

Application Note

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WEIGH-TRONIX

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WTCommScl.OCX

In-Process ActiveX
Control
for
Model 7010 Bench

TITLE:

ActiveX Control: WTCommScl.OCX
Control Documentation and Features



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REFERENCE DOCUMENTS:

- NCI P/N: 8421-15950-04
This document
- NCI P/N: 1150-16067
WTCommScl .OCX component
installation diskette(s)

Hardware/Software Requirements

In order to install and use the WTCommScl.OCX ActiveX control described in this document, it is assumed that you have access to the following:

- ◆ Personal computer running Windows 95
- ◆ One available RS-232 serial COM port
- ◆ Microsoft Visual Basic® 5.0 Programming System (Professional Edition) or other ActiveX compliant development environment.
- ◆ NCI WTCommScl diskette: 1150-16067

Note:

Since the WTCommScl ActiveX control described in this document will ultimately be used to handle serial communications with the NCI Model 7010, a scale and interconnect cable will also be required. The scale may be by 0.1oz or 1/4oz resolution.

Introduction

This document describes the **WTCommScl** ActiveX control from Weigh-Tronix/NCI. This software component is a true 32-bit OCX control which can be loaded into any ActiveX compliant development including:

- Microsoft Visual Basic v5.0 (Professional Edition)
- Microsoft Visual C++ v5.0
- Microsoft Office 97

WTCommScl is a special purpose control which is used to handle all serial communications between the host computer and the NCI Model 7010 bench scale. By setting just a few properties in the control, a developer can have instant access to weight and status information from the scale.

This document will describe how to install the control as well as the properties, methods and events that the control provides to the developer.

What's On The Diskettes

There are two (2) diskettes that contain the installation files for the WTCommScl ActiveX control.

- ◆ **Disk 1: setup.exe** (*continues onto disk 2*)
- ◆ **Disk 2:** (*setup files continued*)

- To install the ActiveX control:

- 1) Start Windows 95
- 2) Insert Disk #1 in drive (a:)
- 3) From the desktop, select:
Start-Run, then type: **a:\setup.exe**

then, follow additional instructions on the screen.

WTCommScl

Scale Communications

Description: This special purpose communications control provides serial communications for your application by handling the reception of weight data and status from the NCI Model 7010 bench scale through a serial port on your computer. This is what the control looks like as an icon in the Visual Basic toolbox:



File Name: WTCOMMSCL.OCX

Object Type: WTCommScl

Remarks: This control provides an event-driven method of handling serial communications from the scale. Each control you use corresponds to one serial port and is used to receive data from one scale. If you need to access more than one scale in your application, you must use more than one **WTCommScl** scale communications control. Each serial port address can be set as a property in the controls 'properties' window.

With the event-driven method, your application will be notified the moment an event takes place, as when a complete weight message has been received from the scale. In such a case you would use the **OnScaleComm** event to trap and handle these conditions in your application program.

Since the **WTCommScl** control uses Microsoft MSComm as a constituent control, a lot of the details usually necessary to handle scale communications are hidden and taken care of for you. This includes such items as synchronizing received messages, parsing message strings, extracting and converting weight and status information, handling communication errors and detecting scale disconnect.

Properties, Methods and Events

All properties, methods and events for this control are listed in the following table. Scale related properties and events are listed below and are documented in the following sections. Standard properties and events that are inherited from the MSComm control are marked with an asterisk (*) and may not be document here. Please refer to your Visual Basic 5.0 documentation for details.

PROPERTIES:	*CommID	*CommPort	ConnectStatus	FormattedWt	*Index
	*Left	*Name	NetWt	NetWtUnits	RawWt
	RawWtUnits	ScaleStatus	ScaleCommEvent	*Tag	*Top
	WtNotification				
EVENTS:	OnScaleComm				
METHODS:	ScaleOpen				

CommPort Property

Description: Sets and returns the communications port number.

Synopsis: `[form.]WTCommScl.CommPort[= portNumber]`

Remarks: You can set *portNumber* to any number between 1 and 99 at design time. However, the scale communications control generates error 68 (Device Unavailable) if the port does not exist when you attempt to open it with the ScaleOpen method.

Note: This is the property used by the MSCOMM constituent control.

Data Type: Integer

Default: 1

Warning: *You must set the CommPort property before opening the port using the ScaleOpen method.*

ConnectStatus Property

Description: Returns the current scale connection status.
This property is not available at design-time and is read-only at run time.

