

Using the Windows® Form Control Library

Overview

The Modbus Async Windows Form Control was created as a powerful and easy to use .NET alternative to ActiveX on Personal Computers (PCs). WinMark Pro builds v6.3.0.7492 and later include a Windows Form Control library that encapsulates a modified interface in a convenient DLL. This DLL is useful for developers/integrators who would like to control one or multiple Flyer marking heads with a single application, control a marking head without the need for installing WinMark Pro software (and associated Hardlock) on the controlling PC, or develop an interface having more functionality than the Flyer web page interface.

Note: Flyer's Modbus protocol is a true MODBUS I/P protocol for communicating over an Ethernet network to Programmable Logic Controllers (PLCs) using a basic set of register-based commands (MODBUS function codes 3, 4, 6, and 16) or an extended set of commands for PLCs that support a MODBUS user-defined function code (in the range of 65-72 and 100-110).

The Modbus Async protocol used by the Windows Form Control does not send MODBUS PLC commands, but instead is modified to allow asynchronous communication between the Flyer head and the control PC.

Flyer/Fenix Flyer Setup

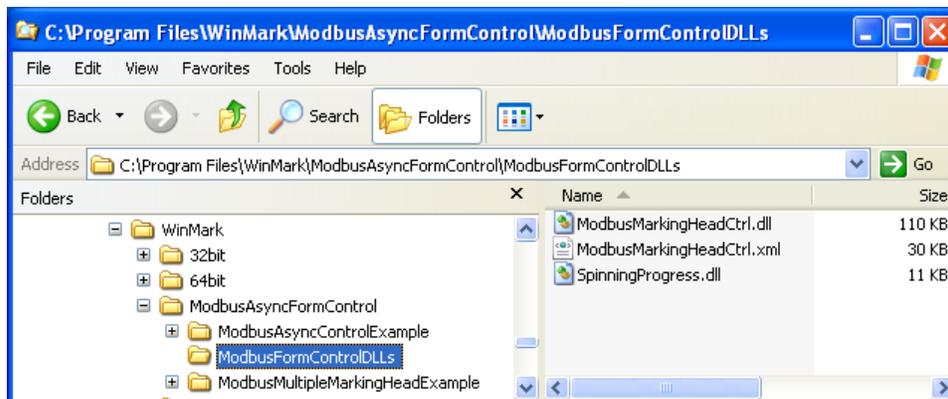
The Windows Form Control interface must be setup as follows:

1. Create an Ethernet connection between the Flyer head and the control PC.
2. Set Flyer's *Standalone Marking* property to *Yes* (Stand-alone control mode).
3. Set Flyer's *External Communications Server* property to *Modbus-Async*.

Consult the *FH Flyer Marking Head Operator's Manual* or the *Fenix Flyer CO₂ Laser Marker Operator's Manual* for information on configuring Flyer/Fenix Flyer to meet these requirements.

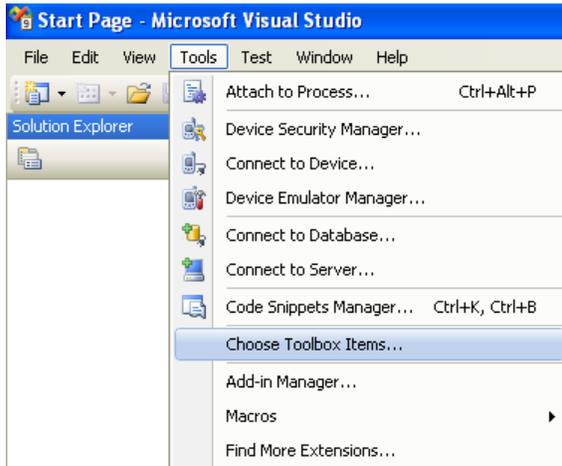
Add the Form Control to Your Visual Studio Project

The control library (ModbusMarkingHeadCtrl.DLL) is located in the *C:\Program Files\WinMark\ModbusAsyncFormControl\ModbusFormControlDLLs* folder as shown below:

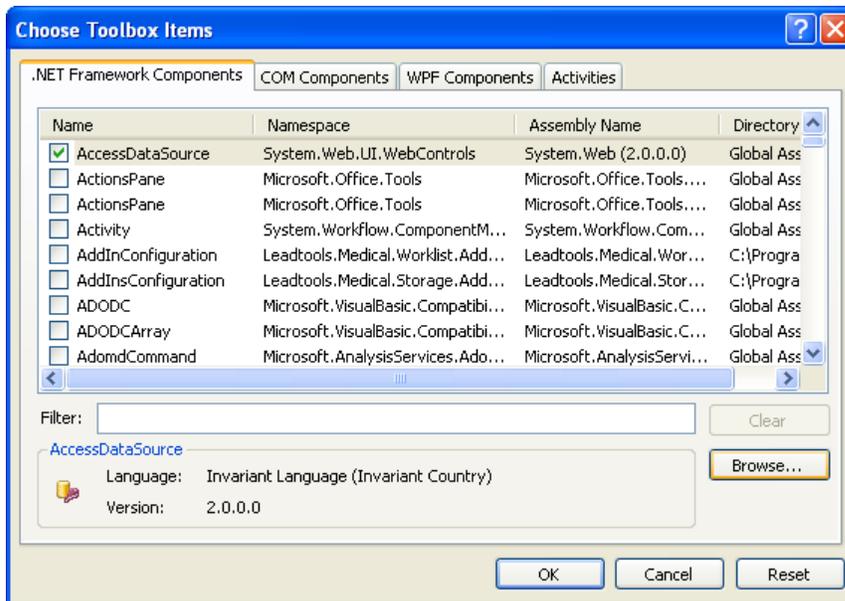


The Help document (SynradModbusMHCL.chm) describing classes, variables, and methods included in the DLL is located in the *ModbusAsyncFormControl* folder. Additionally, example C# code for controlling one head (ModbusAsyncControlExample) or multiple heads (ModbusMultipleMarkingHeadExample) are located in the same folder.

The ModbusMarkingHeadCtrl.DLL has two form controls. To add them to your Visual Studio toolbox select *Tools->Choose Toolbox Items...*

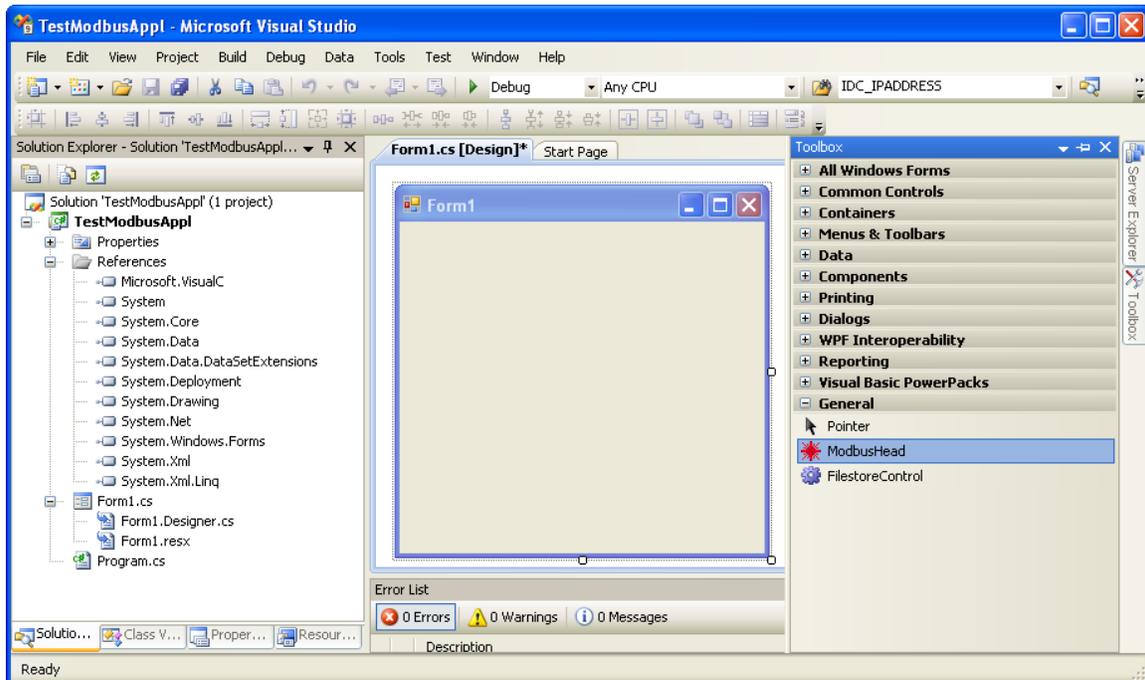


The Choose Toolbox Items dialog opens as shown below:



Click Browse..., navigate to the *C:\Program Files\WinMarkModbusAsyncFormControl\ModbusFormControl\DLLs* folder and choose the *ModbusMarkingHeadCtrl.DLL*.

When completed, two new controls—*ModbusHead* and *FilestoreControl*—are added to the Visual Studio toolbox as seen below:

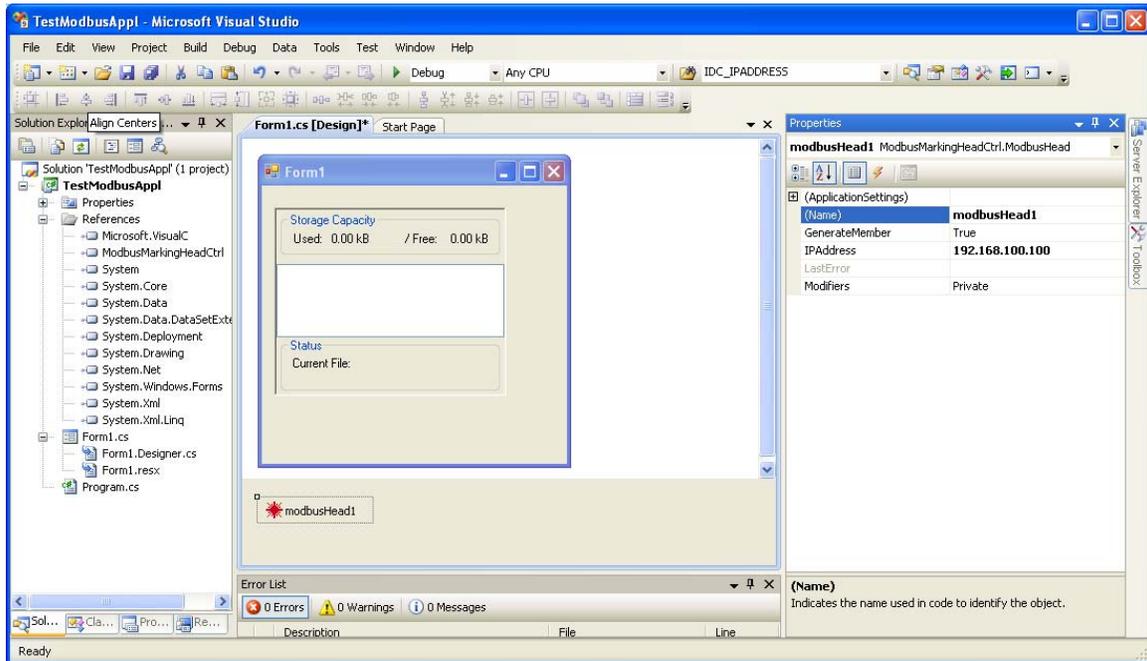


The *ModbusHead* control encapsulates all Flyer head operations like marking, I/O, property changes, etc. To access Flyer Filestore operations in a common file/folder-based tree view using mouse clicks and drags, add *FilestoreControl* to the form and attach a *ModbusHead* to the control. Consult the *SynradModbusMHCL.chm* Help document for more information about *ModbusHead* and *FilestoreControl* controls.

Note: When operating Flyer/Fenix Flyer heads in Stand-alone control mode, mark files must already reside in the Filestore. A PC running WinMark Pro v6 (with a Hardlock attached) is required to download mark files to the head.

The *ModbusAsyncControlExample* sample code uses both the *ModbusHead* control and the *FilestoreControl* control. Please look at this sample application for further insights into developing your specific application.

The screenshot below displays how a project looks with both controls on a simple form:



For further information, contact SYNRAD at 1.800.796.7231; outside the U.S., dial +1.425.349.3500 or email us at synrad@synrad.com.