed text and hex characters.
Send String	Command that asks the device to transmit its current value. Use hex escapes for control codes $0D and $0A which represents the hex values for CR and LF respectively. Leave blank if the device has a physical Print/Send key or streams automatically.
Reset String	Some devices require a string to be sent when closing the port. Leave blank if not needed by your device.
Auto Send	Auto-transmit Send String when the window opens (off for most devices).
Auto Accept	Auto-accept each received value; if off, the operator must accept/retry each entry.
Advanced	Shows a small debug window with received/transmitted bytes; helpful during setup.
Min. Samples	The minimum number of samples to be taken before the user can exit the program.

Max. Samples	The maximum number of samples to be taken. If you wish to collect weights, and all 3 weights must be entered before returning to Quality Window, set Min to 3 and Max to 3. If you wanted to collect a maximum of 3 weights, but the number of weights collected is optional, then you set Min to 0 and Max to 3.
Instructions	These are operator instructions that will appear on the QW6RS232 screen during collection. You can use the '|' character to force line breaks



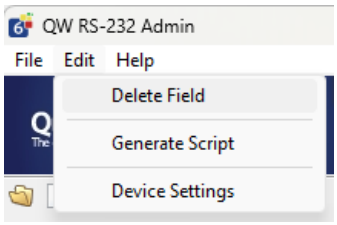
Example of how certain properties impact the data collection screen

After entering the above information, click on the **OK** button to continue to main administration screen and begin testing your connection.

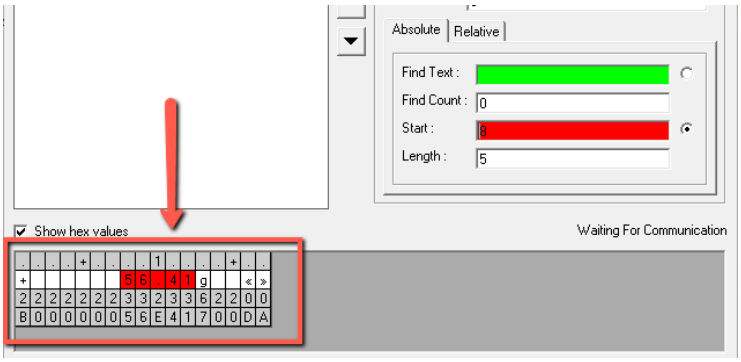


Test communication

Ready the device (e.g., place a weight on a scale). In the RS232 Admin, click **Send** to issue the **Send String**, or press the device's Print/Send key if applicable. If you see no response or an error, recheck the port parameters, handshaking, cable type, and command string in the Device Settings dialog, accessible from the Edit -> Device Settings Menu.



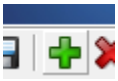
The lower pane shows the exact text returned, with ASCII and HEX views. Confirm the expected number formatting and the trailing <CR>/<LF> when present.



Example of a lower pane containing data from RS-232 device

Define fields (parse your value)

Click the new field button to define a field to be extracted from the returned RS-232 data.



New Field Button

Now enter the following information to describe the field:

Field Property	Description
Name	Give your field a descriptive name - Example: Weight. This will also be the name of your IO file, so it is best to name this uniquely.
Field Type	If your field value is Numeric, then select Numeric
Required	Check this box if the field must be present in the string. This is useful when many fields are sent
Max Value	Enter the Maximum value that you should accept in this field
Min Value	Enter the Minimum value that you should accept in this field
Absolute/Relative	How to parse the data collected from the RS-232 device.

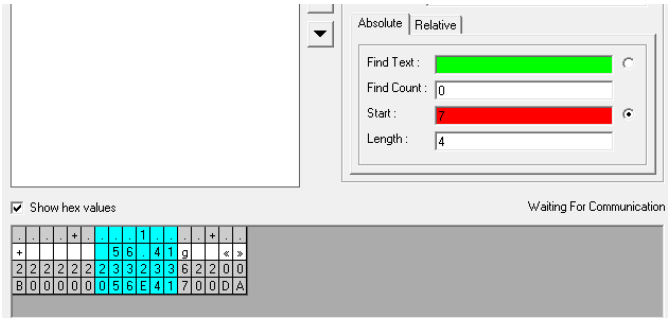
	Absolute: highlight the exact character span to capture (click-drag over the value in the sample text). Works when the value always appears at the same position. **Relative**: specify an anchor string and offset/length relative to that anchor. Use this when the value shifts within the line.

