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Elane Scale DLL Functions and Specifications

REVISION HISTORY:

Revision Number	Date	Details of Revision
1.0	April 9, 2010	Preliminary version
1.1	April 12, 2010	Included instructions on how to register the DLL in the Windows Registry
1.2	May 5, 2010	Included additional function for revised DLL – Elane_TareWeight
1.3	July 16, 2010	Revised to add a new function for getting weight from scale. This new function accepts parameter for number of decimal places for weight value. Revised to include additional output string “E” for error in data format when calling functions Get_ScaleWeight or Get_ScaleWeightDecimal
1.4	July 22, 2010	Revised for the latest DLL version
1.5	October 7, 2010	Revised for the latest DLL version
1.6	January 27, 2011	Added functions for Elane PS2000 USB Scales
1.7	March 2, 2011	Revised function Elane_GetScaleWeight to include another parameter value 0
1.8	June 20, 2011	Added functions for supported devices including Elane Bar Manager scales and Elane USB Load Cells
1.9	March 23, 2012	Added support for 5LB load cell kit
1.10	September 14, 2012	Added support for Elane load cell kits with higher capacity (25LB, 30kg, 60kg, 150kg, etc) Added function Elane_GetDeviceVID that returns the USB vendor ID of the device connected Added function Elane_GetDevicePID that returns the USB product ID of the device connected Added function Elane_GetScaleSerialNumber to retrieve the USB serial number of the device connected Added support for multiple connections to scales or load cell kits using the scale serial number Added function Elane_FindAllScaleSN to enumerate USB device serial number of supported scales or load cell kits
1.11	April 9, 2013	Added support for Elane Bluetooth scales Added the following functions for Elane Bluetooth Scales Elane_IsBTScale Elane_RequestWtBTScale Elane_SwitchUnitBTScale Elane_ReadBatBTScale Elane_SetAutoOffBTScale

DLL FILENAME: ElaneScale.dll

DLL Current Version: 1.0.0.10, Tuesday, April 9, 2013, 12:56:14 PM

DLL DEPENDENCIES

The following files are required to use ElaneScale.dll. They must be located in Windows System folder.

apigid32.dll

hid.dll

setupapi.dll

REGISTERING THE DLL IN THE WINDOWS REGISTRY

ElaneScale.dll must be first registered in the Windows Registry before it can be linked to other applications. The command-line utility **regsvr32** can be used to do this. The syntax is:

regsvr32 DLL Path

Example:

regsvr32 "C:\MyDLLs\ElaneScale.dll"

FUNCTIONS

Public Function Elane_FindUSBScale(Optional ByVal strSN As String = "") As Boolean

Description: This function tries to find an Elane USB scale that is turned on and connected to the host machine.

Parameters: String (optional) representing the serial number of the device to find and connect to if found. If left blank, it will attempt to connect to the first instance of the device that is supported.

Note: *This function was revised to support connection of an application program to multiple devices that are supported. If the desired program only reads one device at a time, it is advisable to leave this parameter blank.*

Return Value: Boolean – True if a USB scale is found, False if no USB scale is found

Note: In order to connect to multiple devices that are supported by this DLL, the serial numbers of connected devices must be first enumerated using function `Elane_FindAllScaleSN()`. Then separate instances of the DLL must be created for each device connection and provide the serial number parameter when calling `Elane_FindUSBScale()` function.

Public Function `Elane_GetScaleName()` As String

Description: This function retrieves the name of the Elane USB scale that was found by `Elane_FindUSBScale` function.

Parameters: None

Return Value: String – Name of the Elane USB scale

Public Function `Elane_GetScaleWeight(ByVal byteWeightUnit As Byte) As String`

Description: This function retrieves the weight from the Elane USB scale that was found by `Elane_FindUSBScale` function.

Parameters: Byte – Value representing the weight unit to be used, where

0x00 – Default weight unit and resolution according to the scale output

0x01 – Gram

0x02 – Kilogram

0x03 – Pounds

0x04 – Ounces

0x05 – Pounds and Ounces

Return Value: String – Represents the weight or status from the Elane USB scale. Return values can be the following:

Numeric values (negative or positive) – weight from the scale

“OL” – scale is overloaded

“U” – scale weight is unstable

“” (blank) – no weight coming from the scale; the scale is either disconnected or a communication error has occurred.