Synopsis: `[form.]WTCommScl.ConnectStatus`

Remarks: This is the value returned which indicates whether or not the scale is communicating with the computer. The following table lists the ConnectStatus property settings for the scale communications control.

Setting	Description
wtSCALE_OFFLINE	The scale is not communicating
wtSCALE_ONLINE	The scale is communicating properly.

Data Type: Integer

Default: n/a

FormattedWt Property

Description: Returns the current scale weight in a more readable form.
This property is not available at design-time and is read-only at run time.

Synopsis: `[form.]WTCommScl.FormattedWt`

Remarks: The raw weight string returned from the scale is encoded in such a way which makes it inconvenient to

display and read directly. This property uses the raw weight string and units-of-measure status code to format a weight string that is more easily read. The following table lists the weight string formats for the various scale units-of-measure.

Scale Units	Weight String Format
wtUOM_G	XXXX
wtUOM_KG	XXX.XX
wtUOM_LB_OZ_DEC	XX:XX.X
wtUOM_LB_OZ_FRAC	XX:XX (no fractional ounce)
	XX:XX-1/4 (one quarter ounce)
	XX:XX-1/2 (one half ounce)
	XX:XX-3/4 (three quarters ounce)

Data Type: String
Default: n/a

NetWt Property

Description: Returns the current scale weight as a variant type value which can be used directly in calculations by the application program.
This property is not available at design-time and is read-only at run time.

Synopsis: `[form.]WTCommScl.NetWt`

Remarks: You can use this property when you want the actual weight value (ie not a formatted string) for use in calculations that are based on weight. The weight value will be in pounds, kilograms, grams or ounces as determined by the current **NetWtUnits** property setting regardless of what units-of-measure the scale raw weight is in. All values are returned in single precision.

Data Type: Single
Default: n/a

NetWtUnits Property

Description: Sets and returns the desired units-of-measure for the **NetWt** property value during run time and may be set at design time.

Synopsis: `[form.]WTCommScl.NetWtUnits = enumUnits`

Remarks: You can choose the units-of-measure from the following enumerated list.

Setting (<i>enumUnits</i>)	Description
wtPounds	NetWt will be in pounds (single precision float)
wtKilograms	NetWt will be in kilograms (single precision float)

3 3/4 ounce

Data Type: String
Default: n/a

RawWtUnits Property

Description: Returns the units-of-measure of the raw weight received from the scale. This value is read only at run time and is not available at design time.

Synopsis: `[form.]WTCommScl.RawWtUnits`

Remarks: Use this property to determine the specific units-of-measure that the scale is transmitting weight data in. The returned value will be one of the units as specified in the following table.

Scale Units	Description
wtUOM_G	Grams
wtUOM_KG	Kilograms
wtUOM_LB_OZ_DEC	Pounds:Ounce (LSD by 0.1oz)
wtUOM_LB_OZ_FRAC	Pounds:Ounce (LSD by 1/4oz)

Data Type: Integer
Default: n/a

ScaleStatus Property

Description: Returns the current scale status code. This value is read only at run time and is not available at design time.

Synopsis: `[form.]WTCommScl.ScaleStatus`

Remarks: Extracts the 'U' status bits from the first character of the three-character status string and converts it to an integer value representing the current scale status as described in the following table. For further details please refer to the Serial Communications Protocol document SCP-11 (p/n: 8408-14788-11).

Setting	Status Description
wtNORMAL_MODE	Normal mode: positive weight
wtTEST_MODE	Test mode: adjust zero counts
wtCALIB_MODE	Calibration mode: adjust span
wtSHOWING_TARE	displaying: tArE
wtSHOWING_LO	displaying: Lo (low battery)
wtSHOWING_ERR	displaying: Err (overload)

wtSHOWING_ERRL	displaying: ErrL	(zero counts too low)
wtSHOWING_DASHES	displaying: ----	(negative weight, ie < 0.0)
wtNOT_USED1	n/a	
wtNOT_USED2	n/a	
wtNOT_USED3	n/a	
wtNOT_USED4	n/a	
wtSHOWING_8888	displaying: 8888	
wtSHOWING_TARE_ERR	displaying: Err	(tare error)
wtCALIB_MODE_TARE	Calibration mode: Tare	
wtSHOWING_CAL	displaying: CAL	(in calibration mode)

Data Type: Integer
Default: n/a

ScaleCommEvent Property

Description: Returns the most scale event.
This property is not available at design time and is read-only at run time.

Synopsis: `[form.]WTCommScl.ScaleCommEvent`

Remarks: The ScaleCommEvent property holds the numeric code for the event that caused the OnScaleComm event to occur. Although the MSCOMM constituent control is generating many more serial communications events, the ScaleCommEvent is generated only under certain conditions. The events are described in the following table.