Set how your parse the data

Fields can be parsed one of two ways: **Absolute** – specific position in the returned data or **Relative** – a position based on the location of a specific text value.

Configuring Absolute Parsing

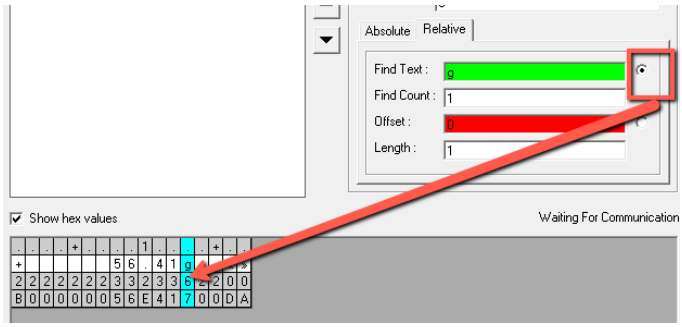
To configure an Absolute approach, select the Absolute tab and use your mouse to highlight the bounds of the value in the data preview. Make sure to consider the potential full value you want to capture. In the below example, the highlight is larger than the value to account for larger results. Releasing the mouse will commit this section as the area where data will be parsed. You cannot manually edit the start and length properties for absolute parsing, you must use the mouse to define the bounds.



Example setting Absolute mode selection

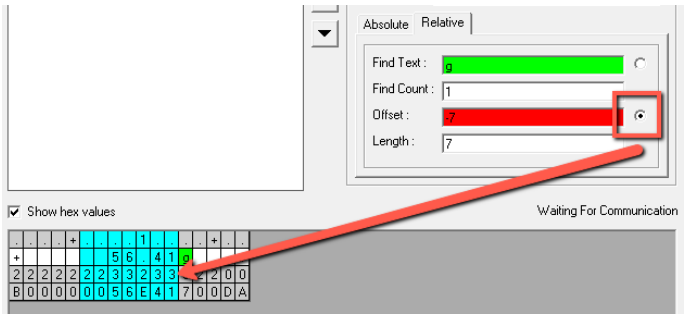
Configuring Relative Parsing

If the value you want to parse shifts its position, a relative approach will likely permit you to parse the data consistently. To switch modes, click the absolute mode and ensure the Radio button beside the Find Text is selected. Now select your anchor text by clicking the text you want to anchor on. In the below example, the g is selected.



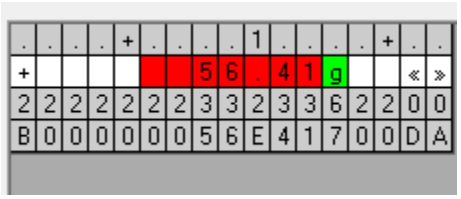
Example setting text anchor (Find Text) for Relative parse mode

Next change your radio button to offset and use your mouse to highlight the desired value to capture. This will set the offset and length to the right values to capture this data based on the anchor.