“E” – error in data output from scale

Numeric formats of return values depend on the parameter passed to this function.

0x00 – According to the scale default weight unit and resolution

0x01 – Gram (decimals up to number of decimals of scale minimum resolution)

0x02 – Kilogram (rounded up to 3 decimal places)

0x03 – Pounds (rounded up to 3 decimal places)

0x04 – Ounces (decimals up to number of decimals of scale minimum resolution)

0x05 – Pounds and Ounces (returns the whole number for pounds and the fraction in ounces rounded up to number of decimals of scale minimum resolution). The two values are separated by single space.

Example: 36.2 oz = 2 4.2 → 2 pounds 4.2 ounces

A timeout of 5 seconds is imposed by this function to read weight from the scale. If no data is read within this time, it returns "" (blank).

Public Function Elane_GetScaleWeightDecimal(ByteWeightUnit As Byte, ByVal numDecPlaces As Byte) As String

Description: This function retrieves the weight from the Elane USB scale that was found by Elane_FindUSBScale function.

Parameters:

byteWeightUnit: Byte – Value representing the weight unit to be used, where

0x01 – Gram

0x02 – Kilogram

0x03 – Pounds

0x04 – Ounces

0x05 – Pounds and Ounces

numDecPlaces: Byte – Value representing the number of decimal places of the weight value returned by the function. This value is overridden in the function if it is less than the minimum number of decimal places for the scale model (i.e. 5kg/0.1g scales will return weight values with minimum of 1 decimal place even if 0 is passed as numDecPlaces).

Return Value: String – Represents the weight or status from the Elane USB scale. Return values can be the following:

Numeric values (negative or positive) – weight from the scale

“OL” – scale is overloaded

“U” – scale weight is unstable

“” (blank) – no weight coming from the scale; the scale is either disconnected or a communication error has occurred.

“E” – error in data output from scale

Numeric formats of return values depend on the parameters passed to this function.

0x01 – Gram (up to numDecPlaces or minimum decimals of the scale)

0x02 – Kilogram (up to numDecPlaces or minimum decimals of the scale)

0x03 – Pounds (up to numDecPlaces or minimum decimals of the scale)

0x04 – Ounces (up to numDecPlaces or minimum decimals of the scale)

0x05 – Pounds and Ounces (returns the whole number for pounds and the fraction in ounces rounded up to number of decimals of scale minimum resolution). The two values are separated by single space.

Example: 36.2 oz = 2 4.2 → 2 pounds 4.2 ounces

A timeout of 5 seconds is imposed by this function to read weight from the scale. If no data is read within this time, it returns “” (blank).

Public Sub DisconnectUSBScale()

Description: This function disconnects the USB Scale and clears HID handles used by other functions.

Parameters: None

Return Value: None

Public Function Elane_TareWeight()

Description: This function sets the scale weight to zero (tare). This is useful for weighing items that require containers and only the tare weight is needed by the application.

Parameters: None

Return Value: Boolean – result of the Tare operation

True – if tare operation was successful and the weight on the scale was set to zero.

False – if tare operation was not successful. Previous scale versions do not have support for tare command from application, thus the weight on the scale will not be set to zero.

Public Function Elane_FindAllScaleSN() As String

Description: This function finds and returns all USB serial numbers of supported devices that are connected in the computer (must be turned on and properly enumerated).

Parameters: None

Return Value: String – contains all the USB serial numbers of supported devices separated by dash “-“.

Note: *This function was added to support connection of an application program to multiple devices that are supported. Multiple connection of an application program can be achieved by listing all USB serial numbers of connected devices and then using Elane_FindUSBScale(strSN) to connect to each device specified by its serial number.*

Public Function Elane_GetDeviceVID() As String

Description: This function returns the string representation of the USB vendor ID of the device that is connected and was found in the instance of Elane_FindUSBScale function. .

Parameters: None

Return Value: String – HEX representation of the USB vendor ID

Public Function Elane_GetDevicePID() As String

Description: This function returns the string representation of the USB product ID of the device that is connected and was found in the instance of Elane_FindUSBScale function. .

Parameters: None

Return Value: String – HEX representation of the USB product ID

Public Function Elane_GetScaleSerialNumber () As String

Description: This function retrieves the USB serial number of the device that is connected and was found in the instance of Elane_FindUSBScale function.