Setting	Description
wtWTCOMM_EV_WEIGHT	weight updated (or changed)
wtWTCOMM_EV_STATUS	status changed
wtWTCOMM_EV_DISCONNECT	scale has disconnected (offline)

Data Type: Integer
Default: n/a

ScaleOpen Method

Description: Sets and returns the state of the scale communications port (open or closed).
This property is not available at design time.

Synopsis: **Function** `[form.]WTCommScl.ScaleOpen({True | False})`

Remarks: The following table lists the ScaleOpen parameter settings for the scale communications control.

Setting	Description
True	Open the port and establish communications with scale.
False	Close the port.

Calling the ScaleOpen method with the parameter set to True opens the serial port and establishes the communications link with the scale. Setting it to False closes the port. The communications control automatically closes the serial port when your application terminates.

Note: This is similar to the PortOpen property used by the MSCOMM constituent control with the additional requirement that a communications link with the scale also be established.

Data Type: Integer
Default: n/a

WtNotification Property

Description:	Sets and returns the condition under which the OnScaleComm event will be generated.
Synopsis:	<code>[form.]WtCommScl.WtNotification [= { wtEverytime wtChanged }]</code>
Remarks:	You can set this property to cause the OnScaleComm event to occur everytime a weight is read from the scale or only when the weight value (or status) has changed.
Note:	If the property is set to wtEverytime, the event will be generated approximately four times per second which is the rate of continuous transmission from the NCI Model 7010 scale.
Data Type:	Integer
Default:	wtEverytime

Enumerated Constants

Enumerated Constant Definitions

Description: This is the public constant declarations list for enumerated constants defined in the **WtCommScl** ActiveX control (NCI p/n: 1150-16067) developed by Weigh-Tronix/NCI. The developer should use these constants when accessing various properties, events and methods in the scale communications control.

Note: Since these constants are defined and made public in the **WtCommScl** control, no additional file needs to be added to the project in order to use these constants.

NetWtUnits

wtPounds	(=0)	(converted/presented in decimal pounds)
wtKilograms	(=1)	(converted/presented in decimal kilograms)
wtGrams	(=2)	(converted/presented in grams)
wtOunces	(=3)	(converted/presented in decimal ounces)

WtNotification

wtEverytime	(=0)	(every time a weight is received)
wtChanged	(=1)	(only when the weight value has changed)

WTCONST . BAS

Constant Definitions

Description: This is the public constant declarations file for use with the **WTCommScl** ActiveX control (NCI p/n: 1150-16067) developed by Weigh-Tronix/NCI.

The developer must add this file to the application project to use these constants when accessing various properties, events and methods in the scale communications control.

ConnectStatus

wtSCALE_OFFLINE = 0
wtSCALE_ONLINE = 1

ScaleStatus

wtNORMAL_MODE = 0
wtTEST_MODE = 1
wtCALIB_MODE = 2
wtSHOWING_TARE = 3
wtSHOWING_LO = 4
wtSHOWING_ERR = 5
wtSHOWING_ERRL = 6
wtSHOWING_DASHES = 7
wtNOT_USED1 = 8
wtNOT_USED2 = 9
wtNOT_USED3 = 10
wtNOT_USED4 = 11
wtSHOWING_8888 = 12
wtSHOWING_TARE_ERR = 13
wtCALIB_MODE_TARE = 14
wtSHOWING_CAL = 15

ScaleCommEvent

wtWTCOMM_EV_WEIGHT = 1	(weight updated or changed)
wtWTCOMM_EV_STATUS = 2	(status changed)
wtWTCOMM_EV_DISCONNECT = 3	(scale has disconnected , gone offline)

RawWtUnits

wtUOM_NONE = 0	(no units of measure recvd with weight)
wtUOM_KG = 1	(weight is in kilograms)
wtUOM_LBOZ_DEC = 2	(weight is in pounds:ounces, LSD by 0.1oz)
wtUOM_G = 3	(weight is in grams)
wtUOM_LBOZ_FRAC = 4	(weight is in pounds:ounces, LSD by 1/4 oz)



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Information provided in this application note, as well as sample source code provided on the accompanying demo diskette (if any), is provided free of charge to Weigh-Tronix customers for their personal use.

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Weigh-Tronix Inc.
2320 Airport Blvd.
Santa Rosa, CA. 95403-1098

Tel: (707) 527-5555
Fax: (707) 527-5517