Example setting offset and length for Relative parse mode

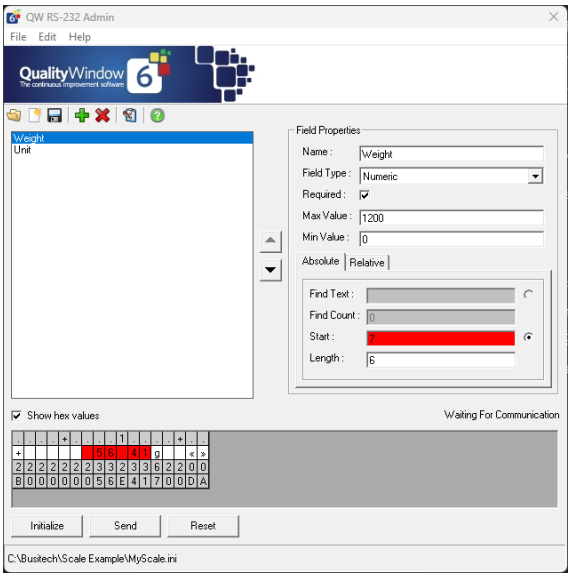
Once you have completed the two settings (Anchor, offset) the data portal should show you your current settings with the anchor text in green, offset and length in red.



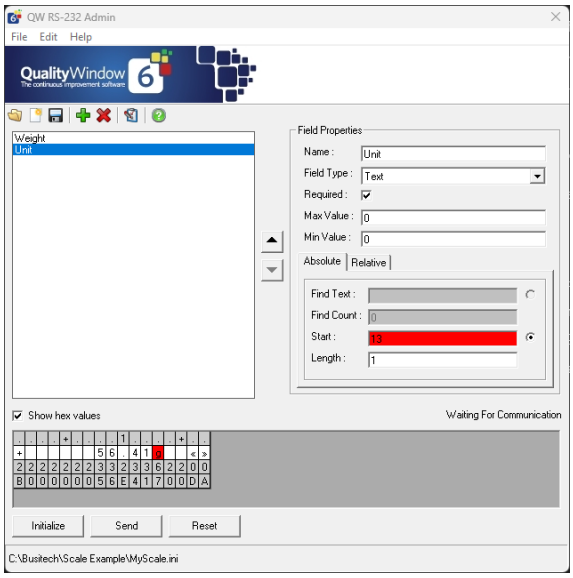
Repeat this process for each field you want to define. Mixing relative and absolute configurations is supported.

Configuring to capture multiple fields

QW RS-232 can support capturing multiple fields with a single read of RS-232 data. In the below example, you have a value component (numeric) and a unit component (text) that can be split out into individual fields and be added to multiple different variables in Quality Window. Absolute and Relative fields can be mixed.



Weight Numeric Field Example



Unit Text Field Example

Save the configuration

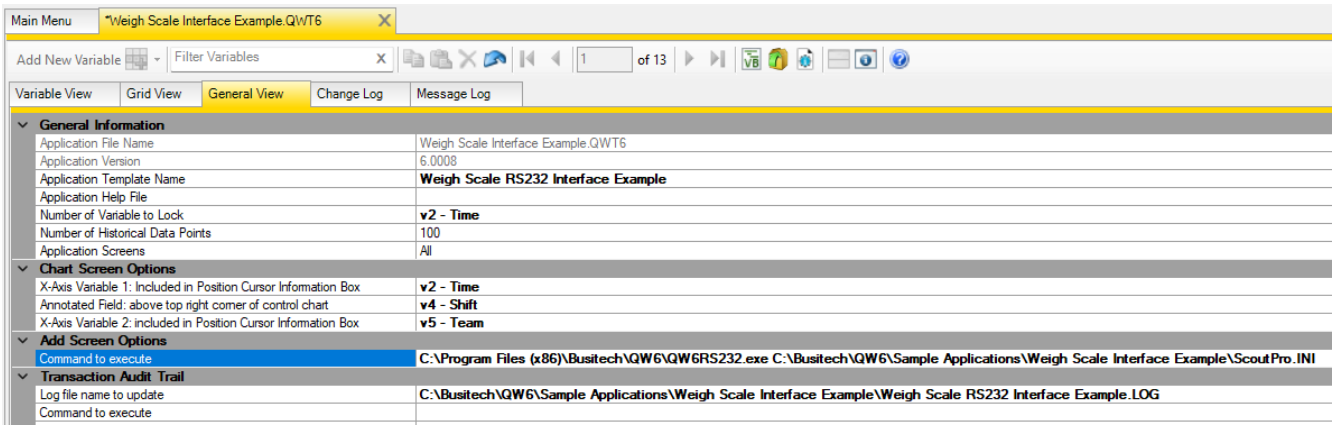
Choose **File → Save As...** and save the configuration INI in the same folder as your QW Application you wish to collect the RS-232 data in. If you want to use this INI file across many QW Applications, it can be saved in a central location. IO files generated from the data collection will be placed in the same folder as the INI file.