Parameters: None

Return Value: String – Represents the USB serial number of the device. Return values can be the following:

Numeric values (only >=0) – USB serial number of the device

"" (blank) – USB serial number is not supported in the device

Example: "123460" = Serial number is 123460

Special Functions for PS2000 USB Scales

Public Function `Elane_SwitchToWeightUnit(ByVal byteWtUnit As Byte) As Boolean`

Description: This function switches the display of weight unit in the Elane PS2000 USB scale that was found by `Elane_FindUSBScale` function. It also automatically switches the scale to weighing mode when it is currently in counting mode.

Parameters:

byteWeightUnit: Byte – Value representing the weight unit to be used in the display, where

0x01 – Gram

0x02 – Kilogram

0x03 – Pounds

0x04 – Ounces

0x05 – Pounds and Ounces

Return Value: Boolean – result of the sending command to scale

True – if sending the command to scale was successful

False – if sending the command to scale was not successful

Public Function `Elane_SwitchToCounting() As Boolean`

Description: This function switches the Elane PS2000 USB scale that was found by `Elane_FindUSBScale` function to Counting Mode. It will then send the count value as data

instead of the normal weight data to the USB port. Make sure that the scale already was sampled with the items for counting.

Parameters: None

Return Value: Boolean – result of the sending command to scale

True – if sending the command to scale was successful

False – if sending the command to scale was not successful

Public Function Elane_SwitchToHoldMode() As Boolean

Description: This function switches the Elane PS2000 USB scale that was found by Elane_FindUSBScale function to Hold Display Mode (freezes LCD display until CE key is pressed). When the command is successful, refer to the scale LCD for the next steps.

Parameters: None

Return Value: Boolean – result of the sending command to scale

True – if sending the command to scale was successful

False – if sending the command to scale was not successful

Public Function Elane_SwitchToSampling() As Boolean

Description: This function switches the Elane PS2000 USB scale that was found by Elane_FindUSBScale function to Count Sampling Mode. When the command is successful, refer to the scale LCD for the next steps.

Parameters: None

Return Value: Boolean – result of the sending command to scale

True – if sending the command to scale was successful

False – if sending the command to scale was not successful

Public Function Elane_GetScaleCount() As String

Description: This function retrieves the number of items or count from the Elane PS2000 USB scale that was found by Elane_FindUSBScale function. The scale should be switched first from

weighing to counting mode via key press or USB command. Make sure that the scale already was sampled with the items for counting.

Parameters: None

Return Value: String – Represents the count or status from the Elane PS2000 USB scale. Return values can be the following:

Numeric values (only ≥ 0) – count displayed on the scale

“OL” – scale is overloaded

“U” – scale weight is unstable

“” (blank) – no weight coming from the scale; the scale is either disconnected or a communication error has occurred.

“E” – error in data output from scale

Example: 120 = 120 items

A timeout of 5 seconds is imposed by this function to read count from the scale. If no data is read within this time, it returns “” (blank).

Special Functions for Elane Load Cell Kits (Load Cell with LCD)

Public Function `Elane_CalibrateLCKit(byteCaliPoint As Byte, lngCaliOffset As Long) As Boolean`

Description: This function sends command to calibrate Elane load cell kits using predefined calibration points and offset.

Parameters:

byteCaliPoint: Byte – number of calibration points to use

lngCaliOffset: Long – calibration weight offset expressed in gram unit

Return Value: Boolean – result of the sending command to scale

True – if sending the command to scale was successful

False – if sending the command to scale was not successful

Example: To calibrate 25LB load cell kit using 2 kilogram weight with 3 calibration points, write the function like this: Elane_CalibrateLCKit(3, 2000). When command is sent successfully, calibrate the load cell kit by putting 2000g, 4000g, 6000g successively and as displayed on the LCD.

Public Function Elane_SwitchLCKitDisplay(byteUnit As Byte) As Boolean

Description: This function sends command to switch the unit display on the LCD to AD count, grams, or lb-oz/oz units.

