USB-3100 Series

The USB-3100 Series includes the USB-3101, USB-3102, USB-3103, USB-3104, USB-3105, USB-3106, USB-3110, USB-3112, and USB-3114 devices.

Analog output

Analog output functions and methods supported

UL:	`cbAOut()`, `cbAOutScan()`
UL for .NET:	`AOut()`, `AOutScan()`

Nombre de channel max que l'on souhaite utiliser.
Le compte commence à 0 et finit à 3 avec le USB-3101 (bien 4 channels output analogique)

Analog output argument ranges

`Options`	`SIMULTANEOUS` (`cbAOutScan()` / `AOutScan()` only)	
`HighChan`	USB-3101, USB-3102, and USB-3110:	0 to 3
	USB-3103, USB-3104, and USB-3112:	0 to 7
	USB-3105, USB-3106, and USB-3114:	0 to 15
`Rate`	Ignored	
`Count`	`HighChan` − `LowChan` + 1 max	
`Range`	Ignored - Not programmable; selectable for `BIP10VOLTS` (±10 V), `UNI10VOLTS` (0 to 10 V), or `MA0TO20` (0 to 20 mA) via *Insta*Cal	
	USB-3102, USB-3104, USB-3106: Also selectable for `MA0TO20` (0 to 20mA) via *Insta*Cal	
`DataValue`	0 to 65535 (Refer to "16-bit values using a signed integer data type" on page 16.)	

Digital I/O

Configuration functions, methods, and argument values supported

UL:	`cbDConfigBit()`, `cbDConfigPort()`
UL for .NET:	`DConfigBit()`, `DConfigPort()`
`PortNum`	`AUXPORT`
`PortType`	`AUXPORT`

***Port* I/O functions, methods, and argument values supported**

UL:	`cbDOut()`, `cbDIn()`
UL for .NET:	`DOut()`, `DIn()`
`PortNum`	`AUXPORT`
`DataValue`	0 to 255 for `AUXPORT`

***Bit* I/O functions, methods, and argument values supported**

UL:	`cbDBitIn()`, `cbDBitOut()`
UL for .NET:	`DBitIn()`, `DBitOut()`
`PortType`	`AUXPORT`
`BitNum`	0 to 7 on `AUXPORT`

Counter I/O

Counter I/O functions and methods supported

UL:	`cbCIn()`*, `cbCIn32()`, `cbCLoad()`**, `cbCLoad32()`**
UL for .NET:	`CIn()`*, `CIn32()`, `CLoad()`**, `CLoad32()`**

*Although `cbCIn()` and `CIn()` are valid for use with this counter, `cbCIn32()` or `CIn32()` may be more appropriate, since the values returned may be greater than the data types used by `cbCIn()` and `CIn()` can handle.

**`cbCLoad()`, `cbCLoad32()`, `CLoad()` and `CLoad32()` only accept `Count`=0. These functions are used to reset the counter.

Counter I/O argument values

`CounterNum`	1
`Count`	2^{32}-1 when reading the counter.
`LoadValue`	0 when loading the counter. `cbCLoad()` and `cbCLoad32()` / `CLoad()` and `CLoad32()` are only used to reset the counter for this board to 0. No other values are valid. The "Basic signed integers" guidelines on page 140 apply when using `cbCIn()` or `CIn()` for values greater than 32767, and when using `cbCIn32()` or `CIn32()` for values greater than 2147483647.
`RegNum`	`LOADREG1`

Hardware considerations

Scan options

The `SIMULTANEOUS` scan option can only be used with `cbAOutScan()` / `AOutScan()`.

Simultaneous mode

Set the direction of the SYNCLD pin (pin 49) with the **Simultaneous Mode** option in *Insta*Cal to be either Master (output) or Slave (input).

- Specify the `SIMULTANEOUS` scan option and set the Simultaneous Mode option to **Master** to output the internal D/A LOAD signal on the SYNCLD pin.
- Specify the `SIMULTANEOUS` scan option and set the Simultaneous Mode option to **Slave** to configure the SYNCLD pin to receive the D/A LOAD signal from an external source. Output channels are updated simultaneously when the SYNCLD receives the signal.

  In slave mode, analog outputs may either be updated immediately or when a positive edge is seen on the SYNCLD pin (this is under software control.) The SYNCLD pin must be at a low logic level for DAC outputs to update immediately. If an external source is pulling the pin high, no update will occur.

When you do not specify `SIMULTANEOUS`, the analog outputs are updated in sequential order, and the SYNCLD pin is ignored.

External current limiting may be required for high drive devices (USB-3110, USB-3112, USB-3114)

The voltage outputs on the USB-3110, USB-3112, and USB-3114 incorporate high-drive current output capability. The high drive current outputs allow each of the voltage outputs to sink/source up to 40 mA (maximum) of load current.

The voltage outputs should not be kept in a short-circuit condition for longer than the specified 100 ms. For those applications that may potentially exceed the 40 mA maximum current limit or the 100 ms short-circuit condition, external current limiting must be used to prevent potential damage to the USB-3100 series device.

Simultaneous update of voltage and current outputs (USB-3102, USB-3104, USB-3106)

Each voltage output channel on the USB-3102, USB-3104, and USB-3106 has an associated current output. The voltage and current outputs are grouped as channel pairs. Each D/A converter output controls a voltage and current channel pair simultaneously. When you write to a voltage output, its associated current output is also updated. Each channel pair can be updated individually or simultaneously.

Each voltage/current channel pair can be updated individually or simultaneously. Leave each pair of unused voltage and current outputs disconnected.

Miscellaneous functions and methods supported

UL:	`cbFlashLED()`
UL for .NET:	`FlashLED()`

Causes the USB LED on a USB device to blink.

When you have several USB devices connected to the computer, use these functions to identify a particular device by making its USB LED blink.