Example: `WeighScale.INI`.

Configuring the Quality Window Application

Next, we need to configure the QW Application to prompt users with the data collection interface and map incoming values to specific variable. In QW Administration and open the Quality Window application via maintain application that you wish to collect RS-232 data into.

Navigate to the **General View** tab and find **Command to Execute** in the Add Screen Options section.



The command to execute is made of two parts. The executable (QW6RS232.exe) and the path to the INI file that was created in the QW RS-232 Administration utility.

Example:

```
C:\Program Files (x86)\Busitech\QW6\QW6RS232.exe C:\Busitech\QW6\Sample Applications\Weigh Scale Interface Example\ScoutPro.INI
```

Preparing the Variables in Quality Window

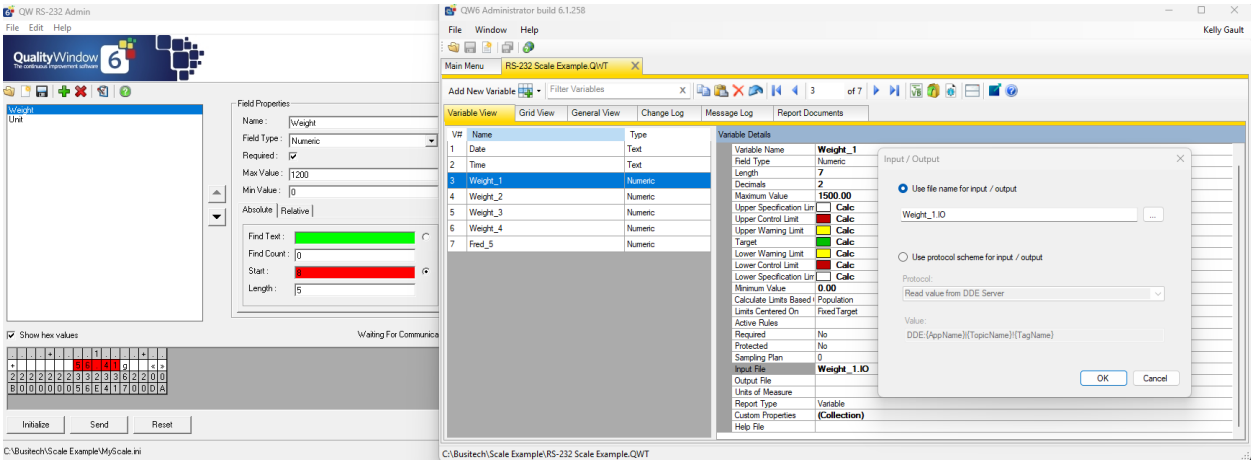
The final step is to map your variables to the collected data from the RS-232 device.

In the **Variable View**, select the variable(s) you will use to collect your data.

Set input file to the name of the field(s) defined in QW RS-232 Admin and append an underscore with a sample index and an extension .IO. The IO file will be placed in the same folder as the INI file so ensure that if the INI is not in the same folder as the QW Application, a fully qualified path is used.