Parameters:

byteUnit: Byte – Value representing the weight unit to switch to in the display, where

0x01 – AD Count

0x02 – Gram

0x03 – Pounds-Ounces/Ounces (depending on the kit capacity)

Return Value: Boolean – result of the sending command to scale

True – if sending the command to scale was successful

False – if sending the command to scale was not successful

Example: The current display on the 25lb load cell kit is in AD counts. To switch to gram display, write the function as Elane_SwitchLCKitDisplay(2).

Public Function Elane_GetDefaultUnit() As Byte

Description: This function returns a byte value representing the weight unit that is currently the display in LCD.

Parameters: None

Return Value: Byte – Value representing the weight unit to that is currently the display in LCD

0x01 – Gram

0x02 – Pounds-Ounces/Ounces (depending on the kit capacity)

0x07 – AD Count

Special Functions for Elane USB Load Cells (Load Cell with no LCD)

Public Function Elane_GetADCount () As String

Description: This function retrieves AD count from the Elane USB Load Cell device.

Parameters: None

Return Value: String – Represents the AD count or status from the Elane USB Load Cell. Return values can be the following:

Numeric values (only >=0) – current AD count output of the load cell

“OL” – load cell is overloaded

“” (blank) – no data coming from the USB Load Cell; the device is either disconnected or a communication error has occurred.

“E” – error in data output from USB Load Cell

A timeout of 5 seconds is imposed by this function to read AD count from the USB Load Cell. If no data is read within this time, it returns “” (blank).

Public Function Elane_GetLCModelNumber () As String

Description: This function retrieves the model number or load cell capacity of the Elane USB Load Cell device.

Parameters: None

Return Value: String – Represents the model number or load cell capacity of the Elane USB Load Cell. Return values can be the following:

String values containing the units “g” or “kg” – load cell capacity of the device

“” (blank) – no data coming from the USB Load Cell; the device is either disconnected or a communication error has occurred.

“E” – error in data output from USB Load Cell

Example: “3kg” = Elane USB Load Cell with 3kg capacity

Public Function Elane_GetLCSerialNumber () As String

Description: This function retrieves the serial number of the Elane USB Load Cell device.

Parameters: None

Return Value: String – Represents the serial number of the Elane USB Load Cell. Return values can be the following:

Numeric values (only ≥ 0) – serial number of the load cell

"" (blank) – no data coming from the USB Load Cell; the device is either disconnected or a communication error has occurred.

"E" – error in data output from USB Load Cell

Example: "123460" = Serial number is 123460

Special Functions for Elane Bluetooth & USB Interfaced Scales (Elane BT Scales)

Public Function Elane_IsBTScale() As Boolean

Description: This function checks if the scale connected is an Elane BT Scale.

Parameters: None

Return Value: Boolean

True – if scale connected is an Elane BT Scale

False – if scale connected is not an Elane BT Scale

Note: *In order for the Elane BT scale to start sending weight data via USB, a request has to be sent using the following function. Once scale is found, send this request before reading the weight from scale.*

Public Function Elane_RequestWtBTScale(blnOnce As Boolean) As Boolean

Description: This function sends request to Elane BT Scales to send the weight via USB.

Parameters:

blnOnce: Boolean

True – if it only needs to send the weight once

False – if it needs to send the weight continuously

Return Value: Boolean

True – if request was successful

False – if request was not successful

Public Function Elane_SwitchUnitBTScale(ByVal byteWtUnit As Byte) As Boolean

Description: This function sends request to switch the weight unit in scale display and in USB data of Elane BT Scales.

Parameters:

byteWtUnit: Byte

0x52 – switch the display unit to gram

0x5B – switch the display unit to lb/oz

Return Value: Boolean

True – if request was successful

False – if request was not successful

Public Function Elane_ReadBatBTScale() As Integer

Description: This function reads the battery status of Elane BT Scales.

Parameters: None

Return Value: Integer – Represents the value of battery level of the connected Elane BT Scale

Public Function Elane_SetAutoOffBTScale(ByVal byteMinutes As Byte) As Boolean

Description: This function sets the auto-off timer of the scale.

Parameters:

byteMinutes: Byte – number of minutes the scale will auto-turn off upon turn on

Return Value: Boolean

True – if auto-off settings were successfully set

False – if auto-off settings were not set

Public Function Elane_TurnOffBTScale()

Description: This function turns off Elane BT Scales.

Parameters: None

Return Value: None