Example:

- Field `Weight` sample 1 → `Weight_1.io`
- Field `Weight` sample 2 → `Weight_2.io`
- Field `Weight` sample 3 → `Weight_3.io`

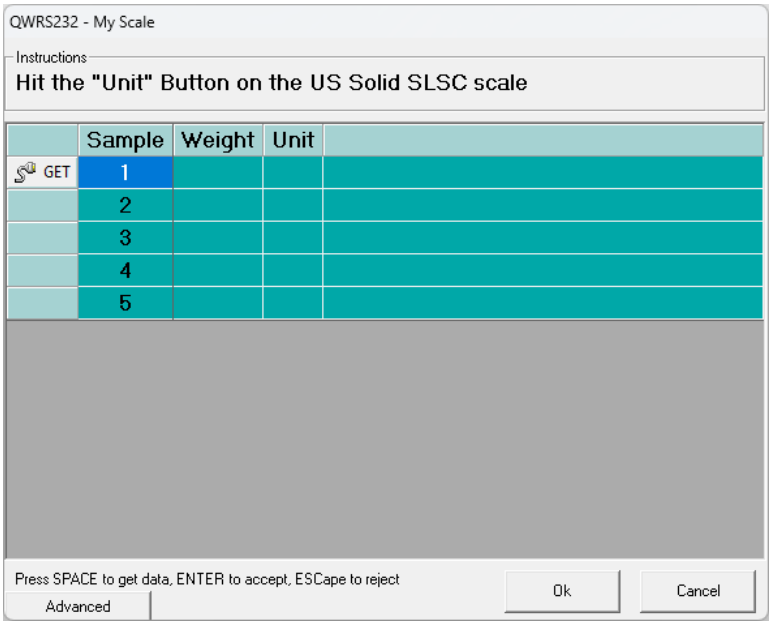


Example of a variable configuration for the first sample from RS-232 device

Once the QW Application is configured save your changes and open the QW Application in QW workstation to test your solution.

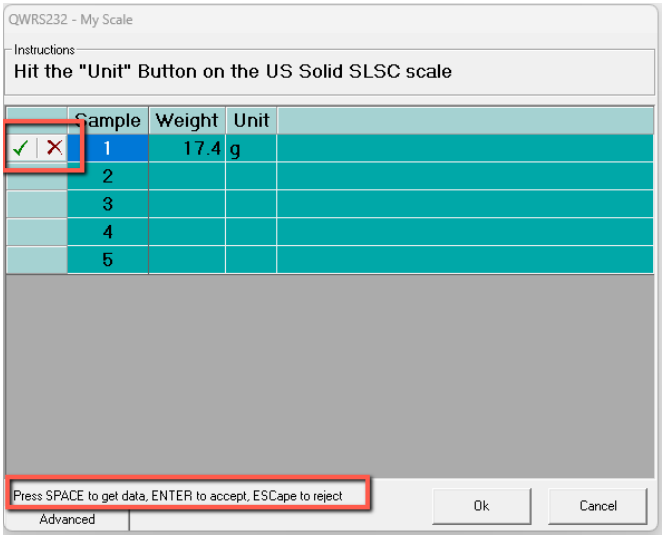
Capturing RS-232 data in a QW Application

Click the add button in QW Workstation and if your solution is configured correctly, you should see a QWRS232 dialog like the following:



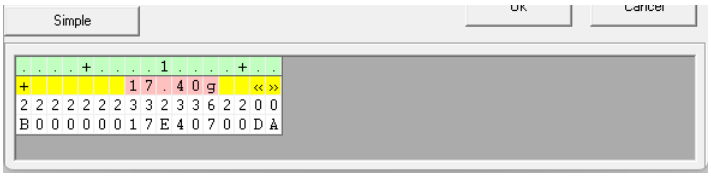
Click the space bar to request data from the RS-232 device. If your RS-232 device has a print/send button, use this instead of the space bar.

If you configured to not Auto Accept values, the user will have to hit the check mark button or enter key to accept the collected data. ESC key or X to reject the collected data.



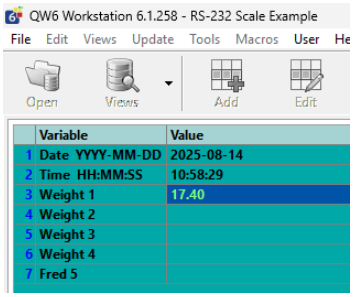
Example of experience when auto accept is not enabled

If the values are not being captured properly, you can enable advanced mode to see the raw data coming from the device. This may help in tuning your configuration.



Example Advanced Mode

Once you've collected all your samples, click ok to move to the Add screen and finish your current record. Your data should be pre-loaded into the appropriate variable(s).



Example Add Screen with data from RS-232 Device

Troubleshooting tips

- If no data arrives: verify COM port, cable type (straight-through vs. null-modem), handshaking (start with **None**), and that the device is actually transmitting (some require a poll command).
- If gibberish appears: mismatch in **Baud/Parity/Data/Stop**. Match the device spec exactly (e.g., 1200, N, 8, 2).
- If sporadic truncation: increase **Timeout**, adjust **Min/Max Samples**, or review handshaking.
- Use **Advanced** mode to watch raw traffic while iterating on field parsing.

Using Scripting for QW RS-232

QW RS-232 Admin can generate a starter script (Edit → **Generate Script**). Copy it into your application script file. For a template named `Monitor.qwt`, create `Monitor.qwx` and paste/edit the assignments so each sample value from field `Value(FieldNo, SampleNo)` is written to the correct QW variable.

Example assignments (replace variable indices with your schema):

```
QWfile.Value(7) = RS232.Value(1,1)  'Weight Lane 1
```

```
QWfile.Value(8) = RS232.Value(1,2)  'Weight Lane 2
```

```
QWfile.Value(9) = RS232.Value(1,3)  'Weight Lane 3
```

You may also launch QW6RS232 directly from script and bypass Input Files. Use **QW6** object libraries only.

Example: prompt operator to choose a device, then capture one sample each

```
Option Explicit

Function QW_BeforeDisplay(QWFunction)
  Select Case QWFunction
    Case "A"  ' Add Record
      Dim oMenu
      Set oMenu = CreateObject("QWTool60.Menu")
      oMenu.Caption = "Select a Function"
      oMenu.AddItem "1. Get Scale Value"
      oMenu.AddItem "2. Get Torque Value"
      oMenu.AddItem "3. Exit"
      Do
        oMenu.Display
        Select Case oMenu.Selection
          Case 1: GetWeight
          Case 2: GetTorque
        End Select
      Loop Until (oMenu.Selection = 0) Or (oMenu.Selection = 3)
  End Select
```

```
End Function

Sub GetWeight
  Dim RS232
  Set RS232 = CreateObject("QWTool60.RS232")
  With RS232
    .Device      = "OHAUS Scale"
    .Port        = 1
    .PortSettings= "2400,N,7,1"
    .Timeout     = 0.2
    .InitString  = ""
    .SendString  = "SA$0D"    ' S + CR; add $0A if device requires LF
    .ResetString = ""
    .AutoSend    = False
    .AutoAccept  = False
    .MinSamples  = 0
    .MaxSamples  = 1
    .DebugWindow = True
    .Fields.Add "Weight", "N", "", 0, 7, 6, False
    .Notes = "Place weight on scale and press Send"
    .Display
    If .Cancel = False Then QWfile.Value(3) = .Value(1,1)
  End With
  Set RS232 = Nothing
End Sub

Sub GetTorque
  Dim RS232
  Set RS232 = CreateObject("QWTool60.RS232")
  With RS232
    .Device      = "Imada Torque"
    .Port        = 2
    .PortSettings= "9600,N,8,1"
    .Timeout     = 0.2
    .InitString  = ""
    .SendString  = "P$0D$0A"
    .ResetString = ""
    .AutoSend    = False
    .AutoAccept  = False
    .MinSamples  = 0
    .MaxSamples  = 1
    .DebugWindow = True
    .Fields.Add "Torque", "N", "", 0, 1, 5, False
    .Notes = "Press Send on Torque"
    .Display
    If .Cancel = False Then QWfile.Value(4) = .Value(1,1)
  End With
  Set RS232 = Nothing
End Sub
```

Notes

- When scripting, **do not** configure **Command to Execute** or per-variable **Input File** properties; the script drives collection and assigns values directly.

- For .IO file workflows (no scripting), keep using **Input File** naming (Field_Sample#.io).